

SONY®

CAMERA CONTROL UNIT

HDCU3100

HDCU3170

OPTICAL FIBER CONNECTOR KIT
HKCU-FB30

SINGLE MODE FIBER CONNECTOR KIT
HKCU-SM30

ST-2110 INTERFACE KIT
HKCU-SFP30

4K/HDR PROCESSOR BOARD
HKCU-UHD30

12G-SDI EXTENSION KIT
HKCU-SDI30

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SERVICE MANUAL

1st Edition (Revised 2)

警告

このマニュアルは、サービス専用です。

お客様が、このマニュアルに記載された設置や保守、点検、修理などを行うと感電や火災、人身事故につながる可能性があります。

危険をさけるため、サービストレーニングを受けた技術者のみご使用ください。

WARNING

This manual is intended for qualified service personnel only.

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

WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.

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

AVERTISSEMENT

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

Model Name	Serial No.
HDCU3100 (SY): LEMO Optical Fiber Connector	10001 and Higher
HDCU3100 (SY): Tajimi Optical Fiber Connector	30001 and Higher
HDCU3170 (SY): Kings Triax Connector	100001 and Higher
HDCU3170 (SY): Fischer Triax Connector	400001 and Higher

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.

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。

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.

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.

PAS PÅ

Fare for explosion, 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.

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.

HUOMIO

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

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.

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

Manual Structure

Purpose of this manual

This manual is intended for the use of the system engineers and the service engineers, and provides the limited information for block service and the information related to maintenance of the unit, Service Overview, Replacement of Main Parts, Electrical Alignment, Menu Settings, etc..

Related manuals

The following manuals are available for this model.

If any of these manuals is required, please contact your local Sony Sales Office/Service Center.

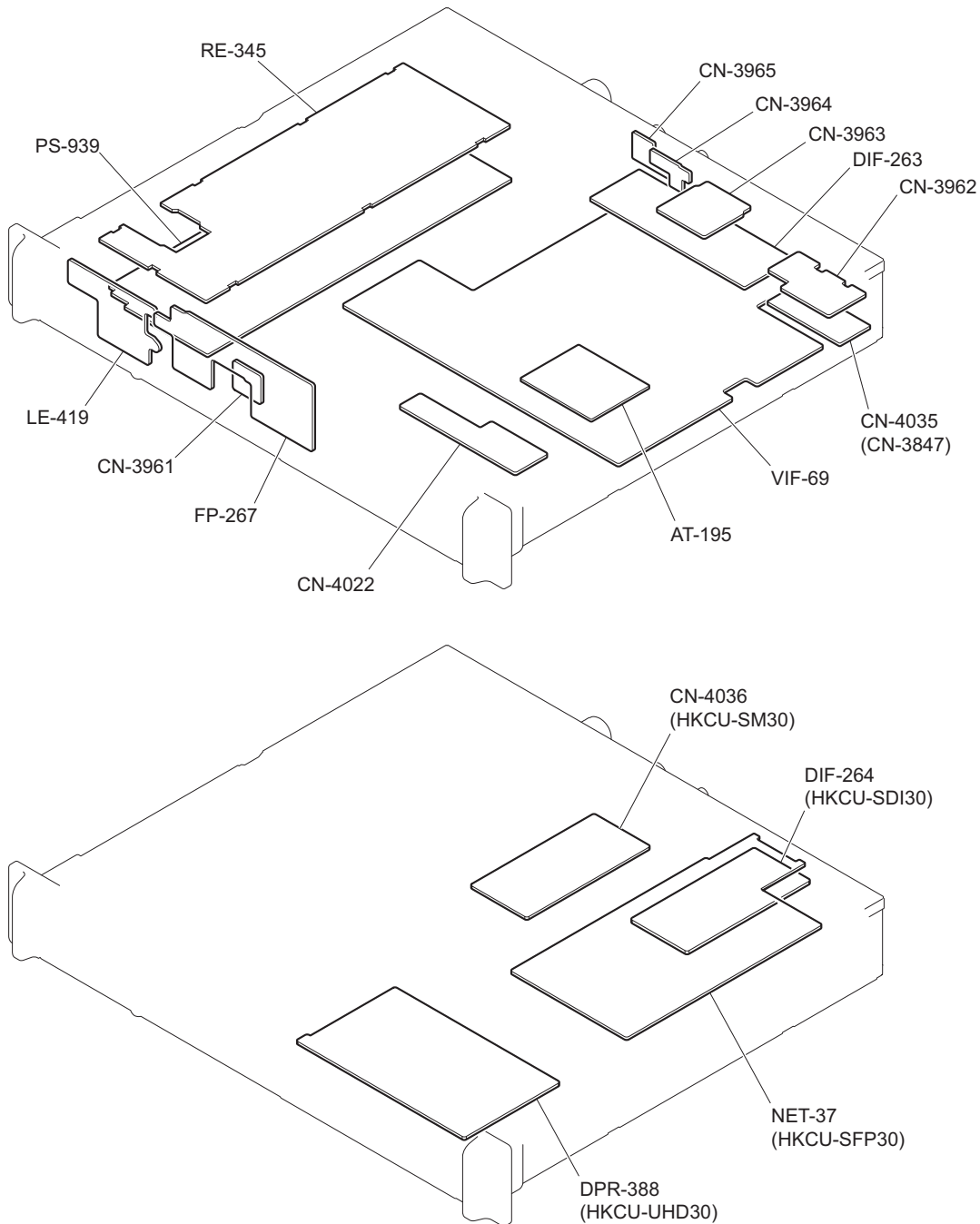
- Operation Guide (supplied with the unit)
This manual contains information required to operate and use the unit.
- Operation Manual CD-ROM (supplied with the unit)
This manual contains information required to operate and use the unit.
- Installation Manual (available on request)
This manual provides the information on installing the unit.
- Factory Service Manual (available on request)
This manual provides the limited information for component service and the information related to maintenance of the unit.

Section 1

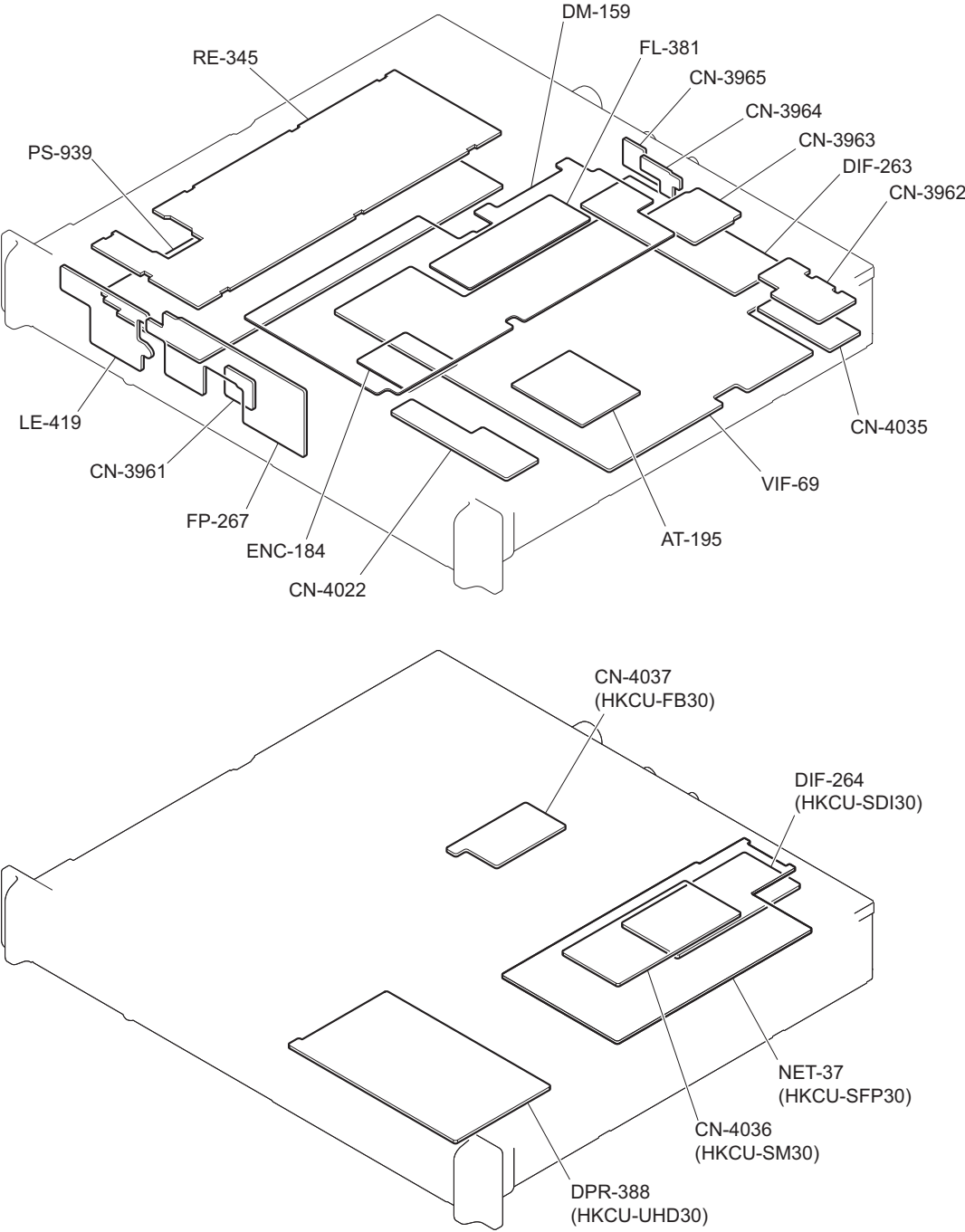
Service Overview

1-1. Location of Printed Wiring Boards

1-1-1. HDCU3100

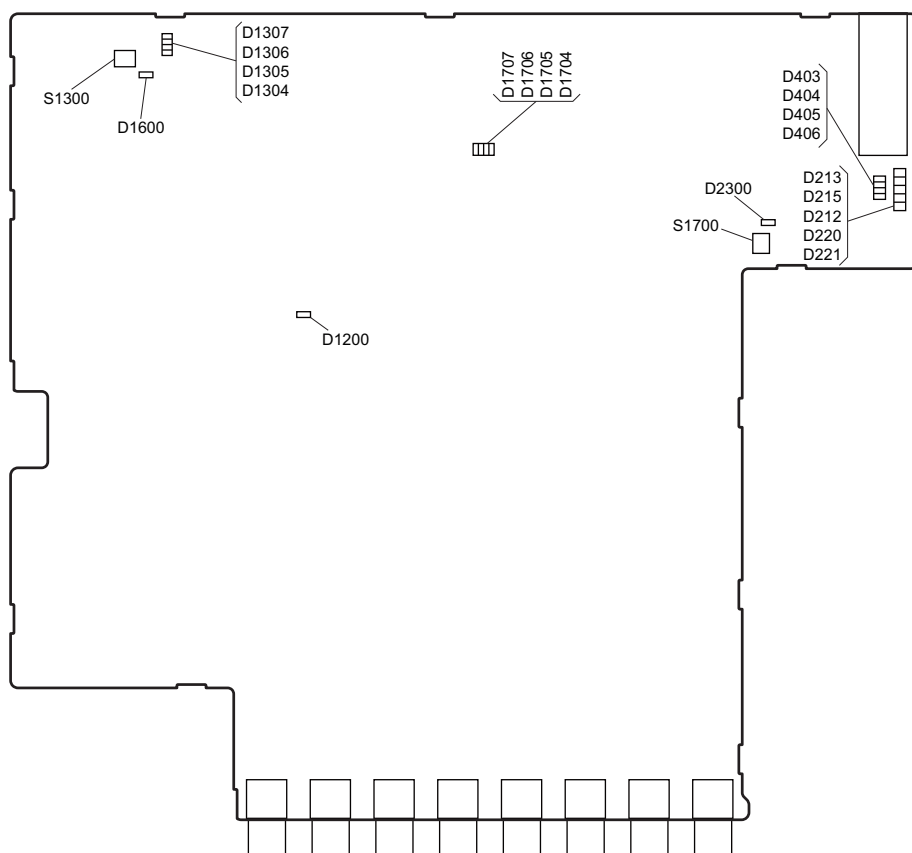


1-1-2. HDCU3170



1-2. Functions of Onboard Switches and LED Indicators

1-2-1. VIF-69 Board



VIF-69 Board (A Side)

LED

Ref. No.	Name	Color	Description	Normal state (Power On)
D213	0.9	Green	The LED lights when the output voltage of IC001 is normally.	Lit
D215	0.95	Green	The LED lights when the output voltage of IC002 is normally.	Lit
D212	4CH-1	Green	The LED lights when the output voltage of IC004 is normally.	Lit
D220	4CH-2	Green	The LED lights when the output voltage of IC003 is normally.	Lit
D221	3.7	Green	The LED lights when the output voltage of IC203 is normally.	Lit
D403	TDIS	Red	Lights when the optical output of the optical module is abnormal (OFF).	OFF
D404	TFAULT	Red	Lights when the optical module is abnormal.	OFF
D405	MOD DEF	Red	Lights when the optical module is not attached properly.	OFF
D406	RX_LOS	Red	Lights when the light receiving of the optical module is abnormal.	OFF

Continued

Ref. No.	Name	Color	Description	Normal state (Power On)
D1200	EXT	Green	Lights when the external input Reference signal is detected.	-
D1600	PLD1DONE	Red	This LED goes out when PLD1 IC (IC1300) is normally completed configuration.	OFF
D1704 ~ 1707	DebugLED	Green	Factory use	Blinking
D1304 ~ 1307	DebugLED	Green	Factory use	Blinking
D2300	PLD2DONE	Red	This LED goes out when PLD2 IC (IC1700) is normally completed configuration.	OFF

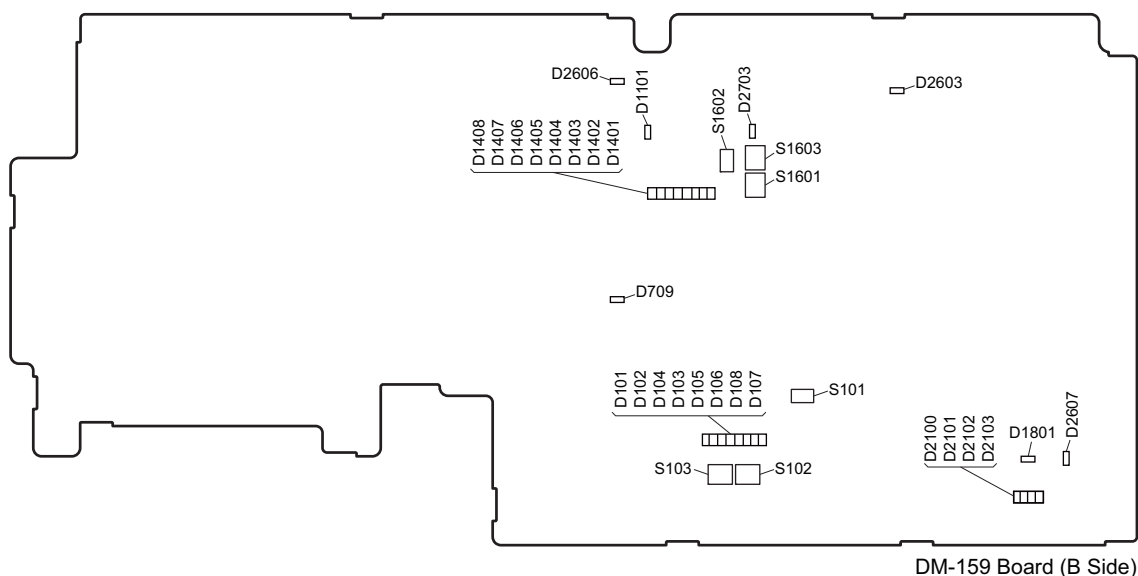
Switch

Note

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

Ref. No.	Bit	Description	Factory setting
S1300	1-3	Factory use	OFF (ALL)
	4	Radiation sheet type ON: New type OFF: Old type	ON
S1700	4	Factory use	OFF (ALL)

1-2-2. DM-159 Board



LED

Ref. No.	Name	Color	Description	Normal state (Power On)
D101	DEM_LED: D[0]	Green	Factory use	Inconstant
D102	DEM_LED: D[1]	Green	Factory use	Inconstant
D104	DEM_LED: D[2]	Green	Factory use	Inconstant

Continued

Ref. No.	Name	Color	Description	Normal state (Power On)
D103	DEM_LED: D[3]	Green	Factory use	Inconstant
D105	DEM_LED: D[4]	Green	Factory use	Inconstant
D106	DEM_LED: D[5]	Green	Factory use	Inconstant
D108	DEM_LED: D[6]	Green	Factory use	Inconstant
D107	DEM_LED: D[7]	Green	Factory use	Inconstant
D709	DM-PGOOD	Blue	Lit when the power to the DM-159 board has correctly started.	Lit
D1101	LATTE_CONF_DONE	Red	This LED goes out when PLD IC1100 is normally completed configuration.	OFF
D1401	LATTE_LED: LED0	Green	Factory use	Inconstant
D1402	LATTE_LED: LED1	Green	Factory use	Inconstant
D1403	LATTE_LED: LED2	Green	Factory use	Inconstant
D1404	LATTE_LED: LED3	Green	Factory use	Inconstant
D1405	LATTE_LED: LED4	Green	Factory use	Inconstant
D1406	LATTE_LED: LED5	Green	Factory use	Inconstant
D1407	LATTE_LED: LED6	Green	Factory use	Inconstant
D1408	LATTE_LED: LED7	Green	Factory use	Inconstant
D1801	MILK_INIT_DONE	Red	This LED goes out when PLD IC1800 is normally completed configuration.	OFF
D2100	MILK_LED: LED0	Green	Factory use	Inconstant
D2101	MILK_LED: LED1	Green	Factory use	Inconstant
D2102	MILK_LED: LED2	Green	Factory use	Inconstant
D2103	MILK_LED: LED3	Green	Factory use	Inconstant
D2603	SQ1	Green	Lit when the power supply system + 0.95 V / + 1.1 V has correctly started.	Lit
D2606	+0.95V OK	Green	Lit when the regulator IC2601 has correctly started.	Lit
D2607	+1.1V OK	Green	Lit when the regulator IC2603 has correctly started.	Lit
D2703	SQ2/3/4	Green	Lit when the regulator IC2701 has correctly started.	Lit

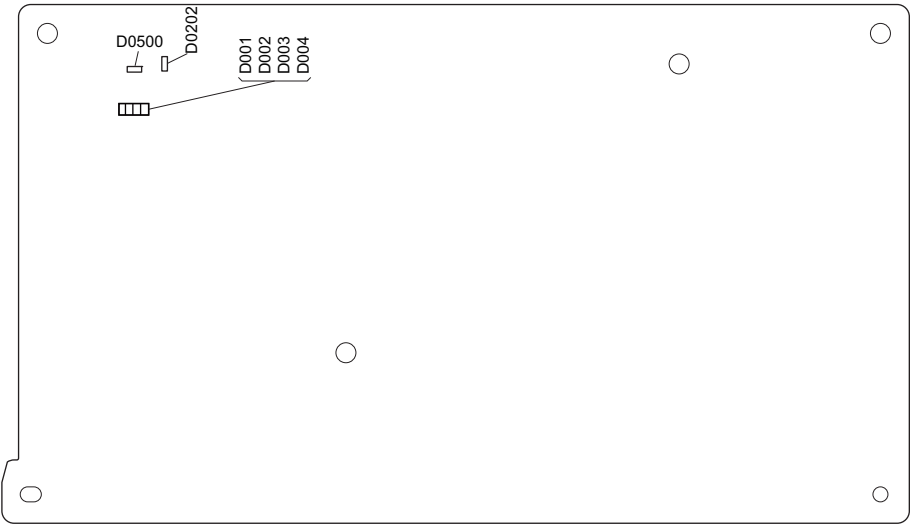
Switch

Note

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

Ref. No.	Bit	Description	Factory setting
S101	-	Factory use	-
S102	4	Factory use	OFF (ALL)
S103	4	Factory use	OFF (ALL)
S1601	4	Factory use	OFF (ALL)
S1603	4	Factory use	OFF (ALL)
S1602	-	Factory use	-
S2101	4	Factory use	OFF (ALL)

1-2-3. DPR-388 Board

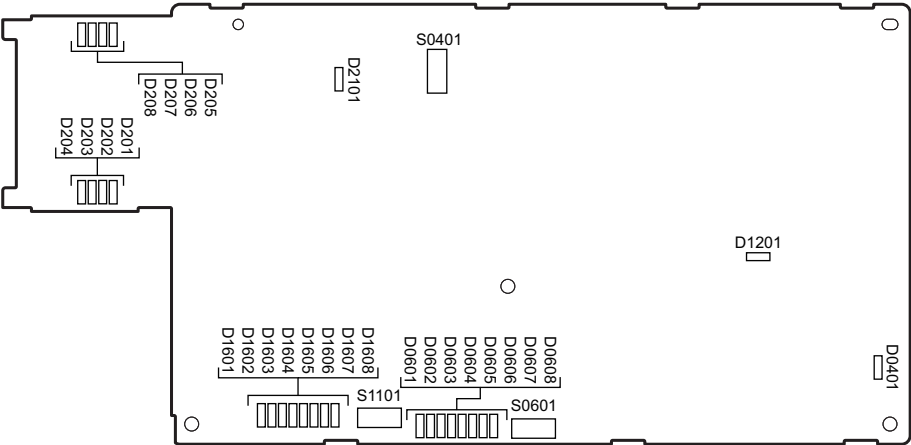


DPR-388 Board (A Side)

LED

Ref. No.	Name	Color	Description	Normal State (Power On)
D001	DBG_LED [0]	Green	Factory use	On
D002	DBG_LED [1]	Green	Factory use	On
D003	DBG_LED [2]	Green	Factory use	Off
D004	DBG_LED [3]	Green	Factory use	Off
D0202	PGOOD	Green	This LED lights when the power is normal.	On
D0500	CONF_DONE	Red	This LED lights while configuration of the PLD is in progress.	Off

1-2-4. NET-37 Board



NET-37 Board (A Side)

LED

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

Switch

Note

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

Ref. No.	Bit	Function	Factory default setting
S0401	1	Factory use	OFF
S0601	1-4	Factory use	OFF (ALL)
S1101	1	Radiation sheet type ON: New type OFF: Old type	ON
	2-4	Factory use	OFF (ALL)

1-3. Notes on Replacement of Circuit Board

1-3-1. AT-195 Board, VIF-69 Board and Power Unit (RE-345 Board)

AT-195 board, VIF-69 board, and RE-345 board store the important information including the model name and serial number.

After replacing the AT-195 board, VIF-69 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 VIF-69 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.

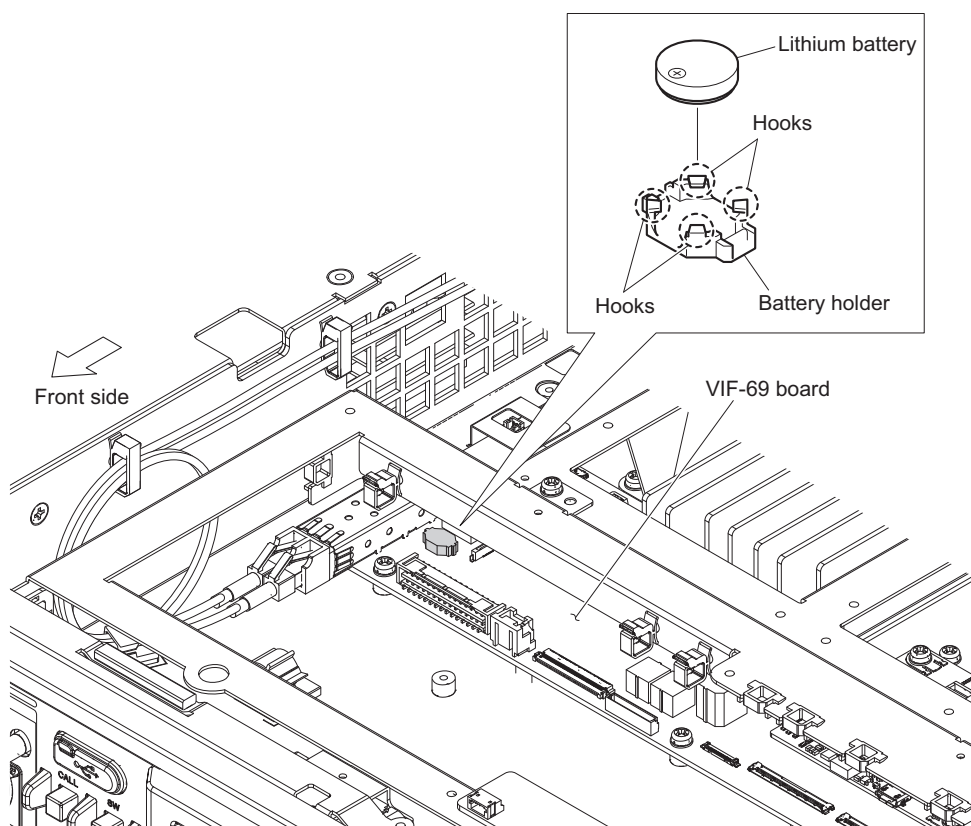
1-4-1. Replacing Procedure

Preparations

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

Procedure

1. Replace the lithium secondary battery (ML621 (U)) on the VIF-69 board.



Note

Be sure to use an insulated stick when removing the lithium secondary battery (ML621 (U)).

2. Install the top cover 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

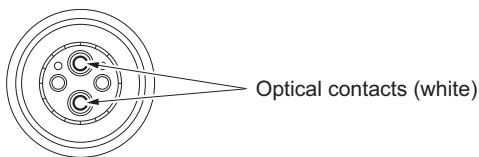
- Optical connector cleaner (commercially available)
 - Product name: CLETOP[®]
 - 14100402 or 14100403 or equivalent (stick type)
 - 14100402: 2.0 mm
 - 14100403: 2.0/2.5 mm double ended

Tip

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

Cleaning of Male Connector

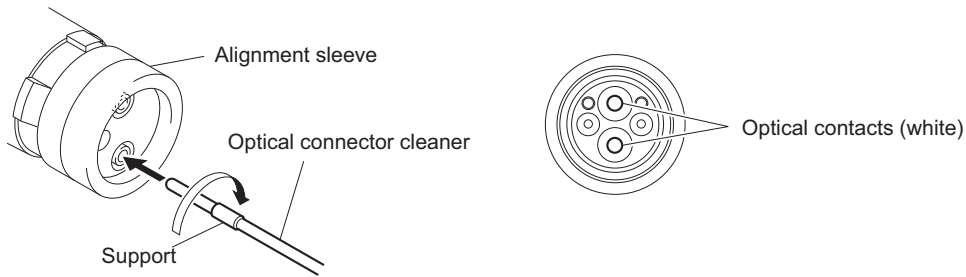
Clean the tip of the optical contacts (white) using the optical connector cleaner.



Cleaning of Female Connector

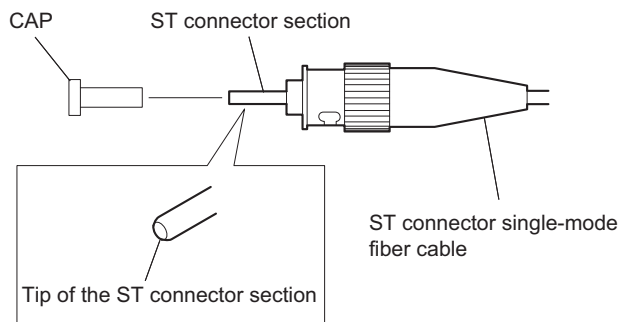
1. Insert the optical connector cleaner straight.
2. Apply sufficient pressure (approximately 600 g to 700 g) to ensure that the optical contact is a little depressed.

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.



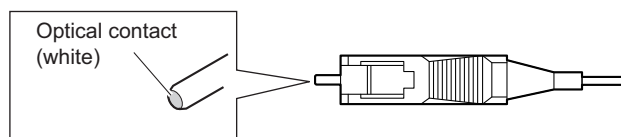
Cleaning of ST Connectors Single-mode Fiber Cable

Clean the tip of the ST connector section using the optical connector cleaner.



Cleaning of 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)

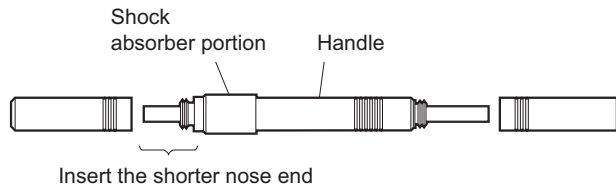
Clean the LEMO connectors and cables using the following procedure.

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)

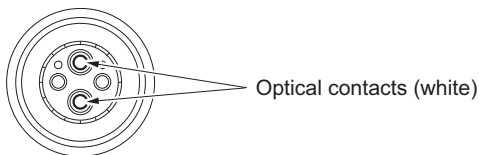
Note

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

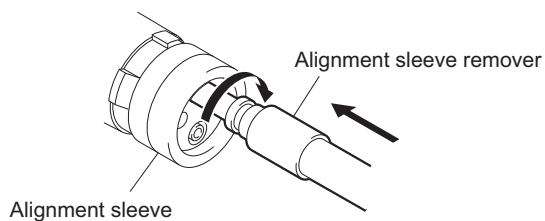
Clean the tip of the optical contacts (white) with a cotton swab moistened with alcohol.



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.

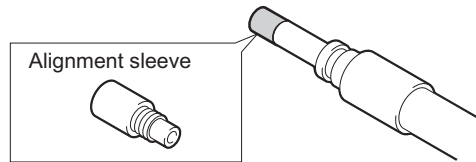


- When the turn stops, pull out the remover in the straight line forcedly.

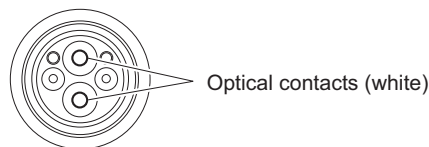
Note

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



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



- Insert the remover with the alignment sleeve attached to its tip, and push it until it clicks.
- 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)

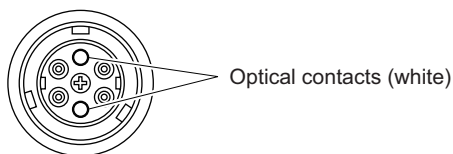
Note

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

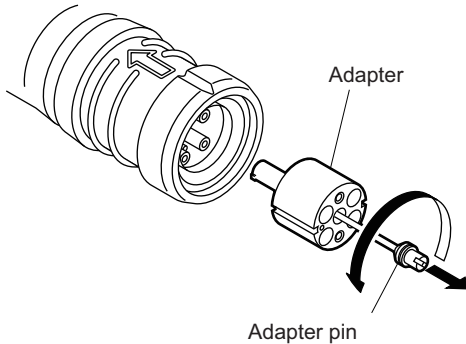
The optical contacts for female connector are in an unexposed state. In cleaning, it is necessary to be exposed by removing the adapter in the connector in advance. Proceed as follows.

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

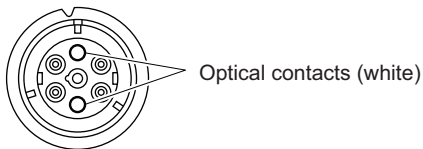
Tip

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.



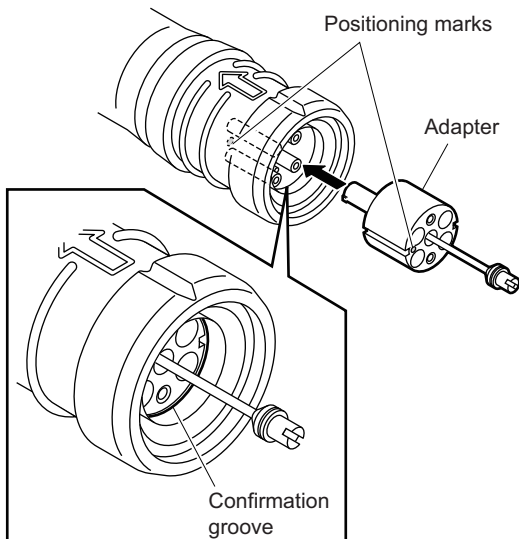
3. Clean the optical contacts (white) with a cotton swab moistened with alcohol.



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)

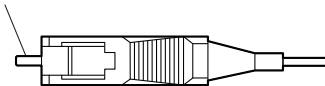
Note

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
VIF-69	IC1300	hdcu3100_sy.pkg
	IC1700	hdcu3100_vif.pkg
DM-159	IC1800	hdcu3100_dm1.pkg
	IC1100	hdcu3100_dm2.pkg

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\\HDCU3100
2. Copy the data files for PLD update to be updated to the directory created.

Procedure

1. Connect the USB drive that contains the program for update to the USB connector of this unit.
2. Turn on the power of the unit.

3. Display the PLD PACKAGE page of the SERVICE menu.

Tip

For the SERVICE menu, refer to [“4-2. SERVICE Menu”](#).

4. Select the PLD to be upgraded and then press the control knob.
5. A message “UPDATE OK?” appears. Select “YES.”

The unit restarts automatically and the version update starts.

Upon completion of the version update, a message “UPDATE SUCCEEDED” appears.

1-8. Flexible Flat Cable and Coaxial Cable

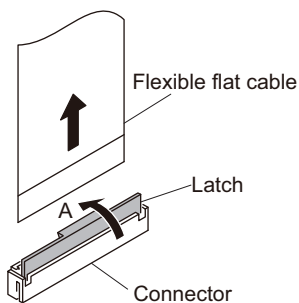
1-8-1. Disconnecting and Connecting Flexible Flat Cable

Note

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

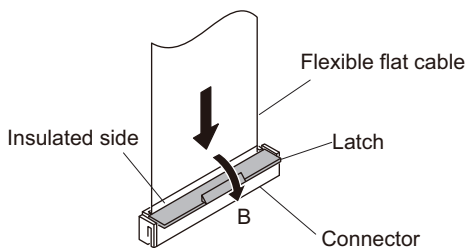
Type A

Disconnecting



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

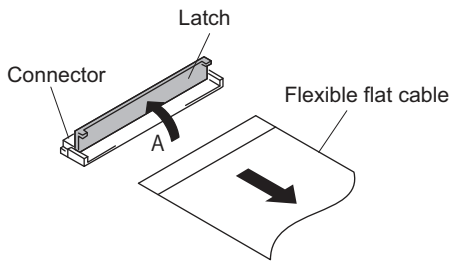
Connecting



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

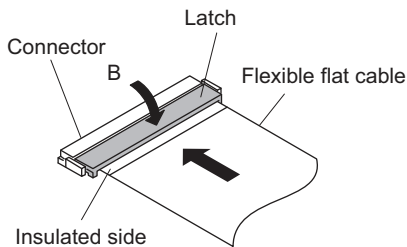
Type B

Disconnecting



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

Connecting



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

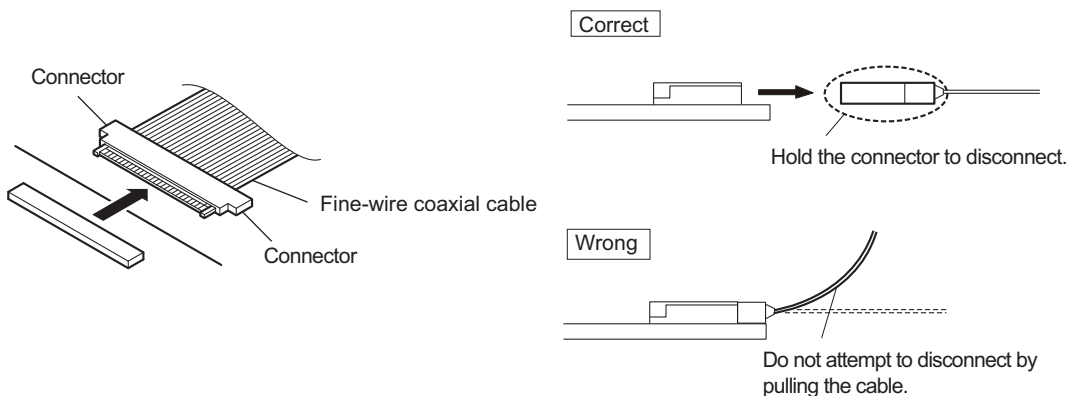
1-8-2. Disconnecting/Connecting Fine-Wire Coaxial Cable

Note

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

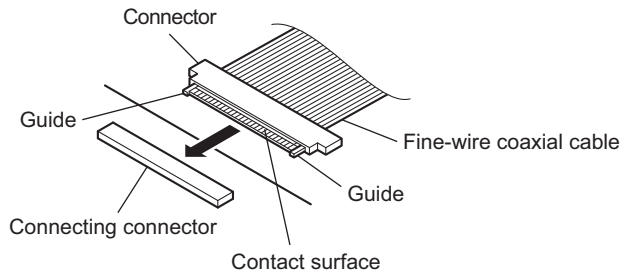
Type A

Disconnecting

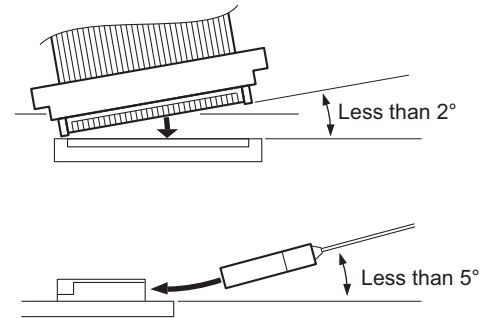


1. Hold both sides of the fine-wire coaxial cable connector, and pull the connector straight to disconnect it.

Connecting



Angle regulation



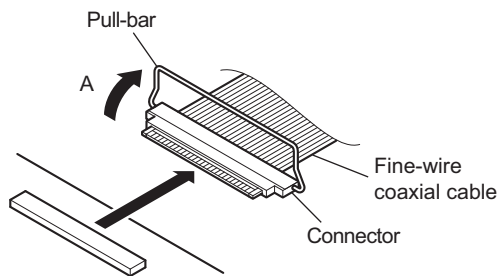
Note

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

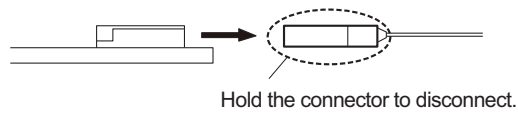
1. Hold both sides of the fine-wire coaxial cable connector with the contact surface facing up.
2. Insert the connector straight to meet the angle specified.

Type B

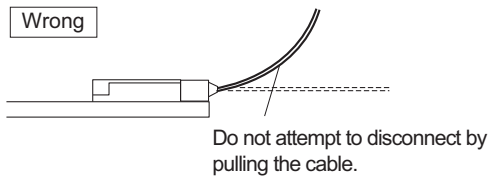
Disconnecting



Correct

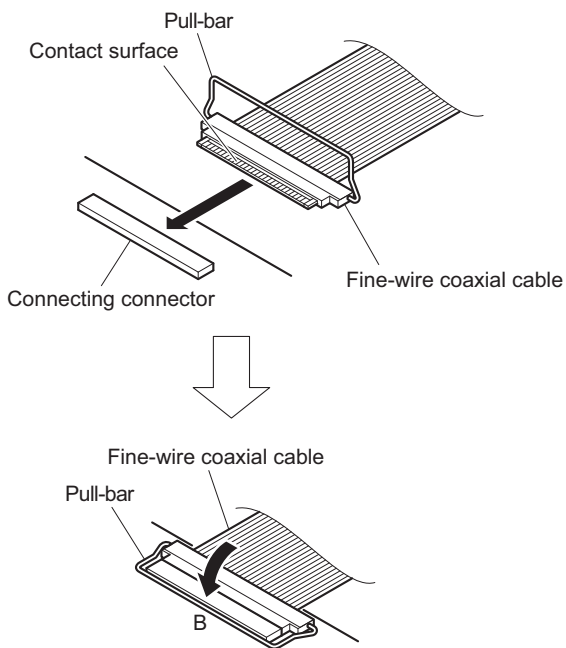


Wrong

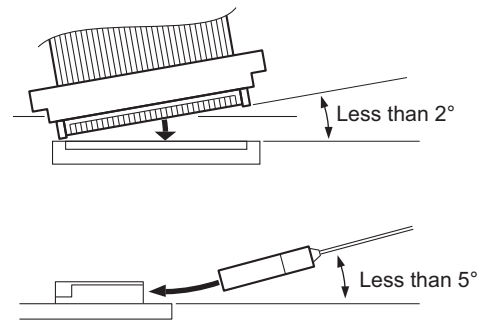


1. Raise the pull-bar in the direction of arrow A to unlock it.
2. Hold both sides of the fine-wire coaxial cable connector, and pull the connector straight to disconnect it.

Connecting



Angle regulation



Note

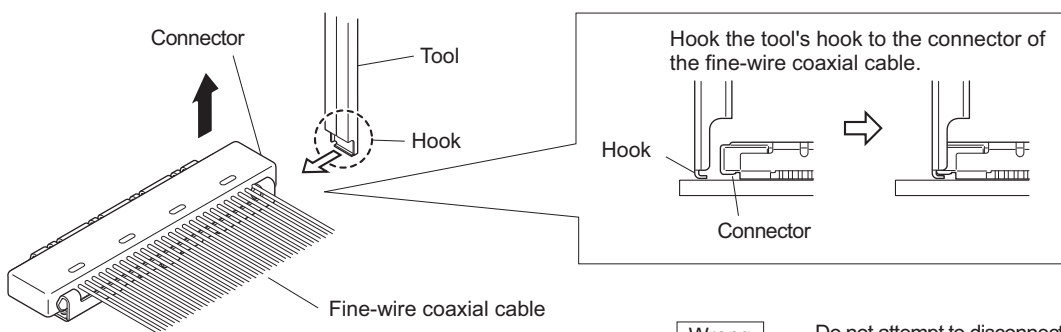
Insert the connector carefully so that the connector guides are not caught by the edge of the mating connector.

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

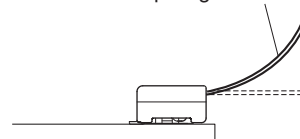
Disconnecting

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.



Wrong

Do not attempt to disconnect by pulling the cable.

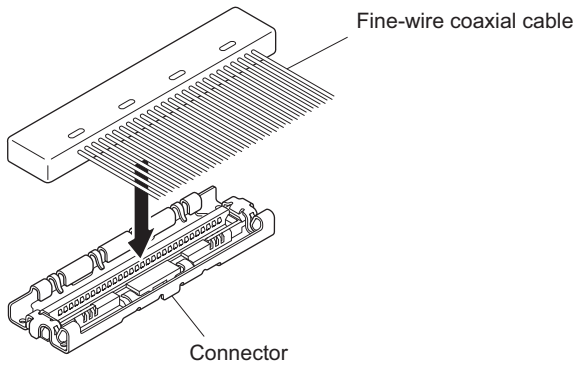


Connecting

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

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	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
VIF-69	TH800	THERMISTOR (POSITIVE)	△ 1-803-615-21
DM-159	TH2401	THERMISTOR (POSITIVE)	△ 1-805-726-11
NET-37	TH0201	THERMISTOR (POSITIVE)	△ 1-805-762-11
	TH0202	THERMISTOR (POSITIVE)	△ 1-805-762-11
	TH0203	THERMISTOR (POSITIVE)	△ 1-805-762-11
	TH0204	THERMISTOR (POSITIVE)	△ 1-805-762-11

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. Tightening Torque

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

Nylok screw (B3 x 5): $0.80 \pm 0.12 \text{ N}\cdot\text{m}$

B3 x 25: $0.80 \pm 0.12 \text{ N}\cdot\text{m}$

K3 x 6: $0.80 \pm 0.12 \text{ N}\cdot\text{m}$

P2 x 6: $0.140 \pm 0.015 \text{ N}\cdot\text{m}$

New truster (P2.6 x 5): $0.53 \pm 0.03 \text{ N}\cdot\text{m}$

PSW3 x 6: $0.80 \pm 0.12 \text{ N}\cdot\text{m}$

PSW3 x 8: $0.80 \pm 0.12 \text{ N}\cdot\text{m}$

PSW3 x 10: $0.80 \pm 0.12 \text{ N}\cdot\text{m}$

PSW3 x 30: $0.80 \pm 0.12 \text{ N}\cdot\text{m}$

PSW4 x 8: $1.40 \pm 0.20 \text{ N}\cdot\text{m}$

Hexagonal screw: $0.53 \pm 0.05 \text{ N}\cdot\text{m}$

Tip

- When using the torque driver with the notation of $\text{cN}\cdot\text{m}$, interpret it as follows.
Example: $0.8 \text{ N}\cdot\text{m} = 80 \text{ cN}\cdot\text{m}$
- 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.

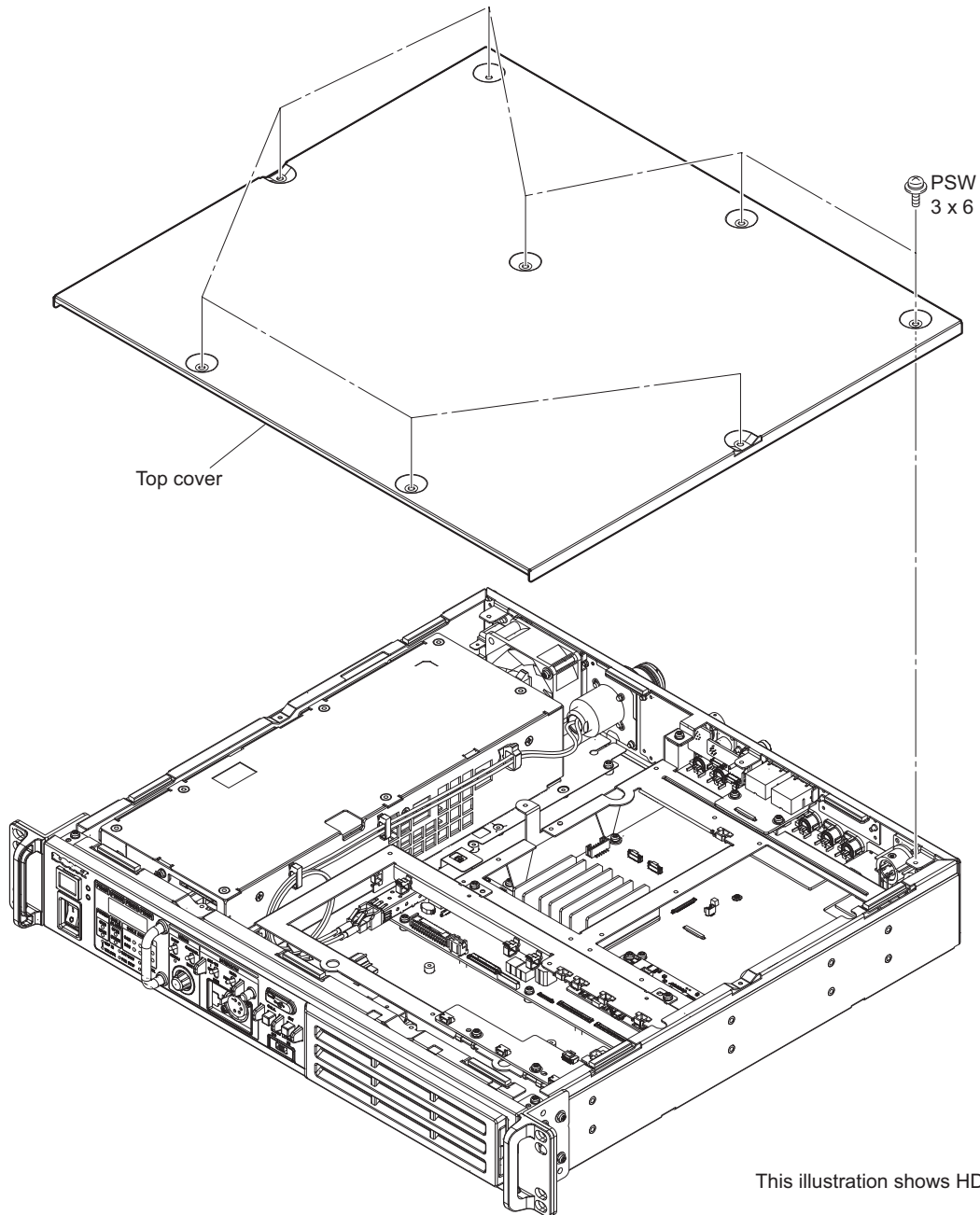
Screw

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

2-2. Top Cover

Procedure

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



2-3. Front Panel

2-3-1. Front Panel Assembly

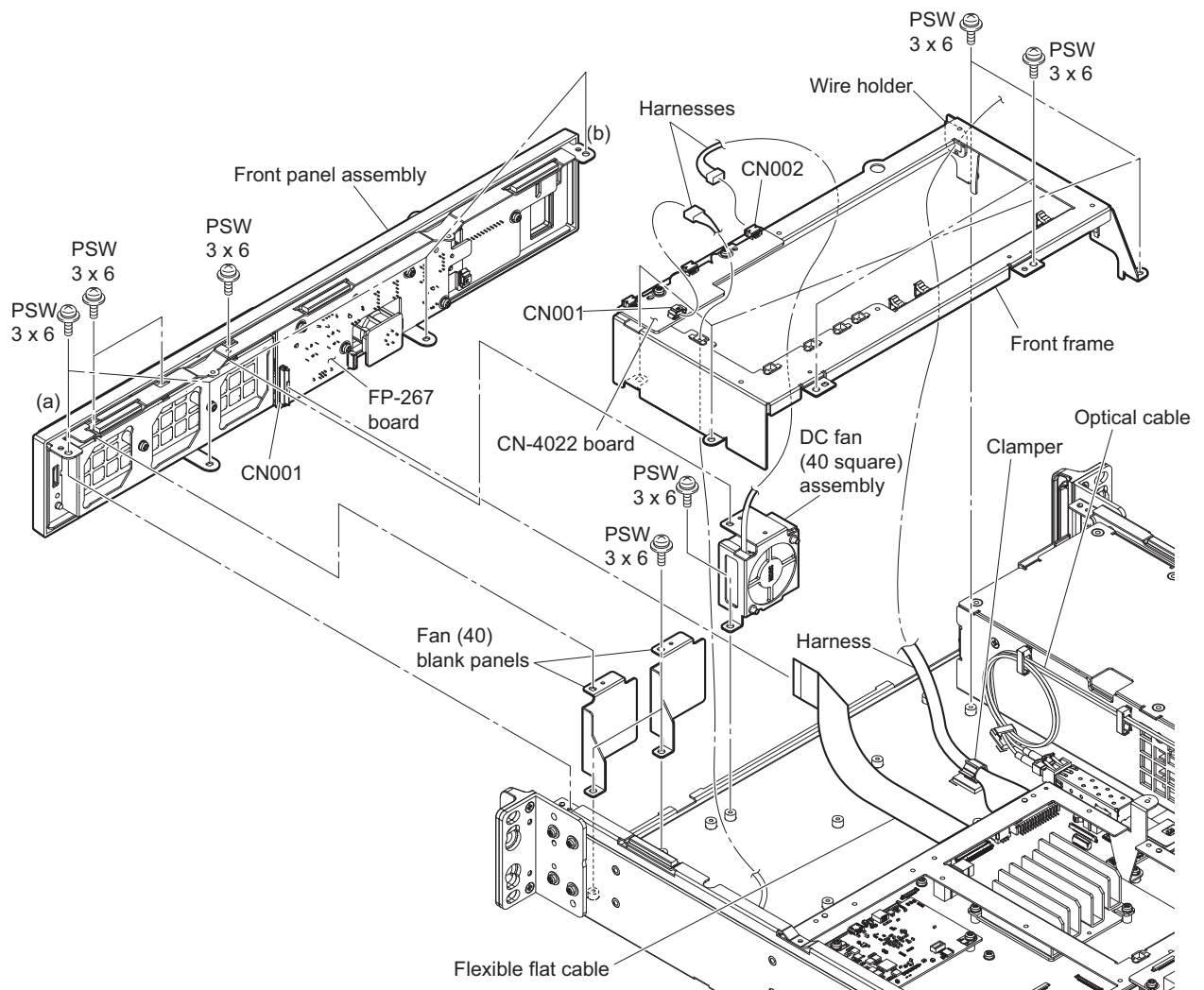
Preparation

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

HDCU3100

Procedure

1. Disconnect the harness from the clammer.
2. Disconnect the two harnesses from the connectors (CN001 and CN002) on the CN-4022 board.
3. Disconnect the flexible flat cable from the connector (CN001) on the FP-267 board.
4. Remove the six screws, then disconnect the harnesses from the wire holder, and remove the front frame.
5. Remove the two screws, then remove the DC fan (40 square) assembly.
6. Remove the four screws, then remove the two fan (40) blank panels.
7. Remove the four screws, then remove the front panel assembly.



Note

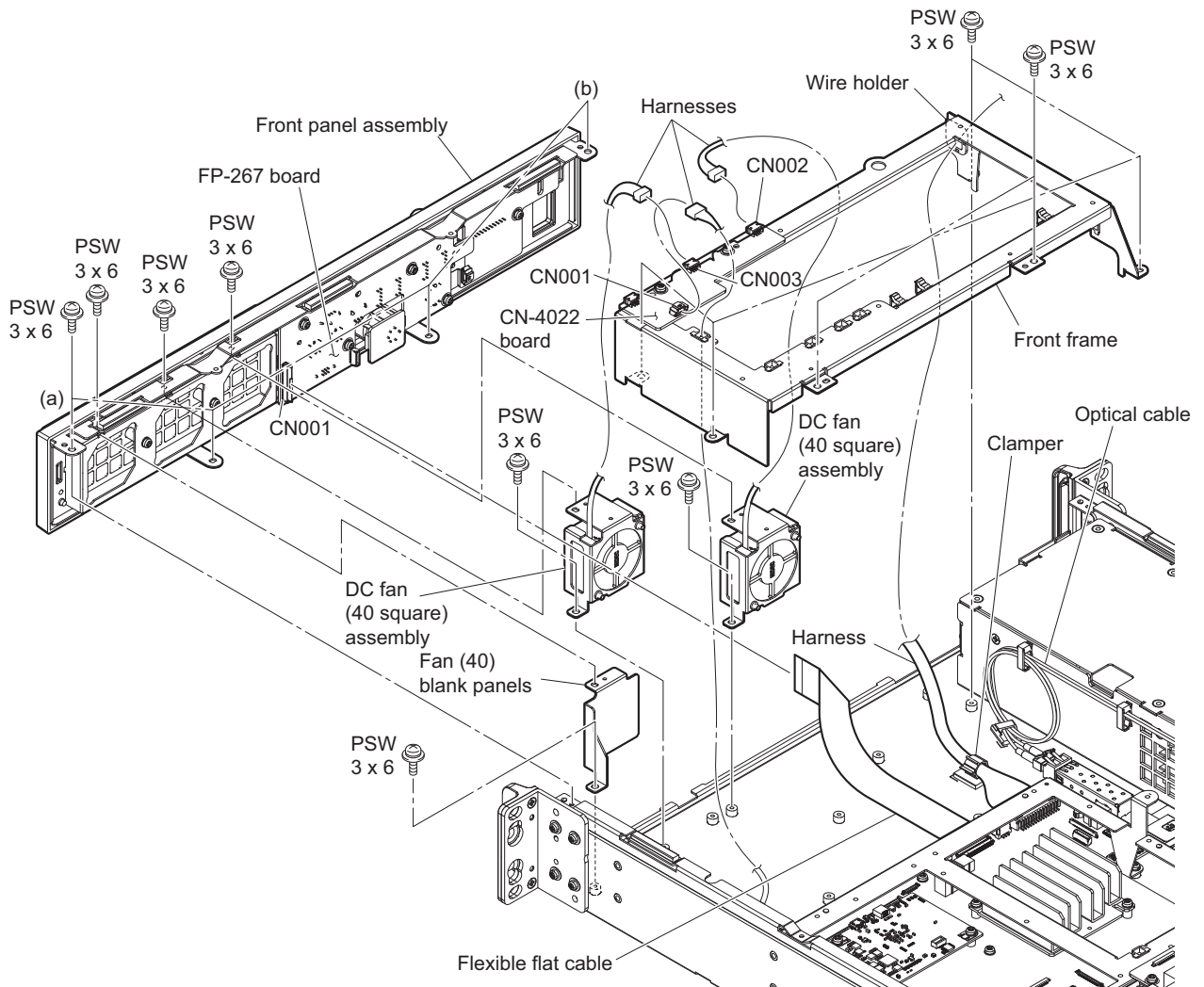
- When installing the front panel assembly, tighten the screws in the following sequence: (a), (b) and others.
- When installing the front frame, be careful not to interpose an optical cable.

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

HDCU3170

Procedure

1. Disconnect the harness from the clamber.
2. Disconnect the three harnesses from the connectors (CN001 to CN003) on the CN-4022 board.
3. Disconnect the flexible flat cable from the connector (CN001) on the FP-267 board.
4. Remove the six screws, then disconnect the harnesses from the wire holder, and remove the front frame.
5. Remove the four screws, then remove the two DC fan (40 square) assemblies.
6. Remove the two screws, then remove the fan (40) blank panel.
7. Remove the four screws, then remove the front panel assembly.



Note

- When installing the front panel assembly, tighten the screws in the following sequence: (a), (b) and others.
- When installing the front frame, be careful not to interpose an optical cable.

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

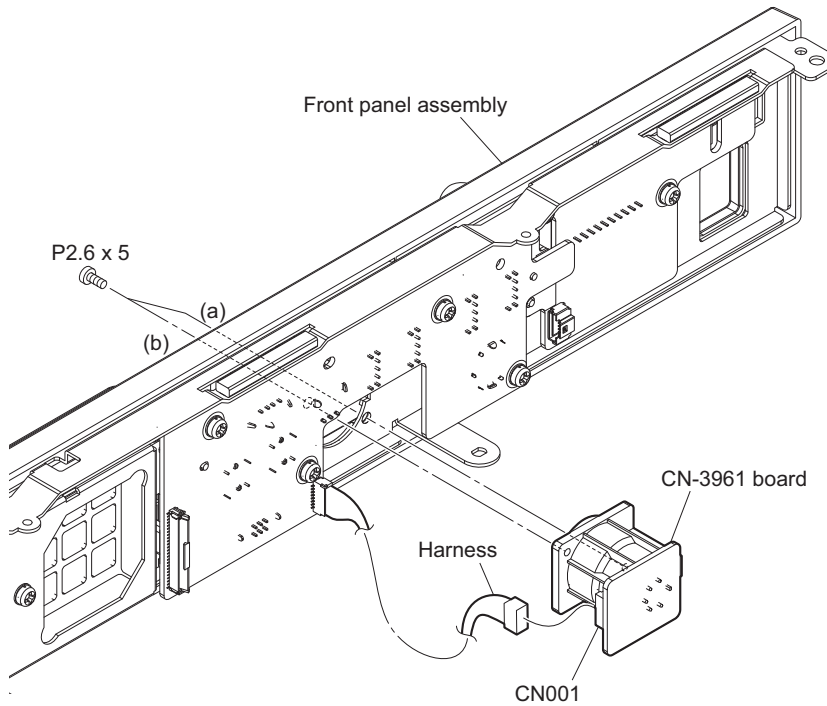
2-3-2. CN-3961 Board

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, then remove the CN-3961 board.
2. Disconnect the harness from the connector (CN001) on the CN-3961 board.



Note

When installing the CN-3961 board, tighten the screws in the following sequence: (a), (b).

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

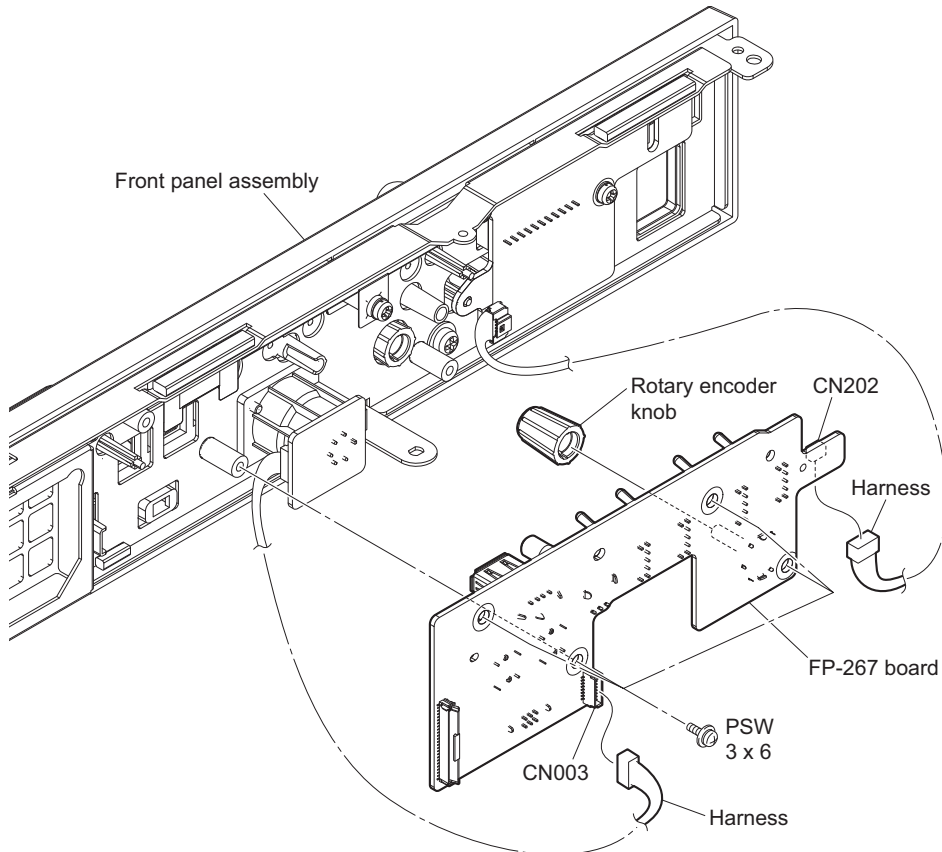
2-3-3. FP-267 Board

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 two harnesses from the connectors (CN003 and CN202) on the FP-267 board.
2. Remove the four screws, then remove the FP-267 board.
3. Remove the rotary encoder knob.



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

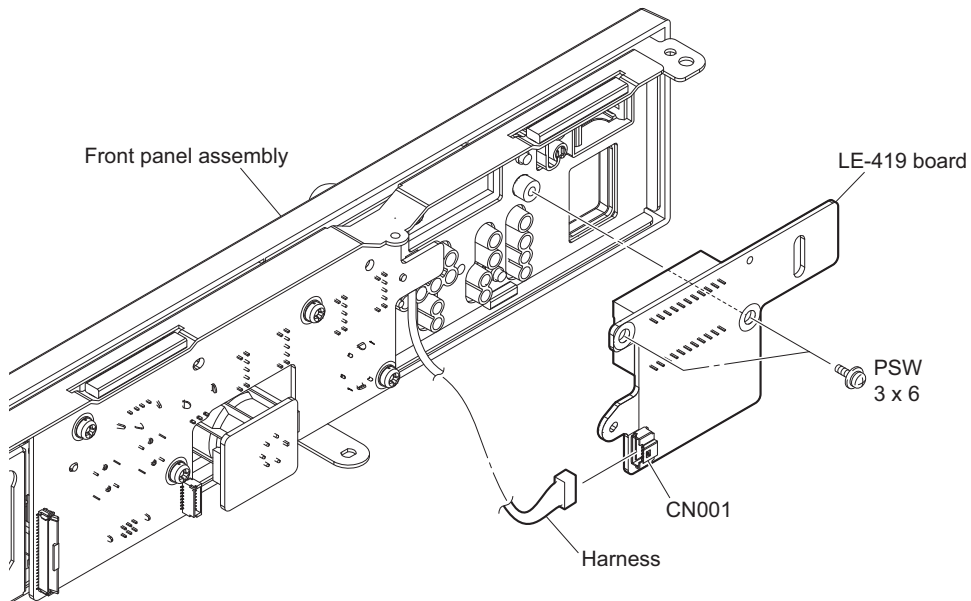
2-3-4. LE-419 Board

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-419 board.
2. Remove the two screws, then remove the LE-419 board.



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

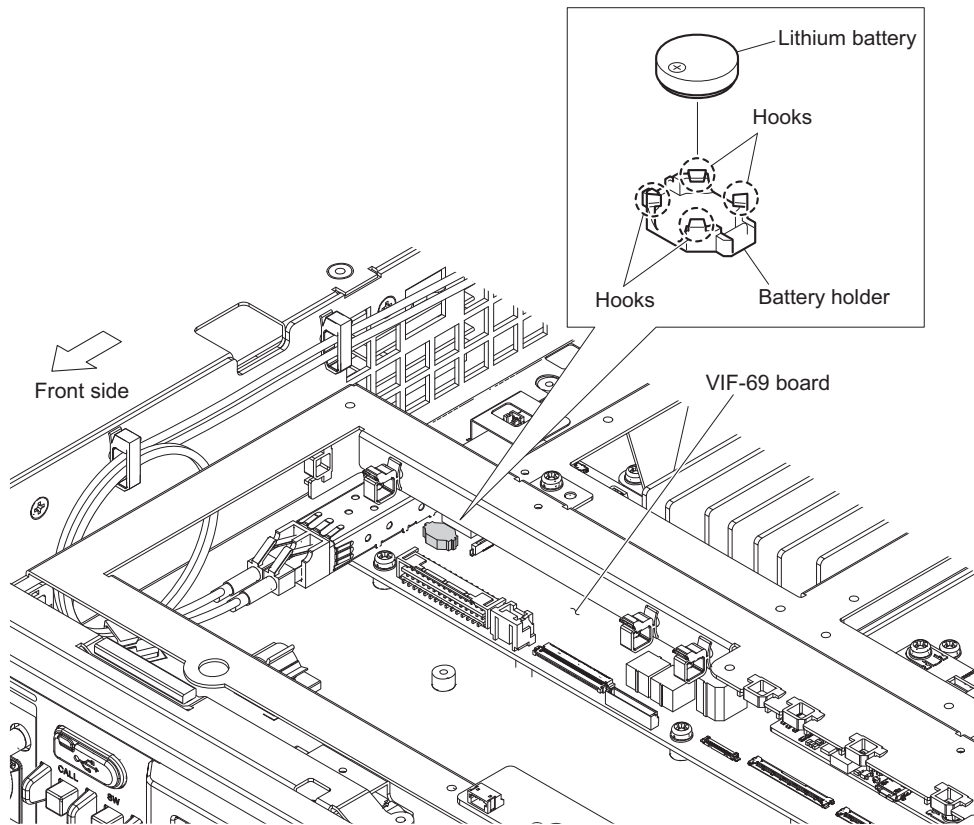
2-4. Lithium Battery

Preparation

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

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.

2-5. CN-4022 Board

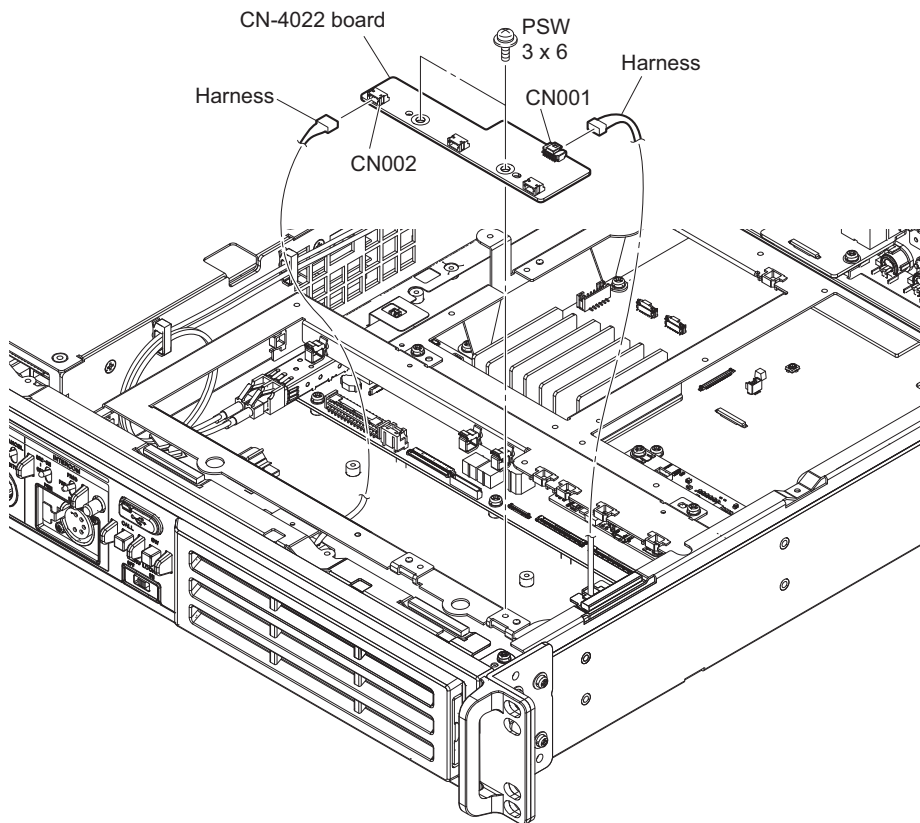
Preparation

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

2-5-1. HDCU3100

Procedure

1. Disconnect the two harnesses from the connectors (CN001 and CN002) on the CN-4022 board.
2. Remove the two screws, then remove the CN-4022 board.

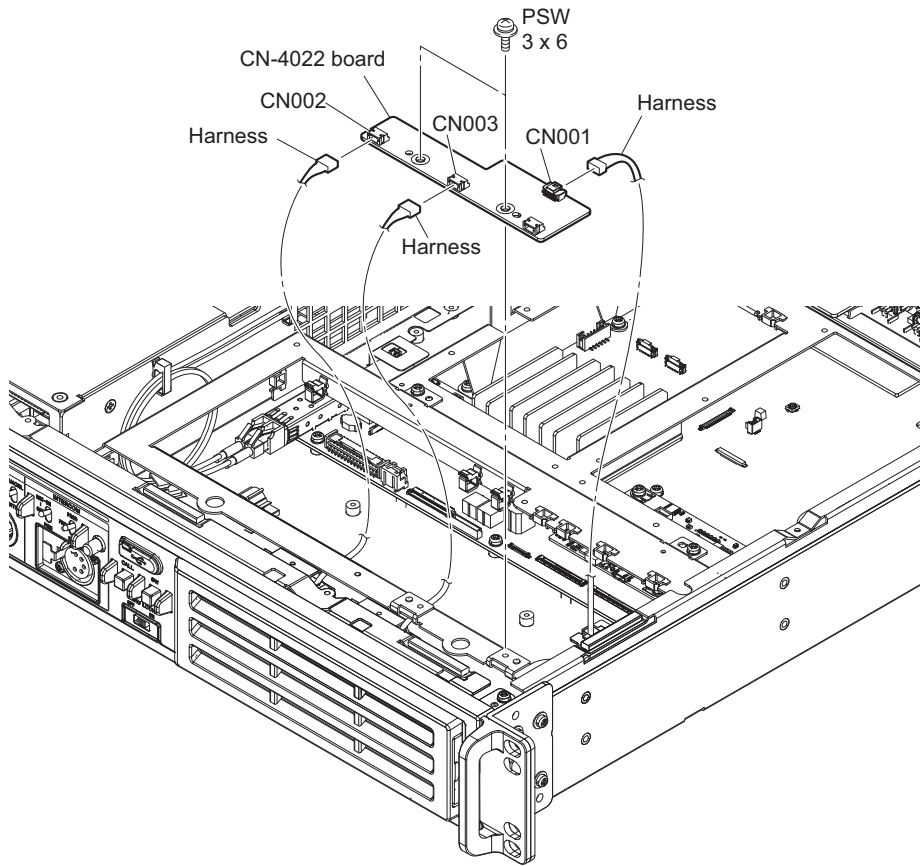


3. Install the removed parts by reversing the steps of removal.

2-5-2. HDCU3170

Procedure

1. Disconnect the three harnesses from the connectors (CN001 to CN003) on the CN-4022 board.
2. Remove the two screws, then remove the CN-4022 board.



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

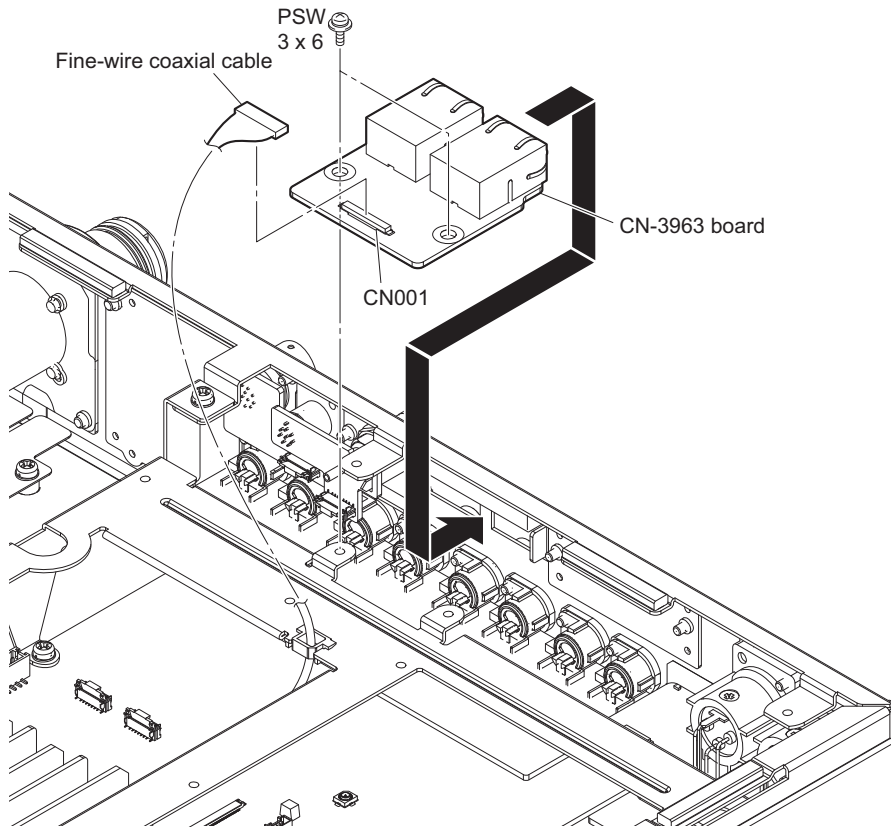
2-6. CN-3963 Board

Preparation

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

Procedure

1. Disconnect the fine-wire coaxial cable from the connector (CN001) on the CN-3963 board.
2. Remove the two screws, then remove the CN-3963 board.



This illustration shows HDCU3100.

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

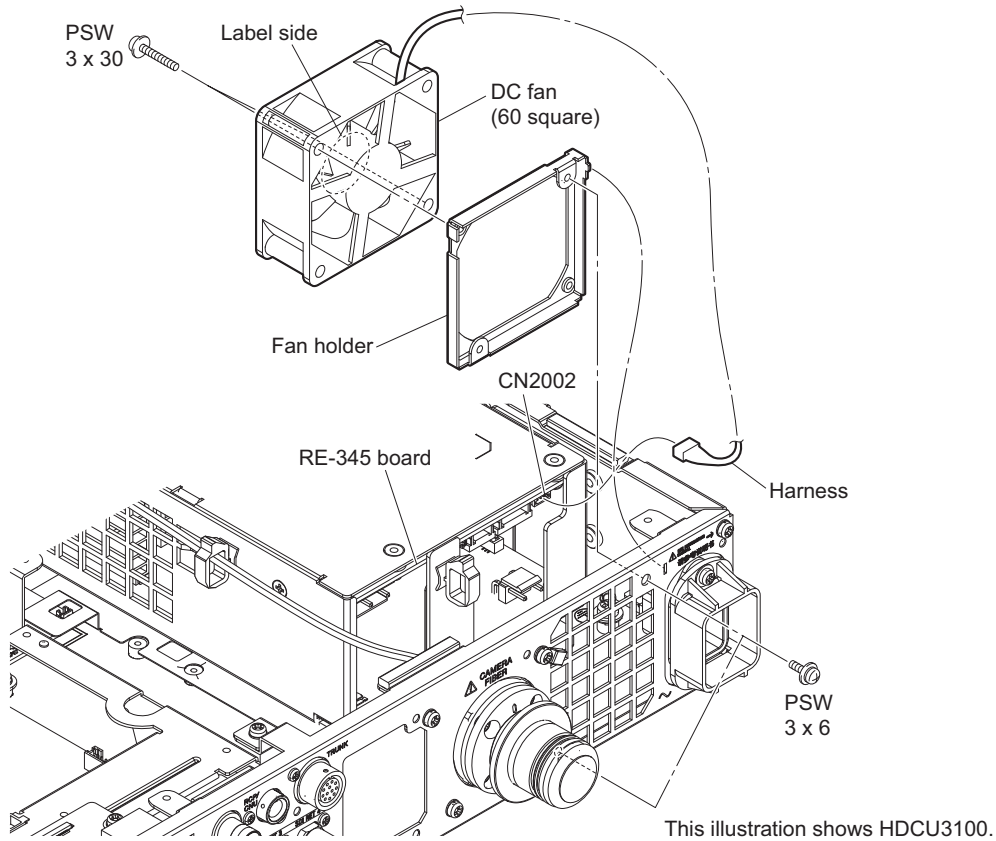
2-7. DC Fan (60 Square)

Preparation

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

Procedure

1. Disconnect the harness from the connector (CN2002) on the RE-345 board.
2. Remove the two screws (PSW3 x 6), then remove the DC fan (60 square) assembly.
3. Remove the two screws (PSW3 x 30), then remove the DC fan (60 square).



Note

Be careful to the position of label side and harness.

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

2-8. DC Fan (40 Square)

Tip

The number of DC fans (40 square) varies depending on the model used. All procedures for replacement are the same.

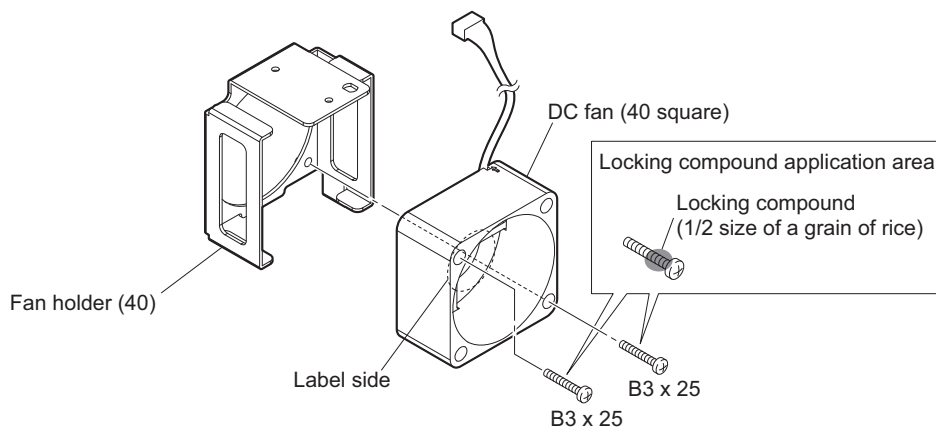
- HDCU3100: 1 (2 when HKCU-SFP30 is installed)
- HDCU3170: 2 (3 when HKCU-SFP30 is installed)

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 DC fan (40 square) assembly. (Refer to “2-3-1. Front Panel Assembly”.)

Procedure

1. Remove the two screws, then remove the DC fan (40 square).



Note

- Be careful to the position of label side and harness.
 - When installing the two screws, apply the locking compound.
2. Install the removed parts by reversing the steps of removal.

2-9. Power Block

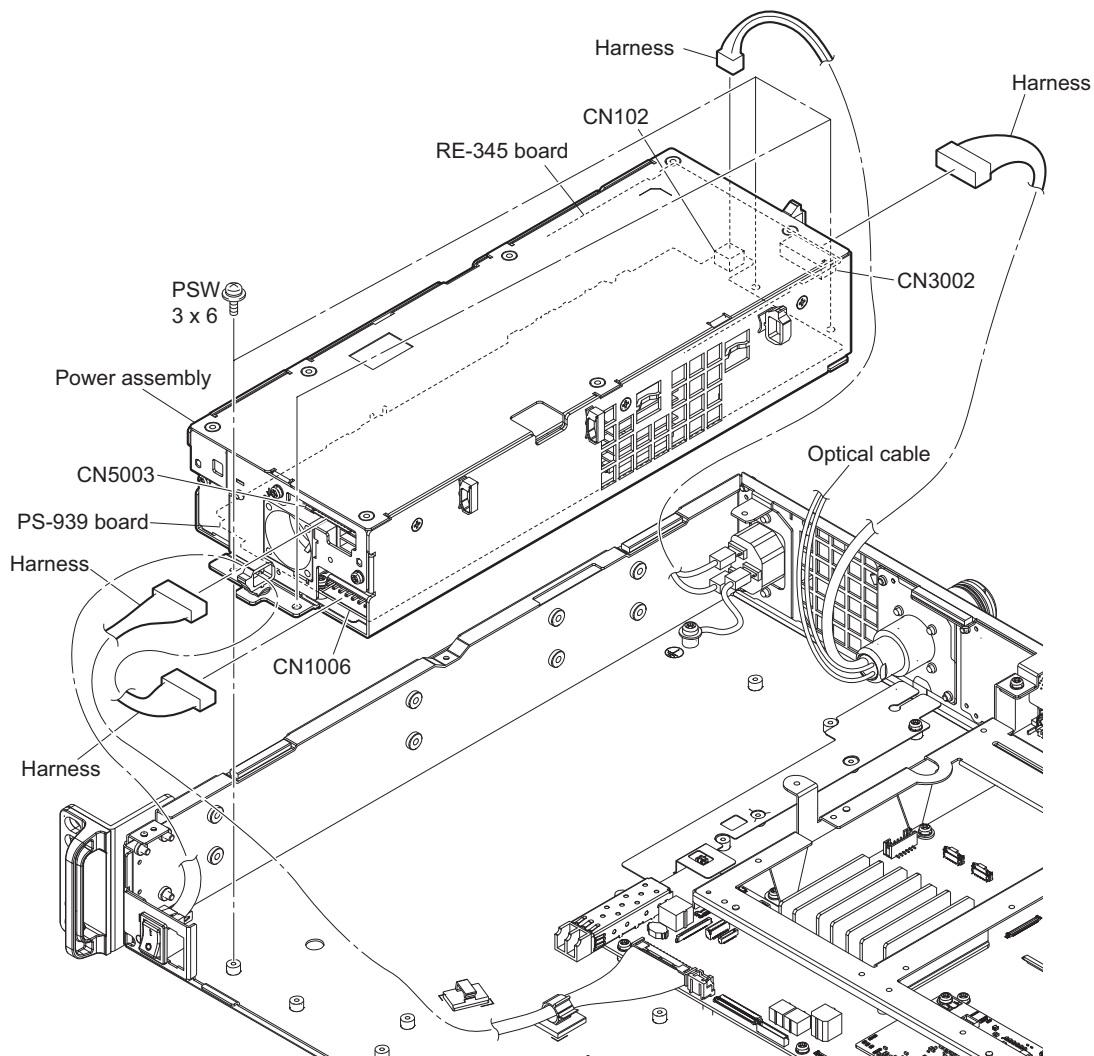
2-9-1. Power Assembly

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 DC fan (60 square). (Refer to “2-7. DC Fan (60 Square)”.)
4. Remove the optical cable. (Refer to step 1 in “2-12-1. LEMO Connector Assembly (Serial No.: 10001 and Higher)”.)

Procedure

1. Disconnect the two harnesses from the connectors (CN3002 and CN5003) on the RE-345 board.
2. Disconnect the two harnesses from the connectors (CN102 and CN1006) on the PS-939 board.
3. Remove the four screws, then remove the power assembly.



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

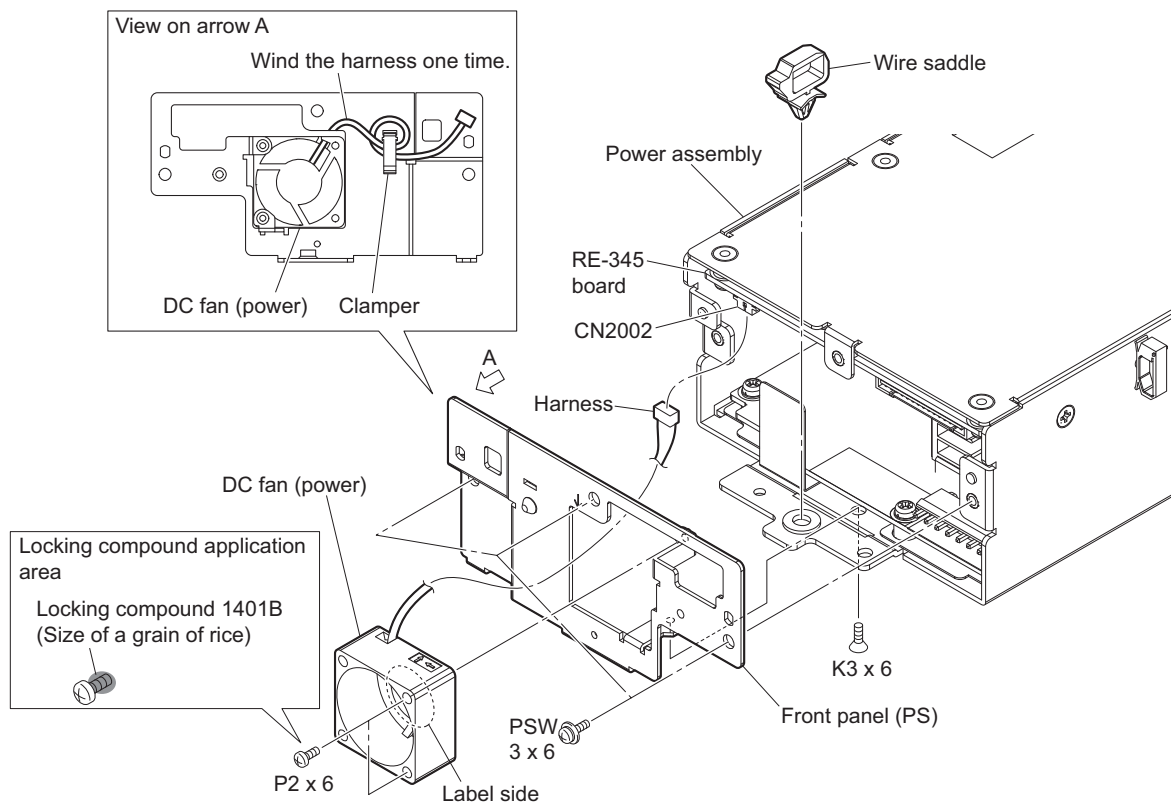
2-9-2. DC Fan (Power)

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 DC fan (60 square). (Refer to “2-7. DC Fan (60 Square)”.)
4. Remove the optical cable. (Refer to step 1 in “2-12-1. LEMO Connector Assembly (Serial No.: 10001 and Higher)”.)
5. Remove the power assembly. (Refer to “2-9-1. Power Assembly”.)

Procedure

1. Remove the wire saddle.
2. Remove the three screws (PSW3 x 6) and the screw (K3 x 6), then remove the front panel (PS).
3. Disconnect the harness from the connector (CN2002) on the RE-345 board.
4. Remove the two screws, then remove the DC fan (power).



Note

- Be careful to the position of label side and harness.
- When installing the DC fan (power), apply locking compound to them.

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

2-9-3. RE-345 Board

Preparation

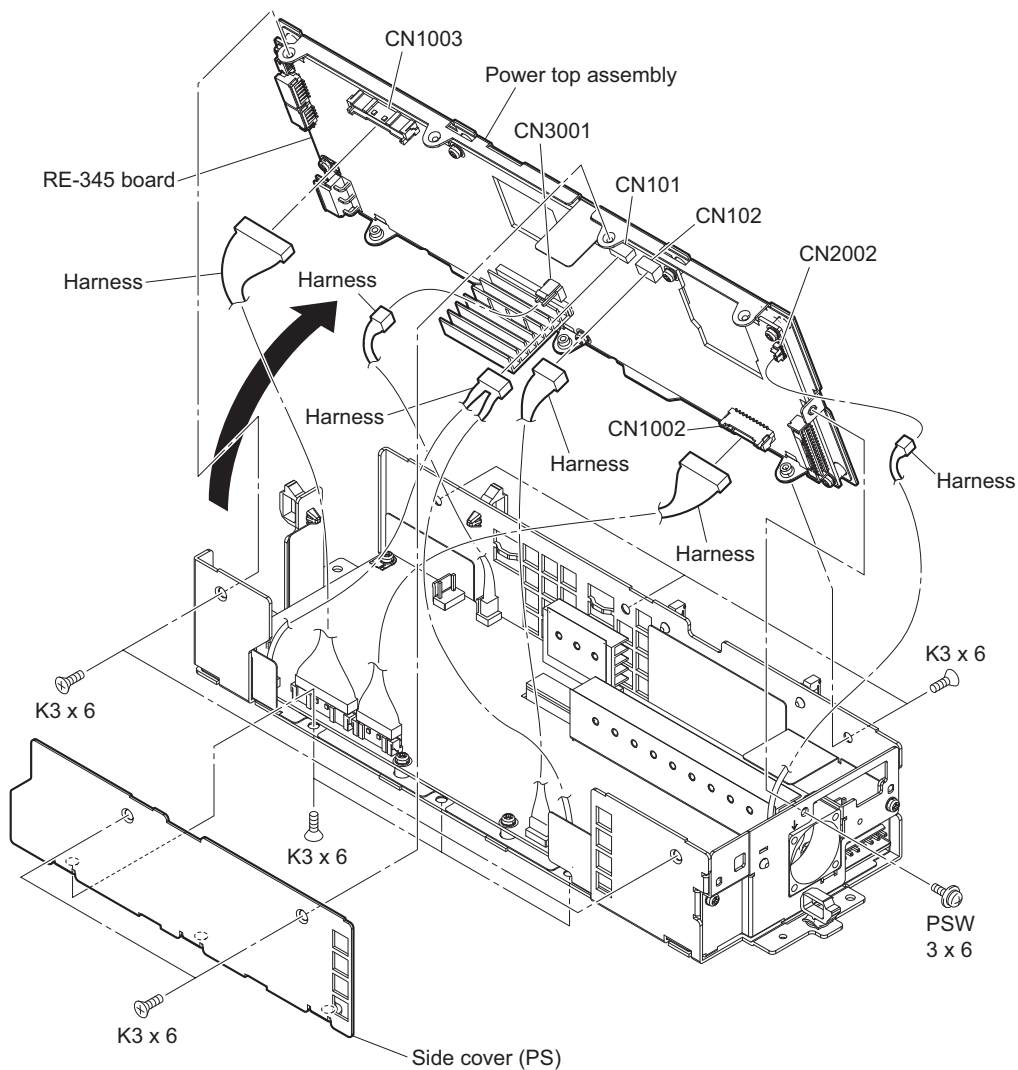
1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the front panel assembly. (Refer to “2-3-1. Front Panel Assembly”.)
3. Remove the DC fan (60 square). (Refer to “2-7. DC Fan (60 Square)”.)
4. Remove the optical cable. (Refer to step 1 in “2-12-1. LEMO Connector Assembly (Serial No.: 10001 and Higher)”.)
5. Remove the power assembly. (Refer to “2-9-1. Power Assembly”.)

Procedure

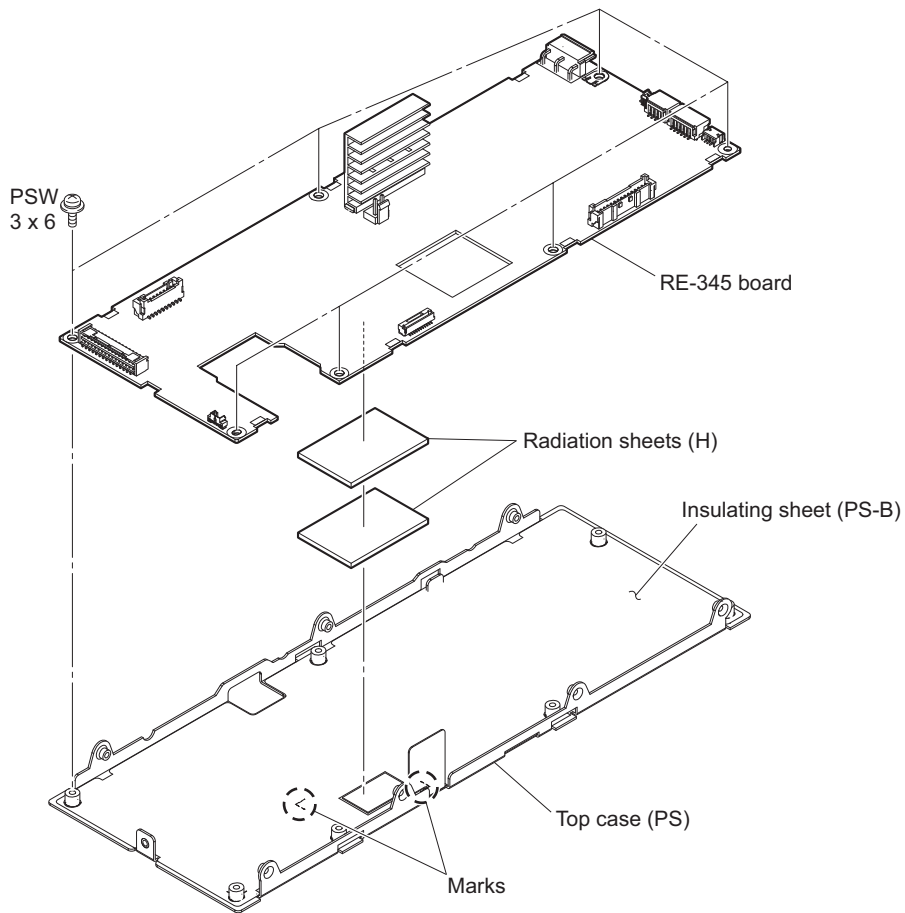
1. Remove the power top assembly.
 - (1) Remove the five screws (K3 x 6), then remove the side cover (PS).
 - (2) Disconnect the three harnesses from the connectors (CN101, CN102 and CN1003) on the RE-345 board.
 - (3) Remove the five screws (K3 x 6) and the screw (PSW3 x 6), then remove the power top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



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



Tip

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.

2-9-4. PS-939 Board

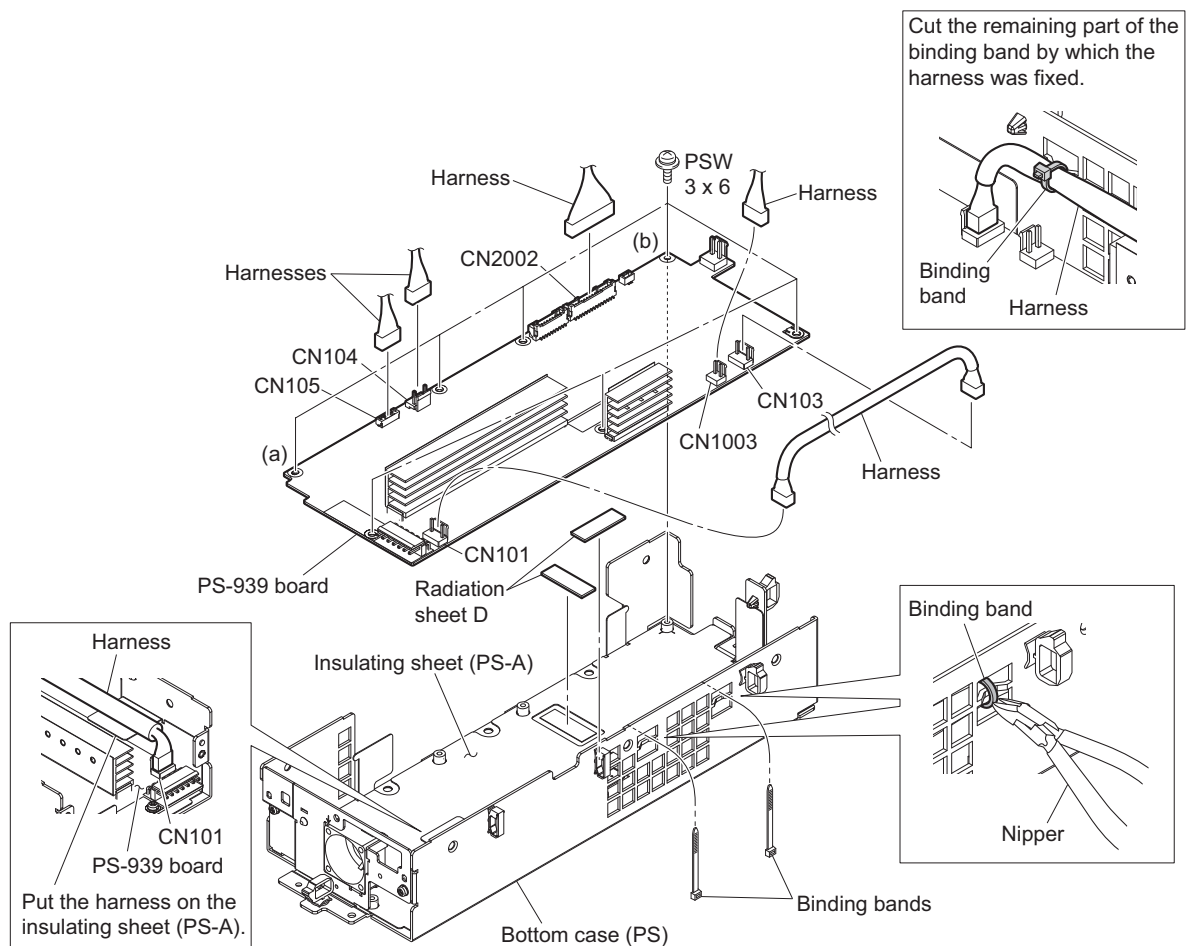
Required tool: Nipper

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 DC fan (60 square). (Refer to “2-7. DC Fan (60 Square)”.)
4. Remove the optical cable. (Refer to step 1 in “2-12-1. LEMO Connector Assembly (Serial No.: 10001 and Higher)”.)
5. Remove the power assembly. (Refer to “2-9-1. Power Assembly”.)
6. Remove the power top assembly. (Refer to “2-9-3. 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 two harnesses from the connectors (CN101 and CN103) on the PS-939 board.
4. Remove the seven screws, then remove the PS-939 board.



Note

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

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

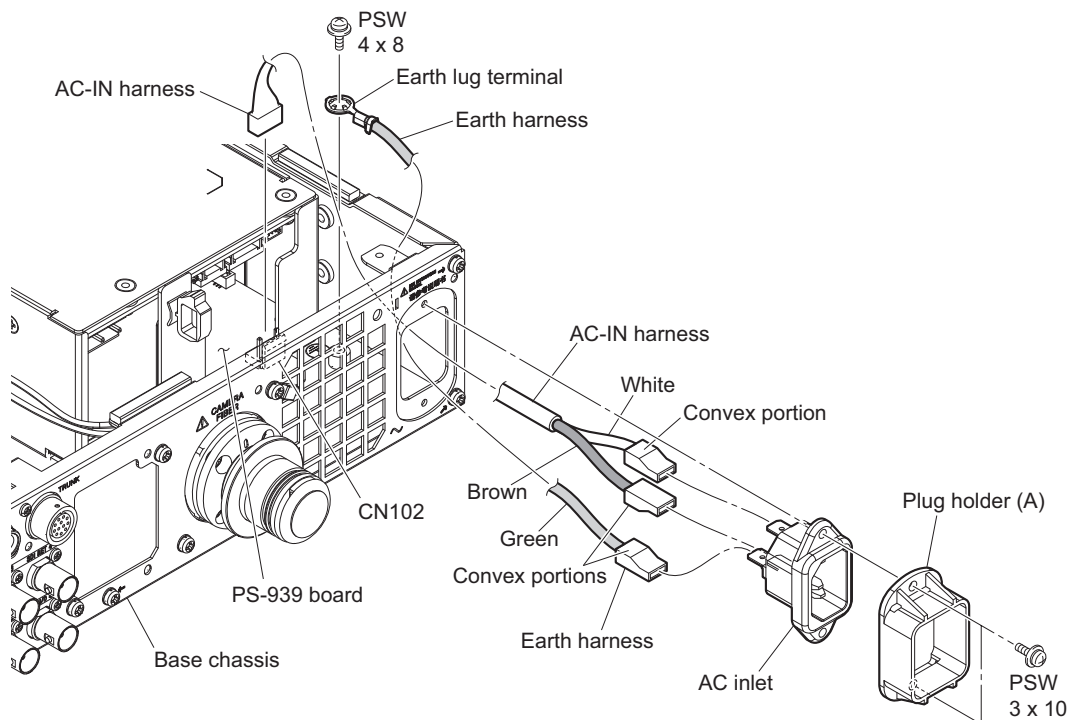
2-10. AC Inlet

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the DC fan (60 square). (Refer to “2-7. DC Fan (60 Square)”.)

Procedure

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



This illustration shows HDCU3100.

Note

When installing harnesses in the AC-IN 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.

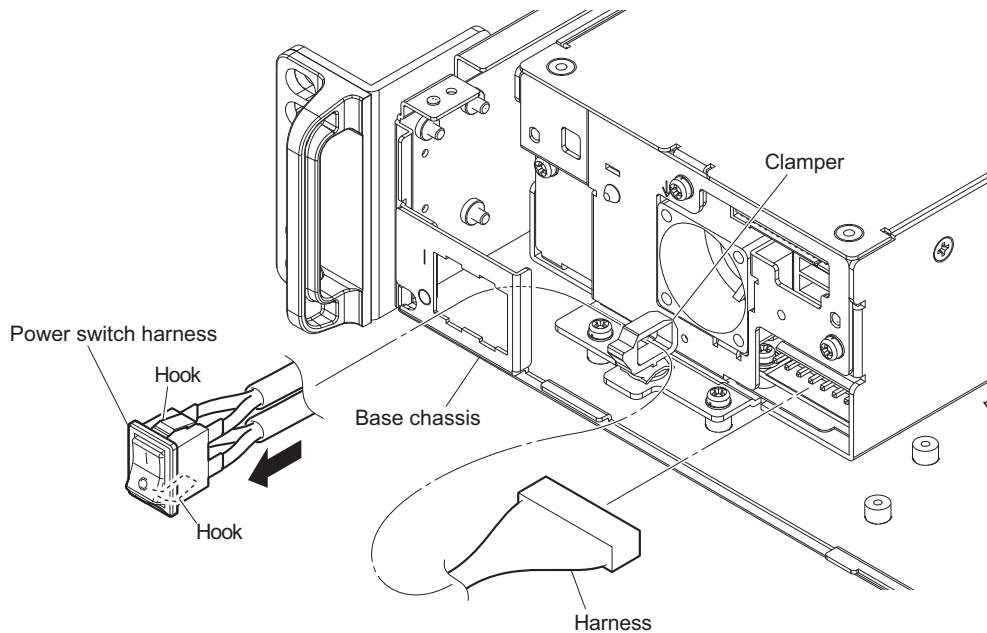
2-11. Power Switch Harness

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. Remove the harness from the clamper.
2. Release the two hooks, then pull the power switch harness from the hole of the base chassis.



Note

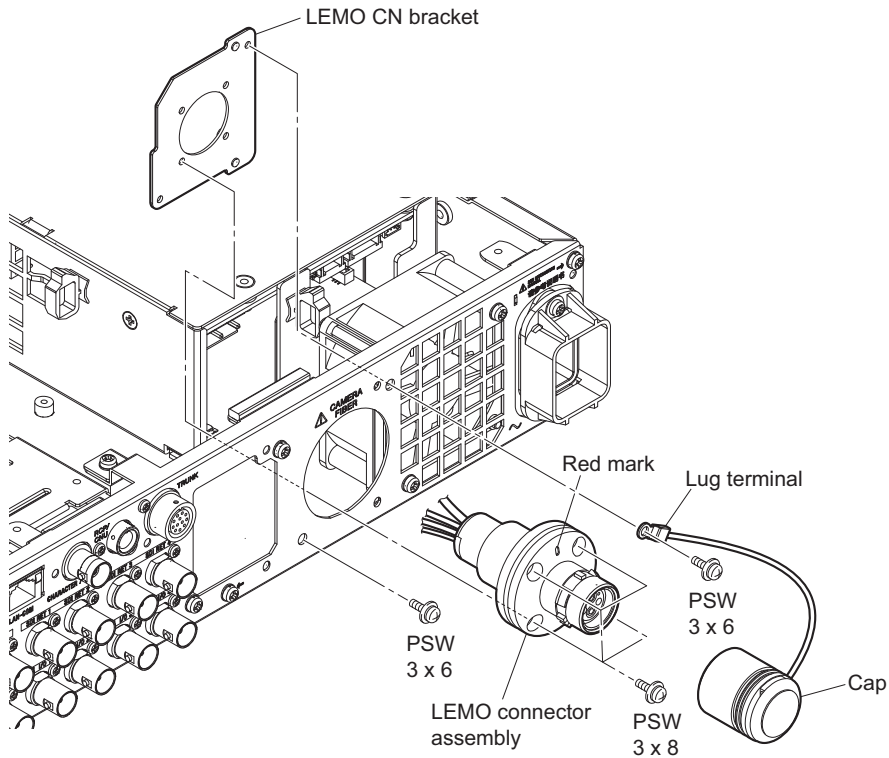
Carefully attach the switch part to the hole of the base chassis in the correct top and bottom orientation of the switch part as shown above.

Tip

Adjust it while pulling the harness so that the switch part does not incline and fix the switch part using the clamper.

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

2. Remove the LEMO connector assembly.
 - (1) Remove the cap.
 - (2) Remove the four screws (PSW3 x 8), then remove the LEMO connector assembly.
 - (3) Remove the two screws (PSW3 x 6), then remove the lug terminal and LEMO CN bracket.



Note

When installing the LEMO connector assembly, install it with the red mark up.

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

2-12-2. TAJIMI Connector Assembly (Serial No.: 30001 and Higher)

Tool required: Torque driver bit ($\phi 5$ mm)

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the optical cable. (Refer to step 1 in “2-12-1. LEMO Connector Assembly (Serial No.: 10001 and Higher)”.)

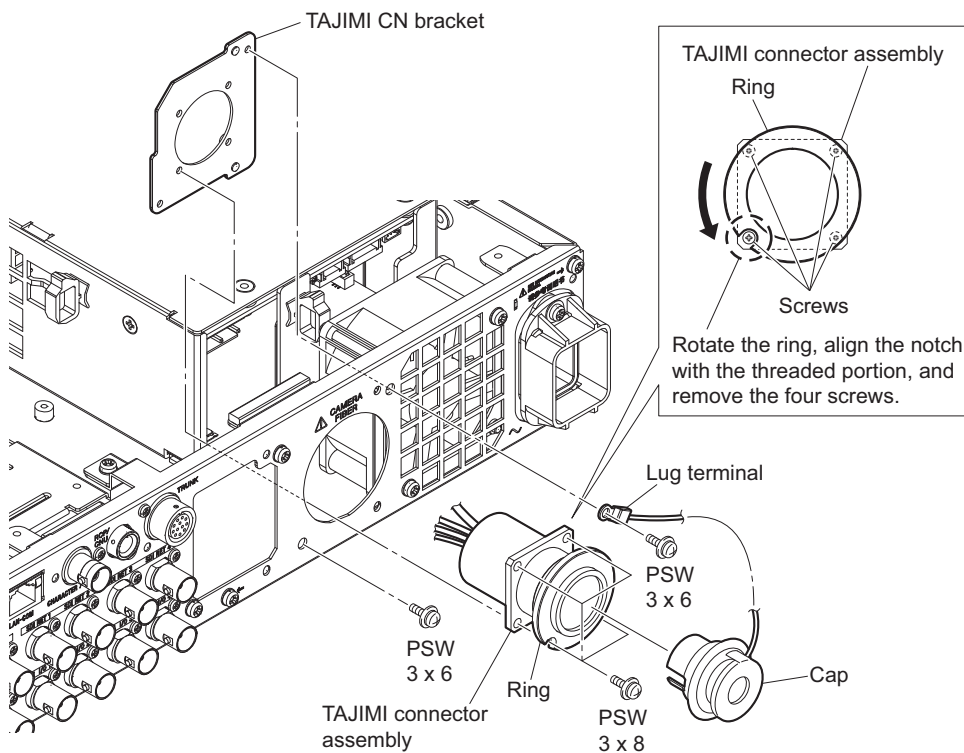
Procedure

1. Remove the TAJIMI connector assembly.
 - (1) Remove the cap.
 - (2) Remove the four screws (PSW3 x 8), then remove the TAJIMI connector assembly.

Tip

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

- (3) Remove the two screws (PSW3 x 6), then remove the lug terminal and TAJIMI CN bracket.



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

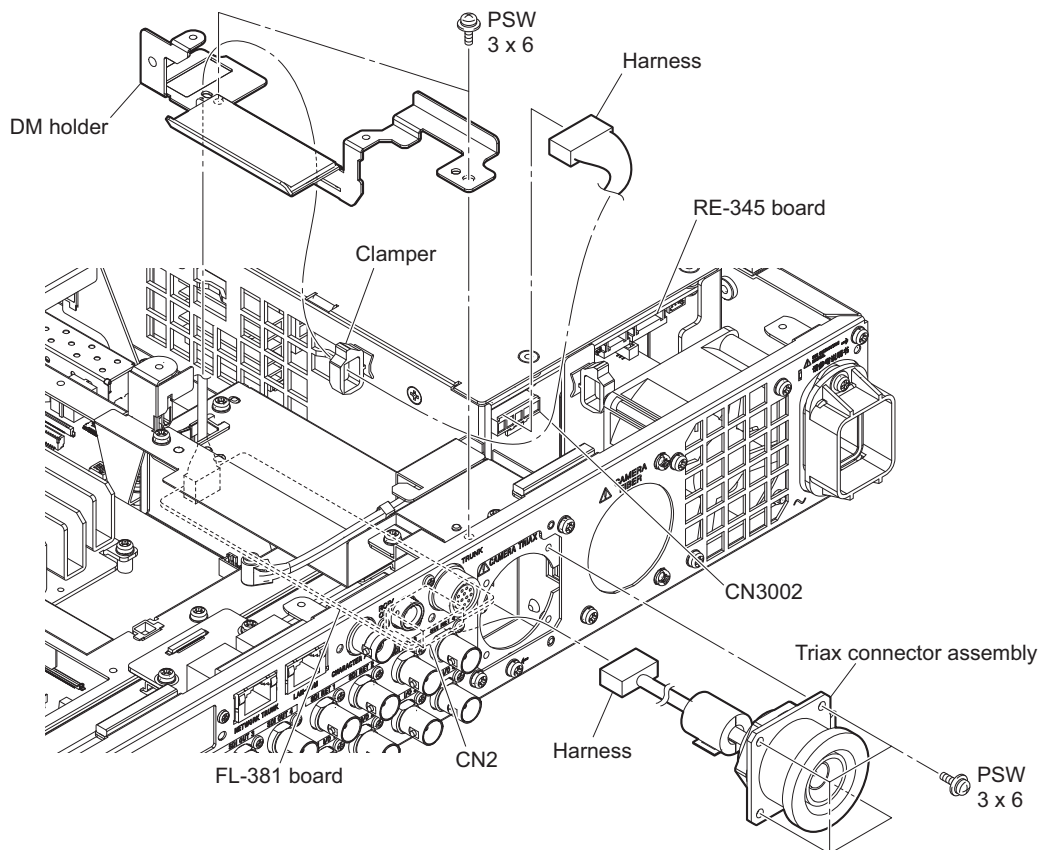
2-13. Triax Assembly (HDCU3170)

Preparation

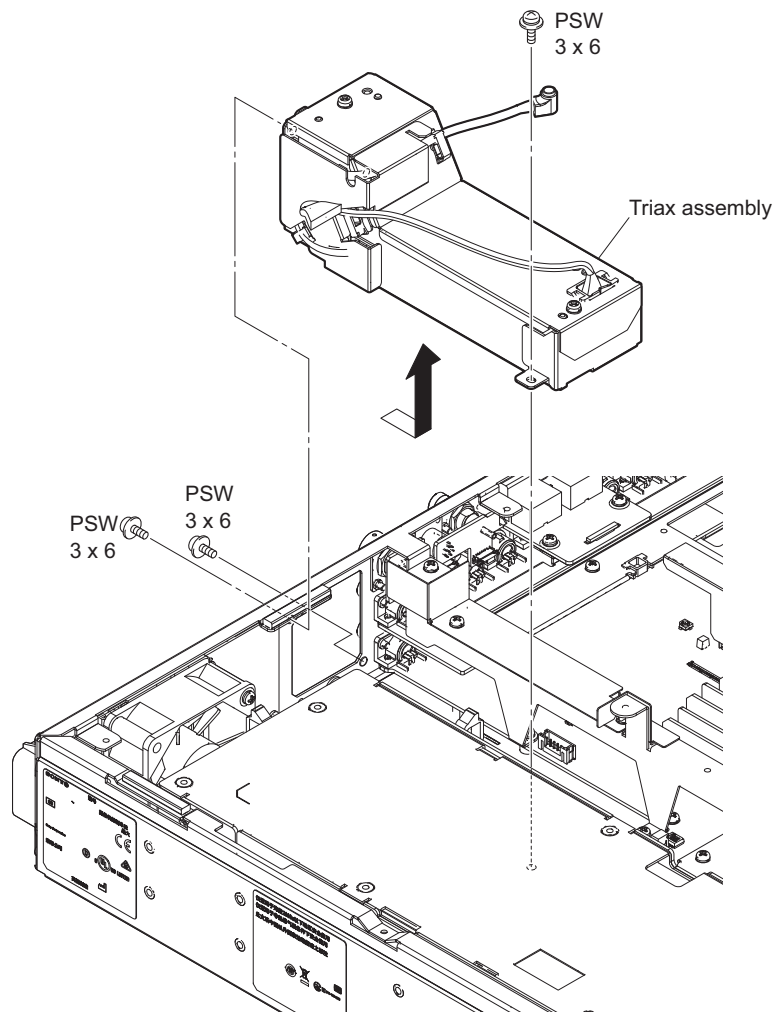
1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the DM-159 board. (Refer to “2-17. DM-159 Board Assembly/ENC-184 Board (HDCU3170)”.)

Procedure

1. Remove the four screws.
2. Pull out the triax connector assembly and disconnect the harness from the connector (CN2) on the FL-381 board.
3. Open the clumper and disconnect the harness from the connector (CN3002) on the RE-345 board.
4. Remove the two screws, then remove the DM holder.



5. Remove the three screws, then remove the triax assembly in the direction of by the arrow.



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

2-14. Rear Panel

2-14-1. Rear Panel Assembly

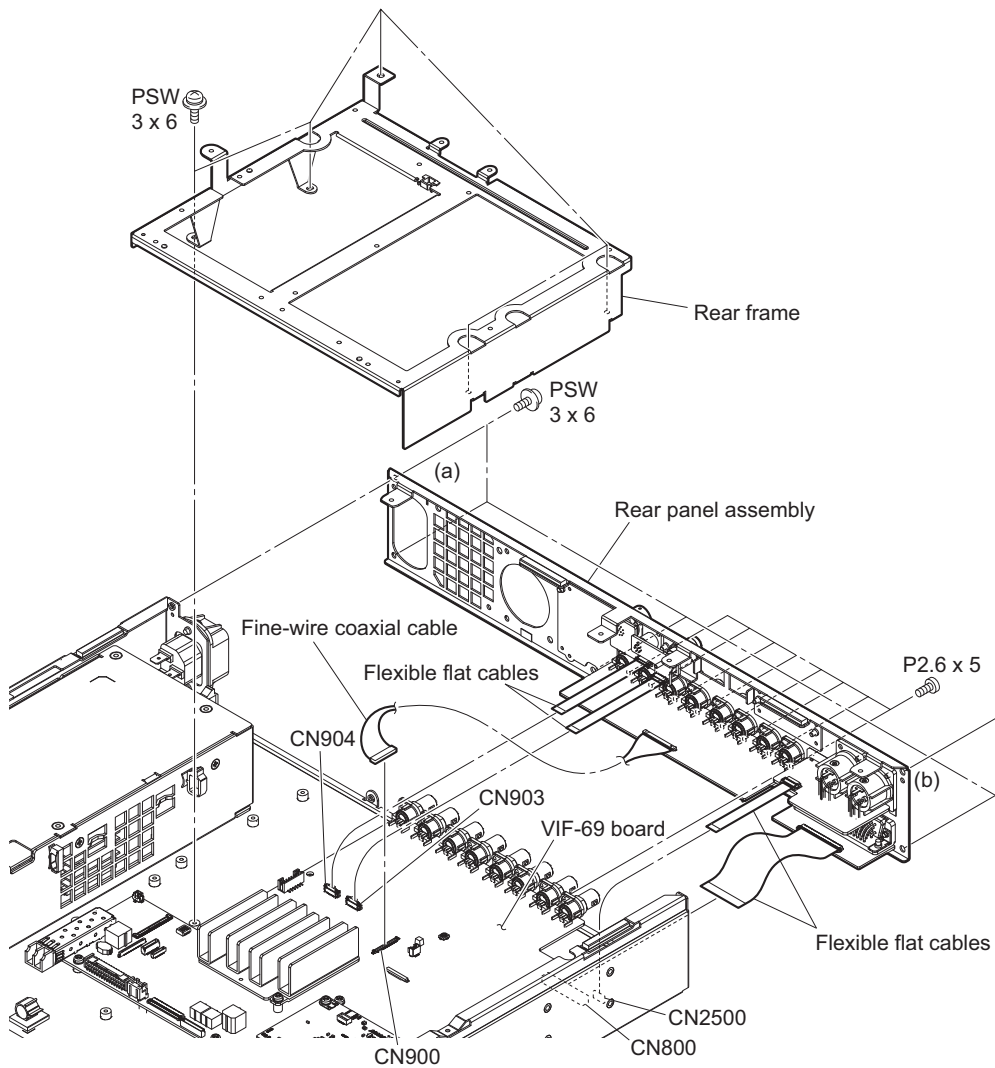
Preparation

1. Remove the top cover. (Refer to [“2-2. Top Cover”](#).)
2. Remove the front frame. (Refer to steps 1 to 4 in [“2-3-1. Front Panel Assembly”](#).)
3. Remove the CN-3963 board. (Refer to [“2-6. CN-3963 Board”](#).)
4. Remove the DC fan (60 square). (Refer to [“2-7. DC Fan \(60 Square\)”](#).)
5. [For HDCU3100]
Remove the optical multi fiber cable. (Refer to [“2-12. Optical Multi Fiber Cable \(HDCU3100\)”](#).)
[For HDCU3170]
Remove the triax assembly. (Refer to [“2-13. Triax Assembly \(HDCU3170\)”](#).)

Procedure

1. Remove the five screws (PSW3 x 6), then remove the rear frame.
2. Disconnect the four flexible flat cables from the connectors (CN903, CN904, CN800 and CN2500) on the VIF-69 board.
3. Disconnect the fine-wire coaxial cable from the connector (CN900) on the VIF-69 board.
4. Remove the eight screws (P2.6 x 5).

5. Remove the five screws (PSW3 x 6), then remove the rear panel assembly.



Note

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

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

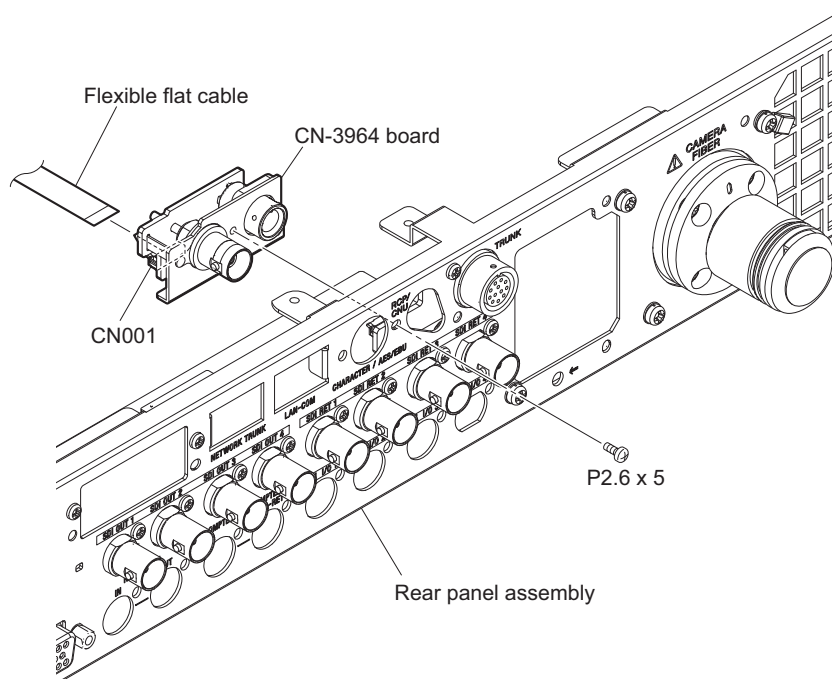
2-14-2. CN-3964 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the front frame. (Refer to steps 1 to 4 in “2-3-1. Front Panel Assembly”.)
3. Remove the CN-3963 board. (Refer to “2-6. CN-3963 Board”.)
4. Remove the DC fan (60 square). (Refer to “2-7. DC Fan (60 Square)”.)
5. [For HDCU3100]
Remove the optical multi fiber cable. (Refer to “2-12. Optical Multi Fiber Cable (HDCU3100)”.)
[For HDCU3170]
Remove the triax assembly. (Refer to “2-13. Triax Assembly (HDCU3170)”.)
6. Remove the rear panel assembly. (Refer to “2-14-1. Rear Panel Assembly”.)

Procedure

1. Remove the screw, then remove the CN-3964 board.
2. Disconnect the flexible flat cable from the connector (CN001) on the CN-3964 board.



This illustration shows HDCU3100.

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

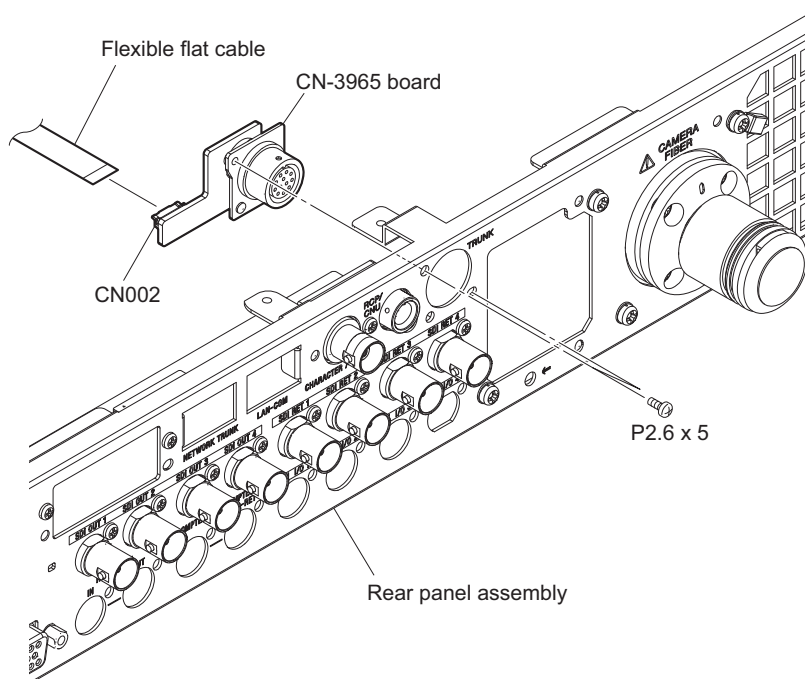
2-14-3. CN-3965 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the front frame. (Refer to steps 1 to 4 in “2-3-1. Front Panel Assembly”.)
3. Remove the CN-3963 board. (Refer to “2-6. CN-3963 Board”.)
4. Remove the DC fan (60 square). (Refer to “2-7. DC Fan (60 Square)”.)
5. [For HDCU3100]
Remove the optical multi fiber cable. (Refer to “2-12. Optical Multi Fiber Cable (HDCU3100)”.)
[For HDCU3170]
Remove the triax assembly. (Refer to “2-13. Triax Assembly (HDCU3170)”.)
6. Remove the rear panel assembly. (Refer to “2-14-1. Rear Panel Assembly”.)

Procedure

1. Remove the two screws, then remove the CN-3965 board.
2. Disconnect the flexible flat cable from the connector (CN002) on the CN-3965 board.



This illustration shows HDCU3100.

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

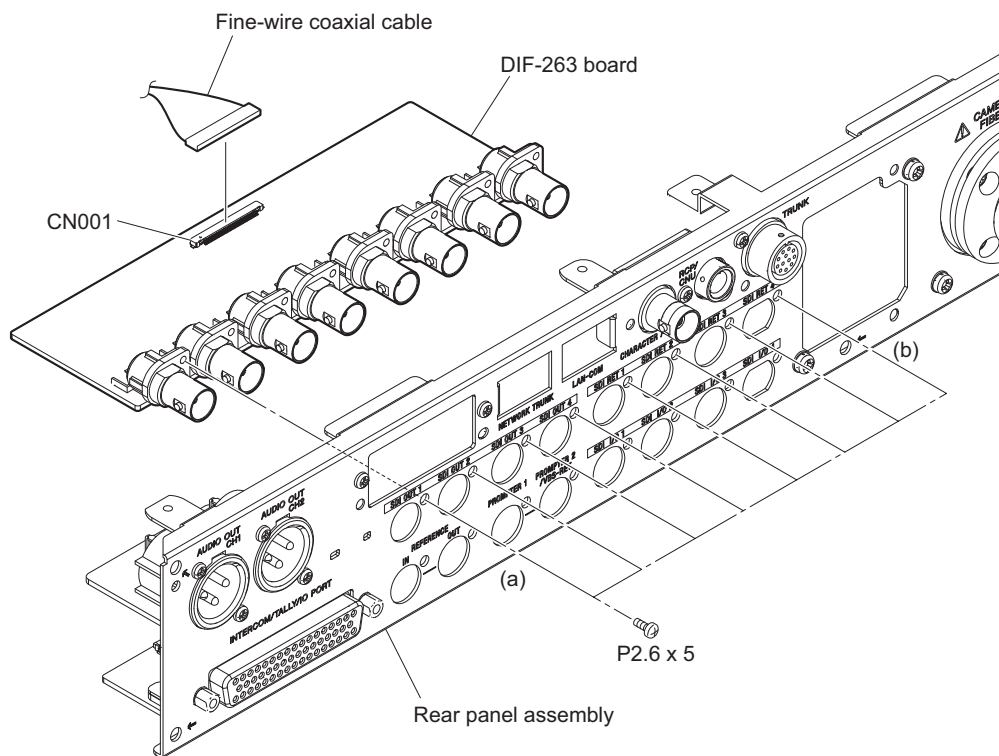
2-14-4. DIF-263 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the front frame. (Refer to steps 1 to 4 in “2-3-1. Front Panel Assembly”.)
3. Remove the CN-3963 board. (Refer to “2-6. CN-3963 Board”.)
4. Remove the DC fan (60 square). (Refer to “2-7. DC Fan (60 Square)”.)
5. [For HDCU3100]
Remove the optical multi fiber cable. (Refer to “2-12. Optical Multi Fiber Cable (HDCU3100)”.)
[For HDCU3170]
Remove the triax assembly. (Refer to “2-13. Triax Assembly (HDCU3170)”.)
6. Remove the rear panel assembly. (Refer to “2-14-1. Rear Panel Assembly”.)

Procedure

1. Remove the eight screws, then remove the DIF-263 board.
2. Disconnect the fine-wire coaxial cable from the connector (CN001) on the DIF-263 board.



This illustration shows HDCU3100.

Note

When installing the DIF-263 board, tighten the screws in the following sequence: (a), (b), others.

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

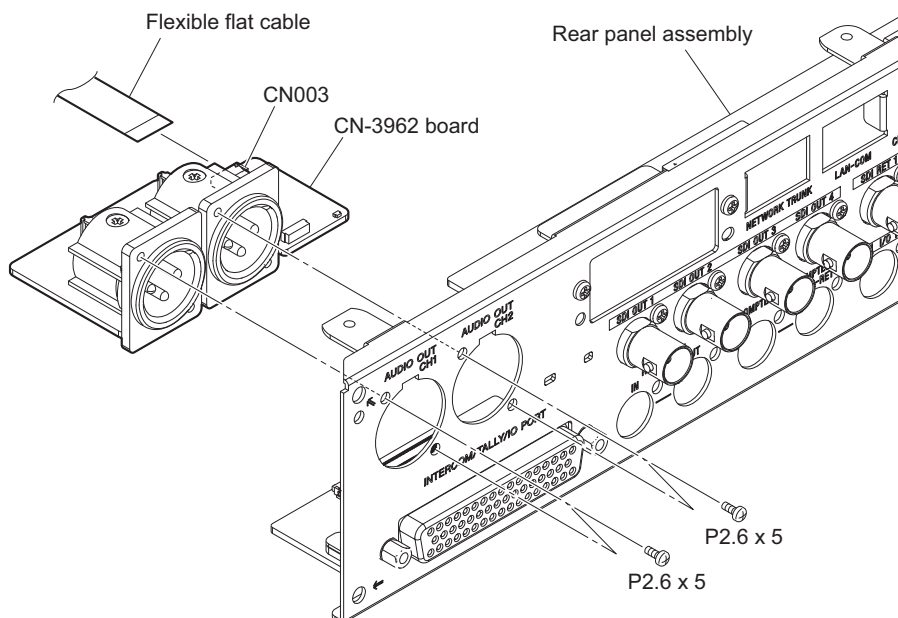
2-14-5. CN-3962 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the front frame. (Refer to steps 1 to 4 in “2-3-1. Front Panel Assembly”.)
3. Remove the CN-3963 board. (Refer to “2-6. CN-3963 Board”.)
4. Remove the DC fan (60 square). (Refer to “2-7. DC Fan (60 Square)”.)
5. [For HDCU3100]
Remove the optical multi fiber cable. (Refer to “2-12. Optical Multi Fiber Cable (HDCU3100)”.)
[For HDCU3170]
Remove the triax assembly. (Refer to “2-13. Triax Assembly (HDCU3170)”.)
6. Remove the rear panel assembly. (Refer to “2-14-1. Rear Panel Assembly”.)

Procedure

1. Remove the four screws, then remove the CN-3962 board.
2. Disconnect the flexible flat cable from the connector (CN003) on the CN-3962 board.



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

2-14-6. CN-4035 Board (CN-3847 Board)

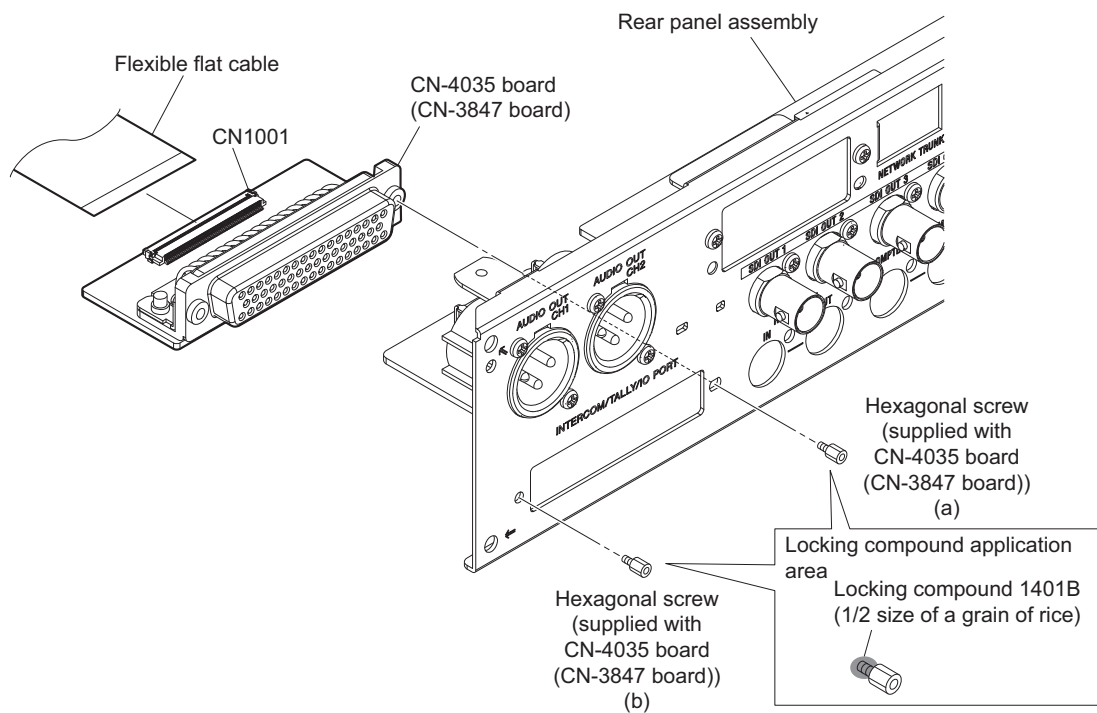
Required tool: Box driver (Subtense: 5 mm)

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the front frame. (Refer to steps 1 to 4 in “2-3-1. Front Panel Assembly”.)
3. Remove the CN-3963 board. (Refer to “2-6. CN-3963 Board”.)
4. Remove the DC fan (60 square). (Refer to “2-7. DC Fan (60 Square)”.)
5. [For HDCU3100]
Remove the optical multi fiber cable. (Refer to “2-12. Optical Multi Fiber Cable (HDCU3100)”.)
[For HDCU3170]
Remove the triax assembly. (Refer to “2-13. Triax Assembly (HDCU3170)”.)
6. Remove the rear panel assembly. (Refer to “2-14-1. Rear Panel Assembly”.)

Procedure

1. Remove the two hexagonal screws, then remove the CN-4035 board (CN-3847 board).
2. Disconnect the flexible flat cable from the connector (CN1001) on the CN-4035 board (CN-3847 board).



Note

When installing the CN-4035 board (CN-3847 board), tighten the screws in the following sequence: (a), (b).

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

2-14-7. CN-3975 Board (HDCU3100)

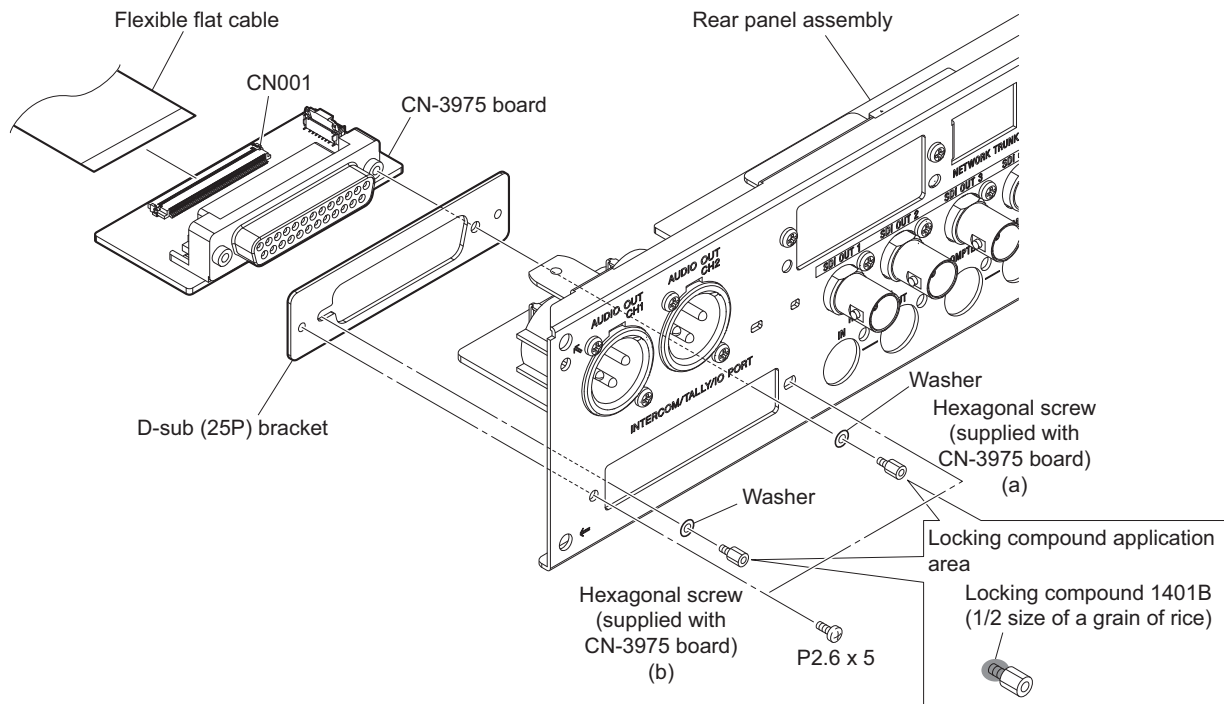
Required tool: Box driver (Size: 5 mm)

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the front frame. (Refer to steps 1 to 4 in “2-3-1. Front Panel Assembly”.)
3. Remove the CN-3963 board. (Refer to “2-6. CN-3963 Board”.)
4. Remove the DC fan (60 square). (Refer to “2-7. DC Fan (60 Square)”.)
5. [For HDCU3100]
Remove the optical multi fiber cable. (Refer to “2-12. Optical Multi Fiber Cable (HDCU3100)”.)
[For HDCU3170]
Remove the triax assembly. (Refer to “2-13. Triax Assembly (HDCU3170)”.)
6. Remove the rear panel assembly. (Refer to “2-14-1. Rear Panel Assembly”.)

Procedure

1. Disconnect the flexible flat cable from the connector (CN001) on the CN-3975 board.
2. Remove the two hexagonal screws and the two washers, then remove the CN-3975 board.
3. Remove the two screws, then remove the D-sub (25P) bracket.



Note

When installing the hexagonal screws, apply locking compound to them.
Locking compound 1401B (7-600-002-52)

Note

When installing two hexagonal screws, temporarily tighten the hexagonal screw (a) and (b), and then secure them.

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

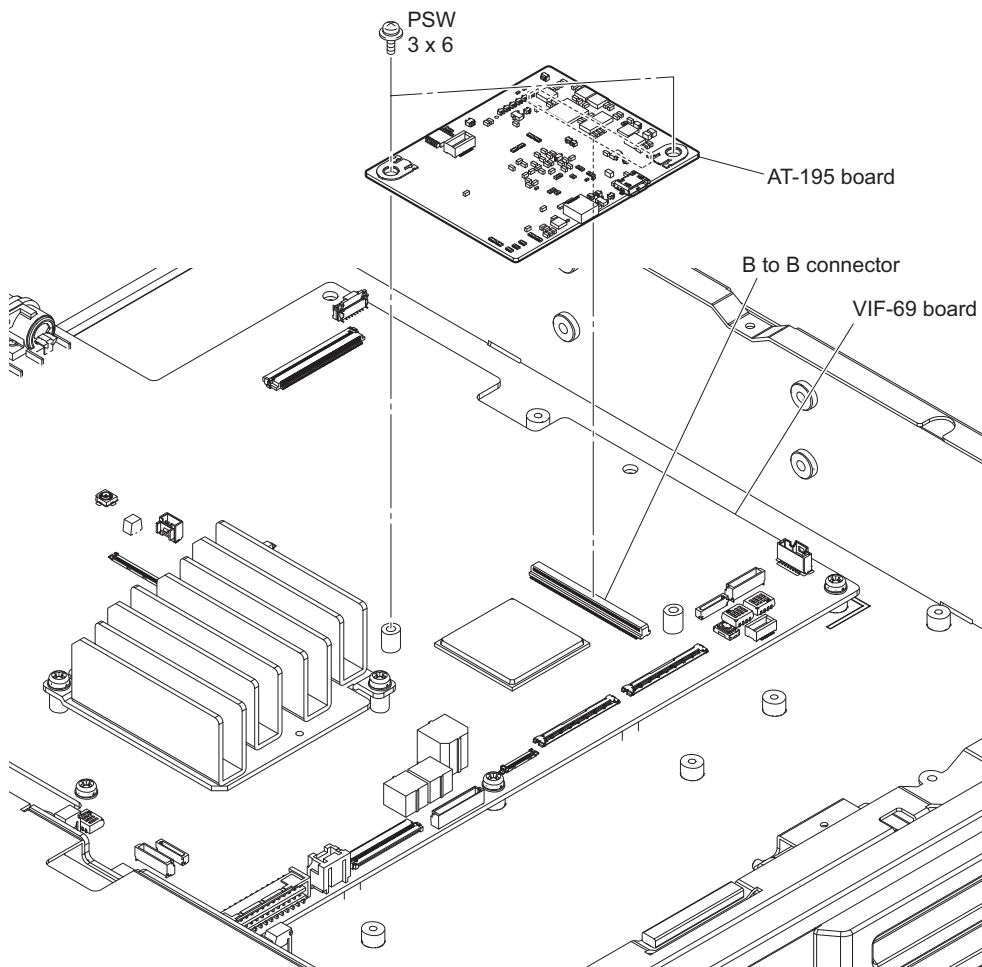
2-15. AT-195 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the lithium battery. (Refer to “2-4. Lithium Battery”.)
3. Remove the front frame. (Refer to steps 1 to 4 in “2-3-1. Front Panel Assembly”.)
4. Remove the CN-3963 board. (Refer to “2-6. CN-3963 Board”.)
5. Remove the DC fan (60 square). (Refer to “2-7. DC Fan (60 Square)”.)
6. [For HDCU3100]
Remove the optical multi fiber cable. (Refer to “2-12. Optical Multi Fiber Cable (HDCU3100)”.)
[For HDCU3170]
Remove the triax assembly. (Refer to “2-13. Triax Assembly (HDCU3170)”.)
7. Remove the rear panel assembly. (Refer to “2-14-1. Rear Panel Assembly”.)

Procedure

1. Remove the two screws, then remove the AT-195 board.



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

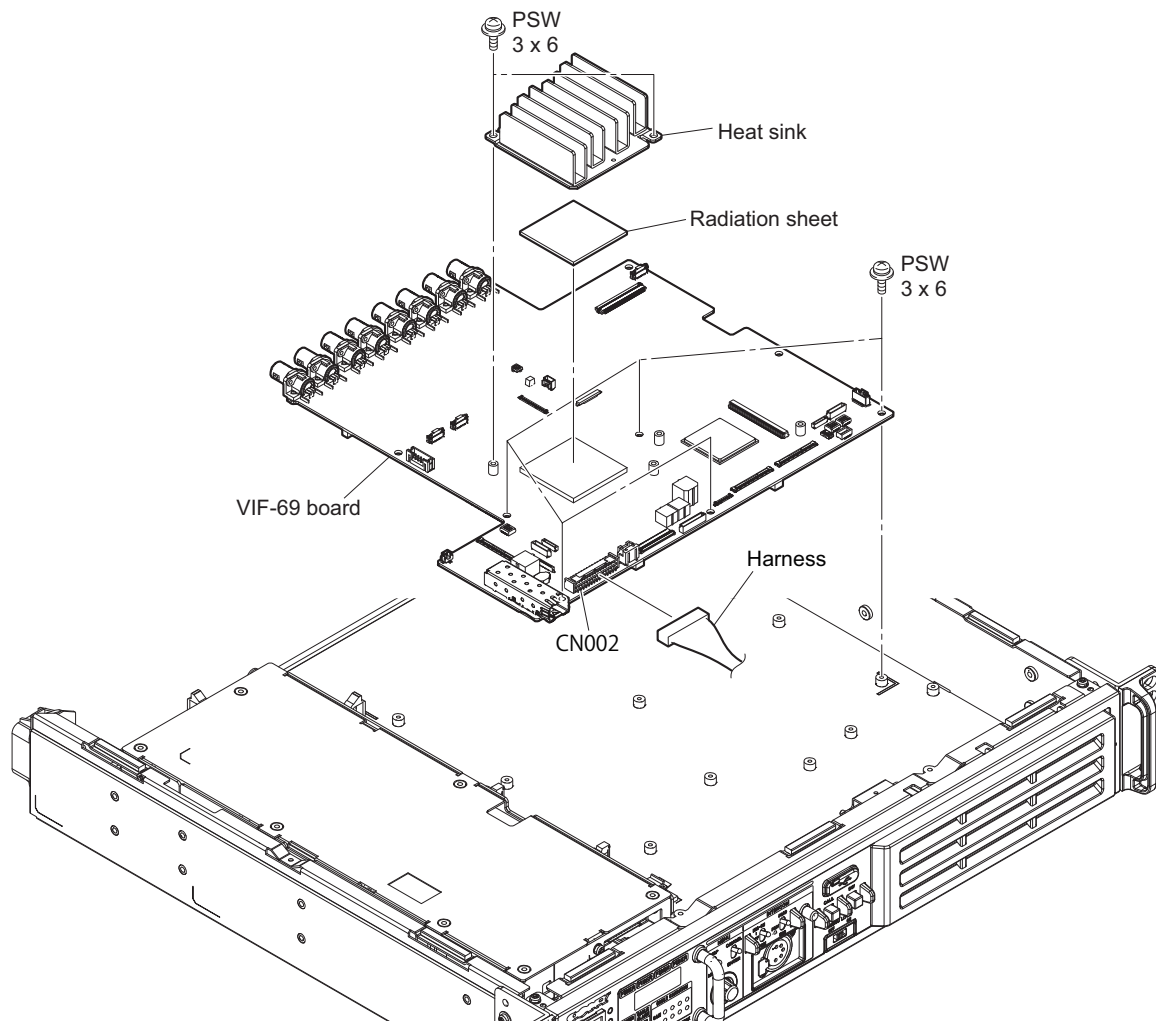
2-16. VIF-69 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the lithium battery. (Refer to “2-4. Lithium Battery”.)
3. Remove the front frame. (Refer to steps 1 to 4 in “2-3-1. Front Panel Assembly”.)
4. Remove the CN-3963 board. (Refer to “2-6. CN-3963 Board”.)
5. Remove the DC fan (60 square). (Refer to “2-7. DC Fan (60 Square)”.)
6. [For HDCU3100]
Remove the optical multi fiber cable. (Refer to “2-12. Optical Multi Fiber Cable (HDCU3100)”.)
[For HDCU3170]
Remove the triax assembly. (Refer to “2-13. Triax Assembly (HDCU3170)”.)
7. Remove the rear panel assembly. (Refer to “2-14-1. Rear Panel Assembly”.)
8. Remove the AT-195 board. (Refer to “2-15. AT-195 Board”.)

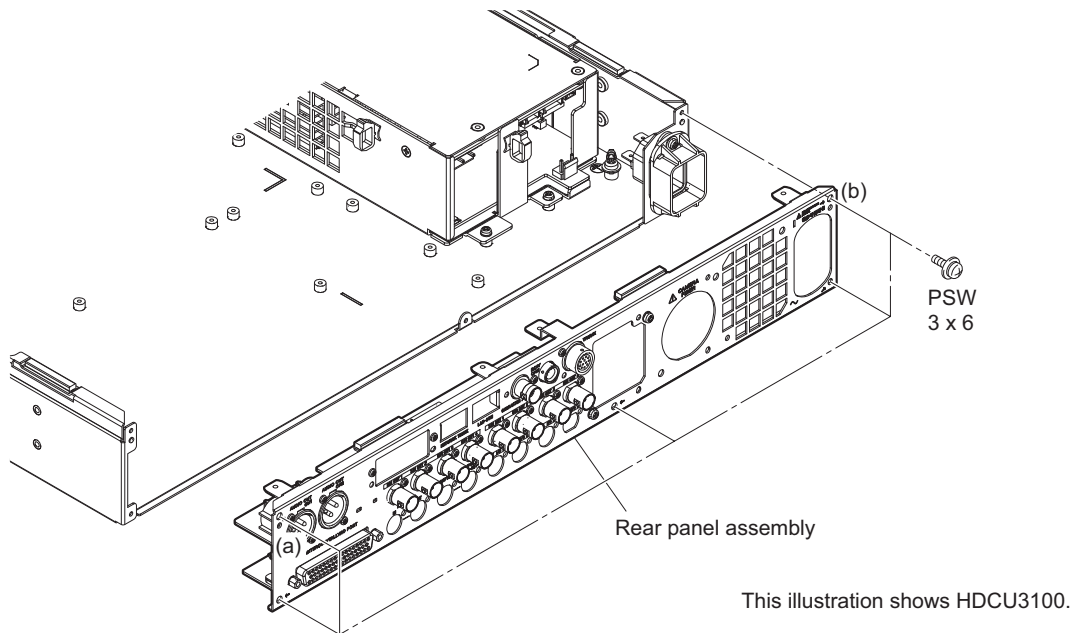
Procedure for removal

1. Disconnect the harness from the connector (CN002) on the VIF-69 board.
2. Remove the two screws, then remove the heat sink.
3. Remove the radiation sheet.
4. Remove the five screws, then remove the VIF-69 board.



Procedure for installation

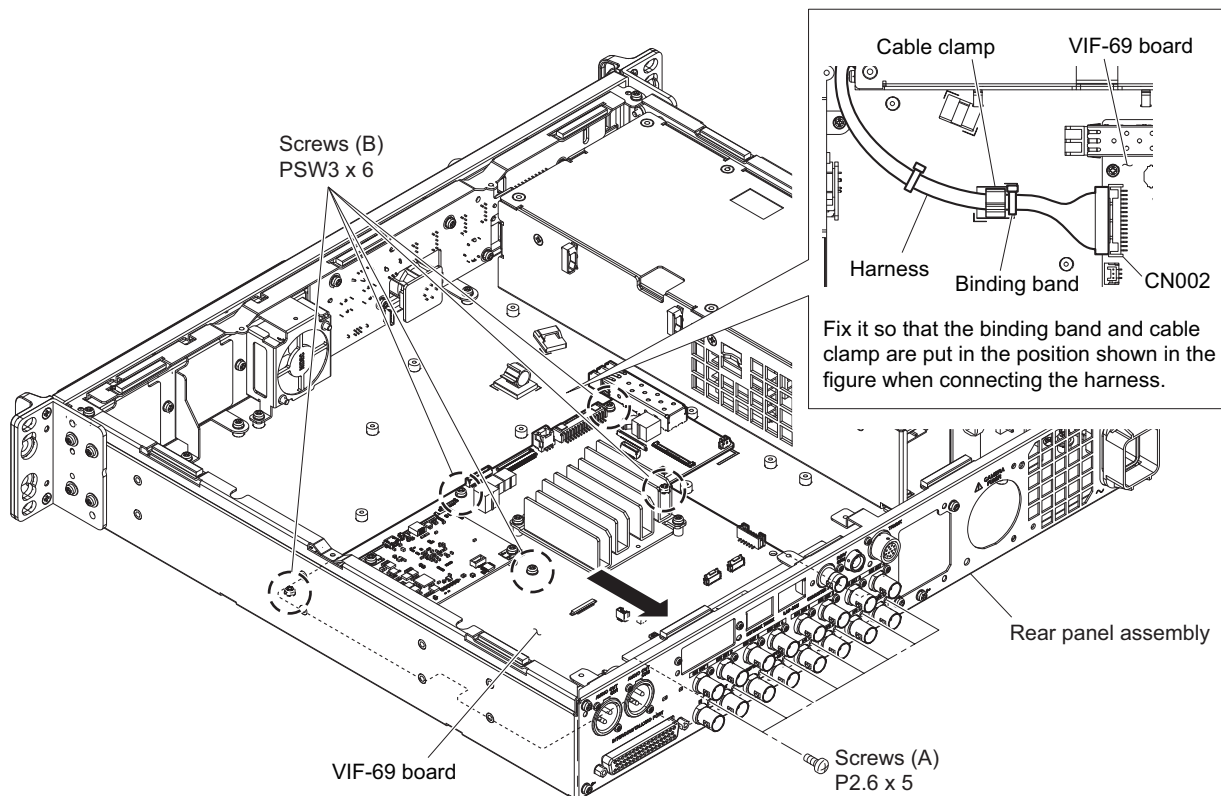
1. Install the rear panel assembly with five screws.



Note

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

2. Install the VIF-69 board and tighten the five screws (B) temporarily.
3. Push the VIF-69 board in the direction of the arrow and tighten the eight screws (A).
4. Tighten the five screws (B) finally.
5. Assemble the removed parts by reversing steps 1 to 3 of removal.



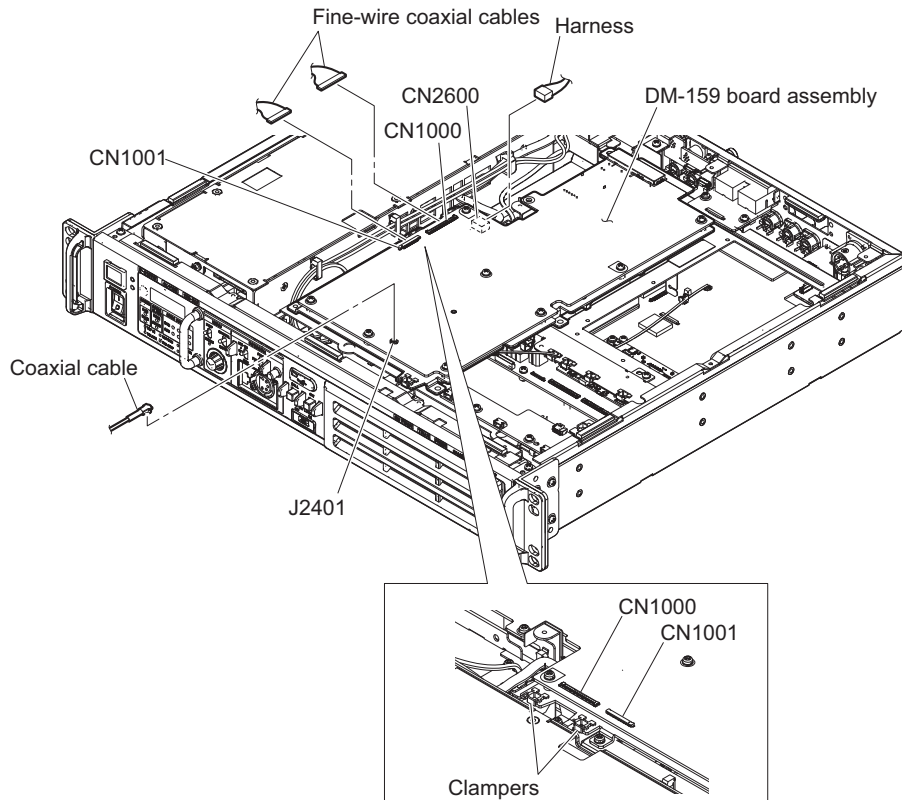
2-17. DM-159 Board Assembly/ENC-184 Board (HDCU3170)

Preparation

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

Procedure

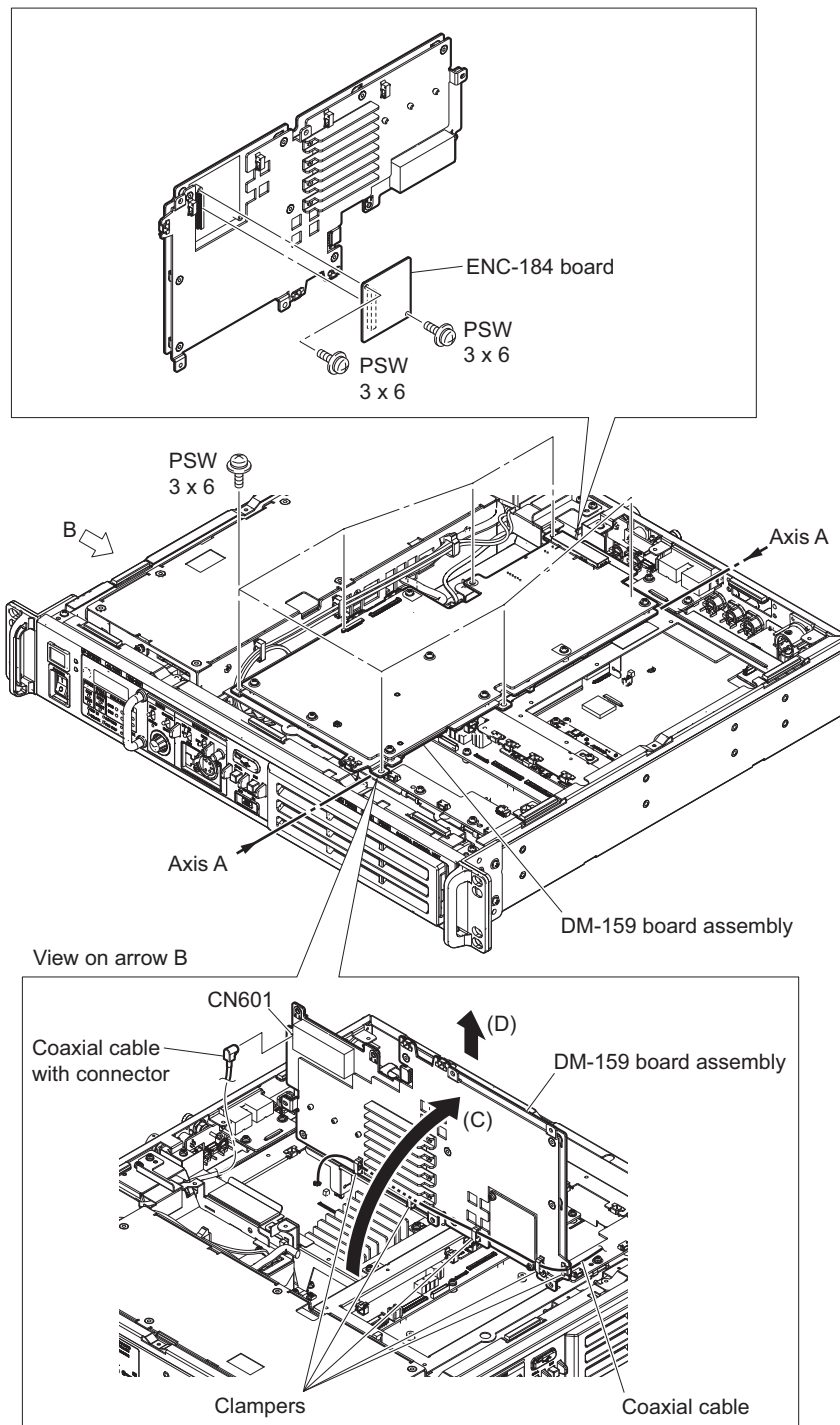
1. Disconnect the two fine-wire coaxial cables from the connectors (CN1000 and CN1001) on the DM-159 board assembly, then disconnect the two fine-wire coaxial cables from the two clampers.
2. Disconnect the coaxial cable from the connector (J2401) on the DM-159 board.
3. Disconnect the harness from the connector (CN2600) on the DM-159 board.



4. Remove the DM-159 board.
 - (1) Remove the seven screws and open the DM-159 board assembly in the direction of the arrow (C) with axis A in the center.
 - (2) Disconnect the coaxial cable from the five clampers.
 - (3) Disconnect the coaxial cable with connector from the connector (CN601) on the DM-159 board assembly.
 - (4) Remove the DM-159 board assembly in the direction of the arrow (D).
 - (5) Remove the two screws, then remove the ENC-184 board.

Note

Do not raise it when removing the DM-159 board assembly. If so, this may damage the coaxial cable and the coaxial cable with connector.



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

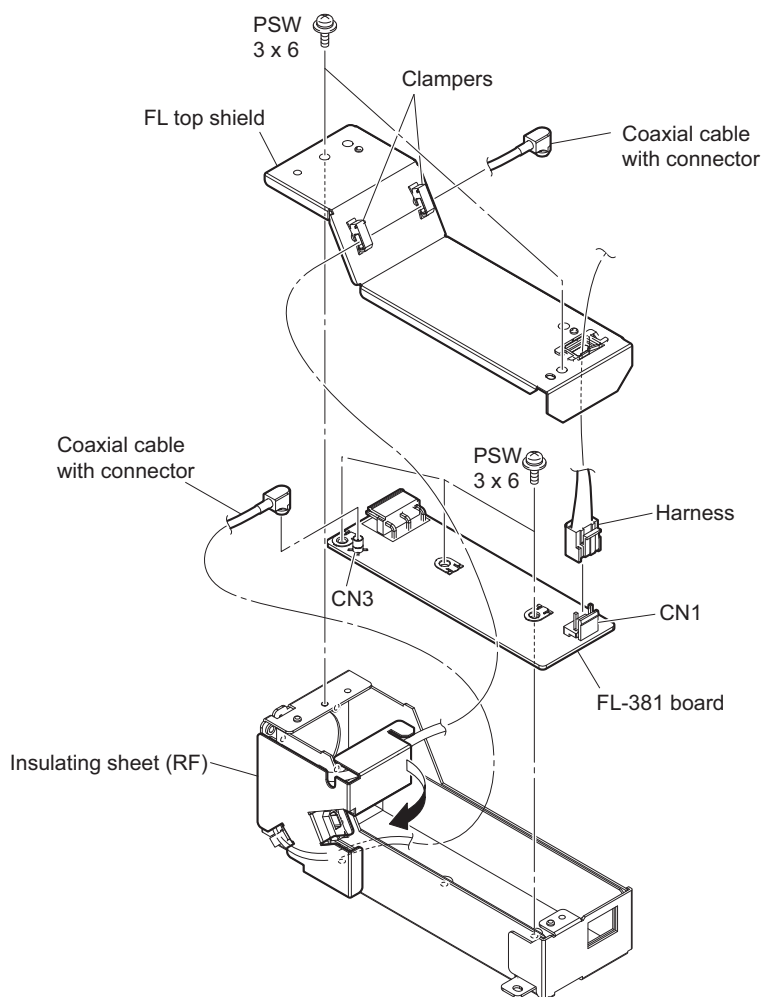
2-18. FL-381 Board (HDCU3170)

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the DM-159 board. (Refer to “2-17. DM-159 Board Assembly/ENC-184 Board (HDCU3170)”.)
3. Remove the triax assembly. (Refer to “2-13. Triax Assembly (HDCU3170)”.)

Procedure

1. Open the insulating sheet (RF) in the direction indicated by the arrow and disconnect the coaxial cable with a connector from the two clampers.
2. Remove the two screws and raise the FL top shield.
3. Disconnect the harness from the connector (CN1) on an FL-381 board and remove the FL top shield.
4. Remove the three screws, then remove the FL-381 board.
5. Disconnect the coaxial cable with connector from the connector (CN3) on the FL-381 board.



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

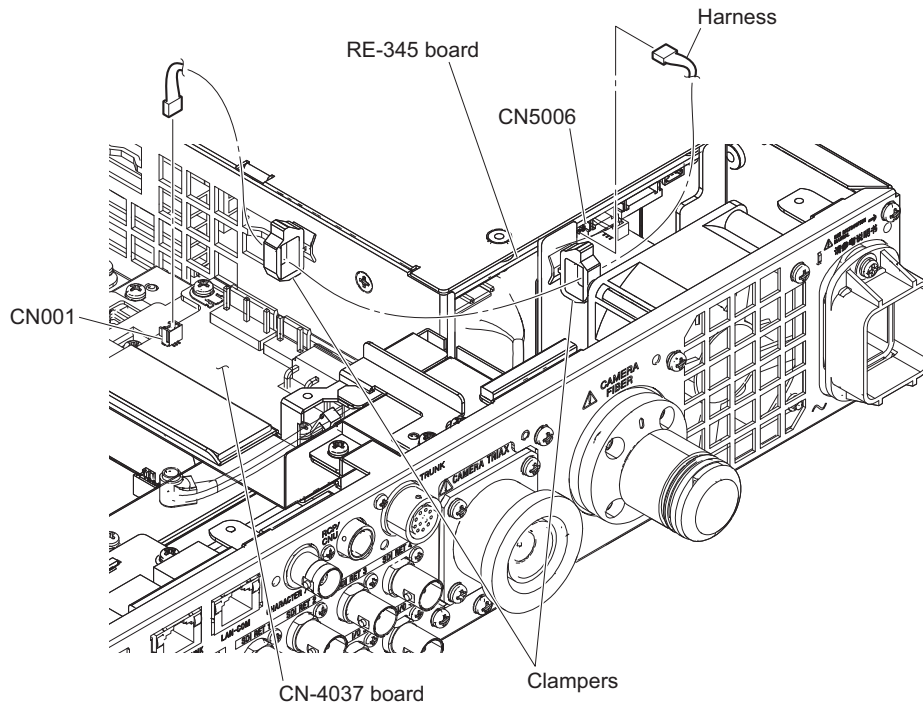
2-19. CN-4037 Board (HKCU-FB30: HDCU3170)

Preparation

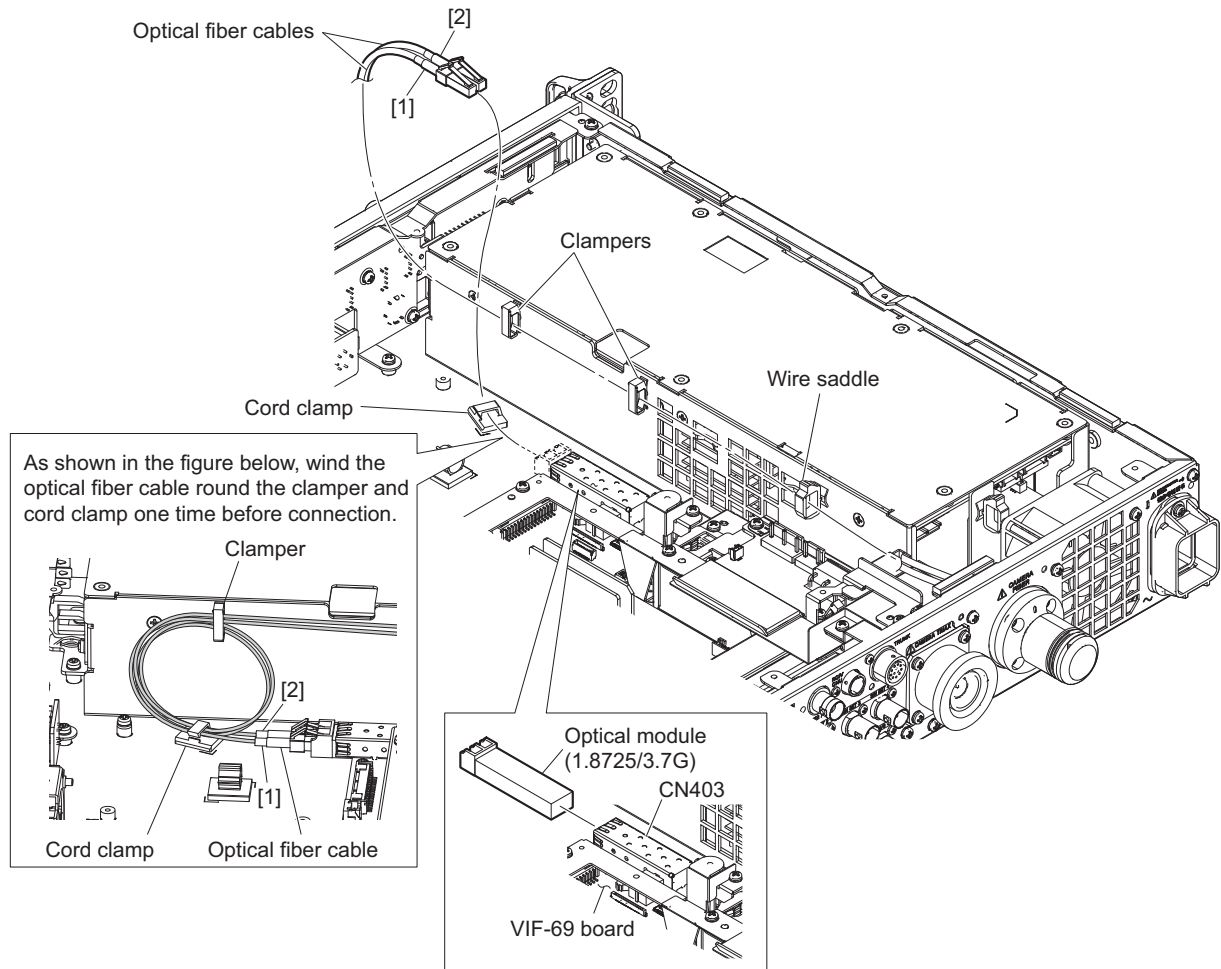
1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the DM-159 board. (Refer to “2-17. DM-159 Board Assembly/ENC-184 Board (HDCU3170)”.)
3. Remove the front frame. (Refer to steps 7 to 9 in “2-20-1. HDCU3100”.)

Procedure

1. Disconnect the harness from the connector (CN5006) on the RE-345 board.
2. Open the two clampers, disconnect the harness from the connector (CN001) on the CN-4037 board.



3. Disconnect the harness.
 - (1) Open the wire saddle, two clampers, and the cord clamp and disconnect the optical fiber cables.
 - (2) Disconnect the optical fiber cables from the optical module (1.8725/3.7G).
 - (3) Remove the optical module (1.8725/3.7G) from the connector (CN403) on the VIF-69 board.



Note

When installing the optical fiber cable, connect correctly.

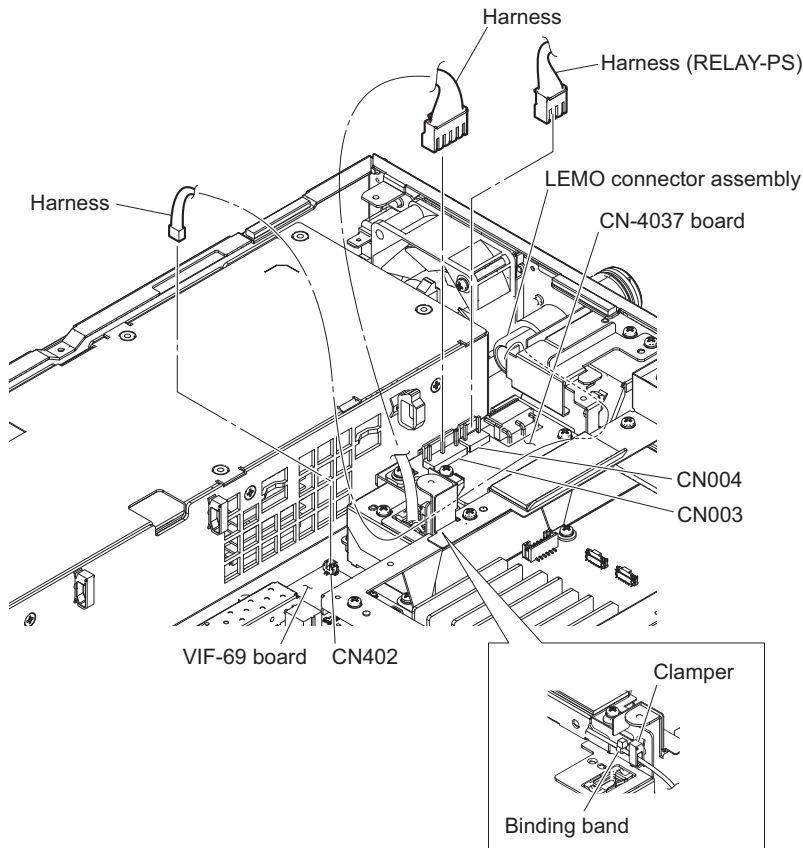
Tip

Clamp so that the optical fiber cable is put above the power cable.

When installing the optical fiber cable, wind the cable one time in the position shown in the figure and fix it using the cord clamp and clamer.

4. Disconnect the harness.

- (1) Open the clamper, disconnect the harness from the connector (CN402) on the VIF-69 board.
- (2) Disconnect the harness from the connector (CN003) on the CN-4037 board.
- (3) Disconnect the harness (RELAY-PS) from the connector (CN004) on the CN-4037 board.

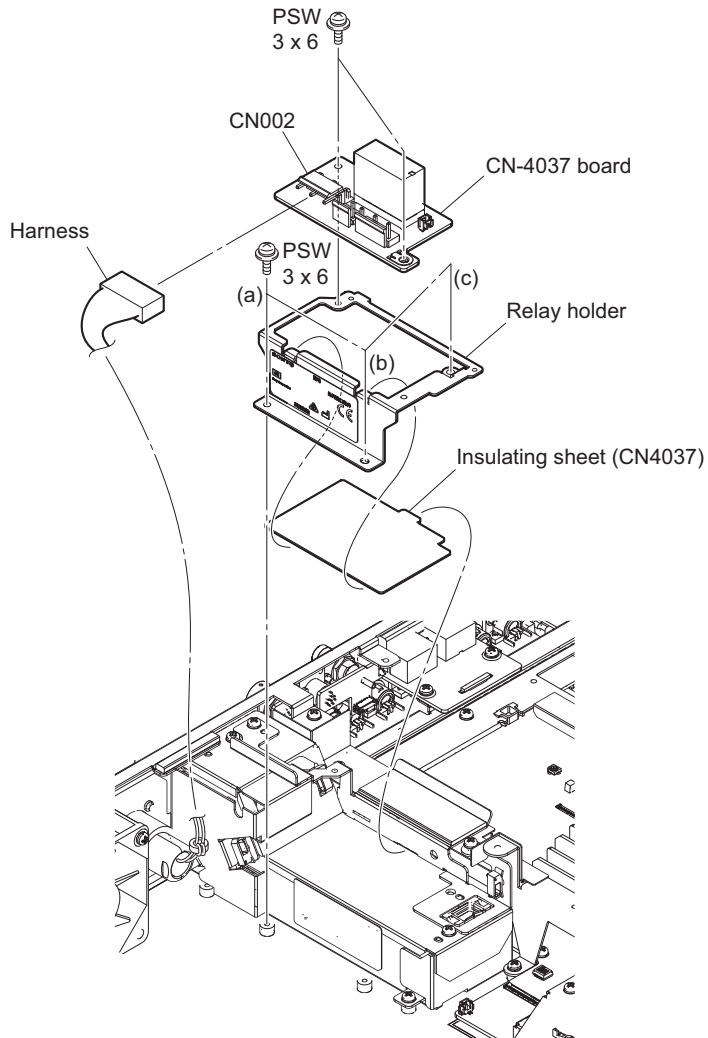


Tip

- Clamp the bundling band inside the clamper when connecting the harness, from the LEMO connector assembly, to the connector (CN402) on the VIF-69 board.
- Push the extra length of the harness between the power supply and relay holder.

5. Remove the relay holder.

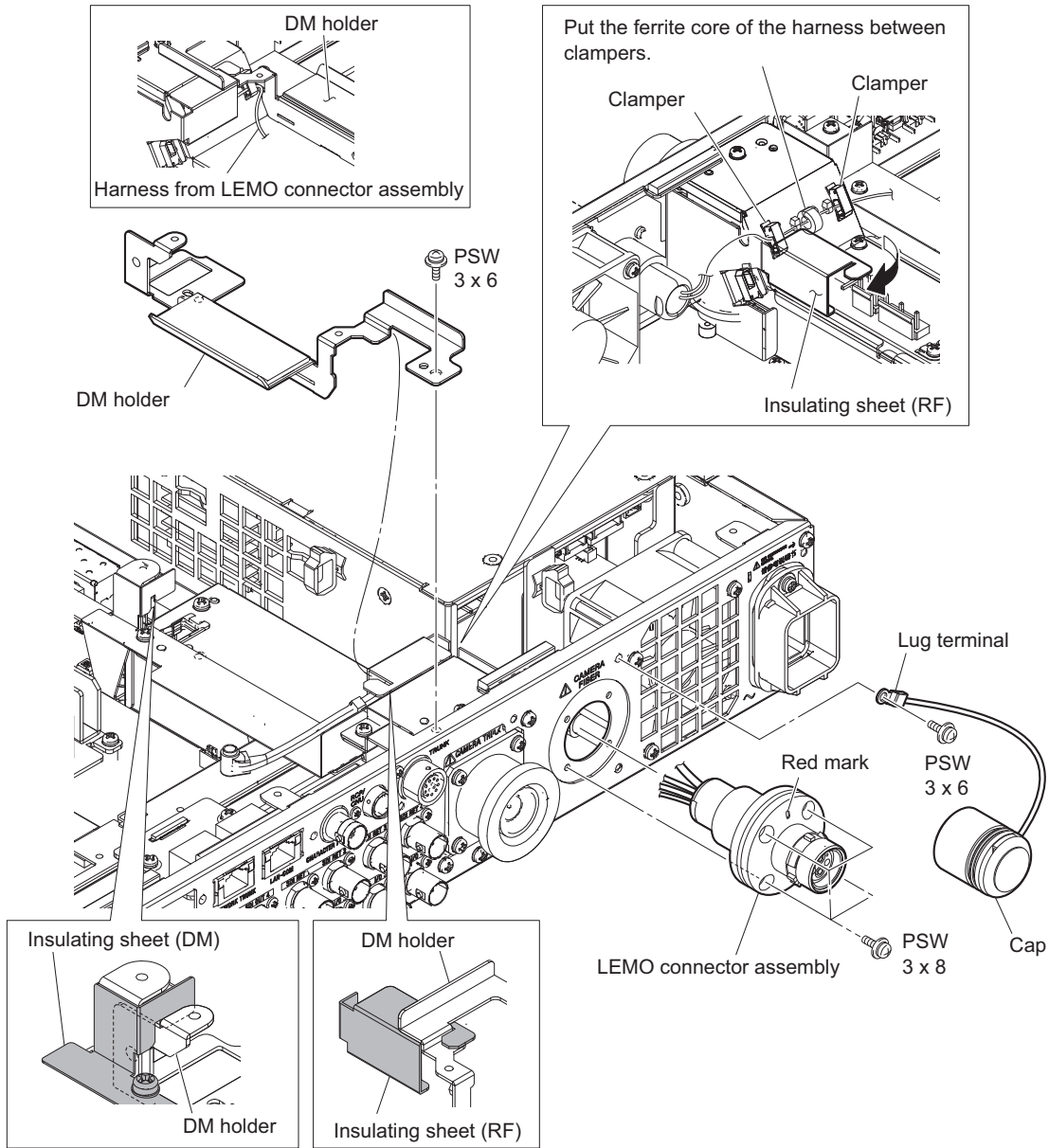
- (1) Remove the two screws, then remove the CN-4037 board.
- (2) Disconnect the harness from the connector (CN002) on the CN-4037 board.
- (3) Remove the three screws, then remove the relay holder.
- (4) Remove the insulating sheet (CN4037).



Tip

When installing the relay holder, tighten the screws in the order of (a) to (c).

6. Remove the LEMO connector assembly.
 - (1) Remove the screw, then remove the DM holder.
 - (2) Open the insulating sheet (RF).
 - (3) Open the two clampers, then remove the two harnesses.
 - (4) Remove the cap.
 - (5) Remove the four screws (PSW3 x 8), then remove the LEMO connector assembly.
 - (6) Remove the screw (PSW3 x 6), then remove the lug terminal.



Note

When installing the LEMO connector assembly, install it with the red mark up.

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

2-20. NET-37 Board Assembly (HKCU-SFP30)

Note

The removed screws cannot be reused. Use supplied screws.

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

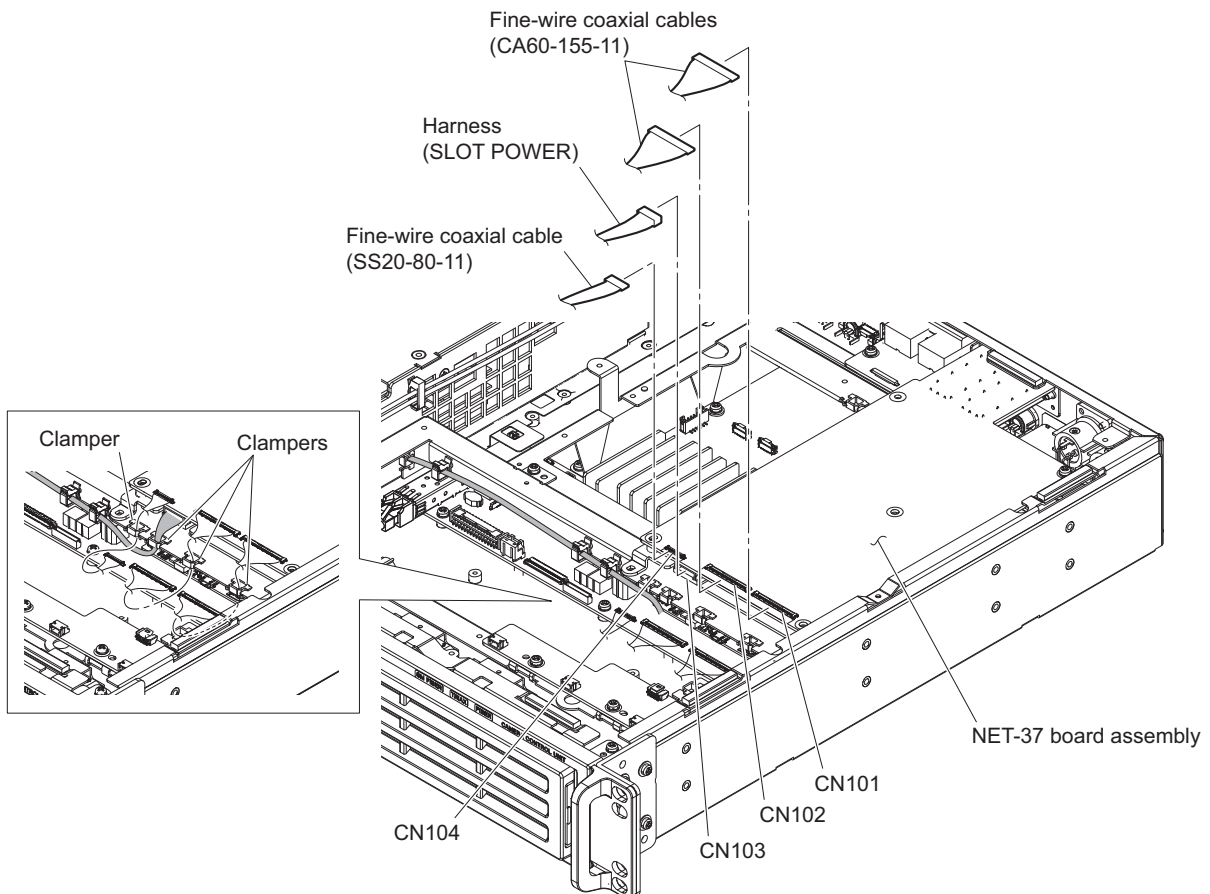
2-20-1. HDCU3100

Preparation

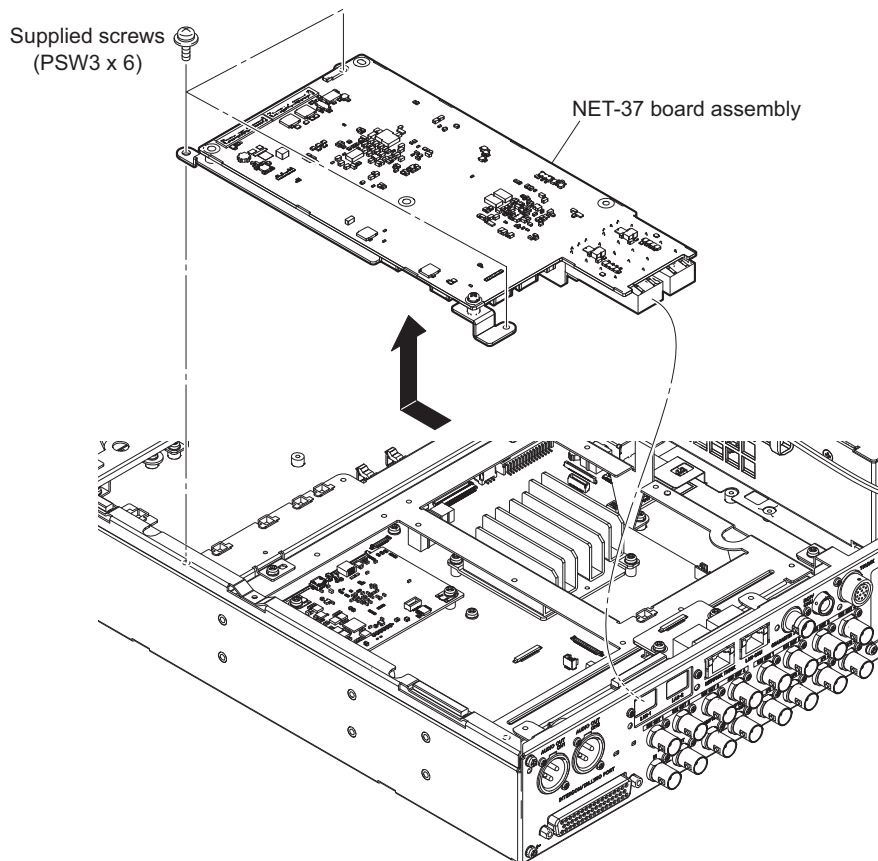
1. Remove the top cover. (Refer to “2-2. Top Cover”).

Procedure

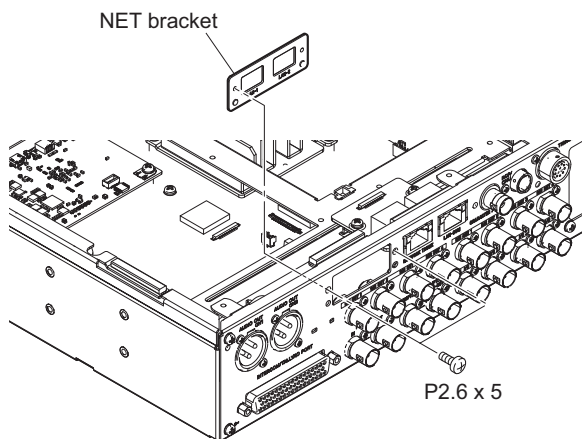
1. Open the four clampers, then remove the three fine-wire coaxial cables and the harness.
2. Disconnect the fine-wire coaxial cable (SS20-80-11) from the connector (CN104) on the NET-37 board assembly.
3. Disconnect the harness (SLOT POWER) from the connector (CN103) on the NET-37 board assembly.
4. Disconnect the two fine-wire coaxial cables (CA60-155-11) from the connectors (CN101 and CN102) on the NET-37 board assembly.



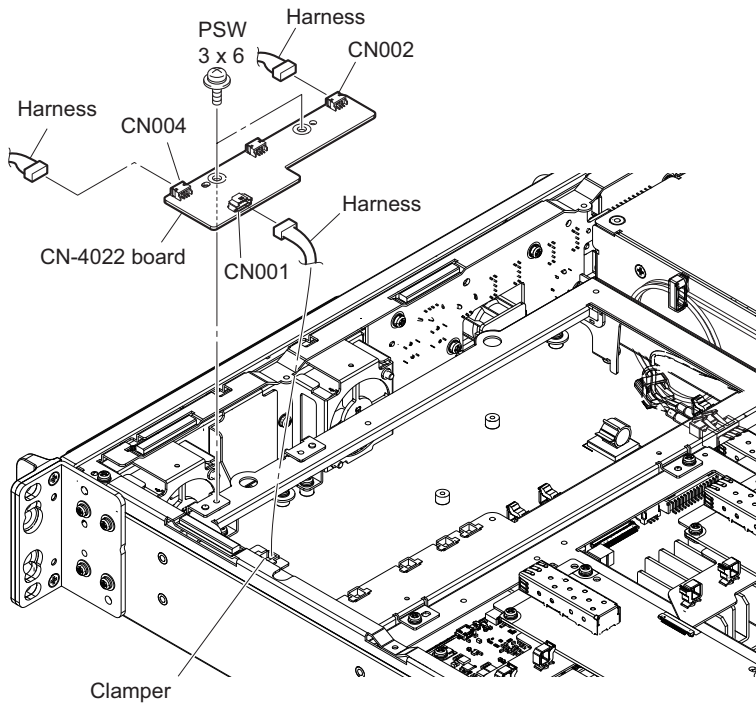
5. Remove the three screws, then remove the NET-37 board assembly in the direction of the arrow.



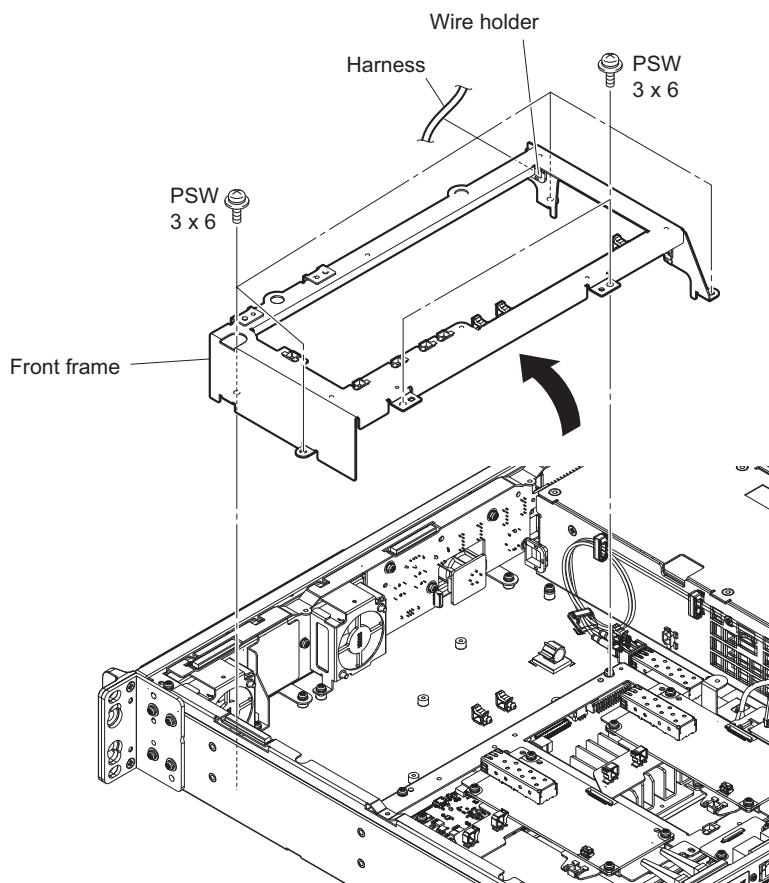
6. Remove the two screws, then remove the NET bracket.



7. Remove the CN-4022 board.
 - (1) Disconnect the three harnesses from the connectors (CN001, CN002, CN004) on the CN-4022 board.
 - (2) Open the clamber and disconnect the harness.
 - (3) Remove the two screws, then remove the CN-4022 board.

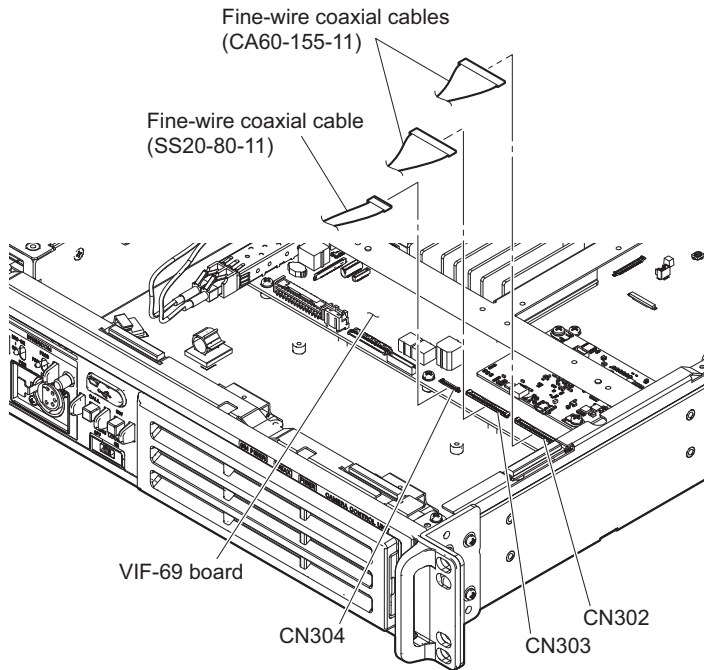


8. Open the wire holder and disconnect the harness.
9. Remove the six screws, then remove the front frame in the direction of the arrow.

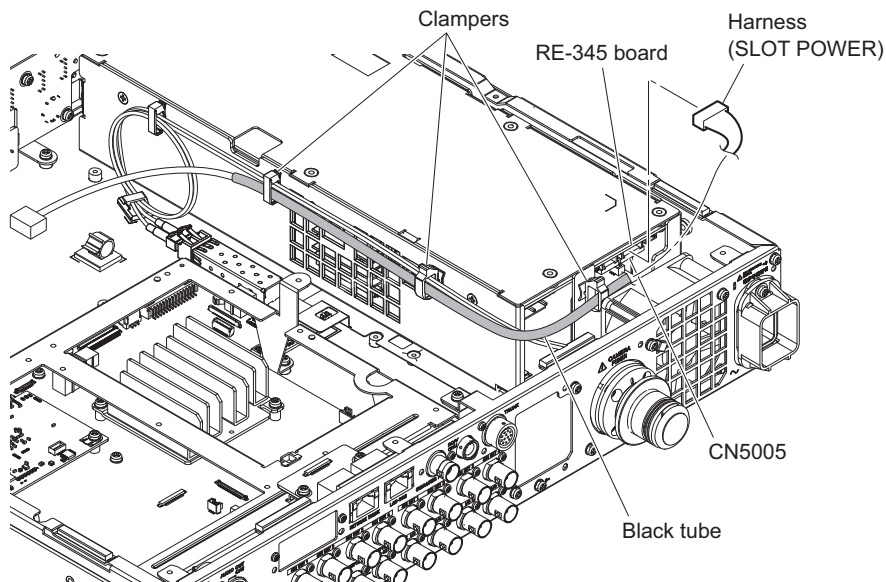


10. Disconnect the fine-wire coaxial cables.

- (1) Disconnect the two fine-wire coaxial cables (CA60-155-11) from the connectors (CN302 and CN303) on the VIF-69 board.
- (2) Disconnect the fine-wire coaxial cable (SS20-80-11) from the connector (CN304) on the VIF-69 board.



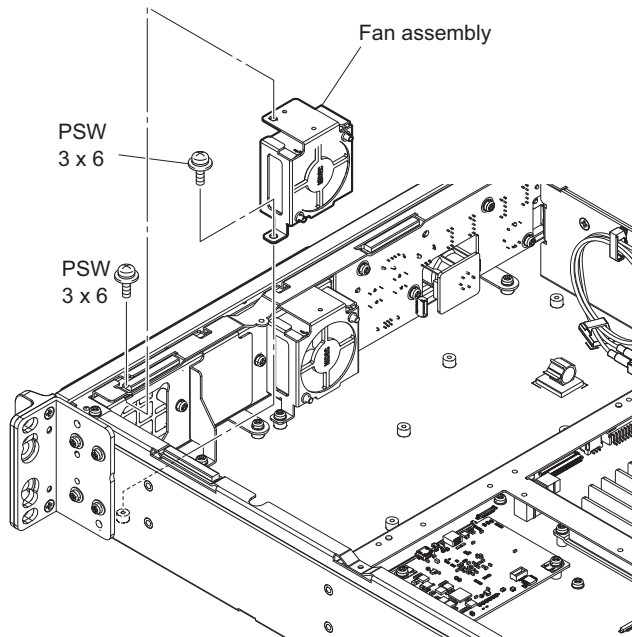
11. Open the three clampers and disconnect the harness (SLOT POWER) from the connector (CN5005) on the RE-345 board.



Tip

Connect the harness covered with a black tube to the connector (CN5005) on the RE-345 board.

12. Remove the two screws, then remove the fan assembly.



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

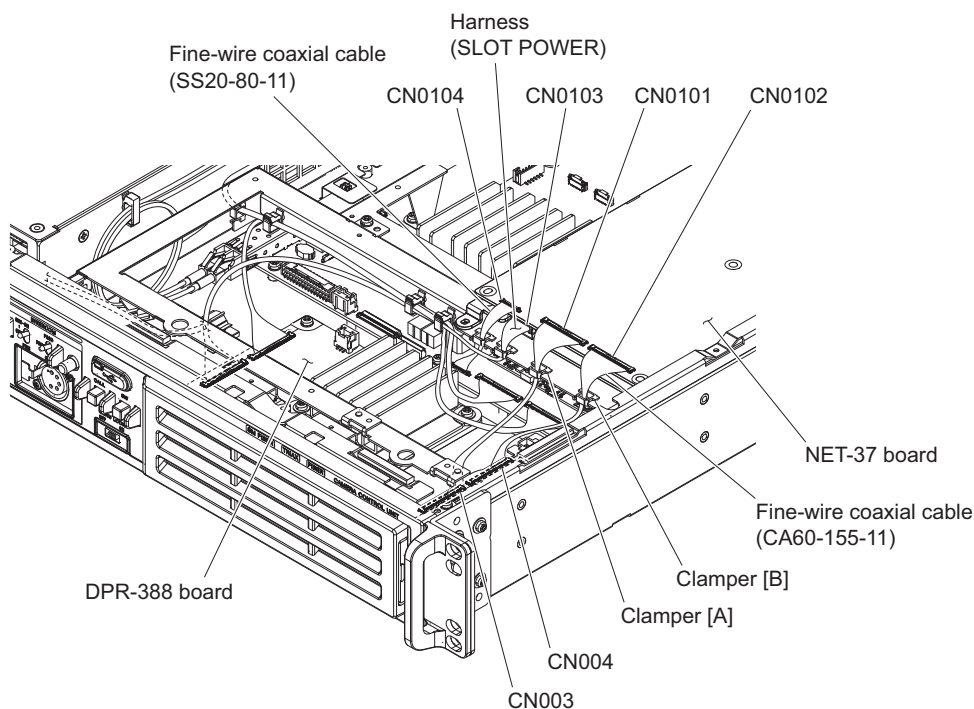
Notes on installation

The connection method is different between the case when HKCU-UHD30 or HKCU-SFP30 is installed by itself and the case when they are installed in combination.

Connect them in the following procedure.

Procedure

- (1) Connect the connector (CN003) on the DPR-388 board and the connector (CN0101) on the NET-37 board with the fine-wire coaxial cable (CA60-155-11), then secure it with the clamber [A].
- (2) Connect the connector (CN004) on the DPR-388 board and the connector (CN0102) on the NET-37 board with the fine-wire coaxial cable (CA60-155-11), then secure it with the clamber [B].



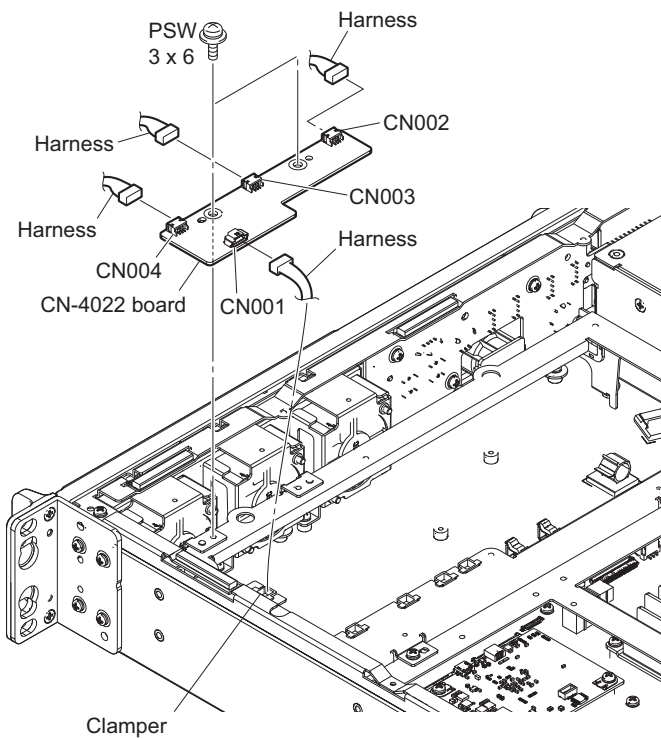
2-20-2. HDCU3170

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the DM-159 board. (Refer to “2-17. DM-159 Board Assembly/ENC-184 Board (HDCU3170)”.)
3. Remove the NET-37 board assembly. (Refer to steps 1 to 5 in “2-20-1. HDCU3100”.)

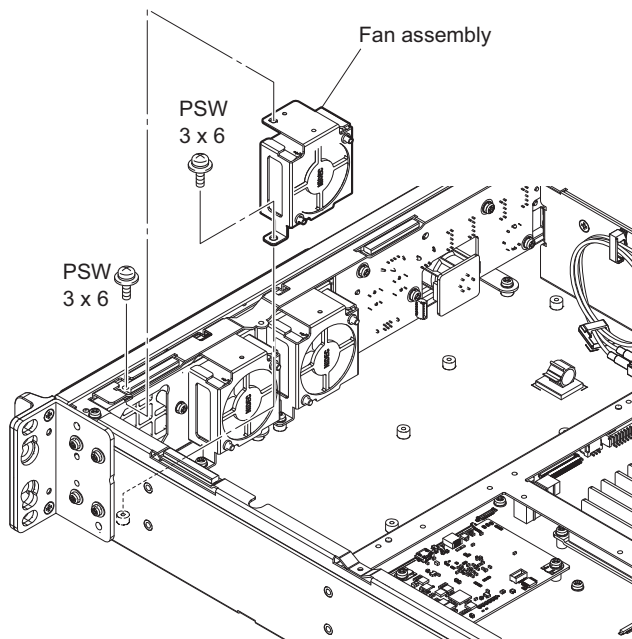
Procedure

1. Disconnect the four harnesses from the connectors (CN001 to CN004) on the CN-4022 board.
2. Open the clumper and disconnect the harness.
3. Remove the two screws, then remove the CN-4022 board.



4. Remove the front frame and the three fine-wire coaxial cables and the harness. (Refer to steps 8 to 11 in “2-20-1. HDCU3100”.)

5. Remove the fan assembly.



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

Notes on installation

The connection method is different between the case when HKCU-UHD30 or HKCU-SFP30 is installed by itself and the case when they are installed in combination.

Connect them in the following procedure.

Procedure

- (1) Connect the DPR-388 board and NET-37 board. (Refer to steps 8 to 11 in [“2-20-1. HDCU3100”](#).)

2-21. CN-4036 Board Assembly (HKCU-SM30)

The component parts of HKCU-SM30 are as shown in the table below. The parts used differ in HDCU3100 and HDCU3170.

Parts Name	HDCU3100	HDCU3170
CN-4036 board assembly	1 pc	1 pc
SC-ST optical conversion adaptor	2 pcs	2 pcs
SC-LC optical fiber cable	1 pc	1 pc
Harness (coaxial cable)	1 pc	2 pcs
Harness (VIF-SMF)	1 pc	1 pc
SMF connector plate (T)	Not used	1 pc
SMF connector holder (T)	Not used	1 pc
SMF connector holder	1 pc	Not used
ST connector cap	1 pc	1 pc
Screw (P2.6 x 5)	Not used	2 pcs
Screw (P2 x 5)	5 pcs	7 pcs
Screw (PSW3 x 6)	5 pcs	5 pcs

Note

The removed screws cannot be reused. Use supplied screws.

- Screw (P2 x 5)

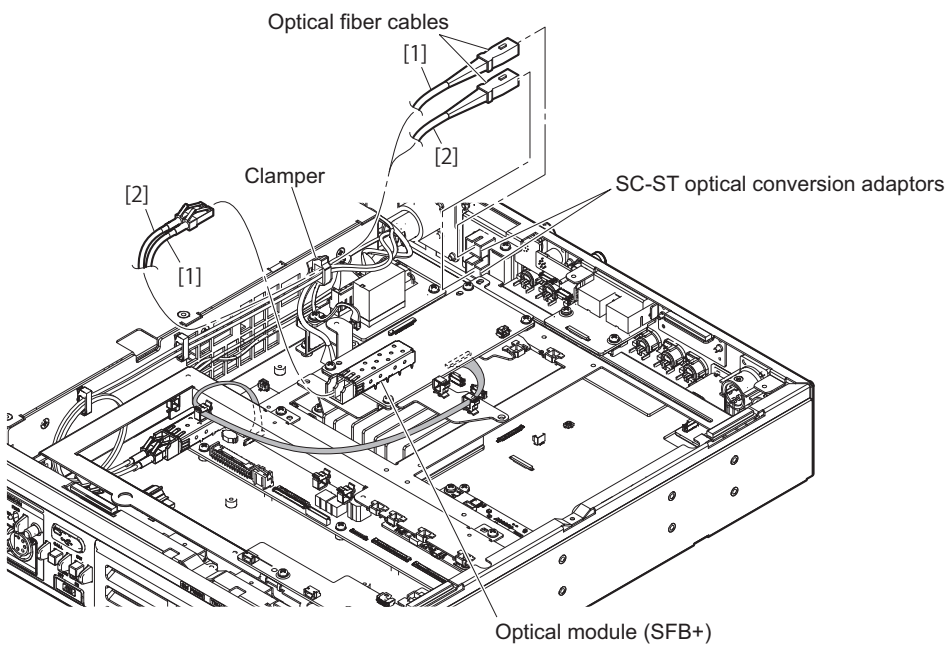
2-21-1. HDCU3100

Preparation

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

Procedure

1. Open the clamper, disconnect the two optical fiber cables.

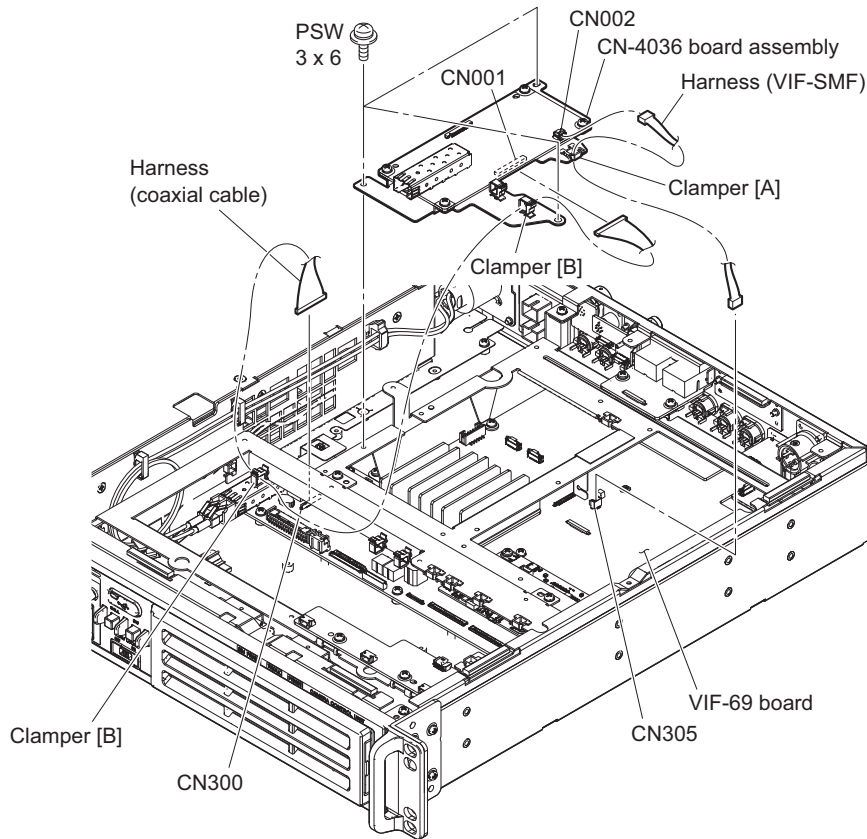


Note

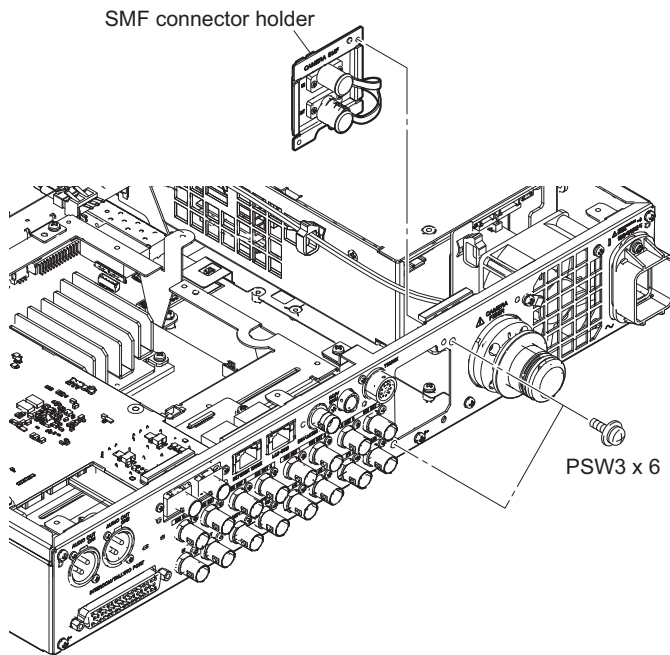
When attaching the optical fiber cable, connect correctly.

2. Remove the CN-4036 board.

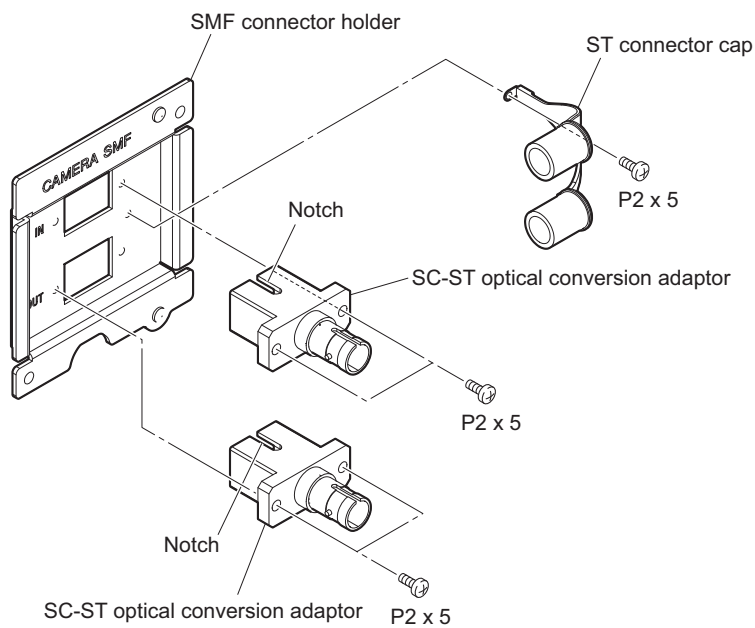
- (1) Disconnect the harness (coaxial cable) from the connector (CN300) on the VIF-69 board.
- (2) Disconnect the harness (VIF-SMF) from the connector (CN305) on the VIF-69 board.
- (3) Open the clamper [A] and disconnect the harness (VIF-SMF) from the connector (CN002) on the CN-4036 board assembly.
- (4) Open the two clampers [B] and disconnect the harness (coaxial cable) from the connector (CN001) on the CN-4036 board assembly.
- (5) Remove the three screws, then remove the CN-4036 board assembly.



3. Remove the two screws, then remove the SMF connector holder.



4. Remove the SC-ST optical conversion adaptor.
- (1) Remove the screw, then remove the ST connector cap.
 - (2) Remove the four screws, then remove the two SC-ST optical conversion adaptors.



Tip

Attach the SC-ST optical conversion adaptors with the notches facing upward.

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

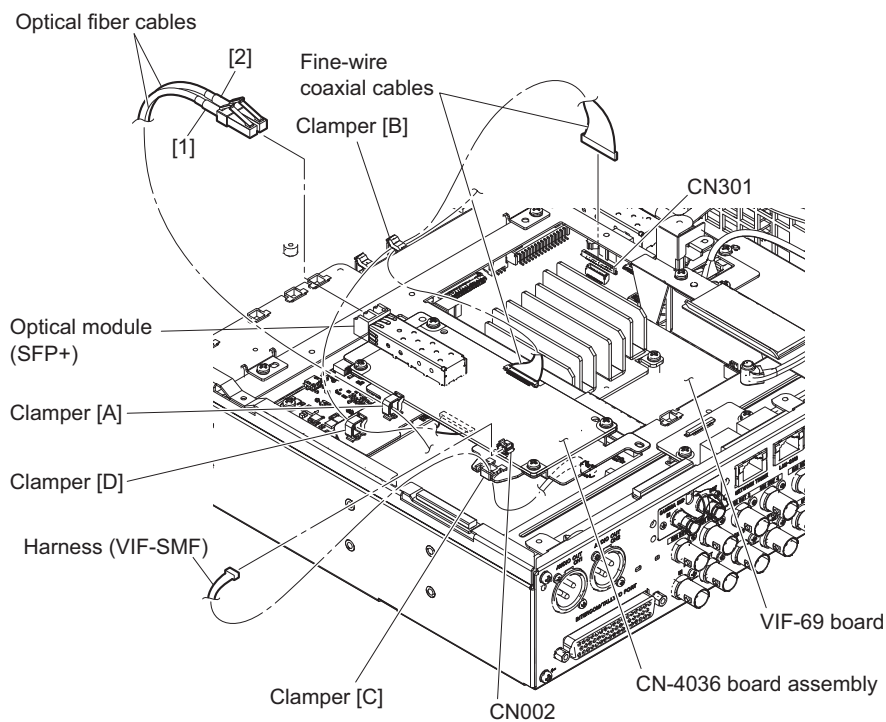
2-21-2. HDCU3170

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the DM-159 board. (Refer to “2-17. DM-159 Board Assembly/ENC-184 Board (HDCU3170)”.)

Procedure

1. Open the clamper [A] and disconnect the two optical fiber cables.
2. Disconnect the fine-wire coaxial cable from the connector (CN301) on the VIF-69 board.
3. Open the two clammers [B]/[D] and remove the two fine-wire coaxial cables.
4. Open the clamper [C] and disconnect the harness (VIF-SMF) from the connector (CN002) on the CN-4036 board assembly.

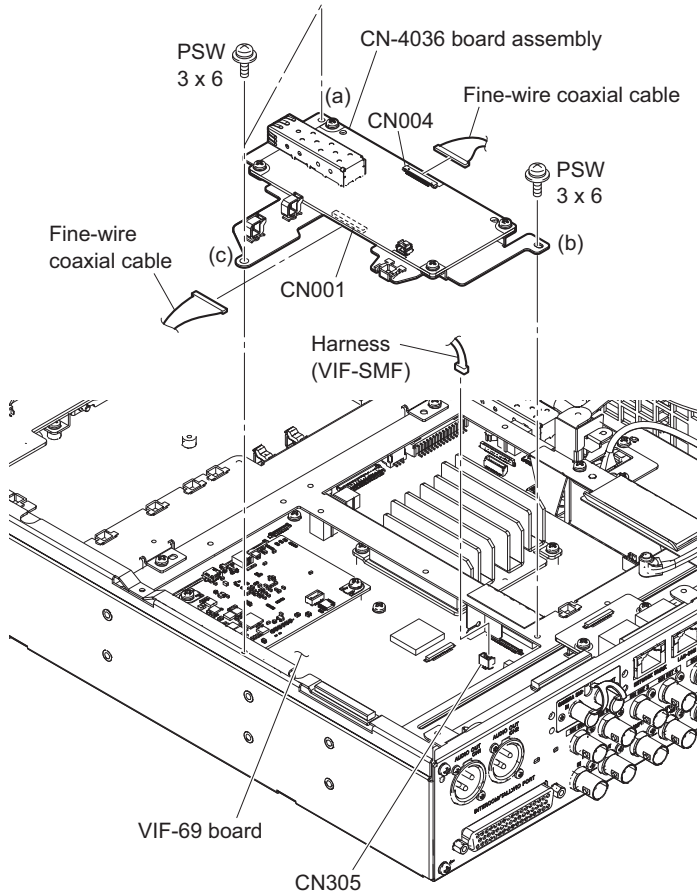


Note

When attaching the optical fiber cable, connect correctly.

5. Remove the CN-4036 board assembly.

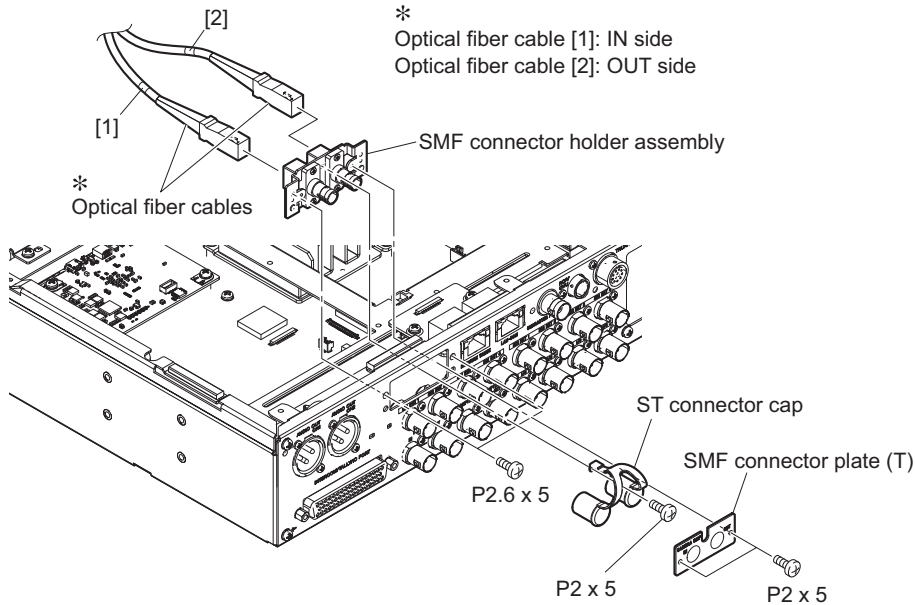
- (1) Disconnect the two fine-wire coaxial cables from the connectors (CN001 and CN004) on the CN-4036 board assembly.
- (2) Remove the three screws, then remove the CN-4036 board assembly.
- (3) Disconnect the harness (VIF-SMF) from the connector (CN305) on the VIF-69 board.



Tip

Tighten the three screws in the order of (a) to (c).

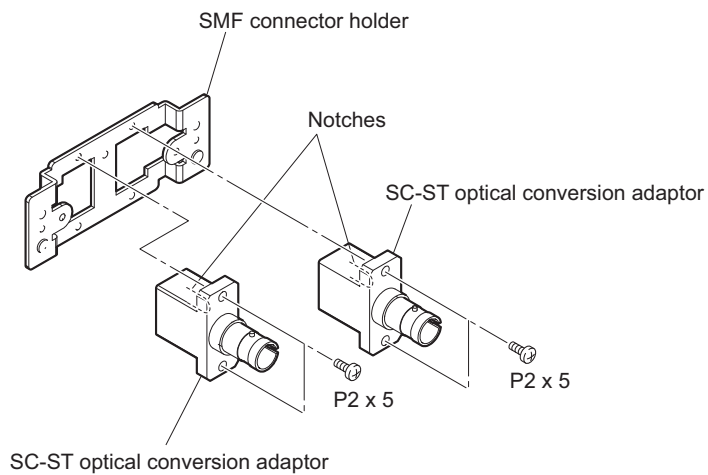
6. Remove the SMF connector holder assembly.
 - (1) Disconnect the two optical fiber cables.
 - (2) Remove the two screws (P2 x 5), then remove the SMF connector plate (T).
 - (3) Remove the screw (P2 x 5), then remove the ST connector cap.
 - (4) Remove the two screws (P2.6 x 5), then remove the SMF connector holder assembly.



Note

When attaching the optical fiber cable, be careful not to mistake the connector.

7. Remove the four screws, then remove the two SC-ST optical conversion adaptors.



Tip

Attach the notches of the SC-ST optical conversion adaptors in the direction shown in the figure above.

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

2-22. DPR-388 Board (HKCU-UHD30)

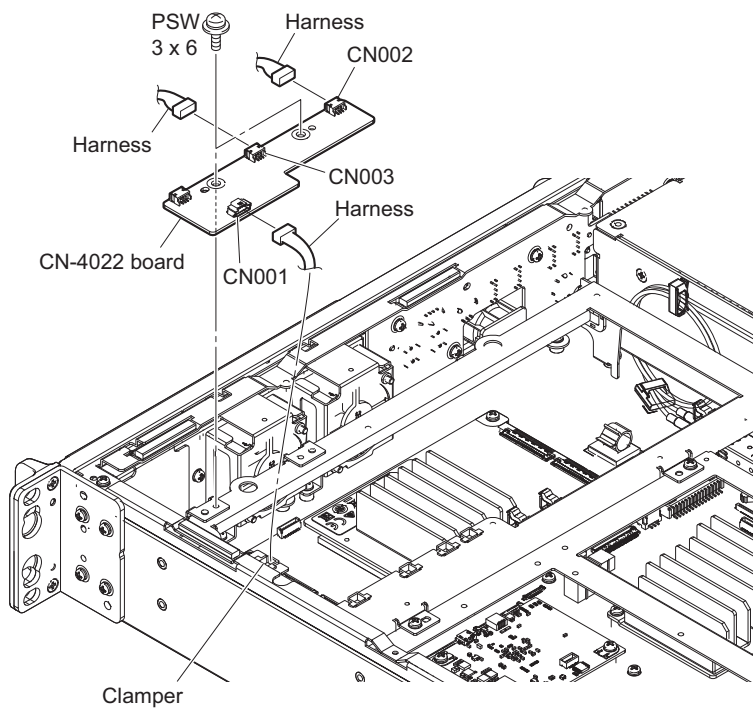
2-22-1. HDCU3100

Preparation

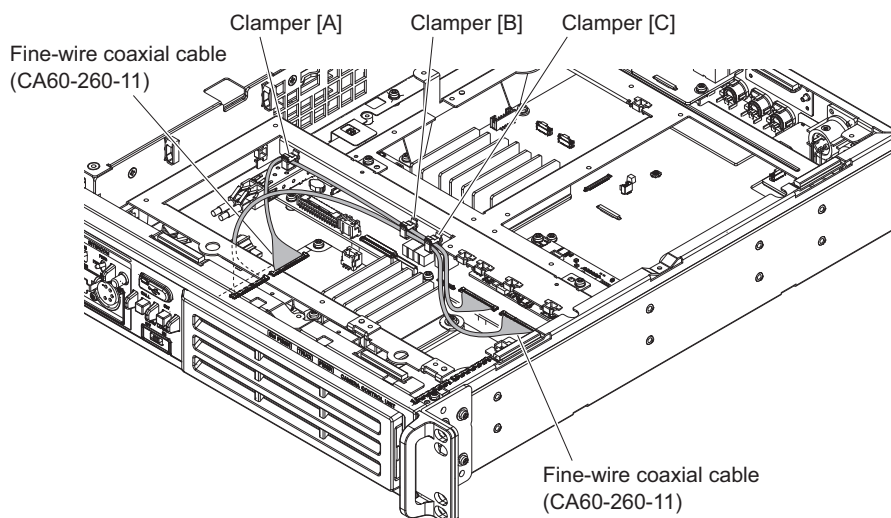
1. Remove the top cover. (Refer to “2-2. Top Cover”.)

Procedure

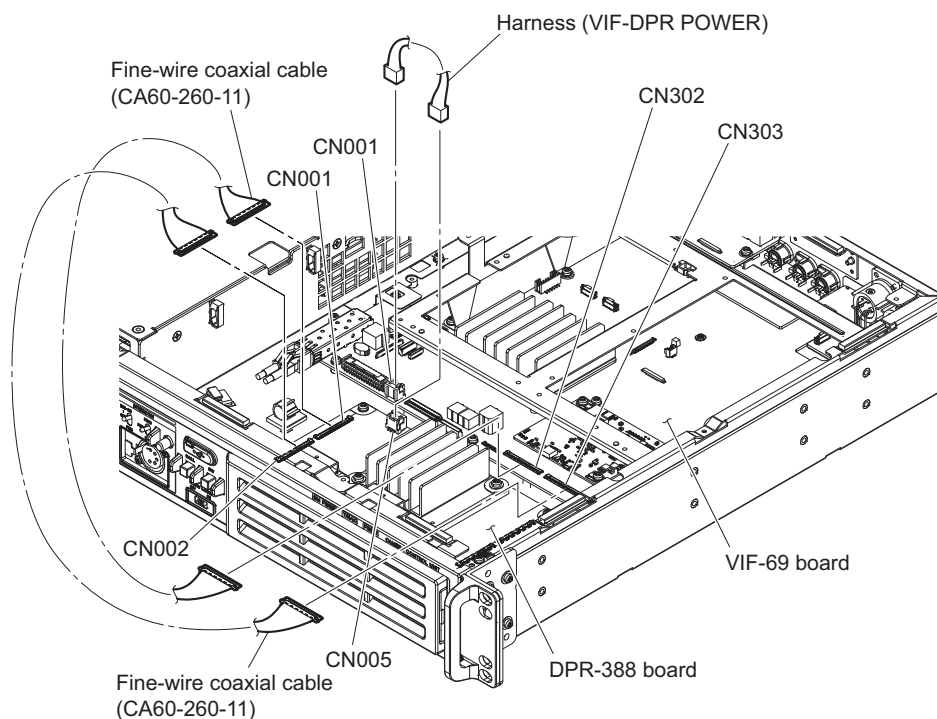
1. Open the clamber, then remove the harness.
2. Disconnect the three harnesses from the connectors (CN001 to CN003) on the CN-4022 board.
3. Remove the two screws, then remove the CN-4022 board.



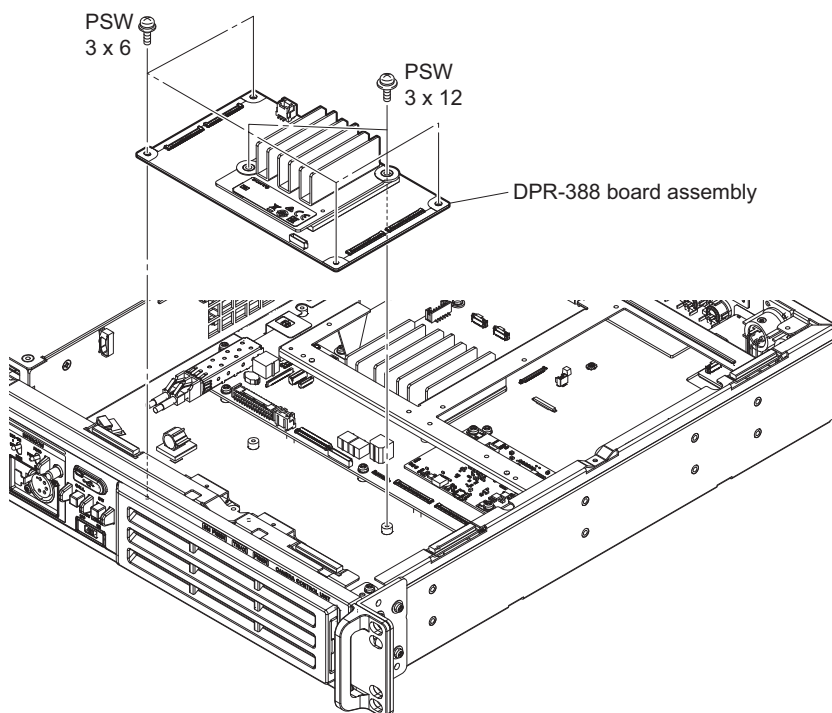
4. Open the three clammers [A] to [C], then remove the two fine-wire coaxial cables (CA60-260-11).



5. Disconnect the harness and fine-wire coaxial cable.
 - (1) Remove the front frame. (Refer to steps 8 and 9 in “2-20-1. HDCU3100”.)
 - (2) Disconnect the harness (VIF-DPR POWER) from the connector (CN005) on the DPR-388 board and the connector (CN001) on the VIF-69 board.
 - (3) Disconnect the two fine-wire coaxial cables (CA60-260-11) from the connectors (CN001 and CN002) on the DPR-388 board and the connectors (CN302 and CN303) on the VIF-69 board.



6. Remove the four screws (PSW3 x 6) and two screws (PSW3 x 12), then remove the DPR-388 board assembly.



7. Remove the fan assembly. (Refer to step 12 in “2-20-1. HDCU3100”.)
8. Install the removed parts by reversing the steps of removal.

2-22-2. HDCU3170

Preparation

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

Procedure

1. Remove the CN-4022 board. (Refer to steps 1 to 3 in [“2-20-2. HDCU3170”](#).)
2. Remove the DPR-388 board. (Refer to steps 4 to 7 in [“2-22-1. HDCU3100”](#).)
3. Remove the fan assembly. (Refer to step 5 in [“2-20-2. HDCU3170”](#).)
4. Install the removed parts by reversing the steps of removal.

2-23. DIF-264 Board (HKCU-SDI30)

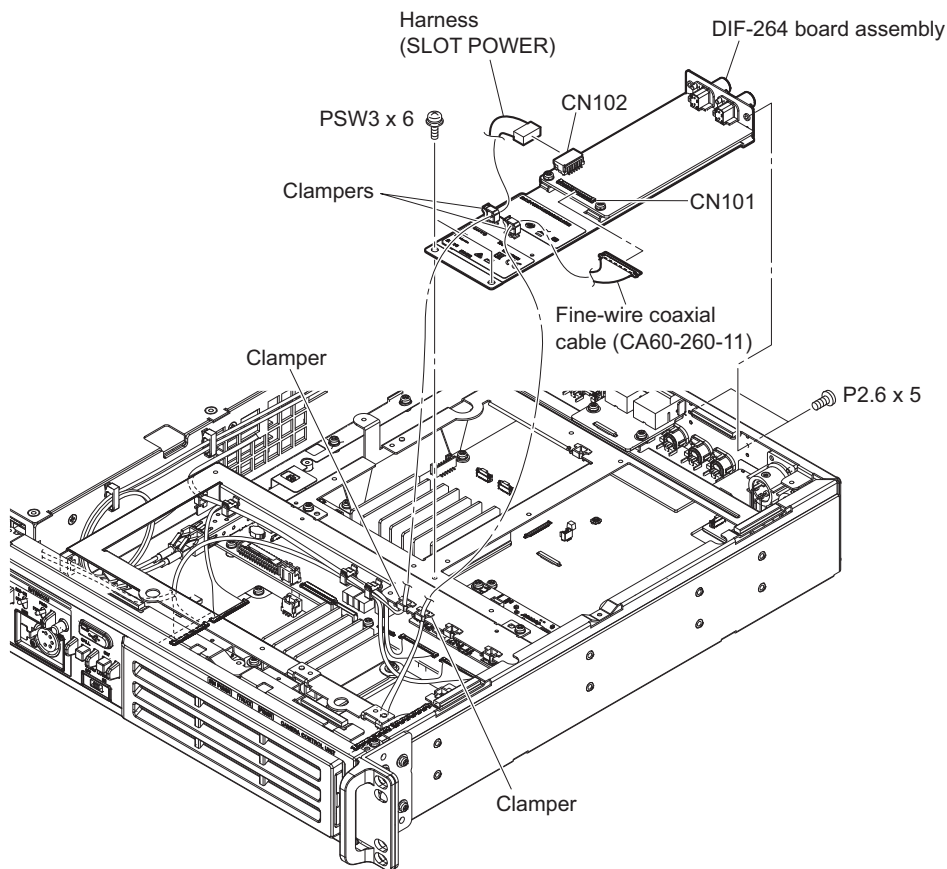
2-23-1. HDCU3100

Preparation

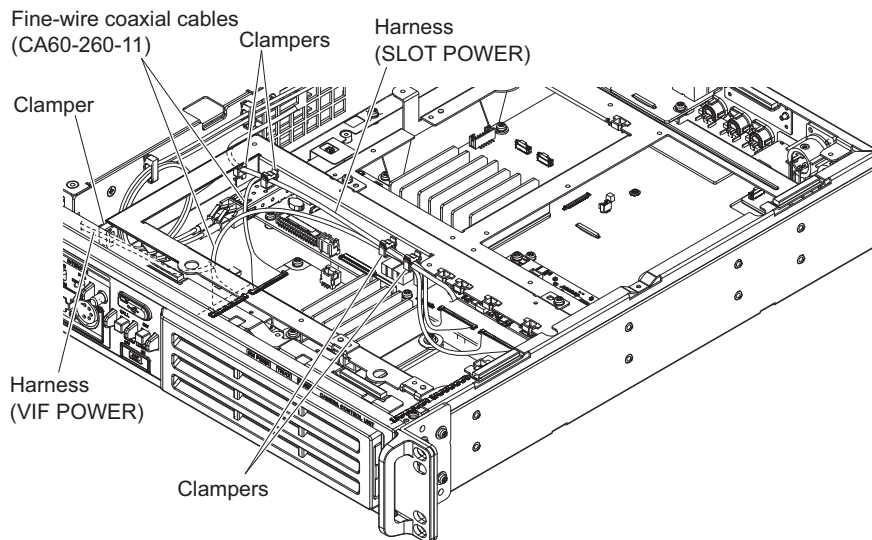
1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the CN-4022 board. (Refer to step 7 in “2-20-1. HDCU3100”.)

Procedure

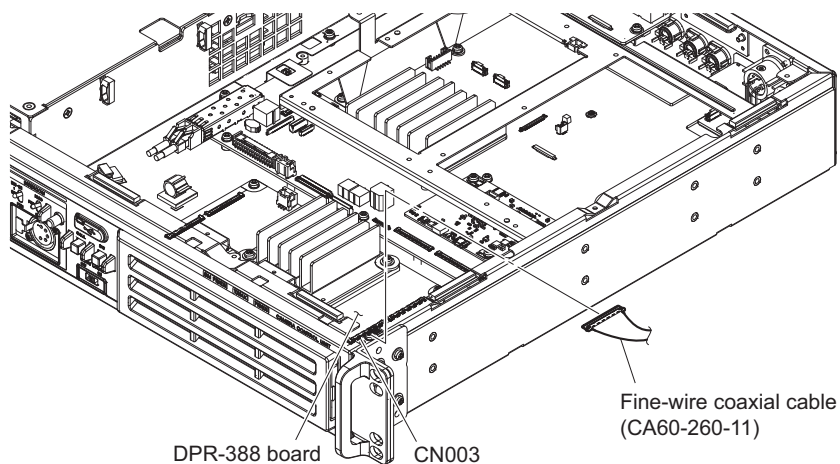
1. Remove the harness (SLOT POWER) and fine-wire coaxial cable (CA60-260-11) from the two clampers.
2. Disconnect the harness (SLOT POWER) and fine-wire coaxial cable (CA60-260-11) from the connectors (CN101 and CN102) on the DIF-264 board.
3. Remove the two screws (P2.6 x 5) and two screws (PSW3 x 6), then remove the DIF-264 board assembly.



4. Remove the two harnesses (SLOT POWER and VIF POWER) and two fine-wire coaxial cables (CA60-260-11) from the five clampers.



5. Disconnect the fine-wire coaxial cable and harness.
- (1) Remove the front frame. (Refer to steps 8 and 9 in [“2-20-1. HDCU3100”](#).)
 - (2) Disconnect the fine-wire coaxial cable (CA60-260-11) from the connector (CN003) on the DPR-388 board.



6. Disconnect the harness (SLOT POWER). (Refer to step 11 in [“2-20-1. HDCU3100”](#).)
7. Install the removed parts by reversing the steps of removal.

2-23-2. HDCU3170

Preparation

1. Remove the top cover. (Refer to [“2-2. Top Cover”](#).)
2. Remove the DM-159 board. (Refer to [“2-17. DM-159 Board Assembly/ENC-184 Board \(HDCU3170\)”](#).)
3. Remove the CN-4022 board. (Refer to steps 1 to 3 in [“2-20-2. HDCU3170”](#).)

Procedure

1. Remove the DIF-264 board. (Refer to steps 1 to 6 in [“2-23-1. HDCU3100”](#).)
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 (hdcu3100_app.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
 \MSSONY\PRO\CAMERA\HDCU3100
2. Copy the data file for update “hdcu3100_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 (hdcu3100_os.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
 \MSSONY\PRO\CAMERA\HDCU3100
2. Copy the data file for update “hdcu3100_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 (hdcu3100_updater.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
 \MSSONY\PRO\CAMERA\HDCU3100

2. Copy the data file for update “hdcu3100_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\\HDCU3100
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.

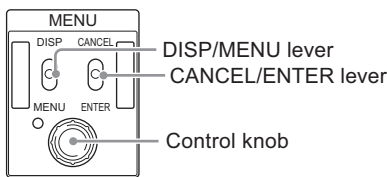
To exit the status screen display

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

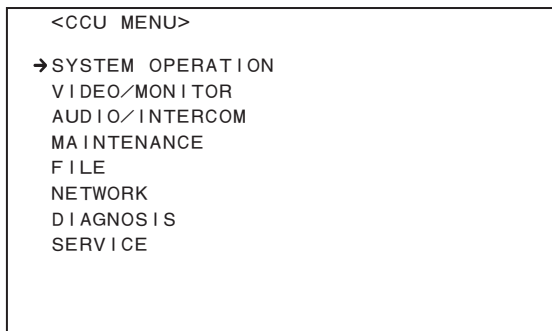
4-1-2. Starting and Exiting the SERVICE Menu

Starting

- 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.
- While pressing the control knob, turn the CANCEL/ENTER lever quickly to the ENTER side twice.
- Turn the DISP/MENU lever to the MENU side within two seconds.



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



- 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 free-run
S06	POWER UNIT	Displaying power unit status
S07	MODE	Setting AUX3 MIC REMOTE mode
S08	TEMPERATURE	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	:	V1.01 t001
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

<PLD PACKAGE>		?S02 TOP
SY	:	V1.000
VIF	:	V1.030
NET1	:	V1.030
NET2	:	V1.030
DPR	:	V1.030
DM1	:	V1.030
DM2	:	V1.030
DM3	:	V1.030

Description

Item	Setting Value	Description
SY	—	Display the current PLD version. Place the cursor on the version to update the version.
VIF	—	
NET1	—	
NET2	—	
DPR	—	
DM1	—	
DM2	—	
DM3	—	No version upgrading required

Tip

- “NET1” and “NET2” are displayed only when the HKCU-SFP30 is installed.
- “DPR” is displayed only when the HKCU-UHD30 is installed.

- “DM1” and “DM2” are displayed only for HDCU3170.

RESET

Screen display

```

<RESET>                                ?S03 TOP
  FACTORY RECALL OK?  YES →NO

RECALL FACTORY SETTINGS: ?EXEC

RESET HOUR METER      : EXEC

REGENERATE UUID       : EXEC
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
  
```

Description

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

SERIAL NUMBER

Screen display

```

<SERIAL NUMBER>                        ?S04 TOP
  SERIAL NO. WRITE OK?  YES→ NO

MODEL NAME      : HDCU3100

SERIAL NUMBER   : 01234567

                                     ?RESTORE
  
```

Description

Item	Setting Value	Description
MODEL NAME	HDCU3100	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 PROMPTER1 input signal level.
PROMPTER2 LEVEL	-127 to 128	Adjust the PROMPTER2 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
NET	: 123.45V 0.36A	123.45W
DPR	: 123.45V 0.36A	123.45W
TRIAX	: 123.45V 0.36A	123.45W
INPUT		
POWER	: 123.45V	
TEMPERATURE	:	555.2 °C
CAMPOWERREMOTE	:	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-69 board power supply status.
NET		Display the NET-37 board power supply status.
DPR		Display the DPR-388 board power supply status.
TRIAX		Display the DM-159 board power supply status.
INPUT 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.

Tip

- “NET” is displayed only when the HKCU-SFP30 is installed.
- “DPR” is displayed only when the HKCU-UHD30 is installed.
- “TRIAX” is displayed only for HDCU3170.

MODE

Screen display

<MODE>		?S07 TOP
AUX3	:	PREVIEW
MIC REMOTE	:	MIC1&2
INTERCOM SOURCE	:	D-SUB&IP
PGM SOURCE	:	D-SUB&IP
MEDIA CLOCK DIRECT	:	
AUDIO	:	0.000ms
HD TRUNK AUDIO	:	0.000ms
INTERCOM	:	0.000ms
TEST OUT	:	IP RETURN

Description

Item	Setting Value	Description
AUX3	PREVIEW , FLAG, Y TALLY	Set the AUX 3 pin function of the INTERCOM/TALLY/PGM terminal. PREVIEW: Used as PREVIEW switching signal output pin. FLAG: Used as FLAG signal output pin. Y TALLY: Used as Y TALLY signal output pin.
MIC REMOTE	MIC1&2 , MIC1,2, MIC+NETWORK	MIC1&2 • MIC 1 and 2 Amplifier gains are common MIC1,2 • MIC 1 and 2 amplifier gains are independent MIC+NETWORK: • MIC 1 and 2 Amplifier gains are common • 14 pin is forced LEGACY
INTERCOM SOURCE	D-SUB&IP , D-SUB, IP	Set the signal input source used as an intercom. D-SUB&IP: Both D-SUB connector input and IP stream input are used. D-SUB: Only D-SUB connector input is used. IP: Only IP stream input is used. D-SUB&IP and IP are selectable only when the NET board is mounted and IP Intercom stream is received. When the NET board is not mounted, D-SUB is fixed.
PGM SOURCE	D-SUB&IP , D-SUB, IP	Set the signal input source used as a PGM. D-SUB&IP: Both D-SUB connector input and IP stream input are used. D-SUB: Only D-SUB connector input is used. IP: Only IP stream input is used. D-SUB&IP and IP are selectable only when the NET board is mounted and IP Intercom stream is received. When the NET board is not mounted, D-SUB is fixed.

Continued

Item	Setting Value	Description
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

<TEMPERATURE>		?S08 TOP
VIF FRONT	: 555.2°C	
VIF FPGA (ON BOARD)	: 555.2°C	
VIF FPGA (INTERNAL)	: 555.2°C	
NET FPGA (INTERNAL)	: 555.2°C	
POWER UNIT	: 555.2°C	
FRONT PANEL	: 555.2°C	
DM1 FPGA (ON BOARD)	: 555.2°C	
DM2 FPGA (ON BOARD)	: 555.2°C	
DM2 FPGA (INTERNAL)	: 555.2°C	
DPR FPGA (ON BOARD)	: 555.2°C	
DPR FPGA (INTERNAL)	: 555.2°C	
DIF	: 555.2°C	

Description

Item	Setting Value	Description
VIF FRONT VIF FPGA (ON BOARD) VIF FPGA (INTERNAL)	—	Display the temperature of VIF-69 board.
NET FPGA (INTERNAL)	—	Display the temperature of NET-37 board.
POWER UNIT	—	Display the temperature of power unit.
FRONT PANEL	—	Display the temperature of front panel.
DM1 FPGA (ON BOARD) DM2 FPGA (ON BOARD) DM2 (INTERNAL)	—	Display the temperature of DM-159 board.

Continued

Item	Setting Value	Description
DPR FPGA (ON BOARD) DPR FPGA (INTERNAL)	—	Display the temperature of DPR-388 board.
DIF	—	Display the temperature of DIF-264 board.

Tip

- “NET FPGA (INTERNAL)” is displayed only when the HKCU-SFP30 is installed.
- “DM1 FPGA (ON BOARD)”, “DM2 FPGA (ON BOARD)” and “DM2 (INTERNAL)” are displayed only for HDCU3170.
- “DPR FPGA (ON BOARD)” and “DPR FPGA (INTERNAL)” are displayed only when the HKCU-UHD30 is installed.
- “DIF” is displayed only when the HKCU-SDI30 is installed.

Section 5

Circuit Description

5-1. Circuit Description of Each Board

5-1-1. AT-195 Board

The AT-195 board consists of a system control microcomputer (IC1001) and a peripheral circuit.

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

The AT-195 board is connected to the VIF-69 board.

5-1-2. VIF-69 Board

Signal transmission between VIF-69 board and camera

In the case of fiber transmission (when HDCU3100 and HDCU3170 + HKCU-FB30 are installed), signals are transmitted from the fiber connector through CN403.

In the case of Triax transmission (HDCU3170), signals are processed on the DM-159 board via the Triax connector, and signals are transmitted through CN301.

Main-line video signals

In the fiber transmission, the image capture data that is output from the camera is converted to 8b10b data and the converted data is input to the connector (CN403) on the VIF-69 board.

In the Triax transmission, video data that is demodulated on the DM-159 board through FL-381 board output from the camera is input to CN301.

The VIF-69 board converts the video format for eight SDI output signals and a VBS output signal. Four DDR3 SDRAM ICs (IC2201, IC2202, IC2203, IC2204) are connected to the FPGA (IC1700) on the VIF-69 board. In addition to the timing adjustment function, this board has functions for p- to-i (progressive to interlace) conversion, 2-3 pull-down, and down-conversion to SD.

This board also converts data from the camera to 3G-SDI (Level-A/B, 2SI, SQD), HD-SDI, and SD-SDI data. The VIF-69 board contains four input/output BNC connectors SDI I/O 1-4 (J2000, J2001, J2002, J2003), enabling output of up to 4-channel SDI video signals. In addition, 4-channel SDI video signals can be output from the CN900 connector to the four BNC connectors SDI OUT 1-4 (J001, J002, J003, J004) on the DIF-263 board. Furthermore, down-converted SD image is converted to an analog composite signal in the video encoder IC (IC903) on this board, and the analog composite signal is output to the CN-3964 board. The analog composite signal that is input to the CN-3964 board is also output from the CHARACTER / AES/EBU connector.

Return video signals

Return signals are input from the BNC connectors SDI I/O 1-4 (J2000, J2001, J2002, J2003) on the VIF-69 board and the BNC connectors SDI RET 1-4 (J051, J052, J053, J054) on the DIF-263 board. The VIF-69 board contains the VBS RET connector PROMPTER 2/VBS-RET (J1001), making it possible to receive up to eight 3G/HD/SD-SDI input return signals and a VBS input return signal. The FPGA (IC1700) has the frame synchronization function and also supports asynchronous return signals. 3G-SDI-format data is converted to a 1.5G HD signal by p-to-i conversion. SD-SDI or VBS data is up-converted to a 1.5G HD signal. In the fiber transmission, this data is converted to an 8b10b serial digital video signal and this converted signal is sent to the camera. In the Triax transmission, this data is modulated on the DM-159 board through the connector (CN301) and the processed data is sent to the camera.

Audio signals

The PGM signal that is input to the D-sub connector (CN800) is converted to a digital signal in the A/D and D/A converter ICs (IC2614, IC2615), and the digital signal is input to the FPGA (IC1300). The System Intercom signal that is input to the D-sub connector (CN800) is converted to a digital signal in the A/D and D/A converter IC (IC2900), and the digital signal is input to the FPGA (IC1300). The TALK signal of the front INTERCOM that is input from the FP-267 board to the connector (CN400) is converted to a digital signal in the A/D and D/A converter IC (IC2613), and the digital signal is input to the FPGA (IC1300). In the fiber transmission, the Stand-by Intercom signal that is input to the connector (CN402) from the camera is converted into a digital signal in the A/D and D/A converter IC (IC2615), and then the

digital signal is input to the FPGA (IC1300). The MIC signal processed in the VIF-69 board is converted to an analog signal in the D/A converter IC (IC2500), and the analog signal is output to the connector (CN2500). The System Intercom signal processed in the VIF-69 board is converted to an analog signal in the A/D and D/A converter IC (IC2900), and the analog signal is output to the connector (CN800). The RCV/PGM signal of the front INTERCOM processed in the VIF-69 board is converted to an analog signal in the A/D and D/A converter IC (IC2613), and the analog signal is output to the connector (CN800). In the fiber transmission, the Stand-by Intercom signal processed in the VIF-69 board is converted to an analog signal in the A/D and D/A converter IC (IC2615), and the analog signal is output to the connector (CN402).

The VIF-69 board sends and receives the following signals.

- The VIF-69 board outputs the MIC signal and the AES/EBU signal (from the camera) to the AUDIO OUT connector on the CN-3962 board.
- The VIF-69 board embeds the PGM signal that is input from the D-sub connector to the connector (CN800) into the return signal, and then sends the embedded signal to the camera.
- The VIF-69 board outputs the Intercom signal embedded in the signal (from the camera) to the front INTERCOM connector (CN400) and the System Intercom connector (CN800). At this time, the front INTERCOM input signal, System Intercom input signal, and PGM signal can be mixed.
- The VIF-69 board embeds the front INTERCOM input signal and the System Intercom input signal into the return signal, and then sends the embedded signal to the camera.
- In the fiber transmission, the Stand-by Intercom input signal from the camera is output to the front INTERCOM connector (CN400) and the System Intercom connector (CN800).
- In the fiber transmission, the front INTERCOM input signal and the System Intercom input signal are mixed and the mixed signal is sent to the camera as a Stand-by Intercom signal (CN402).

PROMPTER signal

The two PROMPTER signals are input to the BNC connector PROMPTER 1 and the PROMPTER 2/VBS-RET connectors (J1000, J1001). In the fiber transmission, the signals are A/D converted in the VIF-69 board. The converted signal is embedded into the return signal and is then sent to the camera. In the Triax transmission, the VBS signal to be input to PROMPTER1 is sent from the connector (J1003) to the ENC-184 board on the DM-159 board through the coaxial cable.

TRUNK signal

The TRUNK signal from the TRUNK connector on the CN-3965 board is input to the VIF-69 board. The audio signal multiplexed with the audio channel of the return signal in the VIF-69 board 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 VIF-69 board, the TRUNK signal from the camera is extracted and is output to the TRUNK connector on the CN-3965 board.

HD TRUNK signal (Fiber transmission)

The SDI I/O 3 connector (J2002) on the VIF-69 board can be used as an HD TRUNK output connector. Only Link-A image capture data from the camera is used. The HD TRUNK signal from the camera is multiplexed with Link-B data.

HD PROMPTER signal (Fiber transmission)

The SDI I/O 4 connector (J3204) on the VIF-69 board can be used as an HD PROMPTER input connector. The return signal is embedded into Link-A data and the HD PROMPTER signal is embedded into Link-B data, and then these embedded signals are sent to the camera.

LAN signal

The LAN signal can be input to and output from the LAN-COM connector on the CN-3963 board. The LAN signal is input from the connector (CN600) to the FPGA (IC600) on the VIF-69 board. The format of this signal is converted, and then the converted 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-3963 board through the connector (CN600).

NETWORK TRUNK signal (Fiber transmission)

The NETWORK TRUNK signal that is input from the NETWORK TRUNK connector on the CN-3963 board is input from the connector (CN600) to the FPGA (IC600) on the VIF-69 board where the signal format is converted. Then the converted signal is input to the FPGA (IC1700). Packet data that passes through this connector (CN600) is embedded into the Link-B data of the serial digital video signal for communication with the camera.

REFERENCE signal

The SD reference signal (black burst) and the HD3 value reference synchronization signal for external synchronization can be input to the BNC-type REFERENCE IN connector (J1100) on the VIF-69 board. The Sync Separator IC (IC1113) removes color burst and serration pulses from the input REFERENCE signal, and then extracts V-Sync (HD/SD-TEMPV) and H-Sync (HD/SD-TEMP-H). The FPGA IC (IC1300) verifies whether extracted HD/SD-TEMP-V and HD/SDTEMP- H are effective as a video synchronization signal. When the input REFERENCE signal is correct, a 27 MHz clock signal locked to the input REFERENCE signal is generated in the FPGA IC (IC1300), phase comparator (IC1205), and VCO (VC1203). If the REFERENCE signal is not input, the VCO (VC1203) oscillates 27 MHz clock. The input voltage to the VCO (VC1203) is converted to digital data in the A/D converter IC (IC1402), and this digital data can be read from the CPU. This value is proportional to the 27 MHz reference clock frequency. IC1300, IC1204, VC1201, and VC1202 generate 148.5 MHz and 148.35 MHz clock signals locked to 27 MHz, and divide the frequencies of the 148.5 MHz and 148.35 MHz clock signals to generate 74.25 MHz and 74.176 MHz clock signals locked to 27 MHz. IC1300, IC1206, and VC1200 generate a 24.576 MHz (512fs) clock signal locked to 27 MHz. Thus reference clock signals for HD video, SD video, and audio are generated. Furthermore, the FPGA IC (IC1300) generates reference synchronization signals MST-HD-F, MST-HD-H, MST-SD-F, and MST-SD-H by using 27 MHz, 74.25/74.176 MHz, HD/SD-TEMP-V, and HD/SD-TEMP-H signals. The 27 MHz clock is distributed by IC1212; the 148.5 MHz and 148.35 MHz clock signals are distributed by IC1214; the 74.25 MHz and 74.176 MHz clock signals are distributed by IC1213; MST-HD-F and MST-HD-H signals are distributed by IC1503; and MST-SD-F and MST-SD-H signals are distributed by IC1504. These signals are supplied to each circuit.

SYNC output signal

The FPGA IC (IC1300) generates an SD SYNC signal or HD SYNC signal based on the reference clock and the reference synchronization signal. This SD SYNC signal or HD SYNC signal is output from the BNC-type REFERENCE OUT connector (J1101).

Power unit interface

The FPGA IC (IC1300) monitors and controls the power unit through the I2C interface. The power unit is connected through the connector (CN002) on the VIF-69 board.

Power IC interface

Power ICs (IC001, IC002, IC003, IC004, IC203) are monitored and controlled from the FPGA IC (IC1300) through the I2C interface.

Front panel interface

The VIF-69 board functions as an IO Expander for the CPU (AT-195 board) to control switches and LEDs on the front panel (FP-267 board). The value (F_INC_VR) of the potentiometer on the front panel is converted to digital data in the A/D converter IC (IC1402) for the CPU to read.

GPIO control signals

Eleven GPIO control signals (including PREVIEW OUT and AUX3) are assigned to the D-sub connector (CN800) on the VIF-69 board. The FPGA IC (IC1300) 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 of the D-sub connector (CN800) on the VIF-69 board. Tally control input signals can be selected from Contact, TTL, and Power signal formats. Tally control input signals are input to the FPGA IC (IC1300) and can be read from the CPU. GPIO0, GPIO1, and GPIO2 of the Dsub

connector (CN800) on the VIF-69 board are assigned as tally control output signals. Tally control output signals are controlled by the FPGA IC (IC1300).

MIC Remote signal and WFM Remote signal

MIC Remote input or WFM Remote output signals are assigned to eight signal lines of the D-sub connector (CN800) on the VIF-69 board. MIC Remote and WFM Remote operate exclusively. When MIC Remote is assigned, signal values that are input to the FPGA IC (IC1300) can be read from the CPU. When WFM Remote is assigned, setting values can be controlled from the FPGA IC (IC1300).

5-1-3. FP-267 Board

The FP-267 board contains switches for setting menus, a unit status display indicator, and a USB connector on the front panel. An LED bar is installed to display the unit status including camera connection status. This board also contains an audio circuit for intercom. This board is connected to the VIF-69 board.

5-1-4. LE-419 Board

The LE-419 board contains LEDs on the front panel, including the LED matrix to show the camera number, MAIN POWER ON indicator, optical signal receiving status indicator, and status display indicators. This board is connected to the FP-267 board.

5-1-5. CN-3961 Board

The CN-3961 board contains the INTERCOM connector on the front panel. This board is connected to the FP-267 board.

5-1-6. CN-3962 Board

The CN-3962 board contains the AUDIO OUT connector on the rear panel. This board is connected to the VIF-69 board.

5-1-7. CN-3963 Board

The CN-3963 board contains the LAN-COM connector and the NETWORK TRUNK connector on the rear panel. This board is connected to the VIF-69 board.

5-1-8. CN-3964 Board

The CN-3964 board contains the CHARACTER / AES/EBU connector and the RCP/CNU connector on the rear panel. This board is connected to the VIF-69 board.

5-1-9. CN-3965 Board

The CN-3965 board contains the TRUNK connector on the rear panel. This board is connected to the VIF-69 board.

5-1-10. CN-4022 Board

The CN-4022 board contains a 40-square connector for connection to the fan on the front panel. This board is connected to the VIF-69 board.

5-1-11. CN-4035 Board

The CN-4035 board contains the INTERCOM/TALLY/IO PORT connector (D-Sub 50 pins) on the rear panel. This board is connected to the VIF-69 board.

5-1-12. DIF-263 Board

The DIF-263 board contains the SLOT1 OUT 1-4 output connector (BNC type) and the SDI RET 1-4 input connector (BNC type) on the rear panel. This board is connected to the VIF-69 board.

5-1-13. DM-159 Board (only HDCU3170)

The DM-159 board contains two main blocks: one is for digital Triax transmission and the other for video signal processing.

Digital Triax transmission circuit

This transmission circuit consists of a DQPSK reception circuit for STANDBY-ID signal transmission, an FM signal transmission circuit for synchronization signal transmission, and an OFDM signal transmission/reception circuit for video/audio/trunk signals and command transmission.

Each signal is separated by MPF Filter (FL601).

- STANDBY-ID reception circuit
Extract the STANDBY-ID signal sent from the camera, and then demodulate it in DM3-PLD (IC101). The demodulated STANDBY-ID signal is used to control the main power voltage (240 VDC) supply to the camera and to recognize the cable length detected by the CAM.
- FM signal transmission circuit
The synchronization signal is FM modulated and the modulated synchronization signal is sent to the CAM. The FM signal is superimposed using the OFDM (Orthogonal Frequency-Division Multiplexing) and is output from the DAC (IC1700).
- Main-line OFDM reception circuit
Extract the main-line OFDM signal sent from the camera, and after frequency conversion with MIXER IC (IC213), then demodulate with the demodulation IC (IC302, IC303, IC401, IC402, IC501 and IC502). The demodulated signal is sent to the DM2-PLD (IC1100).
- RET OFDM transmission circuit
The OFDM modulated signal is output from the DAC (IC1700) and transmitted to the camera.

Video signal processing circuit

The DM-159 board broadly consists of the main-line system (to demodulate OFDM-modulated camera signals and send video signals to the VIF-69 board) and the return system (to encode and OFDM-modulate return video signals and the VBS prompter signal from the VIF-69 board and send the modulated signals to the camera). These signal processes are performed in two FPGAs (IC1100, IC1800).

- Main-line system signals are divided into video signals, audio signals, command, and trunk signal from the stream signal generated by demodulating the signals from the transmission system block. Video signals are sent to the CODEC circuit and are decoded to baseband video signals. The baseband decoded video signals, audio signals, command, and trunk signal are sent to the VIF-69 board.

- In the return system, return video signals sent from the VIF-69 board are encoded in the CODEC circuit, and are then sent to the OFDM modulator circuit. The VBS prompter signal sent from the VIF-69 board is decoded into the digital video data in the VBS decoder IC, and is then sent to the ENC-184 board where the decoded signal is encoded. The encoded signal is sent to the OFDM modulator circuit in the DM-159 board.
In the OFDM modulator circuit, return signals, prompter signals, command signals to be sent to the camera, and audio signals for intercom are multiplexed to 2-system signals (R1 wave and R2 wave), and then the 2-system digital signals are converted to analog signals. Then the analog signals are sent to the transmission circuit.

5-1-14. ENC-184 Board (only HDCU3170)

The small ENC-184 board on the DM-159 board is a video signal codec for prompters. The on-board ICs have encoding and decoding functions. The encoding function is used on the CCU side.

5-1-15. CN-4037 Board (only when HKCU-FB30 option is installed)

The CN-4037 board is mounted in HDCU3170 only when the HKCU-FB30 option is installed.
The camera power supply signal from PowerUnit is switched to Triax Cable Assembly or Fiber Cable Assembly by the relay on the CN-4037 board.

5-1-16. FL-381 Board (only HDCU3170)

The FL-381 board combines power voltage signal for power supply to the camera with the Triax transmission signal and separates signals received from the camera using the low-pass filter (LPF) and the high-pass filter (HPF).

5-1-17. NET-37 Board (HKCU-SFP30)

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 SFP28 or 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 VIF-69 board [HD] or the DPR-388 board [4K] 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 VIF-69 board [HD] or the DPR-388 board [4K] 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.

5-1-18. CN-4036 Board (HKCU-SM30)

The CN-4036 board contains the SFP connector for single-mode fiber.

Input and output SDI signals and control signals on CN001 and the VIF-69 board.

Signals from the camera are received through the SMF IN connector by connecting this board to the ST connector for single-mode fiber of the external interface.

With the HDCU3170, input and output SDI signals and control signals on CN004 and the DM-159 board.

5-1-19. DIF-264 Board (HKCU-SDI30)

The DIF-264 board contains the BNC-type UHD SDI A and UHD SD B output connectors on the rear panel.

These connectors are used to output 12G-SDI, 3G-SDI, and HD-SDI signals to external devices.

The DIF-264 board is connected to the DPR-388 board.

5-1-20. DPR-388 Board (HKCU-UHD30)

The DPR-388 board is used for camera video signal processing.

The DPR-388 board has the following video processing functions that are activated by video format selection or paint control from the camera.

- Definition conversion for 4K output
- Paint processing for 4K HDR and SDR
- Phase adjustment using the frame memory and 4K 2SI or SQD output conversion
- 4K conversion for the HD color-bar generator to support multi-format

The DPR-388 board is connected to the VIF-69 board to receive video signals.

The output side of the DPR-388 board can be connected to the NET-37 board (for IP transmission configuration) or the DIF-264 board (for 12G output configuration) according to the transmission format.

Section 6

Spare Parts

6-1. 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

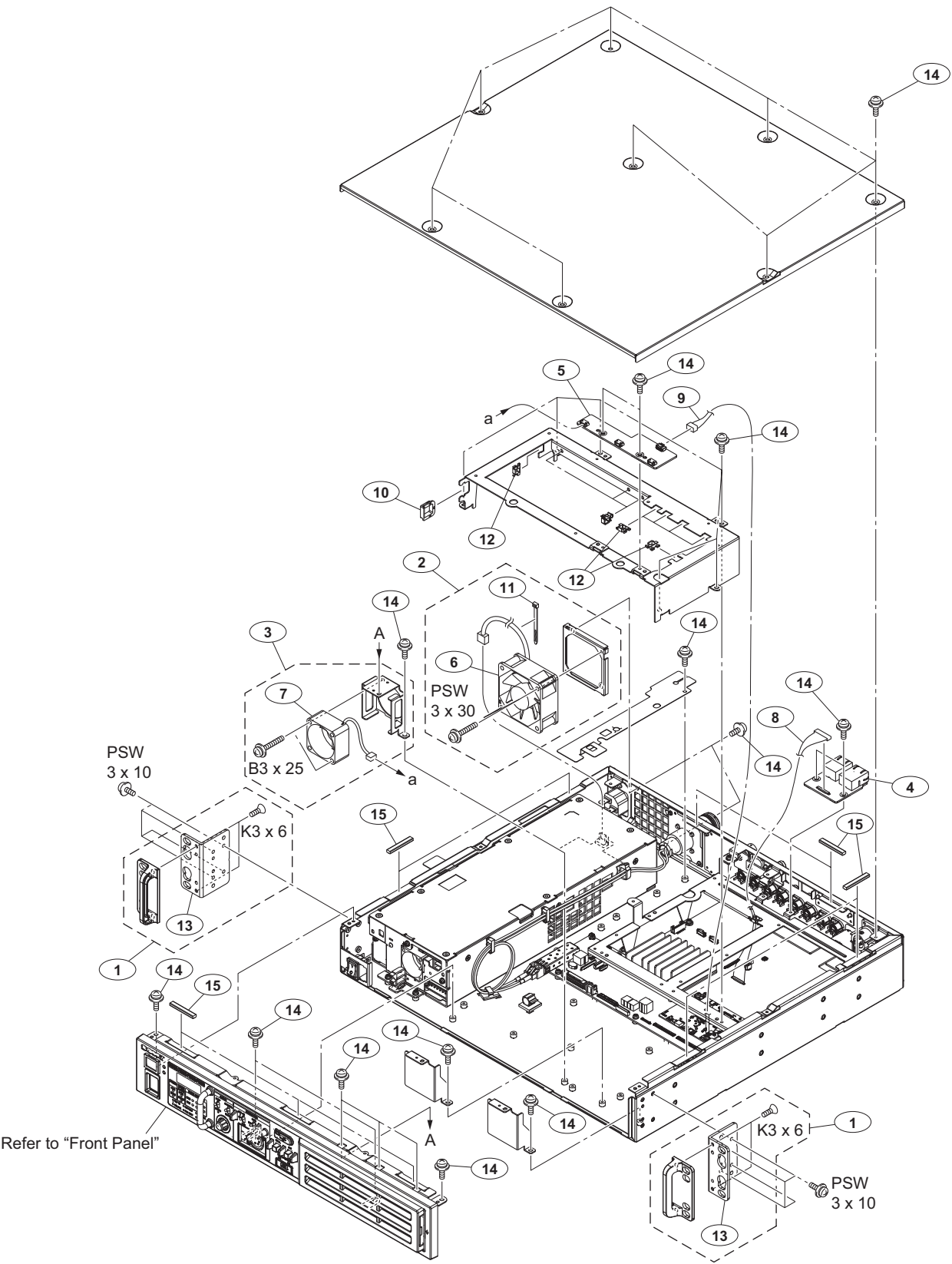
部品表の SP (Supply code) 欄に “o” で示される部品は在庫していないことがあります。納期が長くなる場合があります。

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。

6-2. Exploded Views

Cover (HDCU3100)



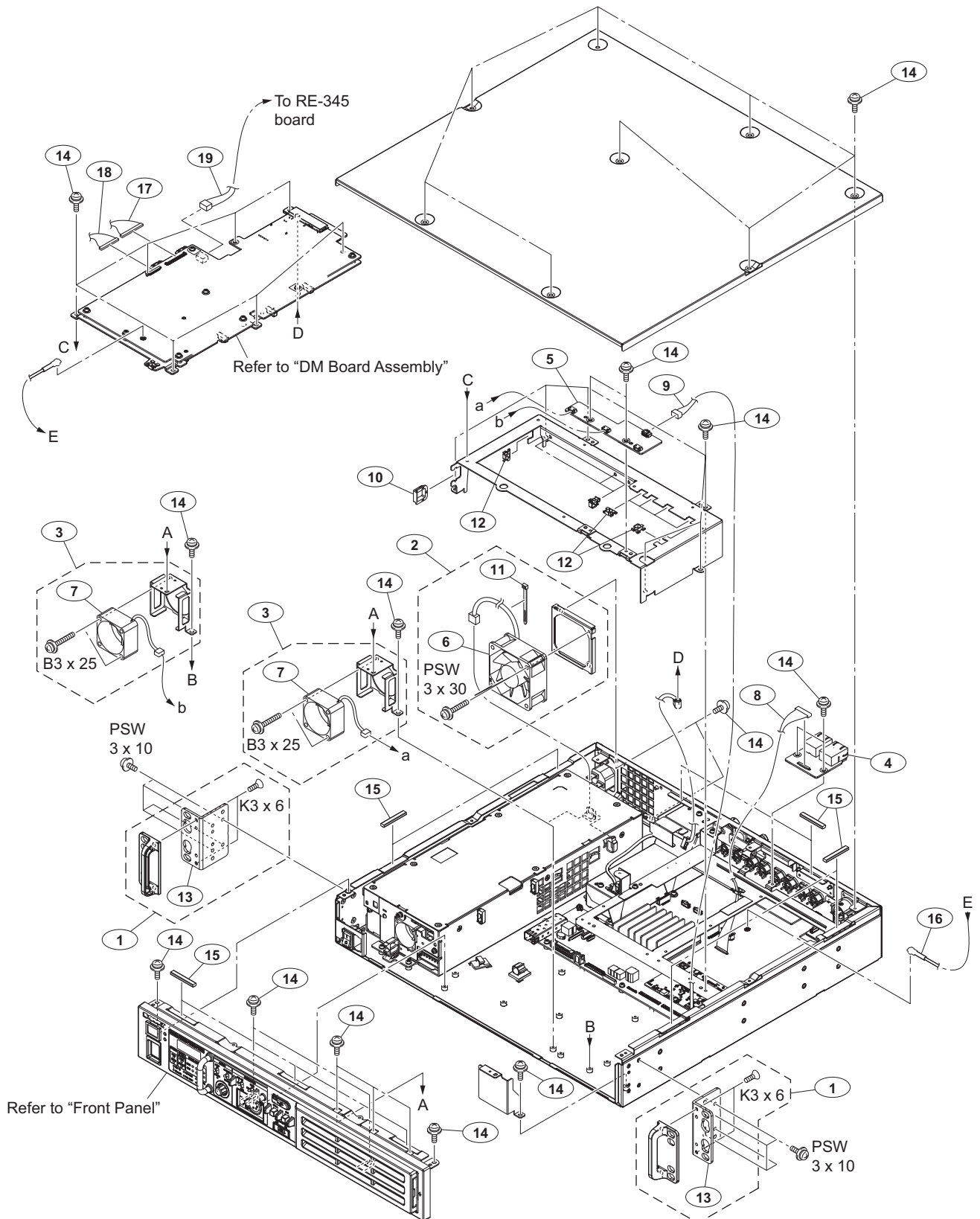
No.	Part No.	SP Description
1	A-2034-689-A s	BRACKET ASSY, RACK
2	A-2216-093-A s	FAN (60) ASSY
3	A-2216-094-A s	FAN (40) ASSY

No.	Part No.	SP Description
4	A-2218-157-A s	CN-3963 MOUNT
5	A-2218-159-A s	CN-4022 MOUNT

Cover (HDCU3100)

No.	Part No.	SP Description
6	△ 1-855-432-11	s FAN, DC (60 SQUARE)
7	△ 1-855-512-11	s DC FAN (40 SQUARE)
8	1-912-712-11	s MICRO COAXIAL CABLE (SS30 110)
9	1-972-257-11	s HARNESS, SUB (VIF-FAN)
10	2-433-598-01	s HOLDER (LT-11U), WIRE
11	3-655-653-01	s BAND (TAITON), BINDING
12	4-137-926-01	s SADDLE (LES-0505), EDGE
13	4-299-632-01	s RACK BRACKET (U)
14	4-382-854-51	s SCREW (M3X6), P, SW (+)
15	3-287-506-02	s GASKET (R3) 3X5X33
	7-682-247-09	s SCREW +K 3X6
	7-682-554-04	s SCREW +B 3X25
	7-682-949-01	s SCREW +PSW 3X10
	7-682-955-01	s SCREW +PSW 3X30

Cover (HDCU3170)



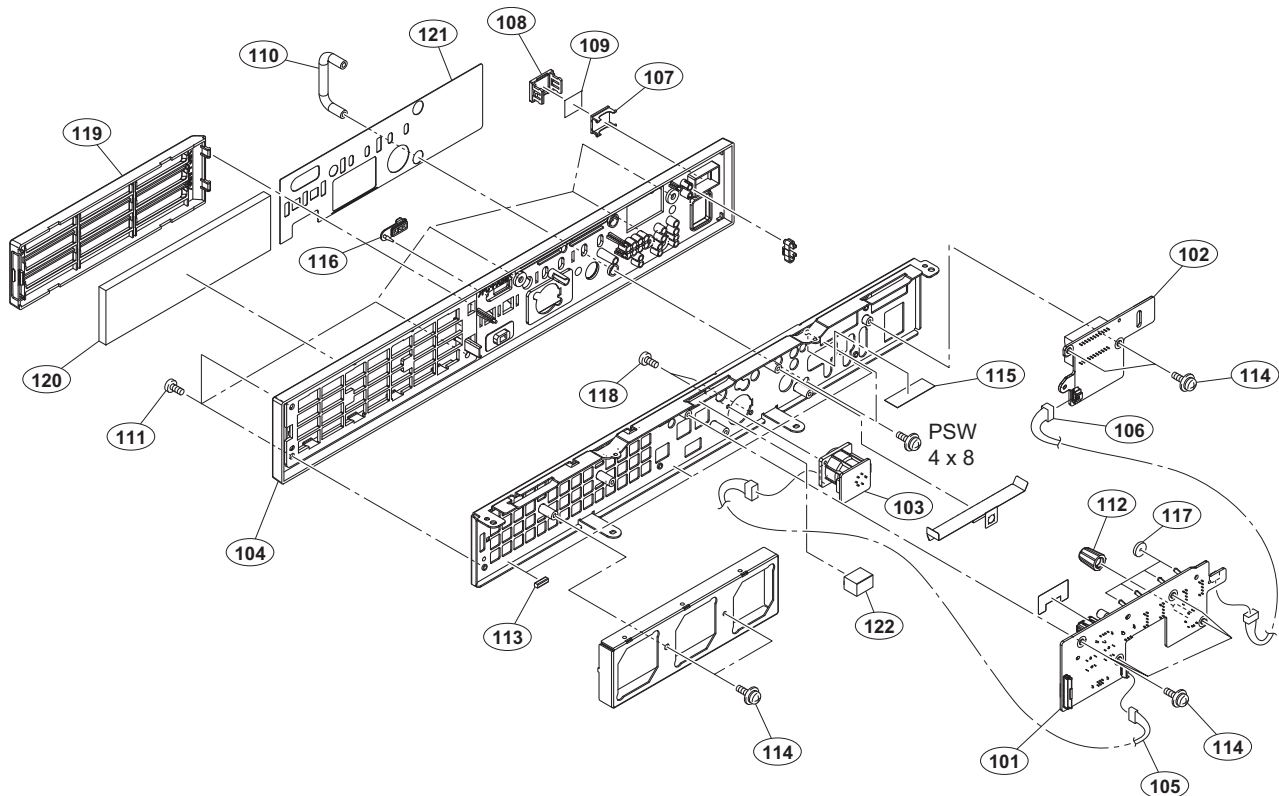
No.	Part No.	SP Description
1	A-2034-689-A s	BRACKET ASSY, RACK
2	A-2216-093-A s	FAN (60) ASSY
3	A-2216-094-A s	FAN (40) ASSY
4	A-2218-157-A s	CN-3963 MOUNT
5	A-2218-159-A s	CN-4022 MOUNT

No.	Part No.	SP Description
6	⚠ 1-855-432-11 s	FAN, DC (60 SQUARE)
7	⚠ 1-855-512-11 s	DC FAN (40 SQUARE)
8	1-912-712-11 s	MICRO COAXIAL CABLE (SS30 110)
9	1-972-257-11 s	HARNESS, SUB (VIF-FAN)

Cover (HDCU3170)

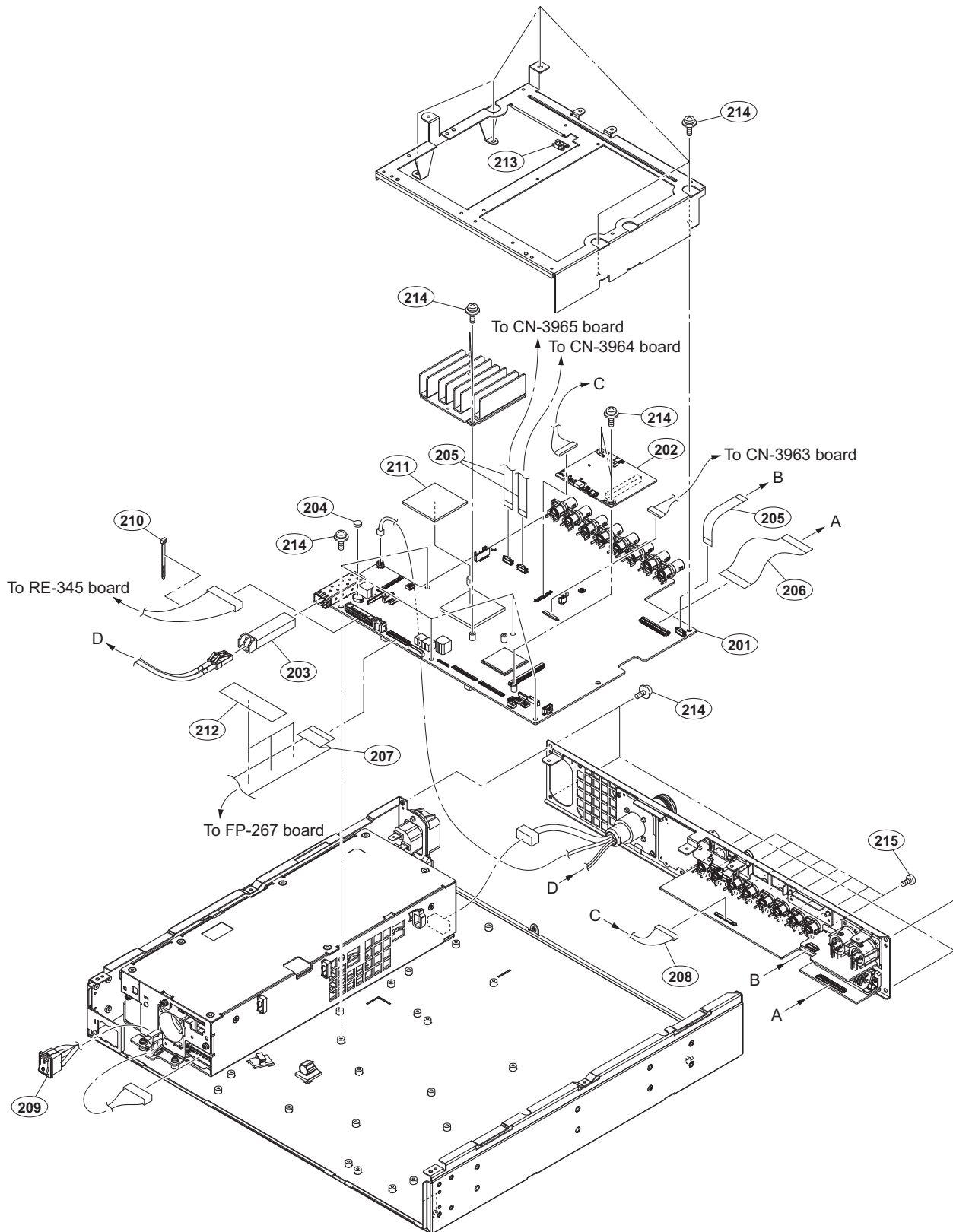
No.	Part No.	SP Description
10	2-433-598-01	s HOLDER (LT-11U), WIRE
11	3-655-653-01	s BAND (TAITON), BINDING
12	4-137-926-01	s SADDLE (LES-0505), EDGE
13	4-299-632-01	s RACK BRACKET(U)
14	4-382-854-51	s SCREW (M3X6), P, SW (+)
15	3-287-506-02	s GASKET (R3) 3X5X33
16	1-835-369-11	s CABLE ASSEMBLY, COAXIAL
17	1-912-806-11	s MICRO COAXIAL CABLE (CA60 100
18	1-969-477-31	s WIRE, CONNECTOR WITH LEAD (AVP
19	1-972-493-11	s HARNESS, SUB (DM POWER)
	7-682-247-09	s SCREW +K 3X6
	7-682-554-04	s SCREW +B 3X25
	7-682-949-01	s SCREW +PSW 3X10
	7-682-955-01	s SCREW +PSW 3X30

Front Panel



No.	Part No.	SP Description
101	A-2218-153-A	s FP-267 MOUNT
102	A-2218-155-A	s LE-419 MOUNT
103	A-2218-156-A	s CN-3961 MOUNT
104	A-2218-965-A	s PANEL SUB ASSY, FRONT
105	1-971-261-11	s HARNESS, SUB (AU-CN)
106	1-972-260-11	s HARNESS, SUB (FP-LE)
107	2-139-192-01	s FRAME, INDICATOR WINDOW
108	2-139-193-02	s WINDOW, INDICATOR
109	2-249-353-01	s COVER, LAMP
110	3-723-762-01	o HANDLE
111	3-725-295-21	s SCREW, (+) (B3)
112	4-139-232-01	s KNOB, ROTARY ENCODER
113	4-279-305-01	s GASKET, DCP-TX REAR
114	4-382-854-51	s SCREW (M3X6), P, SW (+)
115	4-414-598-01	s TAPE (12X35)
116	4-478-730-02	s CAP, USB
117	4-486-742-01	s CUSHION
118	4-559-446-02	s SCREW, +P2.6X5 NEW TRUSTER
119	4-734-653-01	s COVER, FILTER
120	4-734-658-01	s FILTER
121	4-734-659-01	s SHEET,FRONT PANEL
122	4-739-382-01	s GASKET (12X10 (15)), SOFT
	7-682-961-01	s SCREW +PSW 4X8

Chassis (HDCU3100)



No.	Part No.	SP Description
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201	A-2218-275-A	s VIF-69 COMPL
202	A-2218-276-A	s AT-195 MOUNT
203	⚠ 1-510-039-11	s OPTICAL MODULE (1.8725/3.7G)
204	⚠ 1-756-134-17	s BATTERY, LITHIUM (SECONDARY)
205	1-836-443-11	s CABLE, FLEXIBLE FLAT (15 CORE)

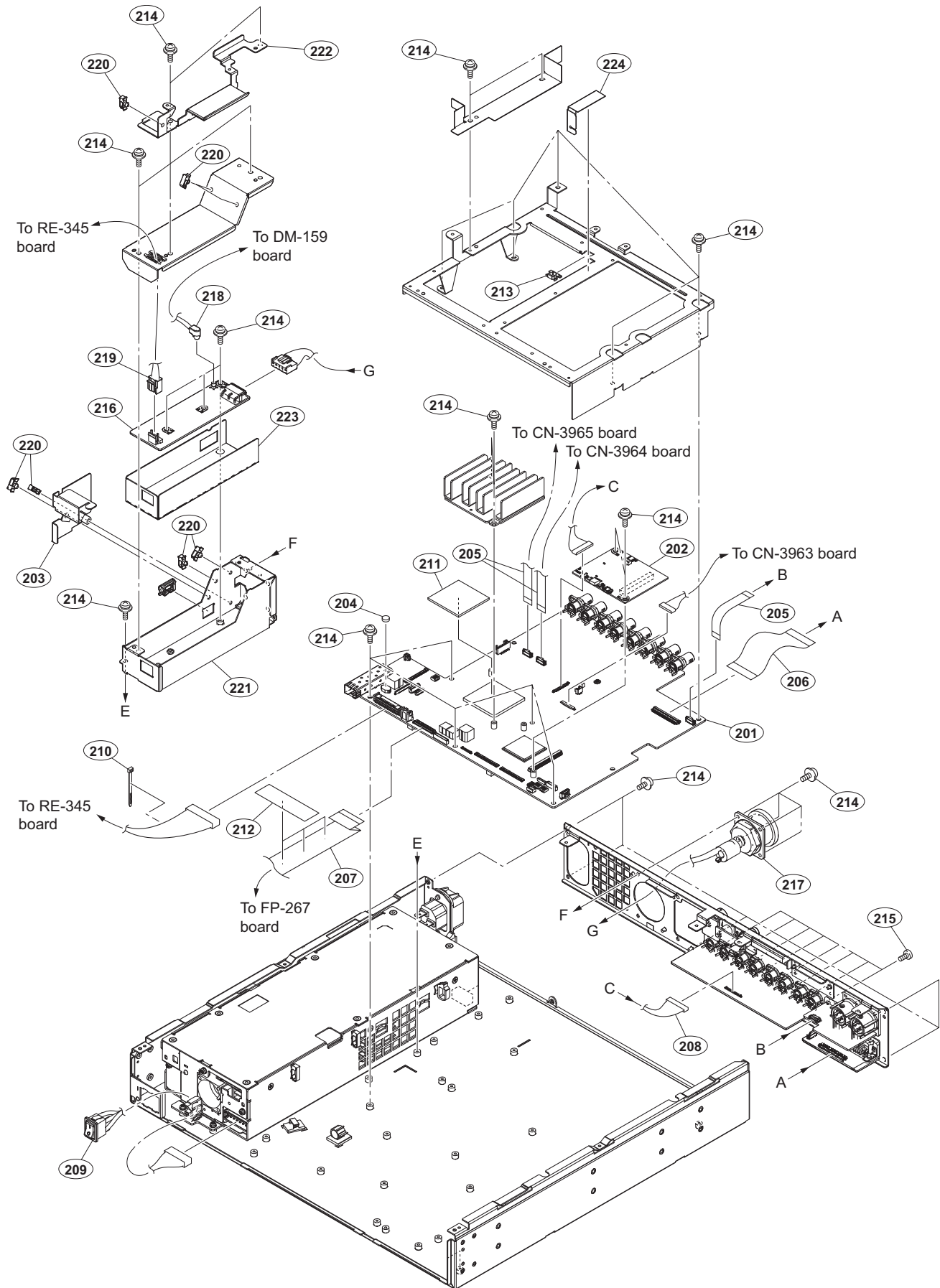
No.	Part No.	SP Description
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206	1-849-394-11	s CABLE, FLEXIBLE FLAT (60 CORE)
207	1-912-708-11	s CABLE, FLEXIBLE FLAT (45 CORE)
208	1-912-711-11	s MICRO COAXIAL CABLE (SS40 80)
209	⚠ 1-972-256-11	s HARNESS, SUB (POWER SW)
210	3-655-653-01	s BAND (TAITON), BINDING

Chassis (HDCU3100)

No.	Part No.	SP Description
211	5-006-976-01	s SHEET, RADIATION(40X40) T2
212	3-878-657-01	s TAPE 50
213	4-137-926-01	s SADDLE (LES-0505), EDGE
214	4-382-854-51	s SCREW (M3X6), P, SW (+)
215	4-559-446-02	s SCREW, +P2.6X5 NEW TRUSTER

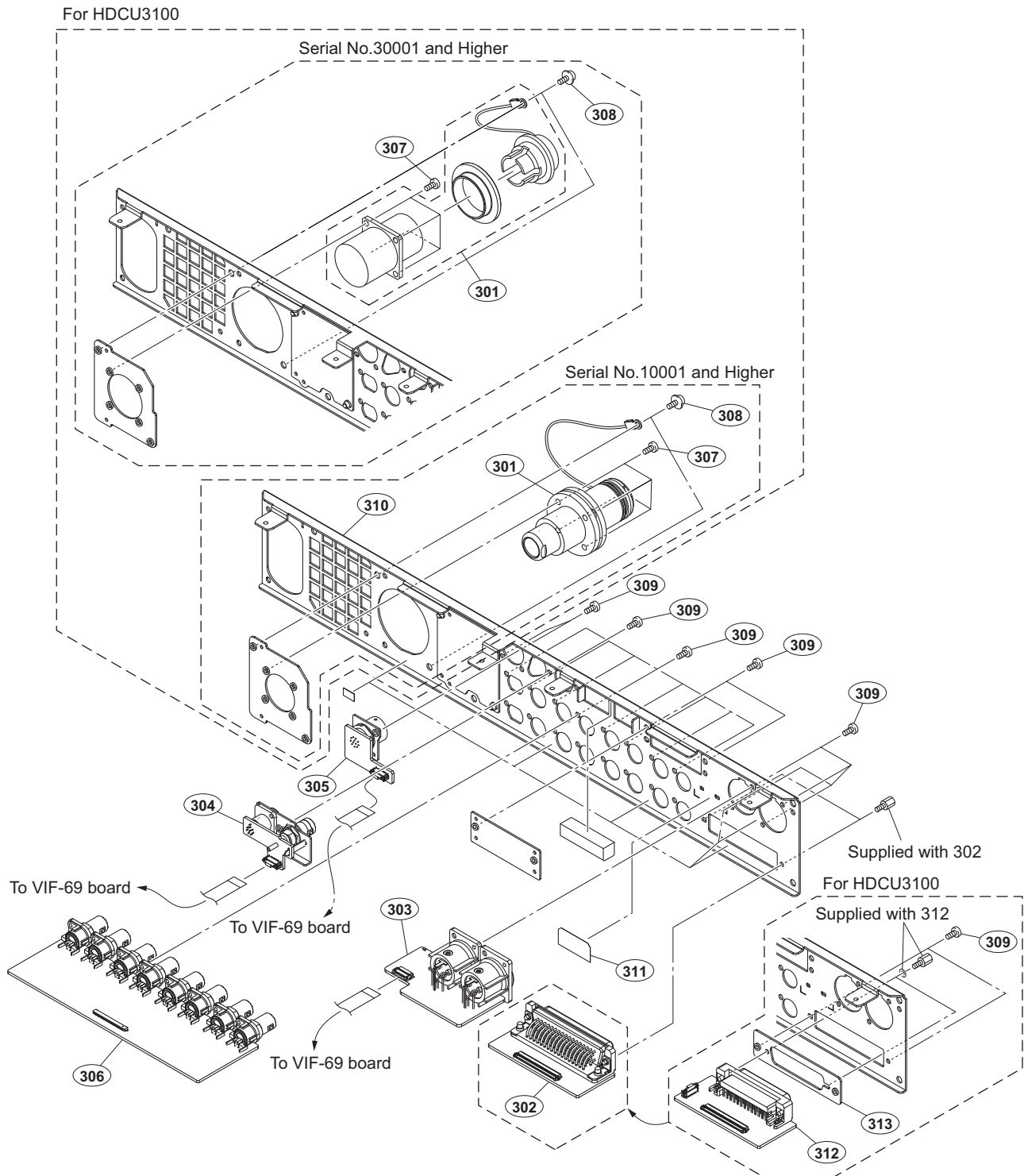
Chassis (HDCU3170)



Chassis (HDCU3170)

No.	Part No.	SP Description
201	A-2218-275-A	s VIF-69 COMPL
202	A-2218-276-A	s AT-195 MOUNT
203	△ 4-744-358-01	s SHEET, INSULATION (RF)
204	△ 1-756-134-17	s BATTERY, LITHIUM (SECONDARY)
205	1-836-443-11	s CABLE, FLEXIBLE FLAT (15 CORE)
206	1-849-394-11	s CABLE, FLEXIBLE FLAT (60 CORE)
207	1-912-708-11	s CABLE, FLEXIBLE FLAT (45 CORE)
208	1-912-711-11	s MICRO COAXIAL CABLE (SS40 80)
209	△ 1-972-256-11	s HARNESS, SUB (POWER SW)
210	3-655-653-01	s BAND (TYTON), BINDING
211	5-006-976-01	s SHEET, RADIATION(40X40) T2
212	3-878-657-01	s TAPE 50
213	4-137-926-01	s SADDLE (LES-0505), EDGE
214	4-382-854-51	s SCREW (M3X6), P, SW (+)
215	4-559-446-02	s SCREW, +P2.6X5 NEW TRUSTER
216	A-2199-821-A	s FL-381 MOUNT
217	△ A-2226-978-A	s TRIAX (F) CCU ASSY
	△ A-2226-979-A	s TRIAX (K) CCU ASSY
218	1-836-794-11	s CABLE, CONNECTOR WITH COAXIAL
219	1-972-494-11	s HARNESS, SUB (FL POWER)
220	4-098-036-01	s SADDLE WIRE (A)
221	△ 4-741-397-01	s PLATE,FL SHIELD
222	4-741-399-01	s HOLDER, DM
223	△ 4-741-400-01	s SHEET, FL INSULATION
224	4-744-427-01	s CLAMPER, COAXIAL CABLE

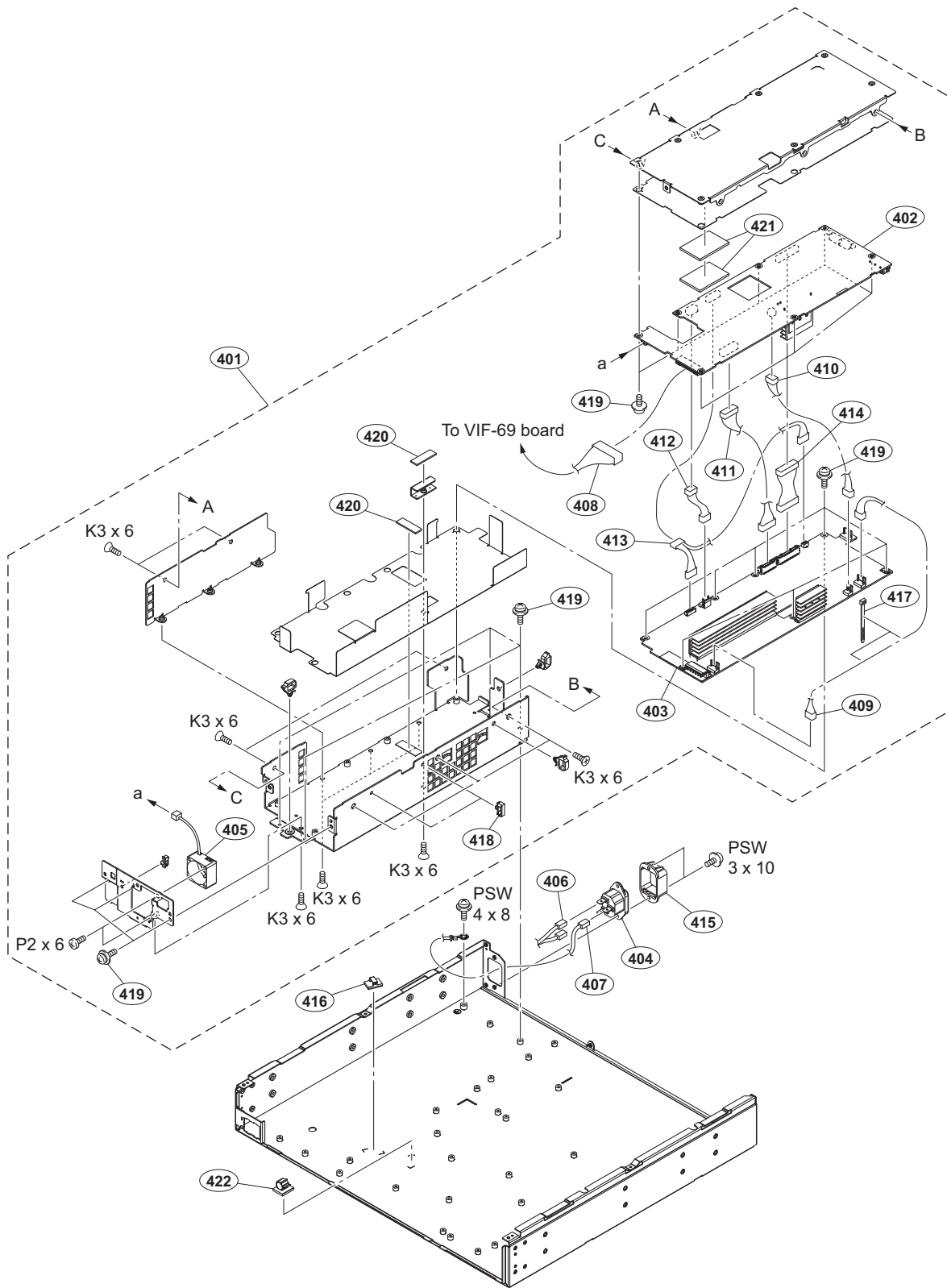
Rear Panel



No.	Part No.	SP Description
301	△ A-2189-823-A s	LEMO CONNECTOR ASSY-D(FXW)EXP (Serial No.10001 to 30000) (For HDCU3100)
	△ 1-849-370-11 s	OPTICAL MULTI CABLE ASSEMBLY (Serial No.30001 and Higher) (For HDCU3100)
302	A-2116-281-A s	CN-3847 MOUNT (D-SUB 50P)
303	A-2218-149-A s	CN-3962 MOUNT
304	A-2218-150-A s	CN-3964 MOUNT
305	A-2218-151-A s	CN-3965 MOUNT
306	A-2218-152-A s	DIF-263 MOUNT

No.	Part No.	SP Description
307	4-382-854-42 s	SCREW (M3X8), P, SW (+)
308	4-382-854-51 s	SCREW (M3X6), P, SW (+) (For HDCU3100)
309	4-559-446-02 s	SCREW, +P2.6X5 NEW TRUSTER
310	△ 4-729-317-02 s	PANEL, REAR
311	4-736-546-01 s	SHEET, LIGHT DIFFUSION (REAR)
312	A-2226-249-A s	CN-3975 MOUNT (D-SUB 25P) (For HDCU3100)
313	4-743-769-01 s	BRACKET, D-SUB (25P) (For HDCU3100)

Power Block

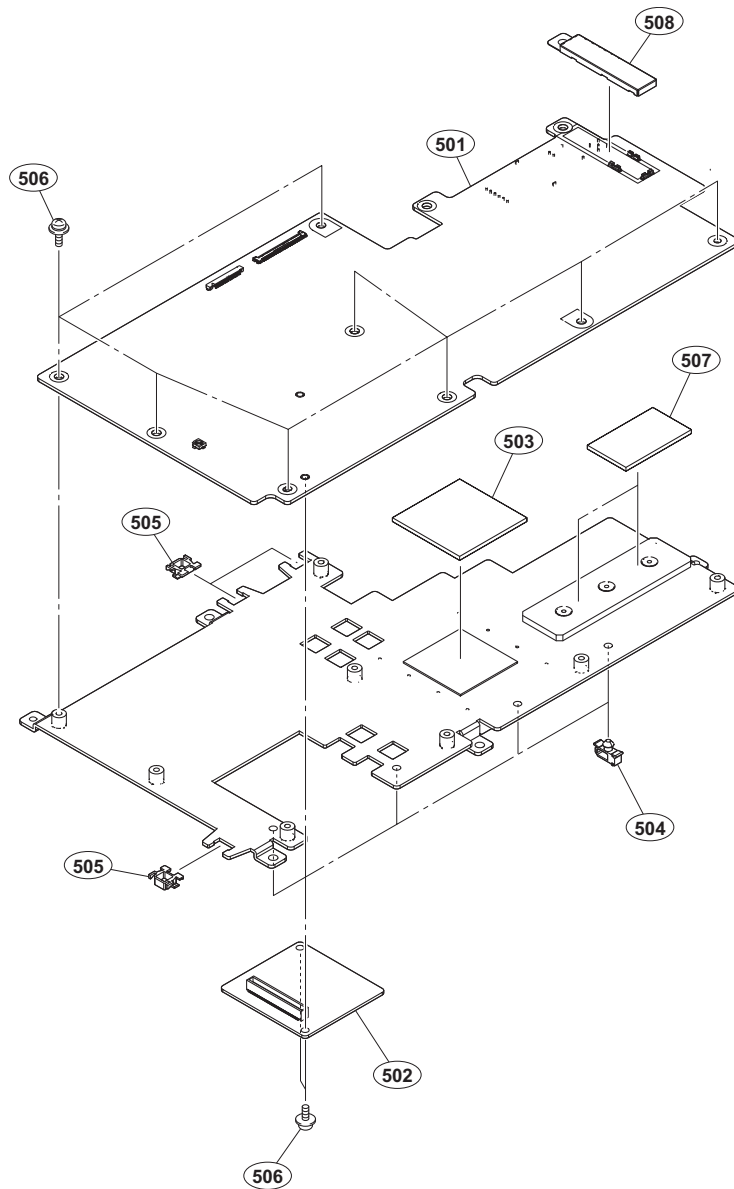


No.	Part No.	SP Description	No.	Part No.	SP Description
401	△ A-2216-096-A s	POWER ASSY	407	△ 1-972-259-11 s	HARNESS, SUB (EARTH)
402	A-2218-257-A s	RE-345 COMPL	408	1-972-261-11 s	HARNESS, SUB (VIF POWER)
403	A-2218-360-A s	PS-939 MOUNT	409	1-972-266-11 s	SUB HARNESS AC
404	△ 1-842-404-11 s	AC INLET (SCREW) 3P FASTEN	410	1-972-267-11 s	SUB HARNESS HV
405	△ 1-855-096-31 s	DC FAN	411	1-972-268-11 s	SUB HARNESS SECONDARY F
406	1-972-258-12 s	HARNESS, SUB (AC IN)	412	1-972-269-11 s	SUB HARNESS PFC
			413	1-972-270-11 s	SUB HARNESS PRIMARY SIGNAL

Power Block

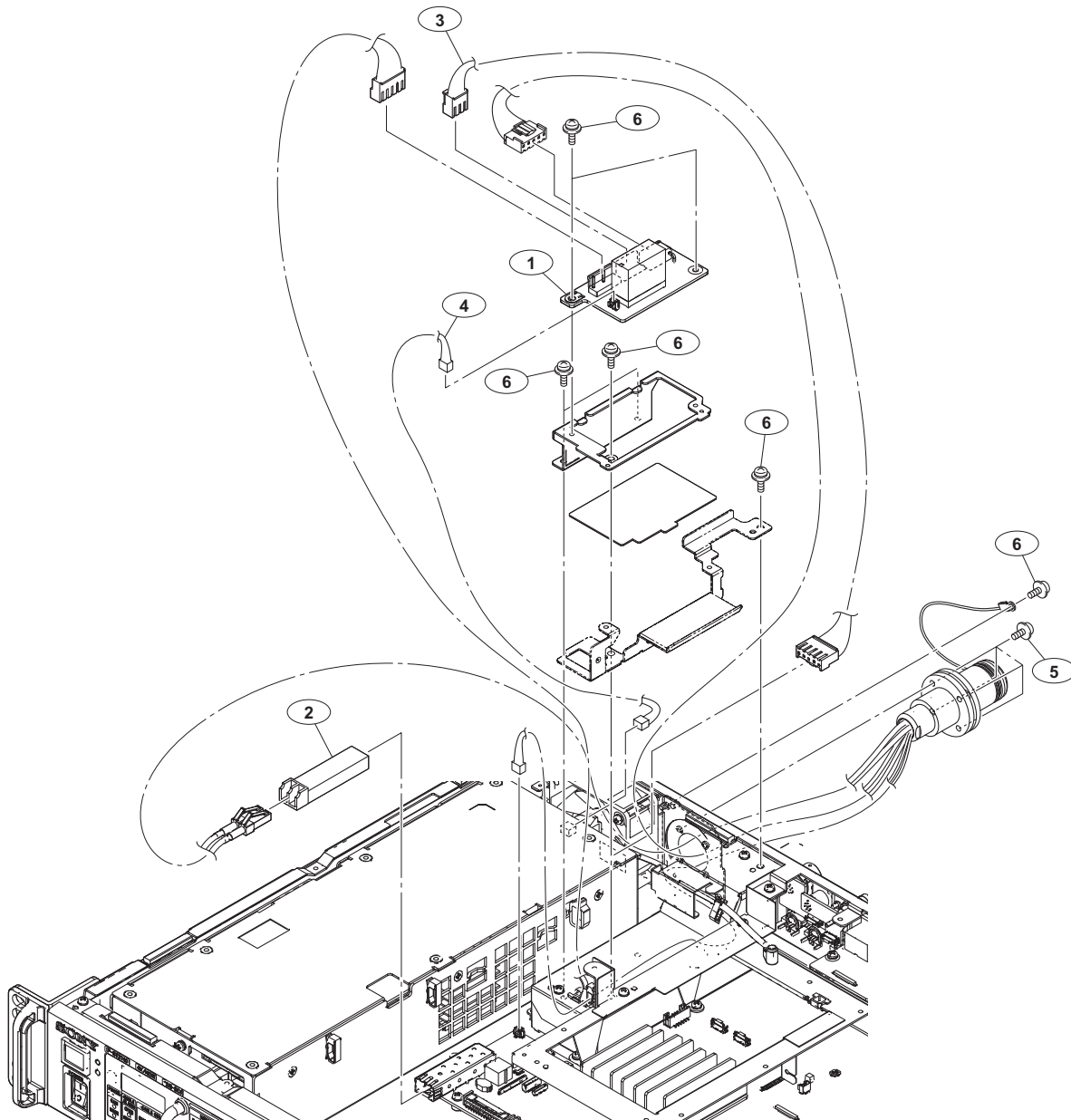
No.	Part No.	SP Description
414	1-972-271-11 s	SUB HARNESS SECONDARY R
415	2-990-241-02 s	HOLDER (A), PLUG
416	3-257-200-01 s	CLAMP, CORD
417	3-655-653-01 s	BAND (TAITON), BINDING
418	4-098-033-01 s	SADDLE WIRE (C)
419	4-382-854-51 s	SCREW (M3X6), P, SW (+)
420	4-427-952-02 s	RADIATION SHEET D
421	4-462-217-02 s	SHEET (H), RADIATION
422	4-640-554-01 s	CABLE CLAMP
	7-627-554-27 s	SCREW, PRECISION +P 2X6 TYPE1
	7-682-247-04 s	SCREW +K 3X6
	7-682-949-01 s	SCREW +PSW 3X10
	7-682-961-01 s	SCREW +PSW 4X8

DM Board Assembly (HDCU3170)



No.	Part No.	SP Description
501	A-2228-520-A s	DM-159 COMPL
502	A-2228-521-A s	ENC-184 COMPL
503	3-690-778-01 s	SHEET, VENTILATION
504	4-098-036-01 s	SADDLE WIRE (A)
505	4-137-926-01 s	SADDLE (LES-0505), EDGE
506	4-382-854-51 s	SCREW (M3X6), P, SW (+)
507	5-006-975-01 s	SHEET, RADIATION (24X40) T2
508	4-745-725-01 s	CASE, SHIELD (DM)

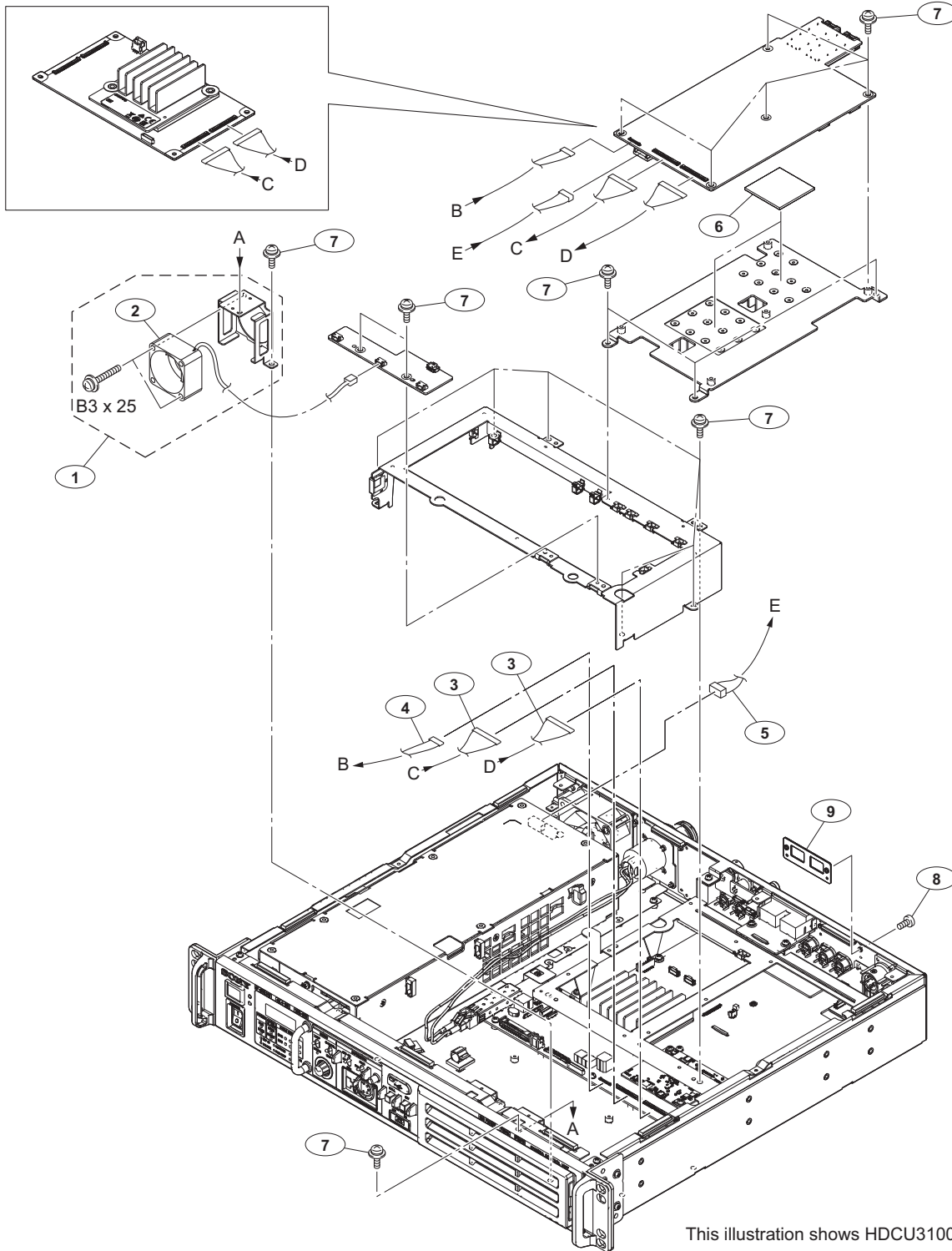
CN-4037 Board (HKCU-FB30: HDCU3170)



No.	Part No.	SP Description
1	A-2225-519-A s	CN-4037 MOUNT
2	1-510-039-11 s	OPTICAL MODULE (1.8725/3.7G)
3	1-972-495-11 s	HARNESS, SUB (RELAY-PS)
4	1-972-496-11 s	HARNESS, SUB (RELAY POWER)
5	4-382-854-42 s	SCREW (M3X8), P, SW (+)
6	4-382-854-51 s	SCREW (M3X6), P, SW (+)

NET-37 Board (HKCU-SFP30)

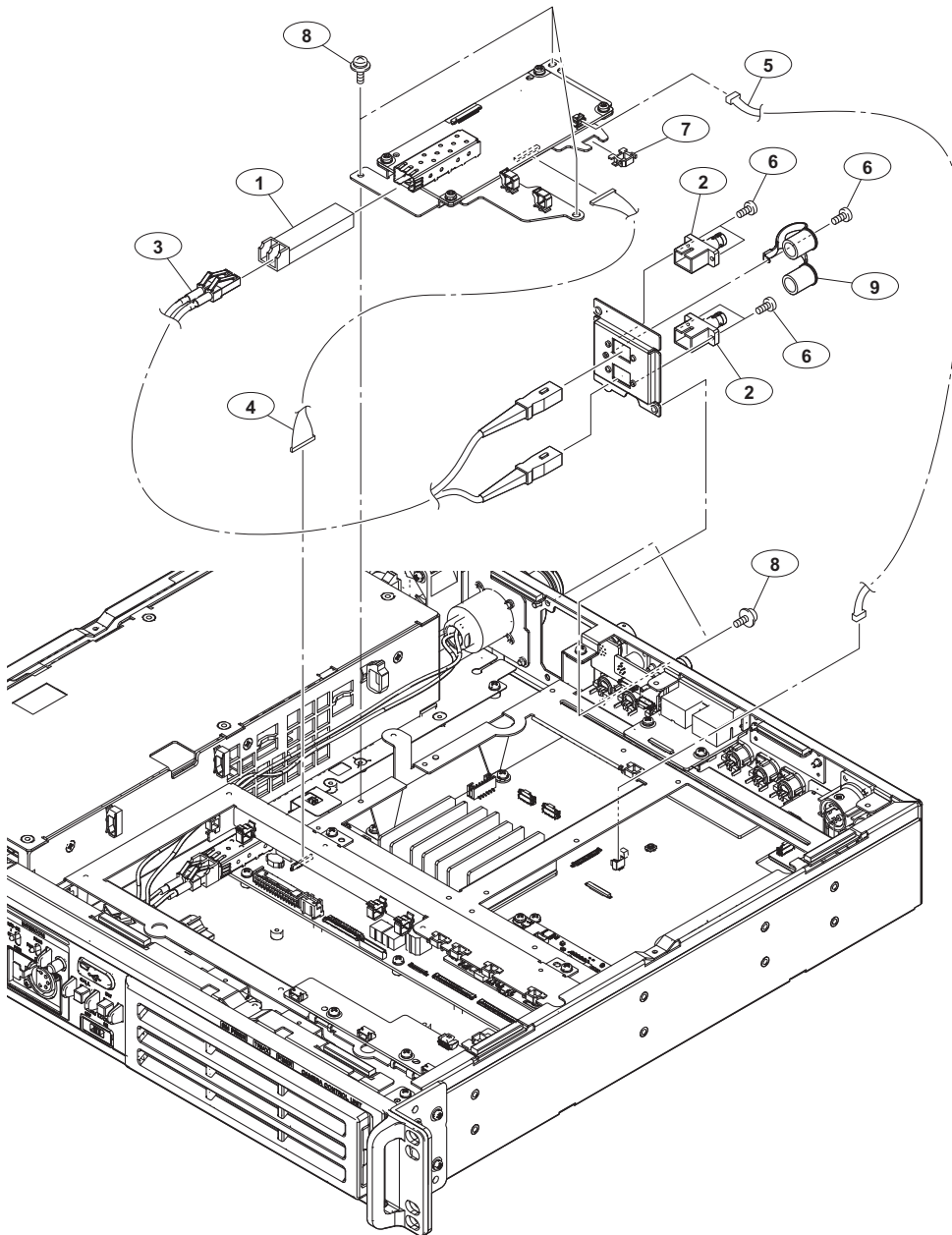
HKCU-UHD30 connection



This illustration shows HDCU3100.

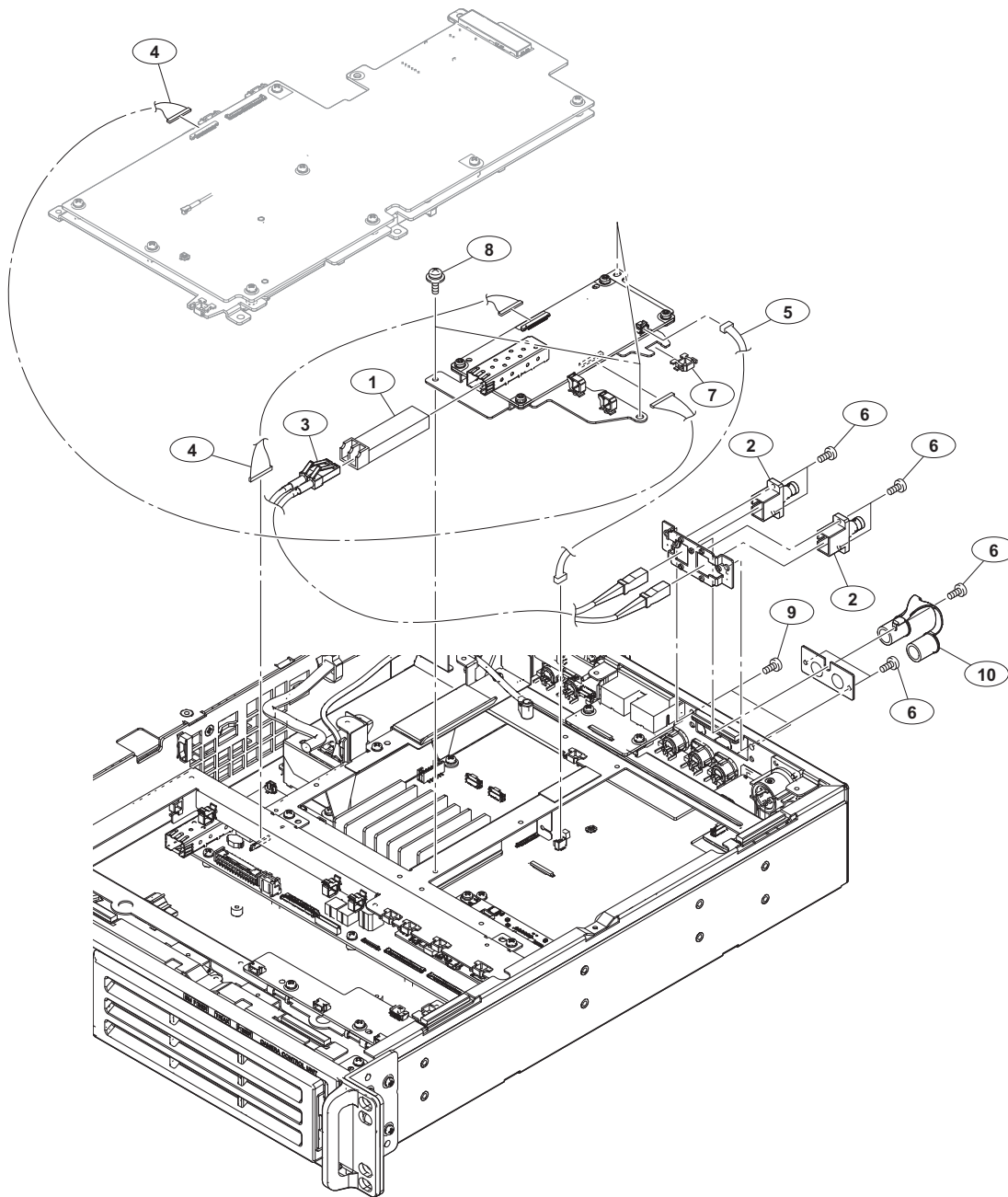
No.	Part No.	SP Description	No.	Part No.	SP Description
1	A-2216-094-A s	FAN (40) ASSY	9	4-729-417-01 s	BRACKET, NET
2	⚠ 1-855-512-11 s	DC FAN (40 SQUARE)			
3	1-912-709-11 s	MICRO COAXIAL CABLE (CA60 155			
4	1-912-713-11 s	MICRO COAXIAL CABLE (SS20 80			
5	1-972-379-11 s	HARNESS, SUB (SLOT POWER)		7-682-554-04 s	SCREW +B 3X25
6	5-006-976-01 s	SHEET, RADIATION(40X40) T2			
7	4-382-854-51 s	SCREW (M3X6), P, SW (+)			
8	4-559-446-02 s	SCREW, +P2.6X5 NEW TRUSTER			

CN-4036 Board (HKCU-SM30) (HDCU3100)



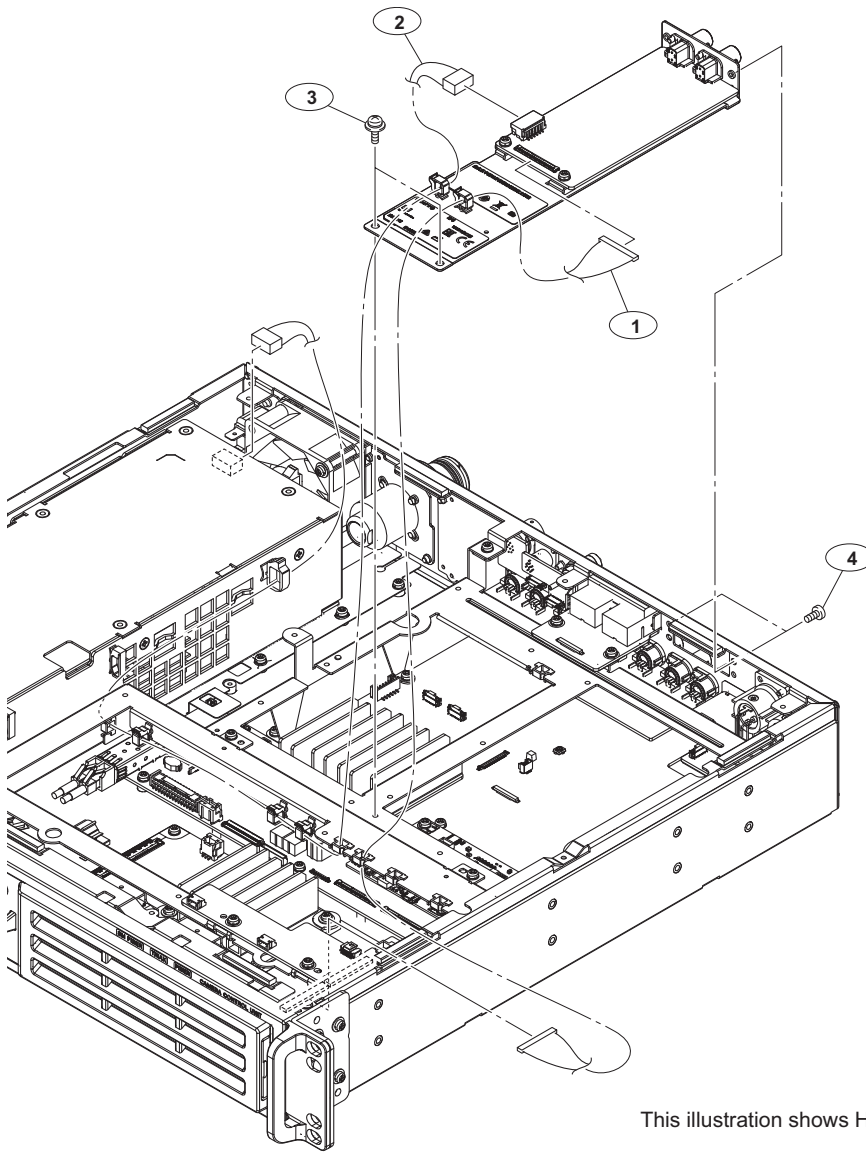
No.	Part No.	SP Description
1	△ 1-510-039-11 s	OPTICAL MODULE (1.8725/3.7G)
2	1-843-839-11 s	SC-ST OPTICAL FIBER ADAPTOR
3	1-849-778-11 s	SC-LC OPTICAL FIBER CABLE
4	1-968-193-21 s	HARNESS(COAXIAL CABLE)
5	1-972-502-11 s	HARNESS, SUB (VIF-SMF)
6	3-080-203-42 s	SCREW (M2), NEW TRUSTER, P2
7	4-137-926-01 s	SADDLE (LES-0505), EDGE
8	4-382-854-51 s	SCREW (M3X6), P, SW (+)
9	4-579-333-01 s	CAP, ST CONNECTOR

CN-4036 Board (HKCU-SM30) (HDCU3170)



No.	Part No.	SP Description
1	⚠ 1-510-039-11 s	OPTICAL MODULE (1.8725/3.7G)
2	1-843-839-11 s	SC-ST OPTICAL FIBER ADAPTOR
3	1-849-778-11 s	SC-LC OPTICAL FIBER CABLE
4	1-968-193-21 s	HARNESS(COAXIAL CABLE)
5	1-972-502-11 s	HARNESS, SUB (VIF-SMF)
6	3-080-203-42 s	SCREW (M2), NEW TRUSTER, P2
7	4-137-926-01 s	SADDLE (LES-0505), EDGE
8	4-382-854-51 s	SCREW (M3X6), P, SW (+)
9	4-559-446-02 s	SCREW, +P2.6X5 NEW TRUSTER
10	4-579-333-01 s	CAP, ST CONNECTOR

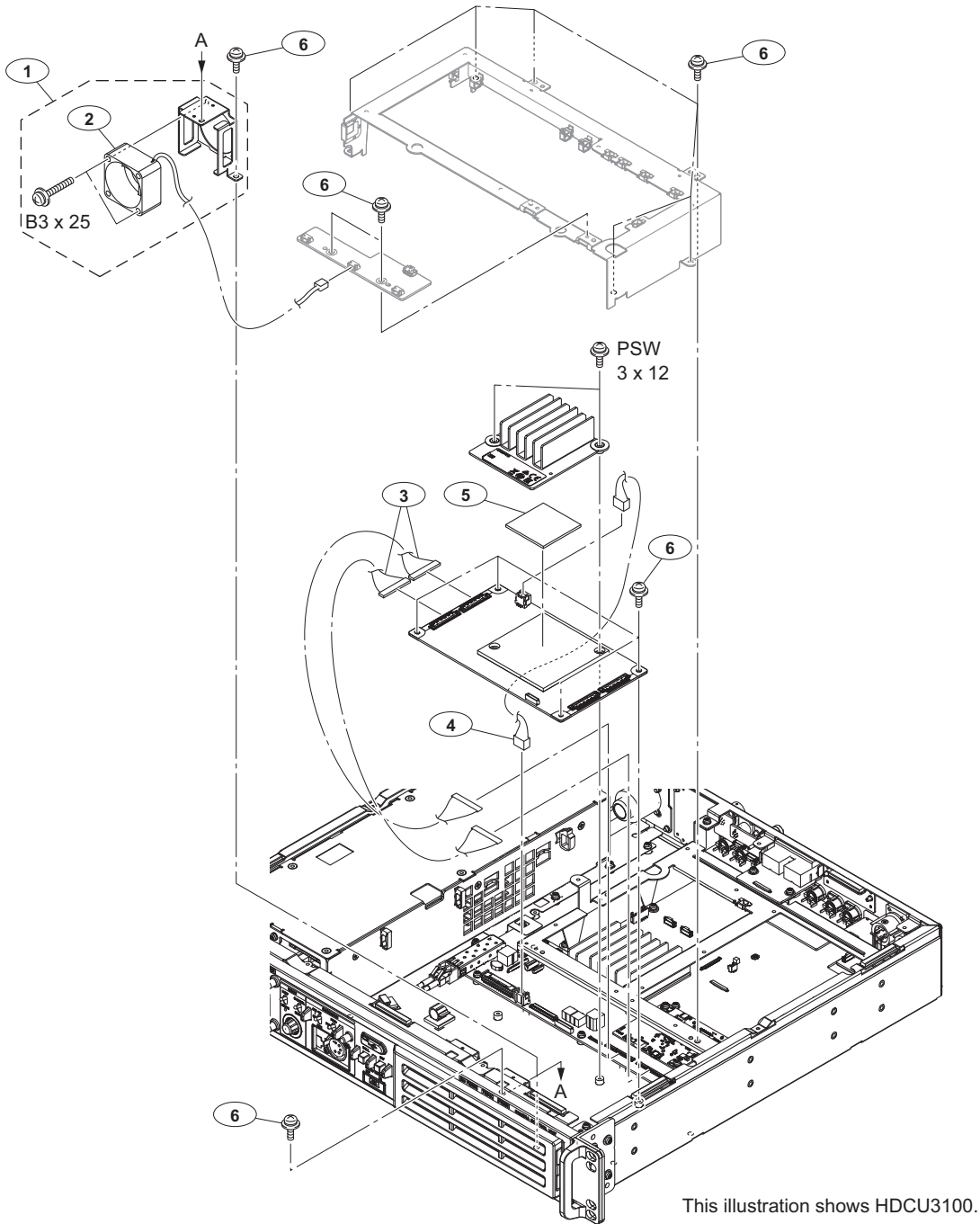
DIF-264 Board (HKCU-SDI30)



This illustration shows HDCU3100.

No.	Part No.	SP Description
1	1-912-710-11 s	MICRO COAXIAL CABLE (CA60 260
2	1-972-379-11 s	HARNESS, SUB (SLOT POWER)
3	4-382-854-51 s	SCREW (M3X6), P, SW (+)
4	4-559-446-02 s	SCREW, +P2.6X5 NEW TRUSTER

DPR-388 Board (HKCU-UHD30)



No.	Part No.	SP Description
1	A-2216-094-A	s FAN (40) ASSY
2	1-855-512-11	s DC FAN (40 SQUARE)
3	1-912-710-11	s MICRO COAXIAL CABLE (CA60 260
4	1-972-501-11	s HARNESS, SUB (VIF-DPR POWER)
5	3-690-778-01	s SHEET, VENTILATION
6	4-382-854-51	s SCREW (M3X6), P, SW (+)
	7-682-554-04	s SCREW +B 3X25
	7-682-950-01	s SCREW +PSW 3X12

6-3. Supplied Accessories

HDCU3100/3170

Q'ty	Part No.	SP Description
1pc	A-8278-054-B	s REMOTE INDICATOR ASSY
1pc	△ 4-738-875-02	s CD-ROM PACK

HKCU-FB30

Q'ty	Part No.	SP Description
1pc	A-2189-872-A	s LEMO CONNECTOR ASSY(FXW)
1pc	1-500-978-11	s CORE (TOROIDAL)
1pc	△ 1-510-039-11	s OPTICAL MODULE (1.8725/3.7G)
1pc	1-562-211-11	o HOUSING, CONNECTOR 3P
1pc	1-972-495-11	s HARNESS, SUB (RELAY-PS)
1pc	1-972-496-11	s HARNESS, SUB (RELAY POWER)
5pcs	3-671-893-01	s CLAMP (LOW TYPE)
1pc	4-030-082-01	o BAG (1), AIR CAP
4pcs	4-382-854-42	s SCREW (M3X8), P, SW (+)
7pcs	4-382-854-51	s SCREW (M3X6), P, SW (+)
1pc	4-745-952-01	s OPERATING INSTRUCTIONS
1pc	4-745-952-11	s OPERATING INSTRUCTIONS

HKCU-SFP30

Q'ty	Part No.	SP Description
1pc	A-2216-094-A	s FAN (40) ASSY
1pc	△ 1-855-512-11	s DC FAN (40 SQUARE)
2pcs	1-912-709-11	s MICRO COAXIAL CABLE (CA60 155)
1pc	1-912-713-11	s MICRO COAXIAL CABLE (SS20 80)
1pc	1-972-379-11	s HARNESS, SUB (SLOT POWER)
4pcs	3-655-653-01	s BAND (TAITON), BINDING
1pc	3-704-046-31	s BAG, PREVENTION, ELECTRIFICATION
5pcs	4-382-854-51	s SCREW (M3X6), P, SW (+)
2pcs	4-559-446-02	s SCREW, +P2.6X5 NEW TRUSTER
1pc	4-729-417-01	s BRACKET, NET
1pc	4-743-374-01	s OPERATING INSTRUCTIONS
1pc	4-743-374-11	s OPERATING INSTRUCTIONS
1pc	4-743-374-21	s OPERATING INSTRUCTIONS
2pcs	7-682-554-04	s SCREW +B 3X25

HKCU-SDI30

Q'ty	Part No.	SP Description
1pc	1-912-710-11	s MICRO COAXIAL CABLE (CA60 260)
1pc	1-972-379-11	s HARNESS, SUB (SLOT POWER)
4pcs	3-655-653-01	s BAND (TAITON), BINDING
2pcs	4-382-854-51	s SCREW (M3X6), P, SW (+)
2pcs	4-559-446-02	s SCREW, +P2.6X5 NEW TRUSTER
1pc	4-745-950-01	s OPERATING INSTRUCTIONS
1pc	4-745-950-11	s OPERATING INSTRUCTIONS
1pc	4-745-950-21	s OPERATING INSTRUCTIONS

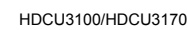
HKCU-SM30

Q'ty	Part No.	SP Description
2pcs	1-843-839-11	s SC-ST OPTICAL FIBER ADAPTOR
1pc	1-849-778-11	s SC-LC OPTICAL FIBER CABLE
2pcs	1-968-193-21	s HARNESS (COAXIAL CABLE)
1pc	1-972-502-11	s HARNESS, SUB (VIF-SMF)
7pcs	3-080-203-42	s SCREW (M2), NEW TRUSTER, P2
1pc	3-655-653-01	s BAND (TAITON), BINDING
5pcs	4-382-854-51	s SCREW (M3X6), P, SW (+)
2pcs	4-559-446-02	s SCREW, +P2.6X5 NEW TRUSTER
1pc	4-579-333-01	s CAP, ST CONNECTER
1pc	4-745-948-01	s OPERATING INSTRUCTIONS
1pc	4-745-948-11	s OPERATING INSTRUCTIONS
1pc	4-745-948-21	s OPERATING INSTRUCTIONS

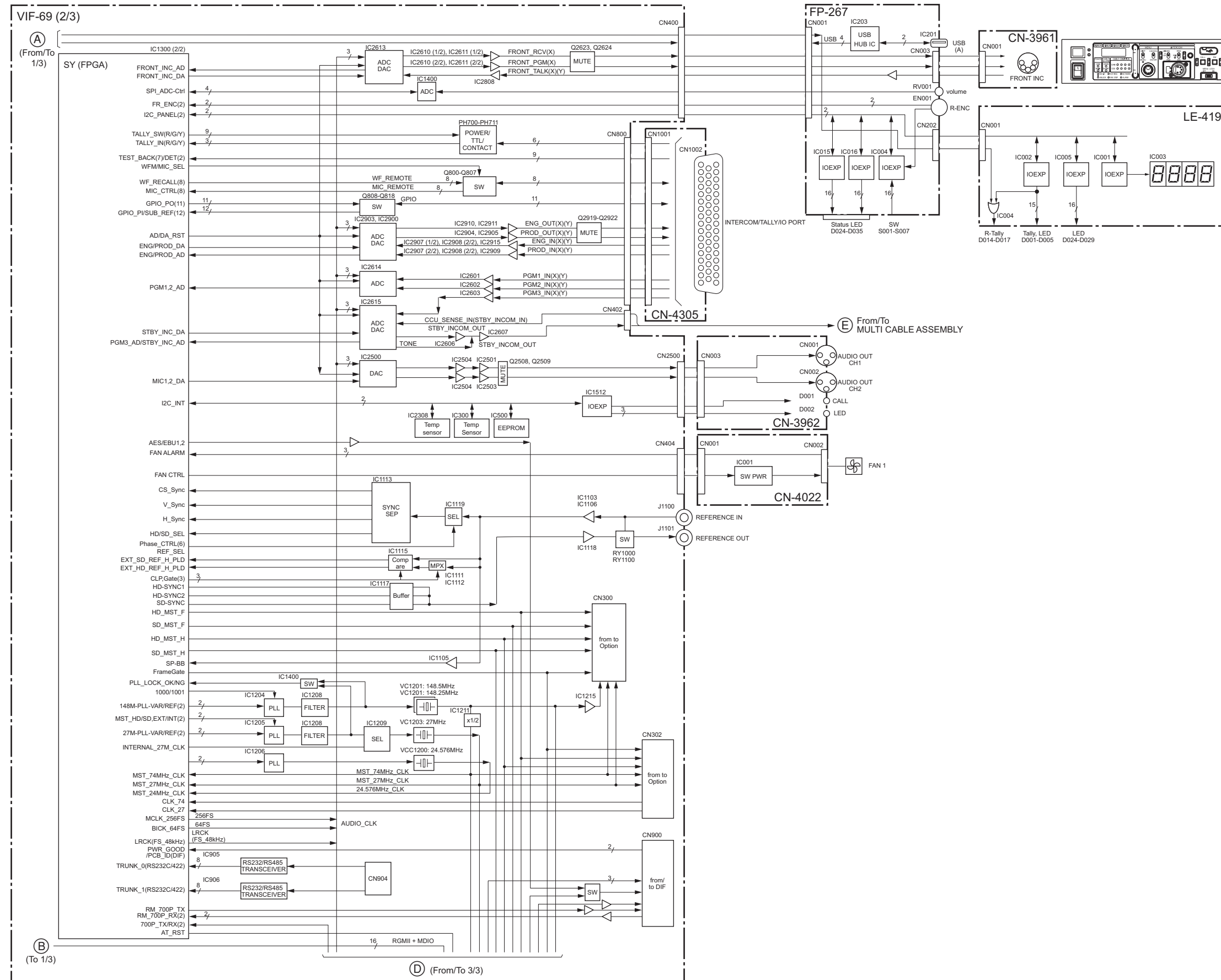
HKCU-UHD30

Q'ty	Part No.	SP Description
1pc	A-2216-094-A	s FAN (40) ASSY
1pc	△ 1-855-512-11	s DC FAN (40 SQUARE)
2pcs	1-912-710-11	s MICRO COAXIAL CABLE (CA60 260)
1pc	1-972-501-11	s HARNESS, SUB (VIF-DPR POWER)
1pc	3-655-653-01	s BAND (TAITON), BINDING
6pcs	4-382-854-51	s SCREW (M3X6), P, SW (+)
1pc	4-745-949-01	s OPERATING INSTRUCTIONS
1pc	4-745-949-11	s OPERATING INSTRUCTIONS
1pc	4-745-949-21	s OPERATING INSTRUCTIONS
2pcs	5-006-975-01	s SHEET, RADIATION (24X40) T2
1pc	5-006-976-01	s SHEET, RADIATION (40X40) T2
2pcs	7-682-554-04	s SCREW +B 3X25
2pcs	7-682-950-01	s SCREW +PSW 3X12

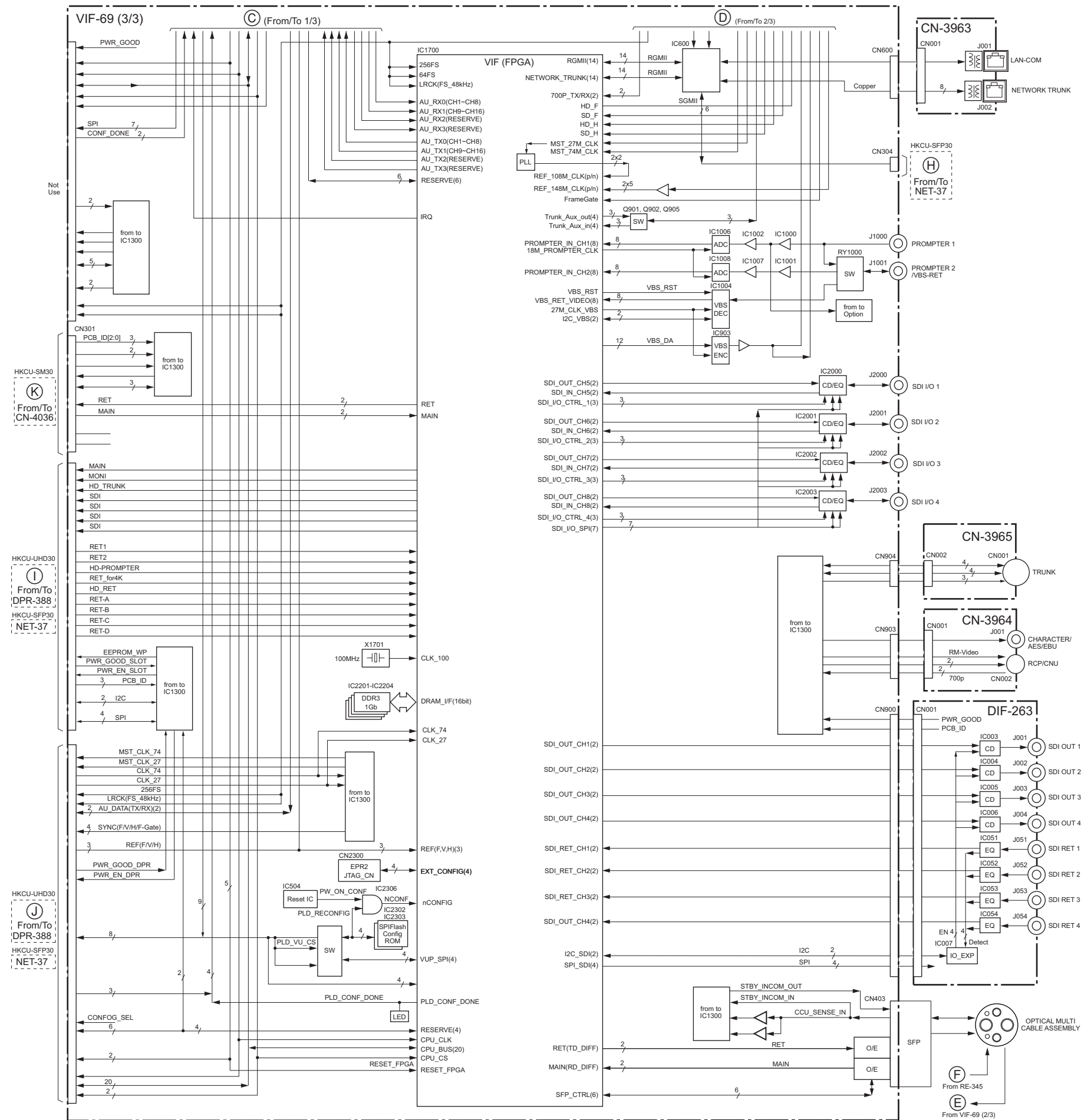
Overall
Overall (1/3) (HDCU3100)



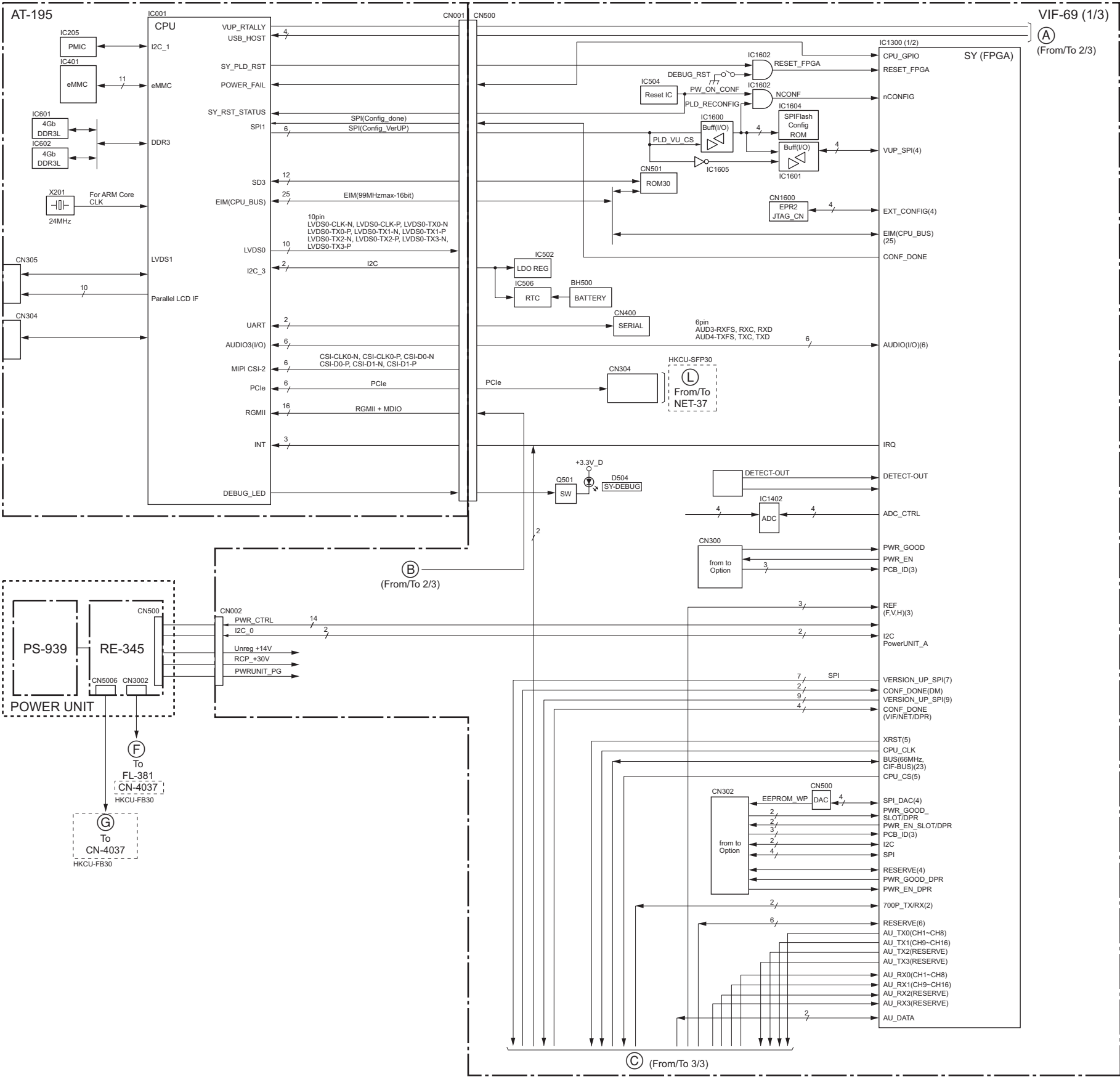
Overall (2/3) (HDCU3100)



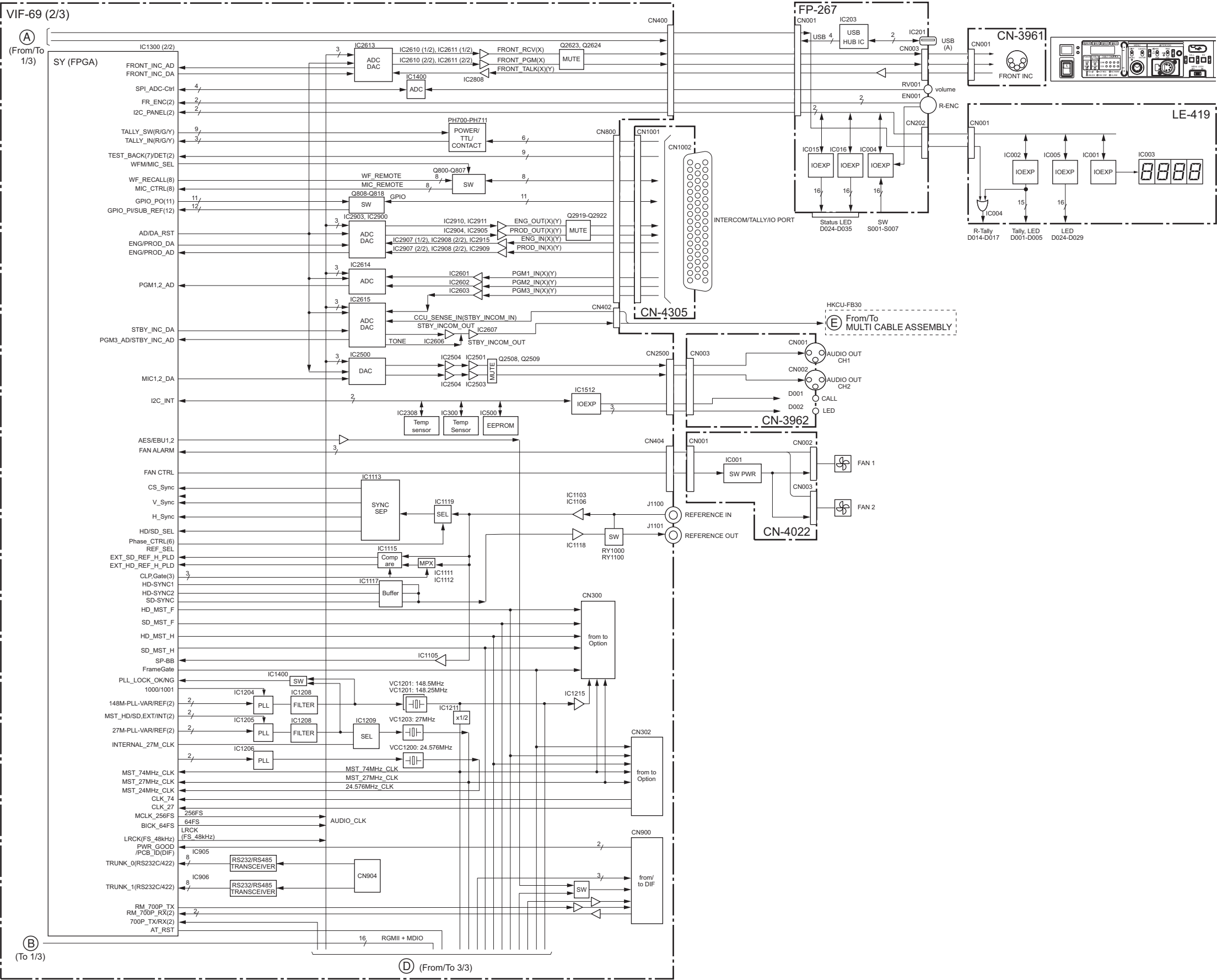
Overall (3/3) (HDCU3100)



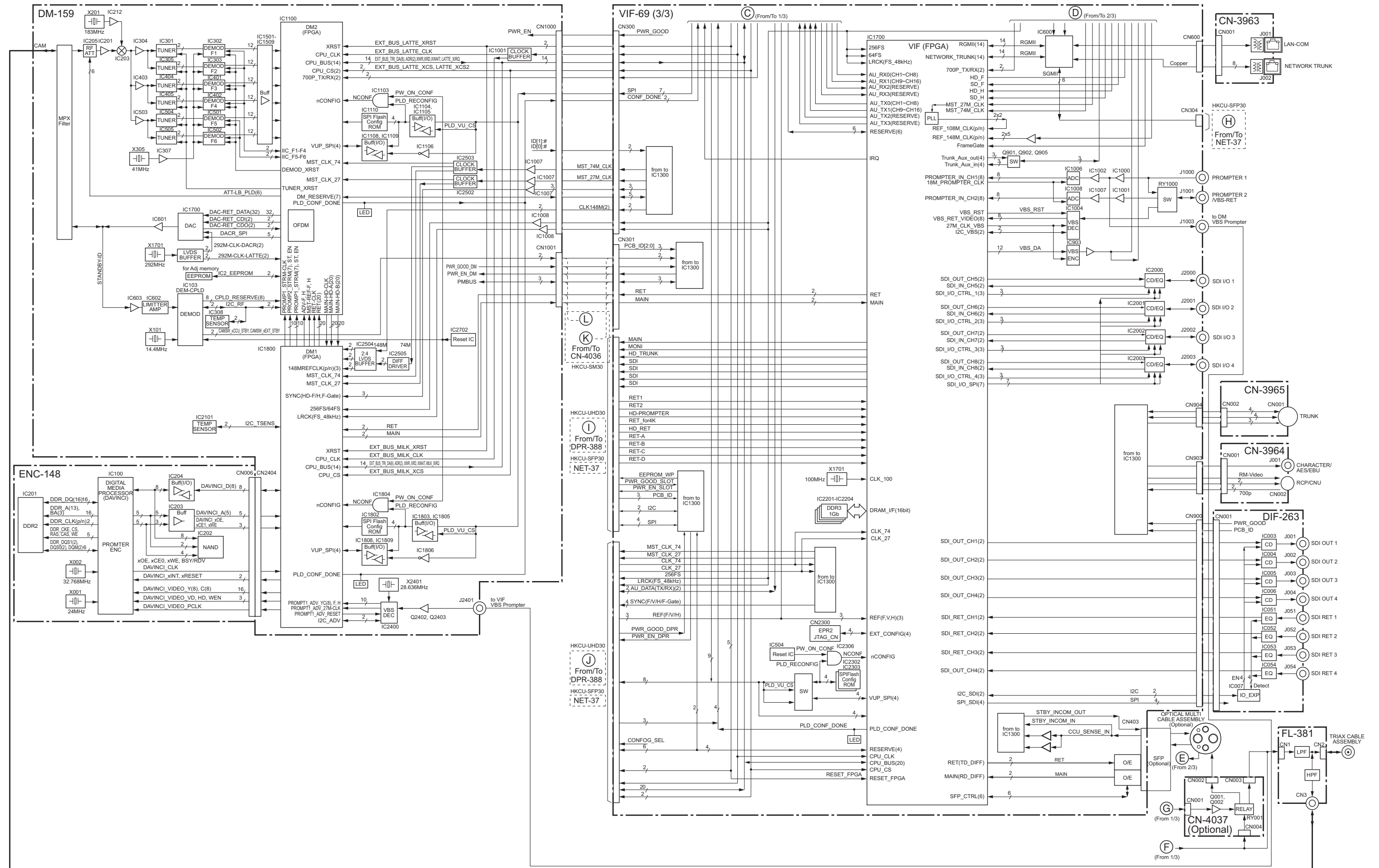
Overall (1/3) (HDCU3170)



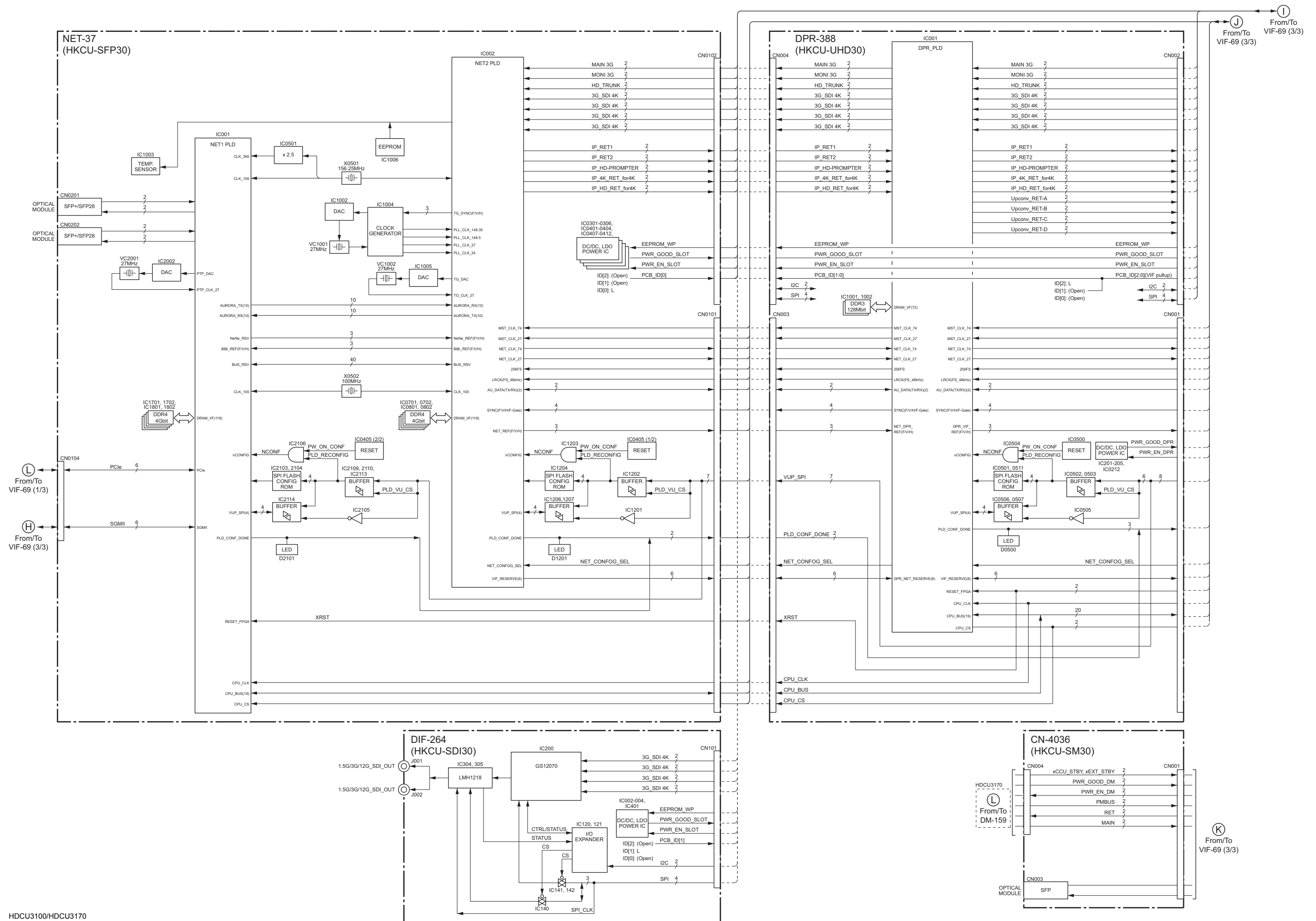
Overall (2/3) (HDCU3170)



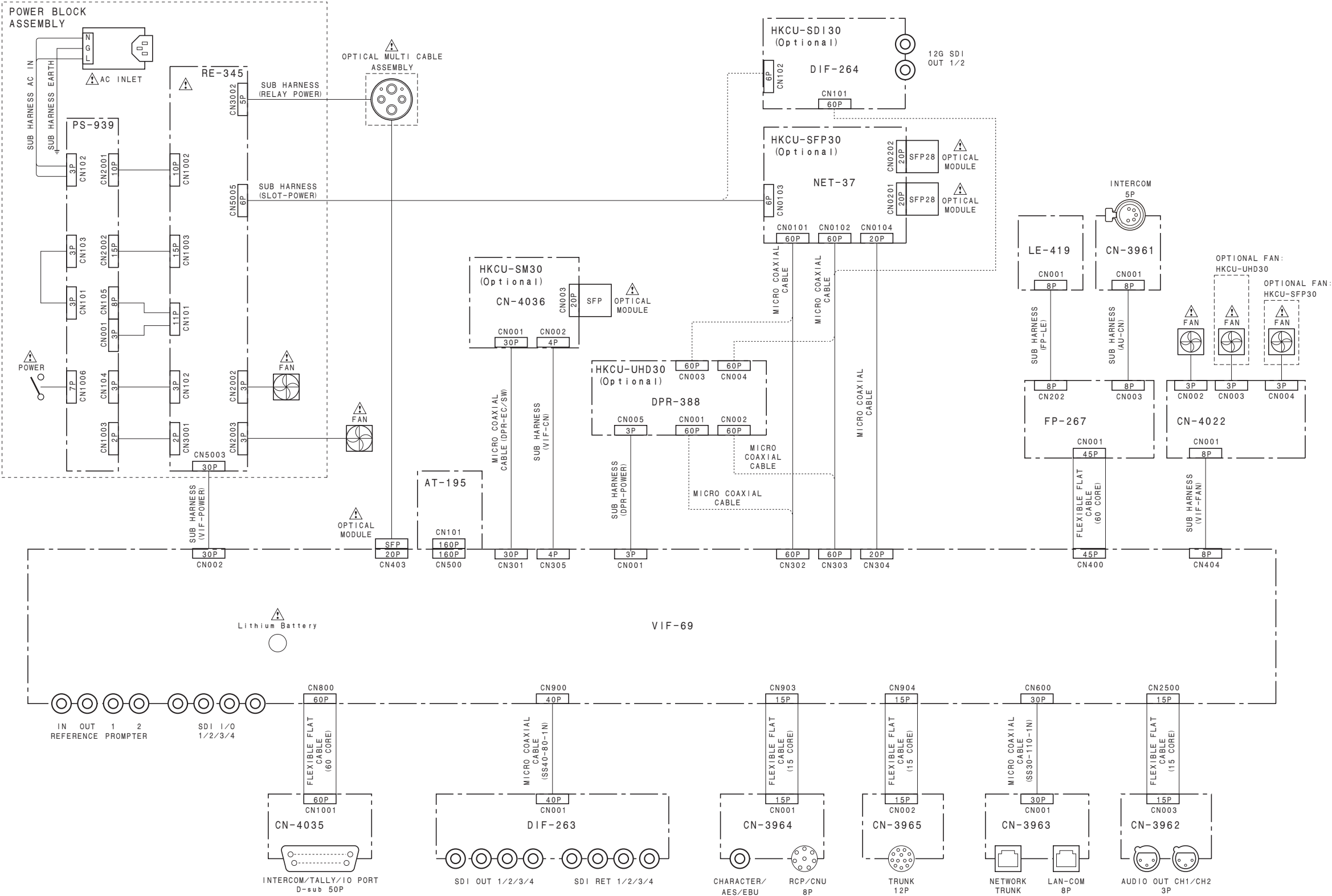
Overall (3/3) (HDCU3170)



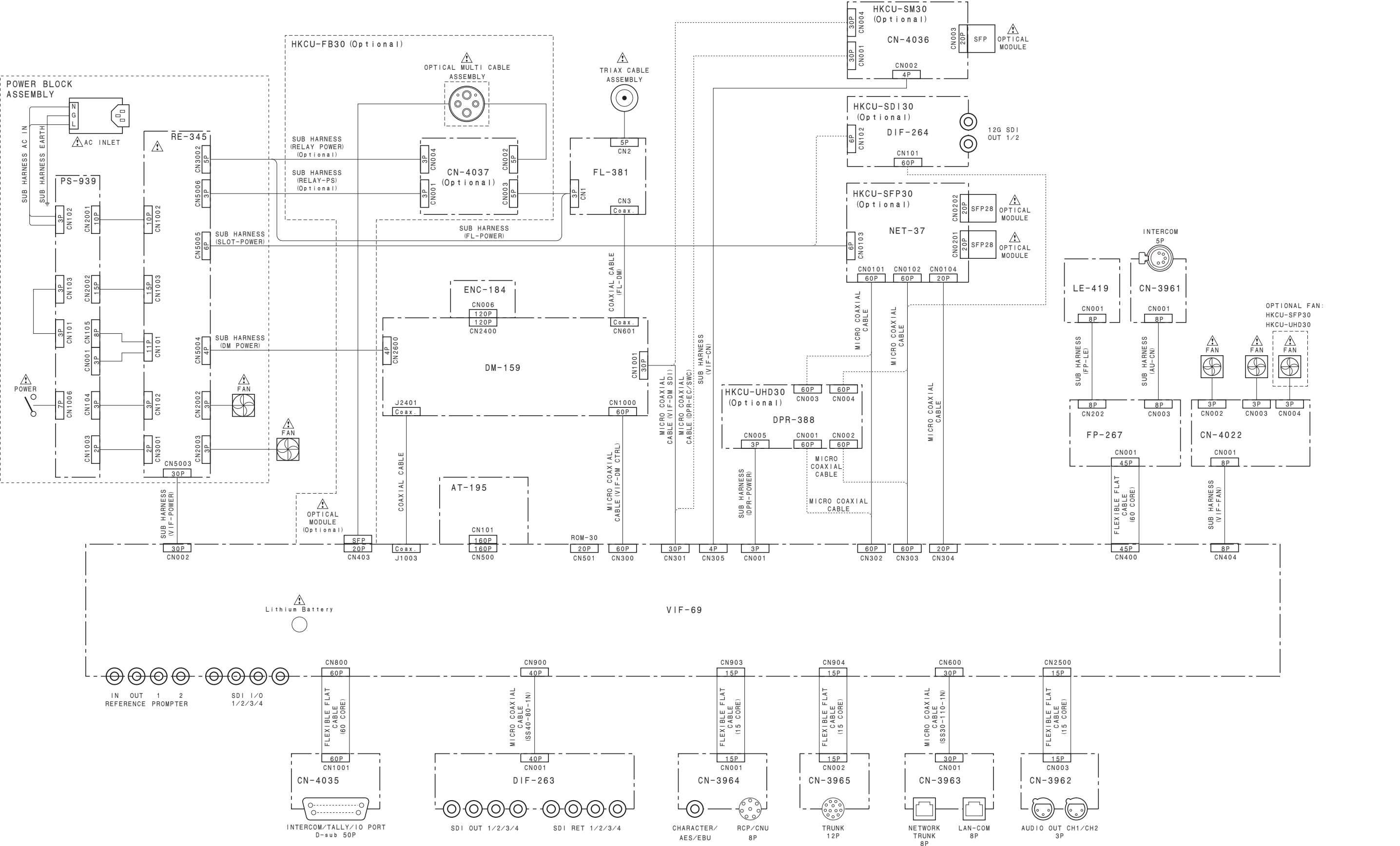
Overall (HKCU-SDI30/SFP30/SM30/UHD30)



Frame Wiring (HDCU3100)



Frame Wiring (HDCU3170)



Revision History

Date	History	Contents
2018. 4	1st Edition 9-932-609-01	—
2018.11	Revised-1 9-932-609-02	Added the models: HDCU3170, HKCU-FB30 and HKCU-SFP30. • Modifications: 1-1. Location of Printed Wiring Boards, 1-7-1. Corresponding PLDs, 1-9-1. Fuse, 1-9-2. Circuit Protection Element, 2-2. Top Cover, 2-3-1. Front Panel Assembly, 2-6. CN-3963 Board, 2-7. DC Fan (60 Square), 2-8. DC Fan (40 Square), 2-9-1. Power Assembly, 2-10. AC Inlet, 2-14-1. Rear Panel Assembly, 2-14-2. CN-3964 Board, 2-14-3. CN-3965 Board, 2-14-4. DIF-263 Board, 2-14-5. CN-3962 Board, 2-14-6. CN-4035 Board, 2-15. AT-195 Board, 2-16. VIF-69 Board, 4-2-1. SERVICE Menu List, 4-2-2. Description of SERVICE Menu 5-1-2. VIF-69 Board • Additions: 1-1-1. HDCU3100, 1-1-2. HDCU3170, 1-2-2. DM-159 Board 2-5-1. HDCU3100, 2-5-2. HDCU3170, 2-13. TRIAX Assembly (HDCU3170), 2-17. DM-159 Board Assembly/ENC-184 Board (HDCU3170), 2-18. FL-381 Board (HDCU3170), 2-19. CN-4037 Board (HKCU-FB30: HDCU3170), 2-20. NET-37 Board Assembly (HKCU-SFP30), 5-1-13. DM-159 Board (only HDCU3170), 5-1-14. ENC-184 Board (only HDCU3170), 5-1-15. CN-4037 Board (only when HKCU-FB30 option is installed), 5-1-16. FL-381 Board (only HDCU3170) • Modifications of the exploded view: Cover (HDCU3100), Chassis (HDCU3100), Rear Panel • Additions of the exploded view: Cover (HDCU3170), Chassis (HDCU3170), DM Board Assembly (HDCU3170), CN-4037 Board (HKCU-FB30: HDCU3170), NET-37 Board (HKCU-SFP30) • Modifications of the supplied accessories: HDCU3100/3170, HKCU-FB30, HKCU-SFP30 • Additions of the block diagrams and frame wiring: Overall (1/3) (HDCU3170), Overall (2/3) (HDCU3170), Overall (3/3) (HDCU3170), Frame Wiring (HDCU3170)

Continued

Date	History	Contents
2019. 5	Revised-2 9-932-609-03	Added the models: HKCU-SDI30, HKCU-SM30 and HKCU-UHD30. • Modifications: 1-1. Location of Printed Wiring Boards, 1-2. Functions of Onboard Switches and LED Indicators, 1-5-1. When the Optical Connector Cleaner (Commercially Available) is Available, 1-9-2. Circuit Protection Element 2-20. NET-37 Board Assembly (HKCU-SFP30) 4-2-1. SERVICE Menu List, 4-2-2. Description of SERVICE Menu • Additions: 1-1-1. HDCU3100, 1-1-2. HDCU3170, 1-2-2. DM-159 Board 2-21. CN-4036 Board Assembly (HKCU-SM30), 2-22. DPR-388 Board (HKCU-UHD30), 2-23. DIF-264 Board (HKCU-SDI30) 5-1-18. CN-4036 Board (HKCU-SM30), 5-1-19. DIF-264 Board (HKCU-SDI30), 5-1-20. DPR-388 Board (HKCU-UHD30) • Modifications of the exploded view: Cover (HDCU3100), Cover (HDCU3170), Front Panel, Chassis (HDCU3100), Chassis (HDCU3170), Rear Panel, Power Block, DM Board Assembly (HDCU3170), NET-37 Board (HKCU-SFP30) • Additions of the exploded view: CN-4036 Board (HKCU-SM30) (HDCU3100), CN-4036 Board (HKCU-SM30) (HDCU3170), DIF-264 Board (HKCU-SDI30), DPR-388 Board (HKCU-UHD30) • Modifications of the supplied accessories: HDCU3100/3170 • Additions of the supplied accessories: HKCU-SDI30, HKCU-SM30, HKCU-UHD30 • Modifications of the block diagrams and frame wiring: Overall (1/3) (HDCU3100), Overall (3/3) (HDCU3100), Overall (1/3) (HDCU3170), Overall (3/3) (HDCU3170), Frame Wiring • Additions of the block diagrams and frame wiring: Overall (HKCU-SDI30/SFP30/SM30/UHD30)

