SONY

HDR PRODUCTION CONVERTER UNIT

HDRC-4000

SERVICE MANUAL

1st Edition (Revised 1)

⚠ 警告

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

⚠ WARNING

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

⚠ WARNUNG

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

⚠ AVERTISSEMENT

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

Model Name	Serial No.
HDRC-4000 (SY)	10001 and Higher

注意

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

CAUTION

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

ATTENTION

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

VORSICHT

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

FÖRSIKTIGHET!

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

PAS PÅ

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

HUOMIO

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

FORSIKTIG

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

注意

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

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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, such as service overview, periodic maintenance and inspection, replacement of main parts, software upgrade, file system, menu settings, circuit description.

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.

Trademarks

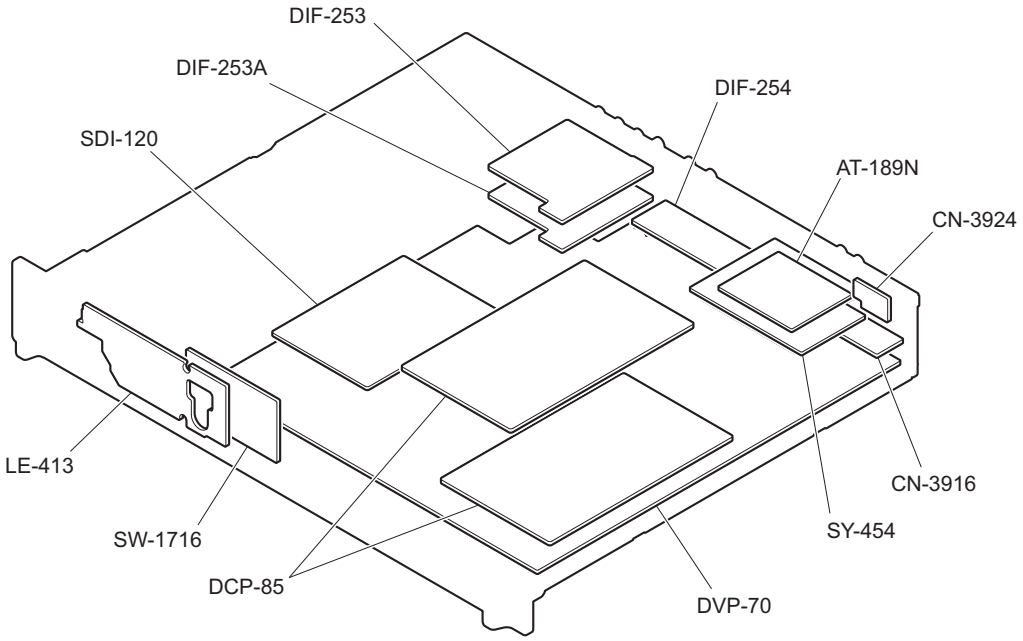
Trademarks and registered trademarks described in this manual are as follows.

- FRAM is a registered trademark of Ramtron International Corporation.
- eMMC is a registered trademark of JEDEC Solid State Technology Association.

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

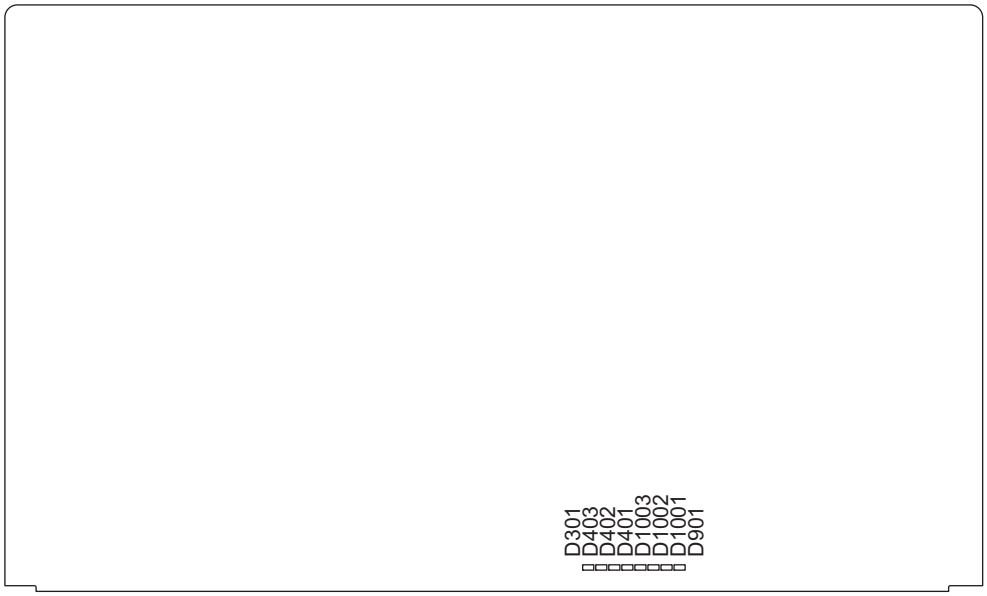
Section 1
Service Overview

1-1. Location of Printed Wiring Boards



1-2. Functions of Onboard Switches and LED Indicators

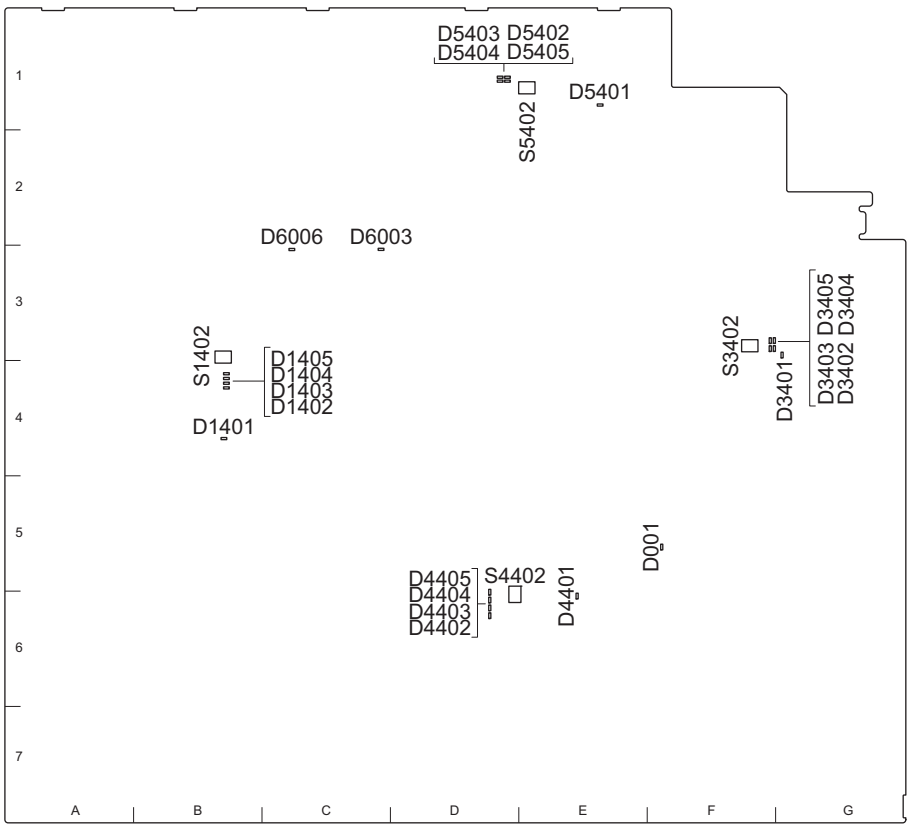
1-2-1. DCP-85 Board



DCP-85 BOARD (B side)

Ref. No.	Address	Name	Color	Description	Normal State
D301	— (side B)	CONF_ DONE2	Red	Off when FPGA (IC001) normally completed configuration.	Off
D401	— (side B)	LED1	Yellow green	Factory use	Inconstant
D402	— (side B)	LED2	Yellow green	Factory use	Inconstant
D403	— (side B)	LED3	Yellow green	Factory use	Inconstant
D901	— (side B)	CONF_ DONE6	Red	Off when FPGA (IC901) normally completed configuration.	Off
D1001	— (side B)	LED1	Yellow green	Factory use	Inconstant
D1002	— (side B)	LED2	Yellow green	Factory use	Inconstant
D1003	— (side B)	LED3	Yellow green	Factory use	Inconstant

1-2-2. DVP-70 Board



DVP-70 BOARD (A side)

Ref. No.	Address	Name	Color	Description	Normal State
D001	F5 (side A)	Conf-Done	Green	Lights when all FPGAs normally completed configuration.	Lit
D1401	B4 (side A)	CONF_ DONE	Red	Used for indicating the DEC FPGA (IC1001) configuration status. This LED lights while configuration is NG or in progress.	Off
D1402	B4 (side A)	LED0	Green	Factory use	Inconstant
D1403	B4 (side A)	LED1	Green	Factory use	Inconstant
D1404	B4 (side A)	LED2	Green	Factory use	Inconstant
D1405	B4 (side A)	LED3	Green	Factory use	Inconstant
D3401	G3 (side A)	CONF_ DONE	Red	Used for indicating the 4K-Post FPGA (IC3001) configuration status. This LED lights while configuration is NG or in progress.	Off
D3402	F3 (side A)	LED0	Green	Factory use	Inconstant
D3403	F3 (side A)	LED1	Green	Factory use	Inconstant
D3404	F3 (side A)	LED2	Green	Factory use	Inconstant
D3405	F3 (side A)	LED3	Green	Factory use	Inconstant
D4401	E6 (side A)	CONF_ DONE	Red	Used for indicating the 2K-Post FPGA (IC4001) configuration status. This LED lights while configuration is NG or in progress.	Off
D4402	D6 (side A)	LED0	Green	Factory use	Inconstant
D4403	D6 (side A)	LED1	Green	Factory use	Inconstant
D4404	D6 (side A)	LED2	Green	Factory use	Inconstant

Continued

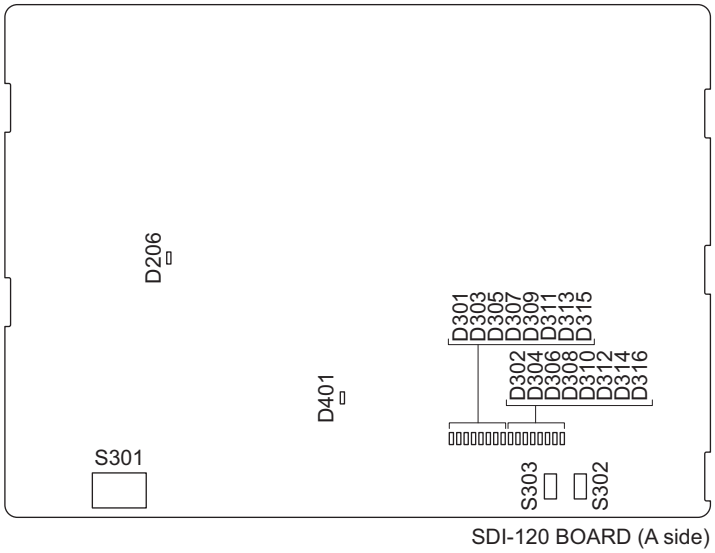
Ref. No.	Address	Name	Color	Description	Normal State
D4405	D6 (side A)	LED3	Green	Factory use	Inconstant
D5401	E1 (side A)	CONF_ DONE	Red	Used for indicating the SDP FPGA (IC5001) configuration status. This LED lights while configuration is NG or in progress.	Off
D5402	D1 (side A)	LED0	Green	Factory use	Inconstant
D5403	D1 (side A)	LED1	Green	Factory use	Inconstant
D5404	D1 (side A)	LED2	Green	Factory use	Inconstant
D5405	D1 (side A)	LED3	Green	Factory use	Inconstant
D6003	C3 (side A)	EXT	Green	Used for indicating the free running or external synchronization status. This LED lights in the external synchronization mode.	Inconstant
D6006	C3 (side A)	PLL-NG	Red	Lights while the PLL on the board is unlocked.	Off

Note

Do not touch the unused switches.

Ref. No.	Address	Name	Bit	Description	Factory Setting
S1402	B3 (side A)	—	1 to 4	Not used	Off (ALL)
S3402	F3 (side A)	—	1 to 4	Not used	Off (ALL)
S4402	D6 (side A)	—	1 to 4	Not used	Off (ALL)
S5402	E1 (side A)	—	1 to 4	Not used	Off (ALL)

1-2-3. SDI-120 Board



SDI-120 BOARD (A side)

Ref. No.	Address	Name	Color	Description	Normal State
D206	— (side A)	POWER	Red	Lights when +2.5 V power supply in the board is supplied.	Lit
D301	— (side A)	—	Red	Factory use	Inconstant

Continued

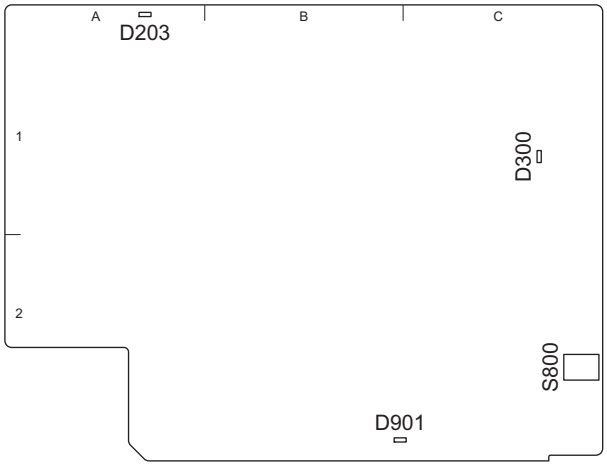
Ref. No.	Address	Name	Color	Description	Normal State
D302	— (side A)	—	Red	Factory use	Inconstant
D303	— (side A)	—	Red	Factory use	Inconstant
D304	— (side A)	—	Red	Factory use	Inconstant
D305	— (side A)	—	Red	Factory use	Inconstant
D306	— (side A)	—	Red	Factory use	Inconstant
D307	— (side A)	—	Red	Factory use	Inconstant
D308	— (side A)	—	Red	Factory use	Inconstant
D309	— (side A)	—	Yellow green	Factory use	Inconstant
D310	— (side A)	—	Yellow green	Factory use	Inconstant
D311	— (side A)	—	Yellow green	Factory use	Inconstant
D312	— (side A)	—	Yellow green	Factory use	Inconstant
D313	— (side A)	—	Yellow green	Factory use	Inconstant
D314	— (side A)	—	Yellow green	Factory use	Inconstant
D315	— (side A)	—	Yellow green	Factory use	Inconstant
D316	— (side A)	—	Yellow green	Factory use	Inconstant
D401	— (side A)	CONFIG	Red	Off when FPGA (IC001) normally completed configuration.	Off

Note

Do not touch the unused switches.

Ref. No.	Address	Name	Bit	Description	Factory Setting
S301	— (side A)	—	1 to 8	Not used	Off (ALL)
S302	— (side A)	—	1	Not used	OFF
S303	— (side A)	—	1	Not used	OFF

1-2-4. SY-454 Board



SY-454 BOARD (A side)

Ref. No.	Address	Name	Color	Description	Normal State
D203	A1 (side A)	SY-PW	Green	Lights when +3.2 V power supply in the board is supplied.	Lit
D300	C1 (side A)	STATUS	Yellow green	Factory use	Inconstant
D901	B2 (side A)	ConfDone	Red	Off when FPGA (IC705) normally completed configuration.	Off

Note

Do not touch the unused switches.

Ref. No.	Address	Name	Bit	Description	Factory Setting
S800	C2 (side B)	MODE	1 to 4	Not used	Off (ALL)

1-3. Tools

Part No.	Name	Usage and Remarks
J-6323-430-A	Torque screwdriver's bit (M3)	Screw tightening (for M3, M4)
J-6325-380-A	Torque screwdriver's bit (M3)	Screw tightening (for M2, M2.6)
J-6325-400-A	Torque screwdriver (0.3 N·m)	Screw tightening (for M2)
J-6252-510-A	Torque screwdriver (0.6 N·m)	Screw tightening (for M2.6)
J-6252-520-A	Torque screwdriver (1.2 N·m)	Screw tightening (for M3, M4)
Commercially available	USB drive	Upgrading software, writing and rewriting the PLD internal data
Commercially available	Box screwdriver (subtense: 5 mm, subtense: 14 mm)	Nut tightening

1-4. Flexible Flat Cable and Coaxial Cable

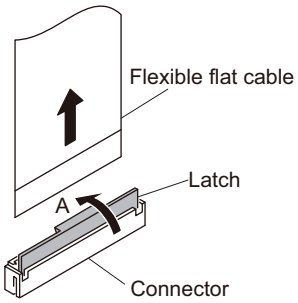
1-4-1. Disconnecting and Connecting Flexible Flat Cable

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.

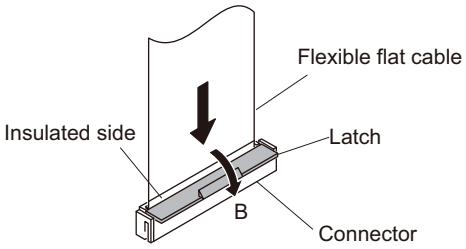
Type A

Disconnecting



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

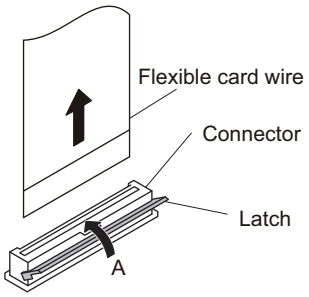
Connecting



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.

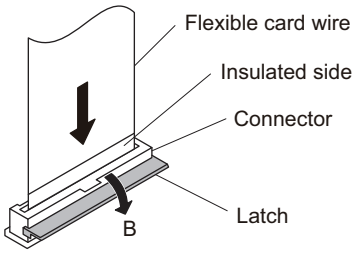
Type B

Disconnecting



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

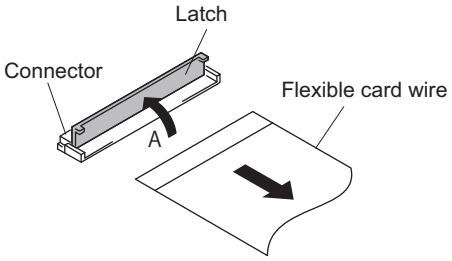
Connecting



1. Insert the flexible card wire 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 card wire.

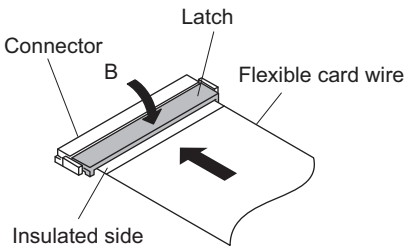
Type C

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.

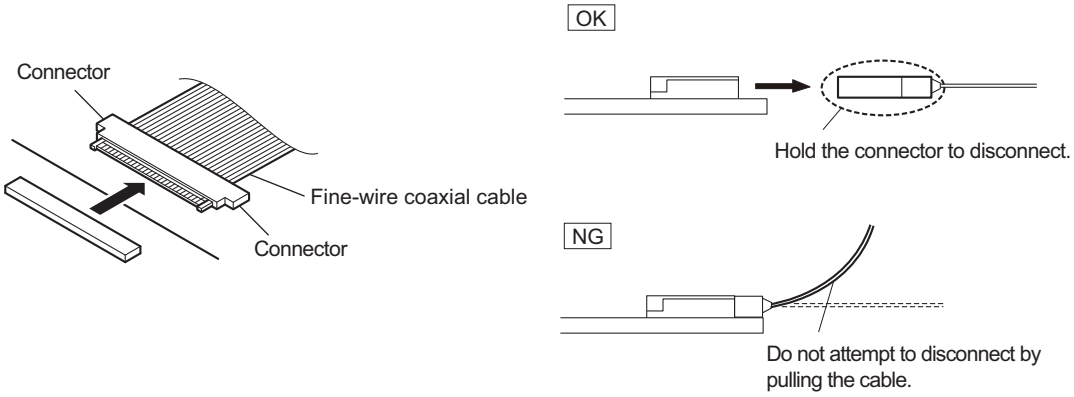
1-4-2. Disconnecting/Connecting Fine-Wire Coaxial Cable

Note

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

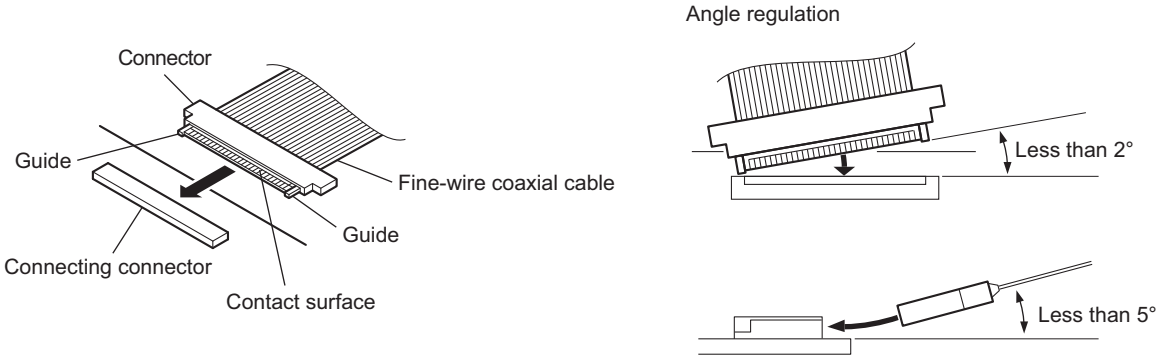
Type A

Disconnecting



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

Connecting



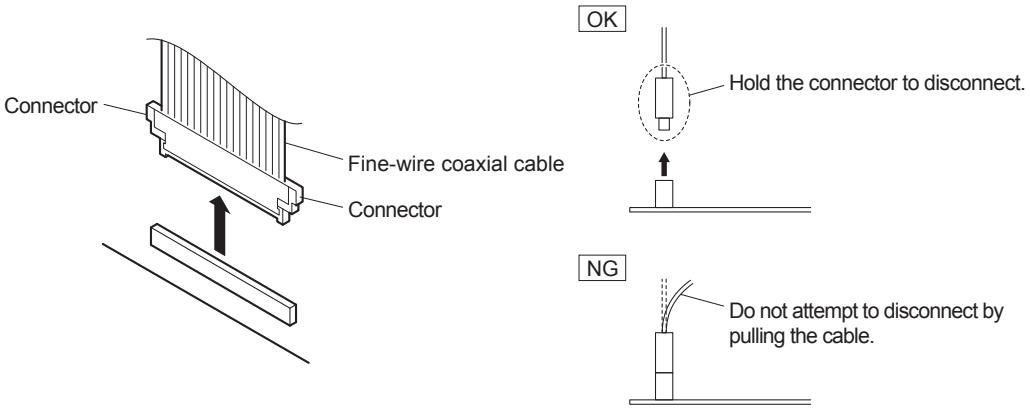
Note

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

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

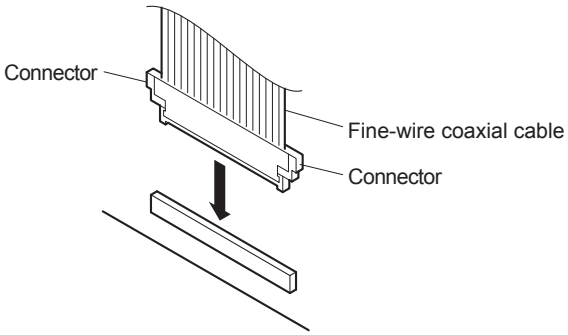
Type B

Disconnecting



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

Connecting



1. Insert the connector straight.

1-5. Circuit Protection Parts

1-5-1. 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.	Address	Part No.	Holding Current
DVP-70	THP801	B1 (side A)	1-803-615-21	0.50 A/20 °C
SDI-120	TH101	— (side B)	1-805-762-11	0.75 A/25 °C
	TH102	— (side B)	1-805-762-11	0.75 A/25 °C
SY-454	TH001	A2 (side A)	⚠ 1-802-108-11	1.50 A/20 °C
	TH301	C1 (side B)	1-805-726-11	0.20 A/25 °C

1-6. 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
Periodic Maintenance and Inspection

2-1. Recommended Replacement Parts

This table does not describe the guarantee period of part.
The replacement period of each part is changed according to the environment and condition. Refer to "3. Replacement of Main Parts" about the method of the replacing parts.

Part name	Part No.	Replacement Cycle	Procedure
DC fan (60 square) (Rear)	⚠ 1-787-612-21	The life span of a fan is about 40,000 hours. It is about four years and a half when a fan is used with the electric current applied at all times. It is recommended to replace a fan with the life span described above as a rough standard.	"3-10. Rear Fan"
DC fan (60 square) (Power)	⚠ 1-855-432-11		"3-12. DC Fan"

2-2. Replacing Lithium Battery

2-2-1. Note on Replacement of Lithium Battery

A lithium battery is mounted on the SY-454 board to back up the real time clock (RTC).
If this unit is not energized, the backup period is about two years. When the RTC is reset without using this unit for long time, charge the lithium battery by energizing this unit all day long.
When the backup period is shortened even if the lithium battery is charged, the lithium battery must be replaced.

- Replacement part: Lithium secondary battery (ML621 (U))
- Part number: ⚠ 1-756-134-17

CAUTION

When replacing the lithium battery, ensure that the battery is installed with "+" and "-" poles connected to the correct terminals. Improper connection may cause an explosion or leakage of fluid, resulting in injury or damage to surrounding properties.

2-2-2. Replacing Lithium Battery

1. For how to replace the lithium battery, refer to "3-20. Lithium Battery".
2. The date and time in the internal clock to be set. (For setting method, refer to Operation Manual.)

Section 3
Replacement of Main Parts

3-1. Stored Data in Nonvolatile Memory and Action after Replacement

The table below lists data retained in the IC on the following boards.
When any of the following ICs is replaced, deal with action to be taken after replacing ICs.

Note

The parts listed in “Spare Parts” are for ICs which are not programmed.

Board	Ref. No. (Type)	Stored Data	Action
AT-189N	IC401 (eMMC)	Software program, model information data	Not replacing IC
DCP-85	IC315, IC902 (Flash)	PLD data	Write the PLD data. (Refer to “4-2. PLD”.)
DVP-70	IC003 (EEPROM)	Model information data	Set the model information. (Refer to “6-3. How to Set the Model Information after Replacing AT-189N Board or DVP-70 Board”.)
	IC1402 (Flash)	PLD data	Write the PLD data. (Refer to “4-2. PLD”.)
	IC3402, IC4402, IC5402 (Flash)	PLD data	Not replacing IC
SDI-120	IC402 (Flash)	PLD data	Write the PLD data. (Refer to “4-2. PLD”.)
SY-454	IC402, IC403 (FRAM)	Paint data, etc.	Not replacing IC
	IC902 (Flash)	PLD data	Write the PLD data. (Refer to “4-2. PLD”.)

3-2. 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
M2: 0.2 ±0.02 N·m
M2.6: 0.53 ±0.07 N·m
M3: 0.8 ±0.12 N·m
M4: 1.40 ±0.20 N·m
Nut (supplied with the coaxial cable): 1.50 ±0.0 N·m
Nut (supplied with the BNC connector): 1.50 ±0.0 N·m
Hexagon screw (supplied with the D Sub): 0.53 ±0.07 N·m

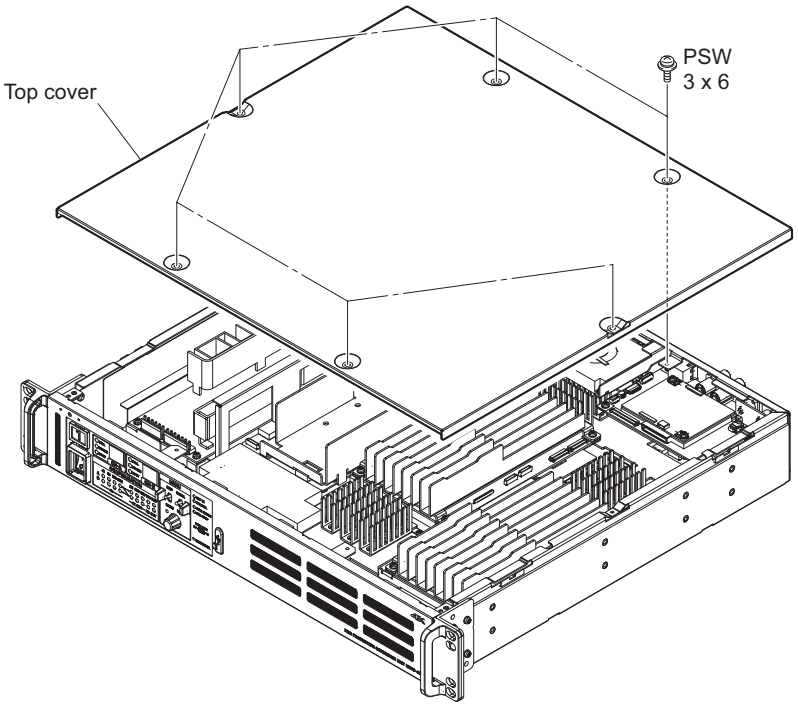
Tip

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

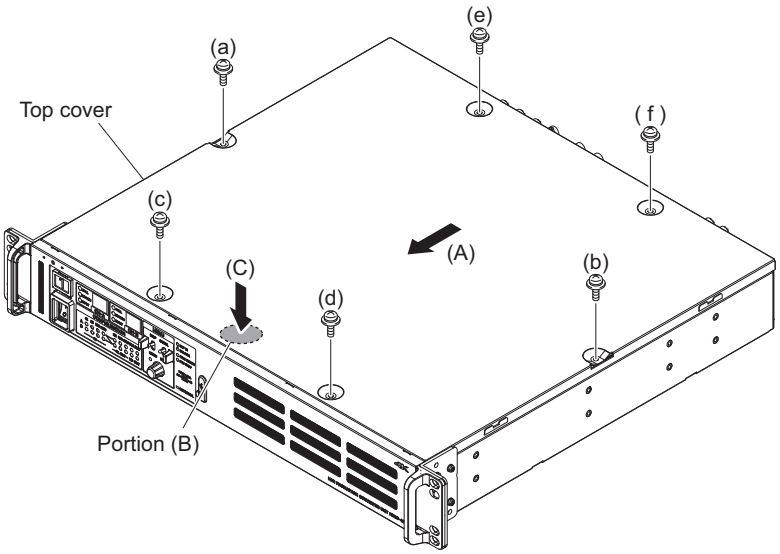
3-3. Top Cover

Procedure

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



2. To install, perform the following procedure.
   - Tighten the screws (a) and (b) while pushing the top cover in the direction of the arrow (A).
   - Tighten the screws (c) and (d) while pushing the portion (B) in the direction of the arrow (C).
   - Tighten the screws (e) and (f).



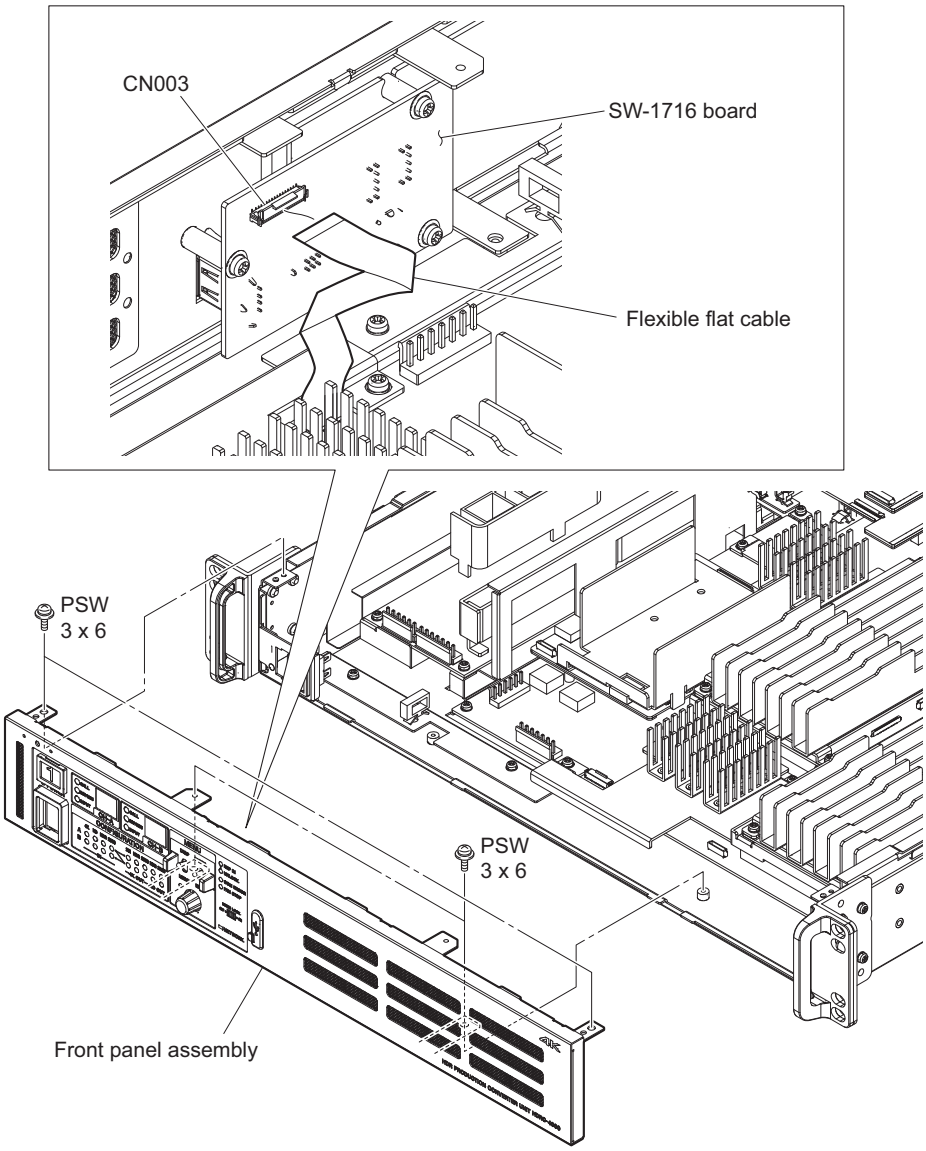
3-4. Front Panel Assembly

Preparation

1. Remove the top cover. (Refer to "3-3. Top Cover")

Procedure

1. Disconnect the flexible flat cable from the connector (CN003) on the SW-1716 board.
2. Remove the four screws, then remove the front panel assembly.



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

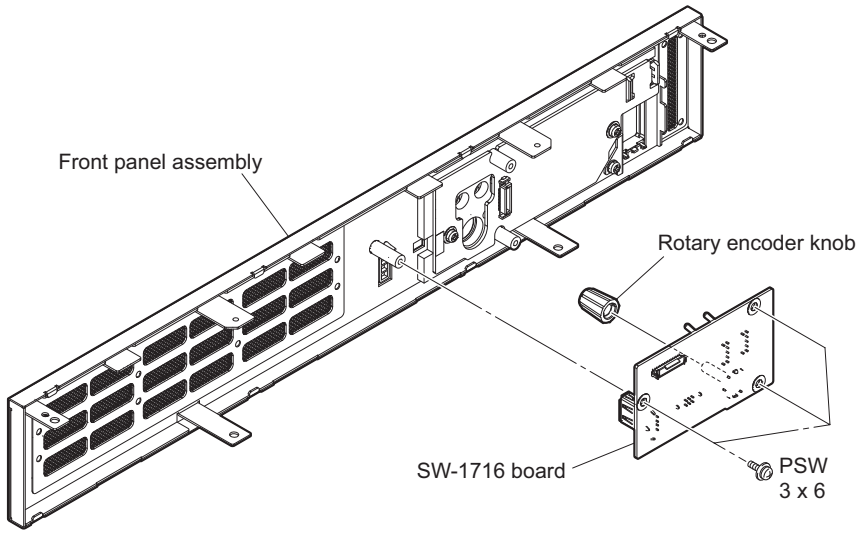
3-5. SW-1716 Board

Preparation

1. Remove the top cover. (Refer to "3-3. Top Cover")
2. Remove the front panel assembly. (Refer to "3-4. Front Panel Assembly")

Procedure

1. Remove the three screws, then remove the SW-1716 board.
2. Remove the rotary encoder knob.



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

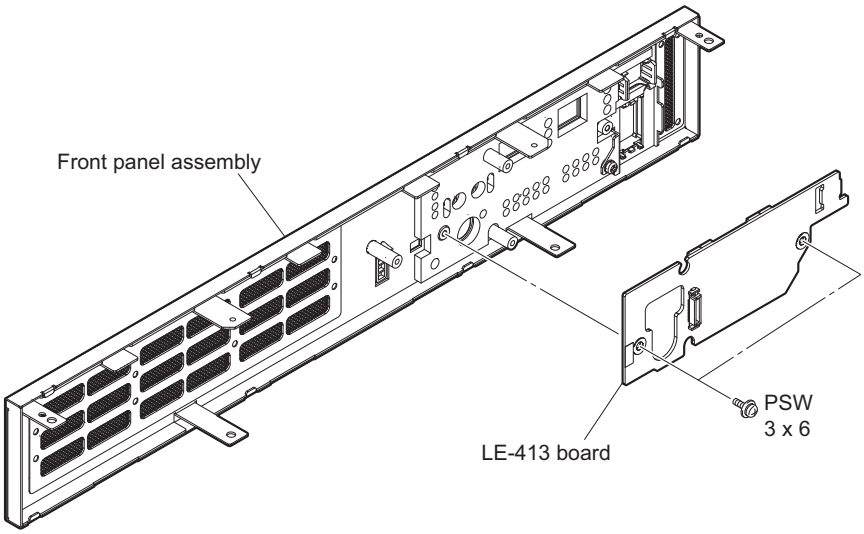
3-6. LE-413 Board

Preparation

1. Remove the top cover. (Refer to "3-3. Top Cover")
2. Remove the front panel assembly. (Refer to "3-4. Front Panel Assembly")
3. Remove the SW-1716 board. (Refer to "3-5. SW-1716 Board")

Procedure

1. Remove the two screws, then remove the LE-413 board.



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

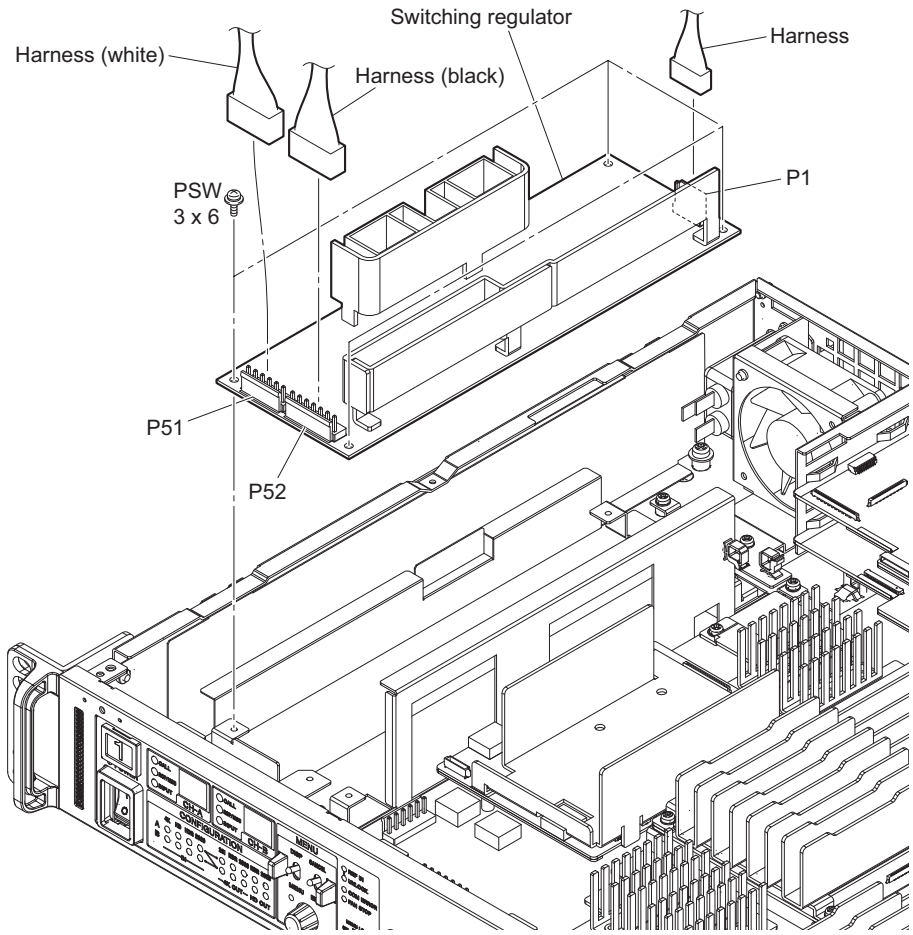
3-7. Switching Regulator

Preparation

1. Remove the top cover. (Refer to "3-3. Top Cover")

Procedure

1. Disconnect the three harnesses from the connectors (P1, P51 and P52) on the switching regulator.
2. Remove the four screws, then remove the switching regulator.



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

3-8. DIF-253 Board

Required tool

Box screwdriver (subtense: 14 mm)

Preparation

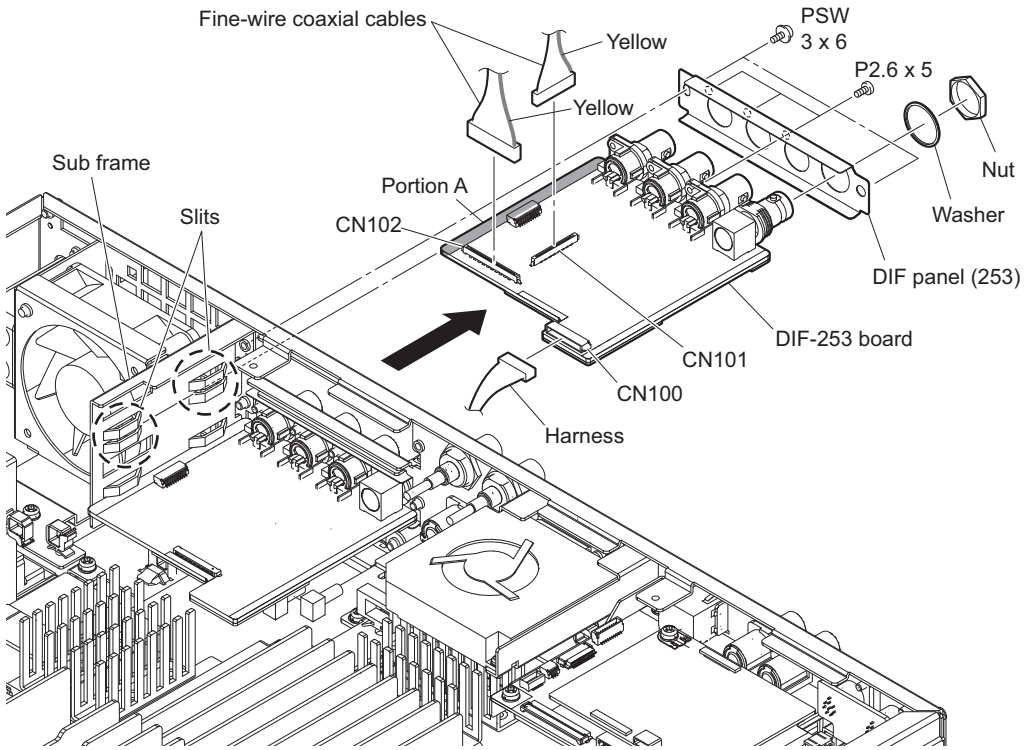
1. Remove the top cover. (Refer to "3-3. Top Cover")

Procedure

1. Disconnect the harness from the connector (CN100) on the DIF-253 board.
2. Disconnect the two fine-wire coaxial cables from the connectors (CN101 and CN102) on the DIF-253 board.
3. Remove the two screws (PSW3 x 6), then remove the DIF-253 board in the direction of the arrow.
4. Remove the three screws (P2.6 x 5), the nut and washer, then remove the DIF panel (253).

Note

When removing the DIF-253 board, pull it out from the sub frame horizontally.



Note

When installing the DIF-253 board, insert the portion (A) into the slits of the sub frame to install the DIF-253 board horizontally.

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

3-9. DIF-253A Board

Required tool

Box screwdriver (subtense: 14 mm)

Preparation

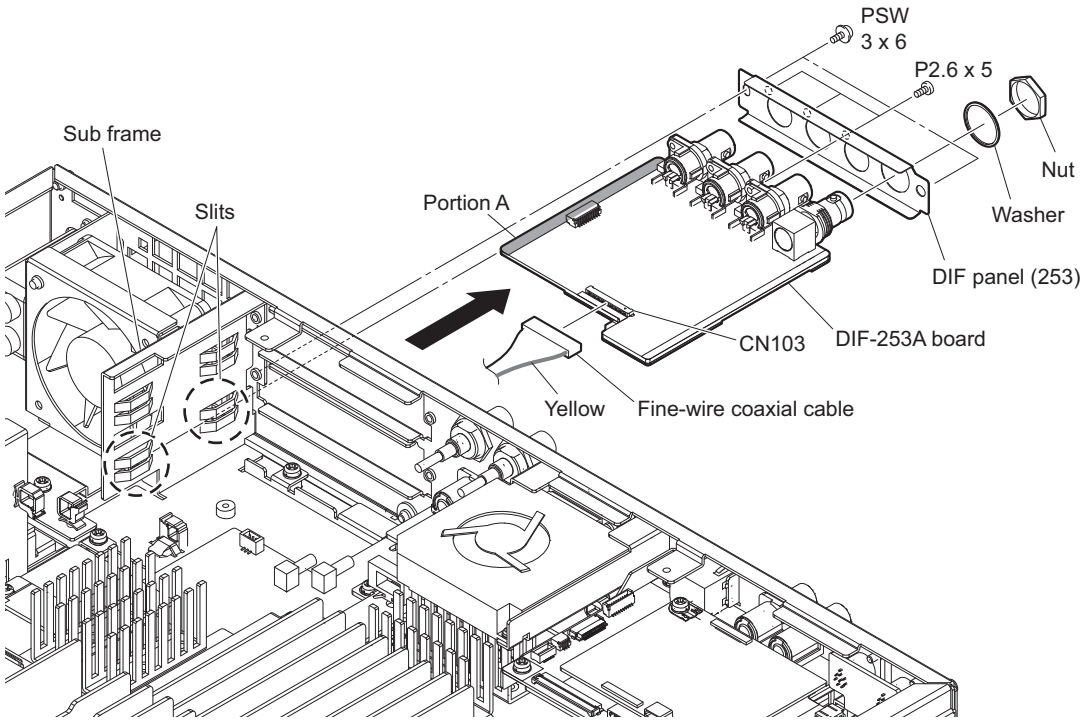
1. Remove the top cover. (Refer to "3-3. Top Cover")
2. Remove the DIF-253 board. (Refer to "3-8. DIF-253 Board")

Procedure

1. Disconnect the fine-wire coaxial cable from the connector (CN103) on the DIF-253A board.
2. Remove the two screws (PSW3 x 6), then remove the DIF-253A board in the direction of the arrow.
3. Remove the three screws (P2.6 x 5), the nut and washer, then remove the DIF panel (253).

Note

When removing the DIF-253A board, pull it out from the sub frame horizontally.



Note

When installing the DIF-253A board, insert the portion (A) into the slits of the sub frame to install the DIF-253A board horizontally.

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

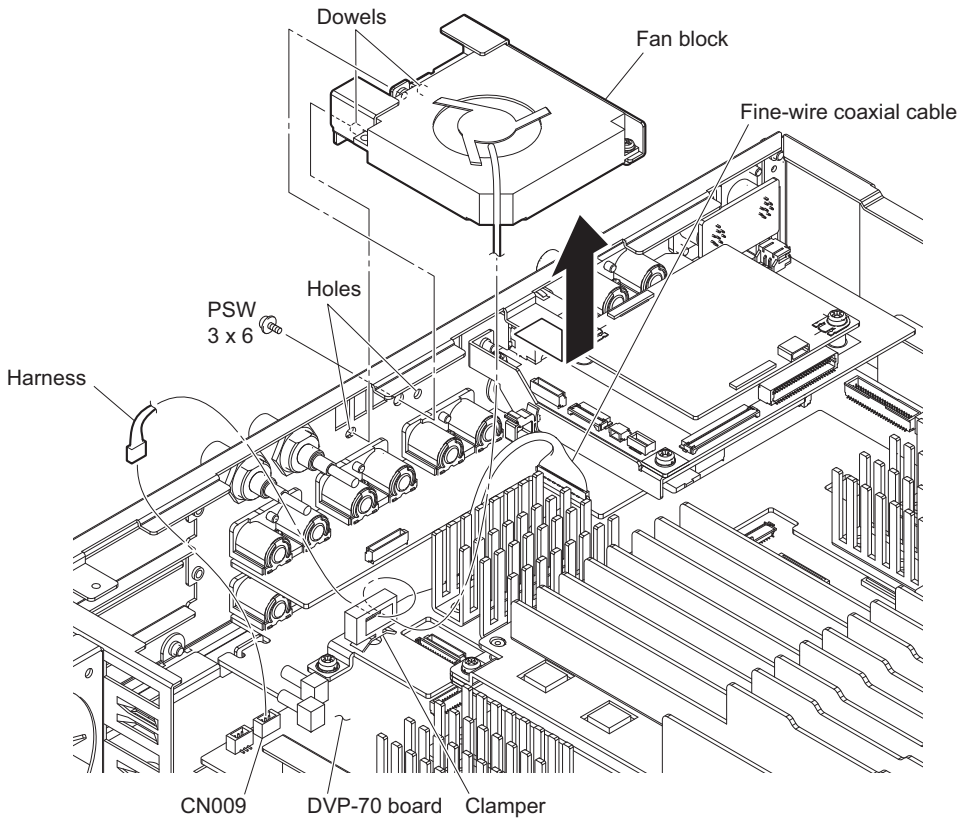
3-10. Rear Fan

Preparation

1. Remove the top cover. (Refer to "3-3. Top Cover")
2. Remove the DIF-253 board. (Refer to "3-8. DIF-253 Board")
3. Remove the DIF-253A board. (Refer to "3-9. DIF-253A Board")

Procedure

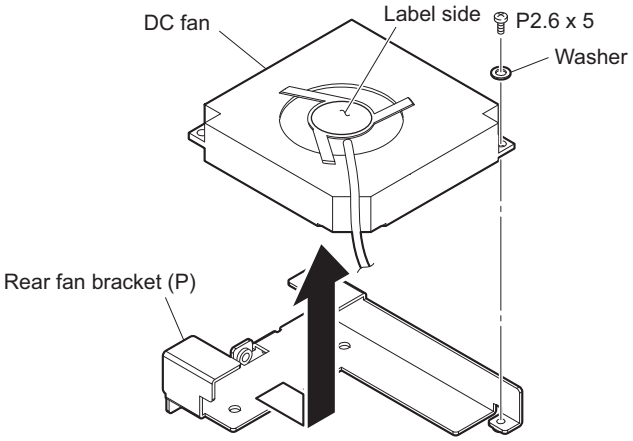
1. Open the clamper, then disconnect the harness from the connector (CN009) on the DVP-70 board.
2. Remove the screw, then remove the rear fan block in the direction of the arrow.



Note

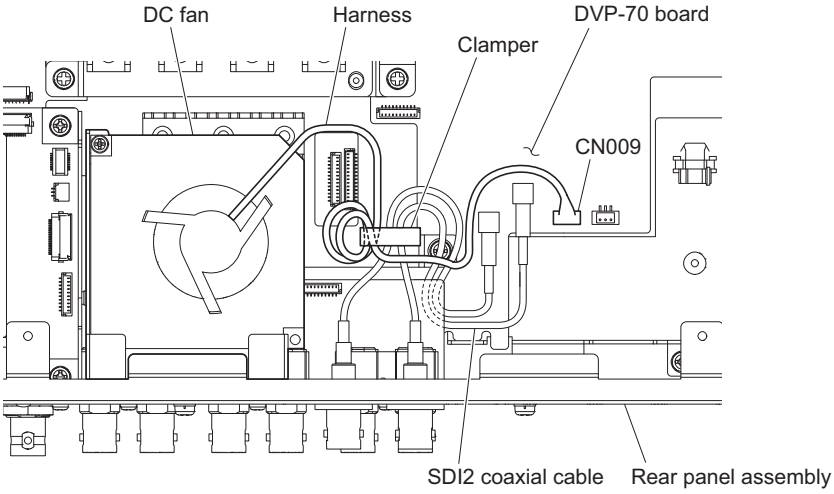
- When attaching the fan block, be careful not to pinch the fine-wire coaxial cable.
- When attaching the fan block, align the two dowels with the holes.

3. Remove the screw and washer, then remove the DC fan in the direction of the arrow.



Note

- When attaching the DC fan, wrap the harness two turns around the clamper and connect it as shown in the illustration.
- When attaching the DC fan, pay attention to the label side and harness position.



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

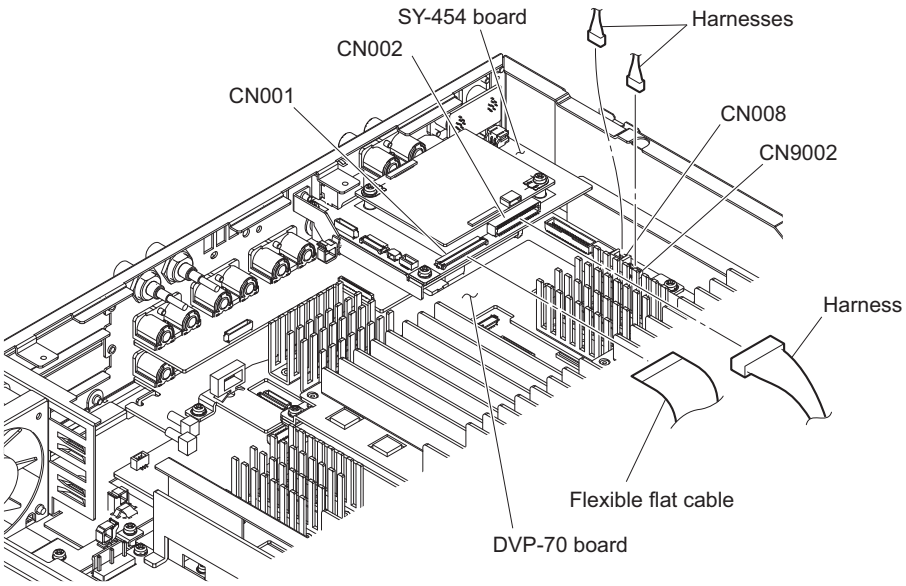
3-11. Rear Panel Assembly

Preparation

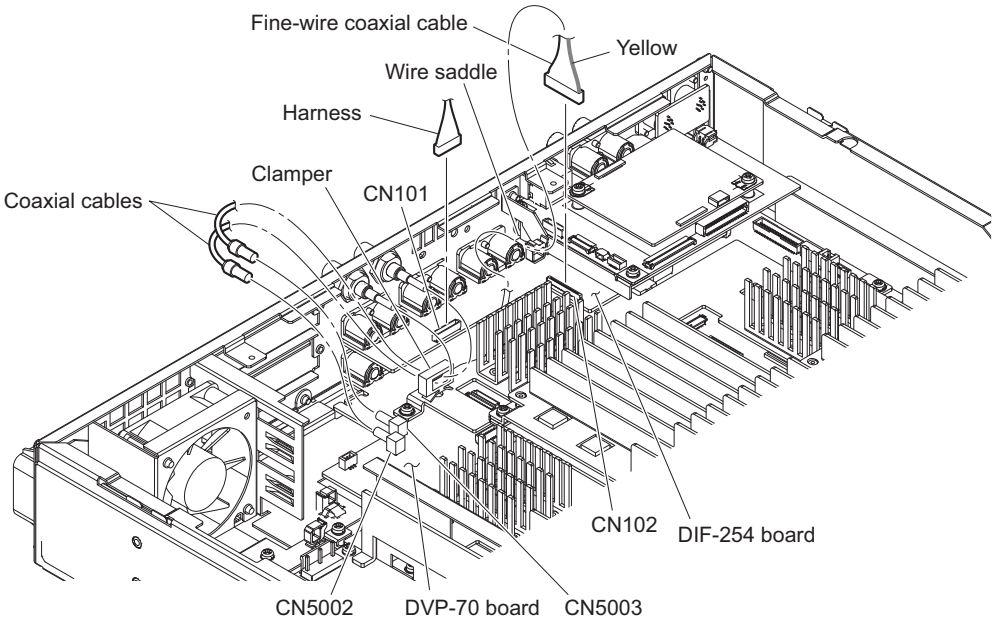
1. Remove the top cover. (Refer to “3-3. Top Cover”)
2. Remove the DIF-253 board. (Refer to “3-8. DIF-253 Board”)
3. Remove the DIF-253A board. (Refer to “3-9. DIF-253A Board”)
4. Remove the rear fan. (Refer to “3-10. Rear Fan”)

Procedure

1. Disconnect the flexible flat cable and harness from the connectors (CN001 and CN002) on the SY-454 board.
2. Disconnect the two harnesses from the connectors (CN008 and CN9002) on the DVP-70 board.

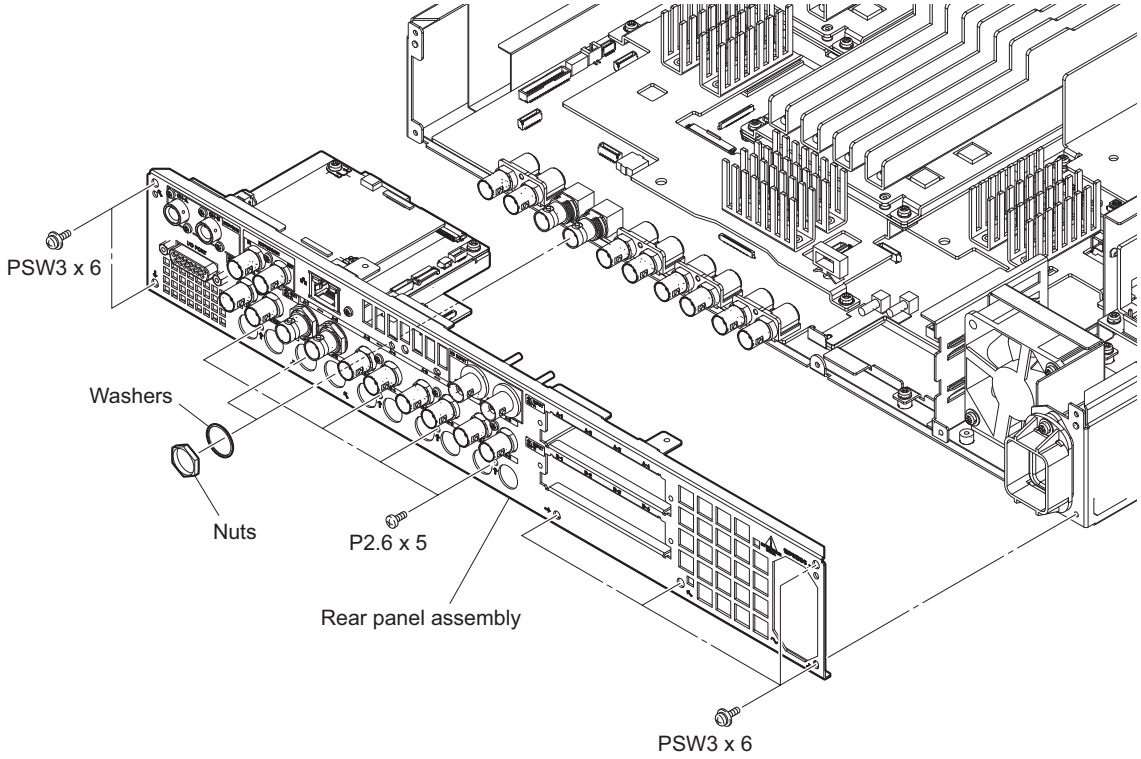


3. Open the wire saddle, then disconnect the fine-wire coaxial cable from the connector (CN102) on the DIF-254 board.
4. Open the clamper, then disconnect the harness from the connector (CN101) on the DIF-254 board.
5. Disconnect the two coaxial cables from the connectors (CN5002 and CN5003) on the DVP-70 board.



6. Remove the two nuts and two washers.

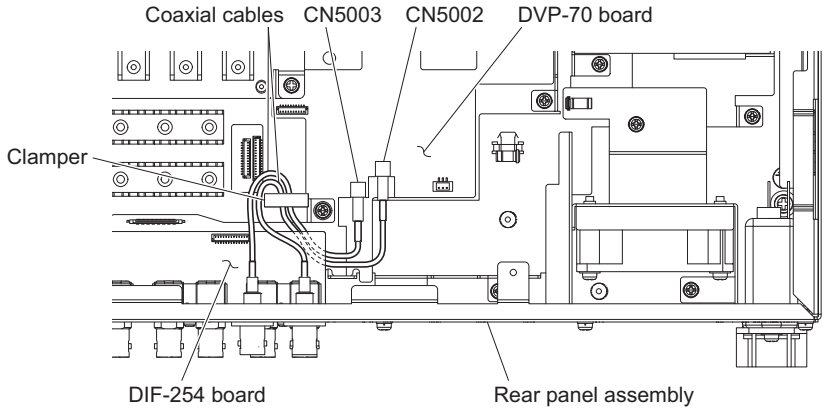
7. Remove the six screws (PSW3 x 6) and four screws (P2.6 x 5), then remove the rear panel assembly.



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

Tip

When attaching the rear panel assembly, connect the coaxial cables as shown in the illustration.



3-12. DC Fan

Tip

The following part cannot be reused. Prepare a new one.

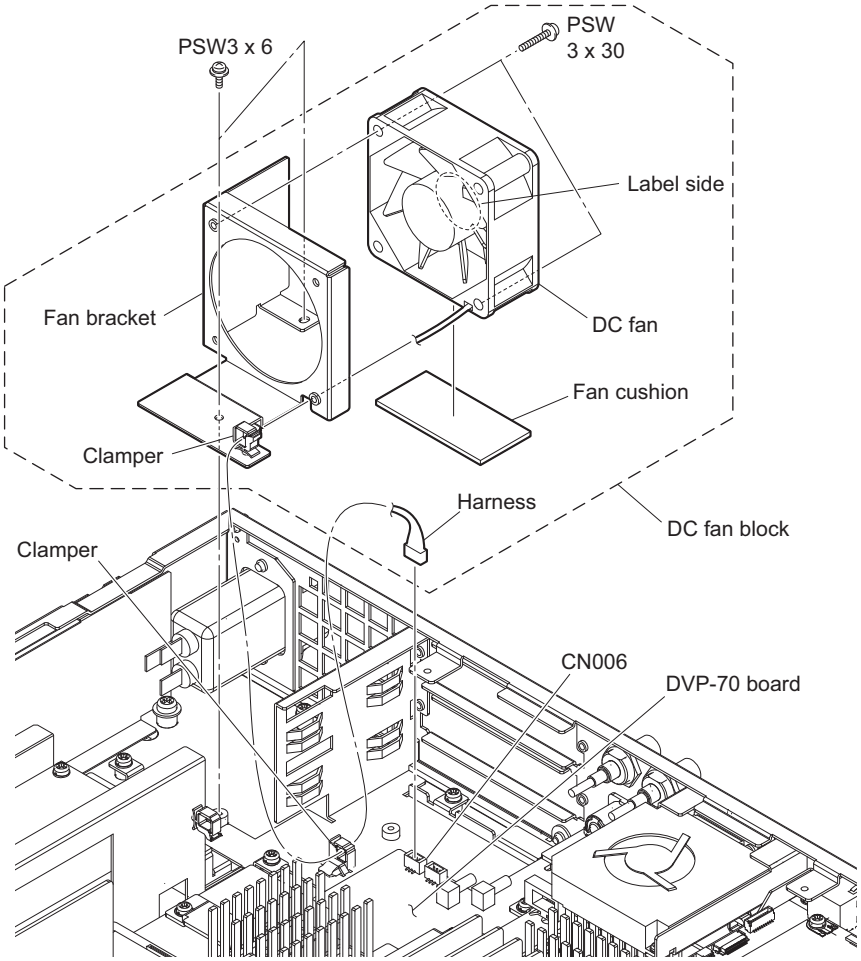
- Fan cushion

Preparation

1. Remove the top cover. (Refer to "3-3. Top Cover")
2. Remove the DIF-253 board. (Refer to "3-8. DIF-253 Board")
3. Remove the DIF-253A board. (Refer to "3-9. DIF-253A Board")

Procedure

1. Open the two clampers, then disconnect the harness from the connector (CN006) on the DVP-70 board.
2. Remove the two screws (PSW3 x 6), then remove the DC fan block.
3. Remove the two screws (PSW3 x 30), then remove the DC fan.
4. Attach the new fan cushion to the new DC fan.



Note

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

5. Attach the DC fan in the reverse order of steps 1 to 3.

3-13. AT-189N Board and SY-454 Board

Note

When replacing the AT-189N board, perform the setting to hand over the model information by referring to "6-3. How to Set the Model Information after Replacing AT-189N Board or DVP-70 Board".

Tip

When replacing the SY-454 board, the paint data and the reference file will be set to the factory setting.
To preserve the user's settings, store the current settings to the all-settings file before replacing the SY-454 board.
Furthermore, store reference files in a Memory Stick using the reference transfer function of the master setup unit (MSU).
(Refer to "5. File System".)

Preparation

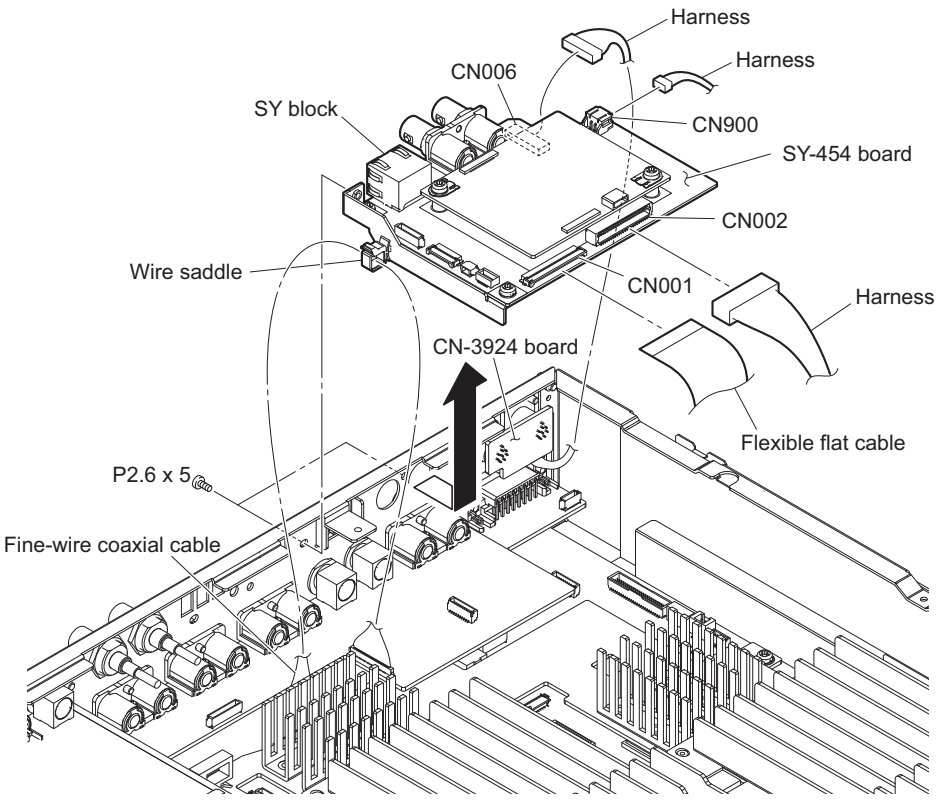
1. Remove the top cover. (Refer to "3-3. Top Cover")
2. Remove the DIF-253 board. (Refer to "3-8. DIF-253 Board")
3. Remove the DIF-253A board. (Refer to "3-9. DIF-253A Board")
4. Remove the rear fan. (Refer to "3-10. Rear Fan")

Procedure

1. Remove the fine-wire coaxial cable from the wire saddle.
2. Disconnect the two harnesses from the connectors (CN002 and CN900) on the SY-454 board.
3. Disconnect the flexible flat cable from the connector (CN001) on the SY-454 board.
4. Remove the two screws, then disconnect the harness from the connector (CN006) on the SY-454 board while removing the SY block in the direction of the arrow.

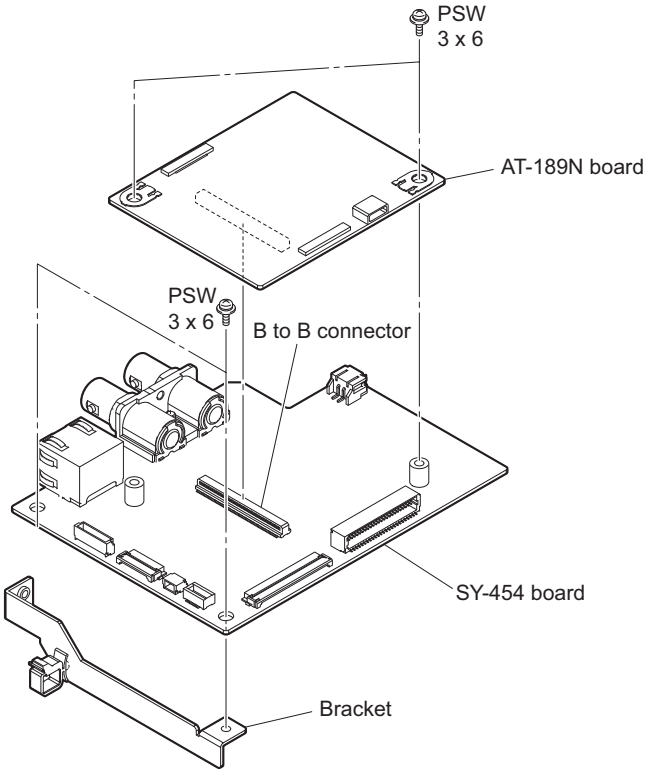
   Note

   If the SY block is lifted too much, the harness connected to the CN-3924 board may be damaged.



5. Remove the two screws, then remove the AT-189N board.

6. Remove the two screws, then remove the bracket from the SY-454 board.



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

3-13-1. Setting Required after Replacing AT-189N Board

Procedure

1. Check the software (CAMERA APP, OS, UPDATER) versions on the ROM VERSION page of the DIAGNOSIS menu.
   If the software versions are not the latest, upgrade the software. (Refer to “4-1. Upgrading Software Programs”.)
2. Set the BOARD item to “MB” on SERIAL NO. SELECT page of the SERVICE menu, and execute the SELECT. (Refer to “6-3. How to Set the Model Information after Replacing AT-189N Board or DVP-70 Board”.)

3-13-2. Setting Required after Replacing SY-454 Board

Procedure

1. Check the PLD ROM versions on the ROM VERSION page of the DIAGNOSIS menu.
   If the PLD ROM versions are not the latest, upgrade the PLD data. (Refer to “4-2. PLD”.)
2. If the user’s settings are stored before replacing SY-454 board, load and apply the all-settings file. Furthermore, transfer reference files from the Memory Stick of the MSU to the unit using the reference transfer function of the MSU. (Refer to “5. File System”.)

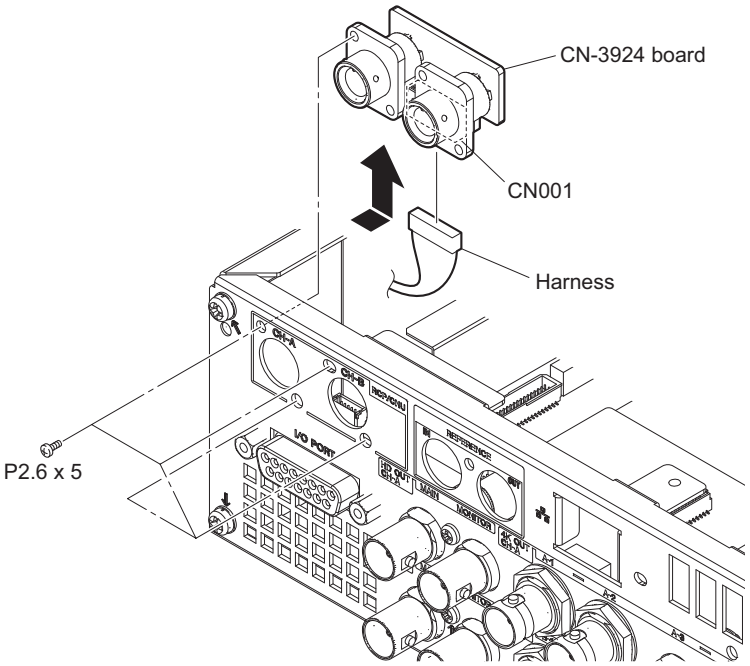
3-14. CN-3924 Board

Preparation

1. Remove the top cover. (Refer to “3-3. Top Cover”)
2. Remove the DIF-253 board. (Refer to “3-8. DIF-253 Board”)
3. Remove the DIF-253A board. (Refer to “3-9. DIF-253A Board”)
4. Remove the rear fan. (Refer to “3-10. Rear Fan”)
5. Remove the AT-189N board and SY-454 board. (Refer to “3-13. AT-189N Board and SY-454 Board”)

Procedure

1. Remove the four screws, then remove the CN-3924 board in the direction of the arrow.
2. Disconnect the harness from the connector (CN001) on the CN-3924 board.



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

3-15. DIF-254 Board

Required tool

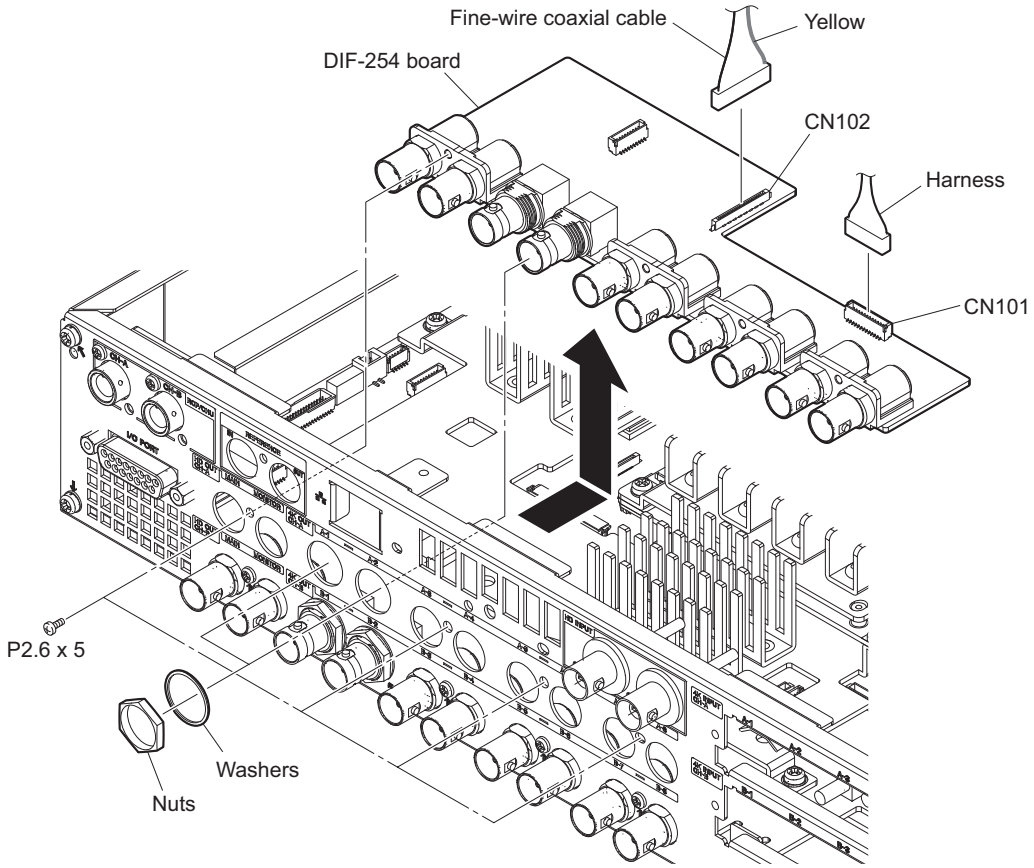
Box screwdriver (subtense: 14 mm)

Preparation

1. Remove the top cover. (Refer to "3-3. Top Cover")
2. Remove the DIF-253 board. (Refer to "3-8. DIF-253 Board")
3. Remove the DIF-253A board. (Refer to "3-9. DIF-253A Board")
4. Remove the rear fan. (Refer to "3-10. Rear Fan")
5. Remove the AT-189N board and SY-454 board. (Refer to "3-13. AT-189N Board and SY-454 Board")

Procedure

1. Disconnect the fine-wire coaxial cable from the connector (CN102) on the DIF-254 board.
2. Disconnect the harness from the connector (CN101) on the DIF-254 board.
3. Remove the two nuts and two washers.
4. Remove the four screws, then remove the DIF-254 board in the direction of the arrow.



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

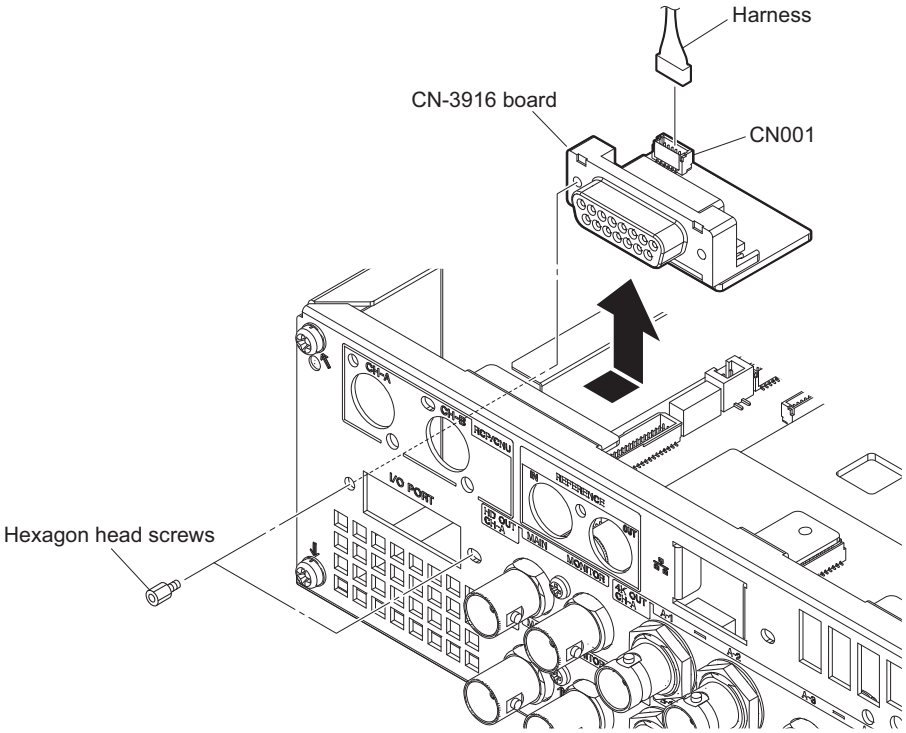
3-16. CN-3916 Board

Preparation

1. Remove the top cover. (Refer to “3-3. Top Cover”)
2. Remove the DIF-253 board. (Refer to “3-8. DIF-253 Board”)
3. Remove the DIF-253A board. (Refer to “3-9. DIF-253A Board”)
4. Remove the rear fan. (Refer to “3-10. Rear Fan”)
5. Remove the AT-189N board and SY-454 board. (Refer to “3-13. AT-189N Board and SY-454 Board”)
6. Remove the CN-3924 board. (Refer to “3-14. CN-3924 Board”)

Procedure

1. Disconnect the harness from the connector (CN001) on the CN-3916 board.
2. Remove the two hexagon head screws, then remove the CN-3916 board in the direction of the arrow.

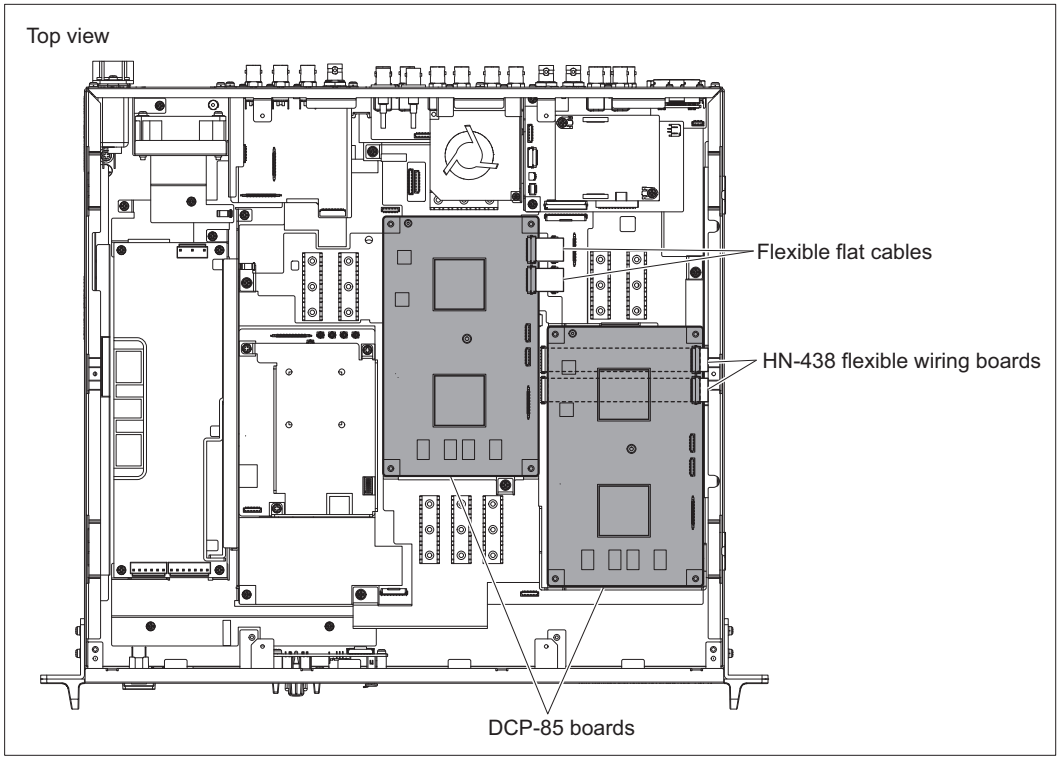


3. Install the removed parts by reversing the steps of removal.

3-17. DCP-85 Board

Tip

The two DCP-85 boards are installed. They can be replaced in the same procedure.



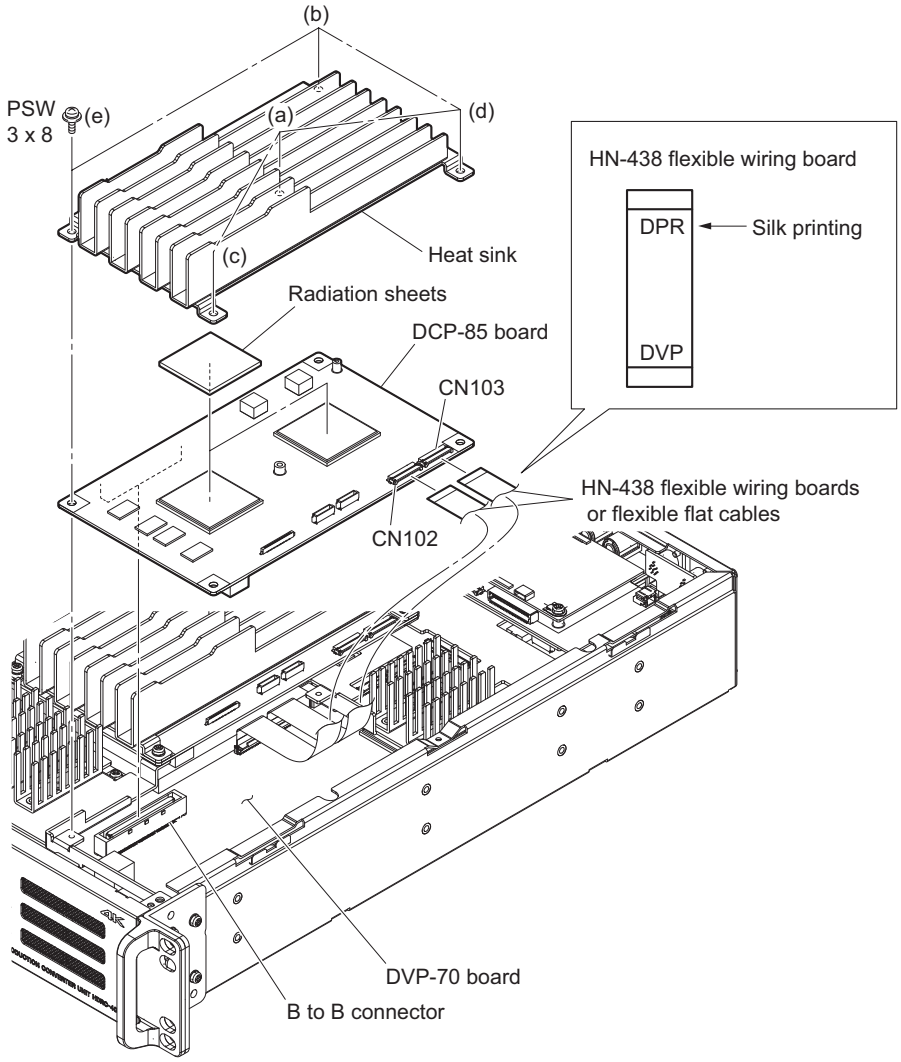
Preparation

1. Remove the top cover. (Refer to "3-3. Top Cover")

Procedure

1. Remove the five screws, then remove the heat sink.
2. Remove the two radiation sheets.
3. Disconnect the two HN-438 flexible wiring boards or flexible flat cables from the connectors (CN102 and CN103) on the DCP-85 board.

4. Remove the DCP-85 board from the connector on the DVP-70 board.



Note

Pay attention to the orientation of the HN-438 flexible wiring boards. When connecting the HN-438 flexible wiring boards, check the printing of "DPR".

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

Tip

- When installing the DCP-85 board, connect the HN-438 flexible wiring boards or flexible flat cables first, then install the DCP-85 board.
- When installing the DCP-85 board, tighten the screws in the order from (a) to (e).

3-17-1. Setting Required after Replacing DCP-85 Board

Procedure

1. Check the PLD ROM versions on the ROM VERSION page of the DIAGNOSIS menu.
   If the PLD ROM versions are not the latest, upgrade the PLD data. (Refer to "4-2. PLD".)

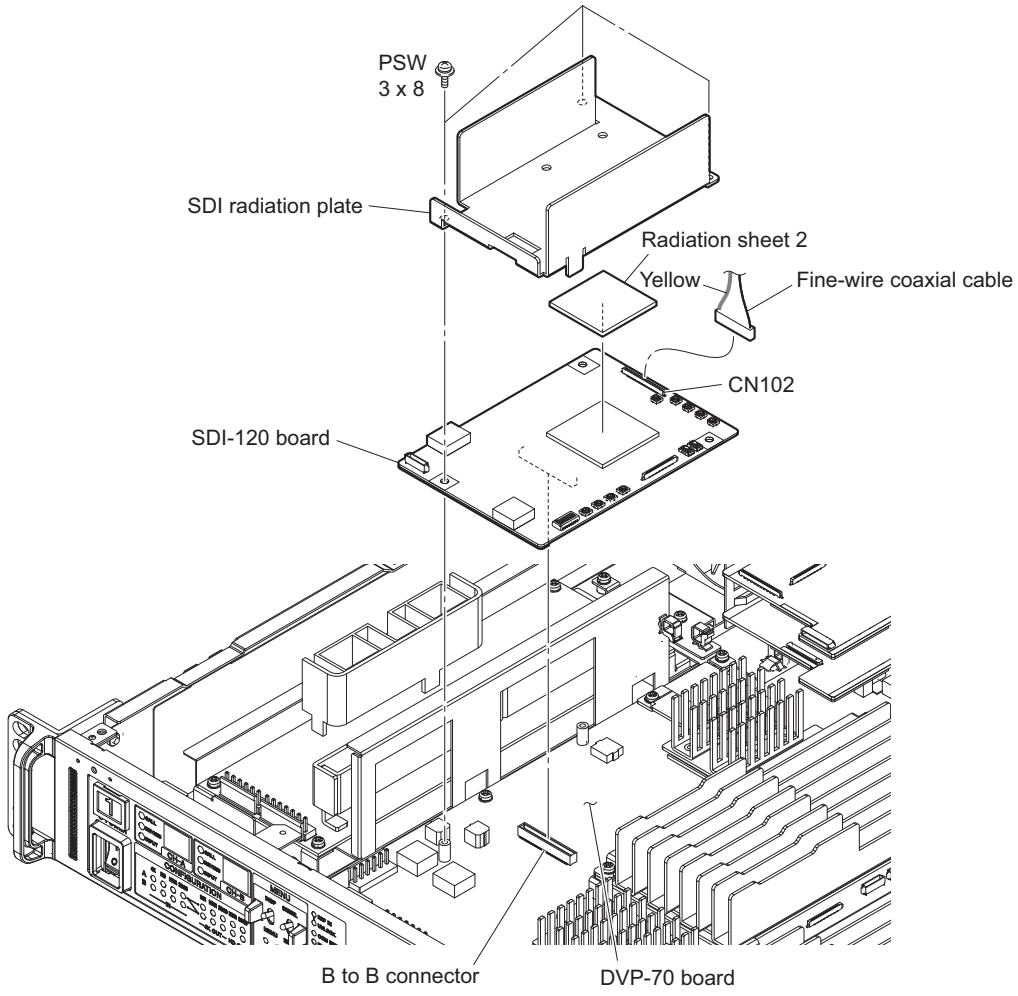
3-18. SDI-120 Board

Preparation

1. Remove the top cover. (Refer to "3-3. Top Cover")

Procedure

1. Disconnect the fine-wire coaxial cable from the connector (CN102) on the SDI-120 board.
2. Remove the three screws, then remove the SDI radiation plate.
3. Remove the radiation sheet 2.
4. Remove the SDI-120 board from the connector on the DVP-70 board.



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

3-18-1. Setting Required after Replacing SDI-120 Board

Procedure

1. Check the PLD ROM versions on the ROM VERSION page of the DIAGNOSIS menu.
   If the PLD ROM versions are not the latest, upgrade the PLD data. (Refer to "4-2. PLD".)

3-19. DVP-70 Board

Note

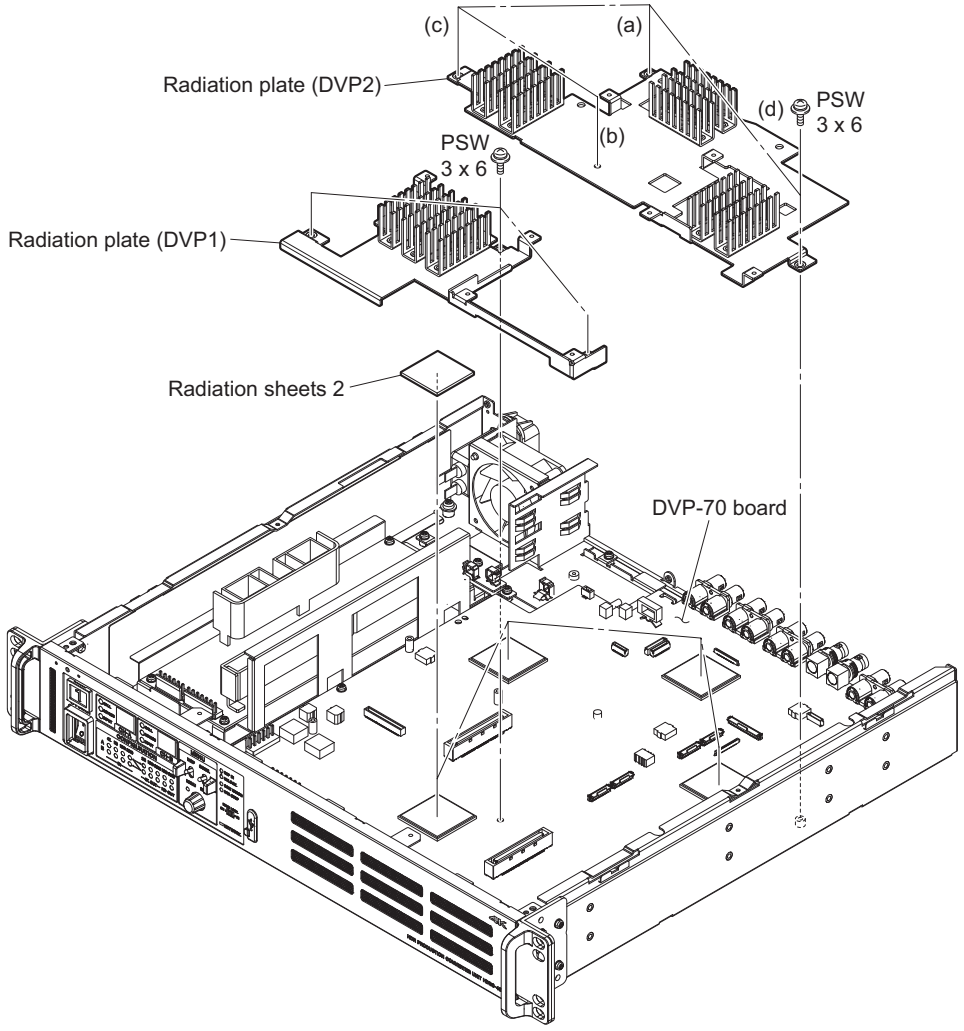
When replacing the DVP-70 board, perform the setting to hand over the model information by referring to "6-3. How to Set the Model Information after Replacing AT-189N Board or DVP-70 Board".

Preparation

1. Remove the top cover. (Refer to "3-3. Top Cover")
2. Remove the DIF-253 board. (Refer to "3-8. DIF-253 Board")
3. Remove the DIF-253A board. (Refer to "3-9. DIF-253A Board")
4. Remove the rear fan. (Refer to "3-10. Rear Fan")
5. Remove the rear panel assembly. (Refer to "3-11. Rear Panel Assembly")
6. Remove the DCP-85 board. (Refer to "3-17. DCP-85 Board")
7. Remove the SDI-120 board. (Refer to "3-18. SDI-120 Board")

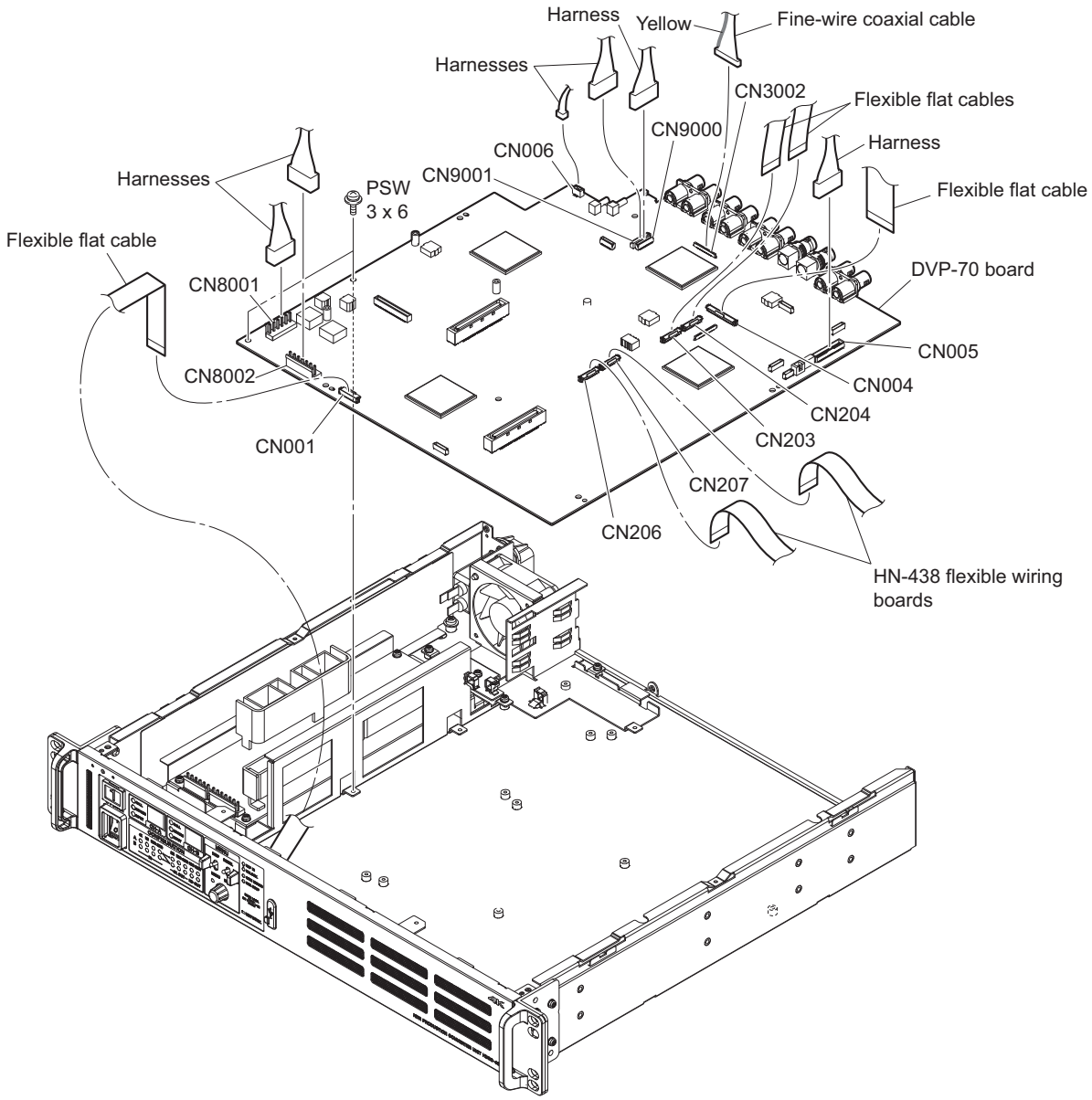
Procedure

1. Remove the three screws, then remove the radiation plate (DVP1).
2. Remove the four screws, then remove the radiation plate (DVP2).
3. Remove the radiation sheets 2 (4 pcs).



4. Disconnect the six harnesses from the connectors (CN005, CN006, CN8001, CN8002, CN9000 and CN9001) on the DVP-70 board.
5. Disconnect the four flexible flat cables from the connectors (CN001, CN004, CN203 and CN204) on the DVP-70 board.

6. Disconnect the two HN-438 flexible wiring boards from the connectors (CN206 and CN207) on the DVP-70 board.
7. Disconnect the fine-wire coaxial cable from the connector (CN3002) on the DVP-70 board.
8. Remove the two screws, then remove the DVP-70 board.



Tip

When attaching the radiation plate (DVP2), tighten the screws in the order from (a) to (d).

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

3-19-1. Setting Required after Replacing DVP-70 Board

Procedure

1. Check the PLD ROM versions on the ROM VERSION page of the DIAGNOSIS menu.
   If the PLD ROM versions are not the latest, upgrade the PLD data. (Refer to "4-2. PLD".)
2. Set the BOARD item to "AT" on SERIAL NO. SELECT page of the SERVICE menu, and execute the SELECT.
   (Refer to "6-3. How to Set the Model Information after Replacing AT-189N Board or DVP-70 Board".)

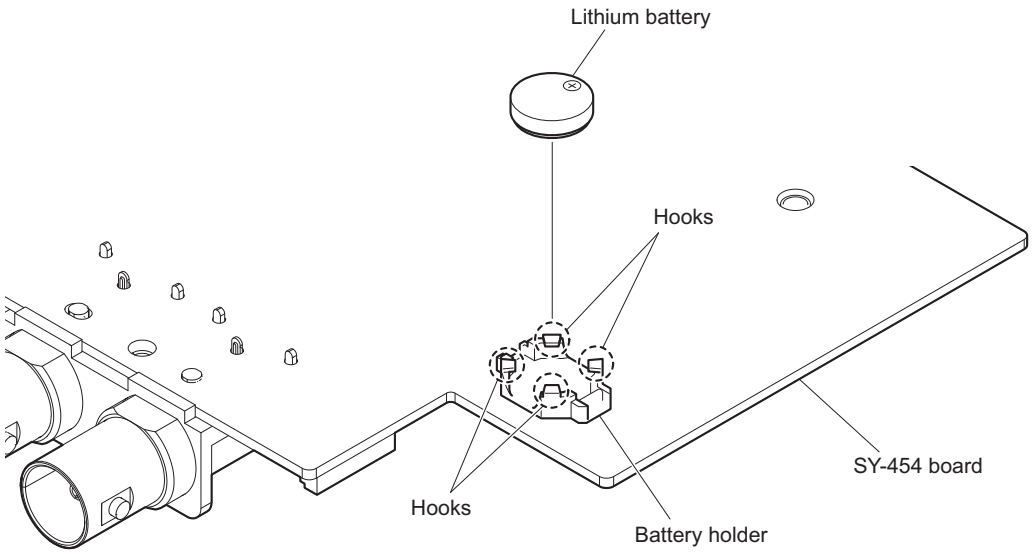
3-20. Lithium Battery

Preparation

1. Remove the top cover. (Refer to "3-3. Top Cover")
2. Remove the DIF-253 board. (Refer to "3-8. DIF-253 Board")
3. Remove the DIF-253A board. (Refer to "3-9. DIF-253A Board")
4. Remove the rear fan. (Refer to "3-10. Rear Fan")
5. Remove the AT-189N board and SY-454 board. (Refer to "3-13. AT-189N Board and SY-454 Board")

Procedure

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



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

Section 4
Software Upgrade

4-1. Upgrading Software Programs

Software programs stored in the eMMC (IC401) on the AT-189N board is upgraded by using a USB drive.
The software programs include camera application, operating system (OS), and update software programs which is independently upgraded.
Use the following procedures to upgrade the software programs.

Tip

The USB connector for connection to a USB drive is located to the right side of the menu lock switch on the front panel. Open the USB connector cap to connect the USB drive.

4-1-1. Upgrading Camera 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 (hdrc4000_app.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive
   \MSSONY\PRO\CAMERA\HDRC4000
2. Copy the data file for update “hdrc4000_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. Display the SOFTWARE PACKAGE page of the SERVICE menu.

   Tip

   For the SERVICE menu, refer to “6-2. SERVICE Menu”.

4. Select “CAMERA APP” 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 ROM VERSION page of the DIAGNOSIS menu.

4-1-2. 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 (hdrc4000_os.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive
   \MSSONY\PRO\CAMERA\HDRC4000
2. Copy the data file for update “hdrc4000_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. Display the SOFTWARE PACKAGE page of the SERVICE menu.

   Tip

   For the SERVICE menu, refer to “6-2. 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 ROM VERSION page of the DIAGNOSIS menu.

4-1-3. 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 (hdrc4000_updater.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive
   \MSSONY\PRO\CAMERA\HDRC4000
2. Copy the data file for update “hdrc4000_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. Display the SOFTWARE PACKAGE page of the SERVICE menu.

   Tip

   For the SERVICE menu, refer to “6-2. 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 ROM VERSION page of the DIAGNOSIS menu.

4-2. PLD

This unit uses the PLD (Programmable Logic Device) that supports USB drive to write and rewrite the internal data. After any of the following boards or ICs (ROM for PLD) is replaced, write the data by the following procedure.

Tip

The USB connector for connection to a USB drive is located to the right side of the menu lock switch on the front panel. Open the USB connector cap to connect the USB drive.

4-2-1. Corresponding PLD

Item	File	Board	Ref. No.
DCP1, DCP2	hdrc4000_dcp.pkg	DCP-85	IC001 (PLD) IC315 (Config ROM)
			IC901 (PLD) IC902 (Config ROM)
DEC	hdrc4000_dec.pkg	DVP-70	IC1001 (PLD) IC1402 (Config ROM)
4K-POST	hdrc4000_4kpost.pkg		IC3001 (PLD) IC3402 (Config ROM)
2K-POST	hdrc4000_2kpost.pkg		IC4001 (PLD) IC4402 (Config ROM)
SDP	hdrc4000_sdp.pkg		IC5001 (PLD) IC5402 (Config ROM)
SDI	hdrc4000_sdi.pkg	SDI-120	IC001 (PLD) IC402 (Config ROM)
SY	hdrc4000_sy.pkg	SY-454	IC705 (PLD) IC902 (Config ROM)

4-2-2. 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\HDRC4000
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 "6-2. 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.
6. Turn off and on the power of the unit and confirm that the version has been updated on the ROM VERSION page of the DIAGNOSIS menu.

4-3. 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 right side of the menu lock switch on the front panel. Open the USB connector cap to connect the USB drive.

4-3-1. 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\HDRC4000
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 VERSION page of the DIAGNOSIS menu.

Section 5
File System

This unit is equipped with the file systems for managing data.

5-1. File Configuration

There are three kinds of files as follows.

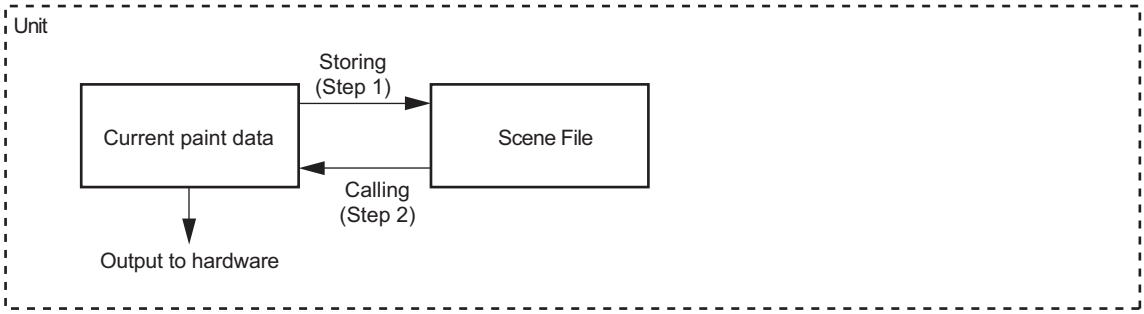
1. Scene file (Refer to “5-2. Scene File”.)
   A scene file is used to store temporary paint data corresponding to each scene.
   This file can be stored in the unit.
2. All-settings file (Refer to “5-3. All-settings File”.)
   An all-settings file is used to store all user-set data (except for network settings, scene files, and reference files).
   This file can be stored in the unit.
3. Reference file (Refer to “5-4. Reference File”.)
   Reference file is used to store the standard values of user’s paint data.
   This file can be stored in the unit.

5-2. Scene File

Scene files are used to store paint data in the SETUP menu and ADDITIONAL PAINT menu items in the unit.
Five scene files are provided for each of channel A and channel B (10 files in total).
Scene files can also be stored in the memory stick if the master setup unit (here after MSU) is used. For details, refer to the MSU operation manual.
Data is stored and called using the setup menu or MSU.

5-2-1. Scene File Operation

Outline Figure of Operation



Storing

Reference: Refer to step 1 of 5-2-1.“Outline Figure of Operation”.

Using SCENE FILE page of FILE MENU

1. Select the scene file number of channel A or channel B you want to store.
   [FILE] → [SCENE FILE] → [No.]
2. Store the settings in the scene file of the specified number.
   [FILE] → [SCENE FILE] → [STORE]

With MSU

1. Change the scene file item to the desired value.
2. Press the STORE button in the functional operation area on the operation panel.
3. Press the scene file number button in the functional operation area on the operation panel.

Calling

Reference: Refer to step 2 of 5-2-1.“Outline Figure of Operation”.

Using SCENE FILE page of FILE MENU

1. Select the scene file number of channel A or channel B you want to call.
   [FILE] → [SCENE FILE] → [No.]
2. Call the scene file of the specified number.
   [FILE] → [SCENE FILE] → [RECALL]

With MSU

1. Press the number button of the scene file you want to call while the STORE button on the operation panel is not lit.

   The number button is lit and the scene file of the number is called.

5-3. All-settings File

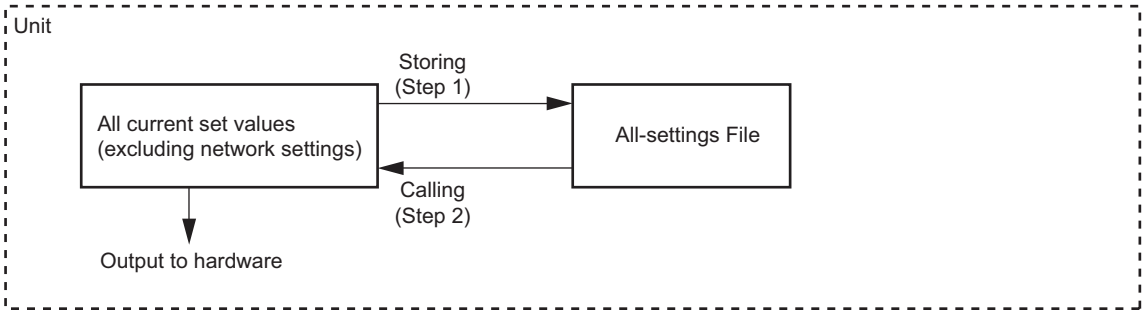
Store the following user settable items in the unit.

- All items that can be set with the CONFIGURATION menu (excluding time setting)
- All items that can be set with the SETUP menu
- All items that can be set with the ADDITIONAL PAINT menu

Network settings that can be made with the NETWORK menu and reference files and scene files that can be stored with the FILE menu are excluded.
Up to 32 configuration files can be stored.
All-setting files can also be stored in the memory stick if the master setup unit (here after MSU) is used. For details, refer to the MSU operation manual.
Data is stored and called using the setup menu or MSU.
Furthermore, settings can be loaded by inputting the signal to the I/O PORT terminal (Dsub 15 pins) of the unit. For details of electrical specifications of the I/O PORT terminal (Dsub 15 pins), refer to the installation manual of the unit.

5-3-1. All-setting File Operation

Outline Figure of Operation



Storing

Reference: Refer to step 1 of 5-3-1.“Outline Figure of Operation”.

Using ALL-SETTINGS FILE page of FILE MENU

1. Set “PROTECT” to OFF.
   [FILE] → [ALL-SETTINGS FILE] → [PROTECT]
2. Select the number of all-settings file you want to store. Name the selected file number as needed.
   [FILE] → [ALL-SETTINGS FILE] → [No.]
3. Store the settings in the all-settings file of the specified number.
   [FILE] → [ALL-SETTINGS FILE] → [STORE]

With MSU

1. Press the FILE button in the menu operational area on the operation panel.
2. Select [Converter All-Settings] → [Store/Recall] from the menu.
3. Select “STORE” and then select the number of configuration file you want to store.

Calling

Reference: Refer to step 2 of 5-3-1.“Outline Figure of Operation”.

Using ALL-SETTINGS FILE page of FILE MENU

1. Select the all-settings file number you want to call.
   [FILE] → [ALL-SETTINGS FILE] → [No.]
2. Call the settings from the all-settings file of the specified number and apply them.
   [FILE] → [ALL-SETTINGS FILE] → [RECALL]

With I/O PORT(Dsub 15 pin)

1. Apply 5 V to pin 1.
2. Specify the number (1 to 32) of setting file you want to load using pin 2 (LSB) to pin 7 (MSB).
3. Apply 0 V to pin 1 for at least one second with the number of setting file specified.

With MSU

1. Press the FILE button in the menu operational area on the operation panel.
2. Select [Converter All-Settings] → [Store/Recall] by the menu operation.
3. Select the all-settings file number you want to call.

Clearing

Using FILE CLEAR page of FILE MENU

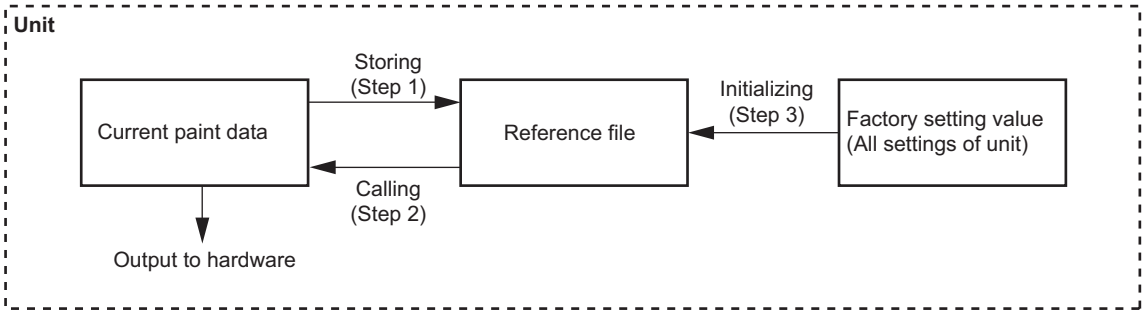
1. Set “PROTECT” to OFF.
   [FILE] → [ALL-SETTINGS FILE] → [PROTECT]
2. Select the all-settings file number you want to clear.
   [FILE] → [ALL-SETTINGS FILE] → [No.]
3. Clear the all-settings file of the specified number.
   [FILE] → [ALL-SETTINGS FILE] → [CLEAR]

5-4. Reference File

The standard values of user's paint data in SETUP and ADDITIONAL PAINT MENU item are stored in the unit. Differences from the values stored in reference files are displayed as paint data values in the unit menu or the master setup unit (MSU) excluding some items. Since the reference values to be displayed change, pay close attention when storing the reference file.
A reference file is provided for each of channel A and channel B.
Reference files can also be stored in the memory stick if the master setup unit (here after MSU) is used. For details, refer to the MSU operation manual.
Data is stored and called using the setup menu or MSU.

5-4-1. Reference File Operation

Outline Figure of Operation



Storing

Reference: Refer to step 1 of 5-4-1."Outline Figure of Operation".

Using REFERENCE page of FILE menu

1. Set "PROTECT" to OFF.
2. Select "STORE" of the channel A or channel B you want to store.
   [FILE] → [REFERENCE FILE] → [STORE]

With MSU

1. Press the FILE button in the menu operational area on the operation panel.
2. Select [Reference] → [Reference Store] by the menu operation.
   Reference files are stored in the unit and data of values is indicated as "0" (excluding some items).

Calling

Reference: Refer to step 2 of 5-4-1."Outline Figure of Operation".

Using SCENE FILE page of FILE

1. Select "STANDARD RECALL" of channel A or channel B you want to call.
   [FILE] → [SCENE FILE] → [STANDARD RECALL]

With MSU

1. Press the STANDARD button on the camera/panel control unit (operation panel).
   The state where reference files were stored is restored.

Initializing

Reference: Refer to step 3 of 5-4-1.“Outline Figure of Operation”.

Using REFERENCE page of FILE menu

1. Set “PROTECT” to OFF.
   [FILE] → [REFERENCE FILE] → [PROTECT]
2. Select “CLEAR” of channel A or channel B you want to clear.
   [FILE] → [REFERENCE FILE] → [CLEAR]

5-5. Initialization

5-5-1. How to Return Set Values (Except for Network Settings and File Items) in the Unit to the Default Settings

Using CLEAR page of FILE menu

1. Perform “CLEAR ALL SETTINGS”.
   [FILE] → [CLEAR] → [CLEAR ALL SETTINGS EXEC]

5-5-2. Returning the Unit Settings to Factory Settings

Using CLEAR page of FILE menu

1. Unlock the protection for initialization.
   [FILE] → [CLEAR] → [UNLOCK PROTECTION]
   When “YES/NO” appears, select “YES.”
2. Perform factory reset.
   [FILE] → [CLEAR] → [EXEC FACTORY PRESET]
   When “YES/NO” appears, select “YES.”

Section 6
Menu Settings

The unit and system status can be monitored and various settings can be checked and modified using the menu displayed in the HD monitor output.

6-1. Preparations

6-1-1. 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.

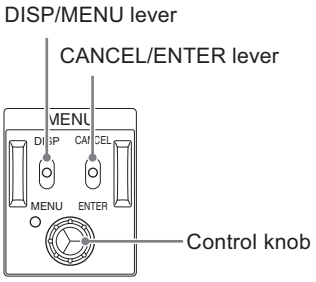
To exit the status screen display

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

6-1-2. Starting and Exiting the SERVICE Menu

Starting

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



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

```
<TOP MENU>

 CONFIGURATION
 SETUP
  1.HDR→HDR
  2.HDR→SDR
  3.SDR→HDR
  4.SDR→SDR
  5.4K→HD
  6.HD→4K
 ADDITIONAL PAINT
 FILE
 NETWORK
 DIAGNOSIS
 SERVICE
```

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

Exiting

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

6-1-3. 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.

6-2. SERVICE Menu

This unit is provided with the SERVICE menu useful for maintenance.
For how to display the SERVICE menu, refer to "6-1-2. Starting and Exiting the SERVICE Menu".

6-2-1. SERVICE Menu List

Menu Page No.	Menu Page Name	Remarks
S01	SERIAL NO. SELECT	Selection of the board to hand over the model information (Only when replace the AT-189N board or DVP-70 board, screen will appear.)
S02	SOFTWARE PACKAGE	Software version displaying and upgrading
S03	PLD PACKAGE	PLD version displaying and upgrading

6-2-2. Description of SERVICE Menu

Tip

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

SERIAL NO. SELECT

Only when replacing the AT-189N board or DVP-70 board, screen will appear.

```
<SERIAL NO. SELECT>                S01 TOP

 BOARD : MB
  MODEL   : HDRC-4000
  NO.     : 0000000

 SELECT: EXEC
```

Item	Initial Setting	Description
BOARD	MB, AT	Select the board that will hand over the model information. • MB: DVP-70 board • AT: AT-189N board
MODEL	HDRC-4000	Display the model name stored in ROM
NO.	0000000 to 9999999	Display the serial number stored in ROM
SELECT	EXEC	Execute with ENTER

SOFTWARE PACKAGE

```
<SOFTWARE PACKAGE>                S02 TOP

 APP          : V1.00
 OS           : V1.00
 UPDATER      : V1.00
```

Display the current software version.
Place the cursor on the version to update the version.
For how to update the software version, refer to “4-1. Upgrading Software Programs”.

PLD PACKAGE

```
<PLD PACKAGE>                     S03 TOP

 SY           : V1.00
 SDI          : V1.00
 DEC          : V1.00
 DEC (FACT)   : V1.00
 DCP          : V1.00
 DCP (FACT)   : V1.00
 4K-POST      : V1.00
 2K-POST      : V1.00
 SDP          : V1.00
```

Display the current PLD version.
Place the cursor on the version to update the version.
For how to update the software version, refer to “4-2. PLD”.

6-3. How to Set the Model Information after Replacing AT-189N Board or DVP-70 Board

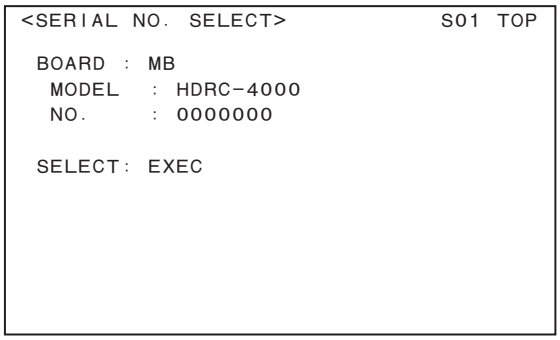
The eMMC (IC401) on the AT-189N board and EEPROM (IC003) on the DVP-70 board store the important model information data including the model name, serial number and MAC address in each.
After replacing the EEPROM (IC003) on the DVP-70 board with a new EEPROM, after replacing the AT-189N board or the DVP-70 board, or when replacing these two boards, it is necessary to hand over the model information to the replaced board.

Note

When the AT-189N board and DVP-70 board are both replaced, information is lost.
If both replace these two boards, first hand over the model information after replacing the one board. Then after replacing the other board, hand over the model information again.

Procedure

1. Replace the AT-189N board or the DVP-70 board.
   (Refer to "3-13. AT-189N Board and SY-454 Board", "3-19. DVP-70 Board")
2. Turn on the power of this unit.
3. Set the BOARD item on SERIAL NO. SELECT page of the SERVICE menu.



   Select the board that will hand over the model information (the one not replaced).
   - AT: AT-189N board (When transferring the model information to the new DVP-70 board)
   - MB: DVP-70 board (When transferring the model information to the new AT-189N board)
4. Execute the SELECT.
5. Turn off the power of this unit.
   When replacing both the AT-189N board and the DVP-70 board, replace the other board and then perform steps 2 to 5.

Tip

If the model information can not be handed over when replacing both the AT-189N board and the DVP-70 board, remove the EEPROM (IC003) attached to the former DVP-70 board and replace it to the new board.
Replace both the new AT-189N board and the new DVP-70 board with the former EEPROM (IC003), and transfer the model information from DVP-70 board to the AT-189N board.

Section 7
Circuit Description

7-1. Signal Processing/Transmission System

7-1-1. DVP-70 Board

This board contains 4K OUT CH-B connectors (BNC type × 8), HD OUT CH-B connectors (BNC type × 2) and HD INPUT CH-A, CH-B connectors (BNC type × 2).
Furthermore, the following processes are performed.

- Receive the reference signal from external device to genlock.
- Generates an SD/HD synchronization signal for reference output.
- Generates voltages necessary for each board from the general power supply.
- Relays data with the board on the front panel.
- The 4K video signals sent from SDI-120 board are down-converted to the HD video signals.
- The HD input video signals and the down-converted HD video signals are performed color gamut conversion, SDR ↔ HDR conversion and HDR ↔ HDR conversion. Furthermore, detail (contour enhancement) processing and knee (high luminance compression) processing are performed on the HD video signals.
- The 4K video signals and the HD video signals sent from SDI-120 board are sent to the DCP-85 board that makes adjustments for 4K video signals.
- Generates 4K/HD SDI signals to be output from the SDI output connector (BNC type).
- Performs embedded audio processing on each SDI output signal.
- The SDI signals for 4K OUT and HD OUT of channel A are sent to DIF-254 board.

7-1-2. DCP-85 Board

This unit is installed two DCP-85 boards for processing of channel A and channel B.
The received HD video signals are up-converted to 4K video signals.
The 4K input video signals and the up-converted 4K video signals are performed color gamut conversion, SDR ↔ HDR conversion and HDR ↔ HDR conversion. Furthermore, detail (contour enhancement) processing and knee (high luminance compression) processing are performed on the 4K video signals.

7-1-3. SDI-120 Board

The 4K/HD SDI input signals of channel A and channel B sent from DIF-253 board are sent to IC1001 (DEC PLD) on the DVP-70 board.

7-2. Control System

7-2-1. AT-189N Board

This board consists of a system control microcomputer (IC200) and a peripheral circuit necessary for the operation of IC200.
The main program is written in the eMMC (IC401) on the AT-189N board.

7-2-2. SY-454 Board

This board consists of a CPU bridge FPGA and peripheral devices with communication interfaces, LAN, and reference I/O. RCP interface.

7-3. Interface Boards

7-3-1. DIF-254 Board

This board contains 4K OUT CH-A connectors (BNC type × 8) and HD OUT CH-A connectors (BNC type × 2).

7-3-2. DIF-253 Board

This board contains 4K INPUT CH-A connectors (BNC type × 4).
The 4K/HD SDI input signals of channel A are sent to SDI-120 board.

7-3-3. DIF-253A Board

This board contains 4K INPUT CH-B connectors (BNC type × 4).
The 4K/HD SDI input signals of channel B are sent to SDI-120 board via DIF-253 board.

7-3-4. SW-1716 Board

This board contains switches for setting menus, a rotary encoder, and a service USB connector.

7-3-5. LE-413 Board

This board contains LEDs including POWER ON indicator and status display (IN setting, OUT setting, genlock and fan stop) indicator, and controls them.

7-3-6. CN-3916 Board

This board contains external input / output terminal (I/O PORT: D-sub 15-pin).

7-3-7. CN-3924 Board

This board contains two (CH-A, CH-B) REMOTE connectors (RCP/CNU: 8-pin round type).

Section 8
Spare Parts

8-1. Note on Repair Parts

1. Safety Related Components Warning

WARNING

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

2. Standardization of Parts

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

3. Stock of Parts

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

4. Harness

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

1. 安全重要部品

⚠警告

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

2. 部品の共通化

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

3. 部品の在庫

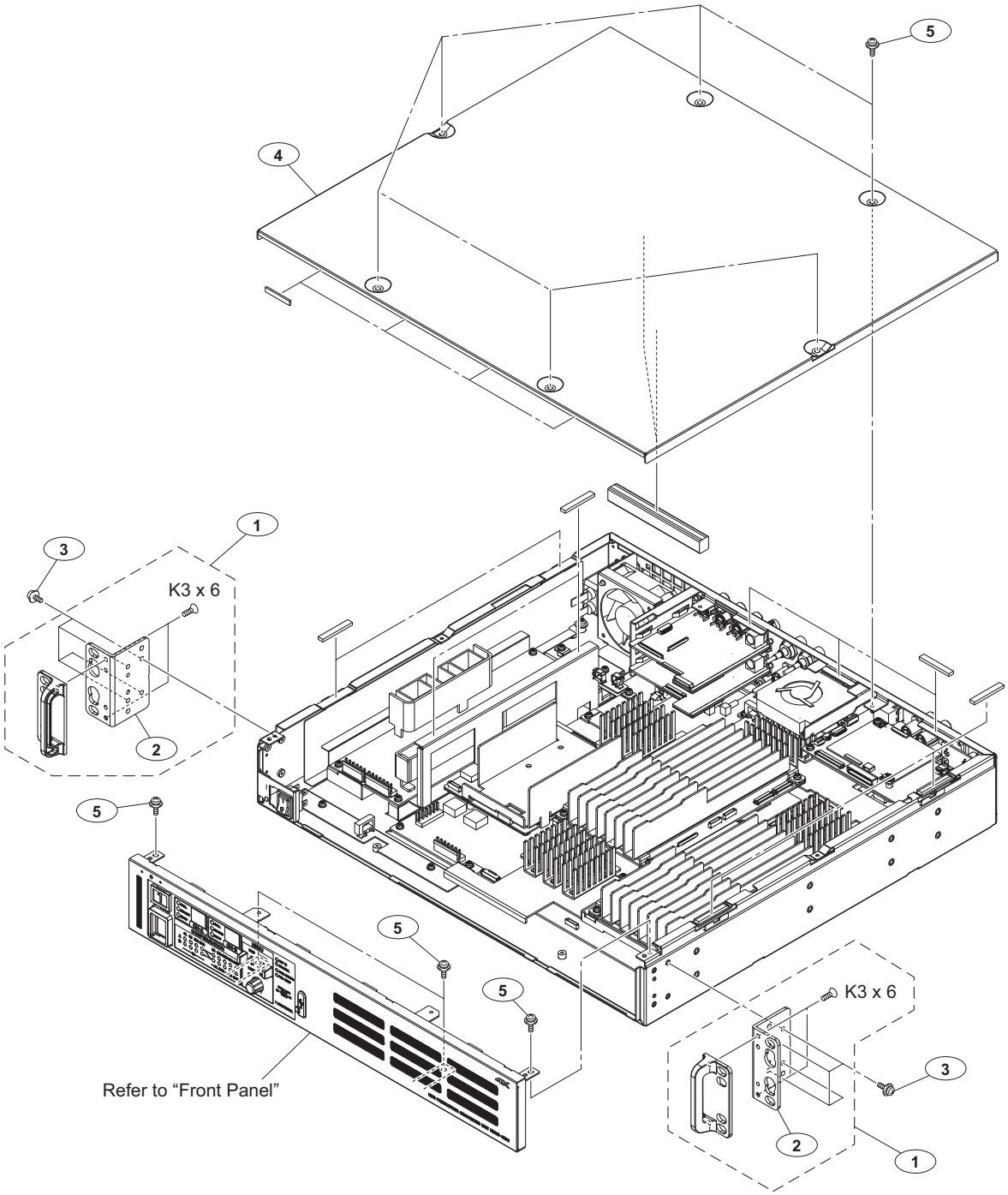
部品表の SP（Supply code）欄に "o" で示される部品は在庫していないことがあり，納期が長くなることがあります。

4. ハーネス

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

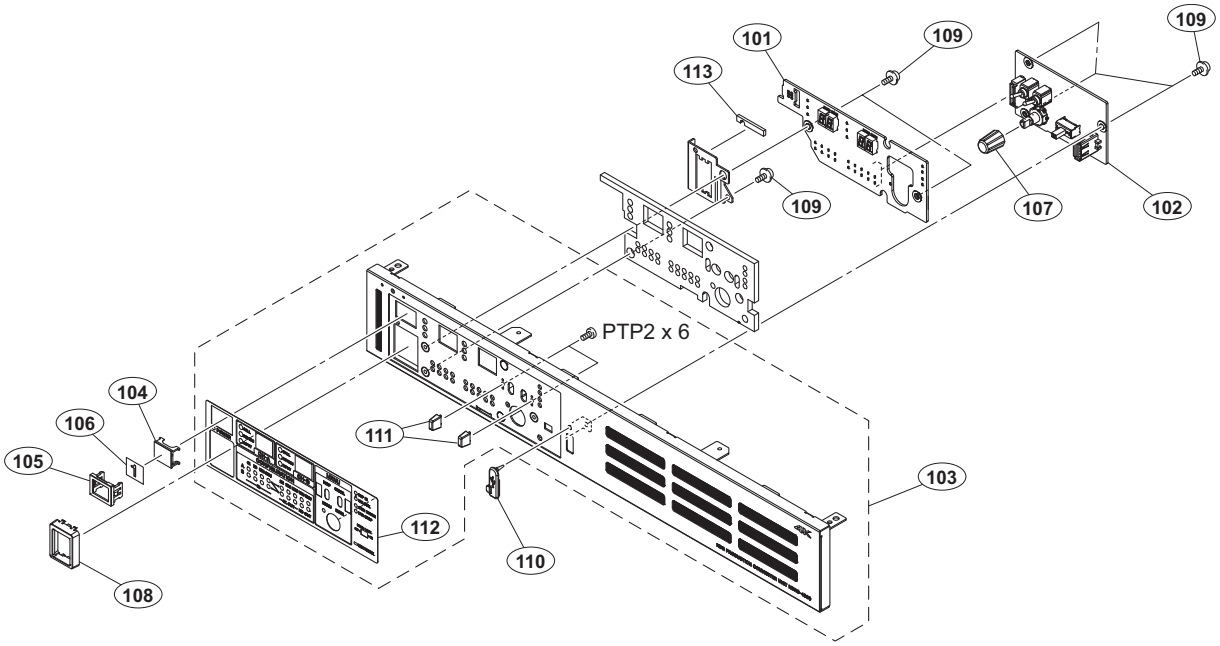
8-2. Exploded Views

Overall



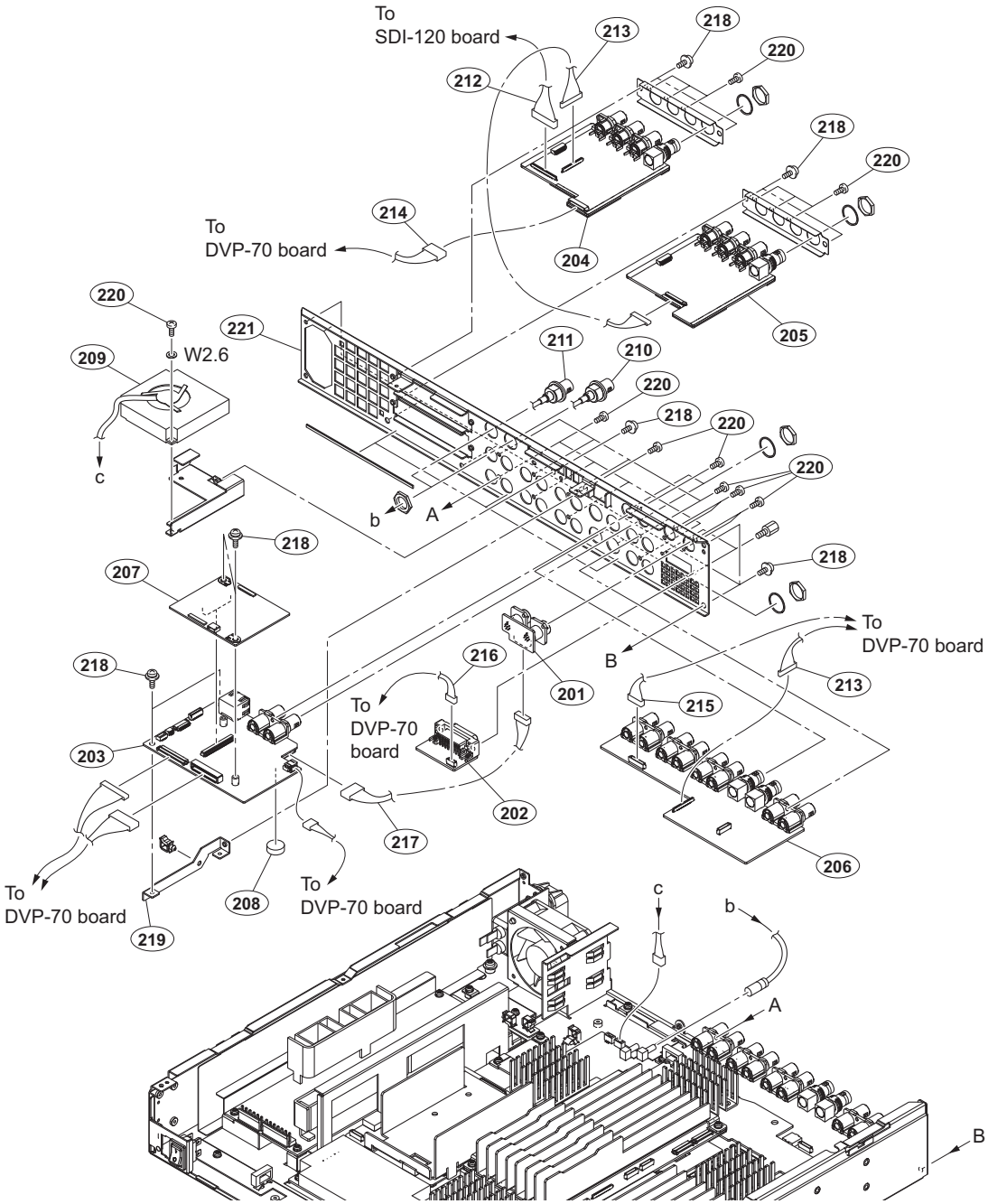
No.	Part No.	SP	Description
1	A-2034-689-A	s	BRACKET ASSY, RACK
2	4-299-632-01	s	RACK BRACKET(U)
3	4-382-854-42	s	SCREW (M3X8), P, SW (+)
4	4-477-434-01	s	COVER, TOP
5	4-382-854-51	s	SCREW (M3X6), P, SW(+)
	7-682-247-09	s	SCREW +K 3X6

Front Panel



No.	Part No.	SP	Description
101	A-2181-681-A	s	LE-413 MOUNT
102	A-2181-683-A	s	SW-1716 MOUNT
103	A-2182-545-A	s	PANEL ASSY, FRONT
104	2-139-192-01	s	FRAME, INDICATOR WINDOW
105	2-139-193-02	s	WINDOW, INDICATOR
106	2-249-353-01	s	COVER, LAMP
107	4-139-232-01	s	KNOB, ROTARY ENCODER
108	4-171-340-01	s	GUARD, SWITCH AC
109	4-382-854-51	s	SCREW (M3X6), P, SW (+)
110	4-478-730-01	s	CAP, USB
111	4-595-089-01	s	GUARD, SWITCH S
112	4-694-621-01	s	SHEET (P), FRONT PANEL
113	4-694-623-01	s	CUSHION, MULTI
	7-685-104-11	s	SCREW +P 2X6 TYPE2 NON-SLIT

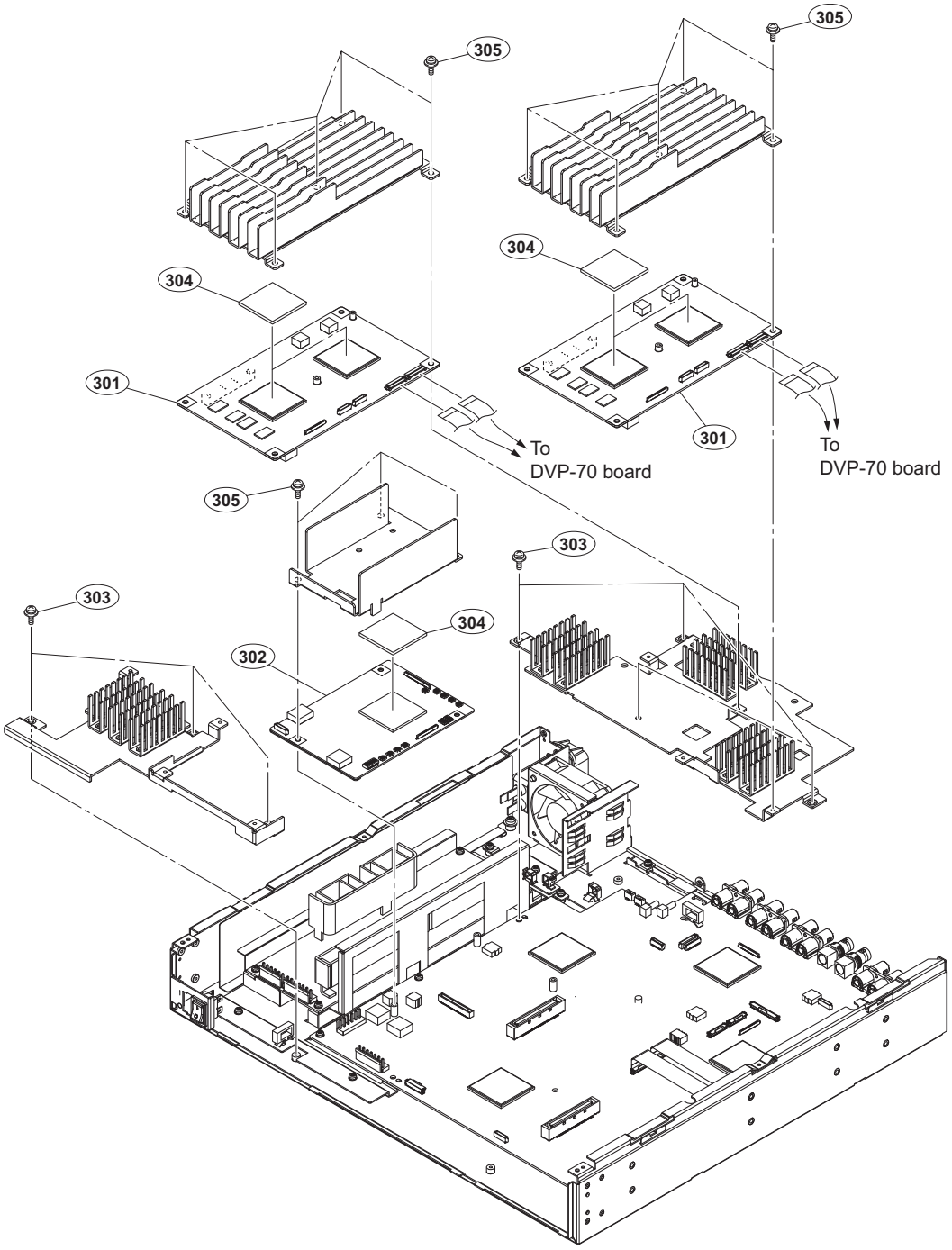
Rear Panel



No.	Part No.	SP	Description
201	A-2181-680-A	s	CN-3924 MOUNT
202	A-2181-682-A	s	CN-3916 MOUNT
203	A-2181-684-A	s	SY-454 COMPL
204	A-2181-688-A	s	DIF-253 MOUNT
205	A-2181-692-A	s	DIF-253A MOUNT
206	A-2181-693-A	s	DIF-254 MOUNT
207	A-2182-544-A	s	AT-189N COMPL
208	⚠ 1-756-134-17	s	BATTERY, LITHIUM (SECONDARY)
209	⚠ 1-787-612-21	s	FAN, DC (60 SQUARE)
210	1-837-868-11	s	CABLE ASSY, COAXIAL
211	1-837-868-21	s	CABLE ASSY, COAXIAL
212	1-966-760-11	s	HARNESS SSL20-40-140
213	1-969-477-11	s	WIRE, CONNECTOR WITH LEAD (AVP
214	1-971-507-11	s	HARNESS, SUB (DIF-253)
215	1-971-508-11	s	HARNESS, SUB (DIF-254)

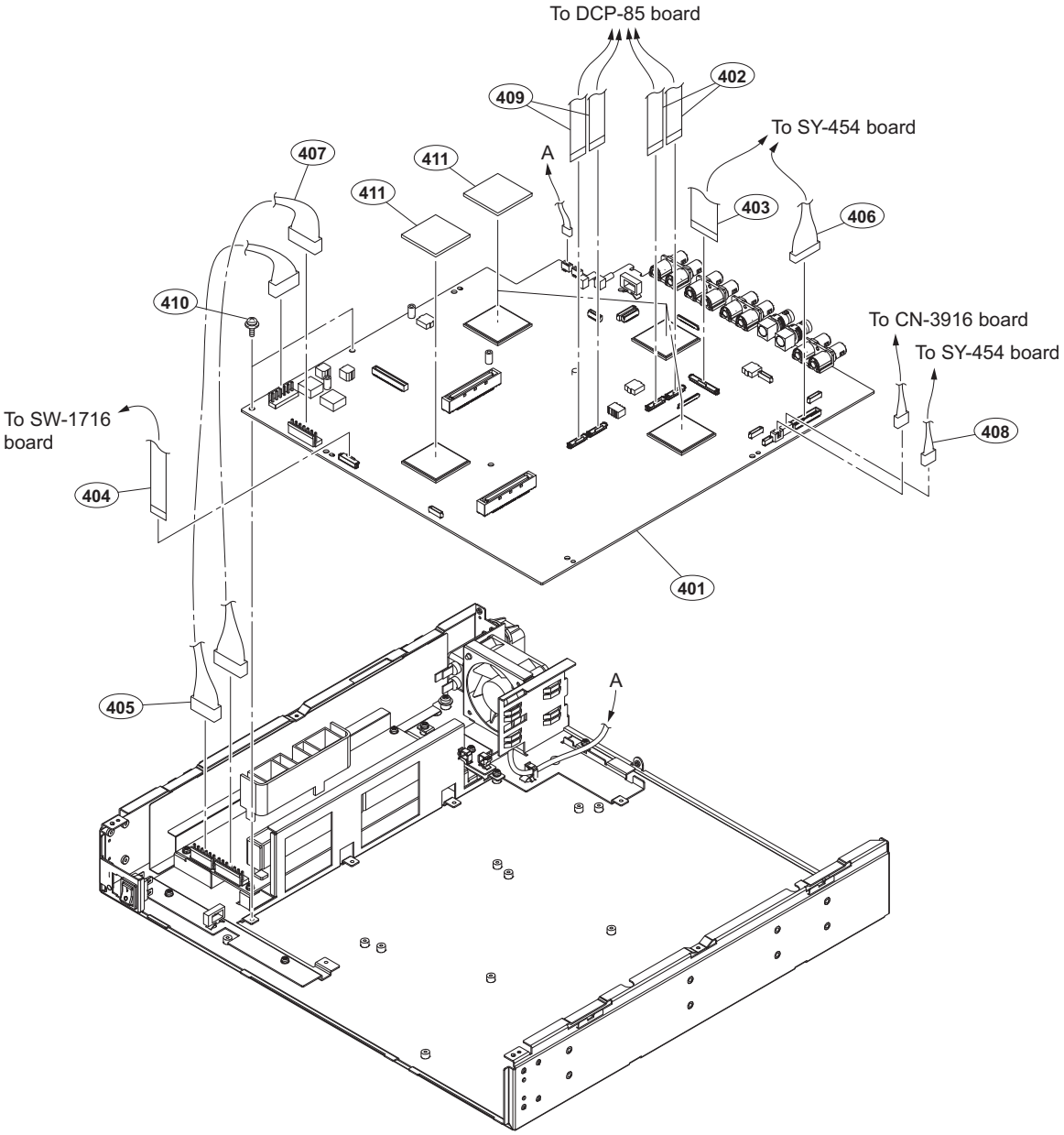
No.	Part No.	SP	Description
216	1-971-509-11	s	HARNESS, SUB (CN-3916)
217	1-971-614-11	s	HARNESS, SUB (SY-CN(RM2))
218	4-382-854-51	s	SCREW (M3X6), P, SW (+)
219	4-489-658-02	s	BRACKET (SY-426)
220	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
221	⚠ 4-694-625-02	s	PANEL(P), REAR
	7-688-002-01	s	W 2.6, SMALL

DCP/SDI Block



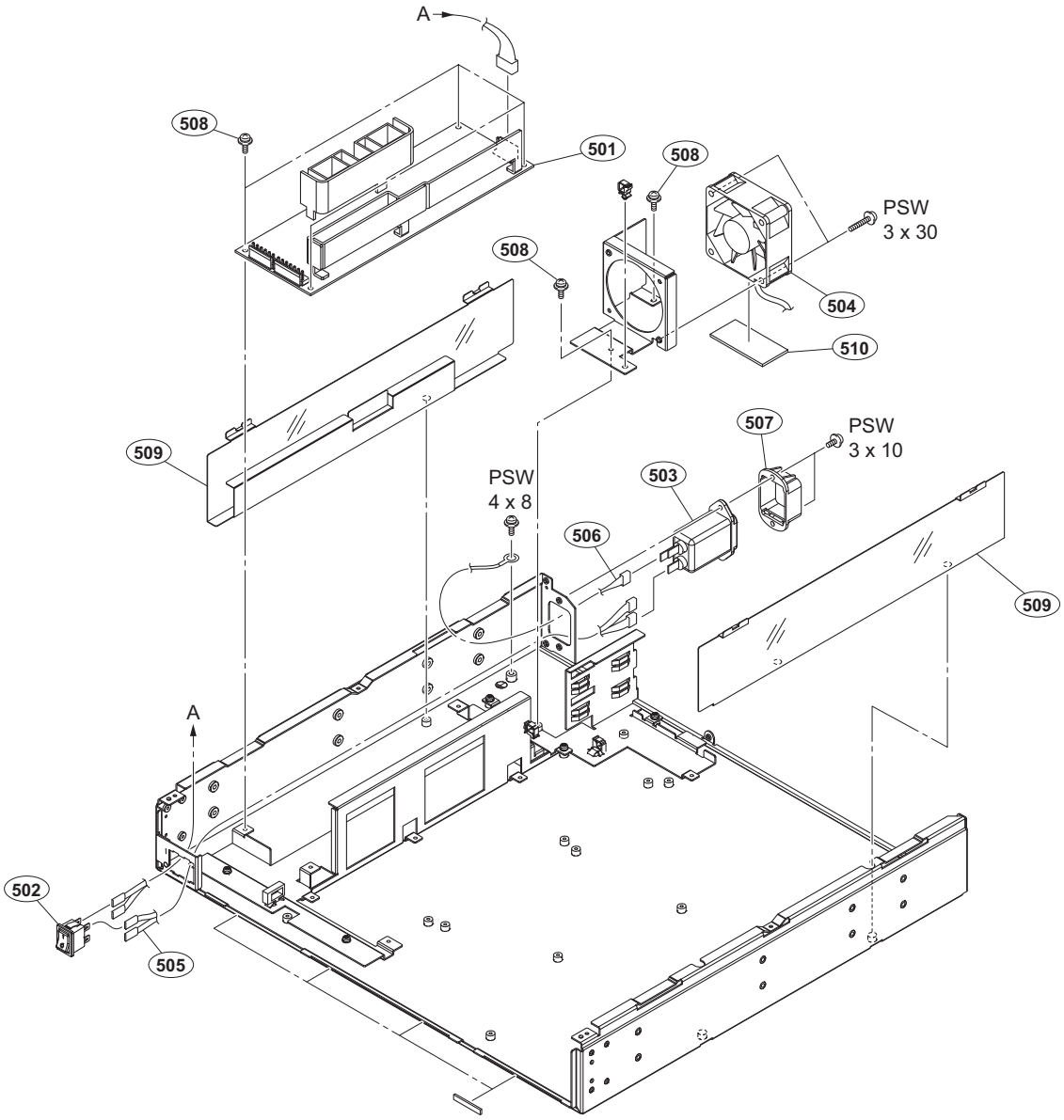
No.	Part No.	SP	Description
301	A-2181-690-A	s	DCP-85 COMPL
302	A-2181-691-A	s	SDI-120 COMPL
303	4-382-854-51	s	SCREW (M3X6), P, SW (+)
304	4-587-426-01	s	SHEET (2 (35X35)), RADIATION
305	4-382-854-42	s	SCREW (M3X8), P, SW (+)

DVP Block



No.	Part No.	SP	Description
401	A-2181-689-A	s	DVP-70 COMPL
402	1-831-125-11	s	CABLE, FLEXIBLE FLAT (30 CORE)
403	1-831-157-11	s	CABLE, FLEXIBLE FLAT (50 CORE)
404	1-832-098-11	s	CABLE, FLEXIBLE FLAT (30 CORE)
405	1-970-092-11	s	HARNESS, SUB (DVP POWER1)
406	1-970-094-11	s	HARNESS, SUB (DVP SY(SHD))
407	1-970-095-11	s	HARNESS, SUB (DVP POWER2)
408	1-971-208-11	s	HARNESS, SUB (DVP-SY(RM))
409	1-982-205-11	s	PWB, HN-438 FLEXIBLE
410	4-382-854-51	s	SCREW (M3X6), P, SW (+)
411	4-587-426-01	s	SHEET (2 (35X35)), RADIATION

Switching Regulator

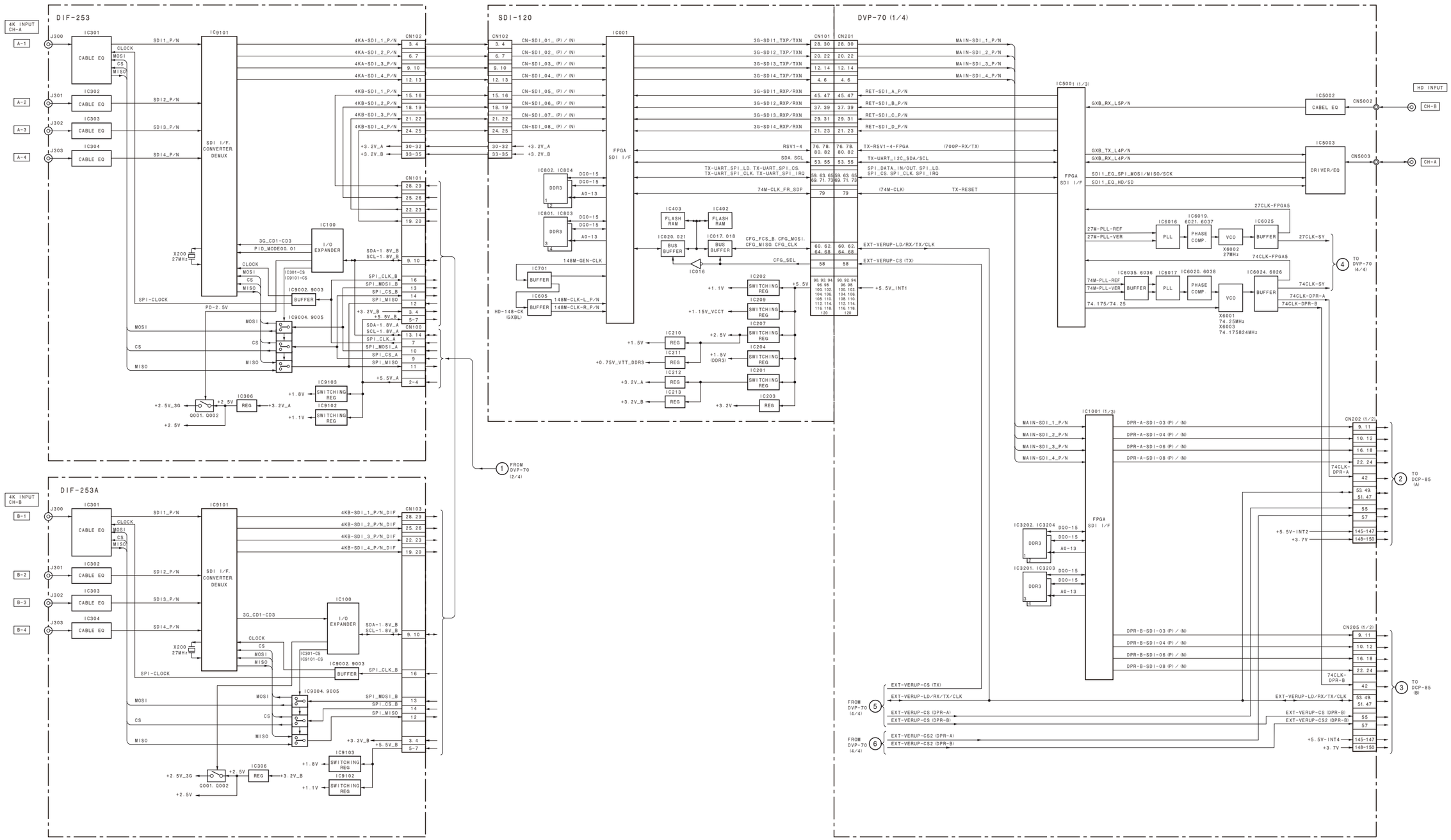


No.		Part No.	SP	Description
501	⚠	1-474-416-11	s	REGULATOR, SWITCHING
502	⚠	1-771-124-11	s	SWITCH, POWER
503	⚠	1-843-601-11	s	INLET (WITH NOISE FILTER)
504	⚠	1-855-432-11	s	FAN, DC (60 SQUARE)
505		1-970-091-11	s	HARNESS, SUB (POWER INLET)
506		1-970-093-11	s	HARNESS, SUB (EARTH)
507		2-990-241-02	s	HOLDER (A), PLUG
508		4-382-854-51	s	SCREW (M3X6), P, SW (+)
509		4-489-672-02	s	SCREW GUARD
510		4-694-623-01	s	CUSHION, MULTI
		7-682-949-01	s	SCREW +PSW 3X10
		7-682-955-01	s	SCREW +PSW 3X30
		7-682-961-01	s	SCREW +PSW 4X8

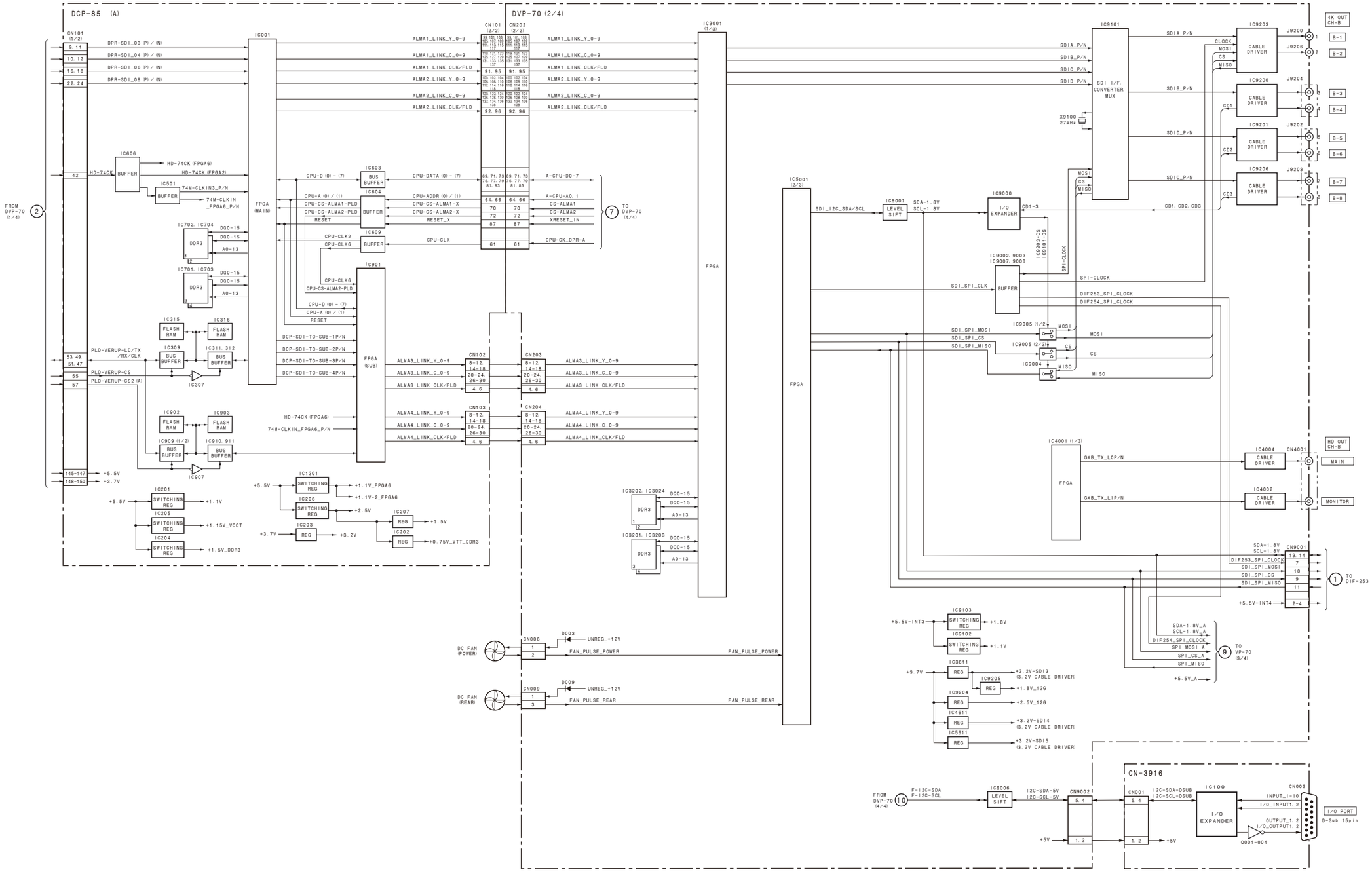
8-3. Supplied Accessories

Q'ty	Part No.	SP	Description
1pc	A-8278-054-B	s	REMOTE INDICATOR ASSY
1pc	⚠ 4-694-640-01	s	PACK, CD-ROM

Overall
Overall (1/4)



Overall (2/4)


DCP-85 (A)
DVP-70 (2/4)
FROM DVP-70 (1/4) 2
CN101 (1/2)
DPR-SDI_03 (P) / (N)
DPR-SDI_04 (P) / (N)
DPR-SDI_06 (P) / (N)
DPR-SDI_08 (P) / (N)
IC001
FPGA (MAIN)
CN101 (2/2)
CN202 (2/2)
ALMA1_LINK_Y_0-9
ALMA1_LINK_C_0-9
ALMA1_LINK_CLK/FLD
ALMA2_LINK_Y_0-9
ALMA2_LINK_C_0-9
ALMA2_LINK_CLK/FLD
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FPGA
IC606
BUFFER
HD-74CK
HD-74CK (FPGA6)
HD-74CK (FPGA2)
IC501
74M-CLKIN3_P/N
74M-CLKIN_FPGA6_P/N
IC603
BUS BUFFER
CPU-D (0) - (7)
CPU-DATA (0) - (7)
A-CPU-D0-7
IC604
BUFFER
CPU-A (0) / (1)
CPU-CS-ALMA1-PLD
CPU-CS-ALMA2-PLD
RESET
CPU-ADDR (0) / (1)
CPU-CS-ALMA1-X
CPU-CS-ALMA2-X
RESET_X
A-CPU-A0. 1
CS-ALMA1
CS-ALMA2
XRESET_IN
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BUFFER
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CPU-CLK
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IC701. IC703
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A0-13
IC901
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DCP-SDI-TO-SUB-2P/N
DCP-SDI-TO-SUB-3P/N
DCP-SDI-TO-SUB-4P/N
IC315
IC316
FLASH RAM
IC309
IC311. 312
IC307
PLD-VERUP-LD/TX /RX/CLK
PLD-VERUP-CS
PLD-VERUP-CS2 (A)
IC902
IC903
IC909 (1/2)
IC910. 911
IC907
53. 49
51. 47
55
57
145-147
148-150
+5.5V
+3.7V
CN102
CN103
CN203
CN204
8-12
14-18
20-24
26-30
4. 6
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ALMA3_LINK_C_0-9
ALMA3_LINK_CLK/FLD
ALMA4_LINK_Y_0-9
ALMA4_LINK_C_0-9
ALMA4_LINK_CLK/FLD
IC1301
SWITCHING REG
+1.1V_FPGA6
+1.1V-2_FPGA6
IC206
+2.5V
IC207
REG
+1.5V
IC203
+3.2V
IC202
+0.75V_VTT_DDR3
IC201
+1.1V
IC205
+1.15V_VCCT
IC204
+1.5V_DDR3
IC3202. IC3024
IC3201. IC3203
DC FAN (POWER)
DC FAN (REAR)
CN006
CN009
D003
D009
UNREG_+12V
FAN_PULSE_POWER
FAN_PULSE_REAR
IC5001 (2/3)
FPGA
SDI_I2C_SDA/SCL
IC9001 LEVEL SIFT
SDA-1. 8V
SCL-1. 8V
IC9000
I/O EXPANDER
CD1-3
IC9101
SDI I/F. CONVERTER. MUX
SDIA_P/N
SDIB_P/N
SDIC_P/N
SDID_P/N
X9100 27MHz
CLOCK
MOSI
CS
MISO
IC9203
IC9202
IC9201
IC9206
CABLE DRIVER
J9200
J9206
J9204
J9202
J9203
4K OUT CH-B
B-1
B-2
B-3
B-4
B-5
B-6
B-7
B-8
CD1
CD2
CD3
IC9002. 9003
IC9007. 9008
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IC9101-CS
SPI-CLOCK
SDI_SPI_CLK
DIF253_SPI_CLOCK
DIF254_SPI_CLOCK
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IC9005 (2/2)
IC9004
SDI_SPI_MOSI
SDI_SPI_CS
SDI_SPI_MISO
IC4001 (1/3)
GXB_TX_L0P/N
GXB_TX_L1P/N
IC4004
IC4002
CN4001
HD OUT CH-B
MAIN
MONITOR
SDA-1. 8V
SCL-1. 8V
CN9001
DIF253_SPI_CLOCK
SDI_SPI_MOSI
SDI_SPI_CS
SDI_SPI_MISO
+5.5V-INT4
13. 14
7
10
9
11
2-4
TO DIF-253 1
IC9103
IC9102
SWITCHING REG
+5.5V-INT3
+1.8V
+1.1V
IC3611
IC9205
IC9204
IC4611
IC5611
REG
+3.7V
+3.2V-SDI3 (3.2V CABLE DRIVER)
+1.8V_12G
+2.5V_12G
+3.2V-SDI4 (3.2V CABLE DRIVER)
+3.2V-SDI5 (3.2V CABLE DRIVER)
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SCL-1. 8V_A
SPI_MOSI_A
SPI_CS_A
SPI_MISO
+5.5V_A
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F-I2C-SCL
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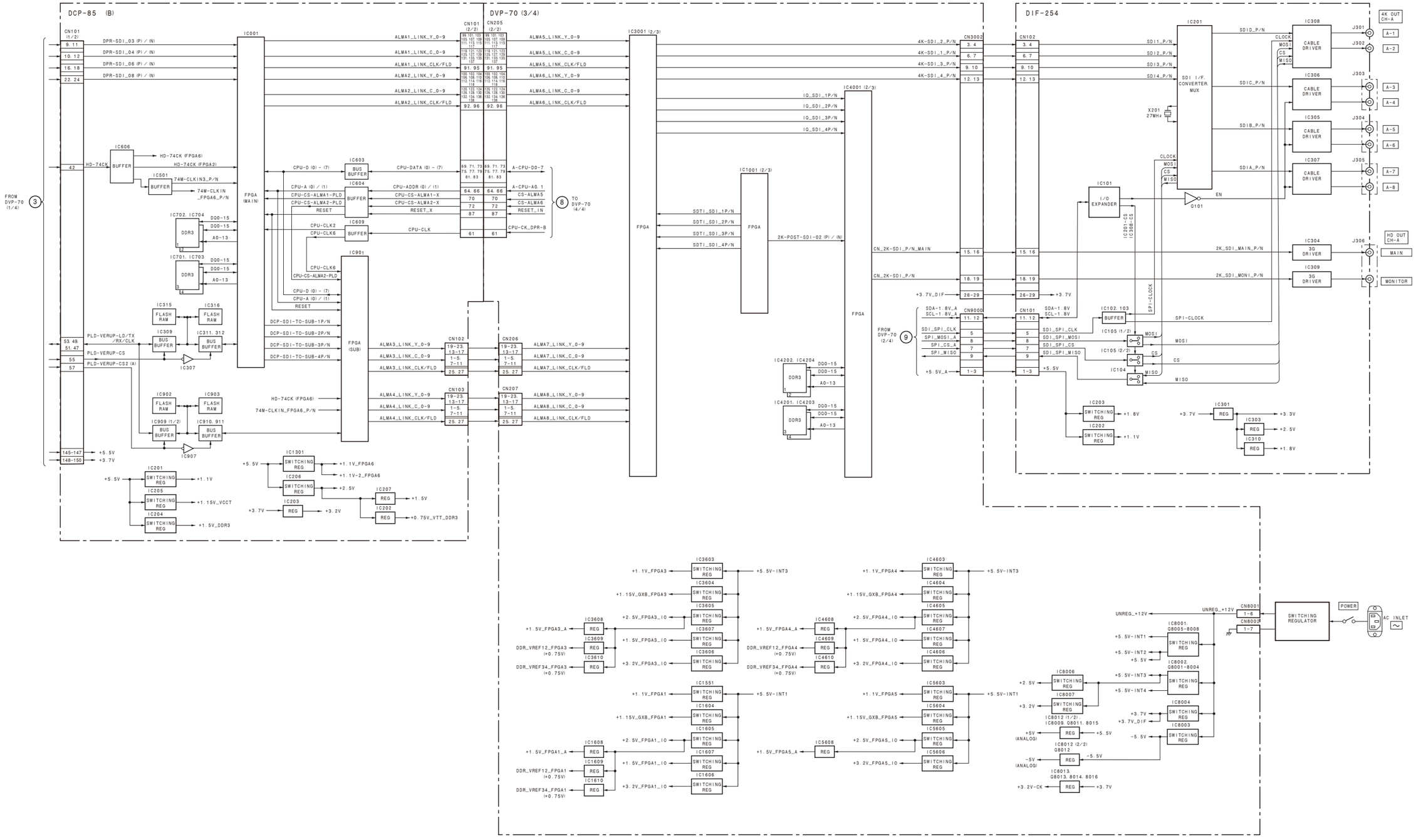
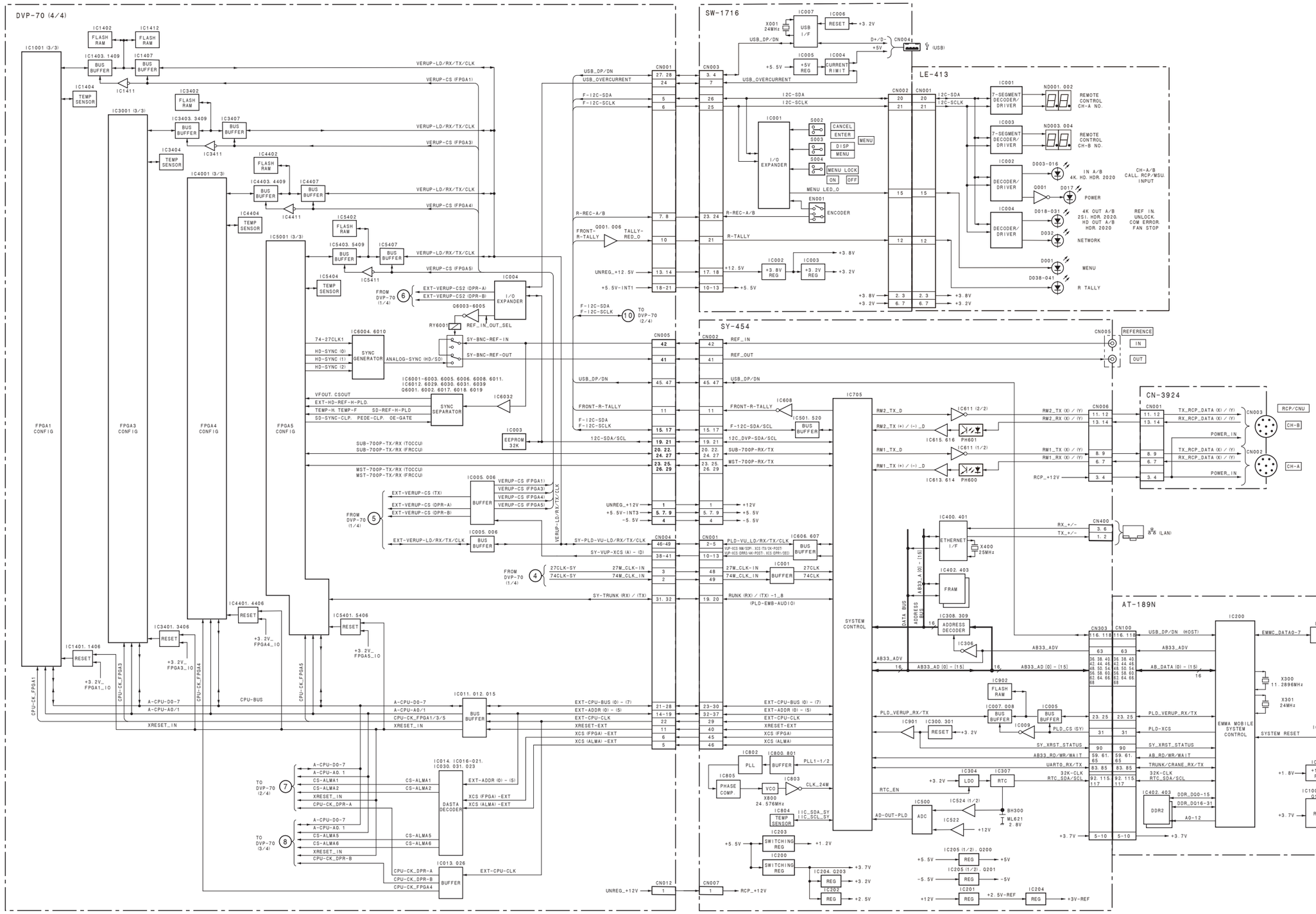
I2C-SDA-5V
I2C-SCL-5V
CN9002
5. 4
1. 2
+5V
CN001
I2C-SDA-DSUB
I2C-SCL-DSUB
IC100
I/O EXPANDER
CN002
INPUT_1-10
I/O_INPUT1. 2
OUTPUT_1. 2
I/O_OUTPUT1. 2
Q001-004
I/O PORT
D-Sub 15pin

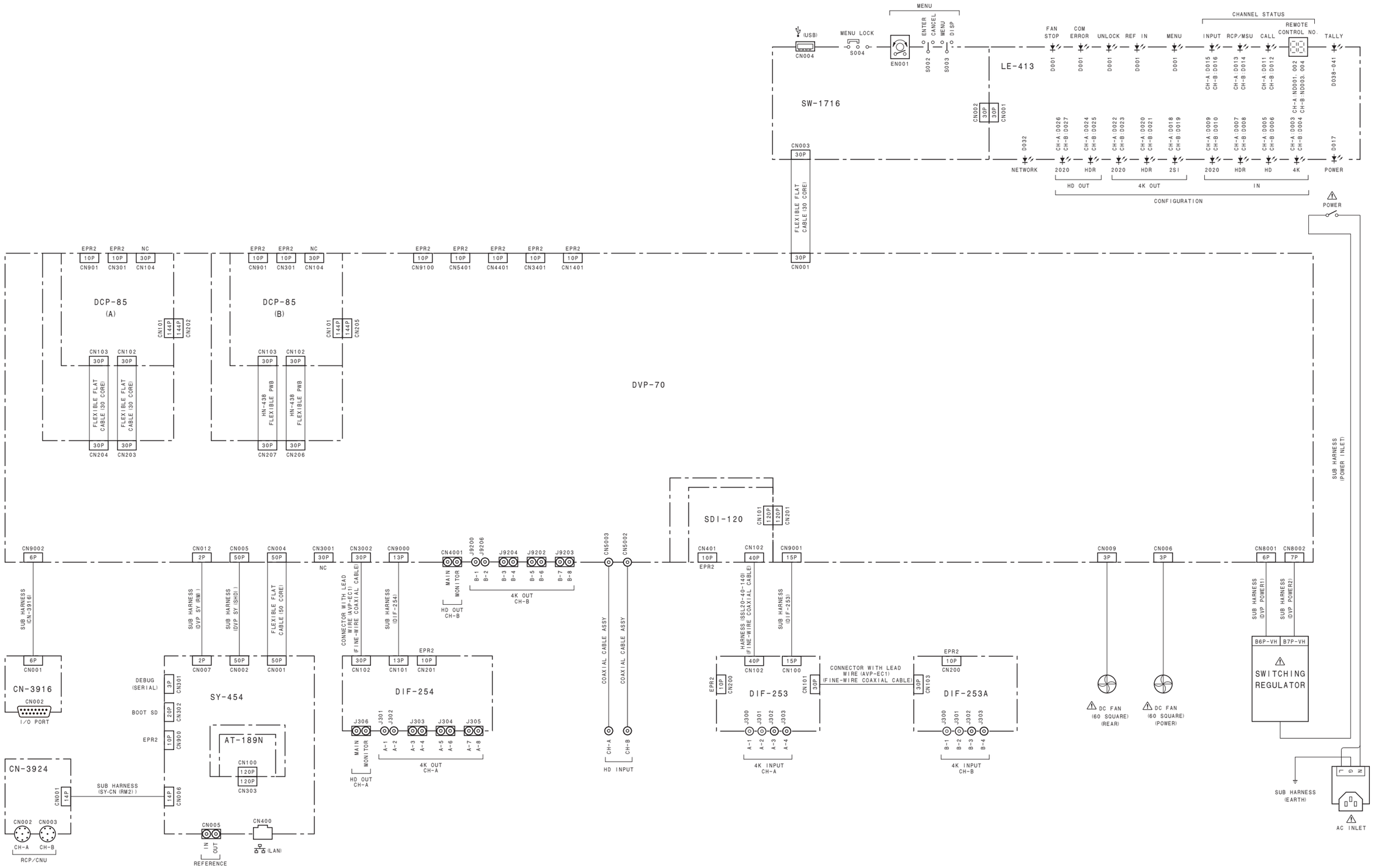
Overall (3/4)


DCP-85 (B)
DVP-70 (3/4)
DIF-254
FROM DVP-70 (1/4) 3
TO DVP-70 (4/4) 8
FROM DVP-70 (2/4) 9
CN101 (1/2)
CN101 (2/2)
CN205 (2/2)
IC001
FPGA (MAIN)
FPGA (SUB)
IC3001 (2/3)
IC4001 (2/3)
IC1001 (2/3)
FPGA
CN3002
CN9000
IC201
SDI I/F CONVERTER MUX
X201 27MHz
IC101
I/O EXPANDER
Q101
IC308
IC306
IC305
IC307
CABLE DRIVER
J301
J302
J303
J304
J305
4K OUT CH-A
A-1
A-2
A-3
A-4
A-5
A-6
A-7
A-8
IC304
IC309
3G DRIVER
J306
HD OUT CH-A
MAIN
MONITOR
IC606 BUFFER
IC501 74M-CLKIN3_P/N
IC603 BUS BUFFER
IC604 BUFFER
IC609 BUFFER
IC702. IC704 DDR3
IC701. IC703 DDR3
IC315 FLASH RAM
IC316 FLASH RAM
IC309 BUS BUFFER
IC311. 312 BUS BUFFER
IC307
IC902 FLASH RAM
IC903 FLASH RAM
IC909 (1/2) BUS BUFFER
IC910. 911 BUS BUFFER
IC907
IC4202. IC4204 DDR3
IC4201. IC4203 DDR3
IC105 (1/2)
IC104
IC102. 103 BUFFER
IC203 SWITCHING REG
IC202 SWITCHING REG
IC301 REG
IC303 REG
IC310 REG
IC201 SWITCHING REG
IC205 SWITCHING REG
IC204 SWITCHING REG
IC1301 SWITCHING REG
IC206 SWITCHING REG
IC207 REG
IC202 REG
IC203 REG
+1.1V_FPGA6
+1.1V-2_FPGA6
+2.5V
+1.5V
+3.2V
+1.1V
+1.15V_VCCT
+1.5V_DDR3
+0.75V_VTT_DDR3
IC3603 SWITCHING REG
IC3604 SWITCHING REG
IC3605 SWITCHING REG
IC3607 SWITCHING REG
IC3606 SWITCHING REG
IC3608 REG
IC3609 REG
IC3610 REG
IC1551 SWITCHING REG
IC1604 SWITCHING REG
IC1605 SWITCHING REG
IC1607 SWITCHING REG
IC1606 SWITCHING REG
IC1608 REG
IC1609 REG
IC1610 REG
IC4603 SWITCHING REG
IC4604 SWITCHING REG
IC4605 SWITCHING REG
IC4607 SWITCHING REG
IC4606 SWITCHING REG
IC4608 REG
IC4609 REG
IC4610 REG
IC5603 SWITCHING REG
IC5604 SWITCHING REG
IC5605 SWITCHING REG
IC5606 SWITCHING REG
IC5608 REG
IC8006 SWITCHING REG
IC8007 SWITCHING REG
IC8012 (1/2). IC8009. Q8011. 8015 REG
IC8012 (2/2) Q8012 REG
IC8013. Q8013. 8014. 8016 REG
IC8001. Q8005-8008 SWITCHING REG
IC8002. Q8001-8004 SWITCHING REG
IC8004 SWITCHING REG
IC8003 SWITCHING REG
CN8001
CN8002
SWITCHING REGULATOR
POWER
AC INLET
+1.1V_FPGA3
+1.15V_GXB_FPGA3
+2.5V_FPGA3_IO
+1.5V_FPGA3_IO
+3.2V_FPGA3_IO
+5.5V-INT3
+1.1V_FPGA1
+1.15V_GXB_FPGA1
+2.5V_FPGA1_IO
+1.5V_FPGA1_IO
+3.2V_FPGA1_IO
+5.5V-INT1
+1.1V_FPGA4
+1.15V_GXB_FPGA4
+2.5V_FPGA4_IO
+1.5V_FPGA4_IO
+3.2V_FPGA4_IO
+1.1V_FPGA5
+1.15V_GXB_FPGA5
+2.5V_FPGA5_IO
+3.2V_FPGA5_IO
+2.5V
+3.2V
+5V (ANALOG)
-5V (ANALOG)
+3.2V-CK
+5.5V-INT2
+5.5V-INT4
+3.7V_DIF
-5.5V
UNREG_+12V

Overall (4/4)


DVP-70 (4/4)
FPGA1 CONFIG
FPGA3 CONFIG
FPGA4 CONFIG
FPGA5 CONFIG
SW-1716
LE-413
SY-454
AT-189N
CN-3924
I/O EXPANDER
SYNC GENERATOR
SYNC SEPARATOR
BUS BUFFER
TEMP SENSOR
FLASH RAM
EEPROM 32K
DASTA DECODER
SWITCHING REG
ETHERNET I/F
SYSTEM CONTROL
EMMA MOBILE SYSTEM CONTROL
DDR2
eMMC
RESET SEQUENCE GENERATOR
REMOTE CONTROL CH-A NO.
REMOTE CONTROL CH-B NO.
IN A/B 4K. HD. HDR. 2020
POWER
4K OUT A/B 2SI. HDR. 2020. HD OUT A/B HDR. 2020
NETWORK
MENU
R TALLY
CH-A/B CALL. RCP/MSU. INPUT
REF IN. UNLOCK. COM ERROR. FAN STOP
REFERENCE
RCP/CNU
CH-B
CH-A
(USB)
(LAN)

Frame Wiring



Revision History

Date	History	Contents
2017. 2	1st Edition 9-932-539-01	—
2017. 8	Revised-1 9-932-539-02	• Modifications: 3-13. AT-189N Board and SY-454 Board, 3-13-2. Setting Required after Replacing SY-454 Board, 5-1. File Configuration, 5-4. Reference File, 5-5. Initialization • Additions: 5-2. Scene File, 5-3. All-settings File, 5-5-1. How to Return Set Values (Except for Network Settings and File Items) in the Unit to the Default Settings, 5-5-2. Returning the Unit Settings to Factory Settings • Deletions: 5-3. Configuration File

HDRC-4000 (SY) J, E
9-932-539-02

Sony Corporation

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