SONY

CAMERA SYSTEM ADAPTOR

CA4000

CAMERA POWER BOOST KIT
SKC-PB40

F65 ADAPTOR
SKC-4065

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.
CA4000 (SY): LEMO Optical Fiber Connector	10001 and Higher
CA4000 (CED): LEMO Optical Fiber Connector	40001 and Higher
CA4000 (J): Tajimi Optical Fiber Connector	30001 and Higher

For CA4000

CAUTION

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

CAUTION

The use of optical instruments with this product will increase eye hazard.

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

This Camera System Adaptor is classified as a CLASS 1 LASER PRODUCT.

For SKC-4065

Laser Diode Properties

Wavelength: 850 nm
Emission duration: Pulse Modulation
Laser output power: 4 mW/channel (max)
Standard: IEC60825-1 (2007)

CAUTION

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

CAUTION

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

This F65 Adaptor is classified as a CLASS 1 LASER PRODUCT.

注意

この機種にはCLASS 3B不可視光のレーザーモジュールを搭載しているので，レーザーモジュールを分解しないでください。

CAUTION

This model is provided with a Class 3B invisible laser module. Do not disassemble the laser module.

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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1. Service Overview

2. Replacement of Main Parts

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Manual Structure

Purpose of this manual

This manual describes the information items that premise the service based on the block-level such as service overview, replacement of main parts, file system, setting menu and etc. assuming use of system and service engineers.

Related manuals

The following manual is provided for this unit in addition to this “Service Manual”.

- Operation Guide (Supplied with this unit)
- Operation Manual CD-ROM (Supplied with this unit)
  This manual contains information required to operate and use the unit.
- Installation Manual (Available on request)
  This manual describes the information on installing the unit.
- Factory Service Manual (Available on request)
  Parts list, circuit diagram, and board layouts of the unit are included to provide information required for part-level service.

Trademarks

Trademarks and registered trademarks used in this manual are follows.

- FRAM is a registered trademark of Ramtron International Corporation.

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

Board names

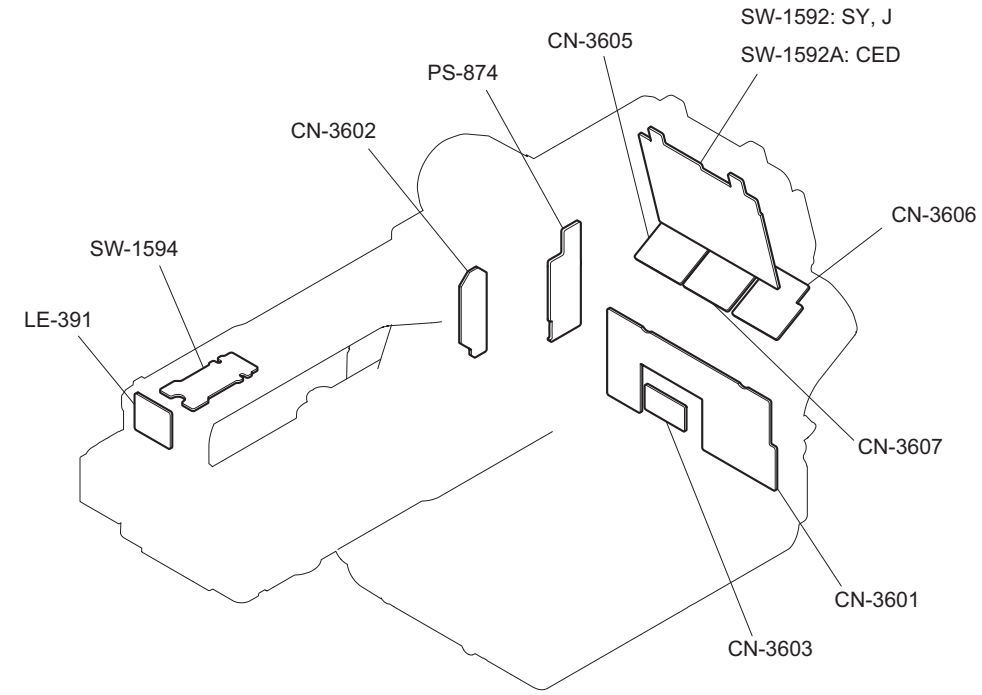
In this Service Manual, board names are described as follows in some cases.

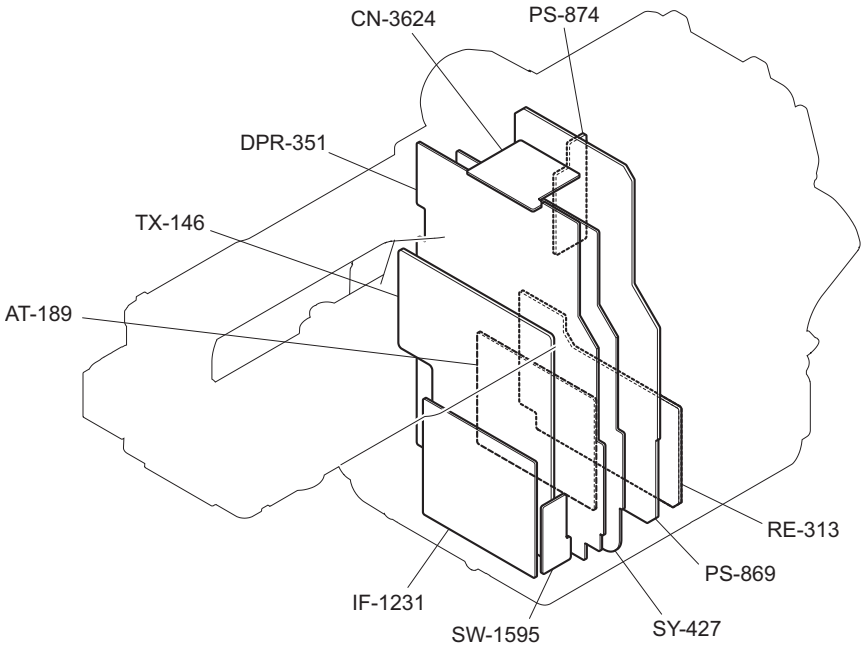
- AT-189S board: Described as AT-189 board
- TX-146A board: Described as TX-146 board

Section 1
Service Overview

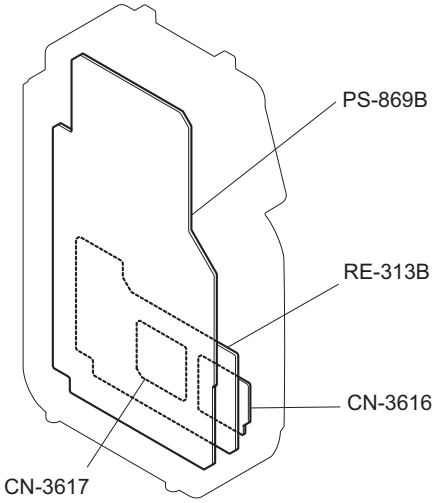
1-1. Location of Printed Circuit Boards

1-1-1. CA4000

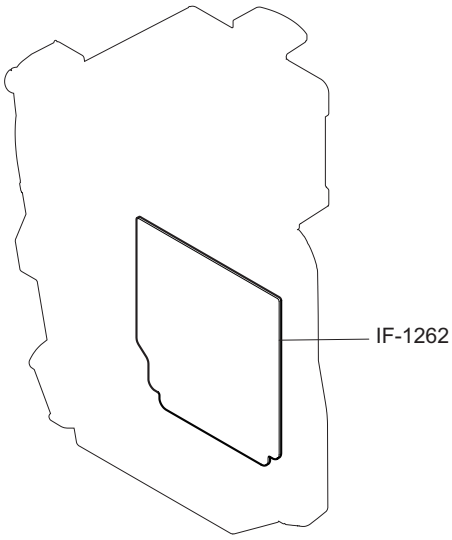




1-1-2. SKC-PB40



1-1-3. SKC-4065



1-2. Circuit Description

1-2-1. Signal Processing/Transmission System

DPR-351 Board

In the DPR-351 board, the 4K main-line video signals that are input from the solid-state memory camcorder PMW-F55 are converted to 4K main-line video signals for optical transmission, and the converted video signals are output to the TX-146 board.
The 2K return video signals for optical transmission (VF, return, and HD prompter) that are input from the TX-146 board are converted to digital VF signal, analog VF signal, HD SDI signal, and VBS signal. These converted signals are output from the PROMPTER1 connector and the SDI-MONI connector.
The HD-SYNC signal and the SD-SYNC signal are output from the PROMPTER2/MONITOR connector.
The DPR-351 board has a function to relay the command signal between the SY-427 board and PMW-F55.

TX-146 Board

The TX-146 board is also used in the baseband processor unit BPU4000 in addition to this unit.
The main-line signal (obtained by multiplexing digital audio signal with video signal in the DPR-351 board) and the command signal sent through the DPR-351 board are multiplexed, and the multiplexed signal is converted to a serial electrical signal. This serial electrical signal is converted to an optical signal, and the optical signal is sent to the BPU4000.
Furthermore, the serial optical signal sent from the BPU4000 is converted to an electrical signal, and the electrical signal is separated into a return signal and a command signal, and these signals are sent to the DPR-351 board.

IF-1231 Board

The IF-1231 board contains the connector (CN003) for connection to the solid-state memory camcorder PMW-F55 to relay data between PMWF55 and the DPR-351 board.

IF-1262 Board

The IF-1262 board is mounted in the F65 Adapter SKC-4065. This interface board is used for connection between digital motion picture camera F65 and CA4000.
This board has the following main functions.

- Performs optical-to-electrical conversion and electrical-to-optical conversion between F65 recorder connector (optical) and CA4000 camera connector.
  (Main-line system 5.94 Gbps x 4 ch, return system 5.94 Gbps x 1 ch)
- Converts communication interface level
- Controls the auxiliary fan of CA4000
- Outputs DC OUT 12 V/2 A power

The voltage stepped down from the unregulated voltage from the F65 recorder connector is used as a voltage for the circuit of this board.
Furthermore, the unregulated voltage from the CA4000 camera connector is output from the SKC-4065 round-type 4-pin connector as UNREG DC OUT.

1-2-2. System Control System

SY-427 Board

The SY-427 board consists of control circuits, video amplifiers, and an audio circuit.
The FRAM (IC404, 405) retains system setting data, paint data, and other data.

Control circuits

The CPU on the AT-189 board controls external input/output and internal devices of the unit through the PLD (IC703).
This PLD has the following functions.

- 700 protocol communication between this unit and REMOTE connector on the camera control unit
- Parallel communication with the DPR-351 and TX-146 boards
- I²C communication with the viewfinder
- I²C communication with the I/O expander IC on the rear panel
- Rotary encoder input
- Tally output
- A/D converter input of potentiometer values and lens iris/zoom position values
- D/A converter output for lens iris control
- Fan rotation detection and board temperature monitoring

Audio circuit

The audio circuit has input/output amplifiers for the microphone, intercom, and tracker and A/D and D/A converters.
The AUDIO IN connector has +48V phantom power to support AB POWER.

AT-189 Board

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

CN-3601 Board

This board contains the following switches and connectors.

- AUDIO IN switching switch
- +48 V power switch
- RET CTRL connector (round 6-pin)
- TRACKER connector (round 10-pin)
- DC OUT connector (round 4-pin)
- LENS connector (round 12-pin)

CN-3602 Board

This board contains an analog VF connector (round 20-pin).

CN-3603 Board

This board contains a REMOTE connector (round 8-pin).

CN-3605 Board

This board contains a DC IN connector (XLR 4-pin, male).

CN-3606 Board

This board contains an INTERCOM connector (XLR 5-pin, female).

CN-3607 Board

This board contains an AUDIO IN connector (XLR 3-pin, female).

CN-3616/3617 Board

This board contains a DC OUT connector (XLR 4-pin, female).

CN-3624 Board

This board contains a digital VF connector (square type 26-pin).

SW-1592/1592A Board

This board contains switches of control panel, and rotary encoder for setting menu operation.

SW-1594 Board

This board contains two switches (RET, INCOM) on the handle.

SW-1595 Board

This board contains a CAMERA POWER switch.

LE-391 Board

This board contains a front tally.

1-2-3. Power Supply System

PS-869 Board

The following voltages are input as input power.

- When power is supplied from the camera control unit:
  - In the standby state: 38 VDC
  - In connection to HDCU2500: 180 VDC
  - In connection to HDCU2000: 240 VAC
- When power is supplied from the DC IN connector: 10.5 to 17 VDC

This board generates the following power voltages.

- Standby power: +13.5 V, -5.5V_STB
- Power for viewfinder: +14 V
- Power for lens: +14 V
- Power for solid-state memory camcorder PMW-F55: +14 V
- Power for remote control panel: +14 V
- Power for internal boards of the unit: +14 V, +5.5 V, +3.7 V

Only the standby power voltages +13.5 V and -5.5V_STB are output in the standby state.

PS-874 Board

The PS-874 board contains a circuit protection fuse and a part of the input voltage monitoring circuit.
The camera power boost kit SKC-PB40 is not provided with this board.

RE-313 Board

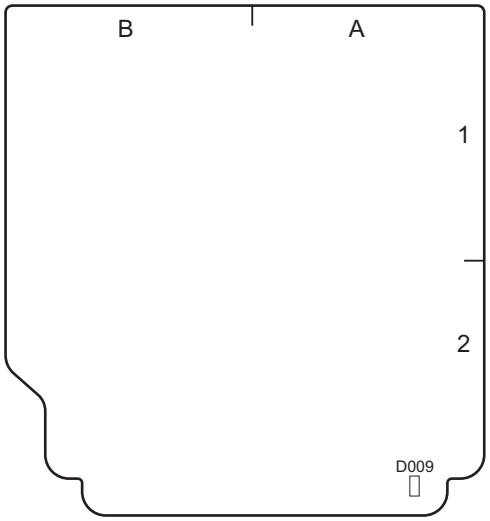
The RE-313 board is a child board connected to the connector CN5001 on the PS-869 board. This board has the following output voltages.

- Power for external devices: +24 V (only for SKC-PB40)
- Standby power: -5.5 V
- Power for internal boards of the unit: -5.5 V
- Power for internal fans of the unit: +14 V, -6 V

Only the standby power voltage -5.5 V is output in the standby state (only for CA4000).

1-3. Description of Onboard LED Indicators

1-3-1. IF-1262 Board



IF-1262 board (Side B)

Ref. No.	Name	Color	Description	Normal State (Power On)
D009	POW	Green	On when the power supply is normally supplied to this board.	On

1-4. Setting Microphone Power

Connect a microphone to the AUDIO IN connector on the unit to supply +12 V power to the microphone.

+12 V (AB-Power) microphone power output setting procedure

1. Open the OPTION [S04] page of the SERVICE menu.

   Tip

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

2. Set item MIC AB POWER for “ENABLE”.
3. Set the microphone power switch on the rear connector panel of the unit to “•”.
   +12 V (AB-Power) power is supplied to the microphone connected to the AUDIO IN connector.

1-5. Notes on Replacement of Parts and Circuit Board

1-5-1. Description on EEPROM Data

The table below gives the stored data of EEPROM (FRAM) on every printed circuit board.

Board	Ref. No.	Stored Data
SY-427	IC308, IC311 (FRAM)	Model information data
	IC800 (EEPROM)	Paint data, model information data

- When replacing the board is needed, remove the IC attached to the former board and replace it to the new board.
- The EEPROM is the storing data inherent in the board.
  The part number listed in "5. Spare Parts" is for EEPROM which is not programmed. If replacement is needed, contact your local Sony Sales Office/Service Center.

1-5-2. Adjustment and Setting Required when Replacing the SY-427 Board

Camera setting status and files are stored in the SY-427 board. When the SY-427 board is replaced, contents of the reference file, scene file, lens file, and operator file are lost. Store these files in a USB drive and then replace the SY-427 board.

Procedure

1. Store the reference file, scene file, and operator file in a USB drive.
   - Reference file (Refer to "3-5. Reference File")
   - Scene file (Refer to "3-4. Scene File")
   - Operator file (Refer to "3-2. Operator File")
2. Replace the SY-427 board. (Refer to "2-9. SY-427 Board")
3. Upgrade the software to the latest version. (Refer to "1-9. Upgrading Software Programs")
4. Execute REFERENCE (ALL) on the FILE CLEAR page of the FILE menu. (Refer to "3-5. Reference File")

   Note

   Unless REFERENCE (ALL) is executed, the intercom operation panel may not function correctly.

5. Execute STORE FILE on the REFERENCE page of the FILE menu. (Refer to "3-5. Reference File")
6. Load the reference file, scene file, and operator file stored in the USB drive in step 1.
   - Reference file (Refer to "3-5. Reference File")
   - Scene file (Refer to "3-4. Scene File")
   - Operator file (Refer to "3-2. Operator File")
7. When "AT-NG" is displayed on the SERIAL NO. page of the SERVICE menu, execute the STORE FILE. (Refer to "4-2. SERVICE Menu")

1-6. Replacing Lithium Battery

1-6-1. Note on Replacement of Lithium Battery

A lithium battery is mounted on the SY-427 board to back up the real time clock (RTC). If a battery comes to the lifetime, then RTC stops. Therefore, the battery must be replaced.

- SY-427 board/Lithium secondary battery (ML621 (U)): Sony Part No. ⚠ 1-756-134-15

CAUTION

In replacing, 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.

For how to replace a lithium battery, refer to "2. Replacement of Main Parts".

1-7. Cleaning of Connector/Cable

The photo receptive condition of the optical connector can be checked at OPTICAL CONDITION on the front panel of the base band processor unit.

- 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.

1-7-1. When the Optical Connector Cleaner (Commercially Available) is Available

Fixtures

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

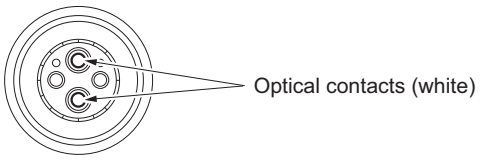
Tip

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

Cleaning Procedure

Male connector

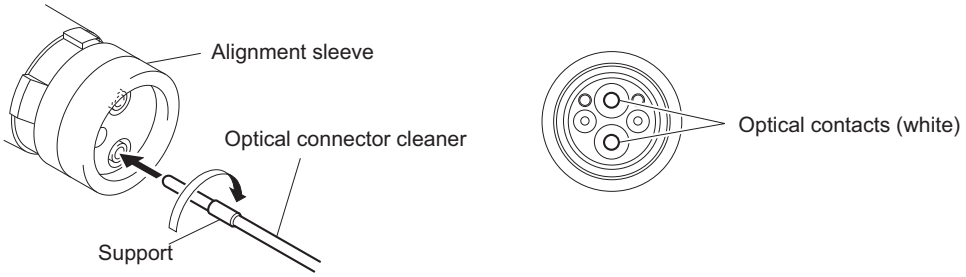
Clean the tip of the white optical contacts using the optical connector cleaner.



Female connector

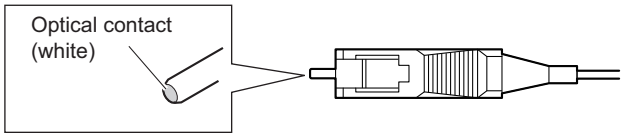
1. Insert the optical connector cleaner straight.
2. Apply sufficient pressure (approximately 600 g to 700 g) to ensure that the optical contact is a little depressed.

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



Connector

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



1-7-2. When the Optical Connector Cleaner (Commercially Available) is not Available (Connectors/Cables of LEMO)

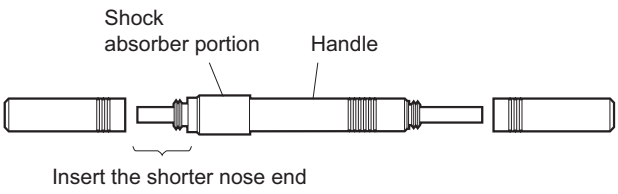
Clean the LEMO connectors and cables using the following procedure.

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. Grasp not the shock absorber portion of the remover but the handle in use.



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

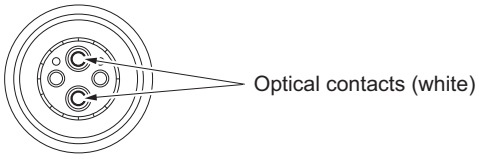
  Note

  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

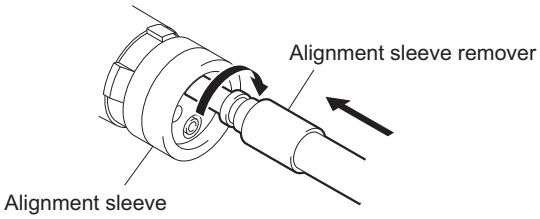
Clean the tip of the white optical contacts with a cotton swab moistened with alcohol.



Female connector

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

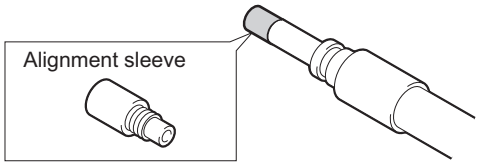
1. Insert the alignment sleeve remover into the alignment sleeve in the straight line and turn it clockwise



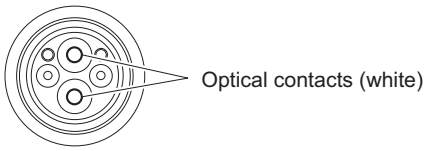
2. When the turn stops, pull out the remover in the straight line forcedly.

Note

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



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



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

1-7-3. When the Optical Connector Cleaner (Commercially Available) is not Available (Tajimi Electronics Co., Ltd.)

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

Fixtures

- Alcohol (commercially available)

- Cotton swabs (commercially available)

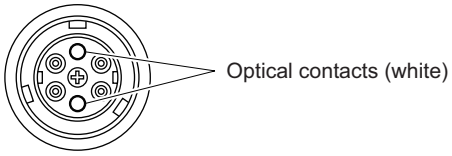
  Note

  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 white optical contacts with a cotton swab moistened with alcohol.



Female connector

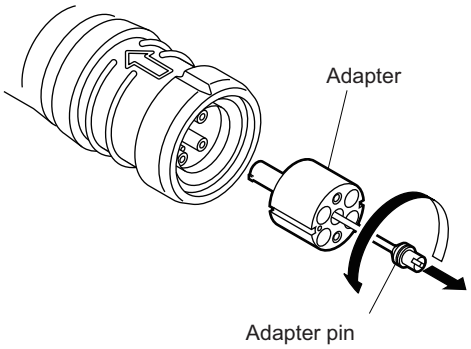
The optical contacts for female connector are in an unexposed state. In cleaning, it is necessary to be exposed by removing the adapter in the connector in advance. Proceed as follows.

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

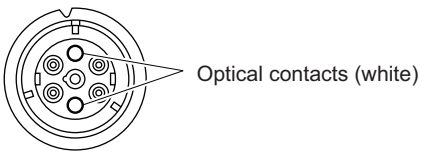
   Tip

   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.



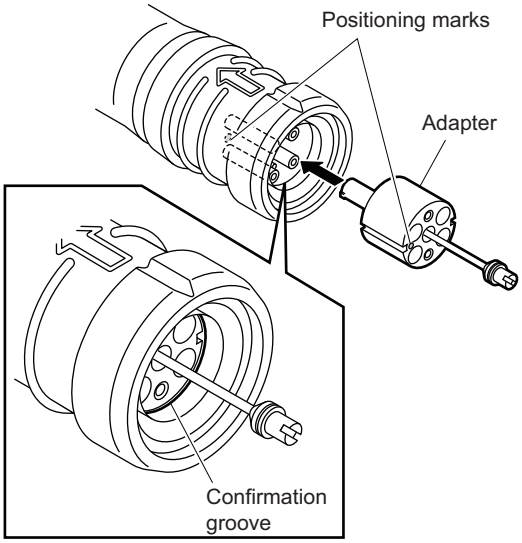
3. Clean the white optical contacts with a cotton swab moistened with alcohol.



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)

1-7-4. When the Optical Connector Cleaner (Commercially Available) is not Available (Connector)

Fixtures

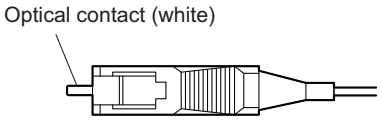
- Alcohol (commercially available)
- Cotton swabs (commercially available)

  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.

Cleaning Procedure

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



1-8. Fixtures

Part No.	Name	Usage/Note
J-6323-430-A	Torque screwdriver's bit (M3)	Screw tightening
J-6325-110-A	Torque screwdriver's bit (M1.4)	Screw tightening
J-6325-380-A	Torque screwdriver's bit (M2)	Screw tightening
J-6325-400-A	Torque screwdriver (3 kg·cm) (0.3 N·m)	Screw tightening
J-6252-510-A	Torque screwdriver (6 kg·cm) (0.6 N·m)	Screw tightening
J-6252-520-A	Torque screwdriver (12 kg·cm) (1.2 N·m)	Screw tightening
J-6326-120-A	Hexagon bit (size 1.5)	Screw tightening
J-6480-010-A	Alignment sleeve remover HC-001	For Female connector, DCC.91.312.5LA manufactured by LEMO or equivalent
J-7121-210-A	Connector remover	Disconnecting coaxial cables
Commercially available	USB drive	Upgrading software, writing and rewriting the PLD internal data

1-9. Upgrading Software Programs

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

1-9-1. Upgrading Camera Application

Equipment Required

USB drive (commercially available)

Tip

For recommended USB drive, refer to “Using a USB Drive” in the operation manual.

Preparation

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

Note

For how to obtain the version update data file (ca4000_app.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
   \MSSONY\PRO\CAMERA\CA4000
2. Copy the version update data file “ca4000_app.pkg” to the directory created.

Procedure

1. Connect the USB drive that contains the version update program 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.
4. Confirm that the cursor “?” is displayed to the left of page number, and then press the ENTER button long.
5. Updatable items become selectable. Select “CAMERA APP” and then press the ENTER button.
6. A message “VERSION UP OK?” appears. Select “YES.”
7. The unit restarts automatically and the version update starts.
   Upon completion of the version update, a message “UPDATE SUCCEEDED” appears.
8. 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.

1-9-2. Upgrading OS

Equipment Required

USB drive (commercially available)

Tip

For recommended USB drive, refer to “Using a USB Drive” in the operation manual.

Preparation

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

Note

For how to obtain the version update data file (ca4000_os.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
   \MSSONY\PRO\CAMERA\CA4000
2. Copy the version update data file “ca4000_os.pkg” to the directory created.

Procedure

1. Connect the USB drive that contains the version update program 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.
4. Confirm that the cursor "?" is displayed to the left of page number, and then press the ENTER button long.
5. Updatable items become selectable. Select “OS” and then press the ENTER button.
6. A message “VERSION UP OK?” appears. Select “YES.”
7. The unit restarts automatically and the version update starts.
   Upon completion of the version update, a message “UPDATE SUCCEEDED” appears.
8. 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.

1-10. 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 "5. 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.
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.

1-10-1. Corresponding PLD

PLD (Ref. No./Board Name)	File Name
IC001/TX-146 IC004/TX-146 *1	ca4000_tx.pkg
IC301/DPR-351 IC710, IC711/DPR-351 *2	ca4000_enc.pkg
IC401/DPR-351 IC712/DPR-351 *3	ca4000_prop.pkg
IC703/SY-427 IC900/SY-427 *4	ca4000_sy.pkg

1-10-2. Upgrading PLD Data

Equipment Required

USB drive (commercially available)

Tip

For recommended USB drive, refer to "Using a USB Drive" in the operation manual.

Preparation

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

Note

For how to obtain the version update data file (ca4000_tx.pkg, ca4000_enc.pkg, ca4000_prop.pkg, ca4000_sy.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
   \MSSONY\PRO\CAMERA\CA4000
2. Copy the PLD version update data file to be updated to the directory created.

*1: IC004/TX-146 is the ROM for IC001/TX-146.
*2: IC710, IC711/DPR-351 are the ROMs for IC301/DPR-351.
*3: IC712/DPR-351 is the ROM for IC401/DPR-351.
*4: IC900/SY-427 is the ROM for IC703/SY-427.

Procedure

1. Connect the USB drive that contains the version update program.
2. Turn on the power of the unit.
3. Display the "PLD PACKAGE" page of the SERVICE menu.
4. Confirm that the cursor "?" is displayed to the left of page number, and then press the ENTER button long.
5. Updatable items become selectable. Select the PLD to be upgraded and then press the ENTER button.
6. A message “VERSION UP OK?” appears. Select “YES.”
7. The unit restarts automatically and the version update starts.
   Upon completion of the version update, a message “UPDATE SUCCEEDED” appears.
8. 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.

1-11. 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."

1-11-1. Forced Version Update of Software or PLD Data

Equipment Required

USB drive (commercially available)

Tip

For recommended USB drive, refer to "Using a USB Drive" in the operation manual.

Preparation

Copy the software or PLD data version update data file to the USB drive using the following procedure.

Note

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

1. Create the following directory in the USB drive.
   \MSSONY\PRO\CAMERA\CA4000
2. Copy the version update data file 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 version update program.
2. Turn on the power while simultaneously pressing the RET 2/3/4 select button, ASSIGNABLE button, and CALL button on the operation panel on the rear of the unit, and then wait until the TALLY lamp lights (up to about 8 seconds).
   The version of each version update data file copied in the USB drive is updated.

   Tip

   The version update progress status is displayed on the viewfinder.
3. Upon completion of the version update, a message "UPDATE SUCCEEDED" appears.
4. 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.

1-12. Intercom Settings

Since there are several types and usages of the headset for intercom, make appropriate settings for each type.

1-12-1. Talk (Microphone) Settings

Check characteristics of the microphone attached to the headset and make settings by the menu of the unit. Microphone sensitivity, power supply method, balanced/unbalanced input can be set.

General Carbon Microphone

1. Set INTERCOM MIC on the HEAD SET page of the OPERATION menu to "CARBON".
   Microphone sensitivity, power supply method, balanced/unbalanced input are automatically set.

General Dynamic Microphone

1. Set INTERCOM MIC on the HEAD SET page of the OPERATION menu to "DYNAMIC".
2. Set "UNBAL" on the HEAD SET page according to the microphone.
   Microphone sensitivity and power supply method are automatically set.

Other Microphones

1. Set INTERCOM MIC on the HEAD SET page of the OPERATION menu to "MANUAL".
2. Set the following items on the HEAD SET page according to the microphone to be used.
   - LEVEL (microphone sensitivity)
   - POWER (power supply method)
   - UNBAL (balanced/unbalanced input)

1-12-2. Receive (Headphone) Settings

Headphone operation varies depending on the headset connection.
The following description is provided when the right ear is connected to Pin 5 of the intercom connector and the left ear is connected to Pin 4 of the intercom connector.

In the Case of Dual-type Headphone to Listen the Same Sound with Both Ears or Single-type Headphone

1. Set "INTERCOM RECEIVE SELECT" on the INTERCOM page of the OPERATION menu to "MIX". The same sound is output from right and left.

In the Case of Dual-type Headphone to Listen Different Right and Left Sound

1. Set "INTERCOM RECEIVE SELECT" on the INTERCOM page of the OPERATION menu to "SEPARATE".
2. Set channels (left, right, and both) of items INTERCOM, PGM1, PGM2, and TRACKER on the INTERCOM page.

To Adjust the Volume of Your Voice

1. Set volume in SIDE TONE on the INTERCOM page of the OPERATION menu.

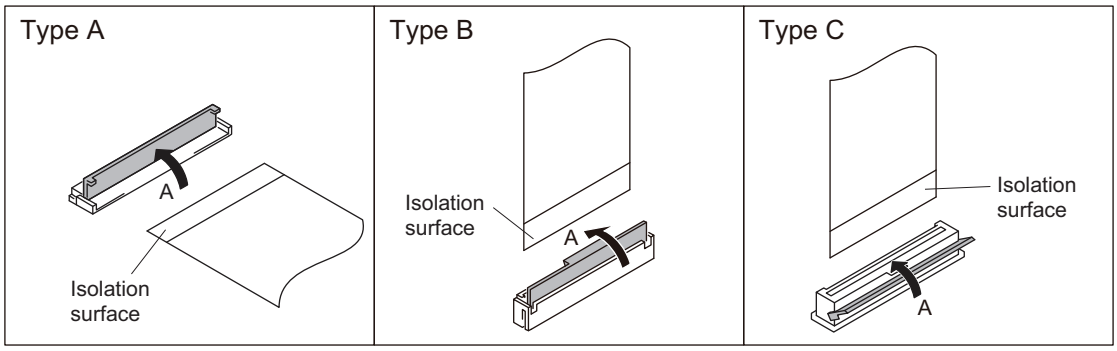
1-13. Flexible Card Wire and Coaxial Cable

1-13-1. Connecting/Disconnecting Flexible Card Wire

Note

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

Type A to C



Disconnecting

1. Turn off the power.
2. Slide or lift up the portion A in the direction of the arrow to unlock and pull out the flexible card wire.

Connecting

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

1-13-2. Connecting/Disconnecting Coaxial Cable

Note

Be sure to observe the disconnecting and connecting procedures below to prevent wire disconnection or poor contact.

Fixtures

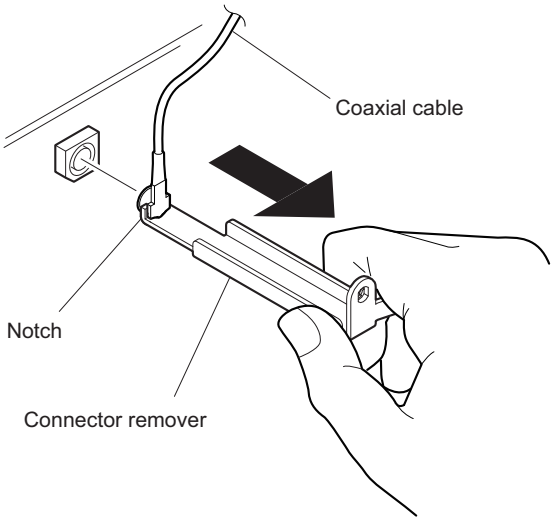
- Connector remover (Part No: J-7121-210-A)

Disconnecting

1. Fit the notch at the end of the connector remover into the connector of a coaxial cable, and pull the connector remover straight.

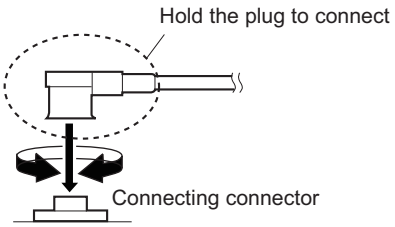
Note

- Insert the notch of the connector remover from the opposite side of the cable of the coaxial cable.
- Do not attempt to pull the cable.



Connecting

1. Hold the plug of the coaxial cable.
2. Push the plug perpendicularly to the connector while slightly turning the plug clockwise and counterclockwise.



1-14. Circuit Protection Parts

1-14-1. Fuses

WARNING

Fuses are essential parts for safe operation. Be sure to use the parts specified in this manual. Replacing a fuse with an unspecified one may cause fire or electric shock.

CAUTION

Replacing any fuse is replaced while power is supplied to the unit may cause electric shock. Before replacing any fuse, turn off the POWER switch and also disconnect the battery pack and the cable from the DC IN connector.

This unit is equipped with fuses. The fuses blow if overcurrent flows in the unit due to an abnormality, In that case, turn off the power of the unit, inspect inside of the unit, and then remove the cause of the overcurrent. After that, replace the defective parts.

Board Name	Ref. No.	Address	Part No.	Part Name/Rating
PS-869	F3000	D2 (Side A)	⚠ 1-576-566-21	Fuse (SMD) 15 A/65 V
	R144	E9 (Side A)	⚠ 1-246-193-11	Square type fuse resistor 10 Ω, 0.063 W
	R221	B5 (Side A)	⚠ 1-246-193-11	Square type fuse resistor 10 Ω, 0.063 W
	R222	B5 (Side A)	⚠ 1-246-193-11	Square type fuse resistor 10 Ω, 0.063 W
	R225	D6 (Side A)	⚠ 1-246-193-11	Square type fuse resistor 10 Ω, 0.063 W
	R226	D6 (Side A)	⚠ 1-246-193-11	Square type fuse resistor 10 Ω, 0.063 W
PS-874	F700	D2 (Side A)	⚠ 1-523-179-11	Fuse (SMD) 6.3 A/250 V

1-14-2. Circuit Protection Element

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

Board Name	Ref. No.	Address	Part No.	Hold Current
CN-3601	THP001	— (Side A)	⚠ 1-802-108-11	1.50 A/20 °C
	THP002	— (Side A)	⚠ 1-802-108-11	1.50 A/20 °C
CN-3602	THP001	— (Side A)	⚠ 1-811-201-11	2.60 A/20 °C
CN-3624	THP100	— (Side B)	⚠ 1-811-201-11	2.60 A/20 °C
DPR-351	THP101	D5 (Side A)	⚠ 1-804-616-21	1.10 A/20 °C
	THP102	D5 (Side A)	⚠ 1-804-616-21	1.10 A/20 °C
	THP103	D5 (Side A)	⚠ 1-804-616-21	1.10 A/20 °C

Continued

Board Name	Ref. No.	Address	Part No.	Hold Current
IF-1262	TH001	A1 (Side A)	⚠ 1-803-615-21	0.50 A/20 °C
PS-869	TH1000	E12 (Side A)	⚠ 1-802-108-11	1.50 A/20 °C
	TH3000	I15 (Side B)	⚠ 1-805-868-11	0.75 A/20 °C
	TH5000	J14 (Side B)	⚠ 1-802-108-11	3.00 A/20 °C
	TH5001	J14 (Side B)	⚠ 1-802-063-21	2.20 A/20 °C
SY-427	THP200	A2 (Side B)	⚠ 1-803-615-21	0.50 A/20 °C
	THP201	A2 (Side B)	⚠ 1-803-615-21	0.50 A/20 °C
	THP202	B2 (Side A)	⚠ 1-803-615-21	0.50 A/20 °C
RE-313	TH6000	H7 (Side B)	⚠ 1-803-615-21	0.50 A/20 °C
	TH6001	D7 (Side A)	⚠ 1-803-615-21	0.50 A/20 °C

1-15. 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
M2: 0.3 ±0.02 N·m
M2.6: 0.53 ±0.07 N·m
M3: 0.8 ±0.12 N·m

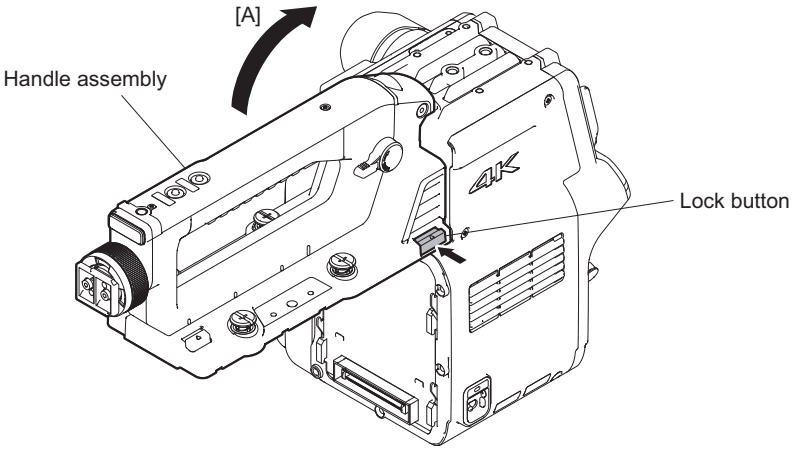
Tip

- 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.

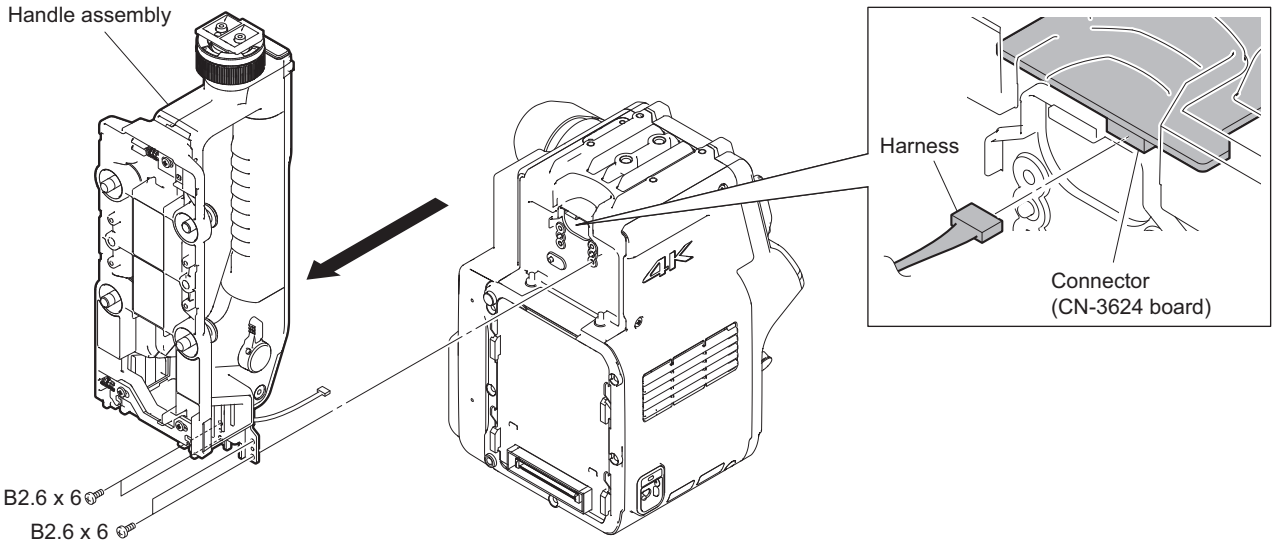
2-2. Handle Assembly

Procedure

1. Push the lock button and then rotate the handle assembly in the direction of the arrow [A].



2. Remove the four screws and pull out the handle assembly in the direction of the arrow.
3. Disconnect the harness from the connector on the CN-3624 board and then remove the handle assembly.



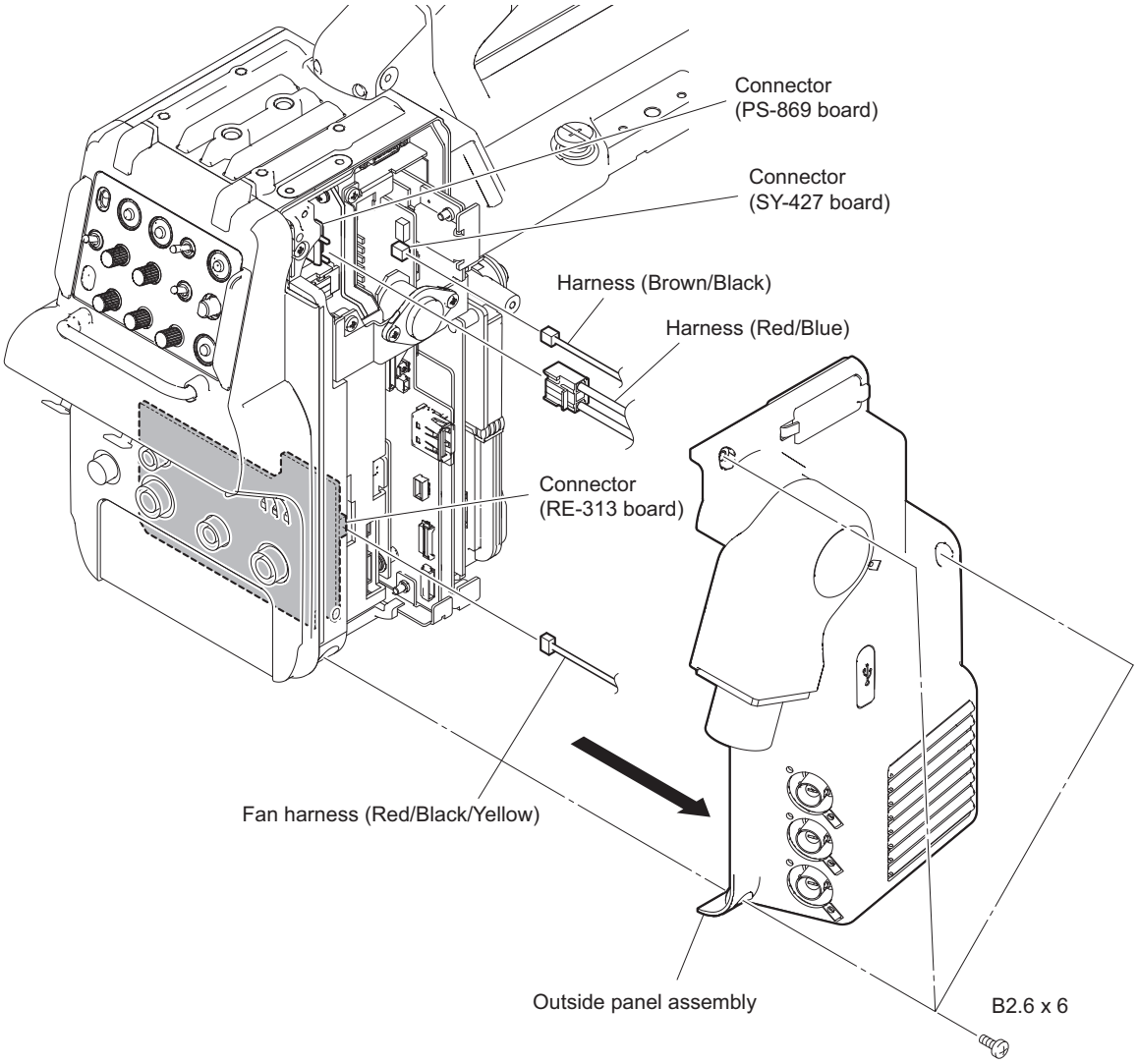
4. Install the removed parts by reversing the steps of removal.

2-3. Outside Panel Block

2-3-1. Outside Panel Assembly

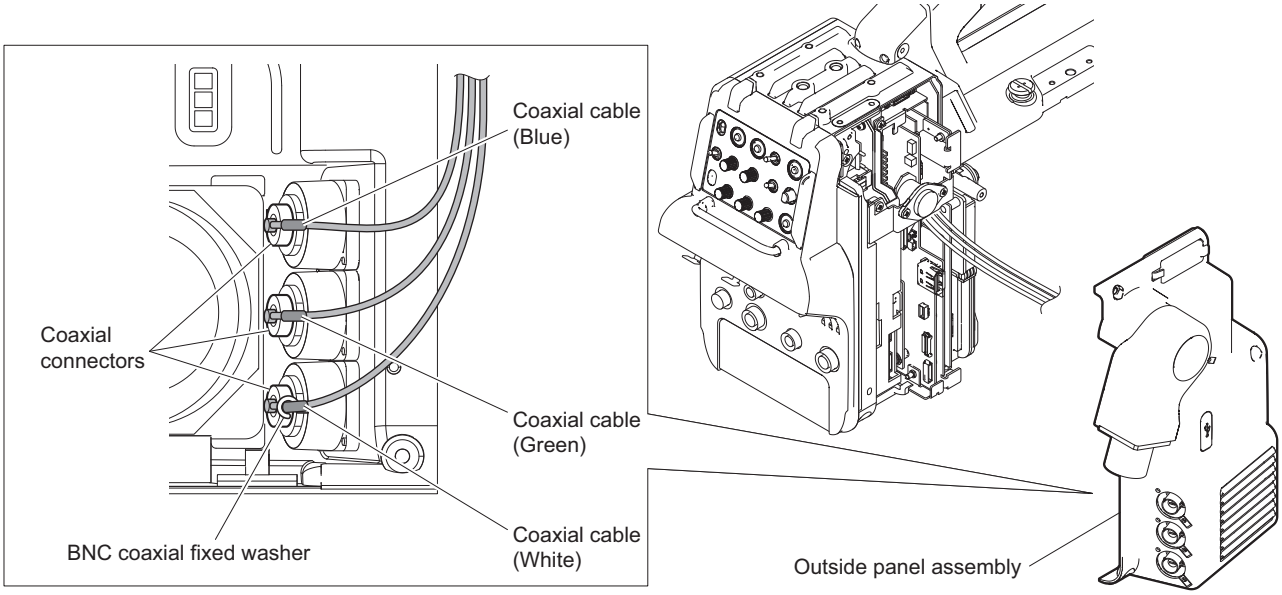
Procedure

1. Remove the three screws and then pull out the outside panel assembly in the direction of the arrow.
2. Disconnect the harness (red/blue) from the connector on the PS-869 board.
3. Disconnect the harness (brown/black) from the connector on the SY-427 board.
4. Disconnect the fan harness (red/black/yellow) from the connector on the RE-313 board.



5. Release the coaxial cable (white) from the BNC coaxial fixed washer.

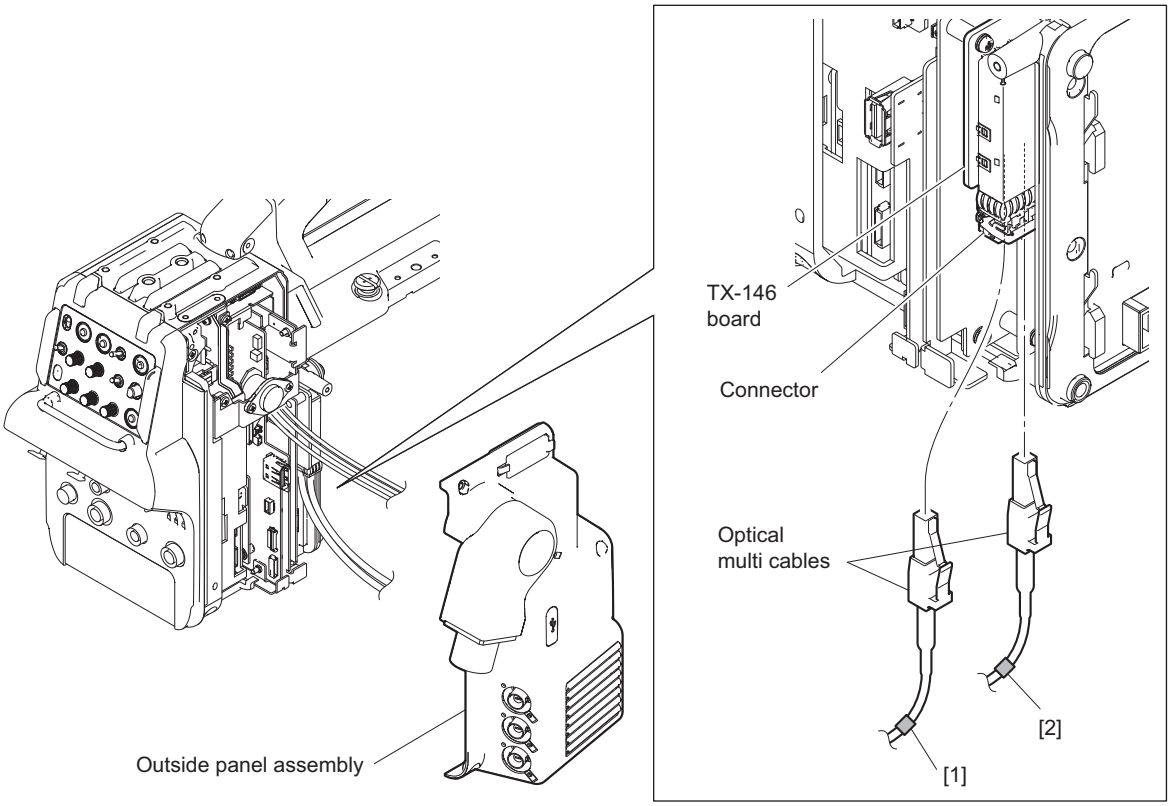
6. Disconnect the three coaxial cables from the three coaxial connectors.



Note

When reconnect the cables, connect correct connectors.

7. Disconnect the two optical multi cables from the connector on the TX-146 board and then remove the outside panel assembly.



Note

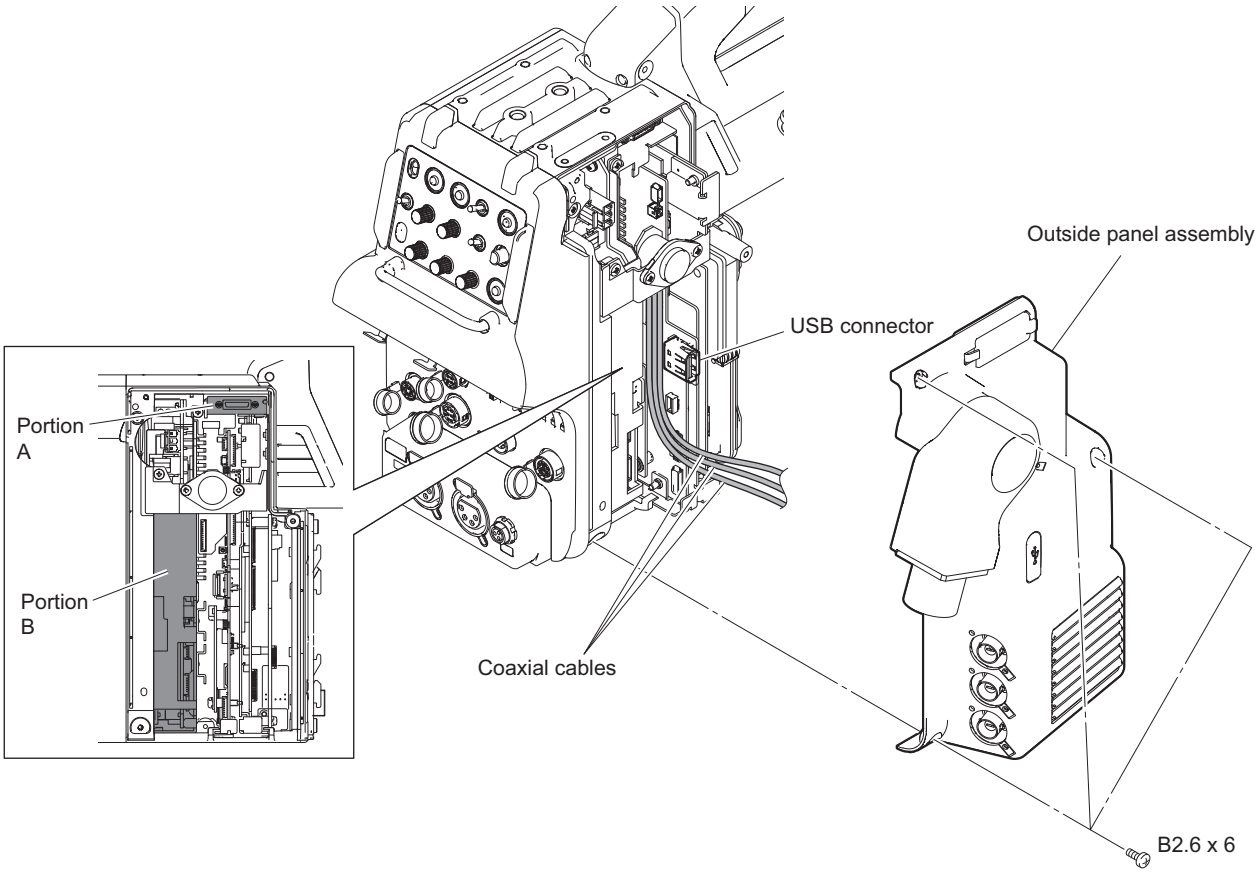
When reconnect the cables, connect correct connectors.

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

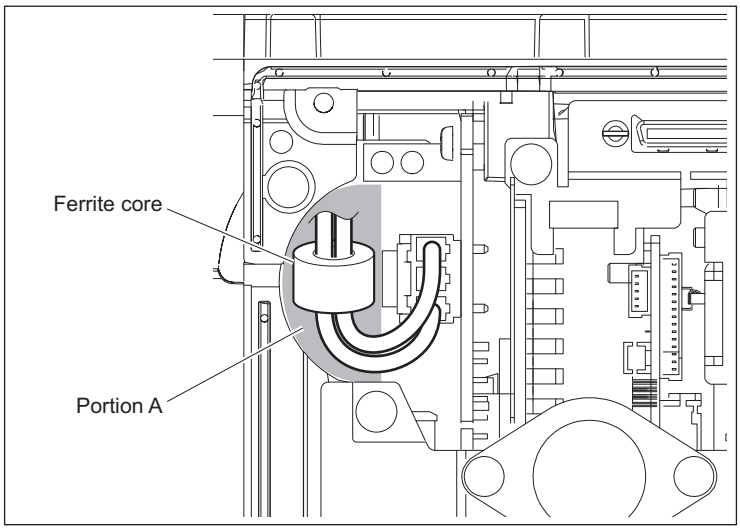
Note

Pay attention to the following when installing the outside panel assembly.

- Arrange the three coaxial cables to the behind of the USB connector as shown in the figure.
- Check that the harnesses are not over the portion A or B.



- Arrange the ferrite core in the portion A.



2-3-2. Optical Multi Cable

Note

The following parts are not reusable. Prepare new parts in advance.

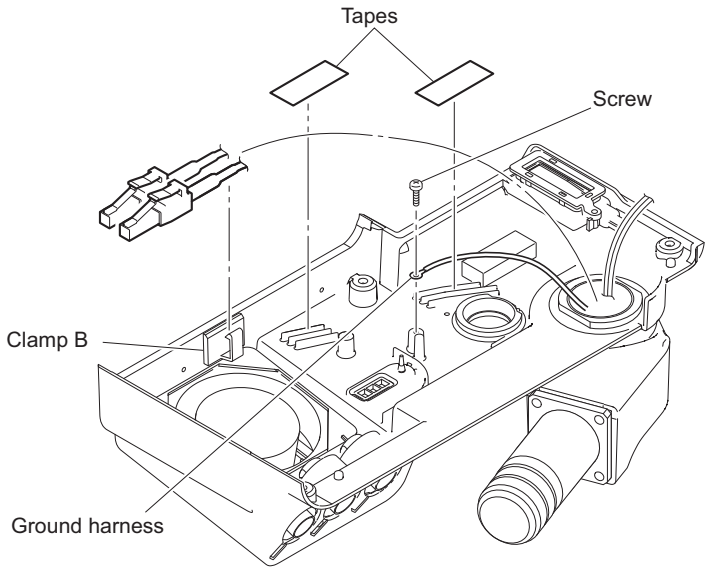
- Harness clamp
- Tape 60

Preparation

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

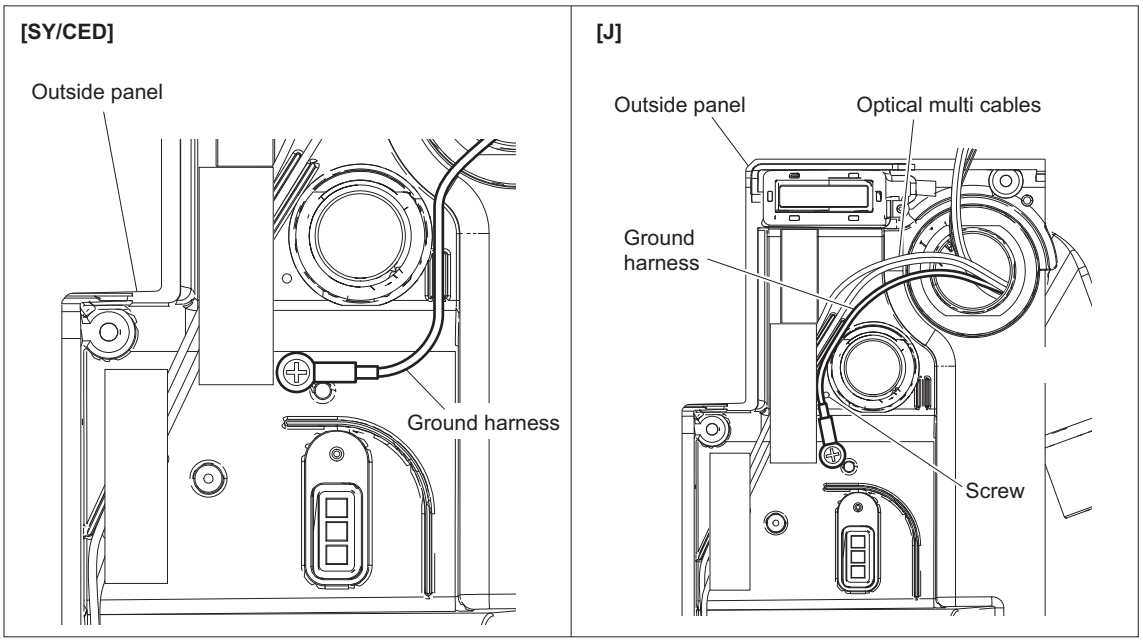
Procedure

1. Remove the two tapes.
2. Release the two optical multi cables from the clamp B.
3. Remove the screw to detach the ground harness.

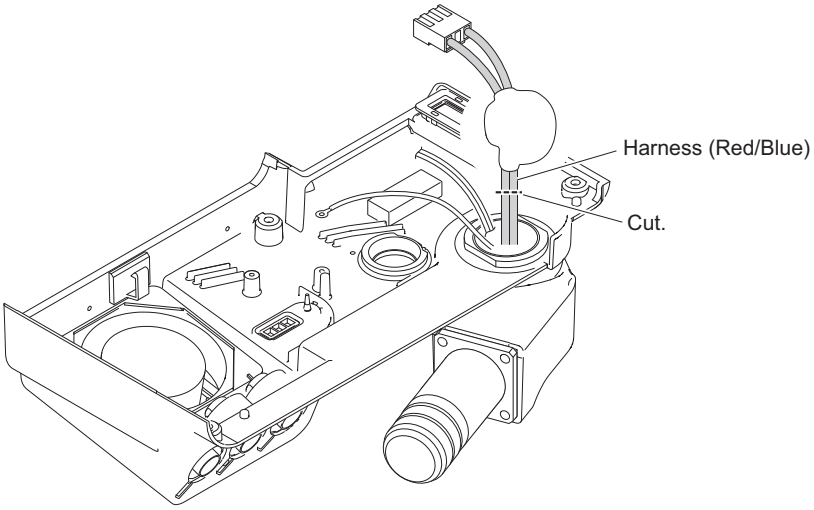


Note

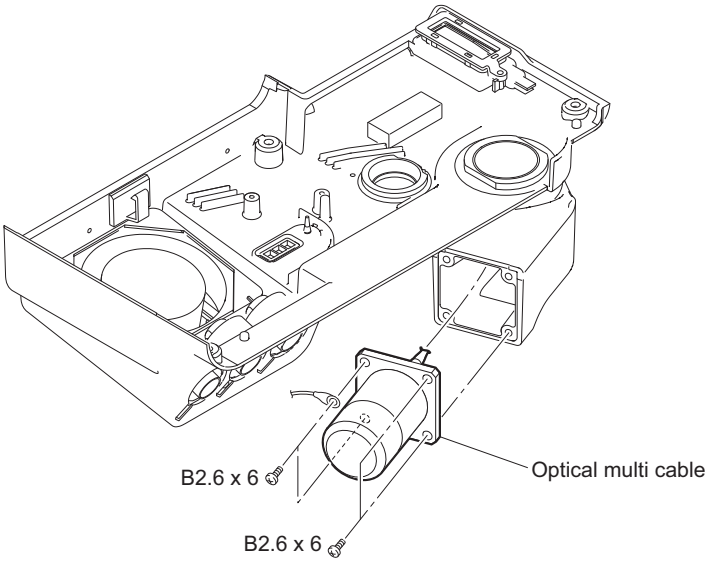
When installing, arrange the ground harness as shown in the figure.



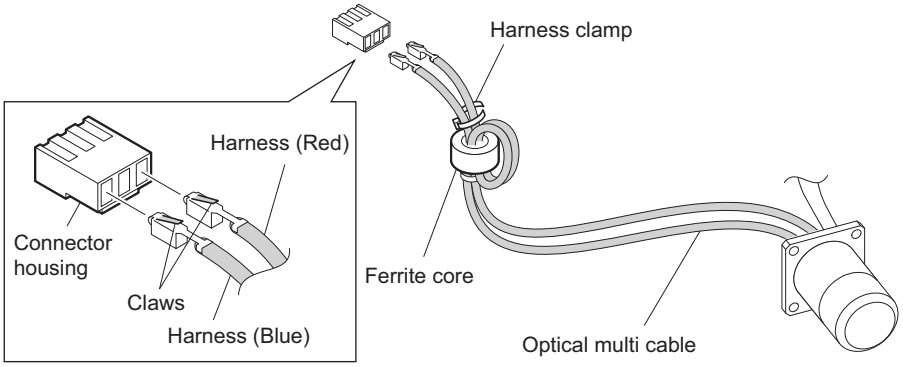
4. Cut the harness (red/blue).



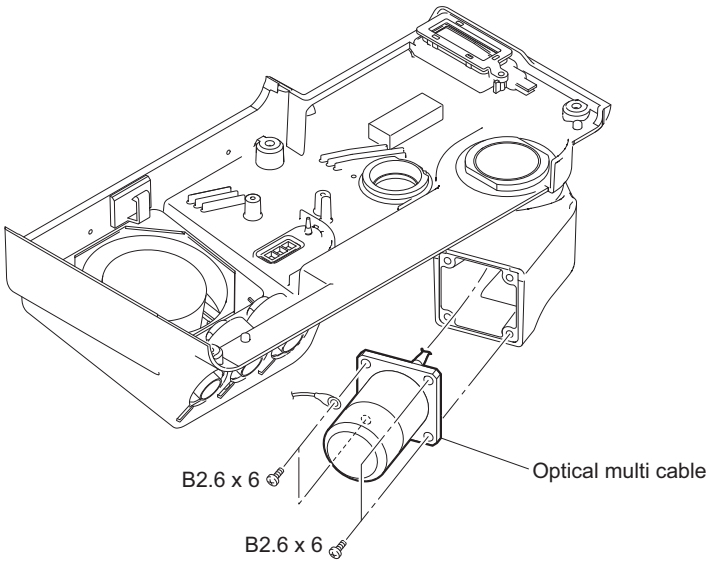
5. Remove the four screws (B2.6 x 6) to detach the optical multi cable.



6. Remove the connector housing from the new optical multi cable.
7. Cut the harness clamp.
8. Remove the ferrite core.



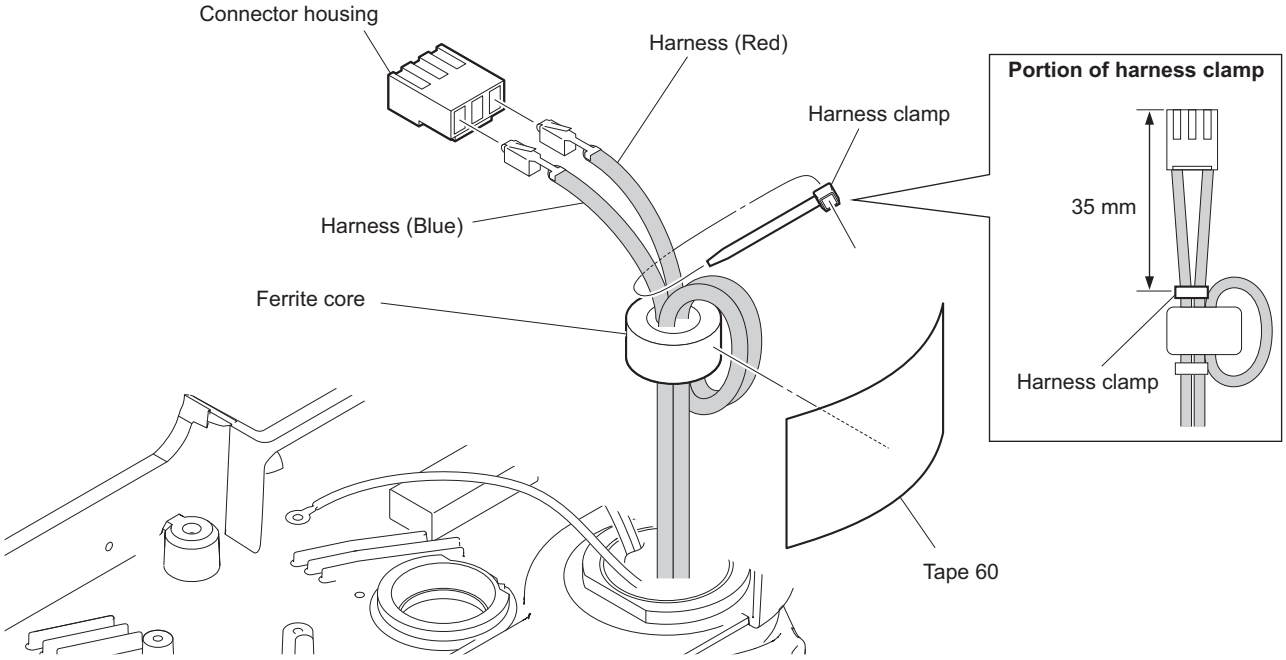
9. Secure the optical multi cable with the four screws (B2.6 x 6).



10. Install the ferrite core as shown in the figure.
11. Install the harness clamp.
12. Install the tape 60.
13. Install the connector housing.

Note

When installing, be careful not to change the harness.



14. Installing after here, install the removed parts by reversing the steps of removal.

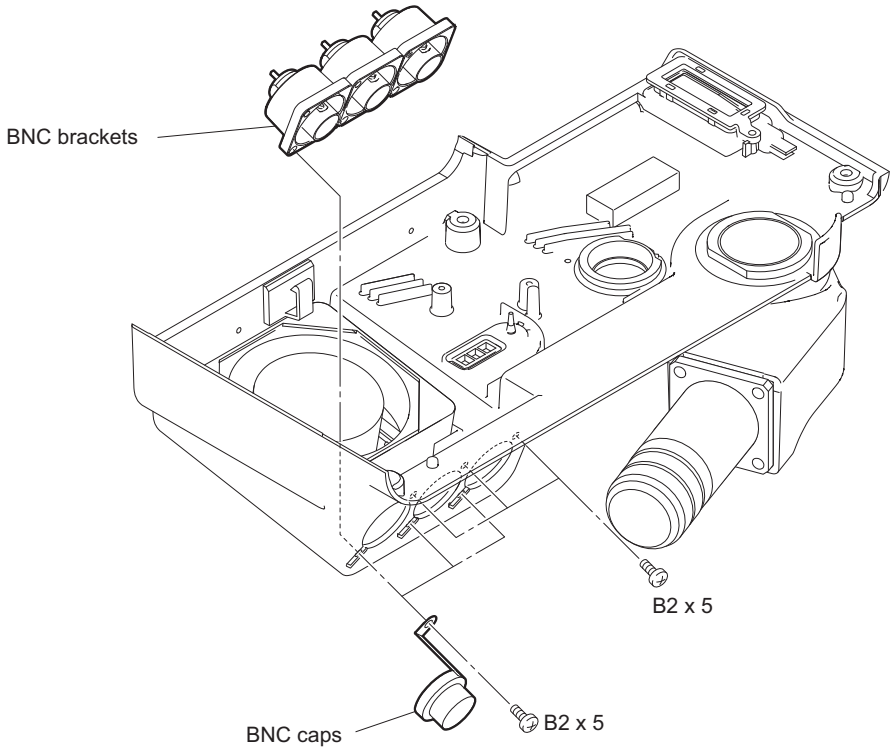
2-3-3. Outside Fan (DC Fan (52 Square))

Preparation

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

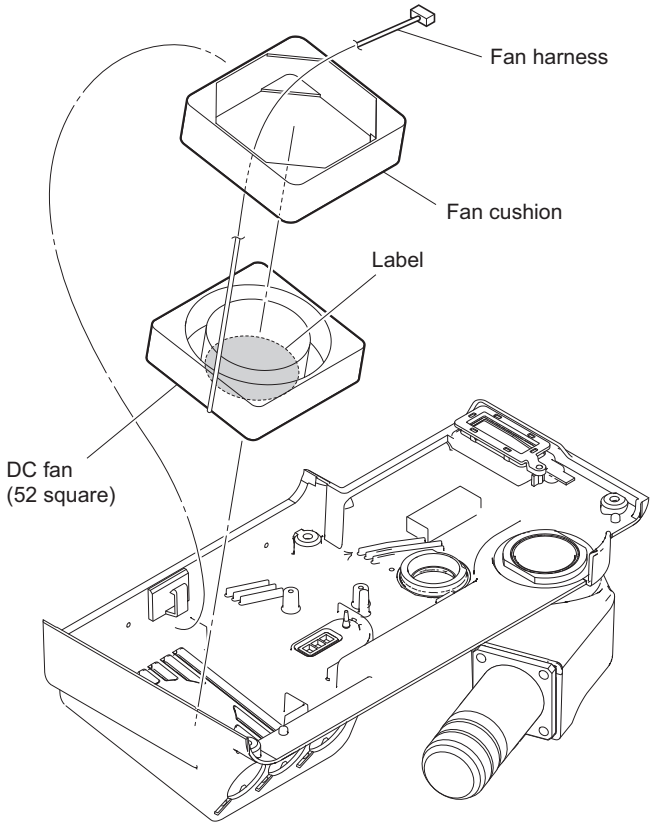
Procedure

1. Remove the six screws to detach the three BNC caps and the three BNC brackets.



2. Remove the fan cushion and the DC fan (52 square) from the outside panel assembly.

3. Remove the DC fan (52 square) from the fan cushion.



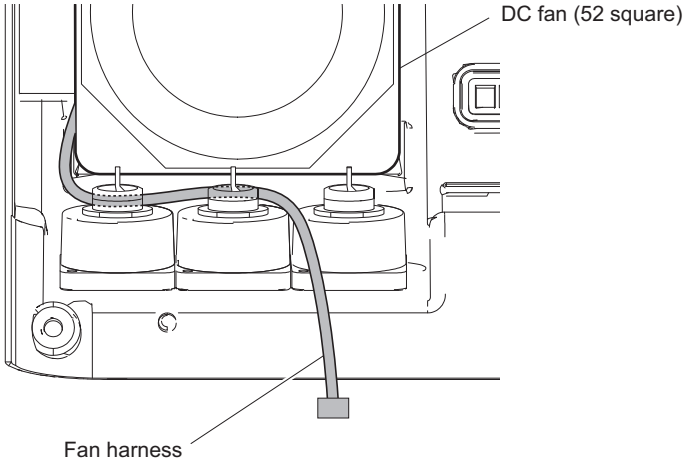
Note

Install the DC fan (52 square) carefully paying attention to the label side and the harness position.

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

Note

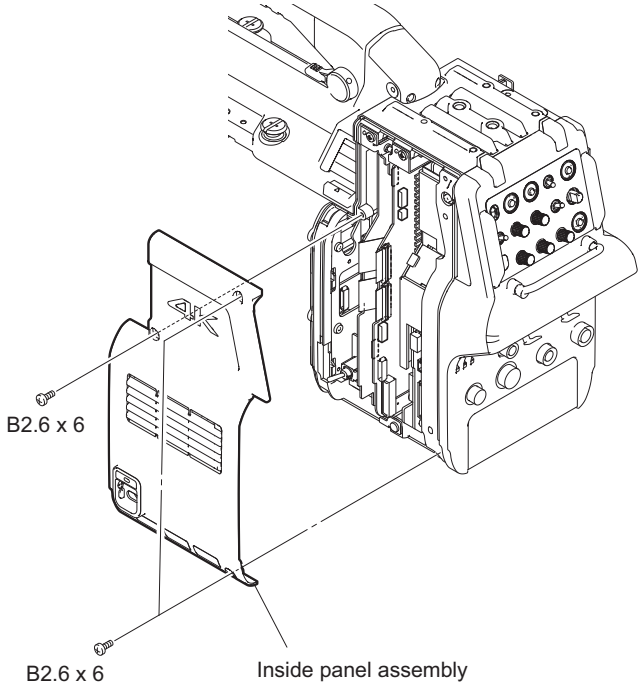
Arrange the fan harness as shown in the figure.



2-4. Inside Panel Assembly

Procedure

1. Remove the three screws to detach the inside panel assembly.



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

2-5. Rear Block

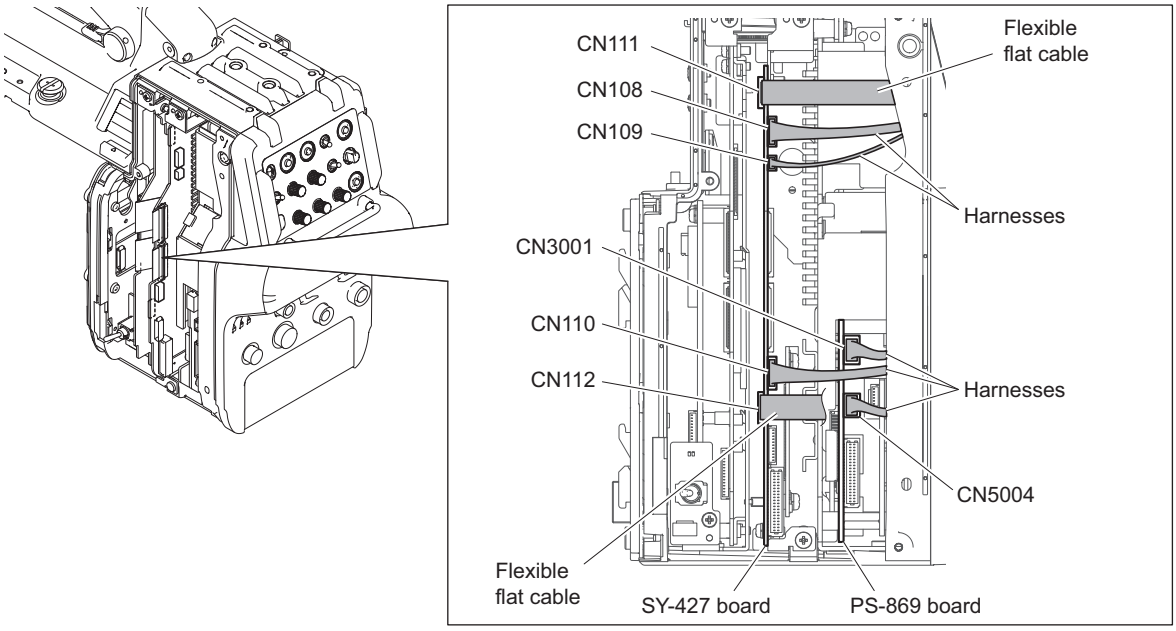
2-5-1. Rear Panel Assembly (No Installing the SKC-PB40)

Preparation

1. Remove the outside panel assembly. (Refer to "2-3-1. Outside Panel Assembly")
2. Remove the inside panel assembly. (Refer to "2-4. Inside Panel Assembly")

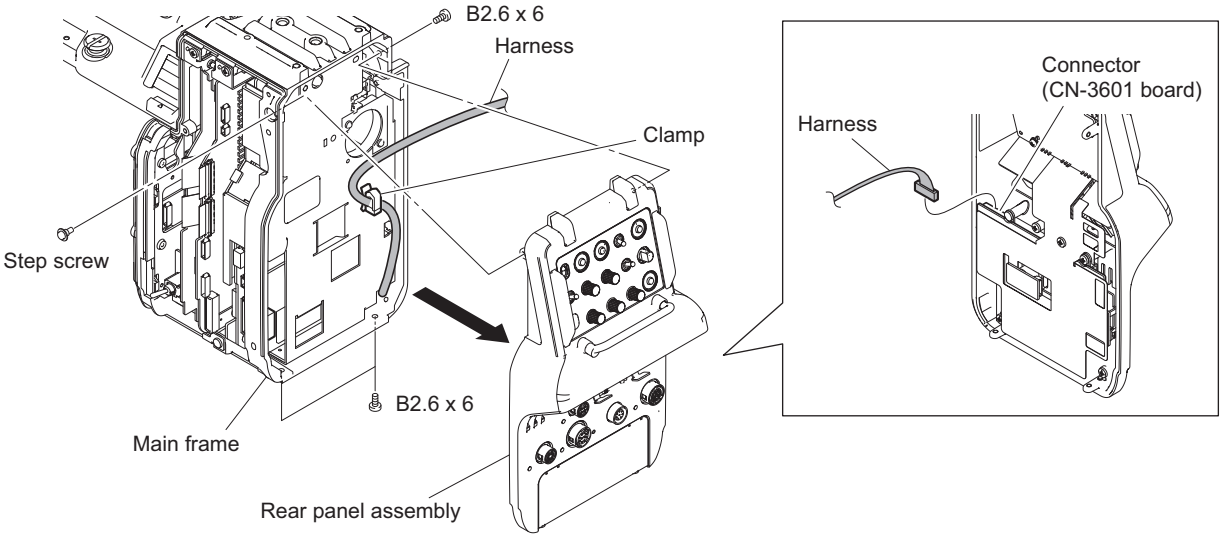
Procedure

1. Disconnect the two flexible flat cables and the three harnesses from the five connectors (CN111, CN108, CN109, CN110, and CN112) on the SY-427 board.。
2. Disconnect the two harnesses from the two connectors (CN3001, CN5004) on the PS-869 board.



3. Remove the step screw and the three screws (B2.6 x 6) and pull out the rear panel assembly in the direction of the arrow.
4. Release the harness from the clamp.

5. Disconnect the harness from the connector on the CN-3601 board to detach the rear panel assembly.



Note

When installing, tighten the screws while pushing the rear panel assembly to the main frame.

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

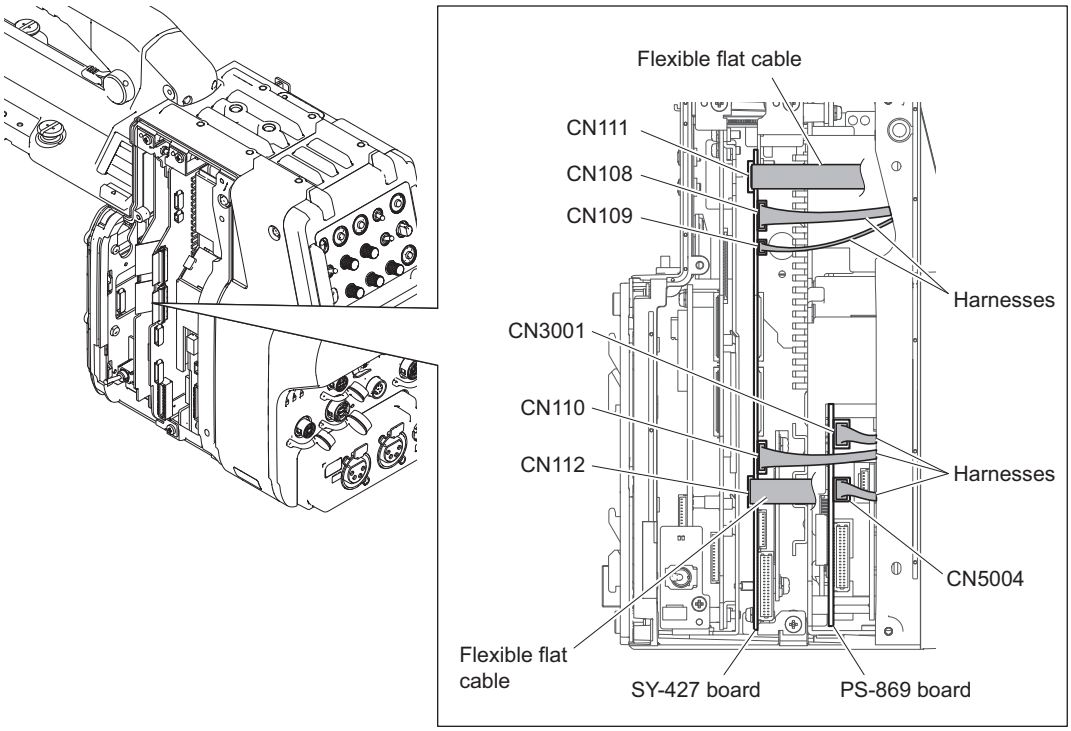
2-5-2. Rear Panel Assembly (Installing the SKC-PB40)

Preparation

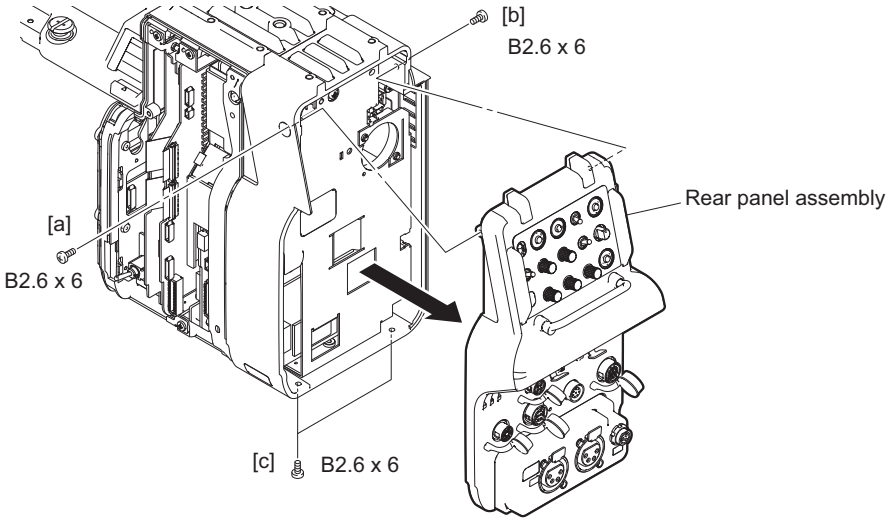
1. Remove the outside panel assembly. (Refer to "2-3-1. Outside Panel Assembly")
2. Remove the inside panel assembly. (Refer to "2-4. Inside Panel Assembly")

Removing Procedure

1. Disconnect the two flexible flat cables and the three harnesses from the five connectors (CN111, CN108, CN109, CN110, and CN112) on the SY-427 board.
2. Disconnect the two harnesses from the two connectors (CN3001, CN5004) on the PS-869 board.

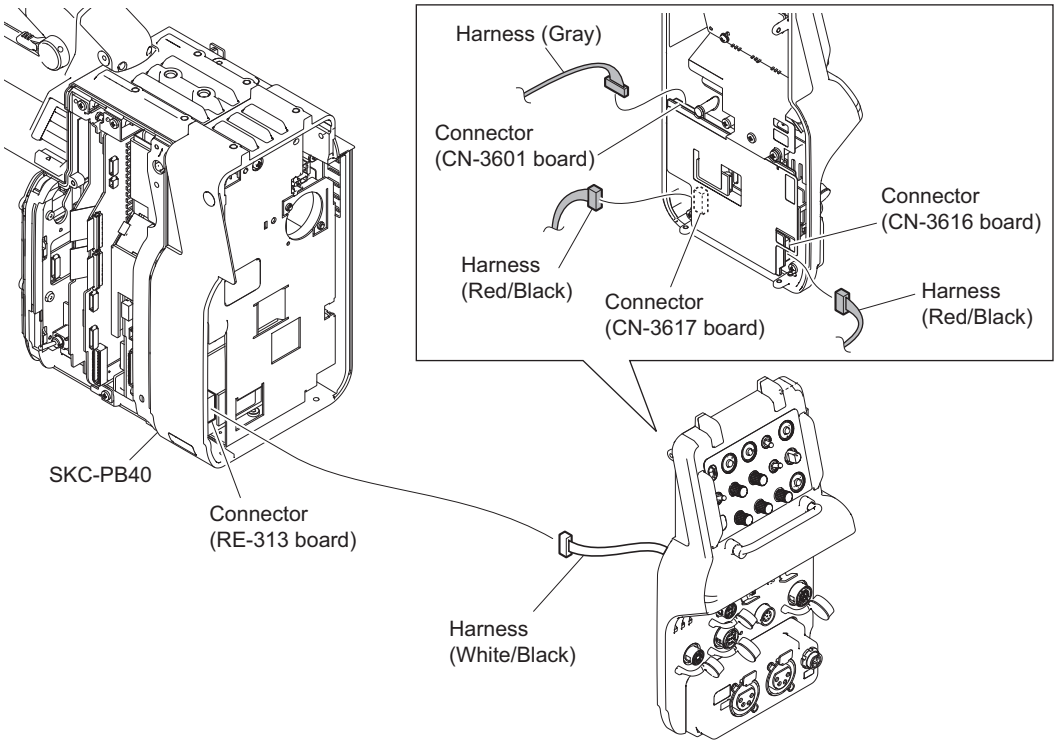


3. Remove the four screws and pull out the rear panel assembly in the direction of the arrow.



4. Disconnect the harness (white/black) from the connector on the RE-313 board.
5. Disconnect the harness (gray) from the connector on the CN-3601 board.
6. Disconnect the harness (red/black) from the connector on the CN-3616 board.
7. Disconnect the harness (red/black) from the connector on the CN-3617 board.

8. Remove the rear panel assembly.



Note

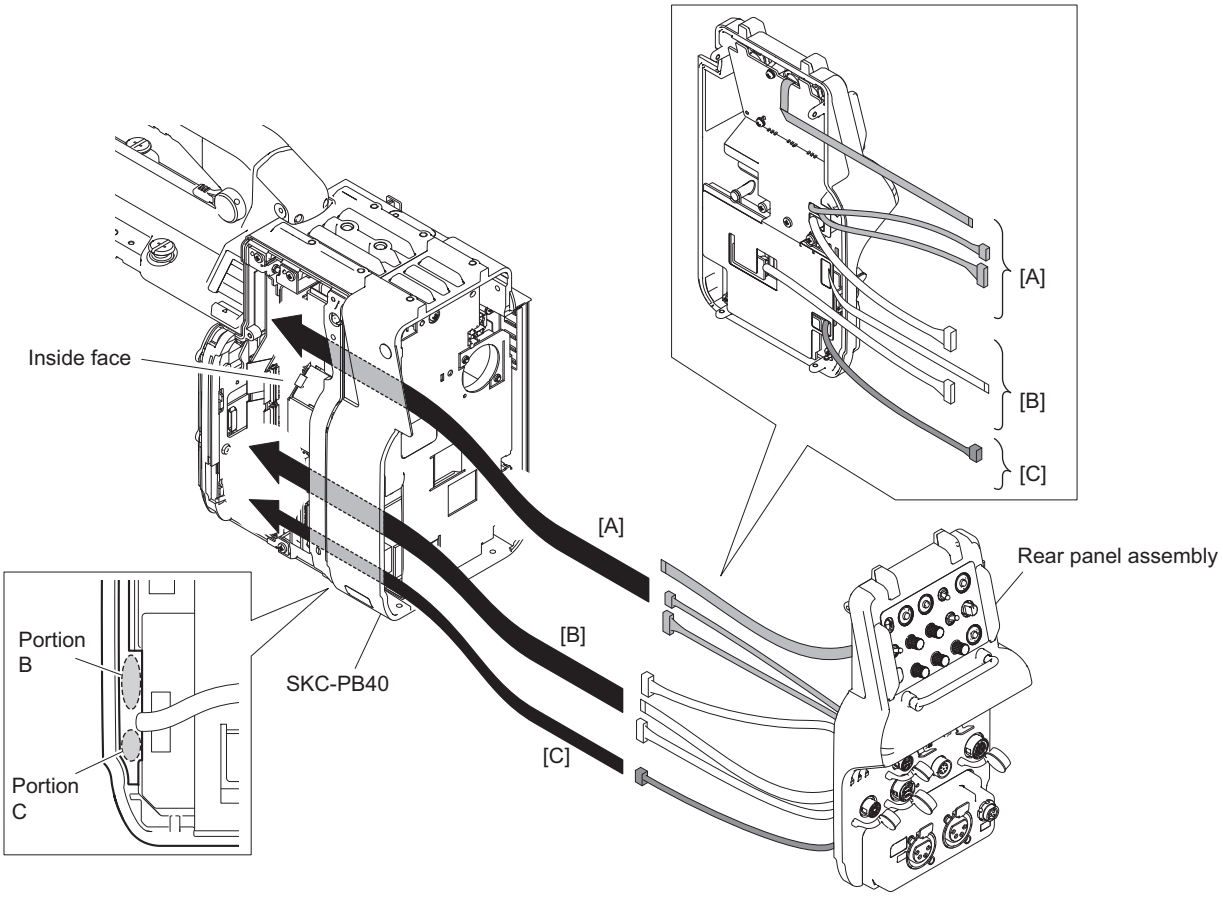
When installing, securely insert the harnesses to the end of respective connectors.

Installing Procedure

9. Arrange the flexible flat cables and the harnesses from the rear panel assembly to the rear panel assembly to the inside face as shown in the figure.

Note

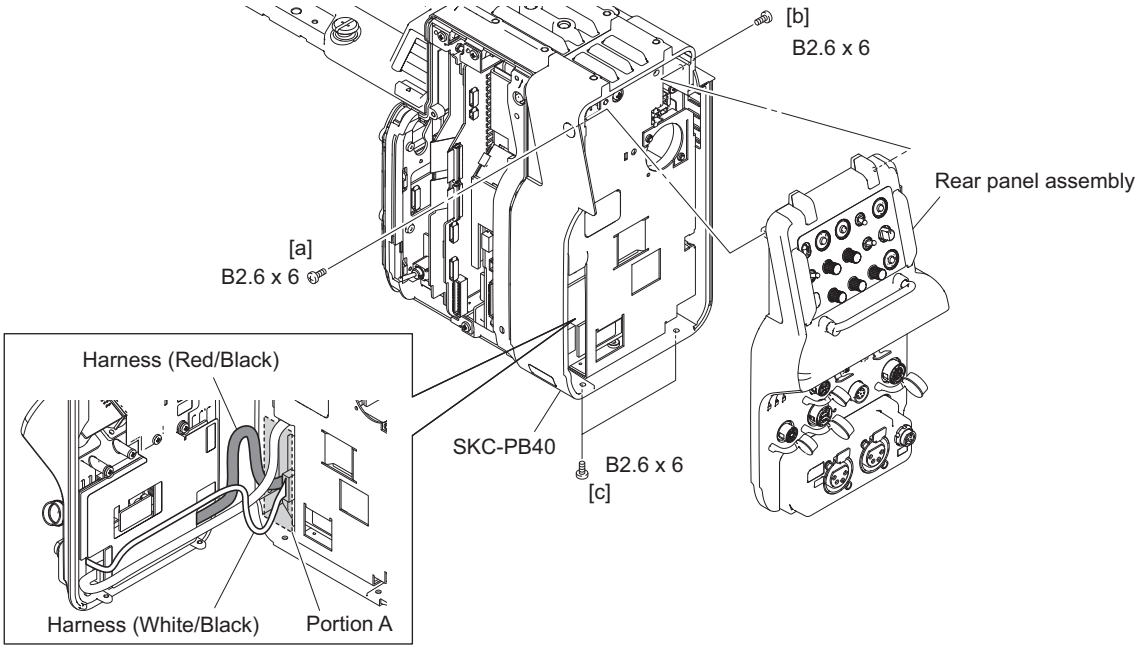
Pass the cables and the harnesses of [B] and [C] through the portions B and C respectively as shown below.



10. Secure the rear panel assembly with the four screws (B2.6 x 6).

Note

- Tighten the screws while pushing the rear panel assembly to the SKC-PB40.
- When installing, tighten the screws in the order of [a], [b], and [c].



11. Installing after here, install the removed parts by reversing the steps of removal.

2-5-3. SW-1592/SW-1592A Board

Note

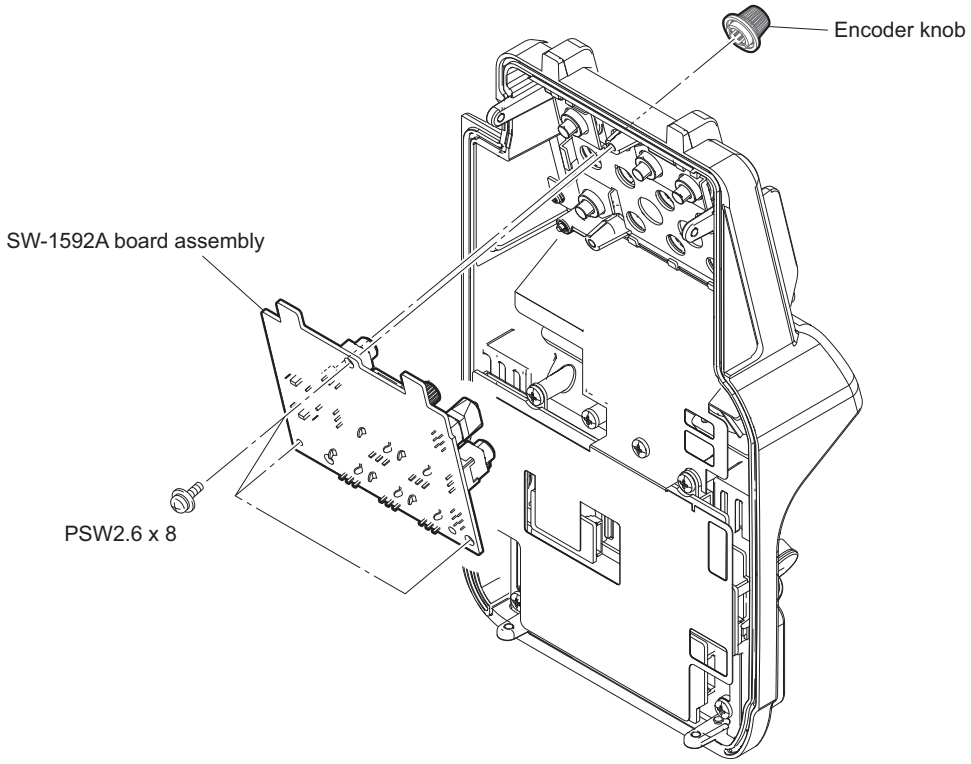
This unit uses SW-1592 board for SY/J model and SW-1592A board for CED model. As an example, removing of SW-1592A board is indicated in the following.

Preparation

1. Remove the outside panel assembly. (Refer to "2-3-1. Outside Panel Assembly")
2. Remove the inside panel assembly. (Refer to "2-4. Inside Panel Assembly")
3. Remove the rear panel assembly.
   - (no installing the SKC-PB40: "2-5-1. Rear Panel Assembly (No Installing the SKC-PB40)")
   - (installing the SKC-PB40: "2-5-2. Rear Panel Assembly (Installing the SKC-PB40)")

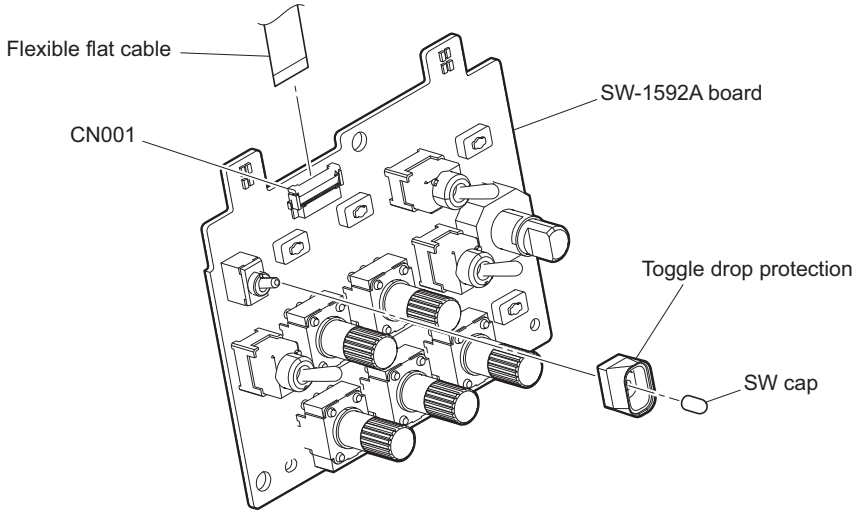
Procedure

1. Remove the encoder knob.
2. Remove the three screws to detach the SW-1592A board assembly.



3. Disconnect the flexible flat cable from the connector (CN001) on the SW-1592A board.

4. Remove the SW cap and the toggle drop protection.



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

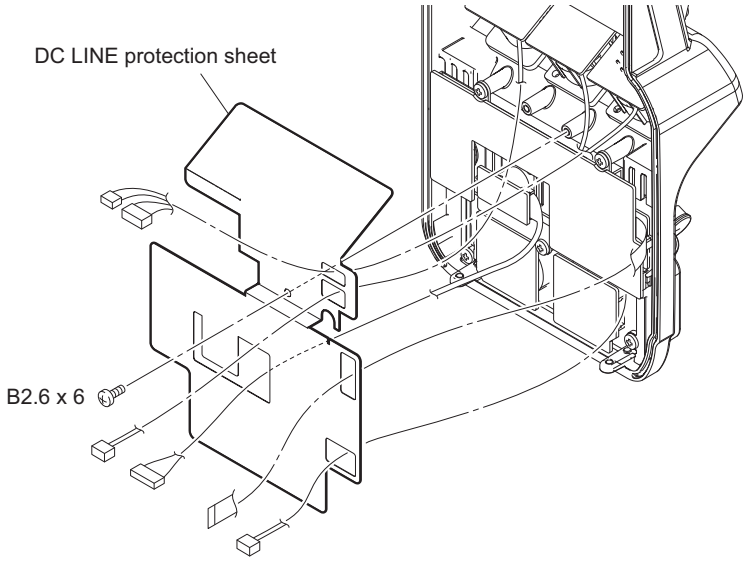
2-5-4. CN-3601 Board/CN-3603 Board

Preparation

1. Remove the outside panel assembly. (Refer to "2-3-1. Outside Panel Assembly")
2. Remove the inside panel assembly. (Refer to "2-4. Inside Panel Assembly")
3. Remove the rear panel assembly.
   - (no installing the SKC-PB40: Refer to "2-5-1. Rear Panel Assembly (No Installing the SKC-PB40)")
   - (installing the SKC-PB40: Refer to "2-5-2. Rear Panel Assembly (Installing the SKC-PB40)")

Procedure

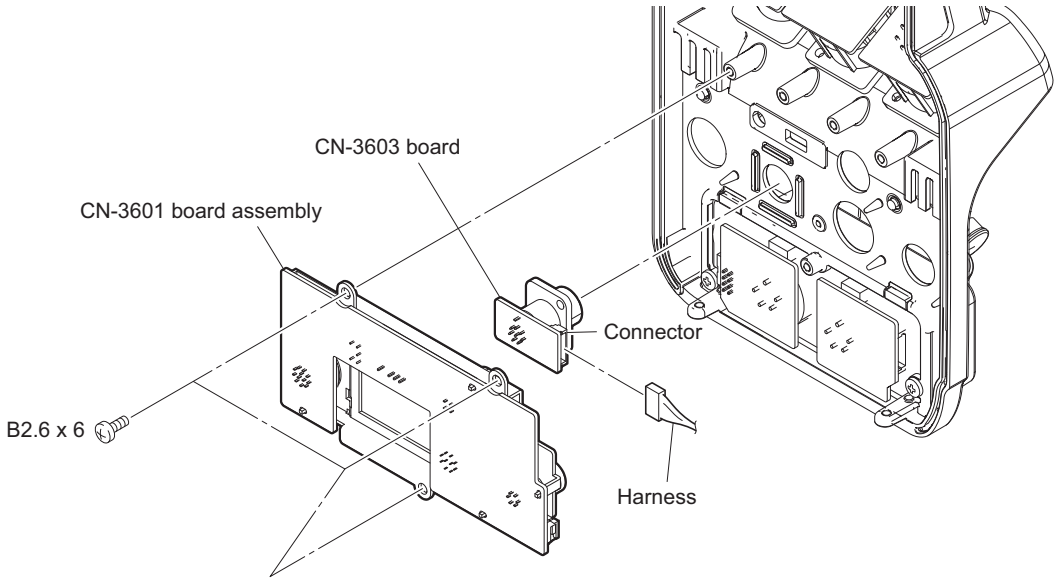
1. Remove the screw to detach the DC LINE protection sheet.



Note

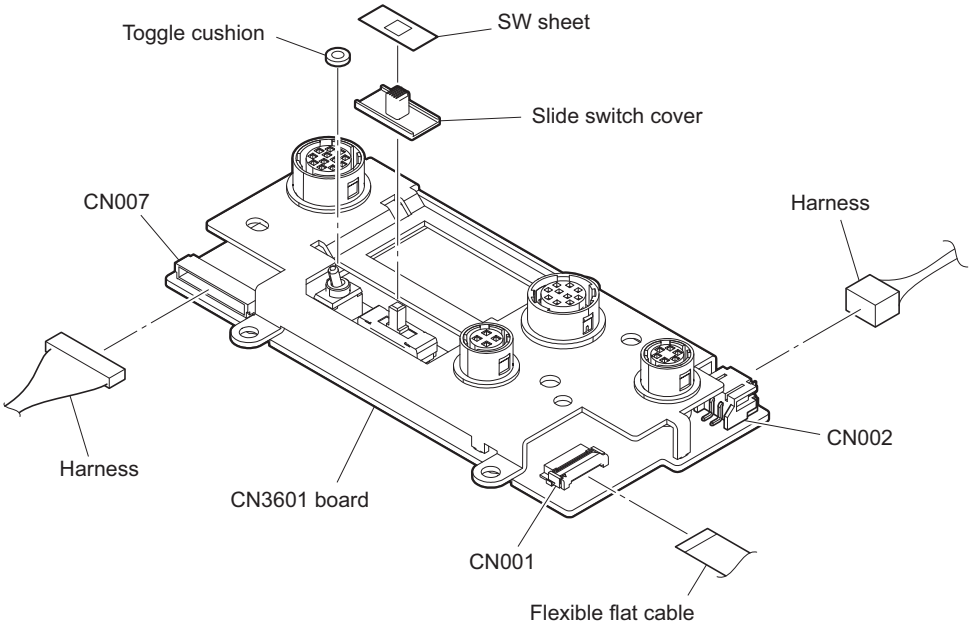
When installing the DC LINE protection sheet, arrange the harnesses and the flexible flat cable as shown in the figure.

2. Remove the three screws to detach the CN-3601 board assembly.
3. Disconnect the harness from the connector on the CN-3603 board.



4. Disconnect the flexible flat cable from the connector (CN001) on the CN-3601 board.
5. Disconnect the harness from the connector (CN007) on the CN-3601 board.

6. Disconnect the harness from the connector (CN002) on the CN-3601 board.
7. Remove the SW sheet, slide switch cover, and toggle cushion.



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

2-5-5. CN-3605 Board/CN-3606 Board/CN-3607 Board

Tip

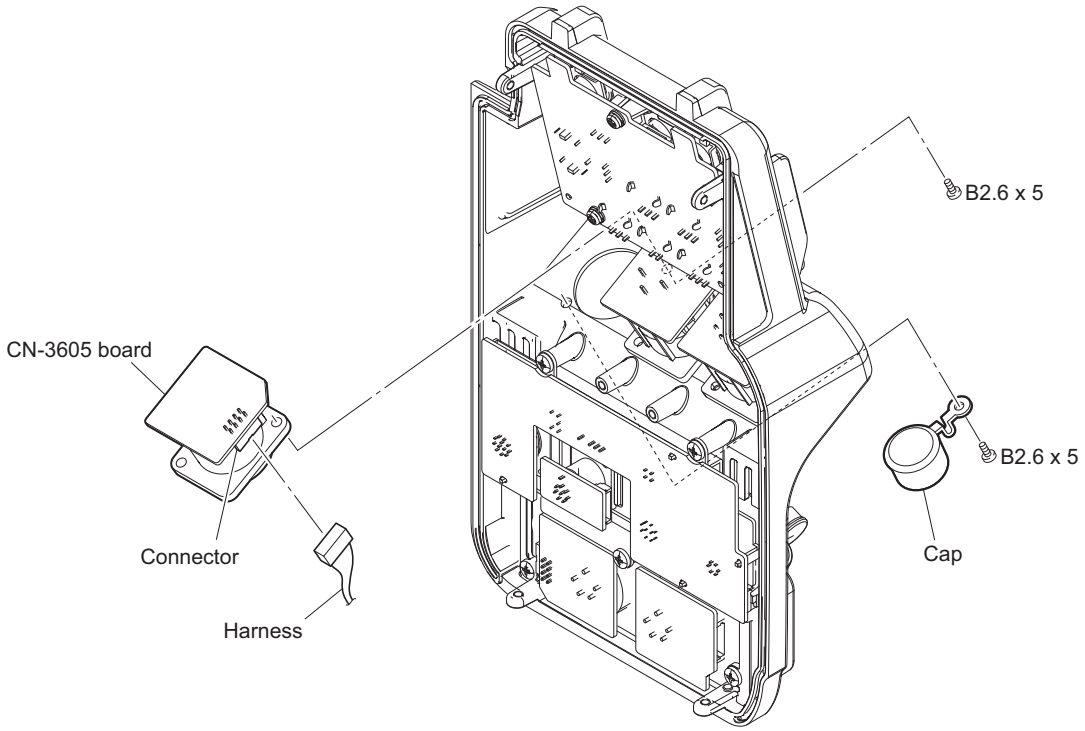
- As an example, removing of CN-3605 board is indicated in the following. Remove the CN-3606 board and CN-3607 board in the same as CN-3605 board.
- There is no cap in the CN-3606 board.

Preparation

1. Remove the outside panel assembly. (Refer to "2-3-1. Outside Panel Assembly")
2. Remove the inside panel assembly. (Refer to "2-4. Inside Panel Assembly")
3. Remove the rear panel assembly.
   - (no installing the SKC-PB40: "2-5-1. Rear Panel Assembly (No Installing the SKC-PB40)")
   - (installing the SKC-PB40: "2-5-2. Rear Panel Assembly (Installing the SKC-PB40)")

Procedure

1. Remove the screw to detach the cap.
2. Remove the screw to detach the CN-3605 board.
3. Disconnect the harness from the connector on the CN-3605 board.



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

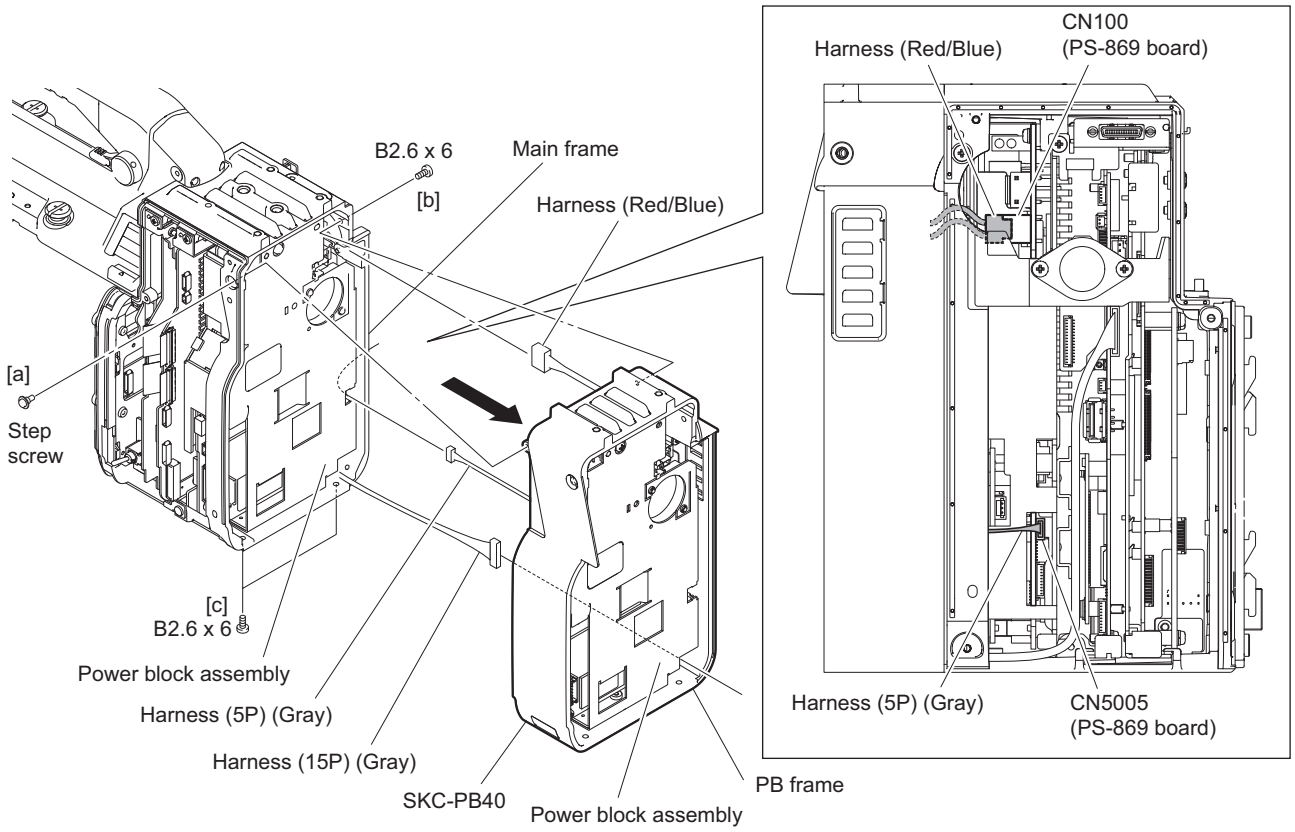
2-6. SKC-PB40

Preparation

1. Remove the outside panel assembly. (Refer to "2-3-1. Outside Panel Assembly")
2. Remove the inside panel assembly. (Refer to "2-4. Inside Panel Assembly")
3. Remove the rear panel assembly. (Refer to "2-5-2. Rear Panel Assembly (Installing the SKC-PB40)")

Procedure

1. Disconnect the harness (5P) (gray) from the connector (CN5005) on the PS-869 board.
2. Remove the step screw and the three screws (B2.6x 6) and pull out the KC-PB40 in the direction of the arrow.
3. Disconnect the harness (red/blue) from the connector (CN100) on the PS-869 board to detach the SKC-PB40.



Note

- When installing, be careful not to catch the harness (red/blue) with the SKC-PB40.
- Tighten the screws in the order of [a], [b], and [c].

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

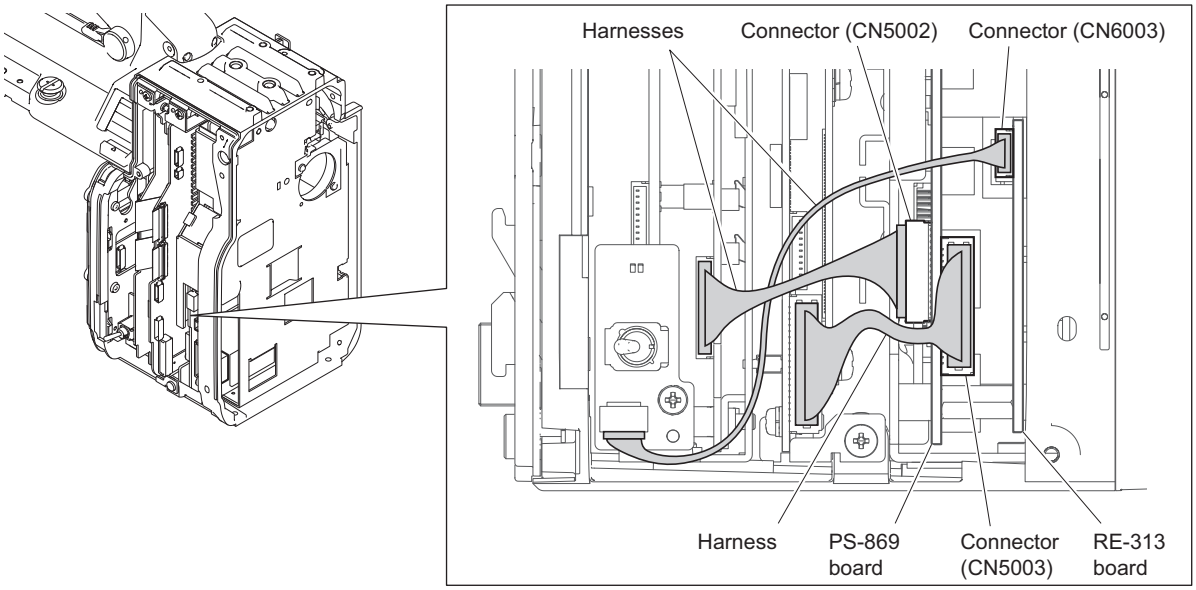
2-7. Power Block

Preparation

1. Remove the outside panel assembly. (Refer to "2-3-1. Outside Panel Assembly")
2. Remove the inside panel assembly. (Refer to "2-4. Inside Panel Assembly")
3. Remove the rear panel assembly.
   - (no installing the SKC-PB40: Refer to "2-5-1. Rear Panel Assembly (No Installing the SKC-PB40)")
   - (installing the SKC-PB40: Refer to "2-5-2. Rear Panel Assembly (Installing the SKC-PB40)")
4. Remove the SKC-PB40. (in case of installing the SKC-PB40) (Refer to "2-6. SKC-PB40")

Procedure

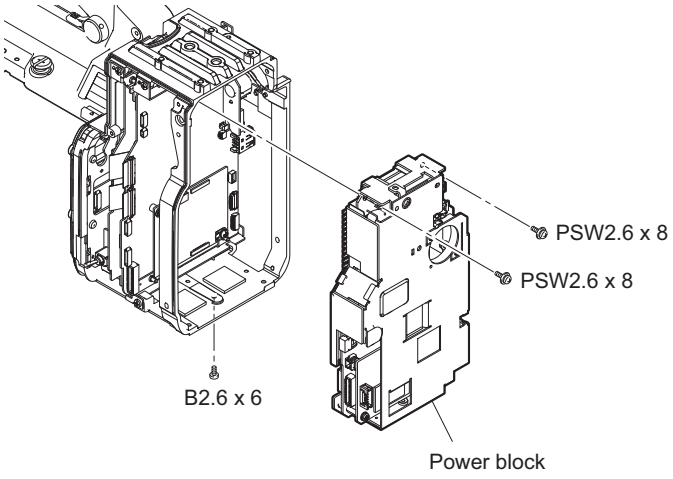
1. Disconnect the three harnesses from the three connectors.



Note

When installing, arrange the harnesses as shown in the figure.

2. Remove the screw (B2.6 x 6) and the two screws (PSW2.6 x 8) to detach the power block.



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

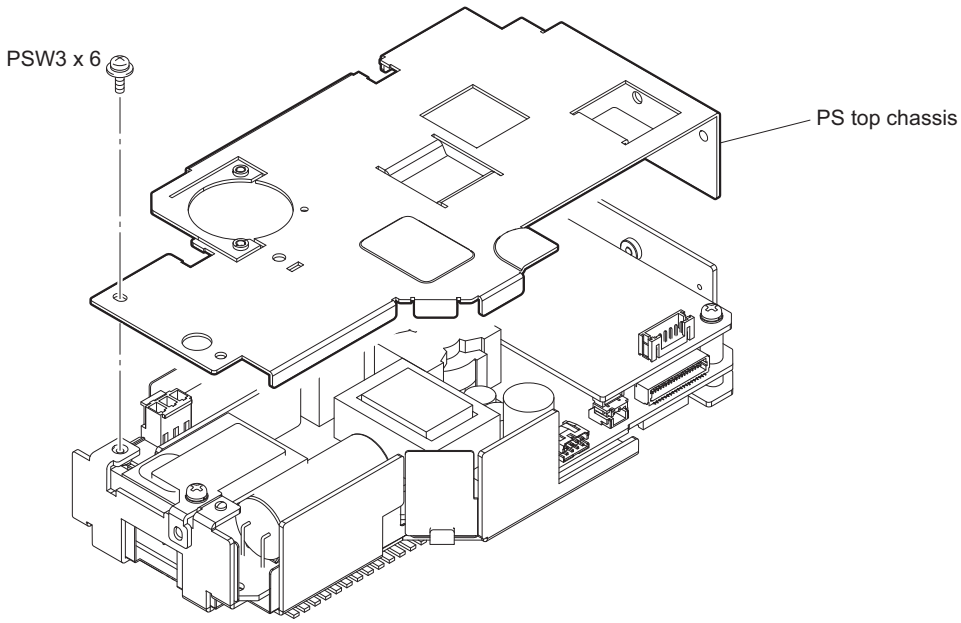
2-8. PS-869 Board

Preparation

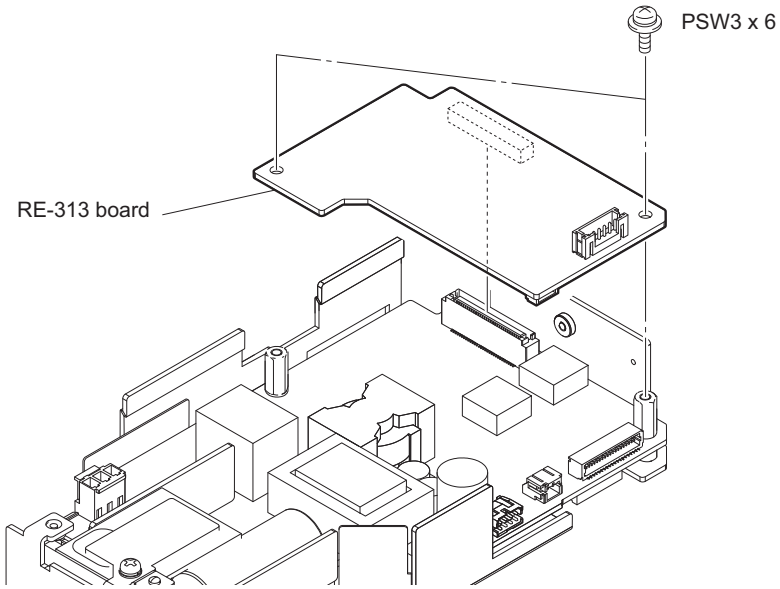
1. Remove the outside panel assembly. (Refer to "2-3-1. Outside Panel Assembly")
2. Remove the inside panel assembly. (Refer to "2-4. Inside Panel Assembly")
3. Remove the rear panel assembly.
   - (no installing the SKC-PB40: Refer to "2-5-1. Rear Panel Assembly (No Installing the SKC-PB40)")
   - (installing the SKC-PB40: Refer to "2-5-2. Rear Panel Assembly (Installing the SKC-PB40)")
4. Remove the SKC-PB40. (in case of installing the SKC-PB40) (Refer to "2-6. SKC-PB40")
5. Remove the power block. (Refer to "2-7. Power Block")

Procedure

1. Remove the screw to detach the PS top chassis.

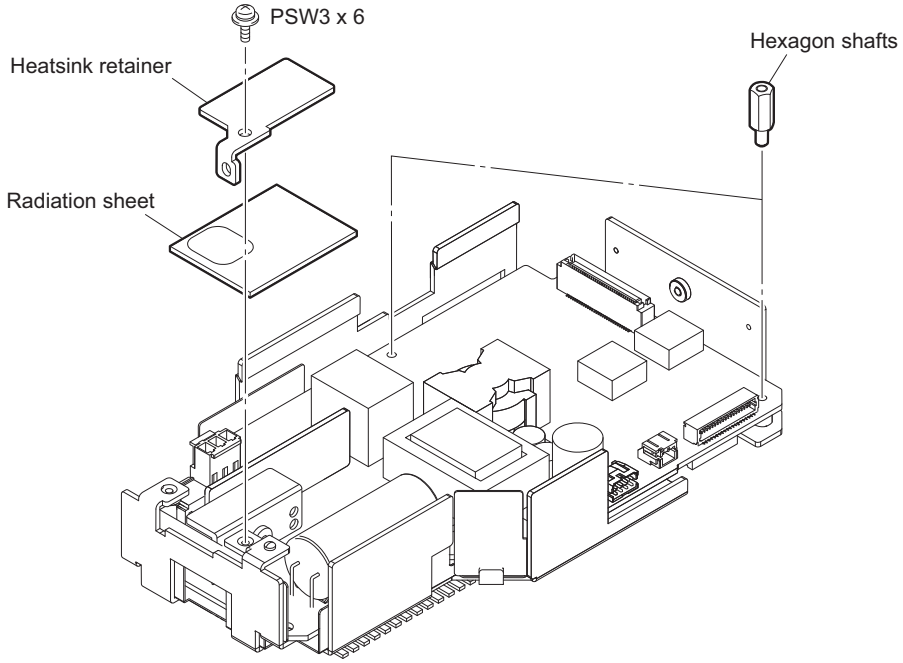


2. Remove the two screws to detach the RE-313 board.

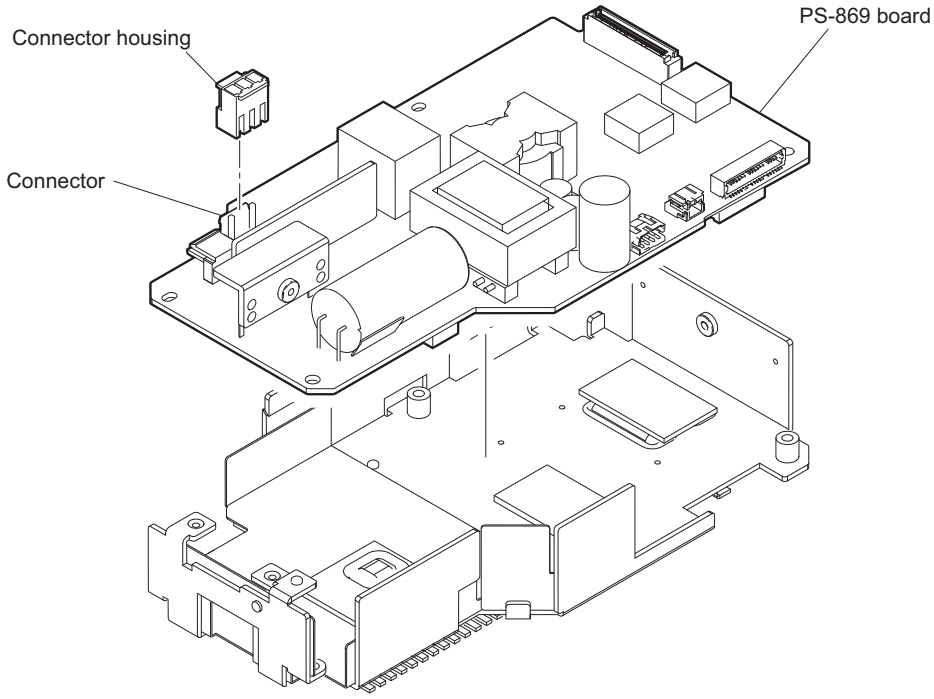


3. Remove the screw (PSW3 x 6) to detach the heatsink retainer and the radiation sheet.

4. Remove the two hexagon shafts.



5. Remove the PS-869 board.
6. Remove the connector housing from the connector on the PS-869 board.



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

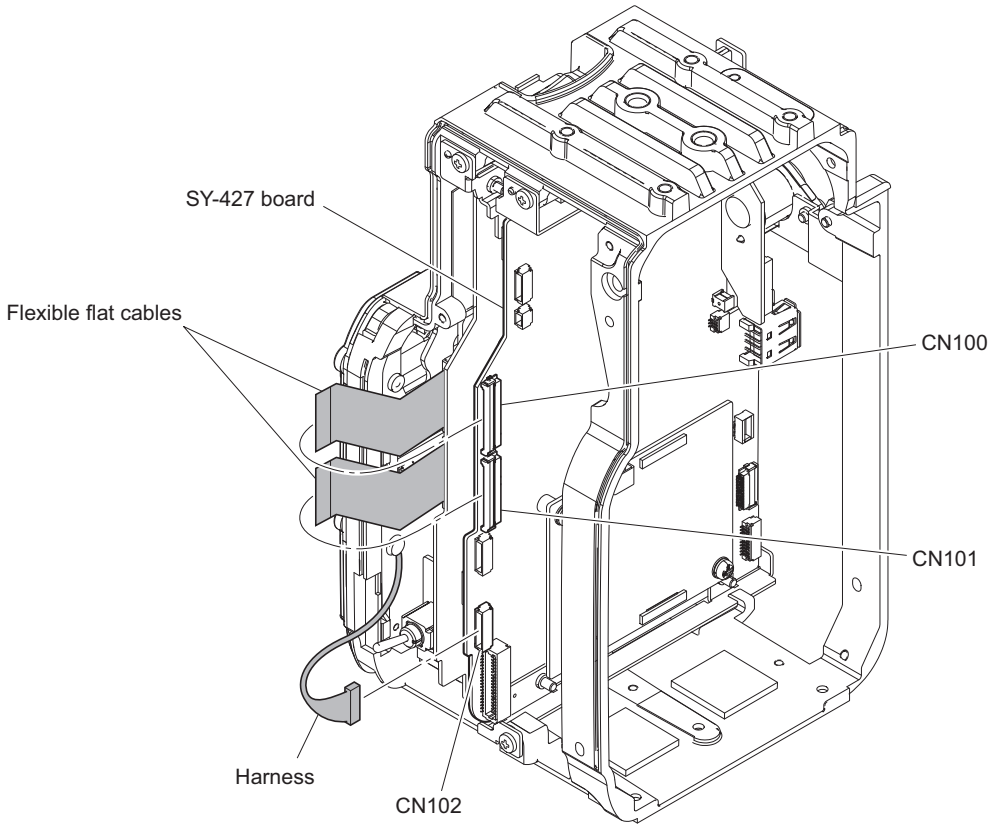
2-9. SY-427 Board

Preparation

1. Remove the outside panel assembly. (Refer to "2-3-1. Outside Panel Assembly")
2. Remove the inside panel assembly. (Refer to "2-4. Inside Panel Assembly")
3. Remove the rear panel assembly.
   - (no installing the SKC-PB40: Refer to "2-5-1. Rear Panel Assembly (No Installing the SKC-PB40)")
   - (installing the SKC-PB40: Refer to "2-5-2. Rear Panel Assembly (Installing the SKC-PB40)")
4. Remove the SKC-PB40. (in case of installing the SKC-PB40) (Refer to "2-6. SKC-PB40")
5. Remove the power block. (Refer to "2-7. Power Block")

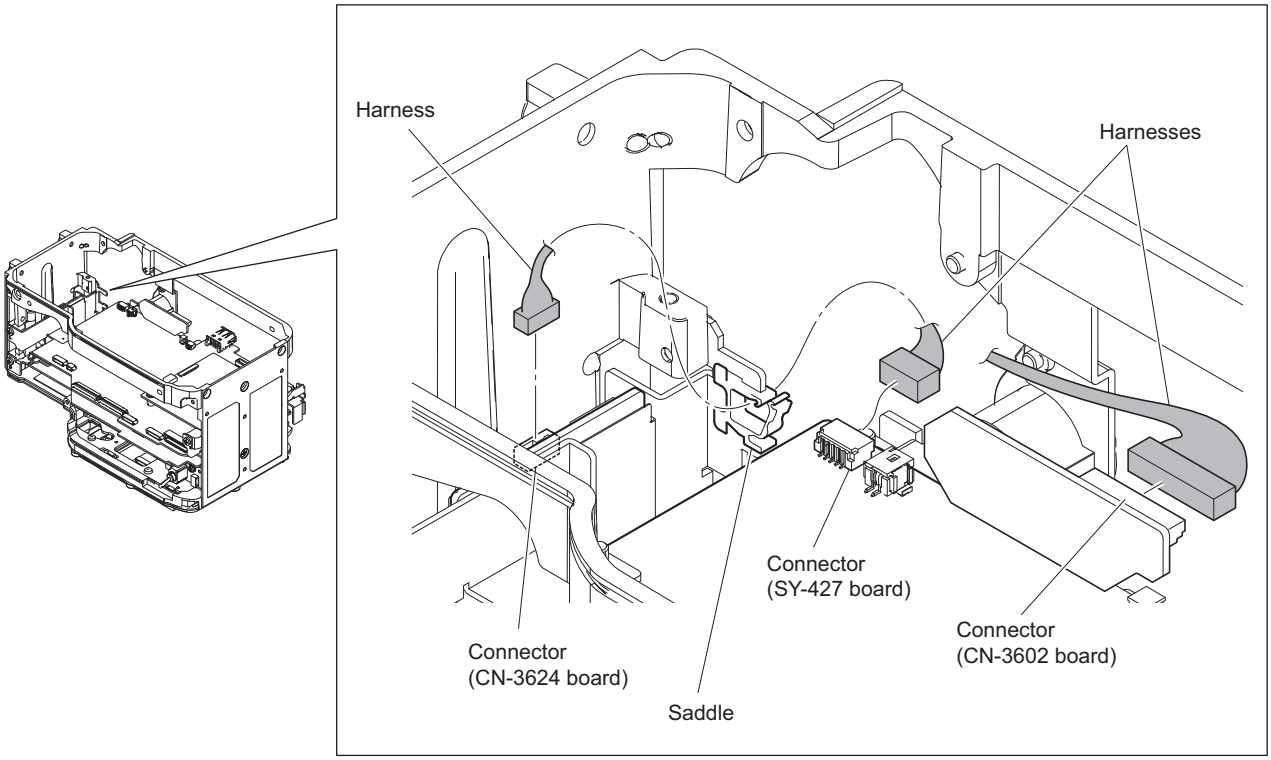
Procedure

1. Disconnect the two flexible flat cables from the two connectors (CN100, CN101) on the SY-427 board.
2. Disconnect the harness from the connector (CN102) on the SY-427 board.



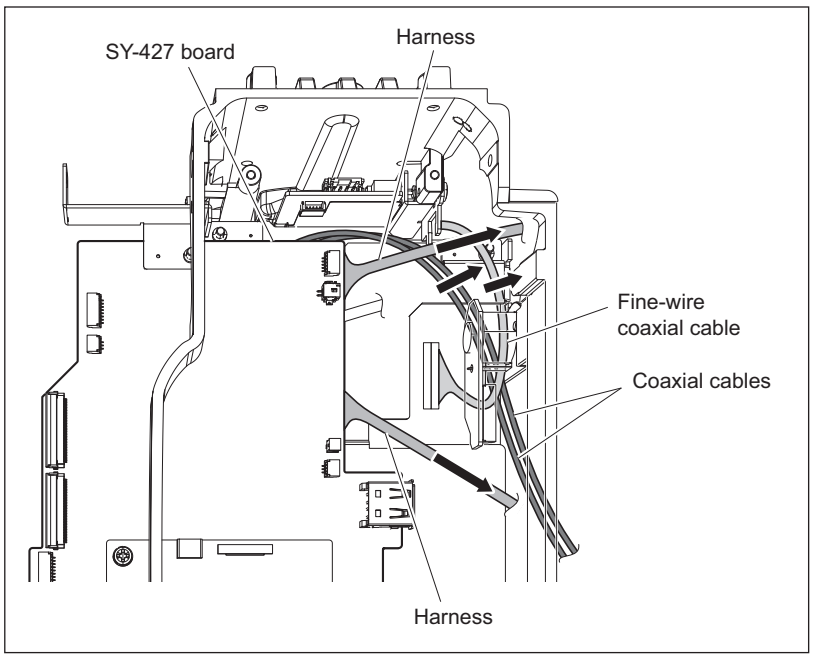
3. Disconnect the harness from the connector on the CN-3624 board and release it from the saddle.
4. Disconnect the harness from the connector on the SY-427 board.

5. Disconnect the harness from the connector on the CN-3602 board.

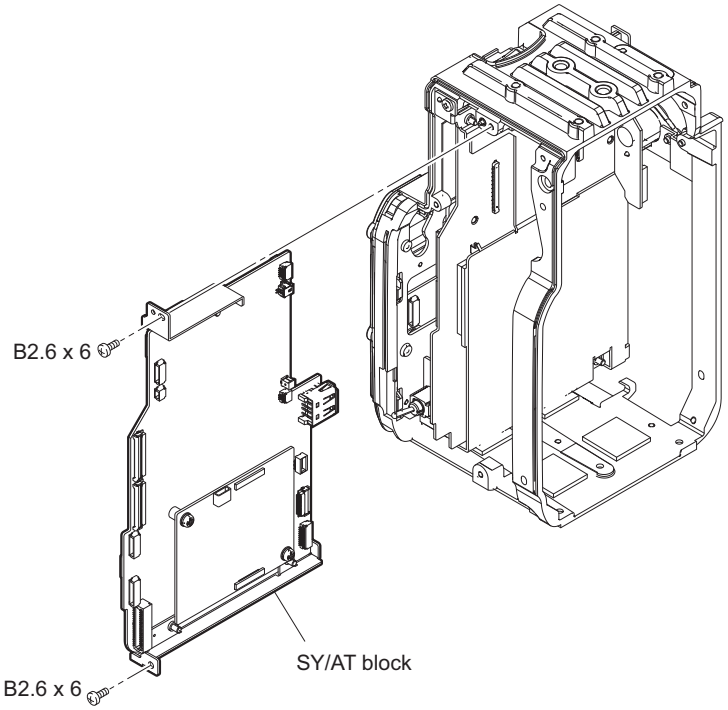


Note

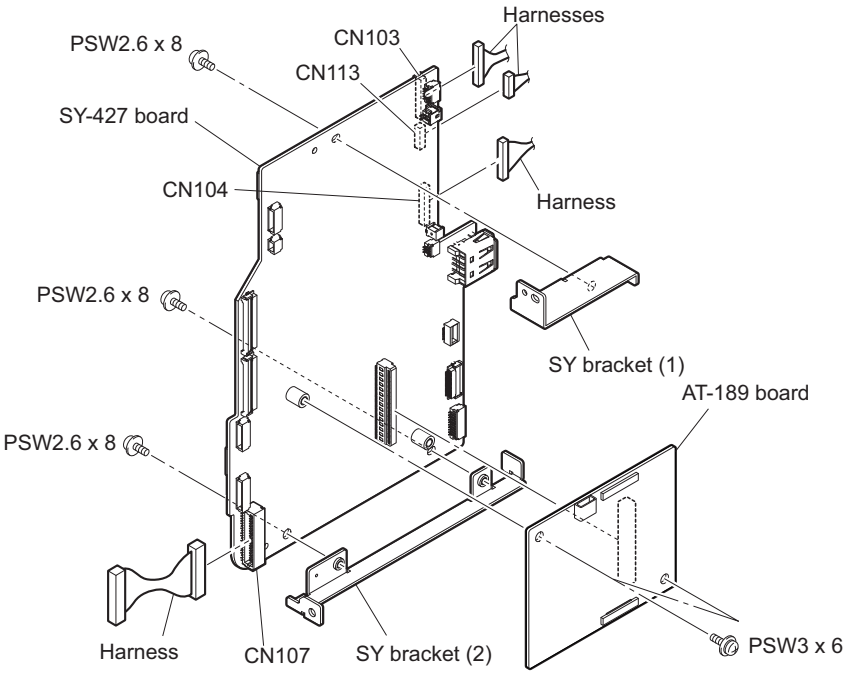
When installing the SY-427 board, arrange the harnesses and the cables in the arrow direction.



6. Remove the two screws to detach the SY/AT block.



7. Remove the two screws (PSW3 x 6) to detach the AT-189 board.
8. Remove the three screws (PSW2.6 x 8) to detach the SY bracket (1), SY bracket (2).
9. Disconnect the four harnesses from the four connectors (CN103, CN104, CN107, and CN113) on the SY-427 board.



Note

When reconnecting the harness to the CN107, securely insert the harness to the end of respective connectors.

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

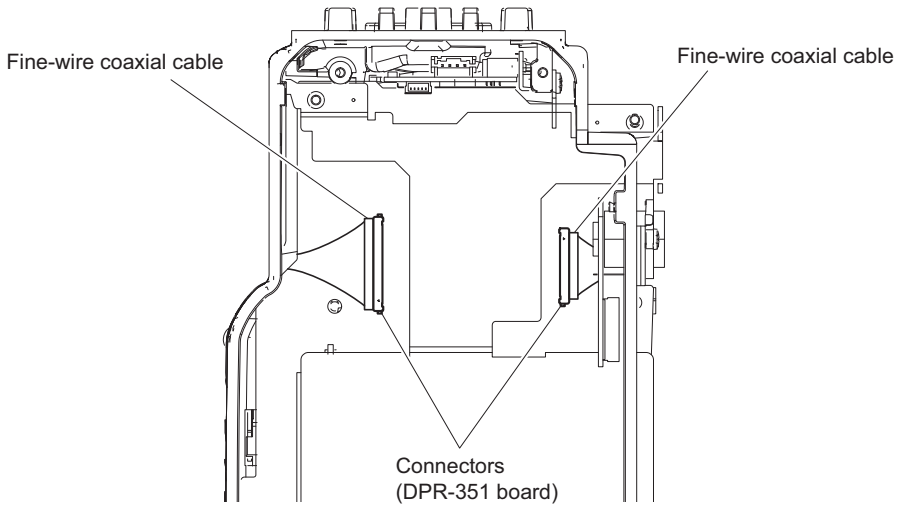
2-10. DPR-351 Board

Preparation

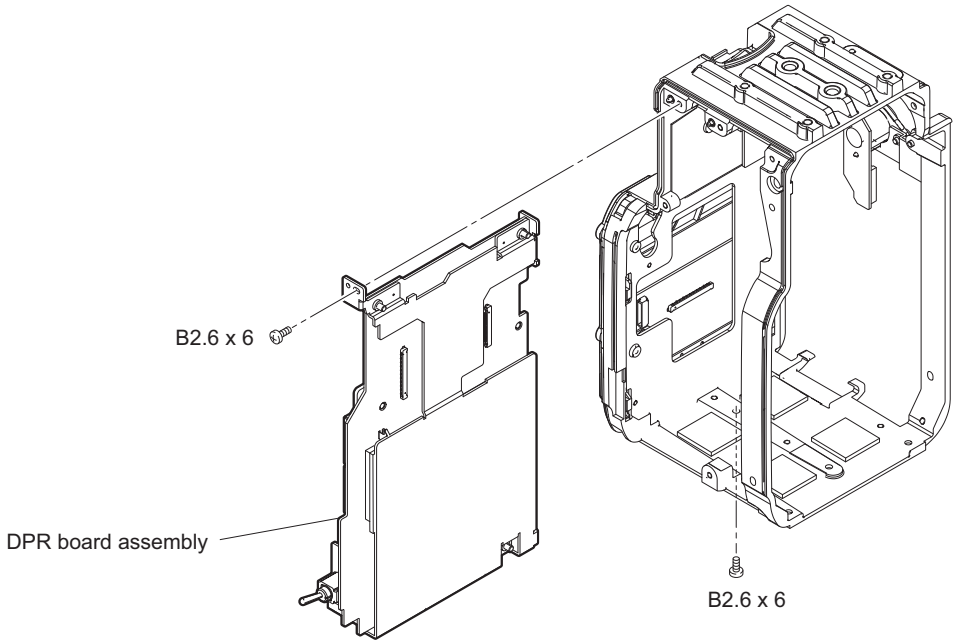
1. Remove the outside panel assembly. (Refer to "2-3-1. Outside Panel Assembly")
2. Remove the inside panel assembly. (Refer to "2-4. Inside Panel Assembly")
3. Remove the rear panel assembly.
   - (no installing the SKC-PB40: Refer to "2-5-1. Rear Panel Assembly (No Installing the SKC-PB40)")
   - (installing the SKC-PB40: Refer to "2-5-2. Rear Panel Assembly (Installing the SKC-PB40)")
4. Remove the SKC-PB40. (in case of installing the SKC-PB40) (Refer to "2-6. SKC-PB40")
5. Remove the power block. (Refer to "2-7. Power Block")
6. Remove the SY-427 board. (Refer to "2-9. SY-427 Board")

Procedure

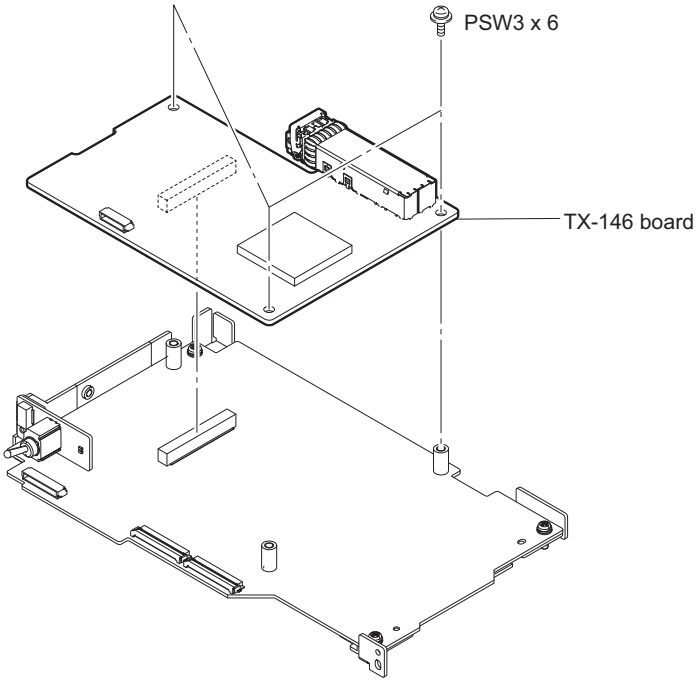
1. Disconnect the two fine-wire coaxial cables from the two connectors on the DPR-351 board.



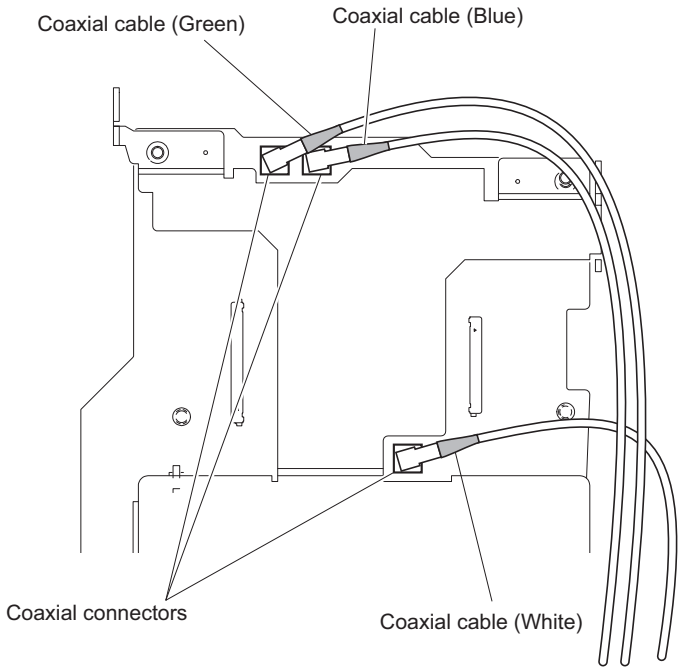
2. Remove the two screws to detach the DPR board assembly.



3. Remove the three screws to detach the TX-146 board.



4. Disconnect the three coaxial cables from the three coaxial connectors.

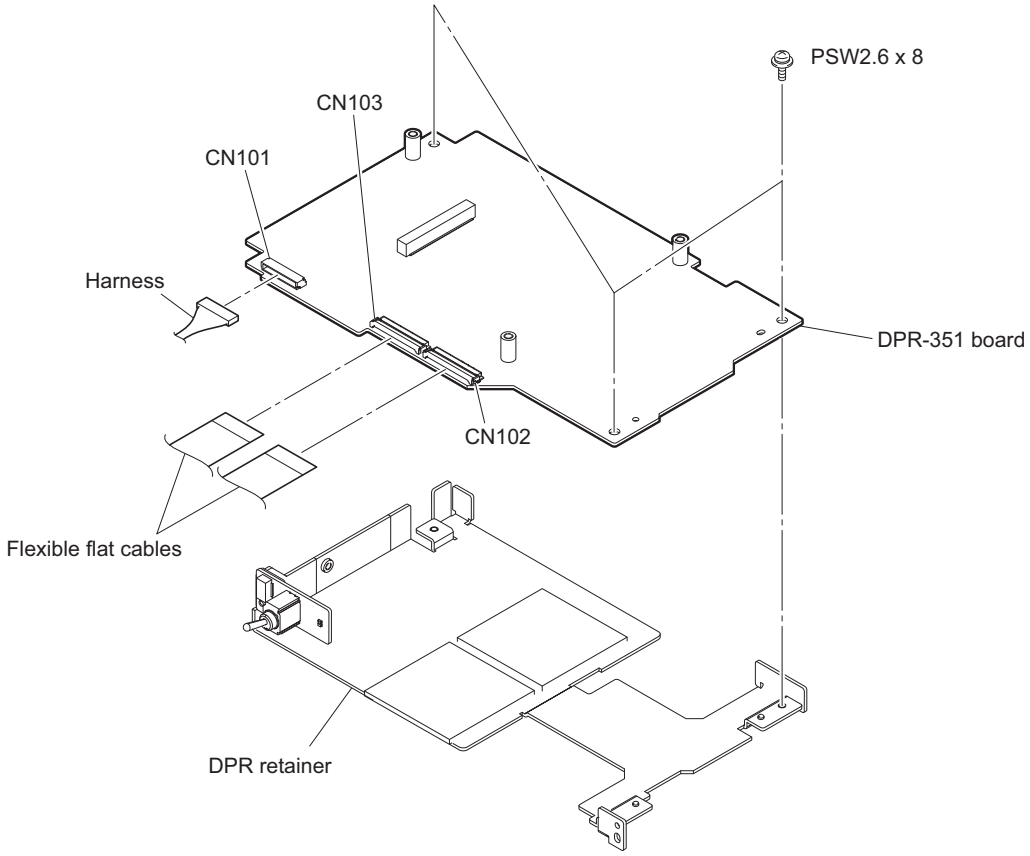


Note

- When reconnect the cables, connect correct connectors.
- When installing, arrange the cables as shown in the figure.

5. Remove the three screws to detach the DPR retainer.

6. Disconnect the two flexible flat cables and the harness from the three connectors (CN101, CN102, and CN103) on the DPR-351 board.

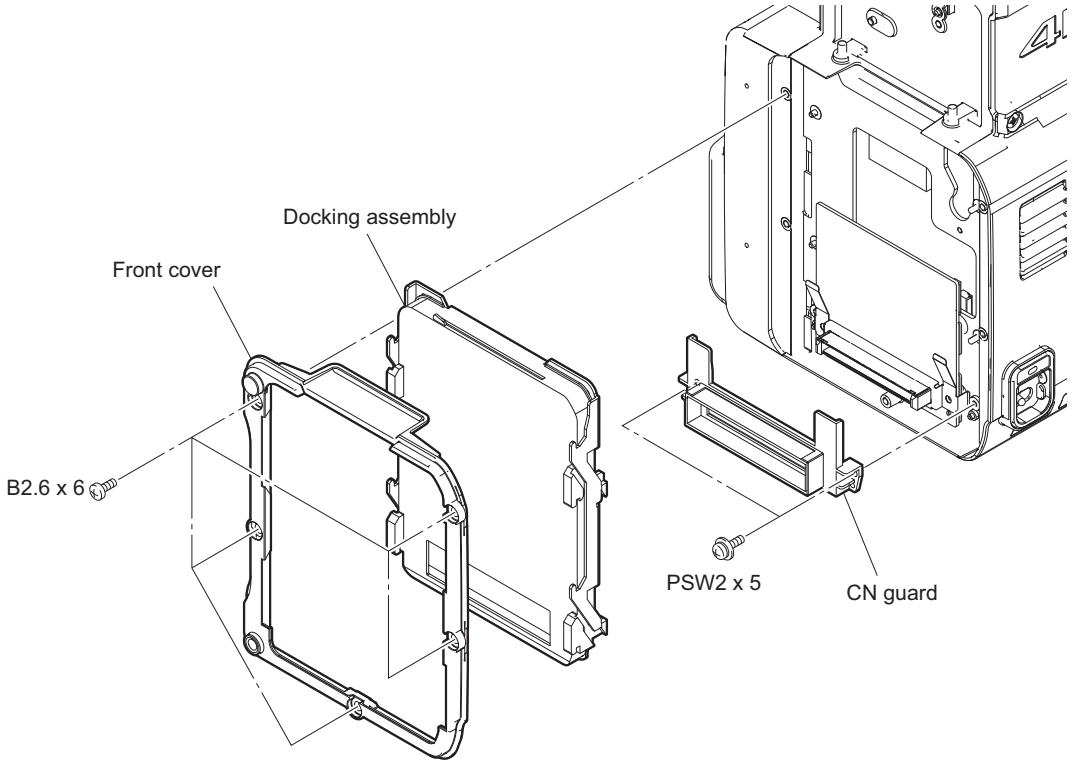


7. Install the removed parts by reversing the steps of removal.

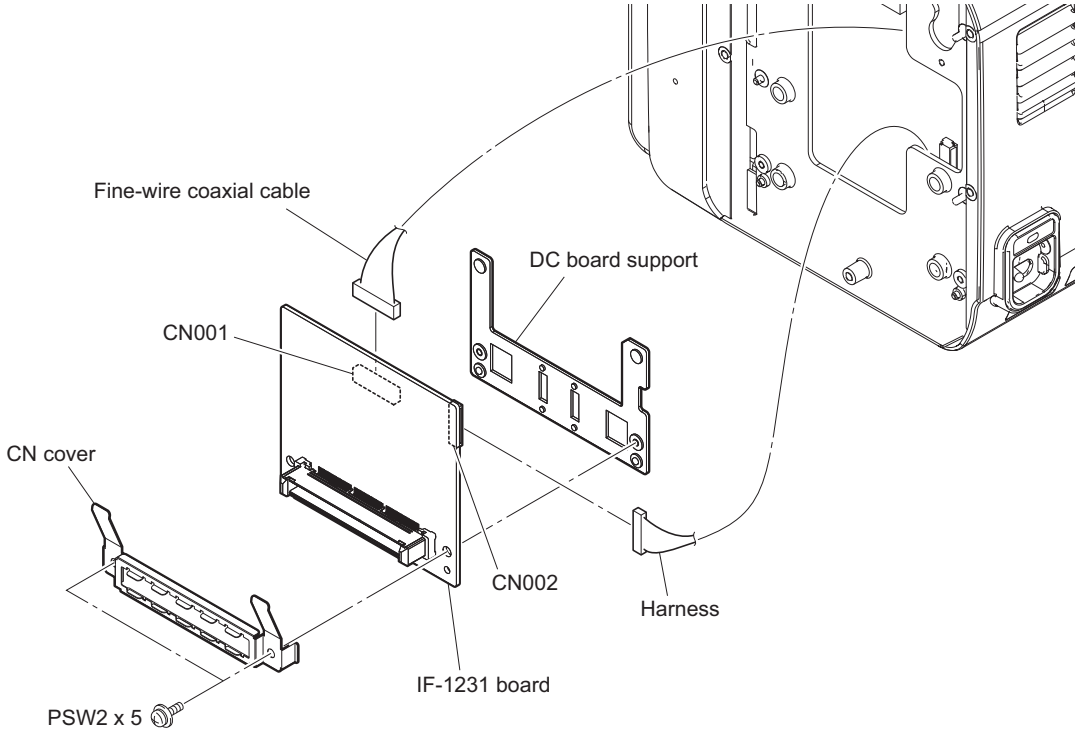
2-11. IF-1231 Board

Procedure

1. Remove the five screws (B2.6 x 6) to detach the front cover and the docking assembly.
2. Remove the two screws (PSW2 x 5) to detach the CN guard.



3. Remove the two screws to detach the CN cover and the DC board support.
4. Disconnect the fine-wire coaxial cable and the harness from the two connectors (CN001, CN002) on the IF-1231 board.

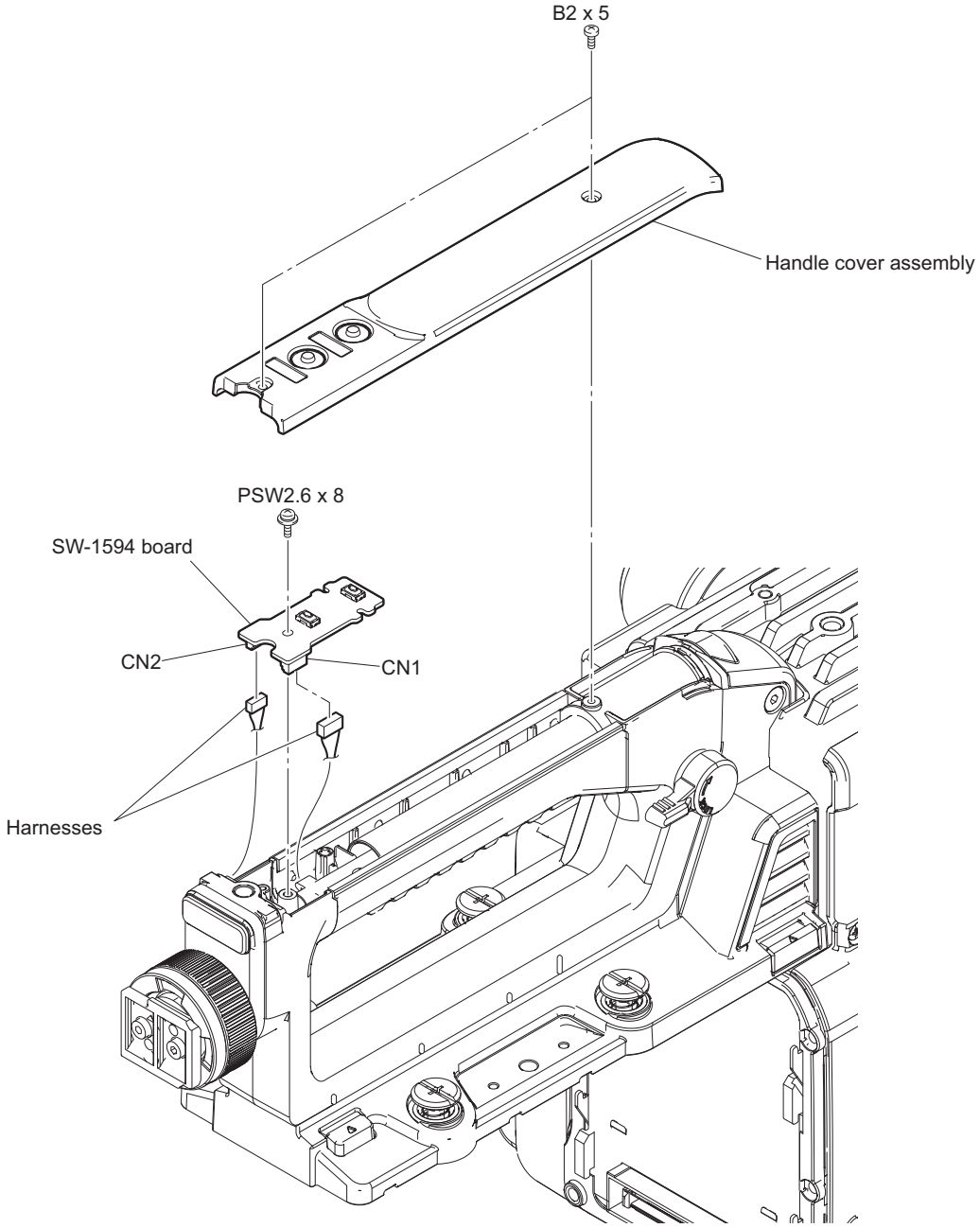


5. Install the removed parts by reversing the steps of removal.

2-12. SW-1594 Board

Procedure

1. Remove the two screws (B2 x 5) to detach the handle cover assembly.
2. Remove the screw (PSW2.6 x 8) and lift up the SW-1594 board.
3. Disconnect the two harnesses from the two connectors (CN1, CN2) on the SW-1594 board.

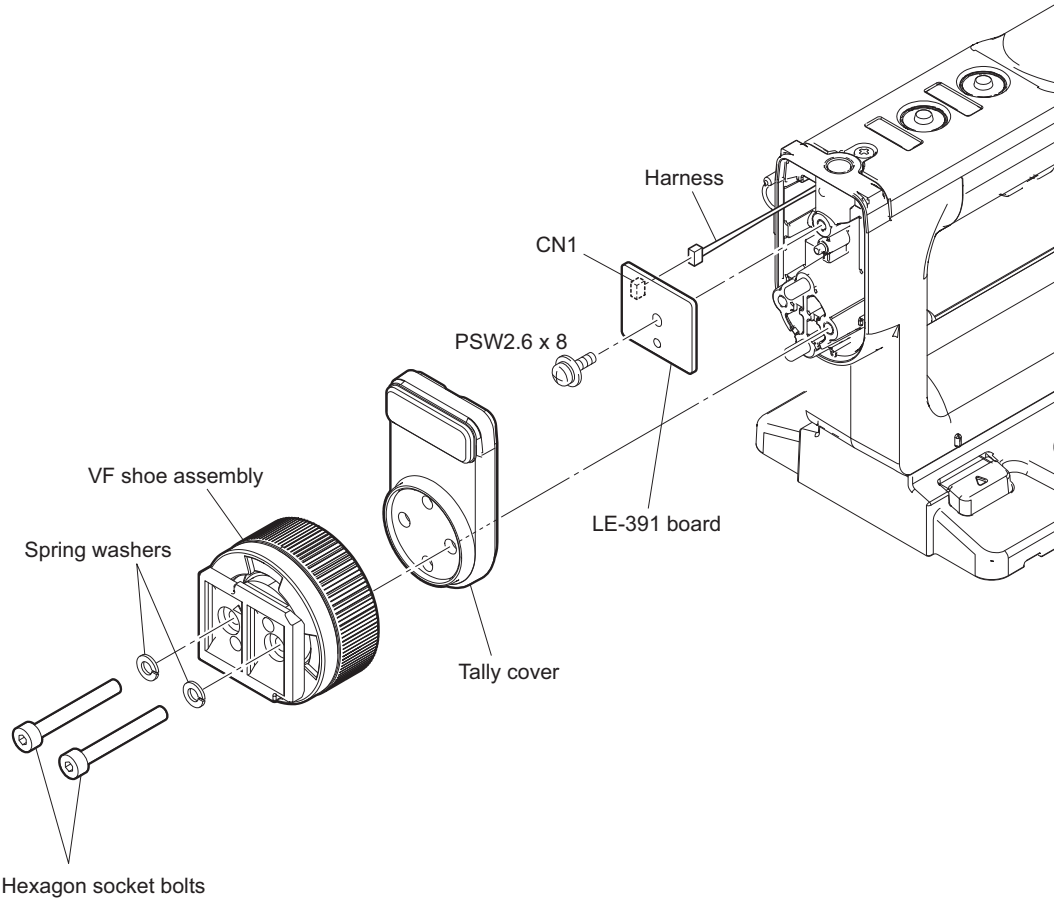


4. Install the removed parts by reversing the steps of removal.

2-13. LE-391 Board

Procedure

1. Remove the two hexagon socket bolts and the two spring washers to detach the VF shoe assembly and the tally cover.
2. Remove the screw (PSW2.6 x 8) and pull out the LE-391 board.
3. Disconnect the harness from the connector (CN1) on the LE-391 board.



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

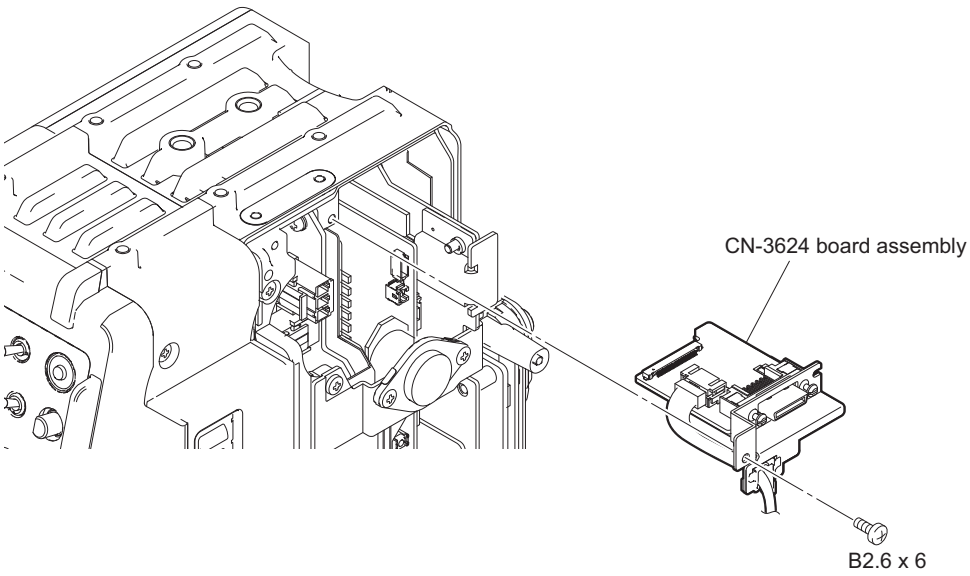
2-14. CN-3624 Board

Preparation

1. Remove the handle assembly. (Refer to "2-2. Handle Assembly")
2. Remove the outside panel assembly, (Refer to "2-3-1. Outside Panel Assembly")

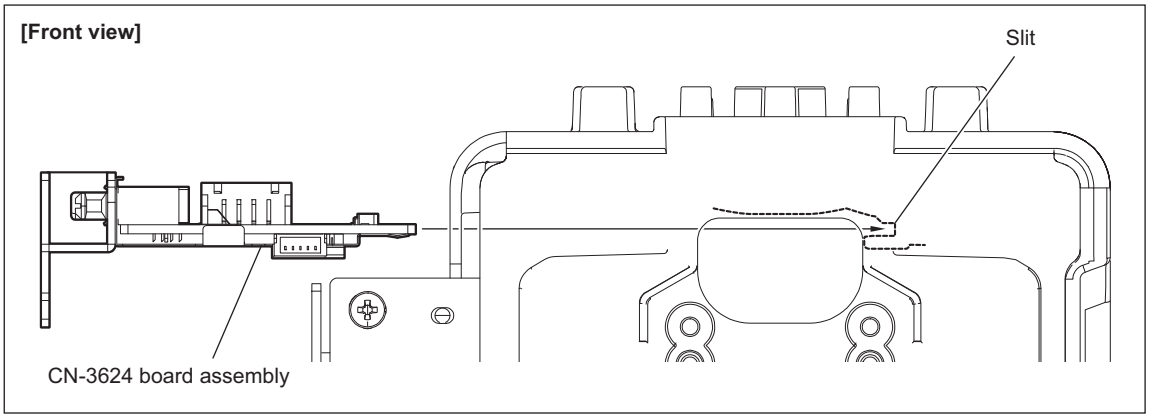
Procedure

1. Remove the screw and pull out the CN-3624 board assembly.



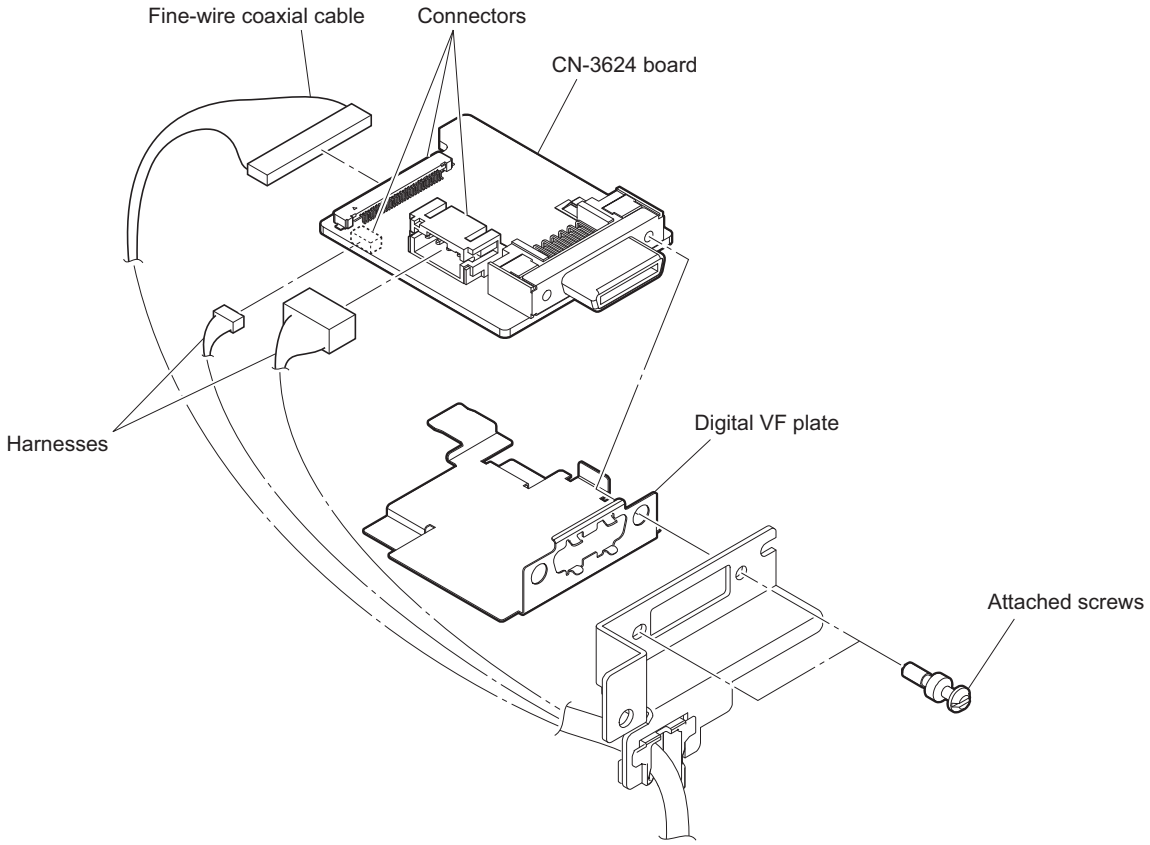
Note

When installing the CN-3624 board assembly, insert it to the slit and then tighten the screw.



2. Disconnect the fine-wire coaxial cable and the two harnesses from the three connectors on the CN-3624 board.

3. Remove the two attached screws to detach the digital VF plate and the CN-3624 board.



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

2-15. SKC-4065

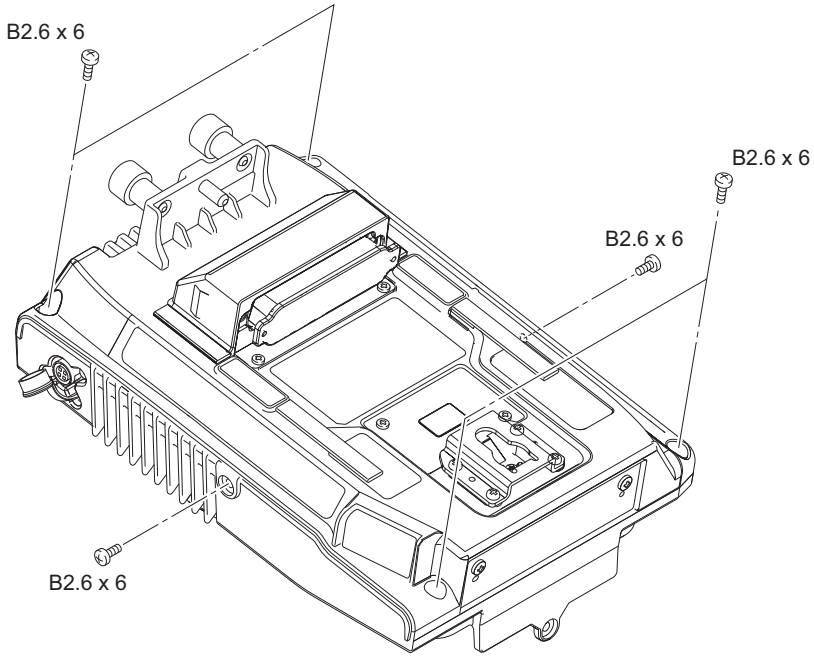
Note

When repairing or replacing, be sure to perform in the condition that is separated from a power supply.

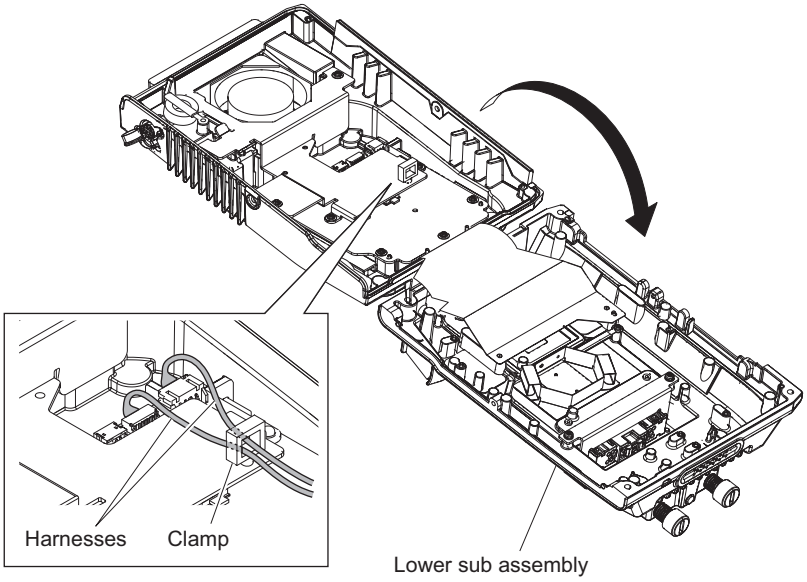
2-15-1. IF-1262 Board

Procedure

1. Remove the six screws.

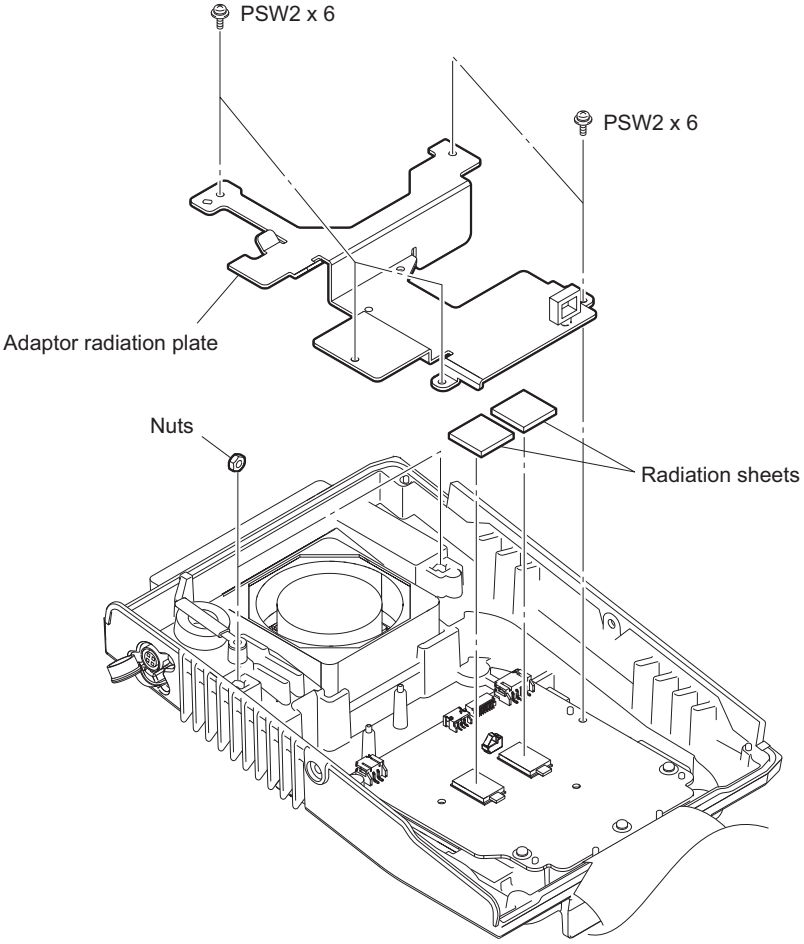


2. Open the lower sub assembly.
3. Release the two harnesses from the clamp.

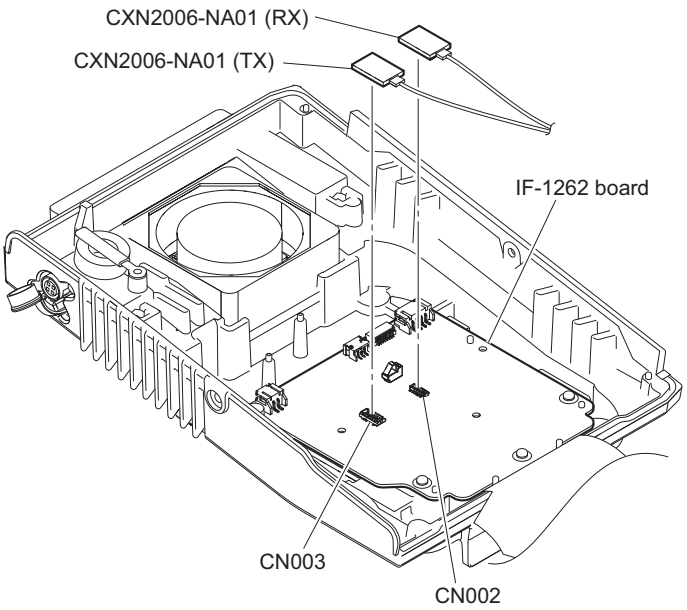


4. Remove the five screws to detach the adaptor radiation plate and the two nuts.

5. Remove the two radiation sheets.

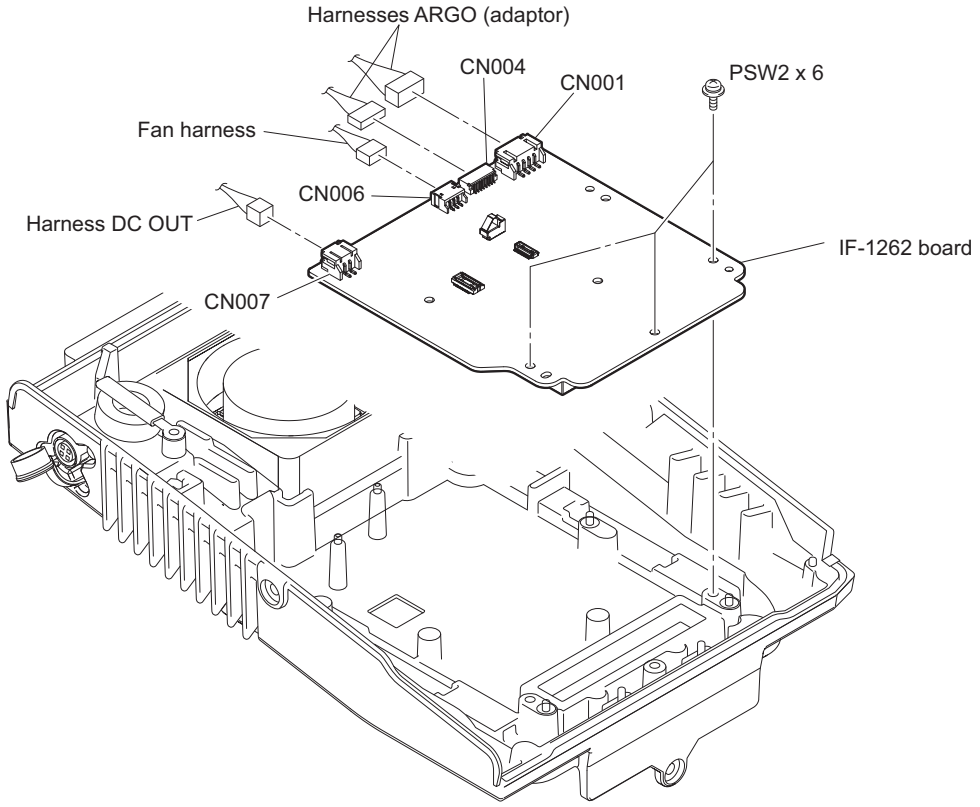


6. Disconnect the two connectors CXN2006-NA01 from the two connectors (CN002, CN003) on the IF-1262 board.



7. Disconnect the fan harness and the three harnesses from the four connectors (CN001, CN004, CN006, and CN007) on the IF-1262 board.

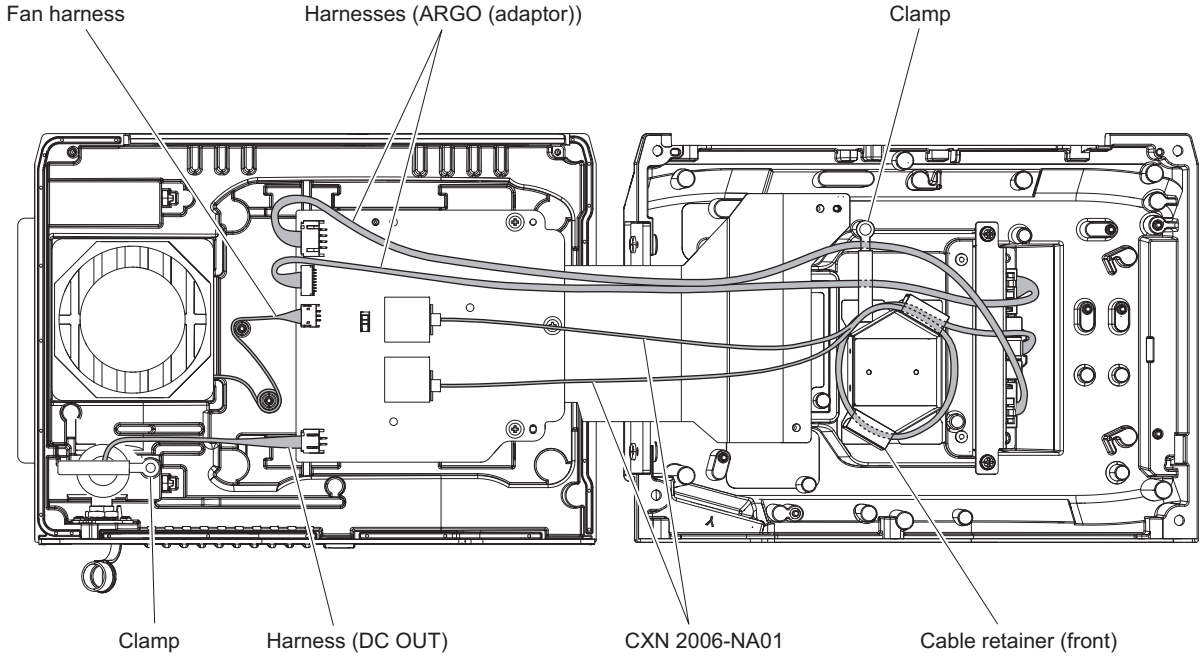
8. Remove the three screws to detach the IF-1262 board.



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

Note

Before assembling the lower sub assembly, make sure that harnesses are arranged as shown the figure. Be careful not to catch the harnesses.



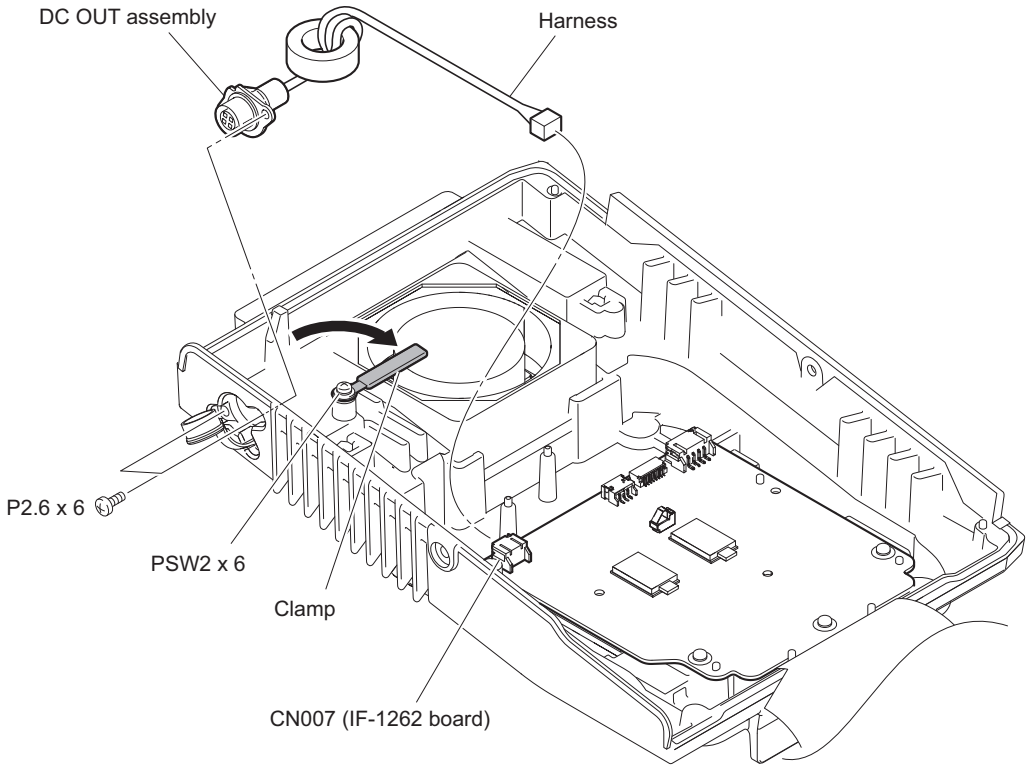
2-15-2. DC OUT Assembly

Preparation

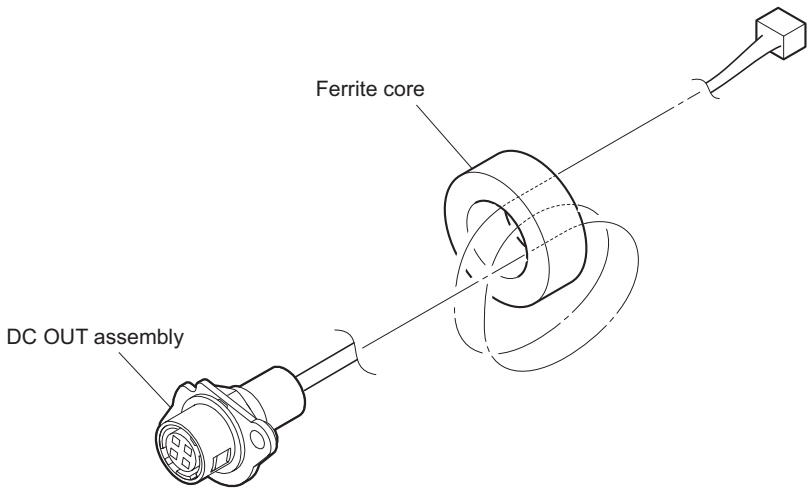
1. Remove the adaptor radiation plate and the two nuts. (Refer to "2-15-1. IF-1262 Board")

Procedure

1. Loosen the screw (PSW2 x 6) and then rotate the clamp in the direction of the arrow.
2. Disconnect the harness from the connector (CN007) on the IF-1262 board.
3. Remove the screw (P2.6 x 6) to detach the DC OUT Assembly.



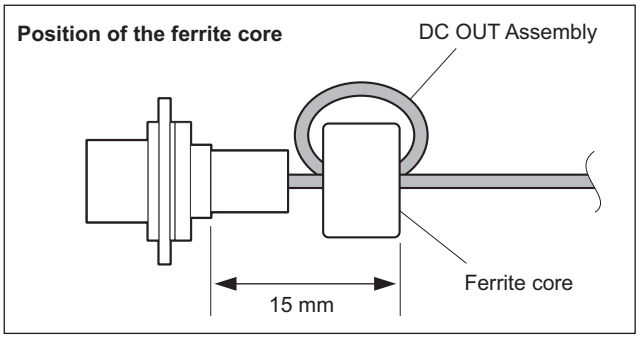
4. Remove the ferrite core from the DC OUT assembly.



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

Note

When installing the ferrite core, position it as shown and turn the DC OUT assembly two times.



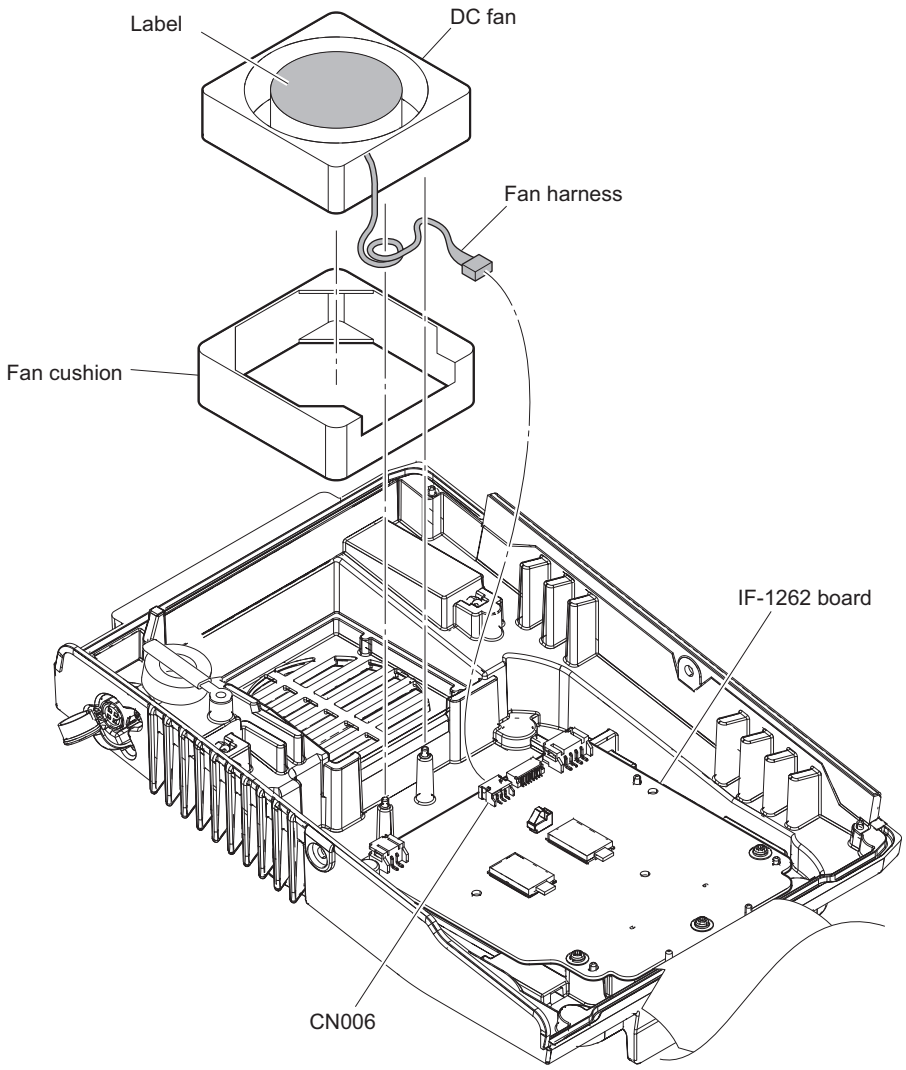
2-15-3. DC Fan

Preparation

1. Remove the adaptor radiation plate and the two nuts. (Refer to "2-15-1. IF-1262 Board")

Procedure

1. Disconnect the fan harness from the connector (CN006) on the IF-1262 board.
2. Remove the fan cushion and the DC fan.



Note

Pay attention to the following when installing the DC fan.

- Paying attention to the label side and the harness position.
- Arrange the fan harness as shown in the figure.

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

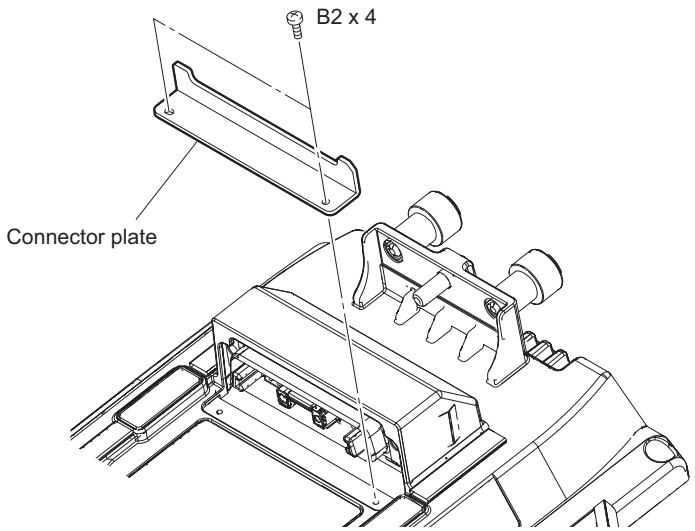
2-15-4. Harness (ARGO (Adaptor))/CXN2006-NA01

Preparation

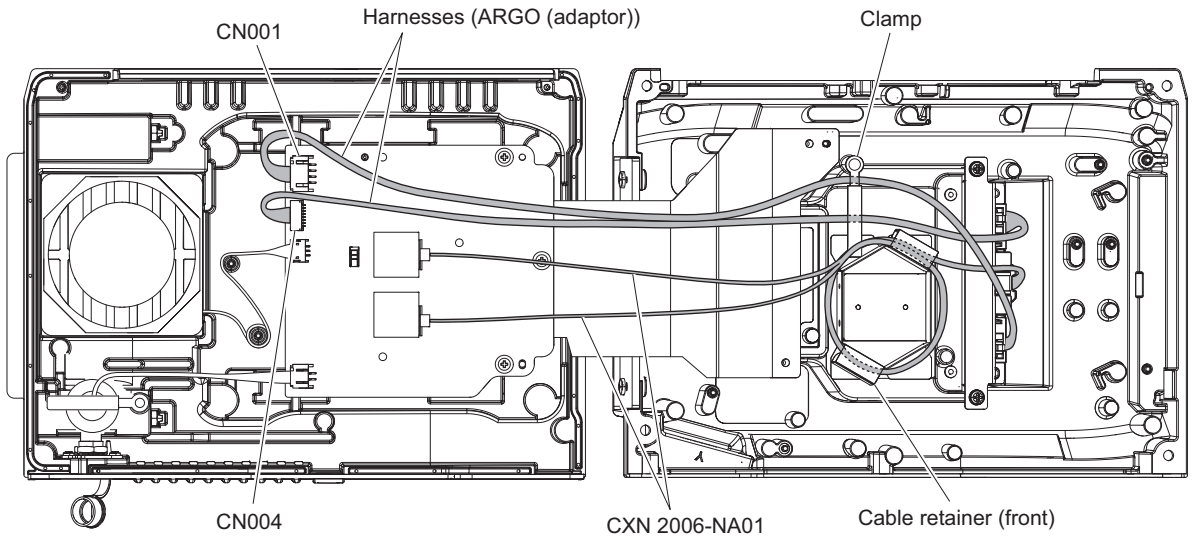
1. Disconnect the two connectors CXN2006-NA01 from the two connectors on the IF-1262 board. (Refer to "2-15-1. IF-1262 Board")

Procedure

1. Remove the two screws to detach the connector plate.



2. Disconnect the two harnesses (ARGO (adaptor)) from the two connectors (CN001, CN004) on the IF-1262 board.
3. Release the two harnesses (ARGO (adaptor)) from the clamp.
4. Remove the two CXN2006-NA01 from the cable retainer (front).



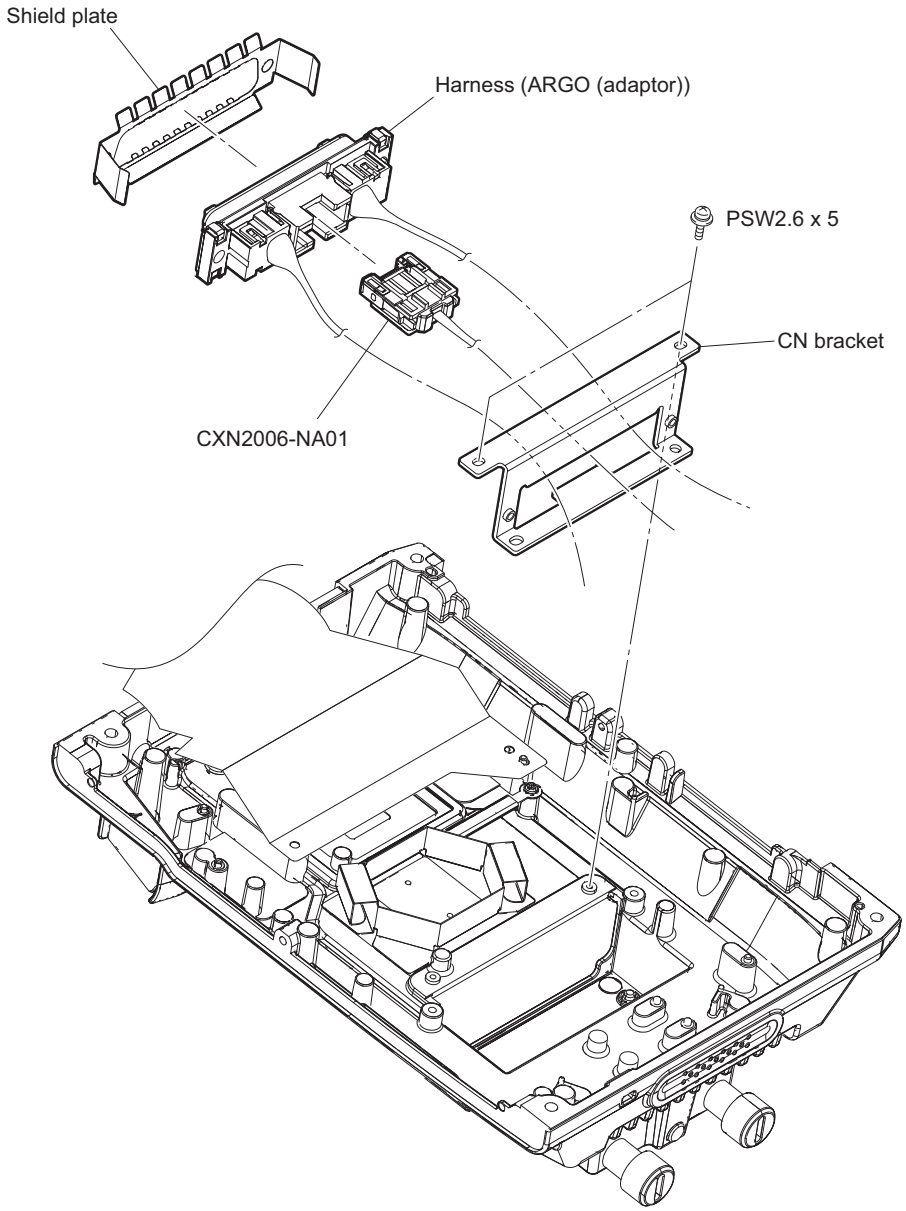
Note

Pay attention to the following when installing the CXN2006-NA01.

- Coil the CXN2006-NA01 to the cable retainer (front) two times.
- Do not twist the XN2006-NA01 as possible.

5. Remove the two screws to detach the CN bracket.
6. Remove the shield plate and the CN bracket from the harness (ARGO (adaptor)).

7. Disconnect the CXN2006-NA01 from the harness (ARGO (adaptor)).



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

Section 3
File System

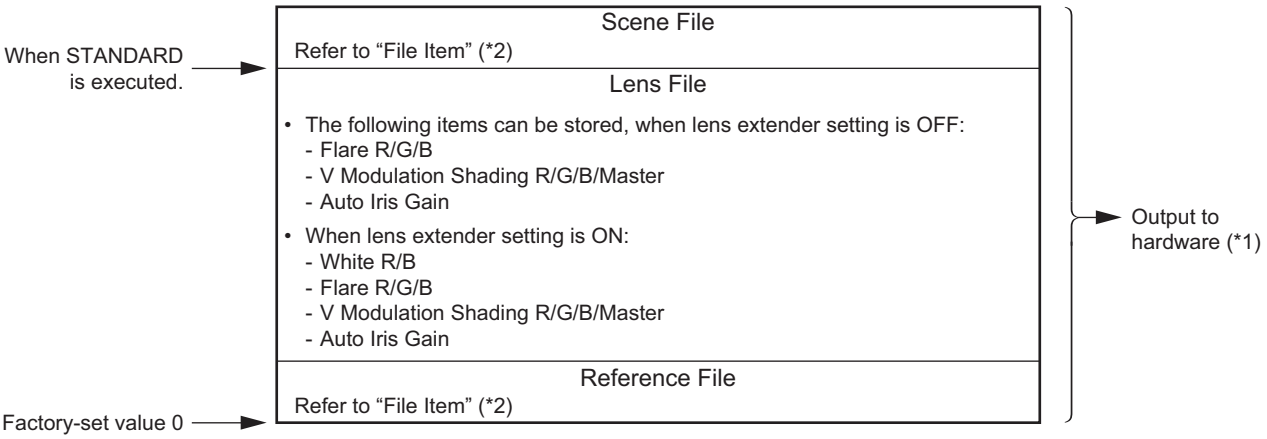
This unit is equipped with the file systems for managing data.
In this section, the menu operations are described as follows.
Example: When executing WRITE (CAM → USB) on the OPERATOR FILE page of the OPERATION menu
[OPERATION] → [OPERATOR FILE] → [WRITE (CAM → USB)]
As for the details on the setup menu, refer to “4. Setup Menu”.

3-1. File Structure

The following five types of files are available. As for the items to be stored in each file, refer to “3-7. File Items”.

1. Operator File (Refer to “3-2. Operator File”.)
   Stores the items displayed on the viewfinder and switch settings for camera operator. This file can be stored in a USB drive, yet video data (paint data) cannot be stored.
2. Preset Operator File (Refer to “3-3. Preset Operator File”)
   Stores the factory settings of Operator File.
   This file can be stored in the camera, yet video data (paint data) cannot be stored.
3. Scene File (Refer to “3-4. Scene File”)
   Stores the temporary video setting data according to the scene. This file can be stored in the camera and a USB drive.
4. Reference File (Refer to “3-5. Reference File”)
   Stores the custom paint data adjusted by the video engineer. This file can be stored in the camera and a USB drive.
5. Lens File (Refer to “3-6. Lens File”)
   Used for compensation of the deviation which is generated by switching the lens extender from OFF to ON and for compensation of the difference in the characteristics between lenses. This file is stored in the camera.

3-1-1. Structure of Paint Related Files



(*1): The additional data of each file is sent to each circuit in the unit.
(*2): For items that can be stored in the scene file and the reference file, refer to “3-7. File Items”.

3-2. Operator File

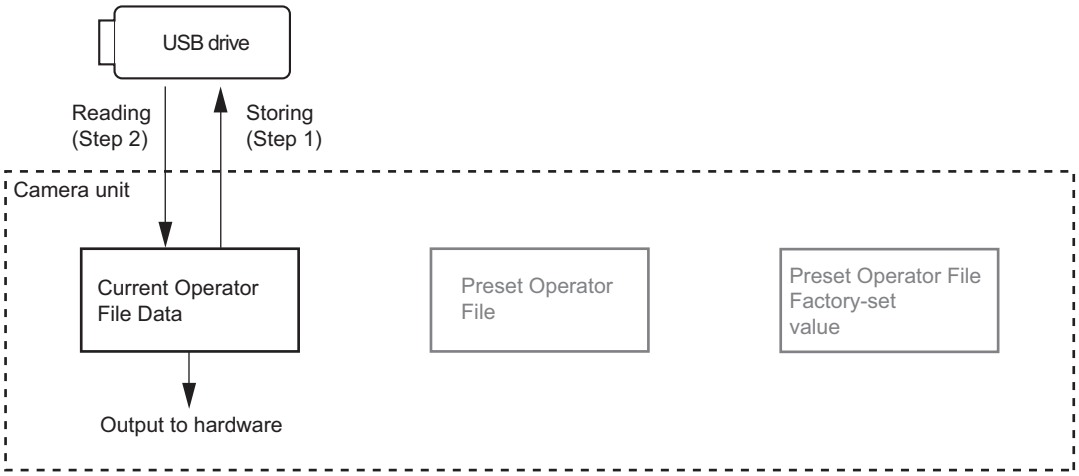
The operator file can be stored and read in the camera.
Use the setup menu to store the operator file in and read the operator file from the USB memory.

Note

- Operator file data stored in the USB drive cannot be read when the power is just turned ON.
- The current operator file data is retained even when the power is turned off.

3-2-1. Operator File Operation

Outline Figure of Operation



Storing

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

Using OPERATION Menu of This Unit

Stores the current status in the USB drive.
[OPERATION] → [OPERATOR FILE] → [WRITE (CAM → USB)]

Reading

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

Using OPERATION Menu of This Unit

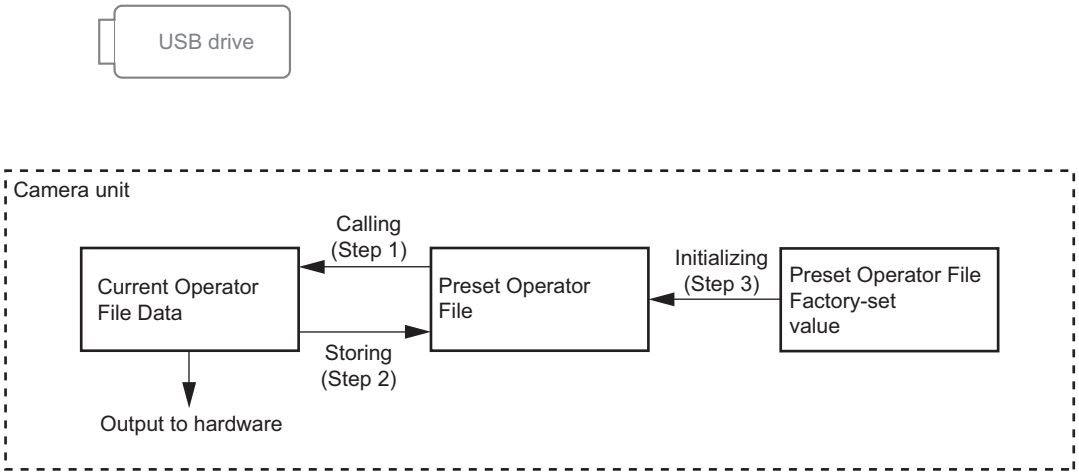
Reads the operator file stored in the USB drive to the camera.
[OPERATION] → [OPERATOR FILE] → [READ (USB → CAM)]

3-3. Preset Operator File

Preset Operator File can be stored data in the camera. Data is called and stored using the setup menu. Items to be stored as Preset Operator File are the same as Operator File.

3-3-1. Preset Operator File Operation

Outline Figure of Operation



Calling

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

Using OPERATION Menu of This Unit

Calls the preset operator file stored in the camera as the current operator file.
[OPERATION] → [OPERATOR FILE] → [PRESET]

Storing

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

Using FILE Menu of This Unit

Stores the current operator file as the preset operator file.
[FILE] → [OPERATOR FILE] → [STORE PRESET FILE]

Initializing

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

Using FILE Menu of This Unit

Introduce preset operator file from the factory settings.
[FILE] → [FILE CLEAR] → [PRESET OPERATOR]

3-4. Scene File

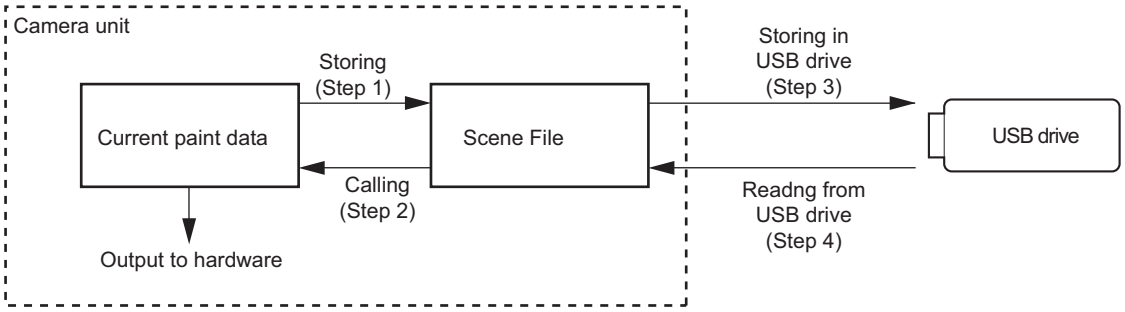
Scene files can be stored in the camera and USB drive.
Scene files can also be stored in the USB drive if the master setup unit (MSU) is used. For details, refer to the MSU operation manual.
Data is stored and called using the setup menu or MSU.
Scene files can be copied between cameras using the USB drive.

Note

Scene Files are files for storing the differences from the Reference File. Therefore, when the Reference File is changed, output of the Scene File item corresponding to the item changed in the Reference File also varies.

3-4-1. Scene File Operation

Outline Figure of Operation



Storing

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

Using PAINT Menu of This Unit

1. Change the scene file item to the desired value.
2. Select the scene file number [1] to [5] to be stored.
   [PAINT] →[SCENE FILE] → [STORE] → [1] ～ [5]

With MSU (Master Setup Unit)

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 and Clearing the Call

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

Using PAINT Menu of This Unit

Select the scene file number to be called on the SCENE FILE page.
[PAINT] →[SCENE FILE] → [1] ～ [5]
A file currently being called is indicated with its file number highlighted. Select the number again to cancel the call and resume the previous status.

With MSU (Master Setup Unit)

When the number button of the scene file you want to call is pressed and lit while the STORE button on the operation panel is not lit, the scene file of the number is called. Repressing the number button cancels calling of the scene file and the state before calling is restored.

Storing the Scene File to the USB Drive

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

Using PAINT Menu of This Unit

Stores the scene file stored in the camera to the USB drive.
[PAINT] → [SCENE FILE] → [WRITE (CAM → USB)]

Reading the Scene File from the USB Drive

Reference: Refer to step 4 of “Outline Figure of Operation”.

Using PAINT Menu of This Unit

Reads the scene file stored in the USB drive to the camera.
[PAINT] → [SCENE FILE] → [READ (USB → CAM)]

Note

Scene File data stored in the USB drive cannot be read when the power is just turned on.

3-5. Reference File

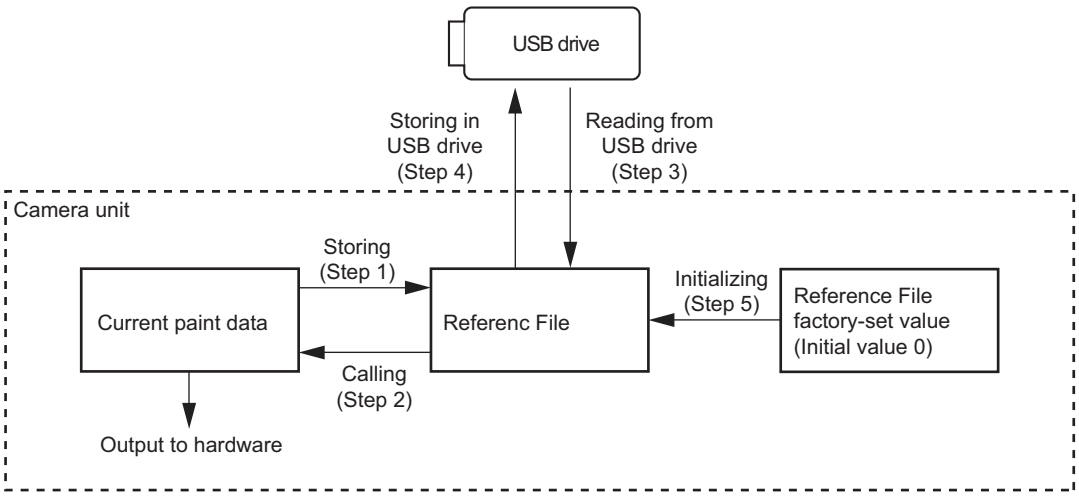
Reference files can be stored in the camera and USB drive.
Reference files can also be stored in the memory stick if the master setup unit (MSU) is used. For details, refer to the MSU operation manual.
Data is stored and called using the setup menu or MSU.
Reference files can be copied between cameras using the USB drive.

Note

Reference File stores the differential data taking the factory-setting as 0. Therefore, initializing the Reference File brings the settings to the same status at the factory setting. If Lens File or OHB File retains the data, they need to be initialized as well.
To initialize data, use the setup menu. You can select all file items or only specified items to initialize.

3-5-1. Reference File Operation

Outline Figure of Operation



Storing

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

Using FILE Menu of This Unit

Reference file is stored in the camera and the numerical data is displayed as 0. (Excluding some items. Refer to .)
[FILE] → [REFERENCE] → [STORE FILE]

With MSU (Master Setup Unit)

1. Press the FILE button in the functional operation area on the operation panel.
2. Select [Reference] → [Reference Store] by the menu operation.
   Reference file is stored in the camera and the numerical data is displayed as 0. (Excluding some items. Refer to)

Calling

Reference: Refer to step 2 of “Outline Figure of Operation”. Refer to “3-1-1. Structure of Paint Related Files”.

Using PAINT Menu of This Unit

Temporary paint (values of each item) and selection of scene file are reset, and the state when the reference file was stored is resumed.

[PAINT] → [SCENE FILE] → [STANDARD]

With MSU (Master Setup Unit)

Pressing the STANDARD button in the camera/panel control area on the operation panel restores the state when the reference file was stored.

Reading the Reference File from the USB Drive

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

Using FILE Menu of This Unit

Reference File data stored in the camera can be changed by reading the Reference File data stored in the USB drive.

[FILE] → [REFERENCE] → [READ (USB → CAM)]

Note

Reference file data stored in the USB drive cannot be read when the power is just turned on.

Storing the Reference File in the USB Drive

Reference: Refer to step 4 of “Outline Figure of Operation”.

Using FILE Menu of This Unit

Stores the reference file stored in the camera to the USB drive.

[FILE] → [REFERENCE] → [WRITE (CAM → USB)]

Initializing All File Items

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

Using FILE Menu of This Unit

Re-set the reference file to the factory settings (default value: 0).

[FILE] → [FILE CLEAR] → [REFERENCE (ALL)]

3-6. Lens File

The Lens File stores the differential data from the Reference File.
Lens File stores the data to compensate the differences of the white shading, flare balance, and white balance, which occur when the lens extender is set to ON. It also stores the minimum f-stop value and name of the lens. These adjustment data are stored in the camera.
Lens File data of up to 16 files can be stored for a lens that is not compatible with serial communication and Lens File data of up to 25 files can be stored for a lens compatible with serial communication.
The adjustment data can be called by selecting a Lens File.

Note

Before creating the Lens File, perform the necessary adjustments by using the lens usually used and register the Reference File.

3-6-1. Lens File Operation

Adjusting the Lens File Data

Using a lens that is not compatible with serial communication

1. Mount the lens and select the file with the same name as the mounted lens from the setup menu. If no file with the same name as the lens exists, select NO OFFSET.
   [FILE] → [LENS FILE] → [No.] (Select a lens number)
2. Set the lens name and minimum f-stop value.
3. Set the lens extender to OFF.
4. Adjust the white balance and flare balance with the grayscale chart.
5. Zoom the lens and adjust the center marker to a position at which the object does not deviate.

   Note

   The center marker position is stored in the Lens File immediately after the position is aligned.
   Note that the center marker position is not stored when Lens File Store is executed.

6. Execute Lens File Store.
   [FILE] → [LENS FILE] → [STORE FILE]
7. Set the lens extender to ON and repeat steps 4 to 6.

For lens compatible with serial communication

1. Check that the lens number is No. 17.
2. Also check that the name of the lens and minimum f-stop value.
3. Set the lens extender to OFF.
4. Adjust the white balance and flare balance with the grayscale chart.
5. Zoom the lens and adjust the center marker to a position at which the object does not deviate.

   Note

   The center marker position is stored in the Lens File immediately after the position is aligned, and is not stored when Lens File Store is executed.

6. Execute Lens File Store.
   [FILE] → [LENS FILE] → [STORE FILE]
7. Set the lens extender to ON and repeat steps 4 to 6.

Calling

Using OPERATION Menu of This Unit

Calls the lens file stored in the camera.

[FILE] → [LENS FILE] → [No.]

3-7. File Items

You can save the data that is set with the setup menu in files.
This section lists the destination files in which the respective setting data can be stored.
This section also shows the indication mode (absolute or relative) of each setting and the default settings when the unit was shipped from the factory.

Description on symbols

○: When executing each file store, it indicates items that can be stored in the file. (If ON or OFF is described in the list, the setting is stored as it is.)
×: Setting is not stored in the file.
—: Unstorable because of a menu of temporary operation etc.

Function	Switch Item	Analog Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	Note
GAIN	Master Gain Select		○	○	×	×	–3 dB to +18 dB
Iris		IRIS	×	×	×	×	
	Auto Iris on		○	○	×	×	
		Level	○	○	×	×	
		APL	○	○	×	×	
		Gain	○	○	○	×	
		Over ride	×	×	×	×	
	Detect Pattern		○	○	×	×	
	Close		×	OFF	×	×	
Shutter	Shutter ON		○	OFF	×	×	
	Shutter Select		○	×	×	×	
Black Shading		Black Shading H Saw-R	×	×	×	×	
		Black Shading H Saw-G	×	×	×	×	
		Black Shading H Saw-B	×	×	×	×	
		Black Shading V Saw-R	×	×	×	×	
		Black Shading V Saw-G	×	×	×	×	
		Black Shading V Saw-B	×	×	×	×	
		Black Shading H Para-R	×	×	×	×	
		Black Shading H Para-G	×	×	×	×	
		Black Shading H Para-B	×	×	×	×	
		Black Shading V Para-R	×	×	×	×	
		Black Shading V Para-G	×	×	×	×	
		Black Shading V Para-B	×	×	×	×	
	Auto Black Shading		×	×	×	×	

Continued

Function	Switch Item	Analog Item	SCENE File	REFER-ENCE File	LENS File	OPERATOR File	Note
Test	Test1 on (TEST SAW)		×	×	×	×	
	Test2 ON		×	×	×	×	
	Test2 Mode 3step/10step		×	×	×	×	
Optical filter	Filter1 (ND)		○	×	×	×	
	Filter2 (CC)		○	×	×	×	
	Filter Remote/ Local		×	×	×	×	
5600k	5600K ON		○	OFF	×	×	
White Shading		White Shading H Saw-R	×	×	×	×	
		White Shading H Saw-G	×	×	×	×	
		White Shading H Saw-B	×	×	×	×	
		White Shading V Saw-R	×	×	×	×	
		White Shading V Saw-G	×	×	×	×	
		White Shading V Saw-B	×	×	×	×	
		White Shading H Para-R	×	×	×	×	
		White Shading H Para-G	×	×	×	×	
		White Shading H Para-B	×	×	×	×	
		White Shading V Para-R	×	×	×	×	
		White Shading V Para-G	×	×	×	×	
		White Shading V Para-B	×	×	×	×	
	Auto White Shading		×	×	×	×	
White		White-R	○	○	OFF-SET	×	
		White-G	○	○	×	×	
		White-B	○	○	OFF-SET	×	
		color temp	—	—	—	—	
		balance	—	—	—	—	
		Master White Gain	×	×	×	×	
	Auto White Bal-ance		×	×	×	×	
Flare	Flare OFF		○	ON	×	×	
		Flare-R	○	○	○	×	
		Flare-G	○	○	○	×	
		Flare-B	○	○	○	×	
		Master Flare	○	○	×	×	

Continued

Function	Switch Item	Analog Item	SCENE File	REFER-ENCE File	LEN S File	OPERATOR File	Note
Black		Master Black	○	○	×	×	
		Black-R	○	○	×	×	
		Black-G	○	○	×	×	
		Black-B	○	○	×	×	
	Auto Black Bal-ance		×	×	×	×	
Detail	Detail Off		○	ON	×	×	
		Detail Level	○	○	×	×	
		Detail Limiter	○	○	×	×	
		Detail White Limiter	○	○	×	×	
		Detail Black Limiter	○	○	×	×	
		Detail Crispen-ing	○	○	×	×	
		H Detail Fre-quency	○	○	×	×	
		Mix Ratio	○	○	×	×	
	DTL H/V mode		×	○	×	×	
	V DTL control mode		×	○	×	×	
		Detail H/V Ra-tio	○	○	×	×	
	Level Dep. Off		○	○	×	×	
		Detail Level Depend	○	○	×	×	
	Knee Aparture On		○	○	×	×	
		Knee Aparture	○	○	×	×	
HD Detail		Detail Level	○	×	×	×	
		Detail Limitter	○	×	×	×	
		Detail White Limitter	○	×	×	×	
		Detail Black Limitter	○	×	×	×	
		Detail Crispn-ing	○	×	×	×	
		Detail Level Depend	○	×	×	×	
		Detail H/V Ra-tio	○	×	×	×	
		H Detail Fre-quency	○	×	×	×	
Skin Detail	Skin DTL On		○	○	×	×	
	Skin gate ON		×	×	×	×	
	Skin gate (CCU)		×	×	×	×	
	Skin Detail Auto Hue (ch1)		×	×	×	×	
	Skin Detail Auto Hue (ch2)		×	×	×	×	

Continued

Function	Switch Item	Analog Item	SCENE File	REFER-ENCE File	LENS File	OPERATOR File	Note
	Skin Detail Auto Hue (ch3)		×	×	×	×	
	Skin 1 On		ON	ON	×	×	
	Skin 1 Gate On		×	×	×	×	
		Skin 1 Level	○	○	×	×	
		Skin 1 Phase	○	○	×	×	
		Skin 1 Width	○	○	×	×	
		Skin 1 Sat	○	○	×	×	
	Skin 2 On		○	○	×	×	
	Skin 2 Gate On		×	×	×	×	
		Skin 2 Level	○	○	×	×	
		Skin 2 Phase	○	○	×	×	
		Skin 2 Width	○	○	×	×	
		Skin 2 Sat	○	○	×	×	
	Skin 3 On		○	○	×	×	
	Skin 3 Gate On		×	×	×	×	
		Skin 3 Level	○	○	×	×	
		Skin 3 Phase	○	○	×	×	
		Skin 3 Width	○	○	×	×	
		Skin 3 Sat	○	○	×	×	
Matrix	Matrix Off		○	○	×	×	
	Preset Matrix on		○	○	×	×	
	Preset Matrix Sel		○	○	×	×	
	User Matrix on		○	○	×	×	
		R-G	○	○	×	×	
		R-B	○	○	×	×	
		G-R	○	○	×	×	
		G-B	○	○	×	×	
		B-R	○	○	×	×	
		B-G	○	○	×	×	
	Multi Matrix On		○	○	×	×	
		gate	×	×	×	×	
		Phase select	×	×	×	×	
		Hue	○	○	×	×	
		Saturation	○	○	×	×	
	Adaptive Matrix On		○	○	×	×	
Saturation	saturation on		○	○	×	×	
		saturation	○	○	×	×	
Black Gamma	Black Gamma On		○	○	×	×	
		R Black Gamma	○	○	×	×	
		G Black Gamma	○	○	×	×	
		B Black Gamma	○	○	×	×	

Continued

Function	Switch Item	Analog Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	Note
		M Black Gamma	○	○	×	×	
	Black Gamma (RGB) Range		○	○	×	×	
Low key saturation	Low Key Saturation ON		○	○	×	×	
	Range		○	○	×	×	
		Low Key Saturation level	○	○	×	×	
Gamma	Gamma Off		○	ON	×	×	
	Gamma Category Select		○	○	×	×	
	STANDARD Gamma Table Select		○	○	×	×	
	HYPER Gamma Table Select		○	○	×	×	
	Step Gamma (0.90 ～ 0.35)		○	○	×	×	
		R Gamma	○	○ (RGB mode)	×	×	
		G Gamma	○	○	×	×	
		B Gamma	○	○ (RGB mode)	×	×	
		M Gamma	○	○	×	×	
Knee	Knee Off		○	○	×	×	
		R Knee point	○	○	×	×	
		G Knee point	○	○	×	×	
		B Knee point	○	○	×	×	
		M Knee point	○	○	×	×	
		R Knee Slope	○	○	×	×	
		G Knee Slope	○	○	×	×	
		B Knee Slope	○	○	×	×	
		M Knee Slope	○	○	×	×	
	Knee Max On		×	OFF	×	×	
	Knee Saturation on		○	○	×	×	
		Knee saturation	○	○	×	×	
	Auto Knee (DCC) on		○	○	×	×	
		Auto Knee Point Limit	○	○	×	×	
		Auto Knee Slope	○	○	×	×	
White Clip	White Clip Off		○	ON	×	×	
		M White Clip	○	○	×	×	
Mono Color	Mono Color On		○	OFF	_	_	Connected with CCU only

Continued

Function	Switch Item	Analog Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	Note
		Mono Color Saturation	○	○	_	_	Connected with CCU only
		Mono Color Hue	○	○	_	_	Connected with CCU only
SD Detail	SD Detail Off		○	○	_	_	Connected with CCU only
		SD Detail Level	○	○	_	_	Connected with CCU only
		SD Detail Limiter	○	○	_	_	Connected with CCU only
		SD Detail White Limiter	○	○	_	_	Connected with CCU only
		SD Detail Black Limiter	○	○	_	_	Connected with CCU only
		SD Detail Crispening	○	○	_	_	Connected with CCU only
		SD H Detail Frequency	○	○	_	_	Connected with CCU only
		SD Detail H/V Ratio	○	○	_	_	Connected with CCU only
		SD Detail Level Depend	○	○	_	_	Connected with CCU only
		SD Detail Comb	○	○	_	_	Connected with CCU only
Cross Color Reduce	Cross Color Reduce Off		○	○	_	_	Connected with CCU only
		Cross Color Reduce Level	○	○	_	_	Connected with CCU only
		Cross Color Reduce Coring	○	○	_	_	Connected with CCU only
SD Matrix	SD Matrix Off		○	○	_	_	Connected with CCU only
	SD Preset Matrix On		○	○	_	_	Connected with CCU only
	SD User Matrix On		○	○	_	_	Connected with CCU only
		R-G	○	○	_	_	Connected with CCU only

Continued

Function	Switch Item	Analog Item	SCENE File	REFER-ENCE File	LENS File	OPERATOR File	Note
		R-B	○	○	_	_	Connected with CCU only
		G-R	○	○	_	_	Connected with CCU only
		G-B	○	○	_	_	Connected with CCU only
		B-R	○	○	_	_	Connected with CCU only
		B-G	○	○	_	_	Connected with CCU only
	SD Multi Matrix On		○	○	_	_	Connected with CCU only
		Phase select	×	×	_	_	Connected with CCU only
		Hue	○	○	_	_	Connected with CCU only
		Saturation	○	○	_	_	Connected with CCU only
SD Gamma	SD Gamma Off		○	ON	_	_	Connected with CCU only
		SD M Gamma	○	○	_	_	Connected with CCU only
File	Standard		—	—	—	—	
	reference file store		—	—	—	—	
	reference store to USB drive		—	—	—	—	
	reference recall from USB drive		—	—	—	—	
	Scene file recall		—	—	—	—	
	Scene file store		—	—	—	—	
	Scene file store to USB drive		—	—	—	—	
	Scene file recall from USB drive		—	—	—	—	
	Lens file recall		—	—	—	—	
	Lens file store		—	—	—	—	
Format	1080 59.94i		—	—	—	—	
	1080 29.97PsF		—	—	—	—	
	1080 50i		—	—	—	—	
	1080 25PsF		—	—	—	—	
	720 59.94P		—	—	—	—	
	720 50P		—	—	—	—	

Menu	Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	Note
USER MENU customize		—	—	—	○	
VF DISPLAY	EX	—	—	—	○	
	ZOOM	—	—	—	○	
	DISP	—	—	—	○	
	FOCUS	—	—	—	○	
	ND	—	—	—	○	
	CC	—	—	—	○	
	5600K	—	—	—	○	
	IRIS	—	—	—	○	
	GAIN	—	—	—	○	
	SHUTTER	—	—	—	○	
	RETURN	—	—	—	○	
	TALK	—	—	—	○	
	MESSAGE	—	—	—	○	
! IND	ND	—	—	—	○	
	CC	—	—	—	○	
	5600K	—	—	—	○	
	SHUTTER	—	—	—	○	
	FAN	—	—	—	○	
	EXT	—	—	—	○	
	Y TALLY	—	—	—	○	
VF MARKER	MARKER	—	—	—	○	
	LEVEL	—	—	—	○	
	CENTER	—	—	—	○	
	SAFETY ZONE	—	—	—	○	
	EFFECT	—	—	—	○	
	ASPECT	—	—	—	○	
	MASK	—	—	—	○	
	SAFETY	—	—	—	○	
VF DETAIL	VF DETAIL	—	—	—	○	
	CRISP	—	—	—	○	
	FREQUENCY	—	—	—	○	
	FLICKER	—	—	—	○	
	AREA	—	—	—	○	
	ZOOM LINK	—	—	—	○	
	COLOR DETAIL	—	—	—	○	
	PEAK COLOR	—	—	—	○	
	CHROMA LEVEL	—	—	—	○	
DYNAMIC FOCUS	FREQUENCY	—	—	—	○	
	CRISP	—	—	—	○	
	LEVEL	—	—	—	○	
	PEAK COLOR	—	—	—	○	
	THRESOLD	—	—	—	○	

Continued

Menu	Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	Note
	CHROMA LEVEL	—	—	—	○	
FOCUS ASSIST	INDICATOR	—	—	—	○	
	MODE	—	—	—	○	
	LEVEL	—	—	—	○	
	GAIN	—	—	—	○	
	OFFSET	—	—	—	○	
	AREA MAKER	—	—	—	○	
	SIZE	—	—	—	○	
	POSITION	—	—	—	○	
	POSITION H	—	—	—	○	
	POSITION V	—	—	—	○	
ZEBRA	ZEBRA	—	—	—	○	
	ZEBRA1 LEVEL	—	—	—	○	
	WIDTH	—	—	—	○	
	ZEBRA2 LEVEL	—	—	—	○	
CURSOR	CURSOR	—	—	—	○	
	LEVEL	—	—	—	○	
	BOX/CROSS	—	—	—	○	
	H POSITION	—	—	—	○	
	V POSITION	—	—	—	○	
	WIDTH	—	—	—	○	
	HEIGHT	—	—	—	○	
BOX MEMORY	BOX MEMORY	—	—	—	○	
	H POSI	—	—	—	○	
	V POSI	—	—	—	○	
	WIDTH	—	—	—	○	
	HEIGHT	—	—	—	○	
VF OUT	VF OUT	—	—	—	○	
	RET MIX VF	—	—	—	○	
	MIX DIRECTION	—	—	—	○	
	MIX VF MODE	—	—	—	○	
	MIX VF LEVEL	—	—	—	○	
	CHARACTER LEVEL	—	—	—	○	
	SHRINK MODE	—	—	—	○	
VF-B SETUP	RESOLUTION	—	—	—	×	
	CONTRAST	—	—	—	×	
	BRIGHTNESS	—	—	—	×	
	PEAKING	—	—	—	×	
SWITCH ASSIGN1	ASSIGNABLE1	—	—	—	○	
SWITCH ASSIGN2	LENS VTR S/S	—	—	—	○	
	HANDLE SW1	—	—	—	○	
	HANDLE SW2	—	—	—	○	
	ZOOM SPEED	—	—	—	○	

Continued

Menu	Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	Note
RETURN	RET1 SEL	—	—	—	○	
	RET2 SEL	—	—	—	○	
	RET1+ RET2	—	—	—	○	
	VBS RET ASPECT	—	—	—	○	
HEADSET MIC	INTERCOM	—	—	—	○	
	LEVEL	—	—	—	○	
	POWER	—	—	—	○	
	UNBAL	—	—	—	○	
INTERCOM	INTERCOM RECEIVE SELECT	—	—	—	○	
	INTERCOM	—	—	—	○	
	PGM1	—	—	—	○	
	PGM2	—	—	—	○	
	TRACKER	—	—	—	○	
	SIDE TONE	—	—	—	○	
TRACKER	TRACKER RECEIVE SELECT	—	—	—	○	
	INTERCOM	—	—	—	○	
	PGM1	—	—	—	○	
	PGM2	—	—	—	○	
	INPUT LEVEL	—	—	—	○	
	OUTPUT LEVEL	—	—	—	○	

Section 4
Setup Menu

4-1. Overview of Setup Menu

Some of adjustments given in this section use the setup menu. The setup menu consists of the following menus. Besides there is a TOP menu indicating the entire configuration of menu items.

- USER menu
- USER MENU CUSTOMIZE menu
- OPERATION menu
- PAINT menu
- MAINTENANCE menu
- FILE menu
- DIAGNOSIS menu
- SERVICE menu

In this section, describes the setup menu operation as follows.
For example: When AUTO LEVEL in AUTO SETUP page of MAINTENANCE menu is performed:
MENU: MAINTENANCE
PAGE: AUTO SETUP
ITEM: AUTO LEVEL

4-1-1. How to Display the SERVICE Menu/ How to Change the Setting Values

How to Display the SERVICE Menu

Set the DISPLAY switch to “MENU” while pressing the ASSIGNABLE 1 switch and the rotary encoder.

How to Change the Setting Values

To enter or cancel the setting value of items, which can be changed by turning the rotary encoder, proceed as follows.
To enter the setting value: Press the rotary encoder.
To cancel the setting value: Before pressing the rotary encoder, press the STATUS/CANCEL switch toward the “CANCEL” side.
After the setting value is entered, the setting cannot be canceled.

4-1-2. Settable Special Functions

The following functions are made available by settings in the SERVICE menu. Note that they are limited functions.

- Scene files number setting
- Color temperature conversion filter setting
- Intercom setting
- Chroma filter characteristic setting

4-2. SERVICE Menu

This unit is provided with the SERVICE menu that is useful for maintenance and adjustment of the camera.
The menu content is displayed on the viewfinder.
For how to display the SERVICE menu, refer to "4-1-1. How to Display the SERVICE Menu/ How to Change the Setting Values".

4-2-1. SERVICE Menu List

Menu Page No.	Menu Page Name	Remarks	Reference Page
S01	SET UP	Scene files number setting	page 4-2
S02	CC FILTER	Color temperature conversion filter setting	page 4-3
S03	SERIAL NO.	Model name displaying, Serial number displaying	page 4-3
S04	OPTION	Chroma filter characteristic setting, Microphone +12 V (AB-Power) setting	page 4-3
S05	SOFTWARE PACK-AGE	Software version displaying and upgrading	page 4-4
S06	PLD PACKAGE	PLD version displaying and upgrading	page 4-4

4-2-2. Description of SERVICE Menu

Tip

The display screen appearing in this section shows the factory settings.

SET UP

```
<SET UP>          S01 TOP
 SCENE FILE TYPE :      5
```

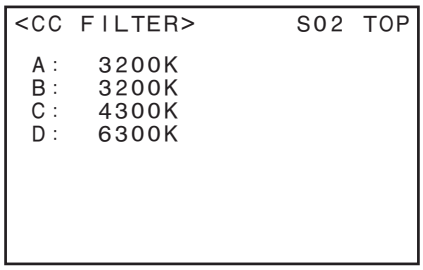
SCENE FILE TYPE

Setting of the number of scene files that a camera can have. A number of 5 or 32 can be set.

Note

Note that, when the number of scene files is changed from 32 to 5, the data of the sixth and the following scene files are lost.

CC FILTER

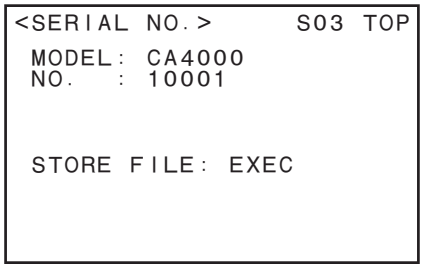


When the CC filter is replaced with a nonstandard color temperature conversion filter, change this setting. However, when the CC filter is replaced with a filter without color temperature conversion, such as cross filter, set 3200K. This setting is a reference for color temperature display and the color temperature control function.

SERIAL NO.

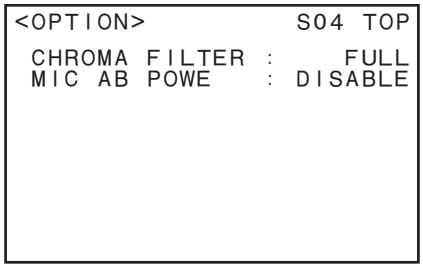
Tip

The display screen is the case of serial number 10001 of CA4000.



The SERIAL NO. menu is used setting the current model name and serial number.

OPTION



CHROMA FILTER

Chroma filter characteristic setting.

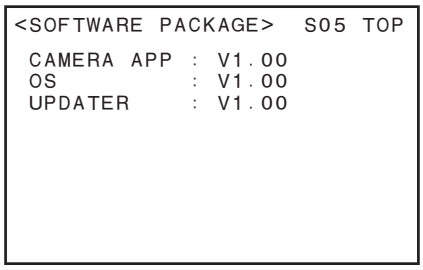
MIC AB POWER

It is used in the microphone power setting.
When MIC AB POWER is set to “ENABLE” and the microphone power switch on the connector panel at the rear of the unit is set to “ • ” (down), AB POWER (12 V) is supplied to the microphone.

Note

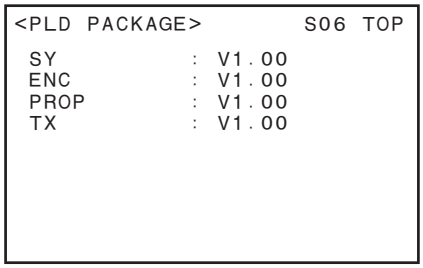
When the microphone power switch is set to " • " (down) with this function enabled, do not connect any microphone that does not support AB POWER. If such microphone is connected, it may be damaged.

SOFTWARE PACKAGE



Display the current software version.
Place the cursor on the version to update the version.
For how to update the software version, refer to "1-9. Upgrading Software Programs".

PLD PACKAGE



Display the current PLD version.
Place the cursor on the version to update the version.
For how to update the PLD version, refer to "1-10. PLD".

Section 5
Spare Parts

5-1. 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

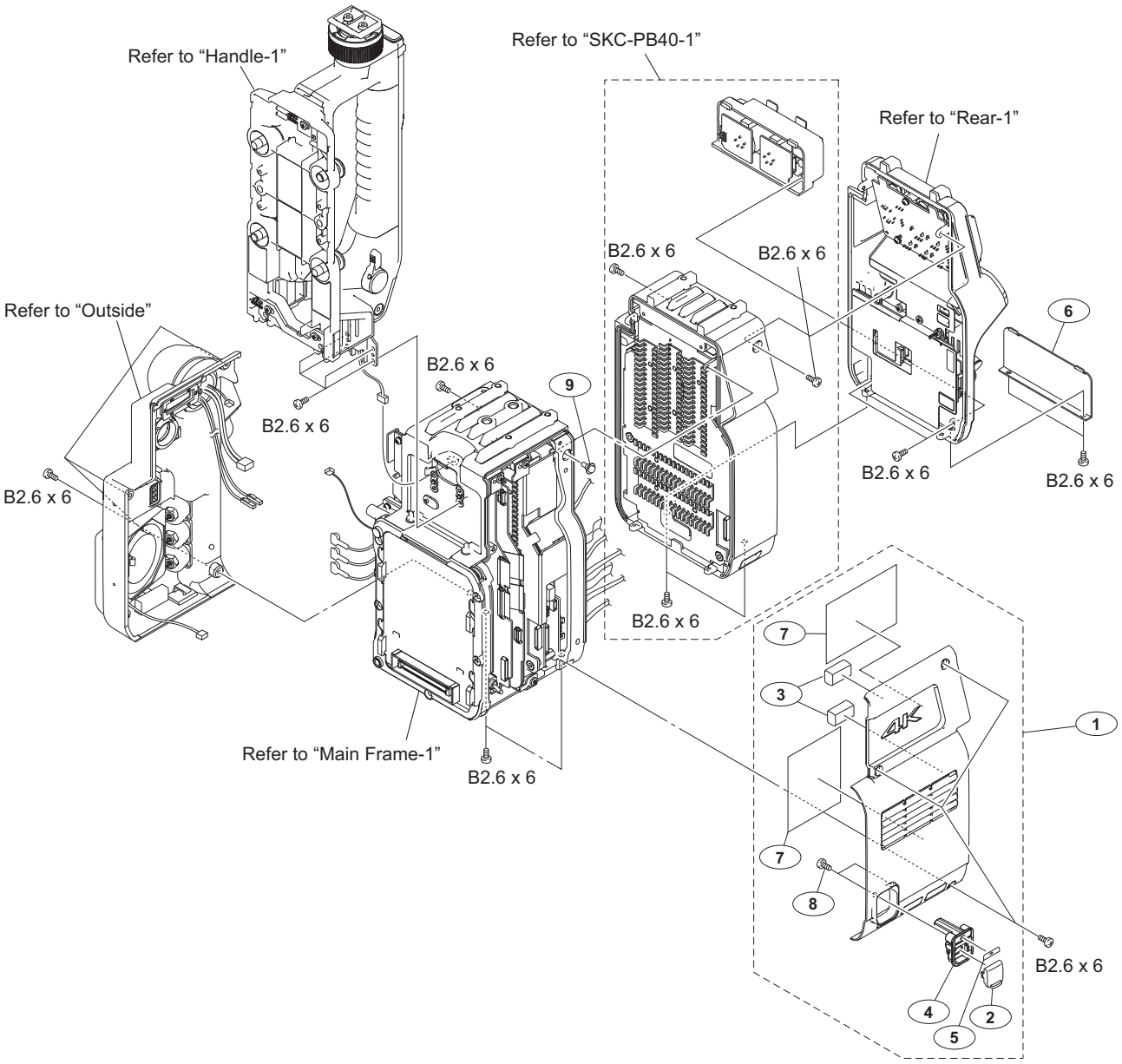
部品表の SP（Supply code）欄に “o” で示される部品は在庫していないことがあり，納期が長くなることがあります。

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。

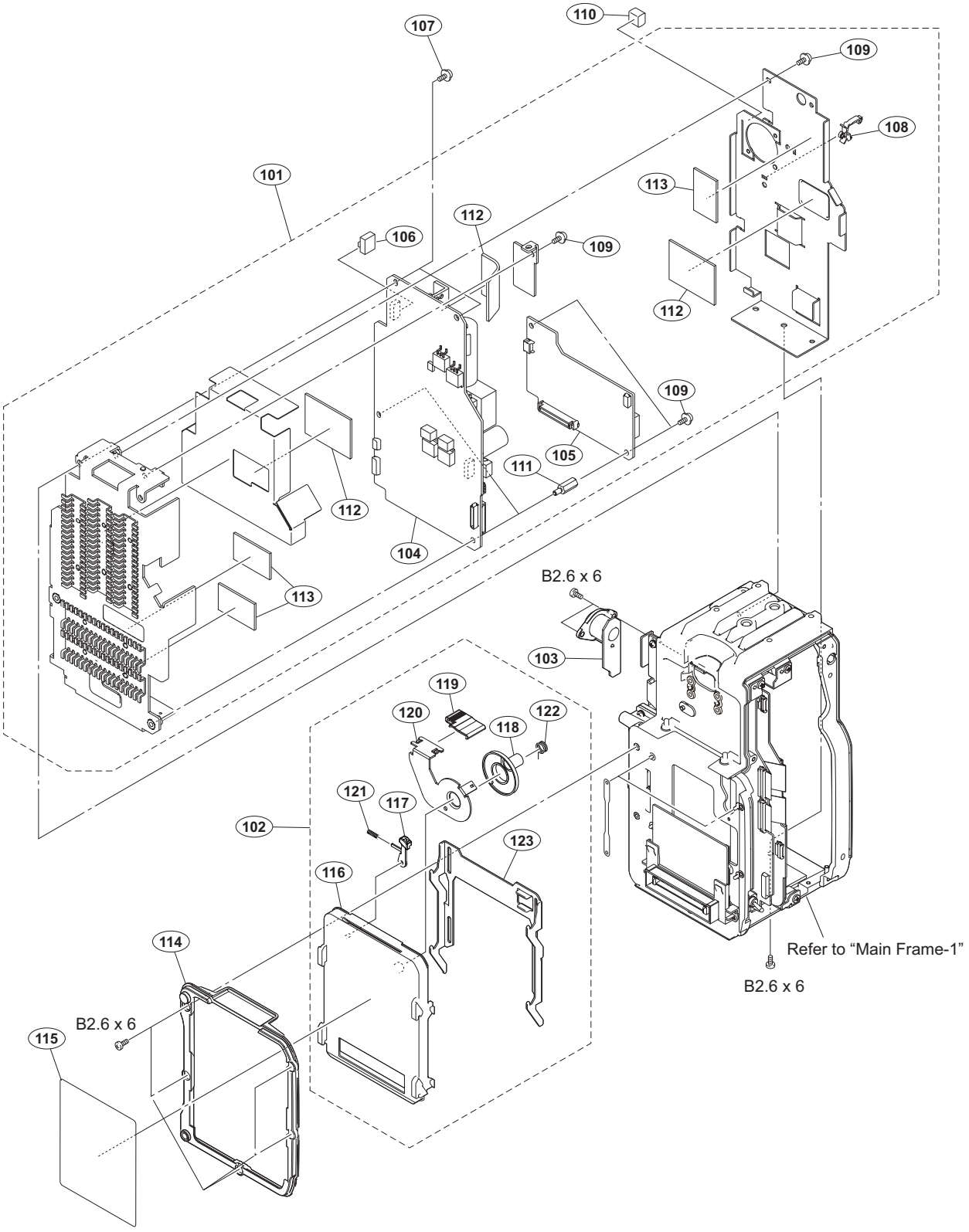
5-2. Exploded Views

Inside



No.	Part No.	SP	Description
1	A-1991-223-A	s	PANEL ASSY, INSIDE
2	3-612-669-01	o	LID,POWER SW
3	4-119-228-01	s	GASKET (VF)
4	4-400-101-01	s	POWER SW HOUSING
5	4-410-956-01	s	SHEET, INSIDE(MULTI)
6	4-488-735-01	s	PANEL, BLANK
7	4-533-480-01	s	SHEET, COUNTERMEASURE
8	4-654-273-02	s	ACE (M2), LOCK [B2X5]
9	4-155-909-01	S	SCREW, STEP
	7-621-773-95	s	SCREW +B 2.6X6

Main Frame-1

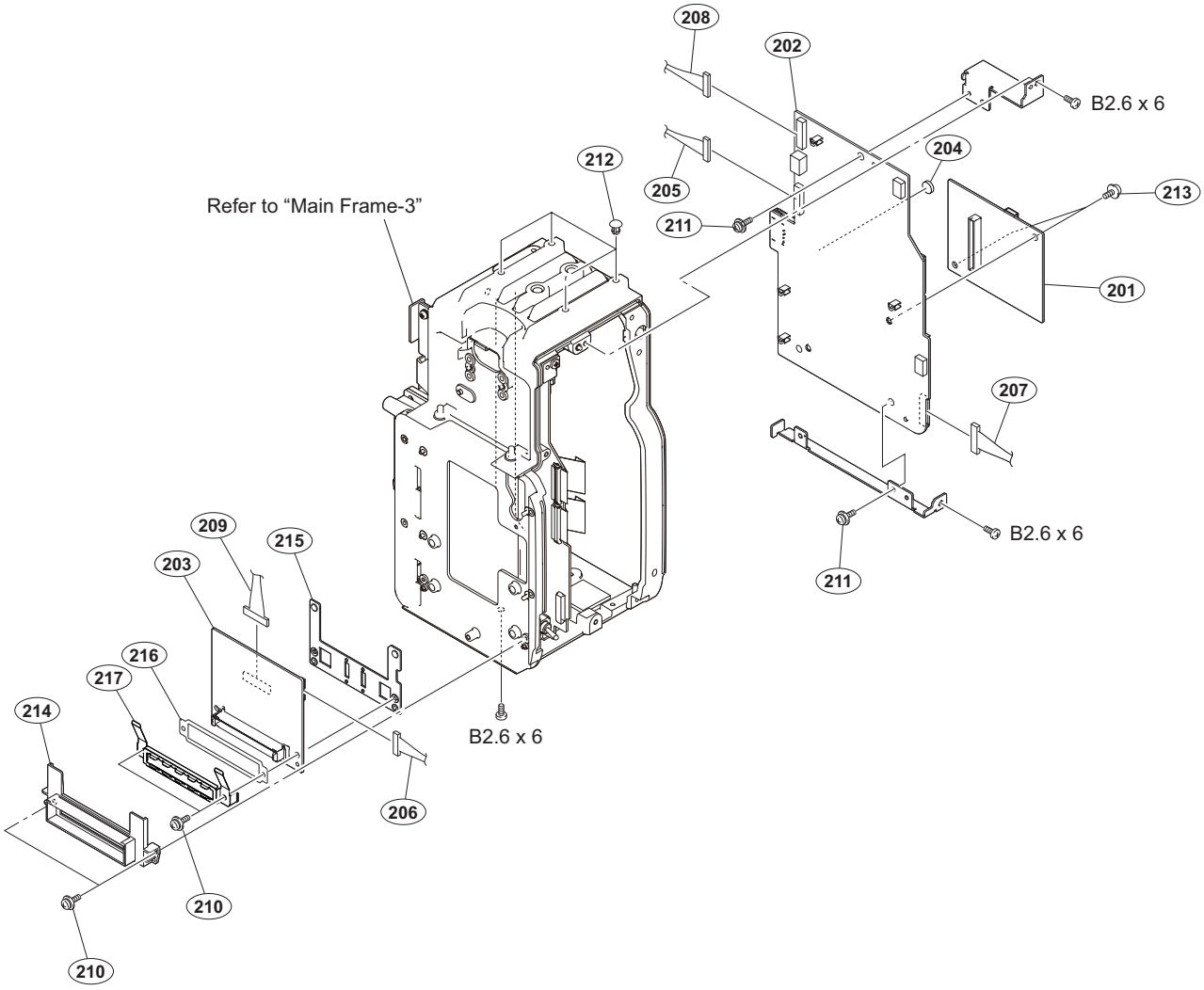


No.		Part No.	SP	Description
101	⚠	A-1990-864-A	s	POWER BLOCK ASSY
102		A-1991-227-A	s	DOCKING ASSY
103		A-1992-438-A	s	MOUNTED CIRCUIT BOARD, CN-3602
104		A-1998-581-A	s	MOUNTED CIRCUIT BOARD, PS-869
105		A-1998-886-A	s	MOUNTED CIRCUIT BOARD, RE-313
106		1-562-211-21	s	HOUSING, CONNECTOR 3P
107		3-669-607-22	s	+PSW (SMALL ROUND) (2.6) [PSW2.6X8]
108		4-098-036-01	s	SADDLE WIRE (A)
109		4-382-854-51	s	SCREW (M3X6), P, SW (+)
110		4-435-866-01	s	GASKET(H),MAIN
111		4-489-124-01	s	SUPPORT (SQ-12)
112		4-489-125-01	s	SHEET (1), RADIATION

Main Frame-1

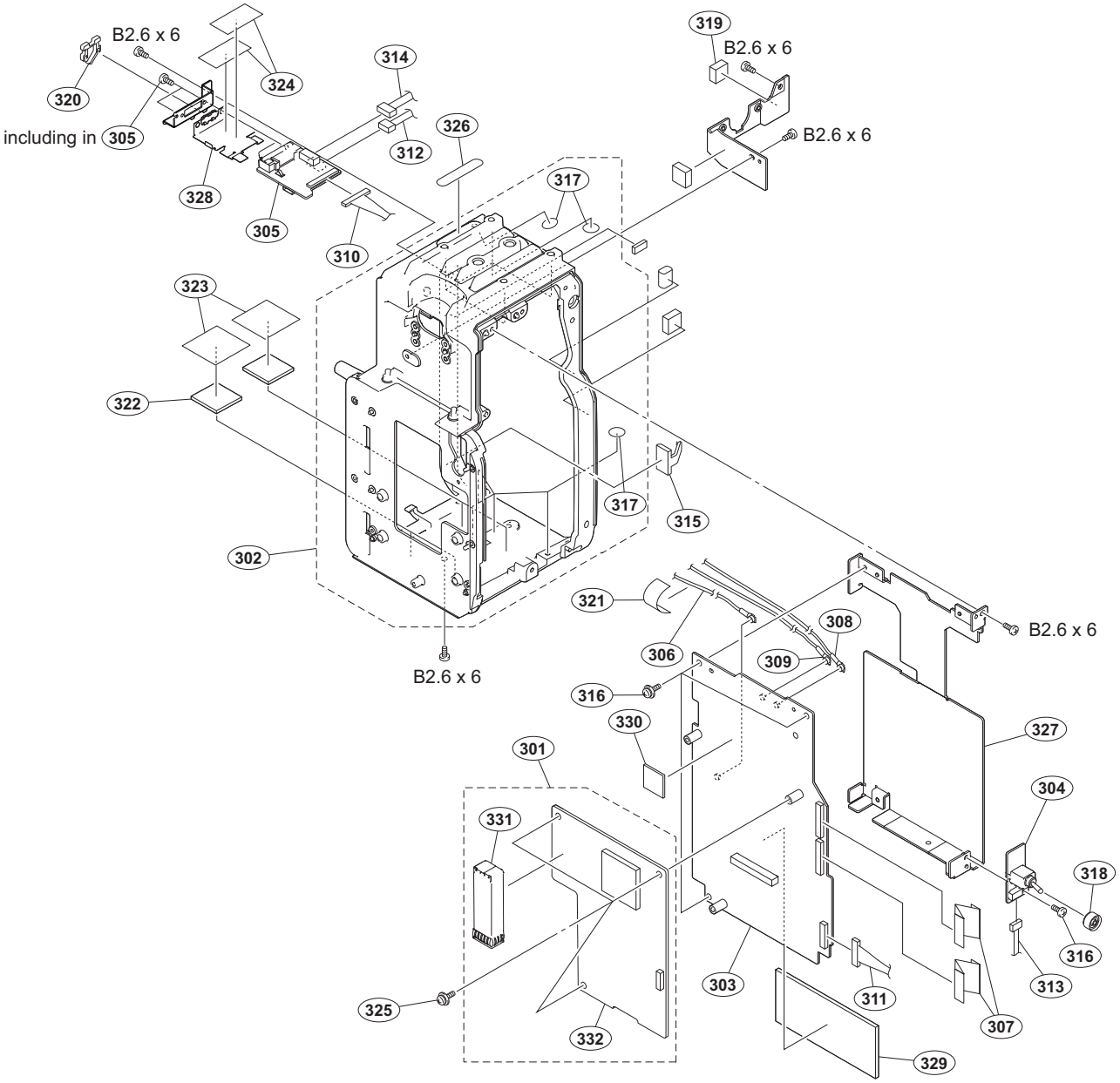
No.	Part No.	SP	Description
113	4-489-126-01	s	SHEET (2), RADIATION
114	4-489-250-01	s	COVER, FRONT
115	4-529-040-01	s	LABEL, DOCKING
116	4-458-408-03	s	SLIDER, LOCK
117	4-458-409-01	s	LEVER,LOCK
118	4-458-410-01	s	ARM, SLIDE
119	4-458-411-01	s	KNOB_LOCK_RELEASE
120	4-458-412-03	s	LEVER,RELEASE
121	4-458-413-01	s	SPRING,COMPRESSION
122	4-458-414-01	s	SPRING_TORSION(POPUP)
123	4-458-415-01	s	PLATE, SLIDE
	7-621-773-95	s	SCREW +B 2.6X6

Main Frame-2



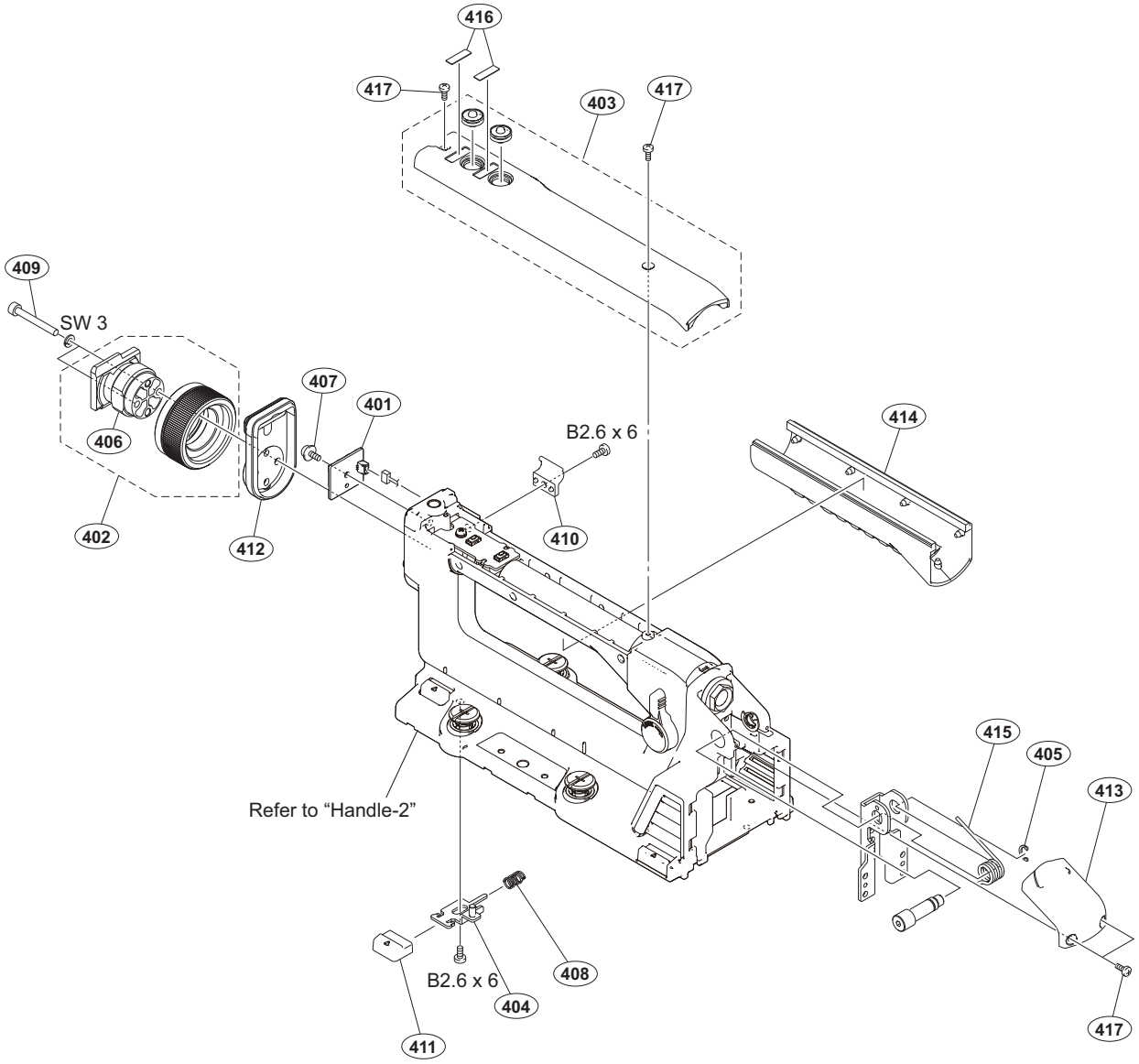
No.	Part No.	SP	Description
201	A-2043-880-A	s	MOUNTED CIRCUIT BOARD, AT-189S
202	A-1992-428-A	s	MOUNTED CIRCUIT BOARD, SY-427
203	A-1992-434-A	s	MOUNTED CIRCUIT BOARD, IF-1231
204	⚠ 1-756-134-15	s	BATTERY, LITHIUM (SECONDARY)
205	1-970-044-12	s	HARNESS, SUB (LENS)
206	1-970-049-11	s	HARNESS, SUB (IF)
207	1-970-056-11	s	HARNESS, SUB (PS-SY)
208	1-970-057-12	s	HARNESS, SUB (VF)
209	1-970-071-11	s	WIRE, CONNECTOR WITH LEAD (DPR
210	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
211	3-669-607-22	s	+PSW (SMALL ROUND) (2.6) [PSW2.6X8]
212	4-138-679-01	s	SCREW, BLIND
213	4-382-854-51	s	SCREW (M3X6), P, SW (+)
214	4-458-407-01	s	GUARD, CN
215	4-458-416-01	s	SUPPORT, DC BOARD
216	4-458-418-01	s	SHEET, INSULATING
217	4-489-627-02	s	COVER, CN
	7-621-773-95	s	SCREW +B 2.6X6

Main Frame-3



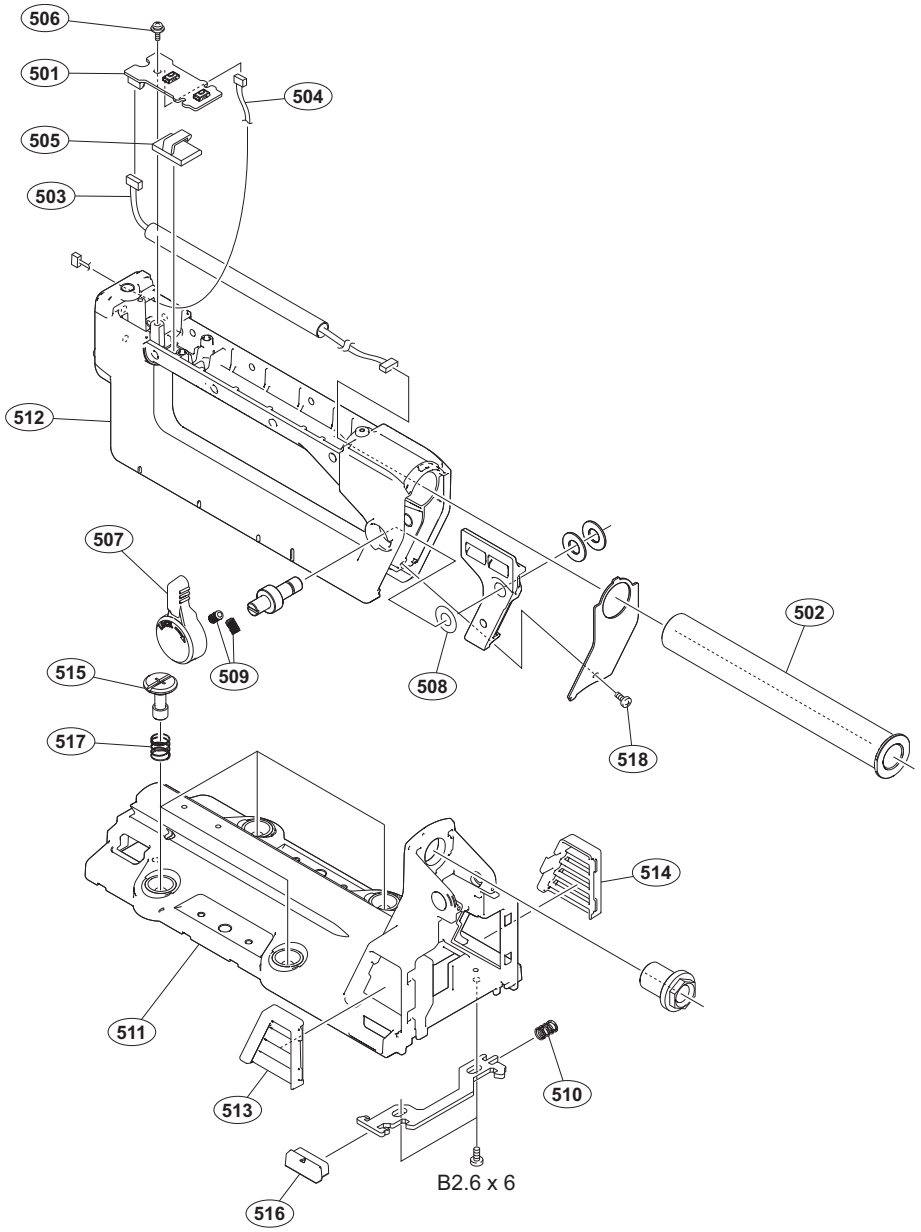
No.	Part No.	SP	Description
301	A-2042-104-A	s	MOUNTED CIRCUIT BOARD, TX-146A
302	A-1991-228-A	s	CHASSIS SUB ASSY
303	A-1992-429-A	s	MOUNTED CIRCUIT BOARD, DPR-351
304	A-1992-432-A	s	MOUNTED CIRCUIT BOARD, SW-1595
305	A-1992-433-A	s	MOUNTED CIRCUIT BOARD, CN-3624
306	1-829-055-11	s	CABLE ASSEMBLY, COAXIAL
307	1-831-126-11	s	CABLE, FLEXIBLE FLAT (40 CORE)
308	1-835-367-11	s	CABLE ASSEMBLY, COAXIAL
309	1-835-368-11	s	CABLE ASSEMBLY, COAXIAL
310	1-969-473-11	s	WIRE, CONNECTOR WITH LEAD (AVP
311	1-970-043-11	s	HARNESS, SUB (PS-DPR)
312	1-970-045-11	s	HARNESS, SUB (SY-CN)
313	1-970-047-11	s	HARNESS, SUB (POWER SW)
314	1-970-052-11	s	HARNESS, SUB (DVF POWER)
315	3-257-200-01	s	CLAMP, CORD
316	3-669-607-22	s	+PSW (SMALL ROUND) (2.6) [PSW2.6X8]
317	3-796-946-03	s	TAPE(A)
318	3-870-137-02	s	CAP, DROP PROTECTION
319	4-000-460-01	s	GASKET MB
320	4-137-926-01	s	SADDLE (LES-0505), EDGE
321	4-161-985-01	s	TAPE (AD)
322	4-167-983-01	s	SHEET, RADIATION
323	4-259-117-01	s	SHEET,SLIDE A
324	4-287-222-01	s	UL TAPE _W10L25
325	4-382-854-51	s	SCREW (M3X6), P, SW (+)
326	4-444-795-01	s	SHEET, BLIND
327	4-488-742-01	s	BRACKET, DPR
328	4-489-644-01	s	PLATE, DIGITAL VF
329	4-533-108-01	s	SHEET, RADIATION
330	4-533-448-01	s	SHEET, DPR COUNTERMEASURE
331	⚠ 1-458-776-11	s	MODULE, OPTICAL (SFP+)
332	A-2054-402-A	s	TX-146 ASSY
	7-621-773-95	s	SCREW +B 2.6X6

Handle-1



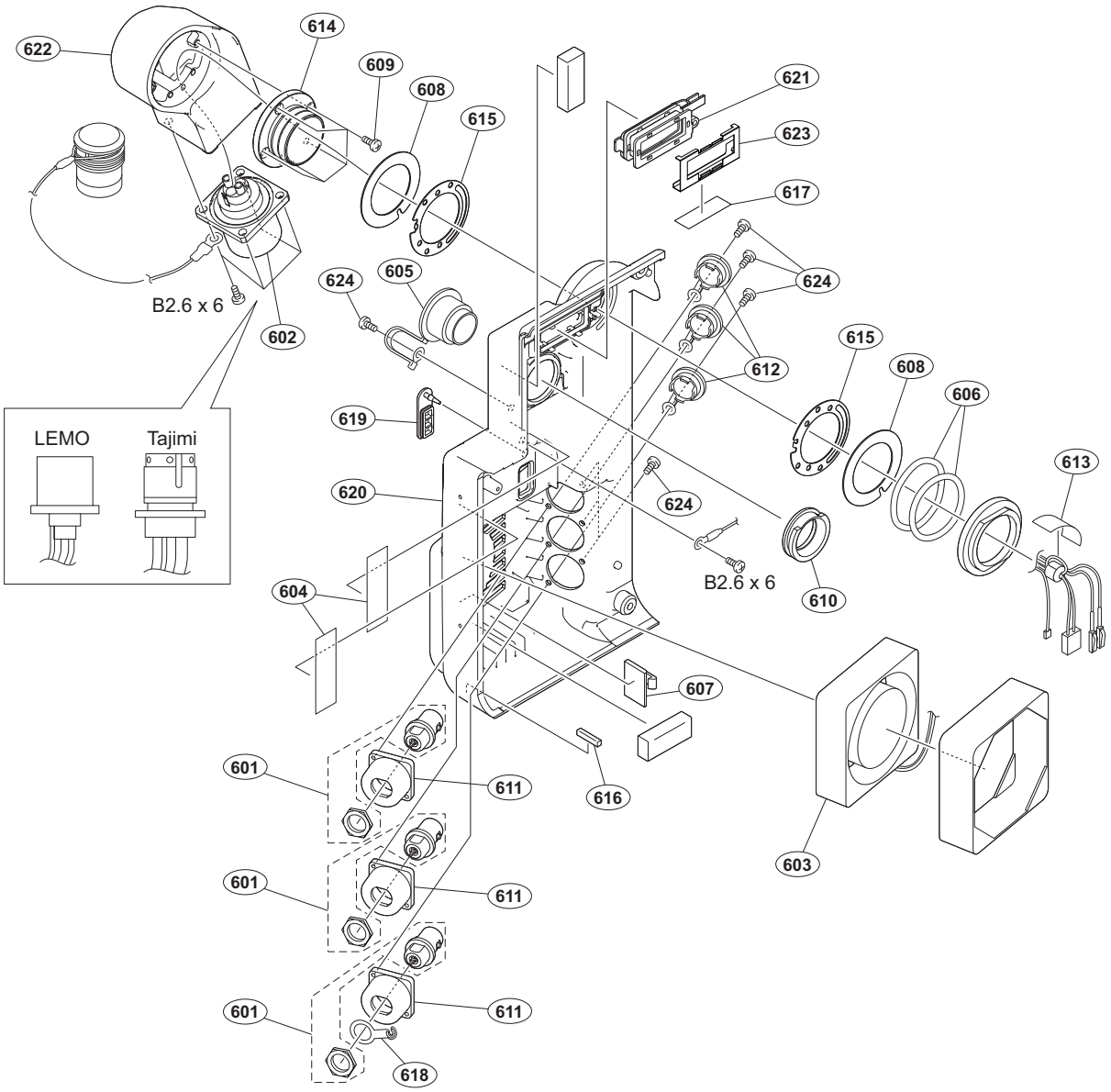
No.	Part No.	SP	Description
401	A-1992-435-A	s	MOUNTED CIRCUIT BOARD, LE-391
402	A-8278-412-J	s	SHOE ASSY,VF
403	X-2588-876-1	s	COVER ASSY, HANDLE
404	X-2588-877-1	s	BRACKET, LATCH
405	3-618-078-11	s	RING, RETAINING, CE TYPE
406	3-627-853-07	s	SHOE,SLIDE
407	3-669-607-22	s	+PSW (SMALL ROUND) (2.6) [PSW2.6X8]
408	3-704-964-01	s	SPRING,COMPRESSION
409	3-711-765-01	s	BOLT (M3), HEXAGON SOCKET
410	4-197-161-01	s	HOLDER, CABLE
411	4-488-764-01	s	BUTTON, SLIDE
412	4-488-765-01	s	COVER(FRONT), TALLY
413	4-488-766-01	s	COVER, HINGE
414	4-488-768-01	s	GRIP
415	4-488-774-01	s	SPRING, TORSION(HINGE)
416	4-488-776-01	s	LABEL (HANDLE)
417	4-654-273-02	s	ACE (M2), LOCK [B2X5]
	7-621-773-95	s	SCREW +B 2.6X6
	7-623-208-22	s	SW 3,TYPE 2

Handle-2



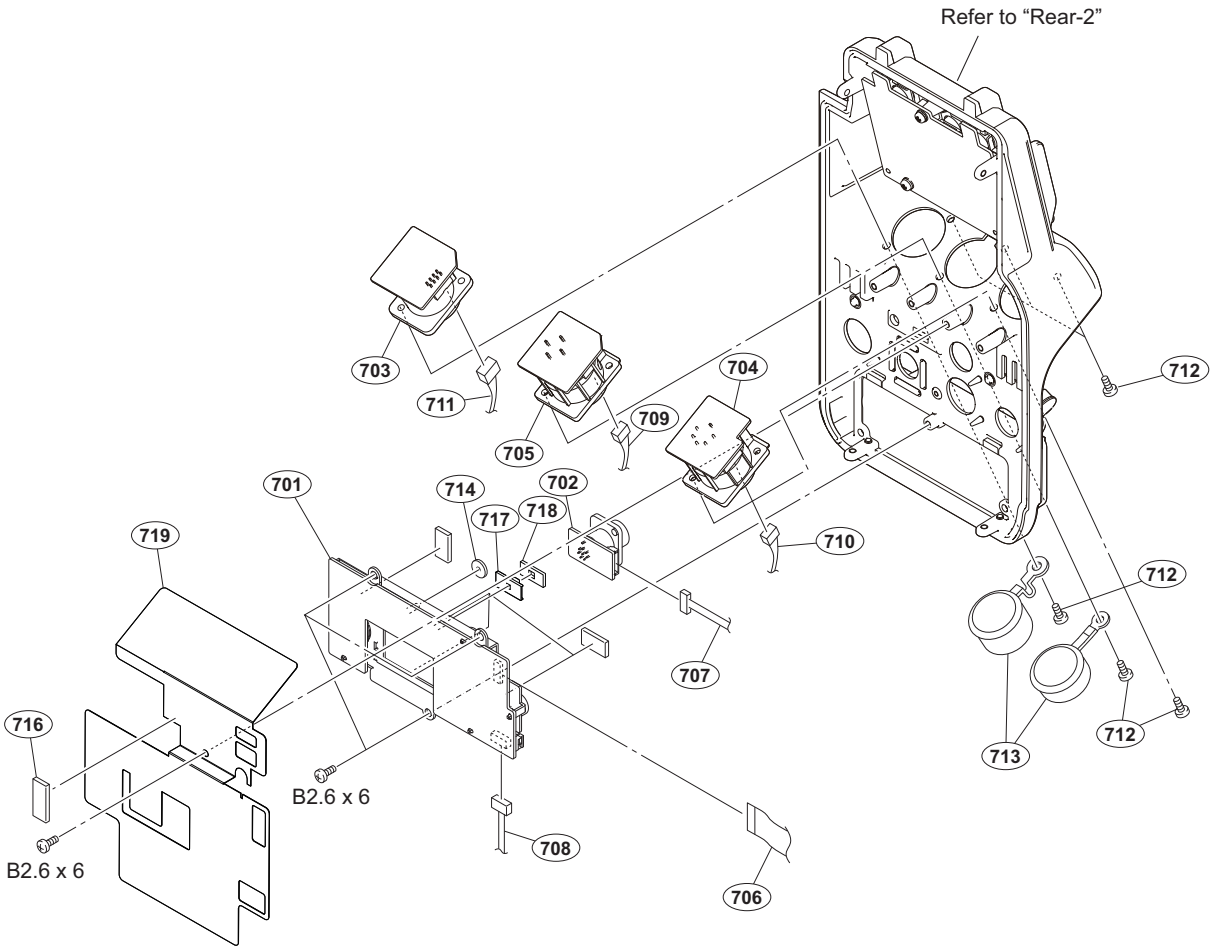
No.	Part No.	SP	Description
501	A-1992-443-A	s	MOUNTED CIRCUIT BOARD, SW-1594
502	X-2588-875-1	s	PIPE ASSY
503	1-970-053-11	s	HARNESS, SUB (HANDLE SW)
504	1-970-054-11	s	HARNESS, SUB (HANDLE TALLY)
505	3-257-200-01	s	CLAMP, CORD
506	3-669-607-22	s	+PSW (SMALL ROUND) (2.6) [PSW2.6X8]
507	3-673-046-03	s	LEVER, LOCK
508	3-701-445-01	s	WASHER
509	3-701-507-01	s	SET SCREW, DOUBLE POINT,(M3X5)
510	3-704-964-01	s	SPRING,COMPRESSION
511	4-488-751-01	s	BASE, HANDLE
512	4-488-752-01	s	HANDLE
513	4-488-757-01	s	GRILLE (R)
514	4-488-758-01	s	GRILLE (L)
515	4-488-761-01	s	SCREW, BASE LOCK
516	4-488-763-01	s	BUTTON, RELEASE
517	4-488-767-01	s	SPRING, COMPRESSION
518	4-654-273-02	s	ACE (M2), LOCK [B2X5]
	7-621-773-95	s	SCREW +B 2.6X6

Outside



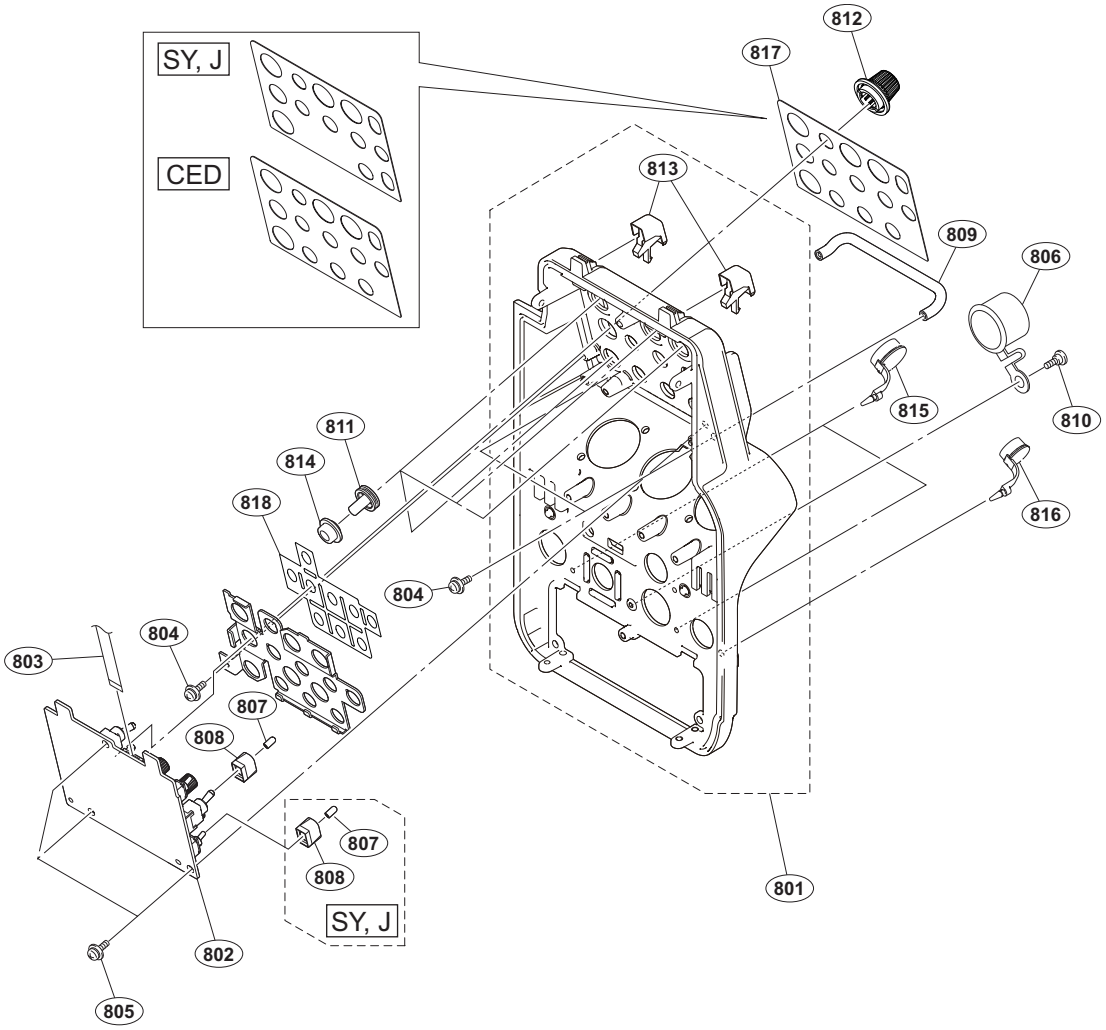
No.	Part No.	SP	Description
601	1-784-240-11	s	CONVERTER, COAXIAL CONNECTOR
602	⚠ 1-848-281-11	s	OPTICAL MULTI CABLE ASSEMBLY (Tajimi)
	⚠ 1-848-280-11	s	OPTICAL MULTI CABLE ASSEMBLY-M (LEMO)
603	⚠ 1-855-027-11	s	FAN, DC (52 SQUARE)
604	3-079-115-01	s	TAPE AS
605	3-113-815-01	s	CAP, VF
606	3-176-525-01	o	WASHER, SPRING
607	3-257-200-01	s	CLAMP, CORD
608	3-602-464-02	s	WASHER, CONDUCTIVE
609	3-637-901-11	s	SCREW M2.6X5
610	3-710-024-02	s	PACKING, VF
611	3-863-319-01	s	BRACKET BNC
612	3-872-935-01	s	CAP,BNC
613	3-878-656-01	s	TAPE 60
614	4-138-689-01	s	SHAFT, ROTARY(TRIAX)
615	4-138-707-01	s	WASHER, TRIAX(2)
616	4-279-305-01	s	GASKET, DCP-TX REAR
617	4-281-488-01	s	LCD CONDUCTIVE TAPE
618	4-428-368-01	s	WASHER, BNC COAXIAL FIXED
619	4-478-730-01	s	CAP, USB
620	⚠ 4-488-750-01	s	PANEL, OUTSIDE
621	4-488-762-01	s	CAP, DIGITAL (VF)
622	4-488-769-01	s	CONNECTOR HOUSING
623	4-531-778-01	s	PLATE, GND(OUTSIDE)
624	4-654-273-02	s	ACE (M2), LOCK [B2X5]
	7-621-773-95	s	SCREW +B 2.6X6

Rear-1



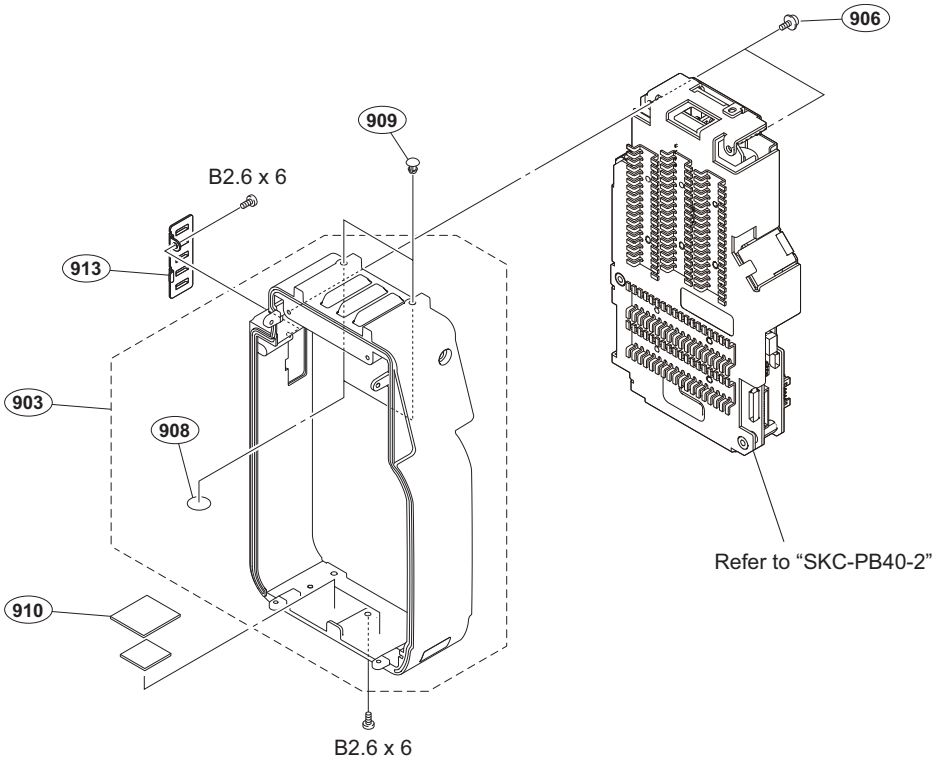
No.	Part No.	SP	Description
701	A-1992-437-A	s	MOUNTED CIRCUIT BOARD, CN-3601
702	A-1992-439-A	s	MOUNTED CIRCUIT BOARD, CN-3603
703	A-1992-440-A	s	MOUNTED CIRCUIT BOARD, CN-3605
704	A-1992-441-A	s	MOUNTED CIRCUIT BOARD, CN-3606
705	A-1992-442-A	s	MOUNTED CIRCUIT BOARD, CN-3607
706	1-835-711-11	s	CABLE, FLEXIBLE FLAT (15 CORE)
707	1-970-046-11	s	HARNESS, SUB (REMOTE)
708	1-970-048-11	s	HARNESS, SUB (UNREG)
709	1-970-050-11	s	HARNESS, SUB (MIC)
710	1-970-051-11	s	HARNESS, SUB (INCOM)
711	1-970-055-11	s	HARNESS, SUB (EXT DC IN)
712	3-637-901-11	s	SCREW M2.6X5
713	3-748-142-01	s	COVER,CONNECTOR
714	3-796-993-01	s	CUSION DROP PROTEICTION TOGGLE
716	4-119-228-01	s	GASKET (VF)
717	4-138-682-01	s	SW COVER
718	4-138-731-01	s	SHEET,WATER PROOF SW
719	4-488-747-02	s	SHEET, DC LINE PROTECTION
	7-621-773-95	s	SCREW +B 2.6X6

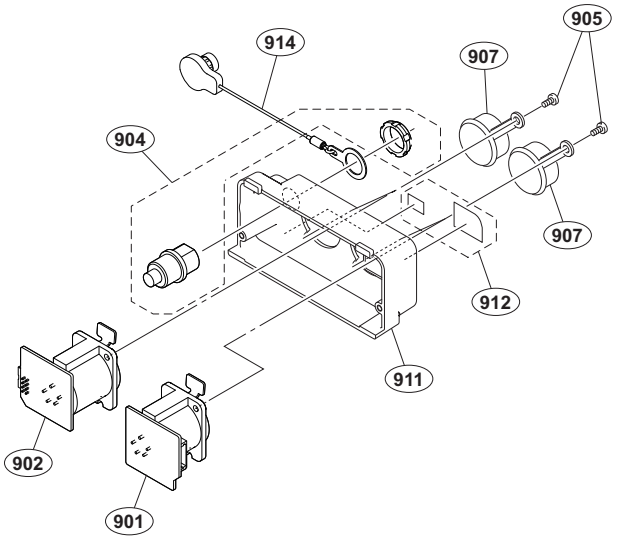
Rear-2



No.	Part No.	SP	Description
801	A-1991-230-A	s	PANEL SUB ASSY, REAR
802	A-1992-431-A	s	MOUNTED CIRCUIT BOARD, SW-1592A (CED)
	A-1992-436-A	s	MOUNTED CIRCUIT BOARD, SW-1592 (SY, J)
803	1-835-711-11	s	CABLE, FLEXIBLE FLAT (15 CORE)
804	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
805	3-669-607-22	s	+PSW (SMALL ROUND) (2.6) [PSW2.6X8]
806	3-868-657-03	s	CAP,BNC
807	3-869-842-01	s	CAP,SW
808	3-903-660-01	s	DROP PROTECTION,TOGGLE
809	3-903-661-01	s	ROD,GURAD
810	3-965-077-02	s	SCREW, SPECIAL (M2) [M2X2.4]
811	4-138-682-01	s	SW COVER
812	4-138-683-02	s	KNOB, ENCODER
813	4-488-733-01	s	COVER(REAR), TALLY
814	4-488-736-01	s	SW COVER, FLANGE
815	4-488-737-01	s	CAP, CONNECTOR (1)
816	4-488-738-01	s	CAP, CONNECTOR (2)
817	4-488-739-01	s	SHEET, INCOM (CE) (CED)
	4-488-749-01	s	SHEET, INCOM (UC) (SY, J)
818	4-488-748-01	s	SHEET, WATER PROOF(SW-1592)

SKC-PB40-1

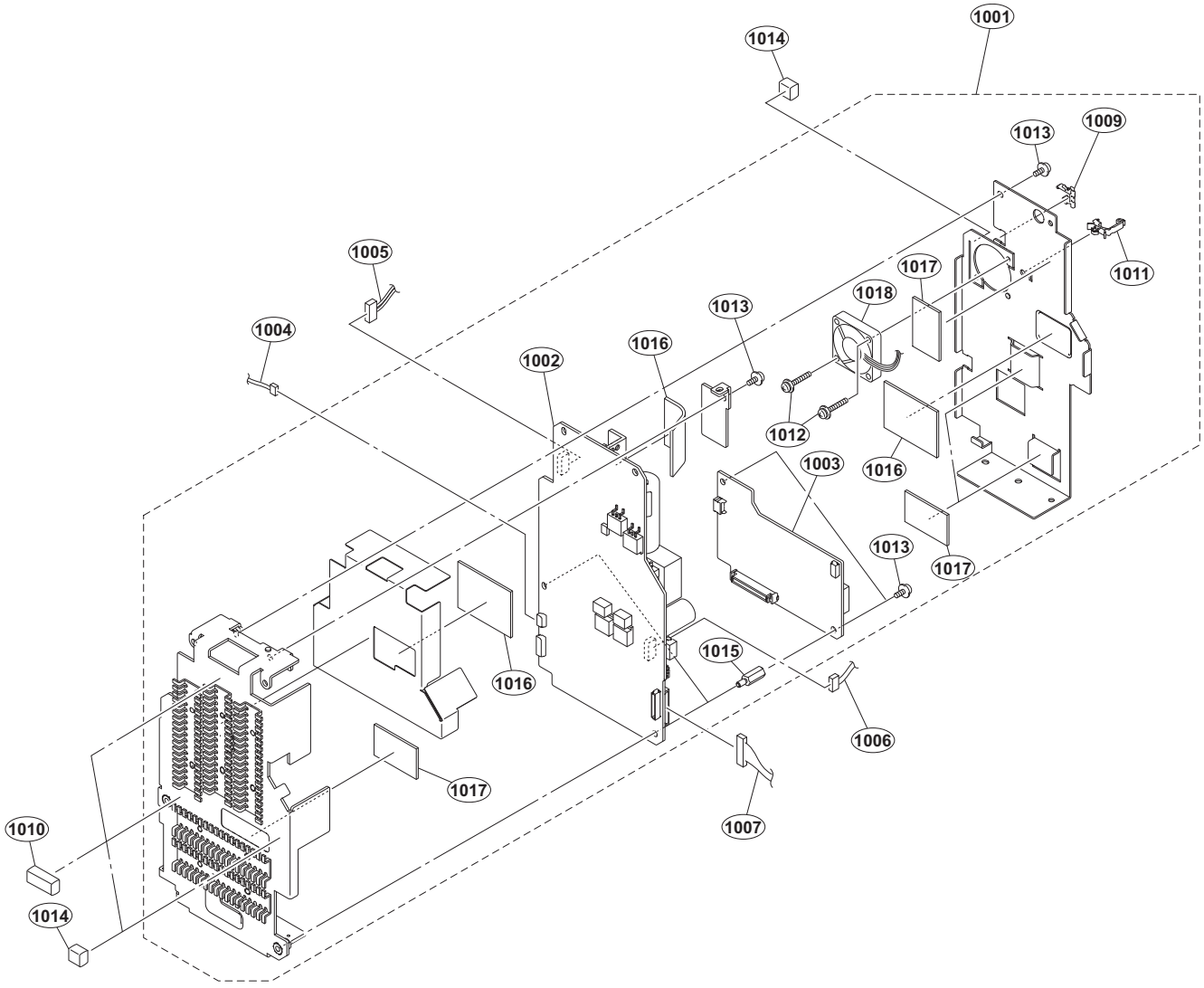




No.	Part No.	SP	Description
901	A-1990-799-A	s	MOUNTED CIRCUIT BOARD, CN-3616
902	A-1990-800-A	s	MOUNTED CIRCUIT BOARD, CN-3617
903	A-1992-210-A	s	FRAME, PB SUB ASSY
904	1-970-079-12	s	HARNESS, SUB PB 24V OUT
905	3-637-901-11	s	SCREW M2.6X5
906	3-669-607-22	s	+PSW (SMALL ROUND) (2.6) [PSW2.6X8]
907	3-748-142-01	s	COVER,CONNECTOR
908	3-796-946-03	s	TAPE(A)
909	4-138-679-01	s	SCREW, BLIND
910	4-259-117-01	s	SHEET,SLIDE A
911	4-488-959-01	s	CONNECTOR BOX
912	4-488-960-01	s	SHEET, PB
913	⚠ 4-488-961-01	s	PANEL, LOUVER
914	4-532-375-01	s	CAP(24V),CONNECTOR

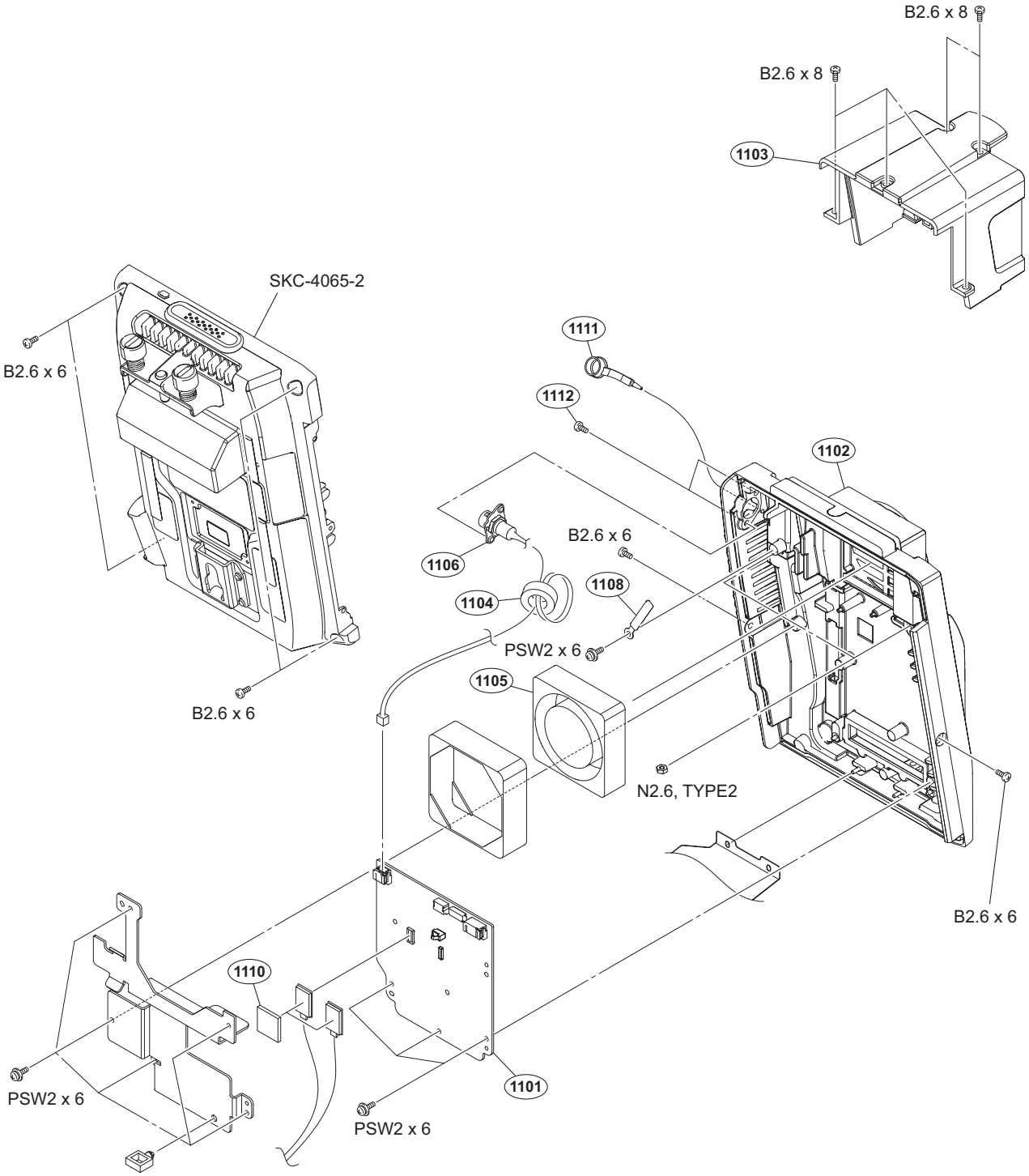
No.	Part No.	SP	Description
	7-621-773-95	s	SCREW +B 2.6X6

SKC-PB40-2



No.	Part No.	SP	Description
1001	⚠ A-1990-865-A	s	POWER BLOCK ASSY(PB)
1002	A-1998-582-A	s	MOUNTED CIRCUIT BOARD, PS-869B
1003	A-1998-887-A	s	MOUNTED CIRCUIT BOARD, RE-313B
1004	1-970-078-12	s	HARNESS, SUB CSA TO PB
1005	1-970-080-12	s	HARNESS, SUB PWR_SW PB
1006	1-970-081-12	s	HARNESS, SUB PB 14V_OUT_2
1007	1-970-082-12	s	HARNESS, SUB PB 14V_OUT_1
1009	4-098-036-01	s	SADDLE WIRE (A)
1010	4-119-228-01	s	GASKET (VF)
1011	4-137-926-01	s	SADDLE (LES-0505), EDGE
1012	4-382-854-21	s	SCREW (M3X14), P, SW (+)
1013	4-382-854-51	s	SCREW (M3X6), P, SW (+)
1014	4-435-866-01	s	GASKET(H),MAIN
1015	4-489-124-01	s	SUPPORT (SQ-12)
1016	4-489-125-01	s	SHEET (1), RADIATION
1017	4-489-126-01	s	SHEET (2), RADIATION
1018	⚠ 1-787-421-21	s	FAN, DC (30 SQUARE)

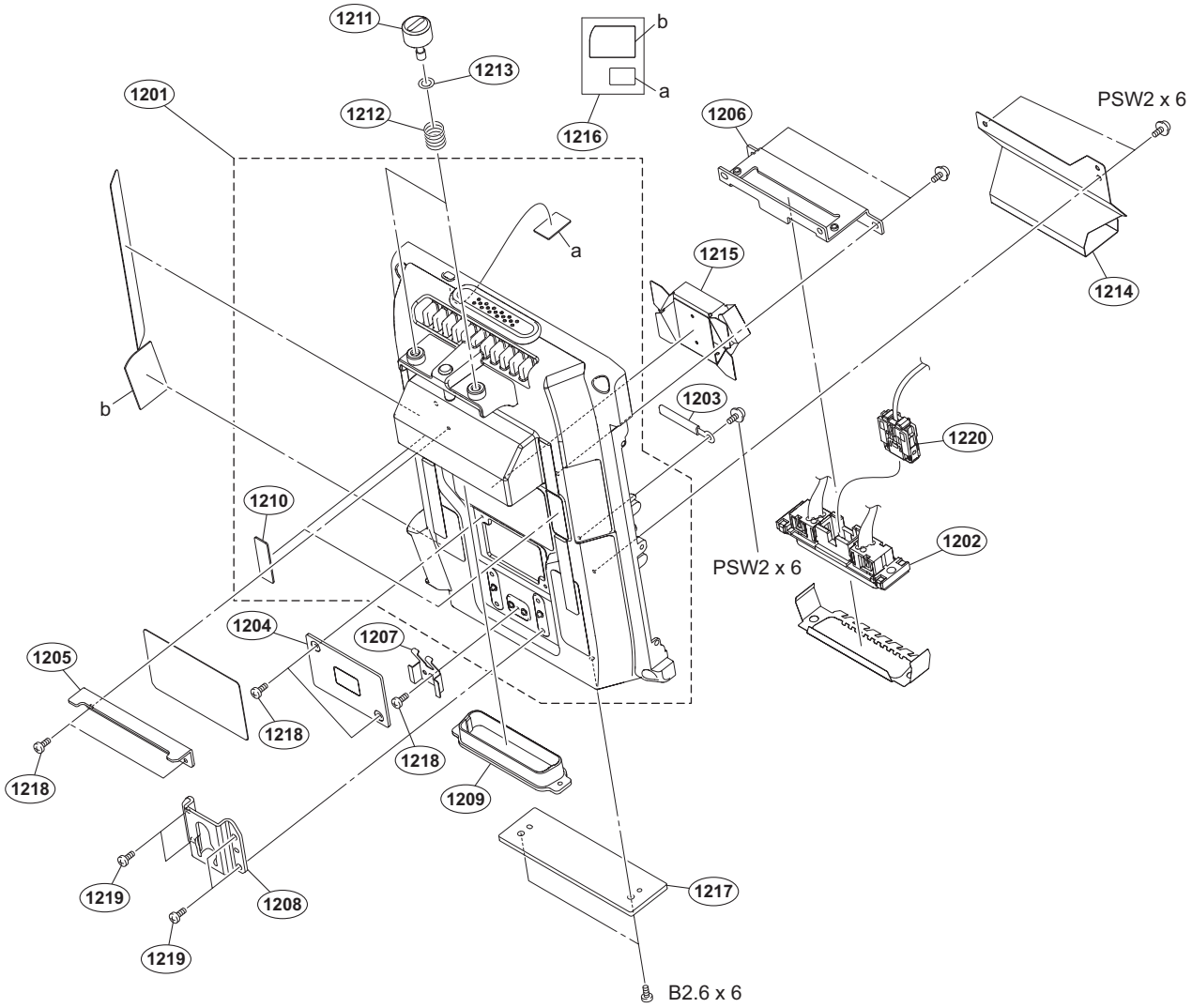
SKC-4065-1



No.	Part No.	SP	Description
1101	A-2039-276-A	s	MOUNTED CIRCUIT BOARD, IF-1262
1102	A-2043-035-A	s	PANEL SUB ASSY, REAR
1103	A-2046-283-A	s	COVER SUB ASSY, ADAPTOR
1104	1-400-485-11	s	CORE, FERRITE
1105	⚠ 1-855-027-11	s	FAN, DC (52 SQUARE)
1106	A-2049-673-A	s	DC OUT ASSY
1108	3-681-432-02	s	CLAMP
1109	3-870-176-02	s	BRACKET (DC OUT)
1110	4-451-612-01	s	SHEET, RADIATION
1111	4-488-738-01	s	CAP, CONNECTOR (2)

No.	Part No.	SP	Description
1112	4-674-315-01	s	SCREW (M2.6X6) [P2.6X6]
	7-621-773-95	s	SCREW +B 2.6X6
	7-621-775-40	s	SCREW +B 2.6X8
	7-622-207-05	s	N 2.6, TYPE 2
	7-628-000-05	s	+PSW 2X6

SKC-4065-2



No.	Part No.	SP	Description
1201	A-2046-282-A	s	LOWER SUB ASSY
1202	1-970-272-11	s	HARNESS, SUB (ARGO(ADAPTOR))
1203	3-681-432-02	s	CLAMP
1204	4-414-019-01	s	COVER, BATTERY
1205	4-414-057-02	s	PLATE, CONNECTOR
1206	4-414-058-01	s	BRACKET, CN
1207	4-414-060-01	s	PLATE, GROUND
1208	4-414-061-01	s	PLATE, GUIDE
1209	4-414-097-03	s	CAP (ARG), CONNECTOR
1210	4-414-115-01	s	SHEET, RAIL
1211	4-414-137-03	s	SCREW, DOCKING
1212	4-414-145-01	s	SPRING, COMPRESSION
1213	4-419-687-01	s	WASHER (DIA 4)
1214	4-535-981-01	s	RETAINER (REAR), CABLE
1215	4-535-985-01	s	RETAINER (FRONT), CABLE
1216	4-535-986-01	s	SHEET, BLANK
1217	4-535-987-01	s	PLATE, BOTTOM
1218	4-644-492-72	s	ACE (M2), LOCK [B2X4]
1219	4-674-315-01	s	SCREW (M2.6X6) [P2.6X6]
1220	⚠ 8-753-394-81	s	CXN2006-NA01
	7-621-773-95	s	SCREW +B 2.6X6
	7-628-000-05	s	+PSW 2X6

5-3. Supplied Accessories

CA4000

Q'ty	Part No.	SP	Description
1pc	3-704-295-01	o	BAG, PROTECTION (550X500)
1pc	4-138-677-01	s	BRACKET, BELT
1pc	4-138-758-01	s	CLAMP BELT, CABLE
1pc	⚠ 4-530-799-01	s	CD-ROM PACK
2pcs	7-682-548-09	s	SCREW +B 3X8

SKC-PB40

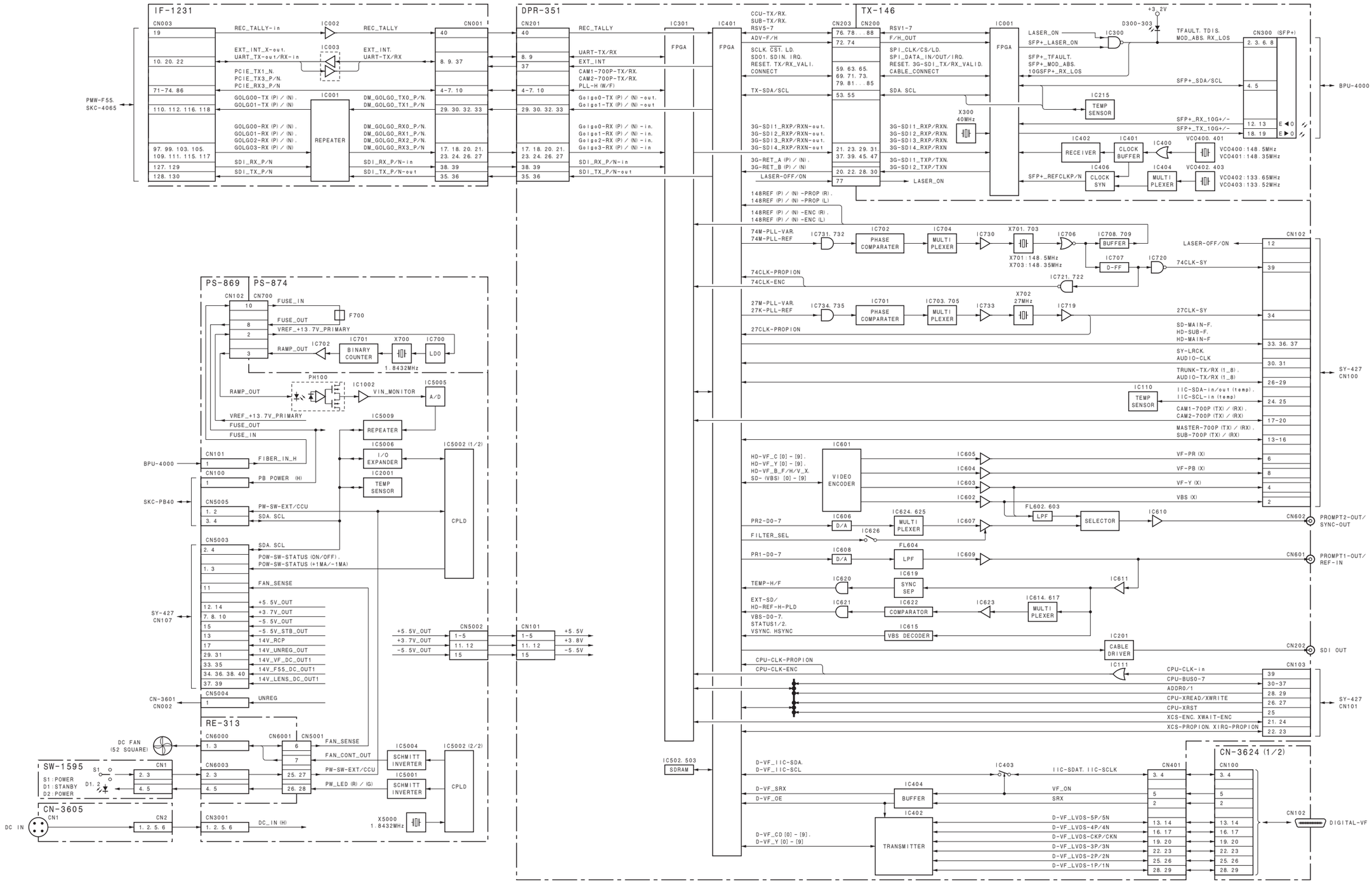
Q'ty	Part No.	SP	Description
1pc	3-704-046-31	s	BAG,PREVENTION,ELECTRIFICATION
4pcs	7-621-773-95	s	SCREW +B 2.6X6

SKC-4065

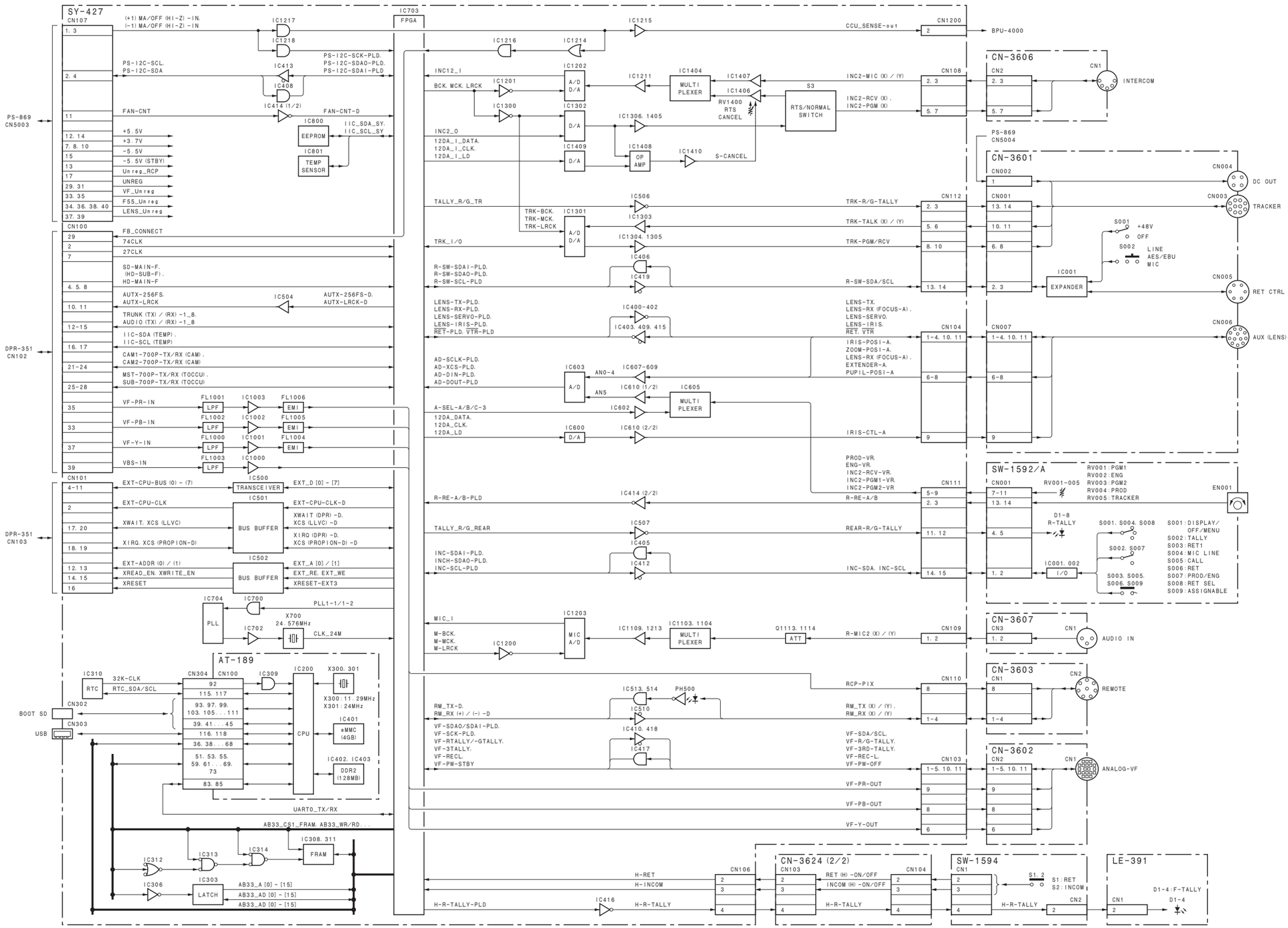
Q'ty	Part No.	SP	Description
1pc	1-848-383-11	s	CONNECTION CABLES
1pc	4-535-988-01	s	BRACKET, COVER
12pcs	7-621-775-40	s	SCREW +B 2.6X8

Section 6
Diagrams

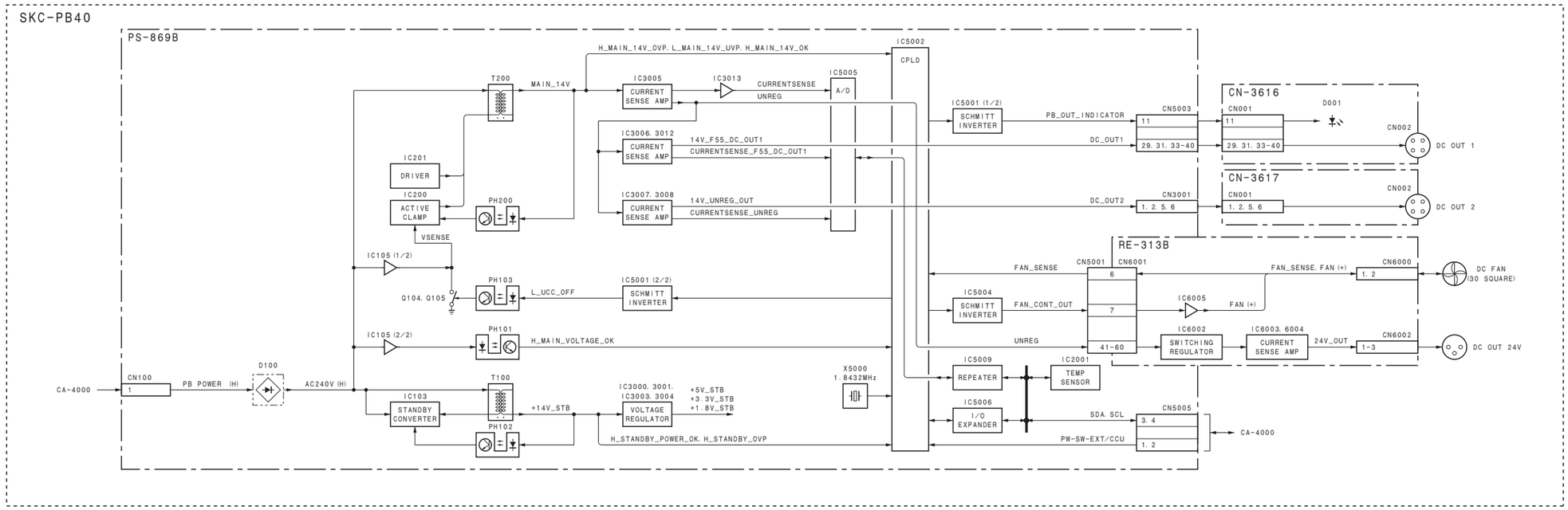
CA4000 Overall (1/2)

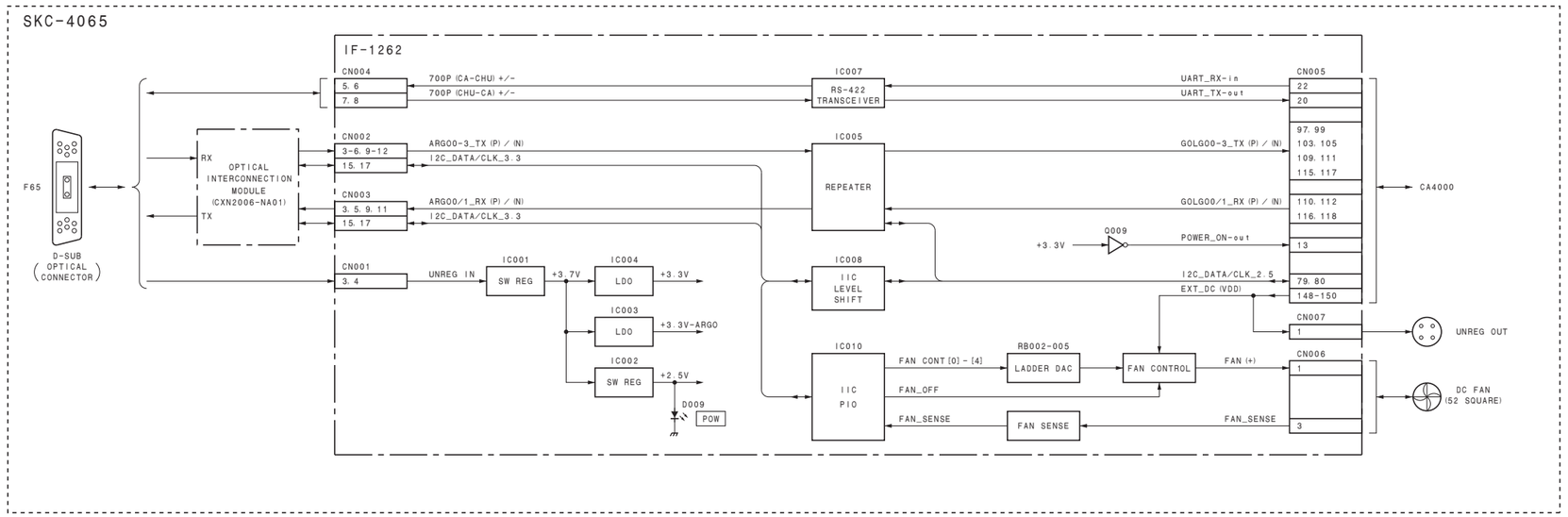


CA4000 Overall (2/2)



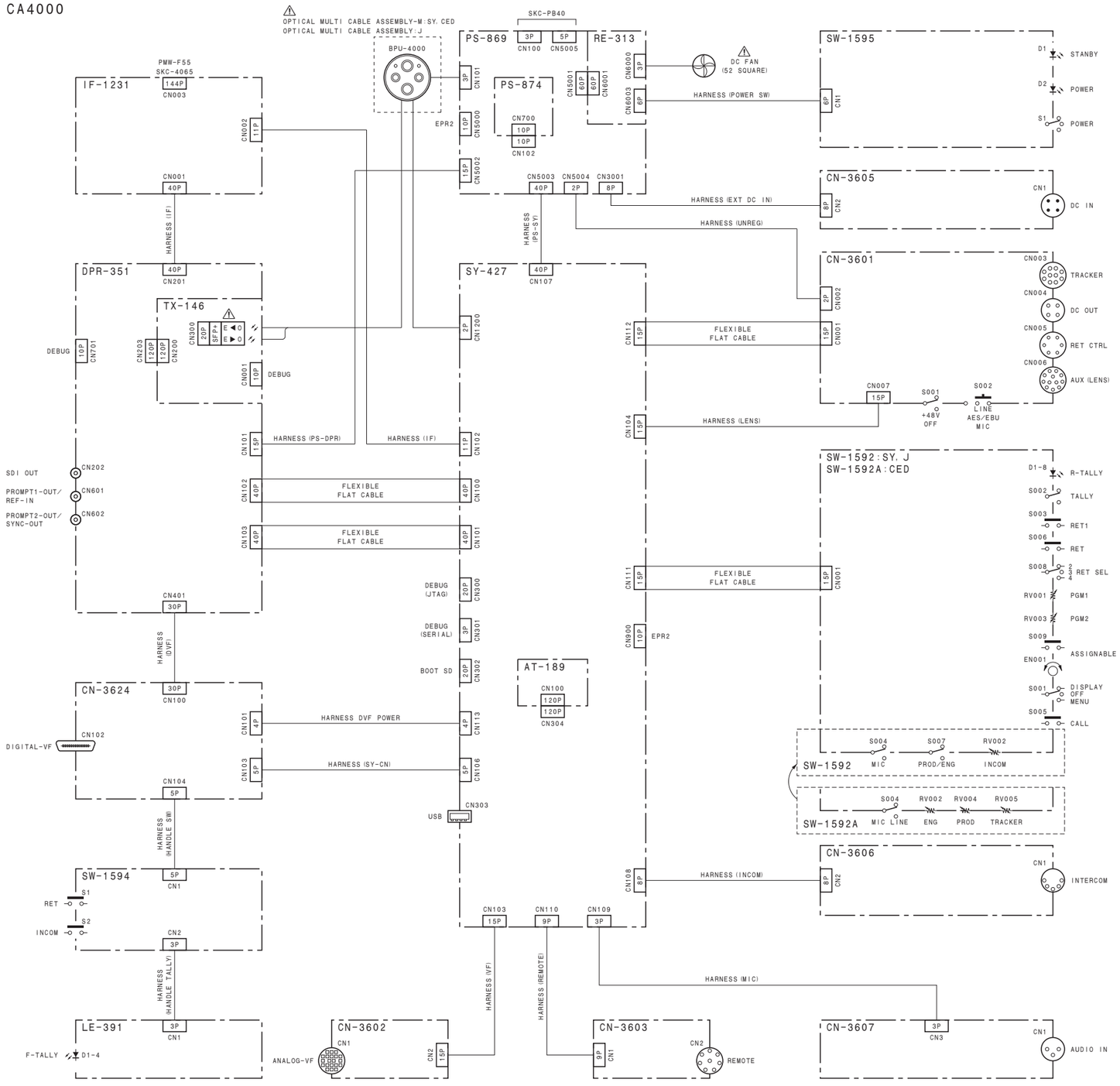
SKC-PB40/4065 Overall



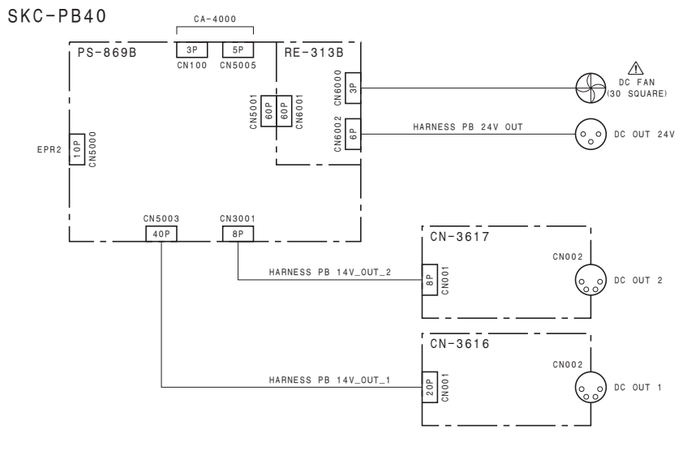


Frame Wiring

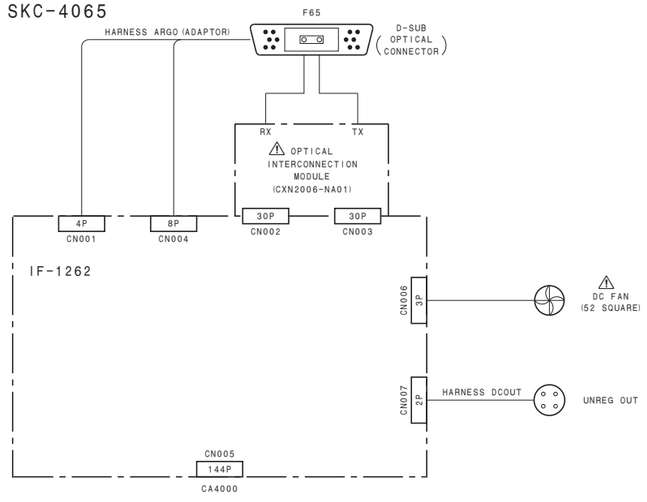
CA4000



SKC-PB40



SKC-4065



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CA4000 (J) J, E
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