SONY

SOLID-STATE MEMORY CAMCORDER

PMW-F3

SERVICE MANUAL

1st Edition

⚠ 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.

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.

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2. Replacement of Parts

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7. Frame Wiring

Manual Structure

Purpose of this manual

This document is the maintenance manual of Solid-State Memory Camcorder PMW-F3.
When servicing this unit, parts are repaired or replaced on a board basis in principle. Therefore, this manual includes no circuit diagram or parts installation diagram.

Related manual

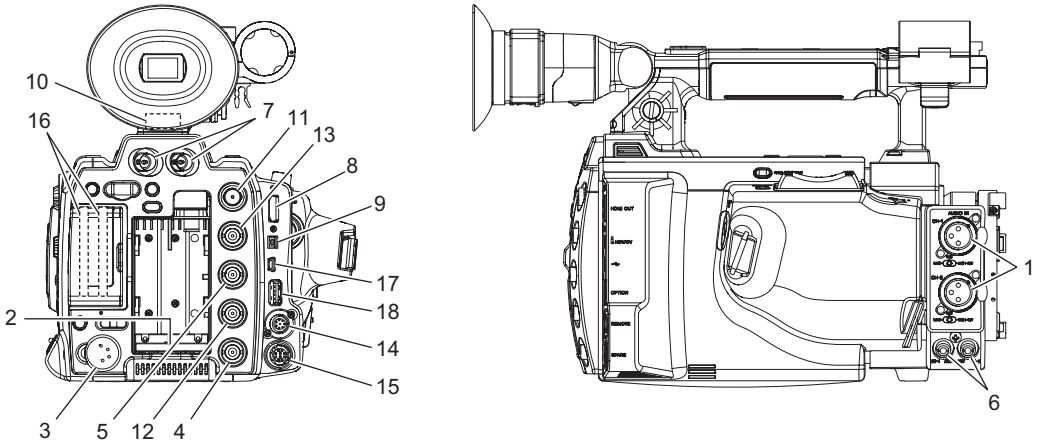
The following manual is provided for this unit in addition to this “Service Manual”.
If you need the manual, contact your local Sony Sales Office/Service Center.

- **Operating Instructions (Supplied with the unit)**
  This manual contains information required to operate and maintain the unit.

Section 1
Service Overview

1-1. External Connectors

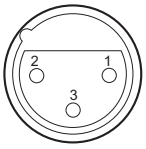
1-1-1. Signal Inputs and Outputs



Input signals

1 AUDIO IN CH-1, CH-2

XLR 3-pin, Female



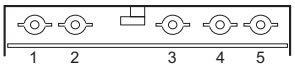
(External view)

No.	Signal	I/O	Specifications
1	MIC/LINE (G)	—	–65 dBu to –8 dBu +4 dBu, selectable High impedance, Balanced
2	MIC/LINE (H)	IN	
3	MIC/LINE (C)	IN	

(0 dBu = 0.775 V rms)

2 BATTERY

5-pin. Male

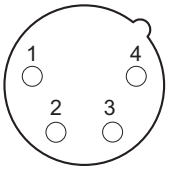


(External view)

No.	Signal	I/O	Specifications
1	BATT (+)	—	+11 to +17 V dc
2	BAT_SCL	OUT	—
3	BAT_SDA	IN/OUT	—
4	BATT_ID_ DATA	IN	—
5	BATT (–)	—	—

3 DC IN

XLR 4-pin, Male



(External View)

No.	Signal	I/O	Specifications
1	GND	—	—
2	NC	—	No connection
3	NC	—	No connection
4	BATT OUT (+)	IN	+11 to +17 Vdc

4 GENLOCK IN

BNC type, 1.0 Vp-p, 75 Ω, Unbalanced

5 TC IN

BNC type, 0.5 V to 18 Vp-p, 75 Ω, Unbalanced

Output signals

6 AUDIO OUT CH-1, CH-2

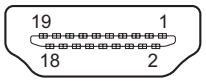
RCA pin jack

7 HD SDI A, B

HD SDI signal BTA-S004A compliant
BNC type, 0.8 Vp-p, 75 Ω, 1.485 Gbps

8 HDMI OUT

19-pin, type A

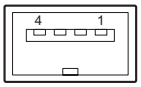


(External View)

No.	Signal	I/O	Specifications
1	TMDS_ DATA2+	OUT	—
2	TMDS_ DATA2_ SHIELD	—	—
3	TMDS_ DATA2–	OUT	—
4	TMDS_ DATA1+	OUT	—
5	TMDS_ DATA1_ SHIELD	—	—
6	TMDS_ DATA1–	OUT	—
7	TMDS_ DATA0+	OUT	—
8	TMDS_ DATA0_ SHIELD	—	—
9	TMDS_ DATA0–	OUT	—
10	TMDS_ CLOCK+	OUT	—
11	TMDS_ CLOCK_ SHIELD	—	—
12	TMDS_ CLOCK–	OUT	—
13	CEC (NC)	—	—
14	RESERVED (NC)	—	—
15	SCL	OUT	—
16	SDA	IN/OUT	—
17	DDC/CEC_ GND	—	—
18	+5V_POWER	OUT	—
19	HPD	IN	—

9 HDV

4-pin, IEEE1394, S400



(External View)

No.	Signal	I/O	Specifications
1	TPB–	IN/OUT	Strobe on receive, data on transmit B (–)
2	TPB+	IN/OUT	Strobe on receive, data on transmit B (+)
3	TPA–	IN/OUT	Data on receive, strobe on transmit A (–)
4	TPA+	IN/OUT	Data on receive, strobe on transmit A (+)

10 HEADPHONE

Stereo mini jack
–20.5 dBu (reference level output 16 Ω loaded)
Sound monitor, monaural/stereo selectable

11 SDI OUT

SDI signal SMPTE 292M/259M compliant
BNC type, 0.8 Vp-p, 75 Ω, 270 Mbps/1.5 Gbps

12 TC OUT

BNC type, 1.0 Vp-p, 75Ω

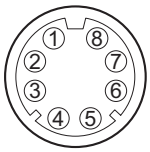
13 VIDEO OUT

BNC type, 1.0 Vp-p, 75Ω, Unbalanced

Input/output signals

14 REMOTE

8-pin, Female

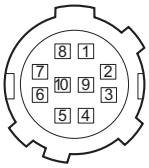


(External View)

No.	Signal	I/O	Specifications
1	COMMON-V	OUT	GND
2	ZOOM	IN	GND: WIDE 1.66 V: STOP 3.33 V: TELE
3	COMMON+V	OUT	3.33 V
4	COMMON	IN	1.66 V
5	REC	IN	GND: ON OPEN: OFF
6	RET	IN	GND: ON OPEN: OFF
7	SW COM-MON	OUT	GND
8	FRAME GND	—	—

15 SPARE (3D-LINK)

10-pin, Female



(External view)

No.	Signal	I/O	Specifications
1	GENLOCK (GND)	—	Ground for GENLOCK
2	GENLOCK	OUT (IN)	
3	TC (GND)	—	Ground for TC
4	TC	OUT (IN)	
5	RX	IN (OUT)	
6	TX	OUT (IN)	
7	CLK	OUT (IN)	
8	CS	OUT (IN)	
9	GND	—	
10	REC TRIG	—	

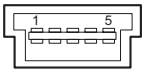
16 SxS SLOT A, B

Express Card34

PCMCIA Express Card compliant

17 USB

5-pin, mini-B, USB2.0 Hi-Speed

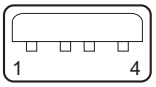


(External view)

No.	Signal	I/O	Specifications
1	VCC	—	USB Vcc
2	D–	IN/OUT	DATA–
3	D+	IN/OUT	DATA+
4	ID (NC)	—	No connection
5	GND	—	Ground

18 USB HOST

4-pin, type A, USB2.0 Hi-Speed

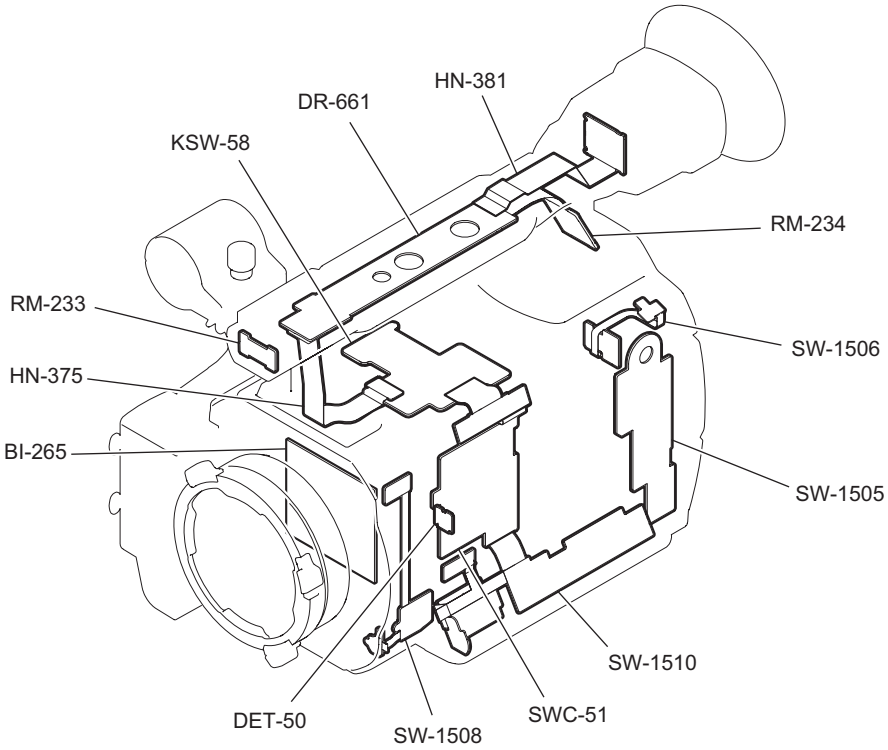


(External View)

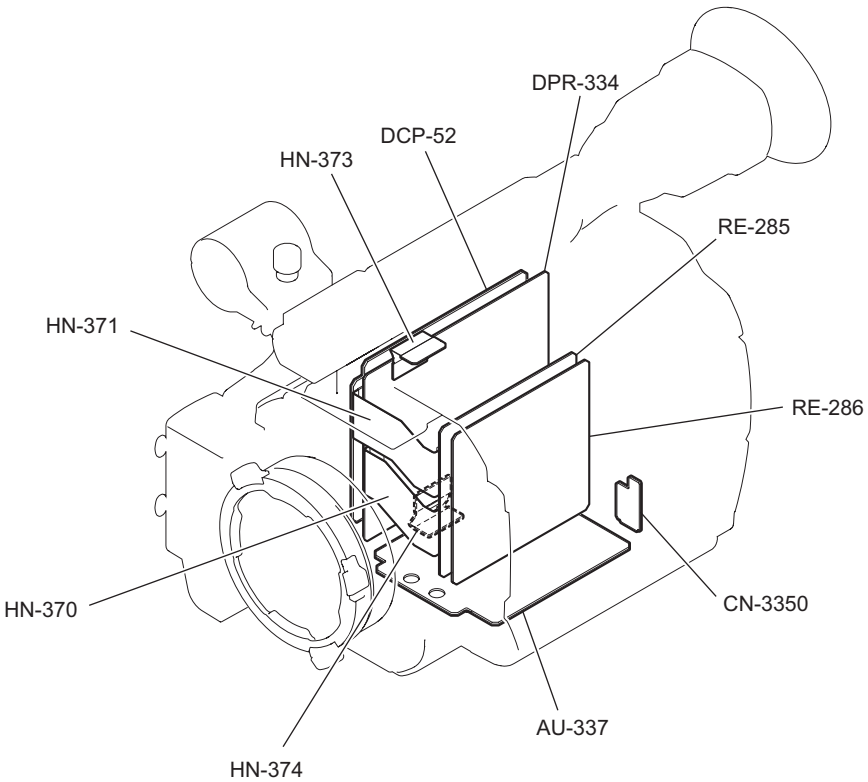
No.	Signal	I/O	Specifications
1	VBUS	—	VBUS (4.4 – 5.25 V)
2	D–	IN/OUT	DATA–
3	D+	IN/OUT	DATA+
4	GND	—	Ground

1-2. Location of Printed Wiring Boards

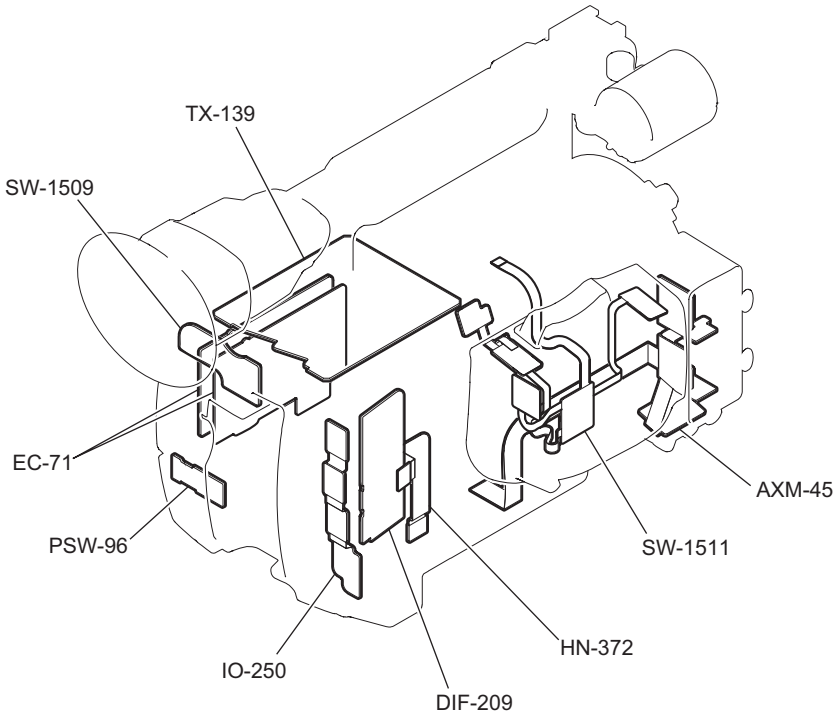
Handle block/front block/inside panel block



Main frame block



Outside panel block/rear panel block



1-3. Circuit Description

1-3-1. CMOS Block and Lens Block

BI-265 Board

The BI-265 board is used to supply the power bias synchronous signal to the CMOS image sensor (ICl00) and to transmit output signals to the DCP-52 board. This board is provided with a 22-pin connector (CN1) and a 15-pin connector (CN2) for power supply and a 40-pin fine-pitch coaxial connector (CN101) for transmission of video signals.
The CMOS image sensor converts optical signal to electrical signal, and its internal A/D converter converts the electrical signal to 12-bit digital signal and outputs the digital signal.
This board is also provided with functions as an electronic shutter and an analog gain amplifier. The sync signal and the serial communication signal from the DCP-52 board are input to the CMOS image sensor.
Various types of decoupling capacitors and damping resistors are also mounted on this board.
The temperature sensor (IC104) sends the temperature data to the camera microcomputer SUN (IC902) on the DCP-52 board through the I^2C bus.
The drop regulator (IC101 to IC103) in the power supply circuit supplies smoothed power voltages to the CMOS image sensor.

DCP-52 Board

The DCP-52 board is provided with Cooke interface and ARRI interface connectors for serial communication with and power supply to the lens.
This board also contains a camera microcomputer SUN (IC902) to control power supply to the lens and an overcurrent detection circuit (IC1205, IC1207). When an overcurrent is detected, power supply to the lens is shut off by the FET (Q1208, Q1209) and the information is sent to the camera microcomputer SUN (IC902).

1-3-2. Camera Block

DCP-52 Board/DPR-334 Board

The camera block consists of a camera signal processor IC that processes the digital camera signal and a camera microcomputer that controls the camera signal processor IC, CMOS image sensor, and lens. This block outputs the digital video signal (Y/C) to the following video signal system (baseband).
The digital video signal sent from the BI-265 board is input to the camera signal processor (IC200: RISE, IC600: THEIA) on the DCP-52 board. The camera signal processor detects values (including video signal average value and peak value) necessary for the camera operations such as Bayer array signal processing, white balance, black balance, focus, iris, knee processing, and then sends the detected values to the camera microcomputer SUN (IC902).
The digital video signal enters first the selector circuit that selects digital video signal or the test signal, and is then transferred to the CMOS image sensor correction circuit and the lens correction circuit. After that, the digital video signal receives white balance processing, and then the matrix signal and the detail signal are added to the video signal. The video signal then receives pedestal control, knee correction, gamma correction, and white/black clip processing. The video signal is finally output to the baseband processing IC T-ONE (IC200) on the DPR-334 board.
The processing for converting the number of pixels from 1920/1080 to 1440/1080 or from 1920/1080 to 1280/720 is also performed in the camera signal processor IC RISE (IC200) on the DCP-52 board.
The camera microcomputer SUN (IC902) on the DCP-52 board performs the overall camera control, and is controlled by the system microcomputer MELON (IC1700) on the DPR-334 board. SUN's peripheral ICs FLASH ROM (IC901) and SDRAM (IC900) are mounted on the DCP-52 board.

1-3-3. Video Signal System

DCP-52 Board/DPR-334 Board

The digital video signal (Y/C) sent from the camera signal processor IC RISE (IC200) on the DCP-52 board is input to the baseband processing IC T-ONE (IC200) on the DPR-334 board.
The baseband processing IC T-ONE (IC200) that incorporates scaler functions (supporting multi-format output), OSD, PLL (54 to 74 MHz), and CPU performs baseband processing for video and audio signals.
The baseband signal processed by T-ONE is sent to the router IC LEOV (IC1100), and is then distributed to inputs and outputs.
The following table lists inputs and outputs of the baseband processing IC T-ONE.

Signal name	Input/output
HD/SD digital component signal	Output to the router IC (Used for outputting SDI/HDMI/VIDEO OUT (without characters))
HD/SD analog component signal	Output through the A/D converter (IC705) on the DPR-334 board to the router IC (Used for outputting SDI/HDMI/VIDEO OUT (with characters))
Analog composite signal	Output to the IO-250 board
Video signal for LCD	Output to the SWC-51 board
Video signal for viewfinder	Output through the KSW-58 board to the DR-661 board
Video signal for CODEC	Output through the router IC to the CODEC (IC1400: TORINO) on the DCP-52 board
Return video signal	Input from the router IC
Audio interface signal	Output to the AU-337 board

The peripheral circuit of the baseband processing IC T-ONE contains the following circuit and devices.
- Master clock 54 MHz VCXO (X800) control circuit (including IC800)
- Mobile DDR SDRAM (IC400, IC401)
- FLASH ROM (IC504) and SDRAM (IC500) as peripheral ICs of the internal CPU

1-3-4. Media Recording/Playback System

DCP-52 Board

The baseband signal sent from the router IC LEOV (IC1100) on the DPR-334 board is input to the MPEG encoder/decoder TORINO (IC1400) or the AVIT signal processing IC ZOU3 (IC1500).
The MPEG encoder/decoder TORINO is a single-chip MPEG CODEC IC that encodes and decodes high-quality HD image and audio signals in real time. It has various interfaces with MPEG video signal and video input/output, MPEG audio signal and audio input/output, bitstream input/output, and the USB host.
The AVIT signal processing IC ZOU3 is an AVIT signal processing IC that contains a DV CODEC to encode and decode high-quality SD image signal in real time. It has various interfaces with DV video signal and DV video input/output, LPCM audio signal and audio input/output, bitstream input/output, and the internal CPU.
The TORINO output signals are input to the AVIT signal processing IC ZOU3 (IC1500). The ZOU3 contains a MIPS4KEC CPU and has interfaces with 2G-bit DDR2 SDRAM (IC1700, IC1701), PCI bus, PCI-Express bus, input to/output from TORINO, and the I^2C serial communication. The ZOU3 is controlled by the system microcomputer MELON (IC1700) on the DPR-334 board in the same way as other main devices. It has functions for video/audio stream control, access to the SxS memory card, mass storage operations when connected to the USB, and DV/HDV device control when connected to the i-LINK.

SxS Memory Card Slot (EC-71 Board)

The 2-channel PCI-Express signal from the AVIT signal processing IC ZOU3 (IC1500) on the DCP-52 board and the 2-channel USB host signal from the USB host controller (IC2200) are output from the fine-pitch coaxial connectors (CN2300 and CN2301) on the DCP-52 board to the EC-71 board (memory card slot).

This unit has two memory card slots (two EC-71 boards). The power controller (IC1) is controlled by GPIO in the ZOU3. A power voltage +1.5 V for memory cards is supplied by the DC/DC converter (IC2301) on the DCP-52 board.

USB Device Controller

The USB device signal sent from the USB device controller (IC1900) on the DCP-52 board is output from the connector (CN2502) on the DCP-52 board through the HN-372 flexible board to the DIF-209 board. Then the USB device signal is output to the external circuit from the USB TYPE-B connector on the DIF-209 board.

The USB device controller is controlled by the AVIT signal processing IC ZOU3 (IC1500) on the DCP-52 board through the PCI bus. When there is no USB connection, power supply to the USB device controller is shut off. The NOR-type FLASH ROM (IC1802) is also connected to the dedicated bus to which the ZOU3 is connected. The program is loaded from the CPU in the ZOU3 during the initial startup.

i-LINK Controller

The i-LINK signal sent from the i-LINK controller (IC2100) on the DCP-52 board is output from the connector (CN2502) on the DCP-52 board through the HN-372 flexible board to the DIF-209 board. Then the i-LINK signal is output to the external circuit from the 4-pin i-LINK connector (CN5) on the DIF-209 board.

The i-LINK controller is controlled by the AVIT signal processing IC ZOU3 (IC1500) on the DCP-52 board through the PCI bus.

1-3-5. 444 Dual Link Output System

DCP-52 Board/TX-139 Board

The 444 Dual Link output system consists of a camera signal processor ARTEMIS (IC500) for camera digital signal processing, a 444 coprocessor (IC1200), a parallel/serial converter (IC1500, IC1501) for SDI, and a microcomputer LUNA (IC1003) to control this system, which are mounted on the TX-139 board.

Power is supplied from the connector (CN1101) on the DCP-52 board to the connector (CN700) on the TX-139 board, but power voltages are also generated by the following ICs on the TX-139 board.

Ref No.	Power voltage generated
IC300	Termination voltage for frame memory (IC301) Voltage for camera signal processor ARTEMIS (IC500)
IC700	1.8 V for ICs
IC701	1.5 V for ICs
IC703	1.2 V for ICs
IC706	Voltage for microcomputer LUNA (IC1003)

The camera signal flows as follows. The camera signal optimization processing is applied to the camera signal by the camera signal processor THEIA (IC600) on the DCP-52 board, and the signal is output from the fine-pitch coaxial connectors (CN1100, CN1102) on the DCP-52 board. Then the signal is output from the fine-pitch coaxial connectors (CN100, CN101) on the TX-139 board to the camera signal processor ORPHA (IC200).

After that, the signal receives delay adjustment and DeBayer processing by the frame memory (IC301) of the camera signal processor ORPHA, and then the processed signal is input to the camera signal processor ARTEMIS (IC500).

The input camera signal receives the video signal optimization processing by the camera signal processor ARTEMIS, and then the processed signal is input to the 444 coprocessor (IC1200).
The 444 coprocessor superimposes audio and timecode signals on the camera signal. The superimposed signal is converted to the HD-SDI signal by the parallel/serial converter (IC1500, IC1501), and then the converted signal is output from the external connectors (CN1500, CN1501).
These controls are normally performed by the microcomputer LUNA (IC1003) on the TX-139 board, but the timecode of the 444 coprocessor is controlled by the baseband processing IC T-ONE (IC200) on the DPR-334 board.
A flash memory chip (IC1002) and an SDRAM chip (IC1001) are provided as work memory of the microcomputer LUNA. Furthermore, an SROM chip (IC408) is provided for configuration of the camera signal processor ORPHA, and an SROM chip (IC409) for configuration of the 444 coprocessor.
The 74MHz clock is distributed by IC413 on the TX-139 board.

1-3-6. Audio Signal System

AXM-45 Board

The AXM-45 board has analog audio input/output connectors. This board supports two channels for each input and output by 3-pin XLR connectors (CN1, CN2) for input and an RCA connector (CN3) for output. This board also has a LINE/MIC/+48V selection switch for two channels.

AU-337 Board

The analog audio signal sent from the AXM-45 board receives level adjustment and other processing, and is then input to the FPGA POLA (IC101) as a digital signal. Then the digital signal is output through the FPGA POLA to the baseband processing IC T-ONE (IC200) on the DPR-334 board as EE/REC signal. This signal is also used for EE analog output in the FPGA POLA.
The EE (including 1 kHz SG)/PB signal sent from the baseband processing IC T-ONE on the DPR-334 board receives the delay processing necessary for EE in the FPGA POLA, and the processed signal is sent to the TX-139 board for the SDI output/Dual-Link output.
For the line output, loopback input system EE in the FPGA POLA or EE (only 1kHz SG)/PB (1/2ch or 3/4ch selectable) from the DPR-334 board is selected.
The headphones and speaker output signals are mixed with the line output, and then level adjustment is made for the signals by the CODEC (IC408, IC409). Then the beep signal generated by IC200 on the DPR-334 board is added to the signals. After that, the signals are output through the HN-374 board.
The analog audio control and the FPGA control are performed by the I^2C interface and the SIO interface (full-duplex serial), respectively. However, the I^2C interface is used for selection of 1/2ch or 3/4ch for playback or for selection of EE. Both of these interfaces are controlled by T-ONE on the DPR-334 board.
Configuration of the FPGA POLA is performed by the dedicated ROM (IC201). The configuration ROM is upgraded by the system microcomputer MELON (IC1700) on the DPR-334 board through the serial communication.
This board contains an RTC (IC303) and a lithium battery CR2032 as the power source of the RTC.
This board relays the status signal of the LINE/MIC/+48V selection switch on the AXM-45 board.

HN-374 Board

The HN-374 board relays signals between the AU-337 board and the DPR-334 board.

RM-234 Board

The RM-234 board has a headphone jack (CN3), and the connector (CN2) on this board is connected to the speaker.

1-3-7. System Control

This system has a 32-bit RISC microcomputer with ARM core as the system microcomputer MELON (IC1700) on the DPR-334 board. This microcomputer has peripheral interface functions such as SDRAM,

USB, SCI, and I^2C. It operates on a 27 MHz clock (X1700). This microcomputer also has a FLASH ROM (IC1707), an SDRAM (IC1706), and an EEPROM (IC1900) as peripheral ICs.
The system microcomputer MELON performs system control through serial communication with the camera microcomputer SUN (IC902) on the DCP-52 board, the baseband processing IC T-ONE (IC200) on the DPR-334 board, and the AVIT signal processing IC ZOU3 (IC1500) on the DCP-52 board.

Main Functions of the System Controller and Peripherals

1. Reading switch information
   The system microcomputer MELON reads switch information and controls LEDs through I^2C bus communication with each local microcomputer.
   - Inside panel switch: Local microcomputer (IC100, IC200) on the SWC-51 board and local microcomputer (IC2) on the KSW-58 board
   - Power switch: Power controller (IC300) on the RE-285 board
2. RTC control
   The AU-337 board contains an RTC (IC303) that is backed up by a lithium battery. The current time is read or set by the system microcomputer MELON on the DPR-334 board.
3. Infrared remote control signal demodulation
   The RM-234 board has an IC (IC1) for demodulating the rear infrared remote control signal. Commands are received by the system microcomputer MELON through the DR-661 board, HN-375 flexible board, KSW-58 board, SW-1510 board, and local microcomputer (IC200) on the SWC-51 board.
   The RM-233 board has an IC (IC1) for demodulating the front infrared remote control signal. Commands are received by the system microcomputer MELON through the DR-661 board, HN-375 flexible board, and local microcomputer (IC2) on the KSW-58 board.
4. Info-Battery communication
   The Info-Battery of SM bus specifications is supported. The serial terminal of the battery connector is connected to the power controller (IC300) on the RE-285 board through the RE-286 board. The power controller reads the battery type, remaining time, and other information, and then sends the information to the system microcomputer MELON through the I^2C bus communication.
5. Power voltage detection
   The power voltage value from the DC IN connector is measured by the A/D port of the power controller (IC300) on the RE-285 board, and it is sent to the system microcomputer MELON as the input voltage value.
6. Power system control
   The system microcomputer MELON controls respective power supply systems in the RE-285 board through the power controller (IC300) on the RE-285 board according to the operation mode of the unit. Power can be saved by turning off power systems to unnecessary circuit blocks.

RM-234 Board

The TALLY LED (D1) is connected to the local microcomputer (IC200) on the SWC-51 board through the DR-661 board, HN-375 flexible board, KSW-58 board, and SW-1510 board. The local microcomputer controls the TALLY LED by data transfer with the system microcomputer MELON through the I^2C bus communication.

SW-1506 Board

The jog dial S&Q (EN1) signal is input to the local microcomputer (IC100) on the SWC-51 board through the SW-1505 board and the flexible flat cable. The signal is then transferred from the SWC-51 board through the SW-1510 board, KSW-58 board, and HN-373 flexible board to the system microcomputer MELON on the DPR-334 board.
The CACHE REC LED (D1, D3) control signal is connected to the local microcomputer (IC100) on the SWC-51 board through the SW-1505 board and the flexible flat cable. The local microcomputer controls the CACHE REC LED by data transfer with the system microcomputer MELON through the I^2C bus communication.

SWC-1510 Board

The LCD panel open/close detection magnetic sensor (H1) output signal is transferred through the SWC-51 board and the fine-pitch coaxial cable, is converted to I^2C serial signal by IC403 on the DPR-334 board, and the converted I^2C serial signal is read by T-ONE through the I^2C communication bus.
The signals of switches (AUTO WHT BAL, GAIN, WHITE BALANCE, etc.) are read by the local microcomputer (IC100) on the SWC-51 board.
The DISPLAY/BATT INFO switch signal is sent through the KSW-58 board, HN-373 flexible board, DPR-334 board, and HN-370 flexible board to the power block (RE-285 board) and is read in this block.
The SWC-1510 board relays signals between the SWC-51 board and the KSW-58 board.

DR-661 Board

The VF driver (IC4) on this board outputs the A/D converted video signal through the HN-381 flexible board and the FP-776 flexible board to the VF module.
This board also relays the infrared remote control signal and the tally signal.
This board has the REC/STOP button, ASSIGN6, and ASSIGN7 button.

1-3-8. Power Supply System

RE-285 Board/RE-286 Board

The power supply system consists of a power supply circuit and a power controller (IC300) on the RE-285 board. However, a part of low-voltage power supply is mounted on the DCP-52 and DPR-334 boards.

1. Input power supply (UNREG) system operations
   When the UNREG power voltage is input, the system enters the EVER power mode where the POWER switch ON/OFF state can be recognized. When the power controller (IC300) recognizes the POWER switch ON state, power is supplied to the system control system and the power controller controls power supply to each block according to the instructions of the system microcomputer MELON (IC1700) on the DPR-334 board.
   The normal value of the input power supply (UNREG) is within the range of approx. +10.5 V to +17 V.

Function	Description
Battery pack/EXT-DC selection	There are two input power systems: Battery pack and EXT-DC. This function monitors each input voltage and provides circuit settings for automatic switching with priority given to EXT-DC.
Input overvoltage protection	If the UNREG input voltage is too high, the overvoltage protection circuit is activated at about the set value of +17.9 V and the camera shuts down. When the input voltage lowers below +17.9 V, the power supply immediately resumes automatically. However, the camera shuts down at +11 V depending on batter pack type.
Input low-voltage protection	If the UNREG input voltage is too low, the low-voltage protection circuit is activated at about the set value of +10.5 V and the camera shuts down. When the input voltage increases above +10.5 V, the power supply immediately resumes automatically.
Overcurrent detection	An overcurrent detection circuit IC109 is provided on the RE-286 board. The set value is approx. 12 A. Power supply does not resume after overcurrent detection, and therefore power must be turned on again.
Power supply reverse connection protection	If the input power has reverse voltage, Q119 and Q120 on the RE-286 board are not turned on and reverse voltage is not applied to the subsequent circuits.

2. DC/DC converter function
   Power voltages UNREG, +5 V, +3.3 V, +2.8 V, +1.8 V, and –5 V are divided into 24 systems and are output to the following four blocks. In addition to these, power voltages for fans are output.
   - CMOS/camera block system: 7 systems
   - Audio/video signal system: 7 systems

- System controller system: 5 systems
- Media recording/playback system: 5 systems

Each power voltage in each block is turned on and off according to the sequence control by the power controller (IC300).

3. Short-circuit protection for each power supply system

   Each power system monitors the own output voltage and output current, and circuit settings are made so that the protection circuit functions in each block. The protection circuit does not recover automatically even after the short-circuit is cleared, and therefore power must be turned on again.

4. Battery pack information

   In the specified battery pack, information such as the number of recycling times and the internal temperature can be monitored internally. This allows the best operation with detailed information about the battery, including information whether the battery pack is damaged or has reached its lifetime.

5. Fan power voltages

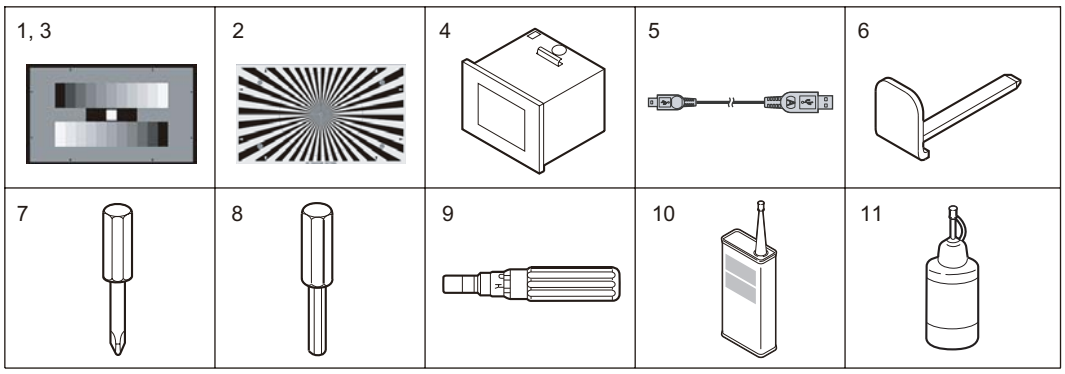
   In the Service menu, switching of output voltages is controlled as shown below by the system microcomputer MELON (IC1700) on the DPR-334 board.

Input signal		**Output voltage**
FAN_0	FAN_1	
L	L	0 V
H	L	8.2 V
L	H	10.2 V
H	H	12.0 V

1-4. Service Tools/Measuring Equipment List

1-4-1. Service Tools

Figure No.	Part No.	Name	Usage/note
1	Commercially available	Grayscale chart (reflective type) (16 : 9)	For camera adjustment
2	Commercially available	Grayscale chart (reflective type)	
3	J-6394-080-A	Grayscale chart (transparent type) (16 : 9)	
4	J-6029-140-B	Pattern box PTB-500	
5	Supplied with PMW-F3	Mini USB cable	For firmware upgrade
6	3-292-755-01	XLR tool	For removing the AXM-45 board
7	J-6325-110-A	Bit for torque driver (M1.4/M1.7)	For tightening screws
	J-6325-380-A	Bit for torque driver (M2)	
	J-6323-430-A	Bit for torque driver (M3)	
8	J-6326-120-A	Hexagon bit (width across flats: 1.5)	
9	J-6325-400-A	Torque driver (3 kg•m) (0.3 N•m)	
	J-6252-510-A	Torque driver (6 kg•cm) (0.6 N•m)	
	J-6252-520-A	Torque driver (10 kg•cm) (1.0 N•m)	
10	7-432-114-11	Locking compound 200 g	For preventing screws from being loosened
11	Commercially available	Loctite (408)	Instant adhesive



1-4-2. Measuring Equipment

Use the following calibrated equipment or equivalent for adjustments.

Equipment	Model name
Oscilloscope	Tektronix TDS3054 (150 MHz or more)
HD waveform monitor	LEADER ELECTRONICS CORP. LV5152DA
Frequency counter	Advantest TR5821AK
Digital voltmeter	Advantest TR6845
Color monitor	Sony HDM-20E1J/14E1J/14E5J
Luminance meter	Konica Minolta LS-110

1-5. Firmware Upgrade

Upgrade the firmware from a personal computer (PC) through a USB connection. Though the firmware can be upgraded using an SxS memory card that contains the upgrade data, firmware upgrade using the high-speed stable USB interface is recommended in this manual.

Preparation

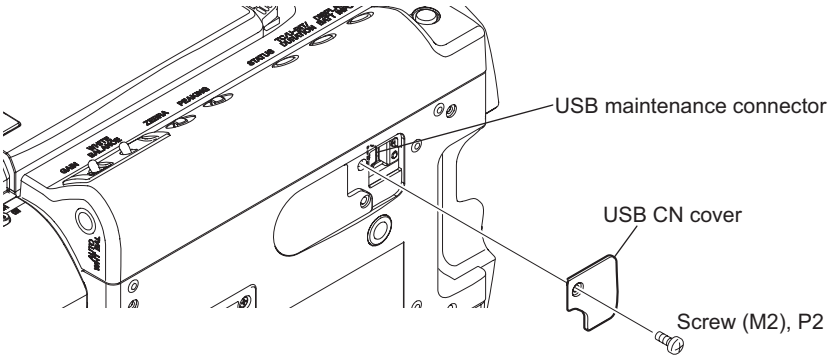
1. Check the current firmware version indicated in “Version” of the OTHER menu.
2. Install the upgrade software in the PC.

   Note

   For how to obtain the upgrade software, contact your local Sony Sales Office/Service Center.
   When a PC is connected to the unit for the first time, driver software need to be installed in the PC.
   For details, check the readme file supplied with the upgrade software.

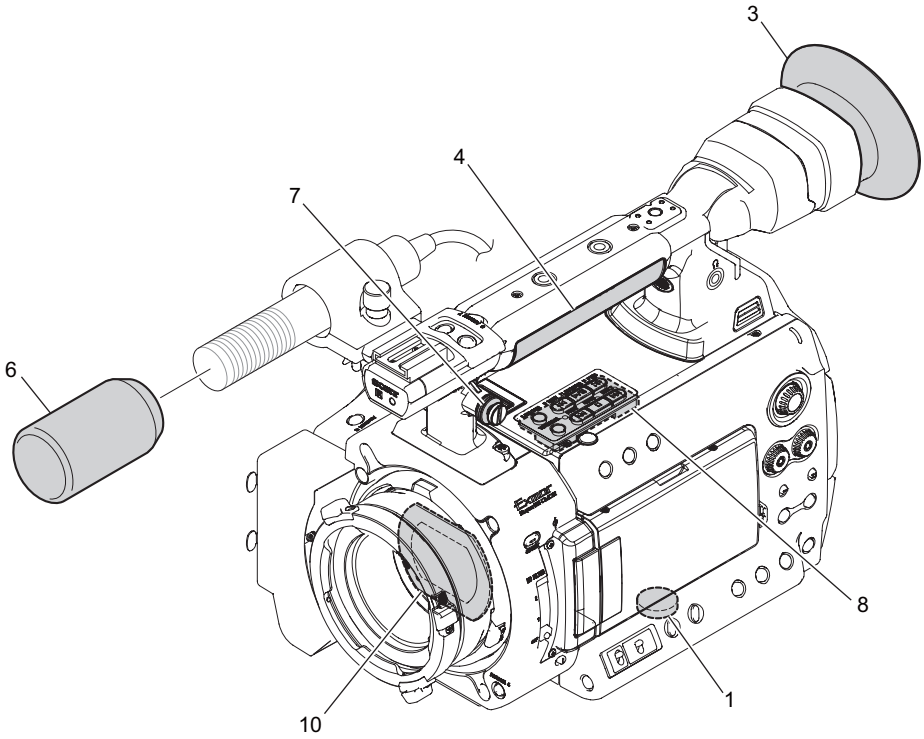
Procedure

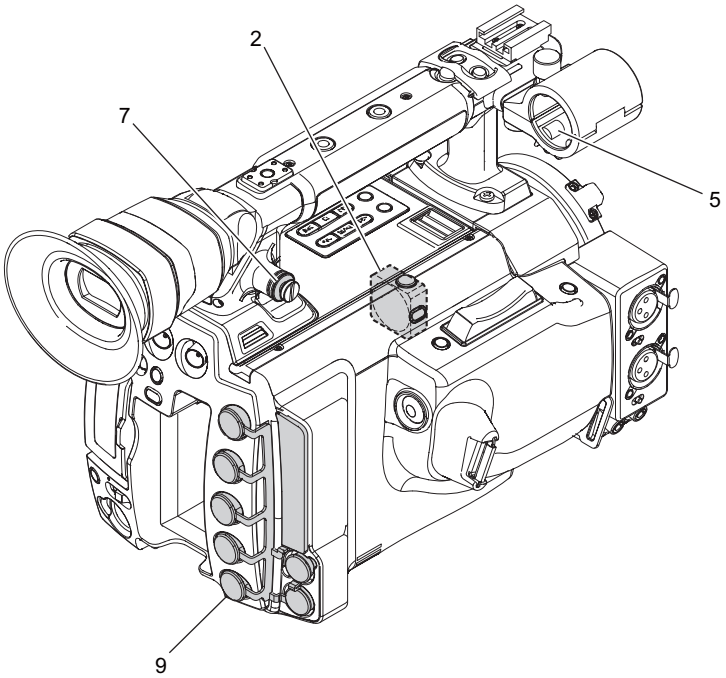
1. Check that the power switch on the unit is turned OFF.
2. Remove the screw from the bottom panel to detach the USB CN cover.



3. Connect the PC to the USB maintenance connector on the unit with a mini USB cable.
4. Turn ON the power of the unit.
5. Run the firmware upgrade software on the PC.
6. After the firmware upgrade is completed, turn OFF the power and disconnect the mini USB cable.
7. Attach the USB CN cover with the removed screw.
8. Turn ON the power and confirm that the firmware version has been upgraded in “Version” of the OTHER menu.

1-6. Periodic Replacement and Recommended Replacement Parts





Note

The following tables do not indicate the warranty period of respective parts. The replacement cycle and recommended replacement timing depend on the operating environment and operating conditions.

Periodic replacement parts

Figure No.	Part name	Part No.	Replacement cycle
1	Lithium battery (CR2032)	⚠ 1-528-174-31	When a warning message appears on the LCD monitor and the viewfinder screen (Refer to the Operation Manual.)

Continued

Figure No.	Part name	Part No.	Replacement cycle
2	DC fan (25 x 25 mm)	⚠ 1-855-061-11	Approx. 5 years

Recommended replacement parts

Figure No.	Part name	Part No.	Recommended replacement timing
3	Eye cup	4-275-143-01	Replace these parts as needed after checking deformation and deterioration (wear, damage, missing, etc.)
4	Handle grip	4-275-241-01	
5	MIC gel	3-854-132-01	
6	Windscreen	3-991-419-01	
7	Hanging bracket collar	3-654-615-02	
8	Rubber switch key	4-275-228-01	
9	IO cover	4-275-245-01	
10	Optical filter unit	1-856-208-11	This unit may become clouded with the passage of time, which may not satisfy the unit characteristics. Replace this unit as needed.

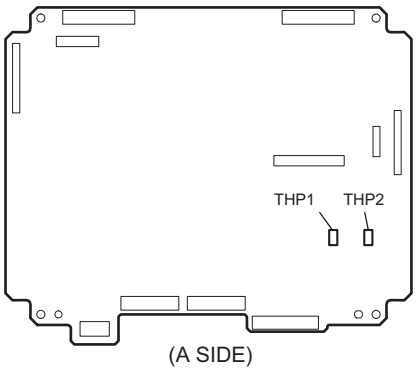
1-7. Circuit Protection Parts

1-7-1. Circuit Protection Element

This unit is equipped with positive-characteristic thermistors (power thermistors) as circuit protection elements. The positive-characteristic thermistor limits the electric current flowing through the circuit as the internal resistance increases when an excessive current flows or when the ambient temperature increases.

If the positive-characteristic thermistor works, turn off the main power of the unit and inspect the internal circuit of the unit. After the cause of the fault is eliminated and the positive-characteristic thermistor is cooled down, turn on the main power again. The unit works normally. It takes about one minute to cool down the positive-characteristic thermistor after the main power is turned off.

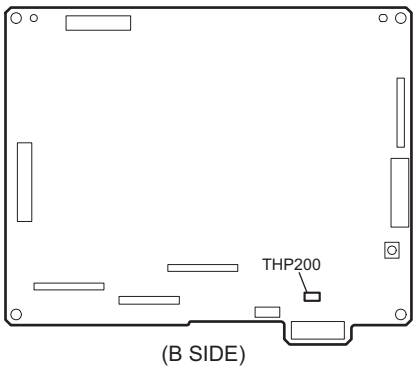
DCP-52 Board



(A SIDE)

Ref No. (Address)	Part No.	Hold current
THP1 (Side A)	1-802-063-21	1.10 A/20 °C
THP2 (Side A)		

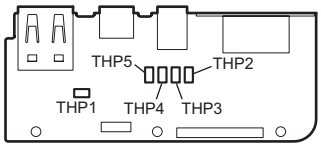
DPR-334 Board



(B SIDE)

Ref No. (Address)	Part No.	Hold current
THP200 (Side B)	1-802-063-21	1.10 A/20 °C

DIF-209 Board



(A SIDE)

Ref No. (Address)	Part No.	Hold current
THP1 (A-2/Side A)	1-802-063-21	1.10 A/20 °C
THP2 (B-1/Side A)	1-805-726-11	0.35 A/25 °C
THP3 (B-1/Side A)		
THP4 (B-1/Side A)		
THP5 (B-1/Side A)		

1-7-2. Replacing Fuses and IC Links

WARNING

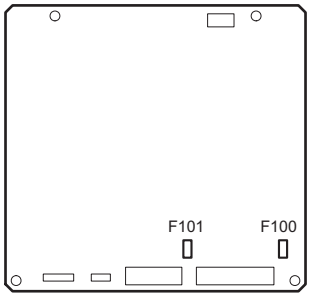
Fuses and IC links are essential parts for safe operation.
Be sure to use the parts specified in this manual. Replacing a fuse or IC link with an unspecified one may cause fire or electric shock.

CAUTION

Replacing any fuse or IC link is replaced while power is supplied to the unit may cause electric shock.
Before replacing any fuse or IC link, 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 and IC links.
The fuses and IC links 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.

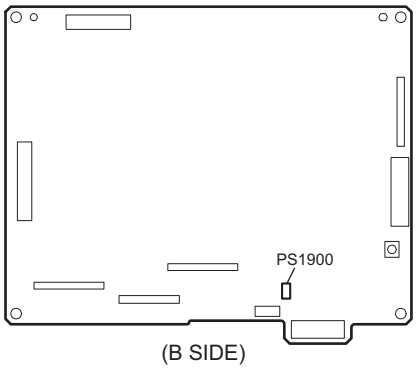
RE-286 Board



(A SIDE)

Ref No. (Address)	Part No.	Part name/rating
F100 (D-4/Side A)	⚠ 1-576-566-21	Fuse 15 A/65 V
F101 (C-4/Side A)		

DPR-334 Board



(B SIDE)

Ref No. (Address)	Part No.	Part name/rating
PS1900 (Side B)	1-576-123-21	IC link 0.8 A/72 V

1-8. Notes on Service

1-8-1. Actions to Be Taken when Replacing Parts and Boards

Before replacement

The DPR-334 board contains all setting data of the menus (including picture profiles). Before replacing the DPR-334 board, perform the following procedure to store the setup file in an SxS memory card.

1. Insert the SxS memory card for storing the setup file into the card slot.
   Confirm that the SxS memory card icon corresponding to the slot appears on the screen. When another SxS memory card is selected, switch the display with the SLOT SELECT button.
2. Execute Store with Camera Data of the OTHERS menu.

During replacement

1. When any of the following boards has been replaced, upgrade the firmware. (Refer to "1-5. Firmware Upgrade".)
   The firmware programs stored on the following boards are upgraded collectively.
   - DCP-52 board
   - DPR-334 board
   - KSW-58 board
   - RE-285 board
   - SWC-51 board
   - TX-139 board
2. When any of the following boards or part has been replaced, make adjustments again. (Refer to "Section 4 Electrical Alignment".)
   - DPR-334 board *1*2
   - 3.5-inch LCD assembly *2*3
   - Prism block assembly *2

After replacement

Load the setup file that was stored in the SxS memory card before replacement to the unit.

1. Insert the SxS memory card that contains the setup file into the card slot.
   Confirm that the SxS memory card icon corresponding to the slot appears on the screen. When another SxS memory card is selected, switch the display with the SLOT SELECT button.
2. Execute Recall with Camera Data of the OTHERS menu.

1-8-2. Actions to Be Taken when the Lens Has Been Replaced

When the lens has been replaced, make the auto flange-back adjustment. (Refer to"4-2-5 Executing Auto FB Adjust".)

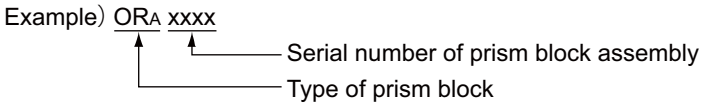
1-8-3. Notes on Replacing Onboard Parts

- Part-level replacement is not possible for the BI-265 board and the BI-265 board. Therefore, when the BI-265 board or the BI-265 board needs to be replaced, replace the entire prism block assembly.
- Similarly, part-level replacement is not possible for each board. If onboard parts become defective, replace the board.

*1: The DPR-334 board contains the adjustment values of the prism block assembly, EVF front assembly, and 3.5-inch LCD assembly.
*2: The dedicated service software "ServiceNavi-EX" is required for adjustments. For how to obtain this software, contact your local Sony Sales Office/Service Center.
*3: Adjustment values stored on the 3.5-inch LCD assembly must be copied to the DPR-334 board.

1-8-4. Description of Prism Block Number

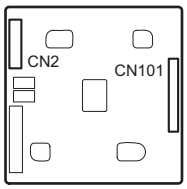
Every prism block assembly has its own ID number. This is called prism block number indicating the type and the serial number of the prism block.
The label indicating a prism block number is attached to each prism block assembly.



1-9. Locations of Onboard Connectors

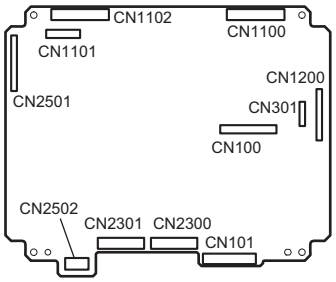
There is no printed indication for connectors on the boards mounted in this unit. Refer to the connector locations shown below when connecting harnesses and cables.

BI-265 Board

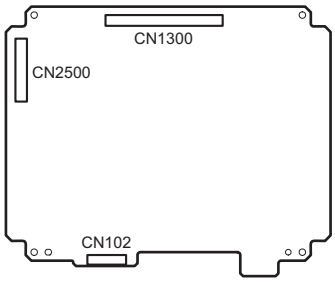


(B SIDE)

DCP-52 Board

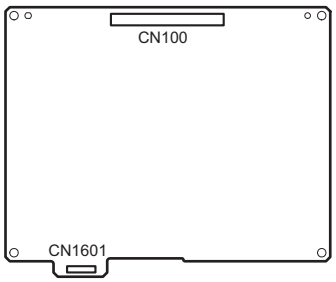


(A SIDE)

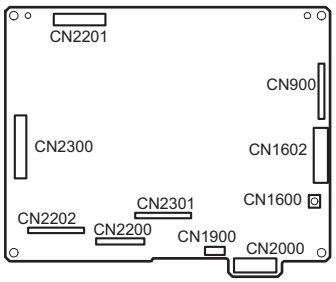


(B SIDE)

DPR-334 Board



(A SIDE)



(B SIDE)

1-10. Flexible Card Wire and Fine-Pitch Coaxial Cable

1-10-1. Connecting/Disconnecting Flexible Card Wire

This unit uses two types of connectors for flexible card wires.

Notes

- 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.

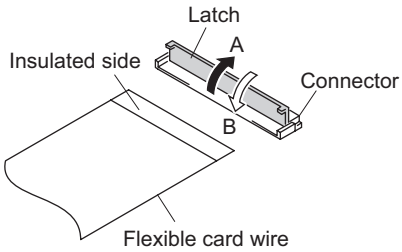
Type A

Disconnecting

Open the latch of the connector in the direction of arrow A to unlock, and disconnect the flexible card wire.

Connecting

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



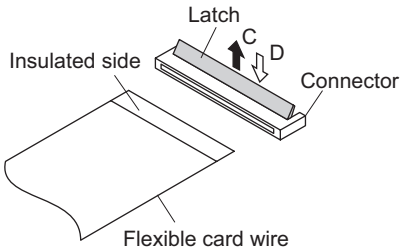
Type B

Disconnecting

Open the latch of the connector in the direction of arrow C to unlock, and disconnect the flexible card wire.

Connecting

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



1-10-2. Connecting/Disconnecting Fine-Pitch Coaxial Cable

This unit uses two types of fine-pitch coaxial cables (with connectors).

Notes

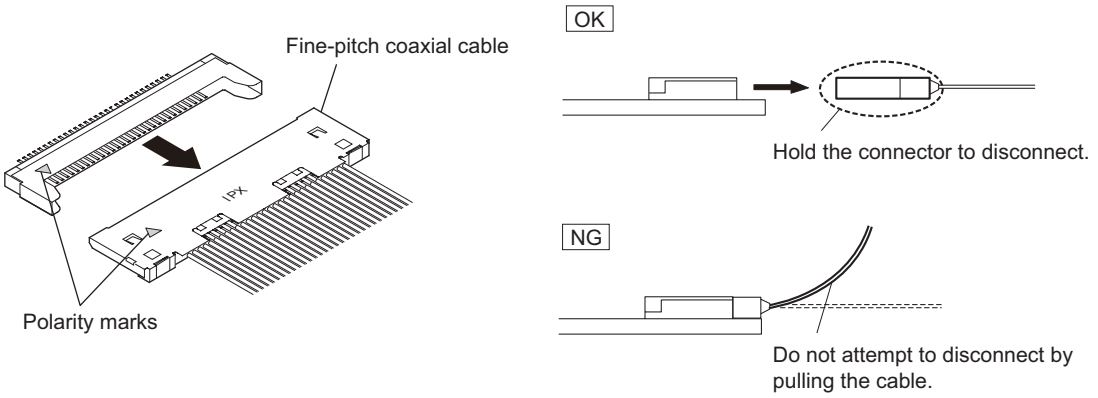
- Be very careful when handling the fine-pitch coaxial cable so that fine wires are not disconnected.
- When disconnecting the fine-pitch coaxial cable, be sure to hold the connector. Do not attempt to pull the cable.
- Check that the contact surface of the fine-pitch coaxial cable connector is free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

Type A

Hold the cable connector, match the polarity marks, and connect or disconnect the fine-pitch coaxial cable horizontally.

Note

When connecting the fine-pitch coaxial cable, insert the cable connector straight and firmly as far as it will go.

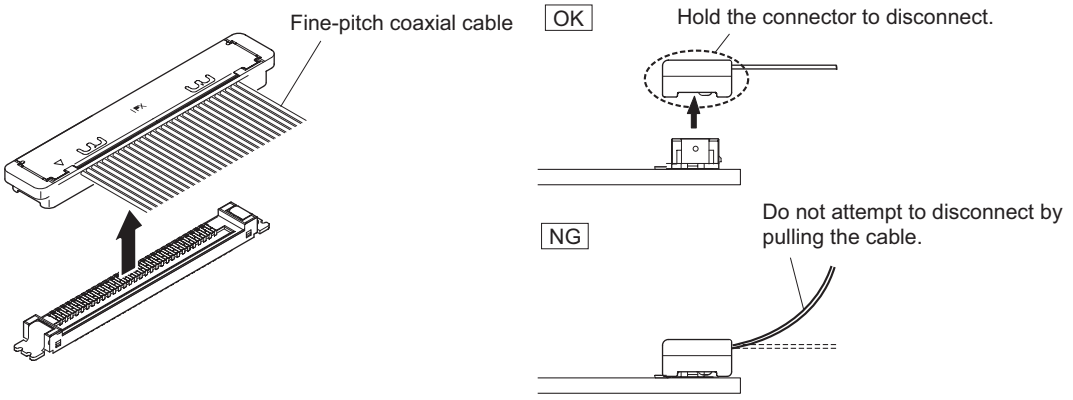


Type B

Connect or disconnect the fine-pitch coaxial cable vertically while holding the cable connector.

Note

When connecting the fine-pitch coaxial cable, insert it straight into the connector.



1-11. Unleaded Solder

Boards requiring use of unleaded solder are printed with a lead free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

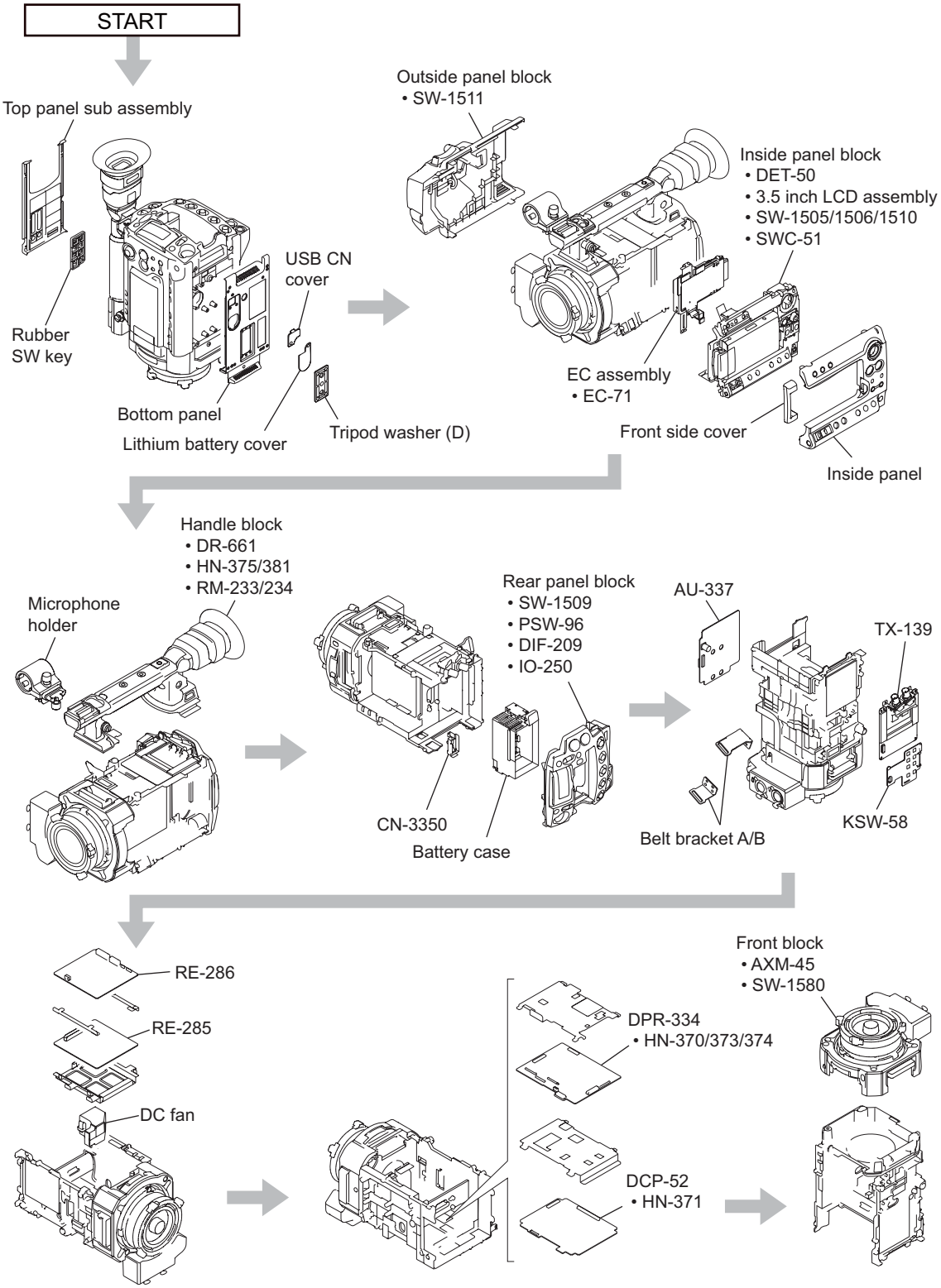
 : LEAD FREE MARK

Notes

- Be sure to use the unleaded solder for the printed circuit board printed with the lead free mark.
- The unleaded solder melts at a temperature about 40 °C higher than the ordinary solder. Therefore, it is recommended to use a 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 Parts

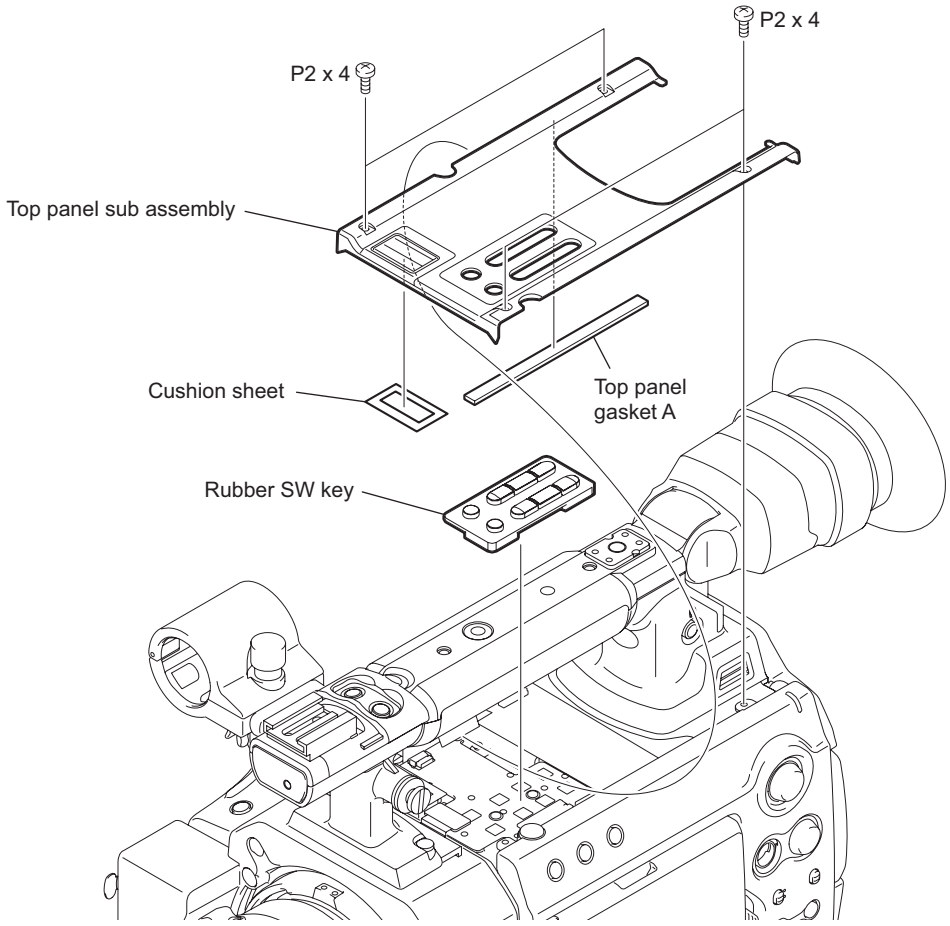
2-1. Overview of Replacement Procedure



2-2. Removing/Installing Panel and Block

2-2-1. Top Panel Sub Assembly

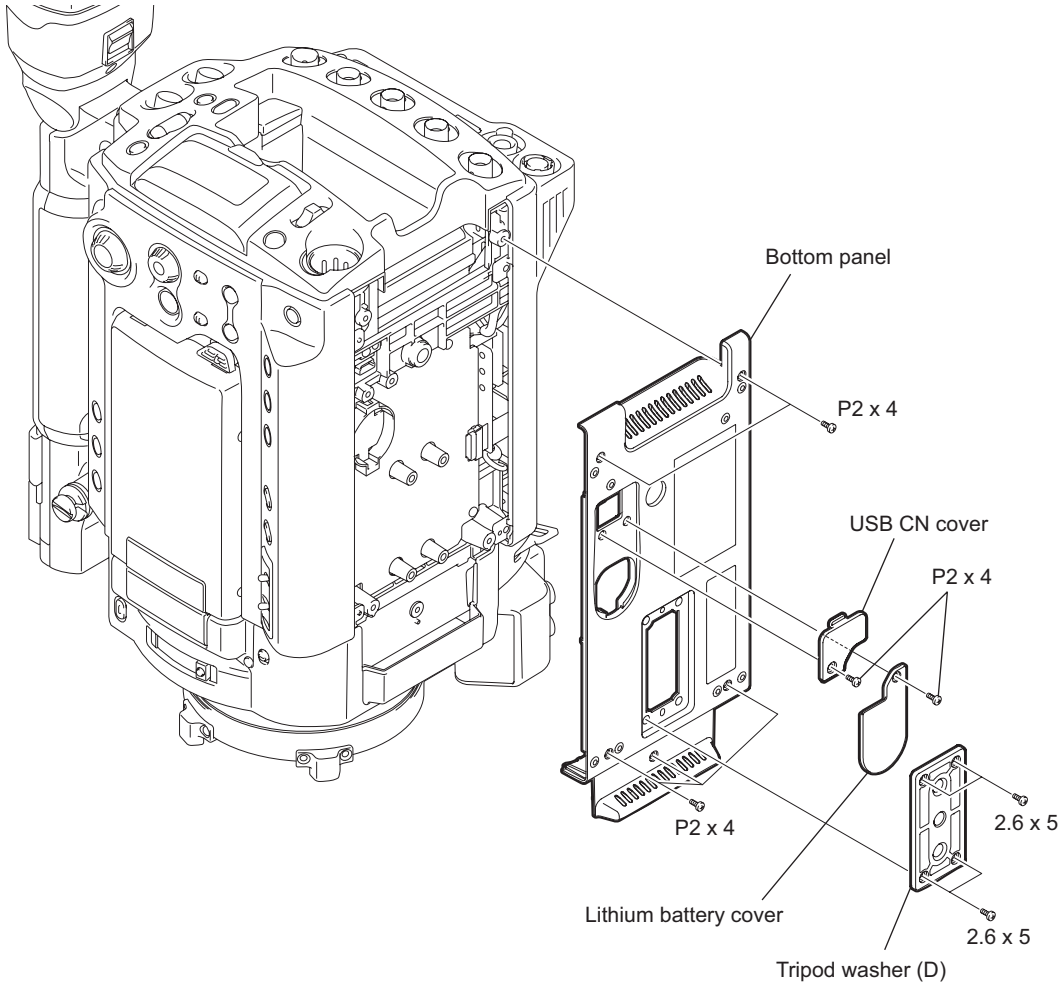
1. Remove the four screws to detach the top panel sub assembly.
2. Remove the top panel gasket A and cushion sheet.
3. Remove the rubber SW key.



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

2-2-2. Bottom Panel

1. Remove the screw to detach the USB CN cover.
2. Remove the screw to detach the lithium battery cover.
3. Remove the four screws to detach the tripod washer (D).
4. Remove the five screws to detach the bottom panel.



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

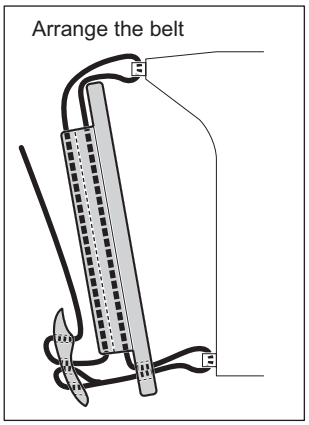
2-2-3. Outside Panel Block

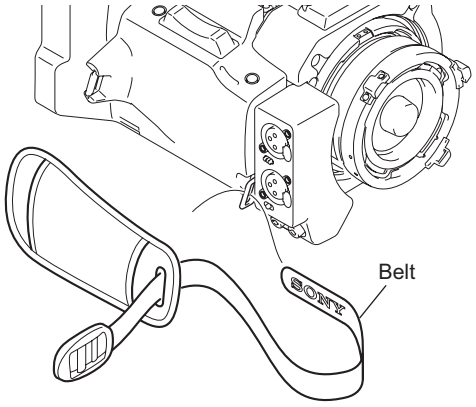
Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)

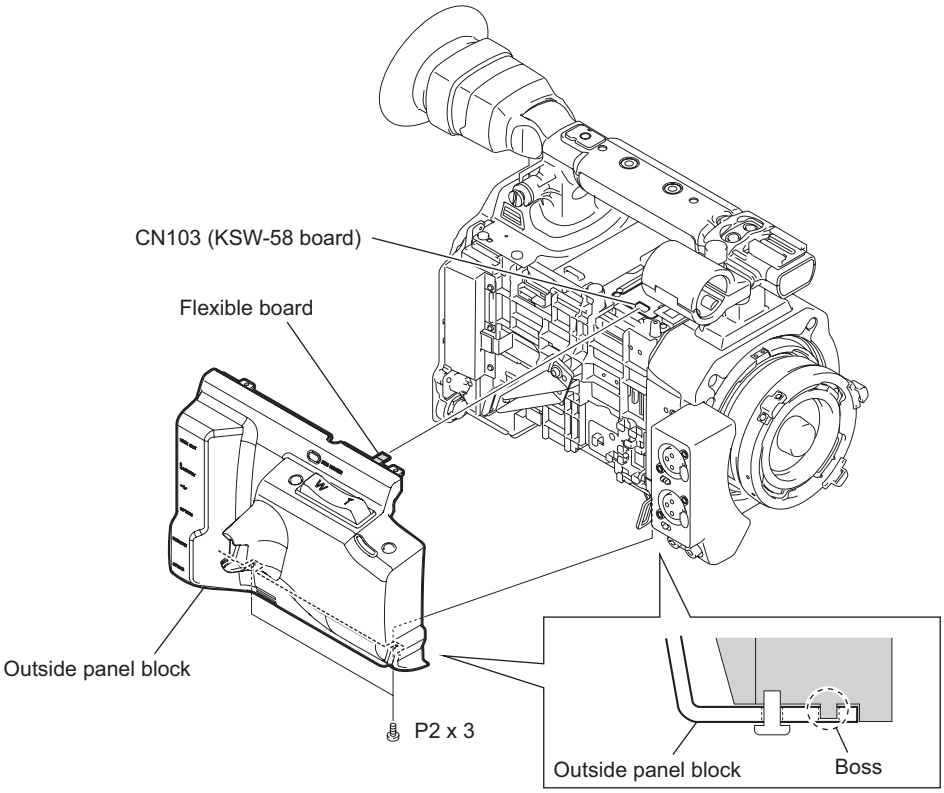
Procedure

1. Remove the belt.





2. Disconnect the flexible board from the connector CN103 on the KSW-58 board.
3. Remove the two screws to detach the outside panel block.



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

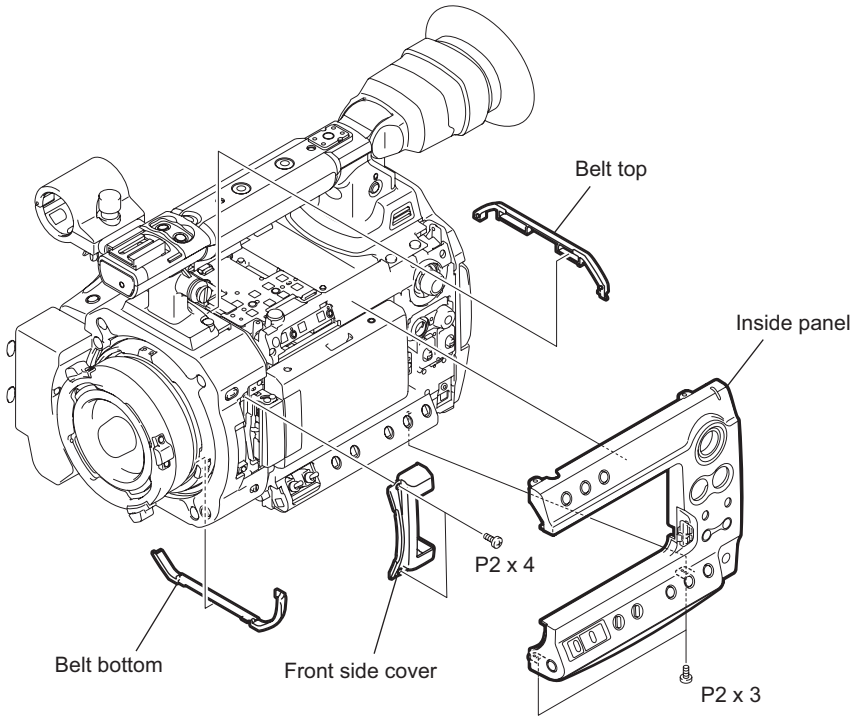
2-2-4. Inside Panel Block

Preparation

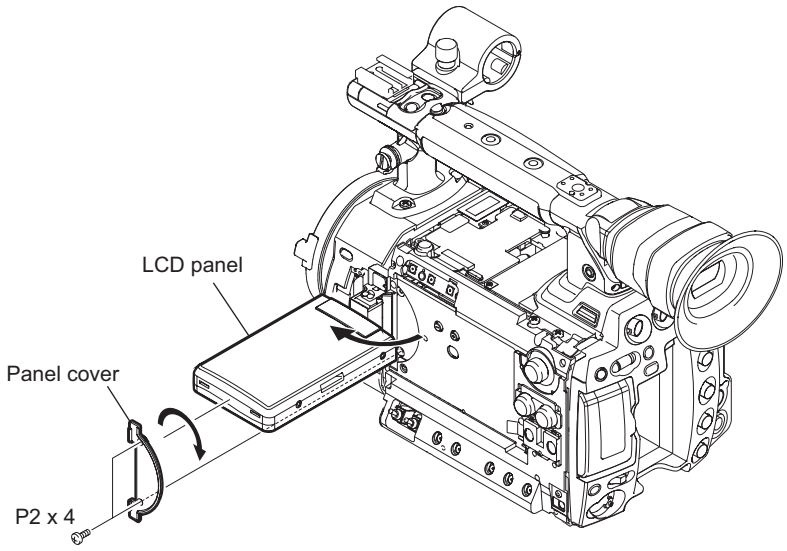
1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)

Procedure

1. Remove the two screws (P2 x 3) to detach the inside panel.
2. Remove the two screws (P2 x 4) to detach the front side cover.
3. Remove the belt top and belt bottom.



4. Open the LCD panel as shown in the figure and hold it at the position shown in the figure.
5. Remove the two screws to detach the panel cover.

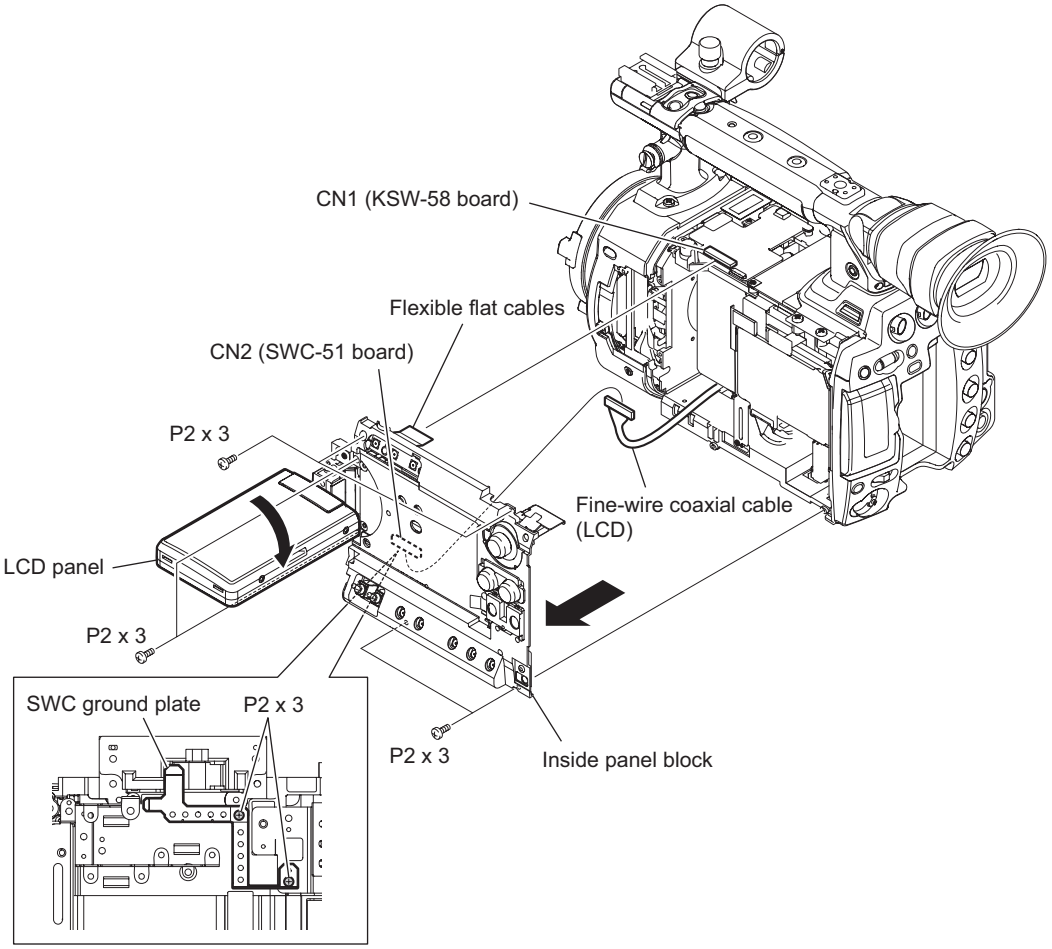


6. Disconnect the flexible flat cables from the connector CN1 on the KSW-58 board.
7. Open the LCD panel as shown in the figure and hold it at the position shown in the figure.

8. Remove the six screws to detach the inside panel block in the arrow direction.
9. Remove the two screws to detach the SWC ground plate
10. Disconnect the fine-wire coaxial cable from the connector CN2 on the SWC-51 board and remove the inside panel block.

Note

Handle the fine-wire coaxial cable very carefully so that it will not be disconnected. (Refer to 1-10-2. Connecting/Disconnecting Fine-Pitch Coaxial Cable)



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

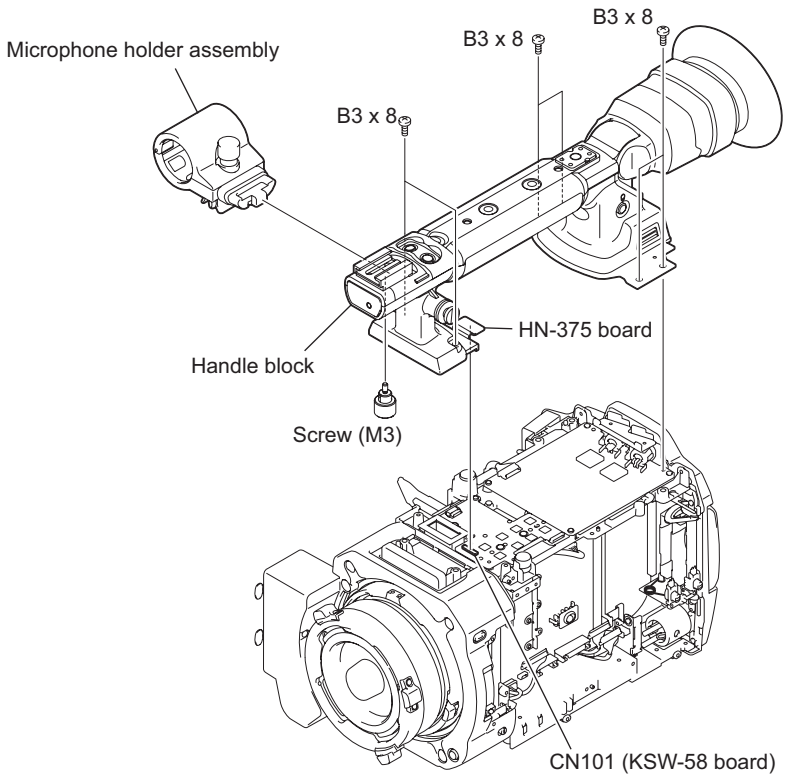
2-2-5. Handle Block

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)

Procedure

1. Disconnect the HN-375 board from the connector CN101 on the KSW-58 board.
2. Remove the six screws to detach the handle block.
3. Remove the screw (M3) to detach the microphone holder assembly.



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

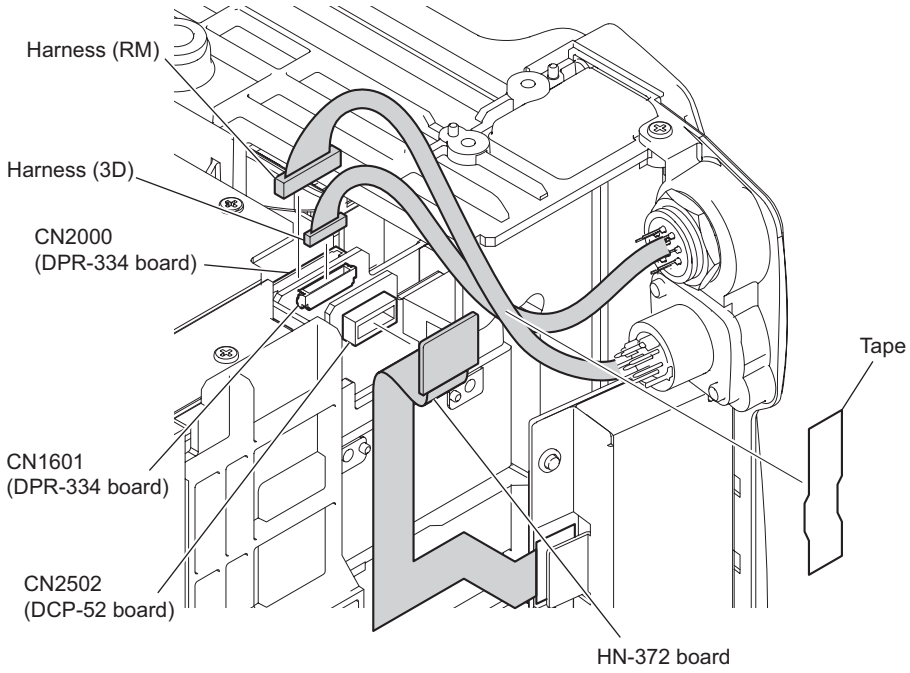
2-2-6. Rear Panel Block

Preparation

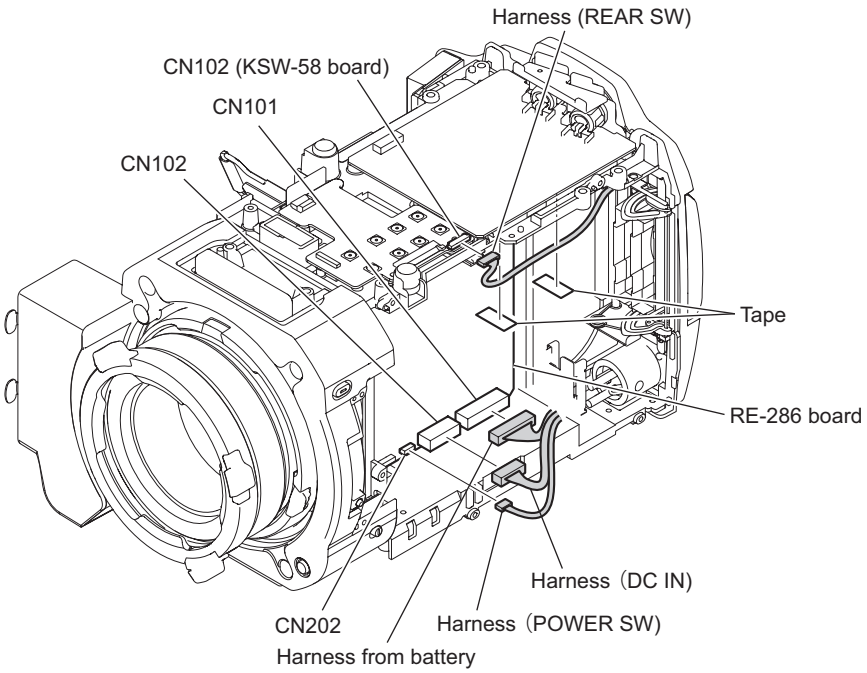
1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the main EMC holder C. (Refer to 2-7-9. DCP-52 Board and HN-371 Board)

Procedure

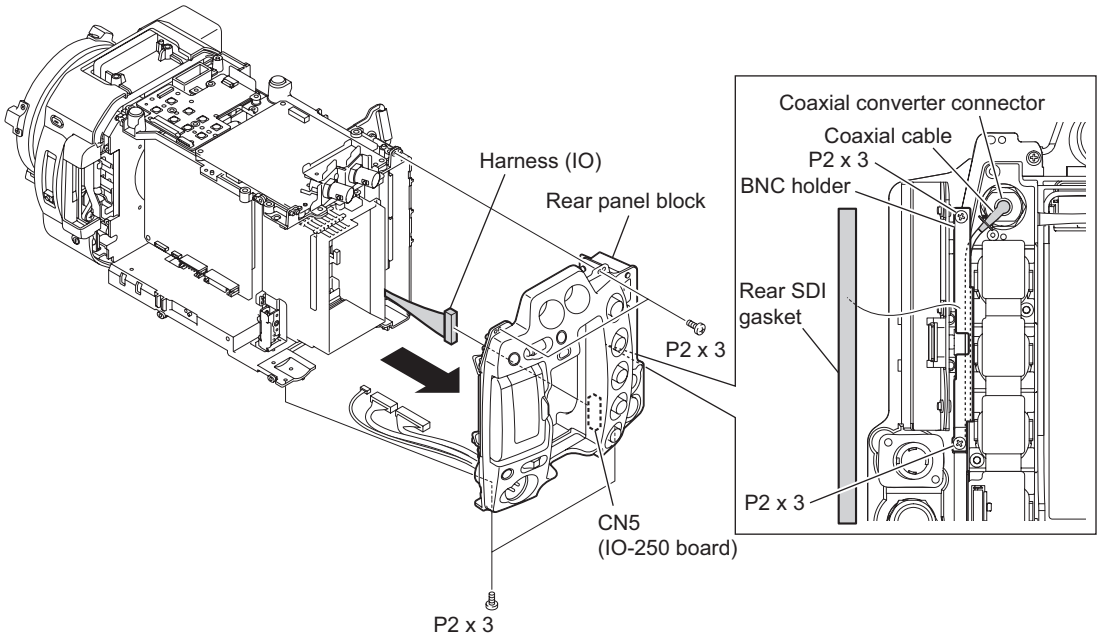
1. Remove a tape.
2. Disconnect the HN-372 board from the connector CN2502 on the DCP-52 board.
3. Disconnect the two harnesses from the connectors CN2000, and CN1601 on the DPR-334 board.



4. Remove the two tapes.
5. Disconnect the harness from the connector CN102 on the KSW-58 board.
6. Disconnect the three harnesses from the connectors CN202, CN102, and CN101 on the RE-286 board.



7. Remove the four screws to detach the rear panel block.
8. Disconnect the harness from the connector CN5 on the IO-250 board.
9. Remove the rear SDI gasket.
10. Remove the two screws to detach the BNC holder.
11. Disconnect the coaxial cable from the coaxial converter connector and remove the rear panel block.



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

2-2-7. Front Block

Note

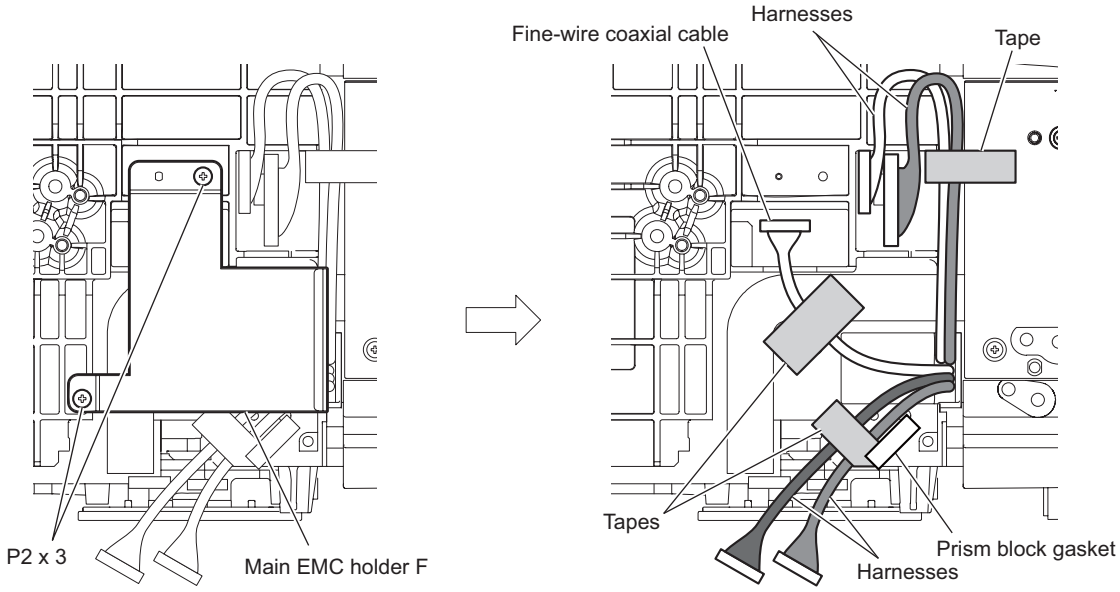
The front block cannot be removed until all preparation items are completed.

Preparation

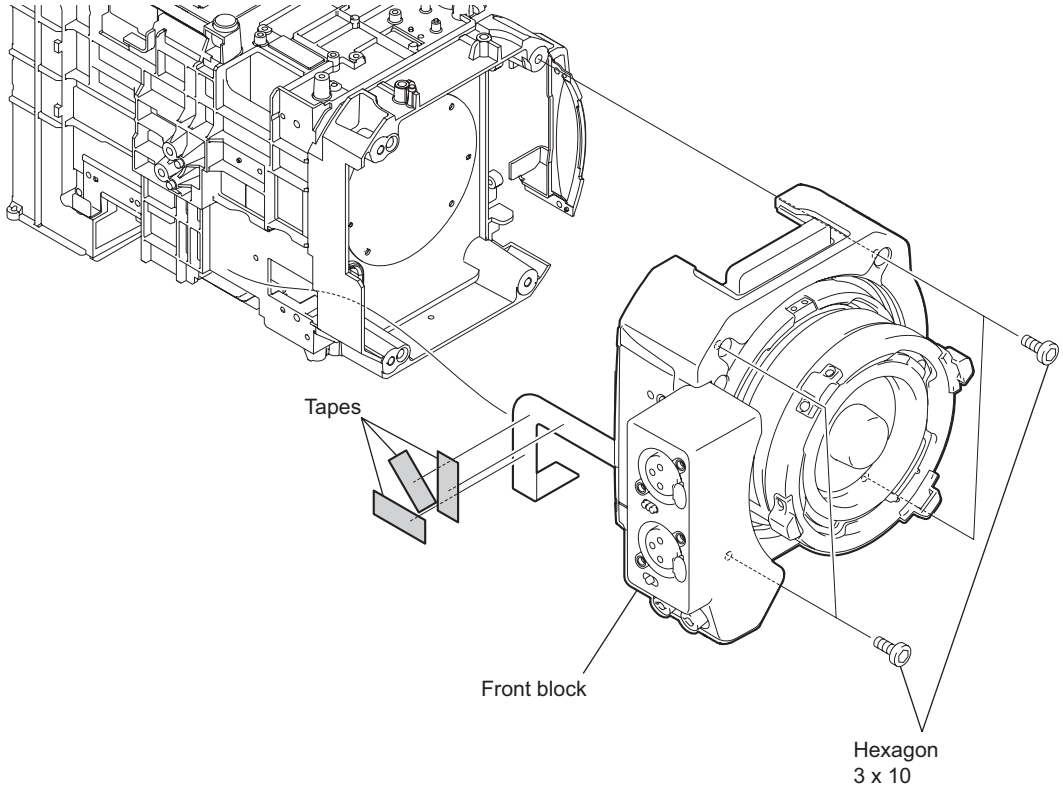
1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the RE-286 board. (Refer to 2-7-6. RE-286 Board)
7. Remove the RE-285 board. (Refer to 2-7-7. RE-285 Board)
8. Remove the DC fan assembly. (Refer to 2-2-8. DC Fan (25 Square))
9. Remove the rear panel block. (Refer to 2-2-6. Rear Panel Block)
10. Remove the CN-3350 board. (Refer to 2-7-2. CN-3350 Board)
11. Remove the DPR-334 board. (Refer to 2-7-8. DPR-334 Board and HN-373/374 Board)
12. Remove the DCP-52 board. (Refer to 2-7-9. DCP-52 Board and HN-371 Board)

Procedure

1. Remove the two screws to detach the main EMC holder F.
2. Remove the prism block gasket and three tapes.



3. Remove the three tapes.
4. Remove the four screws (3 x 10) to detach the front block.



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

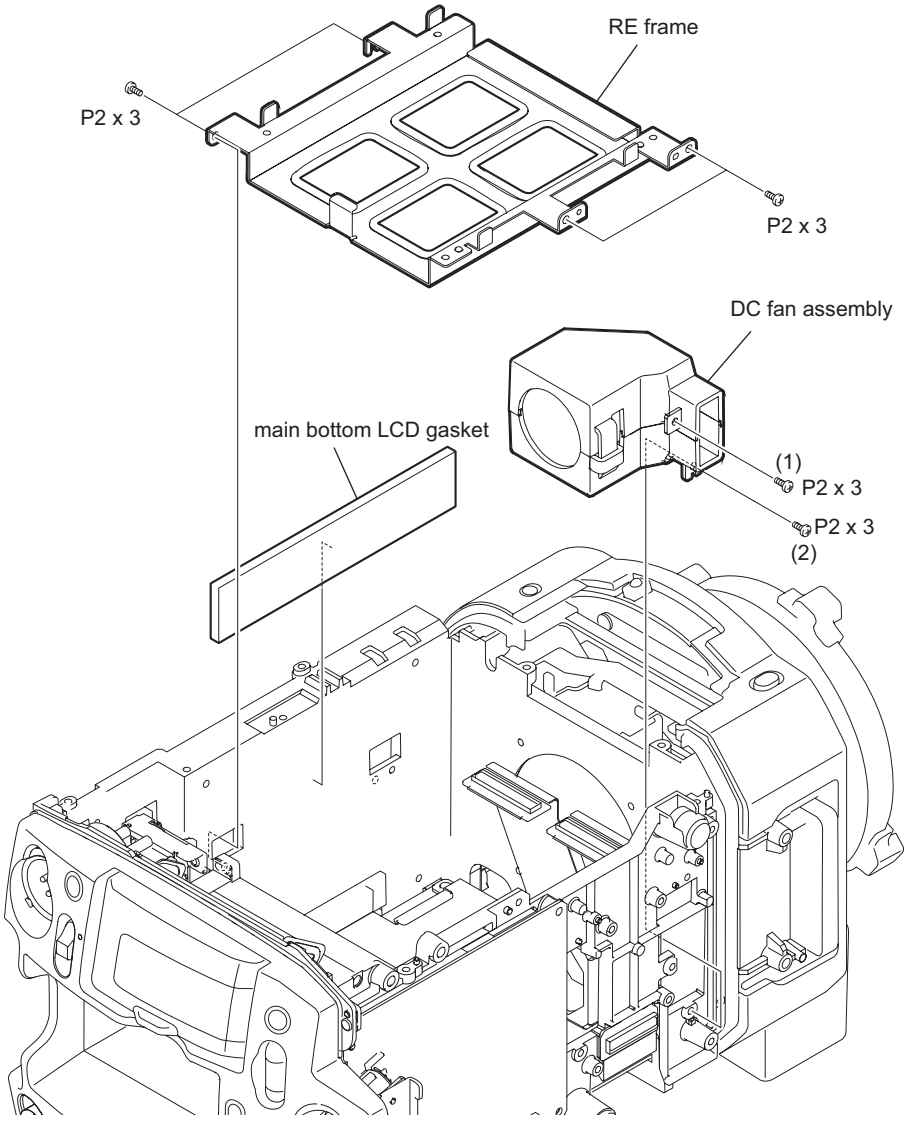
2-2-8. DC Fan (25 SQUARE)

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the RE-286 Board. (Refer to 2-7-6. RE-286 Board)
7. Remove the RE-285 Board. (Refer to 2-7-7. RE-285 Board)

Procedure

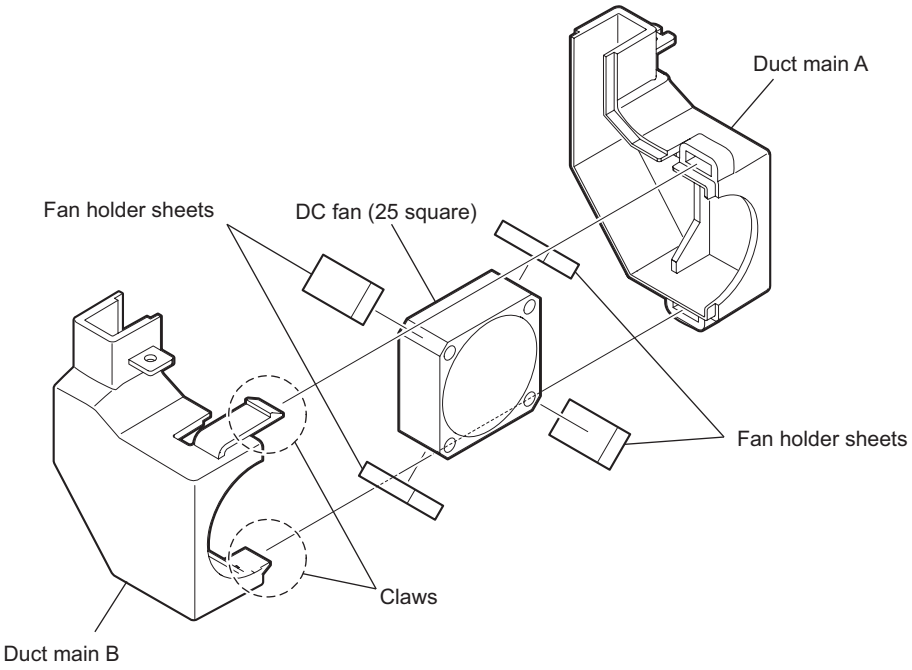
1. Remove the main bottom LCD gasket.
2. Remove the four screws to detach the RE frame.
3. Remove the two screws to detach the DC fan assembly.



Note

Tighten the screw 1 and the screw 2 in this order to install the DC fan assembly.

4. Remove the two claws to detach the duct main A and the duct main B.
5. Remove the fan holder sheet from the DC fan (25 SQUARE).



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

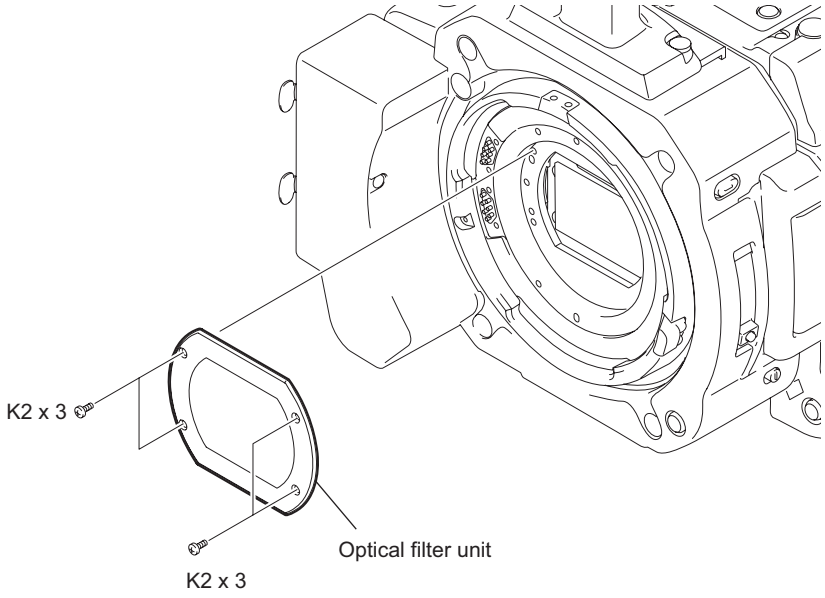
2-2-9. Optical Filter Unit

Preparation

1. Remove the PL camera adaptor. (Refer to 2-8-2. AXM-45 Board)

Procedure

1. Remove the four screws to detach the optical filter unit.



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

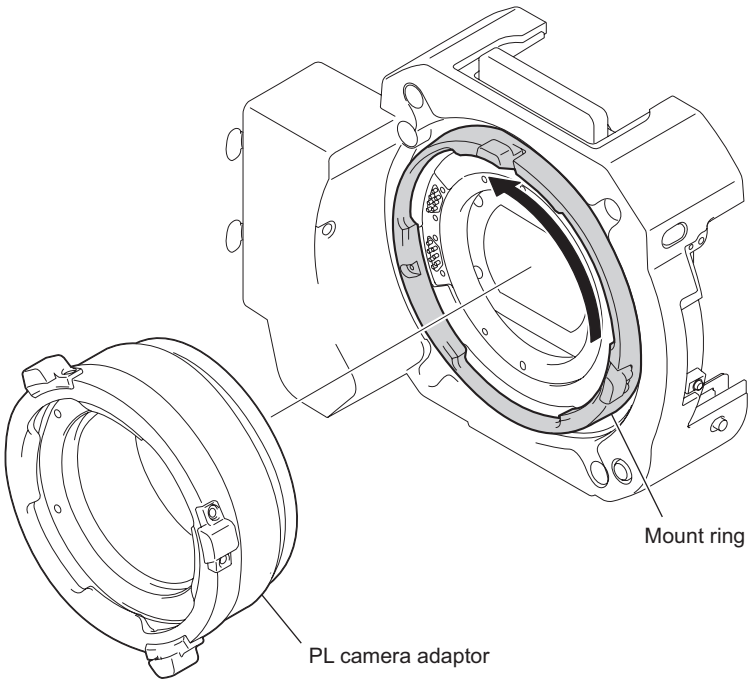
2-2-10. Optical Block Assembly

Preparation

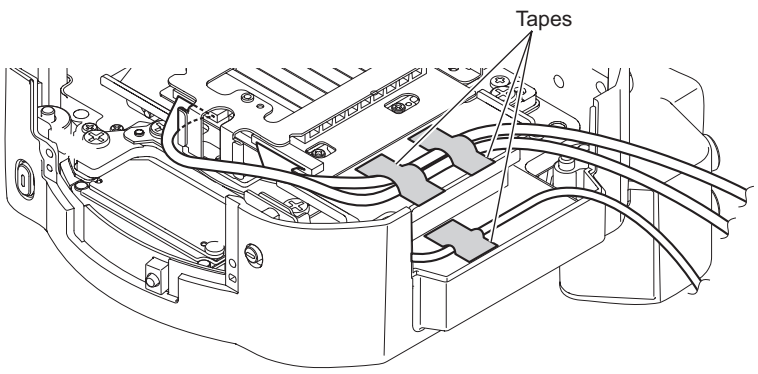
1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the RE-286 Board. (Refer to 2-7-6. RE-286 Board)
7. Remove the RE-285 Board. (Refer to 2-7-7. RE-285 Board)
8. Remove the DC fan assembly. (Refer to 2-2-8. DC Fan (25 Square))
9. Remove the rear panel block. (Refer to 2-2-6. Rear Panel Block)
10. Remove the CN-3350 board. (Refer to 2-7-2. CN-3350 Board)
11. Remove the DPR-334 board. (Refer to 2-7-8. DPR-334 Board and HN-373/374 Board)
12. Remove the DCP-52 board. (Refer to 2-7-9. DCP-52 Board and HN-371 Board)
13. Remove the front block. (Refer to 2-2-7. Front Block)
14. Remove the SW-1580 board. (Refer to 2-8-1. SW-1580 Board)

Procedure

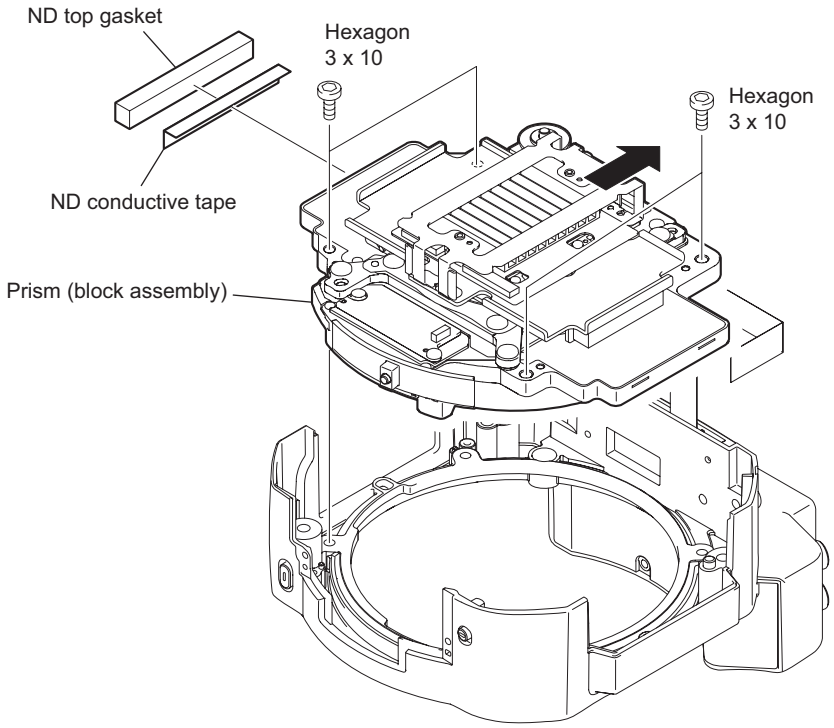
1. Turn the mount ring in the arrow direction and detach the PL camera adaptor.



2. Remove the three tapes.



3. Remove the ND top gasket and ND conductive tape.
4. Remove the four screws (3 x 10) to detach the prism (block assembly).



Note

When installing the prism (block assembly), secure it with screws while pushing it in the arrow direction.

5. Remove the three screws to detach the microphone connector box.

2-3. Removing/Installing Parts/Boards of Inside Panel Block

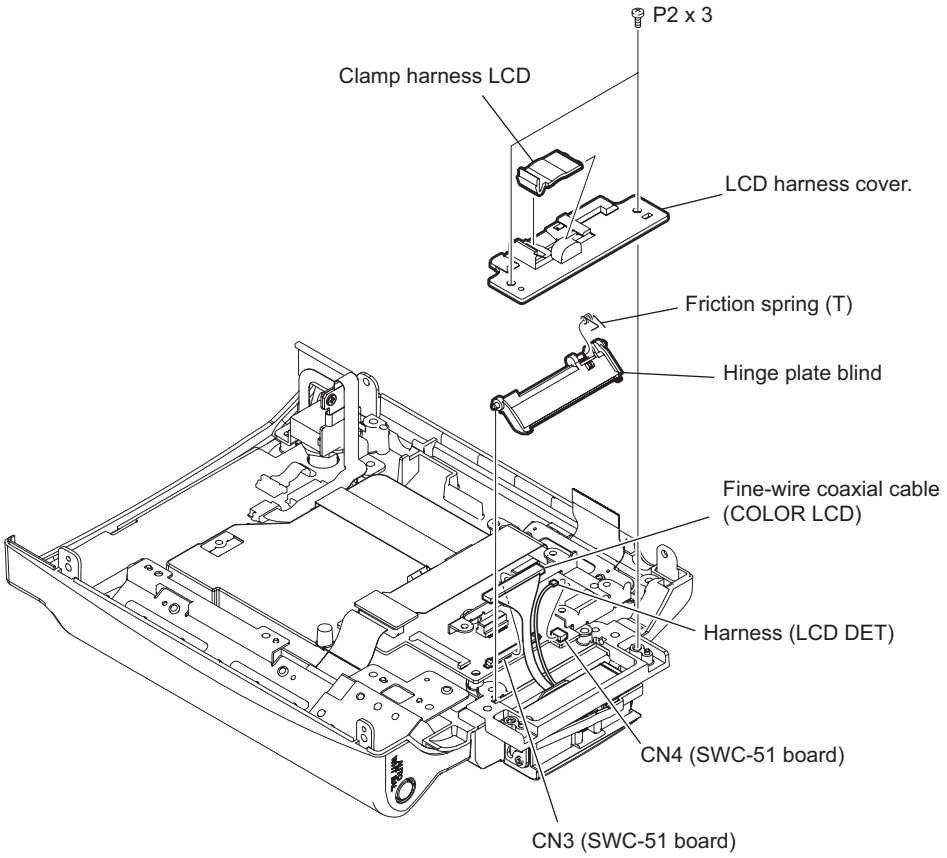
2-3-1. 3.5 Inch LCD Assembly

Preparation

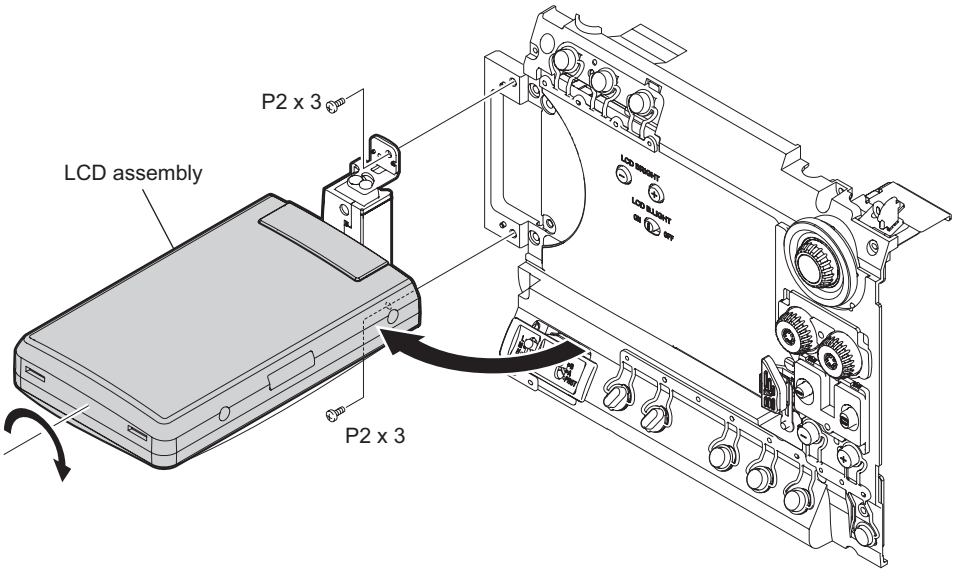
1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)

Procedure

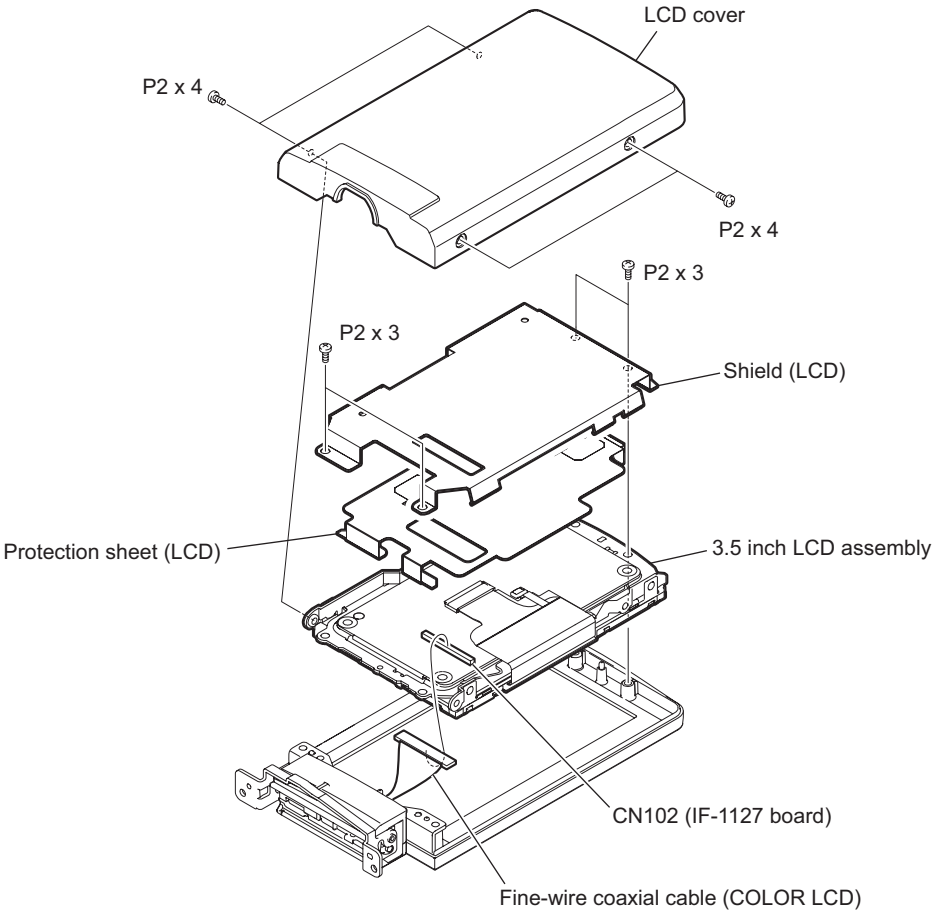
1. Disconnect the fine-wire coaxial cable (COLOR LCD) from the connector CN3 on the SWC-51 board.
2. Disconnect the harness (LCD DET) from the connector CN4 on the SWC-51 board.
3. Remove the clamp harness LCD.
4. Remove the two screws to detach the LCD harness cover.
5. Remove the friction spring (T).
6. Remove the hinge plate blind.



7. Open the LCD assembly in the arrow direction and turn it clockwise.
8. Remove the two screws to detach the LCD assembly.



9. Remove the four screws (P2 x 4) to detach the LCD cover.
10. Remove the four screws (P2 x 3) to detach the shield (LCD) and protection sheet (LCD).
11. Disconnect the fine-wire coaxial cable from the connector CN102 on the IF-1127 board and remove the LCD module assembly.



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

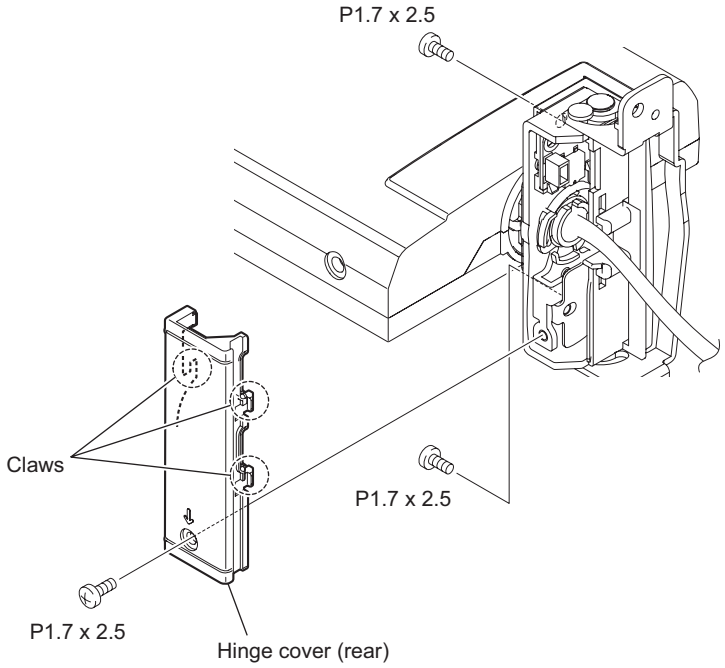
2-3-2. DET-50 Board

Preparation

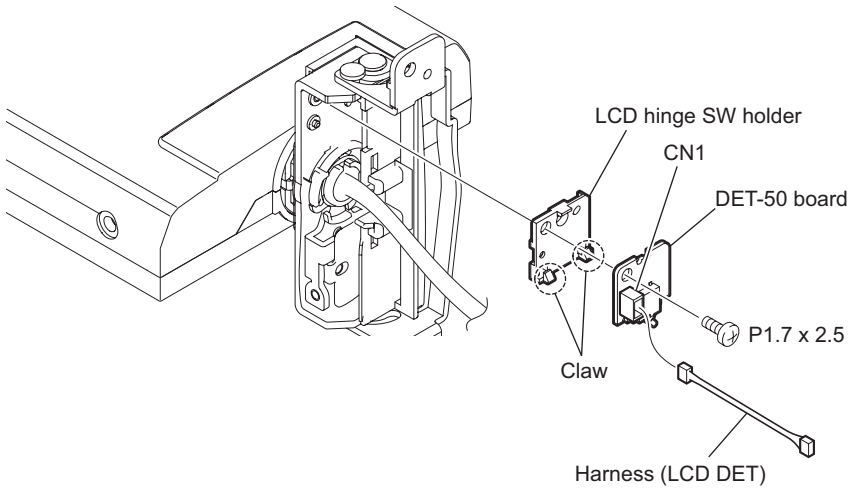
1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
4. Remove the LCD panel assembly (Refer to 2-3-1. 3.5 Inch LCD Assembly)

Procedure

1. Remove the three screws.
2. Remove the three claws to detach the hinge cover (rear).



3. Remove the screw and pull out the LCD hinge SW holder.
4. Disconnect the harness from the connector CN1 on the DET-50 board.
5. Remove the two claws to detach the DET-50 board from LCD hinge SW holder.



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

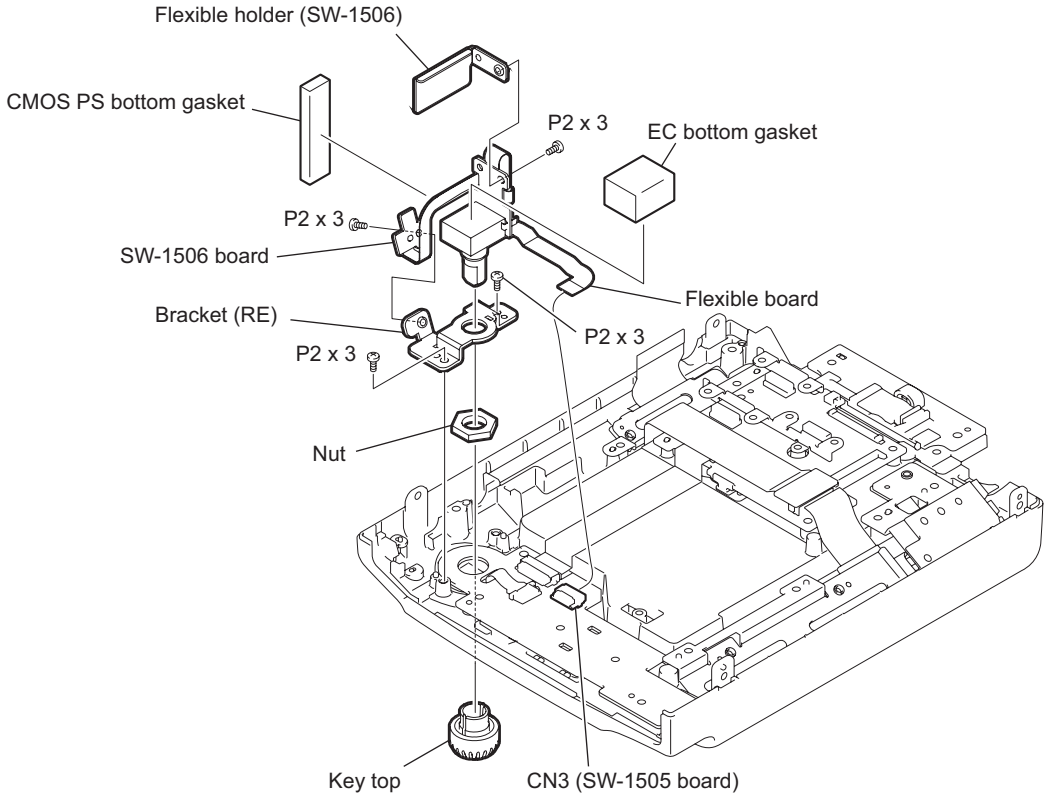
2-3-3. SW-1506 Board

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)

Procedure

1. Remove the key top.
2. Remove the CMOS PS bottom gasket.
3. Remove the EC bottom gasket.
4. Remove the screw to detach the flexible holder (SW-1506).
5. Disconnect the SW-1506 board from the connector CN3 on the SW-1505 board.
6. Remove the two screws to detach the bracket (RE).
7. Remove the screw and the nut to detach the SW-1506 board.



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

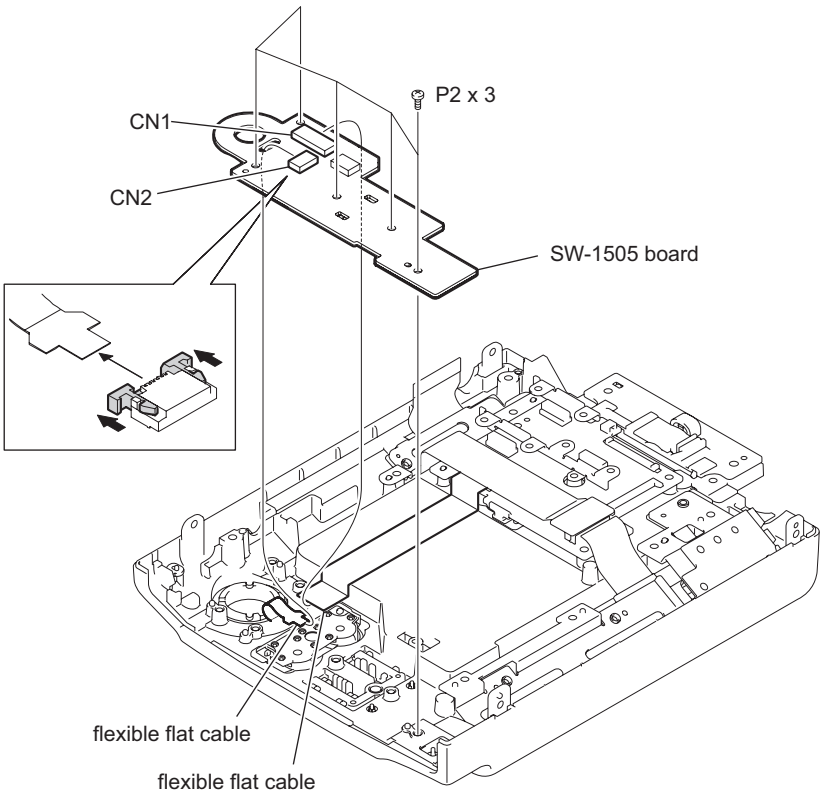
2-3-4. SW-1505 Board

Preparation

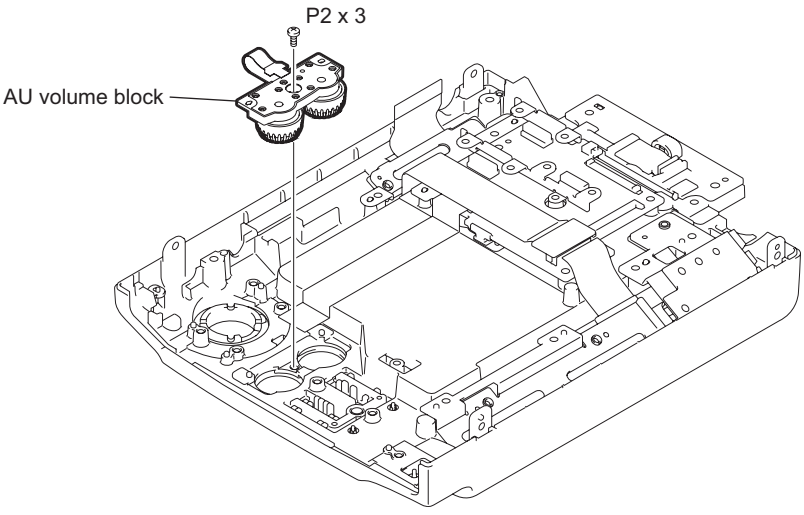
1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
4. Remove the SW-1506 board (Refer to 2-3-3. SW-1506 Board)

Procedure

1. Disconnect the two flexible flat cables from the connectors CN1, and CN2 on the SW-1505 board.
2. Remove the five screws to detach the SW-1505 board.



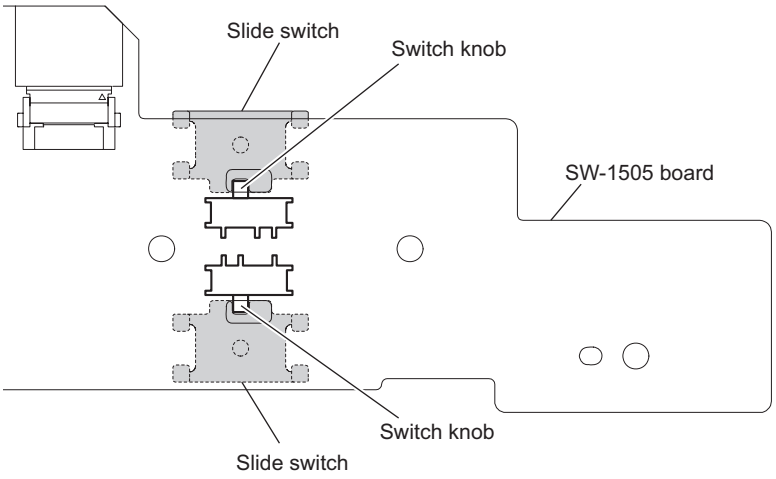
3. Remove the screw to detach the AU volume block.



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

Note

Check that the switch knob on the SW-1505 board engages with the slide switches.



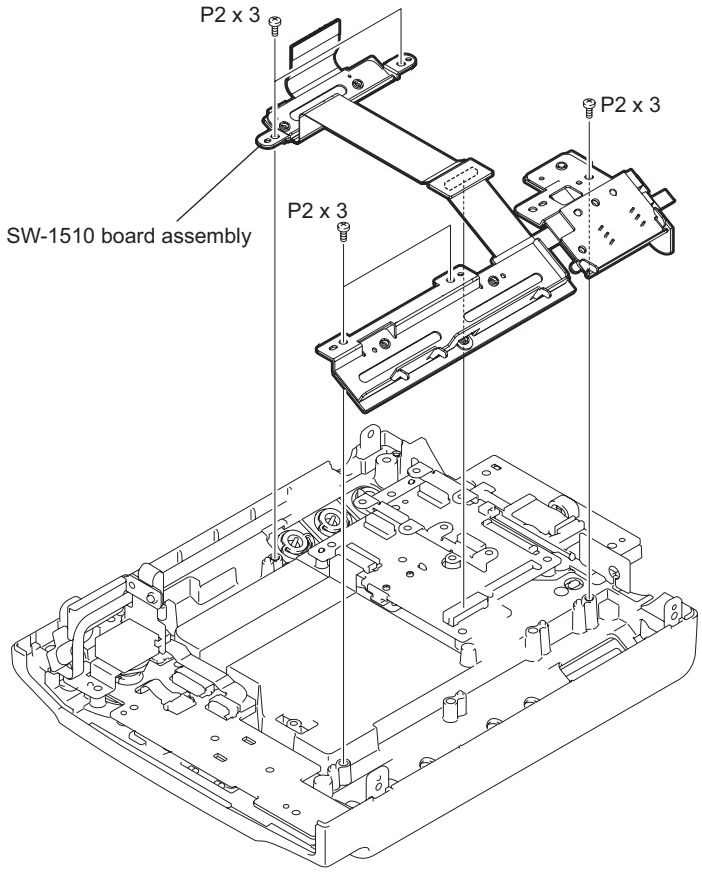
2-3-5. SW-1510 Board

Preparation

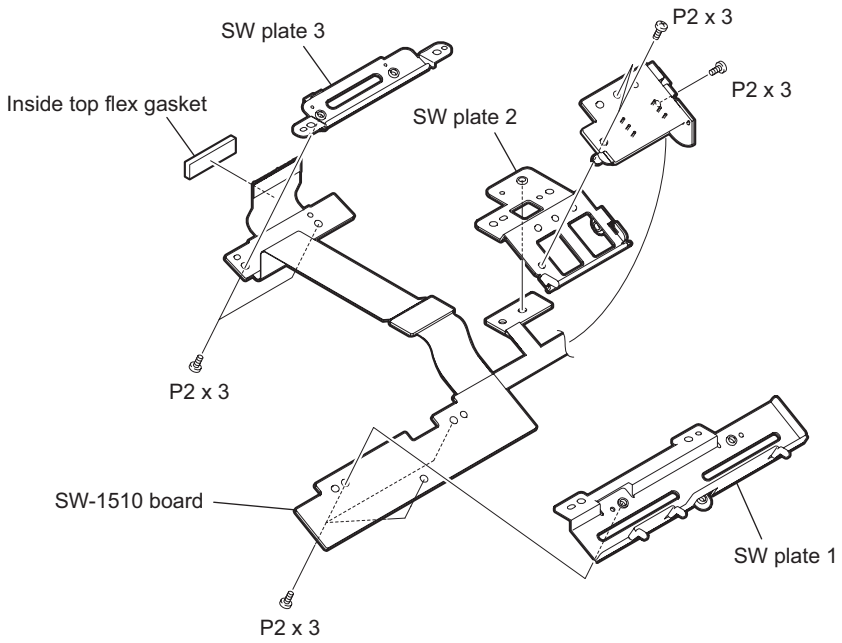
1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)

Procedure

1. Remove the five screws to detach the SW-1510 board.



2. Remove the inside top flex gasket.
3. Remove the nine screws to detach the SW-1510 board.



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

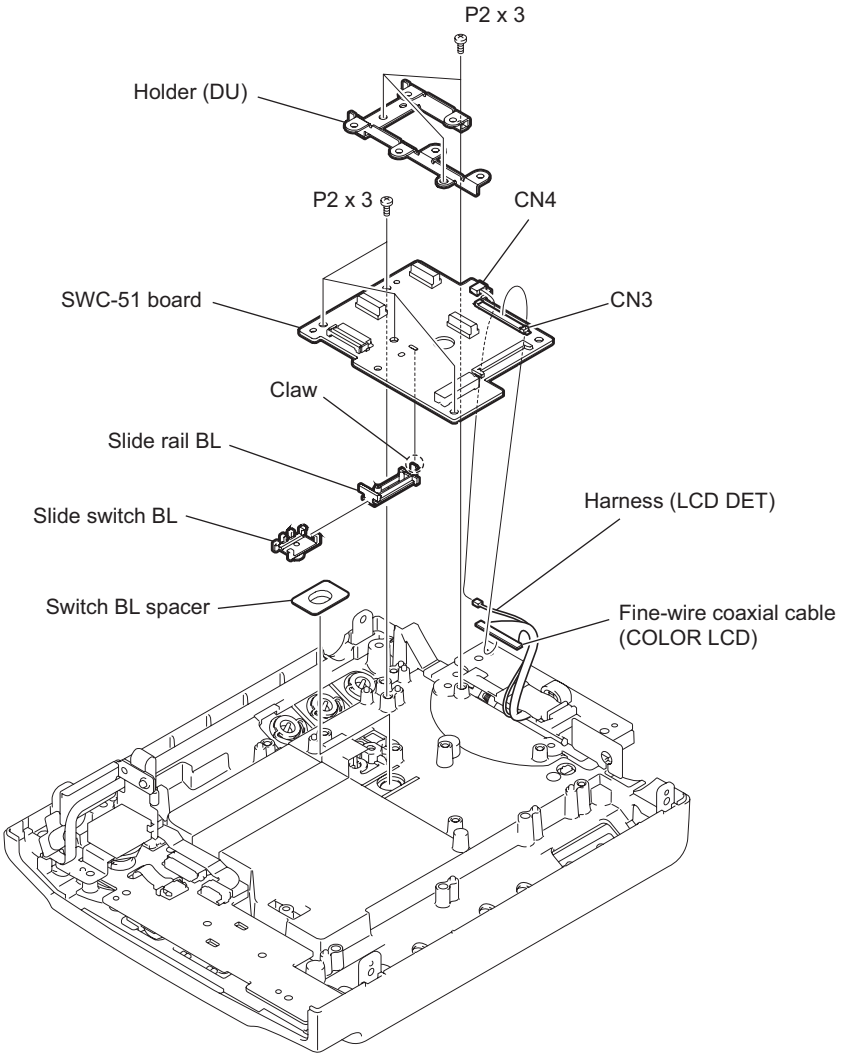
2-3-6. SWC-51 Board

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
4. Remove the SW-1510 board. (Refer to 2-3-5. SW-1510 Board)

Procedure

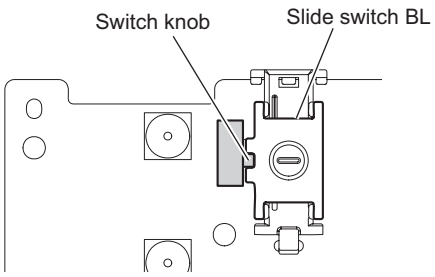
1. Remove the three screws to detach the holder (DU).
2. Disconnect the fine-wire coaxial cable (COLOR LCD) from the connectors CN3 on the SWC-51 board.
3. Disconnect the harness (LCD DET) from the connector CN4 on the SWC-51 board.
4. Remove the four screws and lift up the SWC-51 board.
5. Remove the switch BL spacer.
6. Remove the claw to detach the slide rail BL and slide switch BL from the SWC-51 board.



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

Note

Check that the switch knob on the board engages with the slide switch BL.


Switch knob
Slide switch BL

2-4. Removing/Installing Boards of Outside Panel Block

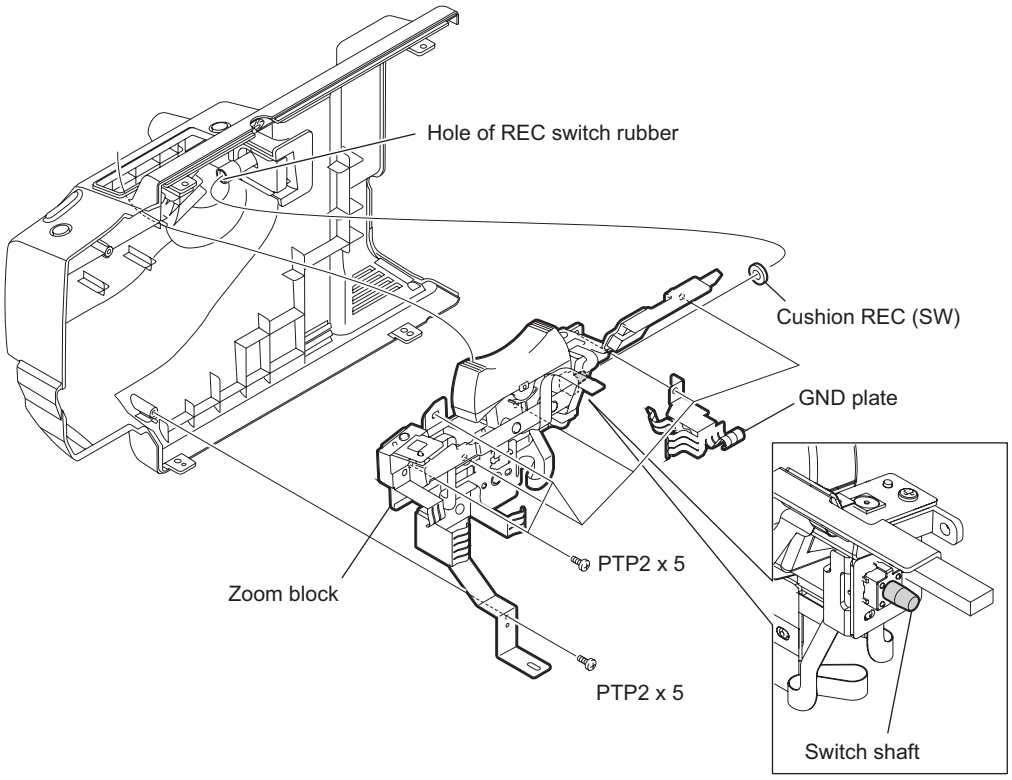
2-4-1. SW-1511 Board

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)

Procedure

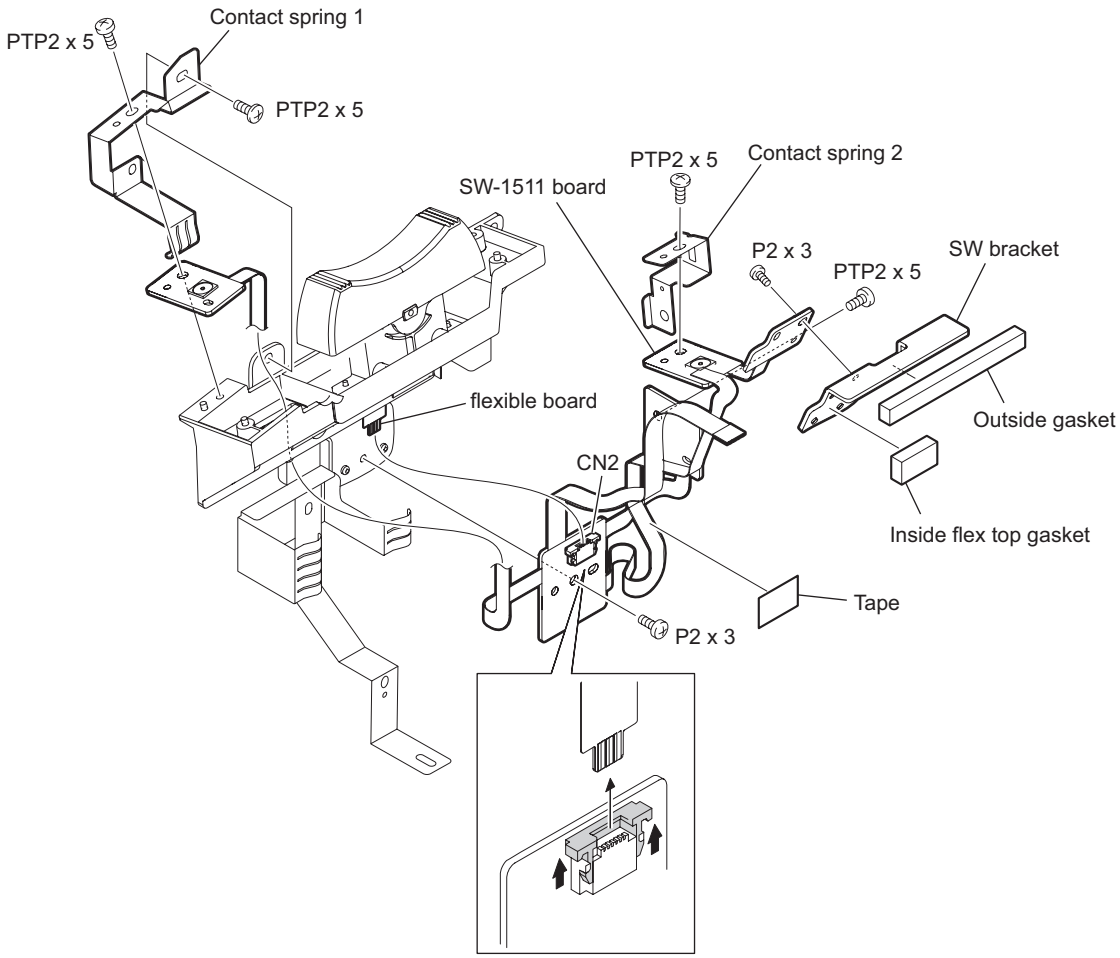
1. Remove the seven screws to detach the zoom block, GND plate, and cushion REC (SW).



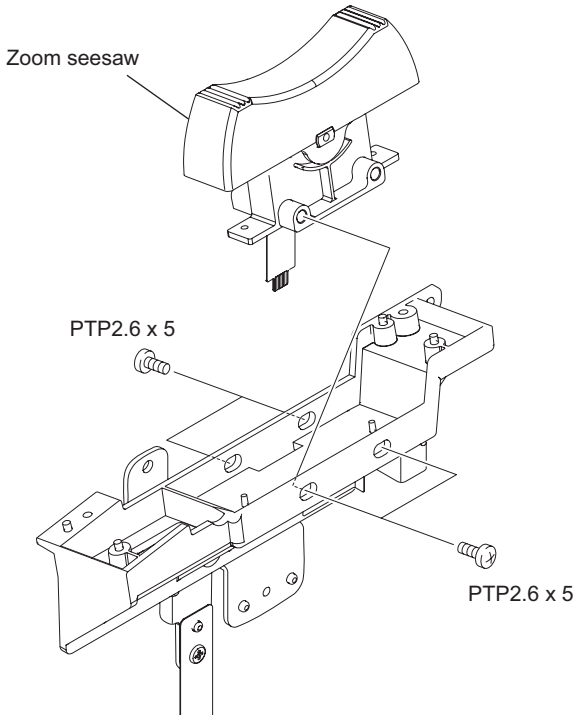
Note

When installing the zoom block, insert the switch shaft into the hole of the REC switch rubber.

2. Remove the screw (P2 x 3) to detach the SW bracket.
3. Remove the outside gasket and inside flex top gasket.
4. Disconnect the flexible board from the connector CN2 on the SW-1511 board.
5. Remove the tape.
6. Remove the two screws (PTP2 x 5) to detach the contact spring 1.
7. Remove a screw (PTP2 x 5) to detach the contact spring 2.
8. Remove a screw (P2 x 3) to detach the SW-1511 board.



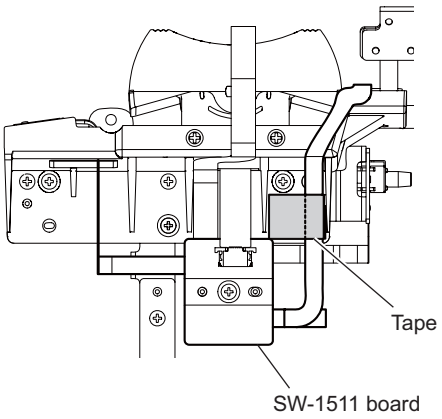
9. Remove the four screws to detach the zoom seesaw.



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

Note

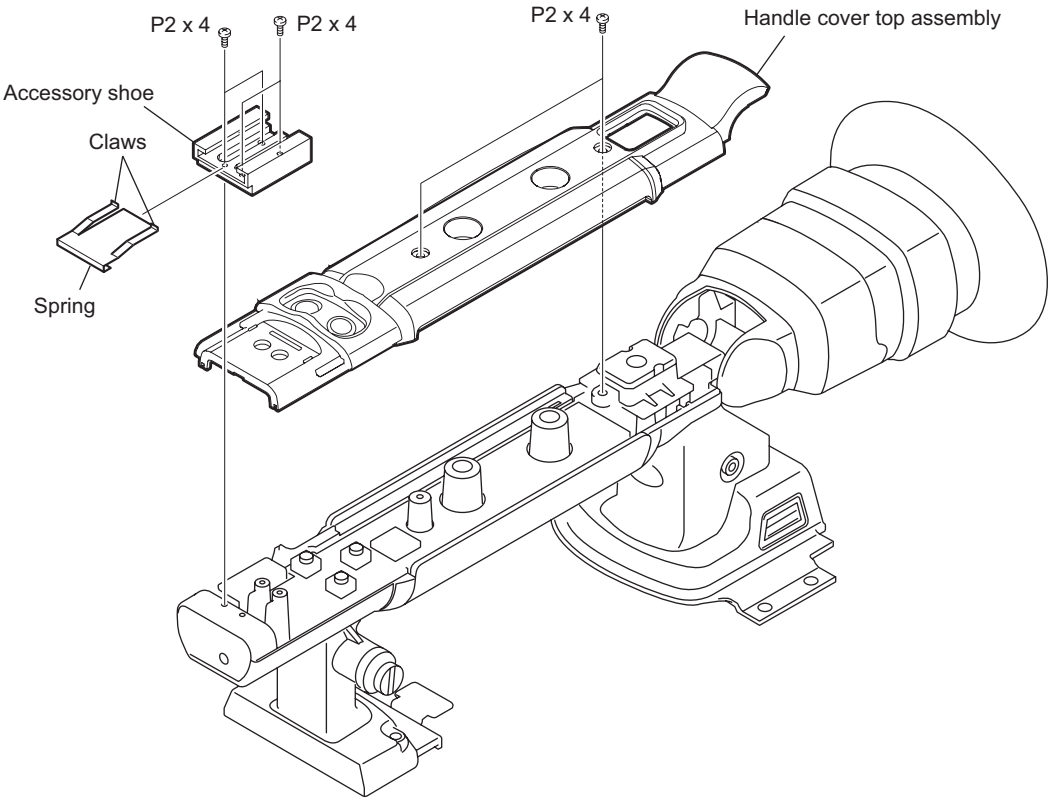
Install the SW-1511 board and then attach tape as shown below.



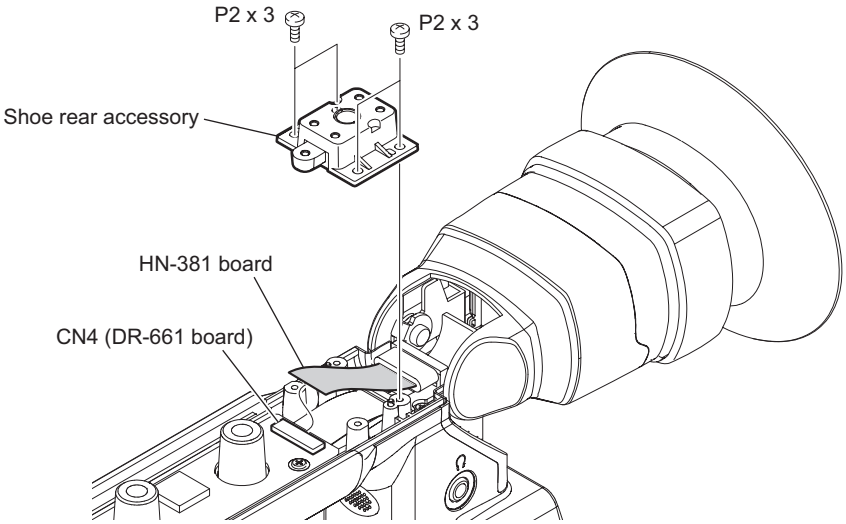
2-5. Removing/Installing Boards of Handle Block

2-5-1. HN-381 Board

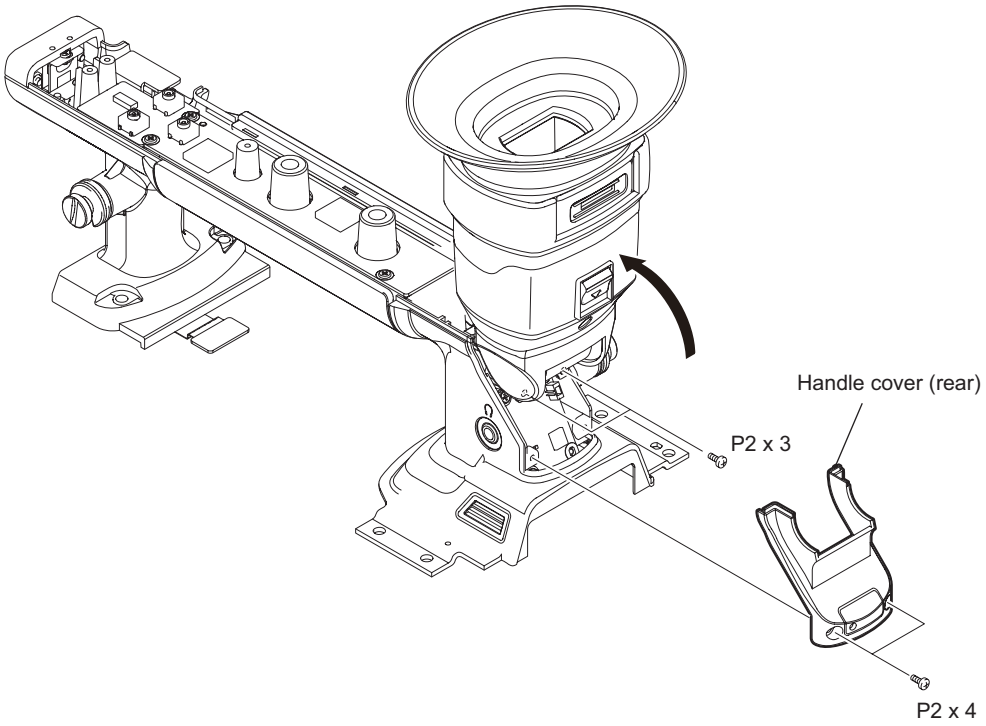
1. Remove the two claws to detach the spring.
2. Remove the two screws to detach the accessory shoe.
3. Remove the two screws to detach the handle cover top assembly.



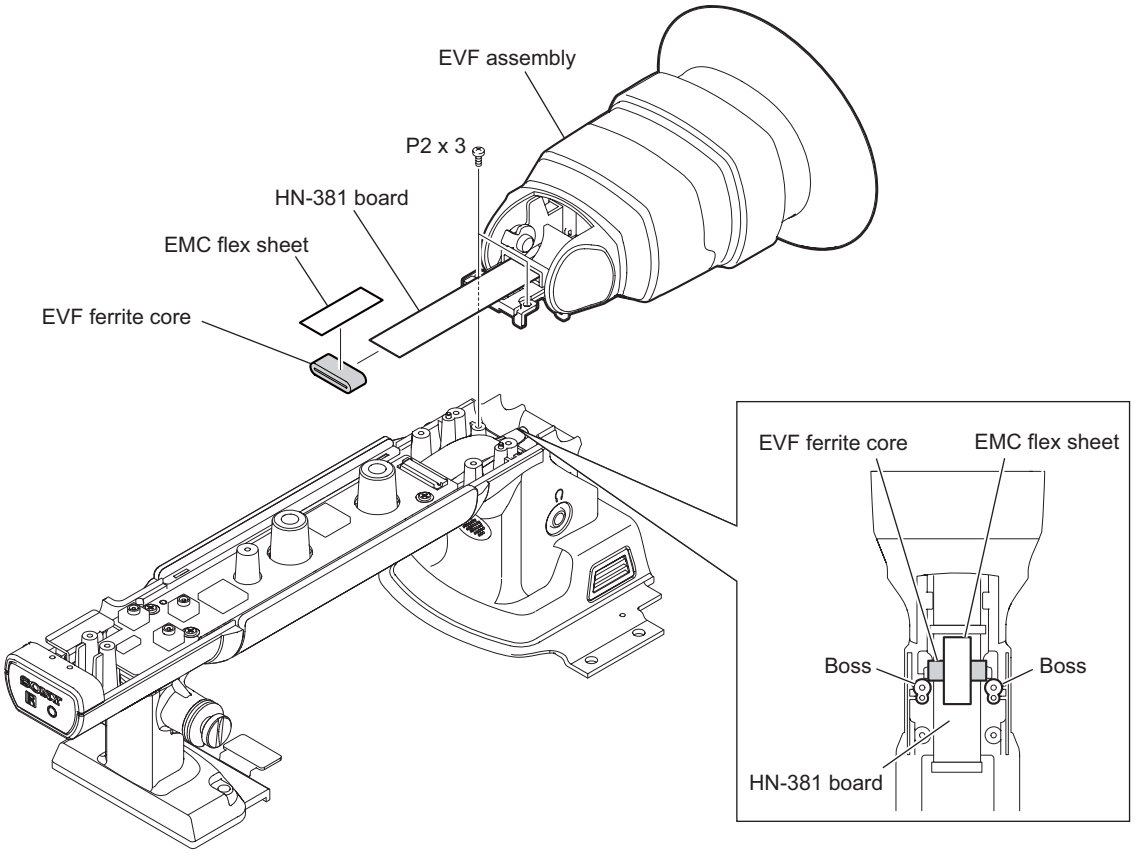
4. Remove the four screws to detach the shoe rear accessory.
5. Disconnect the HN-381 board from the connector CN4 on the DR-661 board.



6. Remove the two screws (P2 x 4) to detach the handle cover (rear) assembly.
7. Remove the two screws (P2 x 3).



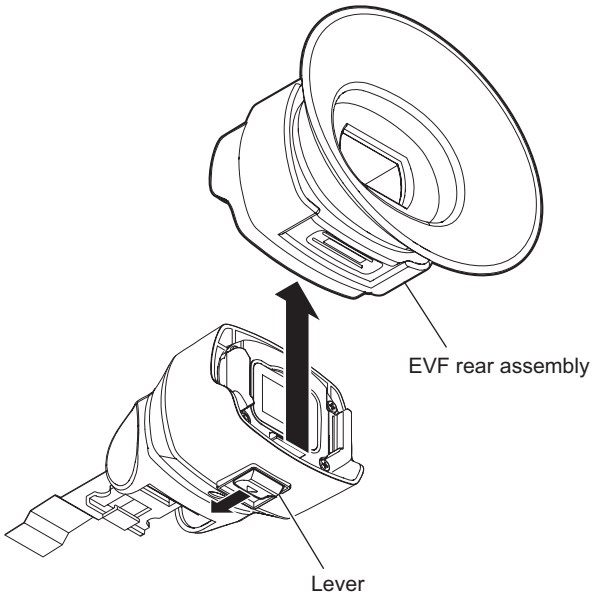
8. Remove the two screws to detach the EVF assembly.
9. Remove the EMC flex sheet to detach the EVF ferrite core.



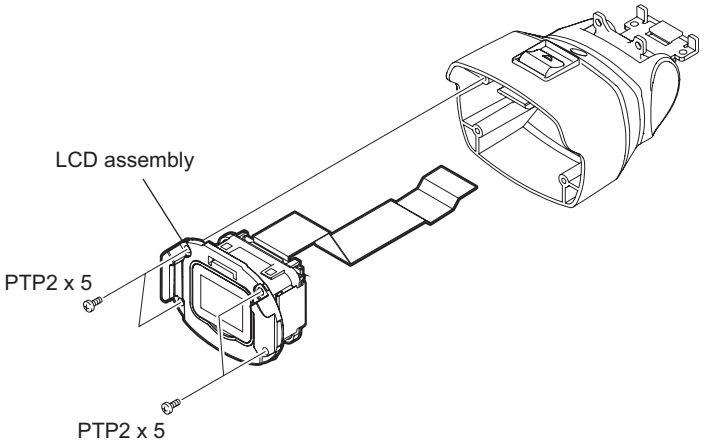
Note

When installing the EVF ferrite core, push it against the bosses and attach an EMC flex sheet.

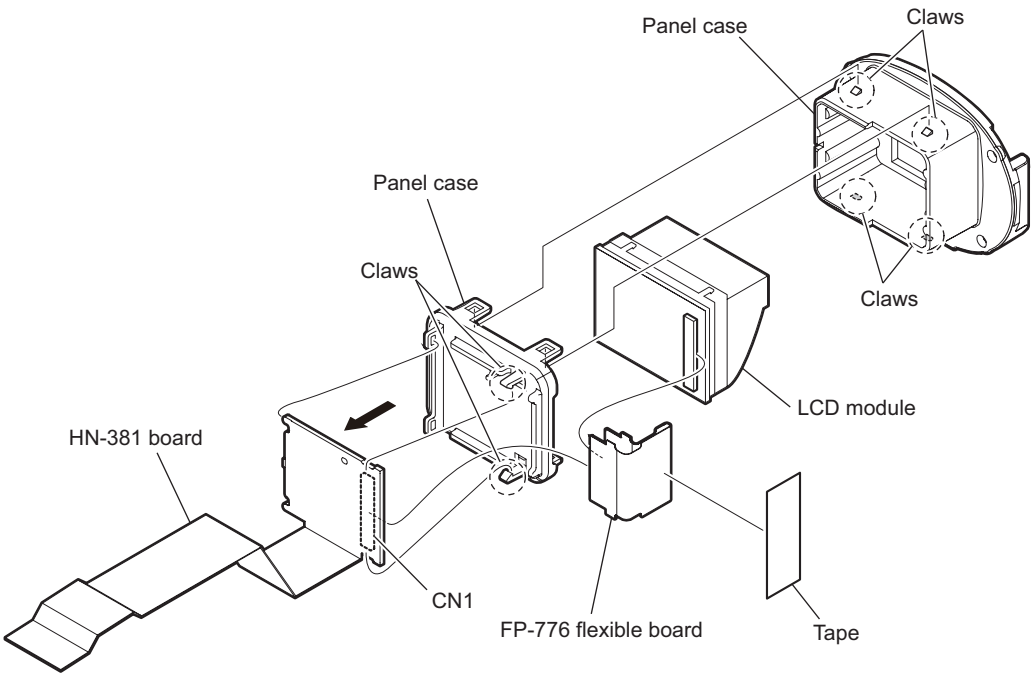
10. Slide the lever to detach the EVF rear assembly.



11. Remove the four screws to detach the LCD assembly.



12. Remove the tape.
13. Remove the two claws to lift up the HN-381 board.
14. Disconnect the FP-776 flexible board from the connectors CN1 on the HN-381 board.
15. Remove the four claws to detach the panel case.
16. Disconnect the FP-776 flexible board from the connector on the LCD module.



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

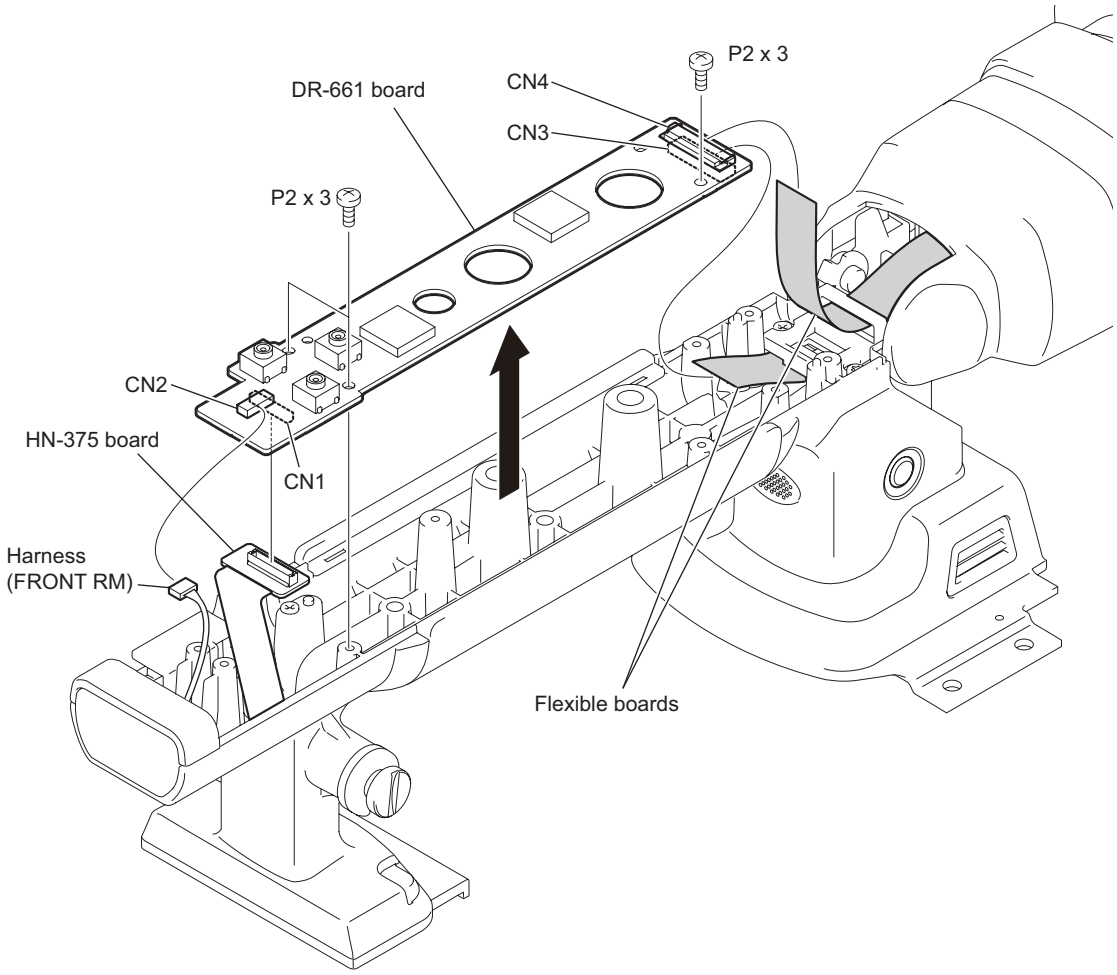
2-5-2. DR-661 Board

Preparation

1. Disconnect the HN-381 board from the connector CN4 on the DR-661 board. (Refer to 2-5-1. HN-381 Board)

Procedure

1. Disconnect the harness from the connector CN2 on the DR-661 board.
2. Remove the three screws and lift up the DR-661 board.
3. Disconnect the HN-375 board from the connector CN1 on the DR-661 board.
4. Disconnect the two flexible boards from the connectors CN3, and CN4 on the DR-661 board.



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

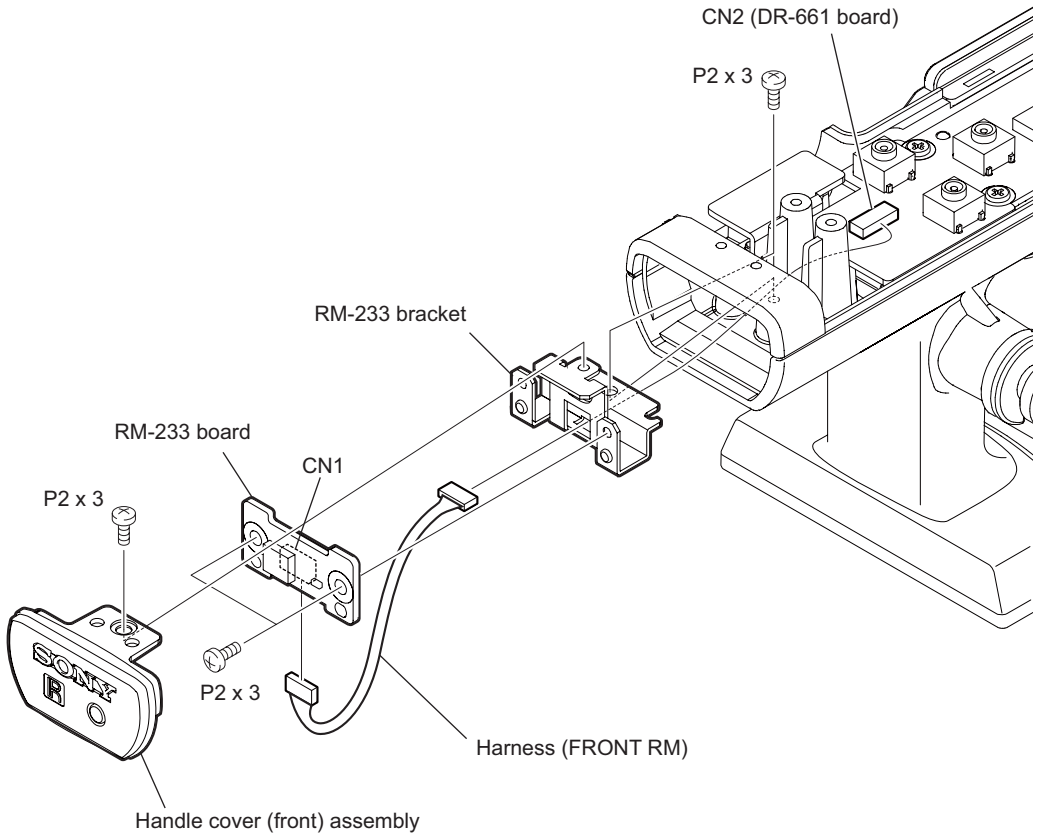
2-5-3. RM-233 Board

Preparation

1. Remove the handle cover top assembly. (Refer to 2-5-1. HN-381 Board)

Procedure

1. Disconnect the harness from the connector CN2 on the DR-661 board.
2. Remove the screw and pull out the RM-233 bracket.
3. Remove the screw to detach the handle cover (front) assembly.
4. Remove the two screws to detach the RM-233 bracket.
5. Disconnect the harness from the connector CN1 on the RM-233 board.



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

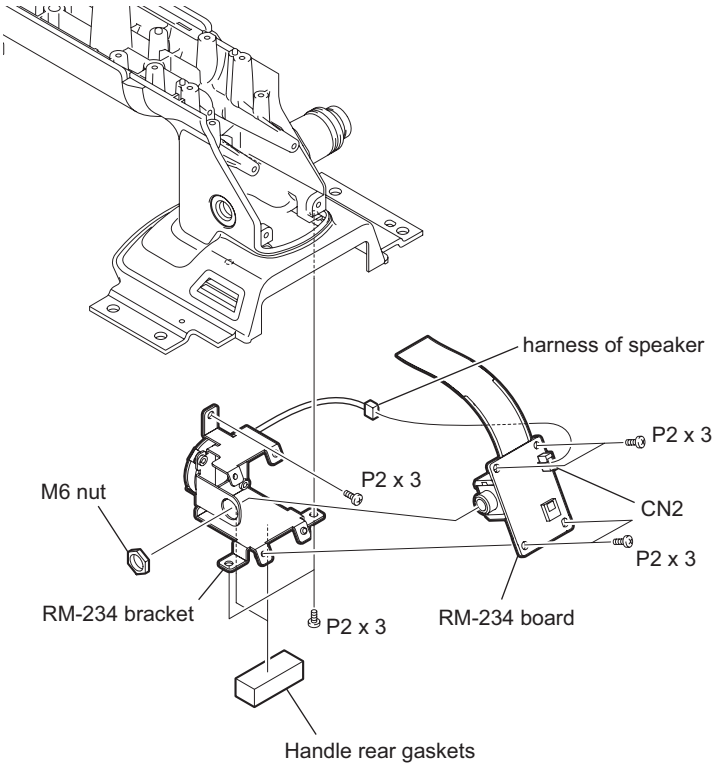
2-5-4. RM-234 Board

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the VF assembly.(Refer to 2-5-1. HN-381 Board)
7. Remove the DR-661 board. (Refer to 2-5-2. DR-661 Board)

Procedure

1. Remove the two handle rear gaskets.
2. Remove the three screws to detach the RM-234 bracket.
3. Disconnect the harness of speaker from the connector CN2 on the RM-234 board.
4. Remove the four screws and M6 nut to detach the RM-234 board.



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

2-6. Removing/Installing Boards of Rear Panel Block

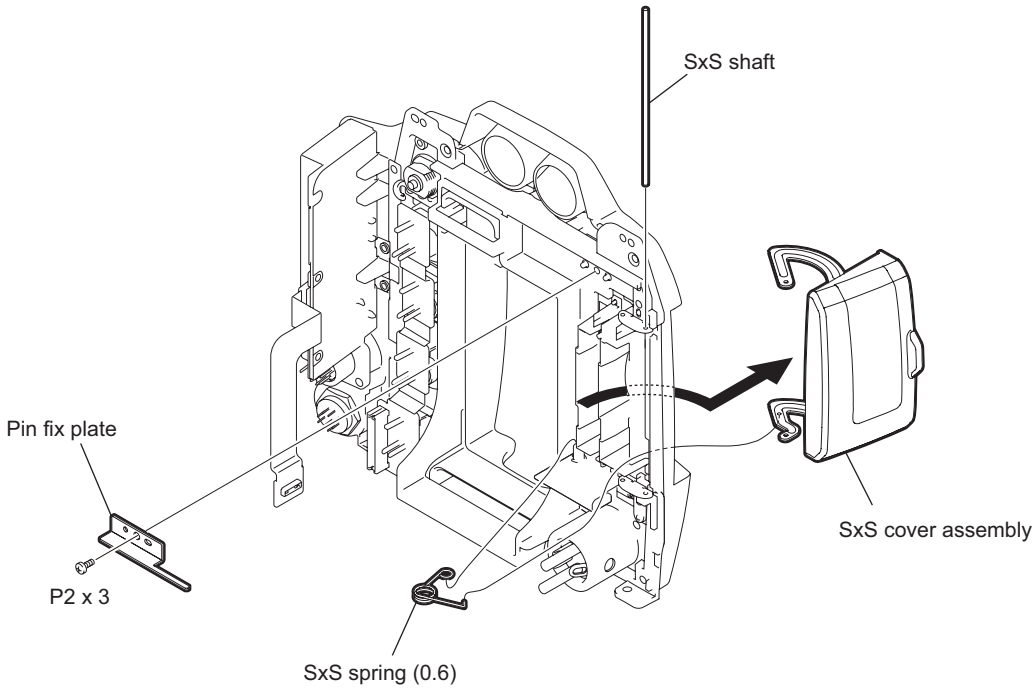
2-6-1. DIF-209/HN-372 Board

Preparation

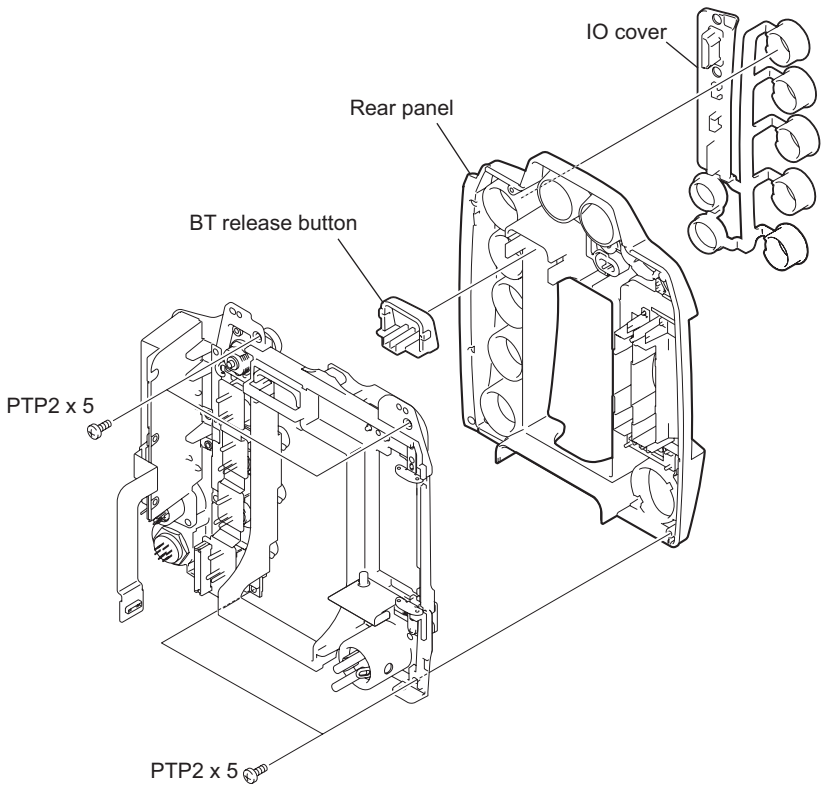
1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the rear panel block. (Refer to 2-2-6. Rear Panel Block)

Procedure

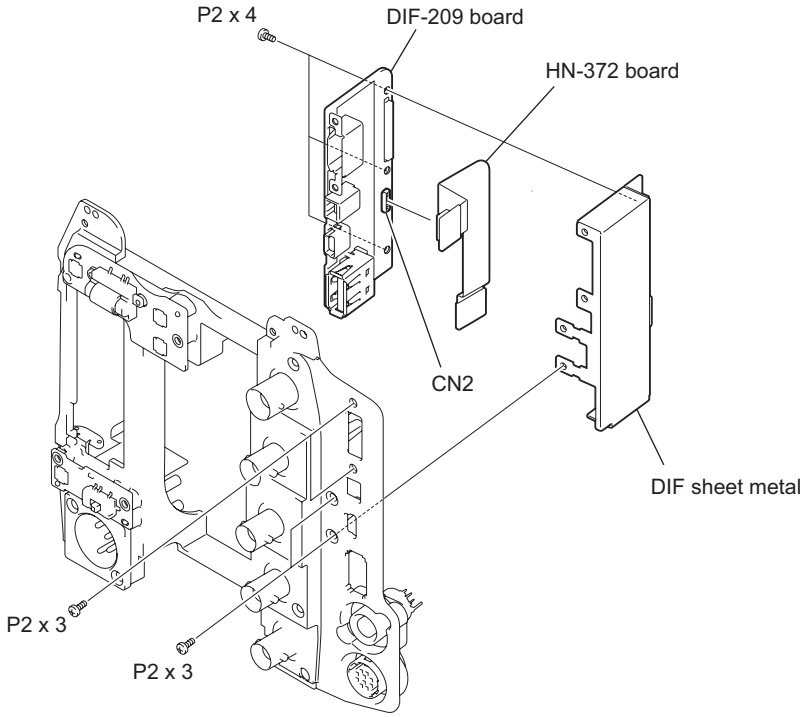
1. Remove the screw to detach the pin fix plate.
2. Remove the SxS shaft and SxS spring (0.6).
3. Open the SxS cover assembly and remove the SxS cover assembly.



4. Remove the IO cover.
5. Remove the four screws to detach the rear panel and BT release button.



6. Remove the four screws (P2 x 4) to detach the DIF-209 board.
7. Remove the three screws (P2 x 3) to detach the DIF sheet metal.
8. Disconnect the HN-372 board from the connector CN2 on the DIF-209 board.



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

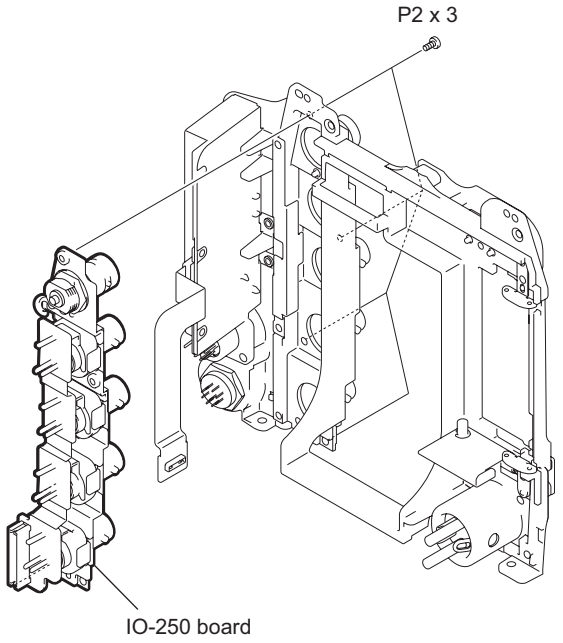
2-6-2. IO-250 Board

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the rear panel block. (Refer to 2-2-6. Rear Panel Block)
7. Remove the rear panel. (Refer to 2-6-1. DIF-209/HN-372 Board)

Procedure

1. Remove the four screws to detach the IO-250 board.



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

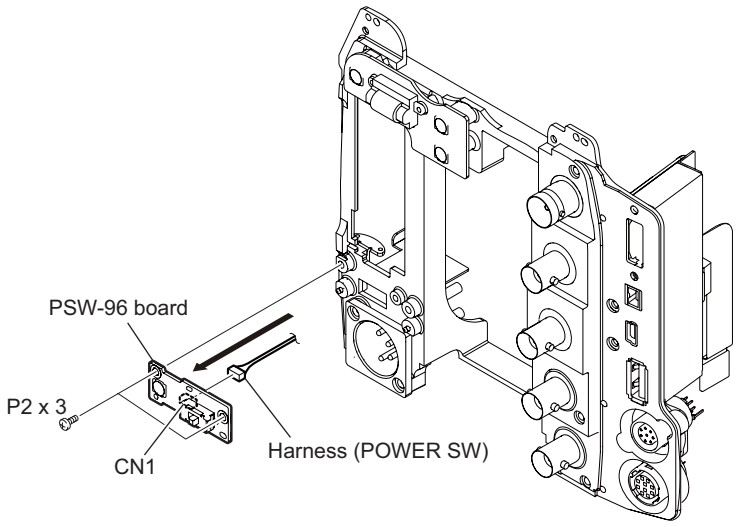
2-6-3. PSW-96 Board

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the rear panel block. (Refer to 2-2-6. Rear Panel Block)
7. Remove the rear panel. (Refer to 2-6-1. DIF-209/HN-372 Board)

Procedure

1. Remove the two screws and pull out the PSW-96 board.
2. Disconnect the harness from the connector CN1 on the PSW-96 board.



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

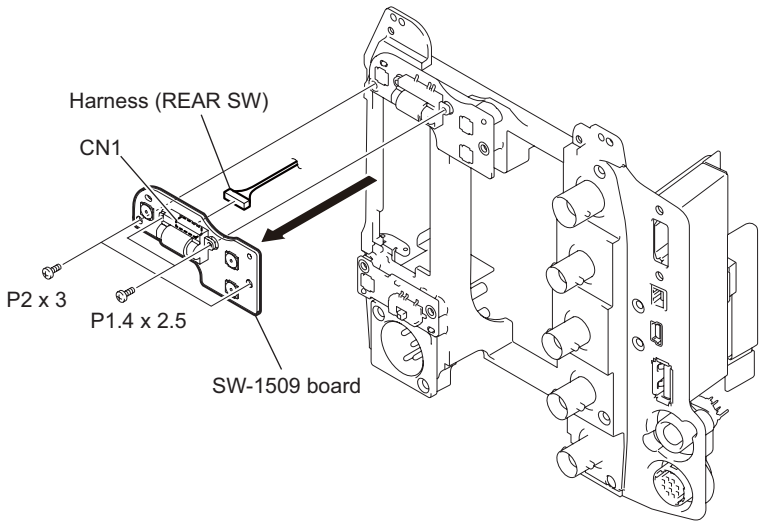
2-6-4. SW-1509 Board

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the rear panel block. (Refer to 2-2-6. Rear Panel Block)
7. Remove the rear panel. (Refer to 2-6-1. DIF-209/HN-372 Board)

Procedure

1. Remove the four screws to detach the SW-1509 board.
2. Disconnect the harness from the connectors CN1 on the SW-1509 board.



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

2-7. Removing/Installing Boards of Main Frame

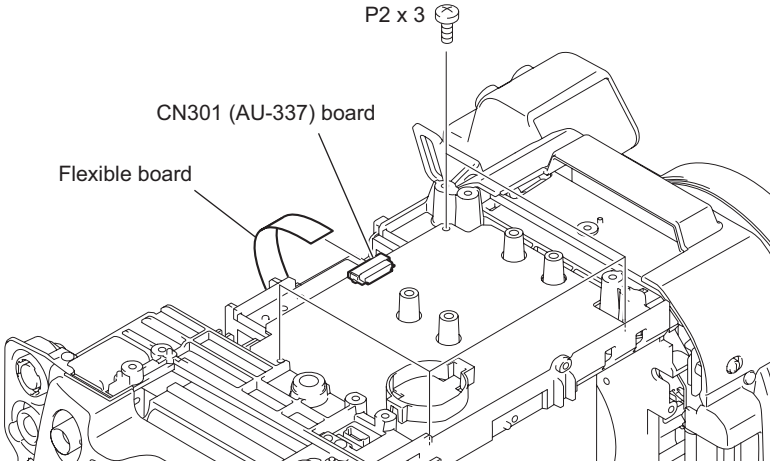
2-7-1. AU-337 Board

Preparation

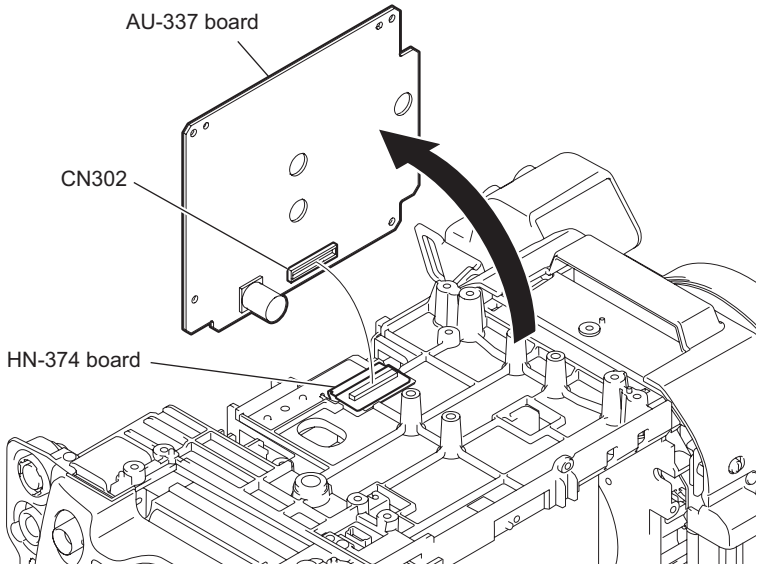
1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)

Procedure

1. Disconnect the flexible board from the connector CN301 on the AU-337 board.
2. Remove the four screws.



3. Lift up the AU-337 board.
4. Disconnect the connector of HN-374 board from the connectors CN302 on the AU-337 board to detach the AU-337 board.



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

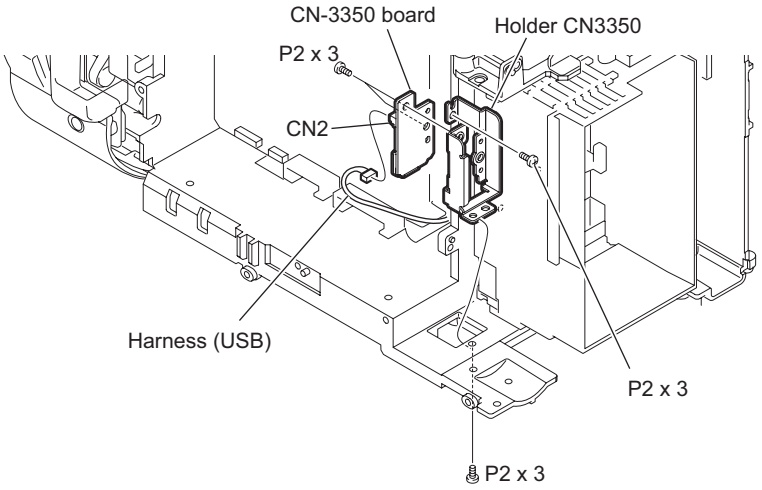
2-7-2. CN-3350 Board

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the rear panel block. (Refer to 2-2-6. Rear Panel Block)

Procedure

1. Remove the two screws and pull out the holder CN3350.
2. Disconnect the harness from the connector CN2 on the CN-3350 board.
3. Remove the two screws to detach the CN-3350 board.



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

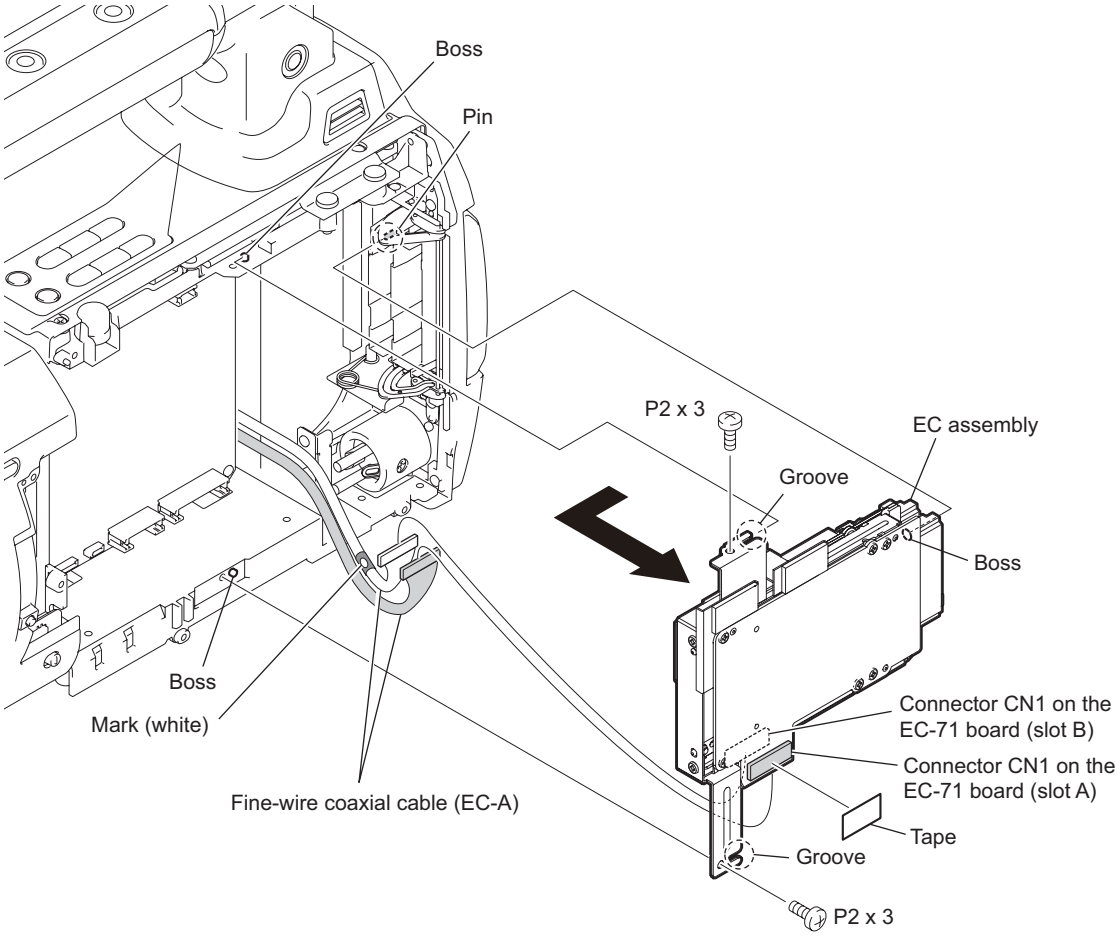
2-7-3. EC-71 Board

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)

Procedure

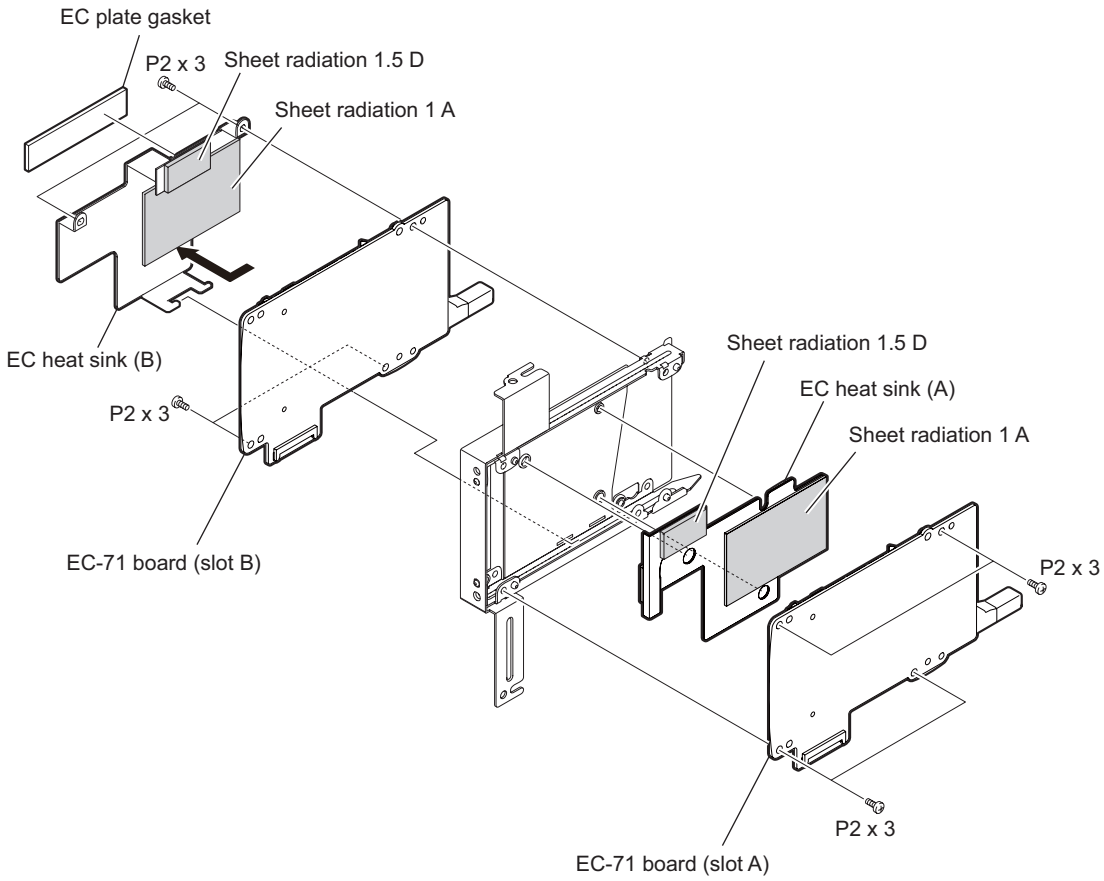
1. Remove a tape.
2. Remove the two screws and pull out the EC assembly.
3. Disconnect the fine-wire coaxial cable from the connectors CN1 on the EC-71 board (slot A).
4. Disconnect the fine-wire coaxial cable from the connector CN1 on the EC-71 board (slot B).



Notes

- A white mark is provided on the fine-wire coaxial cable (EC-A) to be connected to the EC-71 board for slot B.
- Install the EC assembly while fitting the pin and two bosses with the hole and two grooves of the EC assembly respectively.

5. Remove the EC plate gasket.
6. Remove the four screws to detach the EC heat sink (A) and EC-71 board (slot A).
7. Remove the two screws to detach the EC heat sink (B).
8. Remove the two screws to detach the EC-71 board (slot B).



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

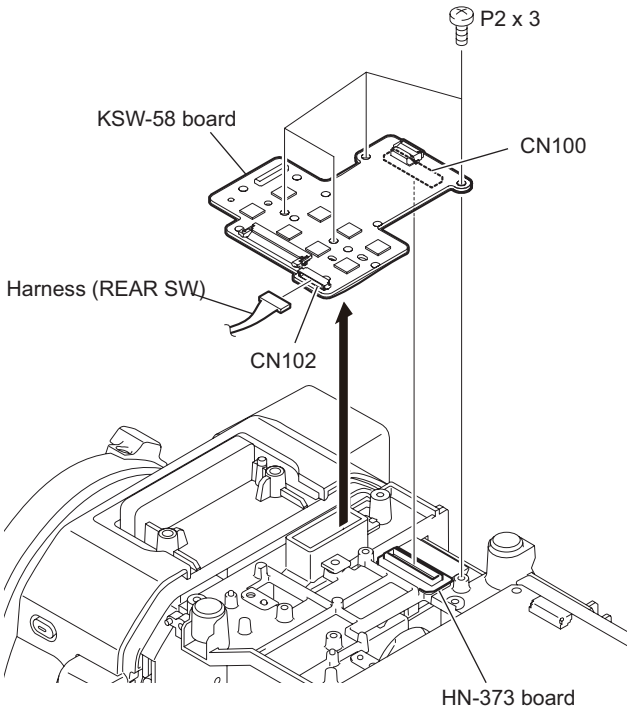
2-7-4. KSW-58 Board

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)

Procedure

1. Disconnect the harness from the connector CN102 on the KSW-58 board.
2. Remove the four screws and lift up the KSW-58 board.
3. Disconnect the HN-373 board from the connector CN100 on the KSW-58 board and remove the KSW-58 board.



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

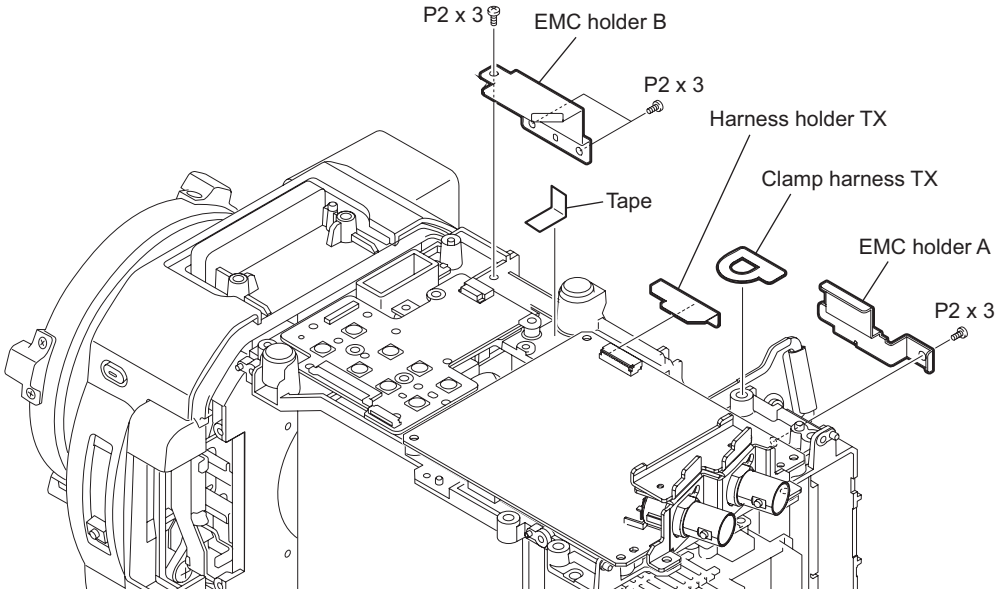
2-7-5. TX-139 Board

Preparation

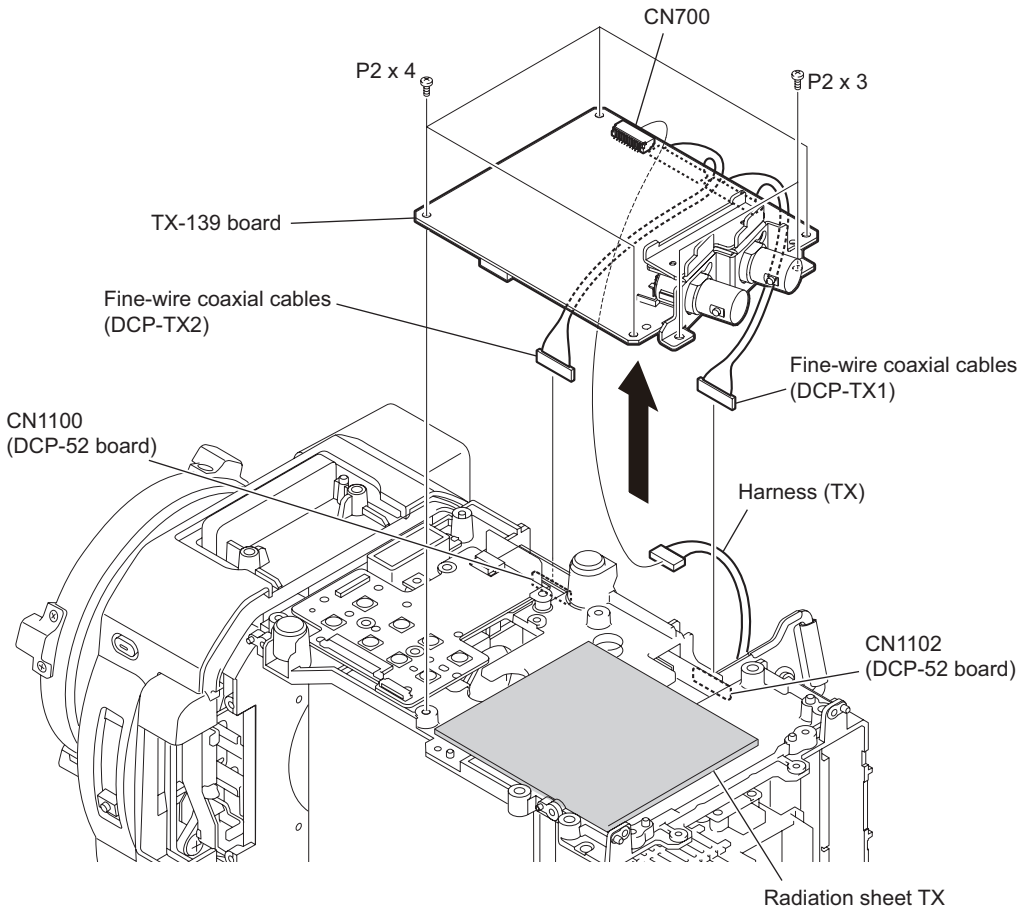
1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the rear panel block. (Refer to 2-2-6. Rear Panel Block)

Procedure

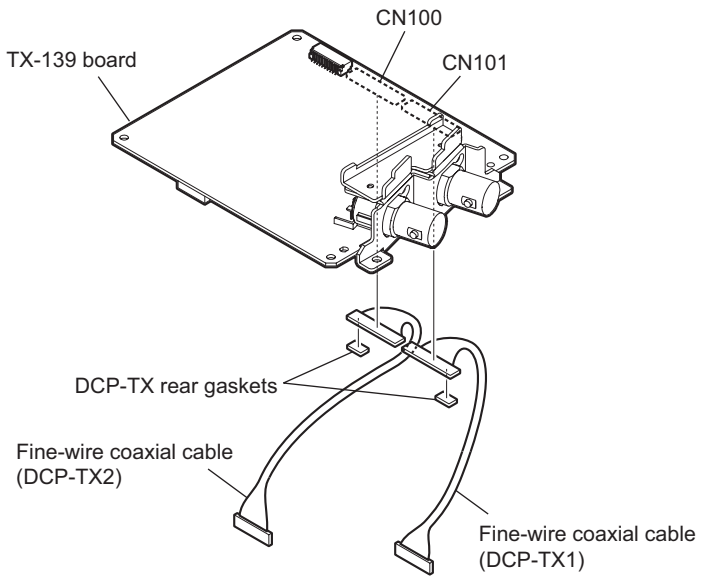
1. Remove a screw to detach the main EMC holder A.
2. Remove the three screws to detach the main EMC holder B.
3. Remove the clamp harness TX and harness holder TX.
4. Remove the tape.



5. Disconnect the harness from the connector CN700 on the TX-139 board.
6. Disconnect the two fine-wire coaxial cables from the connector CN1100, and CN1102 on the DCP-52 board.
7. Remove the two screws (P2 x 3) and the four screws (P2 x 4) and lift up the TX-139 board.



8. Remove the two DCP-TX rear gaskets.
9. Disconnect the two fine-wire coaxial cables from the connector CN100, and CN101 on the TX-139 board.



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

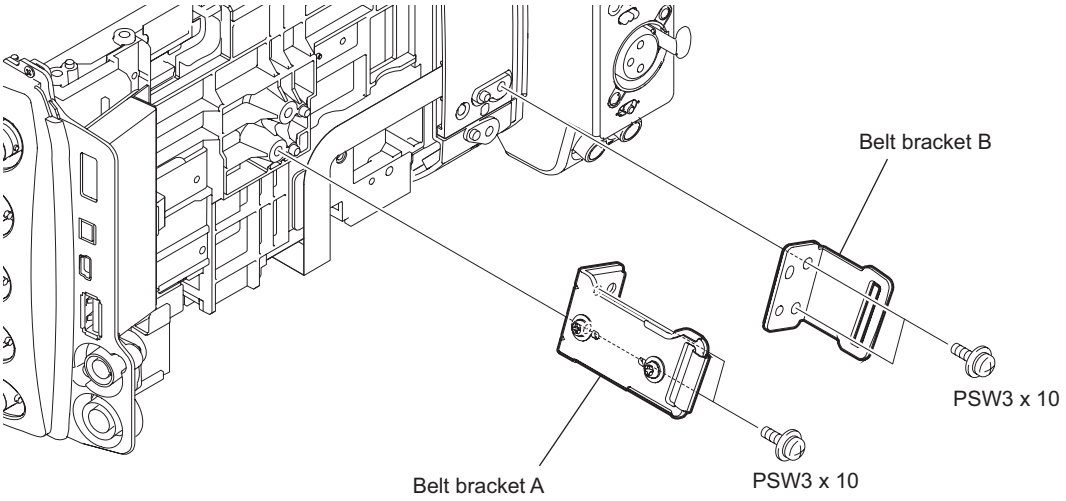
2-7-6. RE-286 Board

Preparation

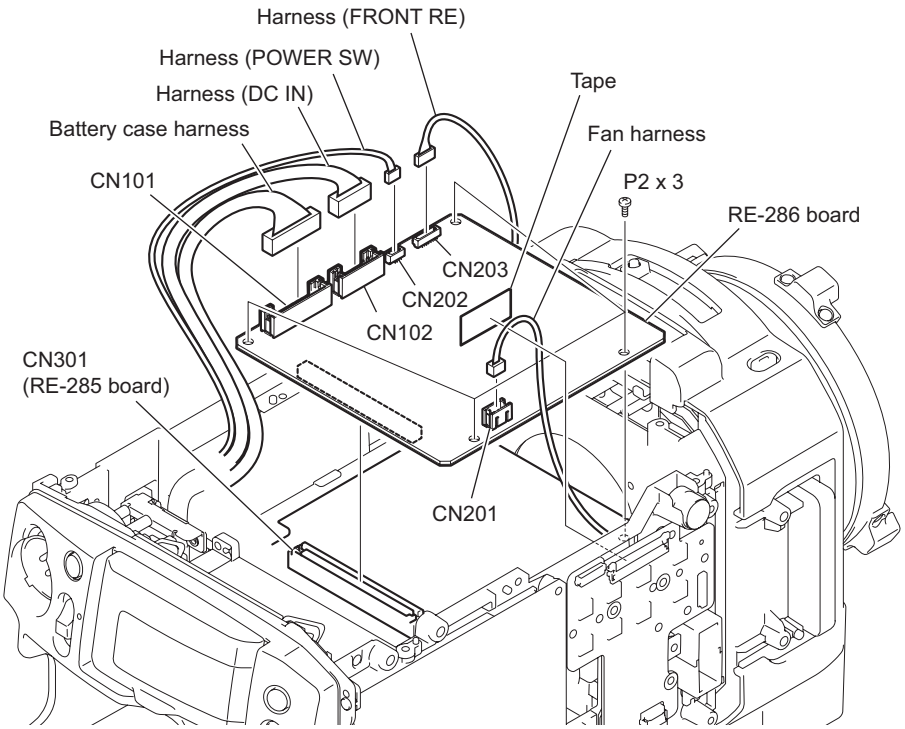
1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)

Procedure

1. Remove the four screws to detach the belt bracket A and belt bracket B.



2. Remove a tape.
3. Disconnect the five harnesses from the connectors CN101, CN102, CN202, CN203, and CN201 on the RE-286 board.
4. Remove the four screws and disconnect the B to B connector (CN301) on the RE-285 board to detach the RE-286 board.



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

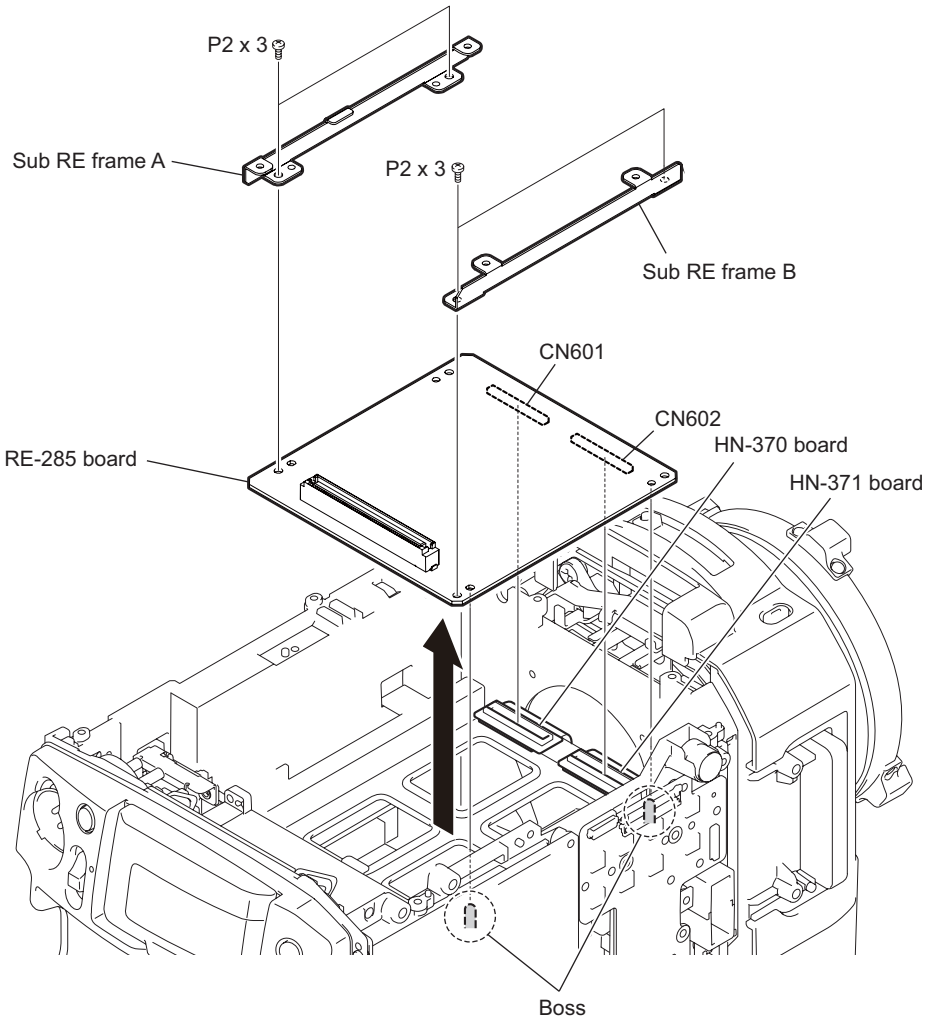
2-7-7. RE-285 Board

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the RE-286 Board. (Refer to 2-7-6. RE-286 Board)

Procedure

1. Remove the four screws to detach the sub RE frame A and the sub RE frame B.
2. Lift up the RE-285 board.
3. Disconnect the HN-370 board and HN-371 board from the connectors CN601, and CN602 on the RE-285 board and remove the RE-285 board.



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

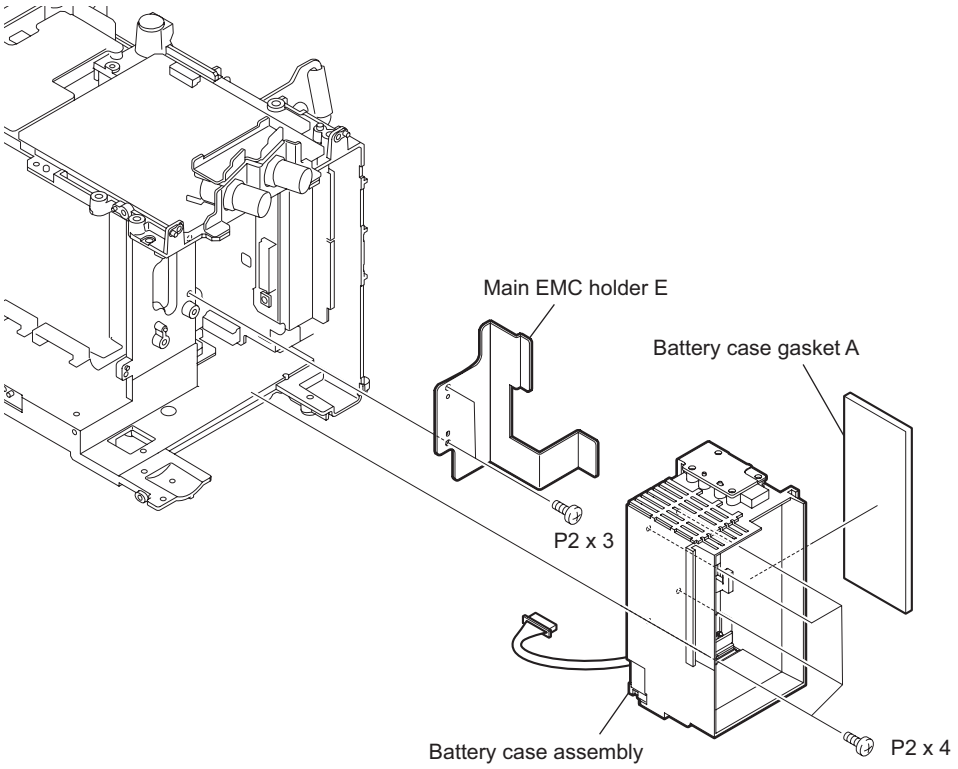
2-7-8. DPR-334 Board and HN-373/374 Board

Preparation

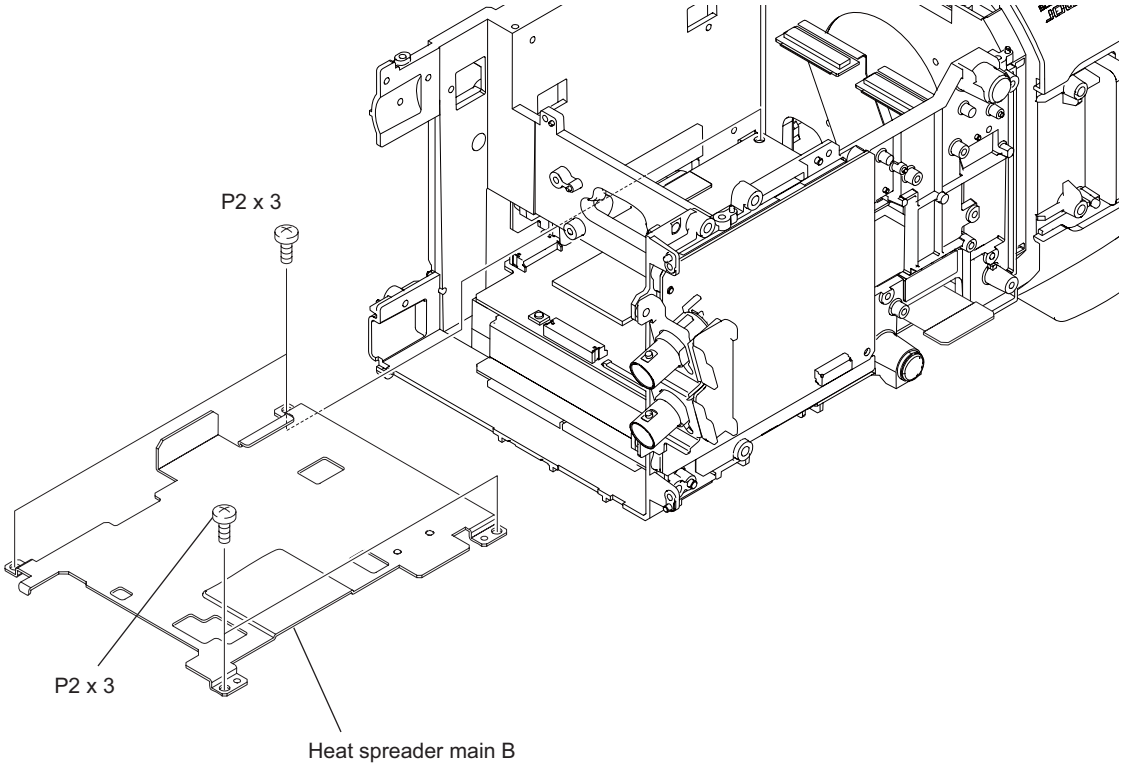
1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the RE-286 Board. (Refer to 2-7-6. RE-286 Board)
7. Remove the RE-285 Board. (Refer to 2-7-7. RE-285 Board)
8. Remove the DC fan assembly. (Refer to 2-2-8. DC Fan (25 Square))
9. Remove the rear panel block. (Refer to 2-2-6. Rear Panel Block)
10. Remove the CN-3350 board. (Refer to 2-7-2. CN-3350 Board)

Procedure

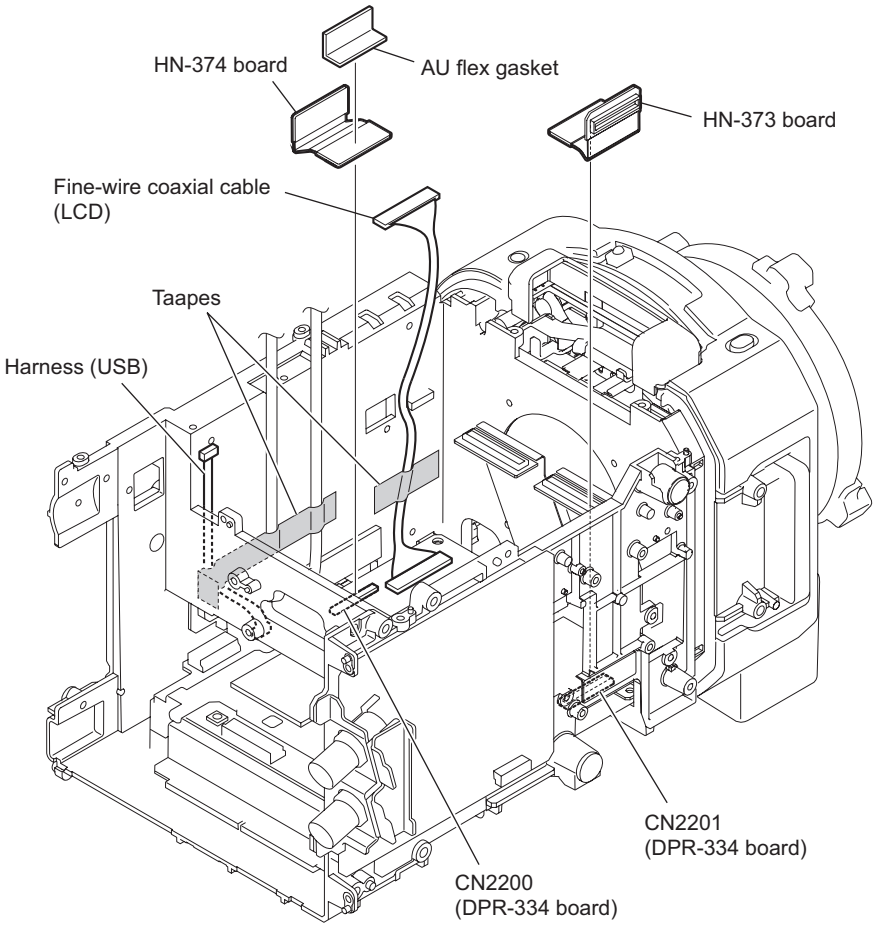
1. Remove the four screws to detach the battery case assembly.
2. Remove the battery case gasket A.
3. Remove the two screws to detach the main EMC holder E.



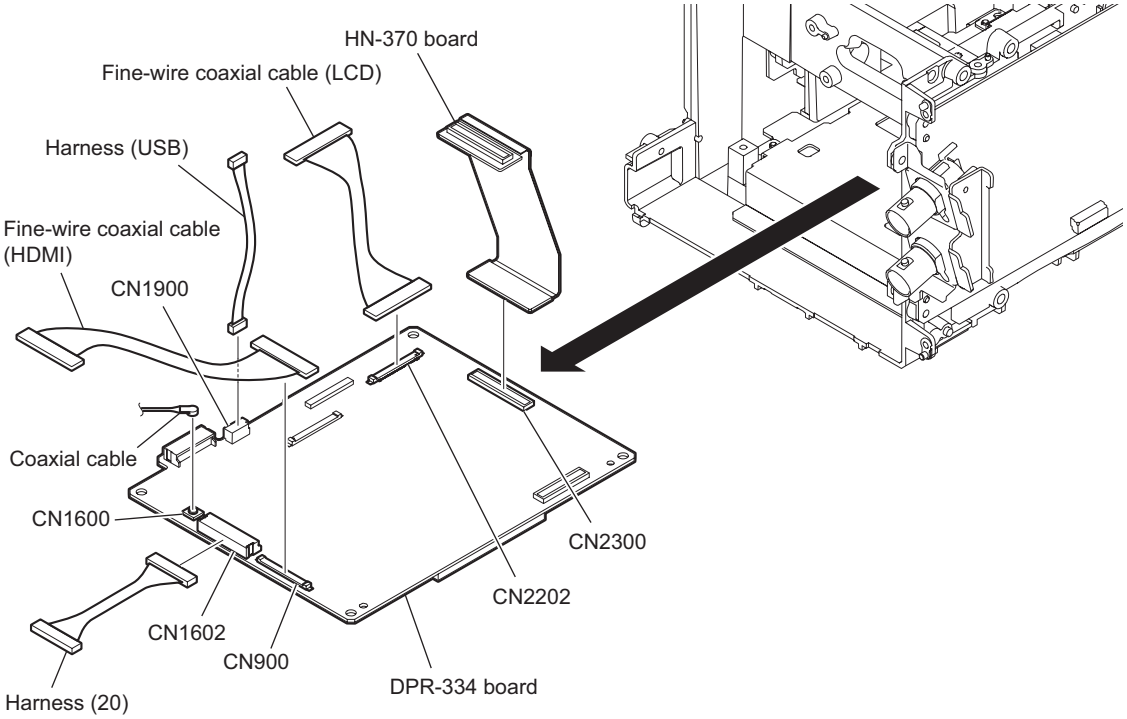
4. Remove the four screws to detach the heat spreader main B.



5. Disconnect the HN-373 board from the connector CN2201 on the DPR-334 board.
6. Disconnect the HN-374 board from the connectors CN2200 on the DPR-334 board.
7. Remove the AU flex gasket from the HN-374 board.
8. Remove the two tapes.



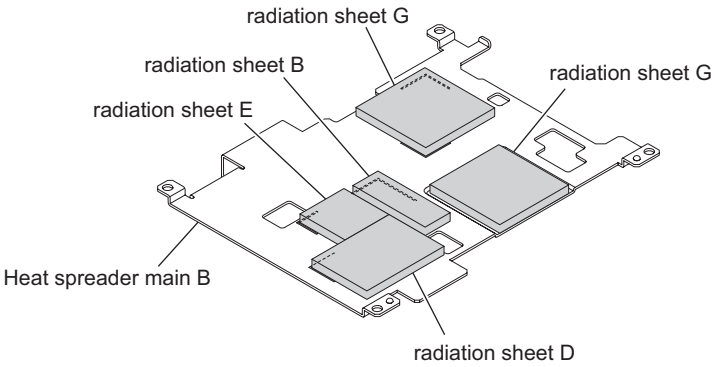
9. Pull out the DPR-334 board.
10. Disconnect the HN-370 board from the connector CN2300 on the DPR-334 board.
11. Disconnect the fine-wire coaxial cable from the connector CN2202 on the DPR-334 board.
12. Disconnect the fine-wire coaxial cable from the connector CN900 on the DPR-334 board.
13. Disconnect the fine-wire coaxial cable from the connector CN1600 on the DPR-334 board.
14. Disconnect the two harnesses from the connectors CN1900, and CN1602 on the DPR-334 board.



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

Note

When installing the heat spreader main B, attach radiation sheets at the locations shown below.



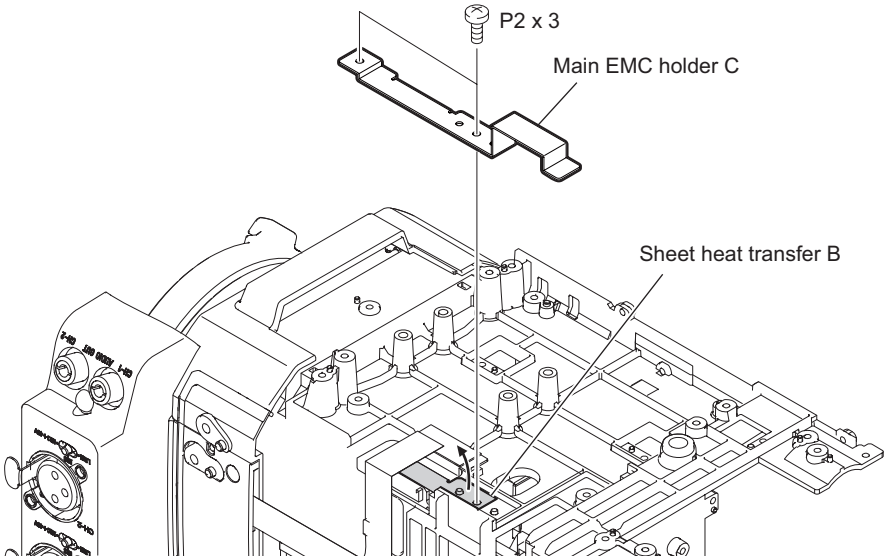
2-7-9. DCP-52 Board and HN-371 Board

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the RE-286 Board. (Refer to 2-7-6. RE-286 Board)
7. Remove the RE-285 Board. (Refer to 2-7-7. RE-285 Board)
8. Remove the DC fan assembly. (Refer to 2-2-8. DC Fan (25 Square))
9. Remove the rear panel block. (Refer to 2-2-6. Rear Panel Block)
10. Remove the CN-3350 board. (Refer to 2-7-2. CN-3350 Board)
11. Remove the DPR-334 board. (Refer to 2-7-8. DPR-334 Board and HN-373/374 Board)

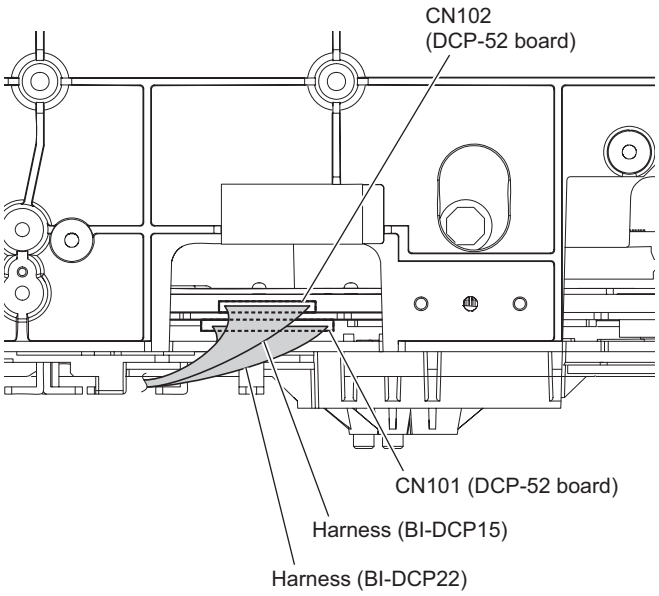
Procedure

1. Remove the screw to detach the main EMC holder C.
2. Remove the sheet heat transfer B.



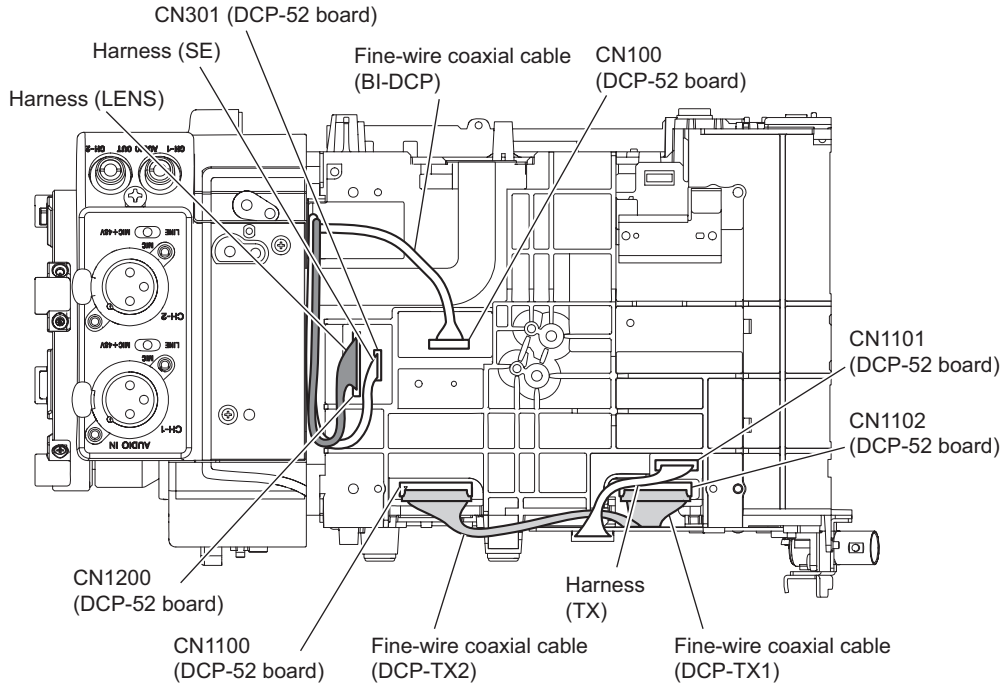
3. Disconnect the two harnesses from the connectors CN101, and CN102 on the DCP-52 board.

Bottom side

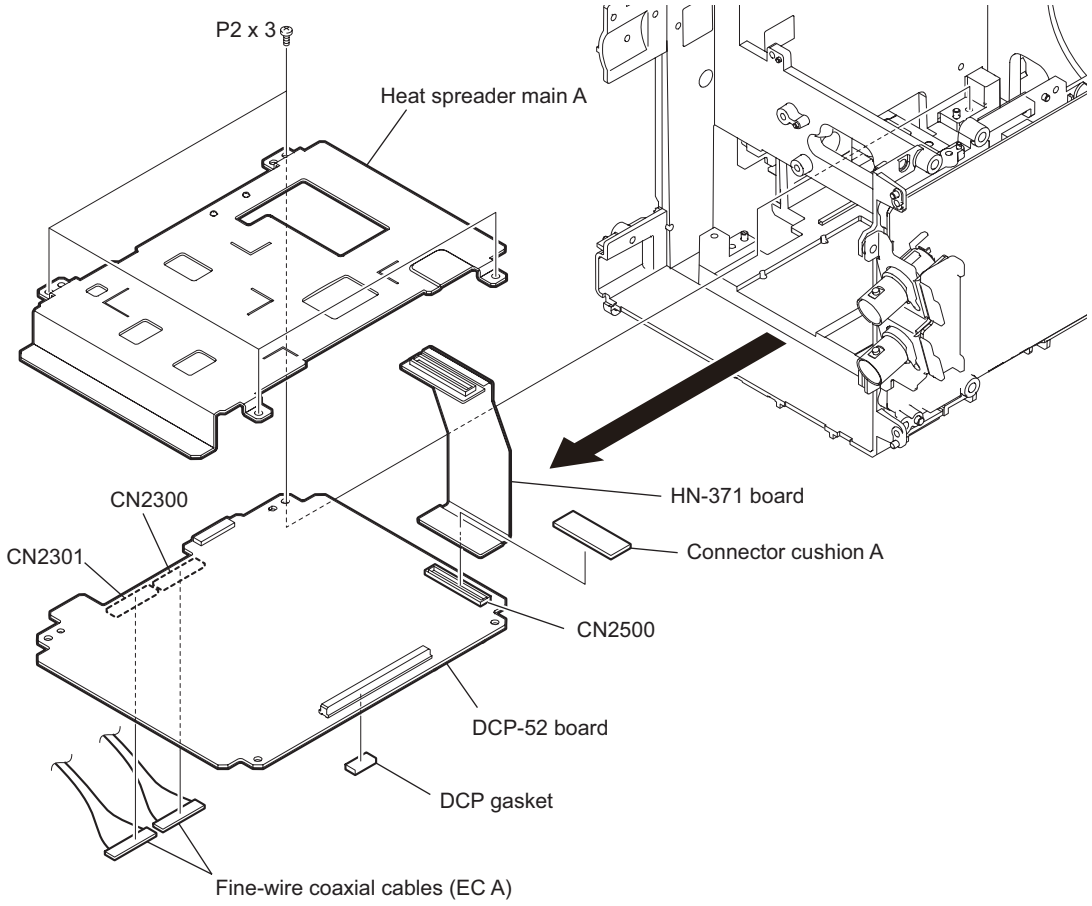


4. Disconnect the three fine-wire coaxial cables from the connectors CN100, CN1100, and CN1102 on the DCP-52 board.
5. Disconnect the two harnesses from the connectors CN1200, and CN301 on the DCP-52 board.
6. Disconnect the harness from the connector CN1101 on the DCP-52 board.

Inside



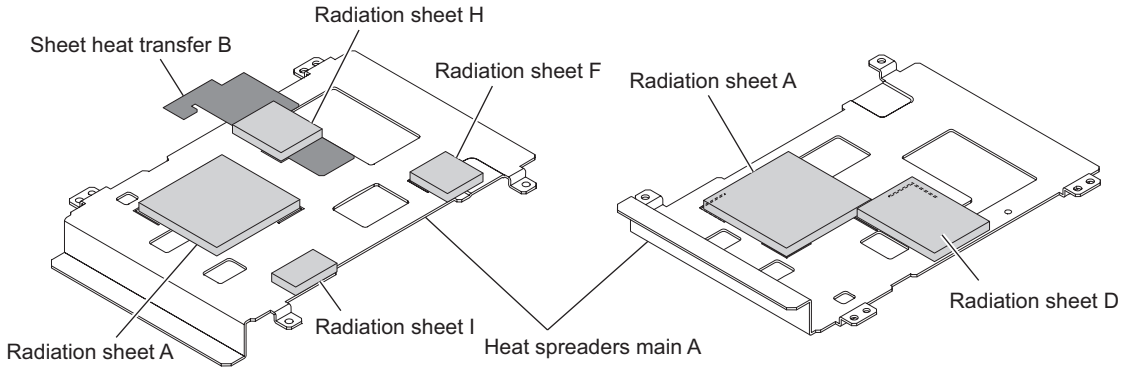
7. Remove the four screws to detach the spreader main A.
8. Pull out the DCP-52 board.
9. Disconnect the HN-371 board from the connector CN2500 on the DCP-52 board.
10. Remove the connector cushion A from the HN-371 board.
11. Disconnect the two fine-wire coaxial cables from the connectors CN2300, and CN2301 on the DCP-52 board.
12. Remove the DCP gasket from the DCP-52 board.



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

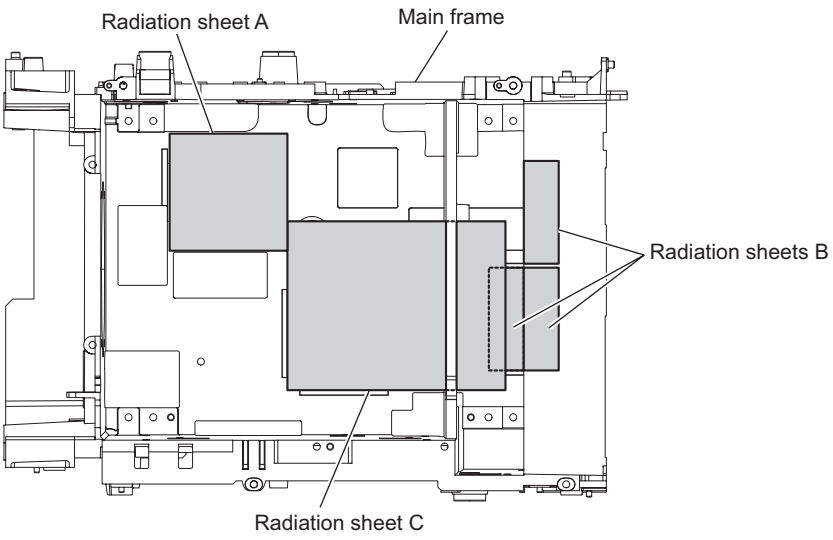
Note

On the heat spreader main A, attach radiation sheets A, D, F, H, and I and sheet heat transfer B at the locations shown below.



Note

On the main frame, attach radiation sheets A, B, and C at the locations shown below.


Radiation sheet A
Main frame
Radiation sheets B
Radiation sheet C

2-7-10. HN-375 Board

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the DR-661 board. (Refer to 2-5-2. DR-661 board)

Procedure

1. Remove the HN-375 board.
2. Install the removed parts by reversing the steps of removal.

2-8. Removing/Installing Boards of Front Panel Block

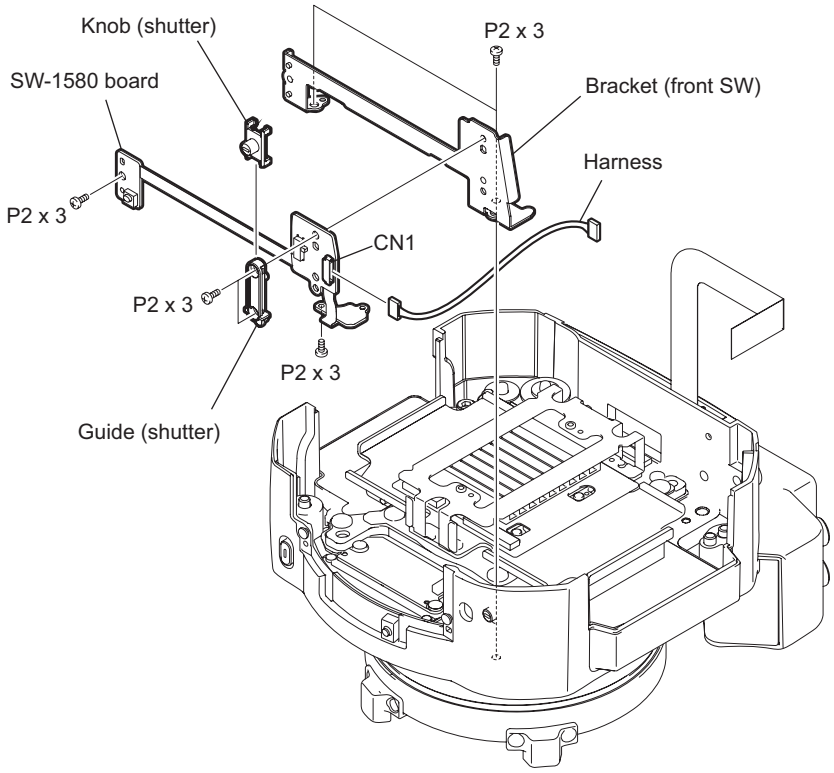
2-8-1. SW-1580 Board

Preparation

1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the RE-286 Board. (Refer to 2-7-6. RE-286 Board)
7. Remove the RE-285 Board. (Refer to 2-7-7. RE-285 Board)
8. Remove the DC fan assembly. (Refer to 2-2-8. DC Fan (25 Square))
9. Remove the rear panel block. (Refer to 2-2-6. Rear Panel Block)
10. Remove the CN-3350 board. (Refer to 2-7-2. CN-3350 Board)
11. Remove the DPR-334 board. (Refer to 2-7-8. DPR-334 Board and HN-373/374 Board)
12. Remove the DCP-52 board. (Refer to 2-7-9. DCP-52 Board and HN-371 Board)
13. Remove the front block. (Refer to 2-2-7. Front Block)

Procedure

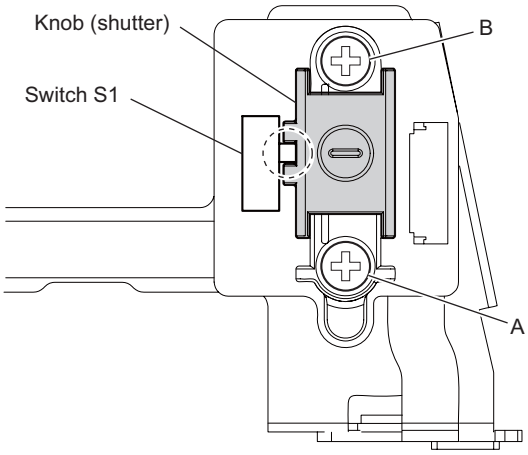
1. Remove the two screws to detach the bracket. (front SW).
2. Disconnect the harness from the connector CN1 on the SW-1580 board.
3. Remove the four screws to detach the SW-1580 board, knob (shutter), and guide (shutter).



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

Notes

- Check that the switch S1 engages with the knob (shutter).
- Tighten the screw A and the screw B in this order to install the knob (shutter).


Knob (shutter)
B
Switch S1
A

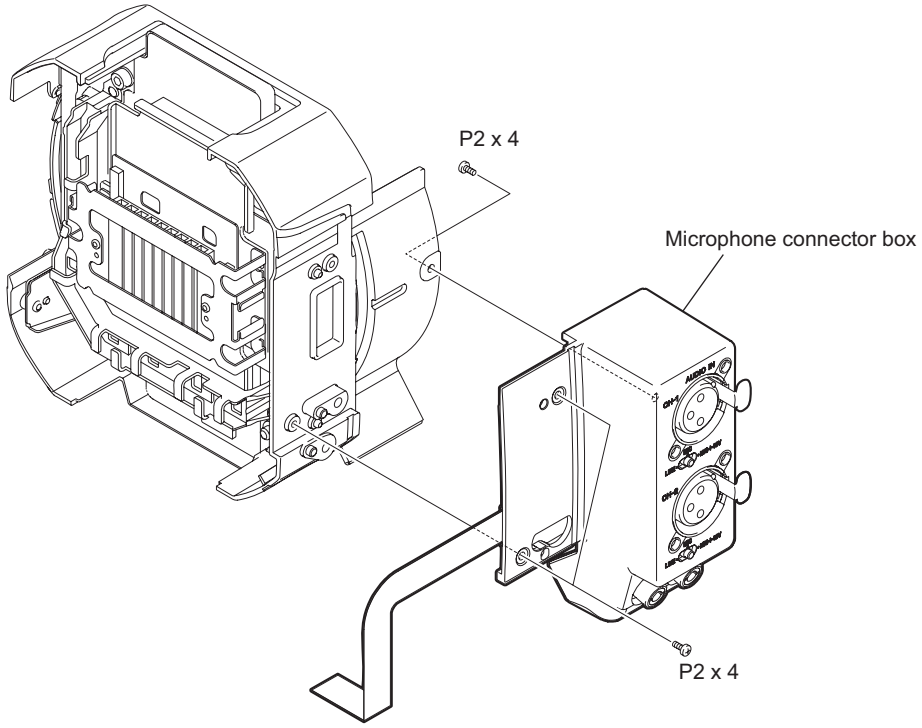
2-8-2. AXM-45 Board

Preparation

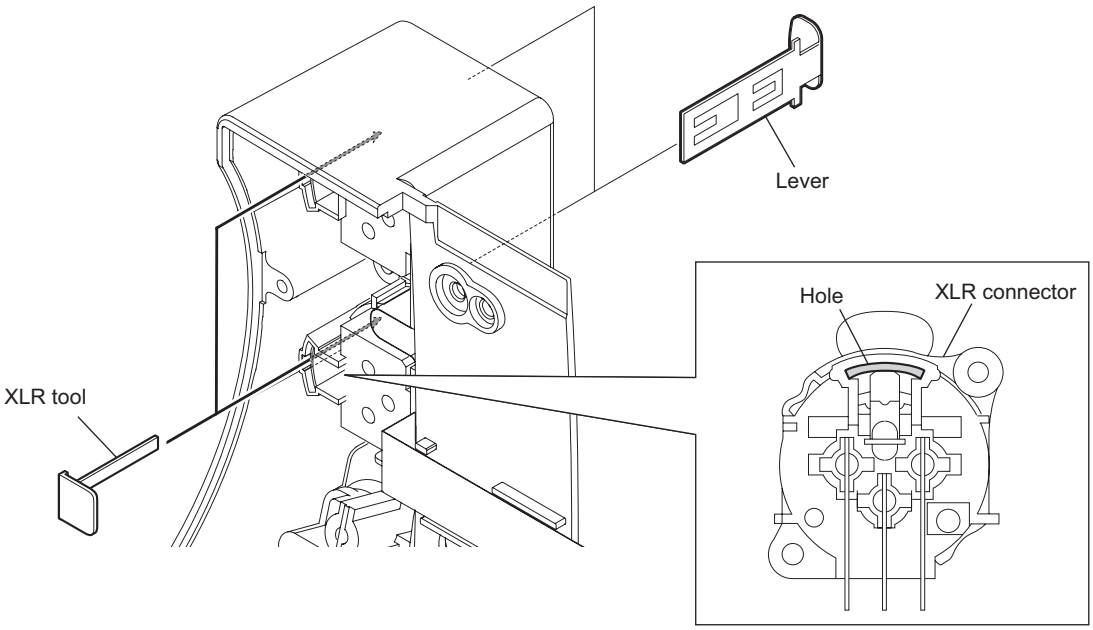
1. Remove the top panel sub assembly. (Refer to 2-2-1. Top Panel Sub Assembly)
2. Remove the bottom panel. (Refer to 2-2-2. Bottom Panel)
3. Remove the outside panel block. (Refer to 2-2-3. Outside Panel Block)
4. Remove the inside panel block. (Refer to 2-2-4. Inside Panel Block)
5. Remove the handle block. (Refer to 2-2-5. Handle Block)
6. Remove the RE-286 Board. (Refer to 2-7-6. RE-286 Board)
7. Remove the RE-285 Board. (Refer to 2-7-7. RE-285 Board)
8. Remove the DC fan assembly. (Refer to 2-2-8. DC Fan (25 Square))
9. Remove the rear panel block. (Refer to 2-2-6. Rear Panel Block)
10. Remove the CN-3350 board. (Refer to 2-7-2. CN-3350 Board)
11. Remove the DPR-334 board. (Refer to 2-7-8. DPR-334 Board and HN-373/374 Board)
12. Remove the DCP-52 board. (Refer to 2-7-9. DCP-52 Board and HN-371 Board)
13. Remove the front block. (Refer to 2-2-7. Front Block)
14. Remove the SW-1580 board. (Refer to 2-8-1. SW-1580 Board)
15. Remove the PL camera adapter. (Refer to 2-2-10. Optical Block Assembly)

Procedure

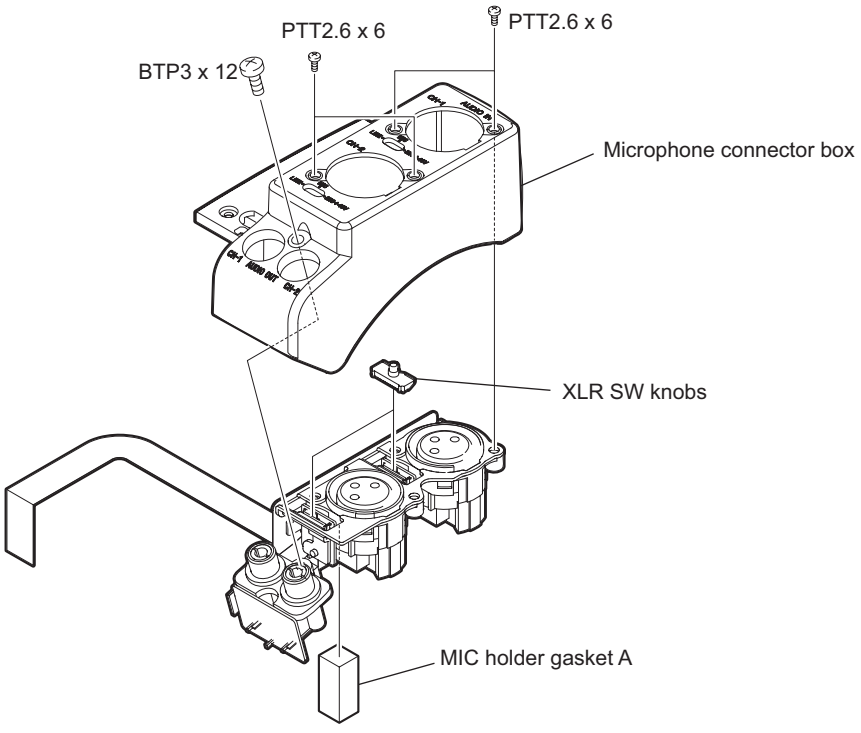
1. Remove the three screws to detach the microphone connector box.



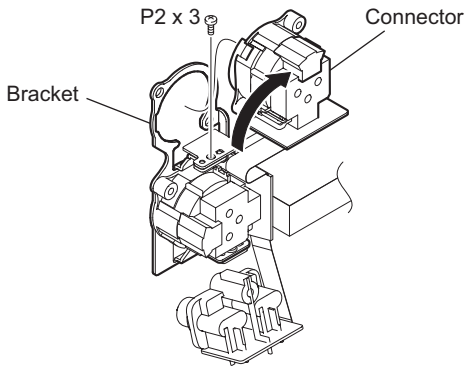
2. Insert the XLR tool into the hole in the XLR connector to detach the lever.
3. Detach the other lever in the same way.



4. Remove the MIC holder gasket A.
5. Remove a screw (BTP3 x 12).
6. Remove the four screws (PTT2.6 x 6) to detach the microphone connector box and two XLR SW knobs.



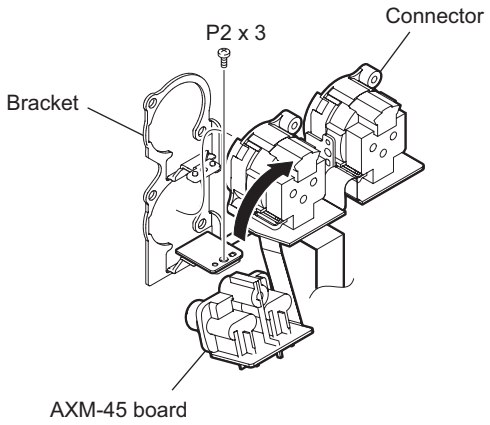
7. Remove the connector from the bracket, raise it in the arrow direction, and then remove the screw.



Note

When removing the AXM-45 board, be careful not to deform the bracket.

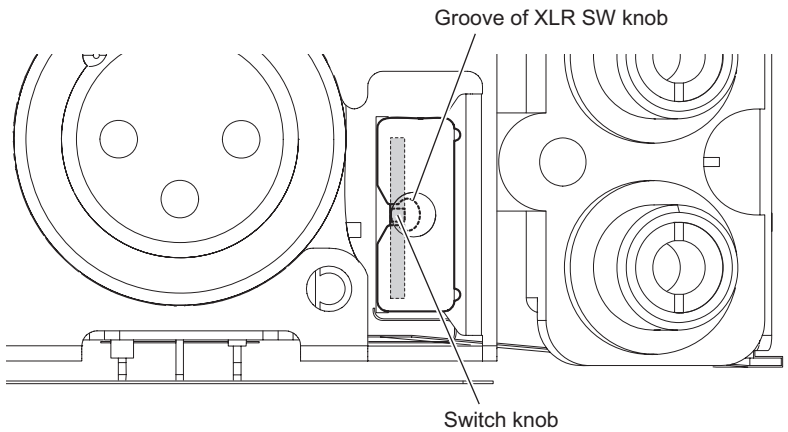
8. Remove the connector from the bracket and raise it in the arrow direction.
9. Remove the screw to detach the AXM-45 board.



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

Note

Check that the switch knob engages with the XLR SW knob.



Section 3
Service Menu

3-1. Outline of Service Menu

3-1-1. Service Menu Structure

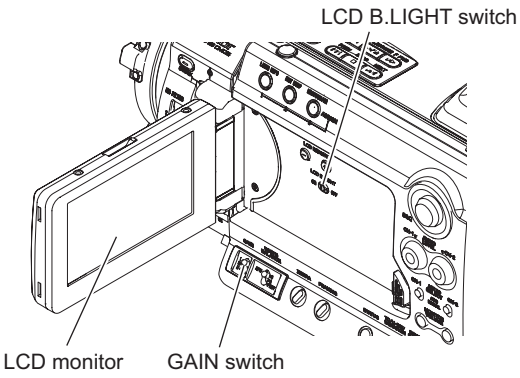
The Service menu consists of the seven ordinary Setup menus and the following three dedicated Service menus.

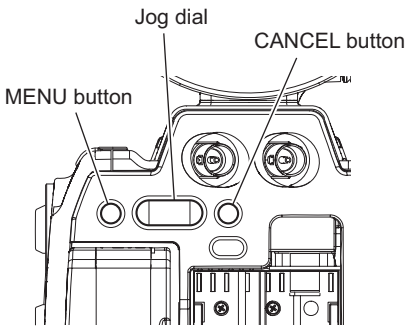
Menu name	Description
MAINTENANCE*4 (MAINTE.)	Adjustment of parameters
RPN CORRECT*4 (RPN CORR.)	Operations regarding the RPN correction
INFORMATION (INFO.)	Display of information on the PMW-F3 and self-diagnosis

3-1-2. Displaying the Service Menu

To display the Service menu, the following operations are needed.

1. Set the LCD B.LIGHT switch on the inside panel to “OFF” and close the LCD monitor.
2. Set the GAIN switch on the inside panel to “H”.
3. Press the CANCEL button, the MENU button, and the jog dial (SEL/SET dial) on the rear panel simultaneously.
4. Open the LCD monitor. The Service menu is displayed on the LCD monitor.
   - Pressing the MENU button again finishes displaying the Service menu.
   - Once the Service menu is displayed only by pressing the MENU button, it is continuously displayed instead of the ordinary Setup menu unless the power is turned off.

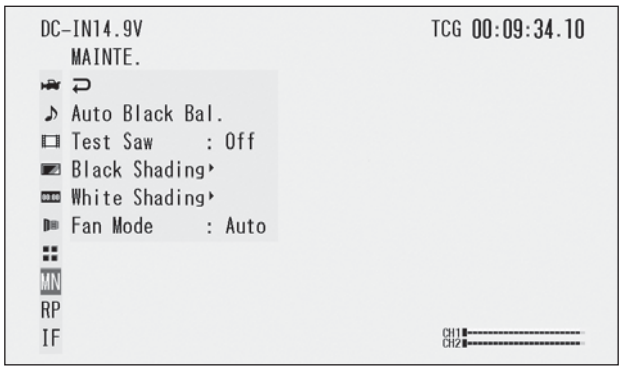




*4: The MAINTENANCE menu and the RPN CORRECT menu are available in the CAMERA mode.

3-2. Service Menu List

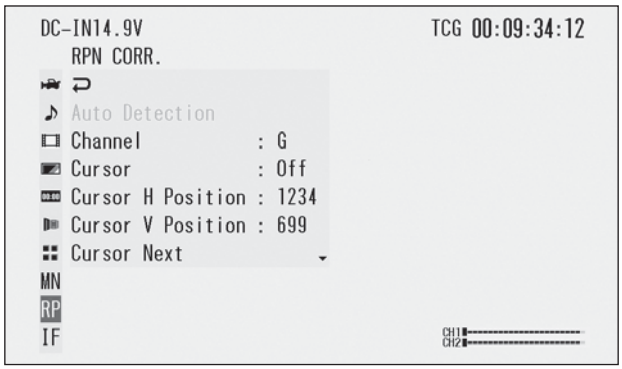
3-2-1. MAINTENANCE Menu



Menu	Submenu	Set value*5	Description
Auto Black Bal.	—	—	Starts the auto black balance adjustment.
Test Saw	—	On, [Off]	Turns on or off the Test Saw.
Black Shading	Setting	[On], Off	Turns on or off the black shading correction.
	Channel Sel	[G], B, R	Selects the channel to adjust the black shading. (The present set values of H Saw, H Para, V Saw, and V Para for the selected channel are displayed automatically.)
	H Saw	–99 to [±0] to +99	Adjusts the black shading H Saw correction level.
	H Para	–99 to [±0] to +99	Adjusts the black shading H Para correction level.
	V Saw	–99 to [±0] to +99	Adjusts the black shading V Saw correction level.
	V Para	–99 to [±0] to +99	Adjusts the black shading V Para correction level.
	Auto BLK Shad	—	Starts the auto black shading.
White Shading	Setting	[On], Off	Turns on or off the white shading correction.
	Channel Sel	[G], B, R	Select the channel to adjust the white shading. (The present set values of H Saw, H Para, V Saw, and V Para for the selected channel are displayed automatically.)
	H Saw	–99 to [±0] to +99	Adjusts the white shading H Saw correction level.
	H Para	–99 to [±0] to +99	Adjusts the white shading H Para correction level.
	V Saw	–99 to [±0] to +99	Adjusts the white shading V Saw correction level.
	V Para	–99 to [±0] to +99	Adjusts the white shading V Para correction level.
Fan Mode	—	[Auto], Fix	Sets the fan control mode. Auto: Controls the fan automatically by detecting internal temperature rise. Fix: Controls the fan at a constant voltage (8 V) for checking fan operation.

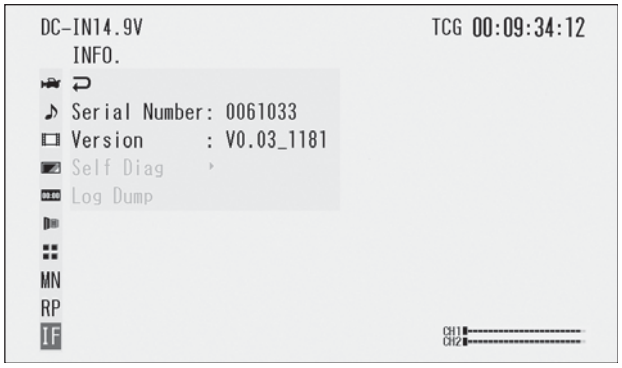
*5: Values in [ ] in the “Set value” column are factory settings.

3-2-2. RPN CORRECT Menu



Menu	Submenu	Set value[*6]	Description
Auto Detection	—	—	Starts automatic detection of RPN.
Channel	—	R, G, B (Display only)	Displays color components of pixels on the cursor.
Cursor	—	On, [Off]	Turns on or off the correction point indicator cursor.
Cursor H Position	—	1 to [1234] to 2468	Displays and moves the horizontal address of the correction point indicator cursor.
Cursor V Position	—	1 to [699] to 1398	Displays and moves the vertical address of the correction point indicator cursor.
Cursor Next	—	—	Moves the correction point indicator cursor to the next address.
Cursor Prev	—	—	Moves the correction point indicator cursor to the previous address.
Record	—	—	Registers the RPN.
Delete	—	—	Deletes the RPN.
Reset	—	—	Deletes all the RPN registered for correction after shipment from the factory.

3-2-3. INFORMATION Menu



Menu	Submenu	Set value[*7]	Description
Serial Number	—	(Display only)	Displays the serial number.
Version	—	(Display only)	Displays the software version.
Self Diag	Diag Type	[Type1], Type2	Selects the self-diagnostic type.
	Item1 to Item13	—	Executes self-diagnostic Item 1 to Item 13. **Note** Do not execute Item 12 and Item 13.

Continued

*6: Values in [ ] in the “Set value” column are factory settings.
*7: Values in [ ] in the “Set value” column are factory settings.

Menu	Submenu	Set value[*7]	Description
Log Dump	—	—	Stores the error log in writable media while it is active. When the Log Dump Done execution result is displayed, this menu is completed. **Notes** • Unless media is inserted, Log Dump cannot be executed. • Do not remove the media until a message “Log Dump Done” appears.

3-3. Self-Diagnosis

3-3-1. Self-Diagnostic Items

Self Diag of the INFORMATION menu enables the user to execute self-diagnosis of the unit. After self-diagnosis is executed, the result of self-diagnosis appears regardless of whether the result is good or bad. The following two types of self-diagnosis (Diag Type) are provided.

Diag Type	Description
Type 1 (Simple self-diagnosis)	Use this type to execute a simple version of self-diagnosis. This finishes in a short time.
Type 2 (Complete self-diagnosis)	This type executes all registered self-diagnostic items. Since this type involves a memory test and complicated device tests, it takes time to be completed.

The following table lists self-diagnostic items.

Item No.	Self-diagnostic item	Description
Item1	Image processor block	Diagnosis of lens, CMOS block, and camera block
Item2	Display block	Diagnosis of video signal system (LCD and baseband signal processing)
Item3	Media block	Diagnosis of media recording and playback system (encoder, decoder, memory card, i.LINK, and USB interface)
Item4	Audio block	Diagnosis of audio input/output system
Item5	System controller block	Diagnosis of system controller system
Item6	Power block	Diagnosis of power supply system
Item7	Interface between image processor block and display block	Diagnosis of the signal line from the camera signal processor IC to the baseband processing IC interface
Item8	Video interface between display block and media block during recording	Diagnosis of the video signal line (recording direction) from the baseband processing IC through the encoder IC to the AVIT signal processing IC
Item9	Video interface between display block and media block during playback	Diagnosis of the video signal line (playback direction) from the AVIT signal processing IC through the decoder IC to the baseband processing IC
Item10	Audio interface between display block and media block during recording	Diagnosis of the audio signal line (recording direction) from the baseband processing IC to the AVIT signal processing IC
Item11	Audio interface between display block and media block during playback	Diagnosis of the audio signal line (playback direction) from the AVIT signal processing IC to the baseband processing IC
Item12	**Note**	
Item13	Do not execute these items.	

3-3-2. Executing Self-Diagnosis

Preparation

The self-diagnosis can be executed only under the following conditions. When executing the self-diagnosis, change the conditions to the following conditions with the SHUTTER switch and the Setup menu.

Item	Menu	Submenu	Setting for self-diagnosis
SHUTTER switch	—	—	Off
CAMERA SET menu	Slow Shutter	Setting	Off
OTHERS menu	System	Country	NTSC Area
		Format	HQ 1920/59.94i

Self-diagnosis execution procedure

1. Select the type of self-diagnosis (Type 1 or Type 2) in Diag Type.
   Note
   Self-diagnostic items to be executed and the execution time vary depending on self-diagnosis method. For details, refer to Section 3-3-3 “Details of Self-Diagnosis.”

2. Select the item to be executed from Item1 to Item11.
   Note
   Do not execute Item12 and Item13.

3. Select “Execute” to execute the self-diagnosis.
4. Upon completion of the self-diagnosis, the result of the self-diagnosis appears.
   The self-diagnosis result consists of Diag ID (diagnostic item ID), Try, Success, and Result for the item. The result of the self-diagnosis for each item is displayed after execution.

Item	Description
Try	Shows the number of trials of the self-diagnosis.
Success	Shows the number of internal successes of the self-diagnosis.
Result	Shows the result of the self-diagnosis. A value of 0 indicates no problem. When a value other than 0 is displayed, check the details for each diagnostic item.

Pressing the CANCEL button or the jog dial with the self-diagnosis result displayed returns the display to the INFORMATION menu. To resume normal operation after the self-diagnosis is completed, turn off and on the power of the unit.

3-3-3. Details of Self-Diagnosis

This section describes details of diagnostic items included in Item1 to Item11. The values in the Error value column show error values as a result of the self-diagnosis. A value of 0 shows successful diagnosis.

Item1 (Image processor block diagnosis)

The image processor block diagnosis tests the following contents.
Type 1 takes about 10 seconds and Type 2 takes about three minutes. When an error is detected in an item, the hardware is probably abnormal.

Diag ID	Type	Diagnosis	Error value
0x07	Type 2	Lens drive check[*8]	-1: Lens operation error (iris, focus, zoom, camera shake correction, etc.)
0x08	Type 1, Type 2	RPN registration count check	-1: The maximum number of RPN exceeded
0x09	Type 1, Type 2	CMOS block data read/write test Video signal bus connection test between CMOS and camera signal processor IC	-1: CMOS read/write error or CMOS video signal bus error
0x0a	Type 1, Type 2	Camera signal processor IC communication test	-5: Camera signal processor IC read/write error
0x0c	Type 1, Type 2	Zoom seesaw connection check	-1: Zoom seesaw connection error
0x10	Type 1, Type 2	Communication test between camera microcomputer SUN (IC902) on the DCP-52 board and camera controller LUNA (IC1003) on the TX-139 board	-1: Communication error
0x11	Type 1, Type 2	Inspection of flash ROM (IC1002) and SDRAM (IC1001) on the TX-139 board	-1: Memory access error
0x12	Type 1, Type 2	FPGA2 ORPHE (IC200 on the TX-139 board) data read/write test	-1: Read/write error

Continued

*8: The SERVO/MANU switch of the lens must be set to “SERVO.” The zoom ring and the iris ring rotate automatically during execution of the diagnosis. Do not touch the rings during diagnosis. (The focus ring does not rotate.)

Diag ID	Type	Diagnosis	Error value
0x13	Type 1, Type 2	Camera processor ARTEMIS (IC500) data read/ write test	-1: Read/write error
0x14	Type 1, Type 2	FPGA 444COPRO (IC1200 on the TX-139 board) data read/write test	-1: Read/write error
0x15	Type 1, Type 2	Video signal connection test between FPGA1 THEIA (IC600) and camera processor RISE (IC200) on the DCP-52 board	-1: Connection error
0x16	Type 1, Type 2	Video signal connection test between FPGA1 THEIA (IC600) on the DCP-52 board and FPGA2 ORPHE (IC200) on the TX-139 board	-1: Connection error
0x17	Type 1, Type 2	Video signal connection test between FPGA2 ORPHE (IC200) and FPGA 444COPRO (IC1200) on the TX-139 board	-1: Connection error
0x18	Type 1, Type 2	Video signal connection test between CMOS block and FPGA1 THEIA (IC600) on the DCP-52 board	-1: Connection error
0x81	Type 1, Type 2	Dual Link output test *9	-1: Output error
0x82	Type 1, Type 2	Synchronous communication test of FPGA 444COPRO (IC1200) on the TX-139 board	-1: Communication error

Item2 (Display block diagnosis)

The display block diagnosis tests the following contents.

Diag ID	Type	Diagnosis	Error value
0x01	Type 1, Type 2	Communication signal line test of LCD	-1: Connection error
0x02	Type 1, Type 2	Communication signal line test of COPRO (SAD)	-1: Connection error

Item3 (Media block diagnosis)

The media block diagnosis tests the following contents. An error value of "-6" is displayed in some cases with any ID other than the following IDs, but this is not a problem.
Be sure to turn off the power after Item3 has been executed.

Diag ID	Type	Diagnosis	Error value
0x01	Type 2	DDR2 SDRAM read/write check*10	-1: Error
0x06	Type 1	USB device register read/write check	-1: Error
0x09	Type 1	i.Link register read/write check	-1: Error
0x0B	Type 1	USB host register read/write check	-1: Error
0x14	Type 1	PIFC POWSW	-1: Error
0x15	Type 1	SPA POWSW	-1: Error
0x12	Type 1	MPEG encoder/decoder IC data read/write check	-1: Error
0x20	Type 1	NOR-FlashROM data consistency check	-1: Error
0x23	Type 1	Slot A LED blink check	-1: Error
0x24	Type 1	Slot B LED blink check	-1: Error

Item4 (Audio block diagnosis)

The audio block diagnosis tests the following content. When an error is detected, the hardware is probably abnormal.

Diag ID	Type	Diagnosis	Error value
0x02	Type 1, Type 2	Memory area check for audio block	-1: Memory read/write comparison error

*9: The submenu Dual-Link & Gamma Select of the VIDEO SET menu must be set to "1.5G YPbPr422 & Video."
*10: This check takes long time.

Item5 (System controller block diagnosis)

The system controller block diagnosis tests the following contents.

Diag ID	Type	Diagnosis	Error value
0x01	Type 1, Type 2	IIC communication test (clock IC)*11	-1: Error
0x02	Type 1, Type 2	IIC communication test (EEPROM)*11	-1: Error
0x03	Type 1, Type 2	IIC communication test (power supply microcomputer)	-1: Error
0x04	Type 1, Type 2	IIC communication test (sub-microcomputer of the inside panel)*11	-1: Error
0x05	Type 1, Type 2	IIC communication test (sub-microcomputer of the handle)*11	-1: Error
0x06	Type 1, Type 2	IIC communication test (sub-microcomputer of the rear panel)*11	-1: Error
0x07	Type 1, Type 2	IIC communication test (sub-microcomputer of the outside panel)*11	-1: Error
0x08	Type 1, Type 2	IIC communication test (sub-microcomputer of the viewfinder)*11	-1: Error
0x09	Type 1, Type 2	IIC communication test (I/O expander)*11	-1: Error
0x0a	Type 1, Type 2	Version matching test (power supply microcomputer)*12	-1: Error
0x1b	Type 1, Type 2	Version matching test (sub-microcomputer of the inside panel)*12	-1: Error
0x1c	Type 1, Type 2	Version matching test (sub-microcomputer of the handle)*12	-1: Error
0x1d	Type 1, Type 2	Version matching test (sub-microcomputer of the rear panel)*12	-1: Error
0x0e	Type 1, Type 2	Version matching test (sub-microcomputer of the outside panel)*12	-1: Error
0x0f	Type 1, Type 2	Version matching test (sub-microcomputer of the viewfinder)*12	-1: Error

Item6 (Power block diagnosis)

The power block diagnosis tests the following contents.

Diag ID	Type	Diagnosis	Error value
0x01	Type 1, Type 2	Power switch read (The power switch must be set to CAMERA.)	-1: The power switch cannot be read. -4: Diagnosis is disabled because the power switch is not set to CAMERA.
0x02	Type 1, Type 2	Battery recognition (An appropriate battery must be connected.)	-1: Communication with battery is disabled. -4: Diagnosis is disabled because no battery is connected.
0x03	Type 1, Type 2	Power supply state (The power switch must be set to CAMERA.)	-1: Power supply is not controlled correctly. -4: Diagnosis is disabled because the power switch is not set to CAMERA.

*11: When an error is detected in the IIC communication test, the communication line or related devices may be defective.
*12: When an error is detected in the version matching test, perform version upgrade again. Contact your local Sony Sales Office/Service Center for information on versions.

Item7 (Diagnosis between image processor and display block)

Diagnosis between the image processor and the display block tests the following content. When an error is detected, the signal line between ICs or an IC is probably abnormal.

Diag ID	Type	Diagnosis	Error value
0x80	Type 1, Type 2	Video signal line test between the camera signal processor IC and the baseband processing IC (Monitor output images will be distorted during the test.)	-1: Test pattern check error

Item8 to Item11 (Diagnosis between display block and media block)

Diagnosis between the display block and the media block tests the following contents. When an error is detected, the signal line between ICs or an IC is probably abnormal.

Item No.	Diag ID	Type	Diagnosis	Error value
8	0x90	Type 1, Type 2	Video signal line communication test in recording direction (from the baseband processing IC to the AVIT signal processing IC)	-1: Test pattern check error -2: Sequence error
9	0x91	Type 1, Type 2	Video signal line communication test in playback direction (from AVIT signal processing IC to the baseband processing IC)	-1: Test pattern check error -2: Sequence error
10	0x92	Type 1, Type 2	LPCM signal line communication test in recording direction (from the baseband processing IC to the AVIT signal processing IC)	-1: Test pattern check error -2: Sequence error
11	0x93	Type 1, Type 2	LPCM signal line communication test in playback direction (from AVIT signal processing IC to the baseband processing IC)	-1: Test pattern check error -2: Sequence error

3-4. Error Codes

When warning, caution, or checking of operation is needed, the unit indicates a message on the LCD monitor and the viewfinder, blinks the TALLY LED, and beeps a warning.
When an error is detected, the error code is displayed on the LCD monitor and the viewfinder and operation is stopped. Error codes are displayed as E-xxxxx (x: number).

Error code	Description	Service action
E-15030	System error	Repair the DPR-334 board or replace it.
E-17001	The media ID data in the EEPROM is abnormal.	Rewrite the media ID data in the EEPROM using ServiceNavi-EX.
E-17002	The image processor block does not start.	Repair the DCP-52 board or replace it.
E-17003	The display block does not start.	Repair the DPR-334 board or replace it.
E-17004	The media block does not start.	Repair the DCP-52 board or replace it.
E-17005	The image processor block startup processing is abnormal.	Repair the DCP-52 board or replace it.
E-17006	The display block startup processing is abnormal.	Repair the DPR-334 board or replace it.
E-17007	The media block startup processing is abnormal.	Repair the DCP-52 board or replace it.
E-17014	The lens communication is abnormal.	Check the connection with the lens unit. When there is no problem with the connection, replace the lens unit.
E-17015	The media block is abnormal.	Repair the DCP-52 board or replace it.
E-17016	The lens switch status cannot be acquired.	Check the connection with the lens unit. When there is no problem with the connection, replace the lens unit.
E-17017 E-4xxxx	Media block internal error	Repair the DCP-52 board or replace it.

If two or more errors occur simultaneously

The highest-priority error is displayed.
When an error with a higher priority has been cleared, the one with the next priority is displayed.

Section 4
Electrical Alignment

4-1. Preparation

4-1-1. Notes on Adjustments

- The servicing software “ServiceNavi-EX” is required for electrical adjustments and self-diagnosis. For how to obtain the ServiceNavi-EX, contact your local Sony Sales Office/Service Center.
- When adjusting the PMW-F3, use an AC adapter or a fully-charged battery pack.
- When disconnecting the AC adapter or the battery pack after adjustment, turn off the power switch and wait for at least 10 seconds.

4-1-2. Service Tools and Equipment

Measuring Equipment

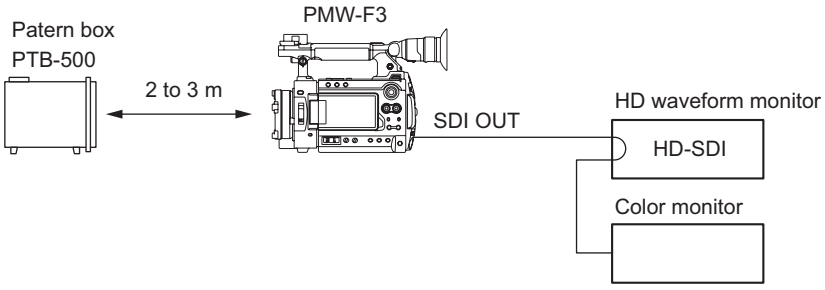
Equipment	Model name
HD waveform monitor	LEADER ELECTRONICS CORP. LV5152DA
Color monitor	Sony HDM-20E1J/14E1J/14E5J
Luminance meter	Konica Minolta LS-110

Tools

Tool	Part No.
Grayscale chart (reflective type) (16:9)	Commercially available
Star chart (reflective type)	Commercially available
Grayscale chart (transparent type) (16:9)	J-6394-080-A
Pattern box PTB-500	J-6029-140-B
Single-focus lens 85 mm (Sony standard)	1-856-221-11

4-1-3. Connection

Connect an HD waveform monitor to the SDI OUT connector of the unit.



4-2. MAINTENANCE Menu

The MAINTENANCE menu enables adjustment of parameters that are unique to each unit for correction of non-uniformity of image pickup devices and lenses.

4-2-1. Test Saw Setting

- The Test Saw setting enables the operator to select the Test Saw signal instead of the imager output signal when recording or outputting images in the CAMERA mode.

4-2-2. Executing Auto Black Balance

- Executing the Auto Black Balance triggers the auto black balance adjustment (automatic black level adjustment).
- When the Auto Black Balance menu is selected, the Execute and Cancel choices appear. In addition, selecting Execute starts Auto Black Balance.
- When the Auto Black Balance is executed, the automatic RPN detection is executed simultaneously.

Note

Auto Black Balance cannot be executed from the Service menu under the following settings.

- When Video Format other than HQ 1080/60i or HQ 1080/50i is selected
- When the electronic shutter is operating in the SLS mode
- When EX Slow Shutter is set to ON

Change the settings to execute Auto Black Balance.

4-2-3. Black Shading Adjustment

The Black Shading menu enables adjustments of the H Saw correction level, V Saw correction level, and parabola correction level of the black shading correction function.

Note

All the Black Shading correction values have been set to ±0 since the unit was shipped from the factory. When the Black Shading correction is executed, it results in height difference of black level at the boundary areas between the corrected areas. Do not change the Black Shading correction values from ±0 unless it is necessary.

1. Setting

It can be set to enable or disable the Black Shading correction function. This function is enabled automatically after the power is turned on.

2. Channel Select

- The Channel Select menu enables selection of a channel (G-ch or B-ch or R-ch) to perform the H Saw, H Para, V Saw, and V Para black shading adjustments.
- When the setting of channel is changed, the display of the H Saw, H Para, V Saw, and V Para set values in Channel Select is changed to the current set values of the channel selected by the Channel Select menu. The H Saw, H Para, V Saw, and V Para set values are updated.

Item	Description
H Saw	The H Saw menu enables adjustment of the correction level of the horizontal black shading Saw (linear increase and decrease).
H Para	The H Para menu enables adjustment of the correction level of the horizontal black shading parabola correction (black level correction at the horizontal center with respect to both ends).
V Saw	The V Saw menu enables adjustment of the correction level of the vertical black shading Saw (linear increase and decrease).
V Para	The V Para menu enables adjustment of the correction level of the vertical black shading parabola correction (black level correction at the vertical center with respect to both ends).

3. Auto BLK Shad

- The Auto Black Shad menu enables the auto black shading correction (automatic optimization of the black shading correction values).

- When the Auto BLK Shad menu is selected, the Execute and Cancel choices appear. In addition, selecting Execute starts Auto Black Shading.

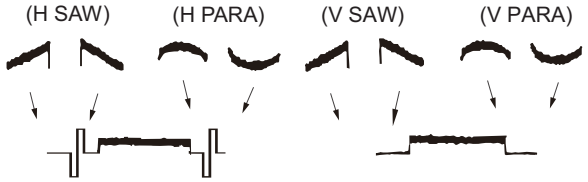
Black shading adjustment method

Preparation

- Connect the HD waveform monitor to the SDI OUT connector.
- Set the HD waveform monitor to the RGB mode.
- Set the lens iris to CLOSE.

Adjustment Procedure

1. Adjust the gain and the black level so that waveforms can be viewed best.
2. Adjust H Saw, H Para, V Saw, and V Para for each of G-channel, B-channel, and R-channel until the waveform on the waveform monitor becomes flat.



4-2-4. White Shading Adjustment

The White Shading menu enables adjustments of the H Saw correction level, V Saw correction level, and parabola correction level of the white shading correction function.

Notes

- Proper White Shading adjustment cannot be obtained if pattern non-uniformity, brightness, lens iris, and zoom conditions are not correct.
- Use a full-white pattern having uniform brightness for the White Shading adjustment.
- If a full-white pattern having uniform brightness is not available, do not perform the G-channel White Shading adjustment, but perform adjustment in the way of matching the R-channel waveform and the B-channel waveform with the G-channel waveform.

1. Setting

It can be set to enable or disable the White Shading correction function. This function is enabled automatically after the power is turned on.

2. Channel Select

- The Channel Select menu enables selection of a channel (G-ch or B-ch or R-ch) to perform the H Saw, H Para, V Saw, and V Para white shading adjustments.
- When the setting of channel is changed, the display of the H Saw, H Para, V Saw, and V Para set values in Channel Select is changed to the current set values of the channel selected by the Channel Select menu. When the set values of H Saw, H Para, V Saw, and V Para are changed, the set values of the channel selected by the Channel Select menu are updated.

Item	Description
H Saw	The H Saw menu enables adjustment of the correction level of the horizontal white shading Saw (linear increase and decrease).
H Para	The H Para menu enables adjustment of the correction level of the horizontal white shading parabola correction (white level correction at the horizontal center with respect to both ends).
V Saw	The V Saw menu enables adjustment of the correction level of the vertical white shading Saw (linear increase and decrease).
V Para	The V Para menu enables adjustment of the correction level of the white black shading parabola correction (white level correction at the vertical center with respect to both ends).

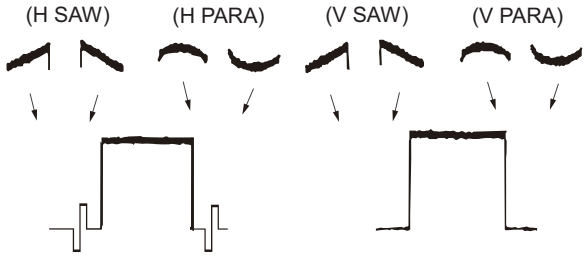
White shading adjustment method

Preparation

- Connect the HD waveform monitor to the SDI OUT connector.
- Set the HD waveform monitor to the RGB mode.
- Set the focus to ∞
- Shoot a full-white pattern over the entire frame of the monitor screen.

Adjustment Procedure

1. Adjust the lens iris until the white level becomes approximately 80%.
   If the lens iris value is larger than F5.6, adjust the incoming light intensity using the electronic shutter so that the lens iris value decreases to F5.6 or less.
2. Adjust H Saw, H Para, V Saw, and V Para for each of G-channel, B-channel, and R-channel until the waveform on the waveform monitor becomes flat.



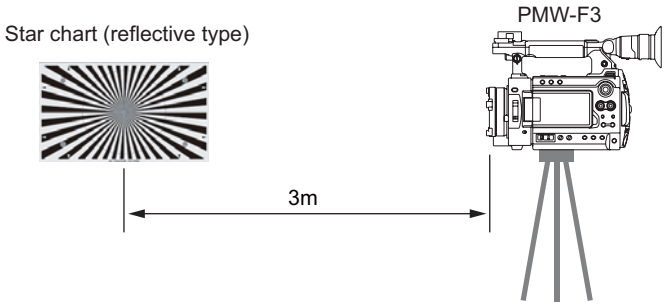
4-2-5. Executing Auto FB Adjust

- The Auto FB Adjust menu enables automatic adjustment of lens flange back.
- When Auto FB Adjust is executed, auto-focusing is made at the WIDE end and the TELE end of lens zoom. This allows a lens to remain in focus even though the zoom position is changed after focus adjustment. The result of Auto FB Adjust is saved.
- When the Auto FB Adjust menu is selected, the Execute and Cancel choices appear. In addition, selecting Execute starts automatic adjustment of flange back.

Flange back adjustment method

Preparation

- Upgrade the firmware to the latest version. (Refer to “1-5. Firmware Upgrade”.)
- Prepare a star chart (reflective type) and set the PMW-F3 at a distance of 3 meters from the star chart.

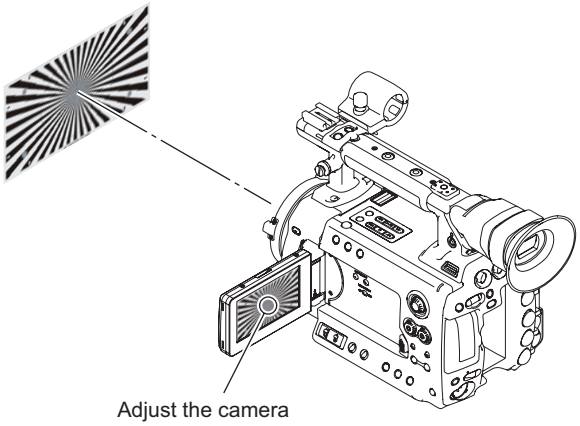


- Set the camera as follows.

Item	Setting
ND FILTER	OFF (Clear)
SHUTTER SW	ON
GAIN	L (0 dB)
WHITE BAL	B (ATW)
FULL AUTO	OFF

Adjustment Procedure

1. Set the video format by selecting the menus as follows.
   [OTHERS] → [Video Format] → [HQ 1080/60i] or [HQ 1080/50i]
2. Set the lens iris to OPEN, and set the shutter speed as follows according to the adjustment environment.
   Select menus in order: [CAMERA SET] → [Shutter] → [Mode] → [Speed]. Then select menus in order: [CAMERA SET] → [Shutter] → [Speed] and select an appropriate shutter speed.
3. Set the zoom to TELE end and adjust the camera position so that the center of the chart nearly matches the screen center.



4. Select Auto FB Adjust from the MAINTENANCE menu and execute it.
5. After the automatic flange back adjustment is completed, restart the camera.

Check after Adjustment

1. Set the lens iris to OPEN, set the zoom to TELE end, and adjust the focus.
2. Move the zoom to WIDE end, and check that the lens stays in focus throughout the travel between TELE end to WIDE end.

4-3. RPN CORRECT Menu

The RPN CORRECT menu enables various operations such as manual registration, manual deletion, and automatic detection of RPN point to be corrected.

4-3-1. Executing Auto Detection

- The Auto Detection menu enables automatic detection of RPN point.
- When the Auto Detection menu is selected, the Execute and Cancel choices appear. In addition, selecting Execute starts RPN Auto Detection.
- The RPN point detected by Auto Detection is added to the RPN correction point.

Note

Auto Detection cannot be executed under the following settings.

- When Video Format other than HQ 1080/60i or HQ 1080/50i is selected
- When the electronic shutter is operating in the SLS mode
- When EX Slow Shutter is set to ON

Change the settings to execute Auto Detection.

4-3-2. Displaying Channel

- The Channel menu enables displaying color components of pixels on the cursor.
- When the RPN correction point is moved to an already-registered correction point by the Cursor Next or Cursor Prev operation, the channel of the registered correction point is displayed automatically.

4-3-3. Cursor Setting

- The Cursor menu enables the crosshair cursor indicating the RPN correction point to be displayed or hidden when registering RPN manually.
- When Cursor is set to On, the crosshair cursor indicating the RPN correction point is displayed superimposed on the video signal.
- The signal of the pixel located at the center of the crosshair cursor is replaced with black.
- Cursor is always set to Off when the power is turned on.

4-3-4. Cursor H Position Setting

- The Cursor H Position menu enables the user to change the horizontal position of the RPN correction point within the effective video signal range in the manual registration of the RPN point.
- When the RPN correction point is moved to an already-registered correction point by the Cursor Next or Cursor Prev operation, the display automatically switches to the numeric value of the horizontal position of the RPN point.

4-3-5. Cursor V Position Setting

- The Cursor V Position menu enables the user to change the vertical position of the RPN correction point within the effective video signal range in the manual registration of the RPN point.
- When the RPN correction point is moved to an already-registered correction point by the Cursor Next or Cursor Prev operation, the display automatically switches to the numeric value of the vertical position of the RPN point.

4-3-6. Operating Cursor Next

- The Cursor Next menu enables the user to move the RPN cursor position to the next already-registered RPN correction point after the present position in the ascending order of the addresses during the manual registration of RPN.
  (If multiple RPN positions have the same address in the ascending order of the Cursor V Position, the RPN cursor can move to the RPN position in the ascending order of the Cursor H Position.)

4-3-7. Operating Cursor Prev

- The Cursor Prev menu enables the user to move the RPN cursor position to the next already-registered RPN correction point after the present position in the descending order of the addresses during the

manual registration of RPN.
(If multiple RPN positions have the same address in the descending order of the Cursor V Position, the RPN cursor can move to the RPN position in the descending order of the Cursor H Position.)

4-3-8. Executing Record

- The Record menu enables manual registration of RPN.
- When the Record menu is selected, the Execute and Cancel choices appear. In addition, selecting Execute starts registration of RPN.

4-3-9. Executing Delete

- The Delete menu enables manual deletion of RPN.
- When the Delete menu is executed, the RPN registration of a pixel at an address specified by the Cursor H Position and Cursor V Position is deleted from the RPN data.
- When the Delete menu is selected, the Execute and Cancel choices appear. In addition, selecting Execute starts deletion of RPN.

4-3-10. Executing Reset

- The Reset menu enables the user to delete the RPN correction point data registered by Auto Detection and Auto Black Balance after the unit was shipped from the factory.
- The RPN data registered at the factory and the RPN data registered manually cannot be deleted by Reset.
- When the Reset menu is selected, the Execute and Cancel choices appear. In addition, selecting Execute starts reset of RPN.

RPN manual registration procedure

1. Set Video Format to HQ 1080/60i.
2. Set the lens iris to CLOSE.
3. Adjust the gain and the black level so that the RPN position can be viewed best.
4. Set Cursor to On.
5. Move the crosshair cursor to the RPN to be registered by using Cursor H Position and Cursor V Position.
   When the crosshair cursor comes on top of the RPN, the RPN becomes invisible.
6. Execute the Record menu.
   When the Record menu is attempted, if the RPN registration of a pixel fails at a specific address due to a problem with the small interval between the current and previous registered RPN spots, a message “NG : Adjacent Pixel” appears.

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

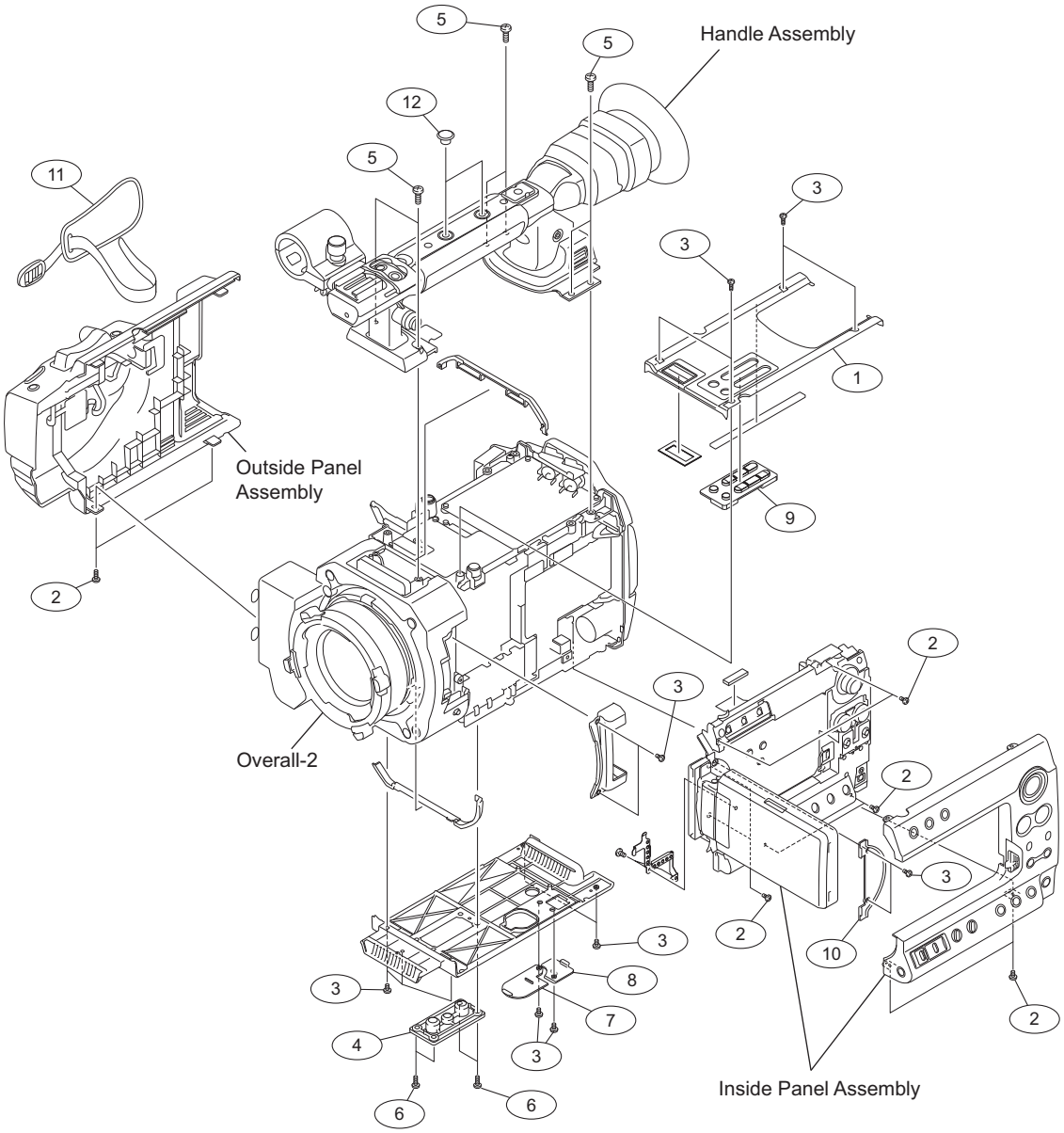
部品表の SP（Supply code）欄に “o” で示される部品は在庫していないことがあり，納期が長くなることがあります。

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。

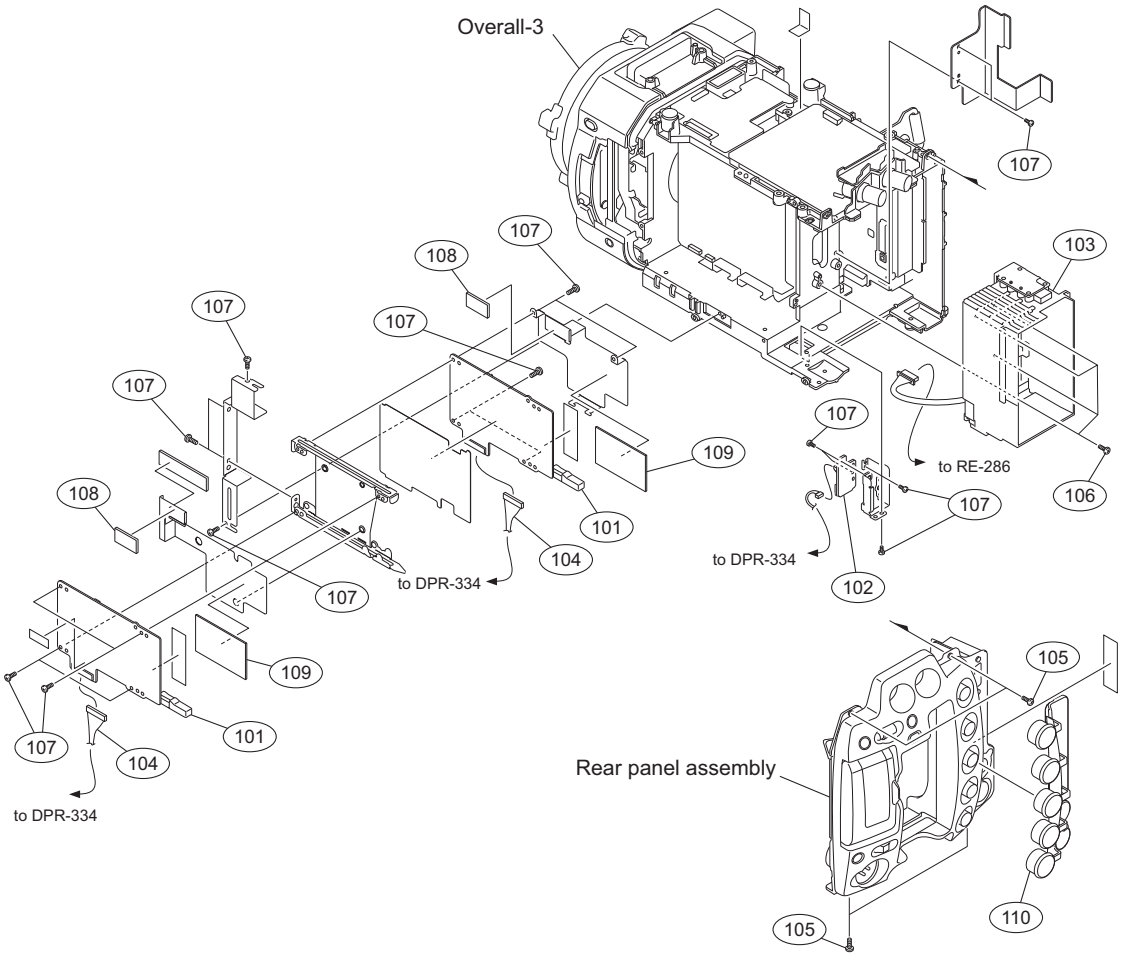
5-2. Exploded Views

Overall-1



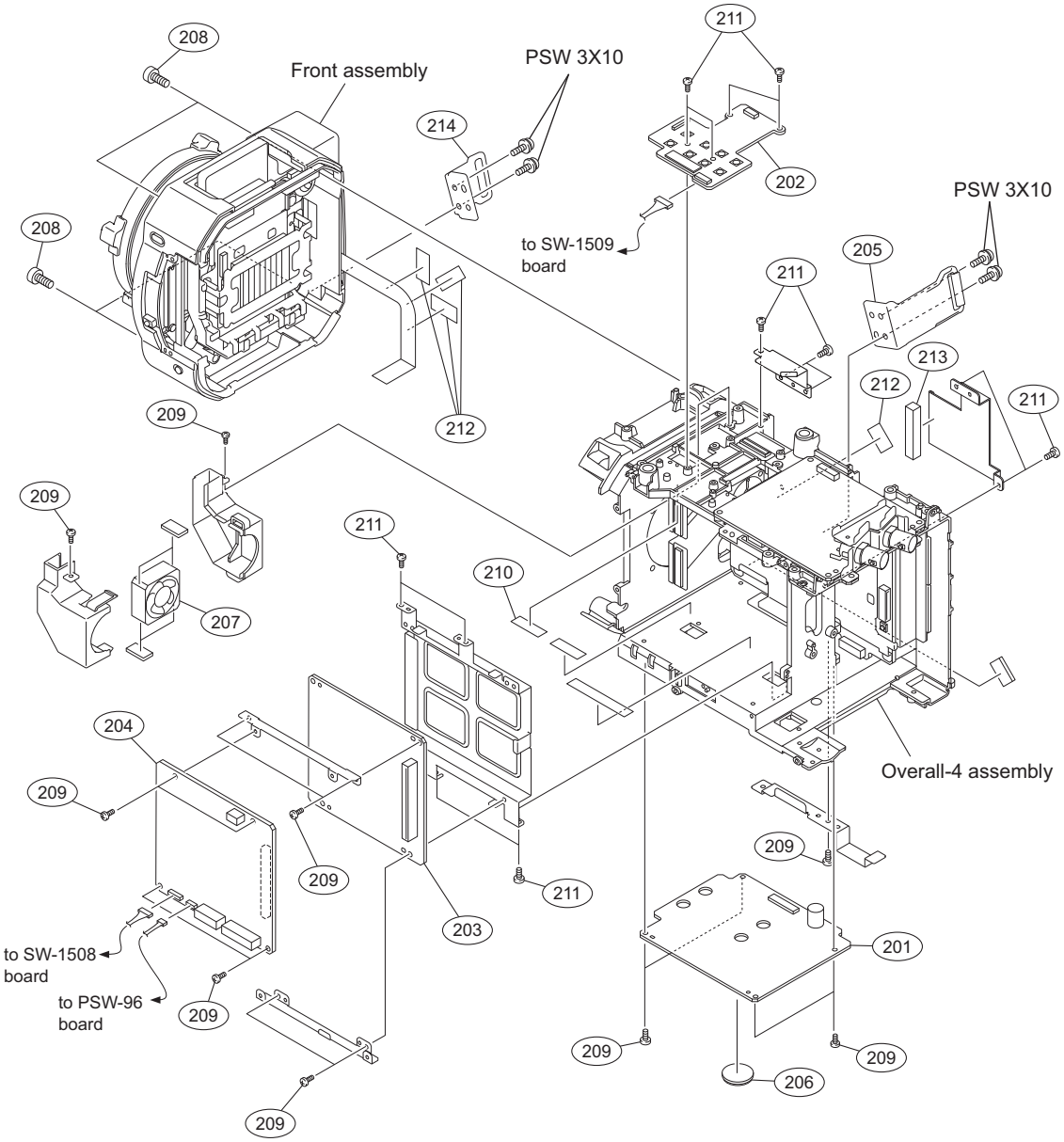
No.	Part No.	SP	Description
1	X-2580-849-1	s	SUB ASSY, TOP PANEL
2	3-056-233-21	s	SCREW (M2), LOCK ACE, P2
3	3-080-203-31	s	SREW (M2), LOCK ACE,P2
4	3-288-392-01	s	WASHER (D), TRIPOD
5	3-364-990-12	s	SCREW (M3X8)
6	4-183-321-01	s	M2.6 (ECOLOGY), LOCK
7	4-275-218-01	s	COVER, LITHIUM BATTERY
8	4-275-220-01	s	USB CN COVER
9	4-275-228-02	s	SW KEY, RUBBER
10	4-275-238-01	s	COVER, PANEL
11	4-275-256-01	s	BELT, GRIP
12	4-275-257-01	s	TOP CAP

Overall-2



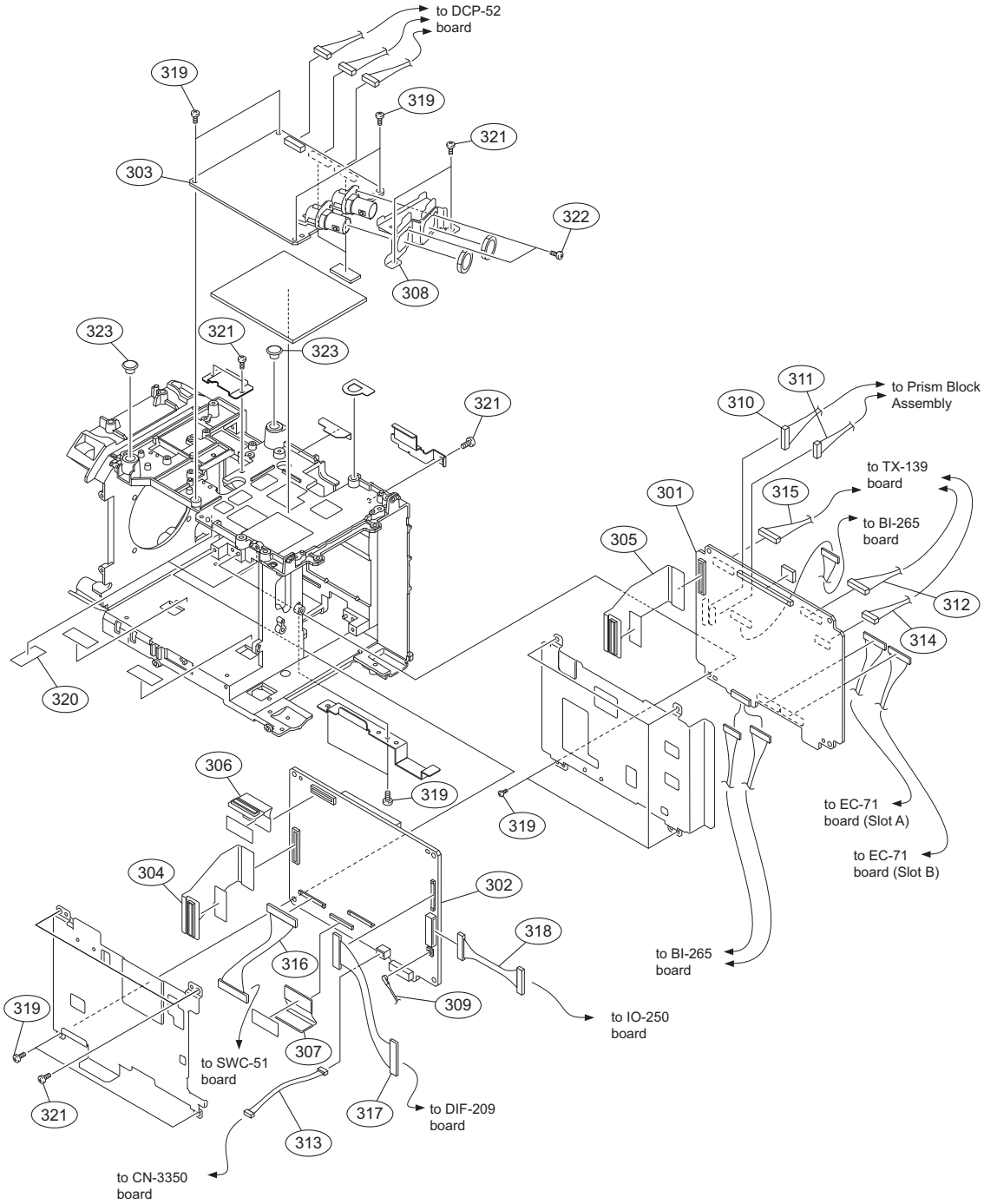
No.	Part No.	SP	Description
101	A-1799-070-A	s	MOUNTED CIRCUIT BOARD, EC-71
102	A-1799-073-A	s	MOUNTED CIRCUIT BOARD, CN-3350
103	A-1814-748-A	s	BATTERY CASE ASSY
104	1-967-684-11	s	HARNESS (EC_A)
105	3-056-233-21	s	SCREW (M2), LOCK ACE, P2
106	3-080-203-31	s	SREW (M2), LOCK ACE,P2
107	3-968-729-51	s	SCREW (M2), LOCK ACE, P2
108	4-164-628-01	s	SHEET RADIATION 1.5 D
109	4-164-656-01	s	SHEET RADIATION 1 A
110	4-275-245-02	s	IO COVER

Overall-3



No.	Part No.	SP	Description
201	A-1799-072-A	s	MOUNTED CIRCUIT BOARD, AU-337
202	A-1799-083-A	s	MOUNTED CIRCUIT BOARD, KSW-58
203	A-1803-288-A	s	MOUNTED CIRCUIT BOARD, RE-285
204	A-1803-289-A	s	MOUNTED CIRCUIT BOARD, RE-286
205	X-2580-850-1	s	BRACKET A ASSY, BELT
206	1-528-174-33	s	BATTERY, LITHIUM (CR2032 TYPE)
207	1-855-061-11	s	FAN, DC (25 SQUARE)
208	2-623-773-21	s	BOLT (M3X10), STAINLESS
209	3-056-233-21	s	SCREW (M2), LOCK ACE, P2
210	3-079-115- 01	s	TAPE AS
211	3-968-729-52	s	SCREW (M2), LOCK ACE, P2
212	3-878-890-02	s	TAPE (SWC48)
213	4-129-038-01	s	FOAM (MOF), SHIELD
214	4-275-212-01	s	BRACKET, BELT B
	7-682-949-01	s	SCREW +PSW 3X10

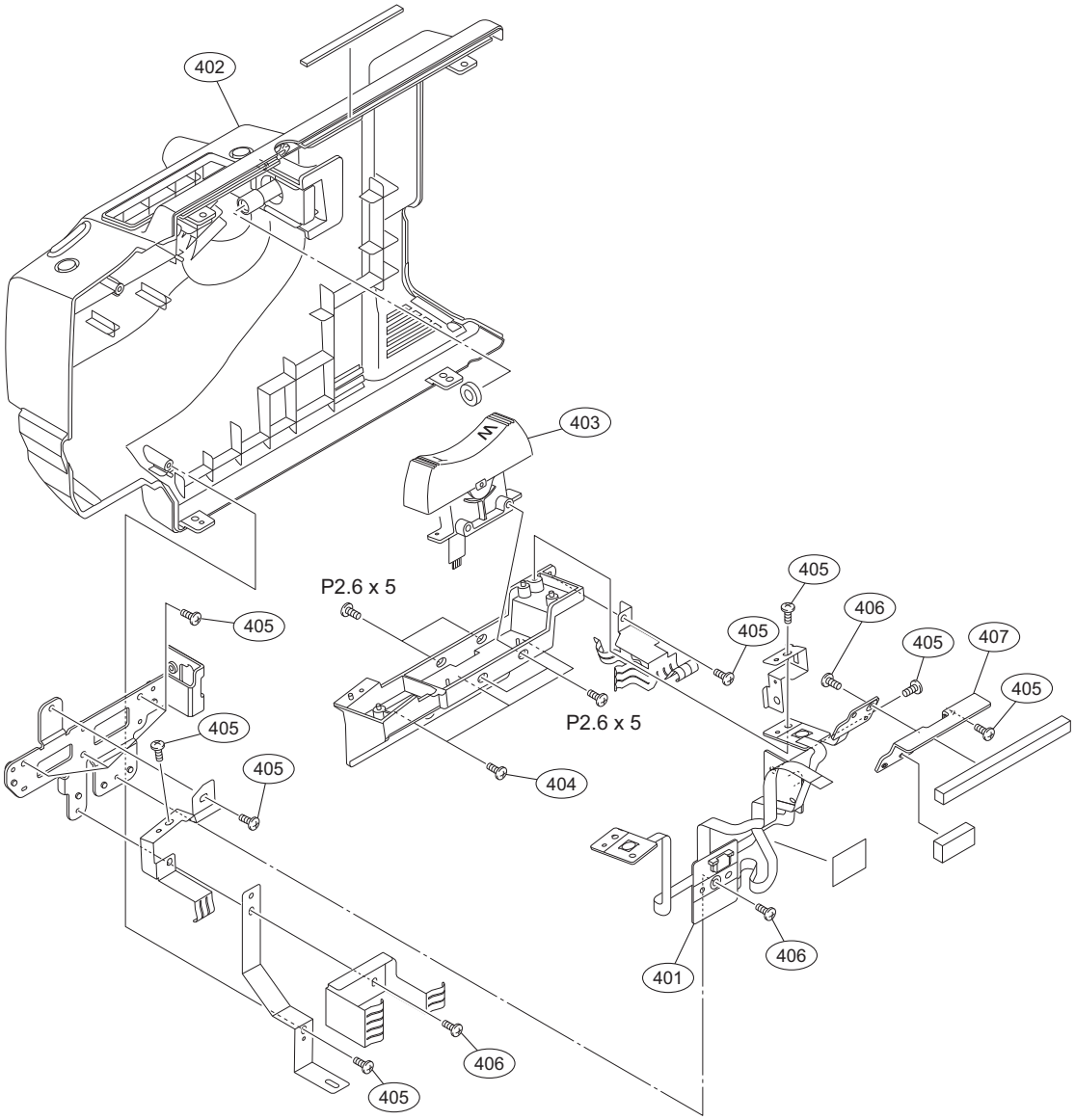
Overall-4



No.	Part No.	SP	Description
301	A-1829-731-A	s	MOUNTED CIRCUIT BOARD, DCP-52 (RP)
302	A-1829-732-A	s	MOUNTED CIRCUIT BOARD, DPR-334 (RP)
303	A-1829-733-A	s	MOUNTED CIRCUIT BOARD, TX-139 (RP)
304	A-1799-075-A	s	MOUNTED CIRCUIT BOARD, HN-370
305	A-1799-076-A	s	MOUNTED CIRCUIT BOARD, HN-371
306	A-1799-077-A	s	MOUNTED CIRCUIT BOARD, HN-373
307	A-1799-085-A	s	MOUNTED CIRCUIT BOARD, HN-374
308	X-2580-847-1	s	BNC BRACKET ASSY
309	1-838-667-11	s	CABLE ASSEMBLY, COAXIAL
310	1-967-675-11	s	HARNESS, SUB (LENS)

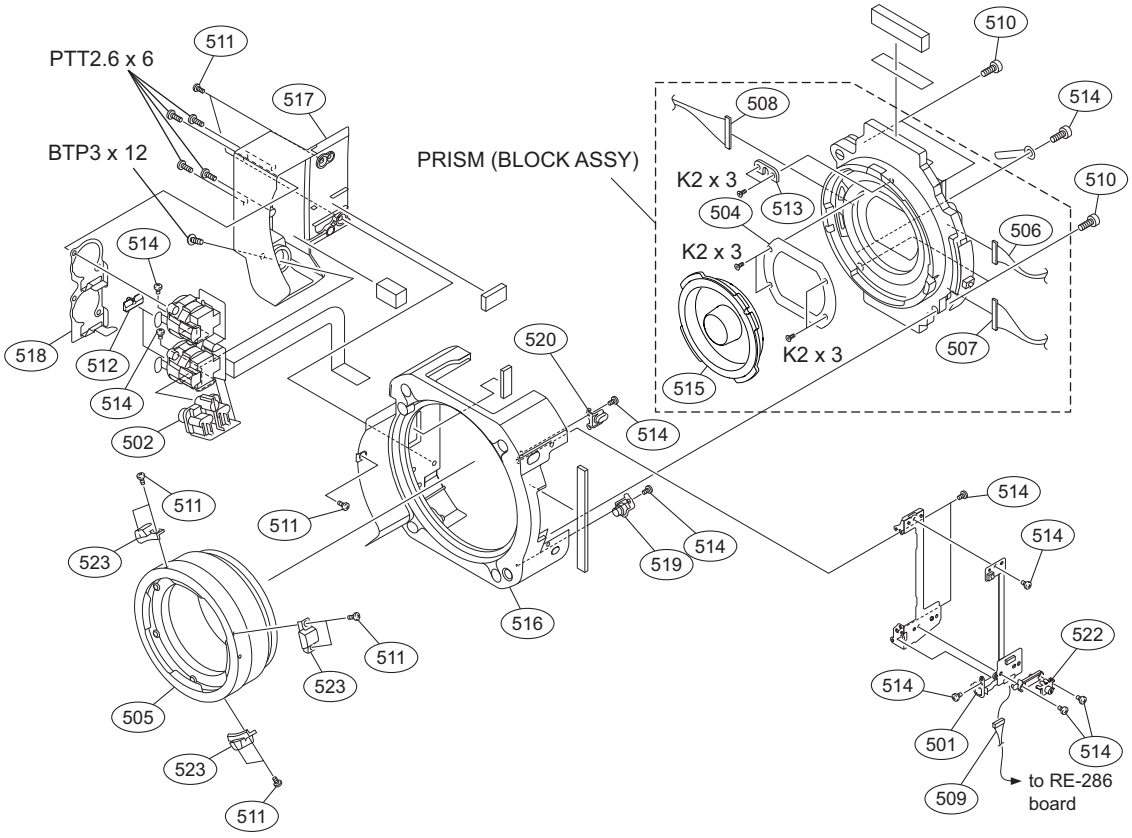
No.	Part No.	SP	Description
311	1-967-676-11	s	HARNESS, SUB (SE)
312	1-967-677-11	s	HARNESS, SUB (TX)
313	1-967-678-11	s	HARNESS, SUB (USB)
314	1-967-680-11	s	HARNESS (DCP-TX1)
315	1-967-681-11	s	HARNESS (DCP-TX2)
316	1-967-682-11	s	HARNESS (LCD)
317	1-967-683-11	s	HARNESS (HDMI)
318	1-967-686-11	s	HARNESS, SUB (IO)
319	3-056-233-21	s	SCREW (M2), LOCK ACE, P2
320	3-079-115-01	s	TAPE AS
321	3-968-729-52	s	SCREW (M2), LOCK ACE, P2
322	4-183-321-01	s	M2.6 (ECOLOGY), LOCK
323	4-275-257-01	s	TOP CAP

Outside panel assembly



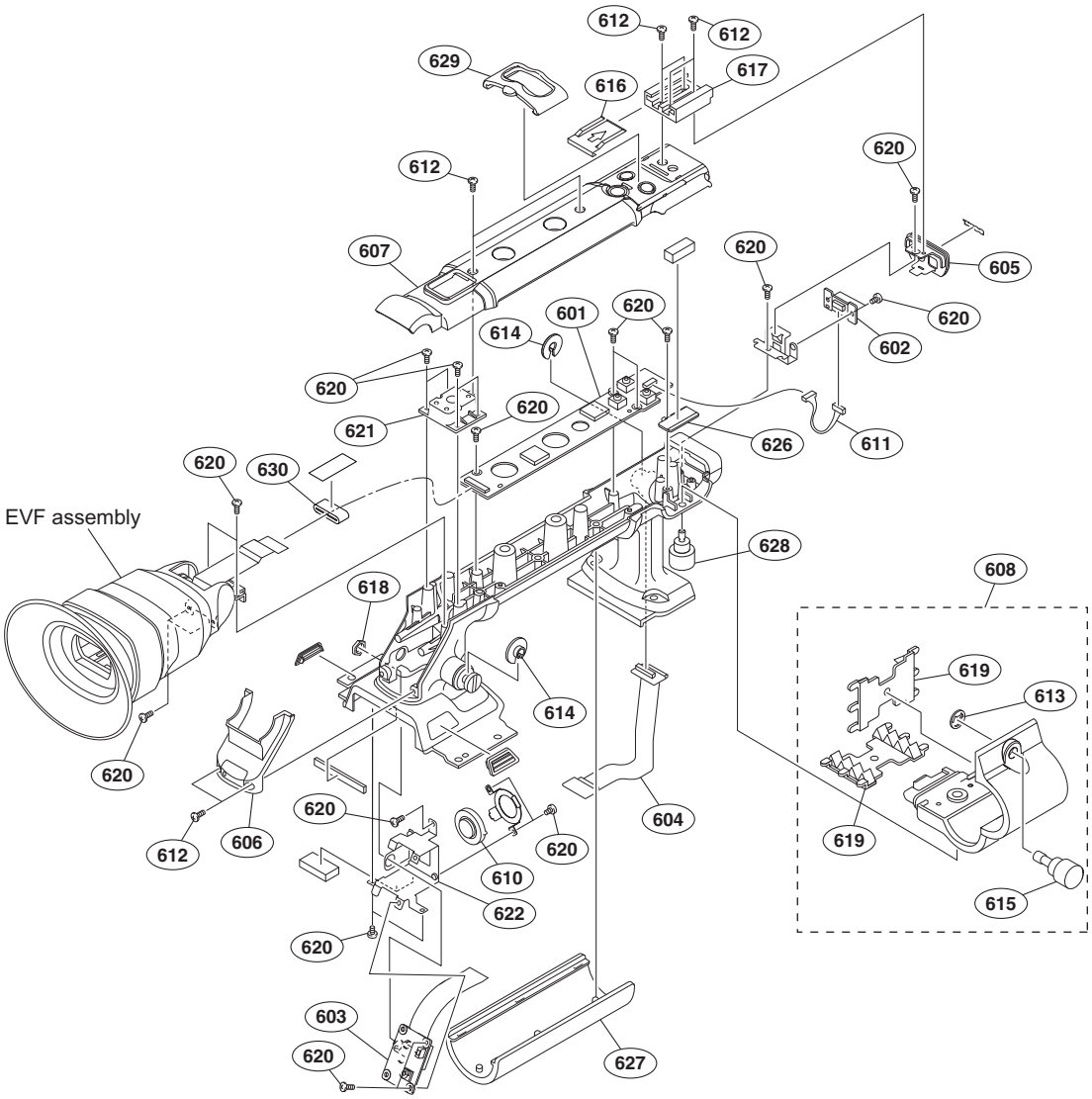
No.	Part No.	SP	Description
401	A-1799-154-A	s	MOUNTED CIRCUIT BOARD, SW-1511
402	X-2580-843-1	s	SUB ASSY, OUTSIDE PANEL
403	1-458-342-11	s	SEESAW, ZOOM
404	3-080-203-31	s	SREW(M2), LOCK ACE,P2
405	3-080-206-21	s	SCREW, TAPPING, P2
406	3-968-729-52	s	SCREW (M2), LOCK ACE, P2
407	4-275-104-01	s	BRACKET, SW
	7-685-132-19	s	SCREW +P 2.6X5 TYPE2 NON-SLIT

Front assembly



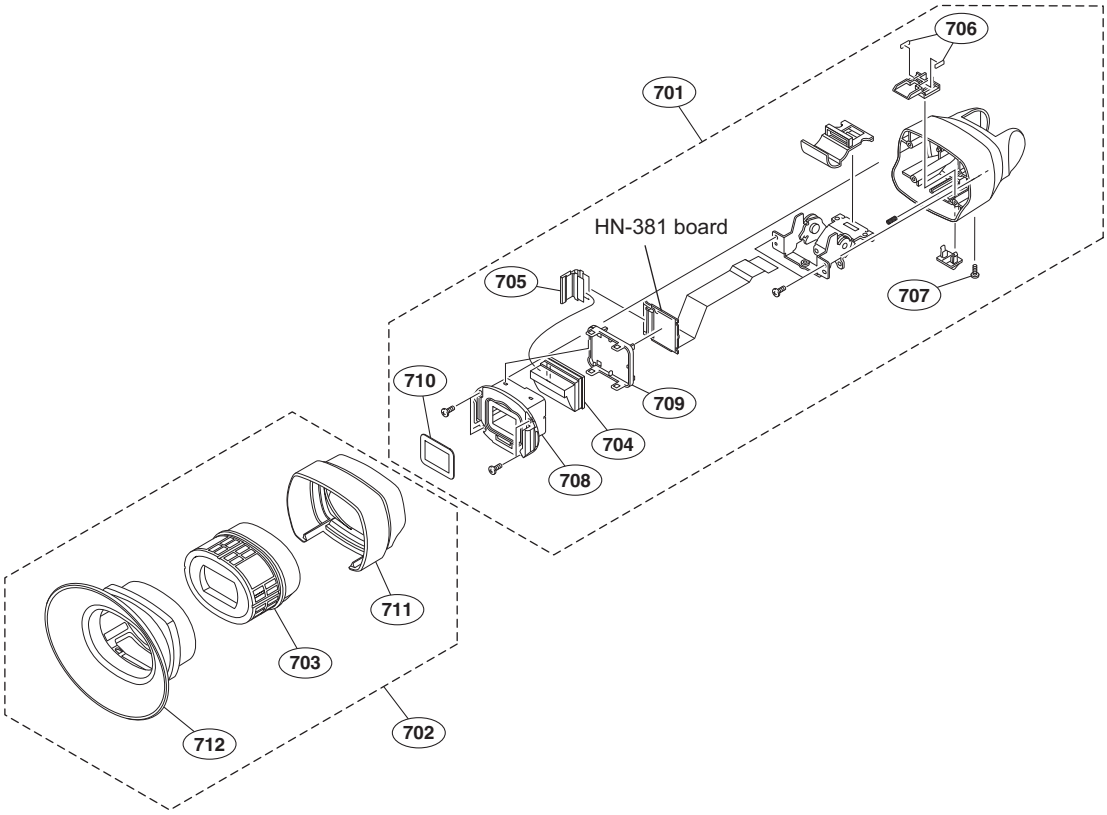
No.	Part No.	SP	Description
501	A-1799-080-A	s	MOUNTED CIRCUIT BOARD, SW-1508
502	A-1799-146-A	s	MOUNTED CIRCUIT BOARD, AXM-45
504	1-856-208-11	s	FILTER UNIT, OPTICAL
505	1-856-209-11	s	ADAPTOR, PL CAMERA
506	1-967-666-12	s	HARNESS, SUB (BI-DCP15)
507	1-967-667-12	s	HARNESS, SUB (BI-DCP22)
508	1-967-668-12	s	HARNESS (BI-DCP)
509	1-967-674-11	s	HARNESS, SUB (FRONT RE)
510	2-623-773-21	s	BOLT (M3X10), STAINLESS
511	3-080-203-31	s	SREW (M2), LOCK ACE, P2
512	3-278-665-02	s	KNOB, XLR SW
513	3-776-897-02	s	GUIDE PLATE
514	3-968-729-52	s	SCREW (M2), LOCK ACE, P2
515	4-104-999-02	s	CAP, MOUNT
516	4-260-152-01	s	PANEL, FRONT
517	4-260-153-02	s	BOX, MICROPHONE CONNECTOR
518	4-275-155-01	s	BRACKET (XLR)
519	4-275-156-01	s	BUTTON (ASSIGN)
520	4-275-157-01	s	BUTTON (5600K)
522	4-275-168-01	s	KNOB (SHUTTER)
523	4-275-298-02	s	LEVER, PL MOUNT
	7-627-452-18	s	SCREW, PRECISION +K 2X3
	7-685-548-19	s	SCREW +BTP 3X12 TYPE2 N-S
	7-685-792-09	s	SCREW +PTT 2.6X6 (S)

Handle assembly



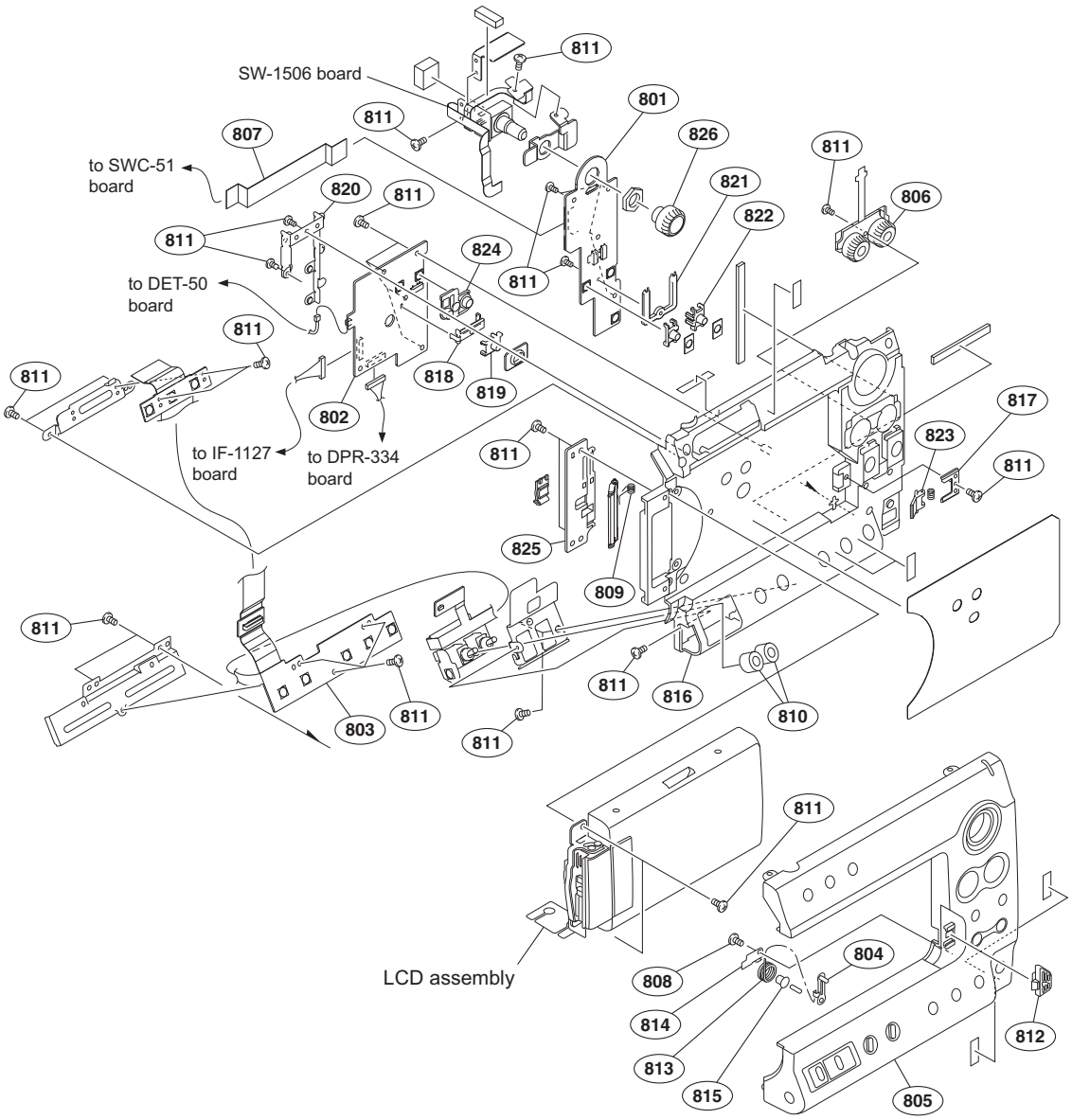
No.	Part No.	SP	Description
601	A-1799-078-A	s	MOUNTED CIRCUIT BOARD, DR-661
602	A-1799-148-A	s	MOUNTED CIRCUIT BOARD, RM-233
603	A-1799-149-A	s	MOUNTED CIRCUIT BOARD, RM-234
604	A-1799-153-A	s	MOUNTED CIRCUIT BOARD, HN-375
605	X-2580-844-1	s	HANDLE COVER (FRONT) ASSY
606	X-2580-845-1	s	HANDLE COVER (REAR) ASSY
607	X-2580-846-1	s	HANDLE COVER (TOP) ASSY
608	X-2580-848-1	s	MICROPHONE HOLDER ASSY
610	1-825-968-11	s	LOUDSPEAKER (1.8CM)
611	1-967-688-11	s	HARNESS, SUB (FRONT RM)
612	3-080-203-31	s	SREW (M2), LOCK ACE,P2
613	3-165-904-01	s	WASHER, SCREW STOPPER
614	3-654-615-02	s	COLLAR, SUSPENSION
615	3-657-657-02	s	SCREW (M5)
616	3-688-754-11	s	SPRING
617	3-688-755-13	s	SHOE, ACCESSORY
618	3-724-182-01	s	NUT (SMALL JACK), M6
619	3-854-132-01	s	GEL, MIC
620	3-968-729-52	s	SCREW (M2), LOCK ACE, P2
621	4-164-569-02	s	SHOE REAR ACCESSORY
622	4-275-147-01	s	RM-234 BRACKET
626	4-275-154-01	s	MIC BRACKET
627	4-275-241-01	s	HANDLE GRIP
628	4-275-246-01	s	SCREW (M3)
629	4-275-254-01	s	ASSIGN GUARD
630	4-279-243-01	s	EVF FERRITE CORE

EVF assembly



No.	Part No.	SP	Description
701	A-1814-746-A	s	EVF FRONT ASSY
702	A-1814-747-A	s	EVF REAR ASSY
703	X-2515-730-2	s	LOUPE ASSY
704	1-811-033-11	s	LCD MODULE
705	1-873-733-11	s	PWB, FP-776 FLEXIBLE
706	3-060-588-01	s	SPACER, LOCK
707	3-080-203-31	s	SREW (M2), LOCK ACE,P2
708	3-288-585-01	s	CASE, PANEL
709	3-288-586-01	s	LID, PANEL
710	3-288-591-01	s	SHEET, VF PROTECTION
711	4-275-142-01	s	EVF REAR CABINET
712	4-275-143-01	s	EYE CUP

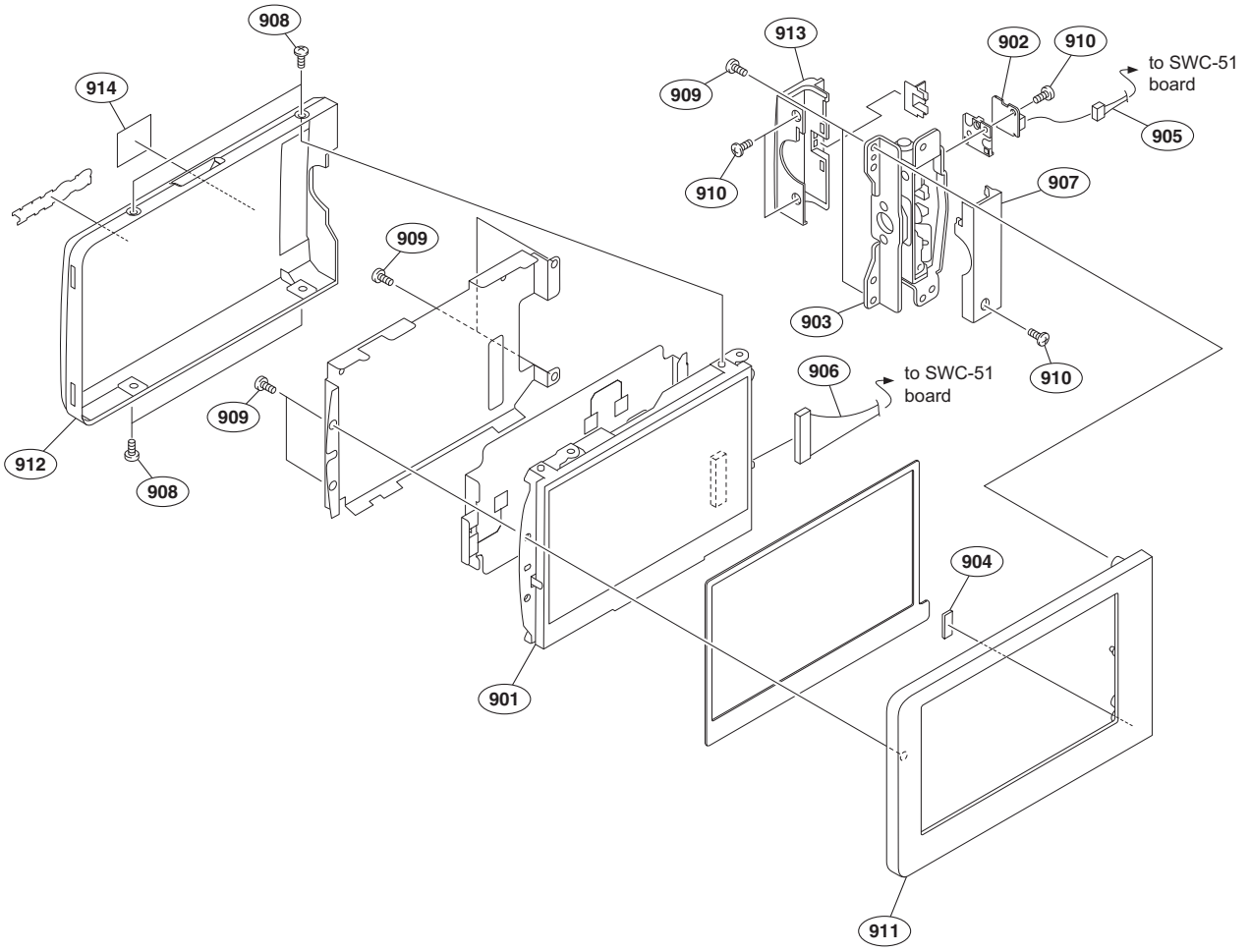
Inside panel assembly



No.	Part No.	SP	Description
801	A-1799-079-A	s	MOUNTED CIRCUIT BOARD, SW-1505
802	A-1799-084-A	s	MOUNTED CIRCUIT BOARD, SWC-51
803	A-1799-152-A	s	MOUNTED CIRCUIT BOARD, SW-1510
804	X-2580-841-1	s	ARM ASSY, LOCK
805	X-2580-842-1	s	INSIDE PANEL ASSY
806	1-480-457-31	s	BLOCK, AU VOLUME
807	1-838-741-11	s	CABLE, FLEXIBLE FLAT (20 CORE)
808	3-080-206-21	s	SCREW, TAPPING, P2
809	3-870-139-01	s	SPRING, HELICAL TORSION
810	3-878-080-01	s	SPACER, LIGHT INTERCEPTION
811	3-968-729-52	s	SCREW (M2), LOCK ACE, P2
812	4-275-076-01	s	KNOB, LOCK
813	4-275-077-01	s	SPRING (LCD LOCK)
814	4-275-078-01	s	BRACKET, LOCK
815	4-275-079-01	s	SLEEVE (LCD LOCK)
816	4-275-080-01	s	PANEL (SUB), INSIDE
817	4-275-083-01	s	SPRING, HELICAL TORSION COIL
818	4-275-085-01	s	SLIDE RAIL BL
819	4-275-086-01	s	SWITCH (BL), SLIDE
820	4-275-087-01	s	HOLDER (DU)

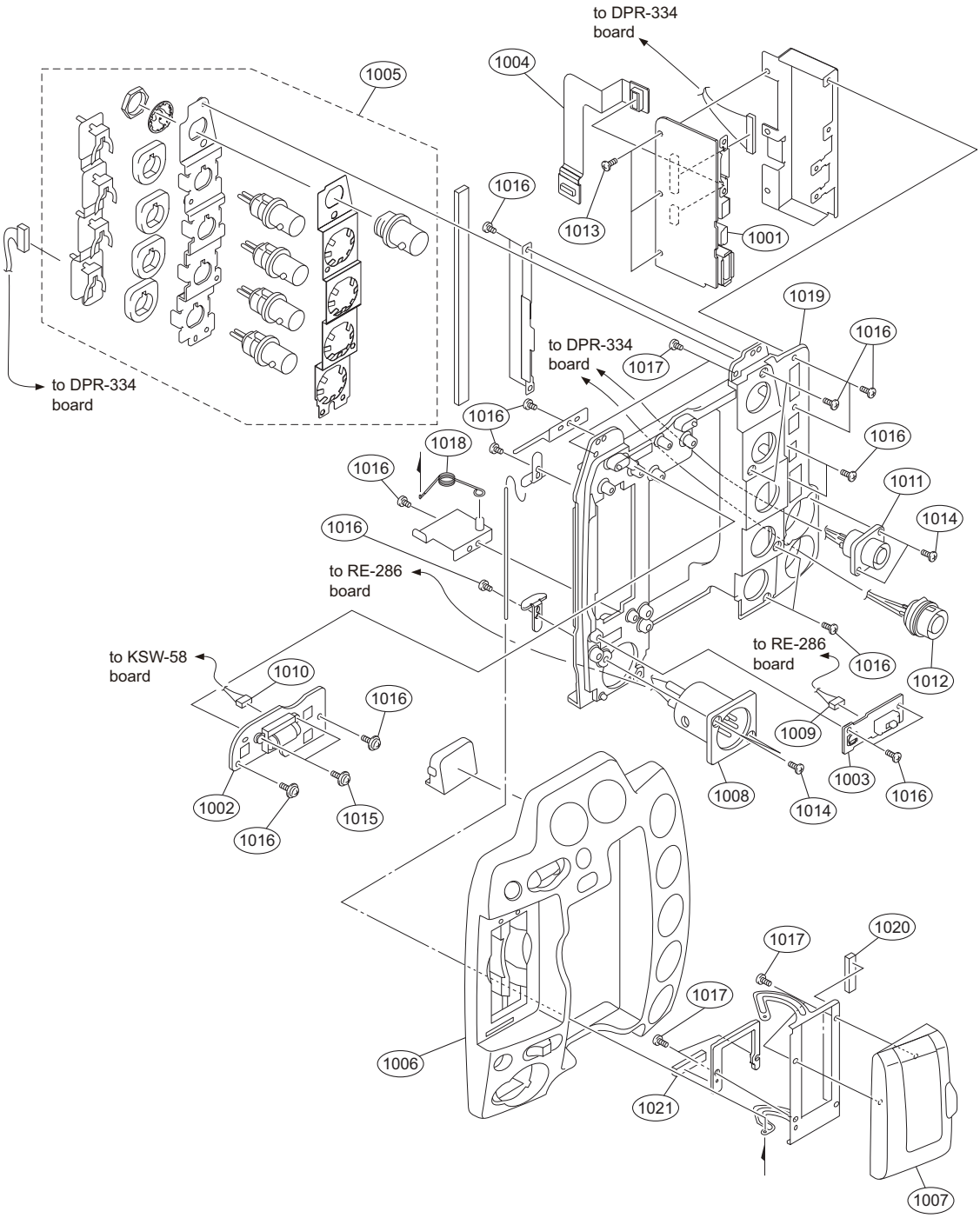
No.	Part No.	SP	Description
821	4-275-089-01	s	RAIL, SLIDE
822	4-275-090-01	s	SWITCH, SLIDE
823	4-275-092-01	s	UP, POP
824	4-275-093-01	s	BUTTON (5)
825	4-275-239-01	s	COVER, LCD HARNESS
826	4-275-242-01	s	KEY TOP

LCD assembly



No.	Part No.	SP	Description
901	A-1748-439-A	s	3.5 INCH LCD ASSY
902	A-1786-301-A	s	MOUNTED CIRCUIT BOARD, DET-50
903	X-2580-838-1	s	HINGE ASSY
904	1-471-483-11	s	MAGNET, LCD
905	1-967-679-11	s	HARNESS, SUB (LCD DET)
906	1-967-687-11	s	HARNESS (COLOR LCD)
907	3-060-694-11	s	COVER (REAR), HINGE
908	3-080-203-31	s	SREW (M2), LOCK ACE,P2
909	3-968-729-51	s	SCREW (M2), LOCK ACE, P2
910	3-989-735-11	s	SCREW (M1.7), LOCK ACE, P2
911	4-275-060-01	s	BEZEL, LCD
912	4-275-061-02	s	COVER, LCD
913	4-275-063-01	s	COVER, HINGE
914	4-275-281-01	s	EMBLEM (L20), CINEALTA

Rear panel assembly



No.	Part No.	SP	Description
1001	A-1799-074-A	s	MOUNTED CIRCUIT BOARD, DIF-209
1002	A-1799-081-A	s	MOUNTED CIRCUIT BOARD, SW-1509
1003	A-1799-082-A	s	MOUNTED CIRCUIT BOARD, PSW-96
1004	A-1799-147-A	s	MOUNTED CIRCUIT BOARD, HN-372
1005	A-1799-150-A	s	MOUNTED CIRCUIT BOARD, IO-250
1006	X-2580-839-2	s	COVER ASSY, REAR PANEL
1007	X-2580-840-1	s	COVER ASSY (SXS)
1008	1-967-669-11	s	HARNESS, SUB (DC IN)
1009	1-967-670-12	s	HARNESS, SUB (POWER SW)
1010	1-967-671-11	s	HARNESS, SUB (REAR SW)
1011	1-967-672-11	s	HARNESS, SUB (RM)
1012	1-967-673-12	s	HARNESS, SUB (3D)
1013	3-080-203-31	s	SREW (M2), LOCK ACE, P2

No.	Part No.	SP	Description
1014	3-637-901-11	s	SCREW M2.6X5
1015	3-729-013-21	s	SCREW (M1.4X2.5), WASHERHEAD (+P)
1016	3-968-729-52	s	SCREW (M2), LOCK ACE, P2
1017	3-080-206-21	s	SCREW, TAPPING, P2
1018	4-275-131-02	s	SXS SPRING (0.6)
1019	4-275-134-01	s	PANEL, REAR
1020	4-277-556-02	s	SXS CUSHION
1021	4-279-161-01	s	SXS SUB CUSHION

5-3. Electrical Parts List

AU-337 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-072-A	s	MOUNTED CIRCUIT BOARD, AU-337
BT301	1-756-991-11	s	HOLDER, LITHIUM BATTERY (CR203
CN301	1-573-929-71	s	CONNECTOR, FFC/FPC (ZIF) 20P

AXM-45 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-146-A	s	MOUNTED CIRCUIT BOARD, AXM-45
CN1	1-794-099-11	s	CONNECTOR, ROUND TYPE
CN2	1-794-099-11	s	CONNECTOR, ROUND TYPE
CN3	1-822-047-11	s	JACK, PIN

BI-265 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
CN101	1-820-560-21	s	CONNECTOR, COAXIAL(RECEPTACLE)

CN-3350 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-073-A	s	MOUNTED CIRCUIT BOARD, CN-3350
CN1	1-818-513-21	s	CONNECTOR (SQUARE TYPE)(USB)5P
CN2	1-785-900-21	s	CONNECTOR 5P

DCP-52 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1829-731-A	s	MOUNTED CIRCUIT BOARD, DCP-52 (RP)
CN100	1-822-981-21	s	CONNECTOR, COAXIAL(RECEPTACLE)
CN1101	1-784-254-21	s	CONNECTOR 10P
CN1200	1-794-998-21	s	PIN, CONNECTOR 20P
CN2502	1-817-820-11	s	CONNECTOR, BOARD TO BOARD 30P
THP1	1-802-063-21	s	THERMISTOR, POSITIVE
THP2	1-802-063-21	s	THERMISTOR, POSITIVE

DET-50 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1786-301-A	s	MOUNTED CIRCUIT BOARD, DET-50
CN1	1-818-210-21	s	PIN, CONNECTOR 2P

DIF-209 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-074-A	s	MOUNTED CIRCUIT BOARD, DIF-209
CN3	1-817-109-11	s	CONNECTOR, USB (A)
CN4	1-818-513-21	s	CONNECTOR (SQUARE TYPE)(USB)5P
CN5	1-794-276-21	o	CONNECTOR, SQUARE TYPE 4P
CN6	1-819-696-21	s	CONNECTOR, HDMI
THP1	1-802-063-21	s	THERMISTOR, POSITIVE

DPR-334 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1829-732-A	s	MOUNTED CIRCUIT BOARD, DPR-334 (RP)
CN1400	1-784-254-21	s	CONNECTOR 10P
CN1600	1-764-243-31	o	CONNECTOR (COAXIAL)
CN1601	1-816-463-21	s	PIN, CONNECTOR (PC BOARD) 10P
CN1602	1-764-643-21	o	PIN, CONNECTOR (SMD) 11P
CN1900	1-785-900-21	s	CONNECTOR 5P
CN2000	1-691-551-21	o	PIN, CONNECTOR (SMD) 8P
PS1900	1-576-123-21	s	LINK, IC (0.8A/72V)
THP200	1-802-063-21	s	THERMISTOR, POSITIVE

DR-661 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-078-A	s	MOUNTED CIRCUIT BOARD, DR-661
CN2	1-817-054-21	s	PIN, CONNECTOR 6P
CN3	1-774-261-31	s	CONNECTOR, FFC/FPC(ZIF) AN 24P
CN4	1-817-910-71	o	CONNECTOR, FPC (ZIF) 45P

EC-71 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-070-A	s	MOUNTED CIRCUIT BOARD, EC-71
CN2	1-821-530-12	s	CONNECTOR, EX CARD (HOST)

HN-370 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-075-A	s	MOUNTED CIRCUIT BOARD, HN-370

HN-371 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-076-A	s	MOUNTED CIRCUIT BOARD, HN-371

HN-372 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-147-A	s	MOUNTED CIRCUIT BOARD, HN-372
CN1	1-817-820-11	s	CONNECTOR, BOARD TO BOARD 30P

HN-373 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-077-A	s	MOUNTED CIRCUIT BOARD, HN-373

HN-374 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-085-A	s	MOUNTED CIRCUIT BOARD, HN-374

HN-375 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-153-A	s	MOUNTED CIRCUIT BOARD, HN-375

HN-381 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
CN1	1-817-910-71	o	CONNECTOR, FPC (ZIF) 45P

IO-250 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-150-A	s	MOUNTED CIRCUIT BOARD, IO-250
CN1	1-766-380-11	s	CONNECTOR, COAXIAL (BNC TIPE)
CN2	1-766-380-11	s	CONNECTOR, COAXIAL (BNC TIPE)
CN3	1-766-380-11	s	CONNECTOR, COAXIAL (BNC TIPE)

IO-250 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
CN4	1-766-380-11	s	CONNECTOR, COAXIAL (BNC TIPE)
CN5	1-820-177-11	s	PIN, CONNECTOR (1.5MM) 11P

KSW-58 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-083-A	s	MOUNTED CIRCUIT BOARD, KSW-58
CN1	1-818-955-61	s	CONNECTOR, FFC/FPC(ZIF) AN 36P
CN102	1-816-463-21	s	PIN, CONNECTOR (PC BOARD) 10P
CN103	1-778-645-31	s	CONNECTOR, FFC/FPC(ZIF) AN 10P

PSW-96 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-082-A	s	MOUNTED CIRCUIT BOARD, PSW-96

RE-285 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1803-288-A	s	MOUNTED CIRCUIT BOARD, RE-285
CN302	1-695-889-21	s	PIN, CONNECTOR (PC BOARD) 10P

RE-286 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1803-289-A	s	MOUNTED CIRCUIT BOARD, RE-286
CN101	1-816-296-21	s	PIN, CONNECTOR (PC BOARD) 9P
CN102	1-770-470-21	s	PIN, CONNECTOR (PC BOARD) 6P
CN103	1-784-254-21	s	CONNECTOR 10P
CN201	1-691-550-21	s	PIN, CONNECTOR (1.5MM)(SMD) 3P
CN204	1-779-393-11	o	CONNECTOR, BOARD TO BOARD 100P
F100	⚠1-576-566-21	s	FUSE (SMD) (15A/65V)
F101	⚠1-576-566-21	s	FUSE (SMD) (15A/65V)

RM-233 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-148-A	s	MOUNTED CIRCUIT BOARD, RM-233
CN1	1-817-054-21	s	PIN, CONNECTOR 6P

RM-234 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-149-A	s	MOUNTED CIRCUIT BOARD, RM-234
CN2	1-794-057-21	s	PIN, CONNECTOR (PC BOARD) 2P
CN3	1-794-525-12	s	JACK, MIC

SW-1505 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-079-A	s	MOUNTED CIRCUIT BOARD, SW-1505
CN1	1-774-260-31	s	CONNECTOR, FFC/FPC(ZIF) AN 20P
CN2	1-573-915-71	s	CONNECTOR, FFC/FPC (ZIF) 6P
CN3	1-778-645-31	s	CONNECTOR, FFC/FPC(ZIF) AN 10P

SW-1508 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-080-A	s	MOUNTED CIRCUIT BOARD, SW-1508
CN1	1-794-377-21	s	PIN, CONNECTOR 8P

SW-1509 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-081-A	s	MOUNTED CIRCUIT BOARD, SW-1509
CN1	1-817-869-21	s	PIN, CONNECTOR 10P

SW-1510 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-152-A	s	MOUNTED CIRCUIT BOARD, SW-1510

SW-1511 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-154-A	s	MOUNTED CIRCUIT BOARD, SW-1511
CN2	1-573-915-71	s	CONNECTOR, FFC/FPC (ZIF) 6P

SWC-51 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1799-084-A	s	MOUNTED CIRCUIT BOARD, SWC-51
CN1	1-774-260-31	s	CONNECTOR, FFC/FPC(ZIF) AN 20P

SWC-51 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
CN4	1-794-375-21	s	PIN, CONNECTOR 2P

TX-139 BOARD

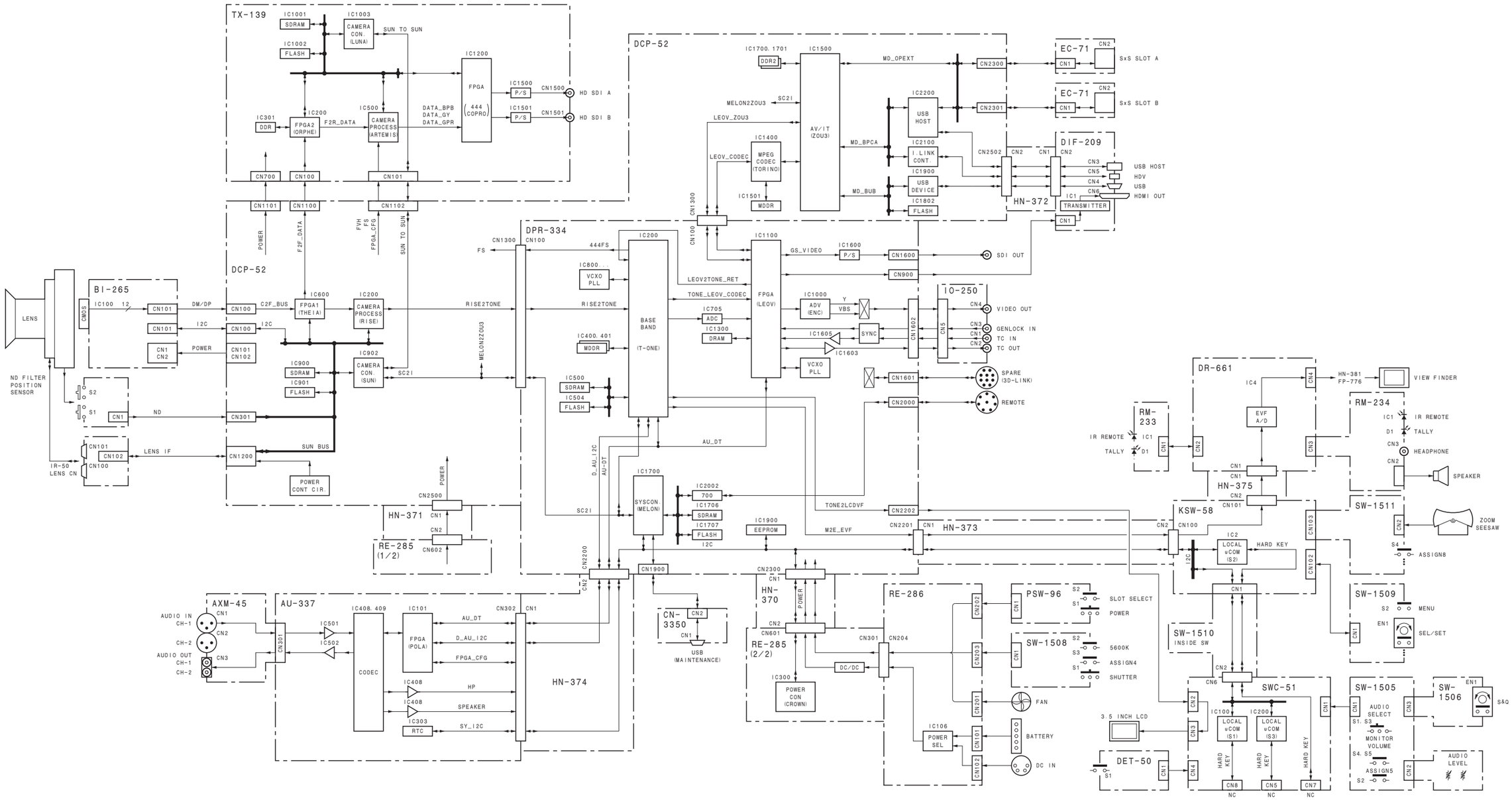
Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-1829-733-A	s	MOUNTED CIRCUIT BOARD, TX-139 (RP)
CN700	1-770-627-21	s	PIN, CONNECTOR 10P
CN1100	1-817-869-21	s	PIN, CONNECTOR 10P
CN1500	1-793-324-21	s	CONNECTOR, COAXIAL (BNC TYPE)
CN1501	1-793-324-21	s	CONNECTOR, COAXIAL (BNC TYPE)

5-4. Supplied Accessories

Q'ty	Part No.	SP	Description
1pc	A-6772-374-C	s	BELT ASSY, SHOULDER
1pc	⚠1-479-570-14	s	REMOTE COMMANDER (RM-F300)
1pc	1-542-874-11	s	MICROPHONE (STEREO)

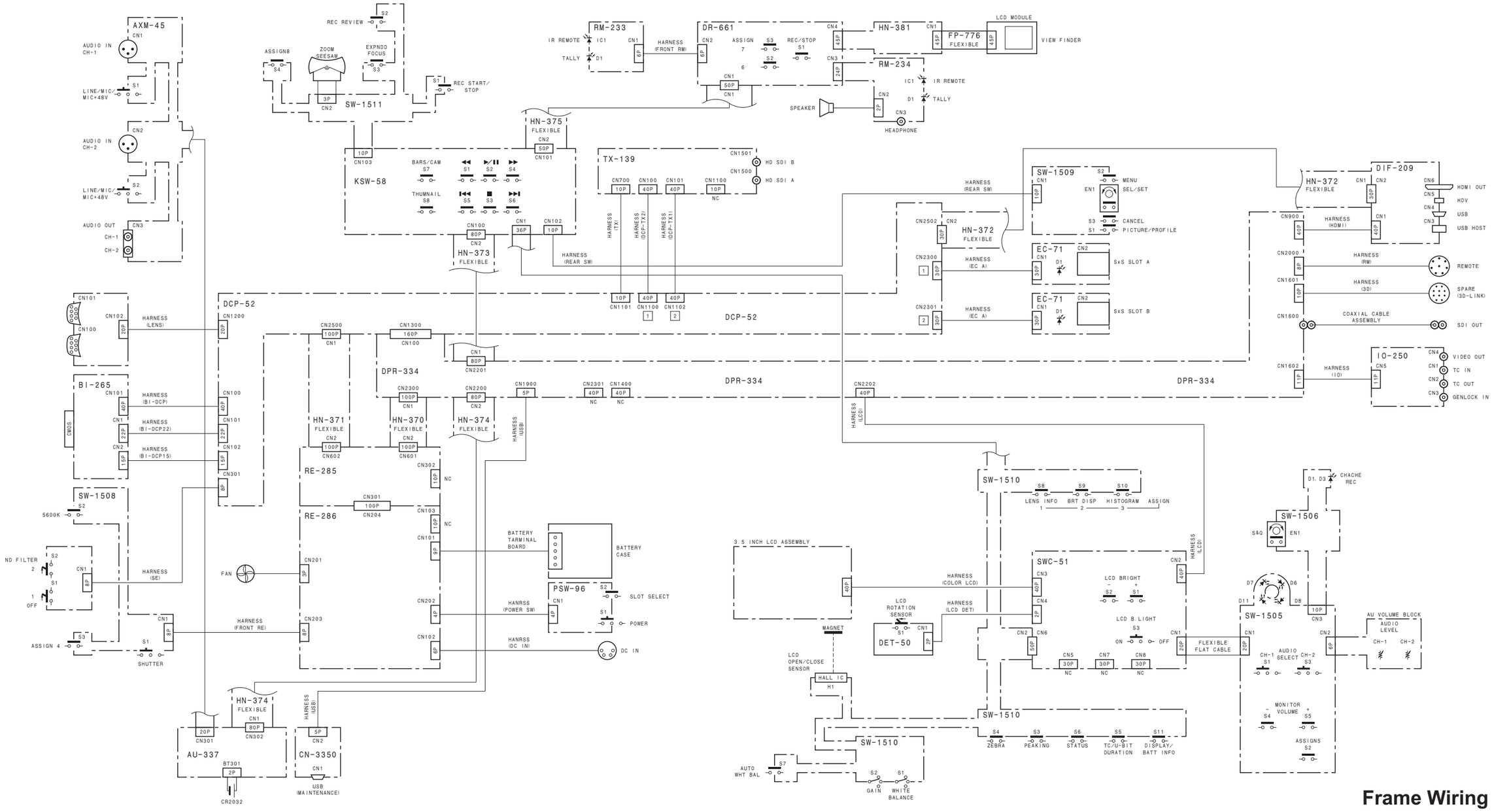
Section 6
Block Diagrams

Overall



Overall

Frame Wiring



Frame Wiring

PMW-F3 (SY) E
9-968-825-01

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