

SONY®

SOLID-STATE MEMORY CAMCORDER

PMW-200

PMW-EX280

XDCM™

SxS

HDMI

MPEG HD422

Exmor

i

SERVICE MANUAL

1st Edition (Revised 1)

警告

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

WARNING

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

WARNUNG

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

AVERTISSEMENT

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

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 PA

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

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

FORSIKTIG

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

注意

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

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Manual Structure

Purpose of this manual

This document is the service manual of Solid-State Memory Camcorder PMW-200/EX280

When servicing this unit, parts are replaced on a board basis in principle. Therefore, this manual includes no circuit diagram or board layout.

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 this unit)

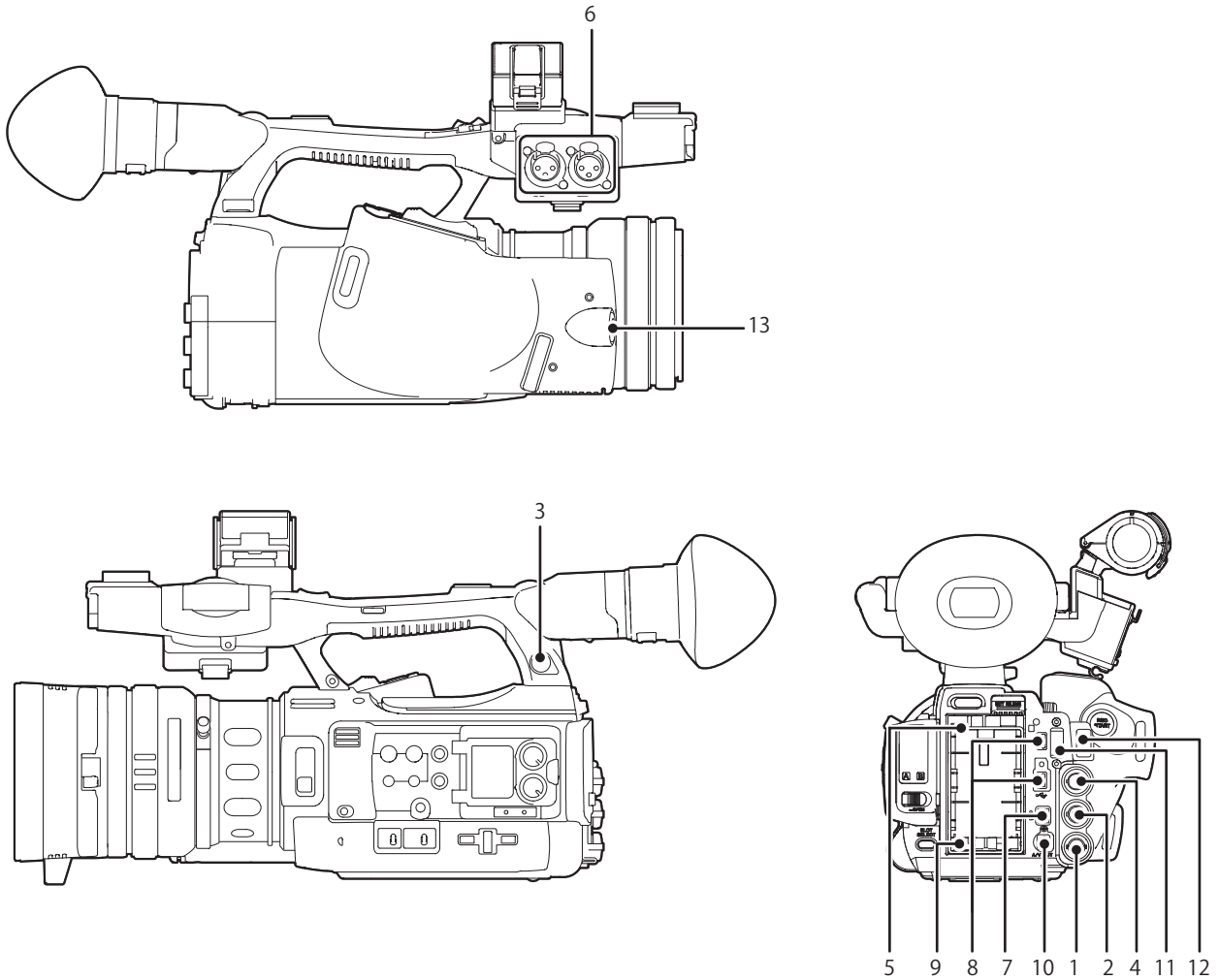
This manual contains information required to operate and maintain the unit.

Section 1

Service Overview

1-1. External Connectors

1-1-1. Connector Input/Output Signals



Input/Output Signals

1. GENLOCK IN/VIDEO OUT

Both IN and OUT, BNC type

GENLOCK IN: SD binary sync/HD tri-level sync, 1.0 Vp-p, 75 Ω , termination

VIDEO OUT: 1.0 Vp-p, 75 Ω , Unbalanced

2. TC IN/OUT

Both IN and OUT, BNC type

TC IN: 0.5 V to 18 Vp-p

TC OUT: 1.0 Vp-p, 75 Ω , Unbalanced

3. HEADPHONE

Stereo mini jack

-20.5 dBu (reference level output 16 Ω loaded)

Sound monitor, monaural/stereo selectable

4. SDI OUT

SDI signal SMPTE 292M/259M compliant

BNC type, 0.8 Vp-p, 75 Ω , 270 Mbps/1.5 Gbps

5. DC IN

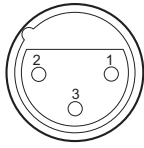
2-Pin, DC JACK TYPE 4



- External View -

6. AUDIO IN CH-1, 2

XLR 3-pin, Female



- External View -

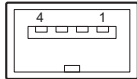
(0 dBu = 0.775 Vrms)

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	

7. HDV/DV

i.LINK connector

4-pin, IEEE1394, S400

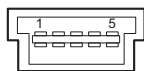


- External View -

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 (+)

8. USB

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

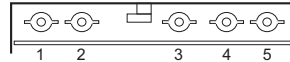


- External View -

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

9. BATTERY

5-pin, Male



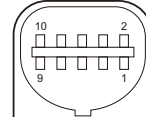
- External View -

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 (-)	—	—

10. A/V OUT

Multi-connector

10-Pin

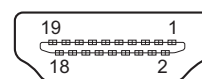


- External View -

No.	Signal	I/O	Specifications
1	LINE MONI1 L (A/V)	OUT	LINE OUT (L)
2	LANC SIG	—	NC
3	S GND	—	GND
4	LANC DC	—	NC
5	S-C	OUT	NC
6	LINE MONI2 R (A/V)	OUT	LINE OUT (R)
7	AV SW	IN	—
8	VIDEO/AUDIO GND	—	GND
9	VIDEO	OUT	Composite OUT
10	S-Y	OUT	NC

11. HDMI

19-pin, Type A



- External View -

No.	Signal	I/O	Specifications
1	TMDS DATA2+	OUT	—

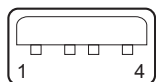
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No.	Signal	I/O	Specifications
2	TMDS DATA2 SHIELD	—	—
3	TMDS DATA2–	OUT	—
4	TMDS DATA1+	OUT	—
5	TMDS DATA1 SHIELD	—	—
6	TMDS DATA1–	OUT	—
7	TMDS DATA0+	OUT	—
8	TMDS DATA0 SHIELD	—	—
9	TMDS DATA0–	OUT	—
10	TMDS CLOCK+	OUT	—
11	TMDS CLOCK SHIELD	—	—
12	TMDS CLOCK–	OUT	—
13	CEC (N.C.)	—	—
14	RESERVED (N.C.)	—	—
15	SCL	OUT	—
16	SDA	IN/OUT	—
17	DDC/CEC GND	—	—
18	+5V POWER	OUT	—
19	HPD	IN	—

No.	Signal	I/O	Specifications
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	—	

12. External device connector

USB (Series A), 4-pin

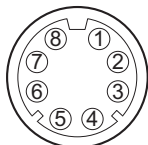


- External View -

No.	Signal	I/O	Specifications
1	USB_VBUS	—	USB Vcc
2	DATA (–)	IN/OUT	I/O USB–
3	DATA (+)	IN/OUT	I/O USB+
4	GND	—	Ground

13. LENS REMOTE

8-pin, Female

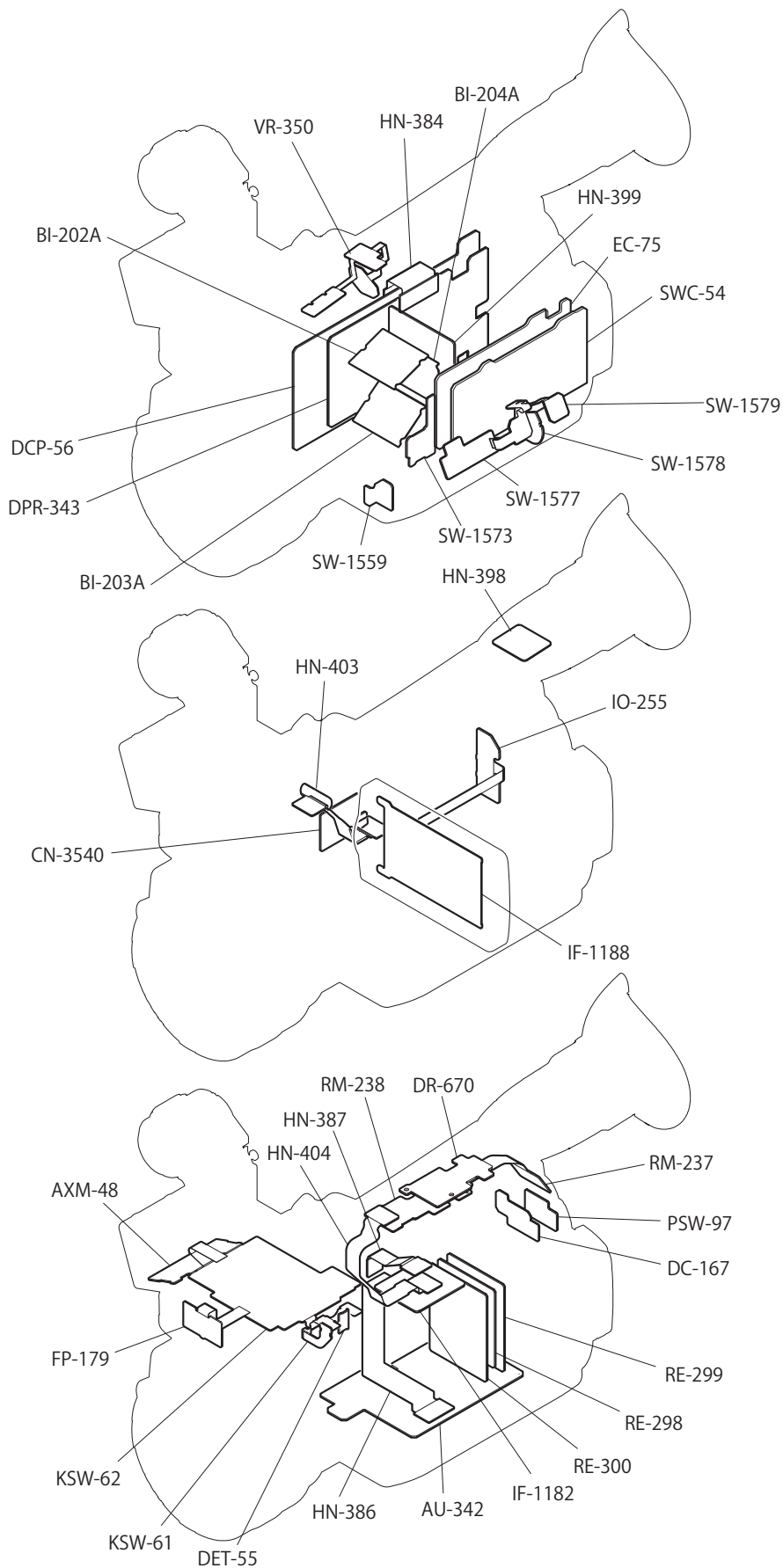


- External View -

No.	Signal	I/O	Specifications
1	COMMON –V	OUT	GND

Continued

1-2. Location of Printed Wiring Boards



1-3. Circuit Description

1-3-1. CMOS Block and Lens Block

BI-202A/203A/204A Boards

The BI-202A/203A/204A Boards are used to supply the power bias and synchronous signal to the CMOS image sensor (IC1) and to transmit output signals to the DCP-56 board through the HN-399 board. This board is provided with a 80-pin B to B connector (CN1) for transmission of video signals and power.

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. Video signals are used for the R channel on the BI-202A board, the G channel on the BI-203A board, and the B channel on the BI-204A board.

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-56 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 (IC3) of the BI-203A board sends the temperature data to the camera microcomputer SUN (IC702) on the DCP-56 board through the I²C bus.

The drop regulator (IC2) in the power supply circuit supplies smoothed power voltages to the CMOS image sensor.

1-3-2. Camera Block

DCP-56 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 HN-339 board is input to the camera signal processor (IC200: RISE) on the DCP-56 board. The camera signal processor detects values (including video signal average value and peak value) necessary for the camera operations such as white balance, black balance, focus, iris, knee processing, and then sends the detected values to the camera microcomputer SUN (IC702).

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 (IC900).

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).

The camera microcomputer SUN (IC702) performs the overall camera control, and is controlled by the system microcomputer (IC2101: MELON) on the DPR-343 board. SUN's peripheral ICs FLASH ROM (IC701) and SDRAM (IC700) are mounted on the DCP-56 board.

1-3-3. Video Signal System

DCP-56 Board

The digital video signal (Y/C) sent from the camera signal processor IC RISE (IC200) on the DCP-56 board is input to the baseband processing IC T-ONE (IC900).

The baseband processing IC T-ONE 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 ANDV (IC1700), and is then distributed to inputs and outputs. The following table lists inputs and outputs of the baseband processing IC T-ONE.

Signal name and 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 (IC805) to the router IC (Used for outputting SDI/HDMI/VIDEO OUT (with characters))
- Analog composite signal
Output to the IO-255 board
- Video signal for LCD
Output through the KSW-62 board to the LCD
- Video signal for viewfinder
Output through the IF-1182 board to the DR-670 board
- Video signal for CODEC
Output through the router IC to the CODEC (IC500, 700: TORINO) on the DPR-343 board
- Return video signal
Input from the router IC
- Audio interface signal
Output to the AU-342 board

The peripheral circuit of the baseband processing IC T-ONE contains the following circuit and devices.

- Master clock 54 MHz VCXO (X1400) control circuit (including IC1401)
- Mobile DDR SDRAM (IC1100, IC1101)
- FLASH ROM (IC1201) and SDRAM (IC1200) as peripheral ICs of the internal CPU

1-3-4. Media Recording/Playback System

DPR-343 Board

Output signals from the baseband processor IC (IC900) on the DCP-56 board are transferred to the router IC ANDV (IC1700) and the selector IC CAVS (IC100) on the DPR-343 board, and are then input to the MPEG encoder/decoder TRINO (IC500, IC700) or the media block controller (IC1000).

The MPEG encoder/decoder (IC500, IC700) 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 bitstream and baseband video input/output, MPEG audio bitstream and baseband audio input/output.

The media block controller (IC1000) processes these signals and then files them, and writes the file data to the SxS memory card through the SWC-54 board or the EC-75 board with the PCI Express interface.

This controller performs operation opposite to this procedure in the playback mode.

Furthermore, the media block controller (IC1000) has an internal CPU and a USB device controller for router IC CAVS (IC100) control, serial communication with the system controller (IC2101), and data communication with each controller through the PCI bus.

A flash ROM (IC1101) is also connected to IC1000, and the CPU program in IC1000 is read at the first startup.

Controlled by the system controller (IC2101) in the same way as other main devices, the DPR-343 board performs video/audio stream control, SxS memory card access, mass storage operation through the USB connection, and HDV device control through the i-LINK connection.

Peripheral Devices

SxS memory card slot

The 2-channel PCI-Express signal from the media block controller (IC1000) is input to the two memory card slot boards (SWC-54, EC-75) through the 0.4 mm-pitch 30-pin fine-wire coaxial cables connected to CN1400 and CN1401.

The 2-channel USB host signal that is output from the media block controller (IC1000) by controlling USB host controller (IC1301) is sent to the SWC-54 and EC-75 boards through fine-wire coaxial cables in the same way as the PCI-Express signal. IC1301 is controlled by IC1000 through the PCI bus.

USB device controller

USB device signals input/output from the USB device controller in the media block controller (IC1000) are input to the USB Mini-B connector (CN2200).

USB host controller

The USB host controller (IC1301) takes charge of one channel for connection to Wi-Fi adapter or USB memory in addition to two channel of slots for SxS memory card.

The USB host signal input/output from the USB host controller (IC1301) is transferred from CN2501 through the shielded harness to the IO-254 board, and is then transferred to the USB TYPE-A connector (CN101).

IC1301 is controlled by IC1000 through the PCI bus.

i-LINK controller

The i-LINK signal that is output from the i-LINK controller (IC1300) by controlling IC1300 from the media block controller (IC1000) is sent to the 4-pin i-LINK connector (CN1300). IC1300 is controlled by IC1000 through the PCI bus.

1-3-5. Audio System

FP-179 Board

The FP-179 board relays audio signals between the internal microphone and the KSW-62 board.

AXM-48 board

This connector board contains EXT LINE/MIC input XLR (3P) connectors and LINE/MIC/MIC+48 V input select switches for two channels.

KSW-62 board

- The KSW-62 board amplifies the internal microphone by the bias power supply and the head amplifiers (Q102 and Q104, Q103 and Q105) and outputs balanced audio signals.
- When the LINE input level (+4 dBu) is selected for the EXT input signal, an input attenuator is inserted by switches (Q150 to Q153, Q158 to Q162).
- A speaker is connected to the speaker connector (CN102).

IF-1182 Board

The MIC input level (-30 dBu to -60 dBu/10 dB step) of the EXT input signal is common to the LINE input level (+4 dBu: input reference -30 dBu selected), and the gain of this signal is adjusted by the switches (Q302 to Q305, Q308 to Q309).

AU-342 Board

The AU-342 board mainly has motherboard, audio, and RTC functions.

Motherboard function

The AU-342 board relays signals to main boards (DPR-343, DCP-56) and power supply boards (RE-299, RE-300) as a motherboard function.

Audio signal flow

- Input
Analog audio input signals are transferred from the IF-1182 board through the HN-386 board and the A/D converter to the FPGA (IC501). The digital playback signal (bidirectional bus) is transferred from the DPR-343 board to the FPGA.
- Input processing by FPGA
The EE input signal is selected by the FPGA and is transferred to the DSP (IC601). The playback signal is transferred to the DSP.
- Signal processing
The DSP enables many functions including AGC, Wind Filter, monitor volume, monitor switching control, and SG Tone.
- Output processing by FPGA
The FPGA receives recording signals and SDI output signals from the DSP and outputs them.
- Output
Monitor output signals (headphone or speaker) are transferred from the DSP through the D/A converter to the SP amplifier and the HP amplifier.
Headphone output signals are output from the RM-237 board and RM-238 board through the HN-386 board, IF-1182 board, and HN-404 board.
Speaker output signals are output from the KSW-62 board through the HN-386 board, IF-1182 board, and HN-403 board.
The analog line output (AV out) signal from the DSP is sent to the DPR-343 board through the D/A converter. The media recording signal (bidirectional bus) from the FPGA is sent to the DPR-343 board.
Meter output signals from the DSP and SDI output signals from the FPGA are sent to the DCP-56 board.

Control

- The FPGA is totally controlled by the ARM CPU (IC900) on the DCP-56 board through the SIO interface.
- The DSP is booted (SPI boot) by the FPGA and is controlled via the FPGA.
- Analog audio circuit control signals are output by the FPGA.

Clock

- The audio system clock is supplied from IC900 on the DCP-56 board to the FPGA and is distributed from the FPGA to the A/D converter and the D/A converter.

1-3-6. System Control

DPR-343 Board

The 32-bit RISC CPU (ARM) with ARM core is built-in as the system controller (IC2101).

It has the peripheral interface functions of SDRAM, USB, SCI, and I²C. It operates on a 27 MHz clock (X2000).

FLASH ROM (IC2007), SDRAM (IC2006), and EEPROM (IC2201) are mounted as the peripheral ICs.

It performs the system control through serial communication with IC702 (DCP-56 board) of the camera block system, IC900 (DCP-56 board) of the video signal system, and IC1000 of the media recording/playback system.

Main functions of the system controller and peripherals

Reading operation switch information

Reading the switch information and the LED control are performed by I²C bus communication with each sub-microprocessor.

- Handle switch: IC202 on the KSW-62 board
- Inside panel switch: IC200 on the SWC-54 board
- Power supply switch: IC202 on the RE-298 board

Clock IC (RTC) control

The AU-342 board contains a clock IC (IC700).

The clock IC (IC700) backed up by a lithium coin battery monitors the battery voltage via IC200 on the SWC-54 board.

The clock IC (IC700) and the system controller set and read the current clock time through serial communication.

Infrared remote control demodulation

The RM-237 board has an IC (IC100) for REAR infrared remote control signal demodulation, and it receives the command codes via IC200 on the SWC-54 board. The KSW-61 board has an IC (IC100) for FRONT infrared remote control signal demodulation, and it receives the command codes via IC202 on the KSW-62 board.

Info-Battery communication

The Info-Battery of SM bus specifications is supported.

The serial terminal of the battery connector is connected to IC202 on the RE-298 board. This IC202 read the battery authentication, battery type, remaining power, and other information and send them to the system controller via I²C bus communication.

Power supply voltage detection

The power supply voltage at the DC IN connector is measured by the A/D port on IC202 on the RE-298 board, and it is posted to the system controller as the input voltage value.

Power system control

IC202 on the RE-298 board checks that the power switch on the unit is turned ON, and turns on the system controller of IC2101 (DPR-343 board). After that, it controls the power for each circuit block according to the system controller. The system controller controls the respective power supply systems in the RE-299 and RE-300 boards according to the operation mode of the device, via the power supply microcomputer (IC202) on the RE-298 board.

1-3-7. Power Supply System

RE-298/299/300 Boards

The RE-298, RE-299, and RE-300 boards consist of a power circuit (RE-299/RE-300 boards) and a power control unit (RE-298 board).

However, a part of low-voltage power supply circuit is mounted on the DCP-56 and DPR-343 boards.

Input power supply (UNREG) system operations

An UNREG power voltage is input and is changed to the EVER power voltage state. The power switch ON/OFF state can be recognized in this mode.

When the power microcomputer (RE-298 board: IC202) recognizes the power switch ON state, the power microcomputer controls power of each block according to instructions of the system controller (DPR-343 board: IC2101).

The ordinary input power (UNREG) value is approx. +11 V to +17 V.

- Battery/EXT-DC inputs
These two inputs cannot be physically connected at the same time. Either one power input is selected and supplied.
- Protection of input overvoltage
When a high UNREG power voltage is supplied, the overvoltage protection circuit is activated at the set value of +19.5 V and the camera body is shut down. This circuit automatically resumes power when the input power voltage lowers to +19.5 V or less.
- Protection of input low voltage
When a low UNREG power voltage is supplied, the low-voltage protection circuit is activated at the set value of +10.5 V by the power microcomputer control and the camera body is shut down.
Once the low-voltage protection circuit is activated, the state is maintained. In that case, therefore, turn off the power switch and replace the battery pack with a charged battery pack or take other appropriate actions.
- UNREG overcurrent detection
An overcurrent detection circuit consisting of IC100 is provided on the RE-299 board. The set value is approx. 4.3 A. Once overcurrent is detected, the circuit is not automatically reset even after the overcurrent is cleared, and power must be turned on again.
- Protection of reverse power connection
If reverse input power voltage is supplied, Q102 on the RE-299 board is immediately turned off and the UNREG power is shut off.
- Power-saving function in the standby state
While the camera power switch is turned off, the power microcomputer (RE-298 board: IC202) enters the sleep mode to save power. Furthermore, Q107 on the RE-298 board is turned off to reduce current in the control system.

DC/DC converter function

Power supply is grouped into four blocks as shown below.

- CMOS/camera block system (Name: xx_IM)
- Audio/video signal system (Name: xx_DP)
- System controller system (Name: xx_SY)
- Media recording/playback system (Name: xx_MD)

Power in each block is turned on and off according to the power sequence control by the power microcomputer.

Short-circuit protection for each power supply system

Each power system monitors respective output voltages and the protection circuit is configured so that it works for each block. When a short-circuit is detected even in a single block, entire camera is shut down. The protection circuit is not automatically reset even after the short-circuit is cleared, and power must be turned on again.

Battery pack information

- Battery pack authentication

A function to recognize the specified battery pack is provided to prevent major power accidents due to battery pack. If an unspecified battery pack is installed, a message appears and then the camera body is turned off.

- 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 operation with detailed information about the battery, including information whether the battery pack is damaged or has reached its lifetime.

1-4. Service Tools/Measuring Equipment List

1-4-1. Service Tools

Part No.	Name	Usage/note
Commercially available	Grayscale chart (reflective type) (16 : 9)	For camera adjustment
Commercially available	Star chart (reflective type)	
J-6394-080-A	Grayscale chart (transparent type) (16 : 9)	
J-6029-140-B	Pattern box PTB-500	
Supplied with this unit	Mini USB cable	For firmware upgrade
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-6326-120-A	Hexagon bit (width across flats: 1.5)	
J-6325-400-A	Torque driver (3 kg•cm) (0.3 N•m)	
J-6252-510-A	Torque driver (6 kg•cm) (0.6 N•m)	
7-432-114-11	Locking compound 200 g	For preventing screws from being loosened
7-651-000-10	Sony (SGL-601) 50 g grease	Lubricant

1-4-2. Measuring Equipment

Use the following calibrated equipment or equivalent for adjustments.

Equipment	Model name
Oscilloscope	Tektronix TDS3054 or equivalent (150 MHz or more)
HD waveform monitor	LEADER ELECTRONICS CORP.LV5152DA or equivalent
Frequency counter	Advantest TR5821AK or equivalent
Digital voltmeter	Advantest TR6845 or equivalent
Color monitor	Sony HDM-20E1U/14E1U/14E5U or equivalent
Luminance meter	Konica Minolta LS-110 or equivalent

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 OTHERS menu.
2. Install the upgrade software in the PC.

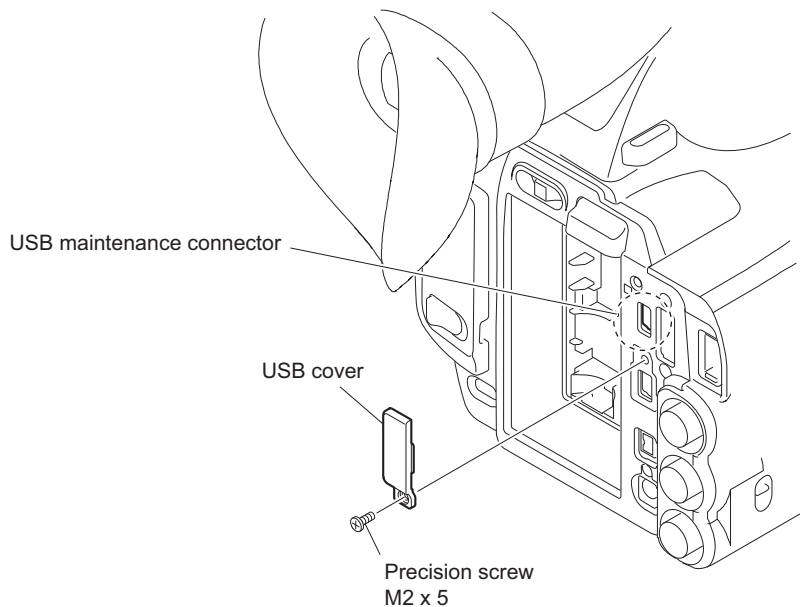
Note

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 rear panel to detach the USB 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 cover with the removed screw.
8. Turn ON the power and confirm that the firmware version has been upgraded in "Version" of the OTHERS menu.

1-6. Circuit Protection Parts

1-6-1. Circuit Protection Element

This unit is equipped with positive-characteristic thermistors (power thermistors) as circuit protection elements.

The positive-characteristic thermistor limits the electric current flowing through the circuit as the internal resistance increases when an excessive current flows or when the ambient temperature increases.

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

Board name	Ref. No.	Address	Part No.	Hold current
DCP-56	THP100	A1 (Side B)	△ 1-771-845-21	200 mA/25°C
DPR-343	THP130	A2 (Side A)	△ 1-805-726-11	200 mA/25°C
	THP131	A2 (Side A)	△ 1-805-726-11	200 mA/25°C
	THP132	A3 (Side A)	△ 1-805-726-11	200 mA/25°C
	THP133	A3 (Side A)	△ 1-805-726-11	200 mA/25°C
RE-298	THP100	B2 (Side B)	△ 1-803-615-21	500 mA/25°C
RE-300	THP100	A1 (Side B)	△ 1-803-615-21	500 mA/25°C

1-6-2. 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 any 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.

Board name	Ref.No.	Address	Part No.	Rating
IF-1188	PS100	A1 (Side A)	△1-576-122-21	0.4 A/72 V
	PS101	A1 (Side A)	△1-576-122-21	0.4 A/72 V
RE-299	F100	A2 (Side B)	△ 1-576-329-21	10A/125V

1-7. Notes on Service

1-7-1. Actions to Be Taken when Replacing Parts and Boards

Before replacement

The DPR-343 board contains all setting data of the menus (including picture profiles).

Before replacing the DPR-343 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-56 board
 - DPR-343 board
 - KSW-62 board
 - RE-298 board
 - SWC-54 board
2. When any of the following boards or part has been replaced, make adjustments again.
For the adjustment method, contact your local Sony Sales Office/Service Center.
 - DCP-56 board
 - 3.5-inch LCD assembly
 - CMOS block

1-7-2. Actions to Be Taken when the Lens Has Been Replaced

When the lens has been replaced, make the flange-back adjustment. (Refer to [“4-2-6. Executing Auto FB Adjust”](#))

1-7-3. Notes on Replacing Onboard Parts

- The BI-202A/203A/204A boards and parts mounted on the BI-202A/203A/204A boards cannot be replaced independently. When the each board or any part on the board is defective, replace the CMOS block.
- Similarly, part-level replacement is not possible for each board. If onboard parts become defective, replace the board.

1-7-4. Backup Battery

When the backup battery is replaced, the date and time in the internal clock need to be set. Refer to "Setting the Clock" of the "Preparations" in the Operating Instructions.

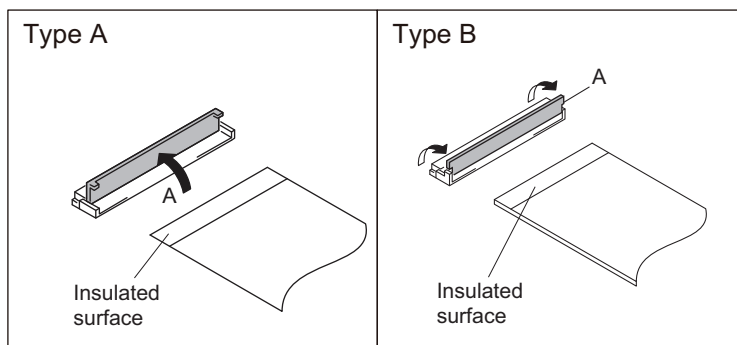
1-8. Flexible Card Wire and Fine-Wire Coaxial Cable

1-8-1. Disconnecting/Connecting Flexible Card Wire

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 conductive side and insulated side. If the flexible card wire is connected in the wrong orientation of the conductive side and the insulated side, the circuit will not function.
- Insert the flexible card wire straight.
- Check that the conductive side of the flexible card wire is not contaminated.

Type A, B



Disconnecting

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

Connecting

1. Slide or lift up the portion A in the direction of the arrow and securely insert the flexible card wire into the deep end of the connector.
2. Return the portion A to its original position and lock the connector.

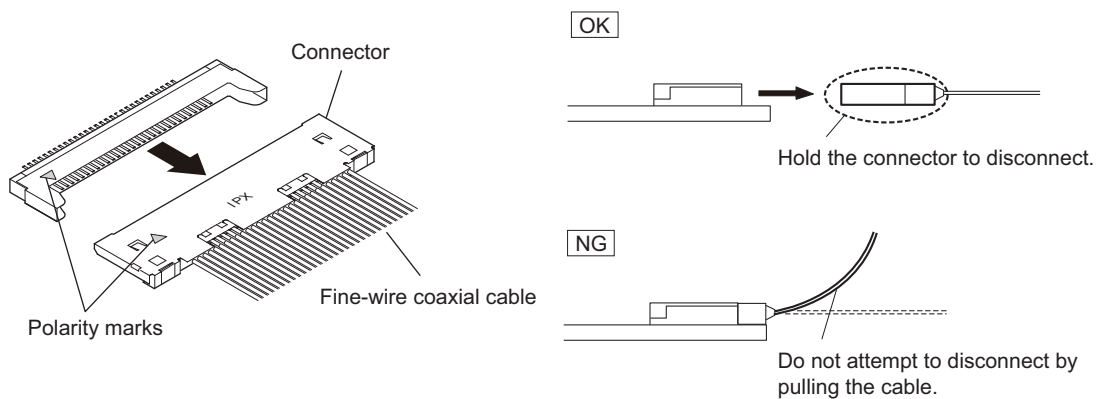
1-8-2. Disconnecting/Connecting Fine-Wire Coaxial Cable

Notes

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

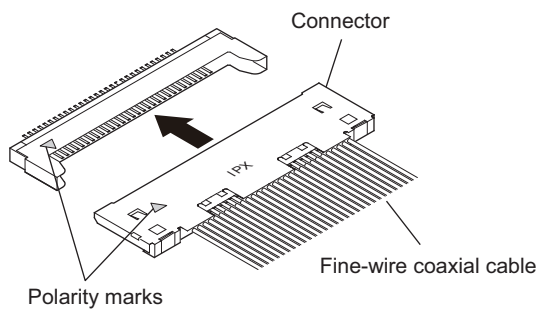
Type A

Disconnecting



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

Connecting



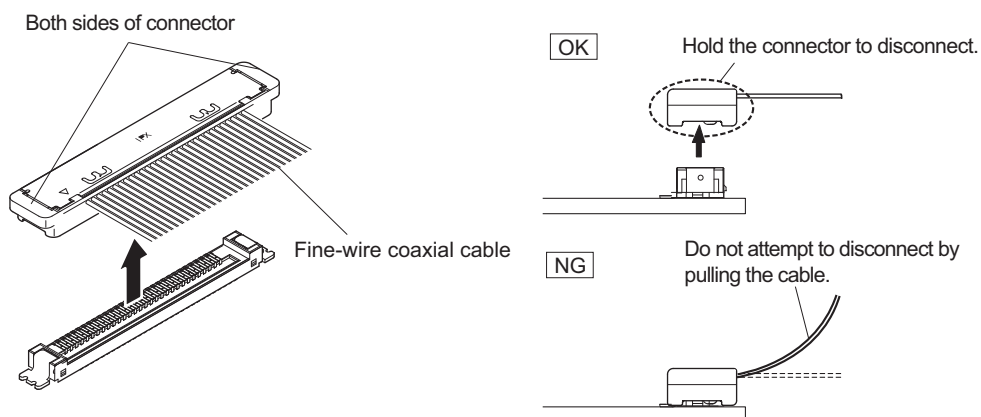
Note

Firmly insert the connector straight as far as it will go.

1. Insert the connector straight matching the polarity marks.

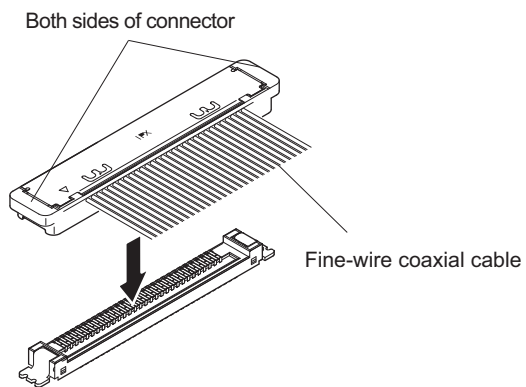
Type B

Disconnecting



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

Connecting



Note

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

1. Insert firmly the connector of fine-wire coaxial cable in the interior.

1-9. Lead-free 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

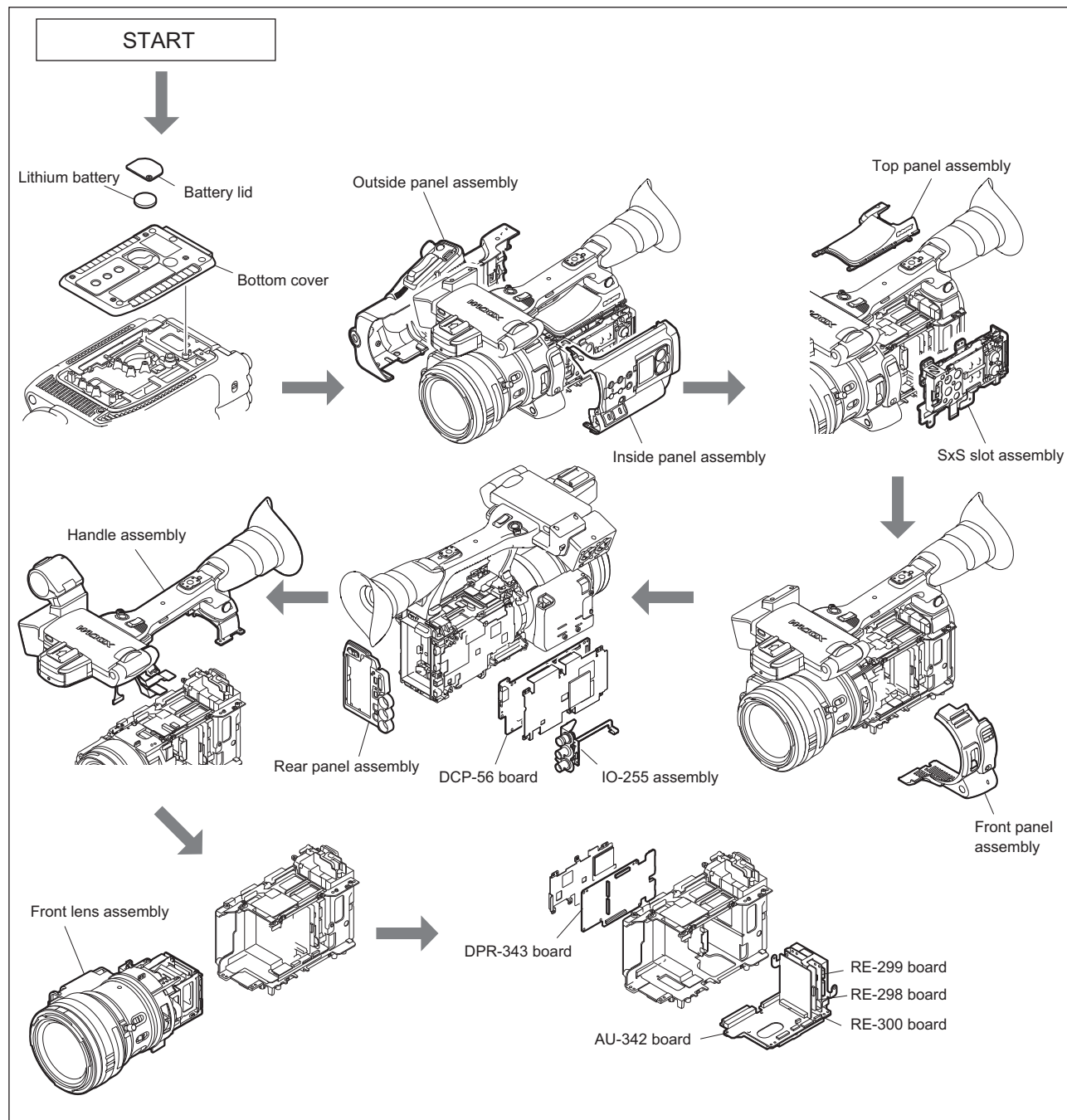
- Be sure to use the unleaded solder for the printed circuit board printed with the lead free mark.
- The unleaded solder melts at a temperature about 40 °C higher than the ordinary solder. Therefore, it is recommended to use a soldering iron having a temperature regulator.
- The ordinary soldering iron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

2-1. Outline of Replacement Procedure

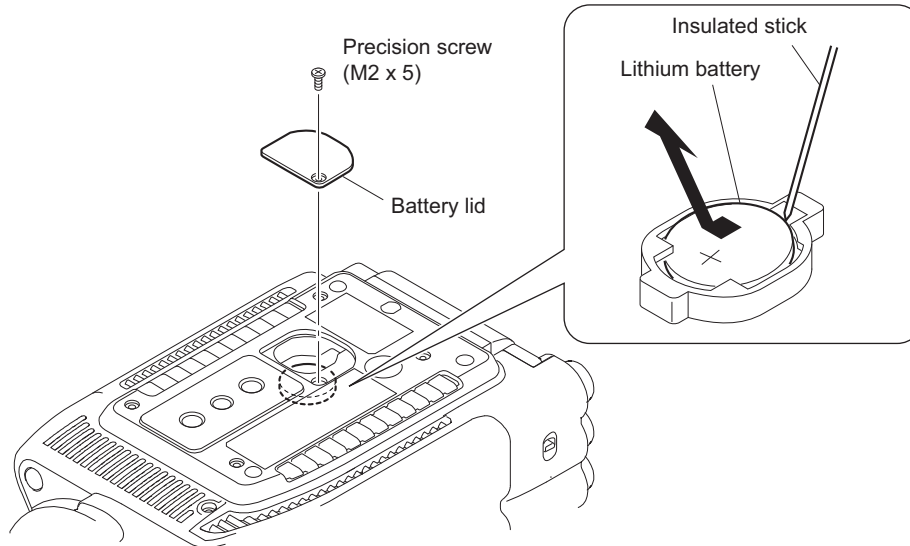
The following figure shows the main parts removing flow.



2-2. Lithium Battery

Procedure

1. Remove the precision screw (M2 x 5) to detach the battery lid.
2. Remove the lithium battery with an insulated stick.



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

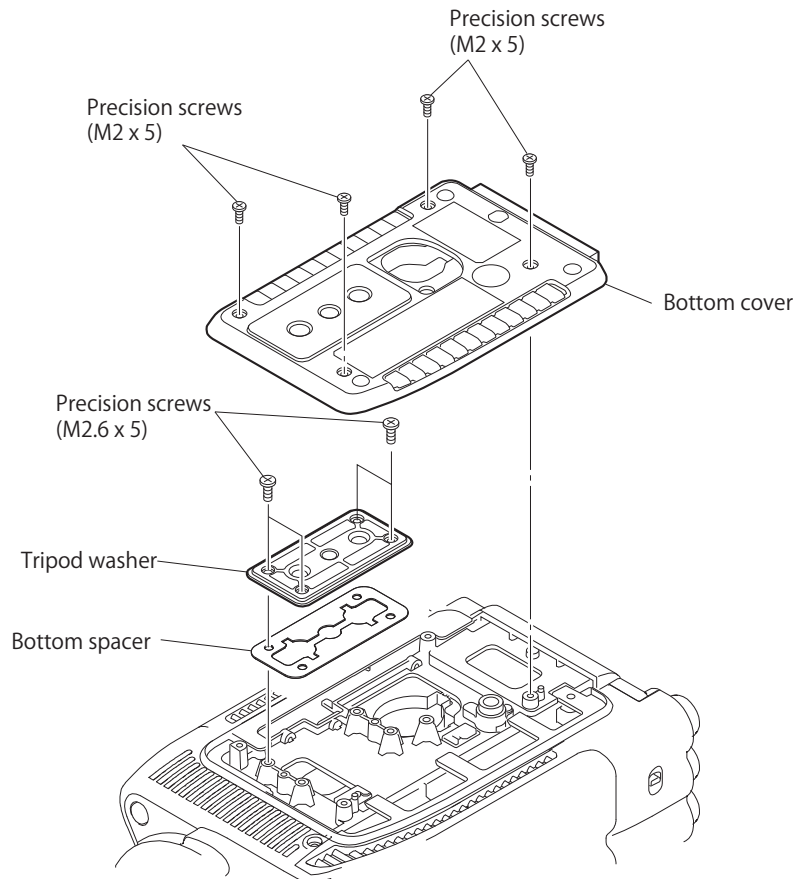
2-3. Bottom Cover and Tripod Washer

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)

Procedure

1. Remove the four precision screws (M2 x 5) to detach the bottom cover.
2. Remove the four precision screws (M2.6 x 5) to detach the bottom spacer and tripod washer.



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

2-4. Inside Panel

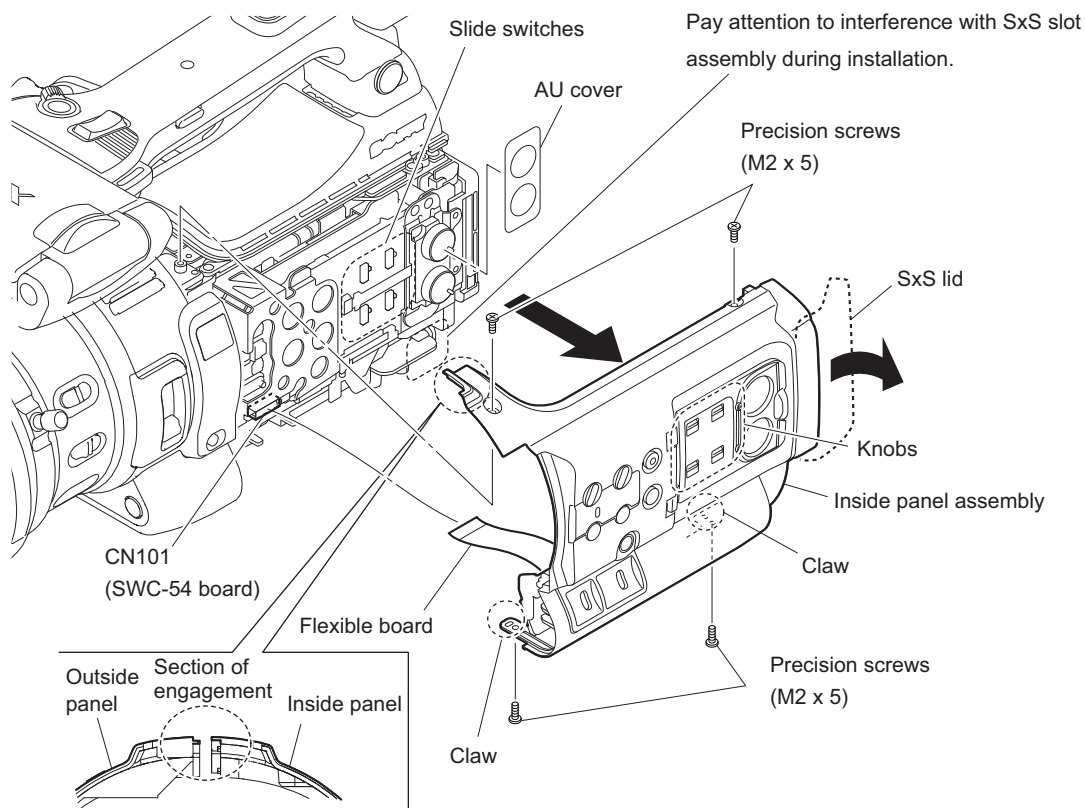
2-4-1. Inside Panel Assembly

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)

Procedure

1. Remove the four screws (M2 x 5) and the two claws and open the SxS lid.
2. Pull out the inside panel assembly in the arrow direction.
3. Disconnect the flexible board from the connector CN101 on the SWC-54 board and Remove the inside panel assembly.
4. Detach the AU cover.



Note

Align the phase of the slide switch and the knob. At the section of engagement with the outside panel, install the inside panel assembly so that the inside panel is above the outside panel.

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

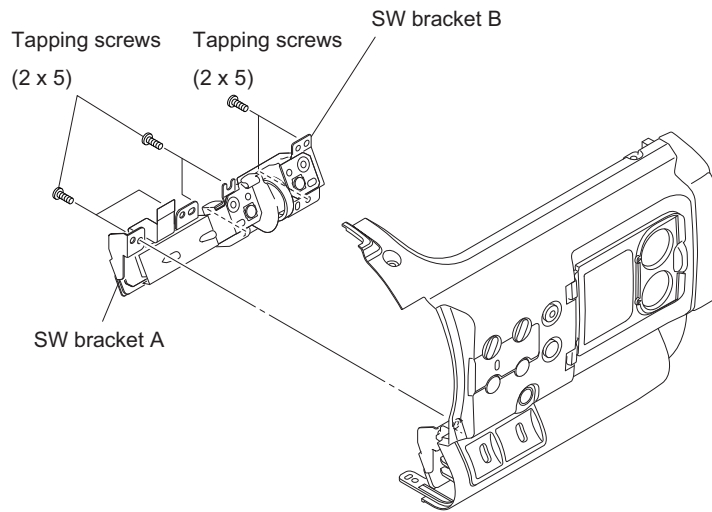
2-4-2. SW-1577/SW-1578/SW-1579 Board

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)

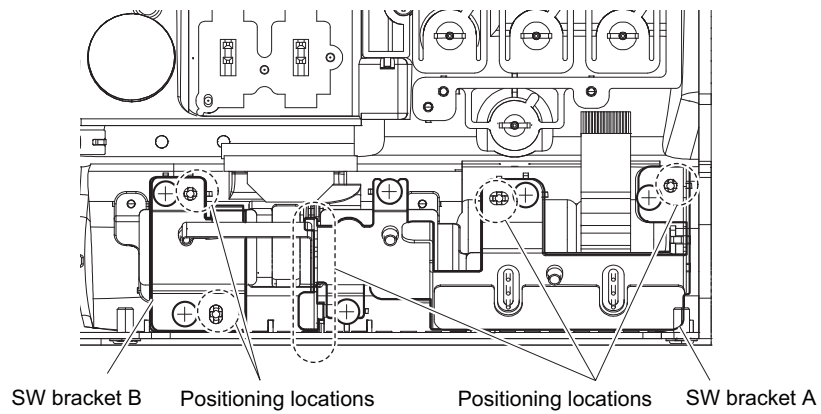
Procedure

1. Remove the six tapping screws (2 x 5) to detach the SW bracket A and SW bracket B.

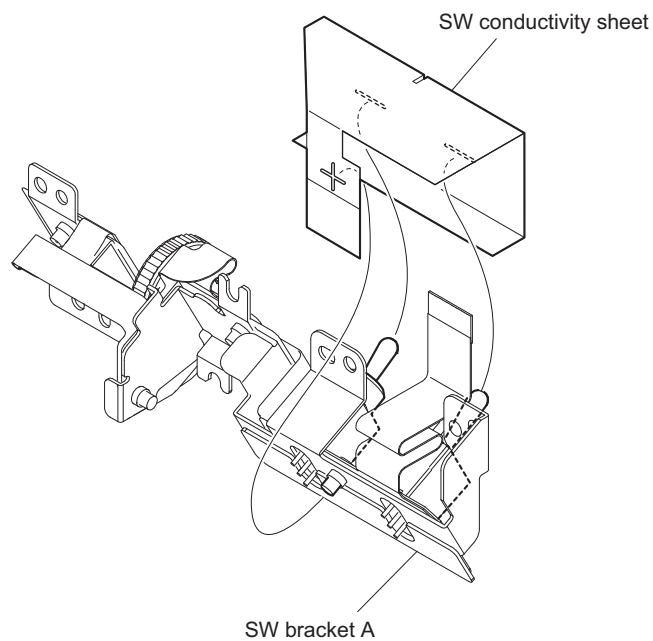


Note

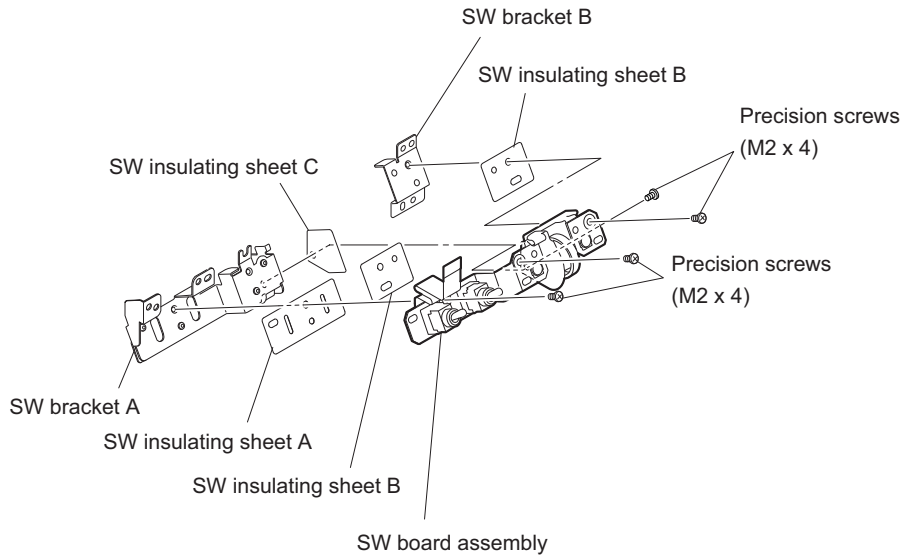
Position the SW bracket A at three points and the SW bracket B at two points when installing them.



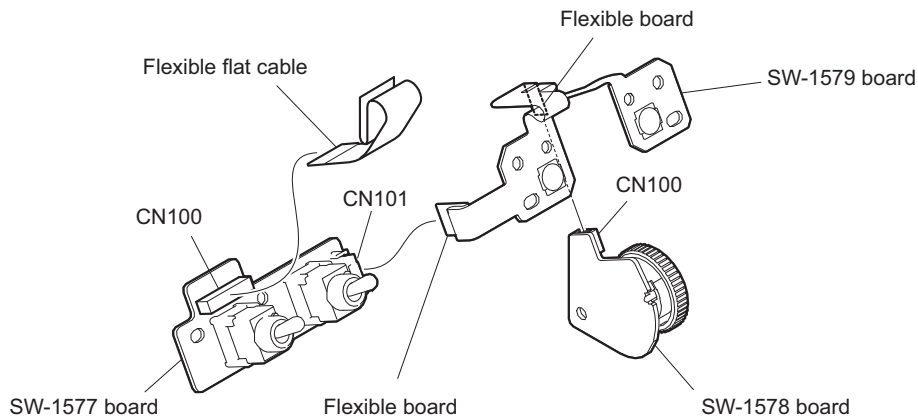
2. Remove the SW conductivity sheet from the SW bracket A.



- Remove the four precision screws (M2 x 4) to detach the SW board assembly, insulating sheet A, two SW insulating sheets B, and SW insulating sheet C.



- Disconnect the flexible board from the connector CN100 on the SW-1578 board.
- Disconnect the flexible board from the connector CN101 on the SW-1577 board.
- Disconnect the flexible flat cable from the connector CN100 on the SW-1577 board.



- Install the removed parts by reversing steps of removal.

2-4-3. SxS Lid Assembly

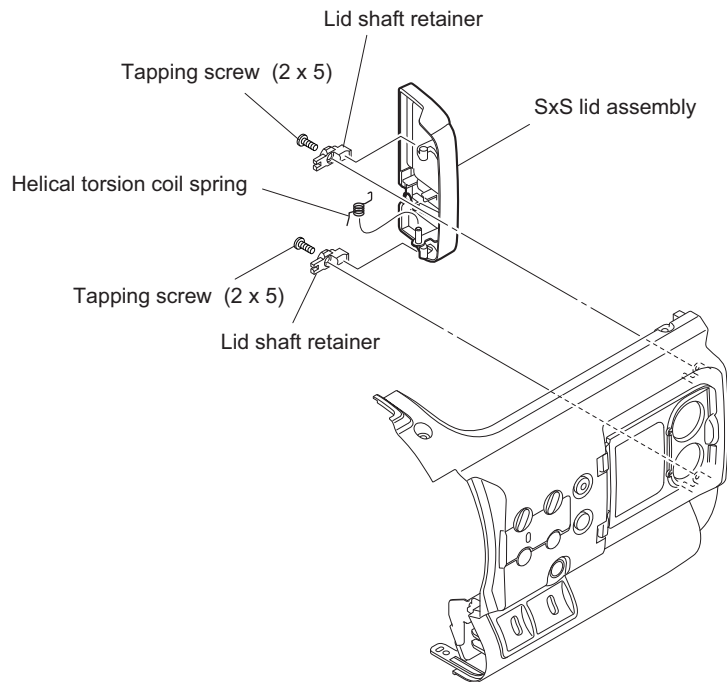
Preparation

- Remove the battery lid. (Refer to [“2-2. Lithium Battery”](#).)
- Remove the bottom cover. (Refer to [“2-3. Bottom Cover and Tripod Washer”](#).)
- Remove the inside panel assembly. (Refer to [“2-4-1. Inside Panel Assembly”](#).)

Procedure

- Remove the two tapping screws (2 x 5) to detach the lid shaft retainer.

2. Remove the helical torsion coil spring to detach the SxS lid assembly.



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

2-4-4. AU Cover Sub Assembly

Preparation

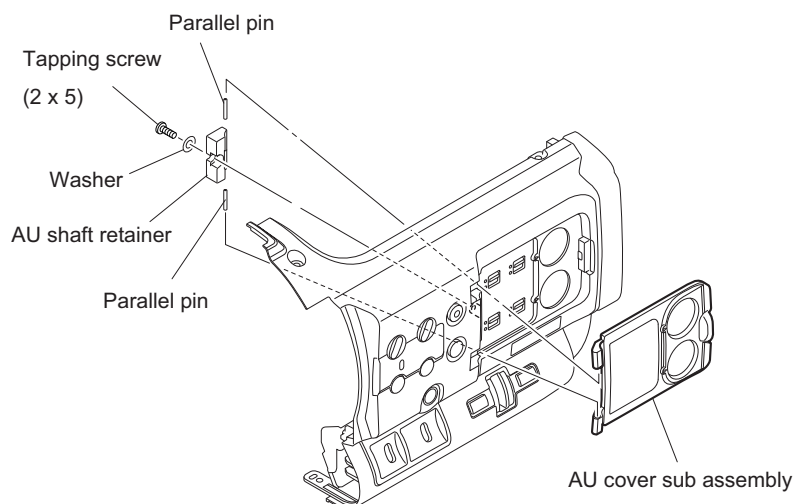
1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)

Procedure

1. Remove the tapping screw (2 x 5) and the washer to detach the AU shaft retainer.
2. Remove the two parallel pins to detach the AU cover sub assembly.

Note

The parallel pins are press-fit. Use a tool to remove them.



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

2-5. Outside Panel

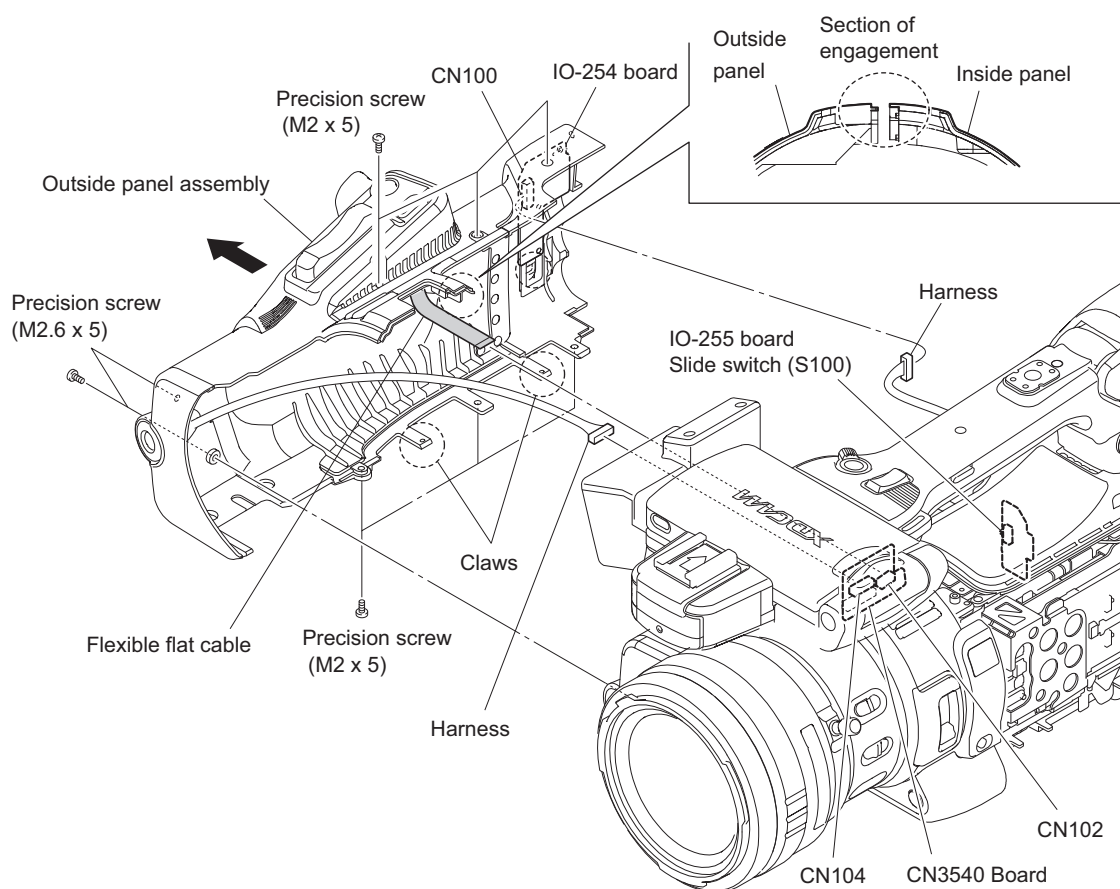
2-5-1. Outside Panel Assembly

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)

Procedure

1. Remove the six precision screws (M2 x 5) and the two precision screws (M2.6 x 5).
2. Remove the two claws and remove the outside panel assembly in the arrow direction.
3. Disconnect the harness from the connector CN100 on the IO-254 board.
4. Disconnect the harness and the flexible flat cable from the two connectors CN102, CN104 on the CN-3540 board and remove the outside panel assembly.



Note

When installing the outside panel assembly, align the phase of the slide switch (S100) on the IO-255 board and the knob of the outside panel assembly. At the section of engagement with the inside panel, install the outside panel assembly so that the outside panel is under the inside panel.

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

2-5-2. Zoom Seesaw Assembly

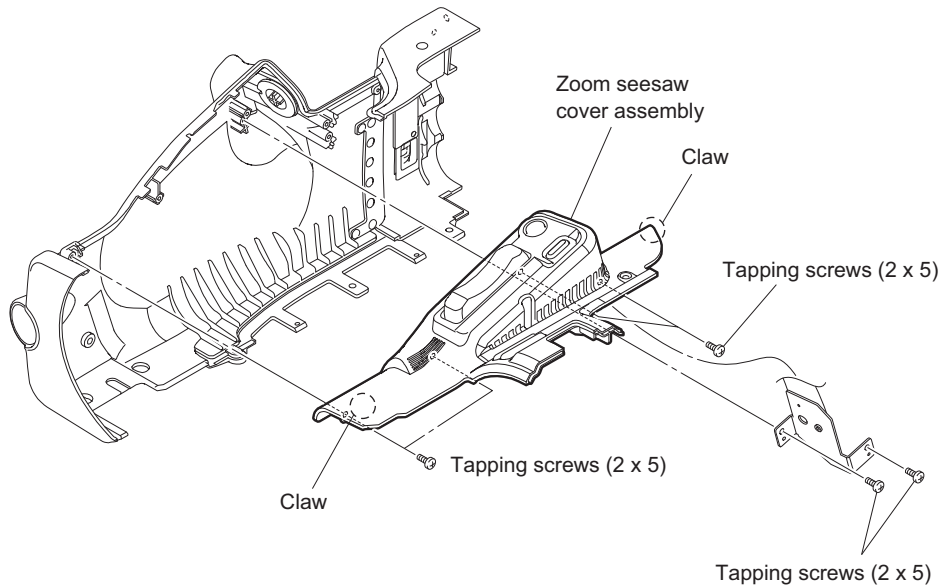
Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)

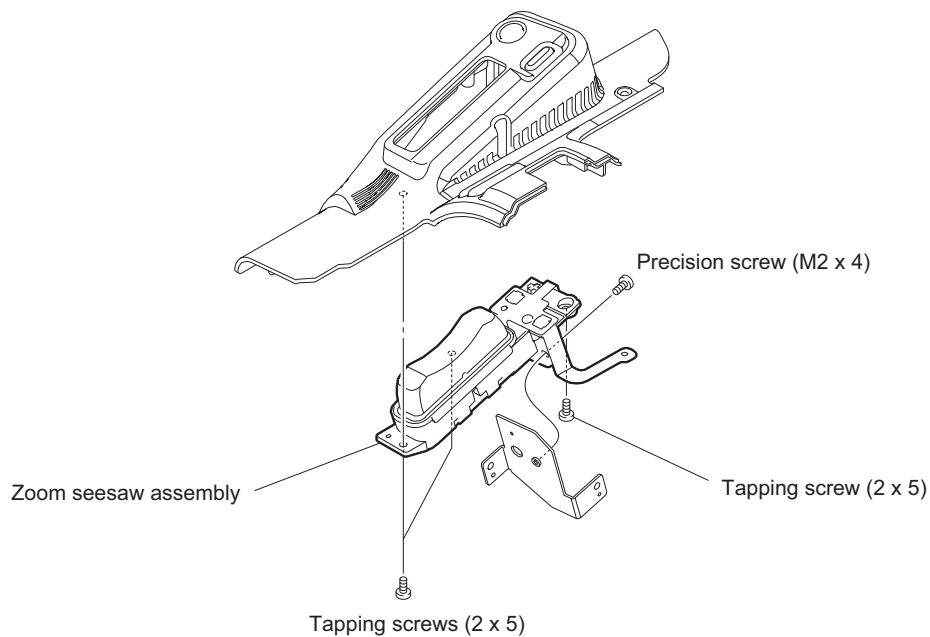
3. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)

Procedure

1. Remove the six tapping screws (2 x 5).
2. Remove the two claws to detach the zoom seesaw cover assembly.



3. Remove the precision screw (M2 x 4) and the three tapping screws (2 x 5) to detach the zoom seesaw assembly.



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

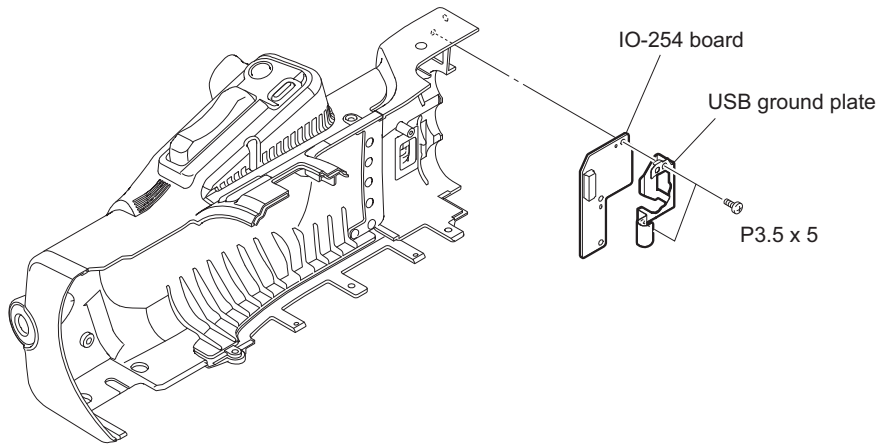
2-5-3. IO-254 Board

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the outside panel assembly. (Refer to “2-5. Outside Panel”.)

Procedure

1. Remove the two screws to detach the USB ground plate and the IO-254 board.



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

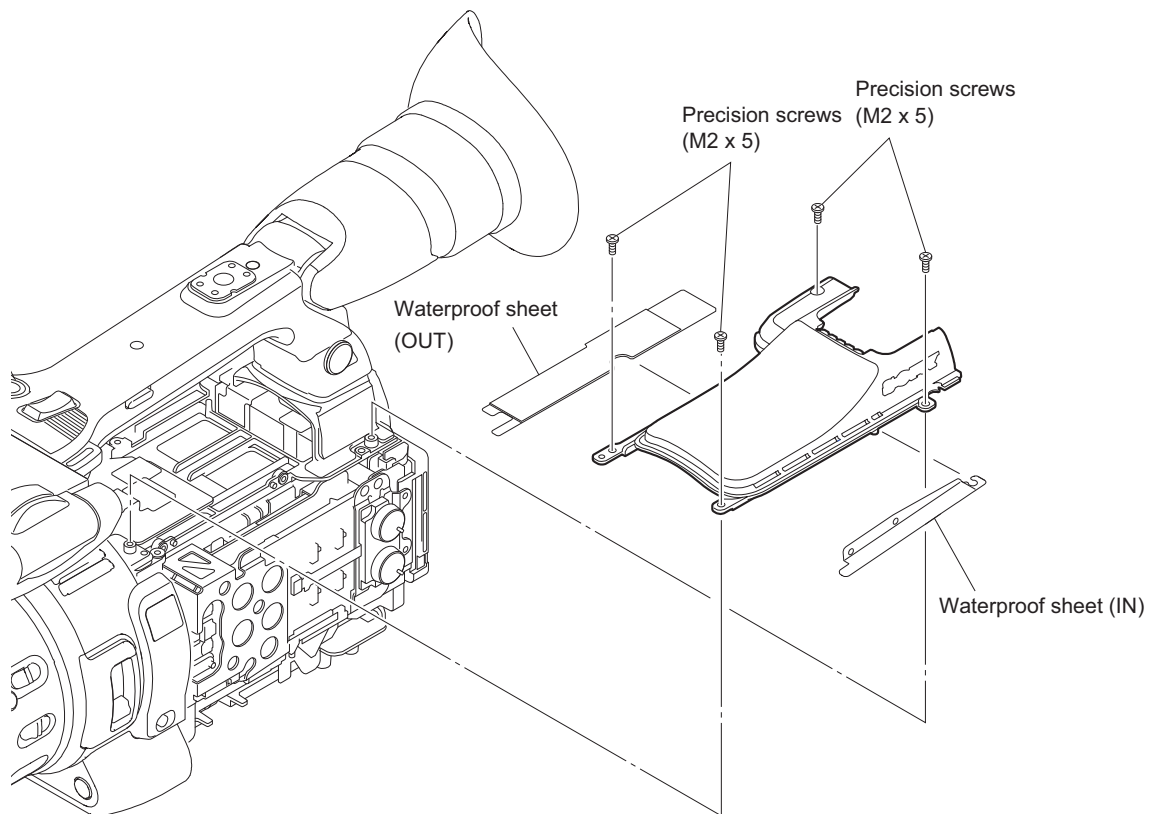
2-6. Top Panel Assembly

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)

Procedure

1. Remove the four screws.
2. Remove the top panel, waterproof sheet (IN), and waterproof sheet (OUT).



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

2-7. SxS Slot

2-7-1. SxS Slot Assembly

Item to be prepared

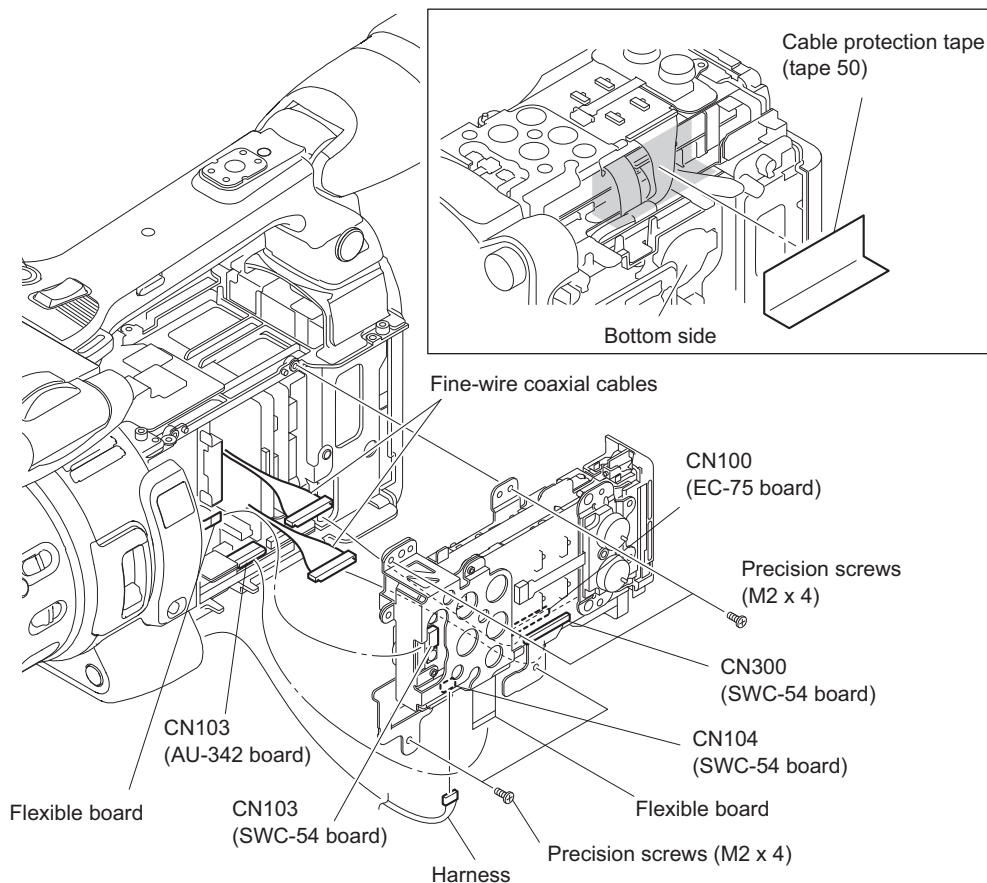
- Tape50 (Part No. 3-878-657-01) x 1

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)

Procedure

1. Peel off the cable protection tape (Tape50).
2. Disconnect the flexible board from the connector CN103 on the SWC-54 board.
3. Disconnect the fine-wire coaxial cable from the connector CN300 on the SWC-54 board.
4. Disconnect the harness from the connector CN104 on the SWC-54 board.
5. Disconnect the fine-wire coaxial cable from the connector CN100 on the EC-75 board.
6. Remove the four precision screws.
7. Disconnect the flexible board from the connector CN103 on the AU-342 board.



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

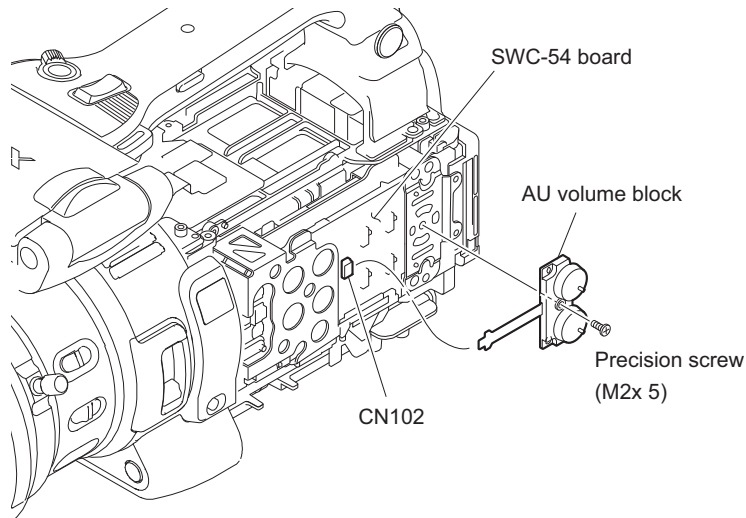
2-7-2. AU Volume Block

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)

Procedure

1. Remove the precision screw (M2 x 5).
2. Disconnect the AU volume block from the connector CN102 on the SWC-54 board.



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

2-7-3. SWC-54 Board/EC-75 Board

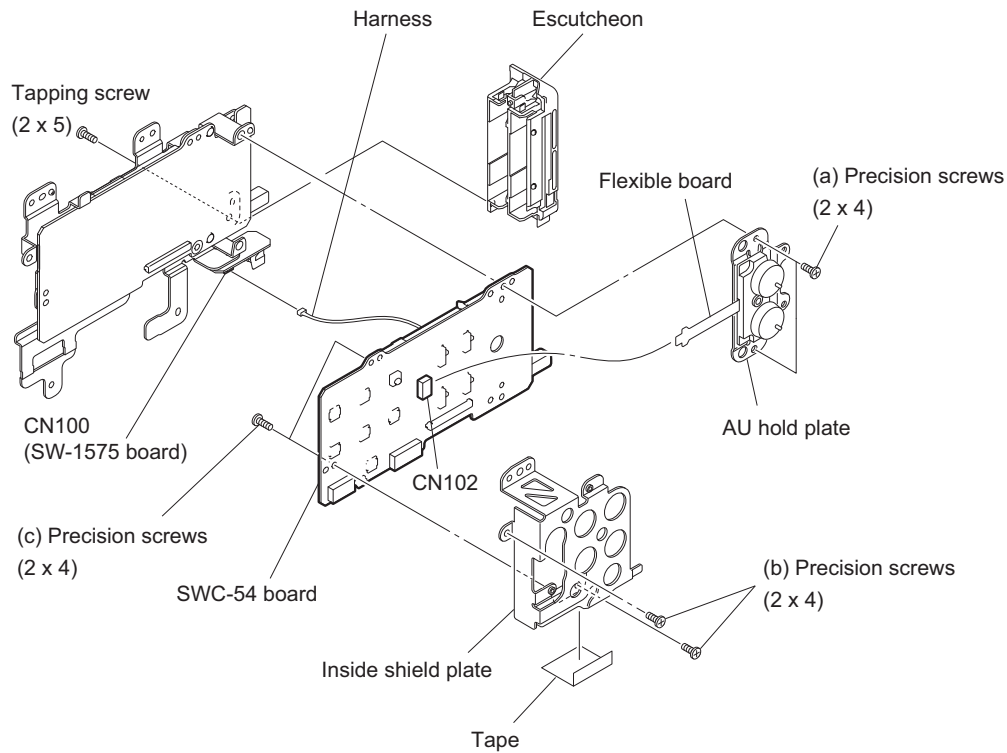
Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)
6. Remove the SxS slot assembly. (Refer to “2-7-1. SxS Slot Assembly”.)

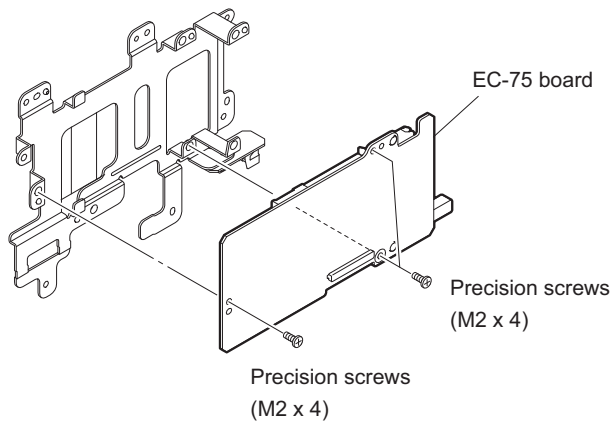
Procedure

1. Disconnect the flexible board from the connector CN102 on the SWC-54 board.
2. Remove the two (a) precision screws (M2 x 4) to detach the AU hold plate.
3. Remove the tapping screw (2 x 5) to detach the escutcheon.
4. Disconnect the harness from the connector (CN100) on the SW-1575 board.
5. Remove the three (b) precision screws (M2 x 4).

6. Remove the two (c) precision screws (M2 x 4) to detach the inside shield plate from the SWC-54 board.



7. Remove the three precision screws (M2 x 4) to detach the EC-75 board.



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

2-8. Front Panel

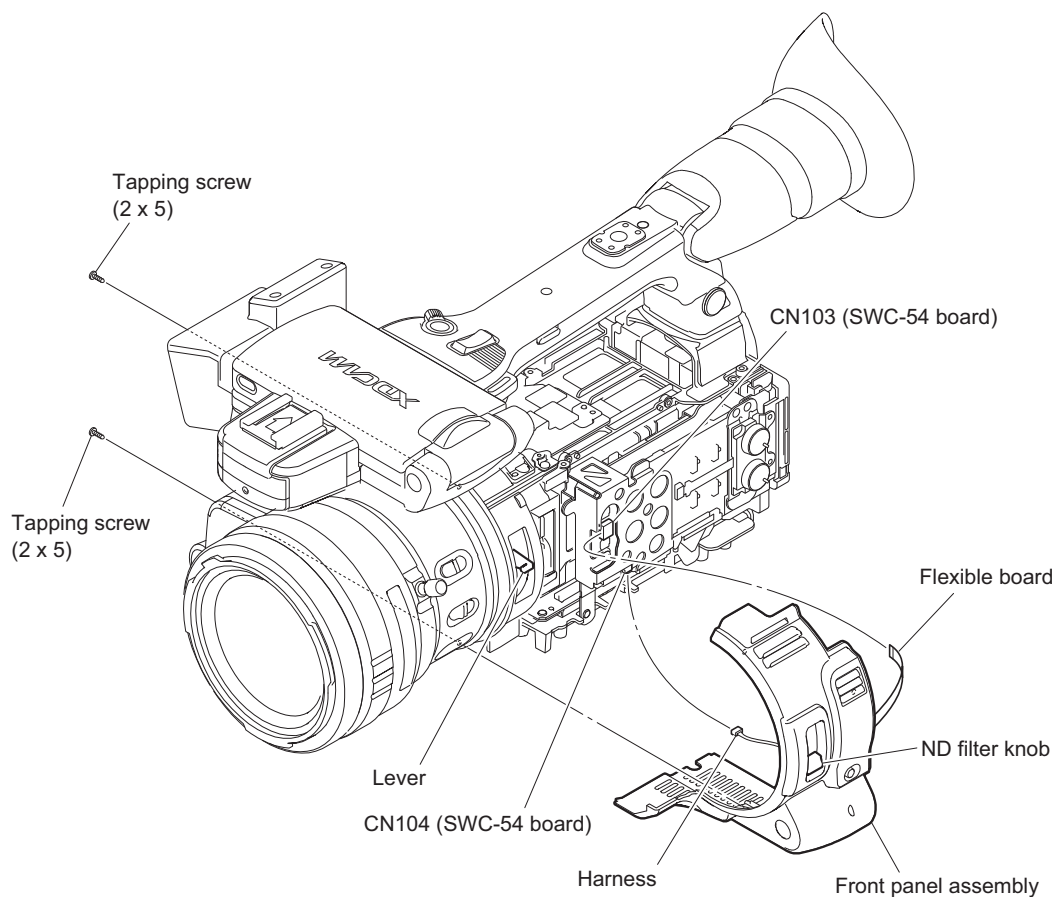
2-8-1. Front Panel Assembly

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)

Procedure

1. Disconnect the flexible board from the connector CN103 on the SWC-54 board.
2. Disconnect the harness from the connector CN104 on the SWC-54 board.
3. Remove the two tapping screws (2 x 5) to detach the front panel assembly.



4. **Note**

When installing the Front panel assembly, fit the ND filter knob with the lever.

Install the removed parts by reversing steps of removal.

2-8-2. SW-1559 Board/SW-1573 Board

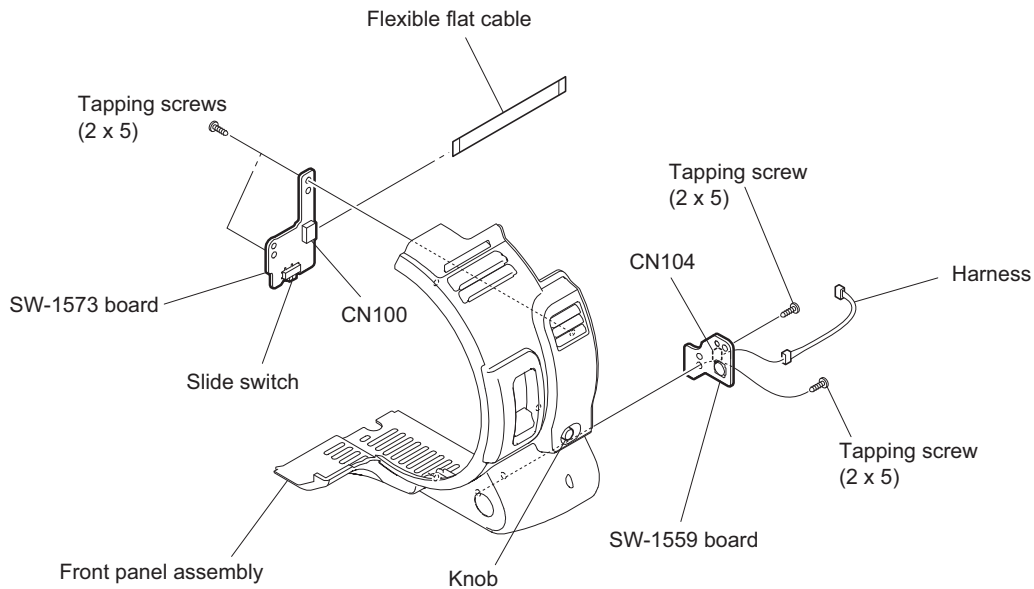
Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)

4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)
6. Remove the front panel assembly. (Refer to “2-8-1. Front Panel Assembly”.)

Procedure

1. Remove the two screws to detach the SW-1559 board.
2. Disconnect the harness from the connector CN104 on the SW-1559 board.
3. Remove the two screws to detach the SW-1573 board.
4. Disconnect the flexible flat cable from the connector CN100 on the SW-1573 board.



Note

Align the phase of the slide switch on the SW-1573 board and the knobs on the front panel assembly during installation.

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

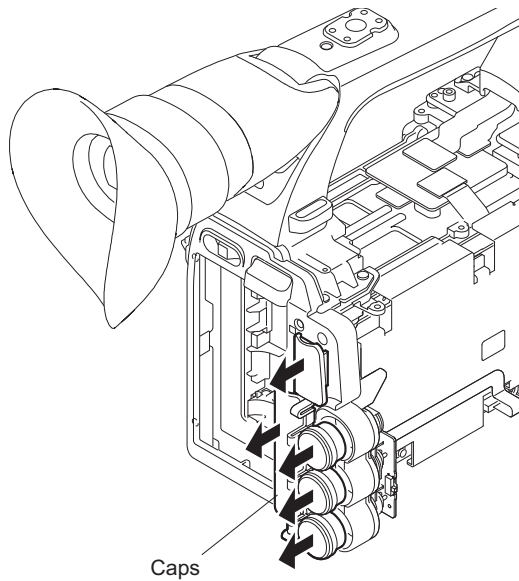
2-9. Rear Panel Assembly

Preparation

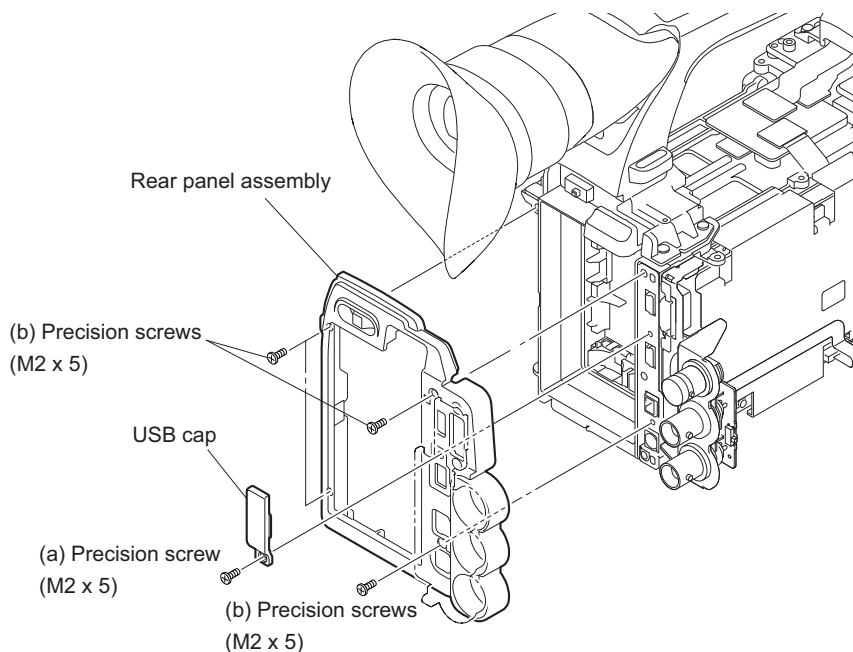
1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)
6. Remove the SxS slot assembly. (Refer to “2-7-1. SxS Slot Assembly”.)

Procedure

1. Detach the cap from the connector.



2. Remove the (a) precision screw (M2 x 5) to detach the USB cap.
3. Remove the four (b) precision screws (M2 x 5) to detach the rear panel assembly.



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

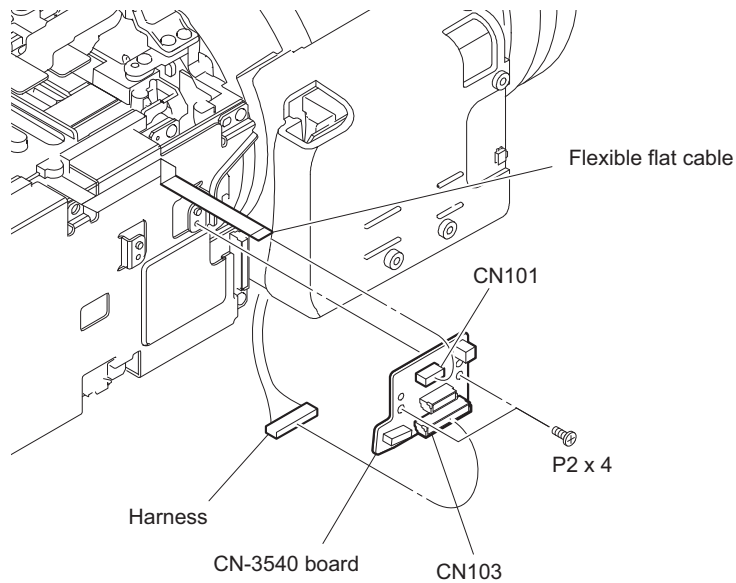
2-10. CN-3540 Board

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)

Procedure

1. Disconnect the flexible flat cable from the connector CN101 on the CN-3540 board.
2. Disconnect the harness from the connector CN103 on the CN-3540 board.
3. Remove the two screws to detach the CN-3540 board.



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

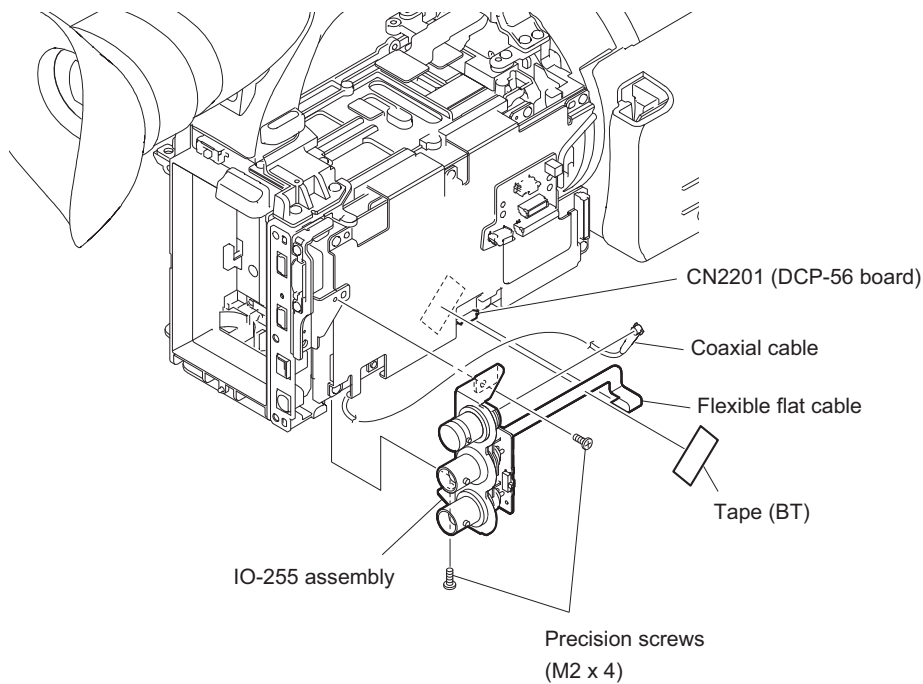
2-11. IO-255 Board

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)
6. Remove the SxS slot assembly. (Refer to “2-7-1. SxS Slot Assembly”.)
7. Remove the front panel assembly. (Refer to “2-8-1. Front Panel Assembly”.)
8. Remove the rear panel assembly. (Refer to “2-9. Rear Panel Assembly”.)

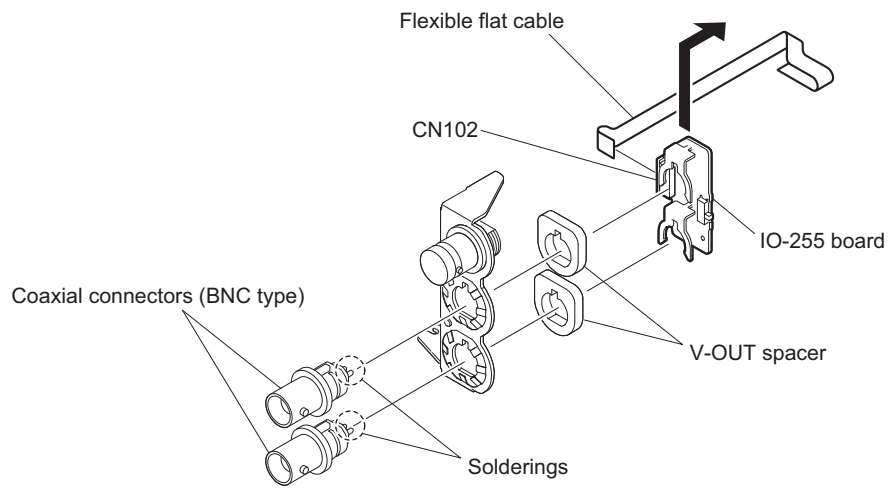
Procedure

1. Peel off the tape (BT).
2. Disconnect the flexible flat cable from the connector CN2201 on the DCP-56 board.
3. Disconnect the coaxial cable from the IO-255 assembly.
4. Remove the two precision screws (M2 x 4) to detach the IO-255 assembly.



5. Unsolder the coaxial connectors (BNC type) on the IO-255 board.
6. Remove the IO-255 board in the arrow direction, and then remove the coaxial connectors (BNC type) and the V-OUT spacer.

7. Disconnect the flexible flat cable from the connector (CN102) on the IO-255 board.



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

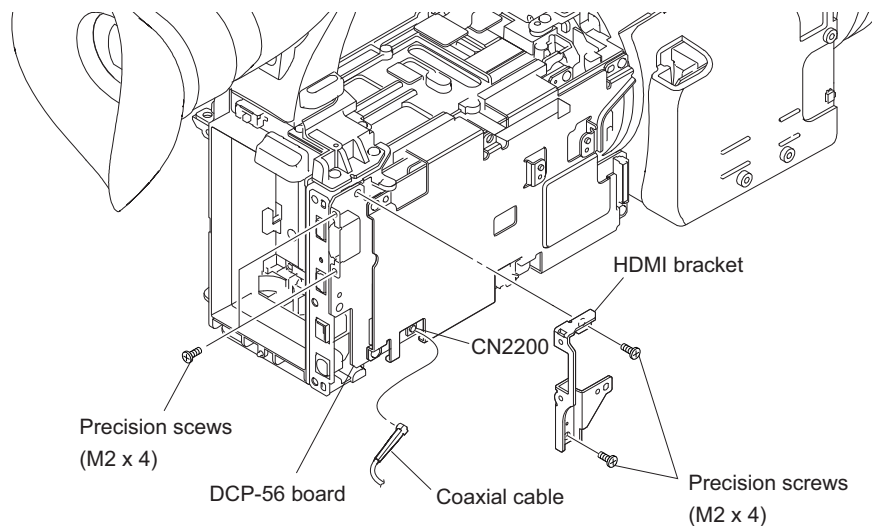
2-12. DCP-56 Board

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)
6. Remove the SxS slot assembly. (Refer to “2-7-1. SxS Slot Assembly”.)
7. Remove the front panel assembly. (Refer to “2-8-1. Front Panel Assembly”.)
8. Remove the rear panel assembly. (Refer to “2-9. Rear Panel Assembly”.)
9. Remove the CN-3540 board. (Refer to “2-10. CN-3540 Board”.)
10. Remove the IO-255 board. (Refer to “2-11. IO-255 Board”.)

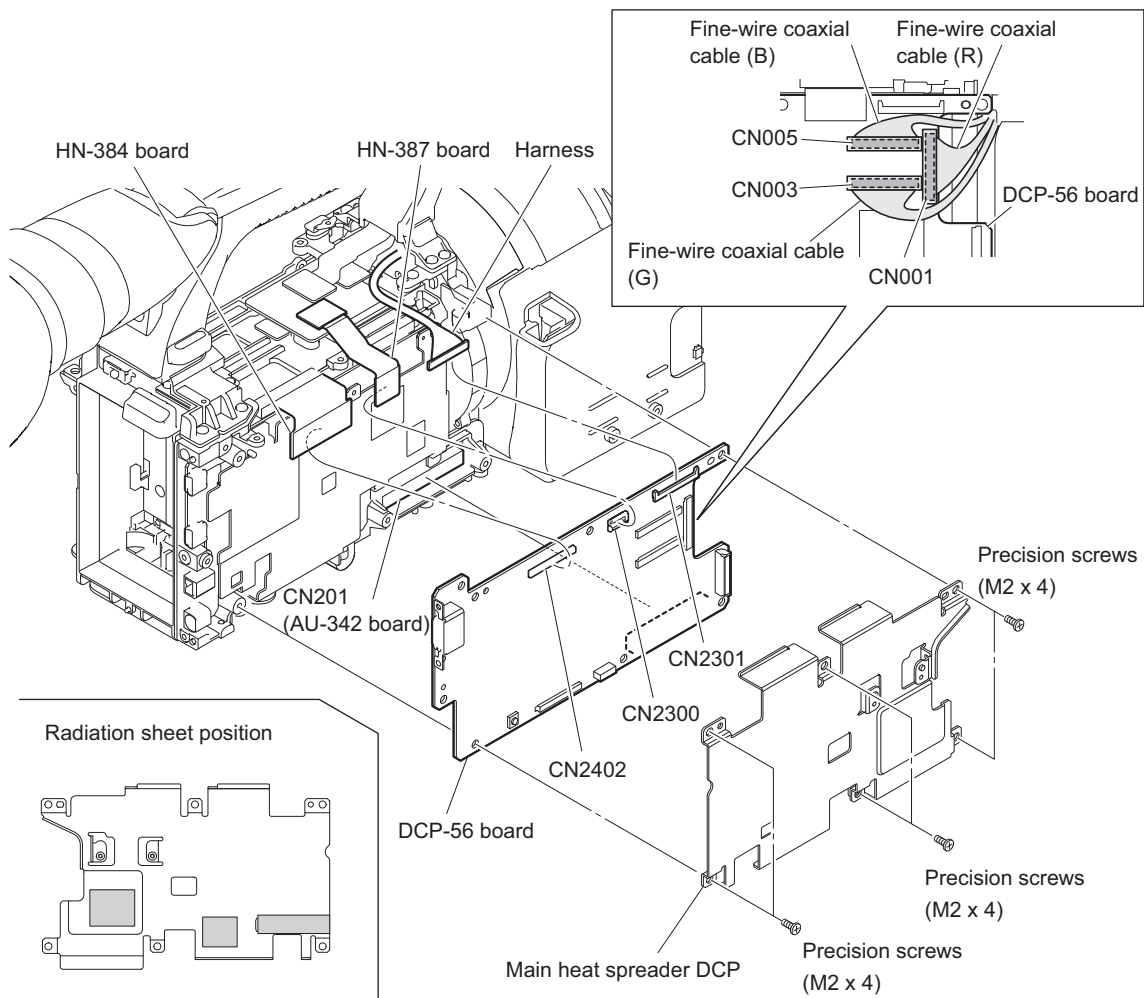
Procedure

1. Remove the four precision screws (M2 x 4) to detach the HDMI bracket.
2. Disconnect the coaxial cable from the connector CN2200 on the DCP-56 board.



3. Remove the six precision screws (M2 x 4) to detach the main heat spreader DCP.
4. Disconnect the harness from the connector CN2301 on the DCP-56 board.
5. Disconnect the HN-387 board from the connector CN2300 on the DCP-56 board.
6. Disconnect the HN-384 board from the connector CN2402 on the DCP-56 board.
7. Disconnect the three fine-wire coaxial cables from the three connectors CN001, CN303 and CN305 on the DCP-56 board.

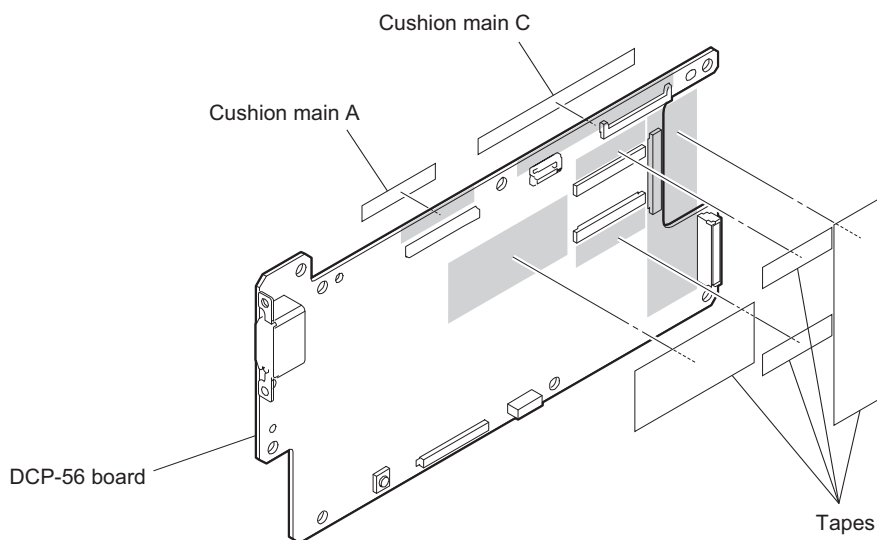
8. Disconnect the DCP-56 board from the connector CN201 on the AU-342 board.



Note

If the radiation sheet has peeled off, attach a new one referring to the figure.

9. Remove the four tapes, cushion main C, and cushion main A.



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

2-13. Handle

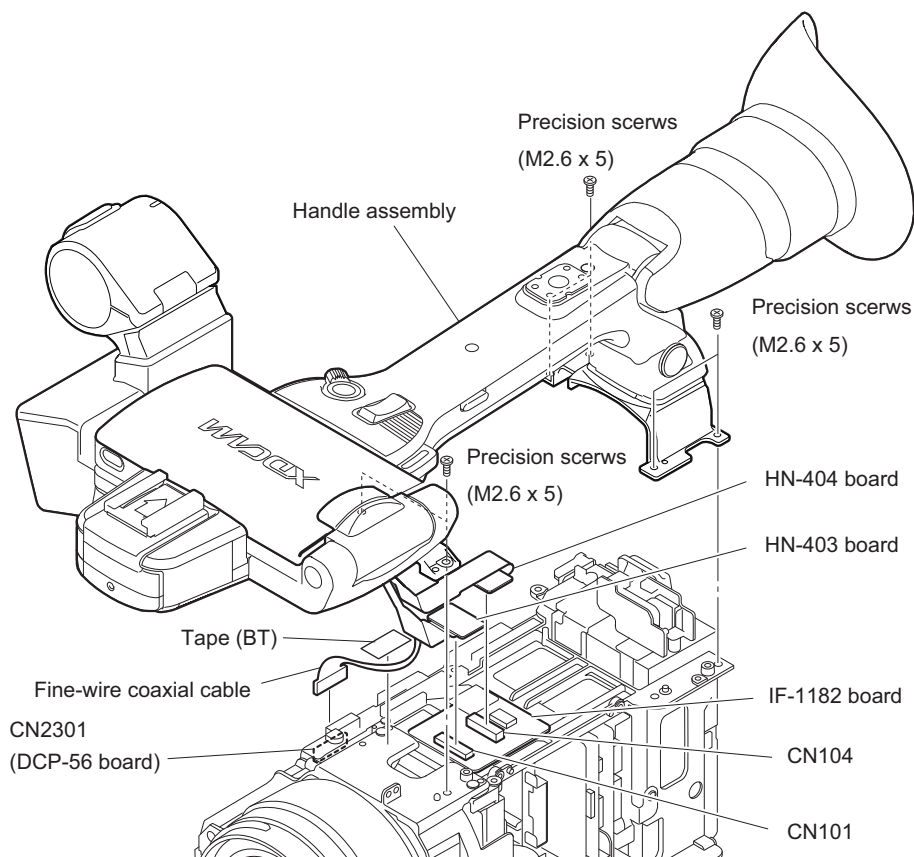
2-13-1. Handle Assembly

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)
6. Remove the SxS slot assembly. (Refer to “2-7-1. SxS Slot Assembly”.)
7. Remove the front panel assembly. (Refer to “2-8-1. Front Panel Assembly”.)
8. Remove the rear panel assembly. (Refer to “2-9. Rear Panel Assembly”.)
9. Remove the IO-255 assembly. (Refer to “2-11. IO-255 Board”.)
10. Remove the main heat spreader DCP. (Refer to “2-12. DCP-56 Board”.)

Procedure

1. Peel off the tape (BT).
2. Disconnect the fine-wire coaxial cable with connector from the connector CN2301 on the DCP-56 board.
3. Disconnect the HN-404 board from the connector CN104 on the IF-1182 board.
4. Disconnect the HN-403 board from the connector CN101 on the IF-1182 board.
5. Remove the six precision screws (M2.6 x 5) to detach the handle assembly.



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

2-13-2. Control Switch Block (GZ92000)

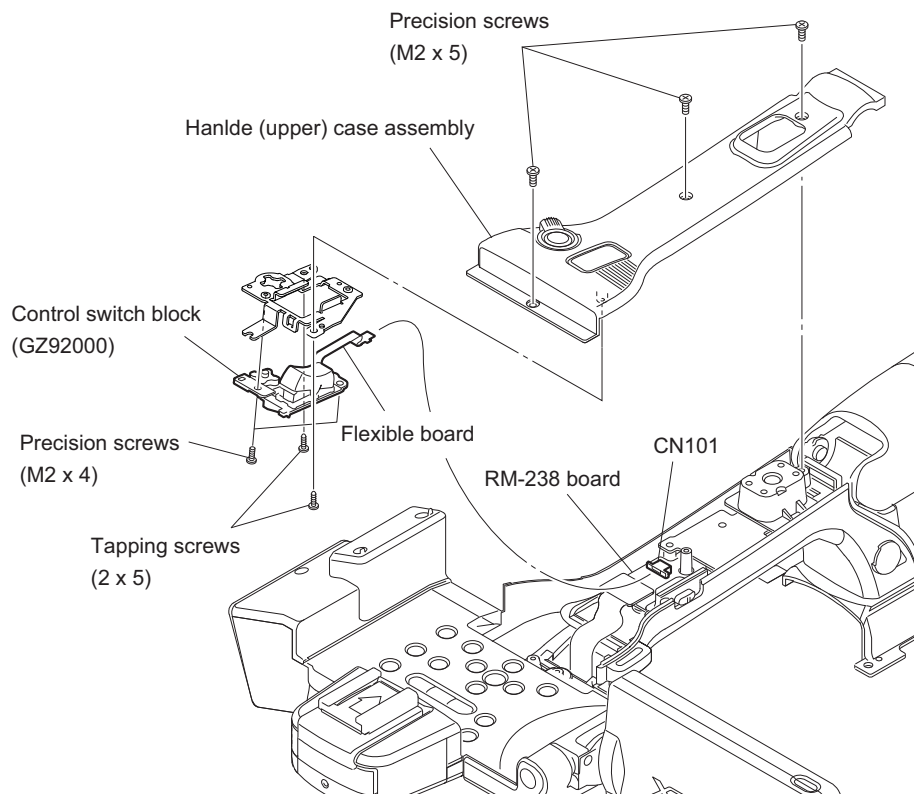
Procedure

1. Remove the three precision screws (M2 x 5).
2. Disconnect the flexible board from the connector CN101 on the RM-238 board to detach the handle (upper) case assembly.

Note

When connecting the flexible board, securely connect it to the connector CN101.

3. Remove the two tapping screws (2 x 5) and the two precision screws (M2 x 4) to detach the control switch block (GZ92000).



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

2-13-3. MIC Unit

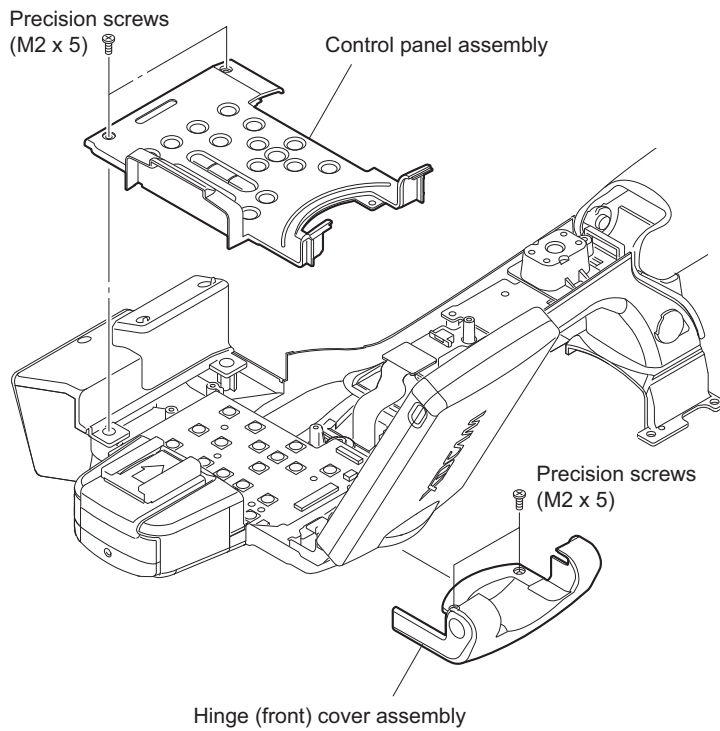
Preparation

1. Remove the handle (upper) case assembly. (Refer to [“2-13-2. Control Switch Block \(GZ92000\)”](#).)

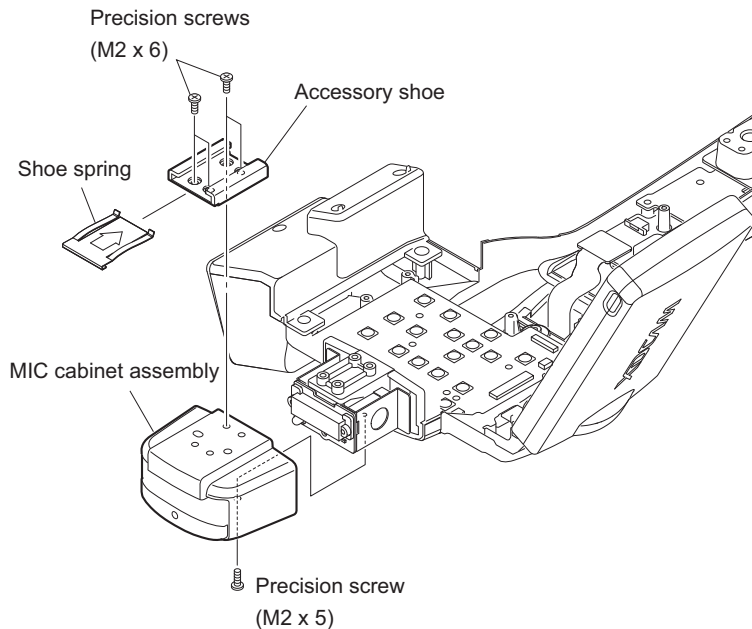
Procedure

1. Remove the two precision screws (M2 x 5) to detach the hinge (front) cover assembly.

2. Remove the two precision screws (M2 x 5) to detach the control panel assembly.

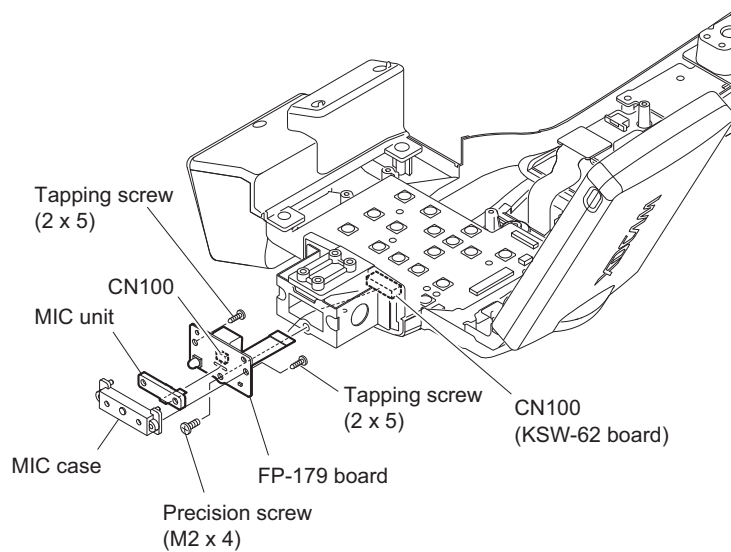


3. Remove the shoe spring.
4. Remove the four precision screws (M2 x 6) to detach the accessory shoe.
5. Remove the precision screw (M2 x 5) to detach the MIC cabinet assembly.



6. Disconnect the flexible board from the connector CN100 on the KSW-62 board.
7. Remove the precision screw (M2 x 4) to detach the FP-179 board.
8. Remove the two tapping screws (2 x 5) to detach the MIC case.

9. Disconnect the MIC unit from the connector CN100 on the FP-179 board.



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

2-13-4. EVF Case Assembly

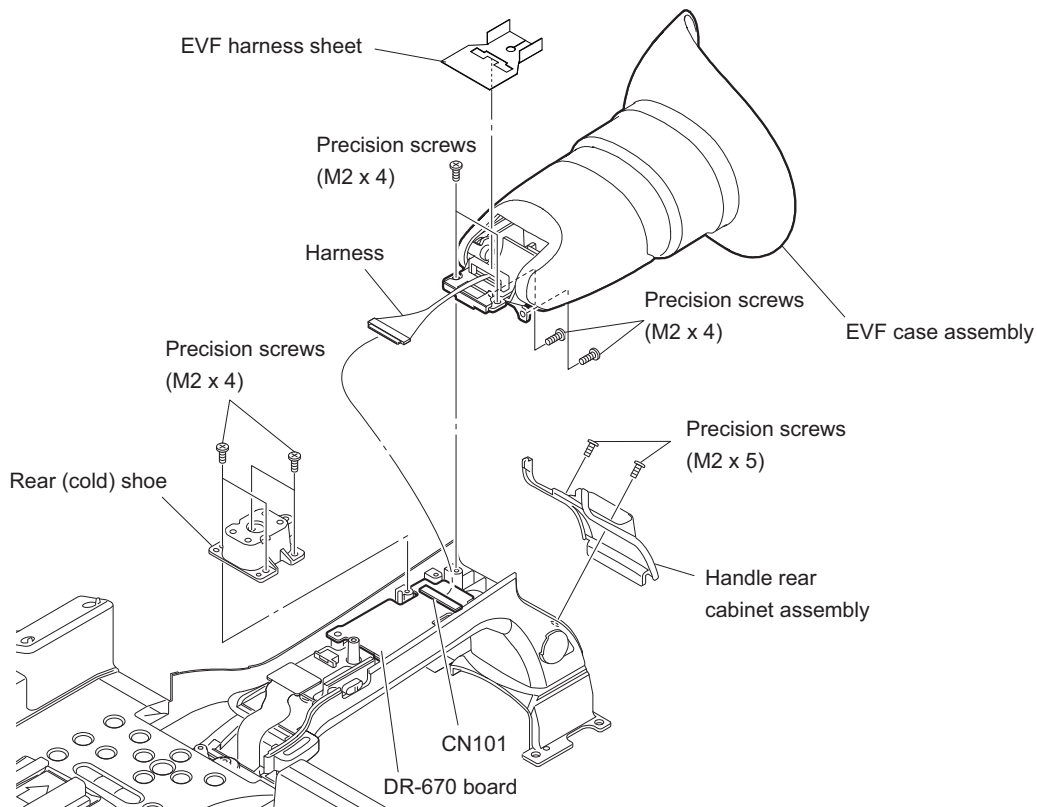
Preparation

1. Remove the battery lid. (Refer to [“2-2. Lithium Battery”](#).)
2. Remove the bottom cover. (Refer to [“2-3. Bottom Cover and Tripod Washer”](#).)
3. Remove the inside panel assembly. (Refer to [“2-4-1. Inside Panel Assembly”](#).)
4. Remove the outside panel assembly. (Refer to [“2-5-1. Outside Panel Assembly”](#).)
5. Remove the top panel assembly. (Refer to [“2-6. Top Panel Assembly”](#).)
6. Remove the SxS slot assembly. (Refer to [“2-7-1. SxS Slot Assembly”](#).)
7. Remove the rear panel assembly. (Refer to [“2-9. Rear Panel Assembly”](#).)
8. Remove the handle (upper) case assembly. (Refer to [“2-13-2. Control Switch Block \(GZ92000\)”](#).)

Procedure

1. Remove the two precision screws (M2 x 5) to detach the handle rear cabinet assembly.
2. Remove the four precision screws (M2 x 4) to detach the rear (cold) shoe.
3. Disconnect the harness from the connector CN101 on the DR-670 board.
4. Remove the EVF harness sheet.

- Remove the four precision screws (M2 x 4) to detach the EVF case assembly.



- Install the removed parts by reversing steps of removal.

2-13-5. LCD Assembly

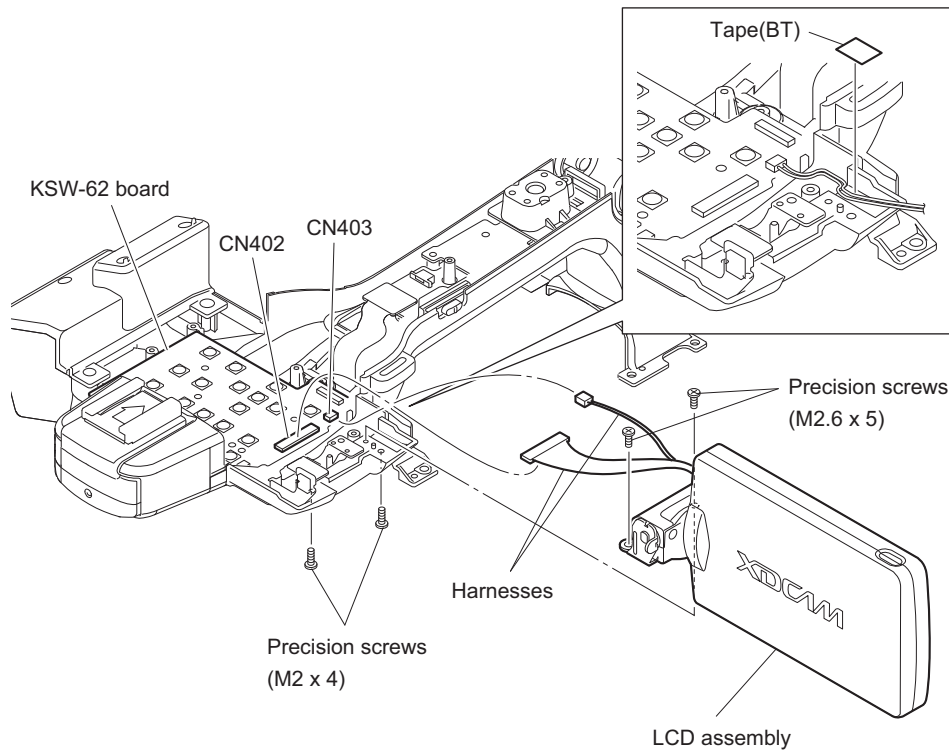
Preparation

- Remove the handle (upper) case assembly. (Refer to “2-13-2. Control Switch Block (GZ92000)”.)
- Remove the control panel assembly. (Refer to “2-13-3. MIC Unit”.)

Procedure

- Peel off the tape (BT).
- Disconnect the harnesses from the connectors CN402 and CN403 on the KSW-62 board.

3. Remove the two precision screws (M2 x 4) and the two precision screws (M2.6 x 5) to detach the LCD assembly.



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

2-13-6. DET-55 Board

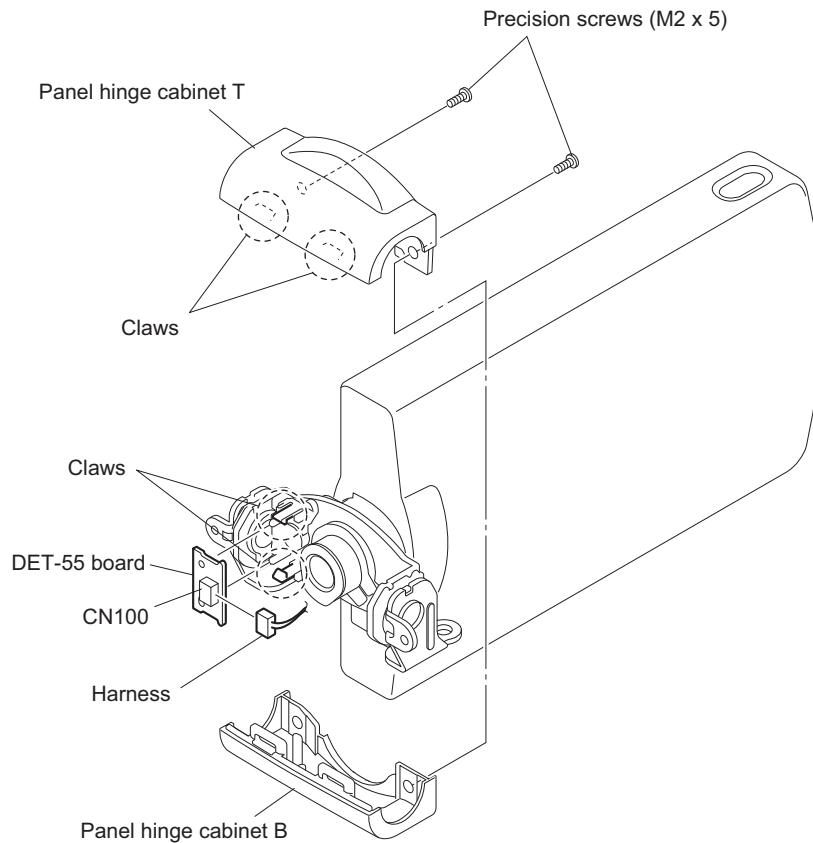
Preparation

1. Remove the handle (upper) case assembly. (Refer to “2-13-2. Control Switch Block (GZ92000)”.)
2. Remove the control panel assembly. (Refer to “2-13-3. MIC Unit”.)
3. Remove the LCD assembly. (Refer to “2-13-5. LCD Assembly”.)

Procedure

1. Remove the two precision screws (M2 x 5) and the two claws to detach the panel hinge cabinet T and the panel hinge cabinet B.
2. Disconnect the harness from the connector CN100 on the DET-55 board.

3. Remove the two claws to detach the DET-55 board.



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

2-13-7. LCD Panel

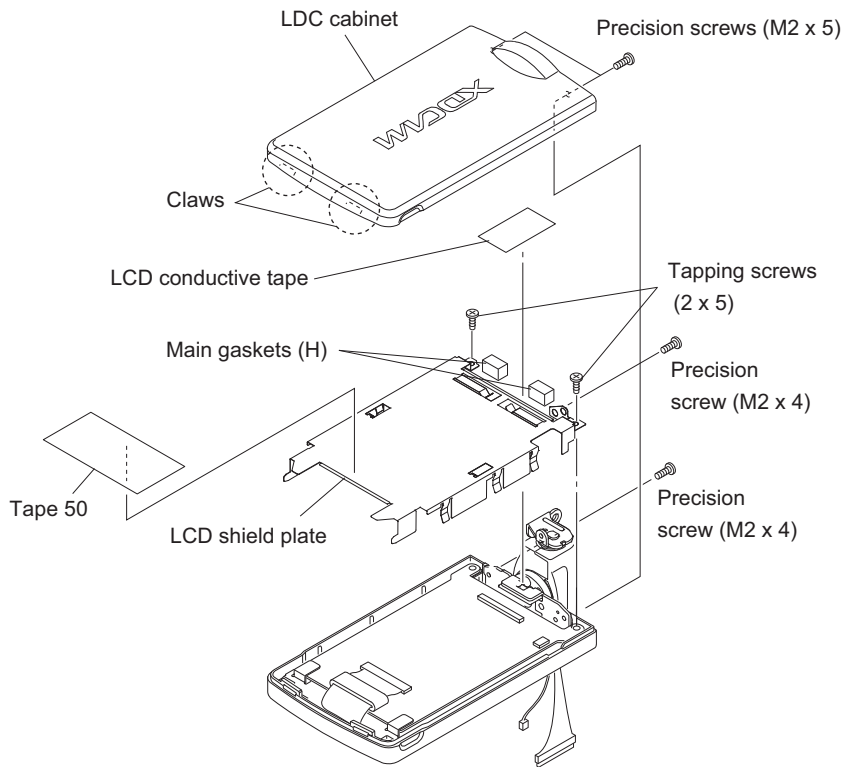
Preparation

1. Remove the handle (upper) case assembly. (Refer to [“2-13-2. Control Switch Block \(GZ92000\)”](#).)
2. Remove the control panel assembly. (Refer to [“2-13-3. MIC Unit”](#).)
3. Remove the LCD assembly. (Refer to [“2-13-5. LCD Assembly”](#).)

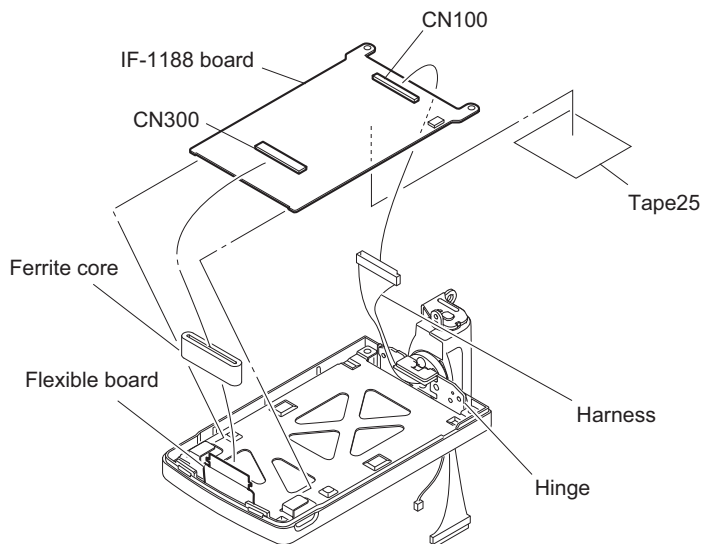
Procedure

1. Remove the two precision screws (M2 x 5) and the two claws to detach the LCD cabinet.
2. Peel off the tape 50 and the LCD conductive tape.
3. Remove the main gasket (H).
4. Remove the two precision screws (M2 x 4).

5. Remove the two tapping screws (2 x 5) to detach the LCD shield plate.

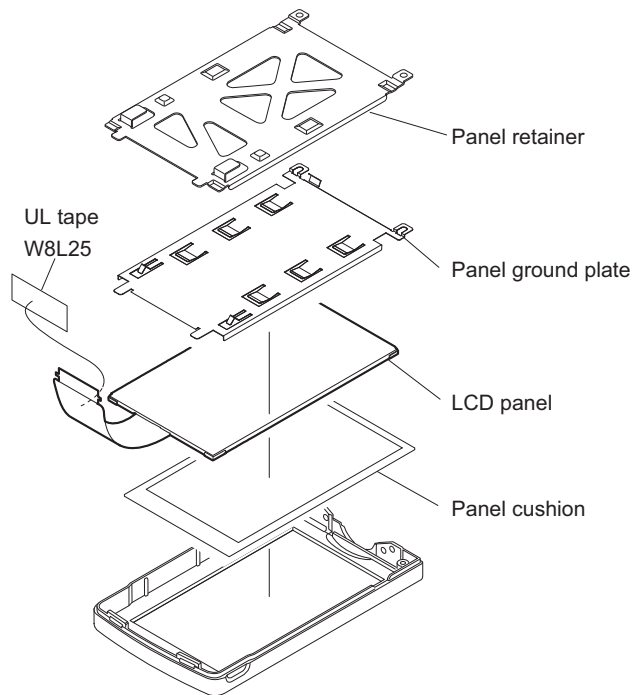


6. Disconnect the harness from the connector CN100 on the IF-1188 board.
7. Disconnect the flexible board from the connector CN300 on the IF-1188 board, and remove the ferrite core.
8. Remove the IF-1188 board and hinge.
9. Peel off the tape 25.



10. Remove the panel retainer and panel ground plate, and then remove the LCD panel.
11. Peel off the UL tape W8L25.

12. Remove the panel cushion.



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

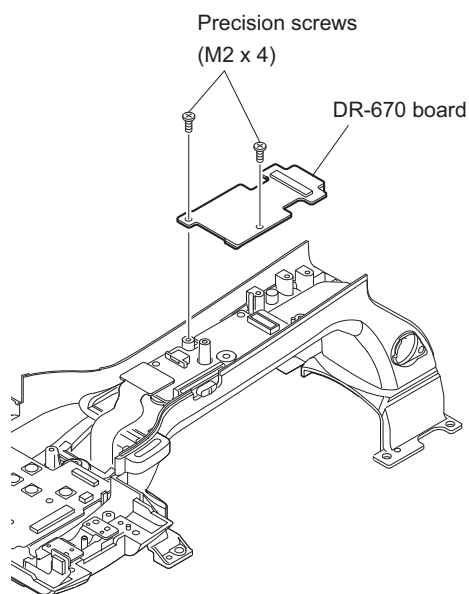
2-13-8. DR-670 Board/RM-237 Board/RM-238 Board

Preparation

1. Remove the handle (upper) case assembly. (Refer to [“2-13-2. Control Switch Block \(GZ92000\)”](#).)
2. Remove the EVF case assembly and rear (cold) shoe. (Refer to [“2-13-4. EVF Case Assembly”](#).)

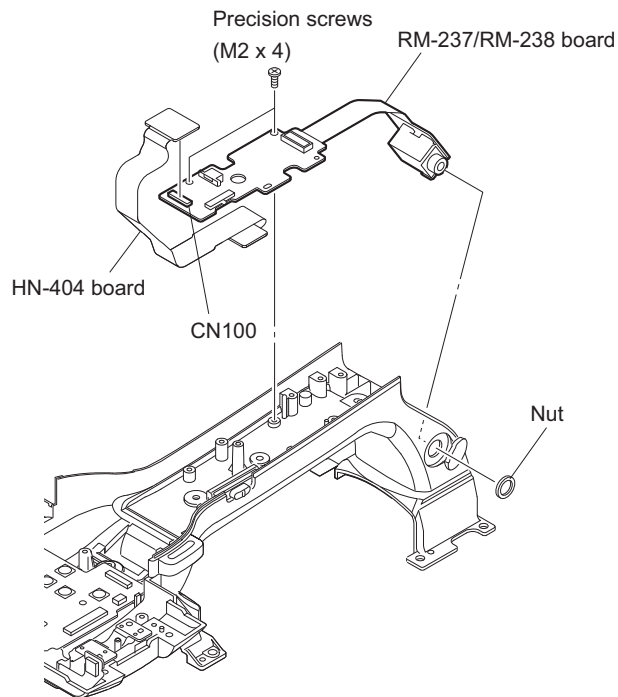
Procedure

1. Remove the two precision screws (M2 x 4) to detach the DR-670 board.

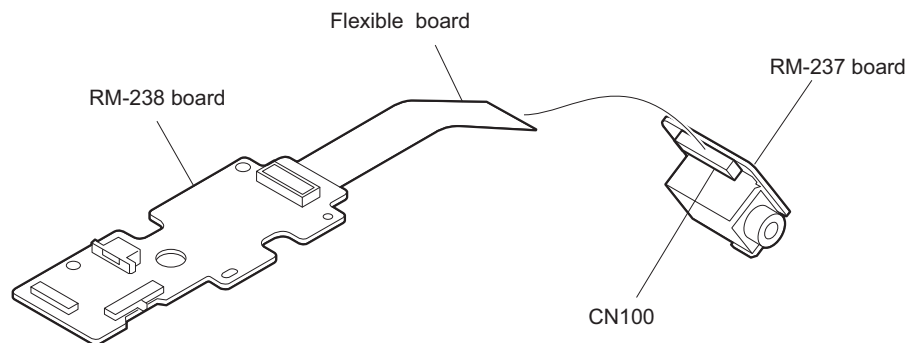


2. Disconnect the HN-404 board from the connector CN100 on the RM-237 board.

3. Remove the two precision screws (M2 x 4) and the nut to detach the RM-237/RM-238 board.



4. Remove the flexible board of RM-238 board from the connector CN100 on the RM-237 基板.



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

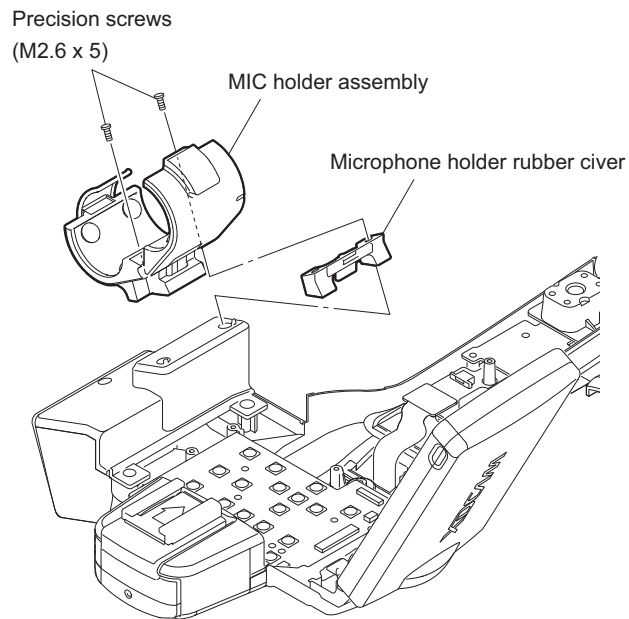
2-13-9. AXM-48 Board

Preparation

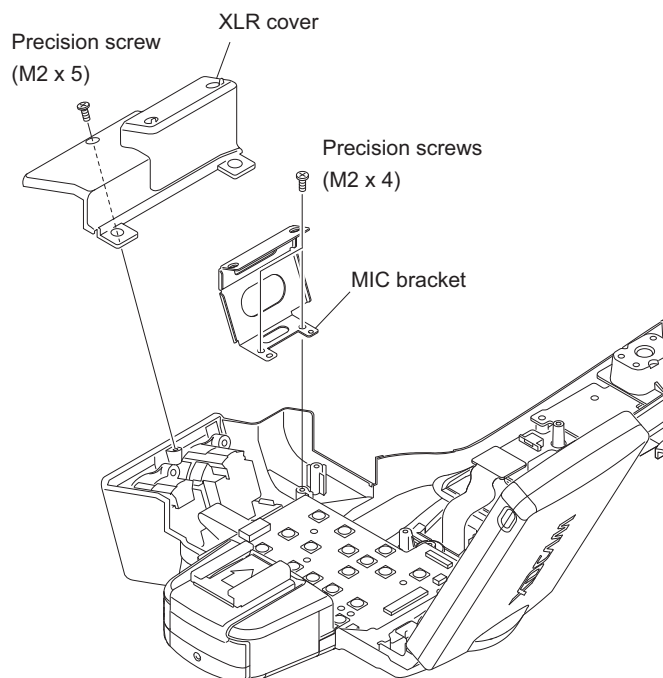
1. Remove the handle (upper) case assembly. (Refer to “[2-13-2. Control Switch Block \(GZ92000\)](#)”.)
2. Remove the control panel assembly. (Refer to “[2-13-3. MIC Unit](#)”.)

Procedure

1. Remove the two precision screws (M2.6 x 5) to detach the MIC holder assembly and microphone holder rubber cover.

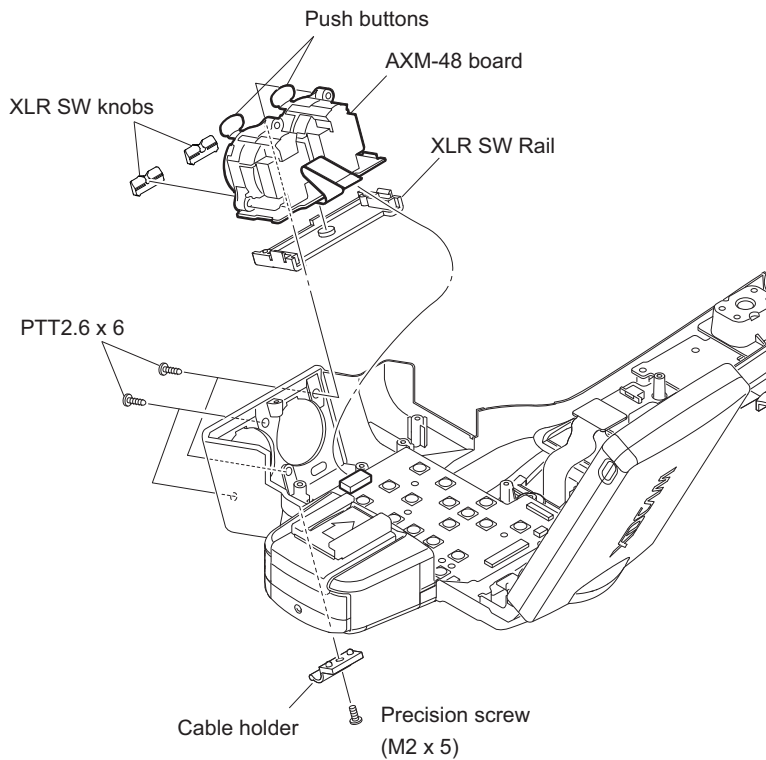


2. Remove the one precision screw (M2 x 5) to detach the XLR cover.
3. Remove the two precision screws (M2 x 4) to detach the MIC bracket.



4. Remove the two push buttons.
5. Remove the precision screws (M2 x 5) to detach the cable holder.
6. Remove the four screws (PTT2.6 x 6) to detach the AXM-48 board.

7. Remove the two XLR SW knobs and the XLR SW rail from the AXM-48 board.



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

2-13-10. KSW-62 Board/KSW-61 Board/Speaker

Items to be prepared

When replacing the speaker:

- Speaker cushion (Part No. 4-119-285-01) x1

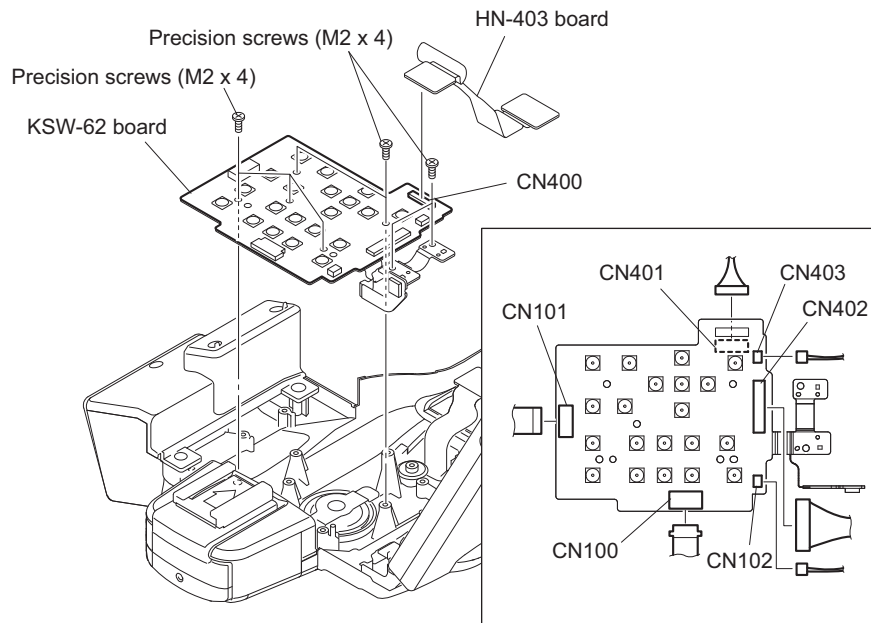
Preparation

1. Remove the handle (upper) case assembly. (Refer to [“2-13-2. Control Switch Block \(GZ92000\)”](#).)
2. Remove the control panel assembly. (Refer to [“2-13-3. MIC Unit”](#).)

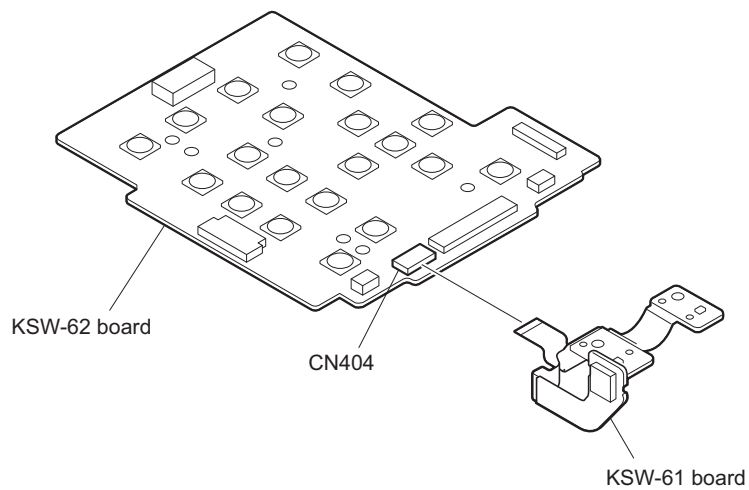
Procedure

1. Disconnect the HN-403 board from the connector CN400 on the KSW-62 board.
2. Disconnect the Three harnesses from the connectors CN102, CN402, and CN403 on the KSW-62 board.
3. Disconnect the two flexible boards from the connectors CN100 and CN101 on the KSW-62 board.
4. Remove the eight precision screws (M2 x 4).

5. Disconnect the harness from the connector CN401 on the KSW-62 board and remove the KSW-62 board.



6. Disconnect the KSW-61 board from the connector CN404 on the KSW-62 board.

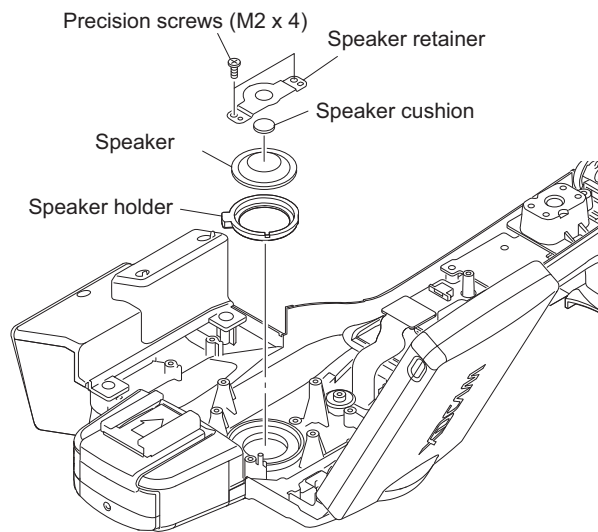


7. Remove the two precision screws (M2 x 4) and the speaker retainer to detach the speaker.

8. Remove the speaker holder and the speaker cushion from the speaker.

Note

The speaker cushion is attached to the speaker with double-sided adhesive tape.



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

2-14. Front Lens

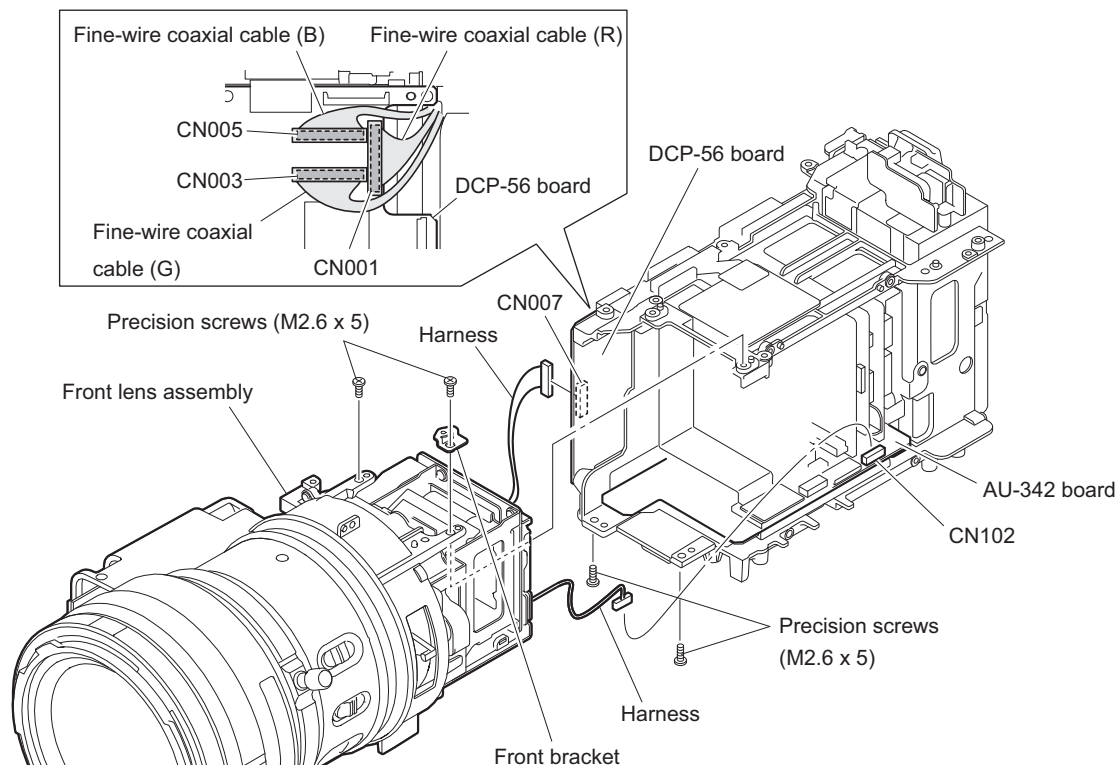
2-14-1. Front Lens Assembly

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)
6. Remove the SxS slot assembly. (Refer to “2-7-1. SxS Slot Assembly”.)
7. Remove the front panel assembly. (Refer to “2-8-1. Front Panel Assembly”.)
8. Remove the rear panel assembly. (Refer to “2-9. Rear Panel Assembly”.)
9. Remove the IO-255 assembly. (Refer to “2-11. IO-255 Board”.)
10. Remove the main heat spreader DCP. (Refer to “2-12. DCP-56 Board”.)
11. Remove the handle assembly. (Refer to “2-13-1. Handle Assembly”.)

Procedure

1. Disconnect the harness from the connector CN007 on the DCP-56 board.
2. Disconnect the three fine-wire coaxial cables from the three connectors CN101, CN003 and CN005 on the DCP-56 board.
3. Disconnect the harness from the connector CN102 on the AU-342 board.
4. Remove the four precision screws (M2.6 x 5) to detach the front bracket and the front lens assembly.



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

2-14-2. HN-399 Board

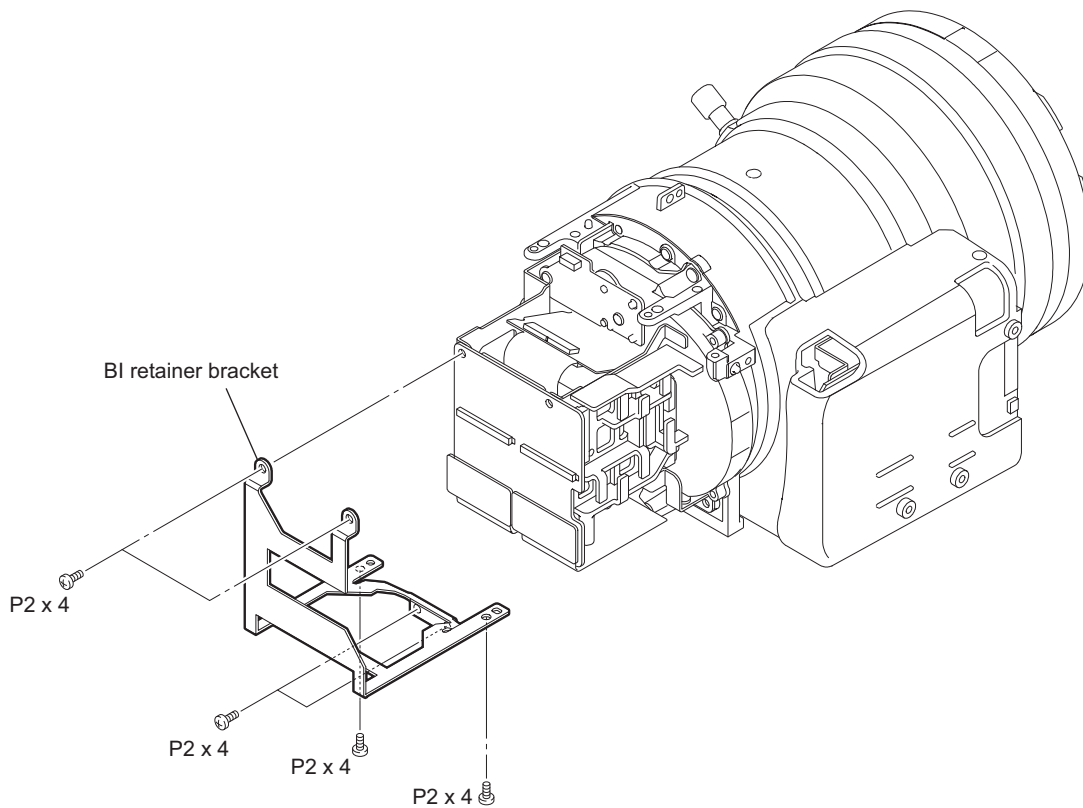
Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)

2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)
6. Remove the SxS slot assembly. (Refer to “2-7-1. SxS Slot Assembly”.)
7. Remove the front panel assembly. (Refer to “2-8-1. Front Panel Assembly”.)
8. Remove the rear panel assembly. (Refer to “2-9. Rear Panel Assembly”.)
9. Remove the IO-255 assembly. (Refer to “2-11. IO-255 Board”.)
10. Remove the main heat spreader DCP. (Refer to “2-12. DCP-56 Board”.)
11. Remove the handle assembly. (Refer to “2-13-1. Handle Assembly”.)
12. Remove the front lens assembly. (Refer to “2-14-1. Front Lens Assembly”.)

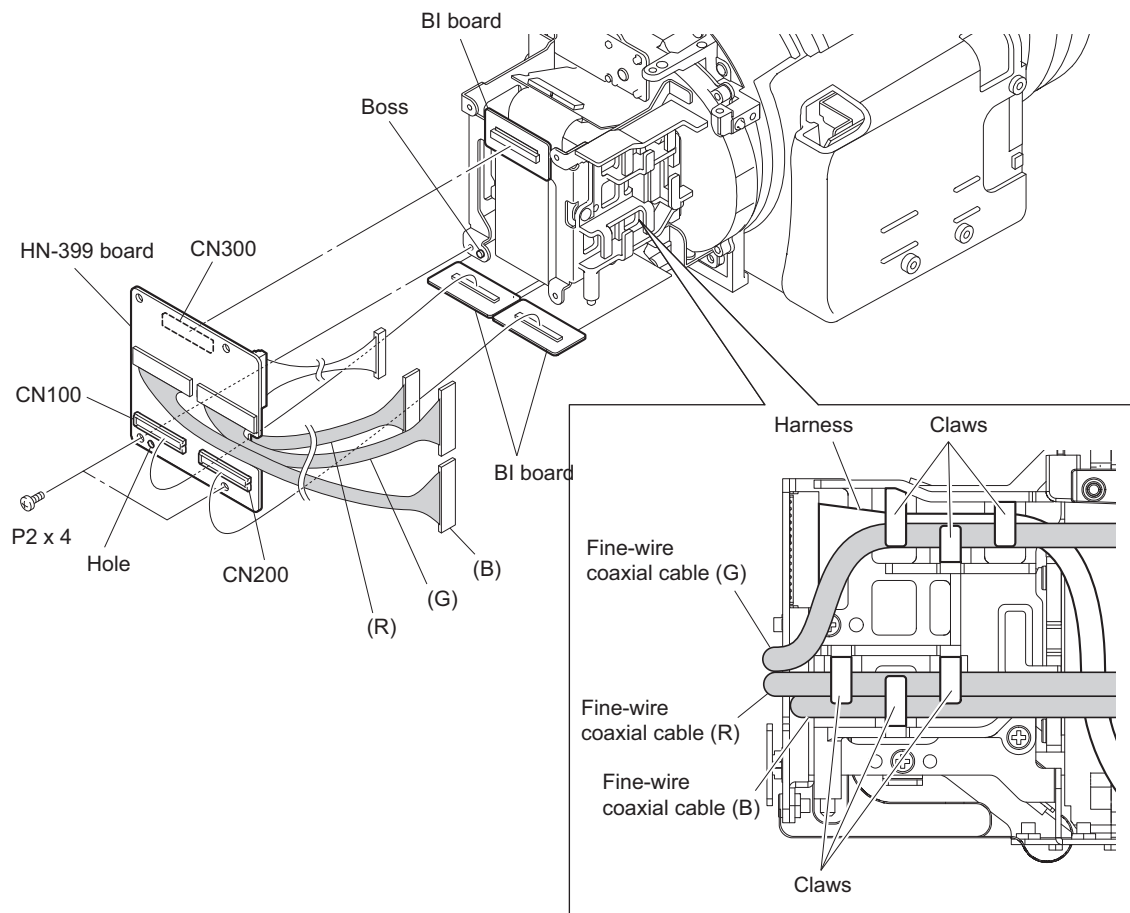
Procedure

1. Remove the six screws to detach the BI retainer bracket.



2. Remove the harness and three fine-wire coaxial cables from the six claws.
3. Disconnect the two BI boards from the two connectors CN100, CN200 on the HN-399 board.
4. Remove the two screws.

5. Disconnect the BI board from the connector CN300 on the HN-399 board and remove the HN-399 board.

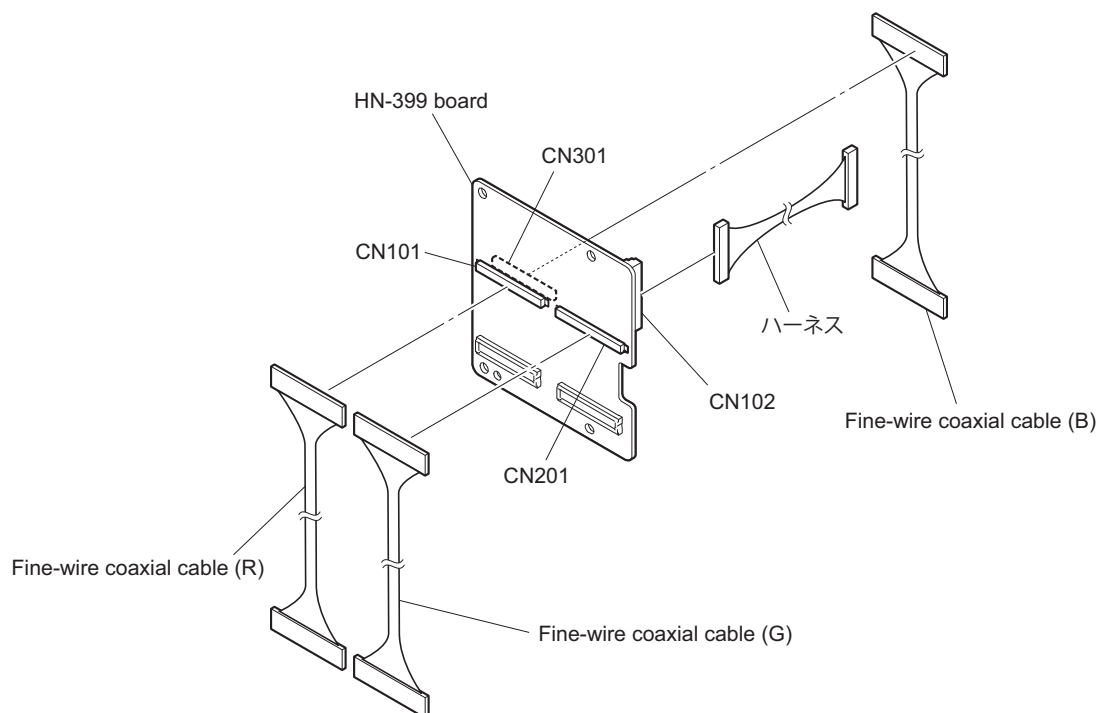


Note

When installing the HN-399 board, fit the boss with the hole.

6. Disconnect the harness from the connector CN102 on the HN-399 board.

7. Disconnect the three fine-wire coaxial cables from the three connectors CN101, CN201 and CN301 on the HN-399 board.



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

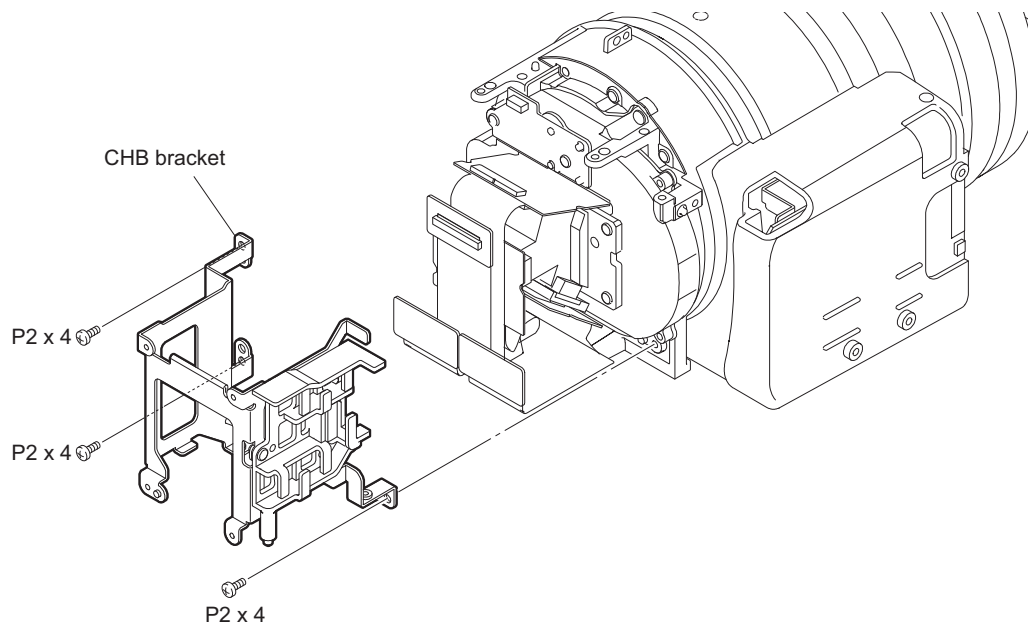
2-14-3. Prism Block Unit

Preparation

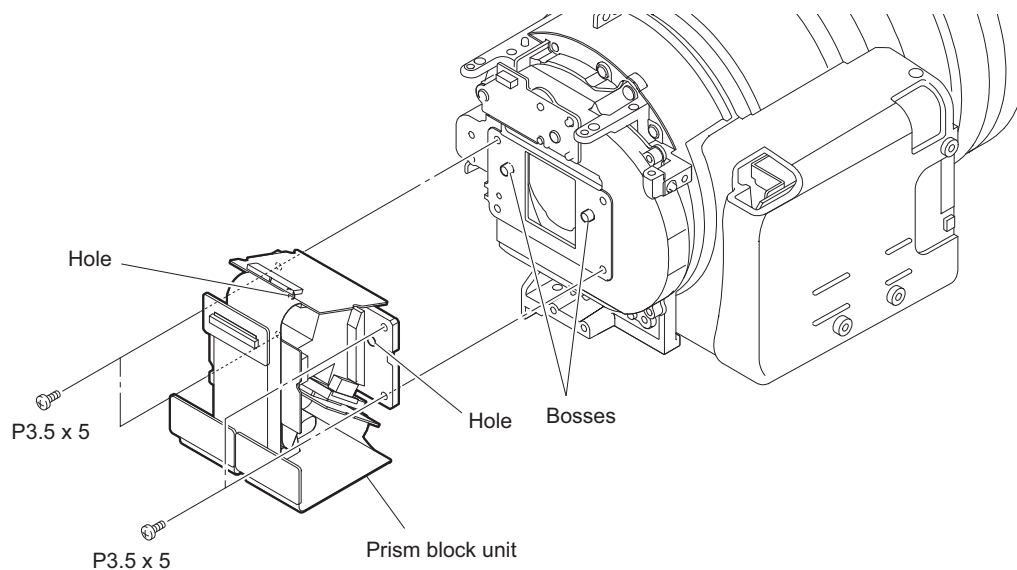
1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)
6. Remove the SxS slot assembly. (Refer to “2-7-1. SxS Slot Assembly”.)
7. Remove the front panel assembly. (Refer to “2-8-1. Front Panel Assembly”.)
8. Remove the rear panel assembly. (Refer to “2-9. Rear Panel Assembly”.)
9. Remove the IO-255 assembly. (Refer to “2-11. IO-255 Board”.)
10. Remove the main heat spreader DCP. (Refer to “2-12. DCP-56 Board”.)
11. Remove the handle assembly. (Refer to “2-13-1. Handle Assembly”.)
12. Remove the front lens assembly. (Refer to “2-14-1. Front Lens Assembly”.)
13. Remove the HN-399 board. (Refer to “2-14-2. HN-399 Board”.)

Procedure

1. Remove the three screws to detach the CHB bracket.



2. Remove the four screws to detach the prism block unit.



Note

When installing the prism block unit, fit the two bosses with the two holes.

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

2-14-4. Optical ND Filter

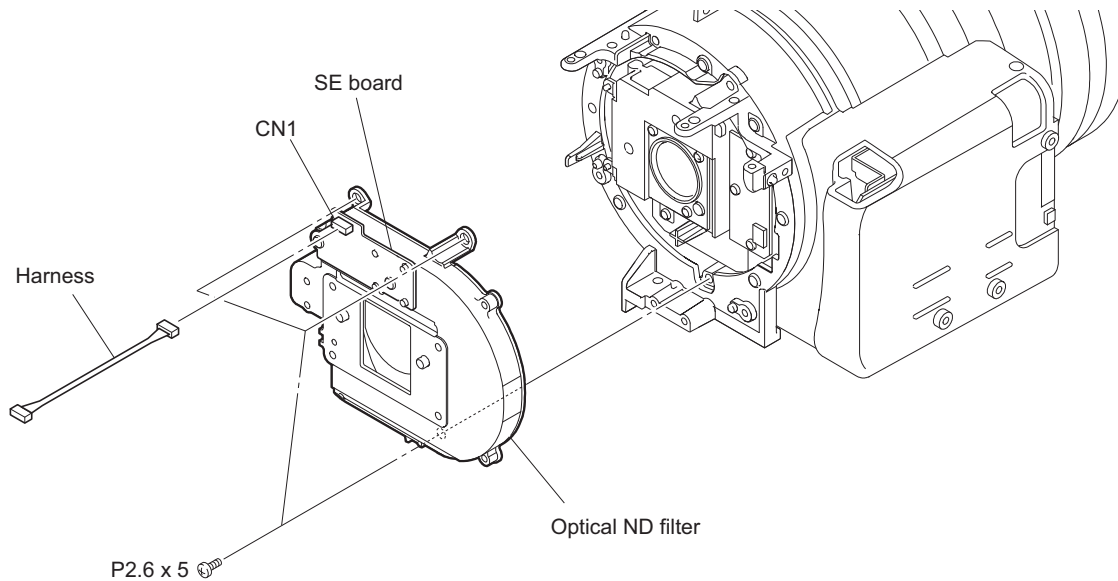
Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)

6. Remove the SxS slot assembly. (Refer to “2-7-1. SxS Slot Assembly”.)
7. Remove the front panel assembly. (Refer to “2-8-1. Front Panel Assembly”.)
8. Remove the rear panel assembly. (Refer to “2-9. Rear Panel Assembly”.)
9. Remove the IO-255 assembly. (Refer to “2-11. IO-255 Board”.)
10. Remove the main heat spreader DCP. (Refer to “2-12. DCP-56 Board”.)
11. Remove the handle assembly. (Refer to “2-13-1. Handle Assembly”.)
12. Remove the front lens assembly. (Refer to “2-14-1. Front Lens Assembly”.)
13. Remove the HN-399 board. (Refer to “2-14-2. HN-399 Board”.)
14. Remove the prism block unit. (Refer to “2-14-3. Prism Block Unit”.)

Procedure

1. Disconnect the harness from the connector CN1 on the SE board.
2. Remove the three screws to detach the optical ND filter.



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

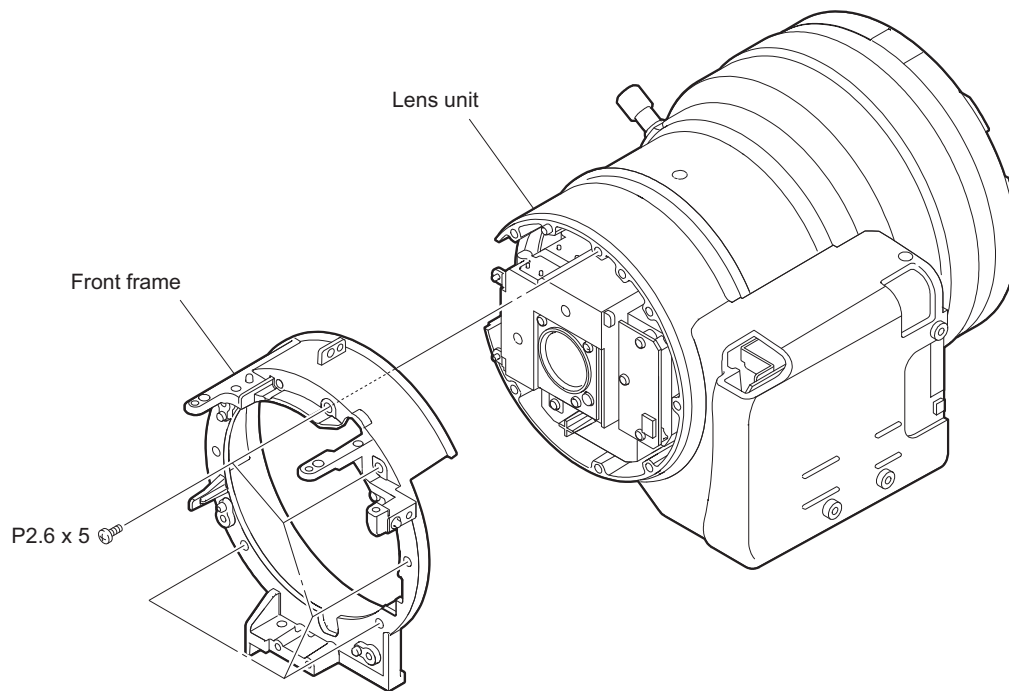
2-14-5. Lens Unit

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)
6. Remove the SxS slot assembly. (Refer to “2-7-1. SxS Slot Assembly”.)
7. Remove the front panel assembly. (Refer to “2-8-1. Front Panel Assembly”.)
8. Remove the rear panel assembly. (Refer to “2-9. Rear Panel Assembly”.)
9. Remove the IO-255 assembly. (Refer to “2-11. IO-255 Board”.)
10. Remove the main heat spreader DCP. (Refer to “2-12. DCP-56 Board”.)
11. Remove the handle assembly. (Refer to “2-13-1. Handle Assembly”.)
12. Remove the front lens assembly. (Refer to “2-14-1. Front Lens Assembly”.)
13. Remove the HN-399 board. (Refer to “2-14-2. HN-399 Board”.)
14. Remove the prism block unit. (Refer to “2-14-3. Prism Block Unit”.)
15. Remove the optical ND filter. (Refer to “2-14-4. Optical ND Filter”.)

Preparation

1. Remove the five screws to detach the front frame from the lens unit.



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

2-15. Battery Case

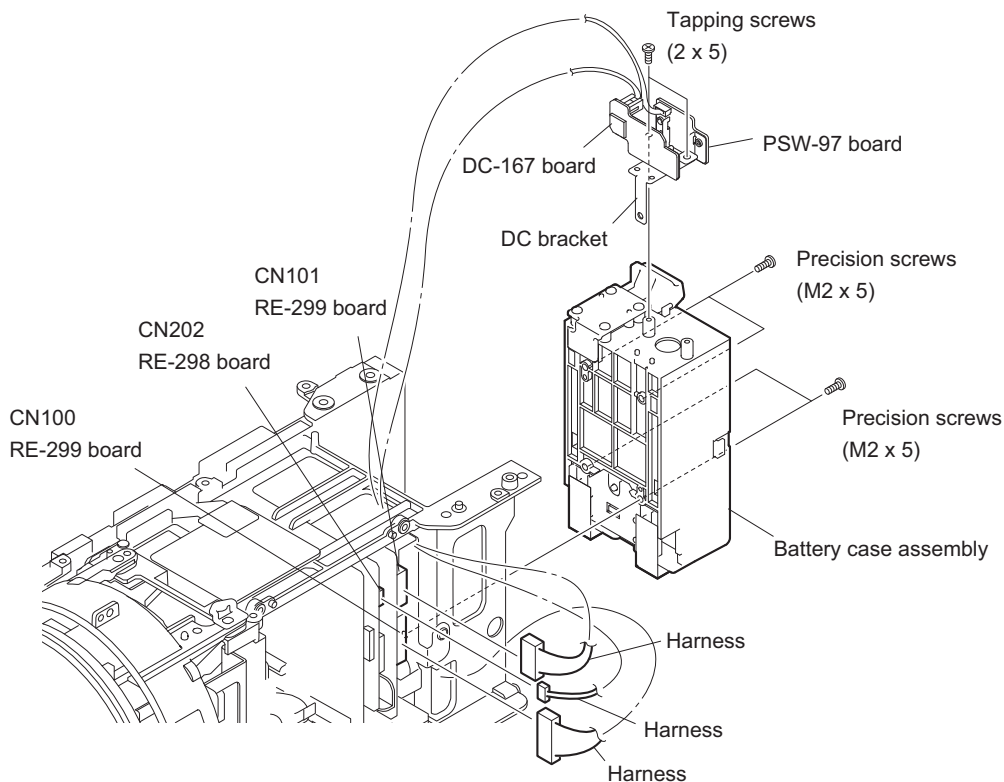
2-15-1. Battery Case Assembly

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)
6. Remove the SxS slot assembly. (Refer to “2-7-1. SxS Slot Assembly”.)
7. Remove the front panel assembly. (Refer to “2-8-1. Front Panel Assembly”.)
8. Remove the rear panel assembly. (Refer to “2-9. Rear Panel Assembly”.)
9. Remove the IO-255 assembly. (Refer to “2-11. IO-255 Board”.)
10. Remove the main heat spreader DCP. (Refer to “2-12. DCP-56 Board”.)
11. Remove the handle assembly. (Refer to “2-13-1. Handle Assembly”.)

Procedure

1. Disconnect the harness from the connector CN202 on the RE-298 board.
2. Disconnect the harnesses from the connectors CN100 and CN101 on the RE-299 board.
3. Remove the four precision screws (M2 x 5) to detach the battery case assembly.
4. Remove the two tapping screws (2 x 5) to detach the DC bracket from the battery case assembly.



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

2-15-2. DC-167 Board/PSW-97 Board

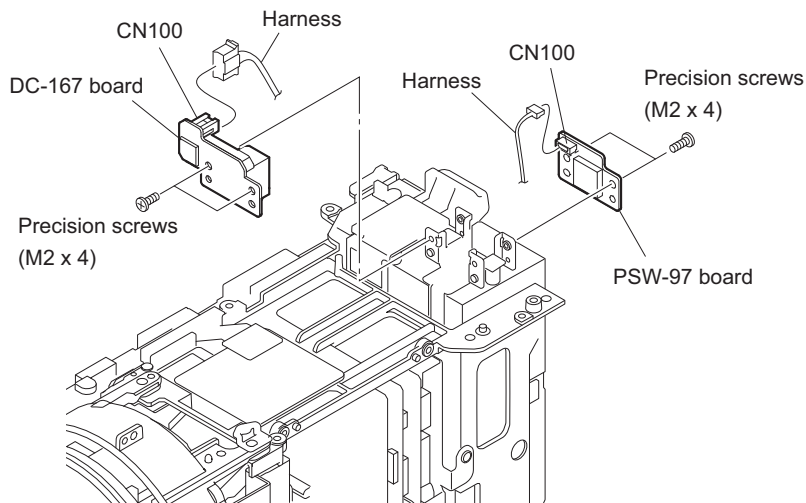
Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)

3. Remove the inside panel assembly. (Refer to “[2-4-1. Inside Panel Assembly](#)”.)
4. Remove the outside panel assembly. (Refer to “[2-5-1. Outside Panel Assembly](#)”.)
5. Remove the top panel assembly. (Refer to “[2-6. Top Panel Assembly](#)”.)
6. Remove the SxS slot assembly. (Refer to “[2-7-1. SxS Slot Assembly](#)”.)
7. Remove the front panel assembly. (Refer to “[2-8-1. Front Panel Assembly](#)”.)
8. Remove the rear panel assembly. (Refer to “[2-9. Rear Panel Assembly](#)”.)
9. Remove the IO-255 assembly. (Refer to “[2-11. IO-255 Board](#)”.)
10. Remove the main heat spreader DCP. (Refer to “[2-12. DCP-56 Board](#)”.)
11. Remove the handle assembly. (Refer to “[2-13-1. Handle Assembly](#)”.)

Procedure

1. Disconnect the harness from the connector CN100 on the DC-167 board.
2. Remove the two precision screws (M2 x 4) to detach the DC-167 board.
3. Disconnect the harness from the connector CN100 on the PSW-97 board.
4. Remove the two precision screws (M2 x 4) to detach the PSW-97 board.



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

2-16. Main Chassis

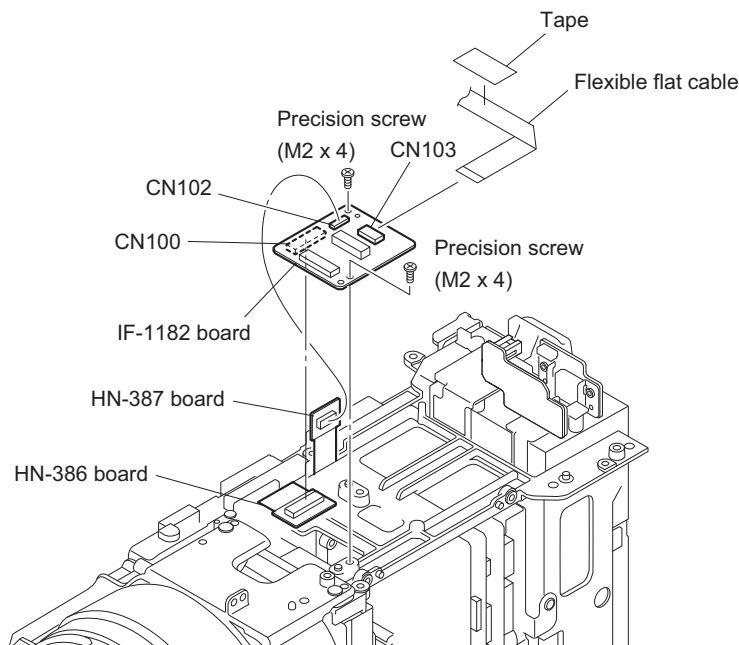
2-16-1. IF-1182 Board

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)

Procedure

1. Peel off the tape.
2. Disconnect the HN-387 board from the connector CN102 on the IF-1182 board.
3. Disconnect the flexible flat cable from the connector CN103 on the IF-1182 board.
4. Remove the two precision screws (M2 x 4).
5. Disconnect the HN-386 board from the connector CN100 on the IF-1182 board to detach the IF-1182 board.



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

2-16-2. DPR-343 Board

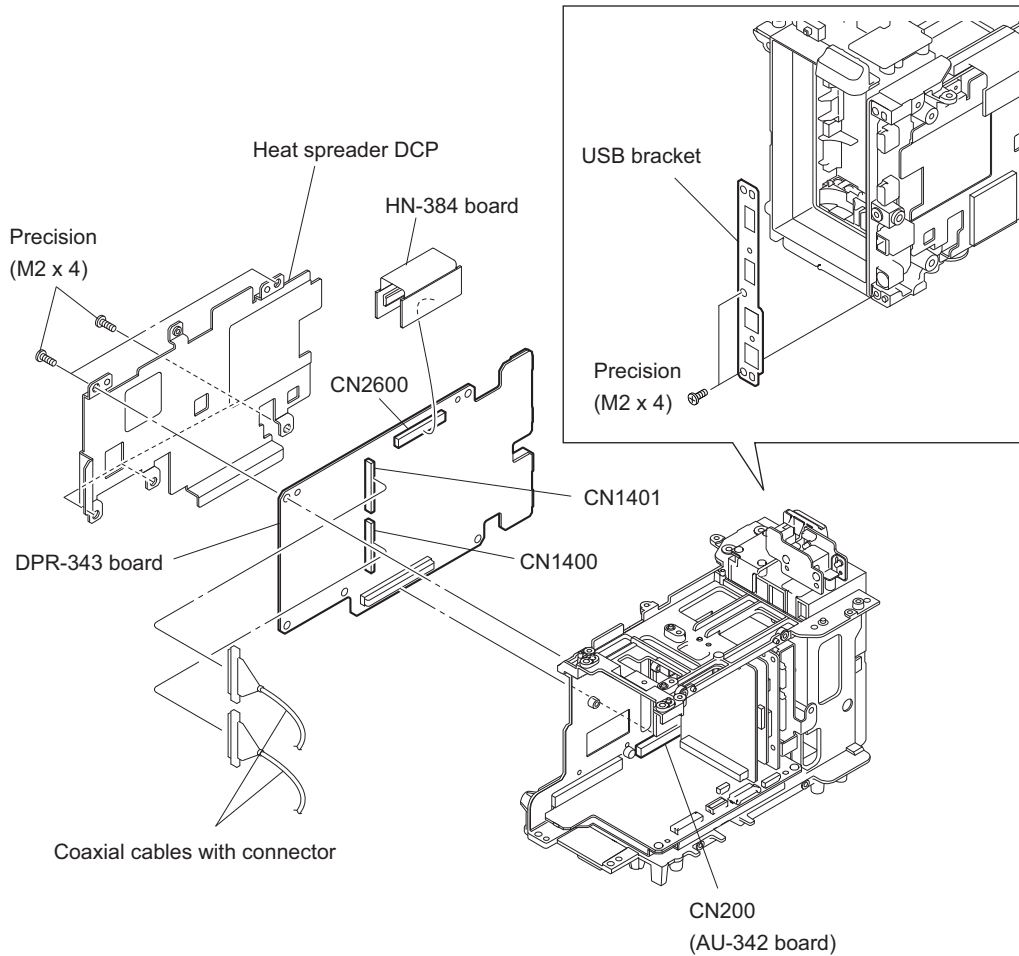
Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)
6. Remove the SxS slot assembly. (Refer to “2-7-1. SxS Slot Assembly”.)
7. Remove the front panel assembly. (Refer to “2-8-1. Front Panel Assembly”.)
8. Remove the rear panel assembly. (Refer to “2-9. Rear Panel Assembly”.)
9. Remove the IO-255 assembly. (Refer to “2-11. IO-255 Board”.)
10. Remove the DCP-56 board. (Refer to “2-12. DCP-56 Board”.)

11. Remove the handle assembly. (Refer to “2-13-1. Handle Assembly”.)
12. Remove the front lens assembly. (Refer to “2-14-1. Front Lens Assembly”.)

Procedure

1. Remove the two precision screws (M2 x 4) to detach the USB bracket.
2. Remove the five precision screws (M2 x 4) to detach the main heat spreader DCP.
3. Remove the DPR-343 board from the connector CN200 from the AU-342 board.
4. Remove the HN-384 board from the connector CN2600 on the DPR-343 board.
5. Disconnect the two coaxial cables with connectors from the two connectors CN1400 and CN1401 on the DPR-343 board.



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

2-16-3. AU-342 Board, RE-298 Board, RE-299 Board, and RE-300 Board

Preparation

1. Remove the battery lid. (Refer to “2-2. Lithium Battery”.)
2. Remove the bottom cover. (Refer to “2-3. Bottom Cover and Tripod Washer”.)
3. Remove the inside panel assembly. (Refer to “2-4-1. Inside Panel Assembly”.)
4. Remove the outside panel assembly. (Refer to “2-5-1. Outside Panel Assembly”.)
5. Remove the top panel assembly. (Refer to “2-6. Top Panel Assembly”.)
6. Remove the SxS slot assembly. (Refer to “2-7-1. SxS Slot Assembly”.)
7. Remove the front panel assembly. (Refer to “2-8-1. Front Panel Assembly”.)
8. Remove the rear panel assembly. (Refer to “2-9. Rear Panel Assembly”.)
9. Remove the IO-255 assembly. (Refer to “2-11. IO-255 Board”.)

10. Remove the main heat spreader DCP. (Refer to “2-12. DCP-56 Board”.)
11. Remove the handle assembly. (Refer to “2-13-1. Handle Assembly”.)
12. Remove the front lens assembly. (Refer to “2-14-1. Front Lens Assembly”.)

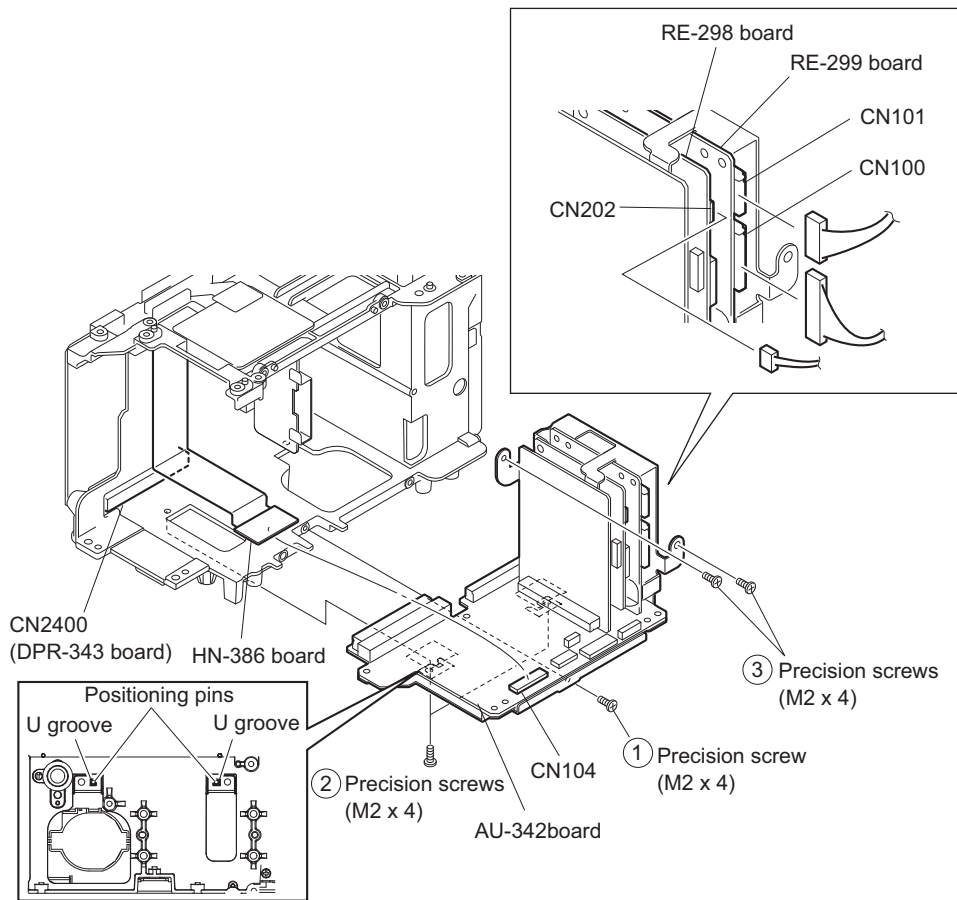
Procedure

1. Disconnect the harness from the connector CN202 on the RE-298 board.
2. Disconnect the harnesses from the connectors CN100 and CN101 on the RE-299 board.
3. Remove the five precision screws (M2 x 4).

Note

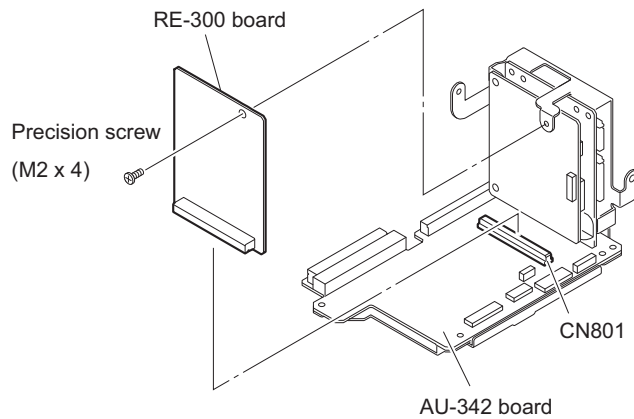
When installing these precision screws, push the U groove of the bracket AU against the positioning pin, and tighten the screws in the order of numbers shown in the figure.

4. Disconnect the HN-386 board from the connector CN104 on the AU-342 board.
5. Disconnect the AU-342 board from the connector CN2400 on the DPR-343 board.

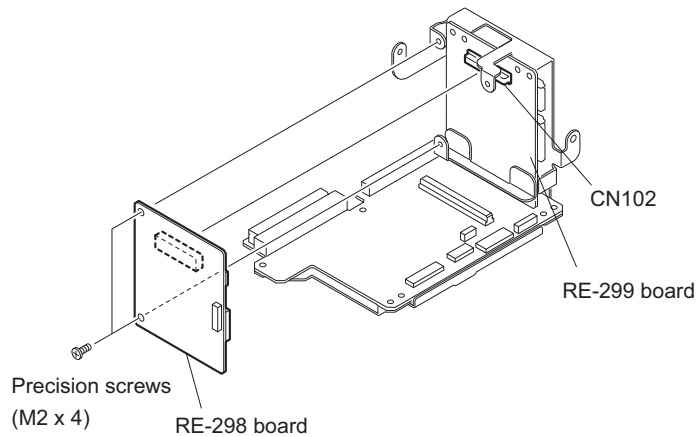


6. Remove the precision screws (M2 x 4).

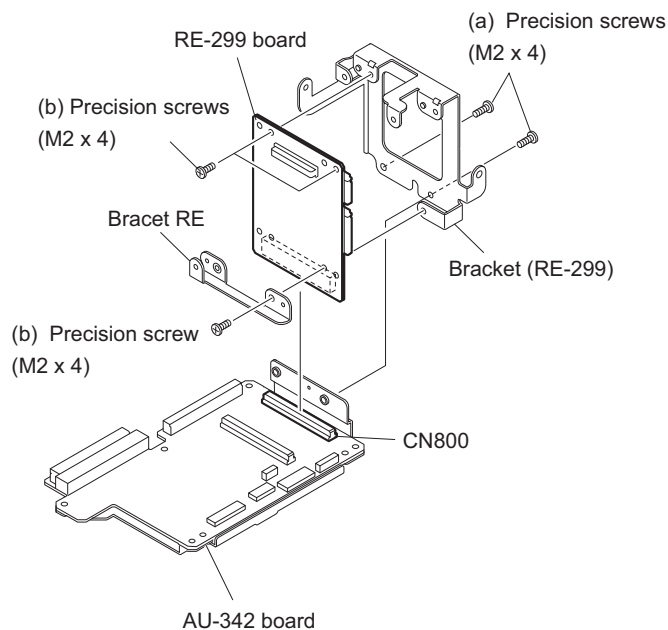
7. Disconnect the RE-300 board from the connector CN801 on the AU-342 board.



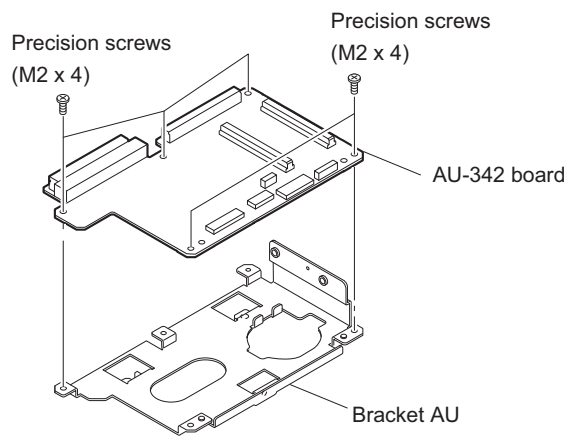
8. Remove the two precision screws (M2 x 4).
9. Disconnect the RE-298 board from the connector CN102 on the RE-299 board.



10. Remove the two (a) precision screws (M2 x 4).
11. Disconnect the RE-299 board from the connector CN800 on the AU-342 board.
12. Remove the three (b) precision screws (M2 x 4) to detach the bracket RE and the bracket (RE-299) from the RE-299 board.



13. Remove the five precision screws (M2 x 4) to detach the AU-342 board from the bracket AU.



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

Section 3

SERVICE Menu

3-1. Outline of SERVICE Menu

3-1-1. Basic Menu Operations

Press the MENU button to enter the menu mode. Press the PICTURE PROFILE button, the MENU button, or the STATUS button while the menu is displayed to close the menu display. The menu display is closed when the power is turned off.

Activating the Menu Mode

1. Press the MENU button.
The system enters the menu mode. For displaying the SERVICE menu, refer to “[3-1-3. Display/Hide the SERVICE Menu](#)” of this manual.
2. Set the cursor to the item you want to set with the arrow key and press the SEL/SET button.
The same setting is also enabled by MENU, CANCEL, and SEL/SET on the inside panel.

Exiting the Menu Mode

1. Press the MENU button again.
The system exits the menu mode to return to the normal camera mode.

3-1-2. SERVICE Menu Structure

The SERVICE menu consists of the six ordinary setup menus and the following three dedicated SERVICE menus.

Menu name	Description
MAINTENANCE	Adjustment of parameters
RPN CORRECT	Operations regarding the RPN correction
INFORMATION	Display of information on this unit and self-diagnosis

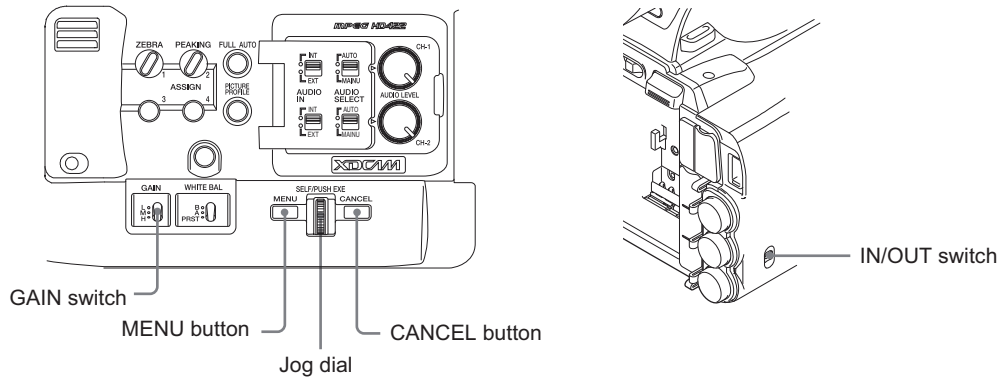
Note

The MAINTENANCE menu and the RPN CORRECT menu are available while a camera image is being displayed.

3-1-3. Display/Hide the SERVICE Menu

To Display the SERVICE Menu

1. Set the GAIN switch on the side operation panel to the "H" position.



2. Set the IN/OUT (input/output switching) switch in the rear connector section to "IN."
3. Press the MENU button to display the menu.
4. Close the LCD monitor.
5. Press the MENU button, the CANCEL button, and the jog dial (SEL/PUSH EXE dial) on the side operation panel simultaneously.
6. Open the LCD monitor.
The SERVICE menu is displayed on the LCD monitor.

Note

Once the SERVICE menu is displayed, it is displayed instead of the ordinary setup menus by pressing the MENU button, unless the power is turned off.

To Exit the SERVICE Menu Display

1. Press the MENU button again.
The display of the SERVICE menu is finished.

3-2. SERVICE Menu List

3-2-1. MAINTENANCE Menu

Menu	Submenu	Set value	Description
Test Saw	—	On, Off	Turns On or Off the Test Saw.
Auto BLK Balance	—	Execute, Cancel	Starts the auto black balance adjustment.
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 +99	Adjusts the black shading H Saw correction level.
	H Para	–99 to +99	Adjusts the black shading H Para correction level.
	V Saw	–99 to +99	Adjusts the black shading V Saw correction level.
	V Para	–99 to +99	Adjusts the black shading V Para correction level.
	Auto BLK Shad	Execute, Cancel	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 +99	Adjusts the white shading H Saw correction level.
	H Para	–99 to +99	Adjusts the white shading H Para correction level.
	V Saw	–99 to +99	Adjusts the white shading V Saw correction level.
	V Para	–99 to +99	Adjusts the white shading V Para correction level.
Flare	G Flare	–99 to +99	Adjusts the G-ch flare correction level.
	B Flare	–99 to +99	Adjusts the B-ch flare correction level.
	R Flare	–99 to +99	Adjusts the R-ch flare correction level.
Auto FB Adjust	—	Execute, Cancel	Starts the auto flange back adjustment. Note This menu should be carried out with 60i or 50i to enhance the adjustment accuracy.

3-2-2. RPN CORRECT Menu

Menu	Submenu	Set value	Description
Auto Detection	—	—	Starts automatic detection of RPN.
Channel	—	R, G, B	Specifies color components of pixels to be corrected.
Cursor	—	On, Off	Turns On or Off the correction point indicator cursor.
Cursor H Position	—	1 to 1920	Displays and moves the horizontal address of the correction point indicator cursor.
Cursor V Position	—	1 to 1080	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	—	Execute, Cancel	Registers the RPN.

Continued

Menu	Submenu	Set value	Description
Delete	—	Execute, Cancel	Deletes the RPN.
Readout Mode	—	Field, Frame	Selects the CMOS readout mode.
Reset	—	Execute, Cancel	Deletes all the RPN registered for correction after shipment from the factory.

3-2-3. INFORMATION Menu

Menu	Submenu	Set value	Description
Serial Number	—	—	Displays the serial number.
Version	—	—	Displays the software version number.
Self Diag	Diag Type	Type 1, Type 2	Selects the self-diagnostic type.
	Item1	Execute, Cancel	Executes self-diagnostic Item 1.
	Item2	Execute, Cancel	Executes self-diagnostic Item 2.
	Item3	Execute, Cancel	Executes self-diagnostic Item 3.
	Item4	Execute, Cancel	Executes self-diagnostic Item 4.
	Item5	Execute, Cancel	Executes self-diagnostic Item 5.
	Item6	Execute, Cancel	Executes self-diagnostic Item 6.
	Item7	Execute, Cancel	Executes self-diagnostic Item 7.
	Item8	—	This item is not selectable.(Display only)
	Item9	Execute, Cancel	Executes self-diagnostic Item 9.
	Item10	—	This item is not selectable.(Display only)
	Item11	—	This item is not selectable.(Display only)
	Item12	—	This item is not selectable.(Display only)
	Item13	—	This item is not selectable.(Display only)
Log Dump	—	Execute, Cancel	Records the error log to media.

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
Type1 (Simple self-diagnosis)	Use this type to execute a simple version of self-diagnosis. This finishes in a short time.
Type2 (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	This item is not selectable.(Display only)	
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	This item is not selectable.(Display only)	
Item11		
Item12		
Item13		

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	SLS/EX SLS	—	Off
	P.Cache Rec	Setting	Off
OTHERS menu	System	Country	NTSC Area
		UDF/FAT	UDF
		HD/SD	HD
		Format	HD422 50/1080/59.94i

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 “[3-3-3. Details of Self-Diagnosis](#)”

2. Select the item to be executed from Item1 to Item7 and Item9.
3. Select “Execute” to execute the self-diagnosis.
4. Upon completion of the self-diagnosis, the result of the self-diagnosis appears.

Self-diagnosis Result

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 “ 3-3-3. Details of Self-Diagnosis ”.

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 each Item. The values in the Error value column show error values as a result of the self-diagnosis. A value of 0 shows normal end.

Item1 (Image processor block diagnosis)

The image processor block diagnosis tests the following contents.

Type 1 takes about 10 seconds, Type 2 takes about three minutes.

ID	Diagnosis	Error value	Type1/2	Note
0x07	Lens driving check	-1: Error in iris, focus, zoom, or correction lens	2	SERVO/MANU switch of zoom must be set to “SERVO”. Each ring of zoom and iris automatically turns during the diagnosis. Therefore, make sure not to touch rings during the diagnosis. (The focus ring does not turn.)
0x08	Number of RPN registrations check	-1: Exceeding RPN max number	1,2	—
0x09	Reading/Writing data test to CMOS block, video signal bus connection test between CMOS and camera signal processor IC	-1: CMOS Read/Write NG or CMOS video signal bus NG	1,2	—

Continued

ID	Diagnosis	Error value	Type1/2	Note
0x0A	Communication test of camera signal processor IC	-5: Camera signal processor IC Read/Write NG	1, 2	—

Note

When an error is detected in the item, it indicates a possible error in the hardware.

Item2 (Display block diagnosis)

The display block diagnosis tests the following contents.

ID	Diagnosis	Error value	Type1/2	Note
0x01	Communication signal line test of COPRO (SAD)	-1: Connection error	1, 2	—
0x02	Communication signal line test of LCD	-1: Connection error	1, 2	—

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.

ID	Intended device	Diagnosis	Error value	Type1/2	Note
0x06	USB Device	Register Read/Write	Refer to "Details of diagnosis"	1	Startup must be completed
0x08	USB Device	Read/Write	Non-installation "-6" is always returned.	1	Startup must be completed
0x09	i.LINK	Register Read/Write	Refer to "Details of diagnosis"	1	Startup must be completed
0x0A	i.LINK	Read/Write	Non-installation "-6" is always returned.	1	Startup must be completed
0x0B	USB Host	Register Read/Write	Refer to "Details of diagnosis"	1	Startup must be completed
0x0D	USB Host	Read/Write	Non-installation "-6" is always returned.	1	Startup must be completed
0x11	TK-1(SlotA)	Data Read/Write	Non-installation "-6" is always returned.	1	Startup must be completed
0x13	TK-1(SlotB)	Data Read/Write	Non-installation "-6" is always returned.	1	Startup must be completed
0x14	PIFC	POWSW	Refer to "Details of diagnosis"	1	Startup must be completed
0x15	SPA	POWSW	Refer to "Details of diagnosis"	1	Startup must be completed
0x12	Torino	Data Read/Write	Refer to "Details of diagnosis"	1	Startup must be completed
0x20	NOR-FlashROM	NOR-Flash ROM data matching check	Refer to "Details of diagnosis"	1	Startup must be completed
0x21	ExpressCard	ExpressCard power switch ON/OFF control	Non-installation "-6" is always returned.	1	Startup must be completed
0x22	(SlotA)	ExpressCard overcurrent detection	Non-installation "-6" is always returned.	1	Startup must be completed

Continued

ID	Intended device	Diagnosis	Error value	Type1/2	Note
0x25	ExpressCard	ExpressCard power switch ON/OFF control	Non-installation "-6" is always returned.	1	Startup must be completed
0x26	(SlotB)	ExpressCard overcurrent detection	Non-installation "-6" is always returned.	1	Startup must be completed
0x23	LED	LED blink check	Refer to "Details of diagnosis"	1	Startup must be completed
0x24	LED	LED blink check	Refer to "Details of diagnosis"	1	Startup must be completed
0x30	Torino (video signal line)	Video encoding	Refer to "Details of diagnosis"	1	Startup must be completed
0x31	Torino (audio signal line)	Audio encoding	Refer to "Details of diagnosis"	1	Startup must be completed
0x32	4-bit signal line	Transfer data (from Ramiel) check	Refer to "Details of diagnosis"	1	Startup must be completed
0x01	—	Command response only	Normal end "0" is always returned.	2	Startup must be completed

Details of diagnosis

Error value	Diagnosis
0	Normal end
-1	Hardware error detected
-4	Service tool not detected
-6	Non-installation

Item4 (Audio block diagnosis)

The audio block diagnosis tests the following content.

ID	Diagnosis	Error value	Type1/2	Note
0x11	Audio memory area check (in the CXD9211CGG (Main T-one))	-1: Memory read/write comparison error	1, 2	—
0x12	FPGA (ANDA) access check (AU-342 board IC501 A6 pin, A4 pin, A7 pin, A5 pin)	-1: Register set value acquisition error	1, 2	—
0x13	DSP-only DPSRAM check	Other than 0: DPSRAM check error Error number of failed diagnosis is displayed as an error value. For error values, refer to "Error values of diagnosis items ID 0x13".	1, 2	—
0x14	Serial audio data check in the audio block	Other than 0: Mismatch between output data and input data Error number of failed diagnosis is displayed as an error value. For error values, refer to "Error values of diagnosis items ID 0x14".	1, 2	This diagnosis using an internal microphone may fail depending on disturbing noise.
0x15	Serial audio data reception check of IC1700 on the DCP-56 board	Other than 0: Mismatch between output data and input data Error number of failed diagnosis is displayed as an error value. For error values, refer to "Error values of diagnosis items ID 0x15".	1, 2	—

Error values of diagnosis items ID 0x13

Note

DPSRAM: AU-342 board

Error value	Diagnosis
1	Data : 0x55555555
2	Data : 0xaaaaaaaa

Error values of diagnosis items ID 0x14

Note

Serial audio input/output signals of the DSP (IC601) time-division multiplex multiple channels.

- 8 channels (channel 0 to 7) : Pins L1 and P7
- 2 channels (channel 0 to 1) : Pin N11

The signal is output from IC601 on the AU-342 board (pin number: shown below) and is returned to IC601 through IC501 (pin number: shown below).

- The output signal from Pin L1 is checked in units of two channels, and the output signal from Pin N11 is checked for each channel.
- The output signal from Pin N11 is sent through the internal speaker and the internal microphone.

Error value	Diagnosis
1	Path: Pin L1 → pin P7 Data: 0x55555500 Starting serial input channel: Channel 0 Starting serial output channel: Channel 0
2	Path: Pin L1 → pin P7 Data: 0xaaaaaa00 Starting serial input channel: Channel 0 Starting serial output channel: Channel 0
3	Path: Pin L1 → pin P7 Data: 0x55555500 Starting serial input channel: Channel 2 Starting serial output channel: Channel 2
4	Path: Pin L1 → pin P7 Data: 0xaaaaaa00 Starting serial input channel: Channel 2 Starting serial output channel: Channel 2
5	Path: Pin L1 → pin P7 Data: 0x55555500 Starting serial input channel: Channel 4 Starting serial output channel: Channel 4
6	Path: Pin L1 → pin P7 Data: 0xaaaaaa00 Starting serial input channel: Channel 4 Starting serial output channel: Channel 4
7	Path: Pin L1 → pin P7 Data: 0x55555500 Starting serial input channel: Channel 6 Starting serial output channel: Channel 6
8	Path: Pin L1 → pin P7 Data: 0xaaaaaa00 Starting serial input channel: Channel 6 Starting serial output channel: Channel 6
9	Path: Pin N11 → pin P7 Data: sine wave (1 kHz) Starting serial input channel: Channel 0 Starting serial output channel: Channel 0

Continued

Error value	Diagnosis
10	Path: Pin L1 → pin P7 Data: sine wave (1 kHz) Starting serial input channel: Channel 1 Starting serial output channel: Channel 1

Error values of diagnosis items ID 0x15

Note

The signal is input to IC501 (pin M14) on the AU-342 board and is output from IC501 (pin number: shown below) to IC1700 on the DCP-56 board (pin number: shown below).

Error value	Diagnosis
1	Path: Pin A2 → pin G22 Data: 0x55550000 Starting serial output channel: Channel 4
2	Path: Pin A2 → pin G22 Data: 0xaaaa0000 Starting serial output channel: Channel 4
3	Path: Pin A3 → pin H22 Data: 0x55550000 Starting serial output channel: Channel 6
4	Path: Pin A3 → pin H22 Data: 0xaaaa0000 Starting serial output channel: Channel 6

Item5 (System controller block diagnosis)

The system controller block diagnosis tests the following contents.

ID	Diagnosis	Error value	Type1/2	Note
0x01	I ² C communication test (RTC)	-1: Error	1, 2	The unit must have started and a sub-microcomputer must be connected.
0x02	I ² C communication test (EEPROM)	-1: Error	1, 2	The unit must have started and a sub-microcomputer must be connected.
0x03	I ² C communication test (power supply microcomputer)	-1: Error	1, 2	The unit must have started and a sub-microcomputer must be connected.
0x04	I ² C communication test (sub-microcomputer of the inside panel)	-1: Error	1, 2	The unit must have started and a sub-microcomputer must be connected.
0x05	I ² C communication test (sub-microcomputer of the handle)	-1: Error	1, 2	The unit must have started and a sub-microcomputer must be connected.
0x06	I ² C communication test (sub-microcomputer of the rear panel)	-1: Error	1, 2	Normal end "0" is always returned because there is no applicable device in this unit.
0x07	I ² C communication test (sub-microcomputer of the outside panel)	-1: Error	1, 2	Normal end "0" is always returned because there is no applicable device in this unit.
0x08	I ² C communication test (sub-microcomputer of the viewfinder)	-1: Error	1, 2	Normal end "0" is always returned because there is no applicable device in this unit.

Continued

ID	Diagnosis	Error value	Type1/2	Note
0x09	I ² C communication test (I/O expander)	-1: Error	1, 2	The unit must have started and a sub-microcomputer must be connected.
0x0a	Version matching test (power supply microcomputer)	-1: Error	1, 2	The unit must have started and a sub-microcomputer must be connected.
0x0b	Version matching test (sub-microcomputer of the inside panel)	-1: Error	1, 2	The unit must have started and a sub-microcomputer must be connected.
0x0c	Version matching test (sub-microcomputer of the handle)	-1: Error	1, 2	The unit must have started and a sub-microcomputer must be connected.
0x0d	Version matching test (sub-microcomputer of the rear panel)	-1: Error	1, 2	Normal end "0" is always returned because there is no applicable device in this unit.
0x0e	Version matching test (sub-microcomputer of the outside panel)	-1: Error	1, 2	Normal end "0" is always returned because there is no applicable device in this unit.
0x0f	Version matching test (sub-microcomputer of the viewfinder)	-1: Error	1, 2	Normal end "0" is always returned because there is no applicable device in this unit.

Item6 (Power block diagnosis)

The power block diagnosis tests the following contents.

ID	Diagnosis	Error value	Type1/2	Note
0x01	Power switch read	-1: The power switch cannot be read.	1, 2	The power switch must be set to ON.
		-4: Diagnosis is disabled because the power switch is not set to ON.		
0x02	Battery recognition	-1: Communication with battery is disabled.	1, 2	An appropriate battery must be connected.
		-4: Diagnosis is disabled because no battery is connected.		
0x03	Power supply state	-1: Power supply is not controlled correctly.	1, 2	The power switch must be set to ON.
		-4: Diagnosis is disabled because the power switch is not set to ON.		

Item7 (Diagnosis between image processor and display block)

Diagnosis between the image processor and the display block tests the following content.

ID	Diagnosis	Error value	Type1/2	Note
0x80	Video signal line test	-1: Test pattern check error	1, 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.

Item9 (Diagnosis between display block and media block)

Diagnosis between the display block and the media block tests the following contents.

ID	Diagnosis	Error value	Type1/2	Note
0x91	Video signal line communication test in playback direction (Direction from MEDIA to DIS- PLAY)	-1: Test pattern check error	1, 2	—

3-4. Error Code List

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-343 board or replace it.
E-17001	The media ID data in the EEPROM is abnormal	Rewrite the media ID data in the EEPROM. For details, contact your local Sony Sales Office/Service Center.
E-17002	The image processor block does not start	Repair the DCP-56 board or replace it.
E-17003	The display block does not start	Repair the DCP-56 board or replace it.
E-17004	The media block does not start	Repair the DPR-343 board or replace it.
E-17005	The image processor block startup processing is abnormal	Repair the DCP-56 board or replace it.
E-17006	The display block startup processing is abnormal	Repair the DCP-56 board or replace it.
E-17007	The media block startup processing is abnormal	Repair the DPR-343 board or replace it.
E-17014	The lens communication is abnormal	Check the connection of the DCP-56 or HN-399 board. When there is no problem with the connection, replace the DCP-56 or HN-399 board.
E-17015	The media block is abnormal	Repair the DPR-343 board or replace it.
E-17016	The lens switch status cannot be acquired	Check the connection around the HN-399 board. When there is no problem with the connection, replace the relevant switch board or the HN-399 board.
E-17017	Media block internal error	Repair the DPR-343 board or replace it.
E-4xxxx		

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

- When making electrical adjustment or self-diagnosis, contact your local Sony Sales Office/Service Center.
- When adjusting this unit, 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

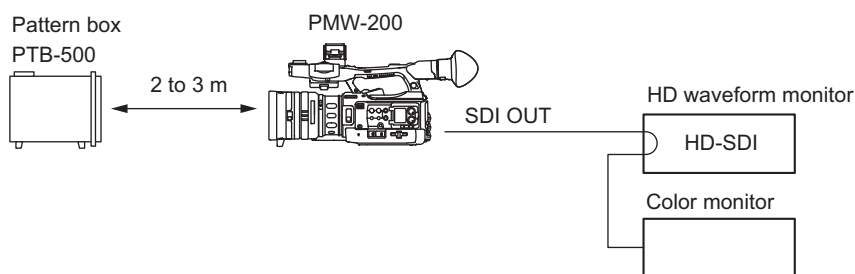
Equipment	Model name
HD waveform monitor	LEADER ELECTRONICS CORP. LV5152DA or equivalent
Color monitor	Sony HDM-20E1U/14E1U/14E5U or equivalent
Luminance meter	Konica Minolta LS-110 or equivalent

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

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.

- While recording or while the color bars are displayed.
- When the electronic shutter is operating in the SLS mode.
- When EX Slow Shutter is set to ON.
- When Interval Rec is set to ON.
- When Frame Rec is set to ON.
- When P.Cache Rec is set to ON.
- When S&Q Motion 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 vertical white shading parabola correction (white level correction at the vertical center with respect to both ends).

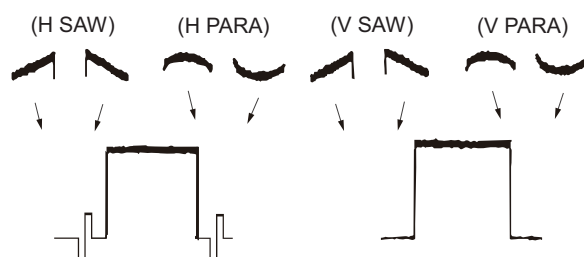
White shading adjustment method

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%.
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. Flare Adjustment

The Flare Adjustment menu enables flare compensation for the respective channels of G-channel, B-channel and R-channel.

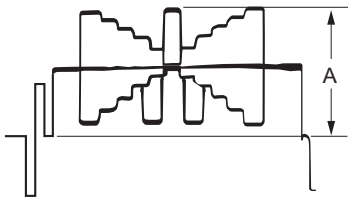
Flare Adjusting Method

Preparation

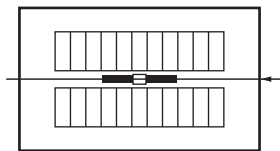
- Connect the HD waveform monitor to the SDI OUT connector.
- Set the HD waveform monitor to the RGB mode.
- Capture the grayscale and adjust the white balance.
- Set Knee of the PICTURE PROFILE SET menu to "Auto" or "Off."

Adjustment procedure

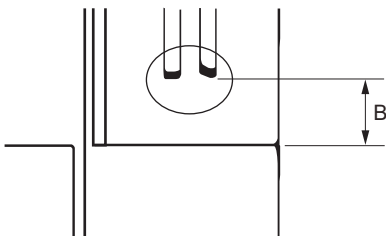
1. Set the white level (A in the figure below) to 100% with the lens iris and open the iris two steps from that position.



2. Select the center of the grayscale by the waveform monitor.



3. Adjust the R Flare, G Flare, and B Flare so that the black level (B in the figure below) on both sides of the center white becomes equal in the R, G, and B channels.
(Adjust them to the channel with the lowest black level.)



Notes

- A correct grayscale chart is required for flare adjustment.
- If no correct grayscale chart is provided, adjust the R Flare, G Flare, and B Flare values to ± 0 .

4-2-6. 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.

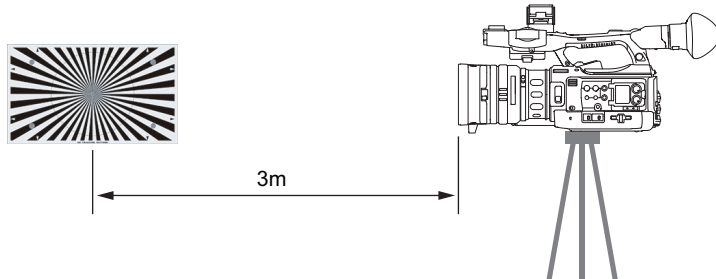
Flange back adjustment method

Preparation

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

Star chart (reflective type)

PMW-200



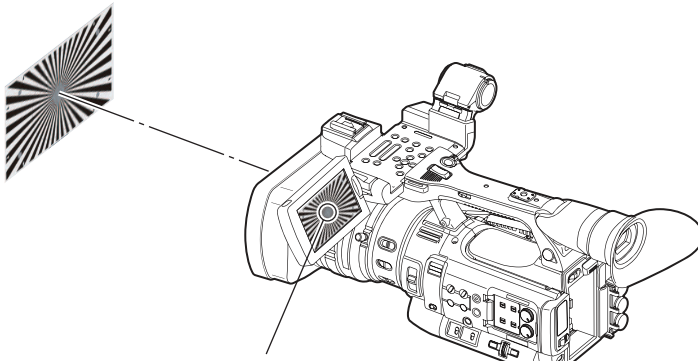
- Set the camera as follows.

Item	Setting
FOCUS RING	FULL MF
IRIS SW	MANUAL
MACRO SW	OFF
FOCUS SW	MANUAL
ZOOM SW	SERVO
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.
Select menus in order: [OTHERS] → [System] → [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] → [Shutter Speed] and select an appropriate shutter speed.

- Set the zoom to TELE end and adjust the camera position so that the center of the chart nearly matches the screen center.



Set the chart so that its center comes to the screen center

Item	Setting	Lens
ZOOM POSITION	—	TELE
ZOOM	SERVO	—
FOCUS	—	FULL MANUAL
IRIS	—	OPEN
GAIN	0 dB	—
WHITE BAL	ATB	—
FULL AUTO	OFF	—

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

Check after Adjustment

- Set the lens iris to OPEN, set the zoom to TELE end, and adjust the focus.
- 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 HD422 50/1080/59.94i 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. Channel Setting

- The Channel menu enables specifying 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. Setting Readout Mode

- The CMOS readout method can be set in the readout mode.
- When "Field" is selected, the RPN extends up and down by adding two lines and is displayed. For this reason, selecting "Frame" makes it easy to locate the RPN position.

4-3-11. 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 HD422 50/1080/59.94i.

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 $\triangle$ 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

$\triangle$ 警告

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

2. 部品の共通化

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

3. 部品の在庫

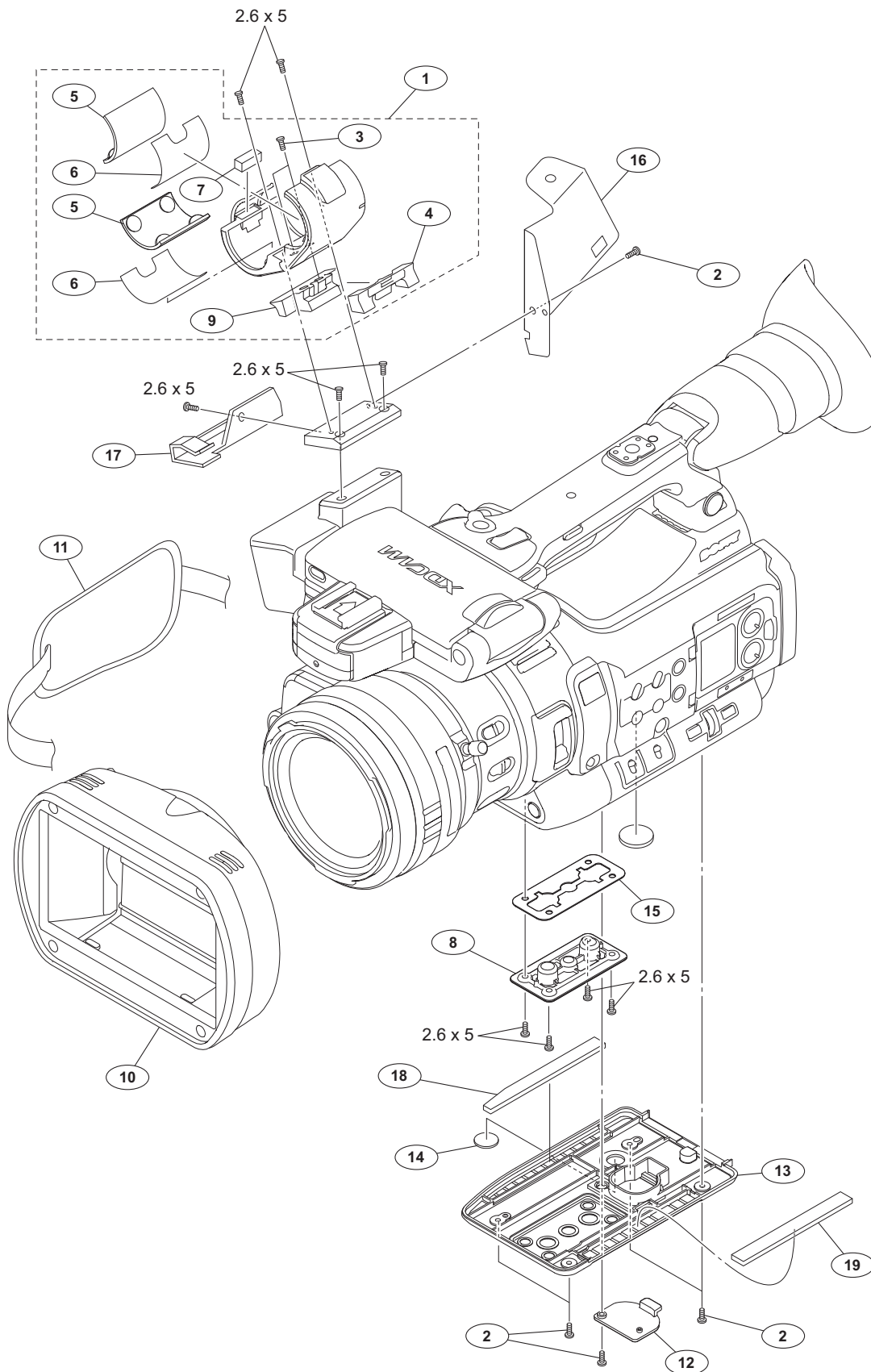
部品表の SP (Supply code) 欄に “o” で示される部品は在庫していないことがあります。納期が長くなる場合があります。

4. ハーネス

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

5-2. Exploded Views

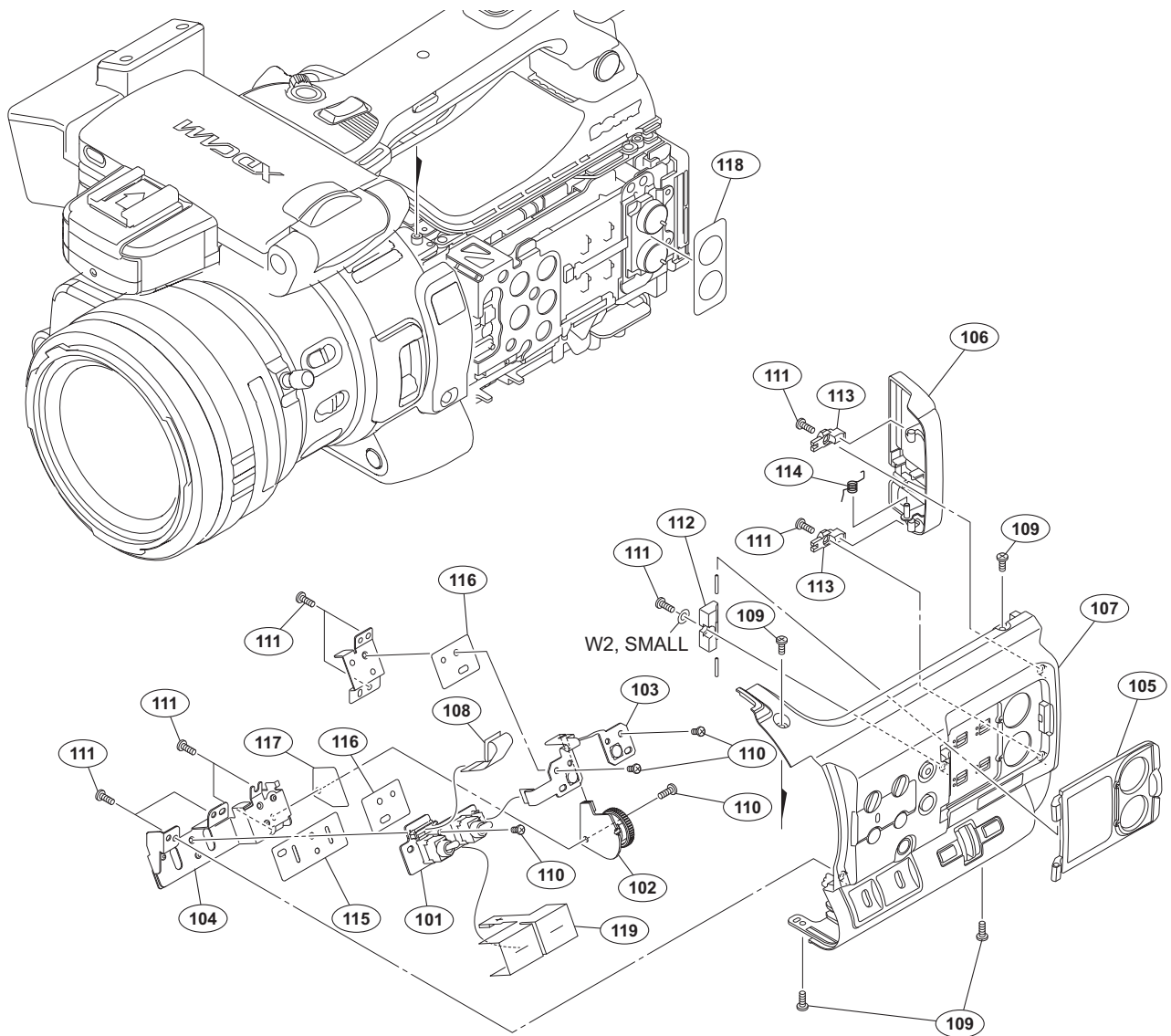
Overall



Overall

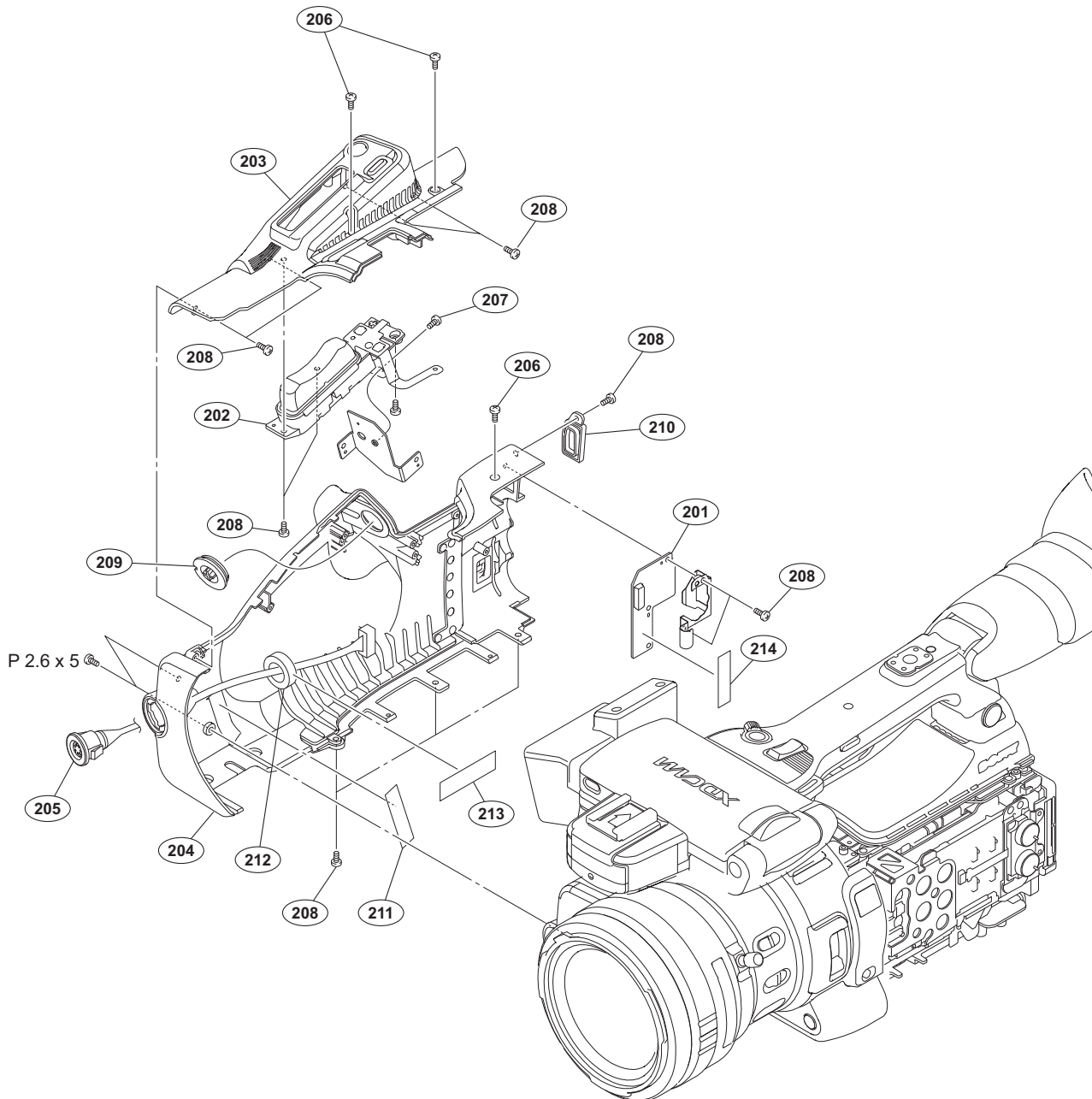
No.	Part No.	SP Description
1	X-2342-570-5	s HOLDER (93000) ASSY, MICROPHONE
2	2-630-005-01	s SCREW (M2), NEW TRUSTER, P2
3	3-080-206-21	s SCREW, TAPPING, P2
4	3-284-075-03	s COVER, MICROPHONE HOLDER RUBBER
5	3-284-080-02	s RUBBER, MICROPHONE
6	3-284-081-11	s SHEET, RUBBER ADHESIVE
7	3-284-621-11	s CUSHION, MICROPHONE HOLDER
8	4-119-234-11	s WASHER, TRIPOD
9	4-119-861-01	s RUBBER (93000), HOLDER
10	4-179-065-01	s HOOD LENS
11	4-275-256-01	s BELT, GRIP
12	4-427-934-02	s BATTERY LID
13	4-427-935-02	s PANEL, BOTTOM
14	4-427-940-01	s COVER USER TAP
15	4-433-453-01	s SPACER, BOTTOM
16	4-446-349-01	s BRACKET, WIFI
17	4-446-827-01	s HOLDER, MICROPHONE
18	4-447-306-01	s CUSHION (B), BOTTOM
19	4-447307-01	s CUSHION (C), BOTTOM
	7-627-556-58	s SCREW +P 2.6X5

Inside Panel Assembly



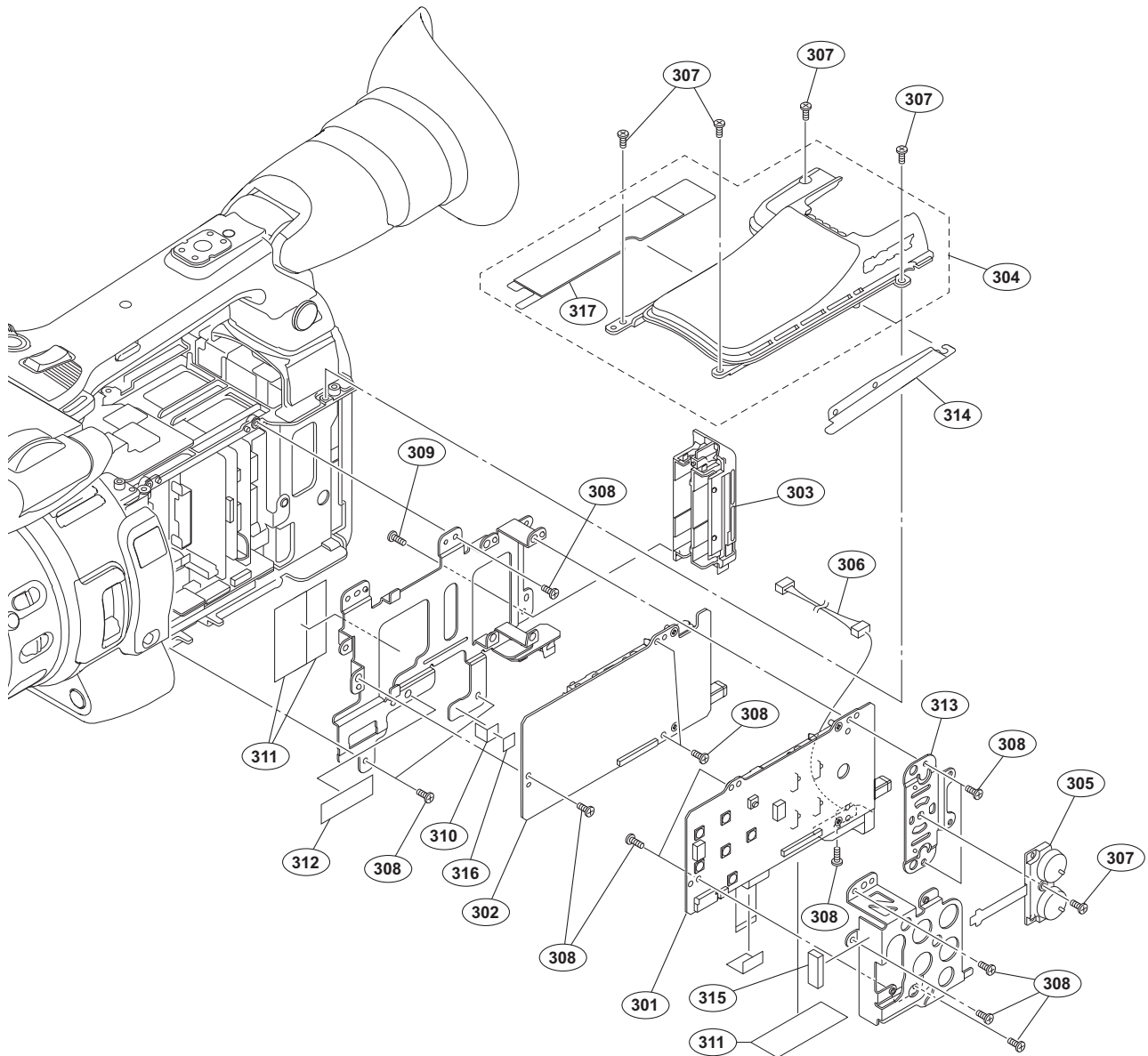
No.	Part No.	SP Description
101	A-1890-562-A s	MOUNTED CIRCUIT BOARD, SW-1577
102	A-1890-563-A s	MOUNTED CIRCUIT BOARD, SW-1578
103	A-1890-564-A s	MOUNTED CIRCUIT BOARD, SW-1579
104	X-2584-460-1 s	BRACKET (A) ASSY, SWITCH
105	X-2584-461-2 s	AU COVER SUB ASSY
106	X-2585-758-1 s	LID ASSY, SXS
107	X-2585-773-1 s	PANEL SUB ASSY, INSIDE
108	1-846-287-12 s	CABLE, FLEXIBLE FLAT (15 CORE)
109	2-630-005-01 s	SCREW(M2), NEW TRUSTER, P2
110	3-056-233-21 s	SCREW (M2), LOCK ACE, P2
111	3-080-206-21 s	SCREW, TAPPING, P2
112	4-428-406-03 s	RETAINER, AU SHAFT
113	4-428-407-01 s	RETAINER, LID SHAFT
114	4-428-408-01 s	SPRING, HELICAL TORSION COIL
115	4-446-019-01 s	SW INSULATING SHEET H
116	4-428-410-01 s	SW INSULATING SHEET B
117	4-428-411-01 s	SW INSULATING SHEET C
118	4-428-985-01 s	COVER, AU VOLUME
119	4-446-018-01 s	SHEET (H), SW CONDUCTIVITY
	7-688-001-02 s	W 2, SMALL

Outside Panel Assembly



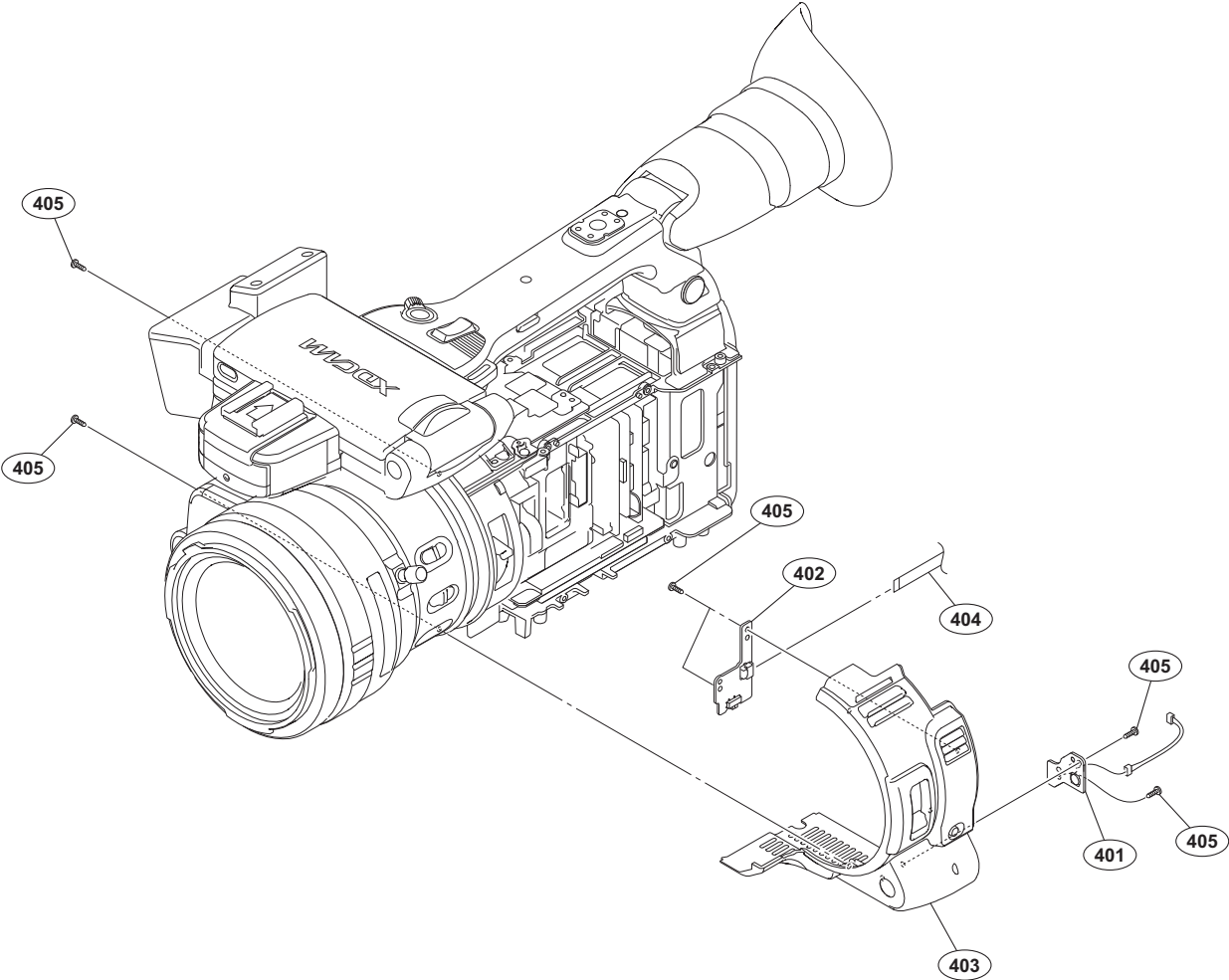
No.	Part No.	SP Description
201	A-1885-813-A s	MOUNTED CIRCUITE BOARD, IO-254
202	A-1899-214-A s	SEESAW ASSY, ZOOM
203	X-2585-656-1 s	COVER ASSY, ZOOM SEESAW
204	X-2585-657-1 s	PANEL SUB ASSY, OUTSIDE
205	1-968-639-11 s	SUB HARNESS (DEMAND 8P)
206	2-630-005-01 s	SCREW (M2), NEW TRUSTER, P2
207	3-056-233-21 s	SCREW (M2), LOCK ACE, P2
208	3-080-206-21 s	SCREW, TAPPING, P2
209	4-410-288-01 s	BUTTON, REC
210	4-441-559-01 s	CAP, WIFI USB
211	4-414-598-01 s	TAPE (12X35)
212	1-759-071-11 s	CORE, FERRITE
213	4-119-886-01 s	TA;PE (13X50)
214	4-446-016-01 s	TAPE AS (0720)
	7-627-556-58 s	SCREW +P2.6X5

SxS Slot Assembly



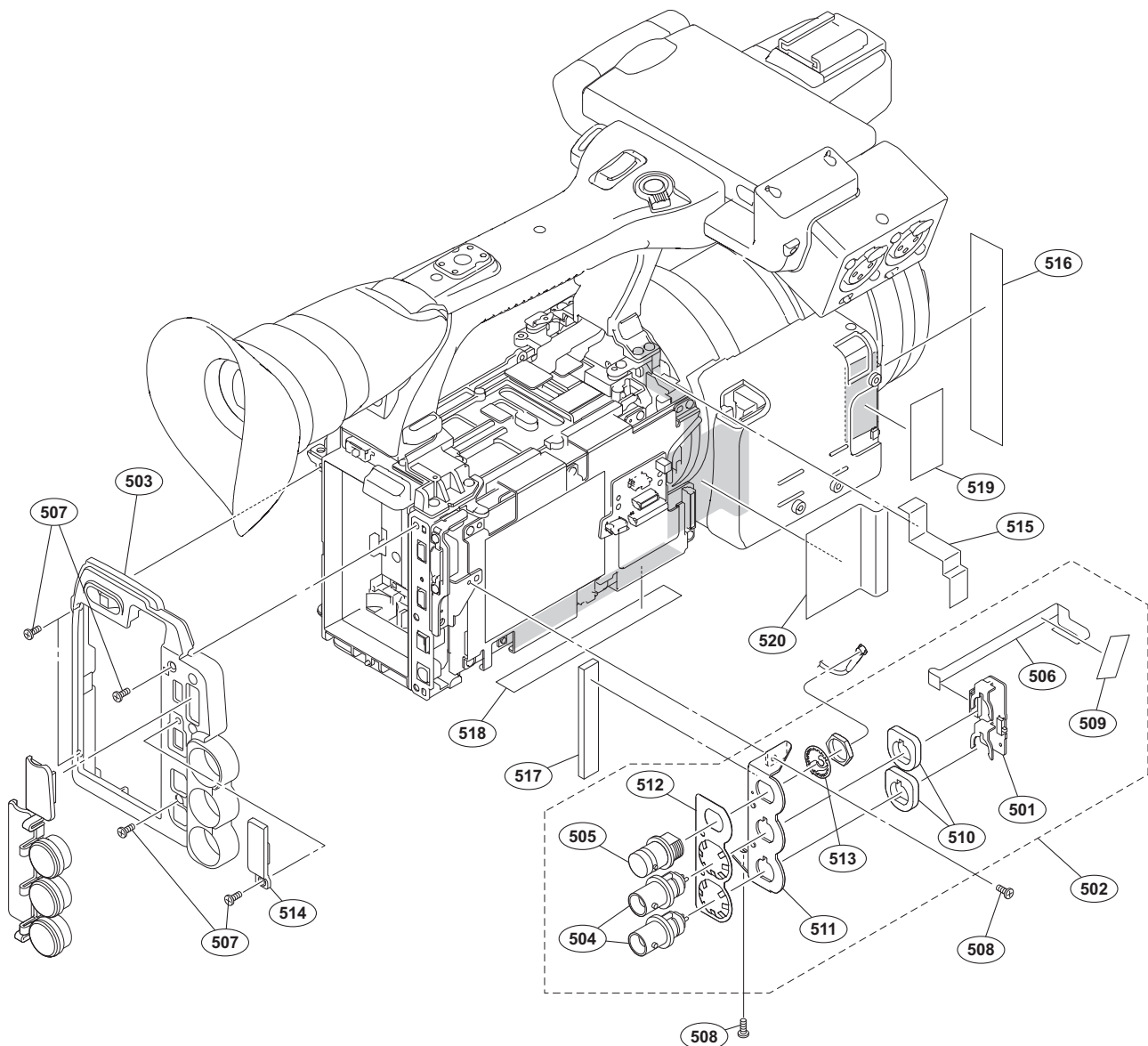
No.	Part No.	SP Description
301	A-1888-559-A s	MOUNTED CIRCUIT BOARD, SWC-54
302	A-1891-131-A s	MOUNTED CIRCUIT BOARD, EC-75
303	X-2584-450-2 s	ESCUTCHEON ASSY, SXS
304	X-2584-469-1 s	TOP PANEL ASSY
305	1-480-457-41 s	BLOCK, AU VOLUME
306	1-967-679-11 s	HARNESS, SUB (LCD DET)
307	2-630-005-01 s	SCREW (M2), NEW TRUSTER, P2
308	3-056-233-21 s	SCREW (M2), LOCK ACE, P2
309	3-080-206-21 s	SCREW, TAPPING, P2
310	3-278-255-01 s	TAPE (BT)
311	3-878-657-01 s	TAPE 50
312	4-414-598-01 s	TAPE (12X35)
313	4-428-300-01 s	PLATE, AU HOLD
314	4-428-399-01 s	SHEET (IN), WATERPROOF
315	4-435-865-01 s	GASKET (G), MAIN
316	4-446-005-01 s	GASKET MAIN L
317	4-447-332-01 s	SHEET (J), WATERPROOF

Front Panel Assembly



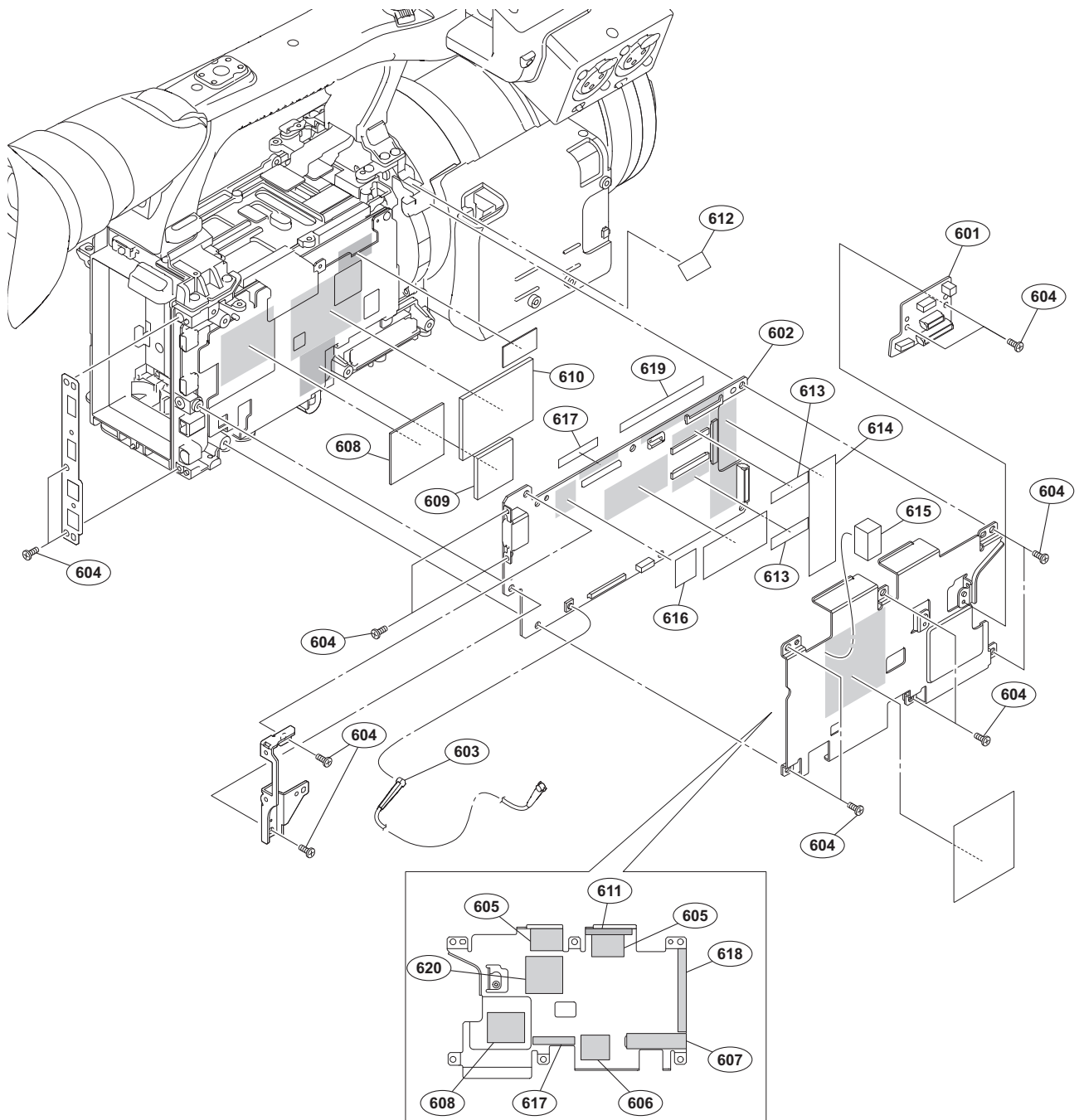
No.	Part No.	SP Description
401	A-1885-812-A s	MOUNTED CIRCUIT BOARD, SW-1559
402	A-1885-984-A s	MOUNTED CIRCUIT BOARD, SW-1573
403	X-2585-655-1 s	PANEL SUB ASSY, FRONT
404	1-846-304-11 s	CABLE, FLEXIBLE FLAT (6 CORE)
405	3-080-206-21 s	SCREW, TAPPING, P2

Rear Panel Assembly-1



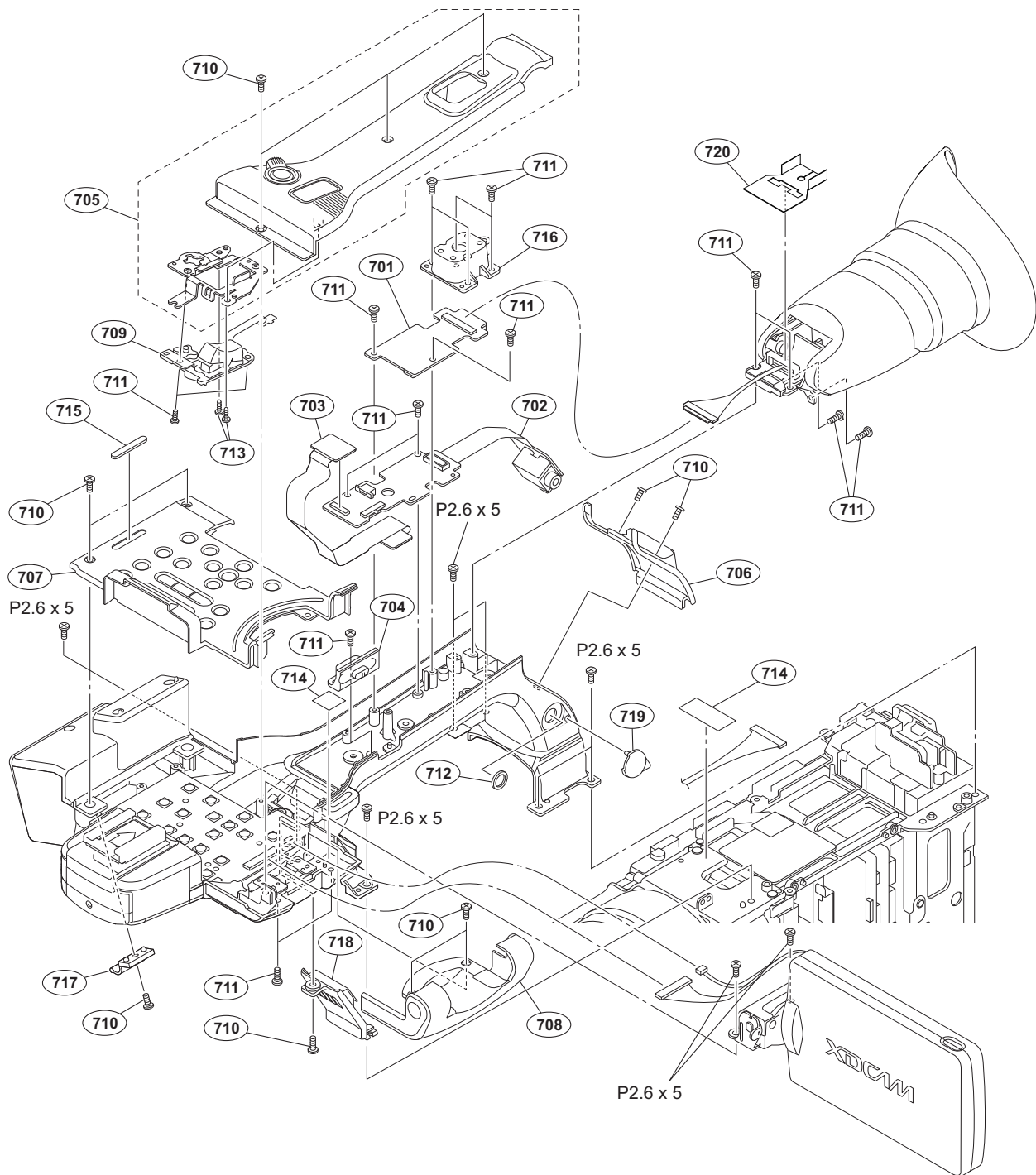
No.	Part No.	SP Description
501	A-1888-558-A s	MOUNTED CIRCUIT BOARD, IO-255
502	A-1899-219-A s	ASSY IO-255
503	X-2584-455-3 s	REAR PANEL ASSY
504	1-766-380-11 s	CONNECTOR, COAXIAL (BNC TIPE)
505	1-784-240-11 s	CONVERTER, COAXIAL CONNECTOR
506	1-846-285-11 s	CABLE, FLEXIBLE FLAT (10 CORE)
507	2-630-005-01 s	SCREW (M2), NEW TRUSTER, P2
508	3-056-233-21 s	SCREW (M2), LOCK ACE, P2
509	3-278-255-01 s	TAPE (BT)
510	4-428-365-01 s	SPACER, V-OUT
511	4-428-366-01 s	BRACKET BNC
512	4-428-367-01 s	PLATE, BNC GND
513	4-428-368-01 s	WASHER, BNC COAXIAL FIXED
514	4-428-375-01 s	USB COVER
515	4-446-001-01 s	TAPE (H), FRAME CONDUCTIVE
516	4-446-003-01 s	TAPE (H), LENS CONDUCTIVE
517	4-446-004-01 s	GASKET MAIN K
518	4-446-006-01 s	GASKET MAIN M
519	4-446-014-01 s	TAPE AS (2040)
520	4-446-017-01 s	TAPE (H), DCP CONDUCTIVE

Rear Panel Assembly-2



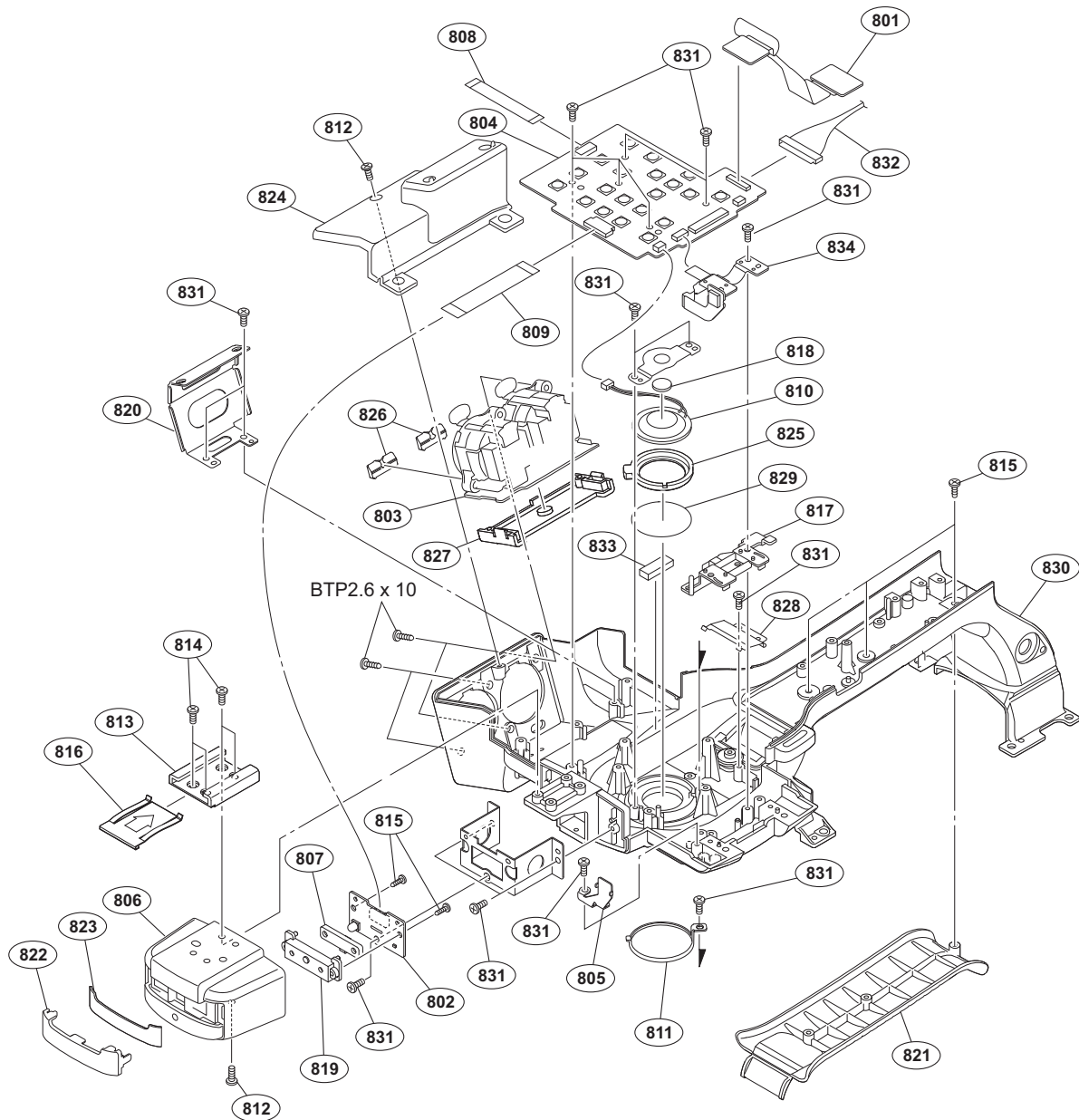
No.	Part No.	SP Description	No.	Part No.	SP Description
601	A-1885-814-A s	MOUNTED CIRCUIT BOARD, CN-3540	616	4-446-002-01 s	TAPE AS (1515)
602	A-1886-115-A s	MOUNTED CIRCUIT BOARD, DCP-56	617	4-446-010-01 s	CUSHION MAIN A
603	1-837-302-11 s	CABLE ASSEMBLY, COAXIAL	618	4-446-011-01 s	CUSHION MAIN B
604	3-056-233-21 s	SCREW (M2), LOCK ACE, P2	619	4-446-012-01 s	CUSHION MAIN C
605	4-427-941-01 s	CUSHION CONNECTOR (MAIN)	620	4-446-013-01 s	CUSHION MAIN D
606	4-427-951-02 s	RADIATION SHEET C			
607	4-427-952-02 s	RADIATION SHEET D			
608	4-427-953-02 s	RADIATION SHEET E			
609	4-427-954-02 s	RADIATION SHEET F			
610	4-427-956-02 s	RADIATION SHEET H			
611	4-428-812-01 s	GASKET (D), MAIN			
612	4-433-496-01 s	TAPE, FP CONDUCTIVE			
613	3-278-255-01 s	TAPE (BT)			
614	4-119-886-01 s	TAPE (13X50)			
615	4-435-865-01 s	GASKET (G), MAIN			

Handle-1



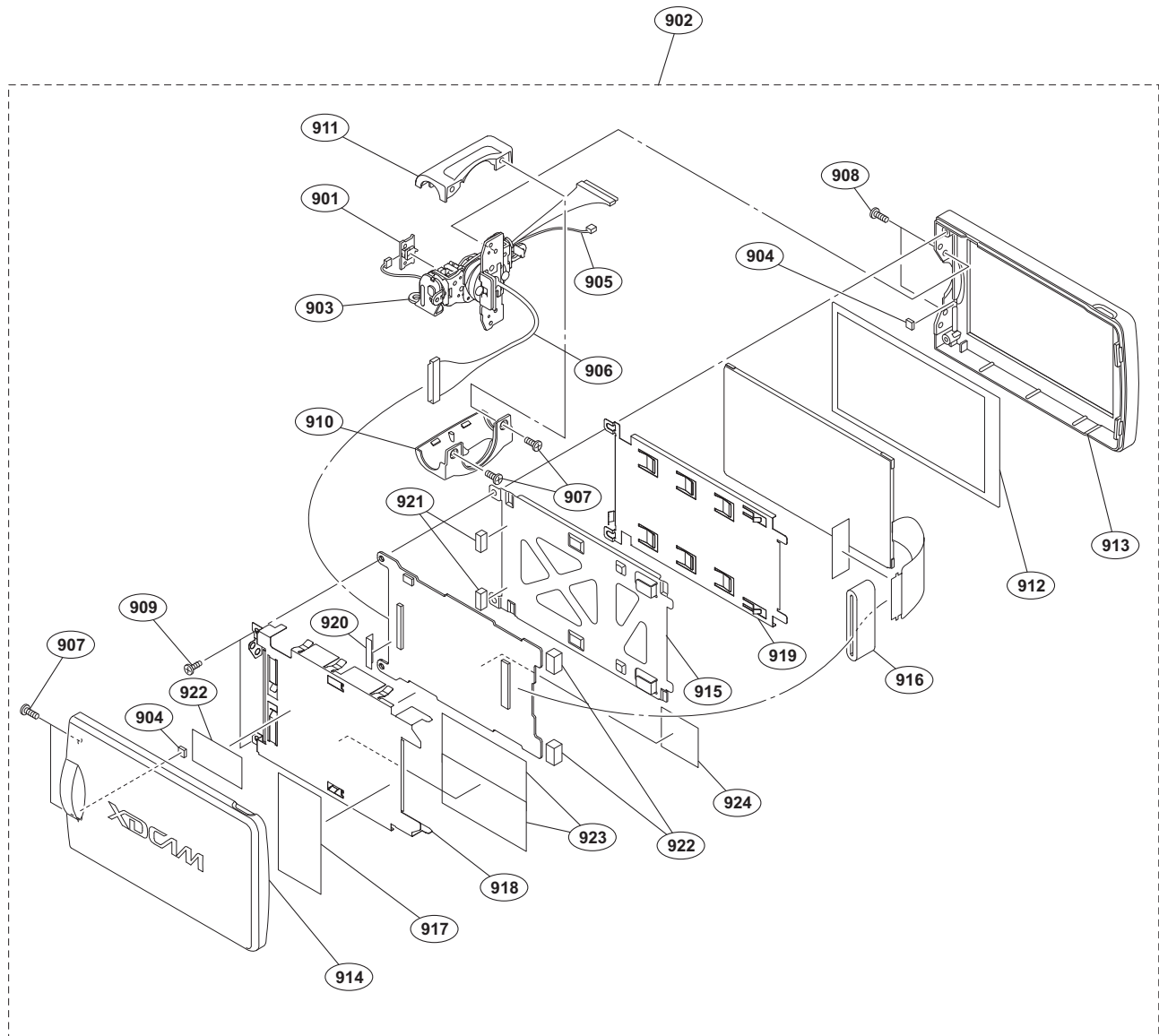
No.	Part No.	SP Description	No.	Part No.	SP Description
701	A-1885-809-A	s MOUNTED CIRCUIT BOARD, DR-670	714	3-278-255-01	s TAPE (BT)
702	A-1890-560-A	s MOUNTED CIRCUIT BOARD, RM-237	715	3-288-474-01	s RUBBER, PANEL RETAINER
703	A-1890-567-A	s MOUNTED CIRCUIT BOARD, HN-404	716	3-288-538-11	s SHOE, REAR (COLD)
704	X-2584-437-1	s KNOB ASSY, ZOOM SELECTION	717	3-678-684-01	o HOLDER, CABLE
705	X-2584-438-1	s CASE ASSY, HANDLE (UPPER)	718	4-428-150-01	s FR-CABINET, HANDLE
706	X-2584-439-1	s CABINET ASSY, HANDLE (REAR)	719	4-428-161-01	s COVER, HP JACK
707	X-2584-441-3	s PANEL ASSY, CONTROL	720	4-445-606-01	s SHEET, EVF HARNESS
708	X-2584-442-1	s COVER ASSY, HINGE (FRONT)			
709	1-480-298-11	s SWITCH BLOCK, CONTROL (GZ92000)			
710	2-630-005-01	s SCREW (M2), NEW TRUSTER, P2			
				7-627-556-58	s SCREW +P2.6X5
711	3-056-233-21	s SCREW (M2), LOCK ACE, P2			
712	3-061-234-01	s NUT (M6X0.5)			
713	3-080-206-21	s SCREW, TAPPING, P2			

Handle-2



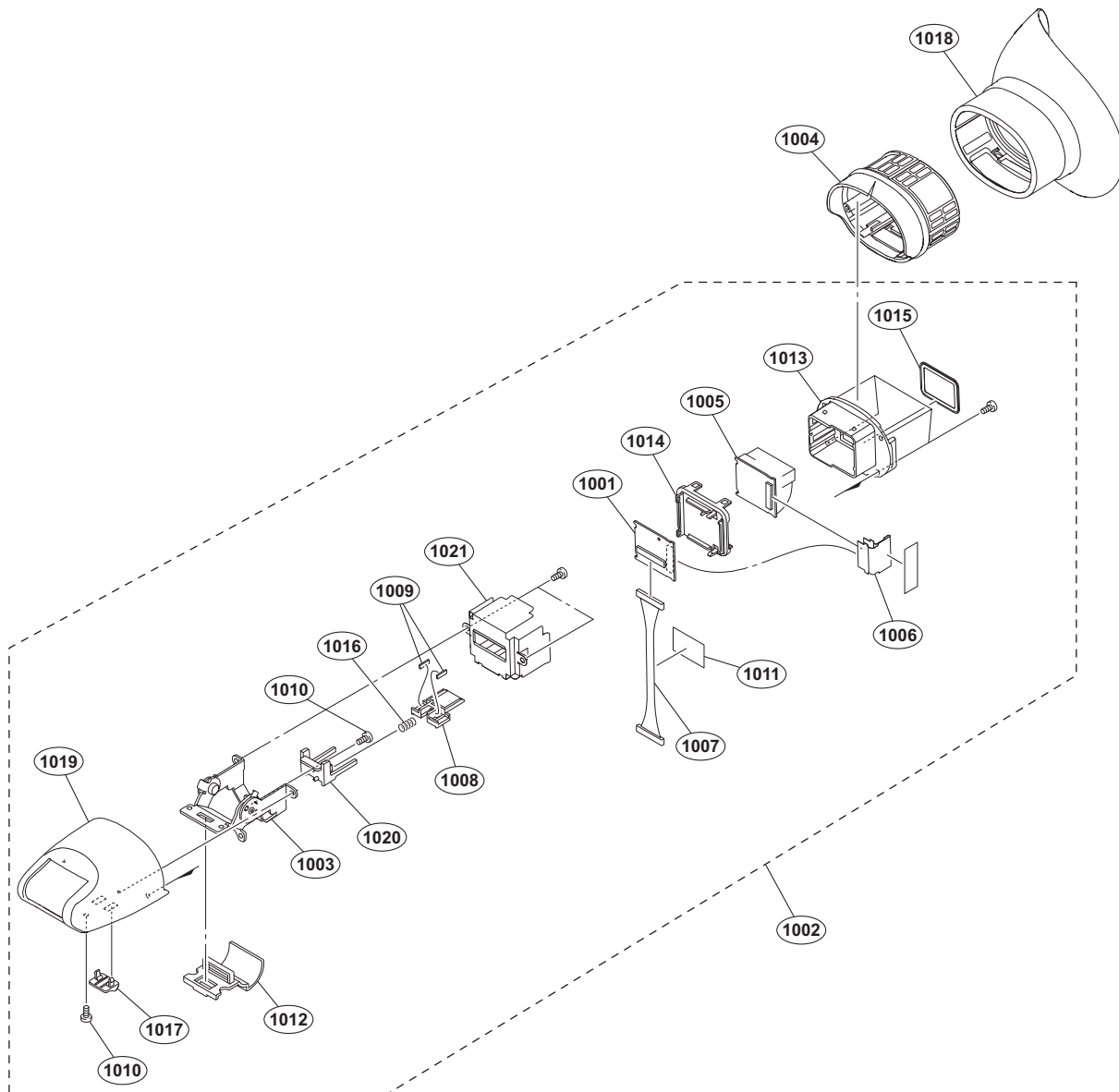
No.	Part No.	SP Description	No.	Part No.	SP Description
801	A-1890-566-A	s MOUNTED CIRCUIT BOARD, HN-403	818	4-119-285-01	o CUSHION, SPEAKER
802	A-1890-559-A	s MOUNTED CIRCUIT BOARD, FP-179	819	4-428-154-01	s CASE, MICROPHON
803	A-1890-558-A	s MOUNTED CIRCUIT BOARD, AXM-48	820	4-428-156-01	s BRACKET, MICROPHONE
804	A-1890-572-A	s MOUNTED CIRCUIT BOARD, KSW-62	821	4-428-157-01	s GRIP
805	X-2188-609-1	s FIXED (759) ASSY	822	4-428-158-01	s GRILLE, MICROPHONE
806	X-2584-440-1	s CABINET ASSY, MICROPHONE	823	4-428-159-01	s SCREEN, WIND
807	1-542-862-11	s MICROPHONE UNIT	824	4-428-160-01	s COVER, XLR
808	1-831-666-11	s CABLE, FLEXIBLE FLAT (15 CORE)	825	4-428-162-01	s SPEAKER HOLDER
809	1-846-023-11	s CABLE, FLEXIBLE FLAT (10 CORE)	826	4-428-163-04	s XLR SW KNOB
810	1-858-774-11	s LOUDSPEAKER (2.0 CM)	827	4-428-164-01	s XLR SW RALL
811	2-178-566-01	s GRILLE, SPEAKER	828	4-428-165-01	s PLATE LCD GROUND
812	2-630-005-01	s SCREW(M2), NEW TRUSTER, P2	829	4-428-166-01	s SCREEN, SPEAKER
813	3-069-286-03	s SHOE, ACCESSORY	830	4-428-167-01	s HANDLE
814	3-080-203-51	s SCREW(M2), LOCK ACE, P2 (for PMW-200)	831	3-056-233-21	s SCREW (M2), LOCK ACE, P2
	4-432-184-01	s SCREW (M2), NEW TRUSTER, P2 (for PMW-EX280)	832	1-968-343-11	s HARNESS (DCP-KSW)
815	3-080-206-21	s SCREW, TAPPING, P2	833	4-433-494-01	s GASKET (F), MAIN
816	3-288-615-02	s SPRING, SHOE	834	A-1890-569-A	s MOUNTED CIRCUIT BOARD, KSW-61
817	4-119-279-01	s HOLDER, FLEXIBLE		7-685-535-19	s SCREW +BTP 2.6X10 TYPE2 N-S

LCD Assembly



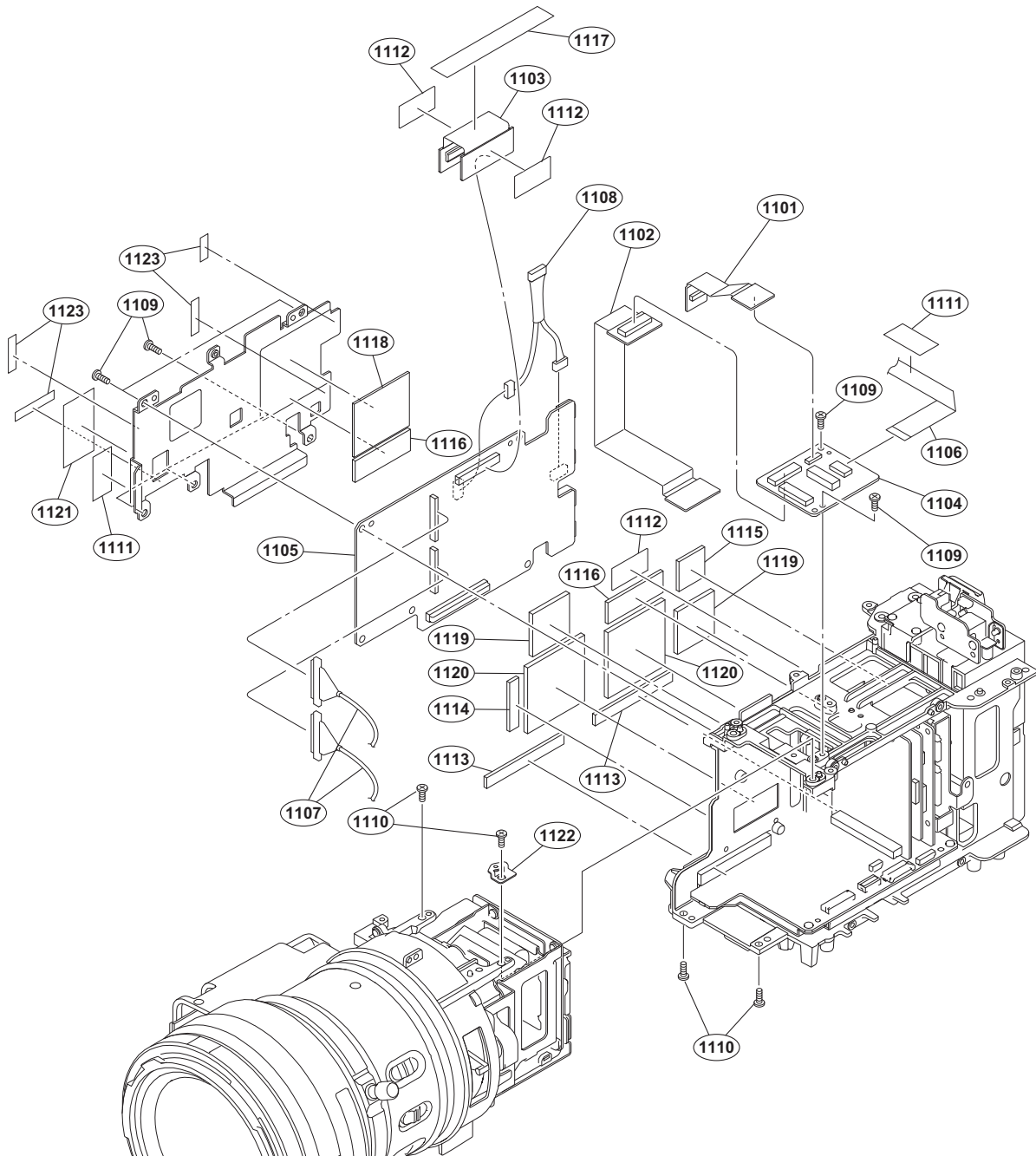
No.	Part No.	SP Description	No.	Part No.	SP Description
901	A-1890-571-A	s MOUNTED CIRCUIT BOARD, DET-55	923	3-878-656-01	s TAPE 60
902	A-1899-213-A	s LCD ASSY	924	4-435-864-01	s TAPE 25
903	X-2342-571-1	s HINGE (TYPE 07KAI) ASSY, PANEL			
904	1-471-514-11	s MAGNET (LM-30FH)			
905	1-968-339-11	s SUB HARNESS (REVERSE-KSW)			
906	1-968-341-11	s HARNESS (LCD-KSW)			
907	2-630-005-01	s SCREW (M2), NEW TRUSTER, P2			
908	3-056-233-21	s SCREW (M2), LOCK ACE, P2			
909	3-080-206-21	s SCREW, TAPPING, P2			
910	3-288-566-21	s CABINET (T), PANEL HINGE			
911	3-288-567-21	s CABINET (B), PANEL HINGE			
912	4-428-128-01	s CUSHION, PANEL			
913	4-428-129-02	s BEZEL, LCD			
914	4-428-130-01	s CABINET LCD			
915	4-428-134-01	s RETAINER, PANEL			
916	1-482-034-11	s CORE, FERRITE			
917	3-878-657-01	s TAPE 50			
918	4-429-227-01	s PLATE, LCD SHIELD			
919	4-429-228-01	s PLATE, PANEL GROUND			
920	3-278-255-01	s TAPE (BT)			
921	4-435-866-01	s GASKET (H), MAIN			
922	4-446-007-01	s GASKET MAIN N			

EVF Assembly



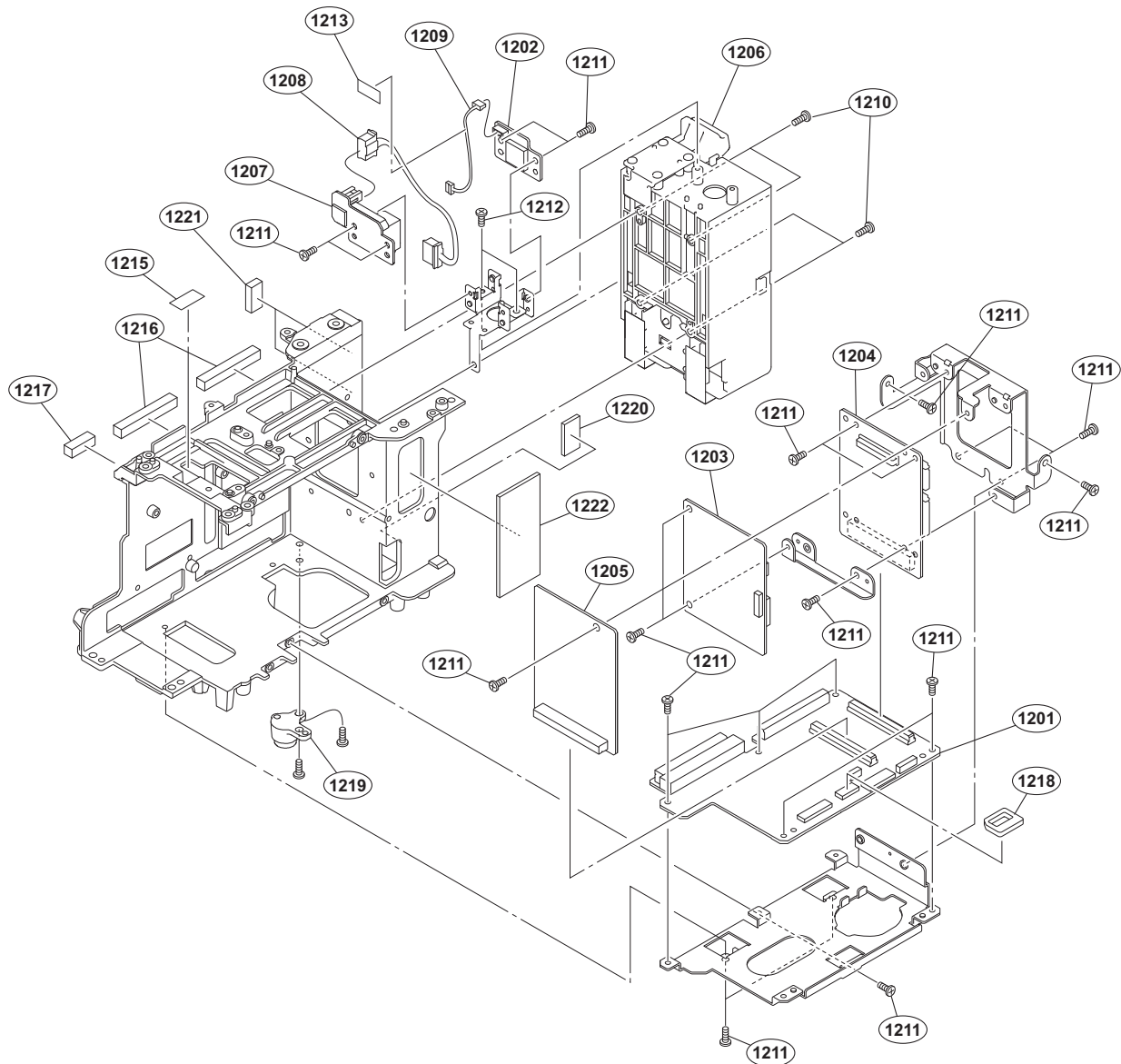
No.	Part No.	SP Description
1001	A-1885-810-A s	MOUNTED CIRCUIT BOARD, HN-398
1002	A-1899-212-A s	EVF FRONT ASSY
1003	X-2515-729-1 s	HINGE ASSY
1004	X-2515-730-7 s	LOUPE ASSY
1005	1-811-033-11 s	LCD MODULE
1006	1-873-733-11 s	PWB, FP-776 FLEXIBLE
1007	1-966-921-11 s	HARNESS (COAXIAL CABLE)
1008	2-179-390-01 s	HOOK, VF LOCK
1009	3-060-588-01 s	SPACER, LOCK
1010	3-080-203-31 s	SCREW(M2), LOCK ACE,P2
1011	3-278-255-01 s	TAPE (BT)
1012	3-278-317-02 s	FPC GUIDE
1013	3-288-585-01 s	CASE, PANEL
1014	3-288-586-02 s	LID, PANEL
1015	3-288-591-01 s	SHEET, VF PROTECTION
1016	3-302-492-01 s	SPRING, COMPRESSION
1017	3-963-822-12 s	KNOB, LOCK
1018	4-164-856-01 s	EYE CUP
1019	4-164-591-02 s	CABINET EVF
1020	4-164-592-01 s	GUIDE LOCK LEVER
1021	4-445-605-01 s	PLATE, EVF GROUND

Chassis-1



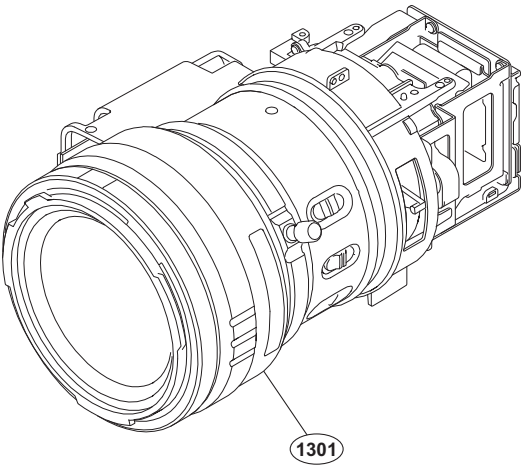
No.	Part No.	SP Description	No.	Part No.	SP Description
1101	A-1864-817-A s	MOUNTED CIRCUIT BOARD, HN-387	1117	1-500-921-11 s	FERRITE CORE
1102	A-1864-824-A s	MOUNTED CIRCUIT BOARD, HN-386	1118	4-427-953-01 s	RADIATION SHEET E
1103	A-1864-828-A s	MOUNTED CIRCUIT BOARD, HN-384	1119	4-427-954-01 s	RADIATION SHEET F
1104	A-1864-829-A s	MOUNTED CIRCUIT BOARD, IF-1182	1120	4-427-955-01 s	RADIATION_SHEET_G
1105	A-1886-114-A s	MOUNTED CIRCUIT BOARD, DPR-343	1121	4-433-495-01 s	TAPE, DCP CONDUCTIVE
1106	1-846-056-21 s	CABLE, FLEXIBLE FLAT (10 CORE)	1122	4-441-556-01 s	BRACKET, FRONT
1107	1-968-346-11 s	HARNESS (DPR-EC/SWC)	1123	4-446-010-01 s	CUSHION MAIN A
1108	1-968-640-11 s	SUB HARNESS (USB_IF)			
1109	3-056-233-21 s	SCREW (M2), LOCK ACE, P2			
1110	3-694-181-03 s	TYPE1, AROCK PRECISION +P2.6X5			
1111	3-278-255-01 s	TAPE (BT)			
1112	4-427-941-01 s	CUSHION CONNECTOR (MAIN)			
1113	4-427-949-02 s	RADIATION SHEET A			
1114	4-427-950-02 s	RADIATION SHEET B			
1115	4-427-951-02 s	RADIATION SHEET C			
1116	4-427-952-02 s	RADIATION SHEET D			

Chassis-2



No.	Part No.	SP Description
1201	A-1864-808-B s	MOUNTED CIRCUIT BOARD, AU-342
1202	A-1864-816-A s	MOUNTED CIRCUIT BOARD, PSW-97
1203	A-1869-162-A s	MOUNTED CIRCUIT BOARD, RE-298
1204	A-1869-163-A s	MOUNTED CIRCUIT BOARD, RE-299
1205	A-1869-164-A s	MOUNTED CIRCUIT BOARD, RE-300
1206	A-1881-601-A s	BATTERY CASE SUB ASSY
1207	A-1888-872-A s	MOUNTED CIRCUIT BOARD, DC-167
1208	1-968-344-11 s	SUB HARNESS (EXT DC-RE299)
1209	1-968-345-11 s	SUB HARNESS (PSW-RE298)
1210	2-630-005-01 s	SCREW(M2),NEW TRUSTER,P2
1211	3-056-233-21 s	SCREW (M2), LOCK ACE, P2
1212	3-080-206-21 s	SCREW, TAPPING, P2
1213	3-278-255-01 s	TAPE (BT)
1215	4-427-941-01 s	CUSHION CONNECTOR(MAIN)
1216	4-427-942-01 s	GASKET MAIN A
1217	4-427-943-01 s	GASKET MAIN B
1218	4-430-771-01 s	CN GUARD
1219	4-445-608-01 s	TAP, ACCESSORY
1220	4-435-867-01 s	GASKET (J), MAIN
1221	4-446-008-01 s	GASKET MAIN P
1222	4-446-009-01 s	GASKET MAIN Q

Lens Block Assembly



No.	Part No.	SP Description
1301	A-1911-477-A s	FRONT ASSEMBLY (RP)

5-3. Electrical Parts List

AU-342 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1864-808-B s	MOUNTED CIRCUIT BOARD, AU-342
BT700	1-756-991-21 s	HOLDER, LITHIUM BATTERY (CR203
CN100	1-817-820-11 s	CONNECTOR, BOARD TO BOARD 30P
CN103	1-774-260-31 s	CONNECTOR, FFC/FPC(ZIF) AN 20P
CN500	1-784-254-21 s	CONNECTOR 10P
CN600	1-764-080-21 o	PIN, CONNECTOR (PC BOARD) 8P

AXM-48 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1890-558-A s	MOUNTED CIRCUIT BOARD, AXM-48
CN1	1-794-099-13 s	CONNECTOR, ROUND TYPE
CN2	1-794-099-13 s	CONNECTOR, ROUND TYPE
CN3	1-785-840-31 s	CONNECTOR, FFC/FPC(ZIF) AN 15P

CN-3540 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1885-814-A s	MOUNTED CIRCUIT BOARD, CN-3540
CN101	1-778-646-31 s	CONNECTOR, FFC/FPC(ZIF) ST 10P
CN102	1-778-646-31 s	CONNECTOR, FFC/FPC(ZIF) ST 10P
CN103	1-816-113-21 s	CONNECTOR 15P
CN104	1-779-806-21 s	CONNECTOR 8P

DC-167 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1888-872-A s	MOUNTED CIRCUIT BOARD, DC-167
CN100	1-764-250-21 s	PIN, CONNECTOR (PC BOARD) 4P
CN101	1-793-459-11 s	JACK,DC(POLARITY UNIFIED TYPE)

DCP-56 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1886-115-A s	MOUNTED CIRCUIT BOARD, DCP-56
CN007	1-816-113-21 s	CONNECTOR 15P
CN2200	1-764-243-31 o	CONNECTOR (COAXIAL)
CN2201	1-778-646-31 s	CONNECTOR, FFC/FPC(ZIF) ST 10P
THP100 	1-771-845-21 s	THERMISTOR, POSITIVE

DET-55 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1890-571-A s	MOUNTED CIRCUIT BOARD, DET-55
CN100	1-794-375-21 s	PIN, CONNECTOR 2P

DPR-343 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1886-114-A s	MOUNTED CIRCUIT BOARD, DPR-343
CN1100	1-818-513-21 s	CONNECTOR (SQUARE TYPE) (USB) 5P
CN1300	1-794-276-21 o	CONNECTOR, SQUARE TYPE 4P
CN2200	1-818-513-21 s	CONNECTOR (SQUARE TYPE) (USB) 5P
CN2500	1-815-794-13 s	CONNECTOR (MULTIPLE)
CN2501	1-770-621-21 s	PIN, CONNECTOR 4P
CN2502	1-770-623-21 s	PIN, CONNECTOR 6P

DR-670 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1885-809-A s	MOUNTED CIRCUIT BOARD, DR-670
CN101	1-822-221-11 o	CONNECTOR, COAXIAL(RECEPTACLE)

EC-75 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1891-131-A s	MOUNTED CIRCUIT BOARD, EC-75
1pc	1-821-531-13 s	CONNECTOR, EX CARD(GUIDE UNIT)
CN101	1-821-530-12 s	CONNECTOR, EX CARD (HOST)

FP-179 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1890-559-A s	MOUNTED CIRCUIT BOARD, FP-179
CN100	1-822-910-11 o	CONNECTOR, FPC (LIF(NON-ZIF))
CN101	1-778-646-31 s	CONNECTOR, FFC/FPC(ZIF) ST 10P

HN-384 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1864-828-A s	MOUNTED CIRCUIT BOARD, HN-384

HN-386 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1864-824-A	s MOUNTED CIRCUIT BOARD, HN-386

HN-387 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1864-817-A	s MOUNTED CIRCUIT BOARD, HN-387
CN101	1-817-820-11	s CONNECTOR, BOARD TO BOARD 30P

HN-398 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1885-810-A	s MOUNTED CIRCUIT BOARD, HN-398
CN001	1-817-623-61	o CONNECTOR, FPC (ZIF) 45P
CN002	1-822-221-11	o CONNECTOR, COAXIAL (RECEPTACLE)

HN-399 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1885-811-A	s MOUNTED CIRCUIT BOARD, HN-399
CN102	1-816-113-21	s CONNECTOR 15P

HN-403 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1890-566-A	s MOUNTED CIRCUIT BOARD, HN-403

HN-404 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1890-567-A	s MOUNTED CIRCUIT BOARD, HN-404

IF-1182 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1864-829-A	s MOUNTED CIRCUIT BOARD, IF-1182
CN103	1-778-645-31	s CONNECTOR, FFC/FPC (ZIF) AN 10P

IF-1188 BOARD

Ref. No. or Q'ty	Part No.	SP Description
CN200	1-843-070-61	s CONNECTOR, FPC (LIF (NON-ZIF))
CN300	1-842-522-21	o CONNECTOR, FPC (ZIF) 61P
PS100	 1-576-122-21	s LINK, IC (0.4A/72V)
PS101	 1-576-122-21	s LINK, IC (0.4A/72V)

IO-254 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1885-813-A	s MOUNTED CIRCUIT BOARD, IO-254
CN100	1-770-627-21	s PIN, CONNECTOR 10P
CN101	1-817-109-11	s CONNECTOR, USB (A)

IO-255 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1888-558-A	s MOUNTED CIRCUIT BOARD, IO-255
CN100	1-766-380-11	s CONNECTOR, COAXIAL (BNC TYPE)
CN101	1-766-380-11	s CONNECTOR, COAXIAL (BNC TYPE)
CN102	1-750-337-61	s CONNECTOR, FFC/FPC (ZIF) 10P

KSW-61 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1890-569-A	s MOUNTED CIRCUIT BOARD, KSW-61

KSW-62 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1890-572-A	s MOUNTED CIRCUIT BOARD, KSW-62
CN100	1-778-645-31	s CONNECTOR, FFC/FPC (ZIF) AN 10P
CN101	1-785-840-31	s CONNECTOR, FFC/FPC (ZIF) AN 15P
CN102	1-794-375-21	s PIN, CONNECTOR 2P
CN403	1-794-375-21	s PIN, CONNECTOR 2P
CN404	1-816-643-61	s FFC/FPC CONNECTOR (LIF) 10P

PSW-97 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1864-816-A	s MOUNTED CIRCUIT BOARD, PSW-97

RE-298 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1869-162-A s	MOUNTED CIRCUIT BOARD, RE-298
CN201	1-816-463-21 s	PIN, CONNECTOR (PC BOARD) 10P
CN202	1-794-376-21 s	PIN, CONNECTOR 4P
THP100 	1-803-615-21 s	THERMISTOR, POSITIVE

RE-299 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1869-163-A s	MOUNTED CIRCUIT BOARD, RE-299
CN100	1-774-297-21 s	PIN, CONNECTOR (PC BOARD) 7P
CN101	1-750-005-21 o	PIN, CONNECTOR (PC BOARD) 4P
F100 	1-576-329-21 s	FUSE (SMD) (10A/125V)

RE-300 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1869-164-A s	MOUNTED CIRCUIT BOARD, RE-300
THP100 	1-803-615-21 s	THERMISTOR, POSITIVE

RM-237 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1890-560-A s	MOUNTED CIRCUIT BOARD, RM-237
CN101	1-794-525-12 s	JACK, MIC

RM-238 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1890-561-A s	MOUNTED CIRCUIT BOARD, RM-238
CN101	1-573-915-71 s	CONNECTOR, FFC/FPC (ZIF) 6P

SW-1559 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1885-812-A s	MOUNTED CIRCUIT BOARD, SW-1559
CN104	1-818-210-21 s	PIN, CONNECTOR 2P

SW-1573 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1885-984-A s	MOUNTED CIRCUIT BOARD, SW-1573
CN100	1-815-597-31 s	CONNECTOR, FFC/FPC (ZIF) AN 6P

SW-1575 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1888-560-A s	MOUNTED CIRCUIT BOARD, SW-1575
CN100	1-794-375-21 s	PIN, CONNECTOR 2P

SW-1577 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1890-562-A s	MOUNTED CIRCUIT BOARD, SW-1577
CN100	1-778-647-31 s	CONNECTOR, FFC/FPC (ZIF) ST 15P
CN101	1-778-646-31 s	CONNECTOR, FFC/FPC (ZIF) ST 10P

SW-1578 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1890-563-A s	MOUNTED CIRCUIT BOARD, SW-1578
CN100	1-817-583-61 s	CONNECTOR, FFC/FPC 5P

SW-1579 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1890-564-A s	MOUNTED CIRCUIT BOARD, SW-1579

SWC-54 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1888-559-A s	MOUNTED CIRCUIT BOARD, SWC-54
1pc	1-821-531-13 s	CONNECTOR, EX CARD (GUIDE UNIT)
CN100	1-774-260-31 s	CONNECTOR, FFC/FPC (ZIF) AN 20P
CN101	1-785-840-31 s	CONNECTOR, FFC/FPC (ZIF) AN 15P
CN102	1-573-915-71 s	CONNECTOR, FFC/FPC (ZIF) 6P
CN103	1-815-597-31 s	CONNECTOR, FFC/FPC (ZIF) AN 6P
CN104	1-794-375-21 s	PIN, CONNECTOR 2P
CN105	1-818-210-21 s	PIN, CONNECTOR 2P
CN301	1-821-530-12 s	CONNECTOR, EX CARD (HOST)

VR-350 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1890-568-A	s MOUNTED CIRCUIT BOARD, VR-350
CN101	1-778-645-31	s CONNECTOR, FFC/FPC (ZIF) AN 10P

5-4. Supplied Accessories

Q'ty	Part No.	SP Description
1pc	1-479-570-14 s	REMOTE COMMANDER (RM-F300)
1pc	1-482-017-11 s	CLAMP, FERRITE
1pc	△ 1-757-562-11 s	CORD, POWER (For PMW-200 (UC))
1pc	△ 1-782-476-14 s	CORD, POWER (For PMW-EX280 (CN))
1pc	1-831-553-22 s	CORD, CONNECTION (AV MULTIPLE)
1pc	1-837-287-21 s	CORD, CONNECTION (USB 5P)
1pc	3-278-903-01 s	SHOULDER BELT
1pc	4-164-856-01 s	EYE CUP
1pc	4-268-461-05 s	CD-ROM (UTILITY SOFTWARE)
1pc	△ 4-425-716-03 s	MANUAL, INSTRUCTION (Japanese) (For PMW-200 (J))
1pc	△ 4-425-716-13 s	MANUAL, INSTRUCTION (English) (For PMW-200 (UC), (CE), (E))
1pc	△ 4-425-716-21 s	MANUAL, INSTRUCTION (Chinese) (For PMW-EX280 (CN))
1pc	△ 4-425-718-03 s	CD-ROM (INSTRUCTION MANUAL) (For PMW-200 (UC), (CE), (E))
1pc	4-446-349-01 s	BRACKET, WIFI
1pc	4-446-827-01 s	HOLDER, MICROPHONE CABLE
1pc	7-627-556-58 s	SCREW +P 2.6X5

Overall



PMW-200 (J)
PMW-200 (UC)
PMW-200 (CE)
PMW-200 (E)
PMW-EX280 (CN) J, E
9-968-962-02

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