SONY

SOLID-STATE MEMORY CAMCORDER

PMW-400
PMW-580

XDCAM SxS HDMI

MPEG HD422 Exmor FULL HD 3CMOS

SERVICE MANUAL

1st Edition

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

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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.

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注意

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

CAUTION

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

ATTENTION

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

VORSICHT

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

FÖRSIKTIGHET!

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

PAS PÅ

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

HUOMIO

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

FORSIKTIG

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

注意

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

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Manual Structure

Purpose of this manual

This manual describes the information items that premise the service based on the block parts assuming use of system and service engineers.

Related manuals

The following manuals are available in this model.
If this manual is required, please contact your local Sony Sales Office/Service Center.

- Operating Instructions (Supplied with the unit)
  This manual is necessary for application and operation of the unit.
- Factory Service Manual
  This manual describes the information items that premise the service based on the components parts.
- CBK-CE01 Installation Manual (Supplied with CBK-CE01)
  This manual is necessary when CBK-CE01 is installed in the unit.

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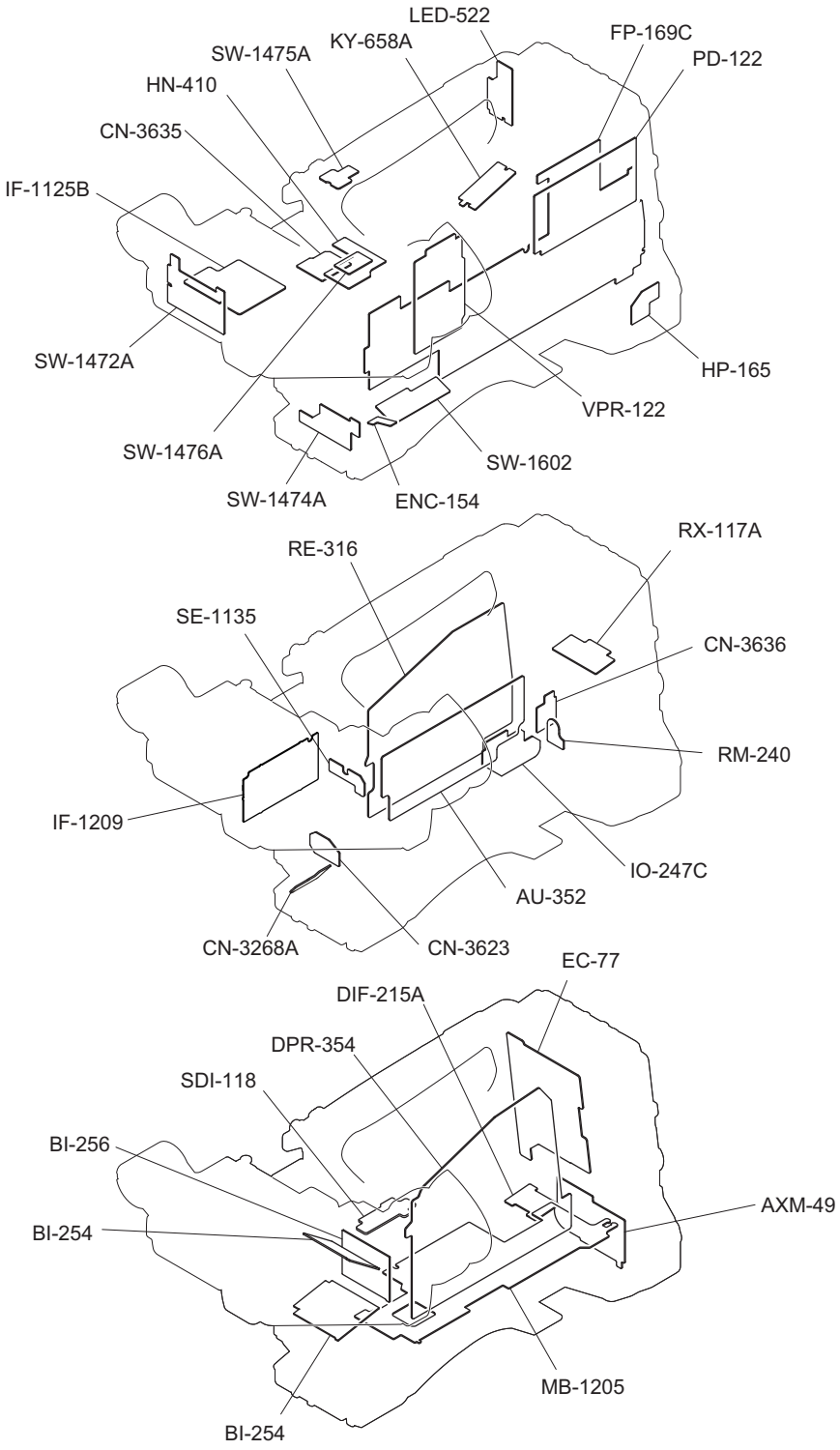
Section 1
Service Overview

1-1. Location of Printed Circuit Boards



1-2. Circuit Description

1-2-1. CMOS Block

BI-254/256 Boards

The BI-254 and BI-256 boards are used to supply power, bias, and sync signals to the CMOS image sensor (IC1) and to transmit output signals to the DPR-354 board.
The BI-254 board is provided for R and B channels, and the BI-256 board is provided for G channel.
These boards are provided with a 20-pin power connector (CN1) and a 40-pin fine-wire coaxial connector (CN2) for signal input/output.
The CMOS image sensor converts R/G/B optical signals dispersed by the prism to electrical signals, and the internal 12-bit column A/D converter converts the electrical signals to digital signals and outputs them.
These boards are also provided with functions for electronic shutter, analog gain amplifier, black-level clamp, and others.
The sync signal and the serial communication signal input from the DPR-354 board are transferred to the CMOS image sensor. Then the output 12-bit digital video signal is transferred through the EMI filter (FL1 to FL7) to the DPR-354 board.
Decoupling capacitors and damping resistors are also mounted.
IC3 on the BI-256 board is a temperature sensor that transfers temperature data to the camera microcomputer (IC125) on the DPR-354 board through the I^2C bus. IC4 on the BI-256 board is an EEPROM to store manufacturing/adjustment data specific to each CMOS block and read the data from the camera microcomputer as required.

1-2-2. Camera Block

VPR-122 Board

The camera block, consisting of a camera signal processor IC that performs digital signal processing for the camera and a camera microcomputer that controls the processor IC, CMOS image sensor, and lens, outputs digital video (Y/C) signal to the next-stage video (baseband) signal block.
The 12-bit digital video (RGB) signals output from the BI-254 and BI-256 boards are input to the camera signal processor ICs (IC100, IC101).
The camera signal processor ICs (IC100, IC101) detect average values and peak values of video signals necessary for automatic camera operations such as auto white balance, auto black balance, auto focus, auto iris, and auto knee processing, and then transfer the detected values to the camera microcomputer (IC405/DPR-354 board).
The main-line video signals are transferred through the test signal switching circuit, correction circuit for CMOS imager, correction circuit for lens, and then white balance processing, matrix signals, and detail signals are added to the video signals. Then pedestal control, knee correction, gamma correction, and white and black clip processing are applied. The processed video signals are output to the next-stage baseband processing IC (IC500/DPR-354 board).
Pixel conversion from 1920/1080 to 1440/1080 or 1280/720 pixels is also made in IC101.

1-2-3. Video Signal Block

DPR-354 Board

The digital video (Y/C) signal output from the camera signal processor IC (IC101) on the VPR-122 board is input to the baseband processing IC (IC500).
This baseband processing IC (IC500) incorporates various scaler functions (supporting multi-format outputs), various OSD functions, PLL function (54 MHz to 74 MHz, etc.), and a CPU to perform video/audio baseband processing.
The baseband signals processed by IC500 are transferred to ROUTER_IC (IC1400), and are then distributed to input/output circuits.

The following lists input/output signals to/from IC500.

- HD/SD Component (digital): To ROUTER_IC (IC1400)
  (SDI/HDMI/VIDEO-OUT (without CHARA) USE)
- HD/SD Component (analog): To ROUTER_IC (IC1400) through IC1004
  (SDI/HDMI/VIDEO-OUT (with CHARA) USE)
- Composite signal (analog): To MB-1205 board (RM-B USE)
- LCD signal (digital): To HN-410 board through IC2202 (PMW-VF USE)
- EVF signal (digital): To HN-410 board (DXF-VF USE)
- CODEC signal (digital): To ROUTER_IC (IC1400) (To CODEC through ROUTER_IC (IC1400))
- RETURN signal (digital): From ROUTER_IC (IC1400)
- Audio I/F signal (digital): To AU-352 board

The camera microcomputer (IC405) performs overall camera control and is controlled by the system controller (IC4300).
This board mounts FLASH ROM (IC402) and SDRAM (IC401) as peripheral ICs of the camera microcomputer.
This board mounts peripheral circuits including master clock generator 54 MHz VCXO (X1100) control circuit (IC1100, IC1101, IC1102, IC1105, and IC1106) and mobile DDR SDRAM memory (IC701, IC702), and also mounts FLASH ROM (IC805) and SDRAM (IC801) as internal CPU peripheral ICs.

HN-410 Board

The viewfinder output video signals and control signals from the DPR-354 board are input to CN4. Two types of video signals: digital video signal (LVDS) and analog video signal are input to the HN-410 board.
The digital video (LVDS) signal is output to CN1 which is a dedicated connector for the attached viewfinder.
The analog video signal is output to the FFC connector CN2 that relays the signal to the CN-3635 board.
Different control signals are provided respectively for digital and analog video signals.
Power voltages for the viewfinder are supplied from the MB-1205 board to CN7 with a harness, and an over current protection circuit is mounted on the HN-410 board. Signal lines of CN6 connected to the ASSIGN switch on the SW-1475A board and of CN5 connected to the LIGHT switch on the SW-1476A board are connected to the MB-1205 board through CN7.

CN-3635 Board

The viewfinder output analog video signals relayed through the HN-410 board are received by CN2 and are then output from the DXF-type VF connector CN1 to the external circuit.
An EMI filter is attached to each video signal line.

1-2-4. Media Recording and Playback Block

DPR-354 Board

The baseband signal output from the ROUTER_IC (IC1400) is input to the MPEG encoder/decoder (IC2700) or the DV encoder/decoder (IC3200).
The MPEG encoder/decoder (IC2700) is a one-chip MPEG CODEC IC that encodes and decodes high-quality HD image and audio data in real time, which has MPEG video, video input/output, MPEG audio, audio input/output, bitstream input/output, and host interfaces.
The DV encoder/decoder (IC3200) is an AVIT signal processor LSI that incorporates a DV CODEC to encode/decode high-quality SD image data in real time, which has DV video, DV video input/output, LPCM audio, audio input/output, bitstream input/output, and internal CPU interfaces.
The IC2700 output signals are then input to the AVIT signal processor LSI (IC3200). This LSI (IC3200) incorporates a MIPS4KEc CPU and has 2-Gbit DDR2 SDRAM memory (IC3301, IC3302), PCI bus, PCI-Express bus, IC2700 input/output, and system controller (IC4300) serial communication interfaces.

Like other main devices, this LSI (IC3200) is controlled by the system controller (IC4300) and controls video/audio streams, access to the SxS memory card, USB-connected mass storage operation, and i-LINK-connected DV/HDV devices.

EC-77 Board

The two-channel PCI-Express signal from IC3200 and two-channel USB host signal from the USB host controller (IC3601) on the DPR-354 board are connected to the memory card slot board (EC-77 board) through the 0.4 mm-pitch, 40-pin fine-wire coaxial cable connected to CN3700.
The two memory card slots are mounted on the EC-77 board, and the power controller (IC100, IC201) is controlled by IC3200 on the DPR-354 board through the PCI bus. Furthermore, a DC/DC converter (IC101) to generate +1.5 V power voltage for memory cards is also mounted on this board.

Description on Peripheral Devices

1. SxS memory card slot
   The two-channel PCI-Express signal from IC3200 is connected to the memory card slot board (EC-77 board) through the 0.4 mm-pitch, 40-pin fine-wire coaxial cable connected to CN3700. In the same manner as the PCI-Express signal, the two-channel USB host signal from the USB host controller (IC3601) is connected to the memory card slot board (EC-77 board) through the fine-wire coaxial cable.
   IC3601 is controlled by IC3200 through the PCI bus.
2. USB device controller
   The USB device signals output from the USB device controller (IC3200) are transferred from CN3400 through the shielded harness to the LED-522 board, and are then transferred to the USB TYPE-B connector (CN3).
3. USB host controller
   The USB host controller (IC3601) covers VBS host signals in addition to 2-channel signals of SxS memory card slot.
   The two-channel USB host signal output from the USB host controller (IC3601) is transferred from CN3400 through the shielded harness to the LED-522 board, and is then transferred to the USB TYPE-A connector (CN2).
4. i-LINK controller
   The i-LINK signals output from the i-Link controller (IC3600) are transferred from CN3600 through the shielded harness to the 6-pin i-Link connector.
   IC3600 and IC3601 are controlled by IC3200 through the PCI bus.

1-2-5. System Control Block

DPR-354 Board

The DPR-354 board mounts a system controller (IC4300), a 32-bit RISC microcomputer with ARM core.
This board is provided with a peripheral interface function for SDRAM, USB, SCI, and I^2C interfaces, which operates on the 27-MHz clock (X4300).
Peripheral ICs flash ROM (IC4307), SDRAM (IC4306), and EEPROM (IC4501) are also mounted on this board.
This board performs system control through serial communication with IC405 in the camera block, IC500 in the video signal block, and IC3200 in the media recording/playback block.

Main Functions of the System Controller and Peripheral Devices

1. Reading switch information
   - Inside panel switch: IC302, IC402, IC502 (FP-169C board)
   - Power switch: IC508 (RE-316 board)

   Switch information is read and LEDs are controlled by each sub-microcomputer through each I^2C bus communication.
2. Clock IC control
   A clock IC (IC709) is mounted on the FP-169C board.
   The clock IC (IC709) is backed up by a lithium coin battery, and the current clock time is set to or read from the clock IC by IC4300 on the DPR-354 board.
3. InfoLithium battery communication
   InfoLithium batteries of SMBus specification are supported.
   The serial terminal of the battery connector is connected to IC508 on the RE-316 board, which reads battery type, and remaining power period and sends these data to the system controller with the I^2C bus communication.
4. Power voltage detection
   The power voltage value from the DC IN connector is measured by the A/D port (IC508) on the RE-316 board, and is sent to the system controller as an actual voltage.
5. Power control
   The system controller controls each power voltage in the RE-316 board through the power microcomputer (IC508) on the RE-316 board according to the operation mode of the unit.
   Unnecessary power supply to circuit blocks is shut down to save power.

FP-169C Board

The FP-169C board is used to operate and set the switches and potentiometers on the inside panel. This board, consisting of a sub-microcomputer (IC302, IC402, and IC502), I^2C bus, and CPU_I/O, mainly reads key operation data.

Main Functions

- I^2C bus
  The I^2C bus is used for communication between main CPU and sub-microcomputer/real time clock (RTC) IC.
- I/O of CPU
  The CPU I/O reads the A/D-converted potentiometer setup data and switch operation data connected to the I/O port.

Main Blocks

1. Audio mode setting
2. Thumbnail/menu operation
3. Key operation (STOP key, PLAY key, etc.)
4. COUNTER/TC/U-BIT indication setting
5. Camera setting
6. Real time clock function
7. WARNING LED control and alarm tone control
8. Backup lithium battery voltage measurement circuit
9. REAR input circuit control
10. SxS slot switching
11. REAR TALLY setting

12. Monochrome LCD backlight ON/OFF control
13. ACCESS LED indication
14. Speaker, Headphone output
15. Connection of option boards

Description of Each Block

1. Audio mode setting
   This block selects audio input levels (AUTO/MANUAL), switches input groups (FRONT/REAR/WIRELESS), and reads A/D-converted potentiometer values in the manual input level setting to set audio input signals.
   This block also switches monitor output channels and reads A/D-converted output level adjustment potentiometer values to set monitor output signals.
   The AU-352 board performs actual signal control.
2. Thumbnail/menu operation
   This block performs operations of the thumbnail function and menu function using the direction cursor buttons and the MENU/SET button, and performs ON/OFF control of the SUB_CLIP LED.
3. Key operation (STOP key, PLAY key, etc.)
   This block reads operation data of the buttons on the KY-658A board and the REC S/S button and performs LED ON/OFF control.
4. COUNTER/TC/U-BIT indication setting
   This block switches COUNTER/TC/U-BIT indication on the monochrome LCD, selects Time Code F-RUN/RRUN and PRESET/REGEN/CLOCK, reads button operation data of buttons (Time Code SET and HOLD buttons), and makes settings.
   The set information is sent to the main CPU.
5. Camera setting
   This block reads operation data of the COLOR TEMP button and the ASSIGN SW button, push operation of the rotary encoder on the ENC-154 board, switching of GAIN (H/M/L), OUTPUT (BARS/CAM), and WHITE BAL switches, and reads operation data of the SHUTTER and ABB/AWB switches to make settings and perform self illuminating switch LED ON/OFF control. The set information is sent to the main CPU.
6. Real time clock function
   This block contains a real time clock IC (IC709: ISL12022IBZ) to enable the real time clock function using the clock generated by the externally connected crystal oscillator (X701).
   Setting of values is made by the main CPU through the I^2C bus.
   While power is supplied, this real time clock IC operates on the power voltage supplied from the DC-IN or battery connector. While power is not supplied, this IC is backed up by the internal lithium battery (CR2032).
7. WARNING LED control and alarm tone control
   This block receives warning information from the main CPU and performs ON/OFF control for the WARNING LED on the FP-169C board.
   This block reads the A/D-converted alarm tone potentiometer value to set the output volume.
8. Backup lithium battery voltage measurement circuit
   The sub-microcomputer in this block measures the backup lithium battery voltage, and transfers the decreased voltage information to the main CPU if battery exhaustion is detected.
   To reduce power consumption except during measurement, current flow in the FET-SW (Q710) is prevented.
   The battery lifetime is about 10 years.
9. REAR input circuit control
   This block reads switching of the LINE, MIC, and +48 V (CH1/2) switches on the AXM-49 board to set the REAR input signal.
10. SxS slot switching
    This block reads and sets the operation data of the SLOT SELECT button on the EC-77 board.
    The set information is sent to the main CPU.

11. REAR TALLY setting
    This block reads and sets the operation data of the TALLY switch on the LED-522 board.
    The set information is sent to the main CPU.
12. Monochrome LCD backlight ON/OFF control
    The sub-microcomputer in this block controls backlight ON/OFF of the monochrome LCD on the PD-122 board.
    This block simply relays the LCD indication data from the DPR-354 board to the PD-122 board.
13. ACCESS LED indication
    ACCESS LED ON/OFF on the inside panel is controlled by the signal from the DPR-354 board.
14. Speaker/headphone output
    This block relays AU-352 board output signals to the speaker and the HP-165 board.
15. Connection of option boards
    Option boards can be connected to any connector of CN304, CN404, and CN504.

1-2-6. Audio Block

AXM-49 Board

XLR (3P) connectors (CN1, CN2) for external LINE/MIC input and [LINE/MIC/MIC +48 V] input selection switches (S300, S301) for two channels and 2-channel output XLR (5P) connector (CN301) are mounted on the AXM-49 board. This board performs analog audio input signal processing and MIC +48 V power processing by serial control.
The input selection switches (S300, S301) are connected to the microcomputer on the FP-169C board through the PIO port via the MB-1205 board.

- When the +48 V ON signal is detected, the microphone power +48 V (supplied by the DC-DC converter (IC1207, Q1200) on the AU-352 board through CN10 on the MB-1205 board) is supplied by the switch (Q1, Q2, Q3, and Q4)
- Audio input signal lines are common to the MIC input level (-20 to -70 dBu in 10 dBu step) and the LINE input level (+4, 0, and -3 dBu), and an input attenuator is inserted by switches (Q5 to Q8, Q13 to Q16, Q25 to Q28, Q202, Q203, Q206 to Q209, Q216, and Q217). Furthermore, +4, 0, or -3 dBu is selected by Q21 to Q24 according to the [Line Input Ref] setting level of the menu, and is input to the balanced input amplifier (IC200, IC201).
- By using the serial communication control, the I^2C control signals from the Base band IC are converted to GPI, and menus [Line Input Ref], [Rear MIC CH1 Ref], and [Rear MIC CH2 Ref] are switched, and LINE, MIC, or MIC +48 V ON is selected.
- The audio output from the amplifier on the AU-352 board is output from the XLR (5P) connector through CN10 on the MB-1205 board.

RX-117A Board

The RX-117A board mounts a 15-pin Dsub connector for analog/digital wireless communication, a circuit compatible with two communication formats: WRR-855 communication format and asynchronous communication format, and an amplifier for analog audio signals. This board also controls digital audio signals. The FPGA (IC601) on the AU-352 board performs wireless control.

- The WRR_DET signal (CN1, pin 7) is used to make sure which wireless receiver has been connected, and components D1, C6, Q3, and R13 form a circuit to receive the signal.
  When the WRR-855 communication receiver is connected, a voltage of approx. 0.7 V is generated on pin 7. Diode D1 is used to prevent Q3 from being turned ON by this voltage.
- The WRR_CS signal (CN1, pin 10) is used as a signal line for the WRR-855 communication format based on the check result on pin 7. In other cases, a high level is output.
  R8, R14, and IC8 form a circuit for the WRR-855 communication format.

- The WRR_CLK signal (CN1, pin 9), WRR_DI signal (CN1, pin 11), and WRR_DO signal (CN1, pin 12) are used as signal lines for the WRR-855 communication format based on the check result on pin 7. In other cases, they are used as signal lines for the asynchronous communication format.
  Components R4 to R7, R10, R11, Q1, Q2, and IC7 form a circuit compatible with both WRR-855 and asynchronous communication formats.
- When an analog wireless receiver has been connected, the WL_A_CH1 signal (pin 2) and WL_A_CH2 signal (pin 3) are amplified by IC9 and IC10, and these signals are transferred from CN2 through CN12 on the MB-1205 board to the AU-352 board.
- The BCK signal (CN1, pin 6), XLRCK signal (CN1, pin 13), WL_DT12 signal (CN1, pin 14), and WL_DT34 signal (CN1, pin 15) are converted from digital wireless signals to digital audio signals with the I^2S interface.
  When it is determined that analog wireless receiver is connected, these signals are shut off by IC1 to IC6.

AU-352 Board

The AU-352 board is provided with various functions for switching front MIC input level and front MIC +48 V power, input signal selection, head room level adjustment, A/D and D/A conversions using the AUDIO CODEC, SP/HP amplification, and for DC-DC converter for MIC +48 V power.
Furthermore, the DSP on this board achieves many functions for AGC, Wind Filter, monitor volume, monitor switching control, and SG Tone.
The FPGA on this board also achieves many functions for serial audio S/P and P/S conversions, silencing control, wireless control, and DSP control.

Functions of Main Blocks

1. Front MIC input block
   Audio signals are transferred from the 5-pin XLR connector for front MIC input through CN9 on the MB-1205 board, and are input to the AU-352 board.
   The MIC input level is selected by switches (Q7 to Q10, Q13 to Q16, Q19, Q20, Q23 to Q26, Q33, and Q34), and the input level is selected using menus [Front MIC CH1 Ref] and [Front MIC CH2 Ref].
   The MIC input level (-20 to -70 dBu in 10 dBu step) and the microphone +48 V power supply are also selected by switches (Q1 to Q4).
2. Input signal selector block
   Audio signals are selected by the analog switches (IC200 to IC204) according to the side panel switch information.
3. Head room adjustment block
   The head room adjustment level is selected by switches (Q200 to Q203, Q205 to Q208, and Q210 to Q213), and the input level (-12, -16, -18, or -20 dB) is selected using menu [Reference Level].
4. A/D and D/A converter circuit block
   A 24 bit AK-4620 A/D and D/A converter (IC400, IC401) is used in this block. The sampling frequency is set to 48 KHz.
   Analog input and output are both differential. IC400 and IC401 perform A/D conversion and D/A conversion for two channels each.
5. Final amplifier block
   Audio signals are transferred from the final amplifier (IC410, IC411) through the MB-1205 board to the 5-pin XLR connector on the AXM-49 board.

6. Monitor amplifier block
   This block consists of a monaural SP/stereo HP amplifier (IC416), a headphone jack on the FP-169C board, and a monaural speaker to be connected to the FP-169C board.
   Volume control is adjusted with RV102 on the FP-169C board, and attenuation of the speaker is adjusted using menu [Speaker Attenuate] (0 to 12 dBu in 3 dBu step)
   The monaural SP/stereo HP amplifier (IC416) selects HP or SP, and the Base band IC controls the selection through the I^2C bus communication.
   HP output is made by menu [Headphone Out] and either monaural output or stereo output is selected.
7. Rear input block
   Audio signals are transferred from the AXM-49 board through the MB-1205 board, and are input to the analog switches (IC200 to IC204) in the input signal selector block.
8. Microphone power +48 V block
   This block composed mainly of the DC-DC converter (IC1207, Q1200) supplies the front and rear MIC connectors with +48 V.
9. FPGA mount functions
   - Audio process
     Media codec bidirectional bus control
     Input audio selector
     Playback audio selector
     S/P conversion and P/S conversion
     Silencing control
     Video synchronous counter/programmable trigger function
     Audio phase adjustment support function
     DIAG support function
   - Wireless control
     Analog/Digital wireless SIO/UART control
     Command TX/RX Buffer memory
   - DSP control
     DSP SPI Boot function
     DSP Parallel Interface
     DSP coefficient memory
   - Self-diagnosis function
10. DSP functions
    - Delay
    - Digital Volume
    - High Pass Filter
    - Limiter Compressor
    - Output Select & Mixer
    - SG Tone
    - Beep

Operation

1. Initial operation
   The FPGA starts and it boots the DSP when the FPGA configuration is completed. The Base band IC on the DPR-354 board writes first necessary coefficients to the coefficient RAM of the FPGA. Upon completion of writing, the DSP reads the coefficient RAM and starts processing.

2. Flow of audio signals

The front MIC input signals are input to the analog switches (IC201 to IC204) of the input signal selector through the MB-1205 board.

The rear external LINE/MIC input signals are transferred from the AXM-49 board through the MB-1205 board, and are input to the analog switches (IC201 to IC204) in the input signal selector block.

Analog wireless signals are transferred from the RX-117A board through the MB-1205 board, and are input to the analog switches (IC200, IC201, and IC203) in the input signal selector block.

Digital wireless signals are transferred from the RX-117A board through the MB-1205 board, and are input to the FPGA.

The location information of the FRONT, REAR, and WIRELESS switches is obtained by reading three values of switches (S208 to S211) on the FP-169C board.

The microcomputer on the FP-169C board sends this switch location information to the system controller on the DPR-354 board to control the analog switches in the input signal selector block via the Base band IC on the DPR-354 board through the I^2C bus communication.

Selected CH1 to CH4 signals are applied from the head room switching circuit to the A/D converter (IC400, IC401) sequentially for two channels each, and the converted serial digital audio signals (2 channels x 2) are input to the FPGA. The FPGA selects the input signals and sends them to the DSP.

The DSP performs high-speed operation for AGC, Wind Filter, internal SG signals, and level detection.

The signals processed by the DSP are sent through the FPGA to the media recording and playback block and video signal block.

The playback D/A serial signal is applied from the FPGA to the D/A converter (IC400, IC401) sequentially for two channels each, and the IC400 D/A output is applied to the final amplifier (IC410, IC411), and is then output from the 5-pin XLR connector on the AXM-49 board through the MB-1205 board.

The IC401 D/A output is applied to the monaural SP/stereo HP amplifier (IC416), and drives the headphone jack on the FP-169C board and the monaural speaker to be connected to the FP-169C board.

3. Control

The information of the switches and potentiometers on the FP-169C board is sent from the microcomputer on the FP-169C board through the system controller on the DPR-354 board to the Base band IC on the DPR-354 board.

The menu setting data is sent from the system controller to the Base band IC on the DPR-354 board.

The information sent from the system controller is sent from the Base band IC to the AU-352 board through the I^2C and SIO (full-duplex serial) communication.

On the AU-352 board,

- The I^2C bus is connected to the I^2C/GPI conversion ICs (IC1202, IC1203) and FPGA, monaural SP/stereo HP amplifier (IC416).
- The SIO (full-duplex serial) bus is connected to the FPGA.

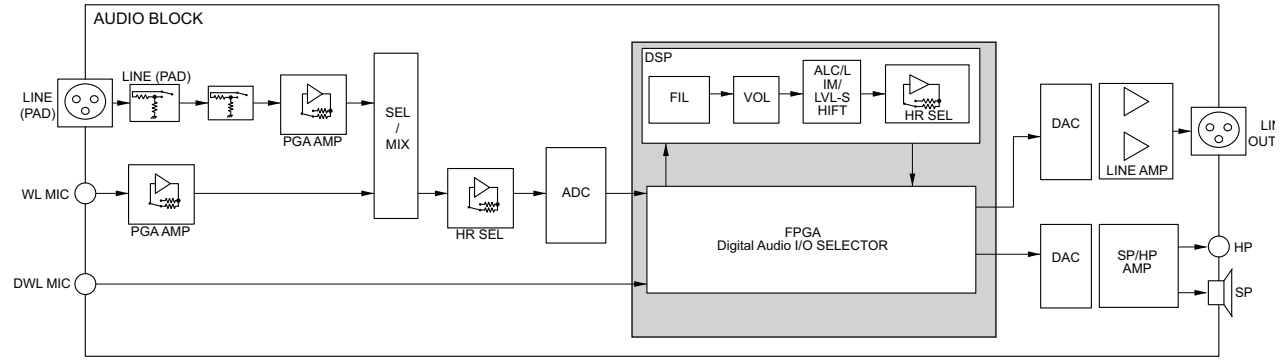
The following are controlled by the I^2C control signal converted to GPI.

- Front MIC +48 V supply (Q1 to Q4)
- MIC input level (Q7 to Q10, Q13 to Q16, Q19, Q20, Q23 to Q26, Q33, Q34)
- Head room adjustment level (Q200 to Q203, Q205 to Q208, Q210 to Q213)
- Input signal selector block (IC200 to IC204)

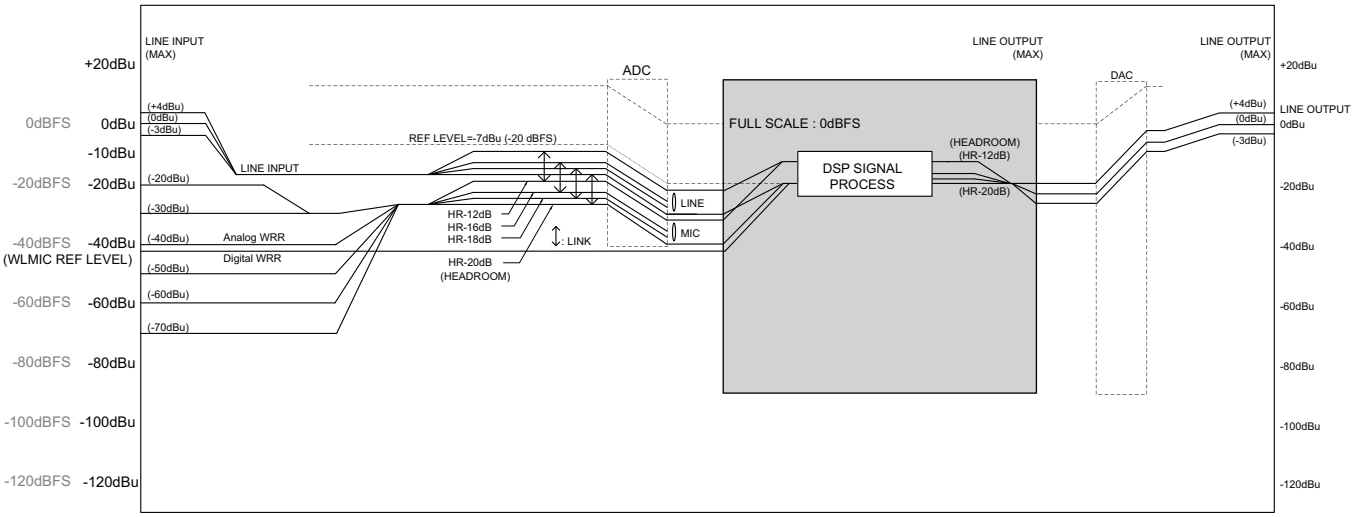
For the control of DSP functions set by the menu, necessary coefficients are written from the Base band IC to the coefficient RAM of the FPGA through the SIO (full-duplex serial) communication. The DSP reads the coefficient RAM upon completion of writing, and then starts processing.

The FPGA functions are controlled by the Base band IC through the SIO (full-duplex serial) communication.

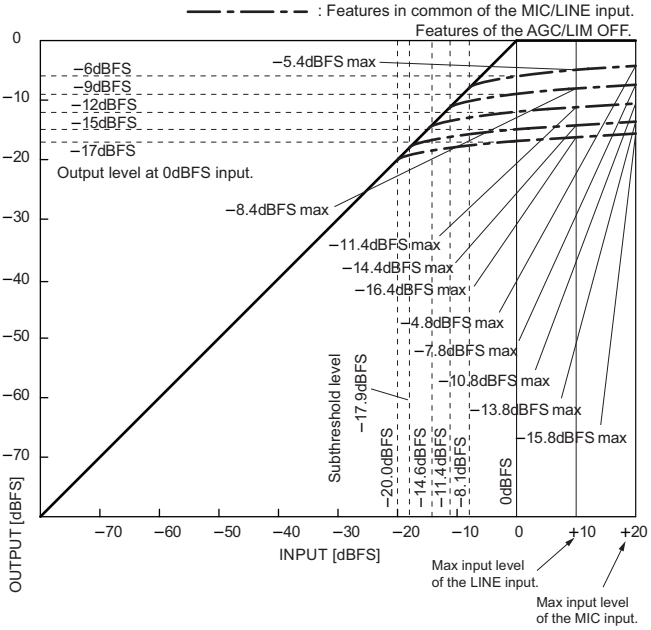
Audio Block Diagram



Level Diagram



AGC/LIM Specification



1-2-7. Power Supply Block

RE-316 Board

The RE-316 board consists of a power supply circuit and a power microcomputer (IC508).

1. Input power (UNREG) operation
   After unregulated (UNREG) power is input, the power supply block enters the EVER power state where POWER switch ON/OFF state can be recognized.
   When the power microcomputer recognizes POWER switch ON, it turns on the power of the system control block and controls power of each block following the instructions of the system controller (DPR-354 board : IC4300).
   The normal input power (UNREG) voltage range is approx. +11.0 to +17.0 V.
   - Battery/EXT-DC switching
     There are two power inputs: battery and EXT-DC. The power microcomputer monitors these power inputs and makes circuit settings for automatic power switching placing a priority on EXT-DC.
   - Protection of low input voltage
     When the UNREG power voltage drops to about the set value +10.5 V, the power microcomputer activates the low input voltage protection circuit to shut down the camera unit.
   - Overcurrent detection
     The RE-316 board has an overcurrent detection circuit of IC14. The overcurrent setting value is approx. 12.7 A. IC14 is not reset automatically even after an overcurrent is detected and removed, which requires power-on operation again to reboot the unit.
   - Protection of reverse power line connection
     If the input power voltage line is reversely connected, Q2 on the RE-316 board is immediately turned off to shut off the GND side of the UNREG power, and the protective function is activated.
2. DC/DC converter function
   There are 26 power lines that are divided into the following four blocks.
   - CMOS/camera block: 6 lines (+3.3 V, +5.0 V, UNREG, etc.)
   - Audio/video signal block: 8 lines (+3.3 V, +5.0 V, UNREG, etc.)
   - System controller block: 6 lines (+3.3 V, +5.0 V, UNREG, etc.)
   - Media recording and playback block: 5 lines (+3.3 V, +5.0 V, +2.5 V, etc.)

   Each power line in these blocks is turned on and off according to the power sequence control of the power microcomputer.
   - Short-circuit protection for each power line
     Output voltage and current of each power line are monitored and circuit settings are made so that the protective circuit is activated in each block when a short-circuit is detected. The protective circuit is not reset automatically even after short-circuit is removed, which requires power-on operation again to reboot the unit.

Battery Information Function

Battery Info function
Specified intelligent battery has a self-monitoring function of battery information such as recycling count and internal temperature. This allows optimum operation using detailed battery information (failure or lifetime, for example).

1-2-8. LCD Block

PD-122 Board

The PD-122 board consists of a monochrome LCD (ND1), an LCD driver (IC102), and a booster circuit for the backlight.
The LCD driver (IC102) is controlled from the DPR-354 board through the FP-169C board.
The booster circuit uses IC103 as a constant current source and controls the backlight LED current with the R105, R106 resistance value.

1-2-9. Viewfinder Block

IF-1125B Board

As the main board of the viewfinder, the SW-1472A board has functions for VF_ON signal output to notify the main unit of viewfinder connection, digital video signal (LVDS) decoding, reading of switch/potentiometer information on the SW-1472A board by the sub-microcomputer, communication with the main unit, and generation of power voltages necessary in the viewfinder.
Communication with the main unit is performed with the cable connected to CN1000.
The VF_ON signal changes from low to high level when the viewfinder is powered on, which is controlled by IC1000 independently of other signals.
The digital video (LVDS) signal encoded in the DPR-354 board is decoded into Y/C (10 bits each) signal and sync signal by IC1002, serial control signal, RESET signal, and TALLY lighting control signal. The decoded signals are level-converted by IC2000, IC2001, and IC2002, and are then connected from CN2000 to the color LCD module with the 40-pin fine-wire coaxial cable.
IC1002 starts operating when reset is canceled by IC1001. IC1001 is controlled independently after power-on.
The sub-microcomputer reads information of the switches and potentiometers on the SW-1472A board, and then sends the status information to the sub-microcomputer on the DPR-354 board through the I^2C bus.
IC4000 in the power supply circuit steps down the UNREG power voltage supplied from the cable to +5 V. IC4002 steps down the +5 V to +3 V, and IC4001 generates +1.8 V from the +3 V. Voltages +5 V, +3 V, and +1.8 V are used in this board.

SW-1472A Board

The SW-1472A board contains a display reverse function switch, a ZEBRA ON/OFF switch, a DISPLAY ON/OFF switch, a TALLY brightness switch, and PEAKING, CONTRAST, and BRIGHT potentiometers. Setting information other than TALLY brightness is sent from the sub-microcomputer on the IF-1125B board to the main unit and is reflected in the viewfinder output display. The lighting brightness of TALLY LEDs (D5000 to D5003) is changed by switching ON/OFF of the limiting resistors on the SW-1472A board.

1-3. Connectors and Cables

1-3-1. Connector Input/Output Signals

Input Signals

1. GEN LOCK IN

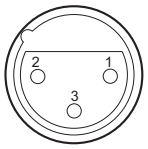
BNC type, 1.0 V p-p, 75 Ω, unbalanced

2. TC IN

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

3. AUDIO IN CH-1, CH-2

XLR 3-pin, Female



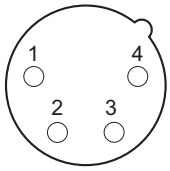
- External View -

(0 dBu = 0.775 Vrms)

No.	Signal	I/O	Specifications
1	MIC/LINE (G)	—	-70 dBu/-60 dBu/-50 dBu/ -40 dBu/-30 dBu/-20 dBu/ -3 dBu/0 dBu/+4 dBu, selectable High impedance, Balanced
2	MIC/LINE (X)	IN	
3	MIC/LINE (Y)	IN	

4. DC IN

XLR 4-pin, Male

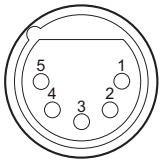


- External View -

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

5. MIC IN

XLR 5-pin, Female



- External View -

(0 dBu = 0.775 V rms)

No.	Signal	I/O	Specifications
1	MIC IN (G)	—	- 50 dBu, High impedance, Balanced
2	MIC1 IN (X)	IN	
3	MIC1 IN (Y)	IN	
4	MIC2 IN (X)	IN	
5	MIC2 IN (Y)	IN	

Output Signals

6. TEST OUT

BNC type, 1.0 V p-p, 75 Ω, unbalanced

7. HD/SDI SDI OUT 1

BNC type, SDI 0.8 V p-p, 75 Ω, 270 Mbps & 1.5 Gbps

8. HD/SDI SDI OUT 2

BNC type, SDI 0.8 V p-p, 75 Ω, 270 Mbps & 1.5 Gbps

9. TC OUT

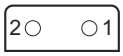
BNC type, 1.0 V p-p, 75 Ω

10. EARPHONE

8 Ω or more, - ∞ type, to -18 dBu variable

11. LIGHT

2-pin, Female

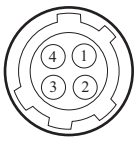


- External View -

No.	Signal	I/O	Specification
1	LIGHT +12 V	OUT	50 W MAX
2	GND	—	

12. DC OUT 12 V

4-pin, Female

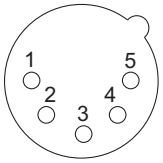


- External View -

No.	Signal	I/O	Specification
1	UNREG GND	—	GND for power
2	—	—	No connection
3	—	—	No connection
4	UNREG +12 V	OUT	+11 to 17 V dc

13. AUDIO OUT 12 V

XLR, 5-pin, Male



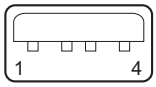
- External View -
(0 dBu = 0.775 V rms)

No.	Signal	I/O	Specifications
1	ANALOG GND	—	
2	AUDIO CH-1 (X)	OUT	0 dBu
3	AUDIO CH-1 (Y)	OUT	
4	AUDIO CH-2 (X)	OUT	
5	AUDIO CH-2 (Y)	OUT	

Input/Output Signals

14. USB (HOST)

USB (Series A), 4-pin
Signal standard: USB standard Ver. 2.0

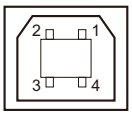


- External View -

No.	Signal	I/O
1	USB VBUS	—
2	DATA (-)	I/O
3	DATA (+)	I/O
4	GND	—

15. USB (DEVICE)

USB (Series B), 4-pin
Signal standard : USB standard Ver. 2.0

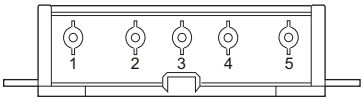


- External View -

No.	Signal	I/O
1	USB DEV VBUS	—
2	DATA (-)	I/O
3	DATA (+)	I/O
4	GND	—

16. BATT IN

5-pin, Male

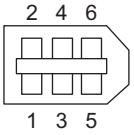


- External View -

No.	Signal	I/O	Specifications
1	BATT (-)	IN	
2	BATT ID	IN	
3	BATT REM	IN	
4	LIGHT CONT	OUT	
5	BATT (+)	IN	+11 to 17 V dc

17. i.LINK(HDV/DV)

6-pin



- External View -

No.	Signal	I/O	Specifications
1	VP	IN	BUS POWER
2	VG	—	GND
3	NTPB	I/O	STROBE B (-)
4	TPB	I/O	STROBE B (+)
5	NTPA	I/O	DATA A (-)
6	TPA	I/O	DATA A (+)

18. REMOTE

8-pin, Female

- External View -

No.	Signal	I/O	Specifications
1	TX RCP DATA (X)	OUT	SERIAL DATA OUT
2	TX RCP DATA (Y)	OUT	SERIAL DATA OUT
3	RX RCP DATA (X)	IN	SERIAL DATA IN
4	RX RCP DATA (Y)	IN	SERIAL DATA IN
5	VIDEO (G)	—	GND for VIDEO
6	UNREG +12 V	OUT	+11 V to 17 V
7	UNREG (GND)	—	GND for UNREG
8	VIDEO (X)	OUT	1.0 Vp-p, Zo = 75 Ω

19. LENS

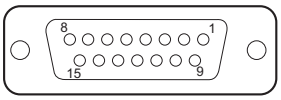
12-pin, Female

- External View -

No.	Signal	I/O	Specifications
1	RET (SW)	IN	ON: 0 V, OFF: OPEN
2	VTR TRIG	IN	ON: 0 V, OFF: OPEN
3	LENS GND	—	
4	AUTO + 5 V	OUT	AUTO: + 5 V MANU: 0 V or OPEN
5	IRIS CONT	OUT	+ 3.4 V (F16) to + 6.2 V (F2.8)
6	UNREG + 12 V	OUT	+ 11 V to + 17 V
7	IRIS PSTN	IN	+ 3.4 V (F16) to + 6.2 V (F2.8)
8	REMOTE/ LOCAL	OUT	AUTO IRIS: 0 V MANU IRIS: + 5 V
9	EXTENDER	IN	EX 2 ON: 0 V EX 0.8 ON: + 1.8 V OFF: + 4.8 V
10	ZOOM PSTN	IN	WIDE: 2 V, TELE: 7V
11	LENS RX	IN	
12	LENS TX	OUT	

20. WIRELESS RECEIVER

D-sub, 15-pin, Female

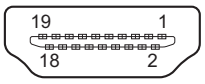


- External View -

No.	Signal	I/O	Specifications
1	GND	IN	GND for AUDIO IN
2	AUDIO CH1 IN	IN	WIRELESS RECEIVER AUDIO CH1 IN
3	AUDIO CH2 IN	IN	WIRELESS RECEIVER AUDIO CH2 IN
4	DC + 7 V OUT	OUT	
5	GND	—	
6	SCLK	OUT	64 FS
7	WRR855 DET	I/O	
8	GND	—	
9	WRR CLK	IN	WRR SERIAL CLOCK
10	CS	OUT	WRR SELECT
11	WRR DI	OUT	WRR SERIAL IN
12	WRR DO	IN	WRR SERIAL OUT
13	LRCK	OUT	FS
14	DATA 1/2	IN	AUDIO DATA 1/2 IN
15	DATA 3/4	IN	AUDIO DATA 3/4 IN

21. HDMI

19-pin, Type A



- External View -

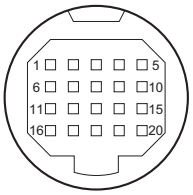
No.	Signal	I/O
1	TMDS DATA2+	OUT
2	TMDS DATA2 SHIELD	—
3	TMDS DATA2-	OUT
4	TMDS DATA1+	OUT
5	TMDS DATA1 SHIELD	—
6	TMDS DATA1-	OUT
7	TMDS DATA0+	OUT
8	TMDS DATA0 SHIELD	—
9	TMDS DATA0-	OUT
10	TMDS CLOCK+	OUT
11	TMDS CLOCK SHIELD	—
12	TMDS CLOCK-	OUT
13	CEC (N.C.)	—
14	RESERVED (N.C.)	—

Continued

No.	Signal	I/O
15	SCL	OUT
16	SDA	I/O
17	DDC/CEC GND	—
18	+5 V POWER	OUT
19	HPD	IN

22. VF (DXF)

Round, 20-pin, Female

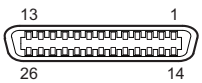


- External View -

No.	Signal	I/O
1	PEAKING CONT IN	IN
2	EXT DC OUT	OUT
3	REC TALLY IND OUT	OUT
4	BATT IND OUT	OUT
5	ZEBRA SW IN	OUT
6	VF VIDEO (X) OUT	OUT
7	EXT DC OUT	OUT
8	NC	—
9	NC	—
10	SDA (VF) OUT	OUT
11	VF VIDEO (G) OUT	OUT
12	EXT DC GND	—
13	NC	—
14	VF DISP ON/OFF	IN
15	SCL (VF) OUT	OUT
16	R-Y (VF) OUT	OUT
17	EXT DC GND	—
18	B-Y (VF) OUT	OUT
19	SYNC (VF) OUT	OUT
20	LD (VF) OUT	OUT

23. VF (LCD)

Rectangular, 26-pin



- External View -

No.	Signal	I/O
1	SHIELD GND	—
2	LVDS 1-	OUT
3	LVDS 2-	OUT
4	LVDS 3-	OUT
5	LVDS CLK-	OUT
6	LVDS 4-	OUT
7	LVDS 5-	OUT
8	VF ON	IN
9	SDAT	I/O
10	UNREG	OUT
11	UNREG	OUT
12	GND	—
13	GND	—
14	GND	—
15	LVDS 1+	OUT
16	LVDS 2+	OUT
17	LVDS 3+	OUT
18	LVDS CLK+	OUT
19	LVDS 4+	OUT
20	LVDS 5+	OUT
21	SRX	OUT
22	SCLK	OUT
23	UNREG	OUT
24	UNREG	OUT
25	GND	—
26	SHIELD GND	—

1-3-2. Connection Connectors/Cables

Use the following connectors/cables or equivalent when connecting cables to the connectors of the unit.

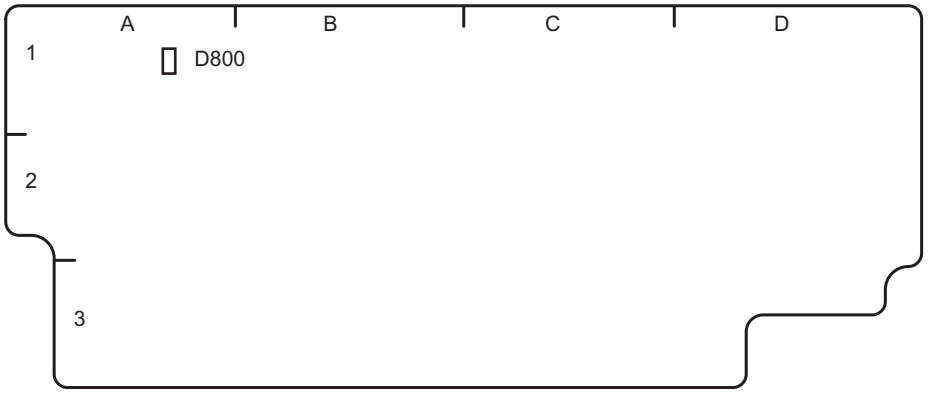
Connector name	Connection connectors/cables	Part No.
GEN LOCK IN	BNC 75 Ω, Male	1-569-370-12
TC IN		
TC OUT		
VIDEO OUT		
HD/SD SDI OUT 1, 2		
AUDIO IN CH-1, CH-2	XLR 3P, Male	1-508-084-00
AUDIO OUT	Audio cable (XLR 5P-XLR 3P, 2 m) CCXA-53 made by Sony or equivalent	
DC IN	XLR 4P, Female	1-508-362-00

Continued

Connector name	Connection connectors/cables	Part No.
DC OUT 12 V	Round Type 4P, Male	1-566-425-11
EARPHONE	Mini jack (commercially available on market)	
LIGHT	Power tap (OE) Made by ANTONBAUER Inc., 33710 or equivalent	
MIC IN	XLR 5P, Male	1-508-370-11
REMOTE	Round Type 8P, Male	1-766-848-11
iLINK (HDV/DV)	DV Cable (6P-4P): CCFD-3L DV Cable (6P-6P): CCF-3L	
HDMI	HDMI cable (commercially available on market)	
USB (DEVICE)	USB cable (commercially available on market)	
USB (HOST)		
VF (rectangular, 26-pin)	Connect the cable of the supplied viewfinder	
VF (round, 20-pin)	Connect the cable of the optional viewfinder (DXF-51/20W/801)	
WIRELESS RECEIVER IN	WRR-855A/DWR-S01D/DWR-S02D (by SONY) only connectable **Note** Do not connect with a connector/cable other than above.	

1-4. Description of Onboard LED

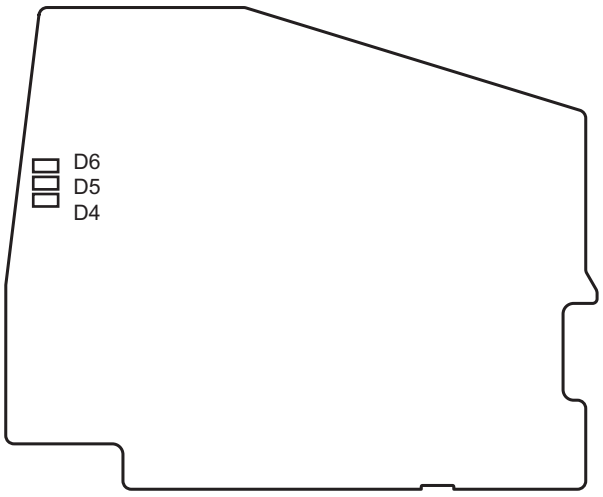
1-4-1. AU-352 Board



AU-352 Board/Side A

Ref. No.	Name	Description	Normal state
D800	—	For debug	Off

1-4-2. RE-316 Board



RE-316 Board/Side A

Ref. No.	Name	Description	Normal state
D4	Overvoltage protection indicator	Lights when the overvoltage protection starts to operate when the input voltage of EXT DC or BATT reaches approx. 19.5 V or more. After that, the unit is shut down.	Off
D5	Low voltage protection indicator	Lights when the UNREG voltage is low voltage or the operation of the low voltage protection circuit of RE-316 board is operated due to some error. After that, the unit is shut down.	Off
D6	Shut Down signal indicator	Lights when the shut down signal is generated due to a load error. After that, the unit is shut down.	Off

1-5. Note for Replacement of IC or Board

This section explains the necessary setups required when replacing ICs or boards.

1. When any of the following boards is replaced, update the firmware.
   All data are written at once when updating the firmware. (Refer to "1-11. Updating the Firmware")

Board name	Ref. No.
AU-352	IC802
DPR-354	IC402, IC805, IC1704, IC2000, IC2402, IC3401,IC3402, IC4307
FP-169C	IC302, IC402, IC502
RE-316	IC508
VPR-122	IC204

2. Adjusted values are stored in the following boards and parts. The values need to be readjusted when they are replaced.

Board name	Ref. No.
BI-256	IC4 (The same data are stored in the IC113 on the DPR-354 board)
DPR-354*1	IC402, IC805

3. The user setting values are stored in IC4501 on the DPR-354 board. The user data must be stored (Restore) in SxS before replacing the board and it must be read (Recall) after replacing the board.
4. Service of BI-254, BI-256, and SE-1135 boards
   The BI-254, BI-256, and SE-1135 boards cannot be replaced on the board-level service or part-level service. If parts become defective, replace the entire CMOS block. The schematic diagram, board layout, and spare parts of the BI-254, BI-256, and SE-1135 boards are not described in this manual.
5. Service of IF-1209 board
   The IF-1209 board cannot be replaced on the board-level service or part-level service. If parts become defective, replace the entire 3.5 inch LCD assembly. The schematic diagram, board layout, and spare parts of the IF-1209 board is not described in this manual.
6. Service of DPR-354 board
   Electrical Parts cannot be replaced in the DPR-354 board. If parts become defective, replace the entire DPR-354 mounted board.

*1: The adjusted values for the CMOS block are stored in the DPR-354 board.

1-6. Description of Number Seal on the Prism

The number seal is put in the prism unit, the serial number of prism unit. Every prism unit has its own number called prism serial number.

1-7. List of Error Numbers on the LCD Display (Viewfinder)

Error numbers are displayed as E-XXXXX (X indicates a number).

Error No.	Description	Service action
15030	System error	Repair the DPR-354 board or replace it.
17001	Abnormality in the Media ID data in the EEPROM	Rewrite media ID data in the EEPROM .*1
17002	The image processor block does not start up.	Repair the DPR-354 board or replace it.
17003	The display block does not start up	
17004	The media block does not start up	
17005	Abnormality in the start-up process of the image processor block	
17006	Abnormality in the start-up process of the display block	
17007	Abnormality in the start-up process of the media block	
17014	Abnormality in lens communication	Check the connection with the lens unit. If there is no defect, replace the lens unit.
17015	Abnormality in the media block	Repair the DPR-354 board or replace it.
17016	Abnormality in obtaining the lens switch	Check the connection with the lens unit. If there is no condition defect, replace the lens unit.
17014 or 4XXXX	Internal error in the media block	Repair the DPR-354 board or replace it.

Tip

- When the above error number is displayed while a writable SxS memory card is mounted, error log information is stored automatically in the SxS memory card.
- Locate the faulty part using the above error number and "1-2. Circuit Description" Use a combination with "3-5-3. Executing Self Diag" for more detailed troubleshooting.

*1: For how to rewrite media ID data in the EEPROM, contact your local Sony Sales Office/Service Center.

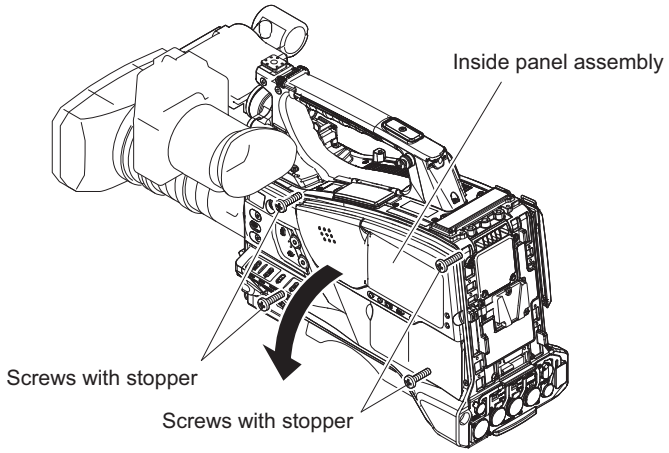
1-8. Replacing Lithium Battery

The FP-169C board (inside panel assembly) is equipped with the lithium battery for time of the internal clock.
If the message “Back Up Battery End” appears in the viewfinder, this battery must be exchanged.
After replacing it, refer to “Setting the Date/Time of the Internal Clock” in the preparation of the operating instructions, and set the date and time of the internal clock.

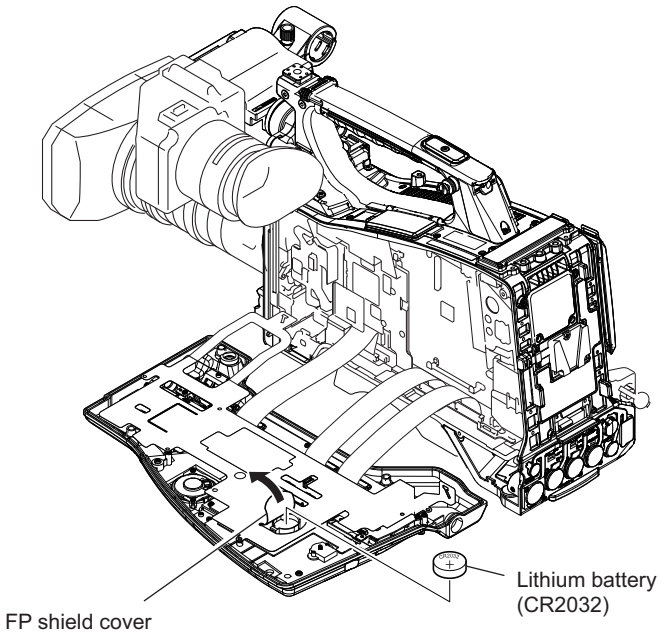
Part No.	Name	Usage
⚠ 1-528-174-72	Lithium Battery (CR2032 type)	For internal clock

Replacing procedure

1. Loosen the four screws with stopper and remove the inside panel assembly.



2. Turn over the FP shield cover and replace the lithium battery (CR2032) on the FP-169C board.



3. Attach the inside panel assembly by reversing the steps of removal.
4. Set the date and time of the internal clock. (Refer to the operating instructions)

1-9. Fixtures/Measuring Equipment List

1-9-1. Fixtures

Part No.	Name	Usage/Note
Commercially available	Grayscale chart	Reflective type (16 : 9), Camera adjustment on market
Commercially available	Star chart	Reflective type, Camera adjustment on market
J-6394-080-A	Grayscale chart	Transparent type (16 : 9), Camera adjustment on market
J-6029-140-B	Pattern box PTB-500	Camera adjustment
Commercially available	Mini USB cable	For updating the firmware
J-6325-110-A	Bit for torque driver (M1.4)	For tightening screw
J-6325-380-A	Bit for torque driver (M2)	For tightening screw
J-6323-430-A	Bit for torque driver (M3)	For tightening screw
J-6326-120-A	Hexagon bit (For torque screwdriver) (size 1.5)	For tightening screw
J-6325-400-A	Torque driver (3 kgf • cm) (0.3N • m)	For tightening screw
J-6252-510-A	Torque driver (6 kgf • cm) (0.6N • m)	For tightening screw
J-6252-520-A	Torque driver (10 kgf • cm) (1.0N • m)	For tightening screw
7-600-002-52	ThreeBond (TB-1401B)	For preventing screw from being loosened
Commercially available	Loctite (408)	Instant adhesives

1-9-2. Measuring Equipment

Use the calibrated equipment or equivalent as listed below for the 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

1-10. Circuit Protection Parts

1-10-1. Fuse and IC Link

WARNING

The fuse and the IC link are critical parts to safe operation. Replace the components with Sony parts whose part number appear in the manual published by Sony. If the components are replaced by any parts other than the specified ones, this may cause a fire or electric shock.

CAUTION

If fuse and IC link are replaced while the main power is kept on, this may cause electric shock.
Before replacing fuse and IC link, not only turn off the POWER switch but also remove the power cable that is connected to the DC IN connector.

This unit is equipped with fuse. Any an excessive current flow due to abnormality inside the equipment, the fuse blow. If a fuse blows, turn off the main power of the equipment once and inspect inside of the equipment and remove the cause of excessive current. After that, replace the fuse.

Board name	Ref. No.	Description	Part No.
IF-1125B	F4000	Fuse (1 A /36 V)	⚠ 1-576-596-21
RE-316	F1, F2	Fuse (15 A /65 V)	⚠ 1-576-566-21

1-10-2. Circuit Protection Element

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

Board Name	Ref. No.	Part No.	Hold Current
CN-3268A	THP1	⚠ 1-802-108-11	1.50 A/20℃
CN-3636	THP1 to THP4	⚠ 1-805-726-11	0.20 A/25℃
MB-1205	THP001 ,THP002	⚠ 1-802-063-21	1.10 A/20℃

1-11. Updating the Firmware

Update the firmware for the unit through a USB connection to a personal computer (referred to as PC hereafter).
For detailed information about the update procedure, check the readme file that comes with the update software.

Tip

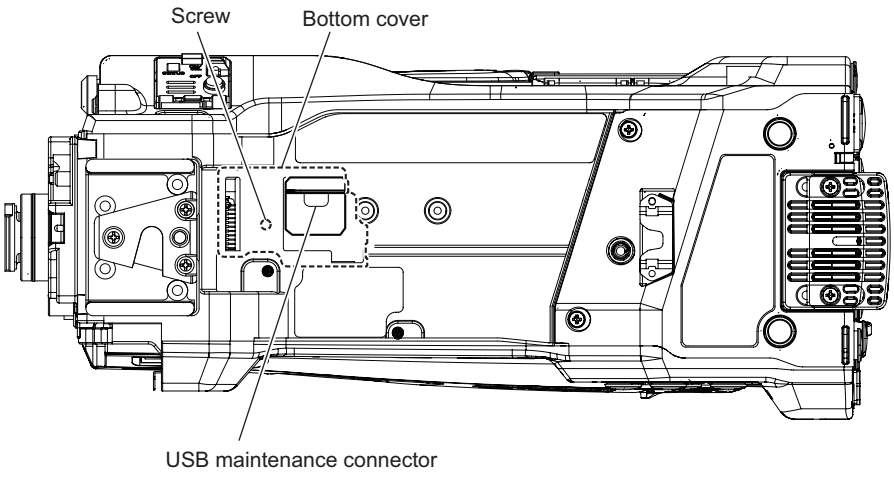
When the unit is connected to the PC for the first time, the driver software will need to be installed into the PC.
For more details, check the readme file that comes with the update software.

Firmware update is enabled using an SxS memory card, but high-speed stable update through the USB is recommended in this manual.
For inquiry or comments about the firmware update, please contact your local Sony Sales Office/Service Center.

1-11-1. Firmware Update Procedure

Download the software for the new firmware update onto the PC before starting these operations.

1. Check that the power switch on the unit is turned OFF.
2. Remove the shoulder pad. (Refer to "2-21. MB-1205 Board")
3. Remove the screw to detach the bottom cover.
4. Use the USB cable that comes with the unit to connect the PC and the USB maintenance connector (CN4500/ DPR-354 board).



5. Turn the power ON.
6. Run the software for the firmware update on the PC.
7. When the update is complete, turn OFF the power and remove the USB cable.
8. Secure the bottom cover with the screw.
9. Attach the shoulder pad.

1-12. Electrical Adjustment

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

1-13. Flexible Card Wire and Coaxial Cable

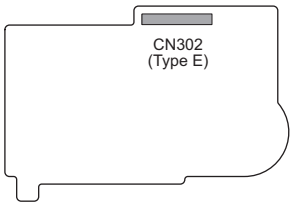
1-13-1. Connector for Flexible Card Wire and Fine-Wire Coaxial Cable

Flexible card wires and fine-wire coaxial cables are used in the unit. "Location of Connectors" shows respective connector locations.
Connector types are indicated as "(Type)" for flexible card wires and as "<Type>" for fine-wire coaxial cables.

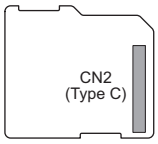
Note

Disconnecting and connecting flexible card wires or fine-wire coaxial cables vary with connector types. For how to disconnect and connect them, refer to "1-13-2. Connecting/Disconnecting Flexible Card Wire" and "1-13-3. Disconnecting/Connecting Fine-Wire Coaxial Cable".

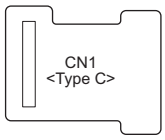
Location of Connectors



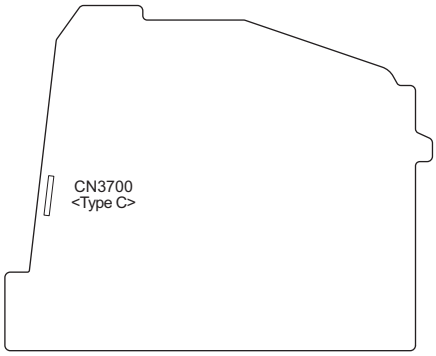
AXM-49 Board/Side A



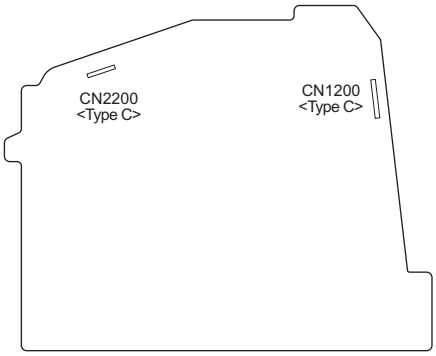
CN-3635 Board/Side A



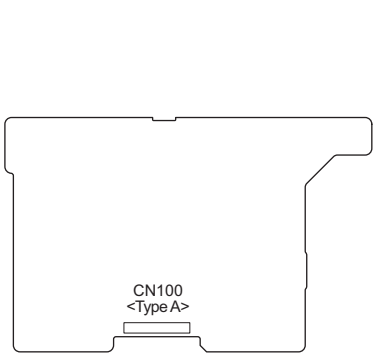
DIF-215A Board/Side A



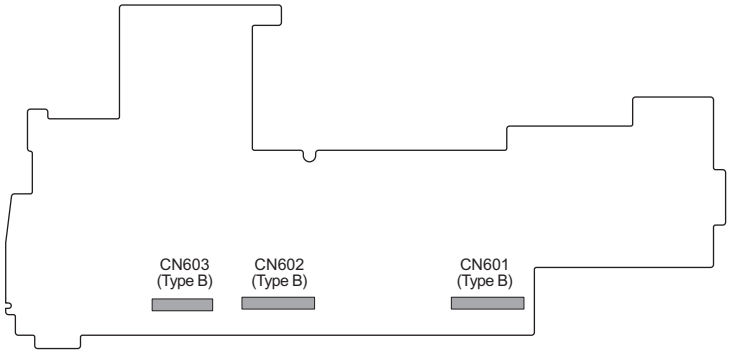
DPR-354 Board/Side A



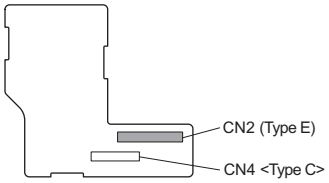
DPR-354 Board/Side B



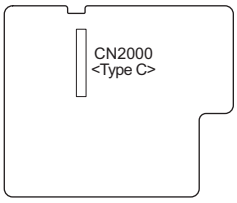
EC-77 Board/Side B



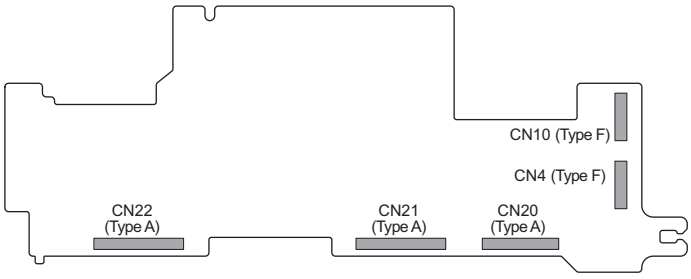
FP-169C Board/Side B



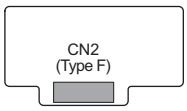
HN-410 Board/Side A



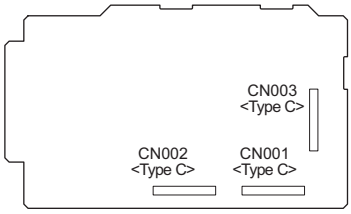
IF-1125B Board/Side A



MB-1205 Board/Side A



RX-117A Board/Side A

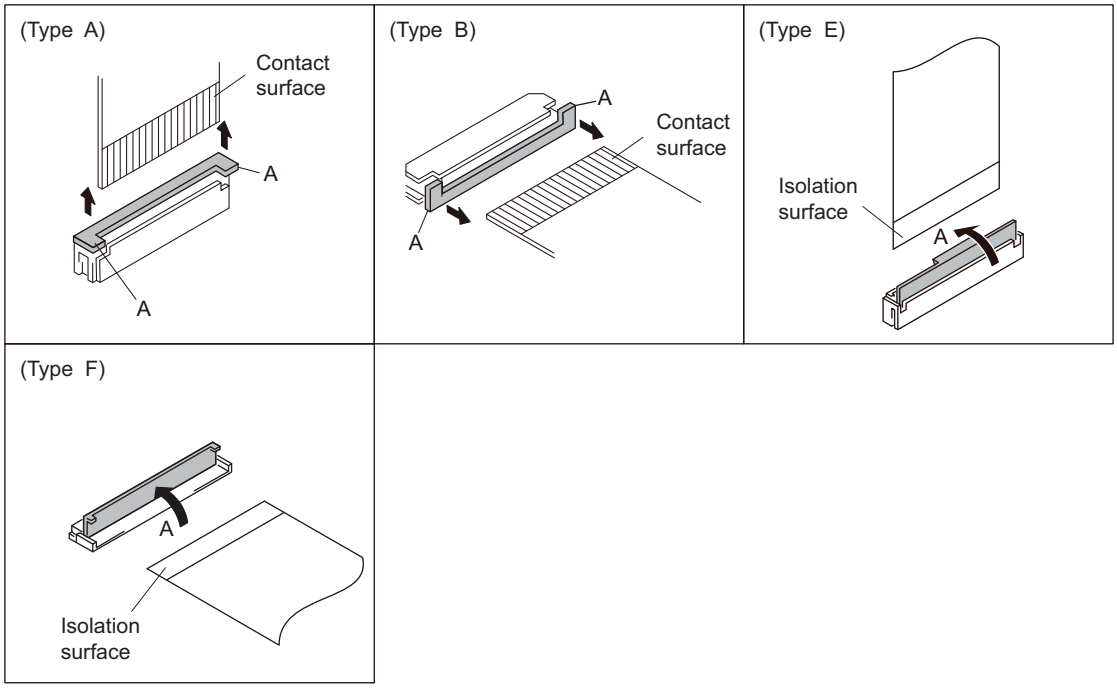


VPR-122 Board/Side A

1-13-2. Connecting/Disconnecting Flexible Card Wire

Note

- Be very careful not to fold flexible card wires. Life of flexible card wire will be significantly shortened if it is folded.
- Each flexible card wire has 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.



Disconnecting

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

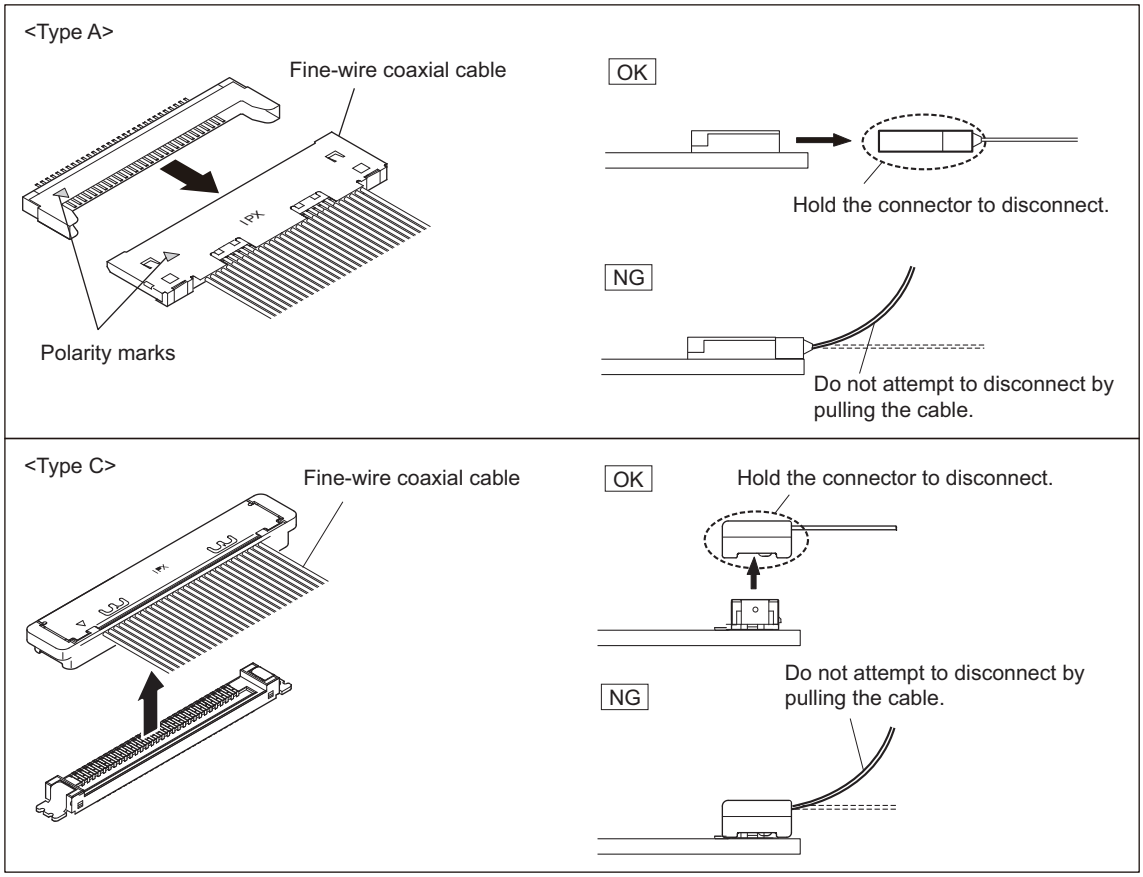
Connecting

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.

1-13-3. Disconnecting/Connecting Fine-Wire Coaxial Cable

Note

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



Disconnecting

1. Hold the connector and disconnect the fine-wire coaxial cable horizontally or vertically.

Connecting

1. Hold the connector and connect the fine-wire coaxial cable horizontally or vertically while matching the polarity marks.

1-14. Periodic Maintenance and Inspection

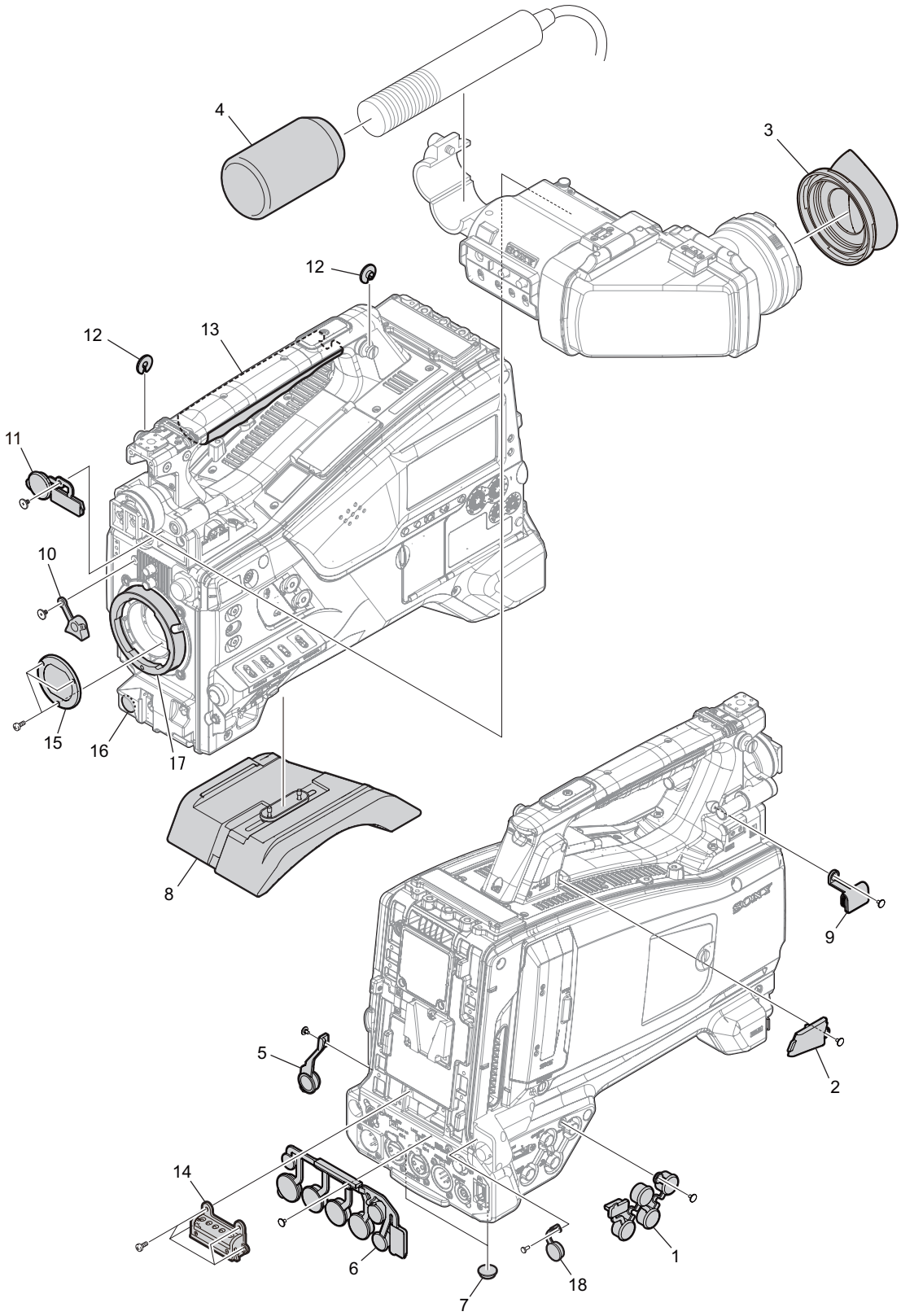
1-14-1. Periodic Check/Replacement Parts List

This table does not describe the guarantee period of each part.
The replacement period of each part is changed according to the environment and condition.

Part to be replaced	Hours meter (Menu item)	Check/Replacement period	Parts number and name
Lithium battery	Current-carrying hours (OPERATION)	About 5 years	⚠ 1-528-174-72 Lithium battery (CR2032)
Battery connector	Current-carrying hours (OPERATION)	About 5 years	1-820-459-21 Battery connector

1-14-2. Recommended Replacement Parts

This section describes the recommended replacement parts and recommended replacement time.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ID	Part name	Part No.	Recommended replacement timing
1	BNC cap	4-168-993-01	Check for deformation and deterioration (abraded or damaged or lost) from time to time. Replace it as necessary.
2	Cap (USB2)	4-264-451-01	
3	Eye cup	3-878-208-02	
4	Wind screen	3-991-419-01	
5	Headphone jack cover	4-168-991-01	
6	Drop protection cover (XLR)	4-168-992-01	
7	Rubber foot	3-723-097-01	
8	Shoulder pad assembly	A-1752-736-A	
9	Cap (light connector)	4-168-996-01	
10	Holder lens mount	3-796-982-03	
11	Connector cap	4-169-085-02	
12	Suspension collar	3-654-615-02	
13	Grip	4-168-997-02	
14	Battery connector	1-820-459-21	
15	Optical filter unit	1-856-052-11	It can become nebulous with elapse of time. Then it will not meet the required characteristics. Replace it as needed.
16	VTR start button	3-986-632-02	Replace every about 3 years, or check for deformation and deterioration (abraded or damaged or lost) from time to time. Replace it as necessary.*1
17	Bayonet ling	3-790-043-11	Replace every 5 years.

1-14-3. Precautions for the Battery Connector

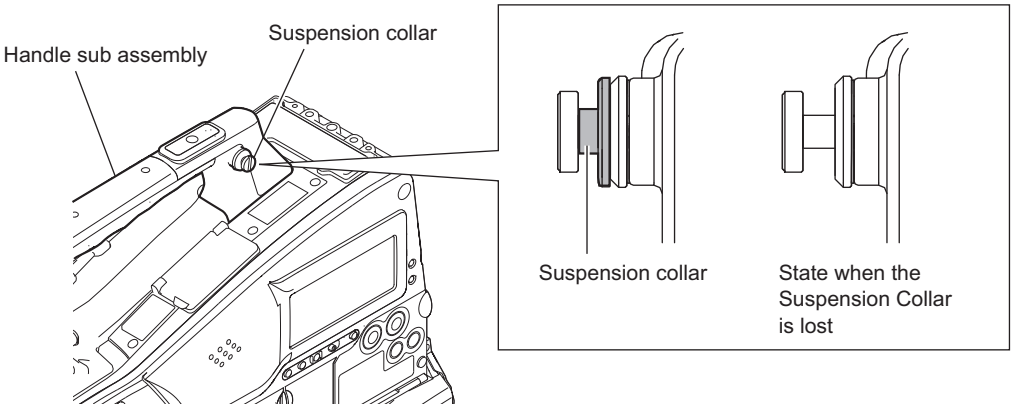
The battery connector in the unit is consumable parts. Replace every about 5 years.
If the terminal of connector is deformed or bends due to vibrations or shock, or if the surface of the terminal corrodes due to long-term outside use or other similar use, the unit may malfunction.
Replace the battery connector immediately if the terminal is deformed or bends, or if the surface color changes.(Refer to “2-26. Battery Harness Assembly”)

1-14-4. Precaution on Hanging Bracket of Handle

- If the suspension collar of the hanging bracket is deteriorated (abraded or damaged or lost), replace the suspension collar (3-654-615-02) .

*1: When the part is replaced, apply the instant adhesive (Loctite 408 or equivalent) to the whole area of the flange from the back side with care not to ooze out to cosmetic surface.

- If the hanging bracket itself is deformed or becomes loose, replace the handle sub assembly (A-1964-815-A) .



1-15. Lead-free Solder

All boards mounted in this unit use lead-free solder. Be sure to use lead-free solder when repairing the boards of this unit. A lead free mark (LF) indicating that the solder contains no lead is printed on each board. (Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

 : LEAD FREE MARK

Note

- The lead-free solder melts at a temperature about 40 °C higher than the ordinary solder, therefore, it is recommended to use the soldering iron having a temperature regulator.
- The ordinary soldering iron can be used but the iron tip has to be applied to the solder joint for a slightly longer time. The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful.

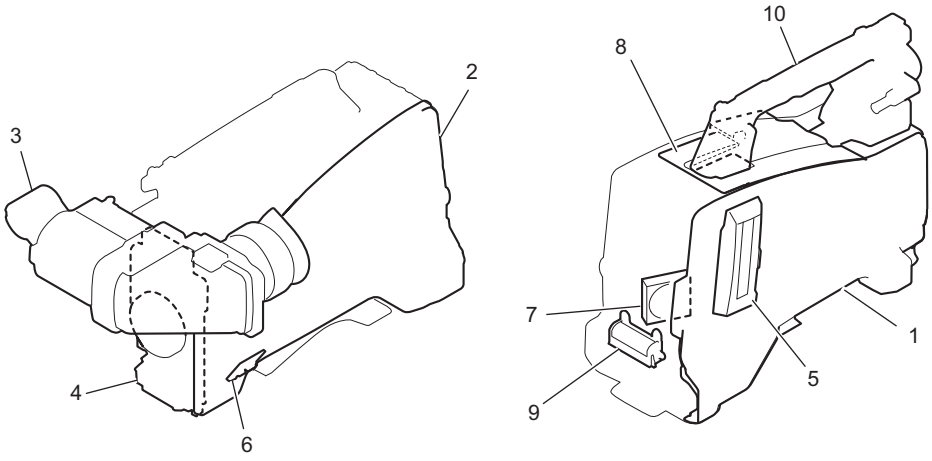
Section 2
Replacement of Main Parts

2-1. General Information for Parts Replacement

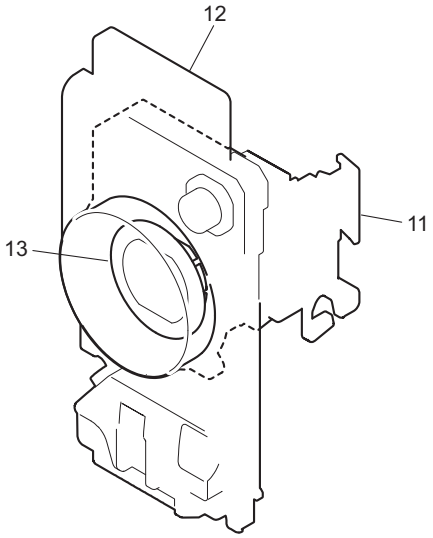
2-1-1. Index

This section describes replacement procedures of the parts listed below.

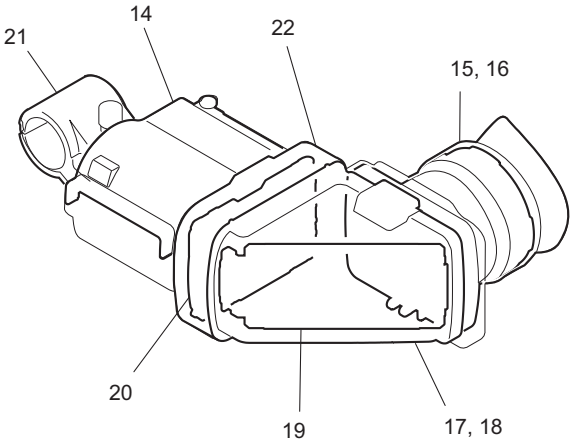
Mechanical parts



No.	Part Name	Procedure
1	Outside panel assembly	“2-2. Outside Panel Assembly”
2	Inside panel assembly	“2-3. Inside Panel Assembly”
3	VF assembly	“2-5. VF Assembly”
4	Front assembly	“2-4. Front Assembly”
5	Slot lid assembly	“2-2-1. Slot Lid Assembly”
6	MENU door assembly	“2-3-6. Menu Door Assembly”
7	DC fan	“2-18. DC Fan”
8	Top cover assembly	“2-14. Top Cover Assembly/KY-658A Board”
9	Battery harness assembly	“2-26. Battery Harness Assembly”
10	Handle sub assembly	“2-13. Handle Sub Assembly/SW-1476A Board”



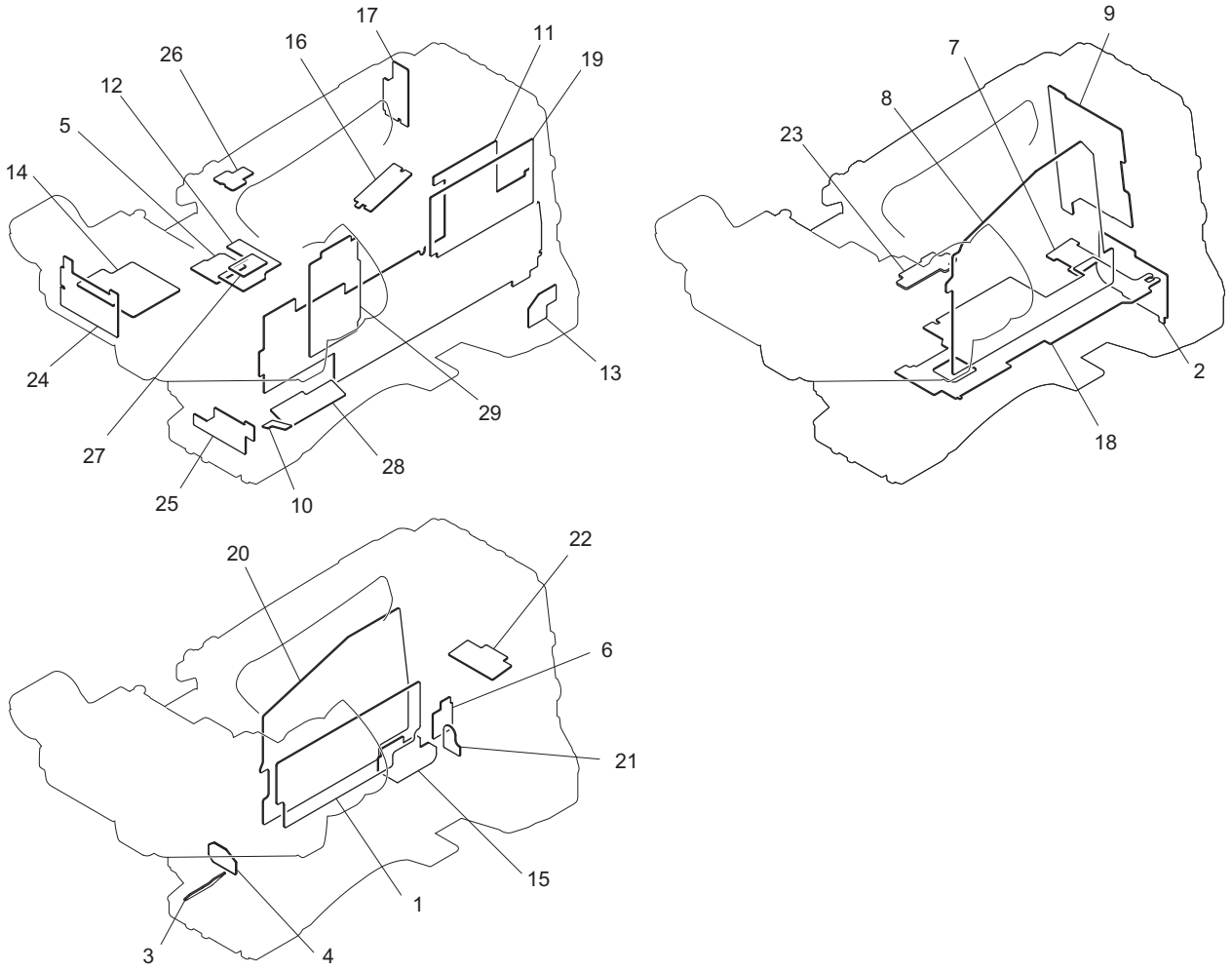
No.	Part Name	Procedure
11	CMOS block assembly	“2-4-1. CMOS Block Assembly”
12	Front panel sub assembly	“2-4-4. Front Panel Sub Assembly”
13	Optical filter unit	“2-27. Optical Filter Unit”



No.	Part Name	Procedure
14	Upper case assembly	“2-5-1. Upper Case Assembly”
15	Loupe assembly	“2-5-4. Loupe Assembly”
16	VF loupe	“2-5-5. VF Loupe”
17	Elbow assembly	“2-5-6. Elbow Assembly”
18	Elbow sub assembly	“2-5-7. Elbow Sub Assembly/VF Mirror Assembly”
19	VF mirror assembly	
20	3.5 inch LCD assembly	“2-5-8. 3.5 Inch LCD Assembly”
21	Microphone holder assembly	“2-5-9. Microphone Holder Assembly”
22	LCD case assembly	“2-5-10. LCD Case Assembly”

Mounted Circuit Boards

After replacing/repairing the mounted circuit boards (or the assembling parts including them), perform the steps after replacement/repair.



No.	Part Name	Procedure	Steps after replacement/repair
1	AU-352	“2-10. AU-352 Board”	“1-5. Note for Replacement of IC or Board”
2	AXM-49	“2-23. AXM-49 Board”	-
3	CN-3268A	“2-4-3. CN-3268A Board”	-
4	CN-3623	“2-11. CN-3623 Board”	-
5	CN-3635	“2-17. CN-3635 Board”	-
6	CN-3636	“2-22. CN-3636 Board”	-
7	DIF-215A	“2-15. IO-247C Board/DIF-215A Board”	-
8	DPR-354	“2-7. DPR-354 Board”	“1-5. Note for Replacement of IC or Board”
9	EC-77	“2-12. EC-77 Board”	-
10	ENC-154	“2-3-4. ENC-154 Board”	-
11	FP-169C	“2-3-1. FP-169C Board”	“1-5. Note for Replacement of IC or Board”
12	HN-410	“2-16. HN-410 Board”	-
13	HP-165	“2-3-5. HP-165 Board”	-
14	IF-1125B	“2-5-2. IF-1125B Board”	-
15	IO-247C	“2-15. IO-247C Board/DIF-215A Board”	-
16	KY-658A	“2-14. Top Cover Assembly/KY-658A Board”	-
17	LED-522	“2-25. LED-522 Board”	-

Continued

No.	Part Name	Procedure	Steps after replacement/repair
18	MB-1205	“2-21. MB-1205 Board”	-
19	PD-122	“2-3-2. PD-122 Board”	-
20	RE-316	“2-9. RE-316 Board”	“1-5. Note for Replacement of IC or Board”
21	RM-240	“2-20. RM-240 Board”	-
22	RX-117A	“2-19. RX-117A Board”	-
23	SDI-118	“2-8. SDI-118 Board”	-
24	SW-1472A	“2-5-3. SW-1472A Board”	-
25	SW-1474A	“2-4-2. SW-1474A Board”	-
26	SW-1475A	“2-24. SW-1475A Board”	-
27	SW-1476A	“2-13. Handle Sub Assembly/SW-1476A Board”	-
28	SW-1602	“2-3-3. SW-1602 Board”	-
29	VPR-122	“2-6. VPR-122 Board”	-

2-1-2. Basic Knowledge

Flexible card wire

When connecting flexible card wires, connect them firmly referring to “1-13-2. Connecting/Disconnecting Flexible Card Wire”

Fine-wire coaxial cable

When connecting fine-wire coaxial cables, connect them firmly referring to“1-13-3. Disconnecting/Connecting Fine-Wire Coaxial Cable”

2-1-3. Tightening Torque

Torque driver and screw tightening torque

General three types of screws are used in this unit. Be sure to use a torque driver and tighten screws to the specified tightening torque.

Tightening torque

M2 (+) screw: 0.3 ±0.02 N· m

M2.6 (+) screw: 0.53 ±0.07 N· m

M3 (+) screw: 0.8 ±0.12 N· m

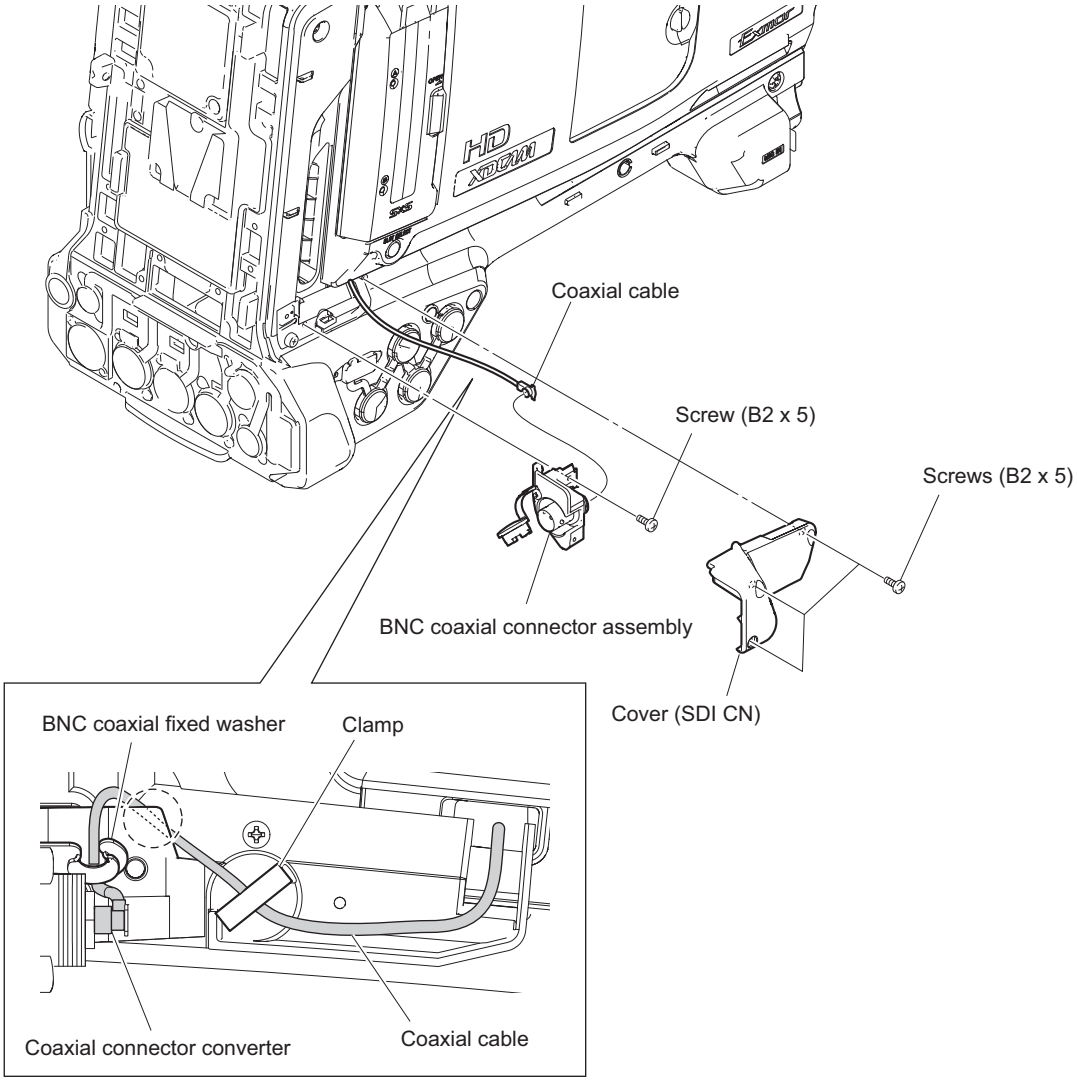
Tip

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

2-2. Outside Panel Assembly

Procedure

1. Remove the three screws to detach the cover (SDI-CN).
2. Release the coaxial cable from the clamp and the BNC coaxial fixed washer.
3. Disconnect the coaxial cable from the coaxial connector converter.
4. Remove the screw to detach the BNC coaxial connector assembly.



Note

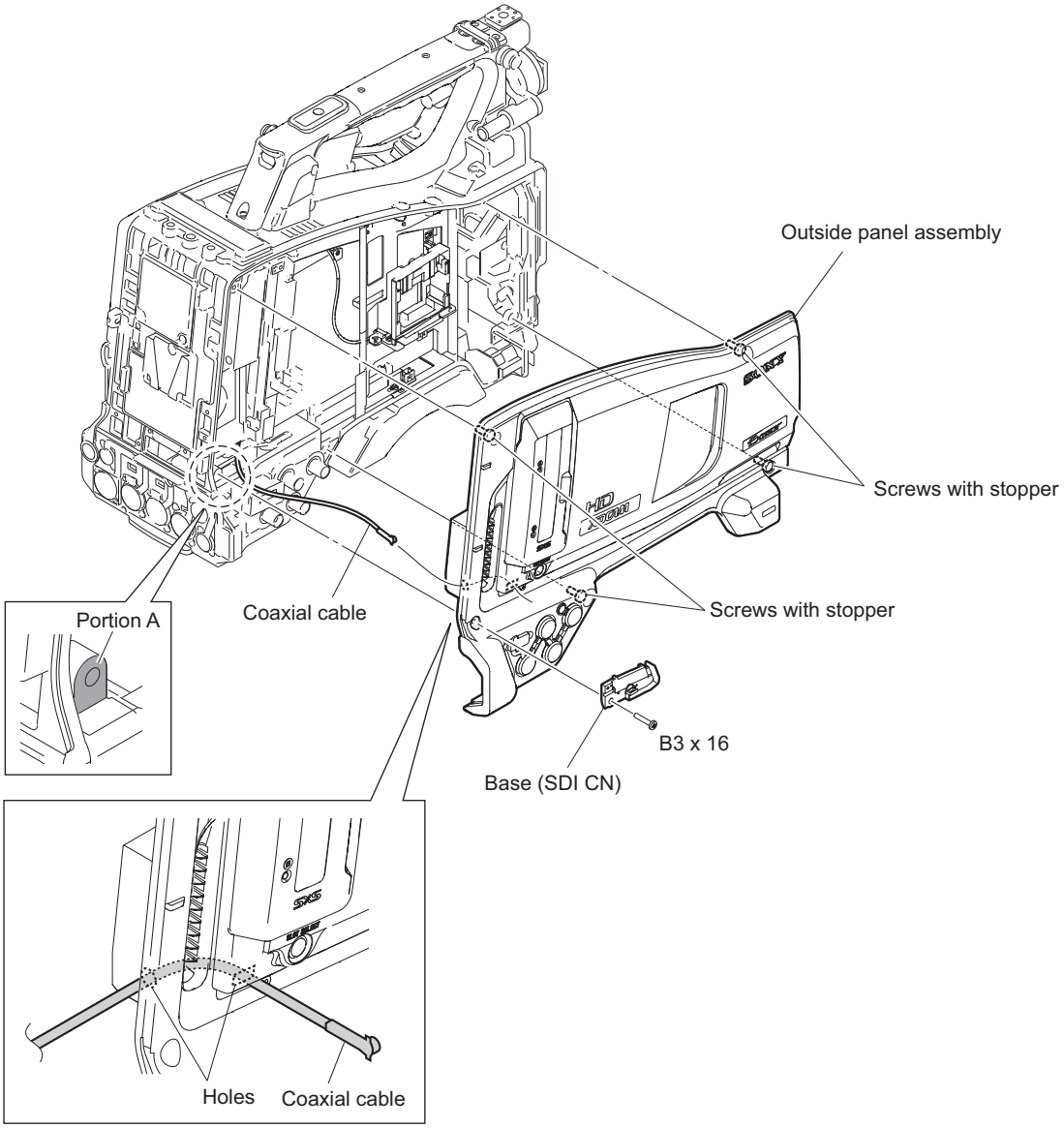
When installing, pay attention to arrangement of the coaxial cable.

5. Remove the screw to detach the base (SDI CN).
6. Loosen the four screws with stopper.

7. Remove the outside panel assembly while pulling out the coaxial cable from the hole.

Note

When removing the outside panel assembly, be careful not to damage the coaxial cable.



Note

- When installing the outside panel assembly, be careful so that the coaxial cable will not be caught at the portion A.
- When installing the base (SDI CN), be careful so that the coaxial cable will not be caught.

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

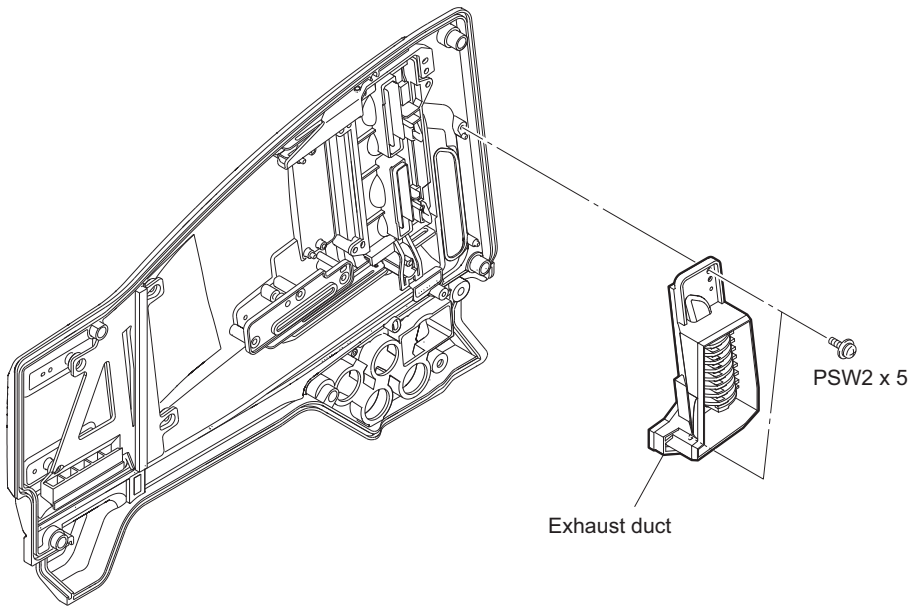
2-2-1. Slot Lid Assembly

Preparation

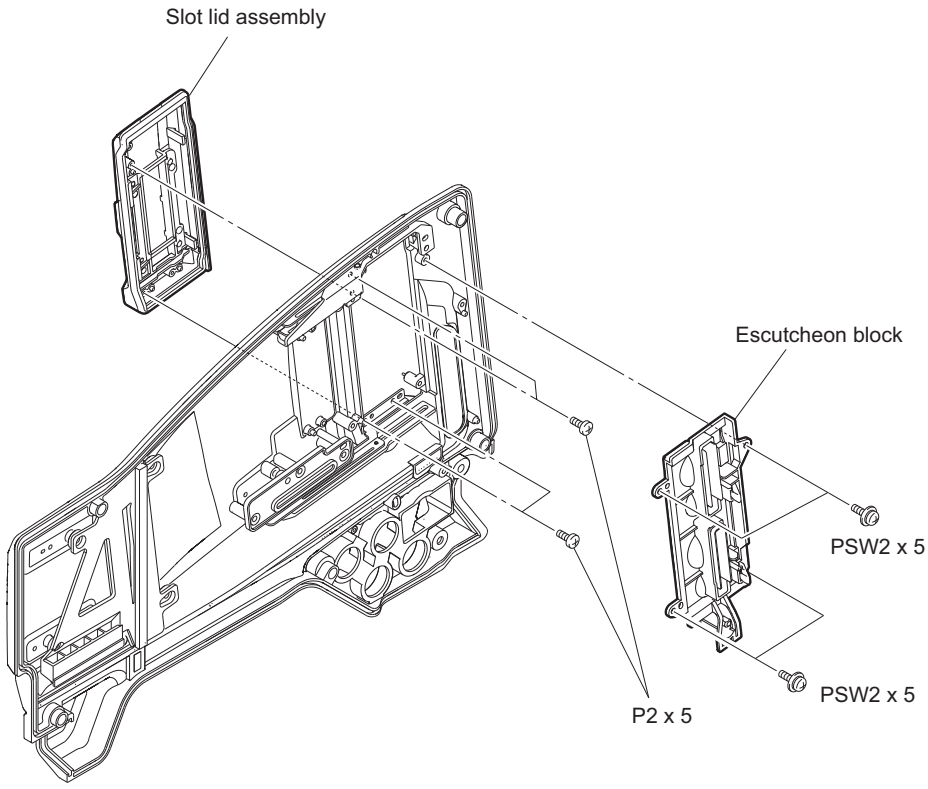
1. Remove the outside panel assembly. (Refer to "2-2. Outside Panel Assembly")

Procedure

1. Remove the two screws to detach the exhaust duct.



2. Remove the four screws (PSW2 x 5) to detach the escutcheon block.
3. Remove the four screws (P2 x 5) to detach the slot lid assembly.

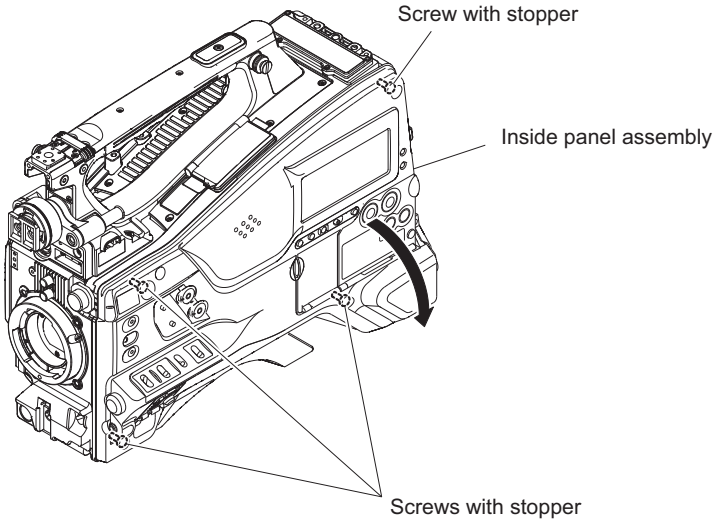


4. Install the removed parts by reversing the steps of removal.

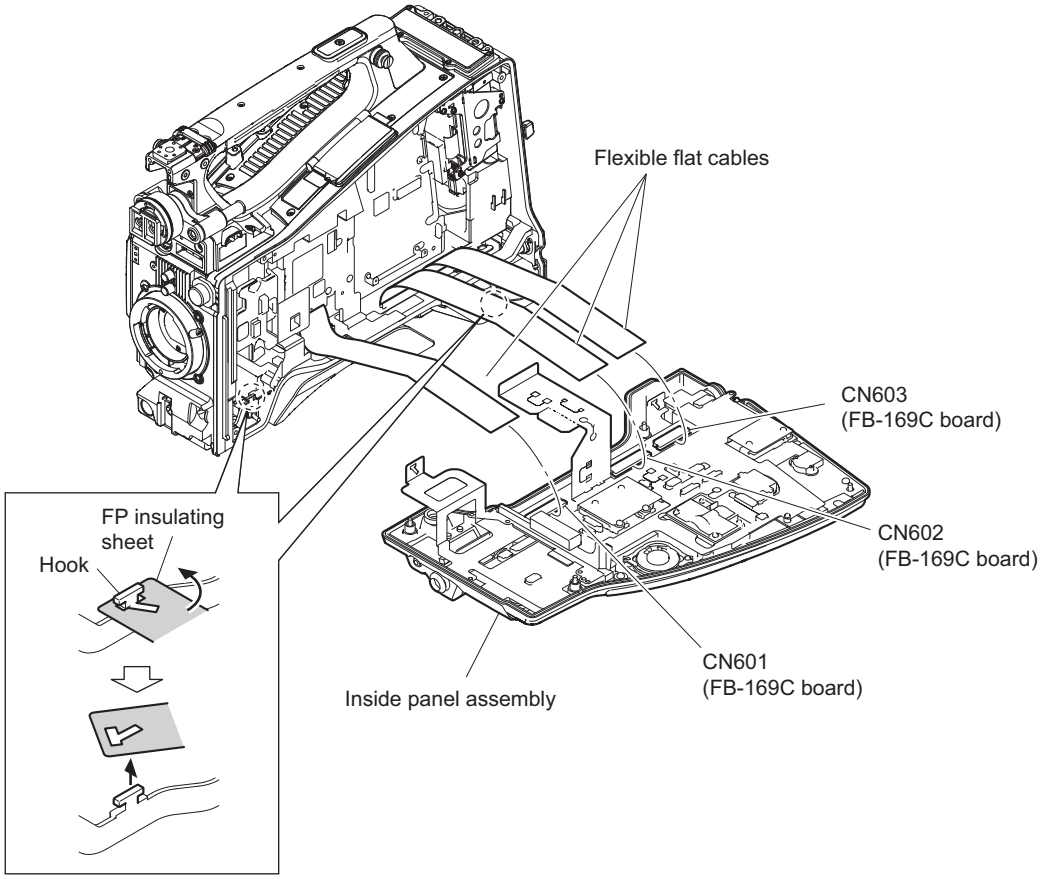
2-3. Inside Panel Assembly

Procedure

1. Loosen the four screws with stopper, and open the inside panel assembly.



2. Disconnect the three flexible flat cables from the three connectors (CN601, CN602, and CN603) on the FP-169C board.
3. Release the two FP insulating sheets from the hooks on the main frame, and detach the inside panel assembly.



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

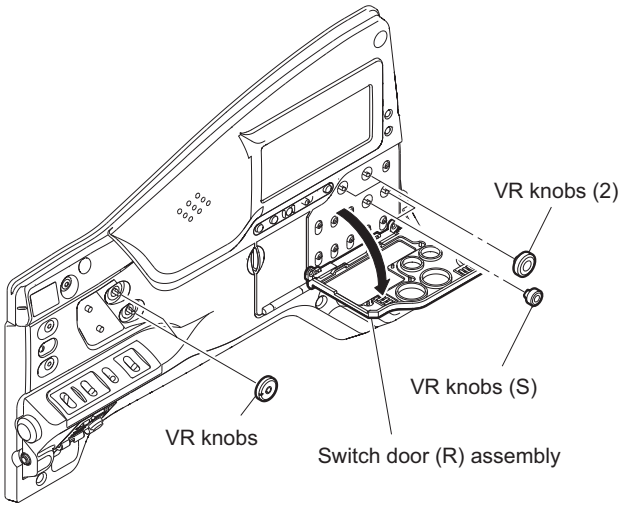
2-3-1. FP-169C Board

Preparation

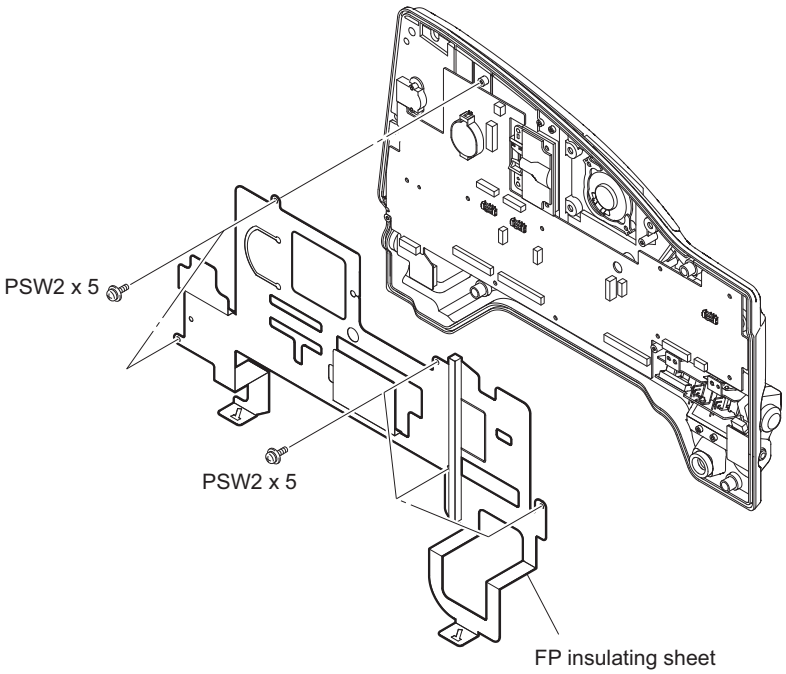
1. Remove the inside panel assembly. (Refer to "2-3. Inside Panel Assembly")

Procedure

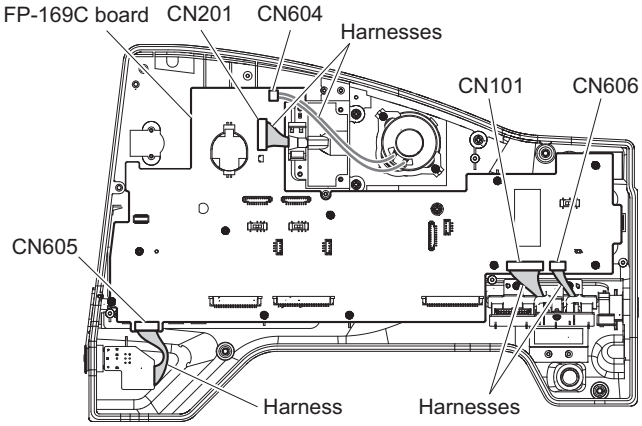
1. Remove the two VR knobs.
2. Open the switch door (R) assembly.
3. Remove the two VR knobs (S).
4. Remove the two VR knobs (2).



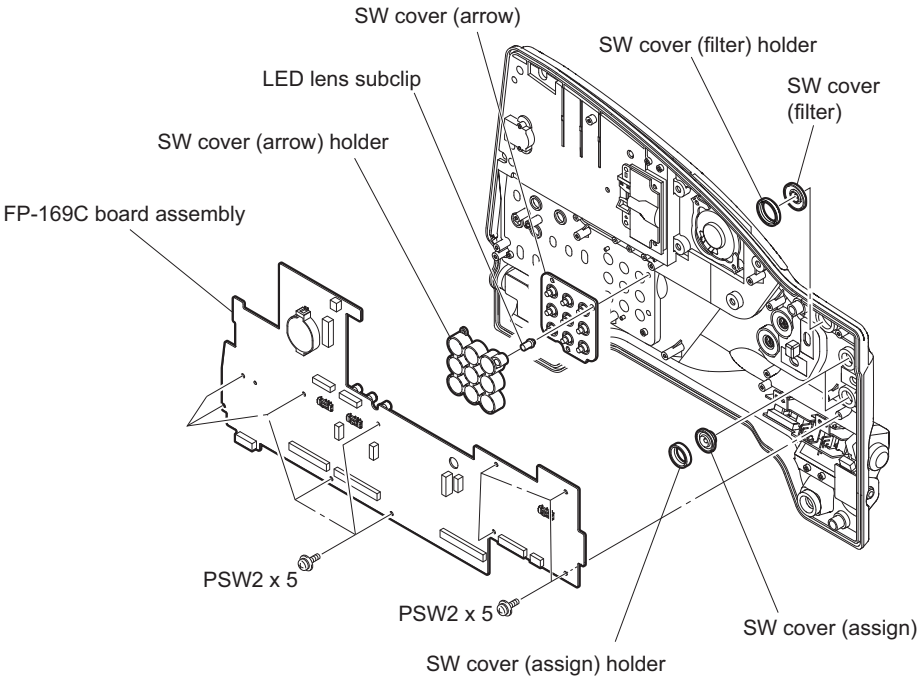
5. Remove the five screws to detach the FP insulating sheet.



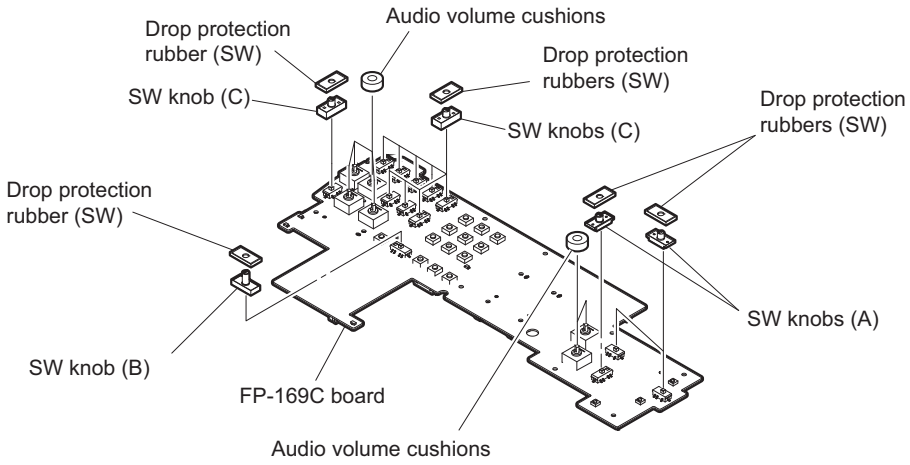
6. Disconnect the five harnesses from the five connectors (CN101, CN201, CN604, CN605, and CN606) on the FP-169C board.



7. Remove the ten screws.
8. Detach the FP-169C board assembly slightly.
9. Remove the two SW cover (assign) holders, two SW covers (assign), SW cover (filter) holder, SW cover (filter), SW cover (arrow) holder, LED lens subclip, and SW cover (arrow) that were pressed by the FP-169C board assembly.



10. Remove the six audio volume cushions, thirteen drop protection rubbers (SW), nine SW knobs (C), SW knob (B), and three SW knobs (A) from the FP-169C board.



11. Install the removed parts by reversing the steps of removal.
12. After installation, update the firmware. (Refer to "1-5. Note for Replacement of IC or Board")

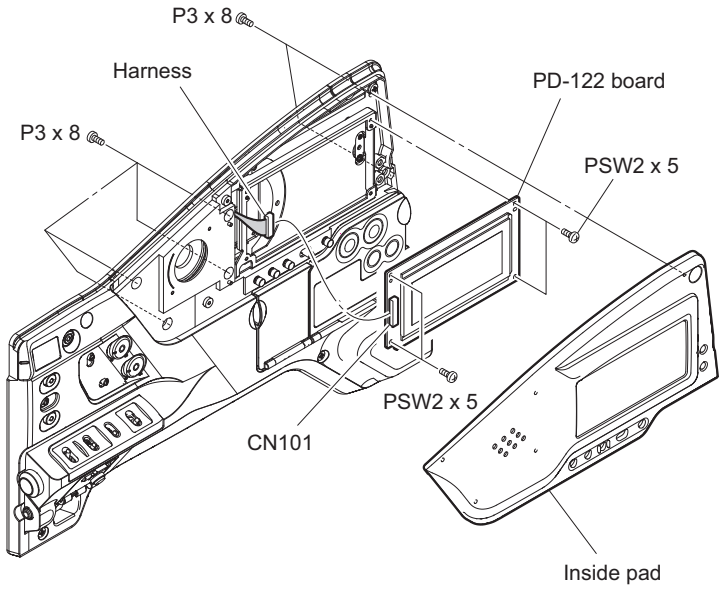
2-3-2. PD-122 Board

Preparation

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

Procedure

1. Remove the six screws (P3 x 8) to detach the inside pad.
2. Disconnect the harness from the connector (CN101) on the PD-122 board.
3. Remove the four screws (PSW2 x 5) to detach the PD-122 board.



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

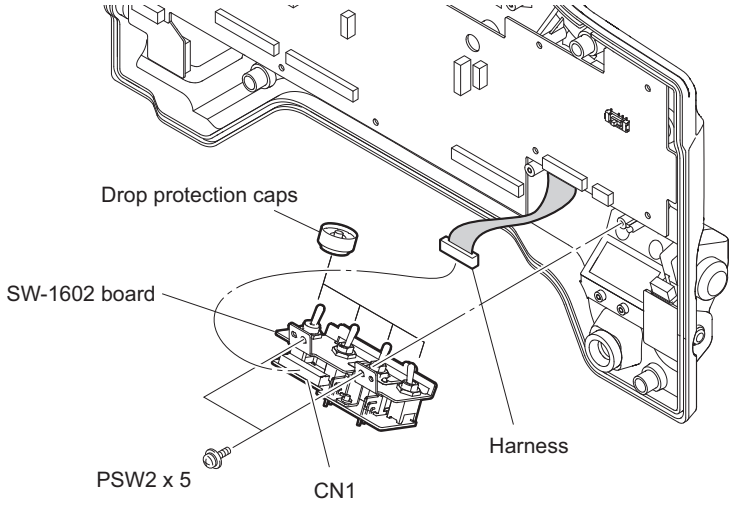
2-3-3. SW-1602 Board

Preparation

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

Procedure

1. Disconnect the harness from the connector (CN1) on the SW-1602 board.
2. Remove the two screws to detach the SW-1602 board assembly.
3. Remove the four drop protection caps from the SW-1602 board.



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

2-3-4. ENC-154 Board

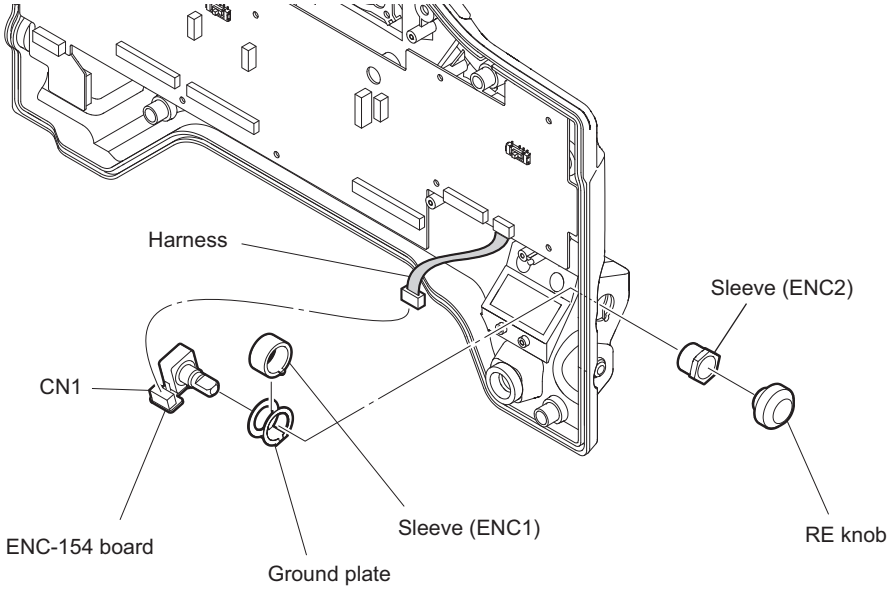
Preparation

1. Remove the inside panel assembly. (Refer to "2-3. Inside Panel Assembly")
2. Remove the SW-1602 board. (Refer to "2-3-3. SW-1602 Board")

Procedure

1. Disconnect the harness from the connector (CN1) on the ENC-154 board.
2. Detach the RE knob.
3. Remove the sleeve (ENC2), and remove the ENC-154 board assembly.

4. Detach the ground plate and the sleeve (ENC1) from the ENC-154 board.



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

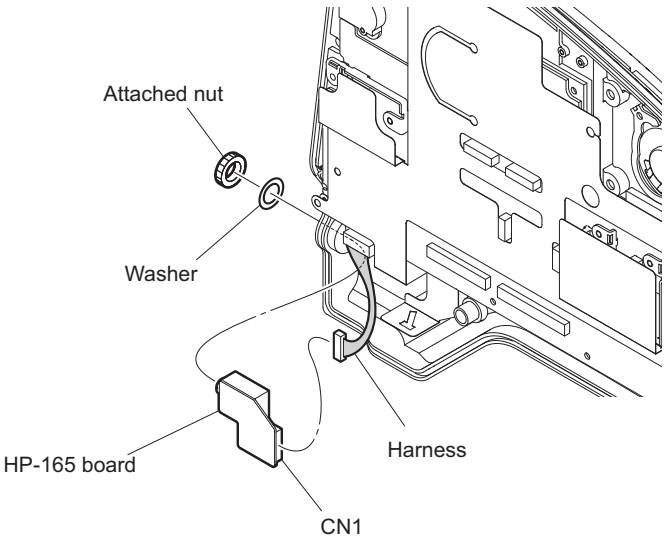
2-3-5. HP-165 Board

Preparation

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

Procedure

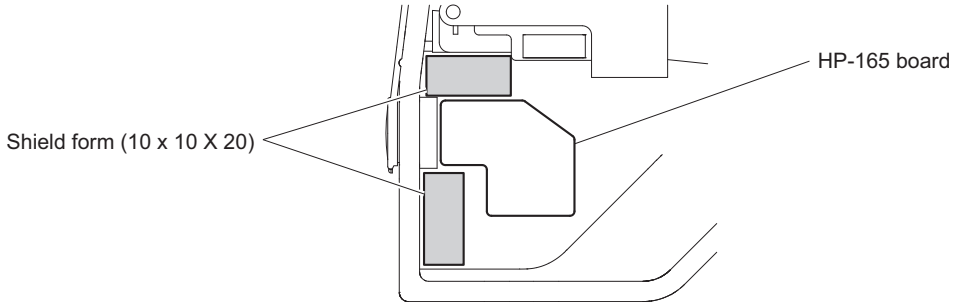
1. Detach the attached nut and washer.
2. Disconnect the harness from the connector (CN1) on the HP-165 board and remove the HP-165 board.



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

Note

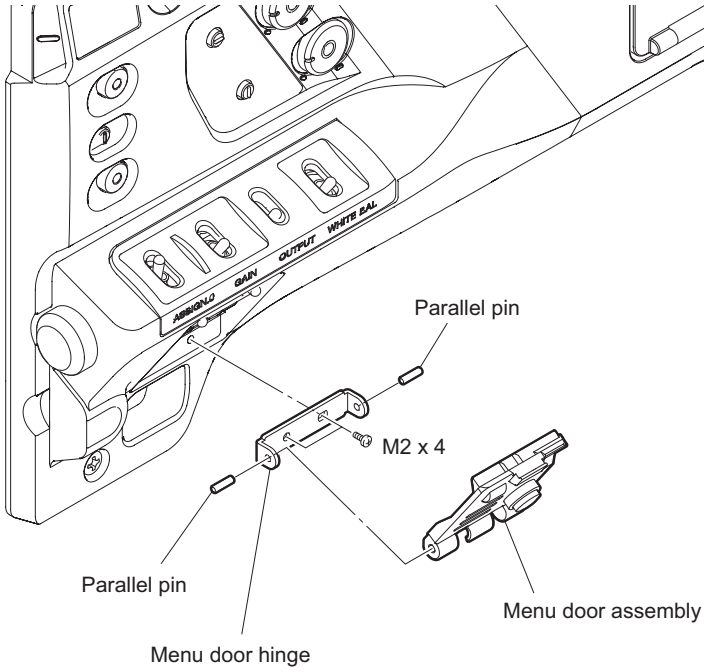
Make sure that the shield form (10 x 10 x 20) is at the specified position. If it is missing, reinstall it.



2-3-6. Menu Door Assembly

Procedure

1. Remove the two screws to detach the menu door hinge.
2. Pull out the two parallel pins to detach the menu door assembly.



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

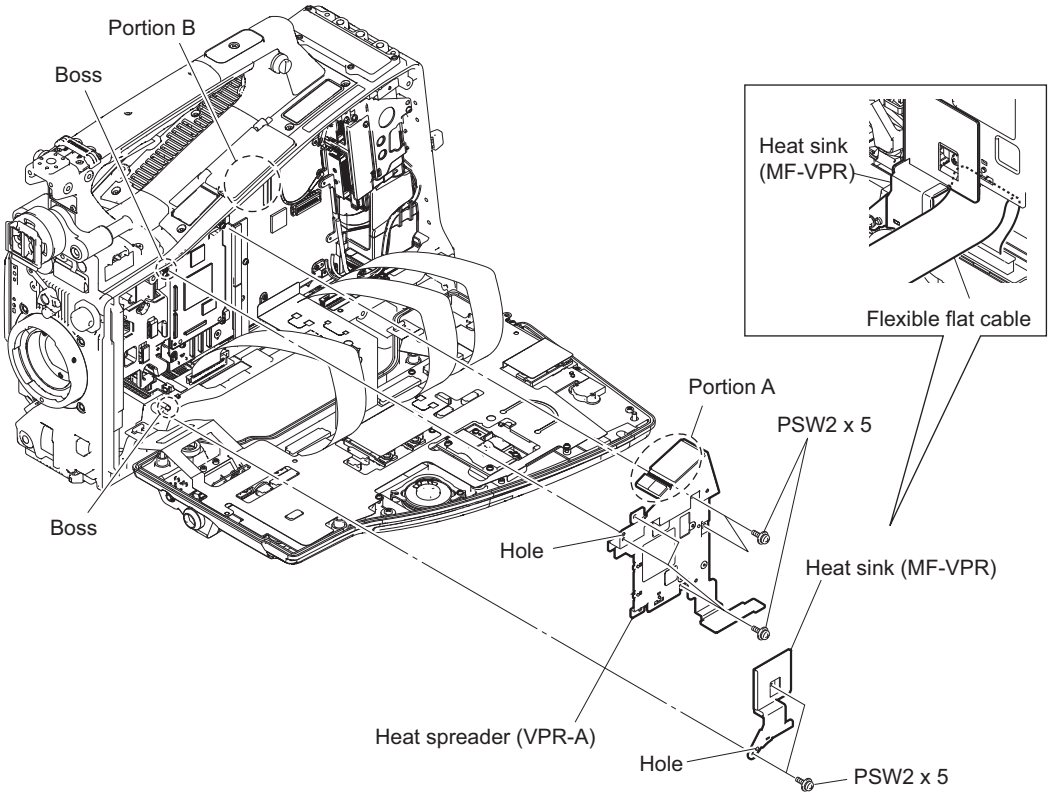
2-4. Front Assembly

Preparation

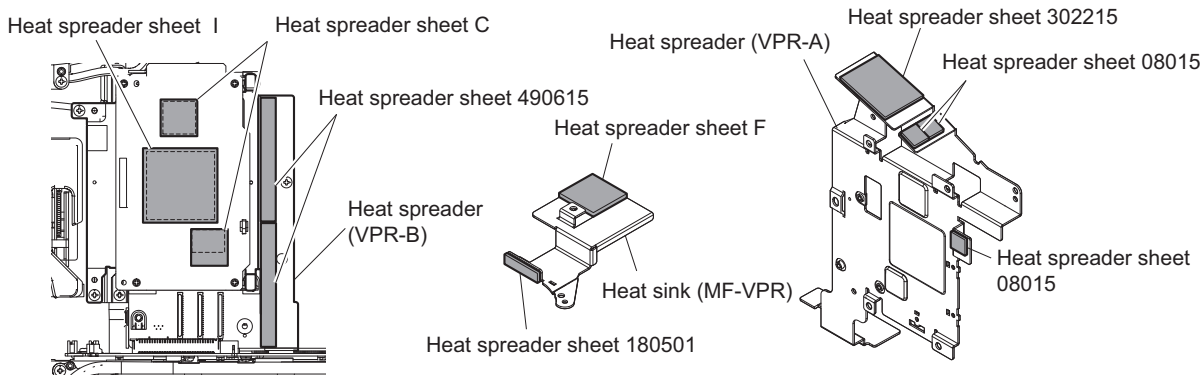
1. Open the inside panel. (Refer to "2-3. Inside Panel Assembly")

Procedure

1. Remove the two screws to detach the heat sink (MF-VPR).
2. Remove the five screws to detach the heat spreader (VPR-A).



Position of heat spreader sheets



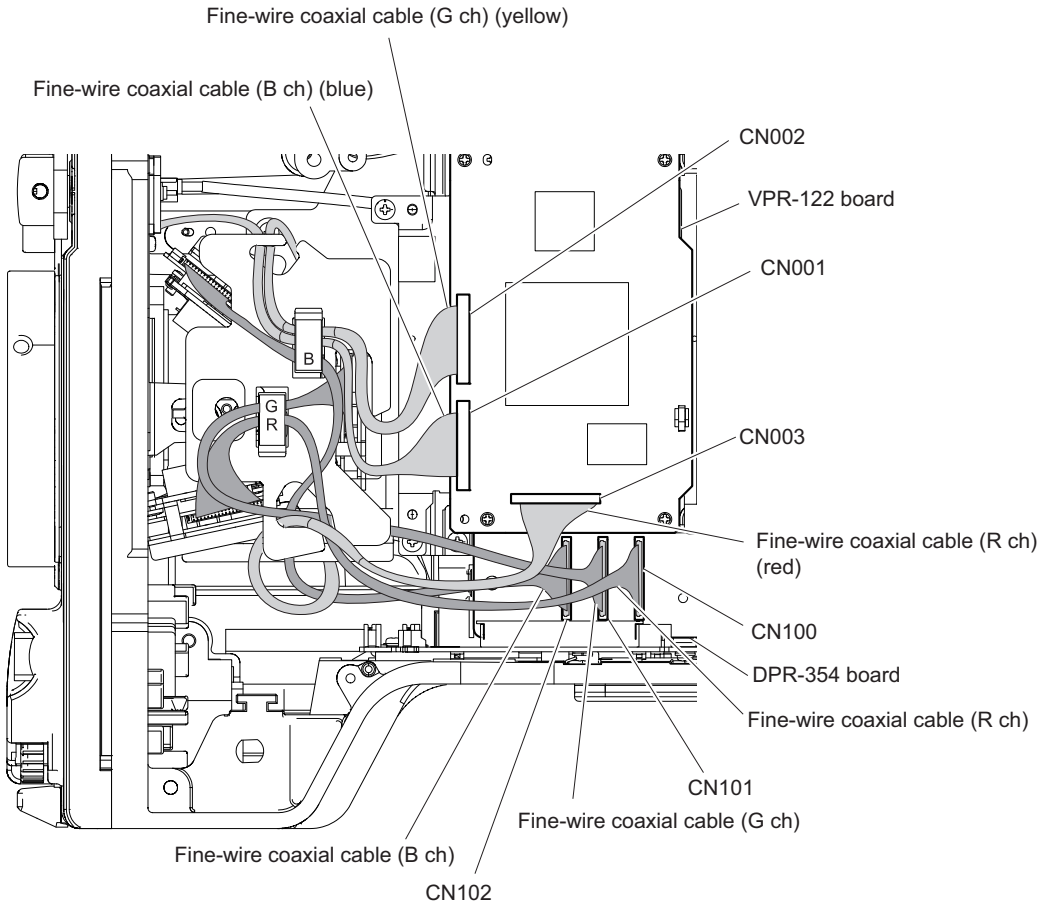
Note

- If the sheet is removed, stick it at the location shown in the figure.
- When attaching the heat spreader (VPR-A), match the bosses with the holes and press portion A against portion B for close contact. If a gap is generated between portion A and portion B, re-try to attach the heat spreader.
- When installing the heat sink (MF-VPR), fit the boss with the hole.

3. Disconnect the three fine-wire coaxial cables from the three connectors (CN001, CN002, and CN003) on the VPR-122 board.
4. Disconnect the three fine-wire coaxial cables from the three connectors (CN100, CN101, and CN102) on the DPR-354 board.

Note

Attach identification tags to the harnesses as needed.

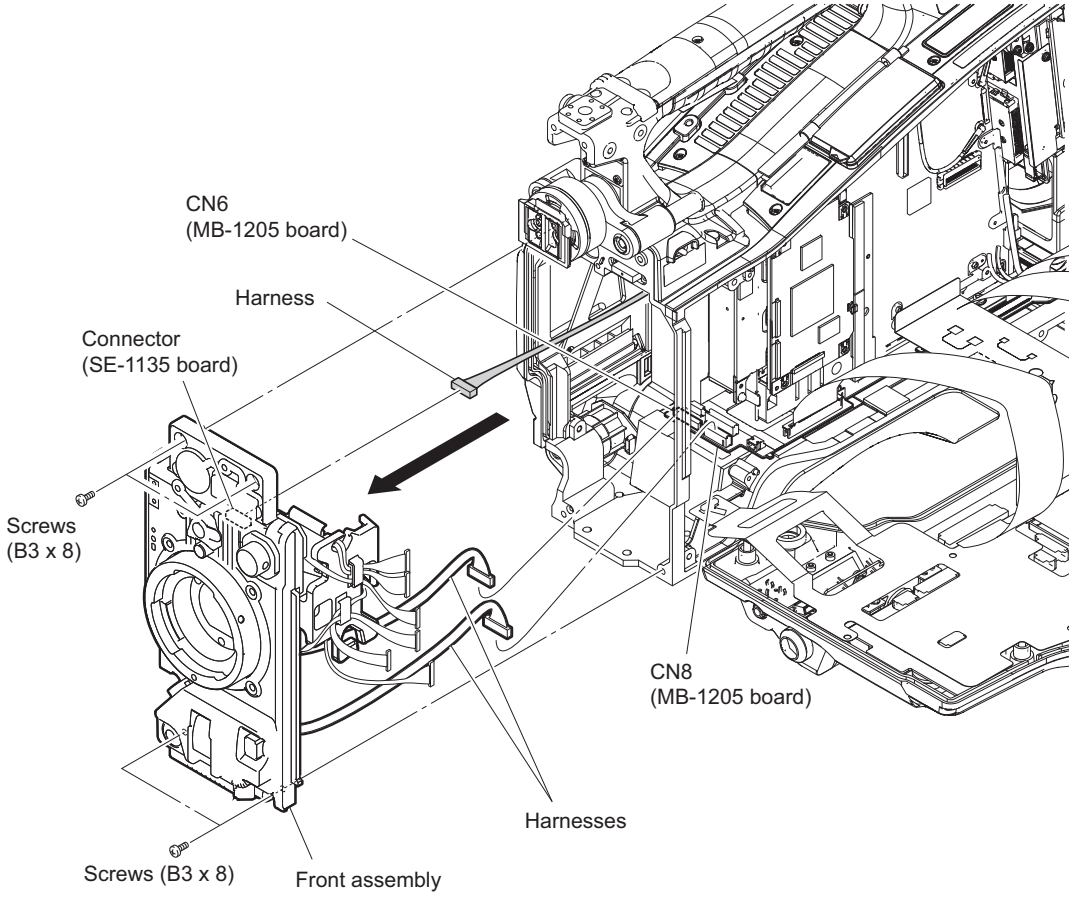


Note

- When tags are attached to fine-wire coaxial cables, detach them after the cables are connected.
- When connecting fine-wire coaxial cables, pay attention to their colors.

5. Remove the four screws, and pull out the front assembly in the direction of the arrow.
6. Disconnect the two harnesses from the two connectors (CN6, CN8) on the MB-1205 board.

7. Disconnect the harness from the connector on the SE-1135 board, and remove the front assembly.



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

2-4-1. CMOS Block Assembly

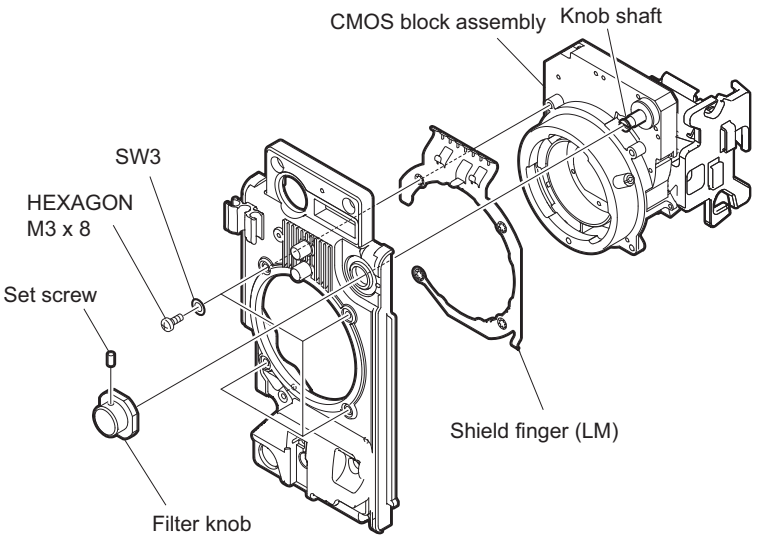
Preparation

1. Remove the front assembly. (Refer to "2-4. Front Assembly")

Procedure

1. Remove the set screw and remove the filter knob from the knob shaft.

2. Remove the four hexagon socket head bolts and four washers, and detach the CMOS block assembly and the shield finger (LM).



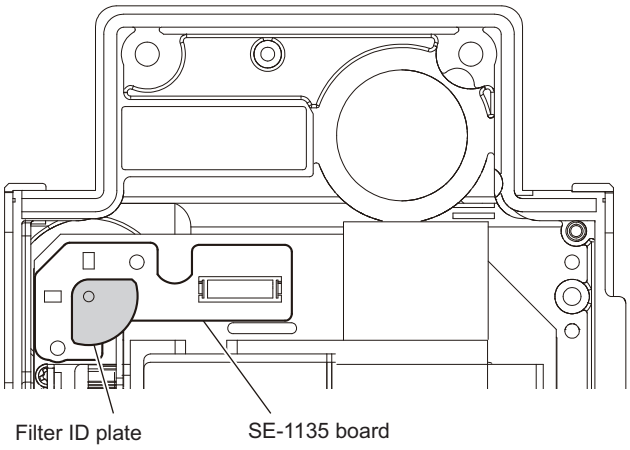
3. Install the removed parts by reversing the steps of removal.

Note

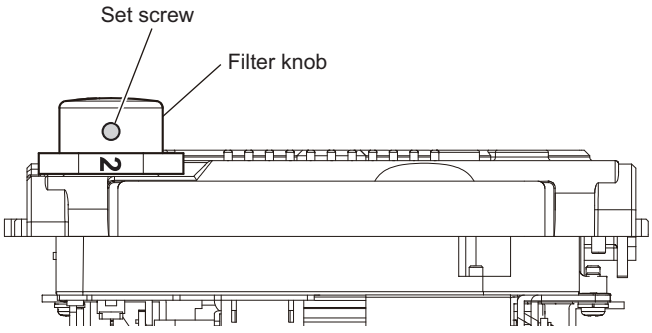
Install the filter knob using the following procedure.

- Turn the knob shaft and set the filter ID plate on the SE-1135 board to the orientation shown in the figure.
- Set the filter knob at a position where a number “2” faces up and secure it with the set screw.

Back view



Top view



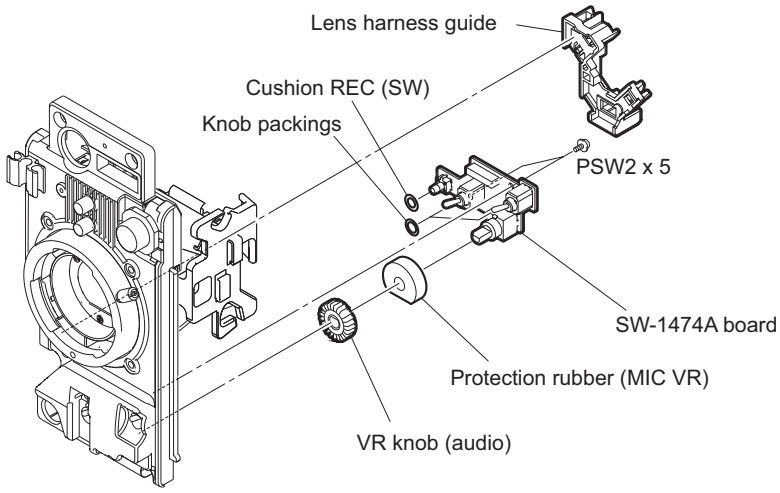
2-4-2. SW-1474A Board

Preparation

1. Remove the front assembly. (Refer to "2-4. Front Assembly")

Procedure

1. Remove the lens harness guide.
2. Remove the two screws to detach the SW-1474A board.
3. Detach the VR knob (AUDIO), cushion REC (SW), drop protection (MIC VR), and two knob packings from the SW-1474A board.



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

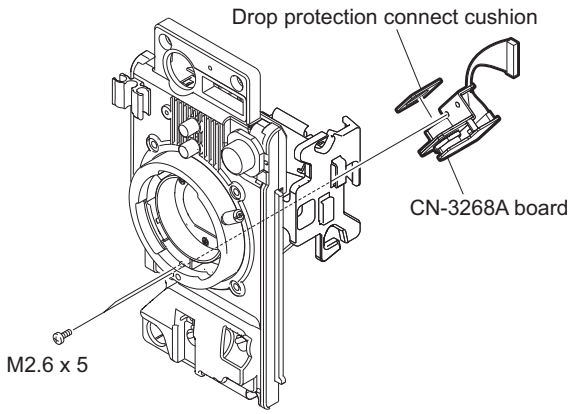
2-4-3. CN-3268A Board

Preparation

1. Remove the front assembly. (Refer to "2-4. Front Assembly")
2. Remove the SW-1474A board. (Refer to "2-4-2. SW-1474A Board")

Procedure

1. Remove the two screws to detach the CN-3268A board.
2. Detach the drop protection connect cushion from the CN-3268A board.



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

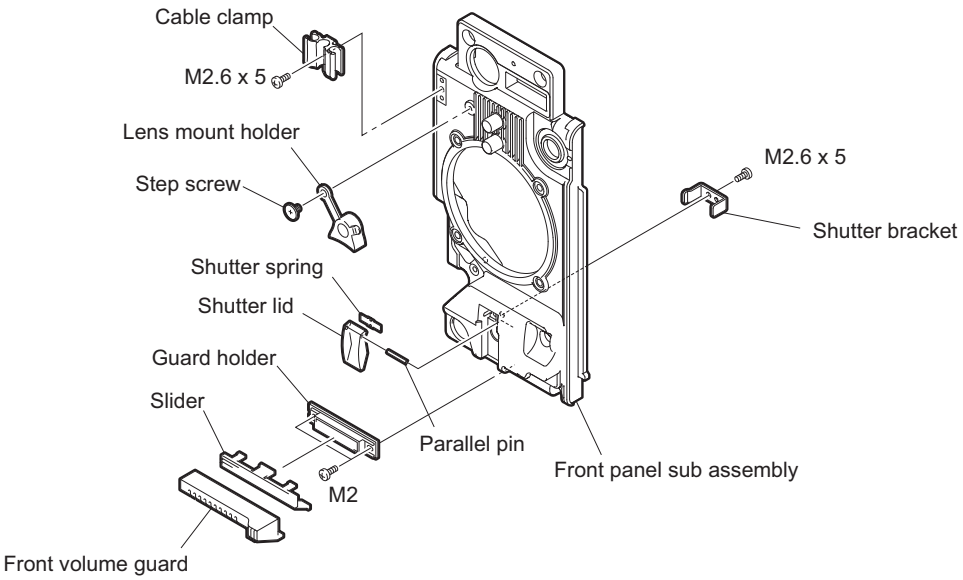
2-4-4. Front Panel Sub Assembly

Preparation

1. Remove the front assembly. (Refer to "2-4. Front Assembly")
2. Remove the CMOS block. (Refer to "2-4-1. CMOS Block Assembly")
3. Remove the SW-1474A board. (Refer to "2-4-2. SW-1474A Board")
4. Remove the CN-3268A board. (Refer to "2-4-3. CN-3268A Board")

Procedure

1. Remove the screw (M2.6 x 5) to detach the cable clamp.
2. Remove the step screw to detach the lens mount holder.
3. Remove the front volume guide and the slider.
4. Remove the two screws (M2) to detach the guard holder.
5. Remove the screw (M2.6 x 5) to detach the shutter bracket.
6. Remove the parallel pin, Shutter lid, and shutter spring from the front panel sub assembly.

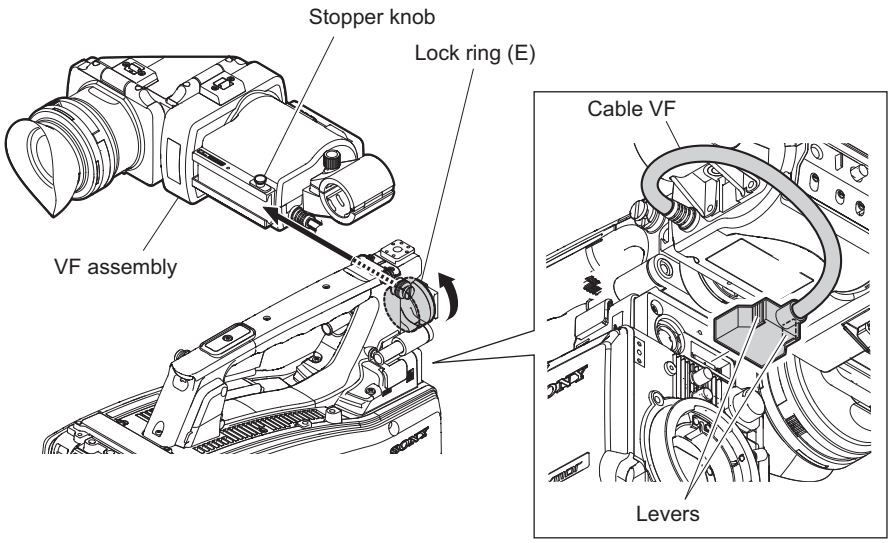


7. Install the removed parts by reversing the steps of removal.

2-5. VF Assembly

Procedure

1. While pressing the two levers of the cable VF to release the lock, disconnect the cable VF from the connector on the unit.
2. Loosen the lock ring (E).
3. Remove the VF assembly in the direction of the arrow while pulling up the stopper knob.



Note

When installing the cable VF, push the cable VF until a click is heard.

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

2-5-1. Upper Case Assembly

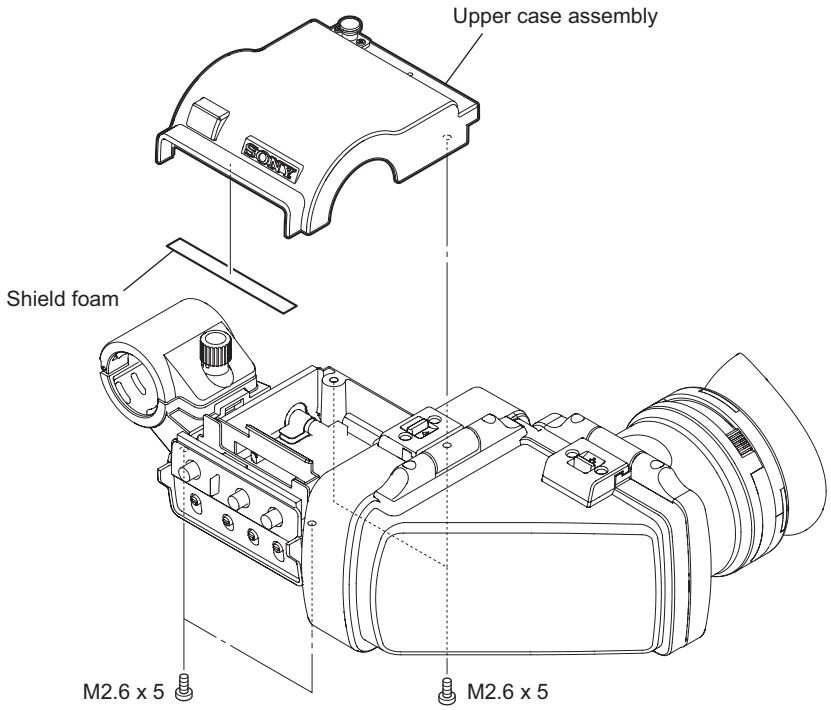
Preparation

1. Remove the VF assembly. (Refer to "2-5. VF Assembly")

Procedure

1. Remove the four screws and detach the upper case assembly.

2. Detach the shield foam from the upper case assembly.



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

2-5-2. IF-1125B Board

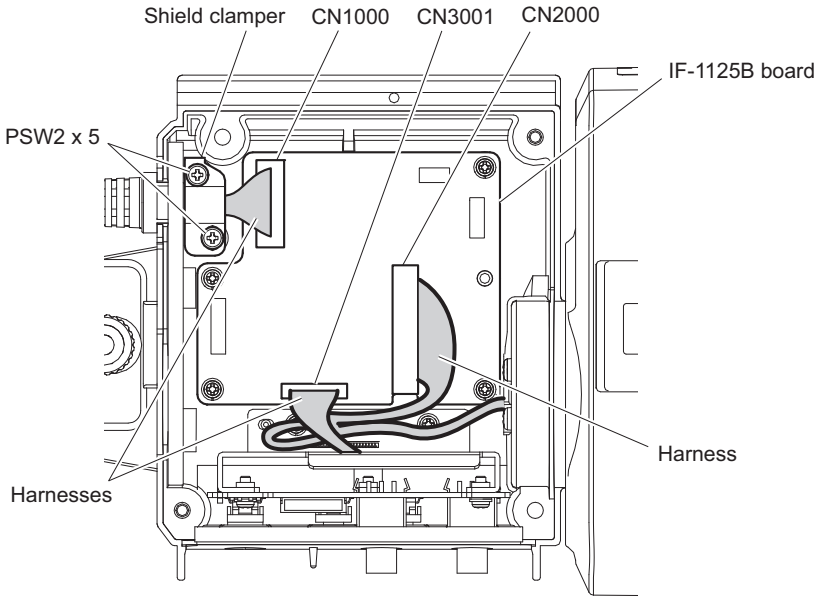
Preparation

1. Remove the VF assembly. (Refer to “2-5. VF Assembly”)
2. Remove the upper case assembly. (Refer to “2-5-1. Upper Case Assembly”)

Procedure

1. Remove the two screws securing the shield clamper and disconnect the three harnesses from the three connectors (CN1000, CN2000, and CN3001) on the IF-1125B board.

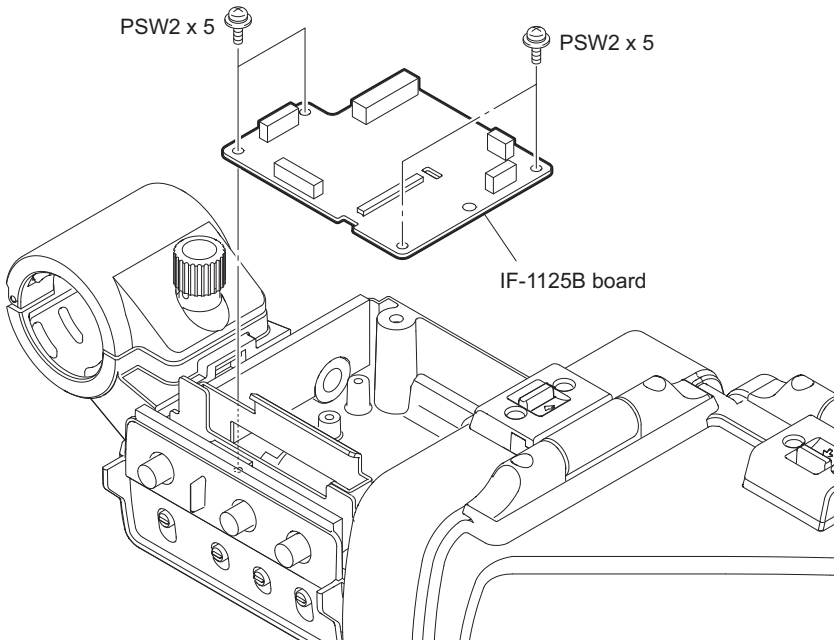
Top view



Note

When installing the IF-1125B board, arrange the harnesses as shown in the figure.

2. Remove the four screws to detach the IF-1125B board.



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

2-5-3. SW-1472A Board

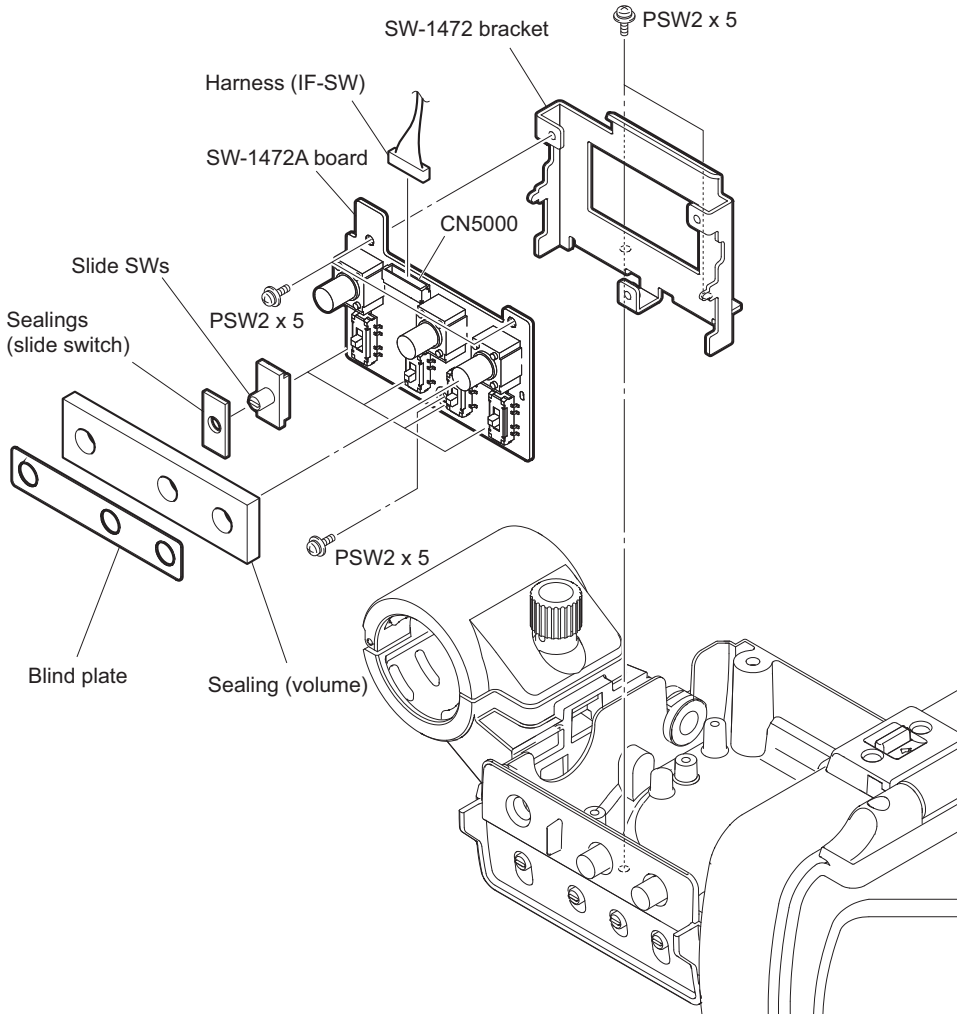
Preparation

1. Remove the VF assembly. (Refer to "2-5. VF Assembly")

2. Remove the Upper case assembly. (Refer to "2-5-1. Upper Case Assembly")
3. Remove the IF-1125B board. (Refer to "2-5-2. IF-1125B Board")

Procedure

1. Remove the two screws to detach the SW-1472 bracket.
2. Disconnect the harness (IF-SW) from the connector CN5000 on the SW-1472A board.
3. Detach the blind plate, sealing (volume), four sealings (slide switch), and four slide switches from the SW-1472A board.
4. Remove the three screws to detach the SW-1472A board.



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

2-5-4. Loupe Assembly

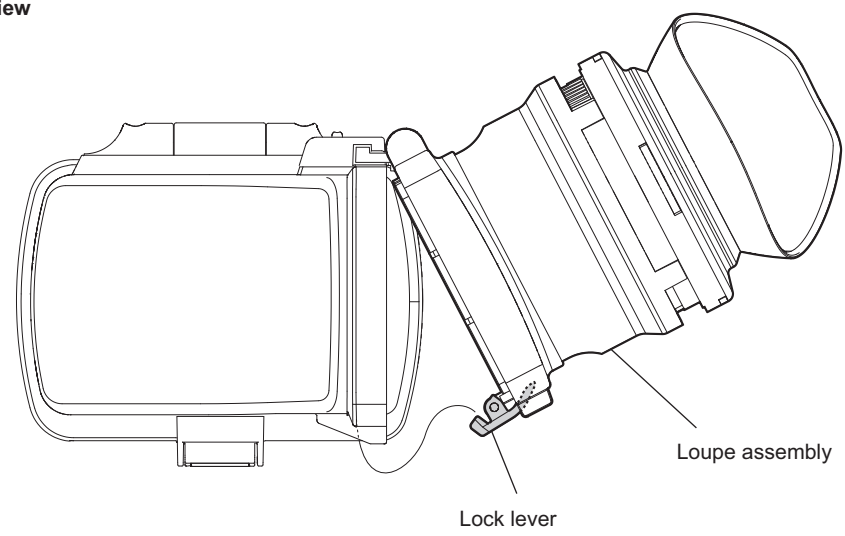
Preparation

1. Remove the VF assembly. (Refer to "2-5. VF Assembly")

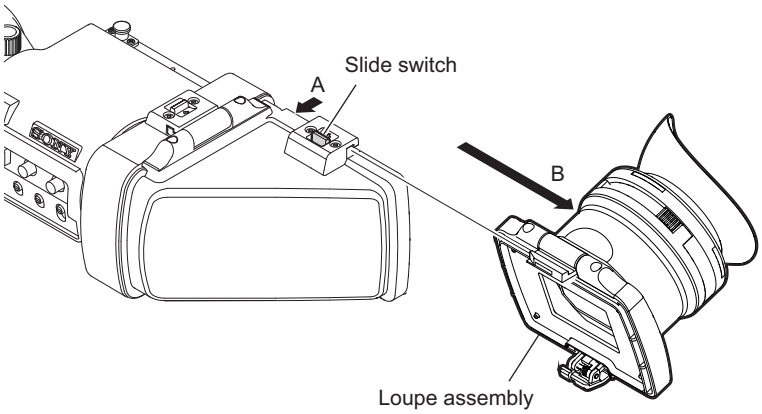
Procedure

1. Release the lock lever and open the loupe assembly.

Side view



2. Remove the loupe assembly in the arrow B direction while sliding the slide switch in the arrow A direction.



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

2-5-5. VF Loupe

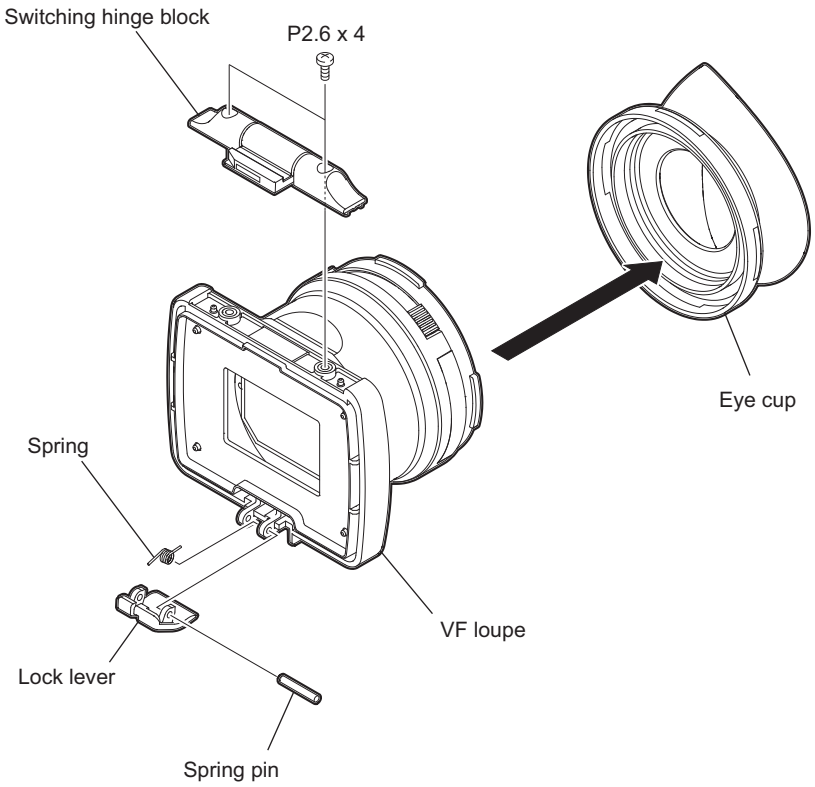
Preparation

1. Remove the VF assembly. (Refer to “2-5. VF Assembly”)
2. Remove the loupe assembly. (Refer to “2-5-4. Loupe Assembly”)

Procedure

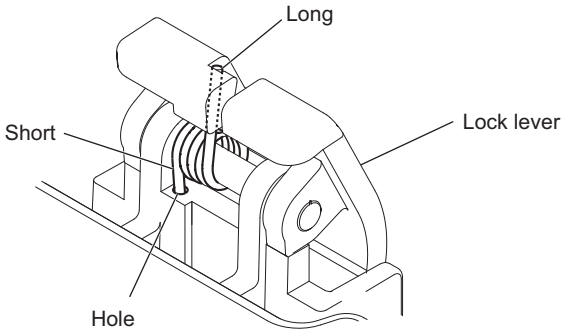
1. Detach the eye cup.
2. Remove the two screws to detach the switching hinge block.

3. Remove the spring pin, spring, and lock lever from the VF loupe.



Note

When installing the spring, pay attention to its orientation.



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

2-5-6. Elbow Assembly

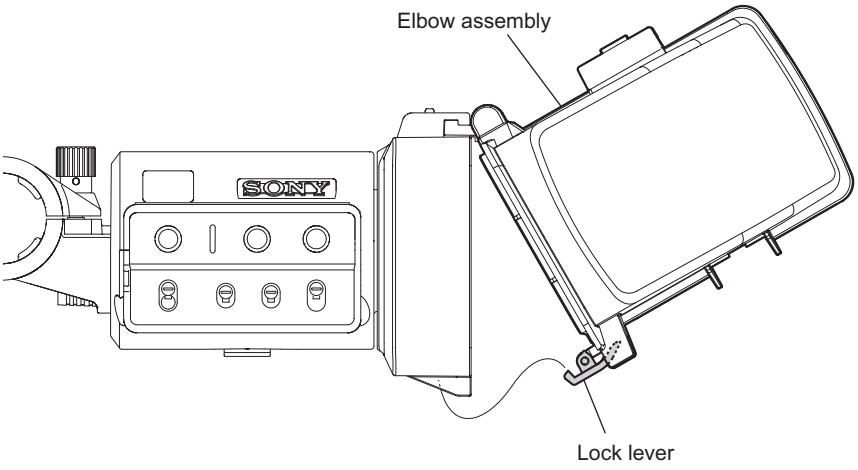
Preparation

1. Remove the VF assembly. (Refer to “2-5. VF Assembly”)
2. Remove the loupe assembly. (Refer to “2-5-4. Loupe Assembly”)

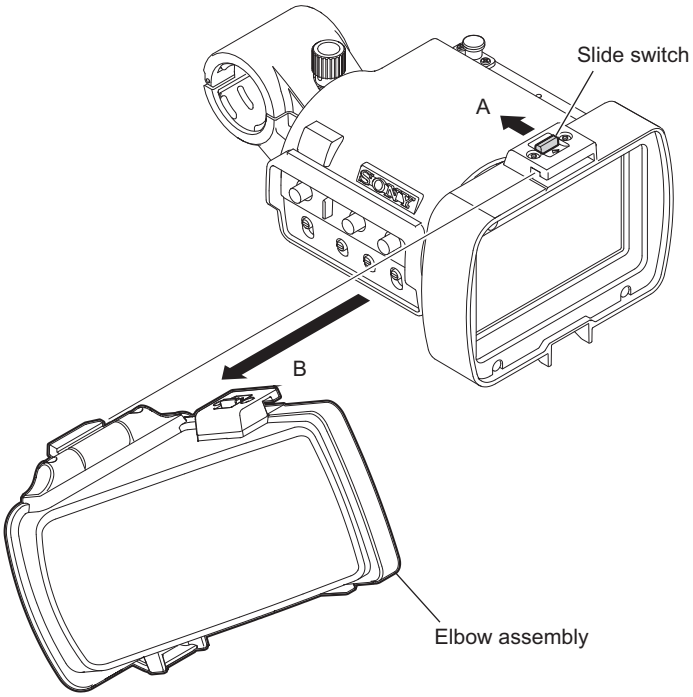
Procedure

1. Release the lock lever and open the elbow assembly.

Front view



2. Remove the elbow assembly in the arrow B direction while sliding the slide switch in the arrow A direction.



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

2-5-7. Elbow Sub Assembly/VF Mirror Assembly

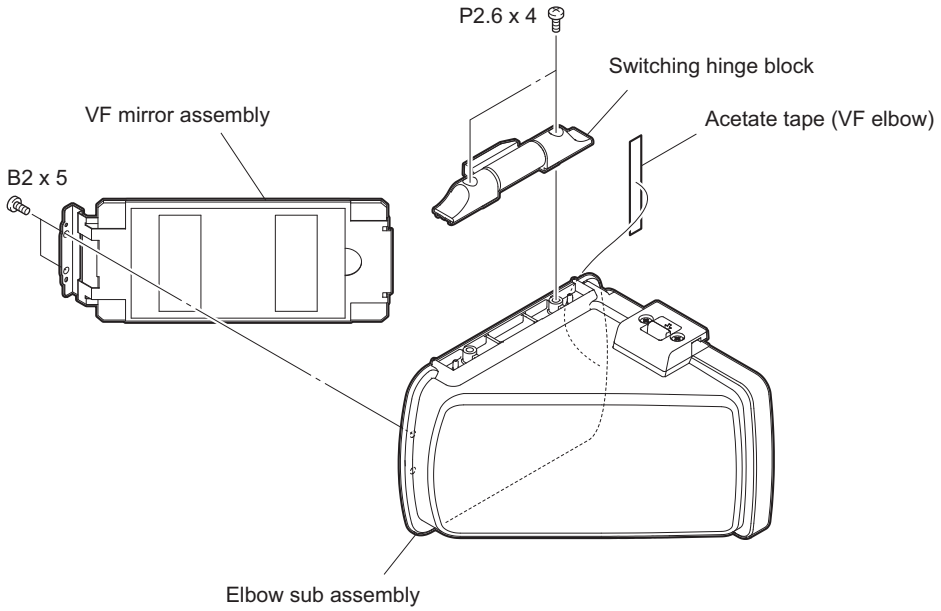
Preparation

1. Remove the VF assembly. (Refer to “2-5. VF Assembly”)
2. Remove the loupe assembly. (Refer to “2-5-4. Loupe Assembly”)
3. Remove the elbow assembly. (Refer to “2-5-6. Elbow Assembly”)

Procedure

1. Remove the two screws (P2.6 x 4) to detach the switching hinge block.
2. Remove the two screws (M2) to detach the VF mirror assembly from the elbow sub assembly.

3. Peel the acetate tape (VF elbow) from the elbow sub assembly.



Note

Do not touch the mirror surface. If it is contaminated, clean it with a wiping cloth.

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

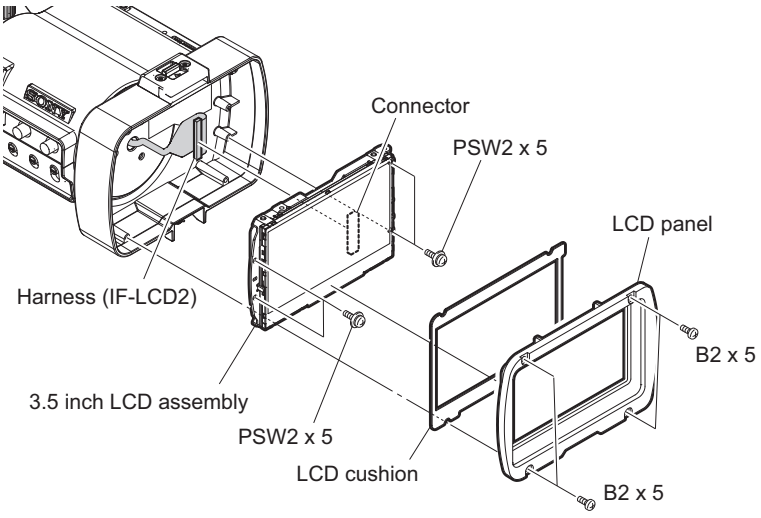
2-5-8. 3.5 Inch LCD Assembly

Preparation

1. Remove the VF assembly. (Refer to "2-5. VF Assembly")
2. Remove the loupe assembly. (Refer to "2-5-4. Loupe Assembly")
3. Remove the elbow assembly. (Refer to "2-5-6. Elbow Assembly")

Procedure

1. Remove the four screws (B2 x 5) to detach the LCD panel and the LCD cushion.
2. Remove the four screws (PSW2 x 5) to detach the 3.5 inch LCD assembly.
3. Disconnect the harness (IF-LCD2) from the connector on the 3.5 inch LCD assembly and detach the 3.5 inch LCD assembly.



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

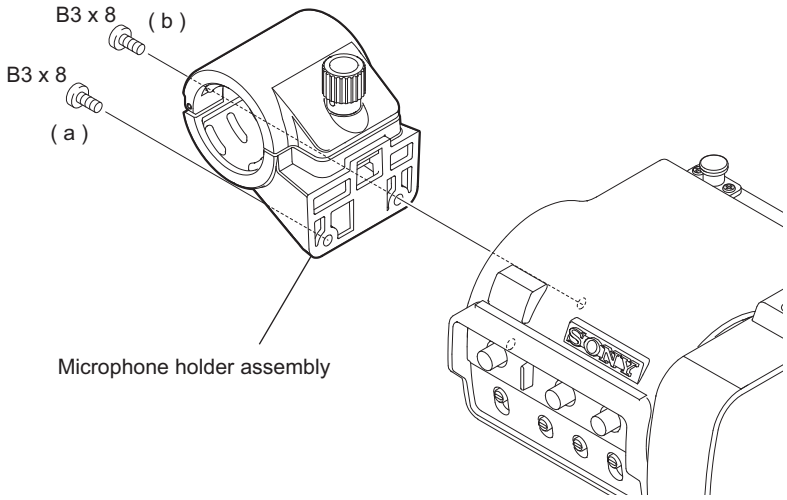
2-5-9. Microphone Holder Assembly

Preparation

1. Remove the VF assembly. (Refer to “2-5. VF Assembly”)

Procedure

1. Remove the two screws to detach the microphone holder assembly.



Note

When installing the microphone holder assembly, tighten the screws in alphabetical order.

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

2-5-10. LCD Case Assembly

Preparation

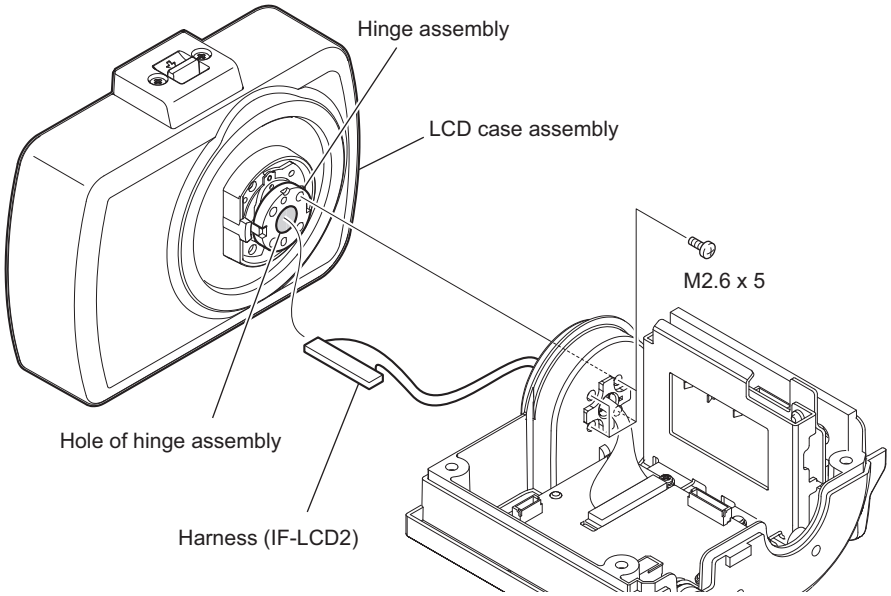
1. Remove the VF assembly. (Refer to “2-5. VF Assembly”)
2. Remove the upper case assembly. (Refer to “2-5-1. Upper Case Assembly”)
3. Remove the 3.5 inch LCD assembly. (Refer to “2-5-8. 3.5 Inch LCD Assembly”)
4. Remove the microphone holder assembly. (Refer to “2-5-9. Microphone Holder Assembly”)

Procedure

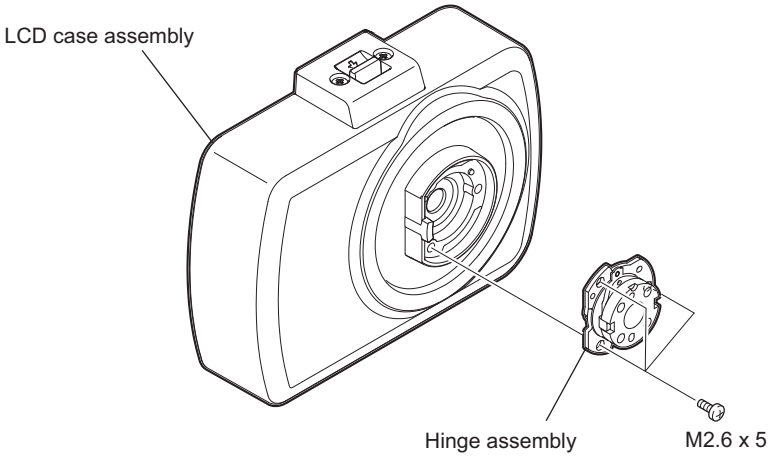
1. Remove the four screws to detach the LCD case assembly.

   Note

   Remove the harness (IF-LCD2) carefully through the hole in the hinge assembly so as not to damage it.



2. Remove the three screws and detach the hinge assembly from the LCD case assembly.



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

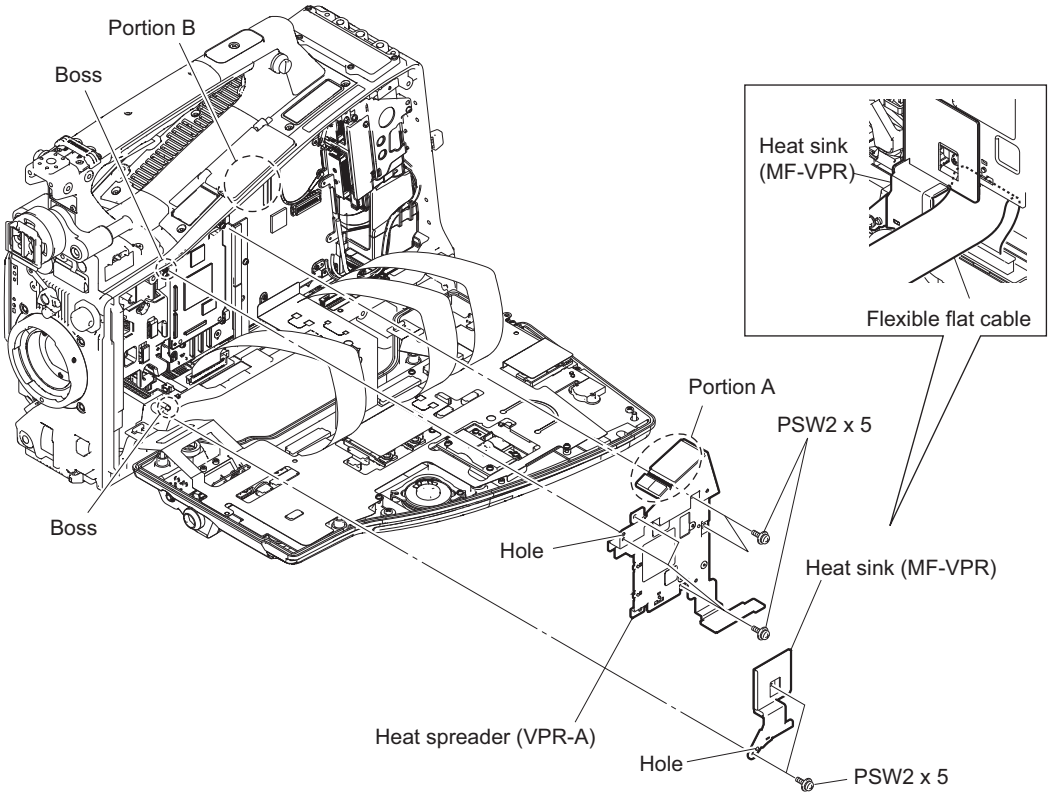
2-6. VPR-122 Board

Preparation

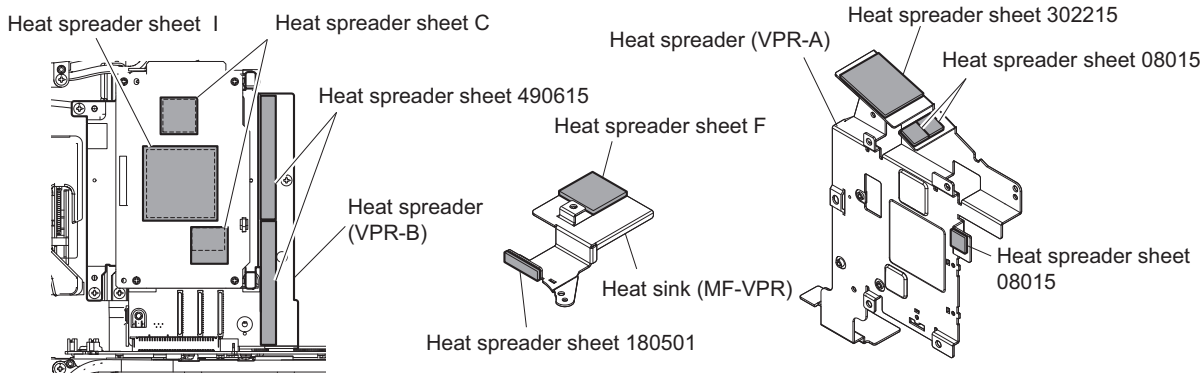
1. Open the inside panel assembly. (Refer to "2-3. Inside Panel Assembly")

Procedure

1. Remove the two screws to detach the heat sink (MF-VPR).
2. Remove the five screws to detach the heat spreader (VPR-A).



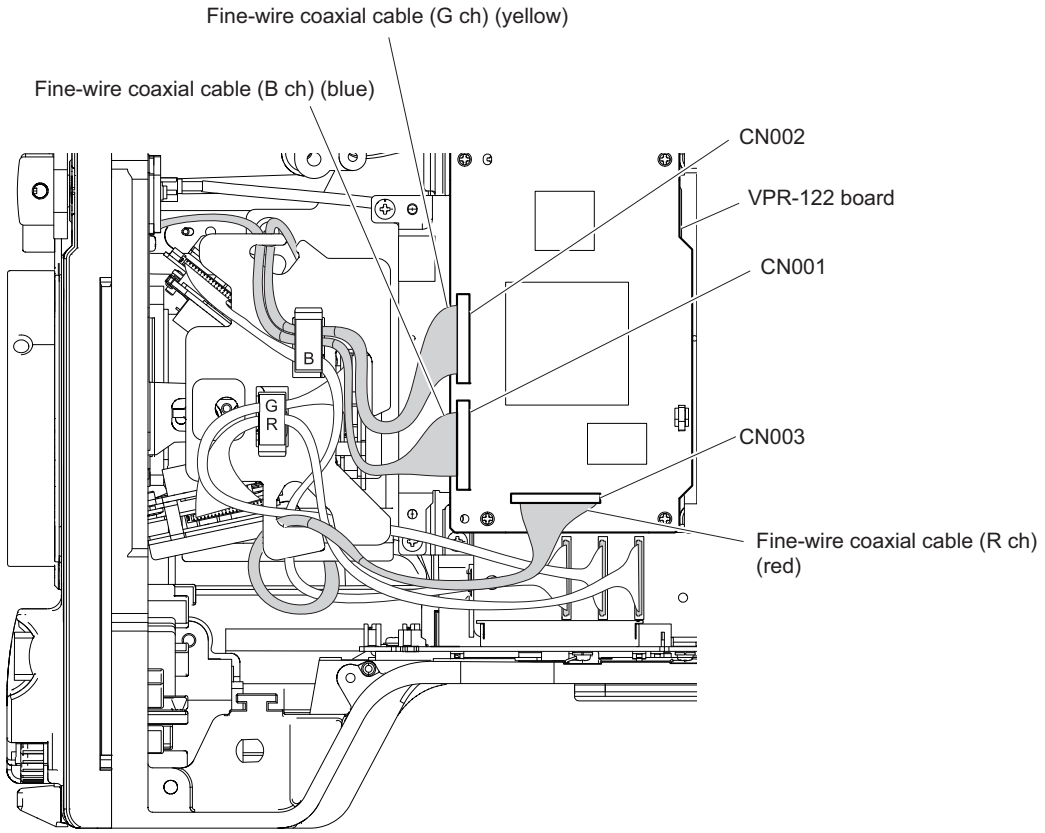
Position of heat spreader sheets



Note

- If the sheet is removed, stick it at the location shown in the figure.
- When attaching the heat spreader (VPR-A), match the bosses with the holes and press portion A against portion B for close contact. If a gap is generated between portion A and portion B, re-try to attach the heat spreader.
- When installing the heat sink (MF-VPR), fit the boss with the hole.

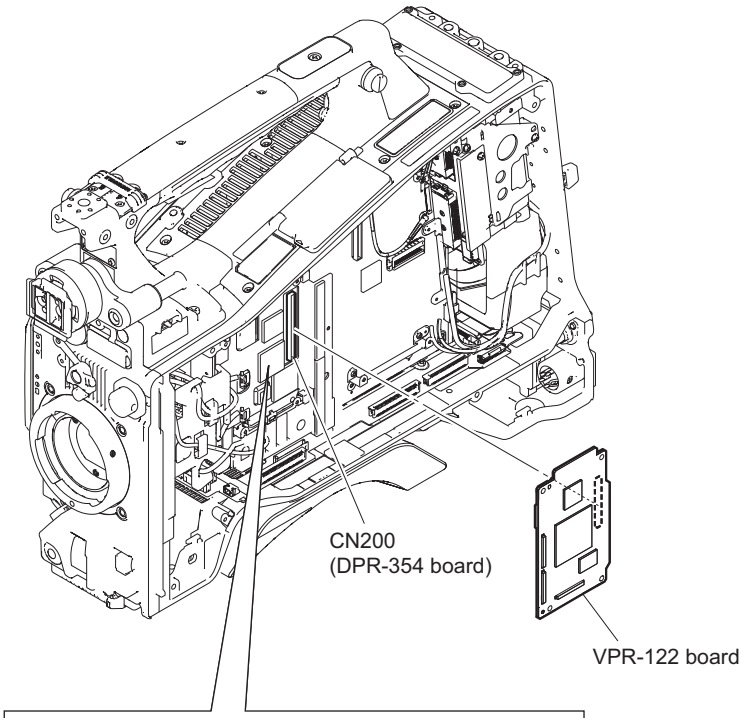
3. Disconnect the three fine-wire coaxial cables from the three connectors (CN001, CN002, CN003) on the VPR-122 board.



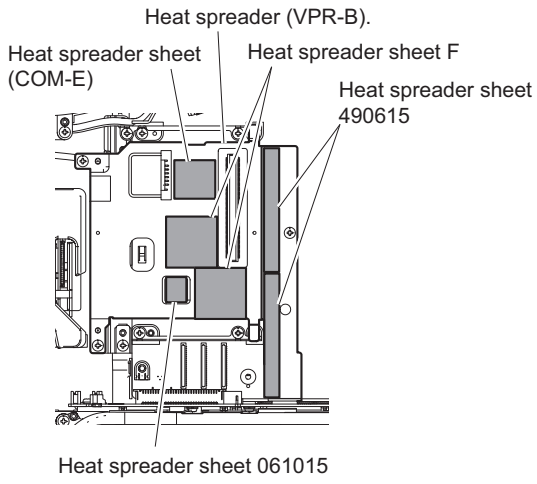
Note

When connecting fine-wire coaxial cables, pay attention to their colors.

4. Disconnect the VPR-122 board from the connector (CN200) on the DPR-354 board.



Position of heat spreader sheets



Note

If the sheet is removed, stick it at the location shown in the figure.

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

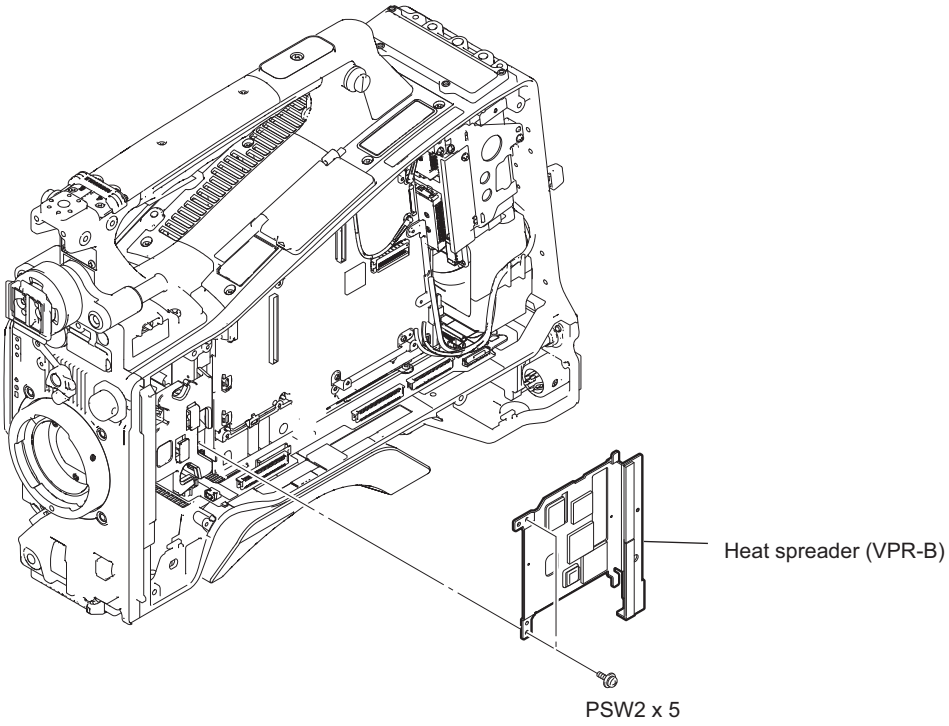
2-7. DPR-354 Board

Preparation

1. Open the inside panel assembly. (Refer to "2-3. Inside Panel Assembly")
2. Remove the VPR-122 assembly. (Refer to "2-6. VPR-122 Board")

Procedure

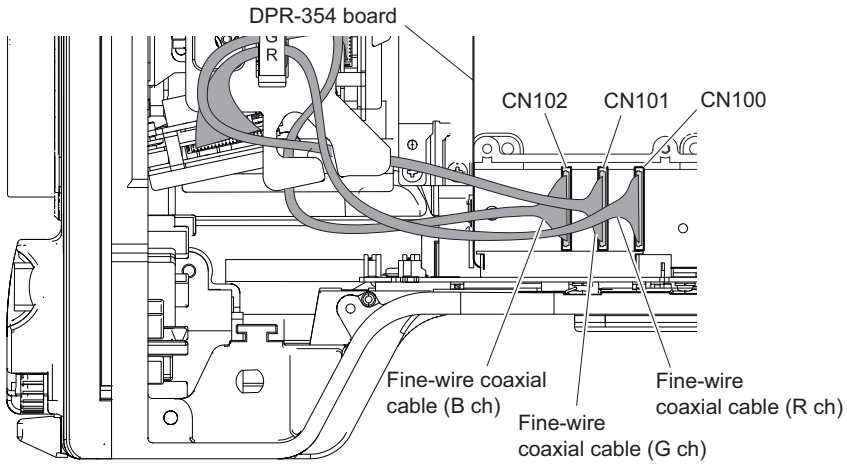
1. Remove the two screws to detach the heat spreader (VPR-B).



2. Disconnect the three fine-wire coaxial cables from the three connectors (CN100, CN101, and CN102) on the DPR-354 board.

Note

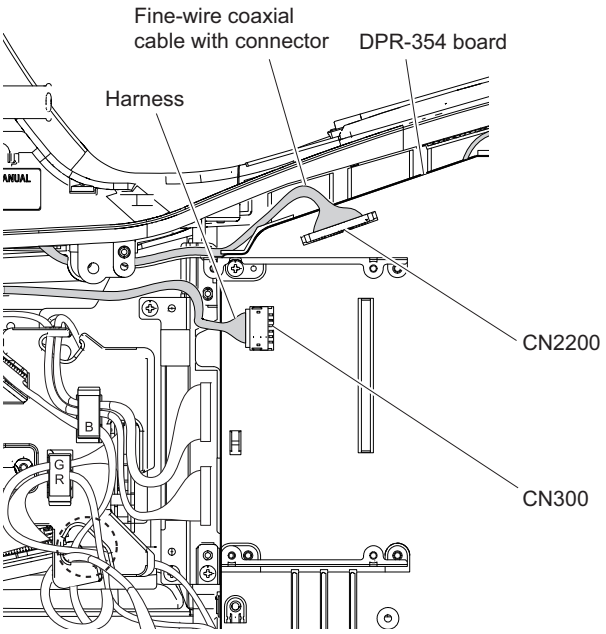
Attach identification tags to the fine-wire coaxial cables as needed.



Note

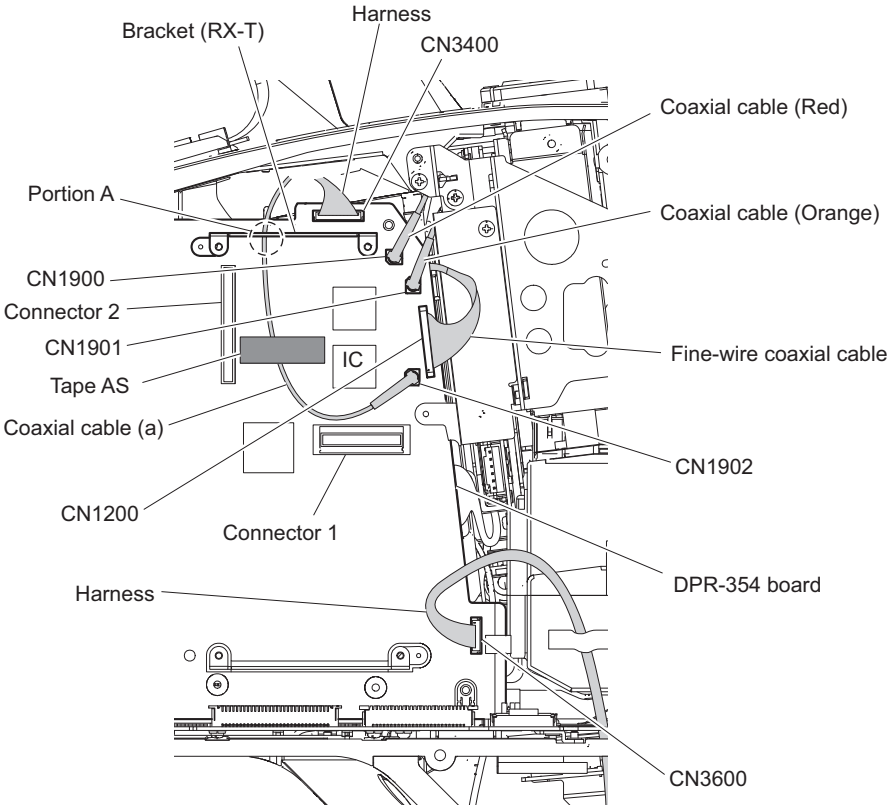
- When connecting the fine-wire coaxial cables, connect correct connectors.
- When tags are attached to fine-wire coaxial cables, detach them after the cables are connected.

3. Disconnect the fine-wire coaxial cable and the harness from the two connectors (CN2200, CN300) on the DPR-354 board.



4. Peel the tape AS.
5. Disconnect the three coaxial cables from the three connectors (CN1900, CN1901, and CN1902) on the DPR-354 board.
6. Disconnect the fine-wire coaxial cable from the connector (CN1200) on the DPR-354 board.

7. Disconnect the two harnesses from the two connectors (CN3400, CN3600) on the DPR-354 board.

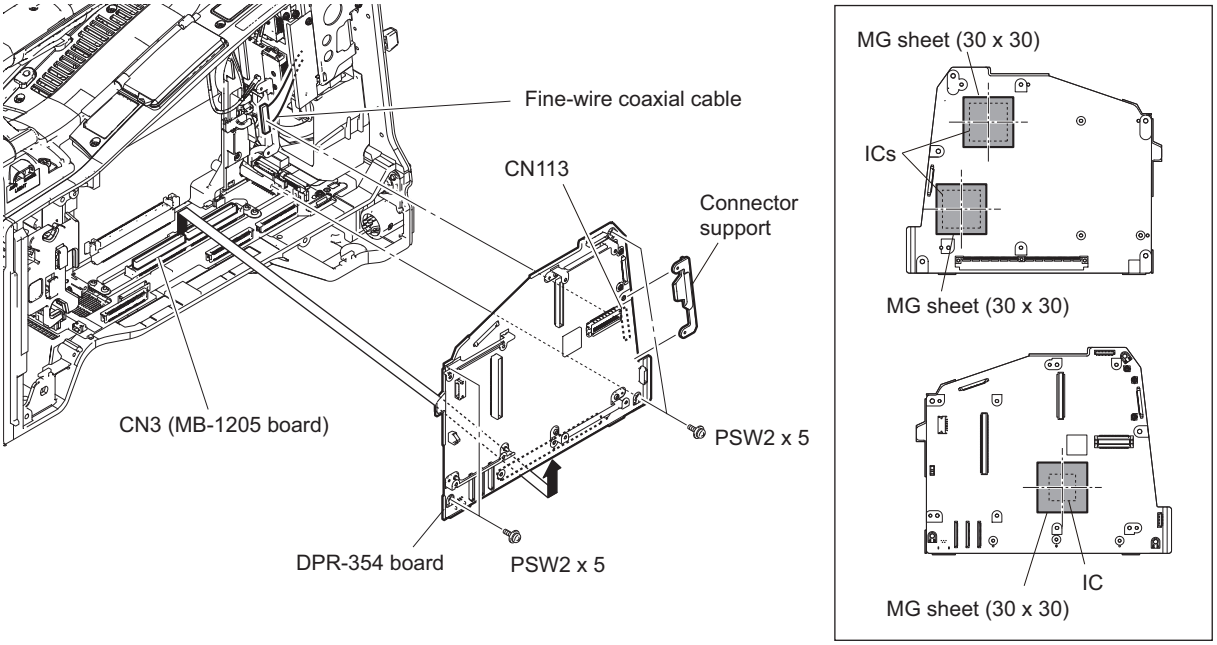


Note

- When connecting coaxial cables, pay attention to their colors.
- Arrange the coaxial cable (a) as shown in the figure.
- When tags are attached to fine-wire coaxial cables, detach them after the cables are connected.

8. Remove the four screws.
9. Disconnect the DPR-354 board from the connector (CN3) on the MB-1205 board and pull out it in the direction of the arrow.
10. Remove the connector support from the DPR-354 board.

11. Disconnect the fine-wire coaxial cable from the connector (CN113) on the DPR-354 board.



Note

If the MG sheet is removed, stick it at the location shown in the figure.

12. Install the removed parts by reversing the steps of removal.
13. After installation, update the firmware. (Refer to "1-5. Note for Replacement of IC or Board")

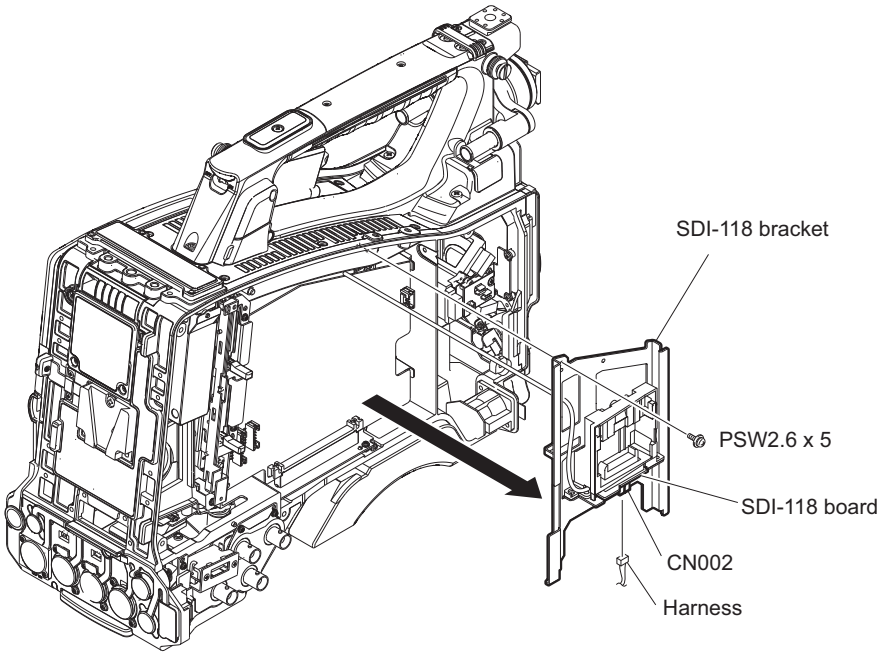
2-8. SDI-118 Board

Preparation

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

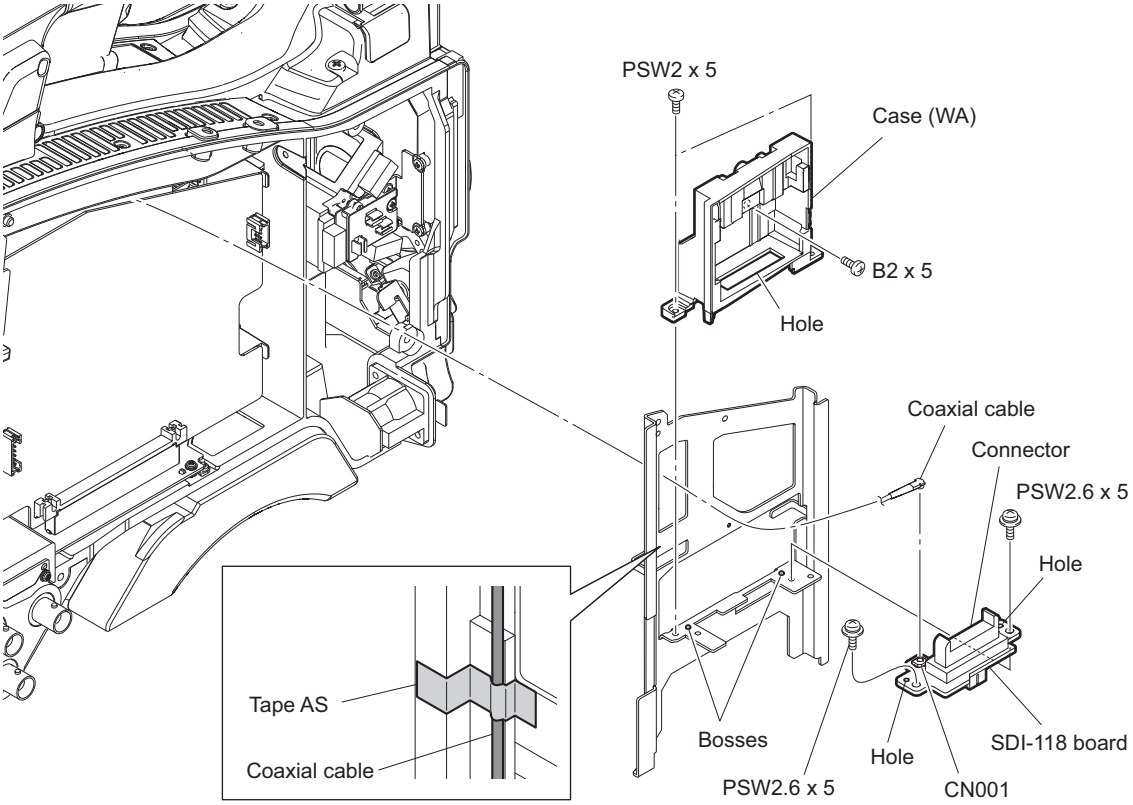
Procedure

1. Disconnect the harness from the connector (CN002) on the SDI-118 baord.
2. Remove the screw and pull out the SDI-118 bracket in the direction of the arrow.



3. Remove the two screws (PSW2 x 5) and the screw (B2 x 5) to detach the case (WA).
4. Peel the tape AS.
5. Disconnect the coaxial cable from the connector (CN001) on the SDI-118 board.

6. Remove the two screws (PSW2.6 x 5) to detach the SDI-118 board.



Note

- When installing the SDI-118 board, fit the two bosses with the two holes.
- When installing the case (WA), fit the connector on the SDI-118 board with hole of the case (WA).

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

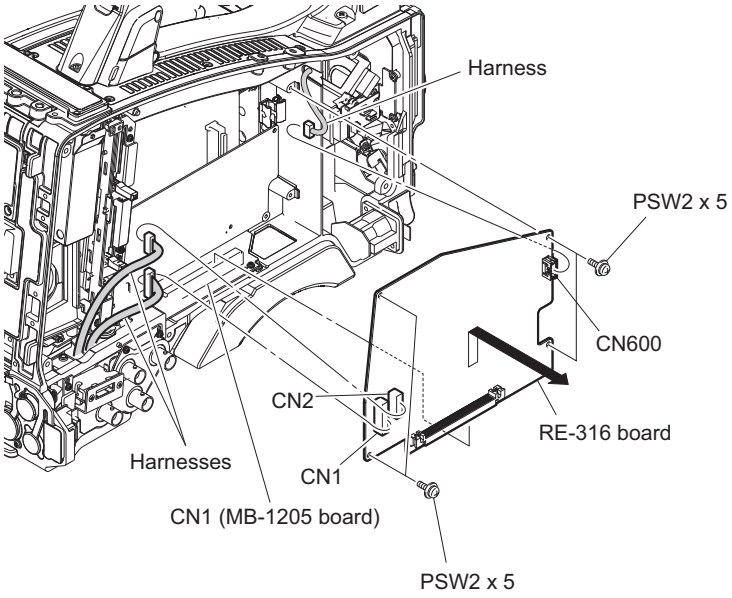
2-9. RE-316 Board

Preparation

1. Remove the outside panel assembly. (Refer to “2-2. Outside Panel Assembly”)
2. Remove the SDI-118 board. (Refer to “2-8. SDI-118 Board”)

Procedure

1. Disconnect the three harnesses from the three connectors (CN600, CN1, and CN2) on the RE-316 board.
2. Remove the four screws.
3. Remove the RE-316 board from the connector (CN1) on the MB-1205 board in the direction of the arrow.



4. Install the removed parts by reversing the steps of removal.
5. After installation, update the firmware. (Refer to “1-5. Note for Replacement of IC or Board”)

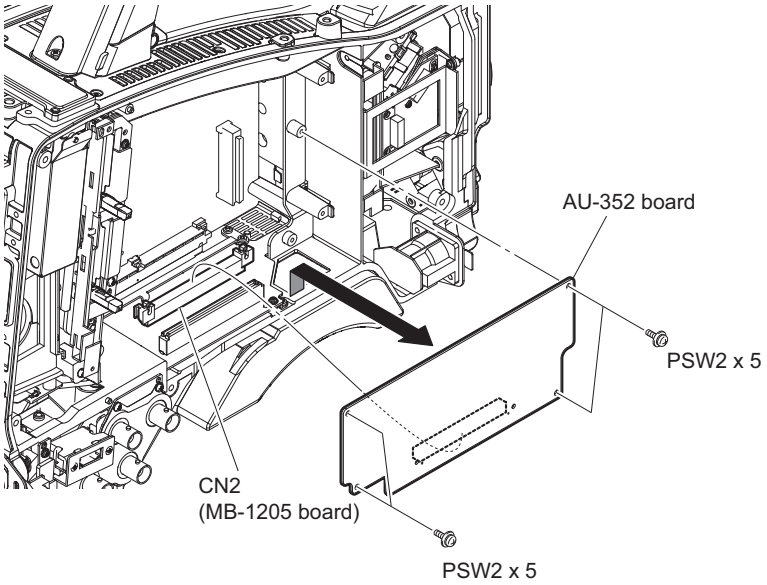
2-10. AU-352 Board

Preparation

1. Remove the outside panel assembly. (Refer to “2-2. Outside Panel Assembly”)
2. Remove the SDI-118 board. (Refer to “2-8. SDI-118 Board”)
3. Remove the RE-316 board. (Refer to “2-9. RE-316 Board”)

Procedure

1. Remove the four screws.
2. Remove the AU-352 board from the connector (CN2) on the MB-1205 board in the direction of the arrow.



3. Install the removed parts by reversing the steps of removal.
4. After installation, update the firmware. (Refer to “1-5. Note for Replacement of IC or Board”)

2-11. CN-3623 Board

Note

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

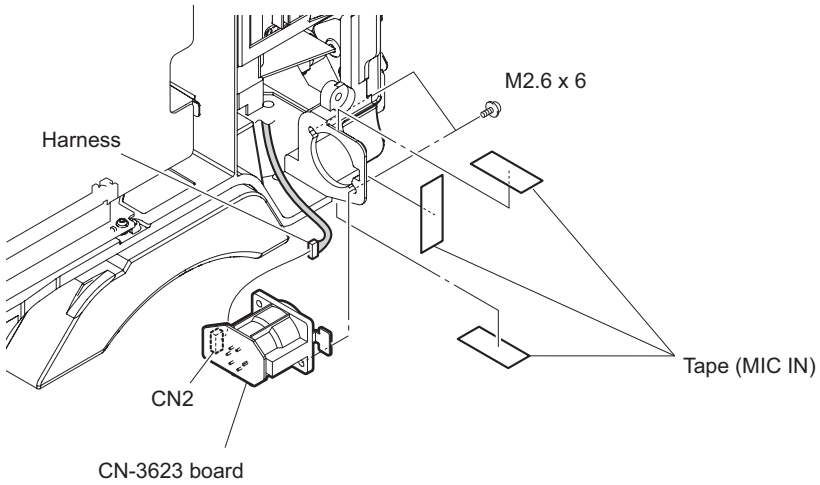
- Tape (MIC IN)

Preparation

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

Procedure

1. Peel the three tapes (MIC IN).
2. Remove the two screws and pull out the CN-3623 board.
3. Disconnect the harness from the connector (CN2) on the CN-3623 board to detach the CN-3623 board.



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

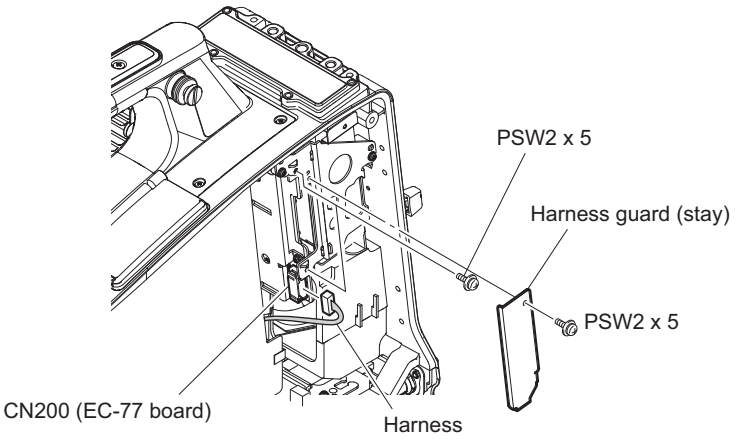
2-12. EC-77 Board

Preparation

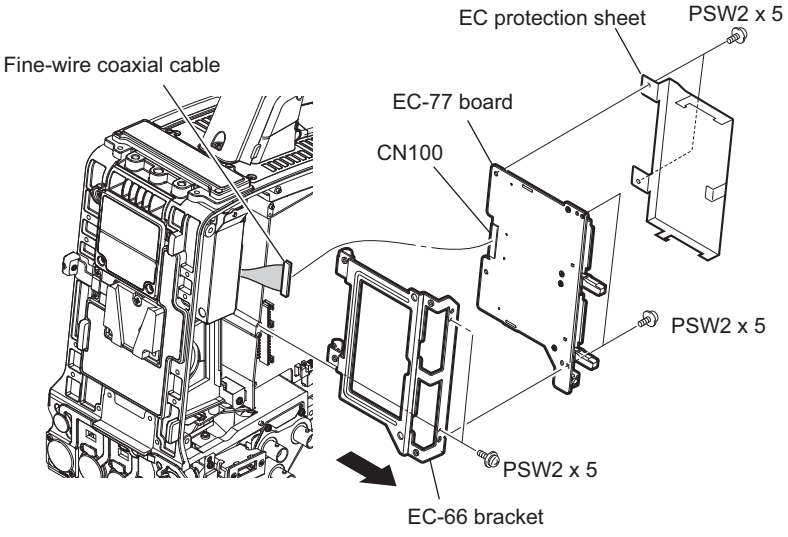
1. Remove the outside panel assembly. (Refer to "2-2. Outside Panel Assembly")
2. Open the inside panel assembly. (Refer to "2-3. Inside Panel Assembly")

Procedure

1. Remove the screw to detach the harness guard (stay).
2. Disconnect the harness from the connector (CN200) on the EC-77 board.
3. Remove the two screws.



4. Remove the two screws and pull out the EC-66 bracket in the direction of the arrow.
5. Disconnect the fine-wire coaxial cable from the connector (CN100) on the EC-77 board.
6. Remove the two screws to detach the EC protection sheet.
7. Remove the two screws to detach the EC-77 board.



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

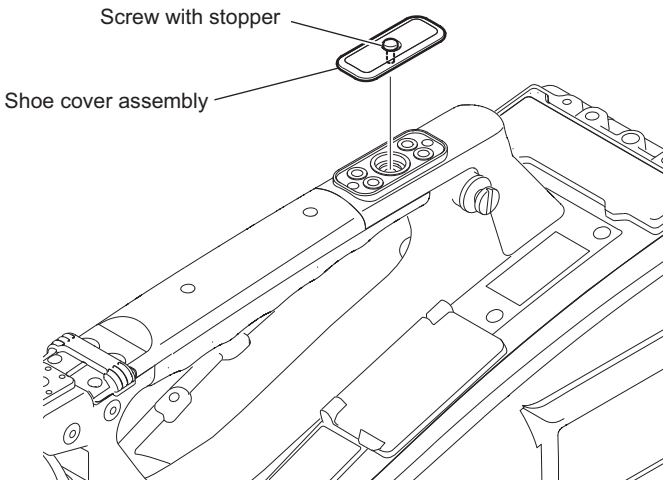
2-13. Handle Sub Assembly/SW-1476A Board

Preparation

1. Remove the outside panel assembly. (Refer to “2-2. Outside Panel Assembly”)
2. Remove the SDI-118 board. (Refer to “2-8. SDI-118 Board”)

Procedure

1. Loosen the screw with stopper to detach the shoe cover assembly.

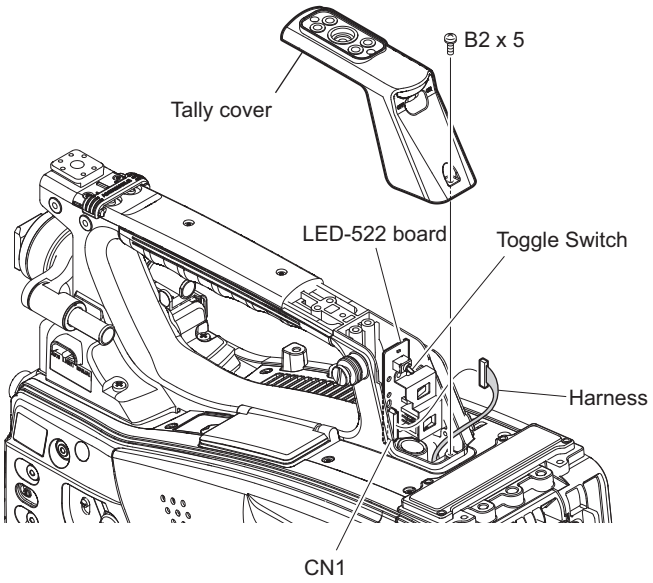


2. Remove the screw to detach the tally cover.

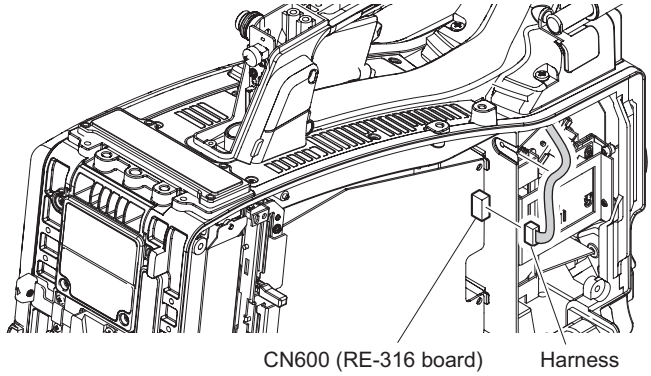
Note

Detach the tally cover avoiding the toggle switch on the LED-522 board.

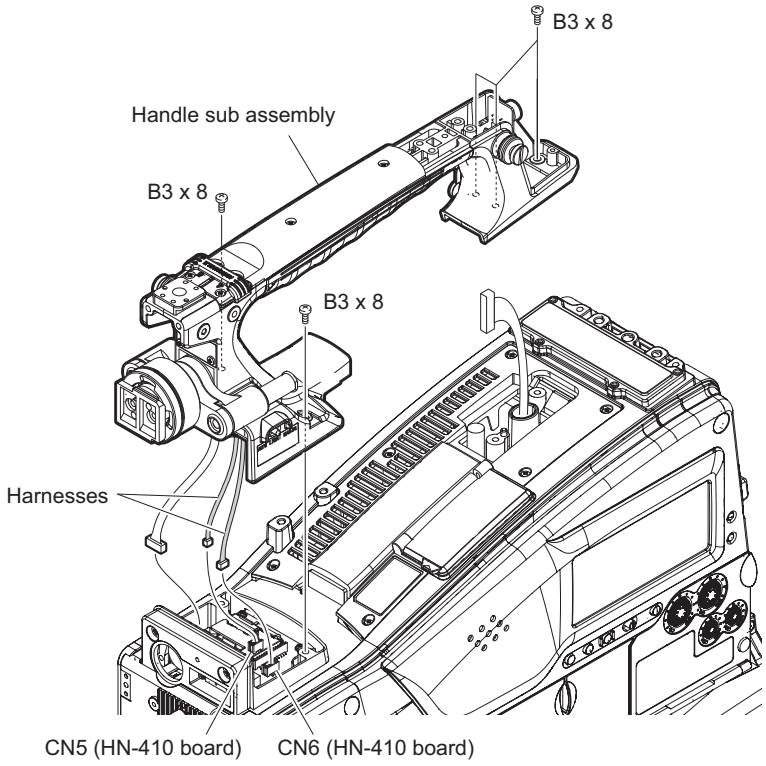
3. Disconnect the harness from the connector (CN1) on the LED-522 board.



4. Disconnect the harness from the connector (CN600) on the RE-316 board.

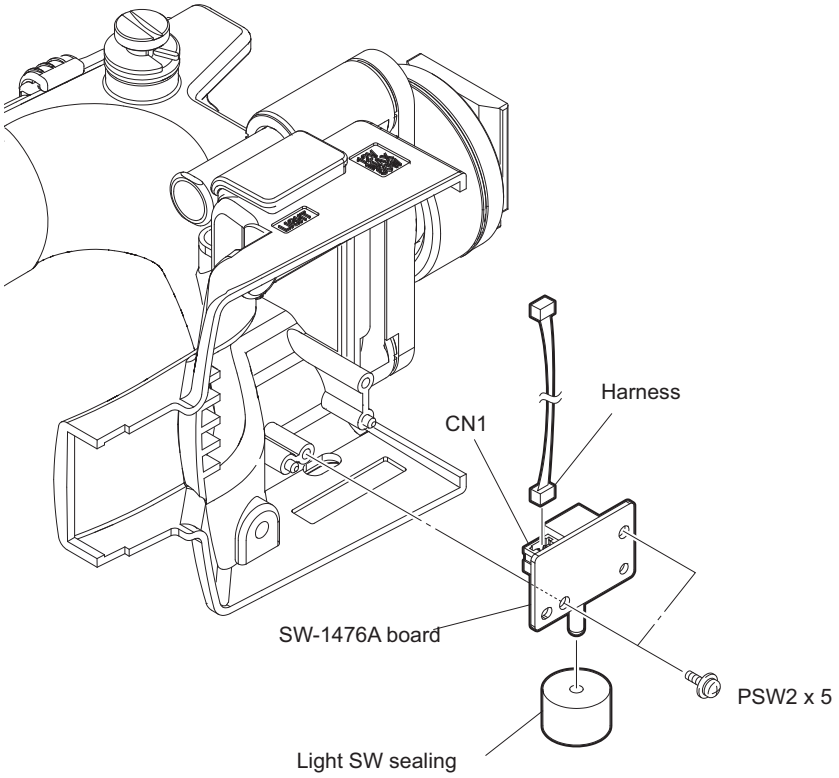


5. Remove the five screws and lift up the handle sub assembly.
6. Disconnect the two harnesses from the two connectors (CN5, CN6) on the HN-410 board, and detach the handle sub assembly.



7. Remove the two screws and lift up the SW-1476A board.

8. Disconnect the harness from the connector (CN1) on the SW-1476A board, and detach the SW-1476A board and the light SW sealing.



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

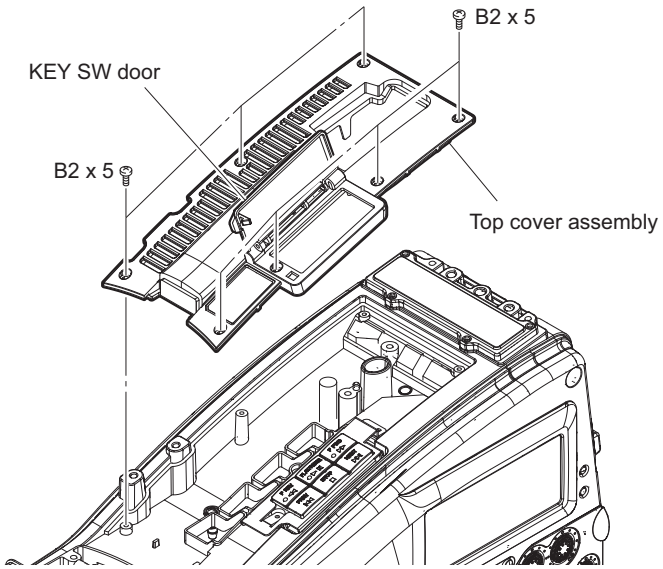
2-14. Top Cover Assembly/KY-658A Board

Preparation

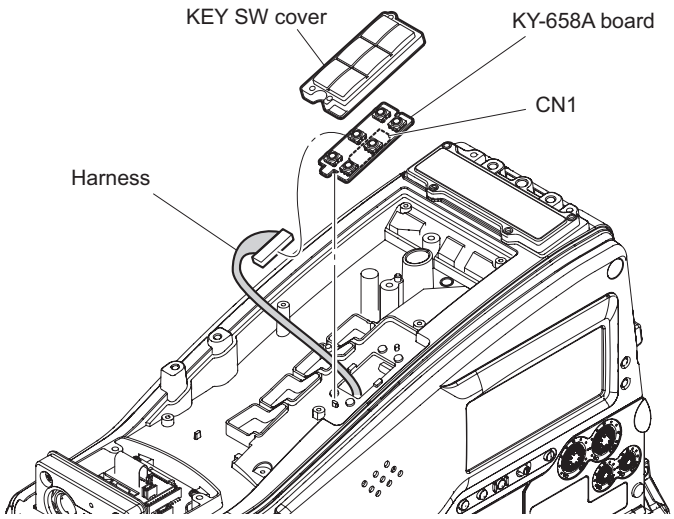
1. Remove the outside panel assembly. (Refer to "2-2. Outside Panel Assembly")
2. Remove the SDI-118 board. (Refer to "2-8. SDI-118 Board")
3. Remove the handle sub assembly. (Refer to "2-13. Handle Sub Assembly/SW-1476A Board")

Procedure

1. Open the KEY SW door.
2. Remove the seven screws to detach the top cover assembly.



3. Remove the KEY SW cover.
4. Lift up the KY-658A board.
5. Disconnect the harness from the connector (CN1) on the KY-658A board, and detach the KY-658A board.



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

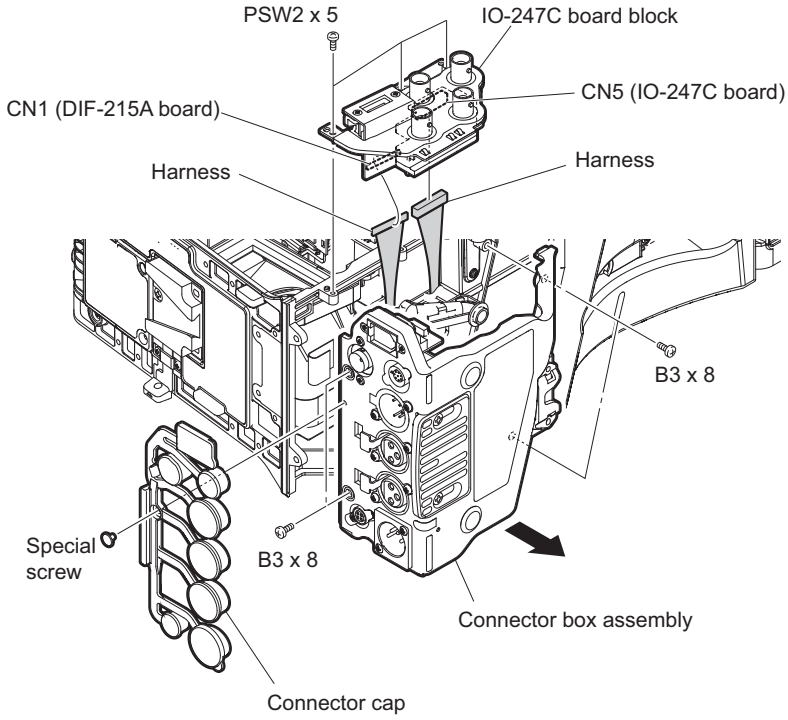
2-15. IO-247C Board/DIF-215A Board

Preparation

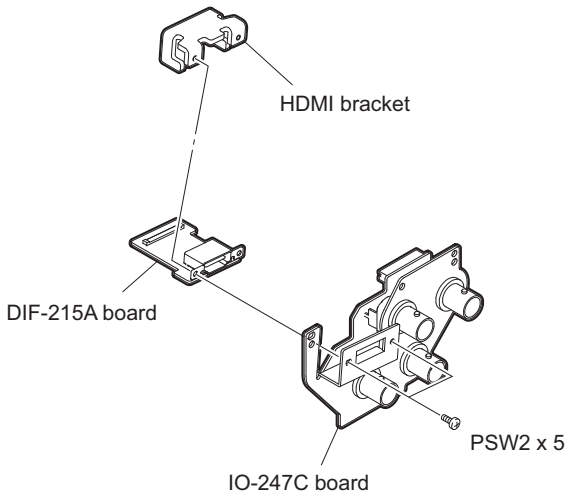
1. Remove the outside panel assembly. (Refer to "2-2. Outside Panel Assembly")
2. Remove the inside panel assembly. (Refer to "2-3. Inside Panel Assembly")

Procedure

1. Remove the special screw to detach the connector cap.
2. Remove the four screws (B3 x 8) and lift up the connector box assembly in the direction of the arrow.
3. Remove the three screw (PSW2 x 5) and pull out the IO-247C board block.
4. Disconnect the harness from the connector (CN5) on the IO-247C board.
5. Disconnect the harness from the connector (CN1) on the DIF-215A board and detach the IO-247C board block.



6. Remove the two screws to detach the HDMI bracket and DIF-215A board from the IO-247C board.



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

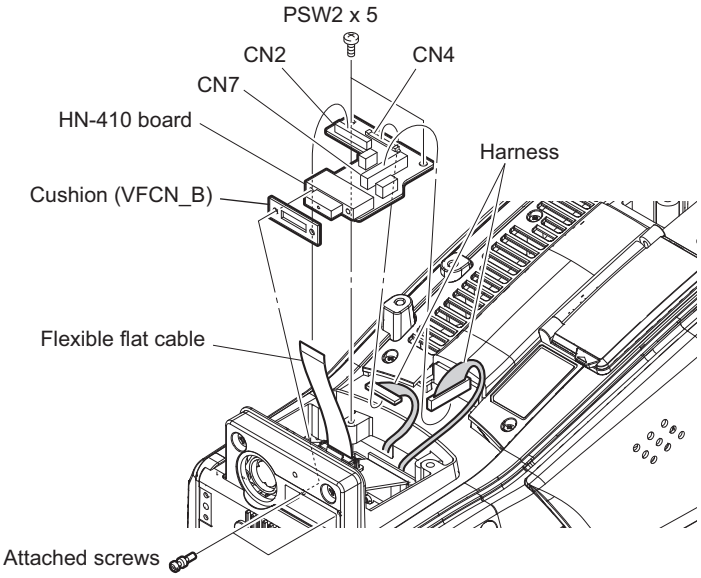
2-16. HN-410 Board

Preparation

1. Remove the outside panel assembly. (Refer to "2-2. Outside Panel Assembly")
2. Remove the SDI-118 board. (Refer to "2-8. SDI-118 Board")
3. Remove the handle sub assembly. (Refer to "2-13. Handle Sub Assembly/SW-1476A Board")

Procedure

1. Disconnect the flexible flat cable (30 core) and two harnesses from the three connectors (CN2, CN4, and CN7) on the HN-410 board.
2. Remove the two screws and two attached screws to detach the HN-410 board and cushion (VFCN_B).



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

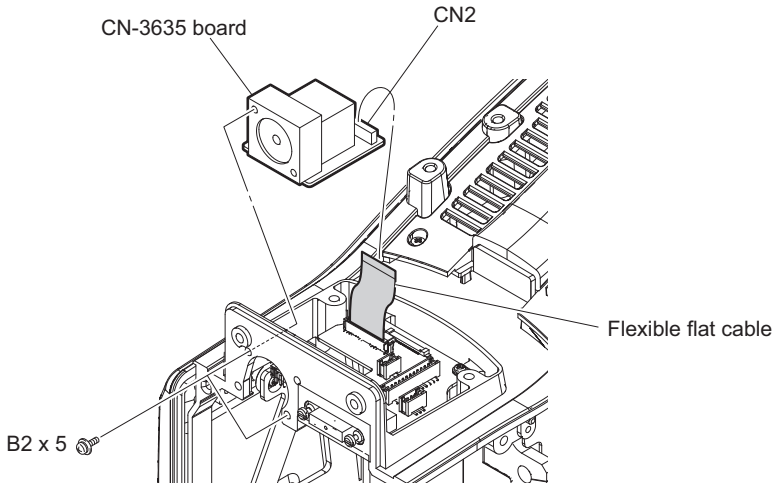
2-17. CN-3635 Board

Preparation

1. Remove the outside panel assembly. (Refer to “2-2. Outside Panel Assembly”)
2. Open the inside panel assembly. (Refer to “2-3. Inside Panel Assembly”)
3. Remove the front assembly. (Refer to “2-4. Front Assembly”)
4. Remove the SDI-118 board. (Refer to “2-8. SDI-118 Board”)
5. Remove the handle sub assembly. (Refer to “2-13. Handle Sub Assembly/SW-1476A Board”)

Procedure

1. Disconnect the flexible flat cable (30 core) from the connector (CN2) on the CN-3635 board.
2. Remove the two screws to detach the CN-3635 board.



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

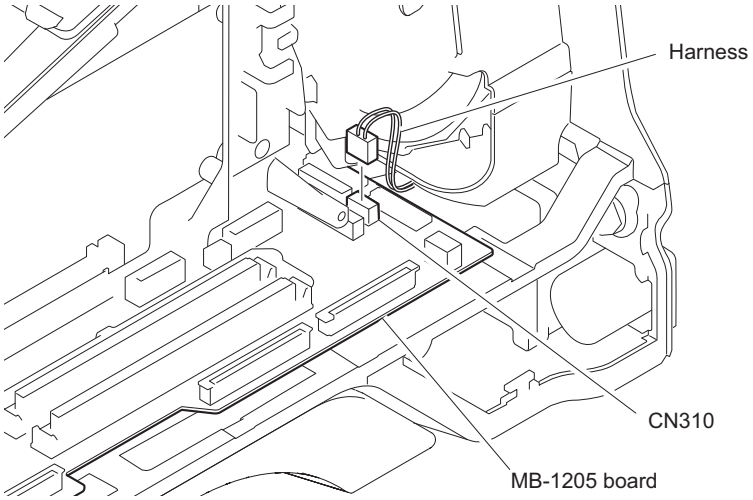
2-18. DC Fan

Preparation

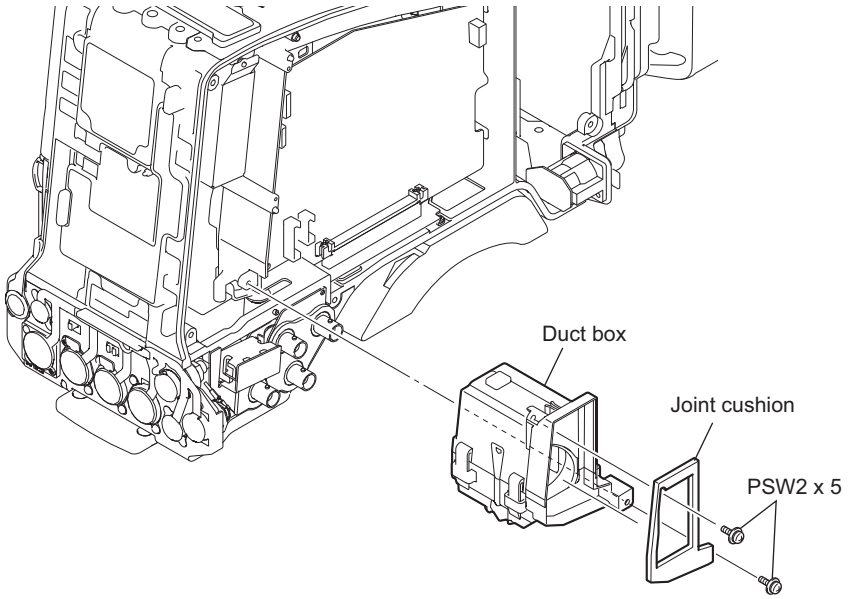
1. Remove the outside panel assembly. (Refer to "2-2. Outside Panel Assembly")
2. Open the inside panel assembly. (Refer to "2-3. Inside Panel Assembly")
3. Remove the DPR-354 board. (Refer to "2-7. DPR-354 Board")
4. Remove the EC-77 board. (Refer to "2-12. EC-77 Board")

Procedure

1. Disconnect the harness from the connector (CN310) on the MB-1205 board.

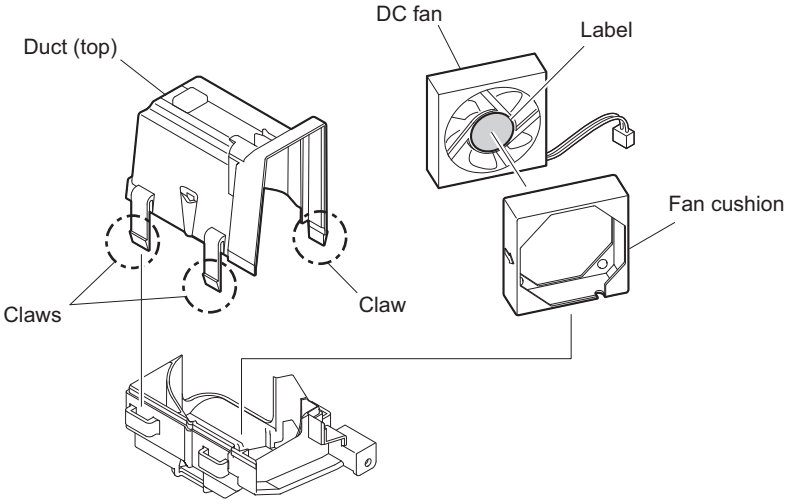


2. Remove the two screws to detach the duct box.
3. Detach the joint cushion.



4. Release the three claws to detach the duct (top).

5. Remove the DC fan from the fan cushion.



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

Note

When installing the DC fan, Pay attention to the orientation of the DC fan.

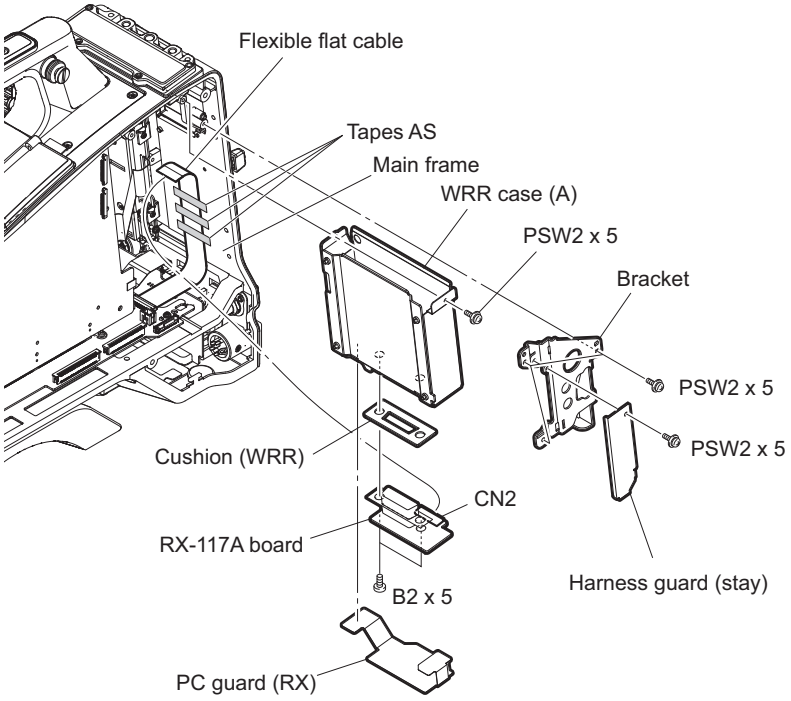
2-19. RX-117A Board

Preparation

1. Remove the outside panel assembly. (Refer to "2-2. Outside Panel Assembly")
2. Remove the inside panel assembly. (Refer to "2-3. Inside Panel Assembly")
3. Remove the DPR-354 board. (Refer to "2-7. DPR-354 Board")
4. Remove the EC-77 board. (Refer to "2-12. EC-77 Board")
5. Remove the duct box. (Refer to "2-18. DC Fan"\)

Procedure

1. Remove the five screws (PSW2 x 5) to detach the bracket and harness guard (stay).
2. Remove the screw (PSW2 x 5) pull out the WRR case (A).
3. Detach the PC guard (RX) from the WRR case (A).
4. Disconnect the flexible flat cable from the connector (CN2) on the RX-117A board.
5. Remove the two screws (B2 x 5) to detach the cushion (WRR) and the RX-117A board.



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

Note

When flexible flat cable does not adhere with main frame, please put tape AS again.

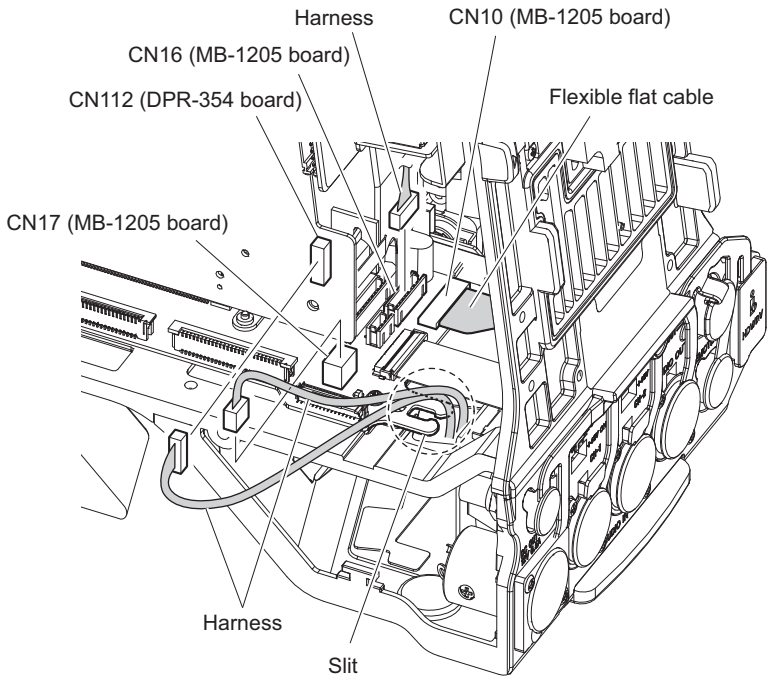
2-20. RM-240 Board

Preparation

1. Remove the outside panel assembly. (Refer to "2-2. Outside Panel Assembly")
2. Remove the inside panel assembly. (Refer to "2-3. Inside Panel Assembly")
3. Remove the DPR-354 board. (Refer to "2-7. DPR-354 Board")
4. Remove the EC-77 board. (Refer to "2-12. EC-77 Board")
5. Remove the duct box. (Refer to "2-18. DC Fan")

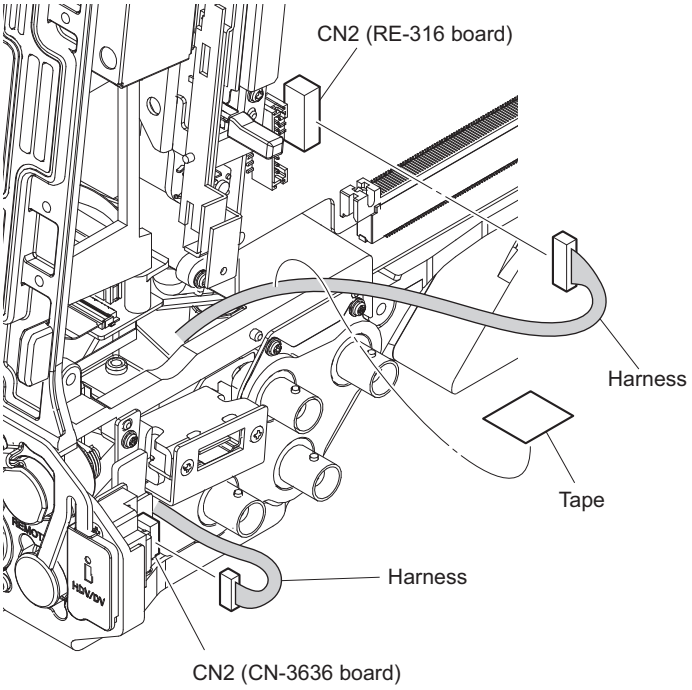
Procedure

1. Disconnect the harness from the connector (CN112) on the DPR-354 board, and release the harness from the slit.
2. Disconnect the harness from the connector (CN16) on the MB-1205 board.
3. Disconnect the harness from the connector (CN17) on the MB-1205 board, and release the harness from the slit.
4. Disconnect the flexible flat cable from the connector (CN10) on the MB-1205 board.



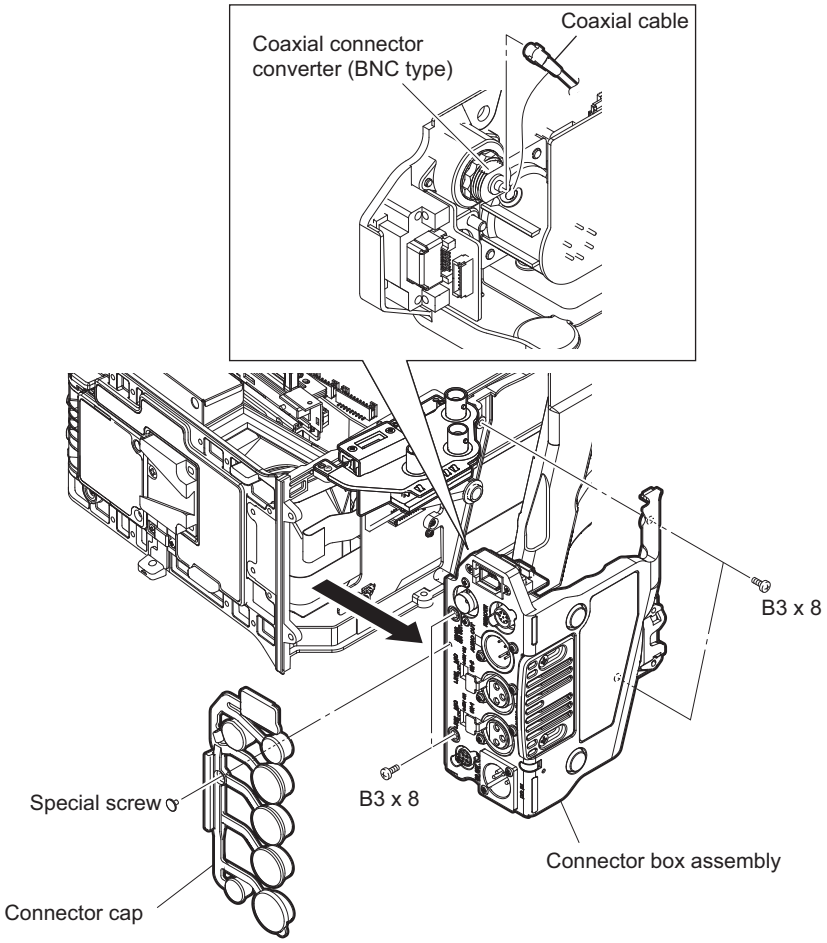
5. Disconnect the harness from the connector (CN2) on the RE-316 board.

6. Disconnect the harness from the connector (CN2) on the CN-3636 board.

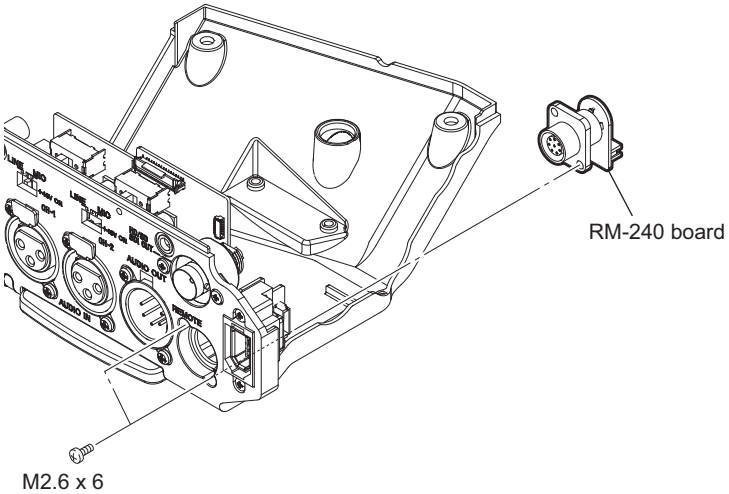


7. Remove the special screw to detach the connector cap.
8. Remove the four screws (B3 x 8), and lift up the connector box assembly in the direction of the arrow.

9. Disconnect the coaxial cable from the coaxial connector converter (BNC type), and detach the connector box assembly.



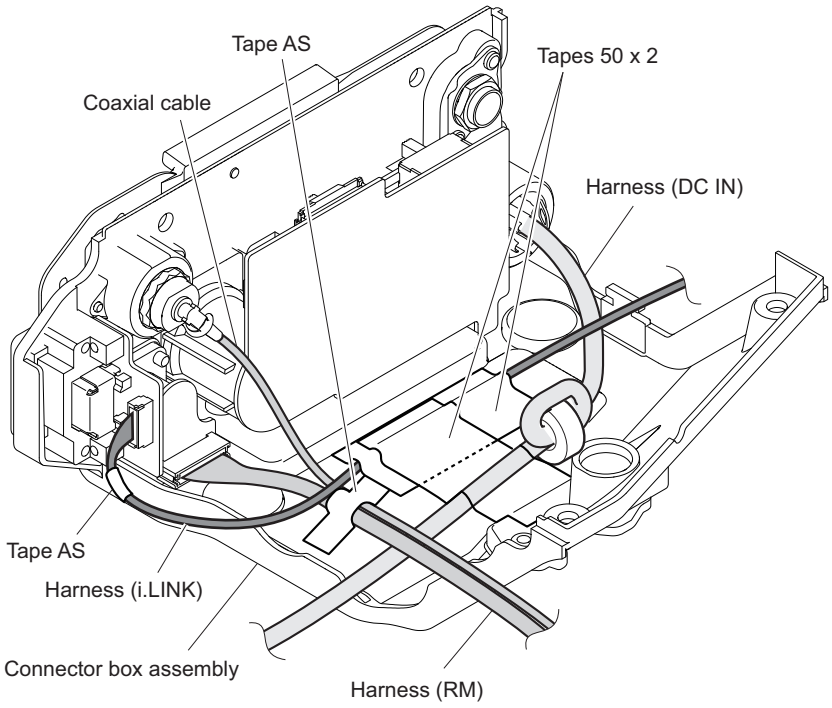
10. Remove the two screws to detach the RM-240 board.



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

Note

When installing, arrange the harnesses on the connector box assembly as shown in the figure.



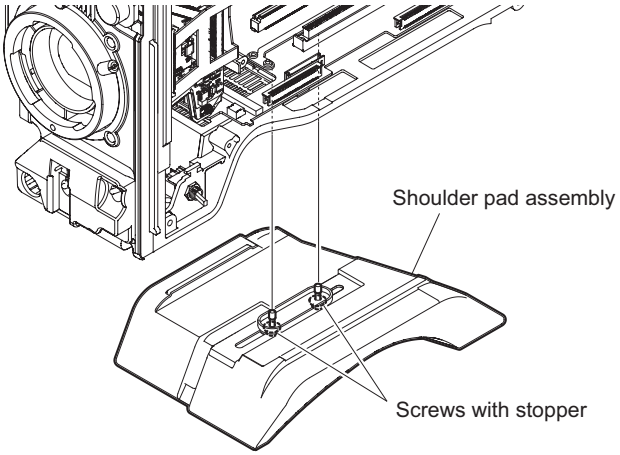
2-21. MB-1205 Board

Preparation

1. Remove the outside panel assembly. (Refer to "2-2. Outside Panel Assembly")
2. Open the inside panel assembly. (Refer to "2-3. Inside Panel Assembly")
3. Remove the DPR-354 board. (Refer to "2-7. DPR-354 Board")
4. Remove the SDI-118 board. (Refer to "2-8. SDI-118 Board")
5. Remove the RE-316 board. (Refer to "2-9. RE-316 Board")
6. Remove the AU-352 board. (Refer to "2-10. AU-352 Board")
7. Remove the connector box assembly. (Refer to "2-20. RM-240 Board")

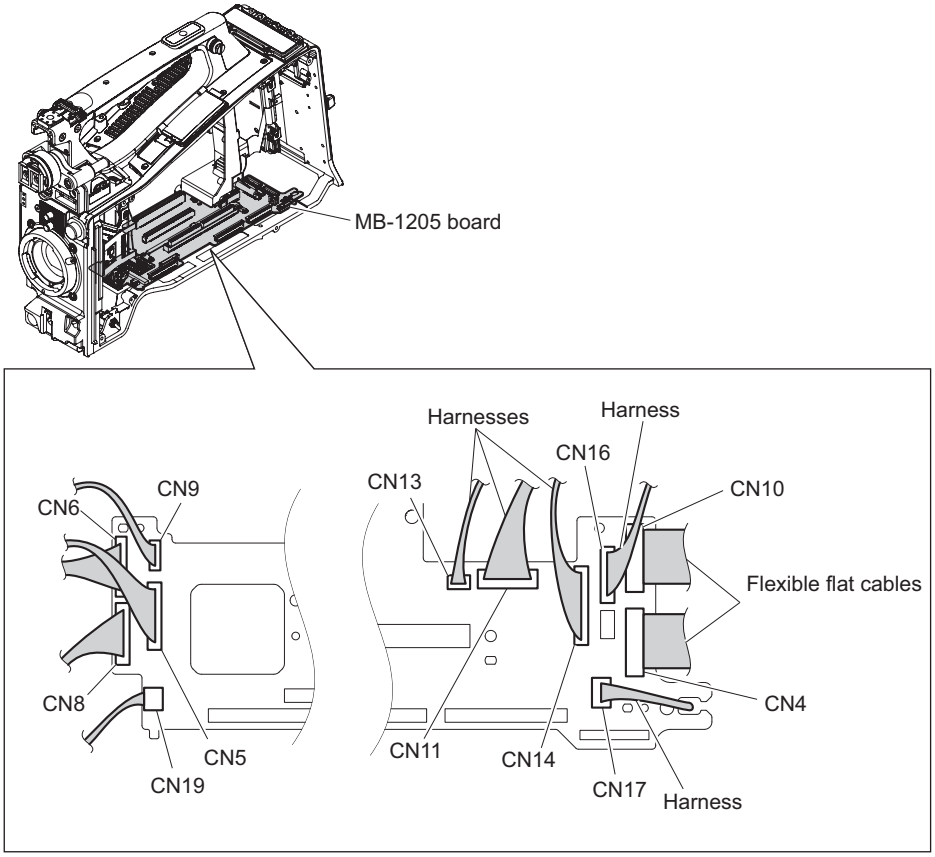
Procedure

1. Loosen the two screws with stopper to detach the shoulder pad assembly.

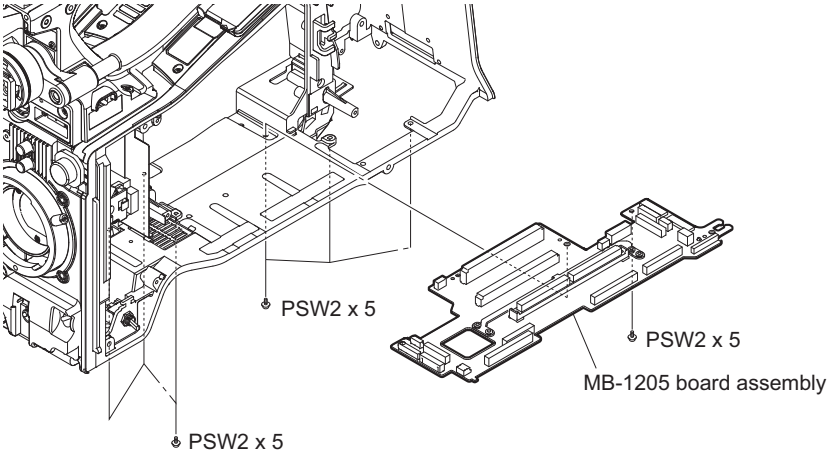


2. Disconnect the five harnesses from the five connectors (CN5, CN9, CN19, CN8, and CN6) on the MB-1205 board.
3. Disconnect the five harnesses from the five connectors (CN17, CN16, CN14, CN11, and CN13) on the MB-1205 board.

4. Disconnect the two flexible flat cables from two connectors (CN10, CN4) on the MB-1205 board.

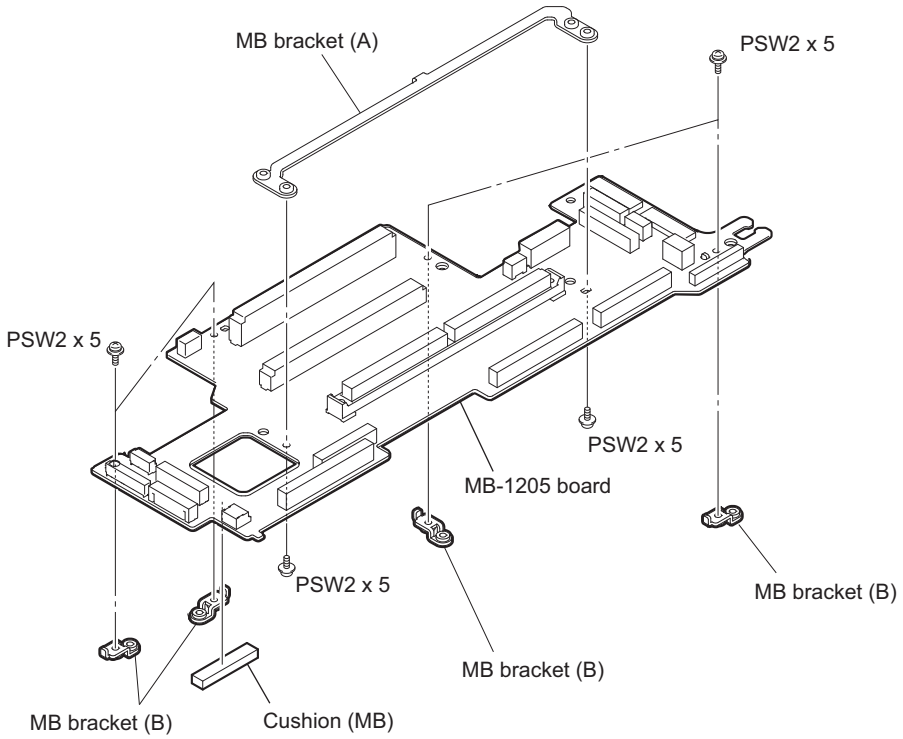


5. Remove the seven screws to detach the MB-1205 board assembly.



6. Remove the two screws to detach the MB bracket (A).
7. Remove the four screws to detach the four MB brackets (B) from the MB-1205 board.

8. Detach the cushion (MB) from the MB-1205 board.



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

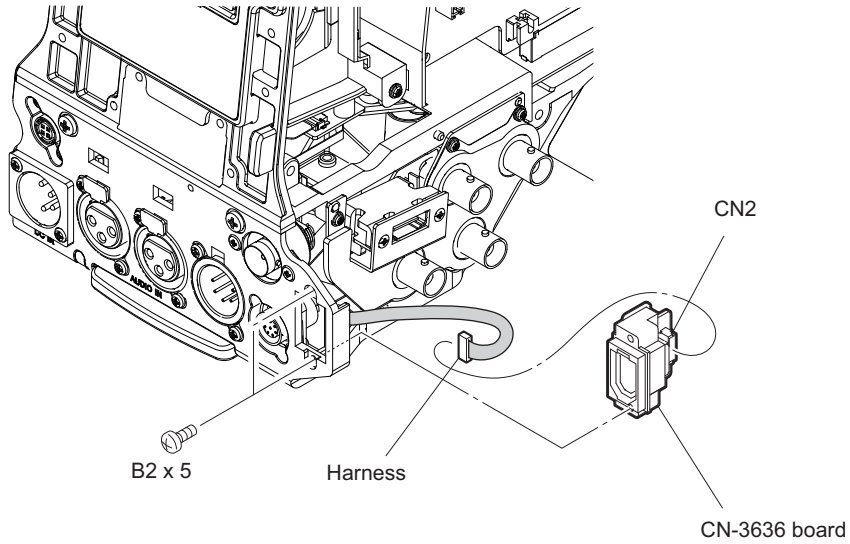
2-22. CN-3636 Board

Preparation

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

Procedure

1. Disconnect the harness from the connector (CN2) on the CN-3636 board.
2. Remove the two screws to detach the CN3636 board.



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

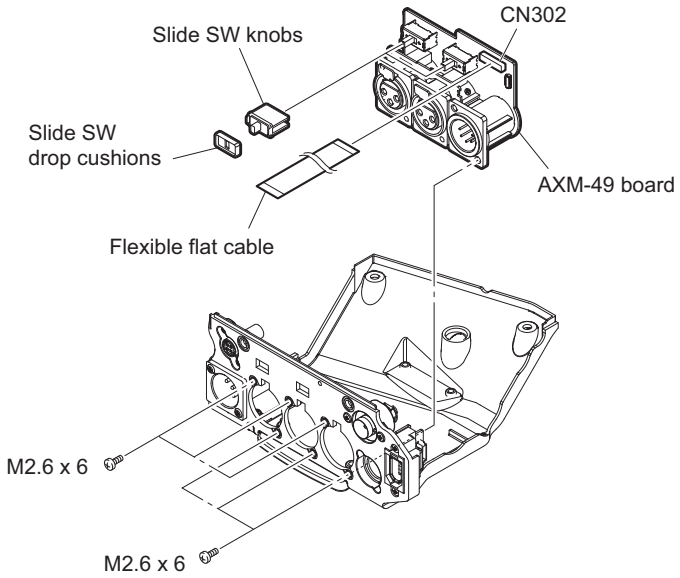
2-23. AXM-49 Board

Preparation

1. Remove the outside panel assembly. (Refer to “2-2. Outside Panel Assembly”)
2. Remove the inside panel assembly. (Refer to “2-3. Inside Panel Assembly”)
3. Remove the connector box assembly. (Refer to “2-20. RM-240 Board”)

Procedure

1. Remove the six screws to detach the AXM-49 board.
2. Disconnect the flexible flat cable from the connector (CN302) on the AXM-49 board.
3. Detach the two slide SW drop cushions and the two slide SW knobs from the AXM-49 board.

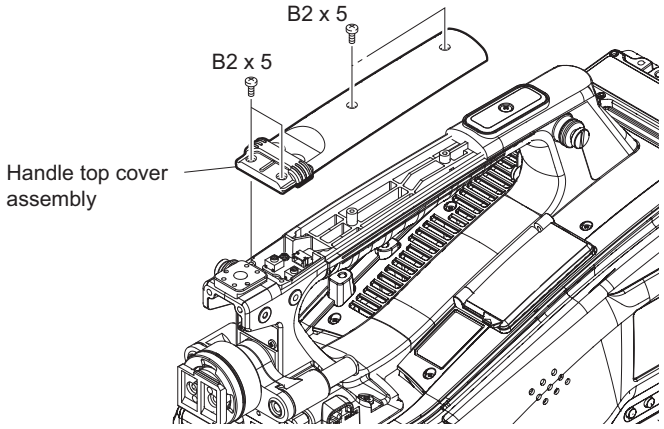


4. Install the removed parts by reversing the steps of removal.

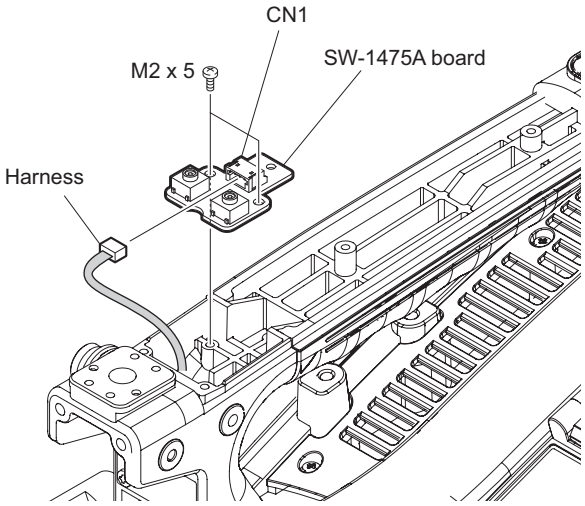
2-24. SW-1475A Board

Procedure

1. Remove the four screws to detach the handle top cover assembly.



2. Disconnect the harness from the connector (CN1) on the SW-1475A board.
3. Remove the two screws to detach the SW-1475A board.

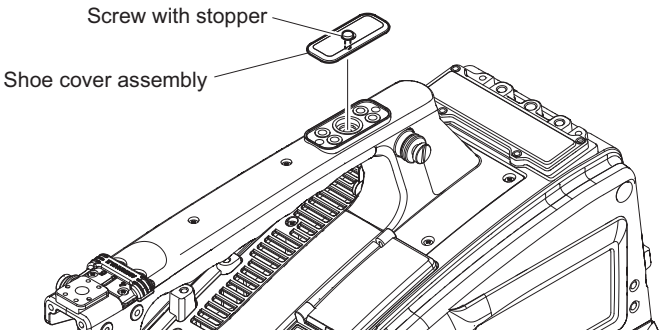


4. Install the removed parts by reversing the steps of removal.

2-25. LED-522 Board

Procedure

1. Loosen the screw to detach the shoe cover assembly.

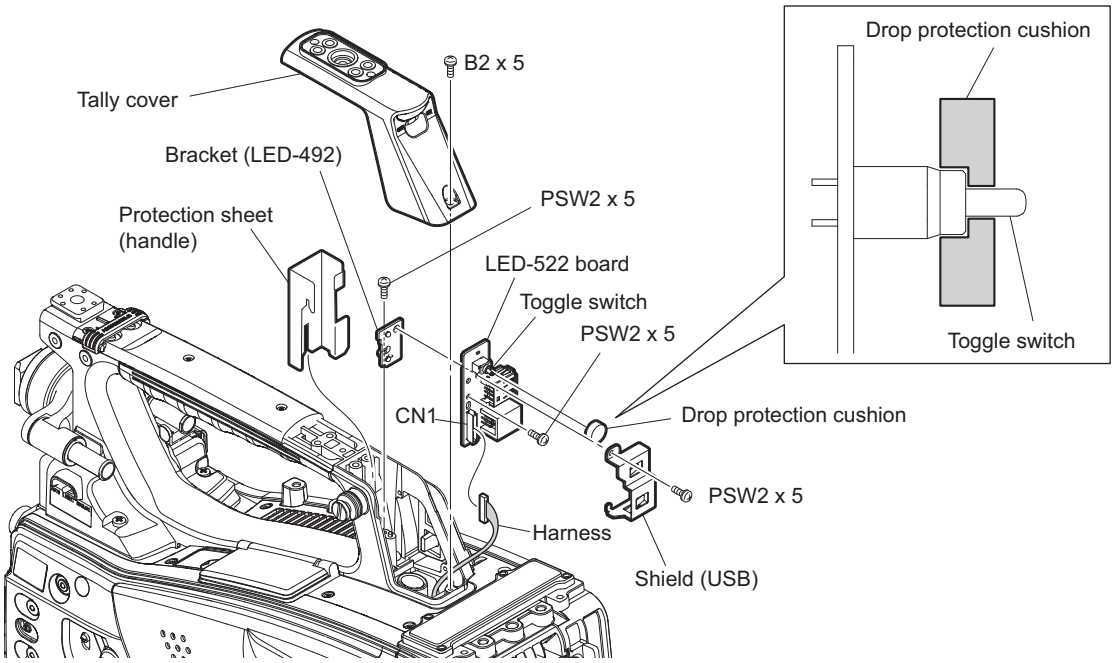


2. Remove the screw (B2 x 5) to detach the tally cover.

Note

Detach the tally cover avoiding the toggle switch on the LED-522 board.

3. Disconnect the harness from the connector (CN1) on the LED-522 board.
4. Remove the screw (PSW2 x 5) to detach the bracket (LED-492).
5. Remove the two screws (PSW2 x 5) to detach the bracket (LED-492), shield (USB), and drop protection cushion.



Note

- When attaching the tally cover, check that the toggle switch shaft is protruding out of the tally cover hole.
- Attach the drop protection cushion to the toggle switch as shown in the figure.

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

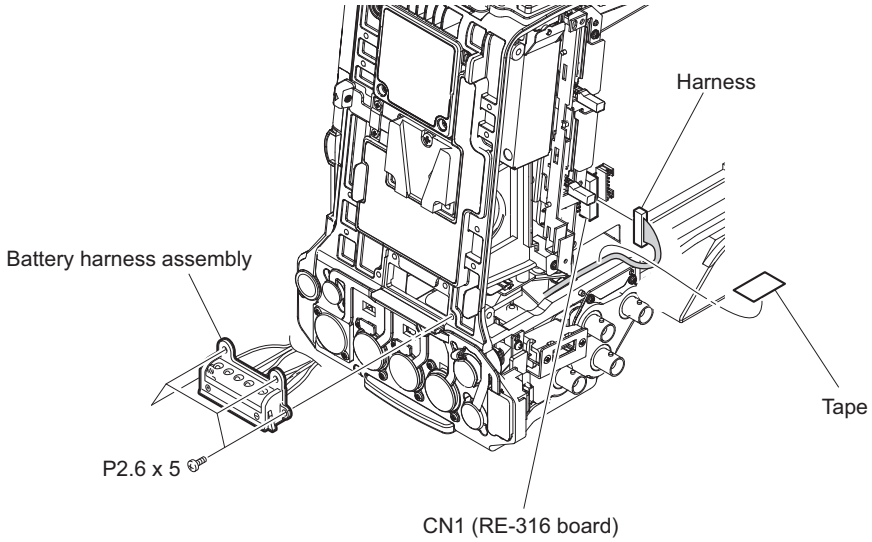
2-26. Battery Harness Assembly

Preparation

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

Procedure

1. Peel the tape.
2. Disconnect the harness from the connector (CN1) on the RE-316 board.
3. Remove the four screws to detach the battery harness assembly.

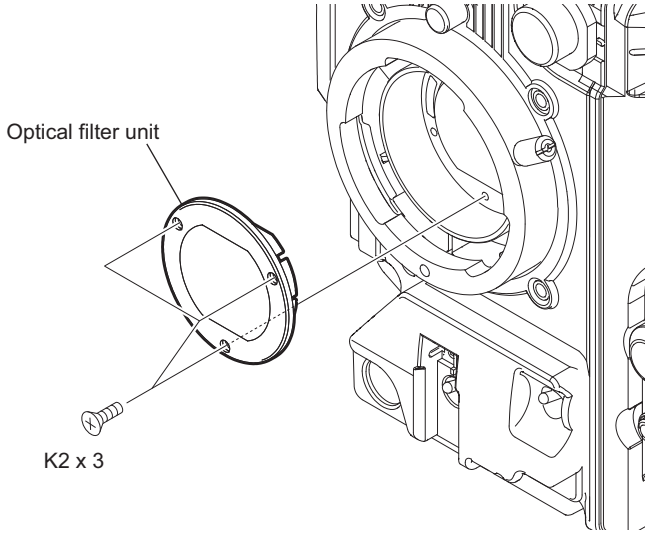


4. Install the removed parts by reversing the steps of removal.

2-27. Optical Filter Unit

Procedure

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



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

Section 3
SERVICE Menu

3-1. Service Menu List

3-1-1. SERVICE Menu List

Menu Item	Submenu Item	Choice	Factory Default Setting	Function
Test Saw	—	On/Off	Off	Test Saw On/Off
Reset	Service Reset	Press MENU knob to execute	—	Executing SERVICE layer data reset.
	Factory Preset	Press MENU knob to execute	—	Set all settings back to the factory set data. (excluding black balance auto-adjustment value.)
Black Shading	Setting	On/Off	On	Black shading correction On/Off
	Channel Sel	G/B/R	R	Select a channel whose black shading is to be adjusted. (The H Saw, H Para, V Saw, and V Para values change to the current values of the selected channel.)
	H Saw	-99 to +99	±0	Black shading H Saw correction amount adjustment
	H Para	-99 to +99	±0	Black shading H Para correction amount adjustment
	V Saw	-99 to +99	±0	Black shading V Saw correction amount adjustment
	V Para	-99 to +99	±0	Black shading V Para correction amount adjustment
White Shading	Setting	On/Off	On	White shading correction On/Off
	Channel Sel	G/B/R	R	Select a channel whose white shading is to be adjusted. (The H Saw, H Para, V Saw, and V Para values change to the current values of the selected channel.)
	H Saw	-99 to +99	±0	White shading H Saw correction amount adjustment
	H Para	-99 to +99	±0	White shading H Para correction amount adjustment
	V Saw	-99 to +99	±0	White shading V Saw correction amount adjustment
	V Para	-99 to +99	±0	White shading V Para correction amount adjustment
Auto Shading	Auto Wht Shading	Press MENU knob to execute	—	Execution of white shading auto-adjustment.
	Reset Wht Shad	Press MENU knob to execute	—	Set the white shading value back to the factory adjusted value.
	Auto Blk Shading	Press MENU knob to execute	—	Execution of black shading auto-adjustment.
	Reset Blk Shad	Press MENU knob to execute	—	Set the black shading value back to the factory adjusted value.
	Master Gain (TMP)	-3/0/3/6/9/12/18/24/30/36/42 dB	0	Selection of master gain value
Flare	G Flare	-99 to +99	±0	G-channel flare correction amount adjustment
	B Flare	-99 to +99	±0	B-channel flare correction amount adjustment

Continued

Menu Item	Submenu Item	Choice	Factory Default Setting	Function
	R Flare	-99 to +99	±0	R-channel flare correction amount adjustment
VCO Adjustment	Clock Out Select	On/Off	Off	Clock output On/Off from the MONITOR OUT connector
	Clock Frequency	-99 to +99	±0	Master clock frequency adjustment
CMOS Adjustment	R CMOS GAIN	-99 to +99	±0	R-channel CMOS sensitivity adjustment
	G CMOS GAIN	-99 to +99	±0	G-channel CMOS sensitivity adjustment
	B CMOS GAIN	-99 to +99	±0	B-channel CMOS sensitivity adjustment
FAN	Fan Mode	Normal/Fix	Normal	Fan mode setting Set Fan Mode to Normal usually. Normal: Operates according to the setting of the Maintenance/Fan Control menu. Fix: Controls the fan with a fixed voltage (8 V) for checking fan operation. Fan Mode is always set to Normal at power-on.

3-1-2. RPN CORRECT Menu List

Menu Item	Submenu Item	Choice	Factory Default Setting	Function
Auto Detection	—	Execute/Cancel	—	Starting automatic RPN detection
Channel	—	G/B/R	G	Display and selection of RPN correction channels to be registered or deleted manually
Cursor	—	On/Off	Off	Correction position indicating cursor On/Off
Cursor H Position	—	1 to 1920	960	Display and shift of horizontal address of correction position indicating cursor
Cursor V Position	—	1 to 1080	540	Display and shift of vertical address of correction position indicating cursor
Cursor Next	—	—	—	Shift of correction position indicating cursor to the next address
Cursor Prev	—	—	—	Shift of correction position indicating cursor to the previous address
Record	—	Execute/Cancel	—	RPN registration
Delete	—	Execute/Cancel	—	RPN deletion
Reset	—	Execute/Cancel	—	Deletion of all RPNs registered as correction target after factory shipment

3-1-3. INFORMATION Menu List

Menu Item	Submenu Item	Choice	Factory Default Setting	Function
Serial No.	—	—	—	Serial number display
Version	—	—	—	Software version display
Self Diag	Diag Type	Type1 /Type2	Type1	Self-diagnosis type selection

Continued

Menu Item	Submenu Item	Choice	Factory Default Setting	Function
	Item1	Execute/Cancel	—	Execution of self-diagnosis item 1
	Item2	Execute/Cancel	—	Execution of self-diagnosis item 2
	Item3	Execute/Cancel	—	Execution of self-diagnosis item 3
	Item4	Execute/Cancel	—	Execution of self-diagnosis item 4
	Item5	Execute/Cancel	—	Execution of self-diagnosis item 5
	Item6	Execute/Cancel	—	Execution of self-diagnosis item 6
	Item7	Execute/Cancel	—	Execution of self-diagnosis item 7
	Item8	—	—	Do not execute this item.
	Item9	Execute/Cancel	—	Execution of self-diagnosis item 9 (Supported by version 1.2 and later)
	Item10	—	—	Do not execute this item.
	Item11	—	—	Do not execute this item.
	Item12	—	—	Do not execute this item.
	Item13	—	—	Do not execute this item.
Log Dump	—	Execute/Cancel	—	Recording error log in media

3-2. Description of Menu

3-2-1. Basic Menu Operation

Basic Menu Operation

Set the MENU ON/OFF switch to ON or press the MENU button to enable the menu mode.

Note

If the unit is in the FOCUS MAGNIFICATION mode, no menu operation is enabled. Press the FOCUS MAGNIFICATION button to reset the FOCUS MAGNIFICATION mode.

1. Set the MENU ON/OFF switch to ON or press the MENU button.
   The menu mode is activated.
2. Turn the MENU knob or press the arrow buttons to set the cursor at the item you want to set.
3. Press the MENU button or SET button.

To Exit the Menu Mode

Set the MENU ON/OFF switch to OFF or press the MENU button again.
The menu mode is reset and the unit returns to the normal shooting mode.

3-2-2. Service Menu

Service menu types

Menu name	Description
SERVICE	Parameter adjustment
RPN CORRECT	RPN correction operation
INFORMATION	Unit information display and self-diagnosis

3-2-3. To Display Service Menu

1. Set the MENU ON/OFF switch to ON to display the menu mode screen. (Refer to "3-2-1. Basic Menu Operation")

   Note

   When Source Select of the Input/Output item in the OPERATION menu is i.LINK, the mode is switched to the camera mode.

2. Set the cursor at the Hours Meter item of the Ma (MAINTENANCE) menu.
3. Depress the MENU ON/OFF switch while pressing the MENU knob and Assign 1 button simultaneously.
   The Se (SERVICE) menu, Rp (RPN CORRECT) menu, and In (INFORMATION) menu appear in the list.

   Tip

   Once the service menu is displayed, it is displayed only by pressing the MENU button instead of normal setup menu unless power is turned off.

3-3. Description of Service Menu

The service menu allows parameter adjustment (such as correction of individual differences of image pickup device and lens) that varies from unit to unit.

3-3-1. Test Saw Setting

Test Saw setting can switch recording/output video data in the camera mode to the Test Saw signal in place of video data that is being captured.

3-3-2. Execution of Reset

The Reset menu is used to reset the menu, status, and service menu functions.

Service Reset

The Service Reset menu is used to reset SERVICE layer data. While Service Reset is in execution, a message “Service Reset/Executing” appears. After execution of Service Reset, a message “Service Reset/Done” appears for three seconds.

Factory Preset

The Factory Preset menu is used to return all settings to the factory set values. While Factory Preset is in execution, a message “Factory Preset/Executing” appears. When a message “Factory Preset/Power Off > On” appears after execution of Factory Preset, turn on the power again.

3-3-3. Black Shading Adjustment

The Black Shading menu enables the adjustment of the horizontal and vertical Saw correction level and parabola correction level.

Setting

The Black Shading setting menu can be used to turn Black Shading correction On or Off. The Black Shading setting is turned On automatically when the power is turned On.

Channel Sel

The Channel Select menu enables selection of the channel (G-ch or B-ch or R-ch) to execute the H Saw, H Para, V Saw, and V Para black shading adjustments on.
When the Channel Select menu selects any other channel, the displays of the H Saw, H Para, V Saw, and V Para setup values are changed to the current setup values of the channel selected by the Channel Select menu. The changes are reflected on the H Saw, H Para, V Saw, and V Para setup values.

H Saw

The H Saw menu enables the horizontal Saw black shading correction (linear increase and decrease) level.

H Para

The H Para menu enables the horizontal Parabola black shading correction (black level correction at the horizontal center with respect to both ends) level.

V Saw

The V Saw menu enables the vertical Saw black shading correction (linear increase and decrease) level.

V Para

The V Para menu enables the vertical Parabola black shading correction (black level correction at the vertical center with respect to both ends) level.

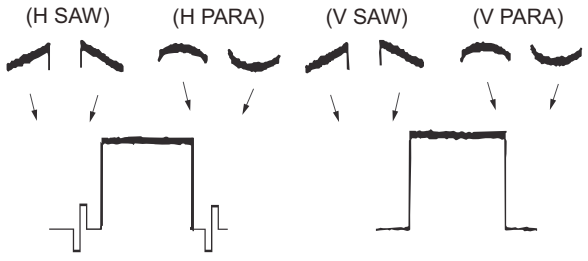
Black Shading Adjustment Method

Preparation

- Connect an HD waveform monitor to the SDI OUT terminal.
- HD waveform monitor setting: RGB mode
- Lens iris: CLOSE

Adjustment Procedure

1. Adjust GAIN and BLK level for easy viewing to observe.
2. Adjust H Saw, H Para, V Saw and V Para for the respective channels of G-ch, B-ch and R-ch until waveform on the waveform monitor becomes flat.



3-3-4. White Shading Adjustment

The white Shading menu enables the adjustment of the horizontal and vertical Saw correction level and parabola correction level.

Note

- The White Shading adjustment cannot be executed for the correct adjustment values if the object pattern has non-uniformity or if other conditions such as lens iris setting and zoom setting are not correctly satisfied.
- Use a full white pattern for the White Shading adjustment having uniform brightness over the entire area.

- If a full white pattern having uniform brightness over the entire area is not available, do not execute the G-channel White Balance adjustment. Instead of it, execute the White Balance adjustment in the way of aligning the R-channel waveform and the B-channel waveform to the waveform of G-channel.

Setting

The White Shading setting menu can be used to turn White Shading correction On or Off. The White Shading setting is turned On automatically when the power is turned On.

Channel Sel

The Channel Sel menu enables selection of the channel (G-ch or B-ch or R-ch) to execute the H Saw, H Para, V Saw, and V Para white shading adjustments on.
When the Channel Sel menu selects any other channel, the displays of the H Saw, H Para, V Saw, and V Para setup values are changed to the current setup values of the channel selected by the Channel Sel menu. The changes are reflected on the H Saw, H Para, V Saw, and V Para setup values.

H Saw

The H Saw menu enables the horizontal Saw white shading correction (linear increase and decrease) level.

H Para

The H Para menu enables the horizontal Parabola white shading correction (sensitivity correction at the horizontal center with respect to both ends) level.

V Saw

The V Saw menu enables the vertical Saw white shading correction (linear increase and decrease) level.

V Para

The V Para menu enables the vertical Parabola white shading correction (sensitivity correction at the vertical center with respect to both ends) level.

White Shading Adjustment Method

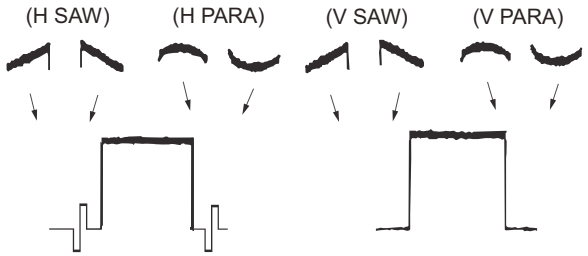
Preparation

- Connect an HD waveform monitor to the SDI OUT terminal.
- HD waveform monitor setting: RGB mode
- Focus: ∞
- Shoot an all white pattern over the entire frame of monitor screen.

Adjustment Procedure

1. Adjust lens iris until white level becomes approximately 80%.

2. If the lens iris value is larger than F5.6, adjust the incoming light intensity by using electronic shutter for the lens iris setting of smaller than F5.6.
3. Adjust H Saw, H Para, V Saw and V Para for the respective channels of G-ch, B-ch and R-ch until waveform on the waveform monitor becomes flat.



3-3-5. Auto Shading Adjustments

The Auto Shading menu can execute auto-shading (auto-adjustment of shading correction).

Auto Wht Shading

When Auto Wht Shading is selected, “Execute” and “Cancel” appear. When “Execute” is selected, auto white shading is executed.
When the CANCEL/PRST/ESCAPE switch is set to CANCEL while auto white shading is in execution, the auto white shading is suspended and the state before execution of auto white shading is restored.
When the auto white shading ends successfully, “OK” appears. If the auto white shading fails, “NG” and the cause appear for three seconds.

Reset Wht Shad

When Reset Wht Shad is selected, “Execute” and “Cancel” appear. When “Execute” is selected, the auto-white shading result is reset to the factory adjusted value.

Auto Blk Shading

When Auto Blk Shading is selected, “Execute” and “Cancel” appear. When “Execute” is selected, auto-black shading is executed.
When the CANCEL/PRST/ESCAPE switch is set to CANCEL while auto-black shading is in execution, the auto-black shading is suspended and the state before execution of auto-black shading is restored.
When the auto-black shading ends successfully, “OK” appears. If the auto-black shading fails, “NG” and the cause appear for three seconds.

Reset Blk Shad

When Reset Blk Shad is selected, “Execute” and “Cancel” appear. When “Execute” is selected, the auto-black shading result is reset to the factory adjusted value.

Master Gain (TMP)

When Master Gain (TMP) is selected, gain can be increased temporarily so that the auto-white shading and auto-black shading execution results can be monitored in this menu.
The gain value set here is negated by pressing the GAIN switch or executing AWB, ABB, or AGC.

3-3-6. Flare Adjustment

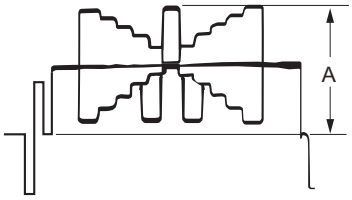
The Flare adjustment menu enables flare compensation for the respective channels of G-channel, B-channel and R-channel.

Preparation

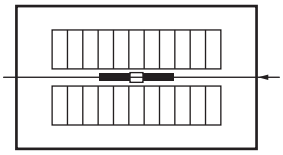
- Connect an HD waveform monitor to the SDI OUT terminal.
- HD waveform monitor setting: RGB mode
- Shoot a gray-scale chart to fill the entire screen of the picture frame and execute the white balance.
- Set the Knee to the Auto or Off.

Adjustment Procedure

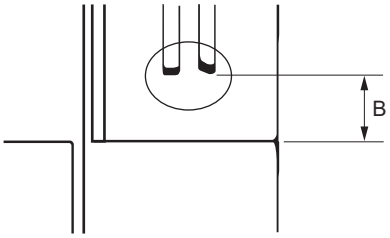
1. Adjust lens iris until white level (portion A) becomes approximately 100%. After that, open the lens iris by two stops.



2. Select waveform of the signal at the center of grayscale signal on a waveform monitor.



3. Adjust R Flare, G Flare and B Flare until the black levels on both sides of the center white in all of the R, G and B channels to a unity level.
   (Align black level all channels to that of the channel having the lowest black level.)



Note

- Make flare adjustments with the black-level part free from effects of other light sources or pattern box light (including reflected light). To prevent such effects, take appropriate measures such as by sticking a less reflective material to the black-level part or covering the area between camera and chart with a tube.
- If no appropriate environment can be prepared, adjust the R Flare, G Flare, and B Flare values to ±0.

3-3-7. VCO Adjustment

The VCO Adjustment menu allows adjustment of VCO frequency.

Clock Out Select

The Clock Out Select menu can divide the VCO output frequency and output video signals to the TEST OUT connector.

Clock Frequency

The Clock Frequency setting allows adjustment of the 54 MHz master clock frequency.

Adjusting VCO

Preparation

Connect a frequency counter to the TEST OUT connector.

Adjustment procedure

1. Check that a signal of the specification below is output from the TEST OUT connector.
   - Condition: Adjust VCO one hour after power-on.
   - Specification: 54 MHz (upper limit: +100 Hz, lower limit: -0 Hz)
2. If VCO does not meet this specification, change the clock frequency set value so that the VCO meets this specification.
   When the VCO meets this specification, press the MENU button to enter the clock frequency set value.

Note

Once the clock frequency has been set, "±0" appears when the Clock Frequency menu screen is opened next but the adjustment result is reflected.
If VCO does not meet this specification with a single adjustment, set the Clock Frequency value to the maximum or minimum and turn off the power. Then adjust the VCO using the same procedure.

3-3-8. CMOS Adjustment

Preparation

1. Connect an HD waveform monitor to the SDI OUT connector.
2. Make the following settings.
   - HD waveform monitor: RGB mode
   - WHITE BAL switch: PRESET
3. Capture the pattern box whose color temperature is controlled to 3200K.

Adjustment procedure

Adjust the CMOS so that the R, G, and B channel outputs are aligned.

Note

The sensitivity and noise level vary as the G channel is moved. To adjust the G channel, use a light source adjusted to 573 ±10 cd/m^2.

3-3-9. Fan Check

Automatic fan control is possible by detecting the internal temperature, but fixed-voltage (8 V) control is also possible to check the fan operation. The unit is always in the Normal mode after power is turned on, and it operates according to the setting of the Maintenance/Fan Control menu.

3-4. Description of RPN CORRECT Menu

The RPN CORRECT menu enables various operations such as manual registration, deletion and automatic detection of the RPN compensation point.

3-4-1. 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. Selecting Execute starts RPN Auto Detection.
The RPN point that is detected by the Auto Detection is added to the RPN correction point.

Note

Auto Detection cannot be executed under the following settings.
Change the settings to execute Auto Detection.

- When Video Format other than UDF HD422 1080/60i is selected.
- When color bar signal is output.
- When the Test Saw is set to On

3-4-2. Channel Setting

The Channel menu enables selection of the channel (Rch or G-ch or B-ch) to execute Record of RPN pixel on, in the manual registration of RPN.
When the RPN cursor is moved to an already-registered RPN correction point by the Cursor Next or Cursor Prev operation, the correction mode selected for the RPN point is displayed automatically.

3-4-3. Cursor Setting

The Cursor menu enables turning On or Off the crosshair cursor display indicating the RPN correction position in the manual registration of RPN.
When the Cursor menu is turned On, the crosshair cursor indicating the RPN correction position is displayed superimposed on the video signal.
Signal of the pixel located at the center of the crosshair cursor is replaced by black.
The Cursor setting is always turned Off when the power is turned On.

3-4-4. Cursor H Position Setting

The Cursor H Position menu enables the user to change the horizontal position of the RPN point within the effective period of video signal in the manual registration of RPN.
When the RPN cursor (indicating the location of a RPN pixel to register) is moved to an already-registered RPN 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.
Turning the MENU knob while pressing the EXPAND button increases or decreases the value by 10.

3-4-5. Cursor V Position Setting

The Cursor V Position menu enables the user to change the vertical position of the RPN point within the effective period of video signal in the manual registration of RPN.

When the RPN cursor (indicating the location of a RPN pixel to register) is moved to an already-registered RPN 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.
Turning the MENU knob while pressing the EXPAND button increases or decreases the value by 10.

3-4-6. 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 moves in the ascending order of the Cursor H Position.)

3-4-7. 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 moves in the descending order of the Cursor H Position.)

3-4-8. Executing Record

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

RPN Manual Registration Procedure

1. Set the Video Format to UDF HD422 1080/30P.
2. Set the lens iris to CLOSE.
3. Adjust gain and black level to the settings that facilitate viewing the RPN position on a monitor screen.
4. Set Channel to the RPN color that is going to be registered.
5. Set Cursor to On.
6. Move the crosshair cursor to the RPN that is going to be registered by using Cursor H Position and Cursor V Position. (When the crosshair cursor is moved on top of the desired RPN, the RPN becomes invisible.)
7. Execute the Record.

3-4-9. 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 RPN data.
When the Delete menu is selected, the Execute and Cancel choices appear. Selecting Execute starts deletion of RPN.

3-4-10. Executing Reset

The Reset menu enables the user to delete the RPN correction point data that is registered by Auto Detect and Auto Black Balance after the equipment is shipped from the factory.
The RPN data that is registered at the factory and the RPN data is manually registered cannot be deleted by the Reset.

When the Reset menu is selected, the Execute and Cancel choices appear. In addition, selecting Execute starts reset of RPN.

3-5. Description of INFORMATION Menu

The INFORMATION menu enables operations such as displaying the product information and executing Self Diag.

3-5-1. Displaying the Serial Number

The serial number of the unit is displayed on the Serial Number.

Tip

The cursor cannot be moved to the Serial Number.

3-5-2. Displaying the Version Number

The software version of the unit is displayed on the Version.

Tip

The cursor cannot be moved to the Version.

3-5-3. Executing Self Diag

Self Diag enables the user to execute self-diagnosis of the equipment. When Self Diag is run, the result of self-diagnosis appears regardless of whether the result is good or bad.

Note

- Self Diag cannot be executed under the following settings. Change the settings to execute Self Diag.
  "When Video Format other than UDF HD422 1080/60i or UDF HD422 1080/50i is selected." or "When the SLS is set to On."
- After Self Diag is executed, turn off and on the unit and use it.

Self-diagnostic Items

The following two types of self-diagnosis are provided.

- Type1: Simple self-diagnosis
  Use to execute a simple version of the self-diagnosis. This finishes in a short time.
- Type2: Complete self-diagnosis
  This executes all items included in the Self Diag. Since complete self-diagnosis involves a memory test and a complicated device test, this requires time to be completed. In addition, since the system cannot be returned to normal operations after the self-diagnosis, the power must be turned off and on again.

Note

The self-diagnostic items range from Item1 to Item13.

Self-diagnostic item list

Item No.	Self-diagnostic item	Description
Item1	Image processor block	Diagnosis of CMOS block, and camera block
Item2	Display block	Diagnosis of video signal system (LCD and base band signal processing)
Item3	Media block	Diagnosis of media recording and playback (encoder, decoder, memory card, i.LINK and USB interface)
Item4	Audio block	Diagnosis of audio input and output

Continued

Item No.	Self-diagnostic item	Description
Item5	System controller block	Diagnosis of system controller system
Item6	Power block	Diagnosis of power supply system
Item7	I/F between image processor and display block	Diagnosis of the signal line from camera signal processor IC to base band processing IC
Item8	—	Do not execute this item.
Item9	Video I/F while playing back between display and media block	Diagnosis of the video signal line (playback direction) from AVIT signal processing IC via decoder IC to base band processing IC
Item10	—	Do not execute this item.
Item11	—	Do not execute this item.
Item12	—	Do not execute this item.
Item13	—	Do not execute this item.

Procedure for the Self-diagnosis

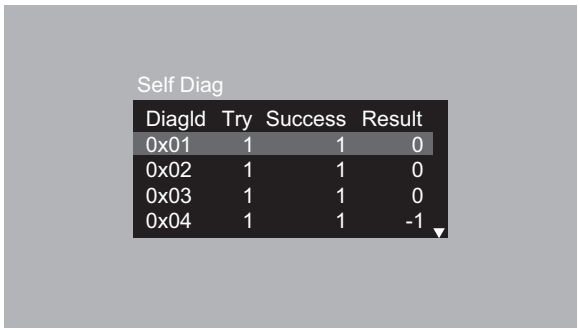
1. Select the type of self-diagnosis (Type 1 or Type 2) in Diag Type.

   Note

   When Type 1/2 for an Item in the table is “1 only”, the item executes only for type 1, and when it is “2 only”, it executes only for type 2. For “1, 2”, the item executes for both type 1 and type 2.

2. Select the Item of self-diagnosis from Item1 to Item7 or Item9.
3. When an Item is selected, Execute and Cancel appear. In addition, when Execute is selected, the self-diagnosis of the selected Item starts.
4. When the self-diagnosis is completed, the result of self-diagnosis appears.

Example of the display for results of self-diagnosis



Press the CANCEL button, SET button, or MENU knob while displaying the result of self-diagnosis to return to the INFORMATION menu.

The results of self-diagnosis

The result of self-diagnosis is composed of the diagnostic item ID (DiagId) for the Item and Try, Success, and Result for the item. The result of the self-diagnosis for each item is displayed after execution.

Meaning of Try, Success, and Result

Category	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. “0” means no problems. When a value other than “0” is displayed, check the details for each self-diagnostic item.

Details of Self-diagnosis

This section describes self-diagnostic items included in each Item. The values in the Error value column show the value for errors. The value is “0” when there is no error.

Item1: Image processor block diagnosis

The image processor block diagnosis tests the following contents.

ID	Diagnosis	Error value	Type1/2	Note
0x08	Defect correction count check (self-diagnosis during service)	-1: Maximum defect correction count over	1 ,2	Perform this diagnosis after production adjustment.
0x0A	DSP data read/write test (self-diagnosis during service)	-5: DSP Read/Write NG (Read or write error is not clear.)	1 ,2	—
0x15	FPGA-Rise video signal connection test	-1: Test pattern checking failure	1 ,2	—
0x18	CIS-FPGA video signal connection test	-1: Test pattern checking failure	1 ,2	—
0x22	FPGA-SDRAM connection test	-1: Test pattern checking failure	1 ,2	—

Item2: Display block diagnosis

Display block diagnosis analyzes the following contents.

ID	Diagnosis description	Error value	Type1/2	Note
0x01	Communication signal line test of LCD	-1: Connection error	1, 2	—
0x02	Communication signal line test of COPRO (SAD)	-1: Connection error	1, 2	—
0x03	Communication signal line test of Io Expander (SAD)	-1: Connection error	1, 2	—

Item3: Media block diagnosis

Media block diagnosis analyzes the following contents. There can be cases that the error value “-6” is displayed with any ID other than what are listed in the following table. The error value “-6” does not mean any abnormality in such cases.

Be sure to turn off the power once whenever the media block diagnosis item 3 is executed.

ID	Diagnosis description	Error value	Type1/2	Note
0x06	USB Device Register Read/Write check	-1: Error	1 only	—
0x09	i.Link Register Read/Write check	-1: Error	1 only	—
0x0B	USB Host Register Read/Write check	-1: Error	1 only	—
0x14	PIFC POWSW	-1: Error	1 only	—
0x15	SPA POWSW	-1: Error	1 only	—
0x16	MPEG encoder/decoder IC Data Read/Write	-1: Error	1 only	—
0x20	NOR-Flash ROM data consistency check	-1: Error	1 only	—
0x23	Slot A LED blink	-1: Error	1 only	—
0x24	Slot B LED blink	-1: Error	1 only	—
0x35	Video signal line test of MPEG encoder/decoder	-1: Error	1 only	—
0x36	Audio signal line test of FPGA	-1: Error	1 only	—

Item4: Audio block diagnosis

The following items are diagnosed in the audio block.

ID	Diagnosis item	Error value	Type1/2	Note
0x01	PCA9555DB access check (IC1202/AU-352 board)	0: Register set value acquisition succeeded -1: Register setting value acquisition failed	1, 2	—
0x02	PCA9554ABS access check (IC300/AXM-49 board)	0: Memory read/write comparison succeeded -1: Memory read/write comparison failed	1, 2	—
0x03	PCA9554ABS access check (IC301/AXM-49 board)	0: Register set value acquisition succeeded -1: Register setting value acquisition failed	1, 2	—
0x04	PCA9554ABS access check (IC302/AXM-49 board)	0: Register set value acquisition succeeded -1: Register setting value acquisition failed	1, 2	—
0x05	PCA9555DB access check (IC1203/AU-352 board)	0: Register set value acquisition succeeded -1: Register setting value acquisition failed	1, 2	—
0x06	AK4213 access check (IC416/AU-352 board)	0: Register set value acquisition succeeded -1: Register setting value acquisition failed	1, 2	—
0x11	Audio memory area check (in CXD9211CGG(Main T-one))	0: Register set value acquisition succeeded -1: Register setting value acquisition failed	1, 2	—
0x12	FPGA (LEOB) access check (IC601 M2 pin, A3 pin, B3 pin, A2 pin/ AU-352 board)	0: Register set value acquisition succeeded -1: Register setting value acquisition failed	1, 2	—
0x13	DSP DPSRAM check, V-Ref signal presence check (IC601, 1003/AU-352 board)	0: DPSRAM, V-Ref signal valid Other than 0[*1]: DPSRAM, V-Ref signal invalid	1, 2	—
0x14	Serial audio data check in the audio block (IC601, 1003/AU-352 board)	0: Output data is equal to input data Other than 0[*1]: Output data is different from input data	1, 2	—
0x15	Vcopro serial audio data reception check (IC601, 1003/AU-352 board)	0: Output data is equal to input data Other than 0[*1]: Output data is different from input data	1, 2	—

Error values of self-diagnosis items 0x13

Tip

- DPSRAM: In IC1003 on the AU-352 board
- V-Ref signal: Input to IC601 on the AU-352 board (pin number: shown below), output from pin T12, and input to IC1003 (pin F13).

Error value	Diagnosis item
1	Data (DPSRAM): 0x55555555
	V-Ref signal: Codec VFSYNC (E8 pin)
2	Data (DPSRAM): 0xaaaaaaaa
	V-Ref signal: Codec VFSYNC (E8 pin)
3	Data (DPSRAM): 0x55555555
	V-Ref signal: Codec VSYNC (D6 pin)
4	Data (DPSRAM): 0xaaaaaaaa
	V-Ref signal: Codec VSYNC (D6 pin)
5	Data (DPSRAM): 0x55555555
	V-Ref signal: Codec FLDID (E7 pin)
6	Data (DPSRAM): 0xaaaaaaaa
	V-Ref signal: Codec FLDID (E7 pin)
7	Data (DPSRAM): 0x55555555
	V-Ref signal: REF-V FIELD (J1 pin)

Continued

*1: For error values of self-diagnosis items 0x13 to 0x15, refer to the table for self-diagnosis items 0x13 to 0x15.

Error value	Diagnosis item
8	Data (DPSRAM): 0xaaaaaaaa
	V-Ref signal: REF-V FIELD (J1 pin)
9	Data (DPSRAM): 0x55555555
	V-Ref signal: REF-V VSYNC (J2 pin)
10	Data (DPSRAM): 0xaaaaaaaa
	V-Ref signal: REF-V VSYNC (J2 pin)
11	Data (DPSRAM): 0x55555555
	V-Ref signal: V-Copro FIELD (K2 pin)
12	Data (DPSRAM): 0xaaaaaaaa
	V-Ref signal: V-Copro FIELD (K2 pin)
13	Data (DPSRAM): 0x55555555
	V-Ref signal: V-Copro VSYNC (K1 pin)
14	Data (DPSRAM): 0xaaaaaaaa
	V-Ref signal: V-Copro VSYNC (K1 pin)

Error values of self-diagnosis items 0x14

Tip

Serial audio input/output signals of the DSP (IC1003) time-division multiplex multiple channels (checked for each two channels).

- 8ch (0 to 7ch) : L1 pin, N11 pin, L11 pin, J12 pin, M11 pin
- 2ch (0 to 1ch) : M14 pin, P7 pin, N14 pin

The signal is output from IC1003 on the AU-352 board (pin number: shown below) and is returned to IC1003 through IC601 (pin number: shown below).

Error value	Diagnosis item
1	Path: N11 → L1 pin
	Data: 0x55555500
	Starting serial input channel: 0CH
	Starting serial output channel: 0CH
2	Path: N11 → L1 pin
	Data: 0xaaaaaa00
	Starting serial input channel: 0CH
	Starting serial output channel: 0CH
3	Path: N11 → L1 pin
	Data: 0x55555500
	Starting serial input channel: 2CH
	Starting serial output channel: 2CH
4	Path: N11 → L1 pin
	Data: 0xaaaaaa00
	Starting serial input channel: 2CH
	Starting serial output channel: 2CH
5	Path: N11 → L1 pin
	Data: 0x55555500
	Starting serial input channel: 4CH
	Starting serial output channel: 4CH

Continued

Error value	Diagnosis item
6	Path: N11 → L1 pin
	Data: 0xaaaaaa00
	Starting serial input channel: 4CH
	Starting serial output channel: 4CH
7	Path: N11 → L1 pin
	Data: 0x55555500
	Starting serial input channel: 6CH
	Starting serial output channel: 6CH
8	Path: N11 → L1 pin
	Data: 0xaaaaaa00
	Starting serial input channel: 6CH
	Starting serial output channel: 6CH
9	Path: L11 → L1 pin
	Data: 0x55555500
	Starting serial input channel: 0CH
	Starting serial output channel: 0CH
10	Path: L11 → L1 pin
	Data: 0xaaaaaa00
	Starting serial input channel: 0CH
	Starting serial output channel: 0CH
11	Path: L11 → L1 pin
	Data: 0x55555500
	Starting serial input channel: 2CH
	Starting serial output channel: 2CH
12	Path: L11 → L1 pin
	Data: 0xaaaaaa00
	Starting serial input channel: 2CH
	Starting serial output channel: 2CH
13	Path: L11 → L1 pin
	Data: 0x55555500
	Starting serial input channel: 4CH
	Starting serial output channel: 4CH
14	Path: L11 → L1 pin
	Data: 0xaaaaaa00
	Starting serial input channel: 4CH
	Starting serial output channel: 4CH
15	Path: L11 → L1 pin
	Data: 0x55555500
	Starting serial input channel: 6CH
	Starting serial output channel: 6CH
16	Path: L11 → L1 pin
	Data: 0xaaaaaa00
	Starting serial input channel: 6CH
	Starting serial output channel: 6CH

Continued

Error value	Diagnosis item
17	Path: J12 → L1 pin
	Data: 0x55555500
	Starting serial input channel: 0CH
	Starting serial output channel: 0CH
18	Path: J12 → L1 pin
	Data: 0xaaaaaa00
	Starting serial input channel: 0CH
	Starting serial output channel: 0CH
19	Path: J12 → L1 pin
	Data: 0x55555500
	Starting serial input channel: 2CH
	Starting serial output channel: 2CH
20	Path: J12 → L1 pin
	Data: 0xaaaaaa00
	Starting serial input channel: 2CH
	Starting serial output channel: 2CH
21	Path: J12 → L1 pin
	Data: 0x55555500
	Starting serial input channel: 4CH
	Starting serial output channel: 4CH
22	Path: J12 → L1 pin
	Data: 0xaaaaaa00
	Starting serial input channel: 4CH
	Starting serial output channel: 4CH
23	Path: J12 → L1 pin
	Data: 0x55555500
	Starting serial input channel: 6CH
	Starting serial output channel: 6CH
24	Path: J12 → L1 pin
	Data: 0xaaaaaa00
	Starting serial input channel: 6CH
	Starting serial output channel: 6CH
25	Path: M14 → L1 pin
	Data: 0x55555500
	Starting serial input channel: 0CH
	Starting serial output channel: 0CH
26	Path: M14 → L1 pin
	Data: 0xaaaaaa00
	Starting serial input channel: 0CH
	Starting serial output channel: 0CH
27	Path: P7 → L1 pin
	Data: 0x55555500
	Starting serial input channel: 0CH
	Starting serial output channel: 0CH

Continued

Error value	Diagnosis item
28	Path: P7 → L1 pin
	Data: 0xaaaaaa00
	Starting serial input channel: 0CH
	Starting serial output channel: 0CH
29	Path: N14→ L1 pin
	Data: 0xffffffff
	Starting serial input channel: 0CH
	Starting serial output channel: 0CH
30	Path:N14 → L1 pin
	Data: 0x00000000
	Starting serial input channel: 0CH
	Starting serial output channel: 0CH

Error values of self-diagnosis items 0x15

Tip

The signal is input to IC601 (pin K12) on the AU-352 board and is output from IC601 (pin number: shown below) to IC1400 on the DPR-354 board (pin number: shown below).

Error value	Diagnosis item
1	Path: D5 pin → G22
	Data: 0x55550000
	Starting serial output channel: 4ch
2	Path: D5 pin → G22
	Data: 0xaaaa0000
	Starting serial output channel: 4ch
3	Path: B5 pin → H22
	Data: 0x55550000
	Starting serial output channel: 6ch
4	Path: B5 pin → H22
	Data: 0xaaaa0000
	Starting serial output channel: 6ch

Item5: System controller block diagnosis

System controller block diagnosis analyzes the following contents.

When an error is detected in the IIC communication test, it indicates a possible failure in the communication line or device.

ID	Diagnosis description	Error value	Type1/2	Note
0x01	IIC communication test (clock IC)	-1: Error	1, 2	—
0x02	IIC communication test (EEPROM)	-1: Error	1, 2	—
0x03	IIC communication test (power supply microcomputer)	-1: Error	1, 2	—
0x04	IIC communication test (sub-microcomputer of the in-side panel)	-1: Error	1, 2	—
0x05	IIC communication test (sub-microcomputer of the handle)	-1: Error	1, 2	—
0x06	IIC communication test (sub-microcomputer of the rear panel)	-1: Error	1, 2	—
0x08	IC communication test (Sub-microcomputer of VF)	-1: Error	1, 2	—

Continued

ID	Diagnosis description	Error value	Type1/2	Note
0x0f	Version matching test (Sub-microcomputer of VF)	-1: Error	1, 2	*1
0x10	Version matching test (power supply microcomputer)	-1: Error	1, 2	*1
0x11	Version matching test (sub-microcomputer of the inside panel)	-1: Error	1, 2	*1
0x12	Version matching test (sub-microcomputer of the handle)	-1: Error	1, 2	*1
0x13	Version matching test (sub-microcomputer of the rear panel)	-1: Error	1, 2	*1

Item6: Power block diagnosis

Power block diagnosis analyzes the following contents.

ID	Diagnosis description	Error value	Type1/2	Note
0x01	Power switch readout	-1: Cannot readout battery power switch -4: Cannot diagnose since the power switch is not set to ON	1, 2	Power switch must be set to ON.
0x03	Power supply state	-1: Power supply is not controlled correctly -4: Cannot diagnose since the power switch is not set to ON	1, 2	Power switch must be set to ON.

Item7: Diagnosis between image processor and display blocks

Diagnosis between Image processor and Display blocks analyzes the following contents.

When an error is detected, it indicates a possible failure in the chip or the signal line between chips.

ID	Diagnosis description	Error value	Type1/2	Note
0x80	Video signal line test	-1: Test pattern checking failure	1, 2	Conducts a test from camera signal processor IC to base band processing IC. Monitor output images will be distorted during the test.

Item8 to 13: Diagnosis between display and media blocks

Diagnosis between display and media blocks analyzes the following contents.

When an error is detected, it indicates a possible failure in the chip or the signal line between chips.

Note

Do not execute Item 8 and Item 10 to Item 13.

Item No.	ID	Diagnosis description	Error value	Type1/2	Note
9	0x91	Video signal line communication test in playback direction (in the direction from AVIT signal processing IC to base band processing IC)	-1: Test pattern checking failure -2: Sequence error	1, 2	—

3-5-4. Executing Log Dump

Executing Log Dump acquires the error log information and saves it to the active, writable media.

Select Log Dump under the INFORMATION menu, and execute it with Execute. The process is complete when “Log Dump Done” is displayed as a result. Do not remove the media until this message appears.

*1: When an error is detected in the version matching test, update again to a compatible version.
Contact your local Sony Sales Office/Service Center for information on versions.

Section 4
FILE Menu

4-1. FILE Menu Configuration

Data adjusted by the service menus can be stored as a file in the unit or in an SxS memory card/USB memory (collectively referred to as memory card hereinafter). The file consists of the following ALL file, SCENE file, REFERENCE file, and LENS file. Furthermore, files of the unit can be called.

ALL file

This file stores setup data of all menus. Up to 64 files can be stored in a memory card.
By storing this file in a memory card after adjustment of the first unit is completed, the second and subsequent units can be immediately set up to the same adjustment status by reading the memory card data.

SCENE file

This file stores set values adjusted according to captured scenes. Up to five files can be stored in the internal memory of the unit and up to 64 files in a memory card.
By storing values that were set according to specific scenes during rehearsal in a SCENE file and calling the file during the performance, the same situation as rehearsal can be recreated.

REFERENCE file

This file stores setup data to be reference when performing SCENE FILE STANDARD. Only a single file can be stored in a memory card.

LENS file

This file stores setup data (flare, white shading, and auto iris gain) that corrects lens-specific characteristics. Up to 32 files can be stored in the internal memory of the unit and up to 64 files in a memory card.

4-2. Data Structure

Menus are grouped into USER menu, OPERATION menu, PAINT menu, MAINTENANCE menu, and FILE menu.
Each menu has data of USER layer (not USER menu), PRESET layer, and DEFAULT layer.

- USER layer: A data layer that varies with menu operation (actual setup data)
- PRESET layer: A data layer registered as standard setting (standard setup data)
- DEFAULT layer: A data layer containing factory adjusted values and fixed values (default values (fixed))

Menu / Data Structure	USER	OPERATION	PAINT	MAINTENANCE	FILE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)

Absolute value data is stored in the USER layer, PRESET layer, and DEFAULT layer, and the data in the highest USER layer becomes actual setup data.
Difference in analog data between USER layer and PRESET layer is displayed in menus.
When REFERENCE LOAD is executed, menu display varies with the PRESET layer data, but values to be set actually remain unchanged.

4-3. ALL File

An ALL file consists of the following.

- Display Mode
- All File Load SxS
- All File Save SxS
- All File Load USB
- All File Save USB
- F.Id
- All Preset
- Store All Preset
- Clear All Preset
- 3Sec Clear Preset
- Network Data

Note

When All File Load, All Preset, or Clear All Preset is executed, the following items are set to Off even if they are set to On.

- Turbo Gain
- ATW
- EZ Mode
- Spotlight
- Backlight

4-3-1. Display Mode

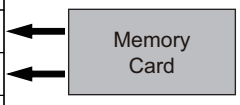
This menu item is used to select items to be displayed in the list box when storing or loading ALL files.

- Date & Time: Date/time
- Model Name: Model name/video format

4-3-2. All File Load SxS, All File Load USB

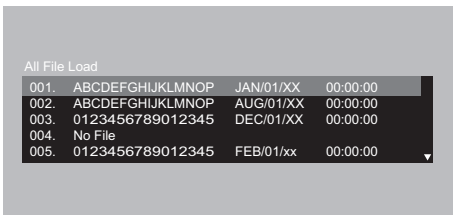
This menu item is used to load files saved in the memory card.

Menu / Data Structure	OPERATION	PAINT	MAINTENANCE	FILE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)

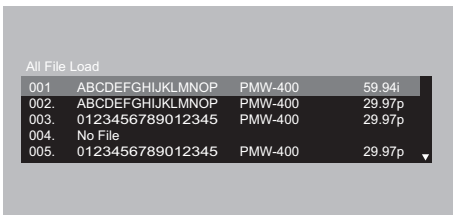


Procedure

1. Select "Execute".
   A file list box appears.



(Display Mode: Date & Time)



(Display Mode: Model Name)

2. Select files you want to load from the list box and press the MENU button.

4-3-3. All File Save SxS, All File Save USB

This menu item is used to save USER layer data and PRESET layer data of all menu items in the memory card as files.

Data Structure \ Menu	OPERATION	PAINT	MAINTENANCE	FILE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)

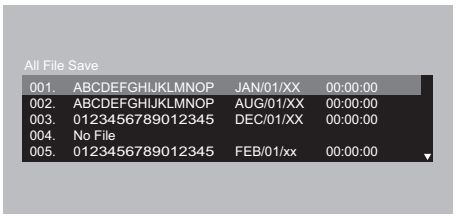
→ Memory Card

Note

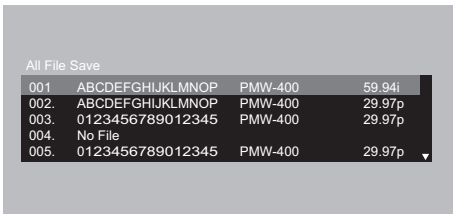
When the memory card is write-protected, the list box is grayed out.

Procedure

1. Select “Execute”.
   A file list box appears.



(Display Mode: Date & Time)



(Display Mode: Model Name)

2. Select a directory from the list box and press the MENU button.

   Note

   If a directory that contains one or more files is selected, the files are overwritten and saved.

4-3-4. F.Id (File ID)

A name consisting of up to 16 characters can be given to each file.
After the file name setting has been completed, perform one of the following operations.

- Push the MENU knob several times.
- Move the cursor to SET with the arrow buttons and press the MENU button.

4-3-5. All Preset

This menu item is used to restore the standard setup data saved in the PRESET layer for all menu items.

Menu / Data Structure	OPERATION	PAINT	MAINTENANCE	FILE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)

4-3-6. Store All Preset

This menu item is used to store actual setup data of all menu items (set in the USER layer) in the PRESET layer as standard setup data.

Menu / Data Structure	OPERATION	PAINT	MAINTENANCE	FILE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)

4-3-7. Clear All Preset

This menu item is used to restore factory set values (default values (fixed)) for all menu items.
The standard setup data saved in the PRESET layer is also set back to the factory set values (default values (fixed)).

Menu / Data Structure	OPERATION	PAINT	MAINTENANCE	FILE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)

4-3-8. 3Sec Clear Preset

Pressing the CANCEL/PRST/ESCAPE switch to the CANCEL/PRST side for three seconds enables or disabled the function to clear preset values for each item.

4-3-9. Network Data

Selects whether to load (On) or not load (Off) network settings when loading an ALL file.

4-4. SCENE File

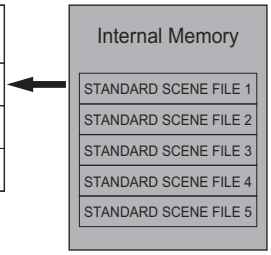
A SCENE file consists of the following.

- Scene File 1 to 5
- Standard
- Display Mode
- Scene Recall Mem
- Scene Store Mem
- Scene Recall SxS
- Scene Store SxS
- Scene Recall USB
- Scene Store USB
- F.Id

4-4-1. Scene File 1 to 5

This menu item is used to select one of the five STANDARD SCENE files saved in the internal memory and load the file.
The actual setup data of relevant items of the SCENE file changes.

Menu / Data Structure	OPERATION	PAINT	MAINTENANCE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)



4-4-2. Standard

This menu item is used to set the actual setup data of relevant items of the SCENE file back to the standard setup data.

Menu / Data Structure	OPERATION	PAINT	MAINTENANCE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)

4-4-3. Display Mode

This menu item is used to select items to be displayed in the list box when storing or loading SCENE files.

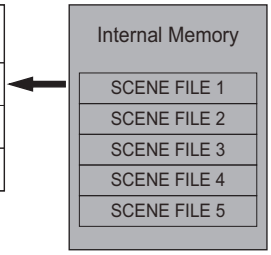
- Date & Time: Date/time
- Model Name: Model name/video format

4-4-4. Scene Recall Mem

This menu item is used to select one of the five SCENE files saved in the internal memory and load the file.

The actual setup data of relevant items of the SCENE file changes.

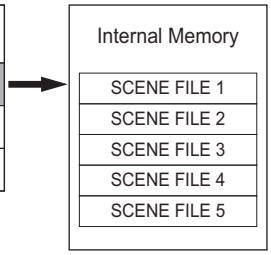
Menu / Data Structure	OPERATION	PAINT	MAINTENANCE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)



4-4-5. Scene Store Mem

This menu item is used to store the actual setup data of relevant items of the SCENE file in the internal memory.

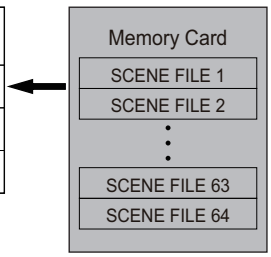
Menu / Data Structure	OPERATION	PAINT	MAINTENANCE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)



4-4-6. Scene Recall SxS, Scene Recall USB

This menu item is used to select one of the 64 SCENE files saved in the memory card and load the file.
The actual setup data of relevant items of the SCENE file changes.

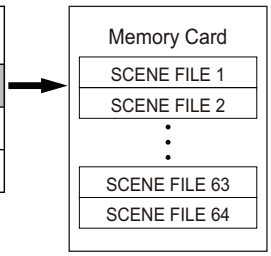
Menu / Data Structure	OPERATION	PAINT	MAINTENANCE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)



4-4-7. Scene Store SxS, Scene Store USB

This menu item is used to store the actual setup data of relevant items of the SCENE file in the memory card.

Menu / Data Structure	OPERATION	PAINT	MAINTENANCE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)

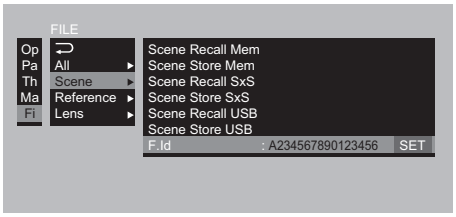


4-4-8. F.Id (File ID)

A name consisting of up to 16 characters can be given to each file.

After the file name setting has been completed, perform one of the following operations.

- Push the MENU knob several times.
- Move the cursor to SET with the arrow buttons and press the MENU button.



4-5. REFERENCE File

A REFERENCE file consists of the following.

- Reference Store
- Reference Clear
- Reference Load SxS
- Reference Save SxS
- Reference Load USB
- Reference Save USB
- F.Id
- Scene White Data

4-5-1. Reference Store

This menu item is used to store the standard setup data of relevant items of the REFERENCE file.

Menu / Data Structure	OPERATION	PAINT	MAINTENANCE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)

4-5-2. Reference Clear

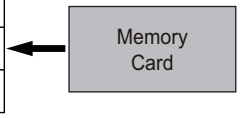
This menu item is used to restore factory set values (default values (fixed)) for relevant items of the REFERENCE file.
The standard setup data saved in the PRESET layer is also set back to the factory set values (default values (fixed)).

Menu / Data Structure	OPERATION	PAINT	MAINTENANCE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)

4-5-3. Reference Load SxS, Reference Load USB

This menu item is used to load REFERENCE files saved in the memory card.
The standard setup data of relevant items of the REFERENCE file changes.

Menu / Data Structure	OPERATION	PAINT	MAINTENANCE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)



4-5-4. Reference Save SxS, Reference Save USB

This menu item is used to save the standard setup data of relevant items of the REFERENCE file in the memory card.

Data Structure \ Menu	OPERATION	PAINT	MAINTENANCE
USER Layer	Actual Setup Data	Actual Setup Data	Actual Setup Data
PRESET Layer	Standard Setup Data	Standard Setup Data	Standard Setup Data
DEFAULT Layer	Default Values (Fixed)	Default Values (Fixed)	Default Values (Fixed)

→ Memory Card

Note

When the memory card is write-protected, the list box is grayed out.

4-5-5. F.Id (File ID)

A name consisting of up to 16 characters can be given to each file.

After the file name setting has been completed, perform one of the following operations.

- Push the MENU knob several times.
- Move the cursor to SET with the arrow buttons and press the MENU button.

4-5-6. Scene White Data

Selects whether to load (On) or not load (Off) white balance data when Scene Recall of SCENE file or Standard of SCENE file is executed.

4-6. LENS File

A LENS file consists of the following.

- Display Mode
- Lens Recall Mem
- Lens Store Mem
- Lens Recall SxS
- Lens Store SxS
- Lens Recall USB
- Lens Store USB
- F.Id
- Source
- Lens No Offset
- Lens Auto Recall
- Serial Number
- L.Id (Lens ID)
- L.Manufacture
- Lens M Vmode
- Lens Center H/V
- Lens R/G/B Flare
- Lens W-R/W-B Offset
- Wht Shading Ch Sel
- Lens R/G/B H Saw/Para
- Lens R/G/B V Saw/Para

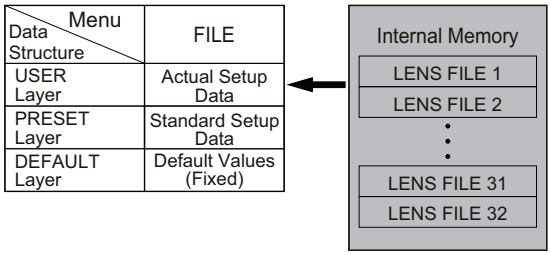
4-6-1. Display Mode

This menu item is used to select items to be displayed in the list box when storing or loading LENS files.

- Date & Time: File ID/date/time
- Model Name: File ID/model name
- Lens ID: File ID/lens ID

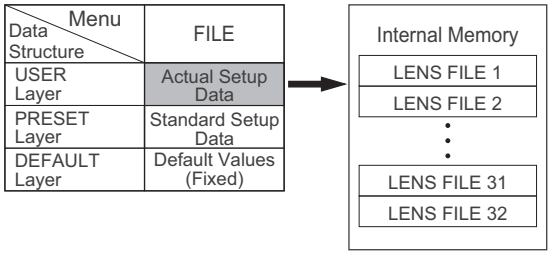
4-6-2. Lens Recall Mem

This menu item is used to select one of the 32 LENS files saved in the internal memory and load the file.
The actual setup data of relevant items of the LENS file changes.



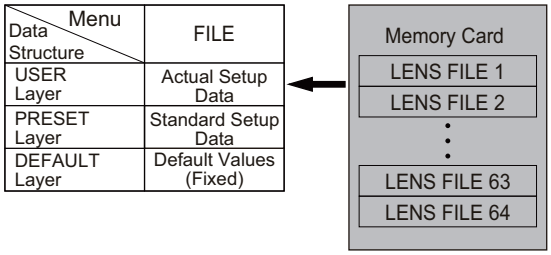
4-6-3. Lens Store Mem

This menu item is used to store the actual setup data of relevant items of the LENS file in the internal memory.



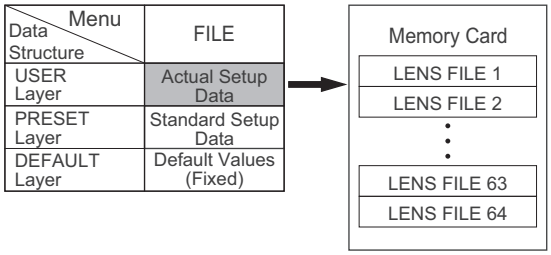
4-6-4. Lens Recall SxS, Lens Recall USB

This menu item is used to select one of the 64 LENS files saved in the memory card and load the file.
The actual setup data of relevant items of the LENS file changes.



4-6-5. Lens Store SxS, Lens Store USB

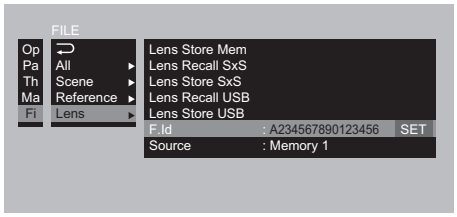
This menu item is used to store the actual setup data of relevant items of the LENS file in the memory card.



4-6-6. F.Id (File ID)

A name consisting of up to 16 characters can be given to each file.
After the file name setting has been completed, perform one of the following operations.

- Push the MENU knob several times.
- Move the cursor to SET with the arrow buttons and press the MENU button.



4-6-7. Source

This menu item is used to display the number of the selected LENS file.

4-6-8. Lens No Offset

This menu item is used to clear LENS files.

4-6-9. Lens Auto Recall

This menu item is used to load the corresponding LENS file when a serial number communication compatible lens is attached.

- Off: This function is not used.
- On: LENS file corresponding to the model name is loaded and the file data is reflected.
- S.Number:
  - For lenses that allow serial number communication, the LENS file corresponding to the model name and serial number is loaded and the file data is reflected.
  - For lenses that do not allow serial number communication, the LENS file corresponding to the model name is loaded (same as the case when this item is set to On).

4-6-10. Serial Number

This menu item is used to display the serial number of the attached lens that allows serial number communication.
When a lens that does not allow serial number communication, a message “No Support” appears.

4-6-11. L.Id (Lens ID)

This menu item is used to display the model name of the attached lens that allows serial number communication.
When a lens that does not allow serial number communication, a message “No Support” appears.

4-6-12. L.Manufacture

This menu item is used to display the lens manufacturer name of the attached lens that allows serial number communication.
When a lens that does not allow serial number communication, a message “No Support” appears.

4-6-13. Lens M Vmode

This menu item is used to set the correction data of the vertical SAW shading in the LENS file.
(This shading correction data has three types of data independently when the extender is On, shrinker is On, and both are Off.)

4-6-14. Lens Center H/V

This menu item is used to set the center marker horizontal and vertical positions in the LENS file.

(This horizontal/vertical position set data has three types of data independently when the extender is On, shrinker is On, and both are Off.)

4-6-15. Lens R/G/B Flare

This menu item is used to set R/G/B flare levels that are unique to each lens in the LENS file.
(This R/G/B flare level set data has three types of data independently when the extender is On, shrinker is On, and both are Off.)

4-6-16. Lens W-R/W-B Offset

This menu item is used to set the R/B white balance correction data in the LENS file.
(This R/B white balance correction data has three types of data independently when the extender is On, shrinker is On, and both are Off.)

4-6-17. Wht Shading Ch Sel, Lens R/G/B H Saw/Para, Lens R/G/B V Saw/Para

These menu items are used to set white shading correction data that are unique to each lens.

- Wht Shading Ch Sel: Select channels (R/G/B) you want to change the correction data.
- Lens R/G/B H Saw/Para, Lens R/G/B V Saw/Para: Set the SAW white shading correction data in the horizontal and vertical directions and the parabolic white shading correction data.
  (This correction data has three types of data independently when the extender is On, shrinker is On, and both are Off.)

4-7. Specific Save Items

4-7-1. White Gain

ALL file

Item to be executed	State after execution
All File Save	All white gain values are saved in the ALL file.
All File Load	All white gain values are set to the ALL file data.
Store All Preset	Preset white gain value set by Preset White of the MAINTENANCE menu is saved as PRESET layer value (= REFERENCE file value).
Clear All Preset	All white gain values are set to the factory set values.
All Preset	All white gain values are set to the PRESET layer values.

SCENE file

Item to be executed	State after execution
Scene Store	The current white gain value at execution is saved in the SCENE file. (When the WHITE BAL switch is set to “A,” “B” or “PRST,” a value of A , B or PRST is saved respectively.)
Scene Recall	Only when “SCENE WHITE DATA” is set to ON by Reference of the FILE menu, the current white gain value at execution is set to the SCENE file value. (When the WHITE BAL switch is set to “A” or “B,” a value of A or B is overwritten respectively.) However, when the WHITE BAL switch is set to “PRST,” the preset white gain value is retained.
Scene Standard	Only when “SCENE WHITE DATA” is set to ON by Reference of the FILE menu, the current white gain value at execution is set to the REFERENCE file value.

REFERENCE file

Item to be executed	State after execution
Reference Store	The current white gain value at execution is saved in the REFERENCE file. (When the WHITE BAL switch is set to “A,” “B” or “PRST,” a value of A, B or PRST is saved respectively.) When this save item is executed with the WHITE BAL switch set to “A” or “B,” the preset white gain value set by Preset White of the MAINTENANCE menu is also set to the saved white gain value.
Reference Clear	When this save item is executed, R/B GAIN of A (when WHITE BAL switch is set to A) or B (when WHITE BAL switch is set to B) is set to the factory set value. The PRESET WHITE R/B GAIN value becomes the factory set value regardless of the WHITE BAL switch state.

4-7-2. Master Gain

The master gain value can be saved in a REFERENCE file and SCENE file.

- While the unit is operating independently, the saved value cannot be read because the hardware switch takes precedence.
- While a remote controller is connected, the master gain value can be read from each file and the value is retained until it is modified (even after power-off).
- When RM-B170 is connected, master gain value is read or saved according to the hardware switch.

4-7-3. Shutter

SHUTTER ON/OFF, ECS frequency, SLS frame count, and SHUTTER SEL values can be saved in a SCENE file.

- While the unit is operating independently, ECS frequency and SHUTTER SEL values can be read and the values are retained until they are modified (even after power-off. The saved SHUTTER ON/OFF value cannot be read because the hardware switch takes precedence).

- While a remote controller is connected, the SHUTTER ON/OFF, ECS frequency, and SHUTTER SEL values can be read and the values are retained until they are modified (even after power-off).

4-8. Setup Menu List

Data that was set with setup menus can be written to files.
This section describes a list of all items of setup menus, which shows what file types can store each item.

Symbol

○: Storable
×: Unstorable
—: Unstorable because of temporary operation, etc.

4-8-1. OPERATION Menu

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Preset
Format	File System	UDF	×	×	×	×	×
	HD/SD	HD	×	×	×	×	×
	HD System Line	1080	×	×	×	×	×
	System Frequency	59.94i	×	×	×	×	×
		50i					
		59.94p					
		50p					
	Rec Format	HD422 50	○	×	×	×	○
		HQ 1920					
		HQ 1280					
		IMX50					
		DVCAM					
	Aspect Ratio (SD)	16:9	○	×	×	×	○
	Audio Length (IMX)	16bit	○	×	×	×	○
	Country	NTSC Area	×	×	×	×	×
Format Media	Media (A)	Cancel	—	—	—	—	—
	Media (B)	Cancel	—	—	—	—	—
Input/Output	UDF mode: Output FAT mode: Output & i.LINK	UDF/HD mode: HD UDF/SD mode: SD FAT/HD mode: HD & HDV FAT/SD mode: SD & DV	○	×	×	×	○
	23.98P Output	PsF	○	×	×	×	○
	Source Select	Camera	○	×	×	×	○
	i.LINK I/O	Disable	○	×	×	×	○
	SDI Output	On	○	×	×	×	○
	HDMI Output	On	○	×	×	×	○
	SDI/HDMI Out Super	Off	○	×	×	×	○
	Video Out Super	Off	○	×	×	×	○
	Down Converter	Squeeze	○	×	×	×	○
	Wide ID	Through	○	×	×	×	○
Super Impose	Super (VF Display)	On	○	×	×	×	○
	Super (Menu)	On	○	×	×	×	○

Continued

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Preset
	Super (Timecode)	Off	○	×	×	×	○
	Super (Marker)	Off	○	×	×	×	○
	Super (Rec Status Indicator)	Off	○	×	×	×	○
Rec Function	Slow & Quick	Off	○	×	×	×	○
	Frame Rate	30 (PAL area: 25)	○	×	×	×	○
	Clip Continuous Rec	Off	○	×	×	×	○
	Picture Cache Rec	Off	○	×	×	×	○
	P. Cache Rec Time	0-2sec	○	×	×	×	○
	Interval Rec	Off	○	×	×	×	○
	Frame Rec	Off	○	×	×	×	○
	Number of Frames	1	○	×	×	×	○
	Interval Time	1sec	○	×	×	×	○
	Pre-Lighting	Off	○	×	×	×	○
Assignable SW	<0>	Off	○	×	×	×	○
	<1>	EZ mode	○	×	×	×	○
	<2>	Off	○	×	×	×	○
	<3>	Off	○	×	×	×	○
	<4>	Off	○	×	×	×	○
	<5>	Off	○	×	×	×	○
	RET	Lens RET	○	×	×	×	○
	C.Temp	Color Temp SW 5600K	○	×	×	×	○
	Zoom Speed	20	○	×	×	×	○
VF Setting	Color	±0	○	×	×	×	○
	Mode	Color	○	×	×	×	○
	Peaking Type	Normal	○	×	×	×	○
	Peaking Frequency	Normal	○	×	×	×	○
	Peaking Color	White	○	×	×	×	○
	Peaking Level	Mid	○	×	×	×	○
	DXF Rec Tally	Upper	○	×	×	×	○
Marker	Setting	On	○	×	×	×	○
	Center Marker	Off	○	×	×	×	○
	Center H Position	0	○	×	×	×	○
	Center V Position	0	○	×	×	×	○
	Safety Zone	Off	○	×	×	×	○
	Safety Area	90%	○	×	×	×	○
	Aspect Marker	Off	○	×	×	×	○
	Aspect Select	4:3	○	×	×	×	○
	Aspect Mask	30%	○	×	×	×	○
	User Box	Off	○	×	×	×	○
	User Box Width	500	○	×	×	×	○
	User Box Height	500	○	×	×	×	○
	User Box H Position	0	○	×	×	×	○
	User Box V Position	0	○	×	×	×	○
	Guide Frame	Off	○	×	×	×	○
Gain Switch	Gain Low	0dB	○	×	×	×	○

Continued

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Preset
	Gain Mid	6dB	○	×	×	×	○
	Gain High	12dB	○	×	×	×	○
	Gain Turbo	42dB	○	×	×	×	○
	Shockless Gain	Off	○	×	×	×	○
TLCS	Mode	Standard	×	×	×	×	○
	Speed	±0	○	×	×	×	○
	AGC	Off	○	×	×	×	○
	AGC Limit	12dB	○	×	×	×	○
	AGC Point	F2.8	○	×	×	×	○
	Auto Shutter	Off	○	×	×	×	○
	Auto Shutter Limit	1/250	○	×	×	×	○
	Auto Shutter Point	F16	○	×	×	×	○
Zebra	Zebra Select	1	○	×	×	×	○
	Zebla1 Level	70%	○	×	×	×	○
	Zebra1 Aperture Level	10%	○	×	×	×	○
	Zebra2 Level	100%	○	×	×	×	○
Display On/Off	Video Level Warnings	On	○	×	×	×	○
	Brightness Display	Off	○	×	×	×	○
	Histogram Display	Off	○	×	×	×	○
	Lens Info	Off	○	×	×	×	○
	Focus Position	On	○	×	×	×	○
	Zoom Position	On	○	×	×	×	○
	Audio Level Meter	On	○	×	×	×	○
	Timecode	On	○	×	×	×	○
	Battery Remain	On	○	×	×	×	○
	Media Remain	On	○	×	×	×	○
	TLCS Mode	On	○	×	×	×	○
	Focus Mode	On	○	×	×	×	○
	White Balance Mode	On	○	×	×	×	○
	Filter Position	On	○	×	×	×	○
	Iris Position	On	○	×	×	×	○
	Gain Setting	On	○	×	×	×	○
	Shutter Setting	On	○	×	×	×	○
	Color Temp.	On	○	×	×	×	○
	Video Format	On	○	×	×	×	○
	System Line	On	○	×	×	×	○
	Rec Mode	On	○	×	×	×	○
	Extender	On	○	×	×	×	○
	WRR RF Level	Off	○	×	×	×	○
	Clip Number (PB)	On	○	×	×	×	○
Auto Iris	Iris Override	Off	○	×	×	×	○
	Iris Speed	±0	○	×	×	×	○
	Clip High Light	Off	○	×	×	×	○
	Iris Window	1	○	×	×	×	○

Continued

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Preset
	Iris Window Indication	Off	×	×	×	×	○
White Setting	White Switch <B>	Memory	○	×	×	×	○
	Shockless White	1	○	×	×	×	○
	ATW Speed	3	○	×	×	×	○
	ATW Mode	Natural	○	×	×	×	○
	AWB Fixed Area	Off	○	×	×	×	○
	Filter White Memory	Off	○	×	×	×	○
Offset White	Offset White <A>	Off	○	×	×	×	○
	Warm Cool <A>	3200K	○	×	×	×	○
	Warm Cool Balance <A>	±0	○	×	×	×	○
	Offset White <B>	Off	○	×	×	×	○
	Warm Cool <B>	3200K	○	×	×	×	○
	Warm Cool Balance <B>	±0	○	×	×	×	○
	Offset White <ATW>	Off	○	×	×	×	○
	Warm Cool <ATW>	3200K	○	×	×	×	○
Shutter	Shutter Select	Second	○	○	○	×	○
	Slow Shutter	Off	○	○	×	×	○
	SLS Frames	2Frames	○	○	×	×	○
Time Zone	Zone	+0:00 (GREENWICH)	○	×	×	×	○
Clip	Auto Naming	Title (Plan after planning meta data is supported)	○	×	×	×	○
	Title Prefix	ID unique to each model (lower 3 digits of serial No. + underscore)	○	×	×	×	○
	Number Set	0001	○	×	×	×	○
	Name Display	On	○	×	×	×	○
	Update	—	—	—	—	—	—
Plan.Metadata	Load/Slot (A)	Cancel	—	—	—	—	—
	Load/Slot (B)	Cancel	—	—	—	—	—
	Load/USB (UDF mode only)	Cancel	—	—	—	—	—
	Properties	Cancel	—	—	—	—	—
	Clear	—	—	—	—	—	—
	Clip Name Disp	Title1 (ASCII)	○	×	×	×	○
Flashband Reduce (Ver.Up)	Setting	Off	○	×	×	×	○

4-8-2. PRINT Menu

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Preset
Switch Status	Gamma	On	○	○	Default	×	○
	Black Gamma	Off	○	○	○	×	○
	Matrix	On	○	○	○	×	○
	Knee	On	○	○	○	×	○
	White Clip	On	○	○	Default	×	○
	Detail	On	○	○	Default	×	○
	Aperture	On	○	○	Default	×	○
	Flare	On	○	○	Default	×	○
	Test Saw	Off	○	×	×	×	○
White	Color Temp <A>	3200K	○	○	○	×	○
	Color Temp BAL <A>	±0	○	○	○	×	○
	R Gain <A>	±0	○	○	○	×	○
	B Gain <A>	±0	○	○	○	×	○
	Color Temp <B>	3200K	○	○	○	×	○
	Color Temp BAL <B>	±0	○	○	○	×	○
	R Gain <B>	±0	○	○	○	×	○
	B Gain <B>	±0	○	○	○	×	○
Black	Master Black	±0	○	○	○	×	○
	R Black	±0	○	○	○	×	○
	B Black	±0	○	○	○	×	○
Flare	Flare	On	○	○	Default	×	○
	Master Flare	±0	○	○	○	×	○
	R Flare	±0	○	○	○	×	○
	G Flare	±0	○	○	○	×	○
	B Flare	±0	○	○	○	×	○
Gamma	Gamma	On	○	○	Default	×	○
	Step Gamma	0.45	○	○	○	×	○
	Master Gamma	±0	○	○	○	×	○
	R Gamma	±0	○	○	○	×	○
	G Gamma	±0	○	○	○	×	○
	B Gamma	±0	○	○	○	×	○
	Gamma Select	5 R709 (44609 when Gamma category is HG)	○	○	○	×	○
	Gamma Category	STD	○	○	○	×	○
Black Gamma	Black Gamma	Off	○	○	○	×	○
	Level	±0	○	○	○	×	○
	Range	High	○	○	○	×	○
Knee	Knee	On	○	○	○	×	○
	Knee Point	95%	○	○	○	×	○
	Knee Slope	±0	○	○	○	×	○
	Knee Saturation	On	○	○	○	×	○
	Knee Saturation Level	±0	○	○	○	×	○

Continued

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Pre-set
White Clip	White Clip	On	○	○	○	×	○
	Level	NTSC area: 108.0% PAL area: 105.0%	○	○	○	×	○
Detail (HD Mode)	Detail	On	○	○	Default	×	○
	Level	±0	○	○	○	×	○
	H/V Ratio	±0	○	○	○	×	○
	Crispening	±0	○	○	○	×	○
	Level Depend	On	○	○	○	×	○
	Level Depend Level	±0	○	○	○	×	○
	Frequency	±0	○	○	○	×	○
	Knee Aperture	Off	○	○	○	×	○
	Knee Aperture Level	±0	○	○	○	×	○
	Limit	±0	○	○	○	×	○
	White Limit	±0	○	○	○	×	○
	Black Limit	±0	○	○	○	×	○
	V-BLK Limit	±0	○	○	○	×	○
	V Detail Creation	R+G	○	○	○	×	○
Detail (SD Mode)	Detail	On	○	○	Default	×	○
	Level	±0	○	○	○	×	○
	H/V Ratio	±0	○	○	○	×	○
	Crispening	±0	○	○	○	×	○
	Level Depend	On	○	○	○	×	○
	Level Depend Level	±0	○	○	○	×	○
	Frequency	±0	○	○	○	×	○
	Knee Aperture	Off	○	○	○	×	○
	Knee Aperture Level	±0	○	○	○	×	○
	Limit	±0	○	○	○	×	○
	White Limit	±0	○	○	○	×	○
	Black Limit	±0	○	○	○	×	○
	V-BLK Limit	±0	○	○	○	×	○
	V Detail Creation	R+G	○	○	○	×	○
Aperture	Aperture	On	○	○	Default	×	○
	Level	±0	○	○	○	×	○
Skin Detail	Skin Detail	Off	○	○	○	×	○
	Area Detection	Cancel	—	—	—	—	×
	Area Indication	Off	×	×	×	×	○
	Level	±0	○	○	○	×	○
	Saturation	±0	○	○	○	×	○
	Hue	0	○	○	○	×	○
	Width	40	○	○	○	×	○
Matrix	Matrix	On	○	○	○	×	○
	Preset Matrix	On	○	○	○	×	○
	Preset Select	2	○	○	○	×	○
	User Matrix	Off	○	○	○	×	○
	User Matrix R-G	±0	○	○	○	×	○
	User Matrix R-B	±0	○	○	○	×	○
	User Matrix G-R	±0	○	○	○	×	○

Continued

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Preset
	User Matrix G-B	±0	○	○	○	×	○
	User Matrix B-R	±0	○	○	○	×	○
	User Matrix B-G	±0	○	○	○	×	○
Multi Matrix	Multi Matrix	Off	○	○	○	×	○
	Area Indication	Off	×	×	×	×	○
	Color Detection	Cancel	—	—	—	—	—
	Preset	Cancel	—	—	—	—	—
	Axis	B	×	×	×	×	○
	Hue	±0	○	○	○	×	○
	Saturation	±0	○	○	○	×	○
V Modulation	V Modulation	On	○	×	Default	×	○
	Master V Modulation	±0	○	○	Default	×	○
	R V Modulation	±0	○	○	Default	×	○
	G V Modulation	±0	○	○	Default	×	○
	B V Modulation	±0	○	○	Default	×	○
Low Key Saturation	Low Key Saturation	Off	○	○	○	×	○
	Level	±0	○	○	○	×	○
	Range	High	○	○	○	×	○
Noise Suppress	Noise Suppress	On	○	○	○	×	○

4-8-3. MAINTENANCE Menu

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Preset
White Shading	Channel Select	Red	○	×	Default	×	○
	R/G/B White H Saw	±0	×	×	×	×	○
	R/G/B White H Para	±0	×	×	×	×	○
	R/G/B White V Saw	±0	×	×	×	×	○
	R/G/B White V PARA	±0	×	×	×	×	○
	White SAW/PARA	On	○	×	Default	×	○
Black Shading	Channel Select	Red	○	×	Default	×	○
	R/G/B Black H Saw	±0	×	×	×	×	○
	R/G/B Black H Para	±0	×	×	×	×	○
	R/G/B Black V Saw	±0	×	×	×	×	○
	R/G/B Black V PARA	±0	×	×	×	×	○
	Black SAW/PARA	On	○	×	Default	×	○
	Master Black	±0	○	○	○	×	○
	Master Gain (TMP)	Follow switch	—	—	—	—	—
Battery	Info Before End	5%	○	×	×	×	○
	Info End	0%	○	×	×	×	○
	Sony Before End	11.5V	○	×	×	×	○
	Sony End	11.0V	○	×	×	×	○
	Other Before End	11.8V	○	×	×	×	○

Continued

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Preset
	Other End	11.0V	○	×	×	×	○
	DC In Before End	11.8V	○	×	×	×	○
	DC In End	11.0V	○	×	×	×	○
	Detected Battery	Display only	○	×	×	×	○
	Type Detection	Auto	○	×	×	×	○
	Segment No.10	17.0V	○	×	×	×	○
	Segment No.9	16.0V	○	×	×	×	○
	Segment No.8	15.0V	○	×	×	×	○
	Segment No.7	14.0V	○	×	×	×	○
	Segment No.6	13.5V	○	×	×	×	○
	Segment No.5	13.0V	○	×	×	×	○
	Segment No.4	12.5V	○	×	×	×	○
	Segment No.3	12.0V	○	×	×	×	○
	Segment No.2	11.5V	○	×	×	×	○
	Segment No.1	11.0V	○	×	×	×	○
Audio	Front MIC Select	Stereo	○	×	×	×	○
	Audio CH3/4 Mode	Switch	○	×	×	×	○
	Front MIC CH1 Ref	-50dB	○	×	×	×	○
	Front MIC CH2 Ref	-50dB	○	×	×	×	○
	Rear MIC CH1 Ref	-60dB	○	×	×	×	○
	Rear MIC CH2 Ref	-60dB	○	×	×	×	○
	Line Input Ref	+4dB	○	×	×	×	○
	Min Alarm Volume	Off	○	×	×	×	○
	Speaker Attenuate	Off	○	×	×	×	○
	Headphone Out	Mono	○	×	×	×	○
	Reference Level	-20dB	○	×	×	×	○
	Reference Out	0dB	○	×	×	×	○
	CH1&2 AGC Mode	Mono	○	×	×	×	○
	CH3&4 AGC Mode	Mono	○	×	×	×	○
	AGC Spec	-6dB	○	×	×	×	○
	Limiter Mode	Off	○	×	×	×	○
	Output Limiter	Off	○	×	×	×	○
	CH1 Wind Filter	Off	○	×	×	×	○
	CH2 Wind Filter	Off	○	×	×	×	○
	CH3 Wind Filter	Off	○	×	×	×	○
	CH4 Wind Filter	Off	○	×	×	×	○
	Audio SG (1KHz)	Off	○	×	×	×	○
	MIC CH1 Level	Front	○	×	×	×	○
	MIC CH2 Level	Front	○	×	×	×	○
	Rear1/WRR Level	Side1	○	×	×	×	○
	Rear2/WRR Level	Side2	○	×	×	×	○
	Audio CH3 Level	Side3	○	×	×	×	○
	Audio CH4 Level	Side4	○	×	×	×	○
WRR Setting	WRR Valid CH Sel	All (When a wireless receiver is not installed, "—" is displayed.)	○	×	×	×	○

Continued

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Preset
	WRR CH Select	TX1 (When a wireless receiver is not installed, "—" is displayed.)	×	×	×	×	○
	WRR Delay Comp	On	○	×	×	×	○
	TX	—	—	—	—	—	—
	TX Audio Peak	—	—	—	—	—	—
	TX Input Level	—	—	—	—	—	—
	TX ATT Level	—	—	—	—	—	—
	TX LCF Frequency	—	—	—	—	—	—
	TX System Delay	Auto	○	×	×	×	○
Timecode	TC Out	Auto	○	×	×	×	○
	DF/NDF	DF	○	×	×	×	○
	LTC UBIT	Fix	○	×	×	×	○
	Counter Display	Counter	○	×	×	×	○
Essence Mark	Ret Shot Mark 1	On	○	×	×	×	○
	Ret Shot Mark 2	On	○	×	×	×	○
	Index Picture Pos	0sec	○	×	×	×	○
	Find Mode	Clip	○	×	×	×	○
Camera Config	Rec Tally Blink	On	○	×	×	×	○
	Rec Review	3sec	○	×	×	×	○
	HD SDI Remote I/F	Off	○	×	×	×	○
	Color Bars Select	ARIB	○	×	×	×	○
	RM Common Memory	On	○	×	×	×	○
	RM Rec Start	RM	○	×	×	×	○
	Image Invert	Off	○	×	×	×	○
	Rec Start/Stop Beep	Off	○	×	×	×	○
	Rec Status Indicator	Off	○	×	×	×	○
	Fan Control	Auto	○	×	×	×	○
Preset White	Color Temp <P>	3200K	○	×	×	×	○
	Color Temp Balance <P>	±0	○	×	×	×	○
	R Gain <P>	±0	○	×	×	×	○
	B Gain <P>	±0	○	×	×	×	○
	AWB Enable <P>	Off	×	×	×	×	○
White Filter	ND Filter C.Temp	Off	○	×	×	×	○
	ND FLT C.Temp <1>	3200K	○	×	×	×	○
	ND FLT C.Temp <2-4>	5600K	○	×	×	×	○
	Electrical CC <A>	3200K	○	×	×	×	○
	Electrical CC <B>	4300K	○	×	×	×	○
	Electrical CC <C>	5600K	○	×	×	×	○
	Electrical CC <D>	6300K	○	×	×	×	○
DCC Adjust	DCC Function Select	DCC	○	×	×	×	○
	DCC Dynamic Range	600%	○	×	×	×	○
	DCC Point	±0	○	×	×	×	○

Continued

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Preset
	DCC Gain	±0	○	×	×	×	○
	DCC Delay Time	±0	○	×	×	×	○
	DCC Peak Filter	±0	○	×	×	×	○
Auto Iris2	Iris Window	1	○	×	×	×	○
	Iris Window Ind.	Off	×	×	×	×	○
	Iris Level	±0	○	×	×	×	○
	Iris APL Ratio	±0	○	×	×	×	○
	Iris Var Width	500	○	×	×	×	○
	Iris Var Height	500	○	×	×	×	○
	Iris Var H Position	0	○	×	×	×	○
	Iris Var V Position	0	○	×	×	×	○
	Iris Speed	±0	○	×	×	×	○
	Clip High Light	Off	○	×	×	×	○
Flicker Reduce	Mode	Off	○	×	×	×	○
	Frequency	NTSC area: 60Hz NTSC(J) area: 50Hz PAL area: 50Hz	○	×	×	×	○
Genlock	H PHASE(HD)	±0	○	×	×	×	○
	H PHASE(SD)	±0	○	×	×	×	○
	Reference	Internal	×	×	×	×	×
ND Comp	ND Offset Adjust	Off	×	×	×	×	○
	Clear ND Offset	Cancel	—	—	—	—	—
Lens	Auto FB Adjust	Cancel	—	—	—	—	—
Auto Shading	Auto Black Shading	Cancel	—	—	—	—	—
	Reset Black Shading	Cancel	—	—	—	—	—
	Master Gain (TMP)	Follow switch	—	—	—	—	—
Trigger Mode	i.LINK Trigger Mode	Both	○	×	×	×	○
Network Setting *1	DHCP	Disable	○	×	×	×	○
	IP Address	192.168.1.10	○	×	×	×	○
	Subnet Mask	255.255.255.0	○	×	×	×	○
	Default Gateway	0.0.0.0	○	×	×	×	○
	User Name	admin	○	×	×	×	○
	Password	pmw-400 (model name)	○	×	×	×	○
	Set	Cancel	—	—	—	—	—
	MAC Address	Display only	—	—	—	—	—
	Net Config Reset	Cancel	—	—	—	—	—
Wi-Fi Setting	Scan Networks	Cancel	—	—	—	—	—
	SSID	(Blank)	○*2	×	×	×	○
	Network Type	Adhoc	○*2	×	×	×	○
	Ch	1	○*2	×	×	×	○
	Authentication	Open	○*2	×	×	×	○
	Encryption	Disable	○*2	×	×	×	○

Continued

*1: Selection of whether to load the network setting (On) or not (Off) when calling the All file depends on the FILE/All/Network Data menu setting.

*2: When [Network Data] in [All] of the File menu is set to [On], network settings are also called when the All file is called. When [Network Data] is set to [Off], network settings are not called.

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Preset
	WEP Key Index	1	○*1	×	×	×	○
	Input Select	ASCII5	○*1	×	×	×	○
	Key	(Blank)	×	×	×	×	○
	Set	(Blank)	—	—	—	—	—
	Wi-Fi Status	Display only	—	—	—	—	—
	Wireless Mode	Display only	—	—	—	—	—
	Wi-Fi	Disable	○*1	×	×	×	○
	Wi-Fi Remote	Off	○*1	×	×	×	○
Clock set	Date/Time	Date and time now	—	—	—	—	—
	12H/24H	24H	○	×	×	×	○
	Date Mode	YYMMDD	○	×	×	×	○
Language	Language	English	○	×	×	×	○
Hours Meter	Hours (Sys)	---H	—	—	—	—	—
	Hours (Reset)	---H	—	—	—	—	—
	Reset	Hours (Reset) is reset to 0.	—	—	—	—	—
Menu Scroll	Menu Scroll	Normal	○	×	×	×	○
Version	Version	V---	—	—	—	—	—
	Version Up	—	—	—	—	—	—

4-8-4. THUMBNAIL Menu

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Preset
Clip Properties	—	—	—	—	—	—	—
Set Index Picture	—	—	—	—	—	—	—
Thumbnail View	Forward Expansion	—	—	—	—	—	—
	Back Expansion	—	—	—	—	—	—
	Essence Mark Thumbnail	—	—	—	—	—	—
	Clip Thumbnail	—	—	—	—	—	—
	All Clip Thumbnail	—	—	—	—	—	—
Set Shot Mark	Add Shot Mark1	—	—	—	—	—	—
	Delete Shot Mark1	—	—	—	—	—	—
	Add Shot Mark2	—	—	—	—	—	—
	Delete Shot Mark2	—	—	—	—	—	—
Set Clip Flag (Displayed only in the UDF mode.)	OK	—	—	—	—	—	—
	NG	—	—	—	—	—	—
	KP (Keep)	—	—	—	—	—	—
	None	—	—	—	—	—	—

Continued

*1: When [Network Data] in [All] of the File menu is set to [On], network settings are also called when the All file is called. When [Network Data] is set to [Off], network settings are not called.

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Preset
Add OK Mark (Displayed only in the FAT mode.)	—	—	—	—	—	—	—
Delete OK Mark (Displayed only in the FAT mode.)	—	—	—	—	—	—	—
Lock Clip (Displayed only in the UDF mode.)	—	—	—	—	—	—	—
Unlock Clip (Displayed only in the UDF mode.)	—	—	—	—	—	—	—
Copy Clip	—	—	—	—	—	—	—
Delete Clip	—	—	—	—	—	—	—
Divide Clip (Displayed only in the FAT mode.)	—	—	—	—	—	—	—
Filter Clips (Displayed only in the UDF mode.)	OK	—	—	—	—	—	—
	NG	—	—	—	—	—	—
	KP (Keep)	—	—	—	—	—	—
	None	—	—	—	—	—	—
Filter Clips (Displayed only in the FAT mode.)	—	—	—	—	—	—	—
Lock All Clips (Displayed only in the UDF mode.)	—	—	—	—	—	—	—
Unlock All Clips (Displayed only in the UDF mode.)	—	—	—	—	—	—	—
Copy All	Clips	—	—	—	—	—	—
	General Files	—	—	—	—	—	—
	All Clips & General Files	—	—	—	—	—	—
Delete All Clips	—	—	—	—	—	—	—

4-8-5. FILE Menu

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Preset
All	Display Mode	Date&Time	×	×	×	×	○

Continued

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Pre-set
	All Load SxS	Cancel	—	—	—	—	—
	All Save SxS	Cancel	—	—	—	—	—
	All Load USB	Cancel	—	—	—	—	—
	All Save USB	Cancel	—	—	—	—	—
	File ID	(Blank)	○	×	×	×	○
	All Preset	Cancel	—	—	—	—	—
	Store All Preset	Cancel	—	—	—	—	—
	Clear All Preset	Cancel	—	—	—	—	—
	3Sec Clear Preset	Off	×	×	×	×	×
	Network Data	Off	×	×	×	×	○
Scene	□1	Standard	—	—	—	—	—
	□2	Standard	—	—	—	—	—
	□3	Standard	—	—	—	—	—
	□4	Standard	—	—	—	—	—
	□5	Standard	—	—	—	—	—
	□Standard	—	—	—	—	—	—
	Display Mode	Date&Time	×	×	×	×	○
	Scene Recall Mem	Cancel	—	—	—	—	—
	Scene Store Mem	Cancel	—	—	—	—	—
	Scene Recall SxS	Cancel	—	—	—	—	—
	Scene Store SxS	Cancel	—	—	—	—	—
	Scene Recall USB	Cancel	—	—	—	—	—
	Scene Store USB	Cancel	—	—	—	—	—
	File ID	Standard	×	○	×	×	○
Reference	Reference Store	Cancel	—	—	—	—	—
	Reference Clear	Cancel	—	—	—	—	—
	Reference Load SxS	Cancel	—	—	—	—	—
	Reference Save SxS	Cancel	—	—	—	—	—
	Reference Load USB	Cancel	—	—	—	—	—
	Reference Save USB	Cancel	—	—	—	—	—
	File ID	(Blank)	×	×	○	×	○
	Scene White Data	Off	○	○	×	×	○
Lens	Display Mode	Date&Time	×	×	×	×	○
	Lens Recall Mem	Cancel	—	—	—	—	—
	Lens Store Mem	Cancel	—	—	—	—	—
	Lens Recall SxS	Cancel	—	—	—	—	—
	Lens Store SxS	Cancel	—	—	—	—	—
	Lens Recall USB	Cancel	—	—	—	—	—
	Lens Store USB	Cancel	—	—	—	—	—
	File ID	—	—	—	—	—	○
	Source	Memory 1	—	—	—	—	—
	Lens No Offset	Cancel	—	—	—	—	—
	Lens Auto Recall	Off	○	×	×	×	○
	Serial Number	---	—	—	—	—	—
	Lens ID	---	—	—	—	—	—
	L Manufacturer	---	—	—	—	—	—

Continued

Menu Item	Submenu Item	Default Value (Typical Value)	All	Scene	Reference	Lens	Clear All Pre-set
	M V Modulation	±0	—	—	—	○	—
	Lens Center H	0	—	—	—	○	—
	Lens Center V	0	—	—	—	○	—
	Lens R Flare	±0	—	—	—	○	—
	Lens G Flare	±0	—	—	—	○	—
	Lens B Flare	±0	—	—	—	○	—
	Lens W-R Offset	±0	—	—	—	○	—
	Lens W-B Offset	±0	—	—	—	○	—
	Shading Ch Sel	Red	○	×	×	×	○
	L R/G/B H Saw	±0	—	—	—	○	—
	L R/G/B H Para	±0	—	—	—	○	—
	L R/G/B V Saw	±0	—	—	—	○	—
	L R/G/B V Para	±0	—	—	—	○	—
Import	File Import	Cancel	—	—	—	—	—

Section 5
Spare Parts

5-1. Note on Repair Parts

1. Safety Related Components Warning

WARNING

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

2. Standardization of Parts

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

3. Stock of Parts

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

4. Harness

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

1. 安全重要部品

⚠警告

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

2. 部品の共通化

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

3. 部品の在庫

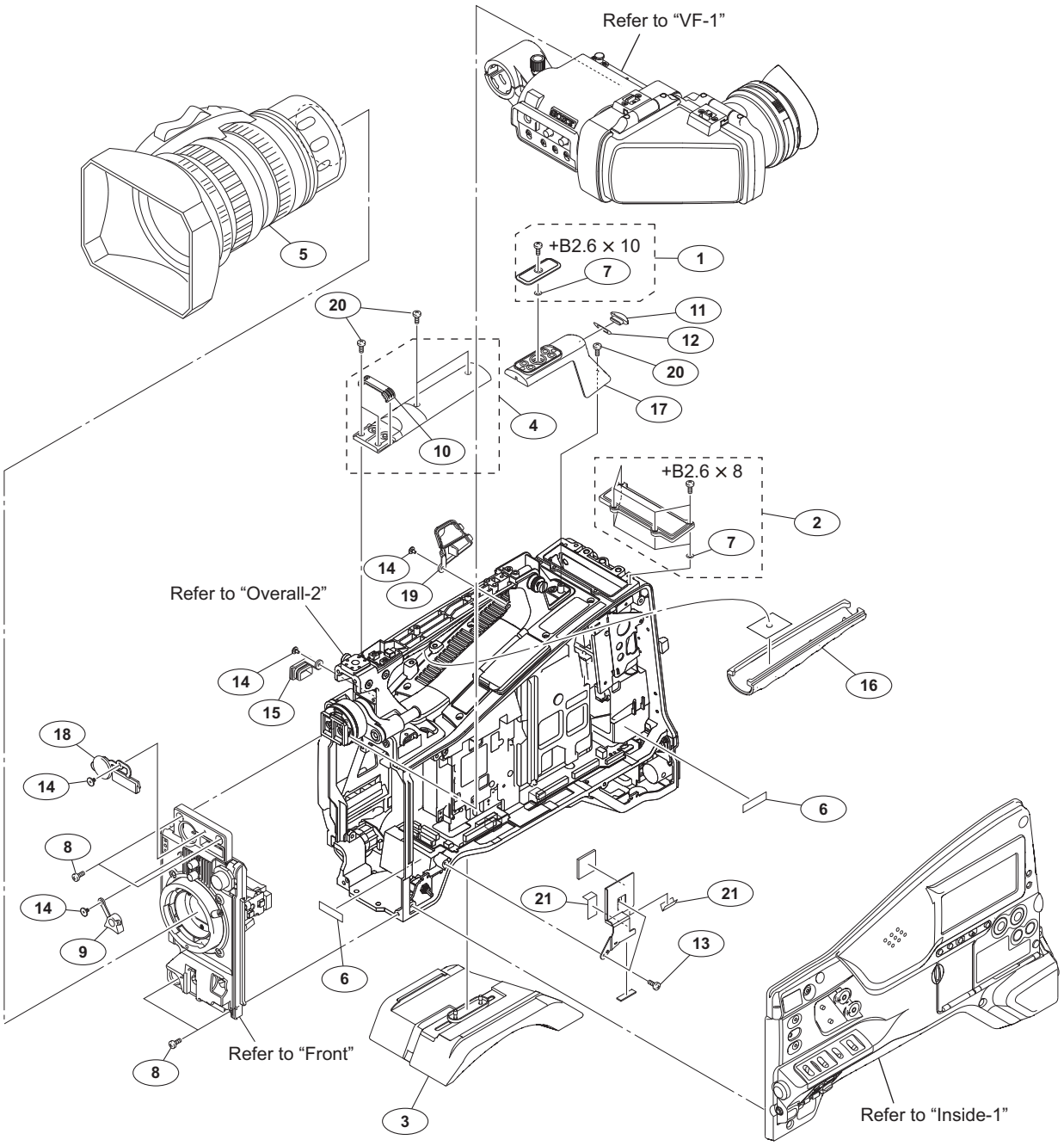
部品表の SP（Supply code）欄に “o” で示される部品は在庫していないことがあり，納期が長くなることがあります。

4. ハーネス

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

5-2. Exploded Views

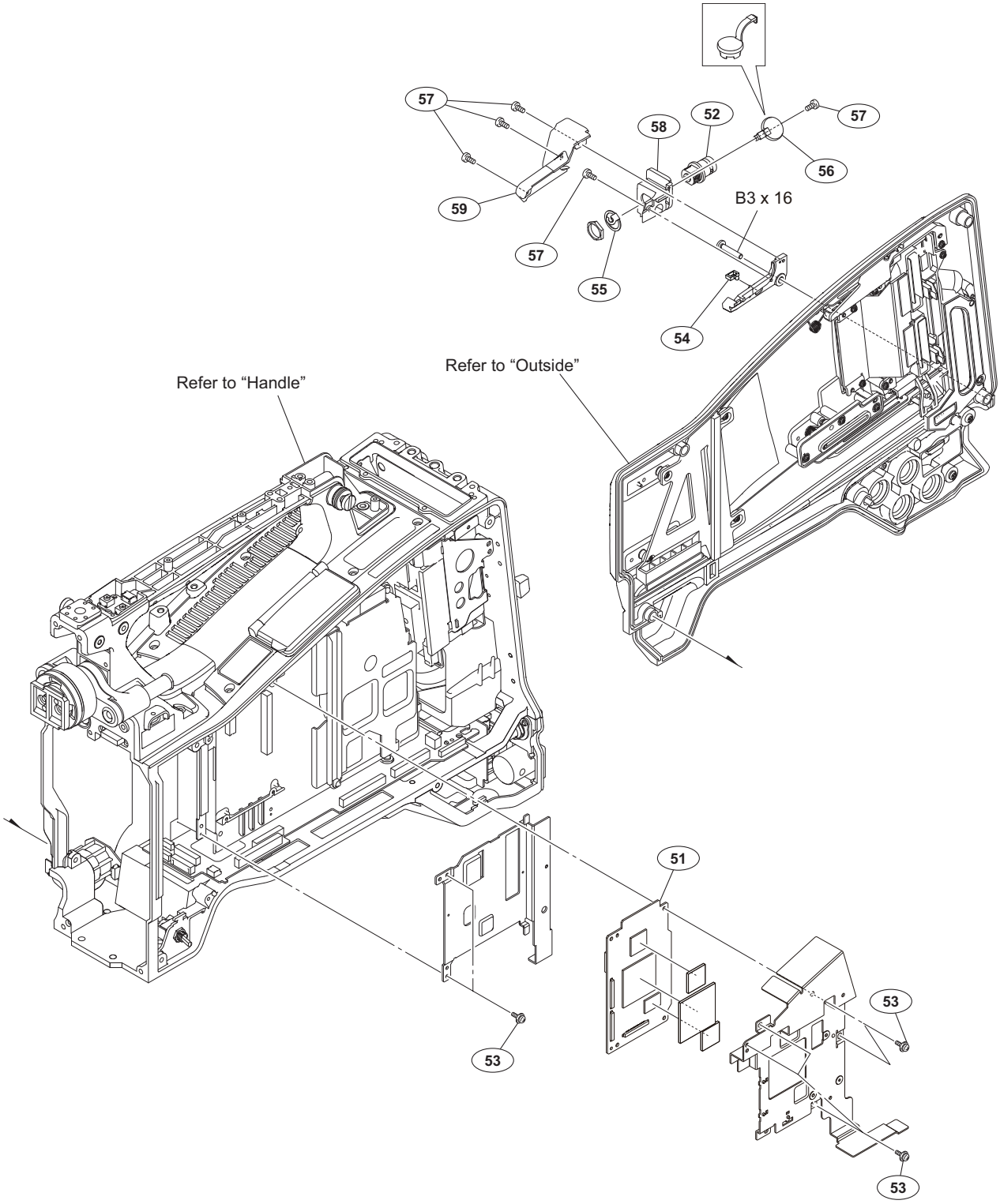
Overall-1



No.	Part No.	SP	Description
1	A-1106-989-A	s	COVER ASSY, SHOE
2	A-1541-534-A	s	PLATE (WRR) ASSY, BLIND
3	A-1752-736-A	s	SHOULDER PAD ASSY
4	X-2541-837-2	s	COVER ASSY, HANDLE (TOP)
5	1-856-053-41	s	1/2 INCH, ZOOMLENS (RP)
6	3-079-115-01	s	TAPE AS
7	3-742-004-01	s	RING, NYLON
8	3-742-074-13	s	SCREW (+B 3X8)
9	3-796-982-03	s	HOLDER LENS MOUNT
10	3-805-990-01	s	HANDLE TOP COVER (TOP)
11	3-870-241-02	s	COVER, LAMP
12	3-870-243-02	s	SEAL, LAMP COVER
13	3-855-938-01	s	SCREW (PSW 2X5)
14	3-965-077-02	s	SCREW, SPECIAL (M2)

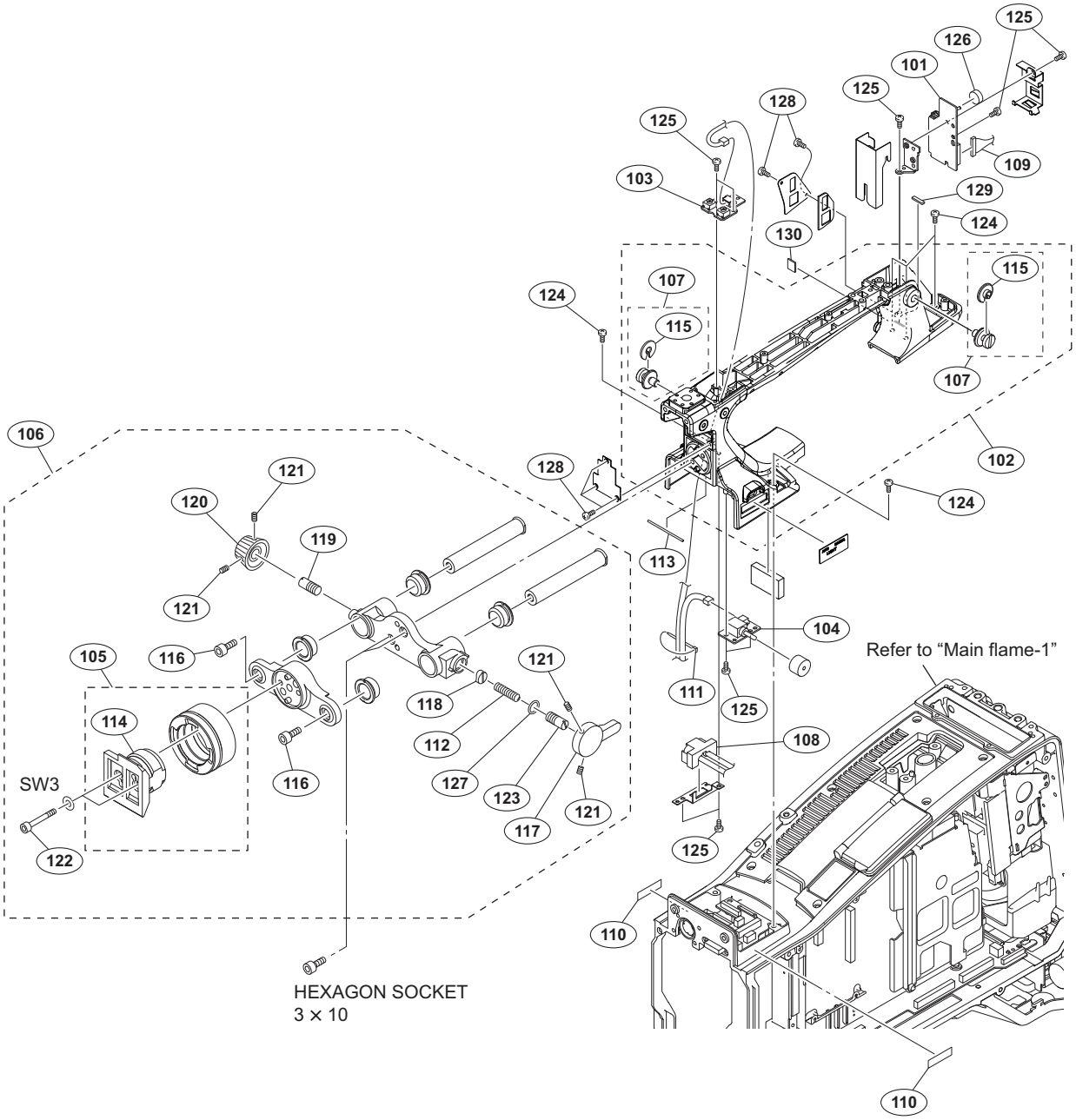
No.	Part No.	SP	Description
15	4-168-996-01	s	CAP (LIGHT CONNECTOR)
16	4-168-997-02	s	GRIP
17	4-168-998-02	s	COVER, TALLY
18	4-169-085-02	s	CAP, CONNECTOR
19	4-264-451-01	s	CAP (USB2)
20	4-654-273-02	s	ACE (M2), LOCK (B2X5)
21	3-079-115-01	s	TAPE AS
	7-621-775-40	s	SCREW +B 2.6X8
	7-621-775-50	s	SCREW +B 2.6X10

Overall-2



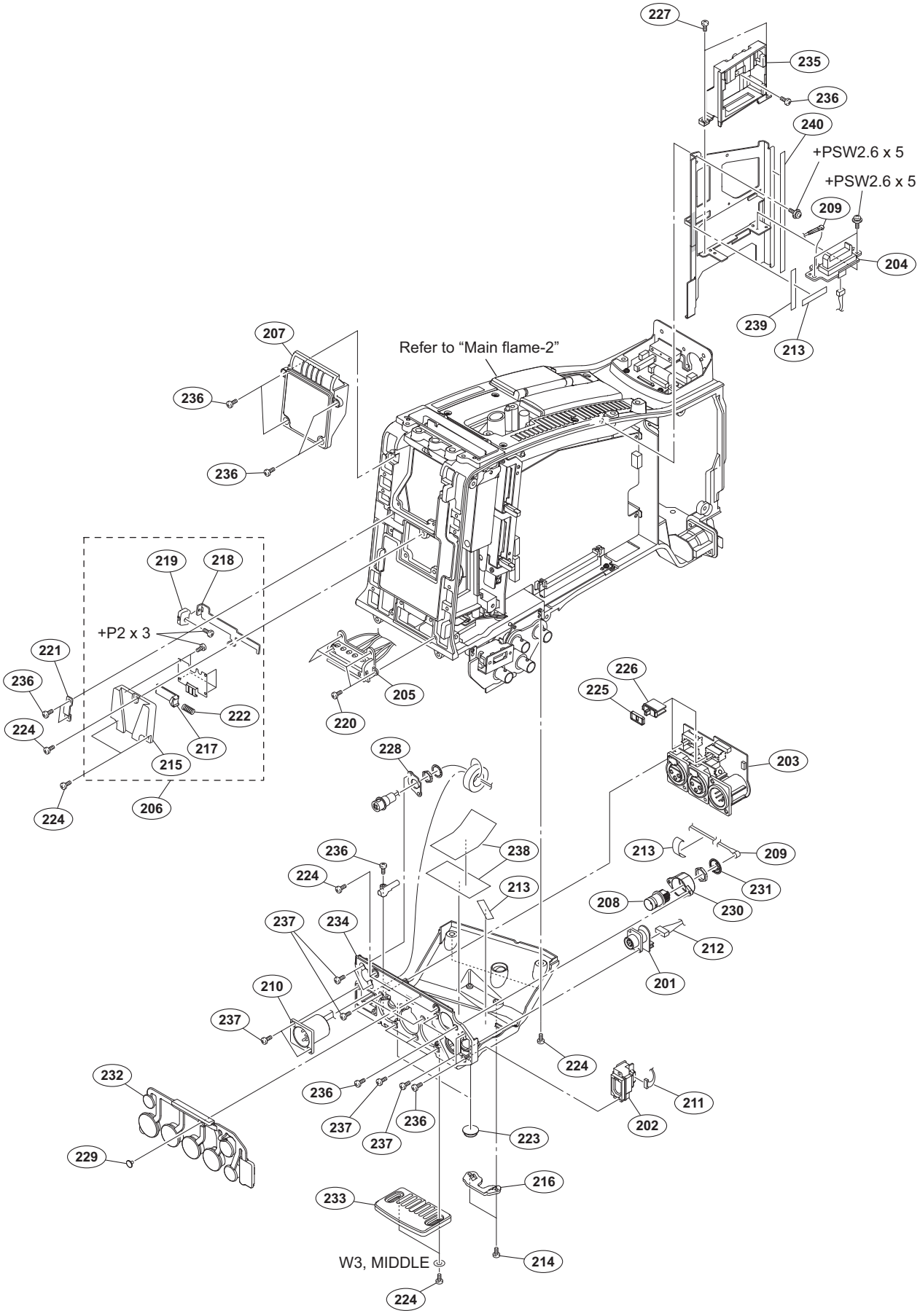
No.	Part No.	SP	Description	No.	Part No.	SP	Description
51	A-1944-260-A	s	MOUNTED CIRCUIT BOARD, VPR-122	59	4-469-254-01	s	COVER (SDI CN)
52	1-784-240-11	s	CONVERTER, COAXIAL CONNECTOR				
53	3-855-938-01	s	SCREW (PSW 2X5)				
54	3-906-254-01	o	CLAMP		7-682-552-04	s	SCREW +B 3X16
55	4-136-517-01	s	WASHER, BNC COAXIAL FIXED				
56	3-872-935-01	s	CAP, BNC				
57	4-654-273-02	s	ACE (M2), LOCK (B 2X5)				
58	4-469-253-01	s	BRACKET (SDI CN)				

Handle



No.	Part No.	SP	Description
101	A-1944-253-A	s	MOUNTED CIRCUIT BOARD, LED-522
102	A-1964-815-A	s	HANDLE SUB ASSY
103	A-1968-023-A	s	MOUNTED CIRCUIT BOARD, SW-1475A
104	A-1968-024-A	s	MOUNTED CIRCUIT BOARD, SW-1476A
105	A-8278-412-J	s	SHOE ASSY, VF
106	A-8286-289-B	s	SLIDE ASSY, VF
107	X-3710-037-1	s	SUSPENSION ASSY (C)
108	1-967-028-11	s	HARNESS, SUB (LIGHT)
109	1-967-071-13	s	HARNESS, SUB (SUB LED)
110	3-079-115-01	s	TAPE AS
111	3-337-402-01	o	BAND, BINDING
112	3-612-822-01	s	SPRING,COMPRESSION
113	3-624-455-01	s	TUBE, SHIELD (30000 mm)
114	3-627-853-07	s	SHOE, SLIDE
115	3-654-615-02	s	COLLAR, SUSPENSION
116	3-657-705-91	s	BOLT (M4X8), HEXAGON HOLE
117	3-673-046-21	s	LEVER, LOCK
118	3-679-702-11	s	CUSION, STOPPER
119	3-690-660-02	s	LOCK, SCREW
120	3-690-674-02	s	KNOB, LOCK
121	3-701-507-01	s	SET SCREW, DOUBLE POINT, (M3X5)
122	3-711-765-01	s	BOLT (M3), HEXAGON SOCKET
123	3-711-794-12	s	PIN, STOPPER
124	3-742-074-13	s	SCREW (+B 3X8)
125	3-855-938-01	s	SCREW (PSW 2X5)
126	3-868-631-01	s	CUSHION, DROP PROTECTION
127	3-895-622-01	s	RING (DIA. 5), O
128	4-654-273-02	s	ACE (M2), LOCK (B 2X5)
129	4-478-653-01	s	FORM (3X1), SHIELD
130	4-446-005-01	s	GASKET MAIN L
	7-623-208-22	s	SW 3, TYPE 2
	7-683-405-04	s	BOLT, HEXAGON SOCKET 3X10

Main Frame-1


227
235
236
240
+PSW2.6 x 5
+PSW2.6 x 5
209
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213
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Refer to “Main flame-2”
236
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+P2 x 3
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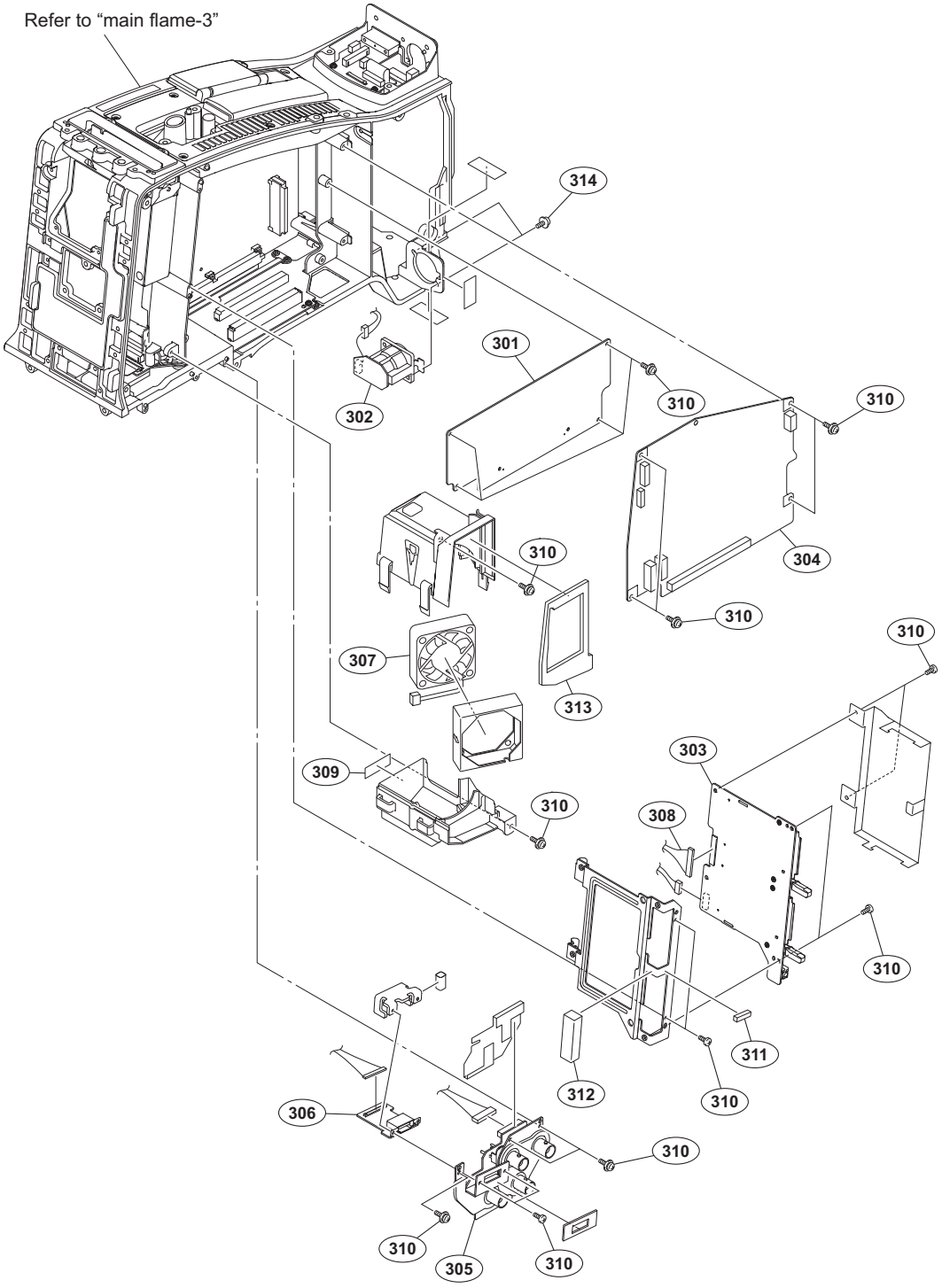
W3, MIDDLE
224

Main Frame-1

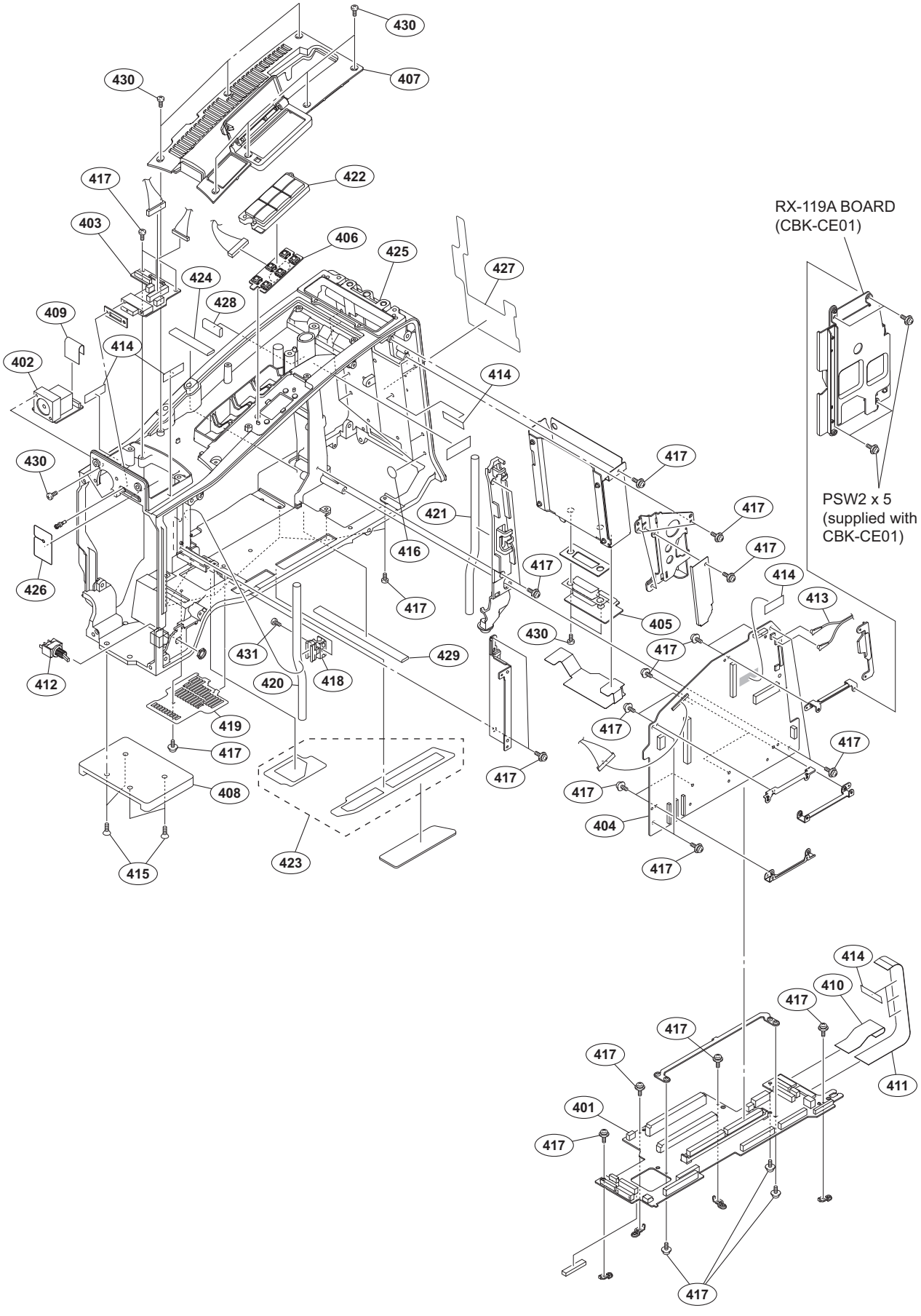
No.	Part No.	SP	Description
201	A-1944-246-A	s	MOUNTED CIRCUIT BOARD, RM-240
202	A-1944-250-A	s	MOUNTED CIRCUIT BOARD, CN-3636
203	A-1944-256-A	s	MOUNTED CIRCUIT BOARD, AXM-49
204	A-1962-311-A	s	MOUNTED CIRCUIT BOARD, SDI-118
205	A-1968-119-A	s	BATTERY HARNESS ASSY
206	A-8279-091-D	s	MOUNT ASSY, V
207	X-2587-459-1	s	50P COVER ASSY
208	1-784-240-11	s	CONVERTER, COAXIAL CONNECTOR
209	1-837-372-11	s	CABLE ASSEMBLY, COAXIAL
210	1-967-024-14	s	HARNESS, SUB (DC IN)
211	1-967-025-12	s	HARNESS, SUB (ILINK)
212	1-967-026-12	s	HARNESS, SUB (RM)
213	3-079-115-01	s	TAPE AS
214	3-364-941-01	s	SCREW (+B) (2.6X5), NYLOK
215	3-616-721-02	o	MOUNT (2), V
216	3-626-781-03	s	STOPPER
217	3-679-687-02	s	LOCK, SLIDE
218	3-679-688-03	s	LEVER, RELEASE
219	3-680-952-02	o	KNOB, RELEASE LEVER
220	3-694-181-03	s	TYPE1, AROCK PRECISION +P2.6X5
221	3-697-119-03	s	RETAINER
222	3-704-964-01	s	SPRING,COMPRESSION
223	3-723-097-01	o	FOOT, RUBBER
224	3-742-074-13	s	SCREW (+B 3X8)
225	3-796-985-02	s	CUSHION, DROP PROTECTION
226	3-796-986-02	s	KNOB, SLIDE SW
227	3-855-938-01	s	SCREW (PSW 2X5)
228	3-870-176-02	s	BRACKET (DC OUT)
229	3-965-077-02	s	SCREW, SPECIAL (M2)
230	3-991-412-01	s	BRACKET, BNC (S)
231	4-136-517-01	s	WASHER, BNC COAXIAL FIXED
232	4-168-992-01	s	COVER (XLR), DROP PROTECTION
233	4-176-668-01	s	BOTTOM GUARD
234	4-467-465-01	s	BOX, CONNECTOR
235	4-472-283-01	s	CASE (WA)
236	4-654-273-02	s	ACE (M2), LOCK (B 2X5)
237	4-674-315-01	s	SCREW (M2.6X6)
238	3-878-657-01	s	TAPE 50
239	4-461-832-02	s	CUSHION, SXS HARNESS
240	4-475-302-01	s	CUSHION (INT BCT)
	7-621-759-35	s	+PSW, 2.6X5
	7-627-553-38	s	SCREW, PRECISION +P 2X3
	7-688-003-12	s	W3, MIDDLE

Main Frame-2



No.	Part No.	SP	Description	No.	Part No.	SP	Description
301	A-1944-244-A	s	MOUNTED CIRCUIT BOARD, AU-352	313	4-468-131-01	s	CUSHION, JOINT
302	A-1944-247-A	s	MOUNTED CIRCUIT BOARD, CN-3623	314	4-674-315-01	s	SCREW (M2.6X6)
303	A-1944-252-A	s	MOUNTED CIRCUIT BOARD, EC-77				
304	A-1944-802-A	s	MOUNTED CIRCUIT BOARD, RE-316				
305	A-1945-347-A	s	MOUNTED CIRCUIT BOARD, IO-247C				
306	A-1945-467-A	s	MOUNTED CIRCUIT BOARD, DIF-215A				
307	⚠ 1-855-024-11	s	FAN, DC (40 SQUARE)				
308	1-967-037-11	s	HARNESS (DPR-EC)				
309	3-079-115-01	s	TAPE AS				
310	3-855-938-01	s	SCREW (PSW 2X5)				
311	4-000-497-01	s	FOAM (ILI), SHIELD				
312	4-176-598-01	s	FOAM(10X10X20), SHIELD				

Main Frame-3


RX-119A BOARD
(CBK-CE01)
PSW2 x 5
(supplied with
CBK-CE01)
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404
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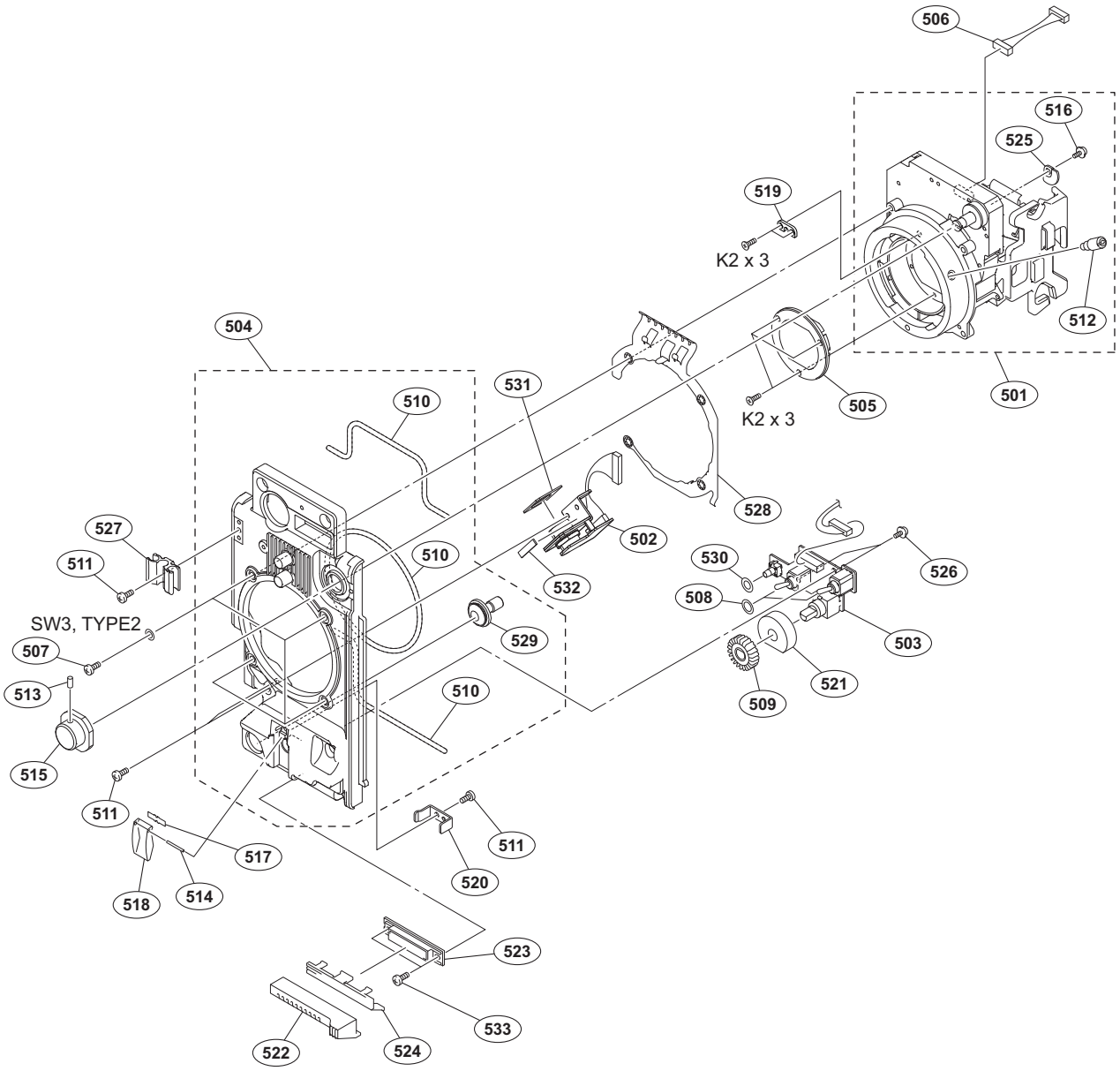
411
401

Main Frame-3

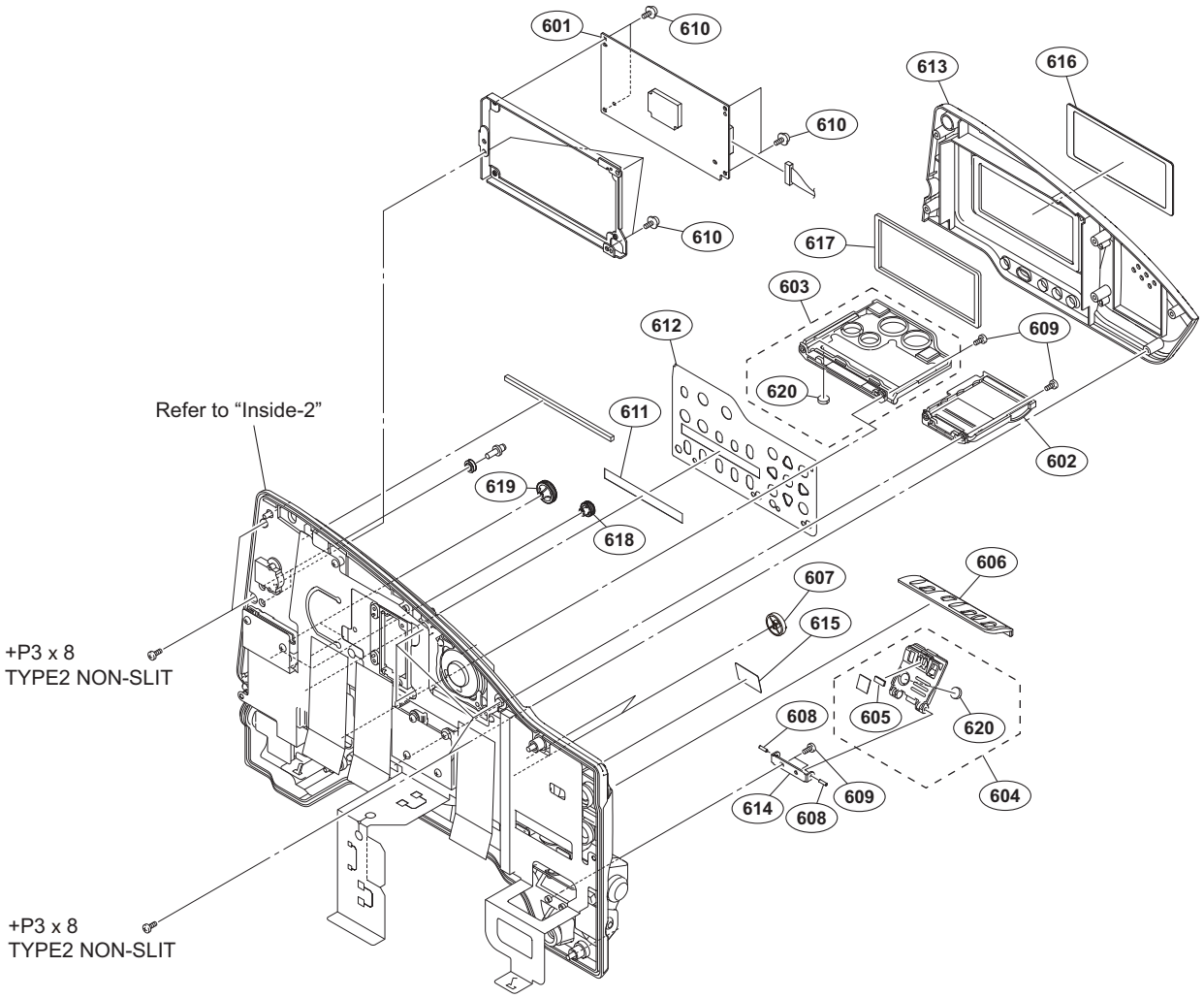
No.	Part No.	SP	Description
401	A-1944-243-A	s	MOUNTED CIRCUIT BOARD, MB-1205
402	A-1944-249-A	s	MOUNTED CIRCUIT BOARD, CN-3635
403	A-1944-251-A	s	MOUNTED CIRCUIT BOARD, HN-410
404	A-1944-805-A	s	MOUNTED CIRCUIT BOARD, DPR-354 (400) (for PMW-400)
	A-1983-345-A	s	MOUNTED CIRCUIT BOARD, DPR-354 (580) (for PMW-580)
405	A-1964-898-A	s	MOUNTED CIRCUIT BOARD, RX-117A
406	A-1968-025-A	s	MOUNTED CIRCUIT BOARD, KY-658A
407	A-1968-118-A	s	COVER ASSY, TOP
408	A-8279-993-D	s	SHOE(D)ASSY, V
409	1-837-295-11	s	CABLE, FLEXIBLE FLAT (30 CORE)
410	1-837-296-11	s	CABLE, FLEXIBLE FLAT (30 CORE)
411	1-837-297-11	s	CABLE, FLEXIBLE FLAT (30 CORE)
412	1-967-041-12	s	HARNESS, SUB (POWER SW)
413	1-968-567-11	s	CABLE ASSEMBLY, COAXIAL
414	3-079-115-01	s	TAPE AS
415	3-729-072-02	s	SCREW, +K (4X8)
416	3-796-946-03	s	TAPE (A)
417	3-855-938-01	s	SCREW (PSW 2X5)
418	4-138-678-01	s	CLAMP, CABLE
419	4-168-987-02	s	COVER BOTTOM
420	4-169-108-02	s	TUBE, DRAIN
421	4-169-108-12	s	TUBE, DRAIN
422	4-169-111-01	s	KEYSW COVER
423	4-169-114-03	s	MESH, BOTTOM
424	4-176-603-01	s	FAOM (7X2), SHIELD
425	4-467-480-02	s	FRAME, MAIN
426	4-468-127-01	s	CUSHION (LIGHT)
427	4-468-130-01	s	SHEET, REAR
428	4-468-137-01	s	FOAM (10X6), SHIELD
429	4-468-138-01	s	FOAM (7X2), SHIELD
430	4-654-273-02	s	ACE (M2), LOCK (B 2X5)
431	4-674-315-01	s	SCREW (M2.6X6)

Front



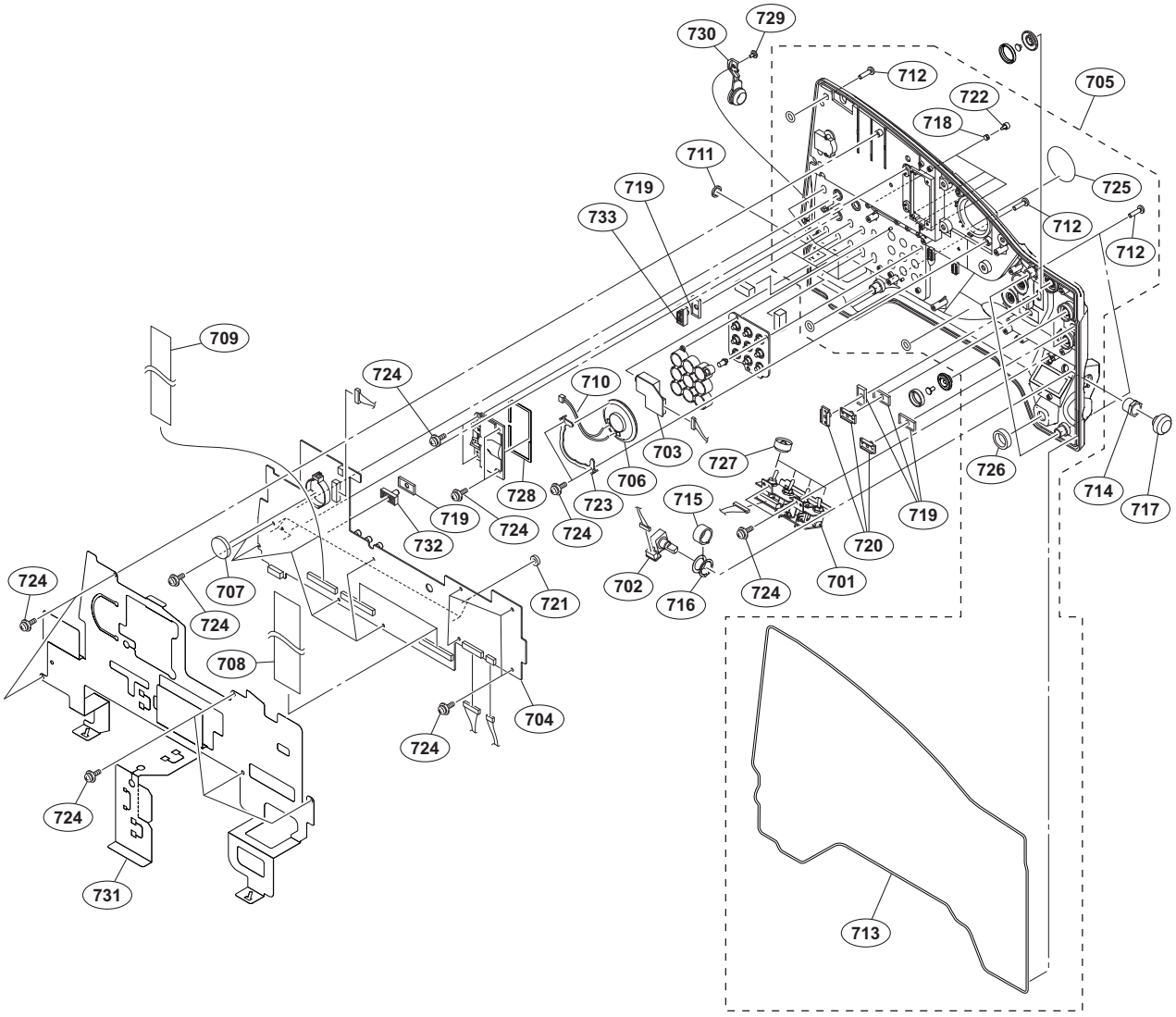
No.	Part No.	SP	Description
501	A-1773-604-A	s	CMOS BLOCK ASSY (RP)
502	A-1945-346-A	s	MOUNTED CIRCUIT BOARD, CN-3268A
503	A-1968-022-A	s	MOUNTED CIRCUIT BOARD, SW-1474A
504	A-1968-128-A	s	SUB ASSY, FRONT PANEL
505	1-856-052-11	s	FILTER UNIT, OPTICAL
506	1-967-049-11	s	HARNESS, SUB (SE)
507	2-623-773-11	s	BOLT (M3X8), STAINLESS
508	3-312-823-01	s	PACKING, KNOB
509	3-624-135-01	s	KNOB, VR (AUDIO)
510	3-624-455-01	s	TUBE, SHIELD (30000 mm)
511	3-637-901-11	s	SCREW M2.6X5
512	3-678-629-04	s	LEVER, MOUNT
513	3-701-505-01	s	SET SCREW, DOUBLE POINT 3X3
514	3-703-357-05	s	PIN, PARALLEL (DIA. 1.6X8)
515	3-710-054-01	s	KNOB, FILTER
516	3-729-076-11	s	SCREW (+B) (2X4)
517	3-742-066-11	o	SPRING, SHUTTER
518	3-742-067-06	s	LID, SHUTTER
519	3-776-897-02	s	GUIDE PLATE
520	3-796-965-01	s	BRACKET, SHUTTER
521	3-797-080-01	s	DROP PROTECTION (MIC VR)
522	3-854-361-01	s	GUARD VOLUME FRONT
523	3-854-362-01	s	HOLDER GUARD
524	3-854-363-01	s	SLIDER
525	3-854-378-01	s	PLATE, FILTER ID
526	3-855-938-01	s	SCREW (PSW 2X5)
527	3-870-272-02	s	CLAMP, CABLE
528	3-879-494-02	s	FINGER (LM), SHIELD
529	3-986-632-02	s	BUTTON, VTR START
530	3-990-897-01	s	CUSHION REC (SW)
531	4-468-156-01	s	CUSHION, DROP PROTECTION CONNEC
532	4-468-157-01	s	CUSHION, DROP PROTECTION 2
533	4-654-273-02	s	ACE (M2), LOCK (B 2X5)
	7-623-208-22	s	SW 3, TYPE 2
	7-627-452-18	s	SCREW, PRECISION +K 2X3

Inside-1



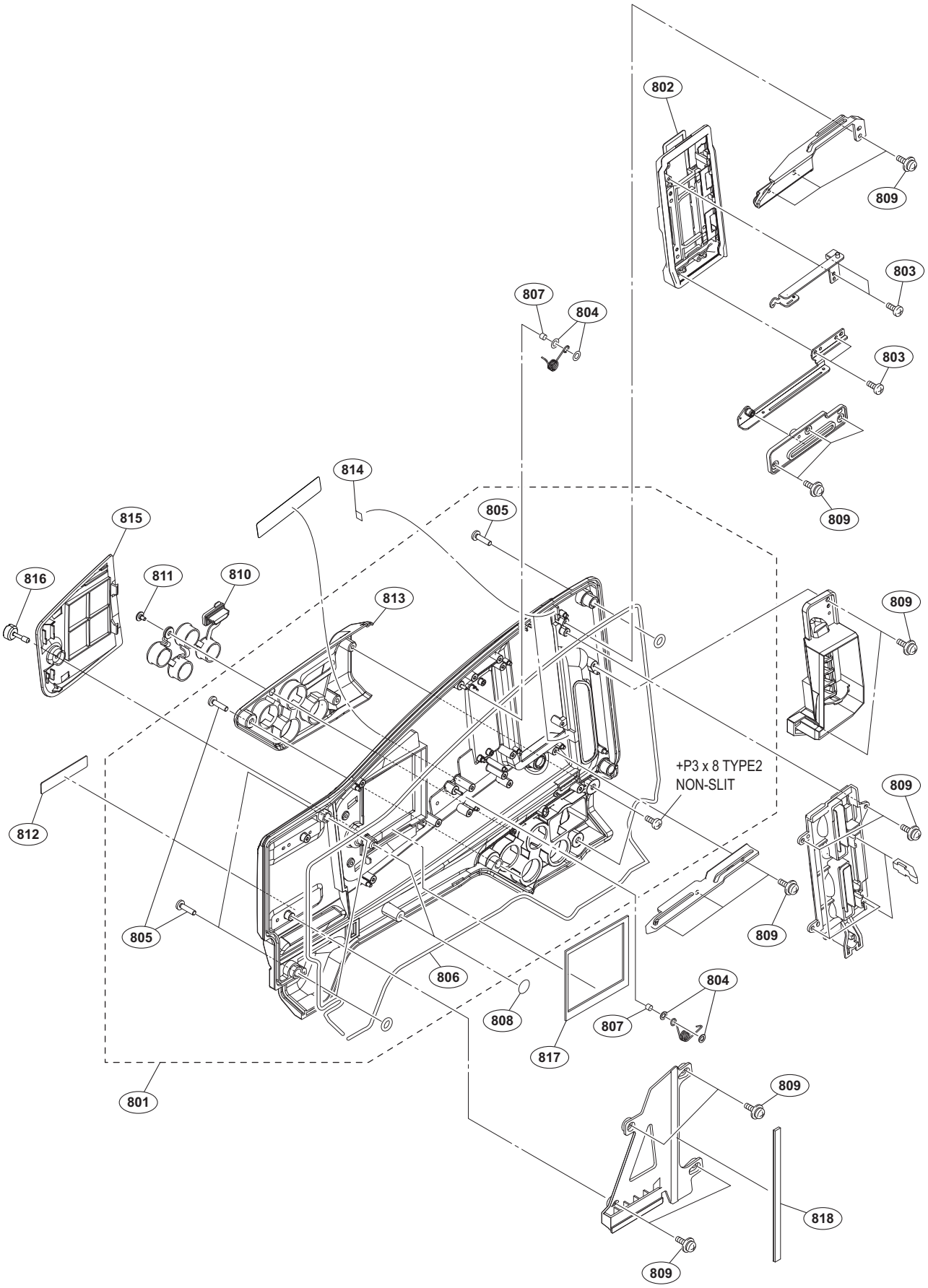
No.	Part No.	SP	Description
601	A-1944-248-A	s	MOUNTED CIRCUIT BOARD, PD-122
602	A-1968-122-A	s	SWITCH DOOR (L) ASSY
603	A-1968-123-A	s	SWITCH DOOR (R) ASSY
604	A-1968-124-A	s	DOOR ASSY, MENU
605	1-471-483-11	s	MAGNET, LCD
606	3-629-768-52	s	ORNAMENTAL PLATE(3), SW, CAMERA
607	3-680-219-03	s	KNOB,VR
608	3-703-357-03	s	PIN, PARALLEL (DIA. 1.6X6)
609	3-719-381-02	s	SCREW (M2X4)
610	3-855-938-01	s	SCREW (PSW 2X5)
611	3-879-092-01	s	SHEET, SW PANEL
612	4-169-005-01	s	PLATE, SW ORNAMENTAL
613	4-467-509-01	s	PAD, INSIDE
614	4-467-510-01	s	HINGE, MENU DOOR
615	4-468-152-01	s	LABEL, FILTER INDICATION
616	4-468-153-01	s	WINDOW, LCD
617	4-468-154-01	s	CUSHION, LCD
618	4-472-861-01	s	VR KNOB (S)
619	4-472-862-01	s	VR KNOB (2)
620	4-644-879-11	s	FOOT (B-2)
	7-685-146-11	s	SCREW +P 3X8 TYPE2 NON-SLIT

Inside-2



No.	Part No.	SP	Description
701	A-1944-254-A	s	MOUNTED CIRCUIT BOARD, SW-1602
702	A-1944-255-A	s	MOUNTED CIRCUIT BOARD, ENC-154
703	A-1944-257-A	s	MOUNTED CIRCUIT BOARD, HP-165
704	A-1945-345-A	s	MOUNTED CIRCUIT BOARD, FP-169C
705	A-1968-125-A	s	PANEL SUB ASSY, INSIDE
706	1-503-293-12	s	SPEAKER
707	⚠ 1-528-174-72	s	BATTERY, LITHIUM (CR2032 TYPE)
708	1-837-293-11	s	CABLE, FLEXIBLE FLAT (30 CORE)
709	1-837-294-11	s	CABLE, FLEXIBLE FLAT (25 CORE)
710	1-967-045-12	s	HARNESS, SUB (SPEAKER)
711	3-061-234-01	s	NUT (M6X0.5)
712	3-603-680-02	s	STAINLESS SCREW +B3X12
713	3-624-455-01	s	TUBE, SHIELD (30000 mm)
714	3-629-446-04	s	SLEEVE (ENC2)
715	3-629-447-03	o	SLEEVE (ENC1)
716	3-647-917-02	s	PLATE, EARTH
717	3-692-111-02	s	KNOB,RE
718	3-724-758-02	s	RUBBER (PUSH), DROP PROTECTION
719	3-796-995-01	s	DROP PROTECTION(SW)
720	3-796-996-03	s	KNOB(A), SW
721	3-797-016-01	s	CUSHION VOLUME AUDIO
722	3-797-073-01	s	RES, SW PUSE
723	3-797-084-01	s	HOLDER SPEAKER
724	3-855-938-01	s	SCREW (PSW 2X5)
725	3-868-597-01	s	SHEET (SP), DROP PROTECTION
726	3-870-098-01	s	CUSHION, POWER SWITCH
727	3-870-137-02	s	CAP, DROP PROTECTION
728	3-870-138-01	s	SHEET, HARNESS DROP PROTECTION
729	3-965-077-02	s	SCREW, SPECIAL (M2)
730	4-168-991-01	s	COVER, HEADPHONE JACK
731	4-468-537-01	s	INSULATING SHEET, FP
732	4-472-863-01	s	KNOB (B), SWITCH
733	4-472-864-01	s	KNOB (C), SWITCH

Outside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+P3 x 8 TYPE2
NON-SLIT
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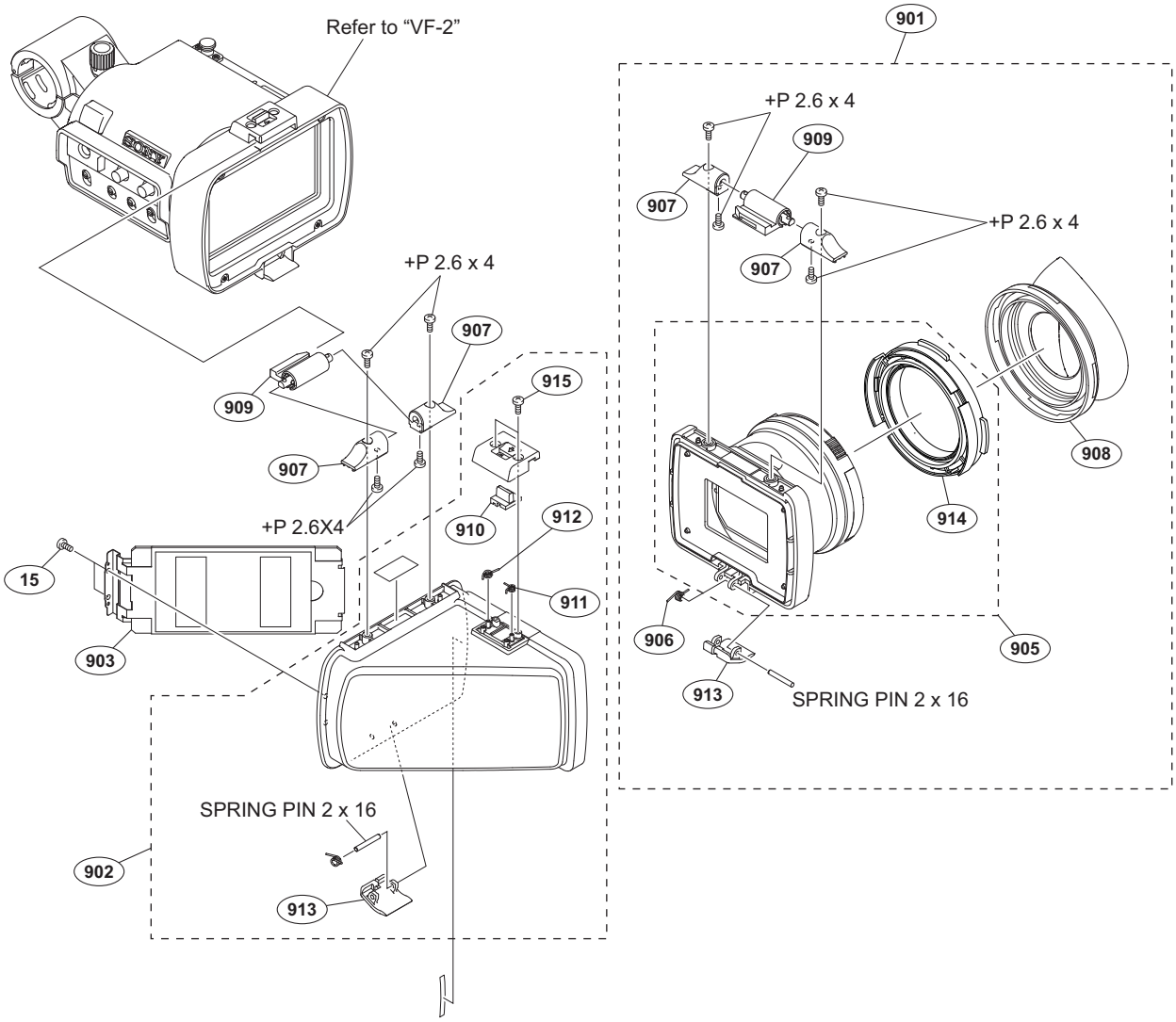
Outside

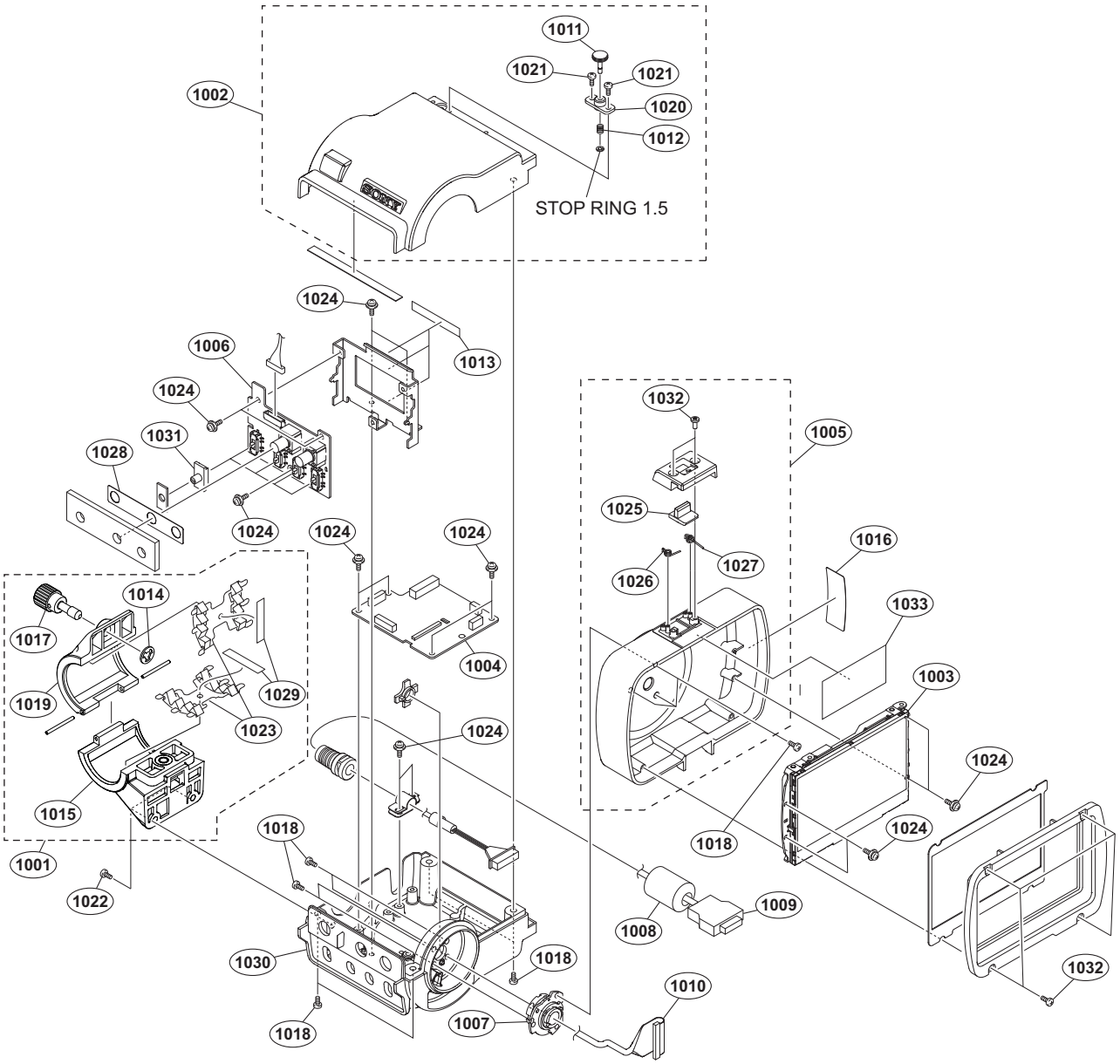
No.	Part No.	SP	Description
801	A-1983-403-A	s	PANEL SUB ASSY, OUTSIDE (RP)
802	A-1968-115-A	s	LID ASSY, SLOT
803	3-080-206-21	s	SCREW, TAPPING, P2 (2X5)
804	3-223-464-01	s	SPACER (SLIDER)
805	3-603-680-02	s	STAINLESS SCREW +B3X12
806	3-624-455-01	s	TUBE, SHIELD (30000 mm)
807	3-657-841-31	s	SPACER (2X2.5)
808	3-796-946-03	s	TAPE (A)
809	3-855-938-01	s	SCREW (PSW 2X5)
810	4-168-993-01	s	CAP, BNC
811	3-965-077-02	s	SCREW, SPECIAL (M2)
812	4-168-995-01	s	EMBLEM (LEO), EXMOR
813	4-467-428-01	s	COVER, BNC
814	4-468-114-01	s	STOPPER (OPEN)
815	4-473-528-01	s	PANEL (WA), BLANK
816	4-474-177-01	s	SCREW, COIN
817	4-475-301-01	s	CUSHION (OS WA)
818	4-475-302-01	s	CUSHION (INT BCT)
	7-685-146-11	s	+P3X8 TYPE2 NON-SLIT

VF-1



No.	Part No.	SP	Description
901	A-1853-004-A	s	LOUPE ASSY
902	A-1971-905-A	s	ELBOW SUB ASSY
903	X-2541-756-2	s	MIRROR ASSY
905	1-856-308-12	s	LOUPE, VF
906	3-878-206-02	s	SPRING, TORSION COIL
907	3-878-207-01	s	BLOCK, SHAFT FIXED
908	3-878-208-02	s	EYE CUP
909	3-878-209-02	s	HINGE, SWITCHING
910	3-878-231-11	s	SW SLIDE
911	3-878-232-11	s	SPRING (A90), TORSION COIL
912	3-878-233-11	s	SPRING (A-70),TORSION COIL
913	4-168-080-01	s	LEVER, LOCK
914	4-284-225-02	s	HOLDER, EYE CUP
915	4-654-273-02	s	ACE (M2), LOCK (B 2X5)
	7-621-284-00	s	SCREW +P 2.6X4
	7-626-314-31	s	SPRING PIN 2X16

VF-2



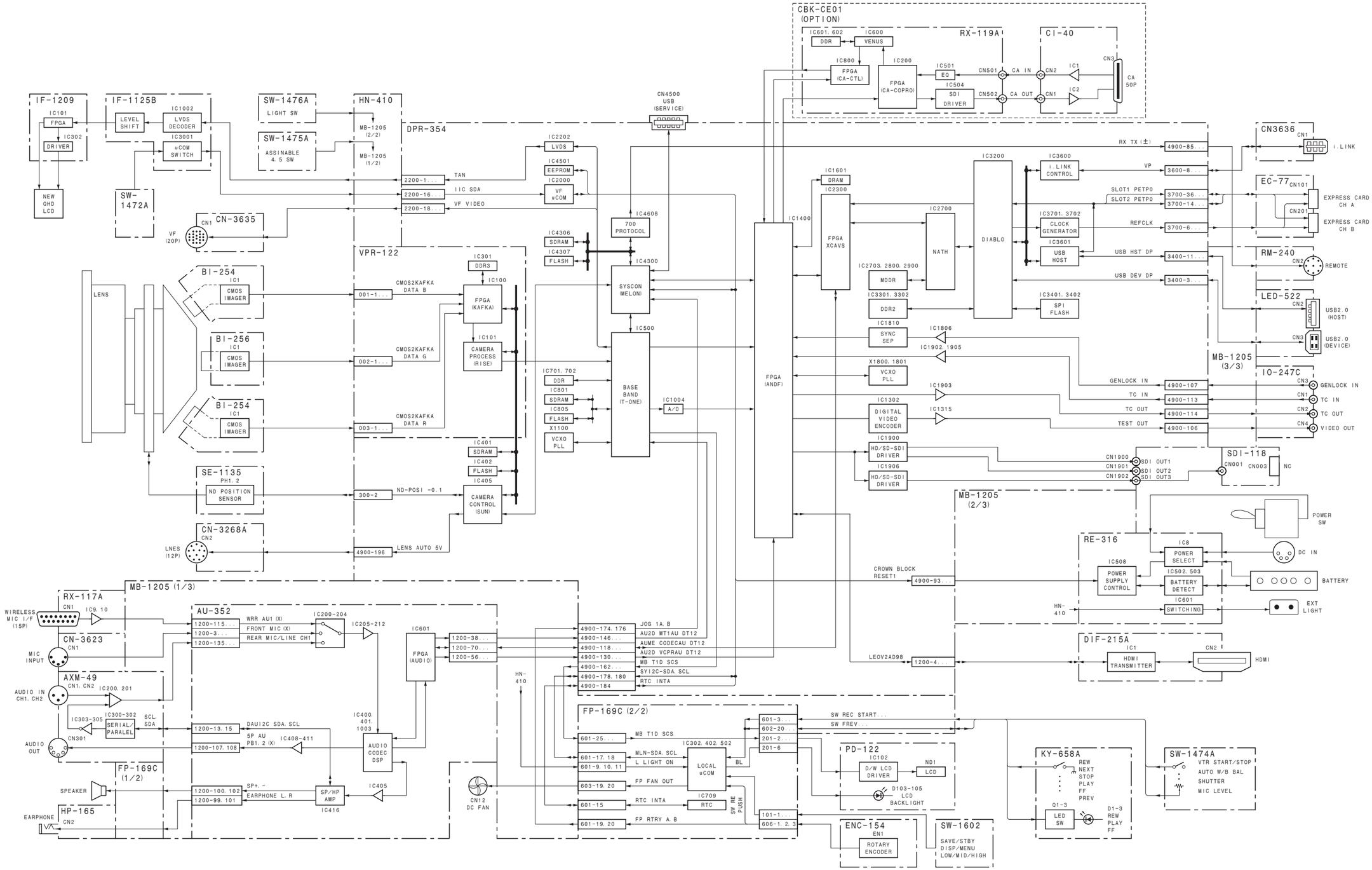
No.	Part No.	SP	Description
1001	A-1511-856-B	s	MIC HOLDER ASSY (SERVICE)
1002	A-1983-404-A	s	CASE ASSY, UPPER (RP)
1003	A-1927-450-A	s	3.5 INCH LCD ASSY
1004	A-1979-610-A	s	MOUNTED CIRCUIT BOARD, IF-1125B
1005	A-1955-096-A	s	CASE ASSY, LCD
1006	A-1968-026-A	s	MOUNTED CIRCUIT BOARD, SW-1472A
1007	X-2318-442-1	s	HINGE ASSY
1008	1-481-528-21	s	FILTER, CLAMP (FERRITE CORE)
1009	1-837-530-12	s	CORD, CONNECTION (VF)
1010	1-967-038-11	s	HARNESS (IF-LCD2)
1011	2-277-457-11	s	KNOB, STOPPER
1012	2-277-466-11	s	SPRING, COMPRESSION
1013	3-079-115-01	s	TAPE AS
1014	3-165-904-01	s	WASHER, SCREW STOPPER
1015	3-292-693-02	s	MIC HOLDER (LOWER)
1016	3-602-979-02	s	LABEL,CAUTION
1017	3-633-916-01	s	SCREW(M5)
1018	3-637-901-11	s	SCREW M2.6X5
1019	3-679-692-11	s	HOLDER, MICROPHONE (B)
1020	3-710-008-11	s	HOUSING, STOPPER
1021	3-719-381-02	s	SCREW (M2X4)
1022	3-742-074-13	s	SCREW (+B 3X8)
1023	3-854-132-01	s	GEL, MIC
1024	3-855-938-01	s	SCREW (PSW 2X5)
1025	3-878-231-11	s	SW SLIDE
1026	3-878-232-11	s	SPRING (A90), TORSION COIL
1027	3-878-233-11	s	SPRING (A-70),TORSION COIL
1028	3-878-235-01	s	PLATE, BLIND
1029	3-941-343-01	s	TAPE (A)
1030	4-169-158-03	s	CASE, LOWER
1031	4-467-541-01	s	SW,SLIDE
1032	4-654-273-02	s	ACE (M2), LOCK (B 2X5)
1033	3-878-657-01	s	TAPE 50
	7-624-102-04	s	STOP RING 1.5, TYPE-E

5-3. Supplied Accessories

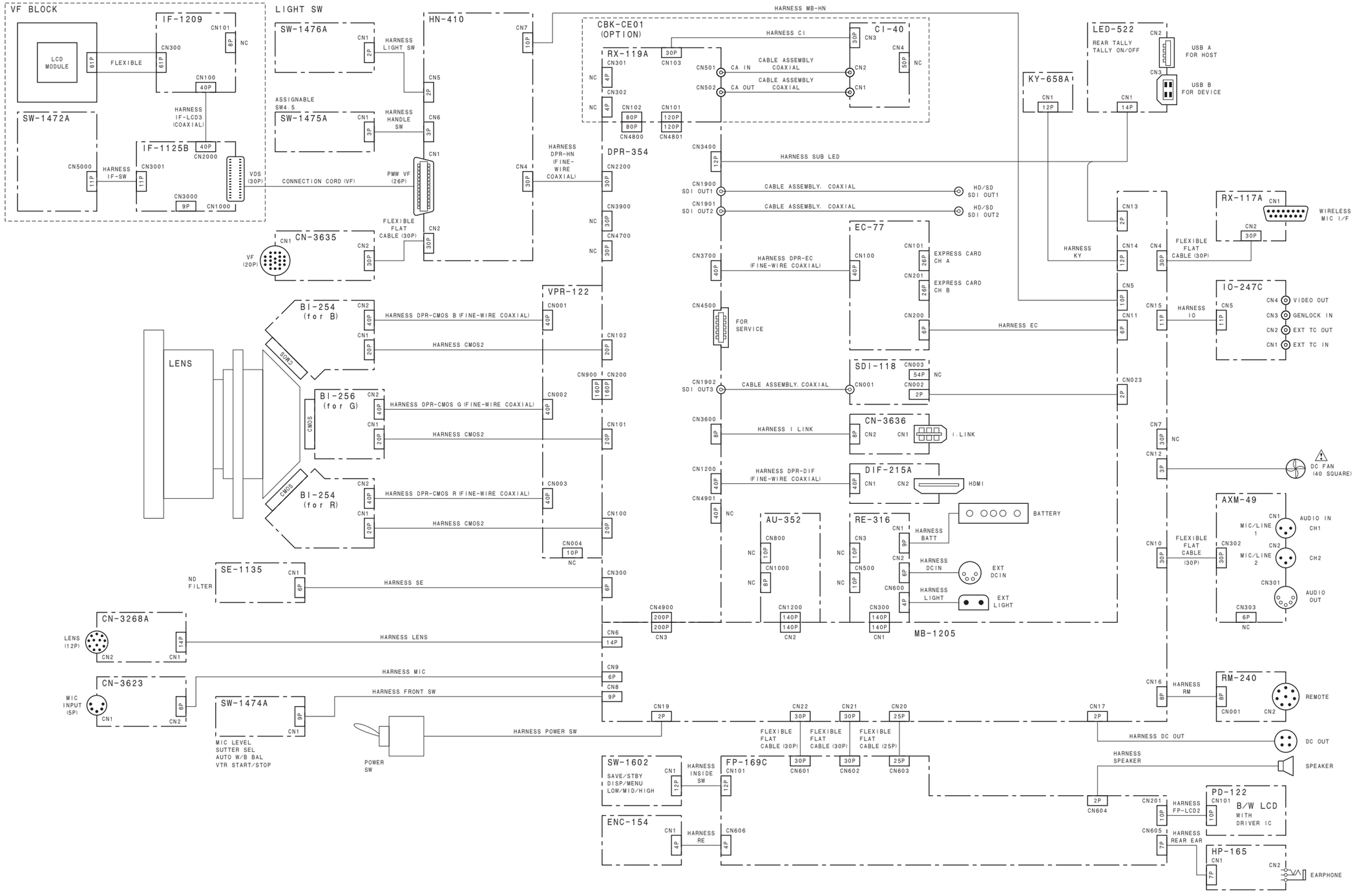
Q'ty	Part No.	SP	Description
1pc	A-6772-374-C	s	BELT ASSY, SHOULDER
1pc	X-2546-633-1	s	KIT,COLD SHOE
1pc	1-542-823-14	s	MICROPHONE (STEREO)
1pc	3-764-889-01	o	CHART, ADJUSTMENT
1pc	3-991-419-01	s	WIND SCREEN
1pc	⚠ 4-476-611-01	s	CD-ROM (INSTRUCTION MANUAL) (for PMW-400)
1pc	⚠ 4-476-542-01	s	MANUAL, INSTRUCTION (for PMW-580)

Section 6
Diagrams

Overall



Frame Wiring



PMW-400 (SY)
PMW-580 (CN) J, E
9-878-477-01

Sony Corporation

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2013. 8 08