SONY®

HD COLOR CAMERA
HXC-100

Power HAD FX MEMORY STICK ™

SERVICE MANUAL
Volume 1 1st Edition

⚠警告

このマニュアルは，サービス専用です。

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

危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠ WARNING

This manual is intended for qualified service personnel only.

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

⚠ WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.

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

⚠ AVERTISSEMENT

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

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Manual Structure

1. Service Overview

2. Replacement of Main Parts

3. Electrical Alignment

4. File System

5. Setup Menu

Manual Structure

Purpose of this manual

This manual is the service manual Volume 1 for HD Color Camera HXC-100.
This manual describes the information items that premise the service based on the components parts such as service overview, replacement of main parts, electrical alignment, file system, SERVICE menu, assuming use of system and service engineers.

Related manuals

Besides this service manual Volume 1 the following manual is available for this unit.

· **HXC-100 Operating Instructions (Supplied with HXC-100)**
  This manual is necessary for application and operation of HXC-100.
  Part number: 4-137-704-0X (Japanese)
  Part number: 4-137-704-1X (English)

· **HXC-100 Operating Instructions CD-ROM (Supplied with UC and CE model)**
  This manual is necessary for application and operation of HXC-100.
  The CD-ROM contains the English, French, German, Italian, and Spanish operating instructions (PDF).
  Part number: 4-137-707-0X

· **Service Manual Volume 2 (Available on request)**
  Describes the parts list, block diagrams, schematic diagrams and board layouts of HXC-100.

· **"Semiconductor Pin Assignments" CD-ROM (Available on request)**
  This "Semiconductor Pin Assignments" CD-ROM allows you to search for semiconductors used in Broadcast and Professional equipment.
  The service manual Volume 2 contains a complete list of semiconductors and their ID Nos., and thus should be used together with the CD-ROM.
  Part number: 9-968-546-06

Trademarks

Trademarks and registered trademarks used in this manual are follows.

· FRAM is a registered trademark of Ramtron International Corporation.

Section 1
Service Overview

1-1. Connectors and Cables

1-1-1. Connector Input/Output Signals
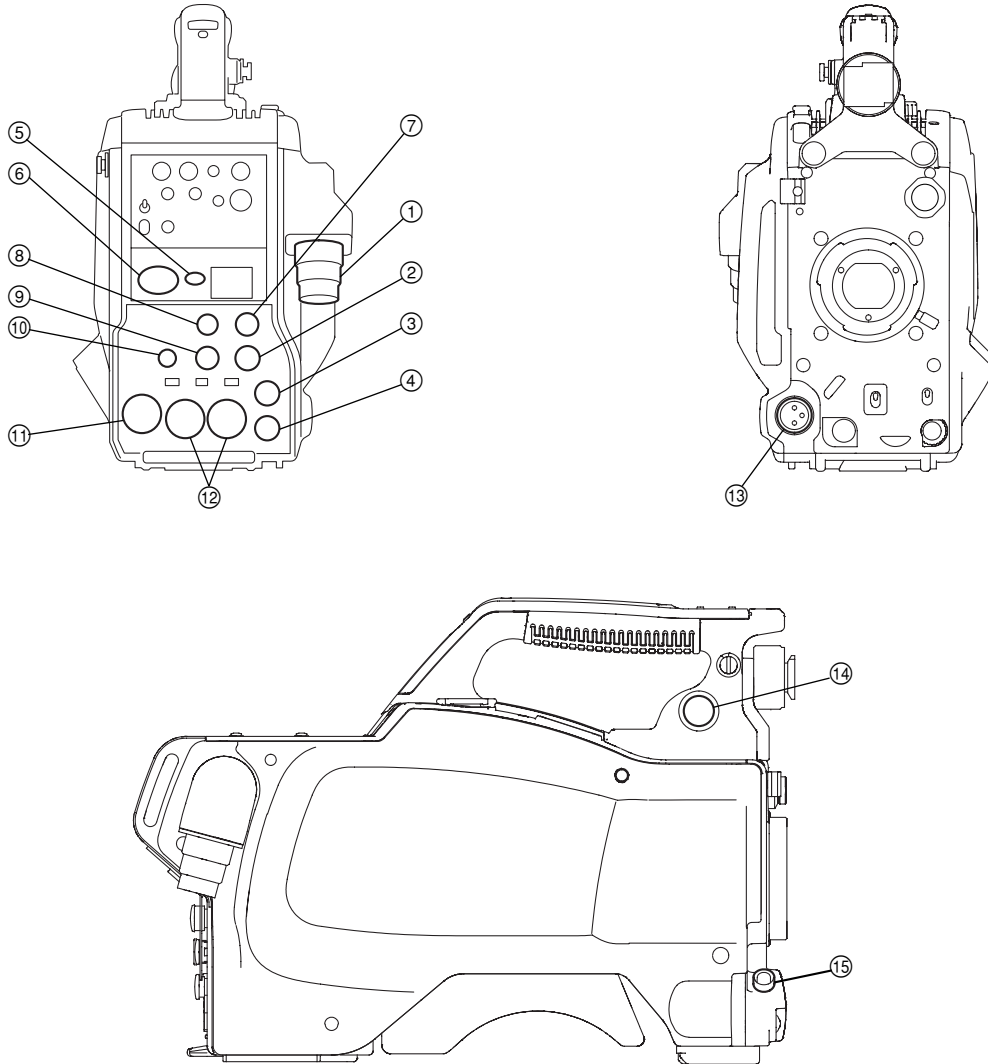
Input/Output Signals

① **CCU (TRIAX) connector**

    J: TAGIMI Triax connector
    UC: LEMO Triax connector
    CE: Fischer Triax connector

② **PROMPTER/GENLOCK/RET**

    BNC type 75 Ω, 1.0 V p-p

③ **TEST OUT**

    BNC type 75 Ω, 1.0 V p-p

Output Signals

④ **SDI**

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

⑤ **EARPHONE**

    EARPHONE φ3.5 mm stereo mini jack

⑥ INTERCOM (5P FEMALE)
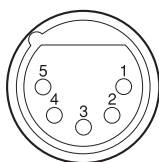
(External view)

No.	Signal	I/O	Specifications
1	Intercom MIC (Y)	IN	CARBON (−20 dBu, Unbalance)
2	Intercom MIC (X)	IN	DYNAMIC (−60 dBu, Balance/Unbalance) MANUAL (−20/−40/−60 dBu, Balance/Unbalance)
3	GND	–	GND
4	Intercom Left	OUT	11 dBu (VR Max, 250 Ω Load)
5	Intercom Right	OUT	11 dBu (VR Max, 250 Ω Load)

(0 dBu = 0.775 Vrms)

⑦ REMOTE (8P FEMALE)
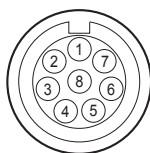
(External view)

No.	Signal		I/O	Specifications
	for RCP	for TRUNK (RS-422A)		
1	TX (X)	TX1 (+)	OUT	SERIAL DATA OUT/TRUNK DATA OUT
2	TX (Y)	TX1 (−)	OUT	
3	RX (X)	RX1 (+)	IN	SERIAL DATA IN/TRUNK DATA IN
4	RX (Y)	RX1 (−)	IN	
5	TX-GND		–	GND for TX
6	UNREG-OUT		OUT	+10.5 to +17 V dc, 200 mA (max)
7	UNREG-GND		–	GND for UNREG-OUT
8	RCP-PIX		OUT	75 Ω, 1.0 V p-p (SD Video)
	CHASSIS GND		–	CHASSIS GND

⑧ RET CTRL (6P FEMALE)
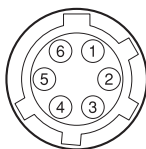
(External view)

No.	Signal	I/O	Specifications
1	INCOM MIC-ON/OFF (J, UC) ENG (CE)	IN	$Zi \geqq 10$ kΩ, ON : GND, OFF : OPEN
2	NC (J, UC)		No connection
	PROD (CE)	IN	$Zi \geqq 10$ kΩ, ON : GND, OFF : OPEN
3	GND	–	
4	RET 3-ON/OFF	IN	$Zi \geqq 10$ kΩ, ON : GND, OFF : OPEN
5	RET 1-ON/OFF	IN	$Zi \geqq 10$ kΩ, ON : GND, OFF : OPEN
6	RET 2-ON/OFF	IN	$Zi \geqq 10$ kΩ, ON : GND, OFF : OPEN

⑨ TRACKER (10P FEMALE)
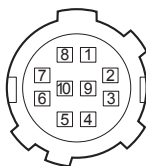
(External view)

No.	Signal	I/O	Specifications
1	TRACKER LEFT	OUT	TRACKER Output, −20 dBu unbalance
2	GND (TALK)	–	GND for TRACKER TALK
3	GND (RECEIVE/PGM/TALLY)	–	GND for RECEIVE/PGM/TALLY
4	TRACKER RIGHT	OUT	TRACKER Output, −20 dBu unbalance
5	UNREG	OUT	+10.5 to 17 V dc
6	GND (UNREG)	–	GND for UNREG
7	TRACKER TALK (X)	IN	TRACKER TALK
8	TRACKER TALK (Y)	IN	0 dBu /−20 dBu, High impedance balanced
9	G TALLY	OUT	ON : GND OFF : High impedance (Open collector)
10	R TALLY	OUT	ON : GND OFF : High impedance (Open collector)

(0 dBu = 0.775 Vrms)

⑩ DC OUT (4P FEMALE)
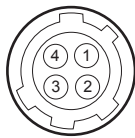
(External view)

No.	Signal	I/O	Specifications
1	UNREG GND	–	GND for UNREG-OUT
2	NC		No connection
3	NC		No connection
4	UNREG-OUT	OUT	+10.5 to 17 V dc, 500 mA (max)

⑪ DC IN (4P MALE)
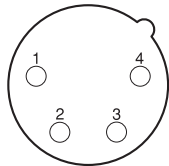
(External view)

No.	Signal	I/O	Specifications
1	EXT_DC (C)	–	GND for DC (+)
2	NC		No connection
3	NC		No connection
4	EXT_DC (H)	IN	+10.5 to 17 V dc

⑫ AUDIO IN CH1/CH2 (3P FEMALE)
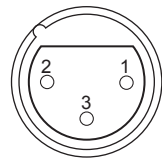
(External view)

No.	Signal	I/O	Specifications
1	AUDIO CH1/CH2 (G)	–	−60 dBu, −50 dBu, −40 dBu, −30 dBu, −20 dBu,
2	AUDIO CH1/CH2 (X)	IN	LINE (0 dBu) selectable, Balanced
3	AUDIO CH1/CH2 (Y)	IN	

(0 dBu = 0.775 Vrms)

⑬ **FRONT MIC (3P FEMALE)**
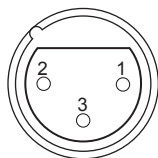
(External view)

No.	Signal	I/O	Specifications
1	MIC 1 (G)	–	−60 dBu, −50 dBu, −40 dBu, −30 dBu, −20 dBu, selectable, Balanced
2	MIC 1 (X)	IN	
3	MIC 1 (Y)	IN	

(0 dBu = 0.755 Vrms)

⑭ **VF (20P FEMALE)**
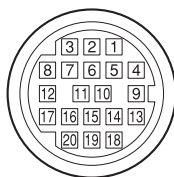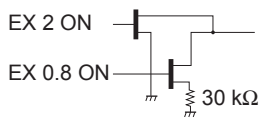
(External view)

No.	Signal	I/O	Specifications
1	S-DATA	IN/OUT	TTL level
2	NC		No connection
3	NC		No connection
4	SCK	OUT	TTL level
5	NC		No connection
6	NC		No connection
7	NC		No connection
8	G TALLY	OUT	ON : 5 V, OFF : GND
9	NC		No connection
10	NC		No connection
11	NC		No connection
12	Y VIDEO	OUT	1.0 V p-p, Zo = 75 Ω
13	VIDEO GND	–	GND for VIDEO
14	Pb VIDEO	OUT	±0.35 V p-p, Zo = 75 Ω
15	Pr VIDEO	OUT	±0.35 V p-p, Zo = 75 Ω
16	NC		No connection
17	R TALLY	OUT	ON : 5 V, OFF : GND
18	NC		No connection
19	UNREG GND	–	GND for UNREG
20	UNREG	OUT	+10.5 to +17 V

⑮ **LENS (12P FEMALE)**

(External view)

No.	Signal	I/O	Specifications
1	RET VIDEO ENABLE	IN	ENABLE : 0 V, DISABLE : +5 V or OPEN
2	VTR START/STOP	IN	ENABLE : 0 V, DISABLE : +5 V or OPEN
3	GND	–	GND for UNREG
4	SERVO MA/AT	OUT	AUTO : +5 V, MANU : 0 V or OPEN
5	IRIS POSITION	OUT	+3.4 V (F16) to +6.2 V (F2.8)
6	UNREG	OUT	+10.5 to +17 V
7	IRIS POSITION	IN	+3.4 V (F16) to +6.2 V (F2.8)
8	IRIS AT/MA	OUT	AUTO IRIS : 0 V, MANUAL IRIS : +5 V
9	EXTENDER ON/OFF	IN	EX 2 ON : GND EX 0.8 ON : 30 kΩ to GND OFF : OPEN
10	ZOOM POSITION	IN	WIDE : 2 V, TELE : 7 V
11	FOCUS POSI (/LENS RX)	IN	∞ : 7 V, min. : 2 V
12	(LENS TX)	OUT	

1-1-2. Wiring Diagrams for Cables

CCA-5 Cable

— 8P CONNECTOR (MALE) —
(WIRING SIDE)
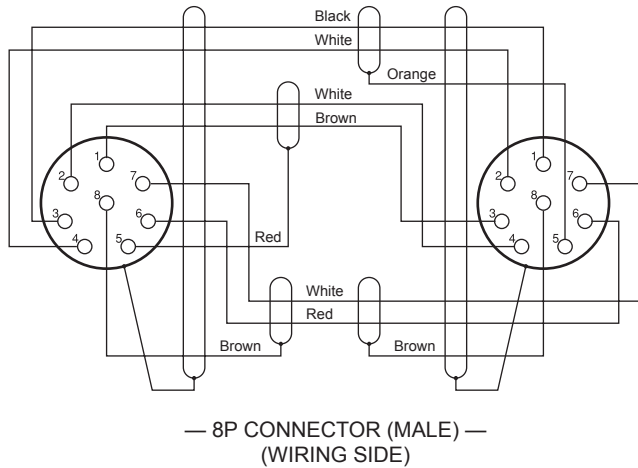
INTERCOM MIC Cable

(1) Balance (HEAD SET menu UNBAL: OFF)
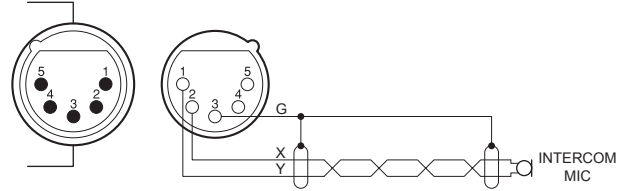
(2) Unbalance (HEAD SET menu UNBAL: ON)
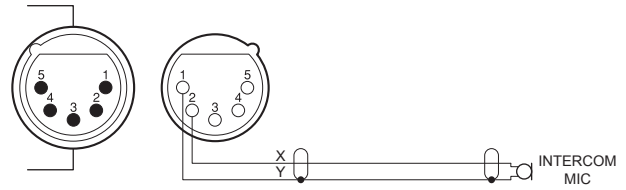
1-1-3. Connection Connectors/Cables

Connection made with the connector panels during installation or service, should be made with the connectors/complete cable assemblies specified in the following list, or equivalent parts.

Connector Name	Connector/Cable
CCU (TRIAX)	Fujikura φ8.5 mm Fujikura φ14.5 mm Belden 9232 φ13.2 mm
TEST OUT PROMPTER/GENLOCK/RET SDI (BNC)	1-569-370-12 Plug, BNC
AUDIO IN CH1/CH2 MIC (3P FEMALE)	1-508-084-00 XLR, 3P Male or ITT Cannon XLR-3-12C equivalent
RET CONTROL (6P FEMALE)	1-560-078-00 Plug, 6P Male or HIROSE HR10-7PA-6P equivalent
DC OUT (4P FEMALE)	1-566-425-11 Plug, 4P Male or HIROSE HR10A-7P-4P equivalent
INTERCOM (5P FEMALE)	1-508-370-11 XLR, 5P Male or ITT Cannon XLR-5-12C equivalent
DC IN (4P MALE)	1-508-362-00 XLR, 4P Female or ITT Cannon XLR-4-11C equivalent DC cable CCDD-X2 (2 m)
REMOTE (8P FEMALE)	• 1-766-848-11 Plug, 8P Male or CCA-5 cable assembly (CCA-5-10 (10 m)/CCA-5-3 (3 m)) (optional)[2][3] • REMOTE cable 1-783-372-11 (supplied with RM-B150, 10 m) [1][2][3]
TRACKER (10P FEMALE)	1-506-522-12 Connector, Round Type 10P or HIROSE HR10A-10P-10P equivalent

∗1: Use of REMOTE cable enables to monitor video signals. (The pin 8 is available for the video signal line.)
    The down-converted SD signal is output.
∗2: If you want to use a cable of length different from a standard product, contact your local Sony Sales Office/Service Center.
 Note
∗3: The pin 8 of CCA-5 cable is GND (ground).
    The pin 8 of REMOTE cable is not GND (ground).

1-2. Location of Printed Circuit Boards

DR-632

TG-265

NR-80

SE-949
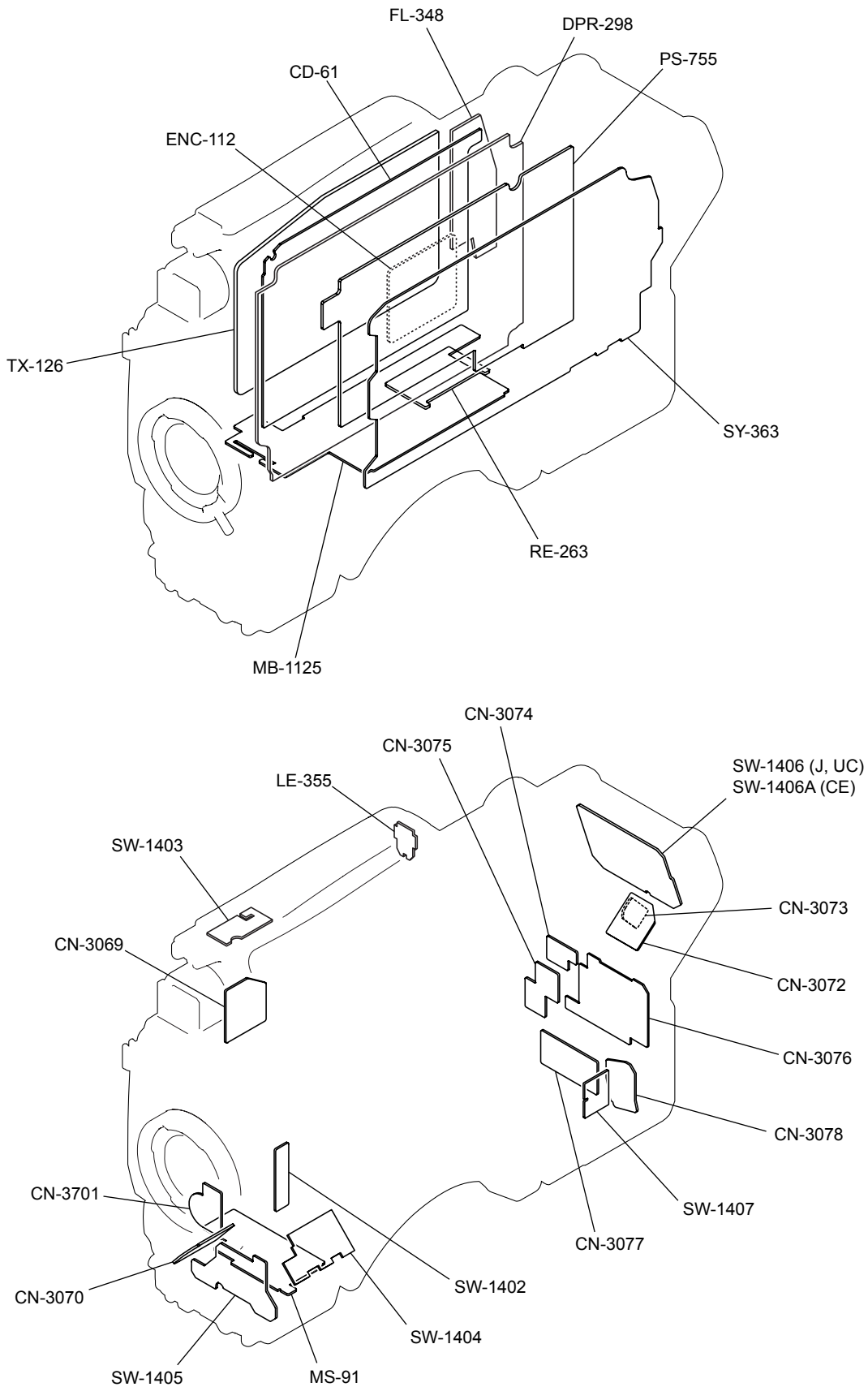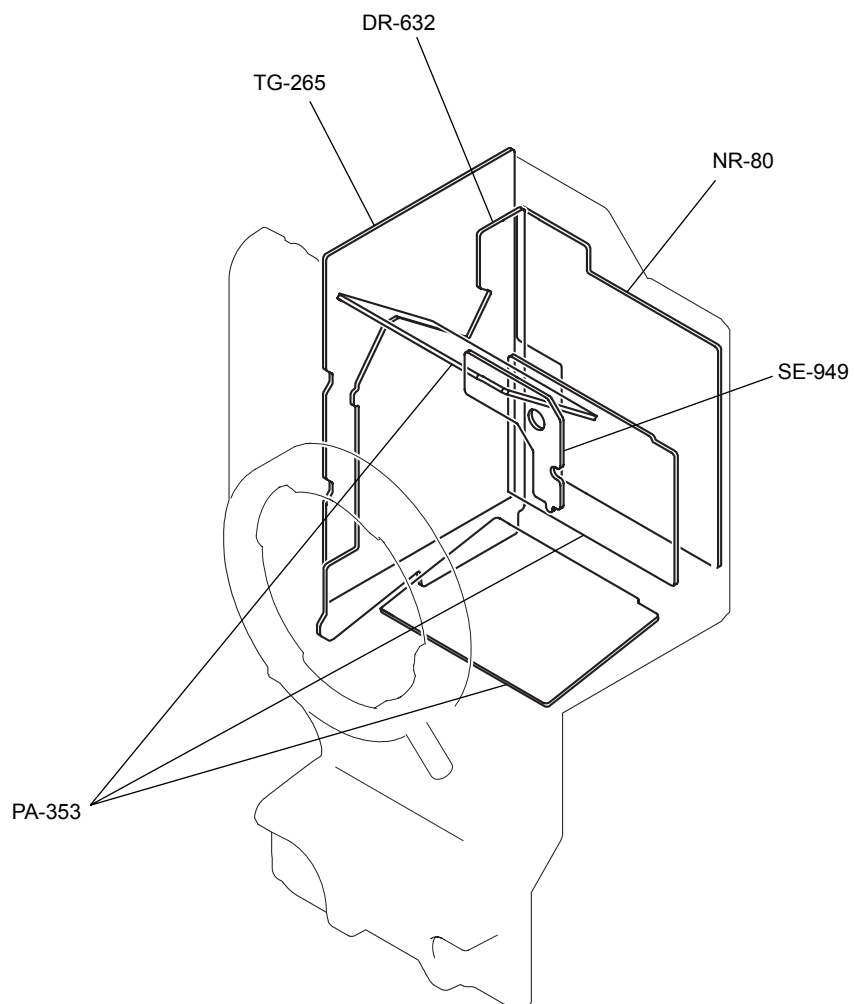
PA-353

1-3. Circuit Description

Optical System Block (CCD Unit)

PA-353 Board

This board, consisting of a CCD drive H driver and a sample-hold IC, performs correlated double sampling for signals from the CCD and outputs them differentially. The sample-hold IC adjusts sensitivity.

DR-632 Board

This board consists of a CCD V driver circuit and a buffer for CCD and sample-hold IC drive pulses.

TG-265 Board

This board consists of the following circuits.
- A PLD that generates CCD and sample-hold IC drive pulses and a video amplifier
- A circuit to lock (using PLL) and synchronize the INT PLL H signal generated by the PLD with the PLL H X and PLL H Y signals sent from the DPR-298 board

The master gain is switched with the step gain in the video amplifier.

NR-80 Board

This board performs CCD defect correction and black shading, etc.

SE-949 Board

This board detects the ND filter disk position.

Signal Processing Block

DPR-298 Board

This board performs main camera signal processing for video signals.

Video signals are digitized by the video amplifier and the A/D converter, and are transferred to the main process IC (IC401) through the pre-process PLDs (IC301 to 303) for video signal processing.

The sub-process IC (IC501) and the PLD (IC701) perform video processing for the external interface.

This board also contains a serial digital signal converter IC, an analog video D/A converter, and a reference clock signal generator.

CD-61 Board

This board encodes the main-line signal and decodes the return signal and the prompter signal.

Main-Line Signal

The main-line signal processed on the DPR-298 board is encoded by the encoder and is transferred to the OFDM modulation IC. This IC multiplexes the main-line signal and the audio signal and a command sent from the SY-363 board to a 2-channel signal, D/A-converts the 2-channel signal, and then sends it to the TX-126 board.

Return Signal

This board receives the OFDM-demodulated stream signal from the TX-126 board, and divides it into a return video signal, prompter signal, audio signal for intercom, and a command signal.

The return video signal is decoded to a baseband signal by the decoder, and is then sent to the DPR-298 board.

The audio signal and the command are sent to the SY-363 board.

Prompter Signal

This signal is sent to the MPEG2 decoder on the ENC-112 board for decoding.

In the case of the VBS prompter, the decoded signal is output from the VBS encoder (IC1201) on the CD-61 board to the SY-363 board.

In the case of the HD prompter, the decoded signal is sent to the DPR-298 board.

ENC-112 Board

This small board is mounted on the CD-61 board, and compresses/decompresses the video signal for prompter.

IC100 functions for MPEG2 encoding and decoding, but is used only for decoding in this unit.

Signal Transmission Block

TX-126 Board

This board consists of a OFDM signal transmitter/receiver circuit for transmission of the video signal, audio signal, intercom signal, and commands, and an FM modulation/demodulation circuit for transmission of the standby intercom signal, synchronizing signal, and TONE signal.

OFDM Signal Transmitter/Receiver Circuit

The OFDM signal output consists of six waves F1 to F6 to transmit video, sub video, microphone, intercom, and command signals.

The OFDM signal transmitter, consisting of two systems: LOW band (F1 to F3) and MID band (F4 to F6), amplifies the OFDM signal generated by the D/A converter on the CD-61 board independently for each band. The LOW band signal is mixed with the 1.4 MHz FM-modulated signal and is combined with the MID band signal in the MPX filter (FL601), and then the composite signal is output to the CCU.

The OFDM signal input consists of three waves F7 to F9 to transmit return video, prompter video, intercom, PGM, and command signals.

The OFDM signal receiver that is composed independently for F7 to F9 amplifies the waves F7 to F9 output from the HPF of the MPX filter (FL601), selects them by band with the BPF (FL301, FL401, and FL501), and then processes them.

The level of each signal selected by band is regulated by the step gain amplifier that automatically switches amplifier gain to four steps according to the input level and by the AGC amplifier (IC302, IC402, and IC502), and then the center frequency of F7 to F9 is converted to 36 MHz by the MIXER IC (IC303, IC403, and IC503). The converted OFDM signal is converted to TS data by the demodulator ICs (IC603, IC604, and IC605), and then the serial data is output to the CD-61 board.

FM Modulation and Demodulation Circuits

The FM modulation circuit mixes the standby INCOM signal (STB INCOM TO CCU: CHU → CCU) and the TONE signal (16.38 kHz), modulates (FM) the mixed signal with a carrier frequency of 1.4 MHz, and then sends the signal to the CCU.

In the FM demodulation circuit, the FM signal (that is modulated with 1.0 MHz carrier frequency) is extracted from the RF signal sent from the CCU by the MPX filter (FL601) and the BPF (FL2), and the FM signal is demodulated to a standby INCOM signal (STB INCOM FR CCU: CCU → CHU) and a synchronizing signal by the demodulator (IC13 LA2135M).

The demodulated standby INCOM signal is output by the output amplifier at a signal level of 220 mVp-p (0 dBu input). The synchronizing signal waveform is shaped, and the signal is output with an amplitude of 3.3 Vp-p.

The 1.0 MHz FM-modulated wave is detected by IC16 to check the presence of an FM signal wave.

System Control Block

SY-363 Board

This board comprises a CPU, peripheral devices, interfaces, a sync separator circuit, a video amplifier, and a audio circuit.

CPU and Peripheral Devices

The CPU runs on the program stored in the flash memory (IC118, IC119).

The program can be upgraded with a Memory Stick through the Memory Stick controller (IC128).

The SY-363 board also comprises SRAM chips (IC122, IC123) and a FRAM chip (IC127) to record system setup data and other data.

The CPU's serial communication port is used to control the CCD block, and serial lens.

The analog input ports (AN0 to AN7) are used to read analog lens signals (Iris, Focus, Zoom, and Extender), temperatures of the CCD and boards, and audio volume.

The CPU's external bus (IC109, IC114, and IC125) is used to control the video signal processing LSI and PLD on the DPR-298 board and the communication LSI and PLD on the CD-61 board through the MB-1125 board.

In addition to these, this board is provided with a calendar function RTC (IC108). BT101 and C118 function as the RTC backup power supply.

700 Protocol Communication

IC145 performs 700 protocol communication between the camera and the REMOTE connector of the CCU. Data to be sent for communication with the CCU is multiplexed on the CD-61 board, and is then sent to the CCU. The REMOTE connector is shared with TRUNK, which are switched by the AT-PLD.

AT-PLD (IC151)

The AT-PLD is a PLD to control external inputs/outputs and the internal devices of the unit. The AT-PLD has the following functions.

· I2C communication and 3-wire serial communication with the CCD block
· I2C communication with the viewfinder and tally output
· I2C communication with the front boards
· Inputs of rear panel switches, handle switch, and two rotary encoders
· Tally output to the handle and TRACKER connector
· D/A converter output for lens iris control
· CPU's V interrupt control
· Communication with the character generator on the DPR-298 board
· Fan speed detection
· Monitoring PLD and power status on each board

VDAP-PLD (IC655)

The VDAP-PLD adjusts the phases of the genlock timing generator, SD sync signal, and HD sync signal, and controls the video selector, audio matrix processing, and the analog circuit (including the microphone amplifier).

- Video block

  The video block has two functions: a sync separator circuit for genlock and a video amplifier circuit for the VF, TEST OUT, and PROMPTER connectors. The VF analog signal from the DPR-298 board passes through the LPF and is output from the VF connector and the BUILD UP connector. The VBS signal passes through the LPF and is output from the REMOTE connector (PIX output) and the TEST OUT connector.

  The SD sync and HD sync signals are phase-adjusted by the VDAP-PLD, and are then output from the TEST OUT connector.

  The same connector is used for prompter output and genlock input. When the CCU is connected, the connector outputs the prompter signal from the CD-61 board. When the unit is standalone, the connector is used for genlock input, and the Reference-H, F signals are generated by the sync separator circuit and are then sent to the DPR-298 board.

- Audio Processing Block

  This block is provided with input/output amplifiers and A/D and D/A converters for the microphone, intercom, earphone, and TRACKER, and a digital matrix to add signals. This block also has a standby intercom circuit for communication with the CCU in the standby state.

  The FRONT MIC connector or AUDIO IN connector is selectable for the microphone input, and only the AUDIO IN connector is compatible with the LINE-level input. The microphone input is provided with variable gain that can be switched within a range of -60 dBu to -20 dBu in 10 dBu step and +48V Phantom power supply. The microphone input is not compatible with AB POWER.

  The intercom input is provided with gain switching (-20, -40, or -60 dBu) and power supply (approx. 10 V) for carbon microphone. The TRACKER input is provided with gain switching (0 or -20 dBu).

  Each input passes through the pre-filter, is A/D-converted, and is then input to the VDAP-PLD.

  The microphone and intercom outputs are switched and added by the VDAP-PLD, are multiplexed on the CD-61 board, and are then output to the CCU. Signals from the CCU are transferred to the CD-61 board and then input to the VDAP-PLD that performs signal addition according to each output and volume processing. Then the signals are output to the D/A converters for the intercom, earphone, and TRACKER. The D/A converter output signals pass through the analog LPFs and the output drivers, and are then output from each connector.

  In the standby state, the standby audio input (STBY Incom in signal) from the TX-126 board is adjusted for volume by the electronic potentiometer (IC603), and then becomes an intercom output. The mute circuit (IC588 to IC591) prevents the Triax-H signal from becoming an intercom output.

MS-91 Board

This board contains a Memory Stick slot, an access indicator LED, and two I2C controllers for board input/output at the front and inside.

LE-355 Board

This board contains handle tally LEDs (red, green) and an ON/OFF switch.

CN-3069 Board

This board contains a VF connector.

CN-3070 Board

This board contains a LENS connector.

CN-3071 Board

This board contains a FRONT MIC connector (XLR 3-pin, female).

CN-3072 Board

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

CN-3073 board

This board contains an EARPHONE connector (ϕ3.5 mm stereo mini jack).

CN-3074 Board

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

CN-3075 Board

This board contains a TEST OUT connector, PROMPTER/GENLOCK/RET connector, and two BNC connectors.

CN-3076 Board

This board contains the following switches and connectors.
・ AUDIO IN switching switch × 3
・ RET CTRL connector (round, 6-pin)
・ TRACKER connector (round, 10-pin)
・ DC OUT connector (round, 4-pin)

CN-3077 Board

This board contains two AUDIO IN connectors (XLR 3-pin, female) on the connector panel.

CN-3078 Board

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

SW-1402 Board

This board contains two ASSINABLE switches on the inside panel.

SW-1403 Board

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

SW-1404 Board

This board contains five switches (GAIN, DCC, WHITE, MENU, and DISPLAY) on the inside panel.

SW-1405 Board

This board contains three switches on the front panel, a potentiometer, and a rotary encoder.

SW-1406/A Board

This board contains seven switches on the intercom panel, potentiometers (CE: 5 and UC: 3), and a rotary encoder.

SW-1407 Board

This board contains a CAM POWER switch.

Power Supply

PS-755 Board

Input power voltages include 38 Vdc to 180 Vdc supplied by the CCU and 10 Vdc to 17 Vdc supplied by the external DC power supply unit.

Output power voltages are as follows:

- Standby voltages +13.5 V and −5.5 V
- Voltage 14 V for viewfinder
- Voltage 14 V for lens
- Voltage 14 V for utility
- Voltage 48 V for audio circuit
- Voltage 26 V for intercom
- Voltages 6.5 V and 1.8 V for CCD
- Other voltages 5.5 V, 3.8 V, and −5.5V

When 38 V is supplied from the CCU, only standby voltages +13.5 V and −5.5 V are output. When 180 V is supplied from the CCU, all voltages are output. When voltages are supplied by the external DC power supply unit, all voltages are output.

RE-263 Board

This small board on the PS-755 board outputs voltages 25 V, 15.5 V, and −8.5 V for the CCD.

MB-1125 Board

This is the motherboard of the unit, which contains interface with each board, inductors for power filters of each board, capacitors, a positive-characteristic thermistor to prevent overcurrent, and a fuse.

FL-348 Board

This board isolates RF signals from the DC power for this unit.

1-4. Opening/Closing the Side Panel

Inside Panel

1. Loosen the four screws with stopper to detach the inside panel.

2. Reinstall the inside panel by reversing the step above.
   Note
   Turn all the toggle switches to the front side, and then attach the inside panel.
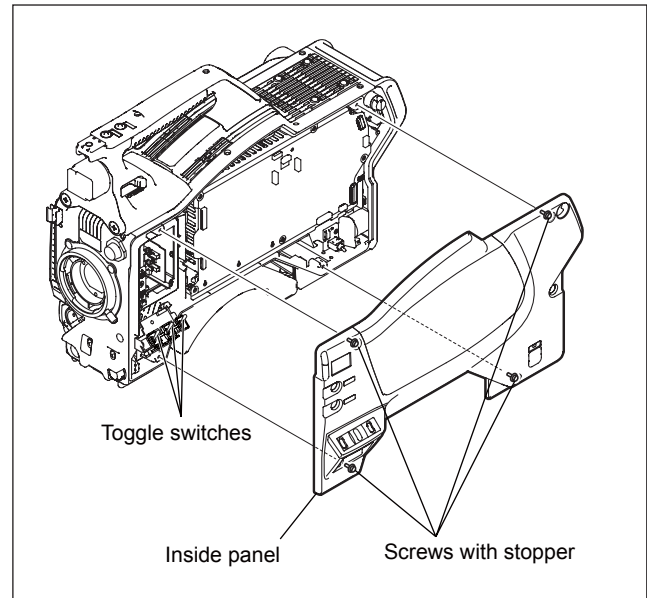
Outside Panel

1. Loosen the five screws with stopper and open the outside panel in the arrow direction.
2. Hook the outside panel to potion A (two locations) to fix it.
   Note
   Be careful so that the flexible card wires between the TX-126 and CD-61 boards do not shift or come off.
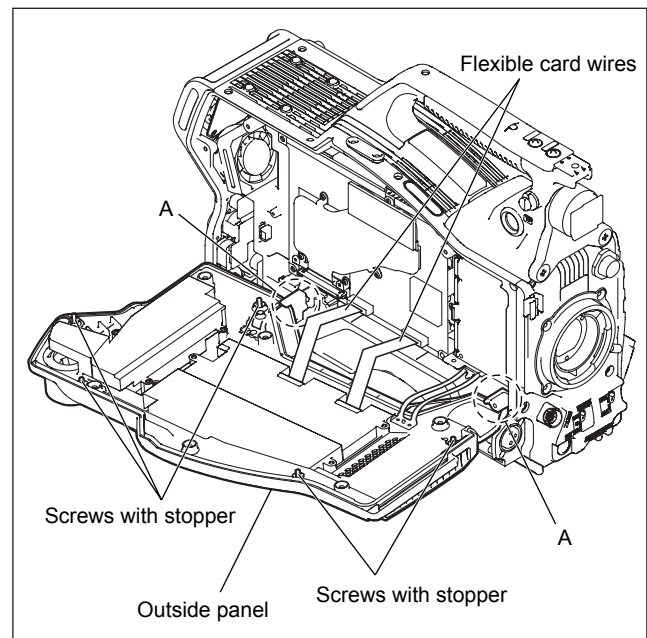
3. Close the outside panel by reversing the steps above.

1-5. Description of Onboard LED Indicators

CD-61 Board
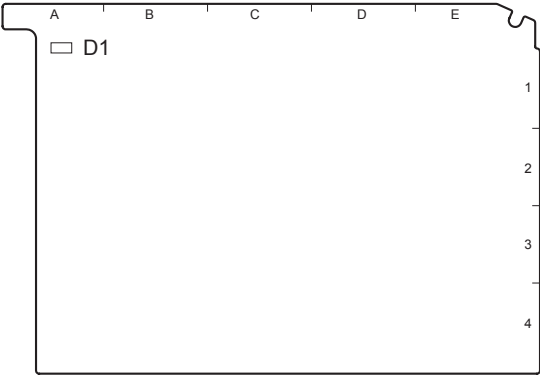
CD-61 BOARD (SIDE A)

Ref No.	Name	Color	Description	Normal state
D1	PWR	Green	Lights when all power voltages are normal when the CCU is connected.	Lit

DPR-298 Board
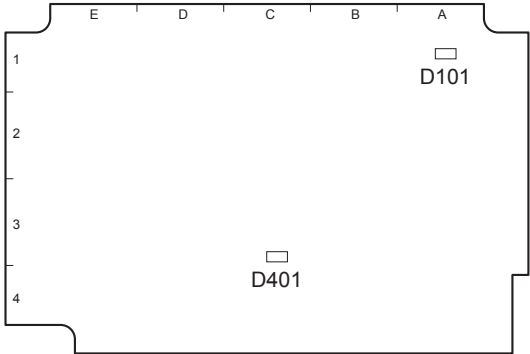
DPR-298 BOARD (SIDE B)

Ref No.	Name	Color	Description	Normal state
D101	POWER	Green	Lights when all power voltages on the board are normal.	Lit
D401	CTL	Green	Lights instantly at power-on and is turned off immediately by the CPU control.	–

ENC-112 Board
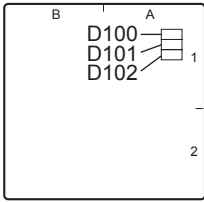
ENC-112 BOARD (SIDE B)

Ref No.	Name	Color	Description	Normal state
D100	STATUS 0	Green	Blinks while IC100 on the ENC-112 board is functioning.	Blinking
D101	STATUS 1	Green		
D102	STATUS 2	Green		

SY-363 Board
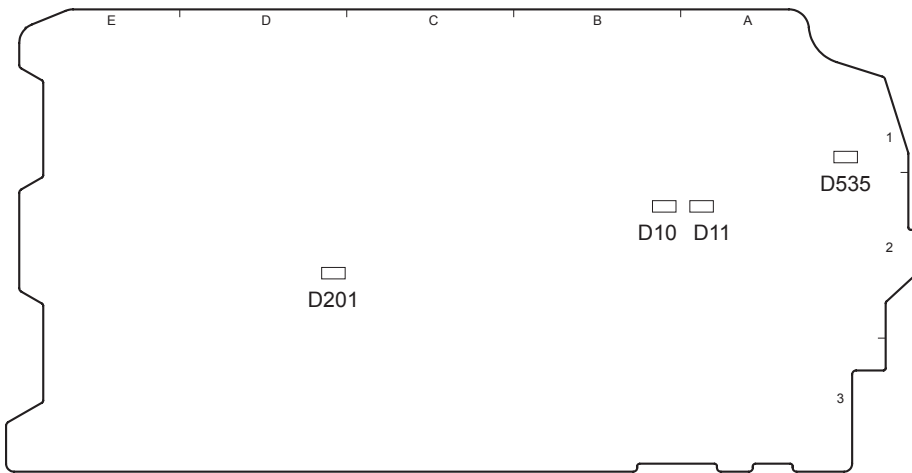
SY-363 BOARD (SIDE B)

Ref No.	Name	Color	Description	Normal state
D10	CAM-PW	Green	Lights while the main power is supplied.	CCU connected ON: Lit Standby: Off
D11	STBY-PW	Green	Lights while the standby power is supplied.	Lit
D201	Status	Green	Not used	–
D535	RTS PW	Red	While the INTERCOM connector is supplied with RTS PW (+26 V).	Off

TX-126 Board
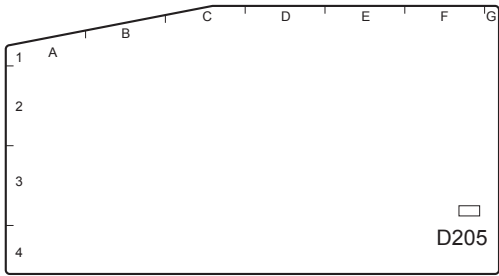
TX-126 BOARD (SIDE A)

Ref No.	Name	Color	Description	Normal state
D205	POWER	Green	Lights while both main power and standby power are supplied.	CCU connected 　ON: Lit 　Standby: Off CCU disconnected: Off

1-6. Switch Settings
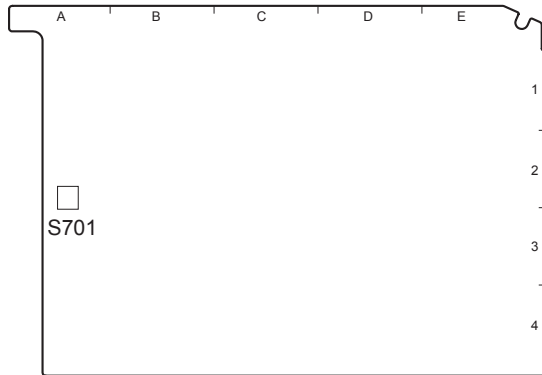
CD-61 Board

CD-61 BOARD (SIDE A)

Ref No.	Bit	Description	Factory setting
S701	1	Not used	OFF
	2	Not used	OFF
	3	Not used	OFF
	4	OFF: Normal operation (for upgrading the PLD from the SY-363 board) ON: For upgrading the PLD from CN701 on the CD-61 board	OFF

DPR-298 Board
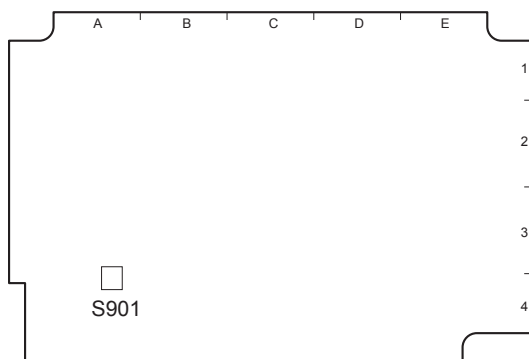
DPR-298 BOARD (SIDE A)

Ref No.	Bit	Description	Factory setting
S901	1	Not used	OFF
	2	Not used	OFF
	3	Not used	OFF
	4	OFF: Normal operation (for upgrading the PLD from the SY-363 board) ON: For upgrading the PLD from CN901 on the DPR-298 board	OFF

SY-363 Board
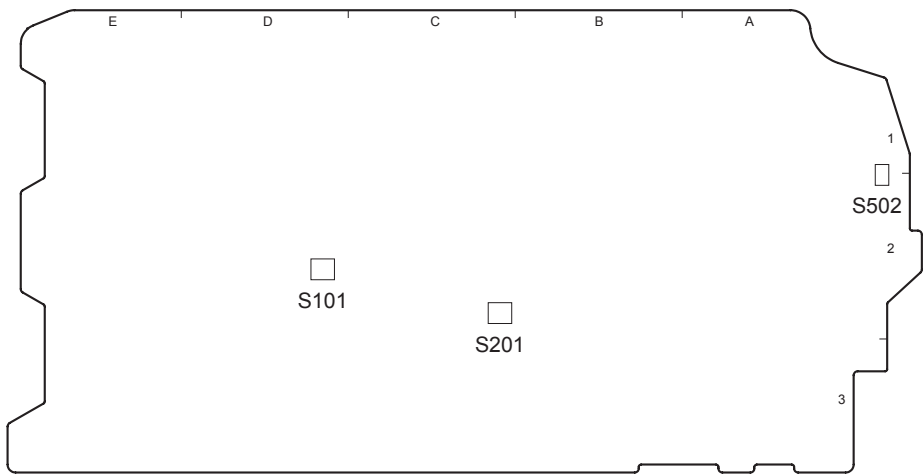
SY-363 BOARD (SIDE B)

Ref No.	Bit	Description	Factory setting
S101	1	OFF: Normal operation ON: Forcible firmware upgrade	OFF
	2	Not used	OFF
	3	OFF: Normal operation ON: FRAM clear	OFF
	4	Not used	OFF
S201 (MODE)	1	Not used	OFF
	2	Not used	OFF
	3	Not used	OFF
	4	Not used	OFF
S502	–	Intercom output interface switching Normal: 4-wire RTS: RTS/Clear-Com	OFF

1-7.   Notes on Flexible Card Wire

1-7-1.   Disconnecting/Connecting Flexible Card Wire

Flexible card wires are used between the boards of this unit. Take care not to bend forcedly these flexible card wires. This shortens the wire life.

Type-A

Disconnecting

1. Raise the connector open/close lever in the arrow A direction to unlock the coupling.
2. Pull out the flexible card wire in the arrow B direction.
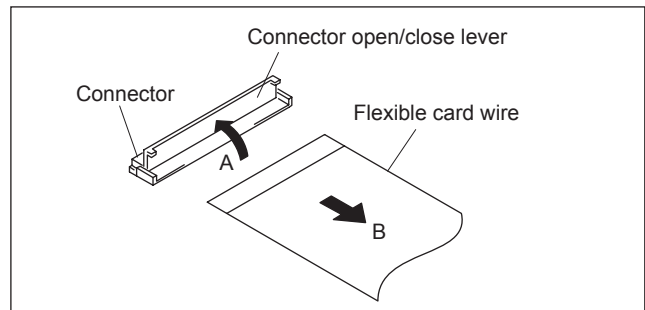
Connecting

| Notes |

· Be careful not to insert the flexible card wire obliquely.
· Check that the conducive surface of the flexible card wire is not contaminated.

1. Insert the flexible card wire in the arrow A direction as far as it will go with the insulating surface facing upward.
2. Close the connector open/close lever in the arrow B direction to lock the flexible card wire.
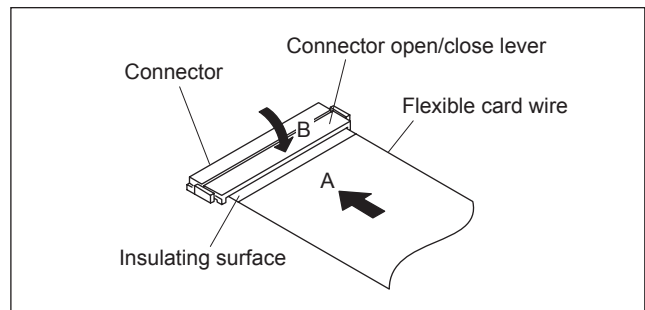
Type-B

Disconnecting

1. Raise the connector open/close lever in the arrow A direction to unlock the coupling.
2. Pull out the flexible card wire in the arrow B direction.
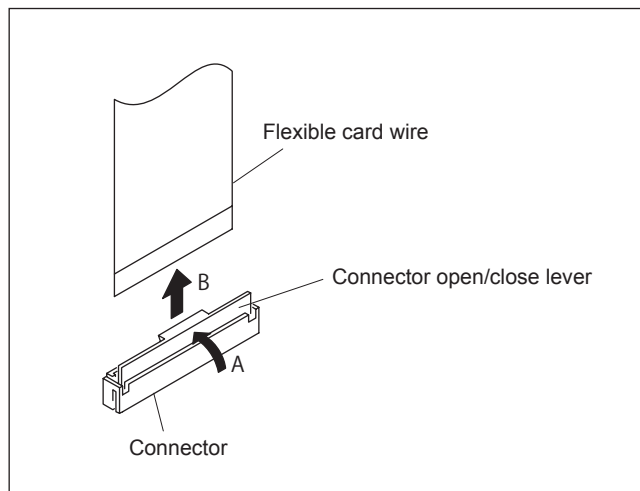
Connecting

Notes
- Be careful not to insert the flexible card wire obliquely.
- Check that the conducive surface of the flexible card wire is not contaminated.

1. Insert the flexible card wire in the arrow A direction as far as it will go with the insulating surface facing front.
2. Close the connector open/close lever in the arrow B direction to lock the flexible card wire.
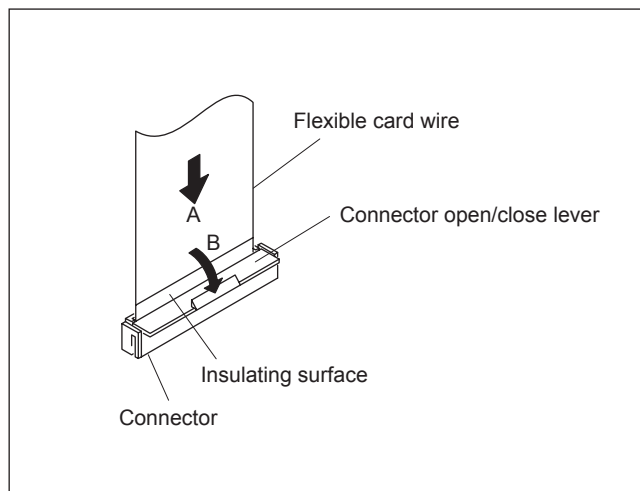
Type-C

Disconnecting

1. Raise the connector open/close lever in the arrow A direction to unlock the coupling.
2. Pull out the flexible card wire in the arrow B direction.
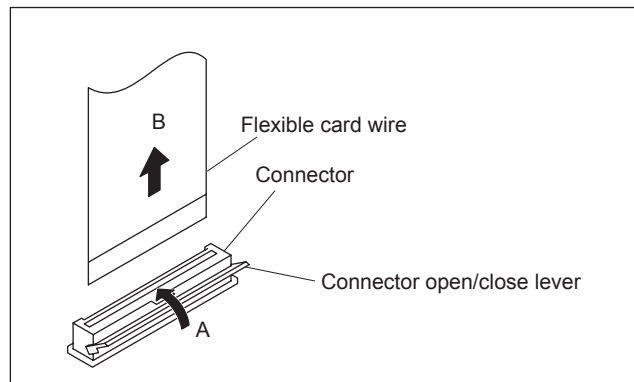
Connecting

Notes
- Be careful not to insert the flexible card wire obliquely.
- Check that the conducive surface of the flexible card wire is not contaminated.

1. Insert the flexible card wire in the arrow A direction as far as it will go with the insulating surface facing front.
2. Close the connector open/close lever in the arrow B direction to lock the flexible card wire.
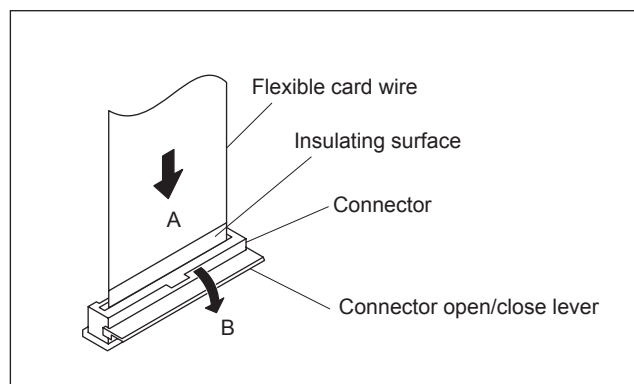
1-7-2. Forming Flexible Card Wire

Before installing a new flexible card wire for repair, fold it by hand according to the following figures.

Note

Never fold it back after being formed once.

- PA-353 board CN1 ↔ DR-632 board CN2
- PA-353 board CN1 ↔ DR-632 board CN3
- PA-353 board CN1 ↔ DR-632 board CN4

$$A = B$$
$$C = \frac{1}{2}A = \frac{1}{2}B$$

Mountain fold   Valley fold   Mountain fold   Reinforcing plate (insulating surface)

PA-353 board CN1

Insulating surface   DR-632 board CN2-4
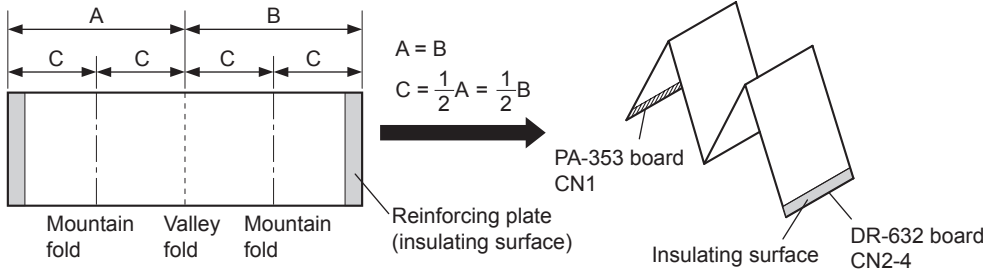
- MB-1125 board CN5 ↔ TG-265 board CN3

40 mm
15 mm
Reinforcing plate (insulating surface)

Valley fold   Valley fold   Mountain fold
Mountain fold

TG-265 board CN3

MB-1125 board CN5   Conductive surface   Insulating surface
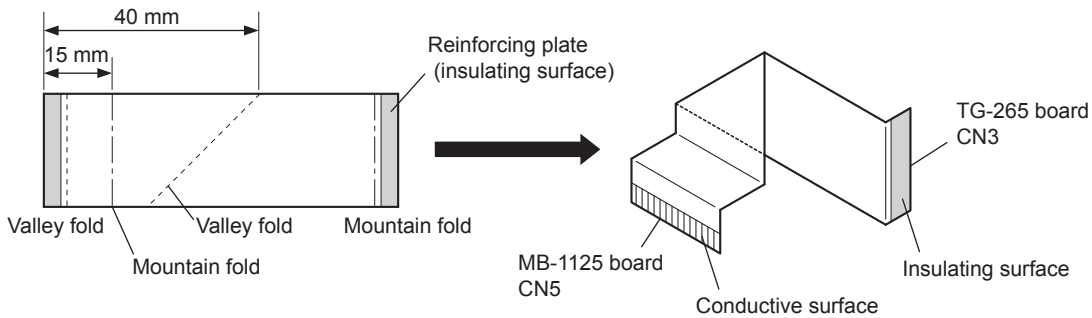
- DR-632 board CN1 ↔ NR-80 board CN2

Fold along the NR-80 board edge.
Conductive surface
NR-80 board CN2
DR-632 board CN1
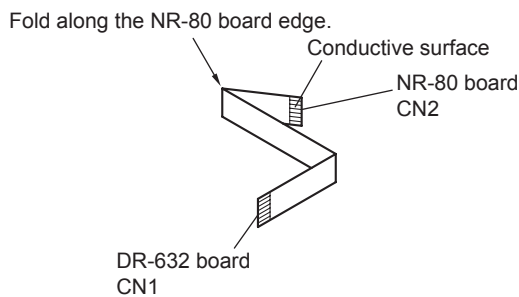
- TG-265 board CN2 ↔ NR-80 board CN1

TG-265 board CN2
Fold along the TG-265 board edge.
NR-80 board CN1
Conductive surface
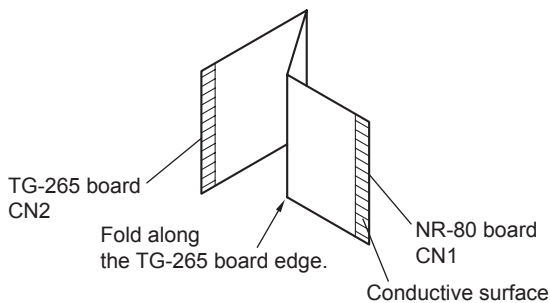
1-8. Notes on Replacement of Circuit Board

1-8-1. EEPROM Data

The table below lists data retained in the EEPROM (FRAM) on respective boards.

| Note |

Do not replace the EEPROM ICs listed in the table because they retain board-specific data.
The part number listed in "Spare Parts" is for EEPROM which is not programmed. If replacement is needed, contact your local Sony Sales Office/Service Center.

Board	Ref No.	Stored data
CD-61	IC706	PLD data
	IC1002	PLD data
DPR-298	IC905	PLD data
	IC906	PLD data
NR-80	IC5	RPN compensation data
SY-363	IC127	Board adjustment data and paint data
	IC203	PLD data
	IC206	PLD data
	IC118	Software, program
	IC119	Software, program
TG-265	IC201	PLD data
	IC214	CCD adjustment data

1-8-2. Actions to Be Taken during Board Replacement and after Board Replacement/Repair

Board	Action
NR-80 (IC5)	3-3-6. RPN Adjustment 3-6. RPN Compensation
SY-363	Refer to Section 1-8-3.
TG-265 (IC214)	3-3-1. BLACK SET Adjustment 3-3-2. Sensitivity Adjustment 3-3-3. V-SUB Adjustment 3-3-4. Black Shading Adjustment 3-3-5. White Shading Adjustment 3-5. ND Offset Adjustment OHB file re-setting
TX-126	3-8. TRIAX Transmission System Adjustment

1-8-3. Adjustment and Settings when Replacing SY-363 Board

Camera settings and various files are stored on the SY-363 board. When the SY-363 board is replaced, the contents of the reference file, scene file, lens file, and operator file are lost. Store these files in a Memory Stick or other storage media beforehand, and then replace the SY-363 board.
Since the OHB file is stored in the CCD unit, it is not lost by the replacement of the board.

Replacement
1. Store the reference file, scene file, and operator file in a Memory Stick.
    - Reference file (Refer to Section 4-5.)
    - Scene file (Refer to Section 4-4.)
    - Operator file (Refer to Section 4-2.)
2. Replace the SY-363 board. (Refer to Section 2-8-18.)
3. Install the latest firmware version. (Refer to Section 1-10.)
4. Execute REFERENCE (ALL) on the FILE CLEAR page of the FILE menu. (Refer to Section 4-5.)
5. Execute STORE FILE on the REFERENCE page of the FILE menu. (Refer to Section 4-5.)
    | Note |
    If ALL PRESET is not executed, the intercom panel may not work correctly.

6. Execute "3-2. Automatic Adjustment."
7. Execute "3-4. Video System Level Adjustment."
8. Read the stored reference file, scene file, and operator file.
    - Reference file (Refer to Section 4-5.)
    - Scene file (Refer to Section 4-4.)
    - Operator file (Refer to Section 4-2.)
9. Adjust the lens file data. (Refer to Section 4-6.)
10. Execute AUTO LEVEL on the AUTO SETUP page of the MAINTENANCE menu. (Refer to Section 4-5.)

1-9. Setting Intercoms

Since there are various types and usages of headsets for the intercoms, appropriate settings must be made for each type of headset.

Talk (microphone) setting

Check the type of the headset microphone, and make the microphone setting with the camera OPERA-TION menu. Microphone sensitivity, power supply system, and balanced/unbalanced inputs can be set.

Normal carbon microphone
Set INTERCOM MIC in the HEADSET menu to CARBON.

Normal dynamic microphone
1. Set INTERCOM MIC in the HEADSET menu to DYNAMIC.
2. Set UNBAL (balanced/unbalanced input) in the HEADSET menu according to the microphone to be used.

Other types of microphone
1. Set INTERCOM MIC in the HEADSET menu to MANUAL.
2. Set the following items in the HEADSET menu according to the microphone to be used.
   ・ LEVEL (microphone sensitivity)
   ・ POWER (power supply method)
   ・ UNBAL (balanced/unbalanced input)

Receive (headphone) setting

The headphone operation varies depending on the wiring of the headset.
The following shows settings when the INTERCOM connector of this unit is connected, such that the wiring from the right ear is connected to pin 5 of the INTERCOM connector and the wiring from the left ear is connected to pin 4 of the connector (binaural type).

When the headphone is binaural type and you want to hear the same sound with each ear or when the headphone is single-ear type:
Set INTERCOM RECEIVE SEL in the RECEIVE SEL menu to MIX. The same sound is output to both ears.

When the headphone is binaural type and you want to hear different sound with each ear:
1. Set INTERCOM RECEIVE SEL in the RECEIVE SEL menu to SEPARATE.
2. Set a desired channel (left, right or both) for INTRECOM, PGM1, PGM2, or TRACKER with IN-TERCOM RECEIVE SEL in the RECEIVE SEL menu.

To adjust the volume of your voice:
Set the volume with SIDE TONE in the INTERCOM LEVEL menu.

1-10. Upgrading the Software Programs

The ROM (IC118 and IC122 on the SY-363 board) version can be upgraded using a Memory Stick.
For upgrading the software programs, follow the procedures below.

1-10-1. Upgrading the Main Program

Tool
Memory Stick

Check
Check the current main program version with BOOT VERUP of the SERVICE menu. (Refer to Section 5-3.)

Preparation
Copy the upgrading program to the Memory Stick in the following steps.

| Note |

To get the upgrading program (program files "hsc300.rom" and "boot.rom"), contact your local Sony Sales Office/Service Center.

(1) Make the following directory on the Memory Stick.
     \MSSONY\PRO\CAMERA\HSC300

(2) Copy the program files "hsc300.rom" and "boot.rom" to the directory made in step (1).

Procedure
1.   Insert the Memory Stick that contains the upgrading program.
2.   Turn on the power while pressing the RET 2 button at the front of the camera and the rotary encoder. The upgrading status is displayed on the screen of the viewfinder.
3.   When the version upgrade is completed, a message "Complete" appears.
4.   Check that the main program has been upgraded with BOOT VERUP of the SERVICE menu. (Refer to Section 5-3.)

1-10-2. Upgrading the Boot Program

Tools
- Memory Stick
- ROM-28 board: (Sony Part No.: A-8326-017-A)

Check

Check the current boot program version with BOOT VERUP of the SERVICE menu. (Refer to Section 5-3.)

Preparation

1. Copy the upgrading program to the Memory Stick in the following steps.

   | Note |

   To get the upgrading program (program files "hsc300.rom" and "boot.rom"), contact your local Sony Sales Office/Service Center.

(1) Make the following directory on the Memory Stick.
   \MSSONY\PRO\CAMERA\HSC300

(2) Copy the program files "hsc300.rom" and "boot.rom" to the directory made in step (1).

2. Save the upgrading boot program in the ROMs H (IC2) and L (IC3) on the ROM-28 board.

   | Note |

   For details of saving the upgrading program, contact your local Sony Sales Office/Service Center.

Procedure

1. Remove the inside panel. (Refer to Section 1-4.)
2. Insert the Memory Stick that contains the upgrading program.
3. Connect the connector CN1 on the ROM-28 board to the connector CN15 on the SY-363 board.
4. Set the switch S1 on the ROM-28 board to DOWN LOAD side.
5. Turn on the power.
   The upgrading status is displayed on the screen of the viewfinder.
6. When the version upgrade is completed, a message "Complete" appears.
7. Turn off the power and remove the ROM-28 board.
8. Attach the inside panel.
9. Turn on the power. The unit will start with the boot program upgraded.
10. Check that the boot program has been upgraded with BOOT VERUP of the SERVICE menu. (Refer to Section 5-3.)
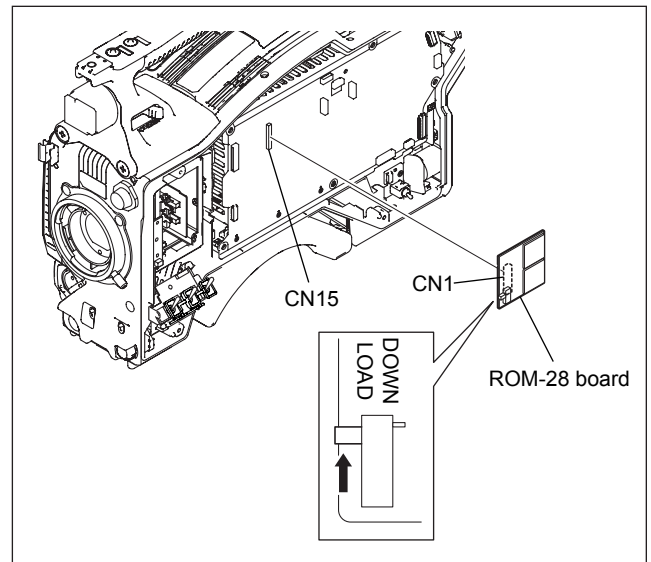
1-11. Note on Replacement of Lithium Battery

A lithium battery is mounted on the SY-363 board to back up the real time clock (RTC). If a battery comes to the lifetime, then RTC stops. Therefore, the battery must be replaced.

SY-363 board/CR2032: Sony Part No. (⚠ 1-528-174-xx)

| CAUTION |

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

1-12. Periodic Check and Maintenance

1-12-1. Recommended Replacement Parts

The following parts are recommended replacement parts. Rubber parts used in this unit may crack with the lapse of time. Replace them if necessary.

No.	Part name	Sony Part No.
①	SW COVER	4-138-682-0x
②	GRIP	4-138-676-0x
③	COVER, SW	4-138-542-0x
④	PACKING, VF	3-710-024-0x
⑤	COVER, SS SW	4-138-681-0x
⑥	PAD ASSY, SHOULDER	A-8286-163-∗
	PAD ASSY, SHOULDER Low-repulsion type (fixed)	A-8286-346-∗

- After parts ①,③, and/or ⑤ are replaced, apply adhesive from the back of the panel as shown in the figure.

(Example)

③switch cover

Apply adhesive
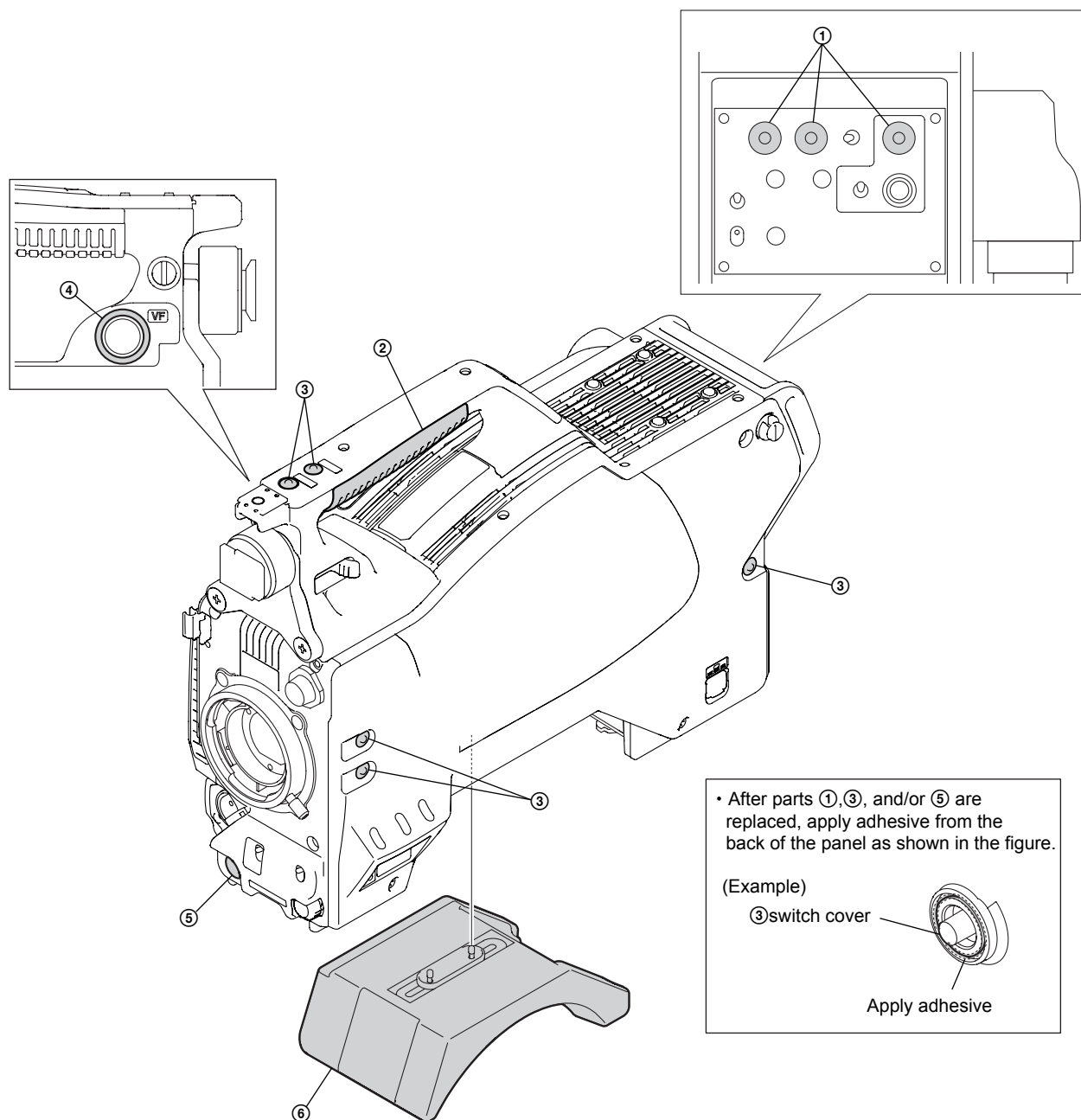
1-12-2. Periodic Replacement Parts

This table does not describe the guarantee period of part.
The replacement period of each part depends on the environment and condition.
Refer to "Section 2 Replacement of Main Parts" for the replacement method of parts.

Part name	Sony Part No.	Check/replacement period
FAN, DC (40 SQUARE)	⚠ 1-787-847-11	Replace every two years*

∗: When used for eight hours a day.

1-12-3. Cleaning the Air Vents

Clogging of dust or foreign matters may cause a temperature increase inside the camera, which may result in a failure.
Clean the air vents every two or three months.

1. Loosen the two screws with stopper, and remove the shoulder pad assembly.
2. Remove dust on the three air vent areas with a vacuum cleaner.

Air vent

Air vents

Shoulder pad assembly

Screws with stopper
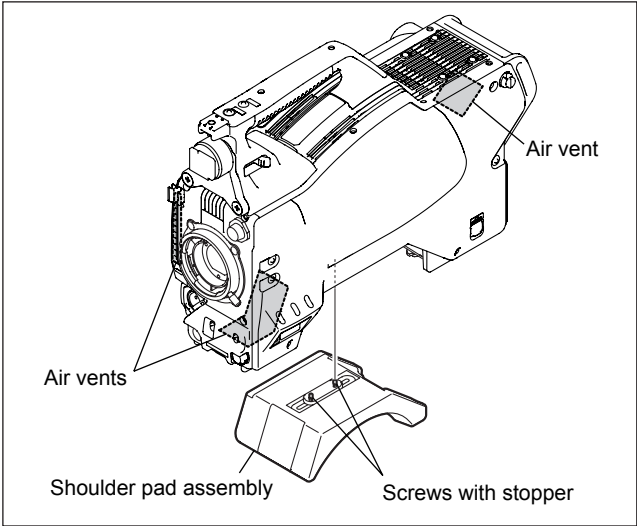
1-13. Description of CCD Block Number

Every CCD unit has its own ID number called CCD block number. It shows the CCD block type and serial number of the CCD block.
The CCD block number label is attached inside the CCD unit.

Example）   ODA xxxxx
                 └─── Serial number of the CCD block
                 └─── CCD block type

For replacing the CCD unit, refer to Section 2-1.

1-14. Optional Fixtures

Name	Sony Part No.	Remarks
EX-738 board	A-8327-351-A	For extension of SY-363 and DPR-298 boards
DPR-197 board extension assembly	A-8344-327-A	For extension of CD-61 board
ROM-28 board	A-8326-017-A	For boot program upgrade

1-15. Notes on Repair Parts

1. **Safety Related Components**

   WARNING

   Components marked ⚠ are critical to safe operation.
   Therefore, be sure to use specified parts for replacement.

2. **Standardization of Parts**

   Some repair parts supplied by Sony differ from those used in the unit. These are because of parts commonality and improvement.
   Parts list includes the present standardized repair parts.

3. **Stock of Parts**

   Parts marked with "o" in the 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.

1-16. Unleaded Solder

Boards requiring use of unleaded solder are printed with a lead free mark (LF) indicating the solder contains no lead.

 : LEAD FREE MARK

Notes
- Be sure to use the unleaded solder.
- The unleaded solder melts at a temperature about 40 °C higher than the ordinary solder. Therefore, it is recommended to use a soldering iron having a temperature regulator.
- An 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 off if the heated tip is applied for too long, so be careful.

1-17. Installing the Accessory Shoe

This unit is provided with a shoe that can be installed with 1/4-inch screws, but can install a slide shoe.

Parts Required

Part name	Sony Part No.
Accessory shoe	3-688-755-13
Shoe spring	3-688-754-11
Screw P2 × 8 (4 pcs.)	7-621-255-55

Installation Procedure
1. Install the accessory shoe with four screws so that the notch comes to the lens side.
2. Insert the shoe spring into the accessory shoe in the arrow direction.
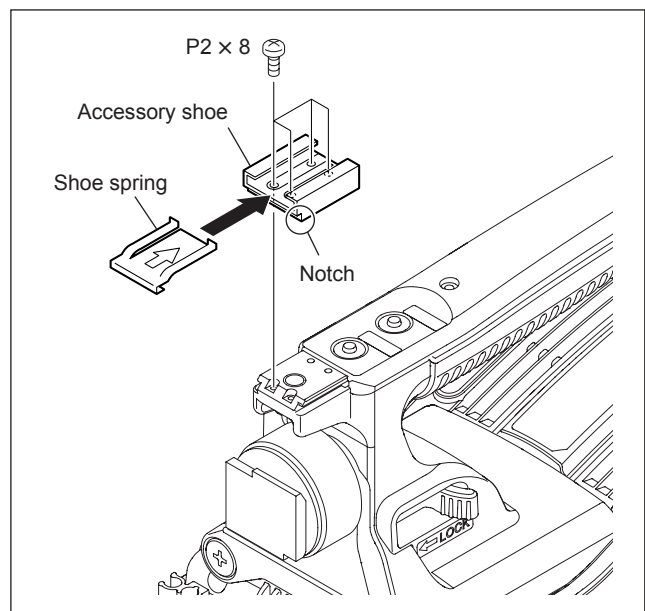
Section 2
Replacement of Main Parts

2-1. Replacing the CCD Unit

Note

Do not replace the CCD unit with the power turned on.

Before replacing the CCD unit, be sure to turn off the power switch and disconnect the TRIAX cable or the cable connected to the DC IN connector.

1. Remove the inside panel and open the outside panel. (Refer to Section 1-4.)

2. Disconnect the flexible card wires from the connectors CN1 and CN3 on the TG-265 board.

   Note

   Be careful not to bend the flexible card wire. This shortens the wire life.

3. Remove the four screws to remove the front assembly.

TG-265 board
CN1
Front assembly
B3 × 10
B3 × 10
CN3
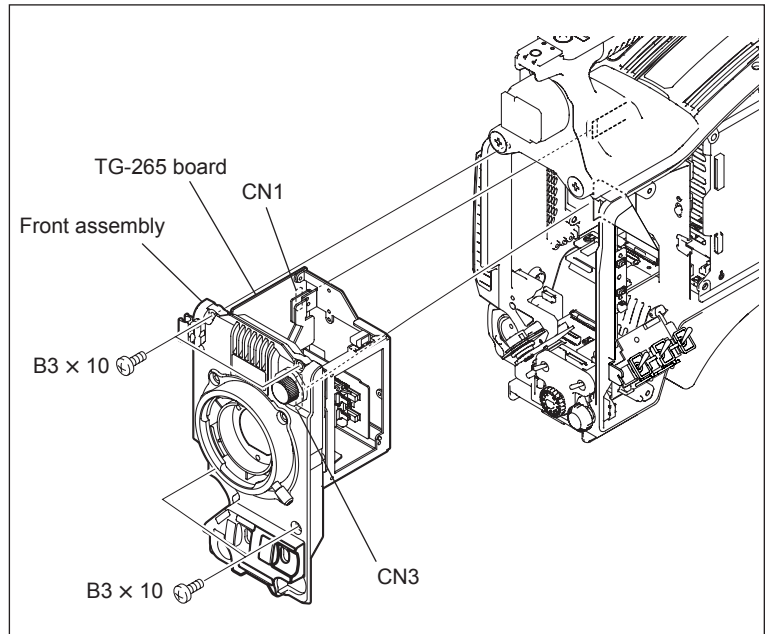
4. Loosen the setscrew to detach the filter select knob.

   Note

   Attach the filter select knob using the following steps.
   (1) Turn the knob shaft to a position where the filter with the lightest color (1: clear) appears when viewed from the lens mount section.
   (2) Match the filter select knob number 1 with the mark on the front panel, and secure the knob with a setscrew.

5. Remove the four hexagon cap screws and the four spring washers to detach the front panel.

Setscrew
Filter select knob
Knob shaft
Front panel
HEXAGON 2 × 3
SW3
Filter with the lightest color (1: clear)
Mark
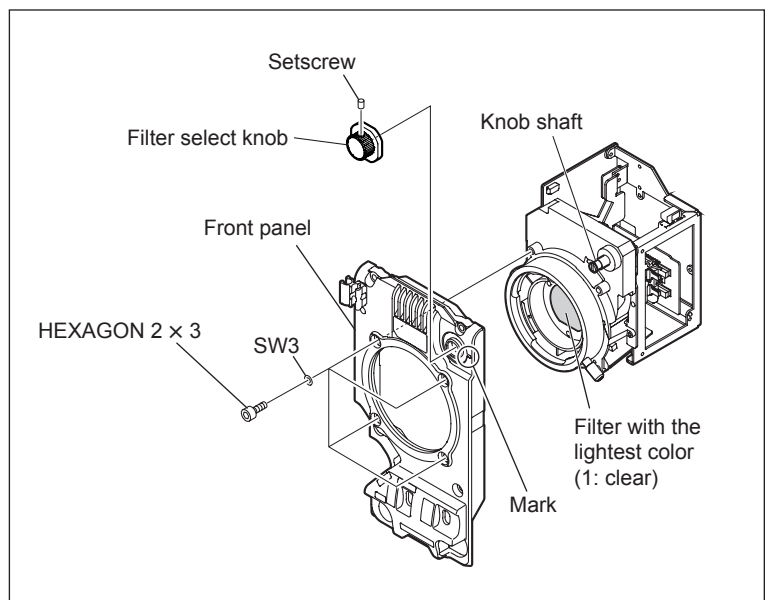
6. Remove the three screws and remove the transportation case from the CCD unit for repair (option).

Transportation case

P3 × 6
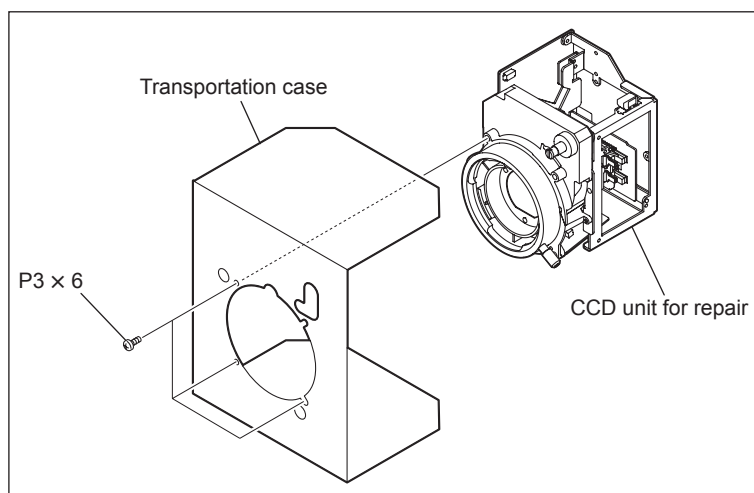
CCD unit for repair

7. Install the CCD unit for repair by reversing the steps above.

Work after replacement

Perform the following after the CCD unit is replaced.
- 3-3. Electrical Alignment
  (Sections 3-3-1 to 3-3-6)
- 3-6. RPN Compensation
- Re-setting the OHB File

2-2. Replacing CCD Unit Boards

2-2-1. DR-632 Board

1. Remove the inside panel and open the outside panel. (Refer to Section 1-4.)
2. Remove the CCD unit. (Refer to Section 2-1.)
3. Remove the TG-265 board.
   (Refer to Section 2-2-4.)

4. Disconnect the flexible card wires from the connectors CN1, CN2, CN3, and CN4 on the DR-632 board.

   Note

   Be careful not to bend the flexible card wire. This shortens the wire life.

5. Remove the three screws to remove the DR-632 board.

6. Install a new DR-632 board by reversing the steps above.

2-2-2. NR-80 Board

1. Remove the inside panel and open the outside panel. (Refer to Section 1-4.)
2. Remove the CCD unit. (Refer to Section 2-1.)

3. Disconnect the flexible card wires from the connectors CN1 and CN2 on the NR-80 board.
4. Remove the three screws to remove the NR-80 board.

5. Install a new NR-80 board by reversing the steps above.
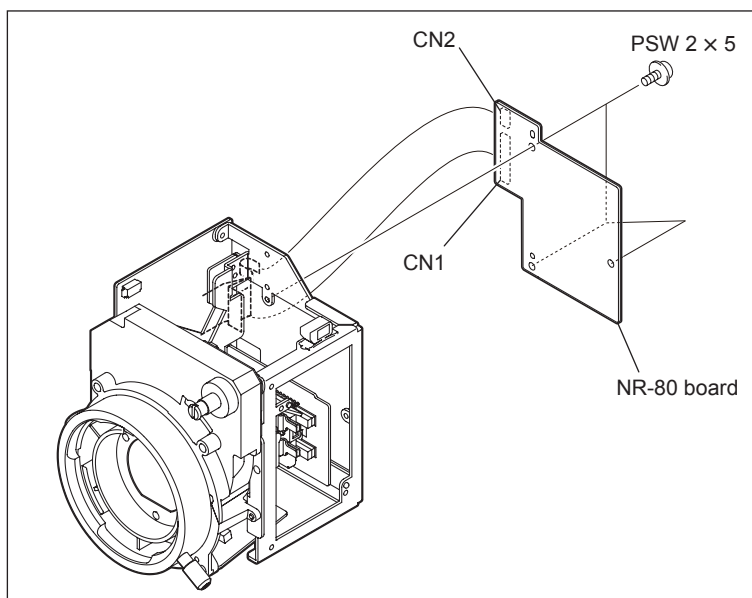
2-2-3. PA-353 Board

Replacement

The PA-353 board is not a spare part.
When replacing the PA-353 board, replace the CCD unit with the PA-353 board contained.

Removal

This unit uses three PA-353 boards (for channels R, G, and B). The following describes the procedure of removing the PA-353 board of channel G as an example.

1. Remove the inside panel and open the outside panel. (Refer to Section 1-4.)
2. Remove the CCD unit. (Refer to Section 2-1.)
3. Remove the DR-632 board.
   (Refer to Section 2-2-1.)
4. Remove the TG-265 board.
   (Refer to Section 2-2-4.)

5. Disconnect the flexible card wire from the connector CN1 on the PA-353 board (channel G).

   Note

   Be careful not to bend the flexible card wire. This shortens the wire life.

6. Remove the four screws to detach the OHB bracket.
7. Unsolder the pins of the image sensor to remove the PA-353 board (channel G).
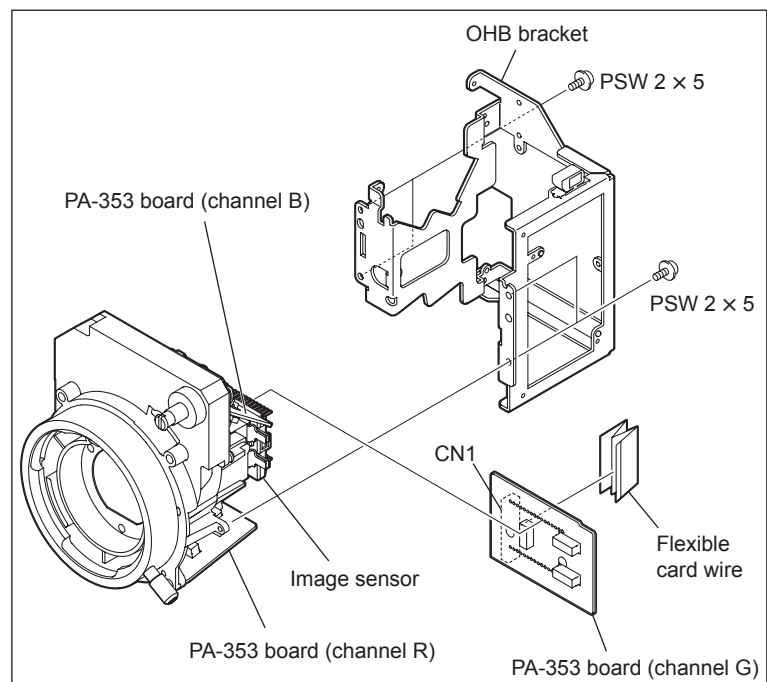
Installation

1. Install a new PA-353 board (channel G) by reversing the steps of removal.

2-2-4. TG-265 Board

1. Remove the inside panel and open the outside panel. (Refer to Section 1-4.)
2. Remove the CCD unit. (Refer to Section 2-1.)

3. Disconnect the flexible card wire from the connector CN2 on the TG-265 board.
    | Note |
    Be careful not to bend the flexible card wire. This shortens the wire life.

4. Disconnect the harness from the connector CN201 on the TG-265 board.
5. Remove the four screws to remove the TG-265 board.

6. Install a new TG-265 board by reversing the steps above.

2-2-5. SE-949 Board

1. Remove the inside panel and open the outside panel. (Refer to Section 1-4.)
2. Remove the CCD unit. (Refer to Section 2-1.)

3. Disconnect the harness from the connector CN1 on the SE-949 board.
4. Remove the three screws to remove the filter ID plate and the SE-949 board.

5. Install a new SE-949 board with two screws.
6. Turn the knob shaft to a position where the filter with the lightest color (1: clear) appears when viewed from the lens mount section.
7. Attach the filter ID plate with a screw in the orientation shown in the figure.
8. Perform steps 1 and 2 reversely.
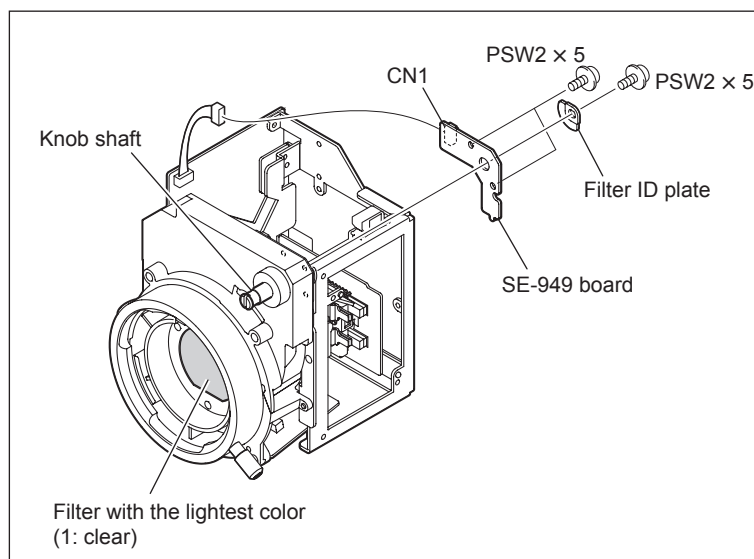
2-3.   Replacing the DC Fan

1. Open the outside panel.
    (Refer to Section 1-4.)
2. Remove the CD-61 board.
    (Refer to Section 2-8-1.)
3. Remove the DPR-298 board.
    (Refer to Section 2-8-6.)

4. Disconnect the harness from the connector
    CN8 on the MB-1125 board.
5. Open the two harness clamps and release the
    harness.
6. Remove the fan duct and DC fan while
    pressing portion A of the fan duct.
7. Remove the DC fan from the fan duct.
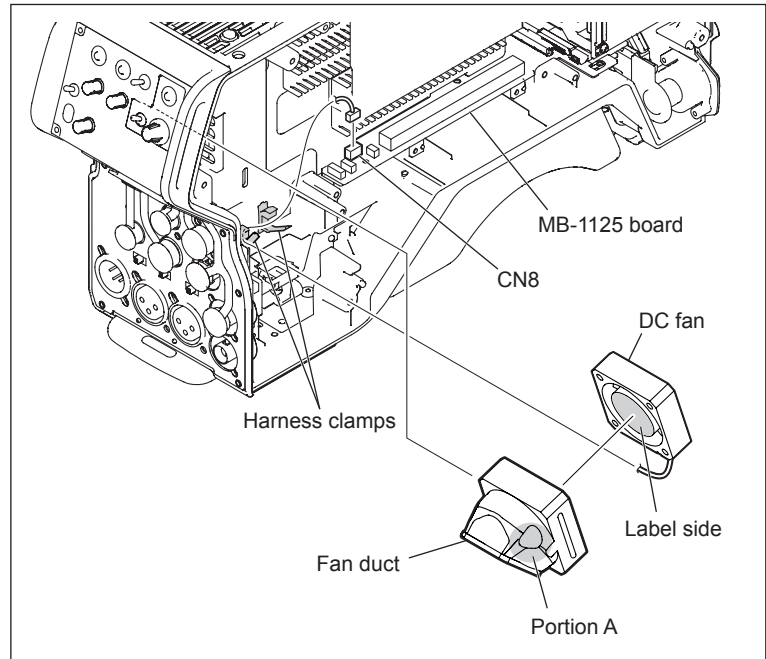
8   Install a new DC fan by reversing the steps
    above.
    | Notes |
    • Be careful of the orientation of the label
      side and the harness when installing the
      new DC fan.
    • Attach the fan duct to the intercom panel
      properly so as not to block the vent hole.
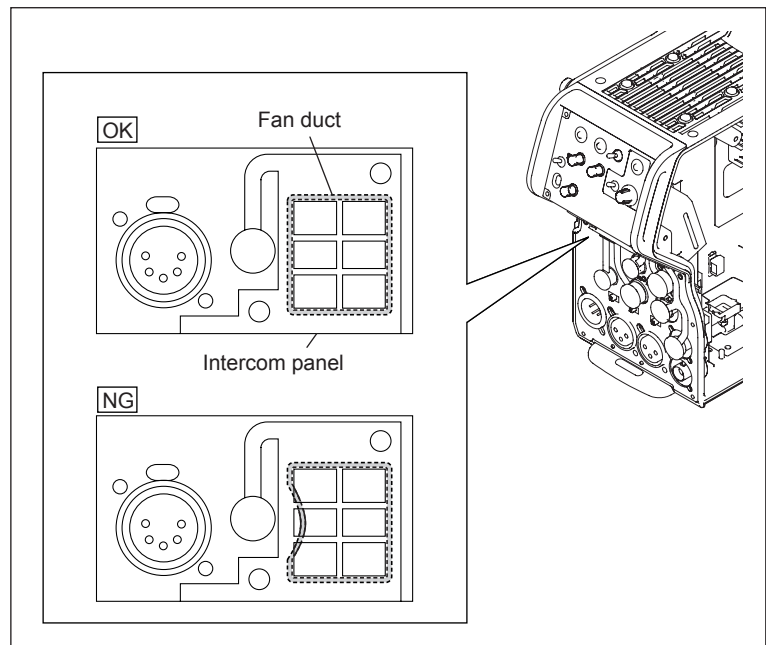
2-4. Replacing Operation Parts

Remove relevant boards and replace operation parts according to the table below.

	Part Name	Board	Reference Section
Top	RET1 button INCOM button	SW-1403	2-8-2 (CN-3069 board)
	Tally switch	LE-355	2-8-9
Front panel	RET2 button SHUTTER switch AUTO W/B BAL switch INCOM LEVEL knob MENU SEL knob/ ENTER button (Rotary encoder)	SW-1405	2-8-15
Inside panel	ASSINABLE switch	SW-1402	1-4
	GAIN switch OUTPUT/AUTO KNEE switch WHITE BAL switch STATUS/CANCEL switch DISPLAY switch	SW-1404	2-8-14
	CALL button	SY-363	2-8-18
	CAMERA POWER switch	SW-1407	2-8-17
Intercom panel	RET1 button RET button/RET2-4 switch ASSINABLE switch/button/knob PGM1 knob PGM2 knob INCOM knob PROD knob (CE model only) TRACKER knob (CE model only) LEVEL/MIC switch Line select switch	SW-1406/A	2-8-16
Connector panel	MIC1 switch CH1 switch CH2 switch	CN-3076	2-7

2-5. Replacing Connectors

Remove relevant boards and replace connectors according to the table below.

	Connector Name	Board	Reference Section
Top	VF connector	CN-3069	2-8-2
Front panel	FRONT MIC1 connector	CN-3071	2-8-4
	LENS connector	CN-3070	2-8-3
Inside panel	Memory Stick slot	MS-91	2-8-11
Rear	CCU (TRIAX) connector	–	2-5-1
Intercom panel	INTERCOM connector	CN-3072	2-8-5
	EARPHONE connector	CN-3073	(CN-3072board)
Connector panel	REMOTE connector	CN-3074	2-7
	PROMPTER/GENLOCK/RET connector TEST OUT connector	CN-3075	
	RET-CTRL connector TRACKER connector DC OUT connector	CN-3076	
	AUDIO IN CH1 connector AUDIO IN CH2 connector	CN-3077	
	DC-IN connector	CN-3078	
	SDI connector	–	2-5-2

2-5-1. CCU (TRIAX) Connector

The CCU (TRIAX) connector is not a spare part.
When replacing the CCU (TRIAX) connector, replace the TRIAX CN assembly with the CCU (TRIAX) connector contained.
The following describes the procedure of replacing the TRIAX CN (T) assembly as an example.
・ TRIAX CN (K) assembly: UC model
・ TRIAX CN (T) assembly: J model
・ TRIAX CN (F) assembly: CE model

1. Open the outside panel.
   (Refer to Section 1-4.)

2. Remove the five screws to detach the shield case cover.
3. Disconnect the harness from the connector CN1 on the FL-348 board.
4. Remove the screw securing the earth lug.
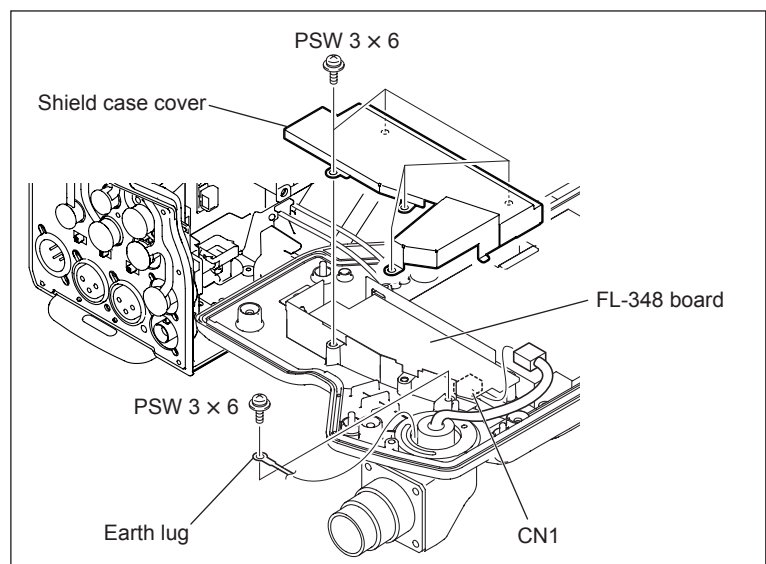
5. Remove the four screws to remove the TRI-
   AX CN (T) assembly.

Ferrite cores

10 mm
or less

B3 × 10

CCU (TRIAX) connector

20 mm

B3 × 10

TRIAX CN (T) assembly
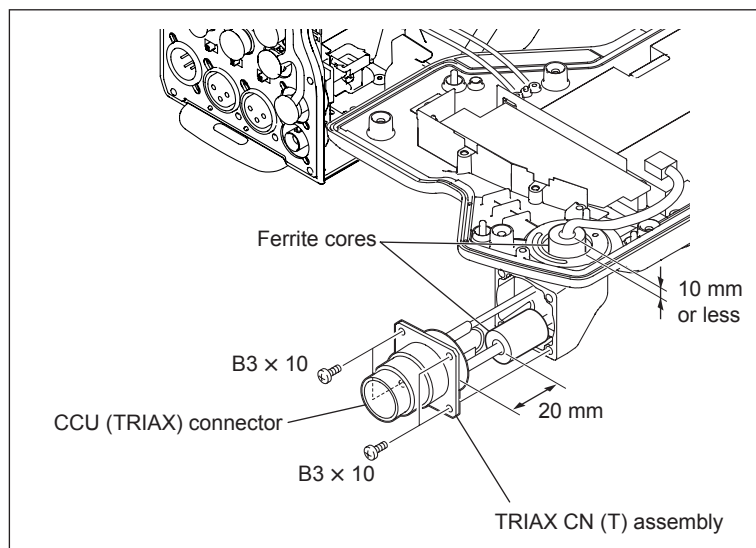
6. Install a new CCU (TRIAX) connector by
   reversing the steps above.

   Note

   Arrange the harness so that the two ferrite
   cores come to the positions shown in the
   figure.

2-5-2. SDI Connector

1. Remove the outside panel.
    (Refer to Section 1-4.)

2. Release the coaxial cable from the hook of
    the coaxial cable fixing washer.
3. Disconnect the coaxial cable from the SDI
    connector.

    Note

    Be sure to hold the plug when disconnecting
    the coaxial cable. Do not pull the cable.

Hook

Apply locking compound

Coaxial cable

OK Hold the plug to remove.   NG Do not attempt to remove by
                                    pulling the cable.
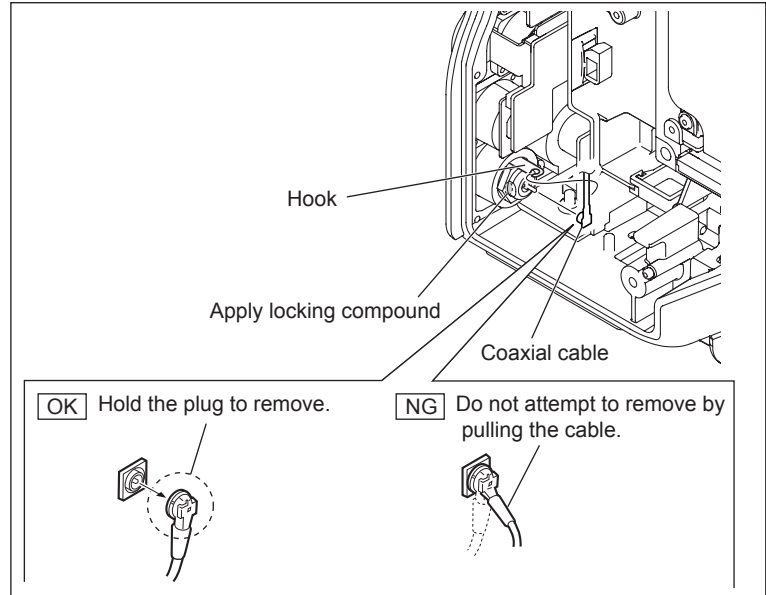
4. Remove the nut to remove the SDI connector.

SDI connector

Coaxial cable fixing washer

Nut
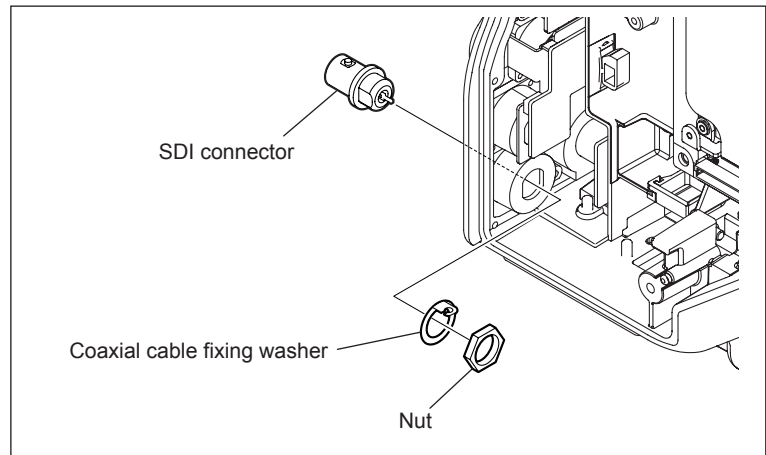
5. Install a new SDI connector by reversing the
    steps above.

    Notes

    • Tighten the nut and then apply locking
      compound.
    • Hold the plug of the coaxial cable, and
      connect it perpendicularly to the connector.
      Push the plug into the connector while turn-
      ing it clockwise and counterclockwise
      several times.

Hold the plug to connect.
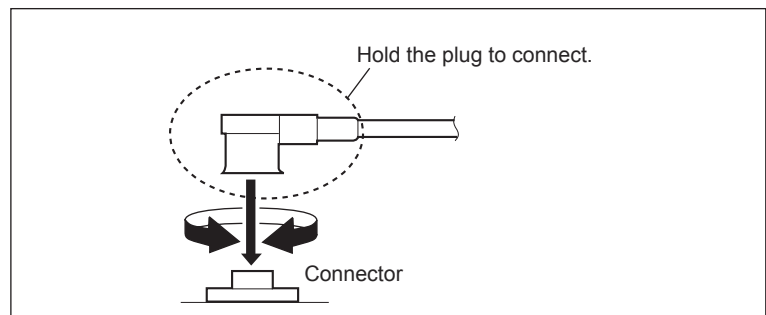
Connector

2-6. Replacing the Power Supply Assembly

1. Remove the inside panel.
   (Refer to Section 1-4.)
2. Remove the SY-363 board.
   (Refer to Section 2-8-18.)

3. Disconnect the harness from the connector CN100 on the PS-755 board.
4. Remove the three screws and draw the power supply assembly in the arrow direction.
5. Disconnect the harnesses from the connectors CN301, CN305, and CN304 on the PS-755 board.

6. Install a new power supply assembly by reversing the steps above.

CN301
CN305
CN100
PSW3 × 6
CN304
PSW3 × 6
PS-755 board
CN702
Power supply assembly
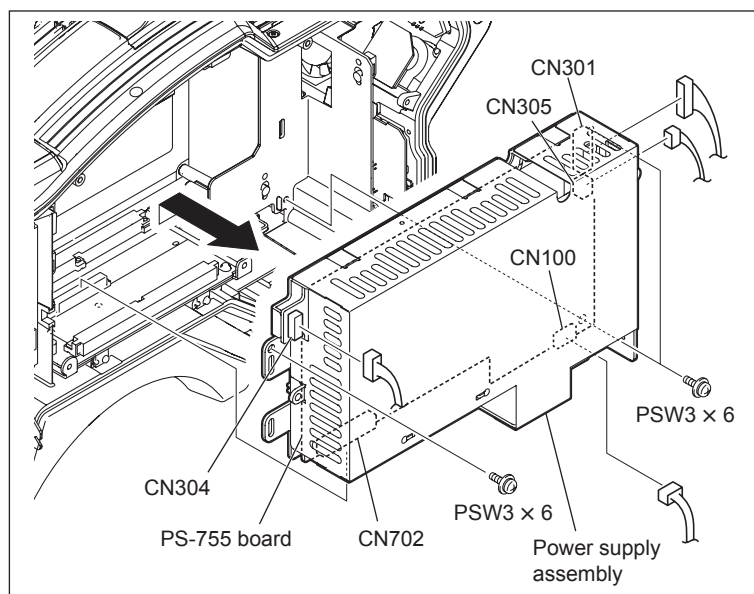
2-7. Removing/Installing the Connector Panel

Removal

1. Remove the inside panel and open the outside panel. (Refer to Section 1-4.)
2. Disconnect the coaxial cable from the SDI connector. (Refer to Section 2-5-2.)

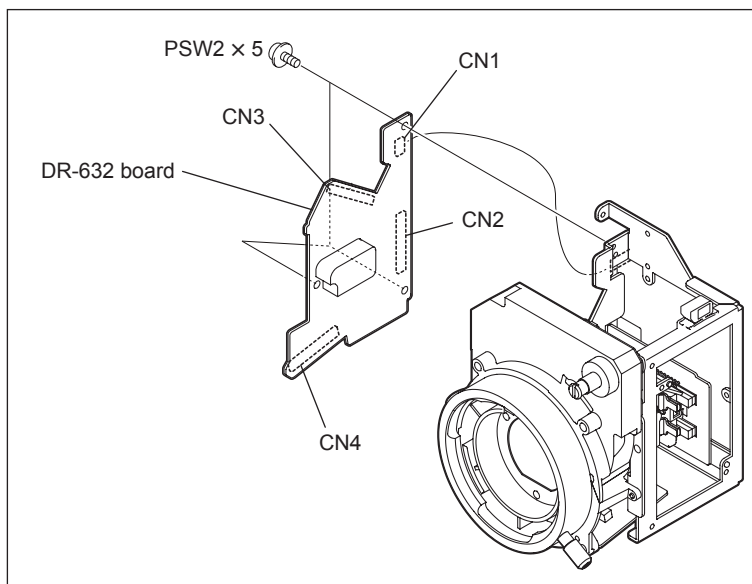3. Disconnect the flexible card wire from the connector CN7 on the SY-363 board.

   Note

   Be careful not to bend the flexible card wire. This shortens the wire life.

4. Disconnect the harness from the connector CN8 on the SY-363 board.
5. Remove the two screws to detach the connector (1) cap.
6. Remove the five screws and draw the connector panel.
7. Disconnect the harnesses from the connectors CN2 and CN4 on the CN-3076 board.
8. Disconnect the harness from the connector CN2 on the CN-3078 board.
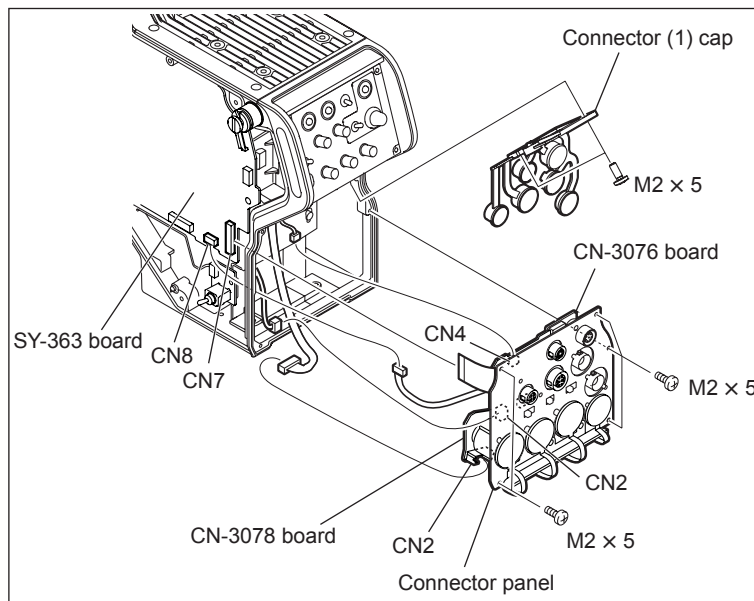
Installation

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

Connector (1) cap

M2 × 5

CN-3076 board

SY-363 board

CN8

CN7

CN4

M2 × 5

CN2

CN-3078 board

CN2

M2 × 5

Connector panel

2-8. Replacing Boards

2-8-1. CD-61 Board

1. Open the outside panel.
   (Refer to Section 1-4.)

2. Disconnect the flexible card wires from the connectors CN202 and CN203 on the CD-61 board.
3. Remove the four screws (PSW3 × 6) to remove the CD board assembly.
4. Remove the two screws (PSW2 × 5) to remove the ENC-112 board.

5. Install a new CD-61 board by reversing the steps above.
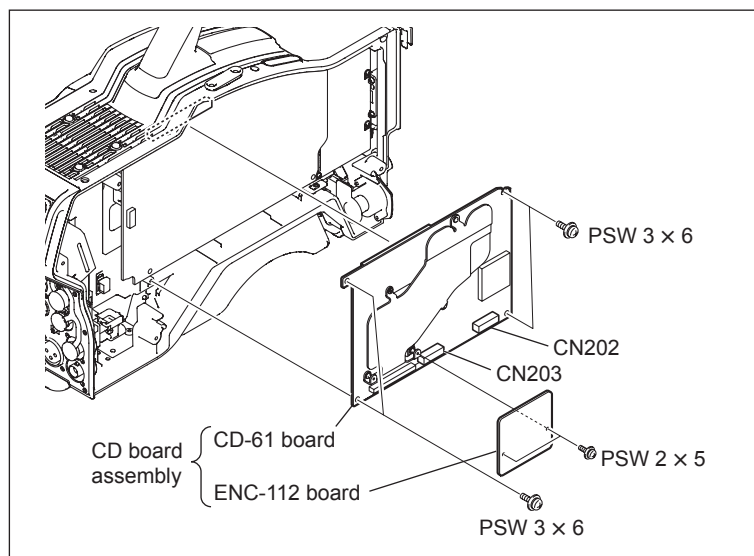
2-8-2. CN-3069 Board

1. Remove the two screws and slide the handle cover slightly (Arrow ①).
2. Remove the handle cover so that the hook is released from the hole in the handle subassembly (Arrow ②).

3. Disconnect the harness from the connector CN2 on the LE-355 board.
4. Remove the four screws (B3 × 10) and remove the handle subassembly in the arrow direction.
5. Remove the two screws (M2.6 × 5) and lift the CN-3069 board.
6. Disconnect the harness from the connector CN2 on the CN-3069 board.
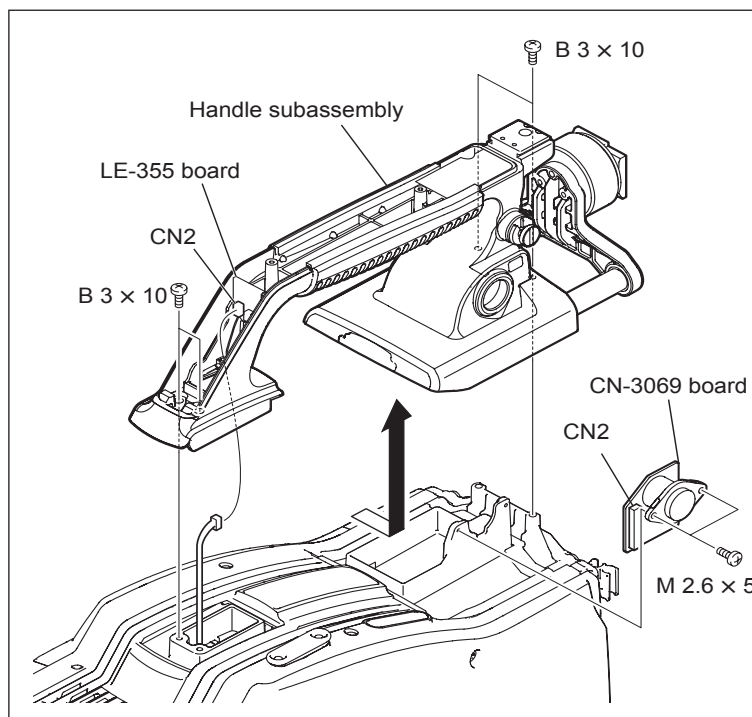
7. Install a new CN-3069 board by reversing the steps above.

2-8-3. CN-3070 Board
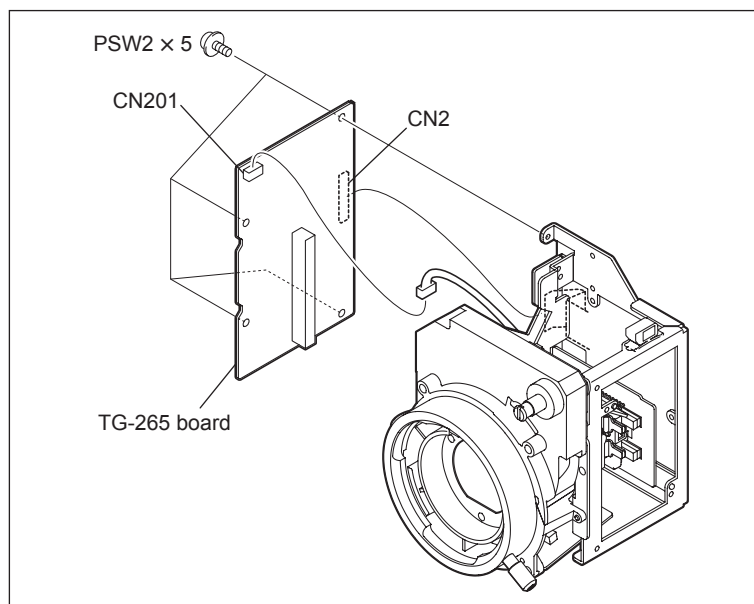
1. Remove the inside panel and open the outside panel. (Refer to Section 1-4.)
2. Remove the front assembly. (Refer to Section 2-1.)

3. Remove the screw and draw the CN-3070 board in the arrow direction.
4. Disconnect the harness from the connector CN2 on the CN-3070 board.

5. Attach the LENS CN cushion to a new CN-3070 board.
6. Install the new CN-3070 board by reversing steps 1 to 4 above.
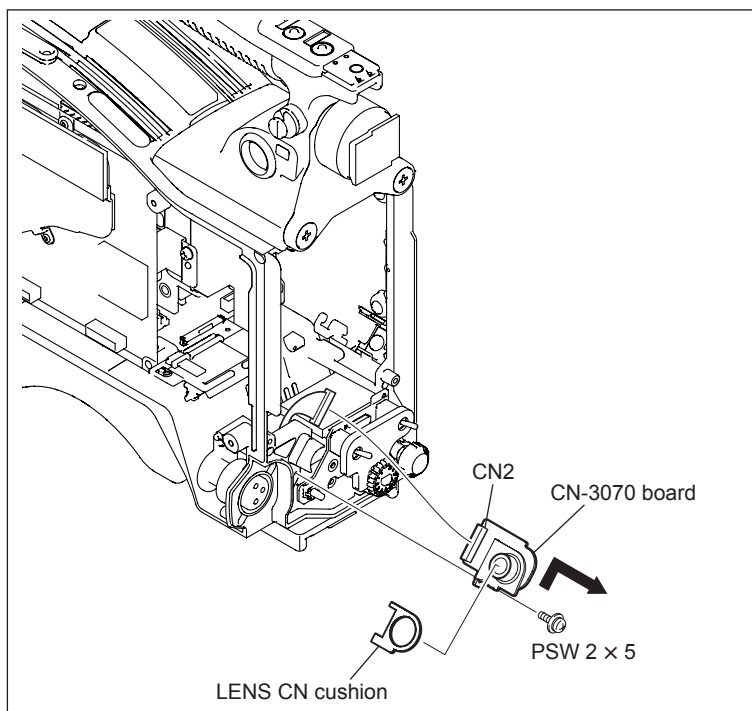
2-8-4. CN-3071 Board

1. Remove the inside panel and open the outside panel. (Refer to Section 1-4.)
2. Remove the front assembly. (Refer to Section 2-1.)

3. Disconnect the harness from the connector CN3 on the CN-3071 board.
4. Remove the two screws, lift the outside panel, and remove the CN-3071 board.

5. Install a new CN-3071 board by reversing the steps above.
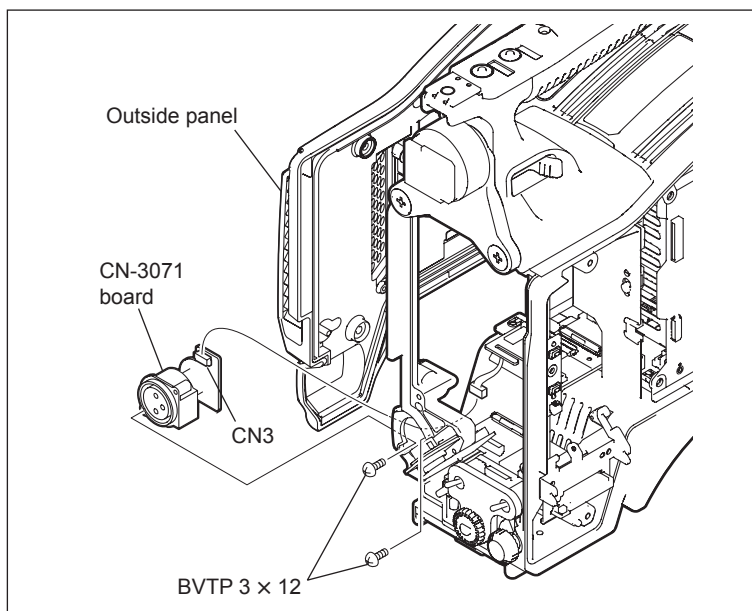
2-8-5. CN-3072 Board

1. Remove the inside panel.
   (Refer to Section 1-4.)

2. Disconnect the flexible card wire from the connector CN5 on the SY-363 board.
3. Disconnect the harness from the connector CN6 on the SY-363 board.
4. Open the connector (1) cap.
5. Remove the six screws and draw the intercom panel.
6. Disconnect the harness from the connector CN1 on the CN-3073 board.
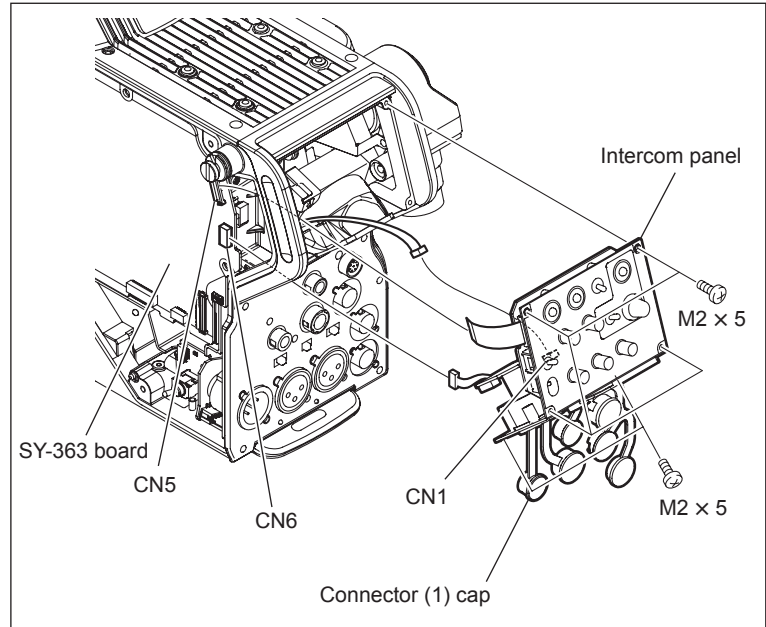
7. Disconnect the harness from the connector CN2 on the CN-3072 board.
8. Remove the two screws to remove the CN-3072 board.
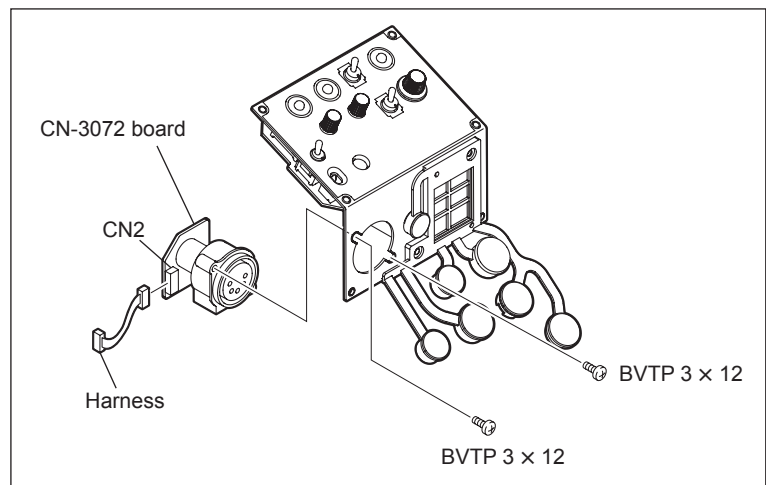
9. Install a new CN-3072 board by reversing the steps above.

2-8-6. DPR-298 Board

1. Open the outside panel.
   (Refer to Section 1-4.)
2. Remove the CD board assembly.
   (Refer to Section 2-8-1.)

3. Disconnect the flexible card wire from the connector CN1 on the DPR-298 board.
   Note
   Be careful not to bend the flexible card wire. This shortens the wire life.

4. Disconnect the coaxial cable from the connector CN801 on the DPR-298 board.
   Note
   Be sure to hold the plug when disconnecting the coaxial cable. Do not pull the cable.

5. Remove the four screws to remove the DPR-298 board.

DPR-298 board

PSW 3 × 6

CN801

CN1

Coaxial cable

PSW 3 × 6

| OK | Hold the plug to remove. | NG | Do not attempt to remove by pulling the cable. |
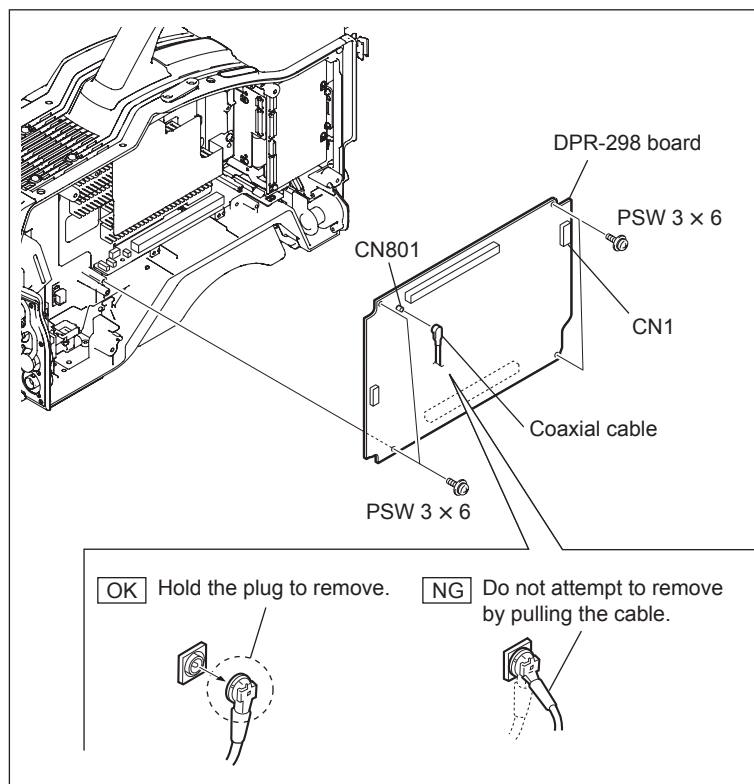
6. Install a new DPR-298 board by reversing the steps above.
   Note
   Hold the plug of the coaxial cable, and connect it perpendicularly to the connector. Push the plug into the connector while turning it clockwise and counterclockwise several times.

Hold the plug to connect.
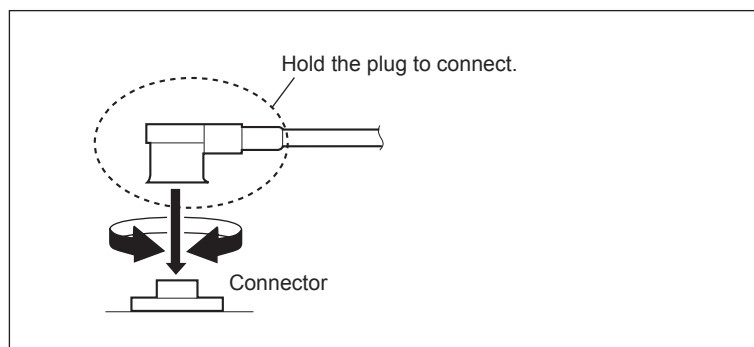
Connector

2-8-7. ENC-112 Board

For how to replace the ENC-112 board, refer to "Section 2-8-1 CD-61 Board".

2-8-8. FL-348 Board

1. Open the outside panel.
   (Refer to Section 1-4.)

2. Remove the five screws to detach the shield case cover and insulation sheet.
3. Disconnect the harnesses from the connectors CN1 and CN3 on the FL-348 board.

Shield case cover — PSW 3 × 6
Insulation sheet
FL-348 board
CN3
CN1
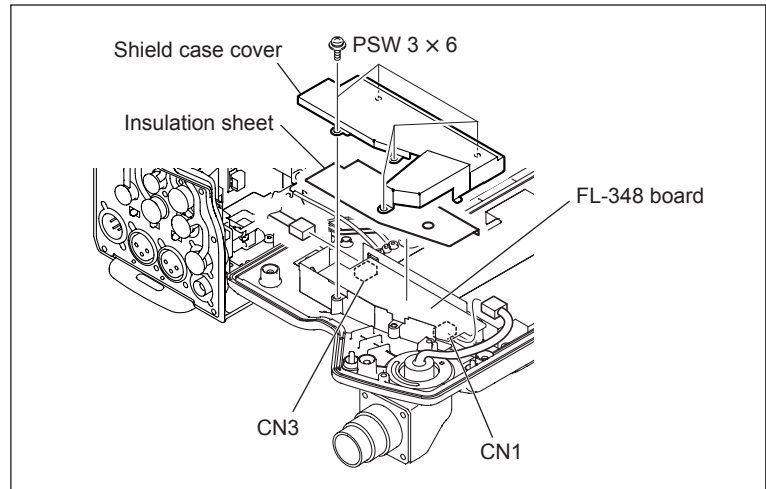
4. Remove the two screws and lift the FL-348 board.
5. Disconnect the coaxial cable from the connector CN2 on the FL-348 board.

   Note

   Be sure to hold the plug when disconnecting the coaxial cable. Do not pull the cable.

PSW 3 × 6
FL-348 board
CN2
Coaxial cable

OK Hold the plug to remove.   NG Do not attempt to remove by pulling the cable.
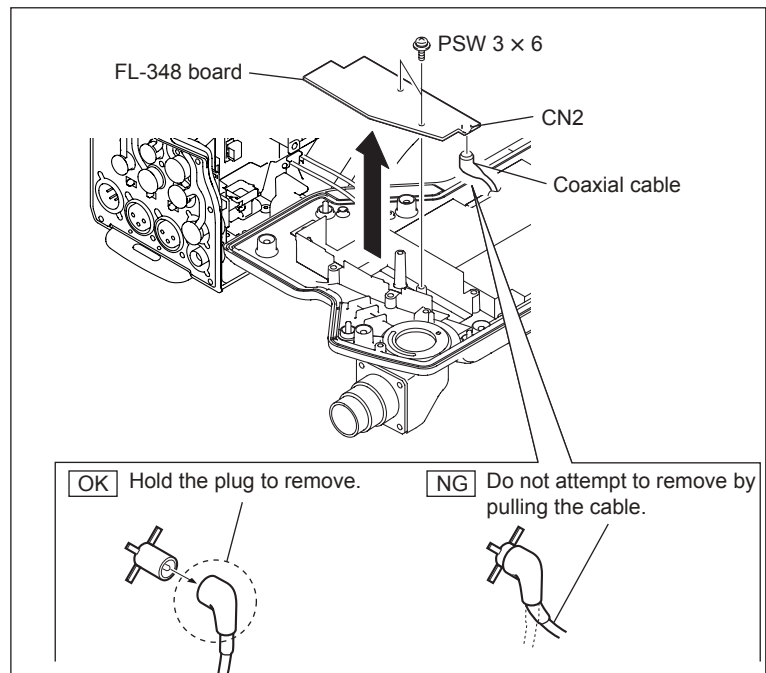
6. Install a new FL-348 board by reversing the steps above.

   Note

   Hold the plug of the coaxial cable, and connect it perpendicularly to the connector.
   Push the plug into the connector while turning it clockwise and counterclockwise several times.

Hold the plug to connect.
Connector
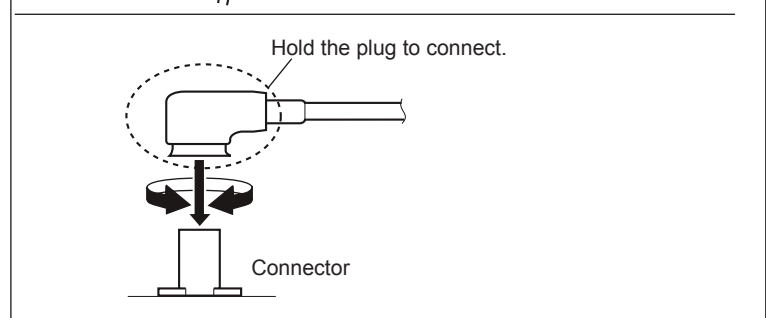
2-8-9. LE-355 Board

1. Remove the handle cover.
   (Refer to Section 2-8-2.)

2. Raise the harness retainer and lift the LE-355 board.
3. Disconnect the harnesses from the connectors CN1 and CN2 on the LE-355 board.
4. Remove the handle tally cushion from the toggle switch.

5. Install a new LE-355 board by reversing the steps above.
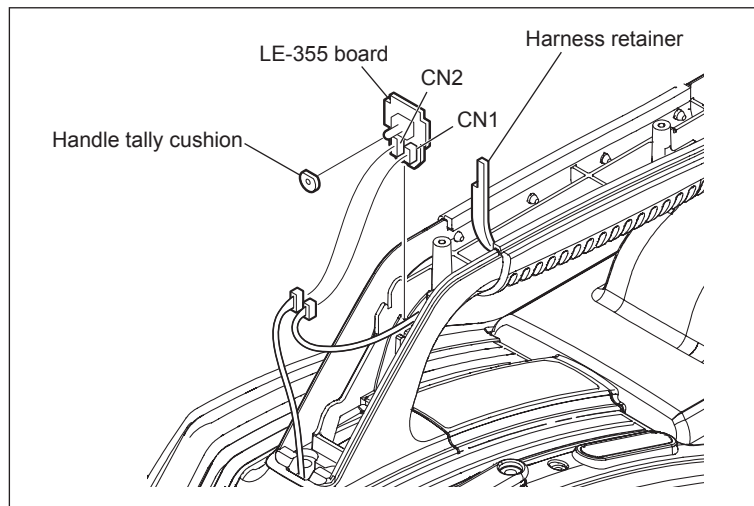
2-8-10. MB-1125 Board

1. Remove the inside panel and open the outside panel. (Refer to Section 1-4.)
2. Remove the front assembly.
   (Refer to Section 2-1.)
3. Remove the SY-363 board.
   (Refer to Section 2-8-18.)
4. Remove the power supply assembly.
   (Refer to Section 2-6.)
5. Remove the CD board assembly.
   (Refer to Section 2-8-1.)
6. Remove the DPR-298 board.
   (Refer to Section 2-8-6.)

7. Disconnect the flexible card wires from the connectors CN3 and CN5 on the MB-1125 board.
   Note
   Be careful not to bend the flexible card wire. This shortens the wire life.

8. Disconnect the harnesses from the connectors CN1, CN6, CN8, CN9, and CN10 on the MB-1125 board.
9. Remove the two screws to remove the MB-1125 board in the arrow direction.
10. Remove the five screws to detach the MB bracket.

11. Install a new MB-1125 board by reversing the steps above.
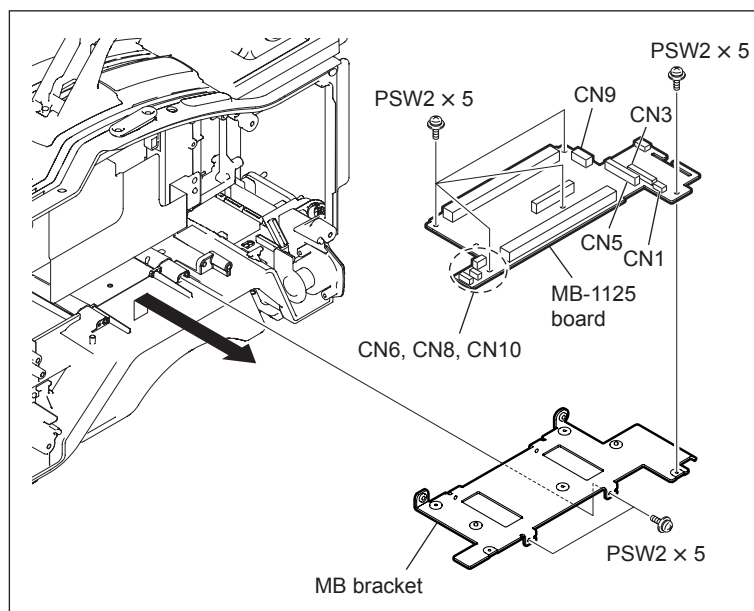
2-8-11. MS-91 Board

1. Remove the inside panel and open the outside panel. (Refer to Section 1-4.)
2. Remove the SW-1404 board. (Refer to Section 2-8-14.)
3. Remove the CN-3070 board. (Refer to Section 2-8-3.)
4. Remove the SW-1405 board. (Refer to Section 2-8-15.)

5. Disconnect the flexible card wire from the connector CN5 on the MS-91 board.

   | Note |

   Be careful not to bend the flexible card wire. This shortens the wire life.

6. Disconnect the harnesses from the connectors CN1 and CN2 on the MS-91 board.
7. Remove the three screws and draw the MS-91 board in the arrow direction.
8. Disconnect the harnesses from the connectors CN3 and CN6 on the MS-91 board.
9. Remove the screw to detach the front switch bracket.
10. Install a new SW-1402 board by reversing the steps above.
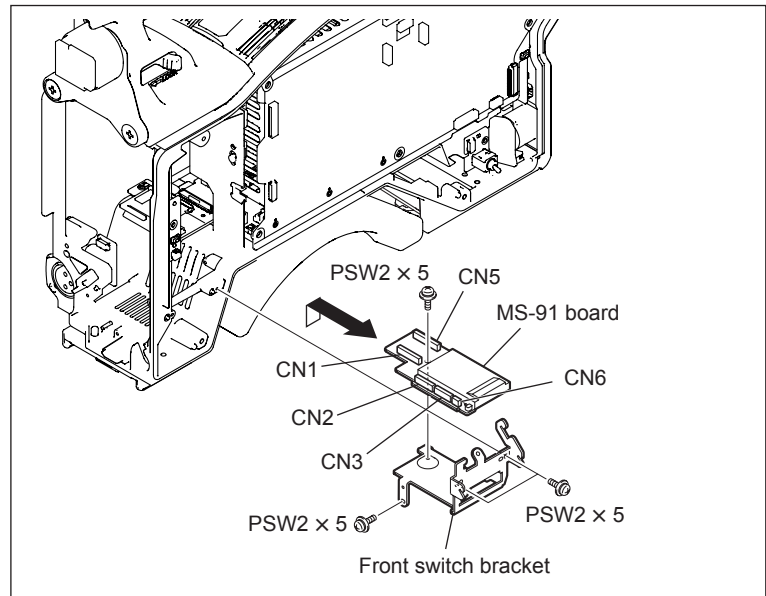
2-8-12. PS-755 Board

The PS-755 board is not a spare part.
When replacing the PS-755 board, replace the power supply assembly with the PS-755 board contained.

2-8-13. RE-263 Board

The RE-263 board is not a spare part.
When replacing the RE-263 board, replace the power supply assembly with the RE-263 board contained.

2-8-14. SW-1404 Board

1. Remove the inside panel.
   (Refer to Section 1-4.)

2. Remove the waterproof rubber from the toggle switch.
3. Remove the screw to remove the SW-1404 board in the arrow direction.
4. Disconnect the harness from the connector CN1 on the SW-1404 board.

5. Install a new SW-1404 board by reversing the steps above.
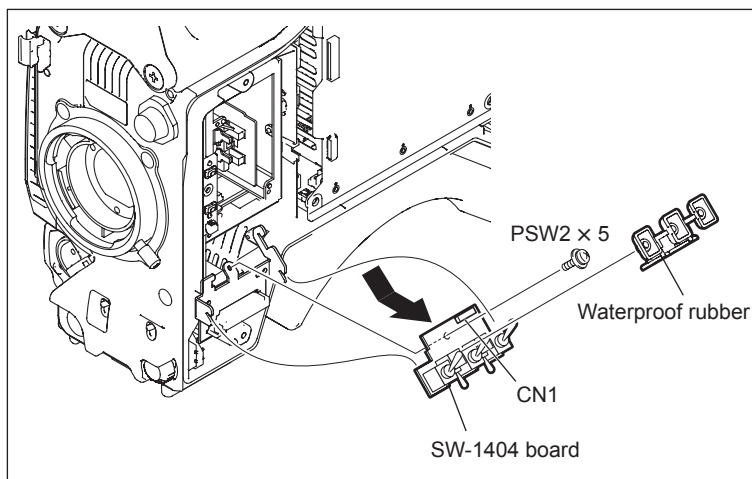
2-8-15. SW-1405 Board

1. Remove the inside panel and open the outside panel. (Refer to Section 1-4.)
2. Remove the front assembly.
   (Refer to Section 2-1.)
3. Remove the CN-3070 board.
   (Refer to Section 2-8-3.)

4. Remove the VR knob, RE knob, and front switch cushion.
5. Disconnect the harness from the connector CN2 on the SW-1405 board.
6. Remove the screw to remove the SW-1405 board in the arrow direction.

7. Install a new SW-1405 board by reversing the steps above.
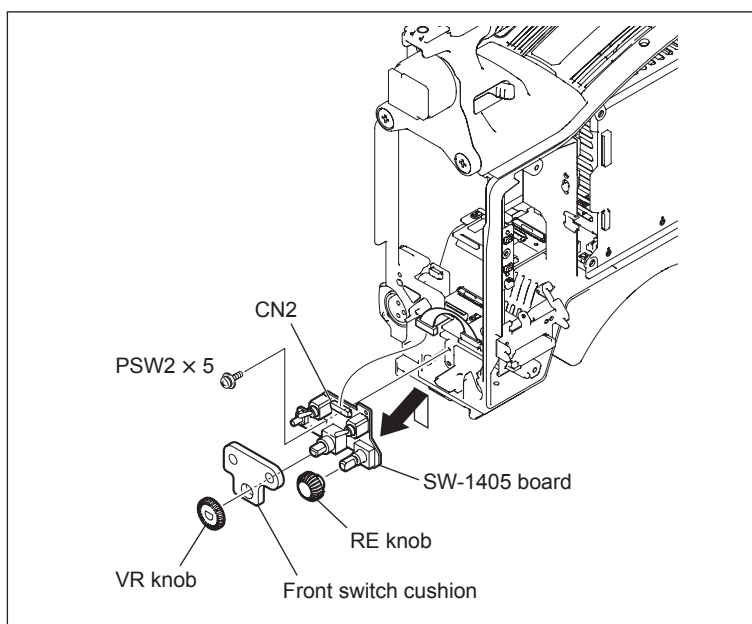
2-8-16. SW-1406/A Board

1. Remove the inside panel.
   (Refer to Section 1-4.)
2. Remove the intercom panel.
   (Refer to Section 2-8-5.)
3. Remove the CN-3072 board.
   (Refer to Section 2-8-5.)

4. Remove the ENCODER knob.
5. Remove the four screws to remove the
   SW-1406/A board.
6. Disconnect the flexible card wire from the
   connector CN1 on the SW-1406/A board.

   Note

   Be careful not to bend the flexible card wire.
   This shortens the wire life.

7. Remove the following components from the
   SW-1406/A board.
   • INCOM waterproof sheet
   • Earth plate
   • Switch cap
   • Waterproof rubber

8. Install a new SW-1406/A board by reversing
   the steps above.
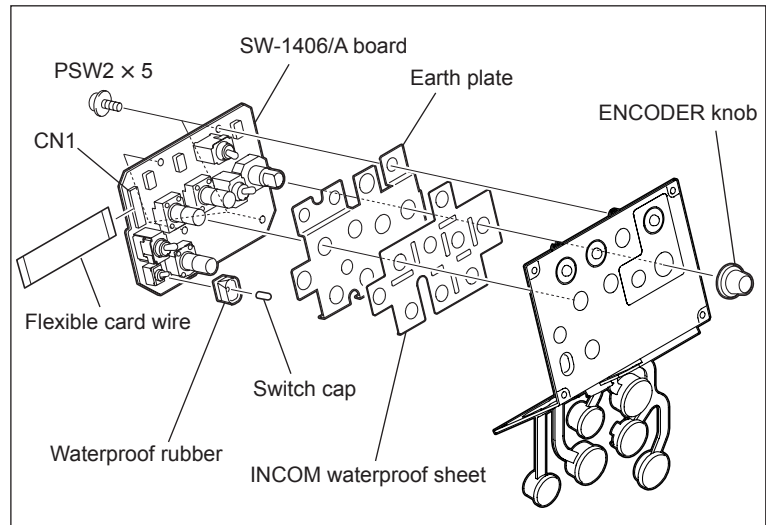
2-8-17. SW-1407 Board

1. Remove the inside panel.
   (Refer to Section 1-4.)

2. Detach the waterproof cap from the toggle
   switch.
3. Remove the screw and draw the SW-1407
   board.
4. Disconnect the harness from the connector
   CN1 on the SW-1407 board.

5. Install a new SW-1407 board by reversing the
   steps above.
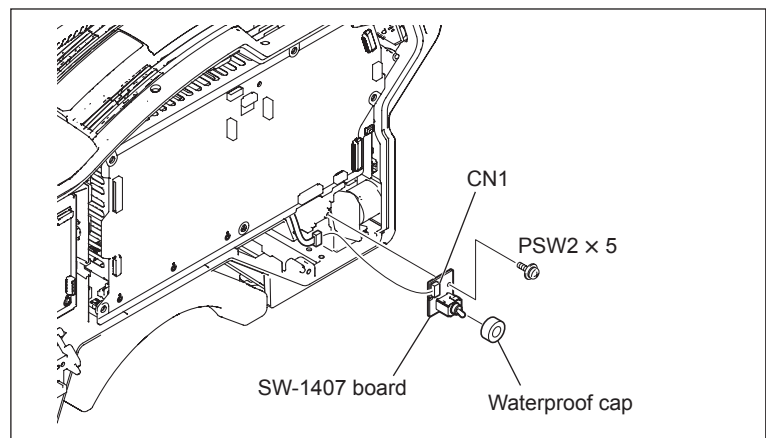
2-8-18. SY-363 Board

1. Remove the inside panel.
   (Refer to Section 1-4.)

2. Disconnect the flexible card wires from the connectors CN5 and CN7 on the SY-363 board.

   Note

   Be careful not to bend the flexible card wire. This shortens the wire life.

3. Disconnect the harnesses from the connectors CN2, CN3, CN4, CN6, and CN8 on the SY-363 board.
4. Remove the five screws to remove the SY-363 board.

5. Install a new SY-363 board by reversing the steps above.
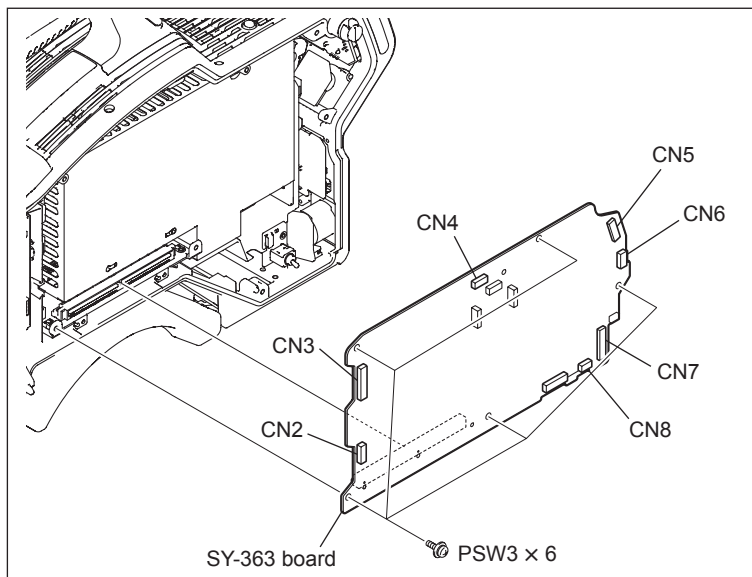
2-8-19. TX-126 Board

1. Open the outside panel.
   (Refer to Section 1-4.)

2. Remove the four screws to detach the shield case.
3. Disconnect the flexible card wires from the connectors CN1 and CN2 on the TX-126 board.
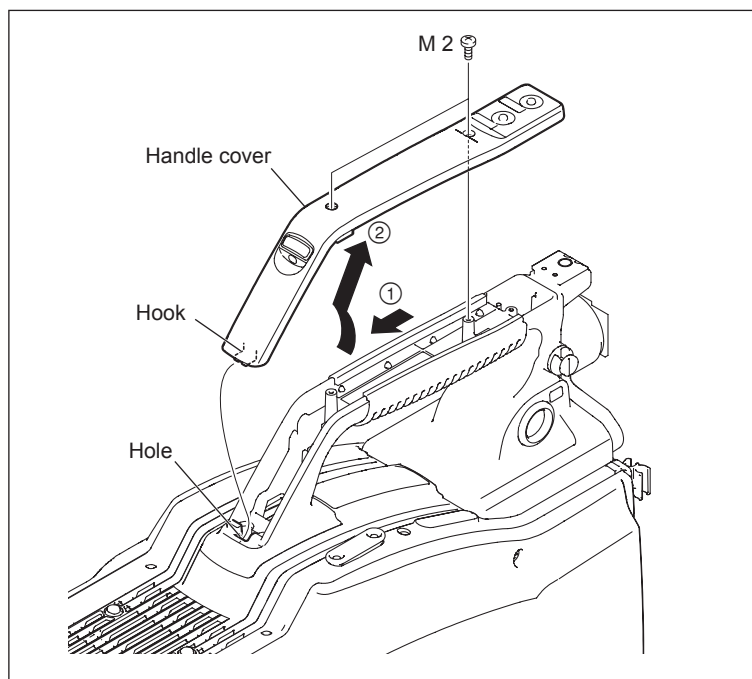4. Disconnect the harness from the connector CN3 on the TX-126 board.
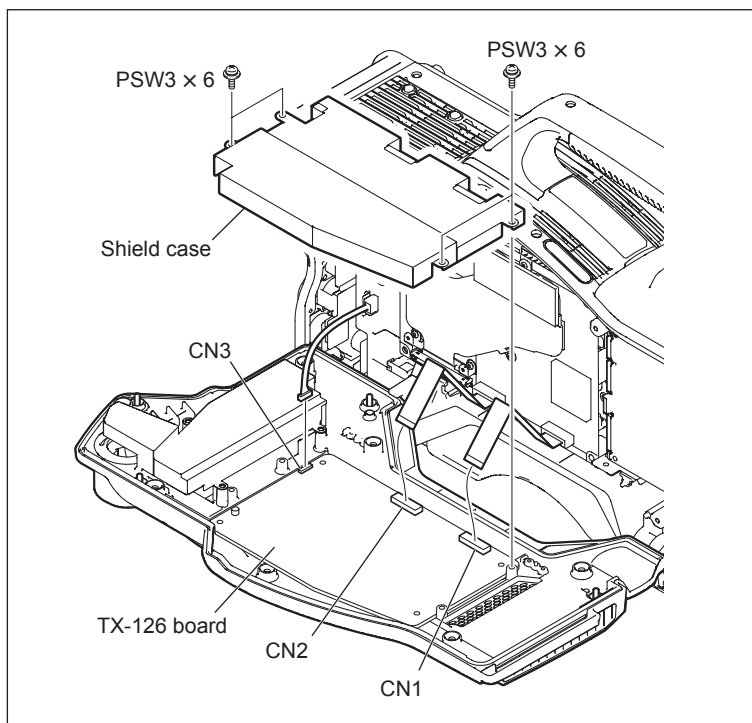
5. Remove the four screws and lift the TX-126 board.

6. Disconnect the coaxial cable from the connector CN601 on the TX-126 board.

   Note

   Be sure to hold the plug when disconnecting the coaxial cable. Do not pull the cable.

| OK | Hold the plug to remove. | NG | Do not attempt to remove by pulling the cable. |

PSW3 × 6   PSW3 × 6

Coaxial cable

TX-126 board

Soft shields   CN601

Soft shields   TX-126 board
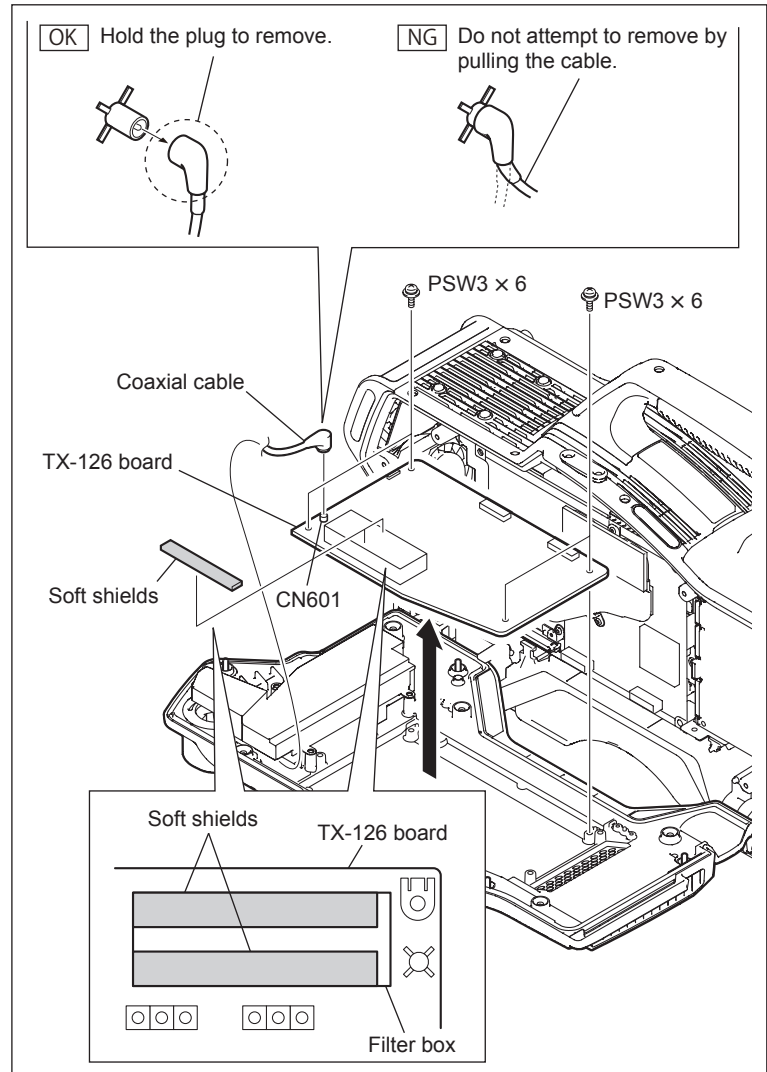
Filter box

7. Install a new TX-126 board by reversing the steps above.

   Notes

   • Attach soft shields to the filter box at the positions shown in the figure.

   • Hold the plug of the coaxial cable, and connect it perpendicularly to the connector. Push the plug into the connector while turning it clockwise and counterclockwise several times.

Hold the plug to connect.

Connector
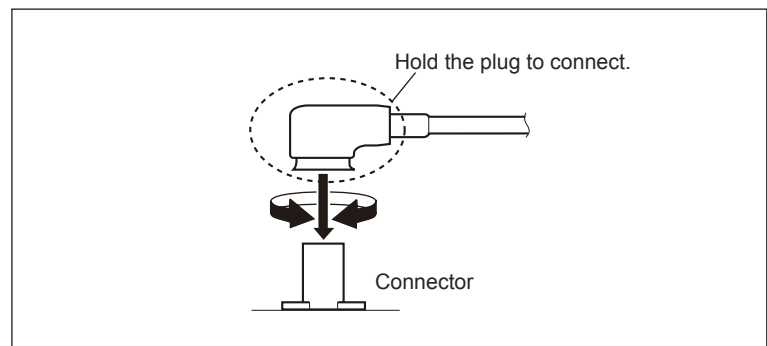
Section 3
Electrical Alignment

When any board of this unit is repaired or replaced, perform electrical adjustments as follows.

Notes

- Perform the video system level adjustment (Section 3-4) according to customer needs.
- Master setup unit MSU-900 and other equipment/tools are used for electrical adjustments of the unit. Refer to Section 3-1-8 when using the camera setup menu for electrical adjustments without using MSU-900.

3-1. Preparations

3-1-1. Equipment Required

Measuring equipment

- HDTV serial digital waveform monitor: Leader Electronics LV5150DA, Leader Electronics LV5152DA (multi format) or equivalent
- HD color monitor: Sony BVM-D20F1/BVM-D14H5 or equivalent
- Oscilloscope: Tektronix TDS460A or equivalent
- Frequency counter
- FM signal generator: ROHDE & SCHWARS SMHU58 or equivalent
- Audio analyzer

Related equipment

- HDVS camera system: MSU-900/950, HDVF-200/550
- Lens: Canon HJ18 or equivalent
- CCU: HXCU-100

Tools

- Pattern box PTB-500: Sony Part No.: J-6029-140-B
- Grayscale chart (16 : 9 transparent type): Sony Part No.: J-6394-080-A
- Grayscale chart (4 : 3 reflective type): Commercially available

3-1-2. Precautions on Adjustments

- Turn on the external main power switch before starting adjustments, and warm up the unit for about 10 minutes.
- All measuring equipment must have been calibrated.
- Periodic maintenance must have been conducted for the pattern box.
- "Section 3-1-7 Initial Settings" must have been completed.

3-1-3. File Data at Adjustment

The file structure of the adjustment data of this unit is as follows.

```
┌──────────┐
│ Scene    │
├──────────┤ ┐
│ Lens     │ │ File data ┐ Total adjustment data
├──────────┤ ┘           │
│ Reference│             ┘
├──────────┤
│ OHB      │
└──────────┘
```

- Lens file is used for compensating the deviation generated by switching the lens extender from OFF to ON and for compensating the difference in the characteristics between lenses. This file is stored in the camera. For electrical adjustments, mount the lens that is actually used.
- The reference file stores the custom paint data adjusted by the video engineer. This file is stored in the camera and memory stick. Therefore, store this data in the memory stick first before starting adjustment, and clear this data from the memory stick after adjustment.
- OHB file is used for adjustment for the CCD block maintenance. This file is stored in the camera.

3-1-4. Maintaining the Grayscale Chart

It is preferable to use an 89.9%-reflective grayscale chart for electrical adjustments.
If a reflective chart is not available, use a well-maintained pattern box and a transparent grayscale chart for adjustments.
Before beginning adjustment, set the illumination of the light source (or the luminous intensity on the chart surface) properly proceeding as follows and set the color temperature to 3200 K exactly by adjusting light.

Information on the reflective grayscale chart (16 : 9)

Recommended chart
The reflective grayscale chart (16 : 9) is commercially available.

Product name: Reflective grayscale chart
Supplier: MURAKAMI COLOR RESEARCH LABORATORY

Handling precautions
- Do not touch the chart's surface with bare hands.
- Do not subject the surface to dirt, scratches or prolonged exposure to sunlight.
- Protect the chart from excessive moisture or harmful gas.
- Avoid resting articles against the case.
- When the chart is not used for a long period and is stored, open the case and dry the chart for about an hour once or twice a month.

Replacement period when the chart is used as the reference
The reflective grayscale chart should be replaced every two years if it used as the reference. Because the chart deteriorates with time and proper adjustment cannot be achieved.
Replacement period varies depending on the chart storage condition.

Setting illumination (when the reflective chart is used)

Measuring equipment: Illuminance meter (Calibrated)

1. Turn on the light source and warm up for about 30 minutes.
2. Place the illuminance meter on the chart surface. Adjust the position and angle of the light source so that the whole surface of the chart is evenly 2000 lx.

   Note

   Light the chart from almost the same direction and height as the camera to shoot the chart.
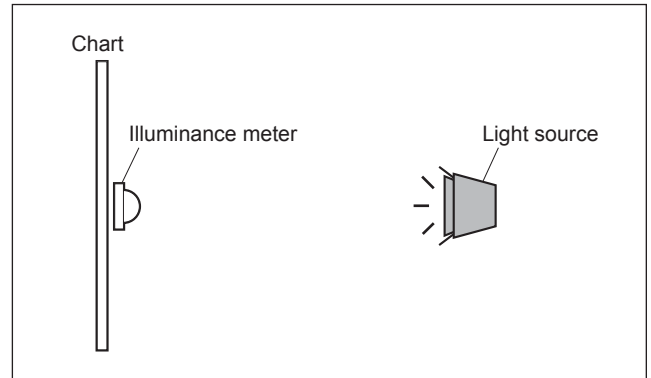
Setting luminous intensity (when the transparent chart is used)

Measuring equipment: Luminance meter (Minolta LS-110 or equivalent. Calibrated.)

1. Light the pattern box and warm up for about 30 minutes.
2. Place the pattern box where the chart is not exposed to light, such as a darkroom.
   (Or cover the pattern box with a cover whose inside is painted in black.)
3. Place the luminance meter facing straight to the chart at a distance of 1 m from it.
4. Adjust the luminance control of the pattern box so that the white portion in the center of the chart is 573 ±6 cd/m^2.

   Note

   This corresponds to the luminous intensity on the 89.9%-reflective chart at 2000 lx.
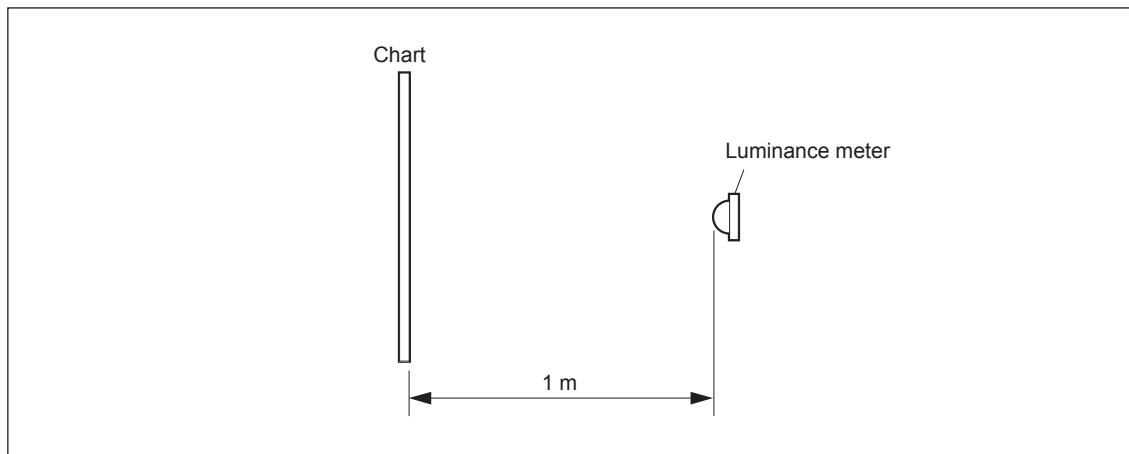
3-1-5. Setup Menu

Some of adjustments given in this section use the setup menu. The setup menu consists of the following menus.
In addition, there is a TOP menu indicating the entire configuration of menu items.
- USER menu
- USER MENU CUSTOMIZE menu
- OPERATION menu
- PAINT menu
- MAINTENANCE menu
- FILE menu
- DIAGNOSIS menu
- SERVICE menu

For some adjustments, the setup menu operation is described as follows.

Example:
When the AUTO SETUP page of MAINTENANCE menu is selected from the TOP menu and AUTO LEVEL is performed:
- MENU: MAINTENANCE
- PAGE: AUTO SETUP
- ITEM: AUTO LEVEL

How to display the SERVICE menu

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

How to change the setting values

Perform the following to enter or cancel the setting value of items, which can be changed by turning the rotary encoder.

To enter the setting value: Press the rotary encoder.
To cancel the setting value: Before pressing the rotary encoder, press the MENU switch toward the "CANCEL" side. The original setting is restored.
                              After the rotary encoder is pressed, the setting cannot be canceled.

3-1-6. Connection of Equipment
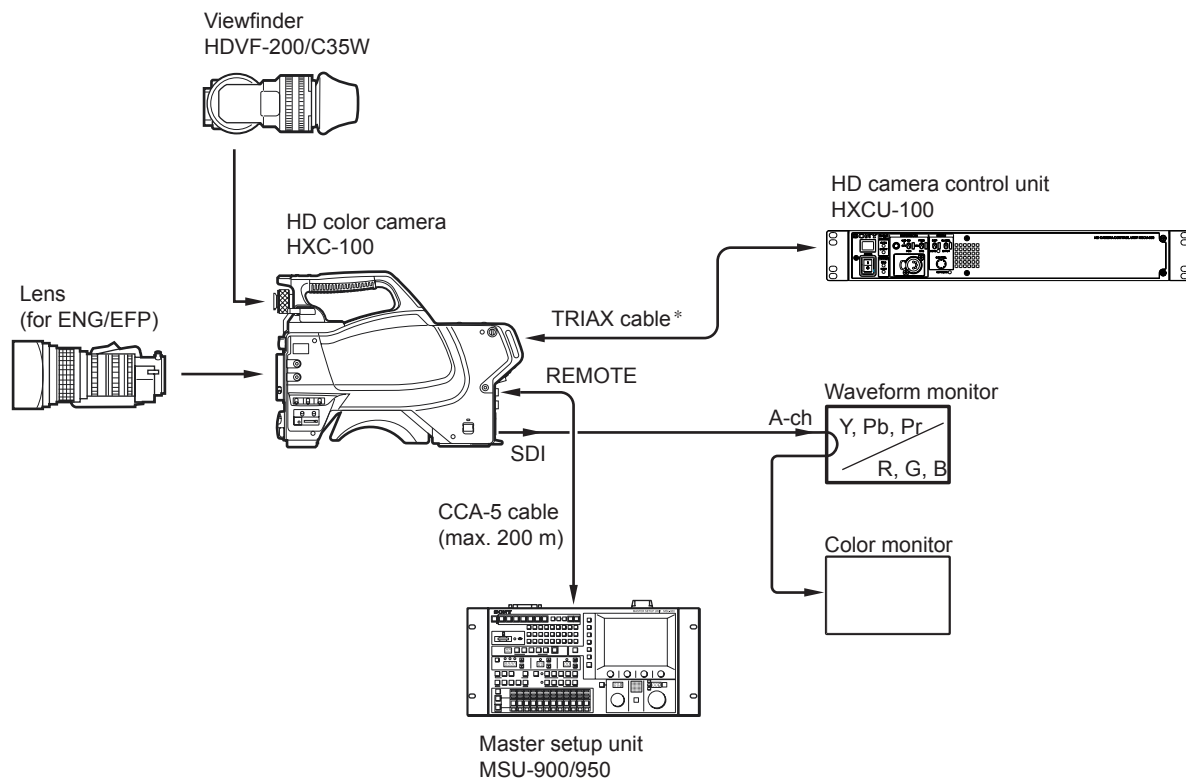
∗: Transmittable cable attenuation: 3.8 to 45.6 dB (100 MHz)

| Note |

When Fujikura φ8.5 mm cable is used → 50 to 600 m.

3-1-7. Initial Settings

| Note |

This section describes the adjustment procedures using MSU-900.

MSU control panel

When MSU-900 is used
- Power supply and signal switching block

ALL button	→ OFF (dark)
CAM PW button	→ ON (lit)
VF PW button	→ ON (lit)
TEST 1 button	→ OFF (dark)
TEST 2 button	→ OFF (dark)
BARS button	→ OFF (dark)
CLOSE button	→ ON (lit)

- Camera/CCU circuit ON/OFF block

KNEE OFF button	→ OFF (lit)
DETAIL OFF button	→ OFF (lit)
LVL DEP OFF button	→ OFF (lit)
MATRIX OFF button	→ OFF (lit)
AUTO KNEE button	→ OFF (dark)
SKIN DETAIL button	→ OFF (dark)

- Others

GAMMA OFF button	→ ON (dark)
MASTER GAIN	→ 0 (0 dB)
ECS/SHUTTER ON button	→ OFF (dark)

- Filter position

ND Filter	→ 1 (CLEAR)

When MSU-950 is used
- Power supply and signal switching block

ALL button	→ OFF (dark)
CAM PW button	→ ON (lit)
VF PW button	→ ON (lit)
TEST button	→ OFF (dark)
BARS button	→ OFF (dark)
CLOSE button	→ ON (lit)

- Camera/CCU circuit ON/OFF block

Knee Off∗	→ OFF (lit in reverse)
Detail Off∗	→ OFF (lit in reverse)
Level Dep Off∗	→ OFF (lit in reverse)
Matrix Off∗	→ OFF (lit in reverse)
AUTO KNEE button	→ OFF (dark)
SKIN DETAIL button	→ OFF (dark)

- Others

Gamma Off∗	→ ON (lit normally)
Master Gain∗	→ 0 (0 dB)
ECS/Shutter∗	→ OFF (lit normally)

- Filter position

ND Filter	→ 1 (CLEAR)

∗: Push the FUNCTION button, then select on the function menu screen.

When adjusting using the Setup menu

- PAINT menu

Page	Setting item	Initial setting
SW STATUS	FLARE	ON
	GAMMA	ON
	BLK GAM	OFF
	KNEE	OFF
	WHT CLIP	OFF
	DETAIL	ON
	LVL DEP	ON
	SKIN DTL	OFF
	MATRIX	OFF
VIDEO LEVEL	TEST	OFF

- Inside panel

  GAIN switch → L (0 dB)
  OUTPUT/AUTO KNEE switch → CAM/OFF
  WHITE BAL switch → PRST

- Front panel

  SHUTTER switch → OFF

- Filter position

  ND filter → 1 (CLEAR)

3-1-8. Adjustment Items and Setup Menu Items

Refer to the following tables when using the camera setup menu for electrical adjustments without using MSU-900. These tables list camera menu items corresponding to adjustment items of MSU-900.

Maintenance menu (MAINTENANCE button/ MSU-900 → ON (lit))

Menu item of MSU-900				Menu item of camera		
Menu	Secondary menu	Sub menu	Adjust-ment item	MENU	PAGE	ITEM
Adjusting	White Shading	R/G/B	H Saw	MAINTENANCE	WHITE SHADING	H SAW R/G/B
			H Para			H PARA R/G/B
			V Saw			V SAW R/G/B
			V Para			V PARA R/G/B
Auto Setup	Auto Level			MAINTENANCE	AUTO SETUP	AUTO LEVEL
Lens Adjusting	V Mod Saw		R/G/B	PAINT	VIDEO LEVEL	V MOD R/G/B
	Auto Iris		Level	MAINTENANCE	AUTO IRIS	IRIS LEVEL
			APL Ratio			APL RATIO

File control menu (FILE button/MSU-900 → ON (lit))

Menu item of MSU-900		Menu item of camera		
Menu	Sub menu	MENU	PAGE	ITEM
Reference	Ref Store	FILE	REFERENCE	STORE FILE
Lens File	Lens Store		LENS FILE	STORE FILE
OHB File	OHB Store		OHB FILE	STORE FILE

Paint menu page 1/3 (PAINT button/MSU-900 → ON (lit))

Menu item of MSU-900			Menu item of camera		
Menu	Sub menu	Adjustment item	MENU	PAGE	ITEM
Black		R/G/B/Master	PAINT	VIDEO LEVEL	BLACK R/G/B/M
Flare		R/G/B			FLARE R/G/B
Detail	Detail 1	Level		DETAIL 1	LEVEL
		Limiter			LIMITER [M]
		Crispning			CLISP
		Level Dep			LVL DEP
	Detail 2	H/V Ratio			HV RATIO
	Detail 3	W.Limiter			LIMITER WHT
		B.Limiter			LIMITER BLK

Paint menu page 2/3 (PAINT button/MSU-900 → ON (lit))

Menu item of MSU-900		Menu item of camera		
Menu	Adjustment item	MENU	PAGE	ITEM
Gamma	R/G/B/Master	PAINT	GAMMA	LEVEL R/G/B/M
Knee Point	R/G/B/Master		KNEE	POINT R/G/B/M
Knee Slope	R/G/B/Master			SLOPE R/G/B/M
White Clip	R/G/B/Master			WHT CLP R/G/B/M

3-2.   Automatic Adjustment

To execute the automatic adjustment
1.   **MSU menu operation:**
   ・ MAINTENANCE button→ ON (lit)
   ・ Touch panel operation
   | Auto Setup | → | Auto Level |
   | Note |

   When performing automatic adjustment using the menu of the camera, set the setup menu as follows.
   MENU: MAINTENANCE
   PAGE: AUTO SETUP
   ITEM: AUTO LEVEL

2.   When the adjustment is completed, a message "Completed" appears.

3-3.   Electrical Alignment

3-3-1. BLACK SET Adjustment

Preparation

・ Setting for MSU-900
   CLOSE button → ON (lit)
   MASTER GAIN → 12

Adjustment Procedure

1.   **Adjustment Item:**
   MENU: SERVICE
   PAGE: BLACK SHADING
   ITEM: BLK SET [R], [G], [B]
   Specification:
      Adjust this using the waveform monitor so that the PED level of each channel becomes equal within a range
      of −3 to +12 dB.
2.   Execute file storing
   MENU: SERVICE
   PAGE: BLACK SHADING
   ITEM: STORE FILE

3-3-2. Sensitivity Adjustment

Preparation

- Setting for MSU-900
  CLOSE button → OFF (dark)
  GAMMA OFF button → OFF (lit)
  MASTER GAIN → 0
  DETAIL OFF button → OFF (lit)
- Turn ON (lighting) the TEST1 button to display the TEST SAW waveform, and check that the amplitude is 700 mV using the WFM.
  If the amplitude is not 700 mV, adjust it by the following.
  MENU: SERVICE
  PAGE: WHITE SHADING
  ITEM: WHITE [R], [G], [B]
             Then turn OFF (light off) the TEST1 button.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- **Lens iris:** F10
  ＊Use a lens with a transmittance equivalent to Canon HJ18.

Adjustment Procedure

1. **Adjustment Item:**
   MENU: SERVICE
   PAGE: OHB_ADJ1
   ITEM: GAIN_CONT [R1], [G1], [B1]
   Specification:
            A = 700 mV
2. Execute file storing.
   MENU: SERVICE
   PAGE: OHB_ADJ1
   ITEM: STORE FILE
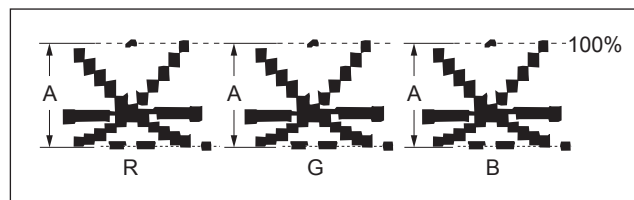
3-3-3. V-SUB Adjustment

Preparation

- Setting for MSU-900
  DETAIL OFF button → OFF (dark)
  AUTO KNEE button → OFF (dark)
  MATRIX OFF button → OFF (lit)
  GAMMA OFF button → OFF (lit)
  MASTER GAIN → 0
  SHUTTER button → OFF (dark)
- Filter position
  ND Filter → 1 (CLEAR)
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- **Iris of the lens**: Released

Adjustment Procedure

1. **Adjustment Item:**
   MENU: SERVICE
   PAGE: OHB_ADJ3
   ITEM: V-SUB [R],[G],[B]
           TEST MODE: ON
   Specification:
           A = 600 ±5 mV (R-ch, G-ch)
           B = 400 ±5 mV (B-ch)

2. Execute file storing.
   MENU: SERVICE
   PAGE: OHB_ADJ3
   ITEM: STORE FILE
3. Return the TEST MODE setting to OFF.
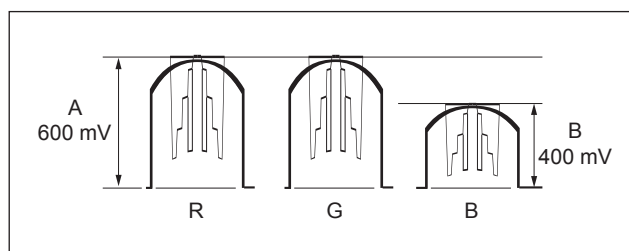
3-3-4. Black Shading Adjustment

Preparation

• Setting for MSU-900
   CLOSE button → ON (lit)
   GAMMA OFF button → OFF (lit)
   MASTER GAIN → 12
   MASTER BLACK → 30

Adjustment Procedure

1. **Adjustment Item:**
    MENU: SERVICE
    PAGE: BLACK SHADING
    ITEM: H SAW, H PARA, V SAW, V PARA [R], [G], [B]
    Specification:
         Adjust this so that each WFM channel be-
         comes as flat as possible. (Check this in the
         mode of V: FIELD, H: LINE.)
2. Execute file storing.
    MENU: SERVICE
    PAGE: BLACK SHADING
    ITEM: STORE FILE
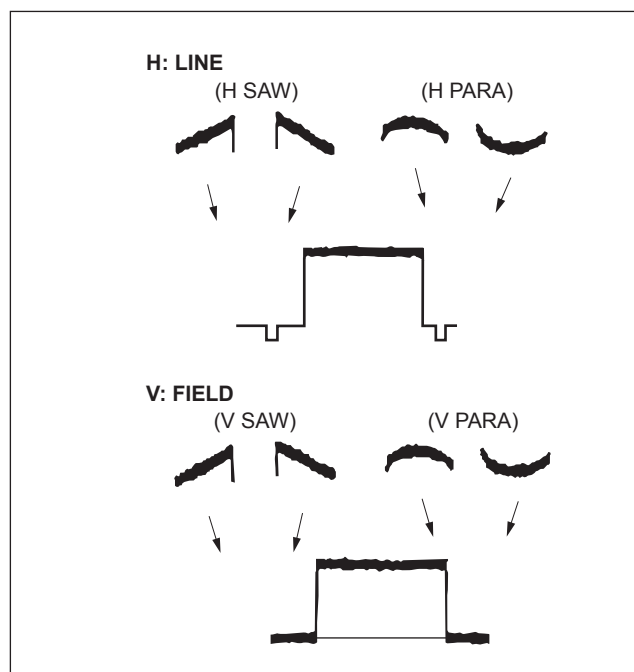
3-3-5. White Shading Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI connector
Object: Full-white pattern

Note

When performing the white shading adjustment, make sure that the following conditions are proper. If not, proper adjustment cannot be obtained.
- White pattern is not uneven.
- Luminance is correctly adjusted.
- Iris and zoom control of the lens are correctly adjusted.

Preparations

- Setting for MSU-900
    KNEE OFF button→ OFF (lit)
- Shoot the full-white pattern so that it is aligned with the underscanned monitor frame.
- **Iris of the lens**: A = 600 ±20 mV (F4 to F5.6)
    (If the lens aperture is greater than F5.6, adjust the light amount with the shutter.)
- Lens focus: ∞
- Lens extender/shrinker:✕2, ✕0.8 → OFF
- Set the camera setup menu as follows.
    MENU: OPERATION
    PAGE: LENS FILE
    ITEM: FILE
    (Select the file in accordance with the lens attached. If there is no appropriate file, select NO OFFSET, then change the name of lens with MSU.)
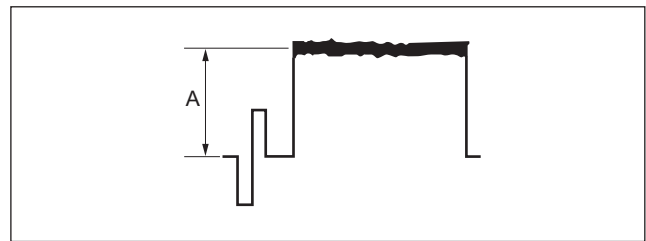
Adjustment Procedure

1. Perform the automatic white balance adjustment.
    WHITE button/MSU-900 → ON (lit)
2. If the shading is monitored, adjust it as follows.
    MSU menu operation:
    - MAINTENANCE button→ ON (lit)
    - Touch panel operation
    Adjusting → White Shading → R
    Adjustment items: H Saw, H Para, V Saw, V Para
3. Adjust for G-ch in the same manner.
4. Adjust for B-ch in the same manner.
5. Perform the automatic white balance adjustment.
    WHITE button/MSU-900 → ON (lit)

OHB File Store

MSU menu operation:
- FILE button → ON (lit)
- Touch panel operation
    OHB File → OHB Store → Store
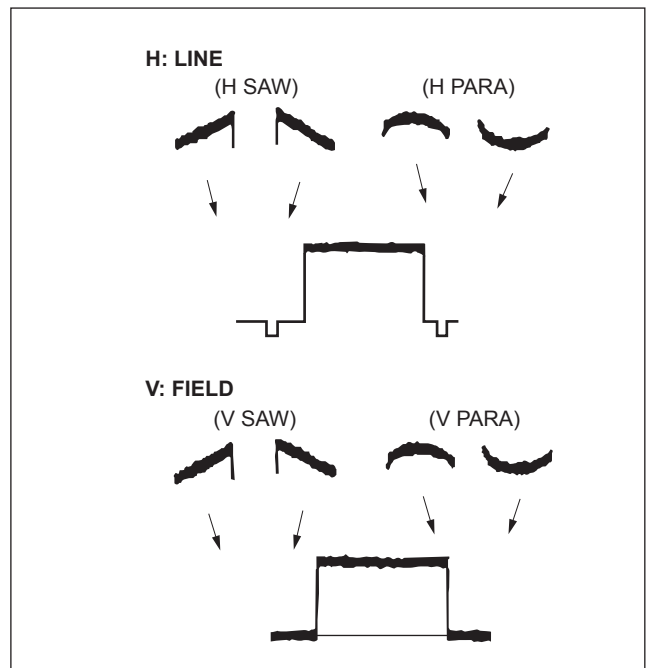
Adjustment for Lens Extender/Shrinker

When the WHITE or shading of V is out of alignment by using the lens extender or lens shrinker, perform the following lens adjustment after the completion of OHB file store.

6. Perform the automatic white balance adjustment.
   WHITE button/MSU-900 → ON (lit)
7. (In the status of lens: ×1) Perform the lens file store.
   MSU menu operation:
   - FILE button→ ON (lit)
   - Touch panel operation
     Lens File → Lens Store → Store
8. Lens extender (×2) → ON
   or lens shrinker (×0.8) → ON
9. Perform the automatic white balance adjustment.
   WHITE button/MSU-900 → ON (lit)
10. **MSU menu operation:**
    - MAINTENANCE button → ON (lit)
    - Touch panel operation
      Lens Adjusting → V Mod Saw
      Adjustment item: R, G, B
      Specification: Set the V modulation correction value as required.
11. Execute the lens file store.
    MSU menu operation:
    - FILE button → ON (lit)
    - Touch panel operation
      Lens File → Lens Store → Store

12. Lens extender (×2) → OFF
    or lens shrinker (×0.8) → OFF

3-3-6. RPN Adjustment

Preparation

- Adjust the color monitor manually for better display condition.
- Setting for MSU-900
  CLOSE button → ON (lit)
  DETAIL button → OFF (lit)
  MASTER GAIN → 12
- Menu setting
  MENU: SERVICE
  PAGE: OHB_ADJ2
  ITEM: CONC. TEST MODE → ON

Adjustment Procedure

1. **Adjustment Item:**
   MENU: SERVICE
   PAGE: OHB_ADJ1
   ITEM: DC_ADJ_B [R1],[G1],[B1]
   Specification:
   > Adjust this so that the dots displayed on the color monitor (R/G/B: four dots each) are of the same brightness.
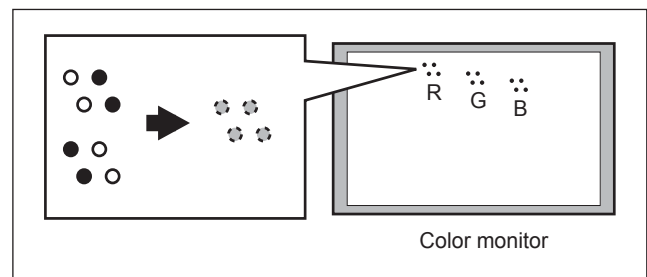
2. Execute file storing.
   MENU: SERVICE
   PAGE: OHB_ADJ1
   ITEM: STORE FILE

3. **Adjustment item:**
   MENU: SERVICE
   PAGE: OHB_ADJ2
   ITEM: DC_ADJ_C [R1],[G1],[B1]
   Specification:
   > Adjust this so that the dots displayed on the color monitor (R/G/B: four dots each) disappear.
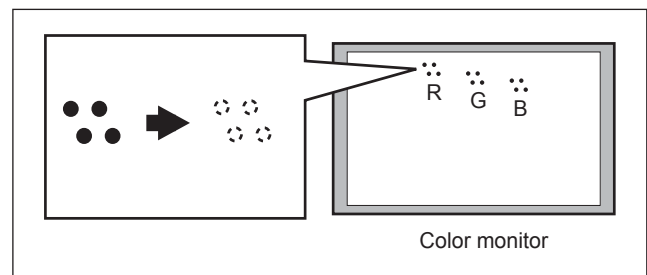
4. Execute file storing.
   MENU: SERVICE
   PAGE: OHB_ADJ2
   ITEM: STORE FILE

5. Setting after adjustment
   MASTER GAIN → 0
   CONC, TEST MODE → OFF

Color monitor

Color monitor

> **Note**
>
> If the residual point noise (RPN) still remains after the RPN adjustment, perform the RPN compensation (Section 3-6).

3-4. Video System Level Adjustment

| Note |

Perform the video system level adjustment according to customer needs.

3-4-1. H/V Ratio Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI connector
Object: Grayscale chart

Preparations

- Setting for MSU-900
  DETAIL OFF button → ON (dark)
  KNEE OFF button → OFF (lit)
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- **Iris of the lens:** A = 600 ±20 mV (F4 to F5.6)
  (If the lens aperture is greater than F5.6, adjust the light amount with the ND filter or shutter.)
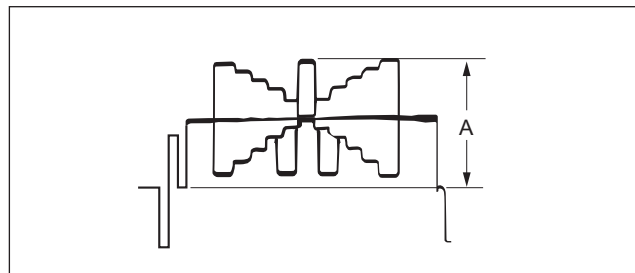
Adjustment Procedure

1. **MSU menu operation:**
   - PAINT button → ON (lit)
   - Touch panel operation
     (Page 1/3) → | Detail | → | Detail 1 |
   - Set each item as follows.
     Level → 99
     Limiter → 0
     Crispening → -99
     Level Dep → 99

   After adjustment is completed, return these setting to customer settings.

2. **MSU menu operation:**
   - Touch panel operation
     | Detail 2 |

   Adjustment item: H/V Ratio
   Specification: A ratio between H and V detail amounts (white) to be added shall be equal.
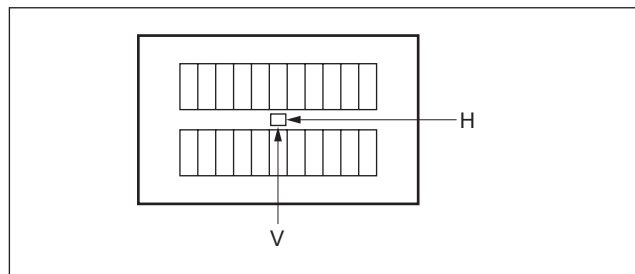
3-4-2. Detail Level Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI connector
Object: Grayscale chart

Preparations

- Setting for MSU-900
  DETAIL OFF button→ ON (dark)
  KNEE OFF button→ OFF (lit)
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- **Iris of the lens:** A = 600 ±20 mV

Adjustment Procedure

MSU menu operation:
- PAINT button → ON (lit)
- Touch panel operation
  (Page 1/3) → Detail → Detail 1
Adjustment item: Level
Specification: Adjust the detail level to be added to each step of the grayscale to the desired level.
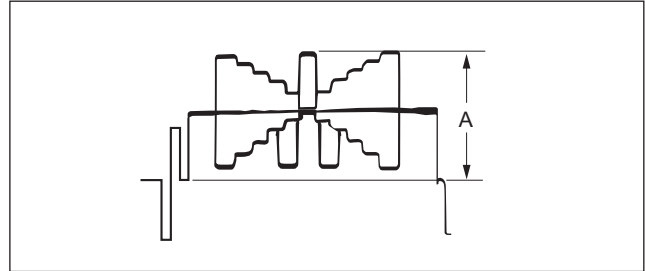
3-4-3. Crispening Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI connector
Object: Grayscale chart

Preparations

- Setting for MSU-900
  DETAIL OFF button $\rightarrow$ ON (dark)
- Shoot the grayscale chart so that the chart frame is
  aligned with the underscanned monitor frame.
- **Iris of the lens:** A = 600 ±20 mV

Adjustment Procedure

1. Perform the automatic white balance adjustment.
   WHITE button/MSU-900 $\rightarrow$ ON (lit)
2. Adjust the crispening level.
   MSU menu operation:
   - PAINT button$\rightarrow$ ON (lit)
   - Touch panel operation
     (Page 1/3) $\rightarrow$ | Detail | $\rightarrow$ | Detail 1 |
   Adjustment item: Crispening

   Specification: Set Crispening to -99 once, and
   turn slowly for increment until
   the noise at the black level of the
   waveform just decreases. Or
   adjust for the desired level.
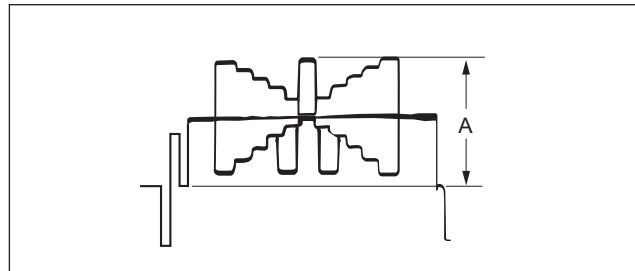
3-4-4. Level Dependent Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI connector
Object: Grayscale chart

Preparations

- Setting for MSU-900
  DETAIL OFF button → ON (dark)
  LVL DEP OFF button → ON (dark)
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- **Iris of the lens:** A = 600 ±20 mV

Adjustment Procedure

MSU menu operation:
- PAINT button→ ON (lit)
- Touch panel operation
  (Page 1/3) → | Detail | → | Detail 1 |

Adjustment item: Level Dep
Specification: Set Level Dep to -99 once, and turn slowly for increment until spikes at portions B just decrease. Or adjust for the desired level.
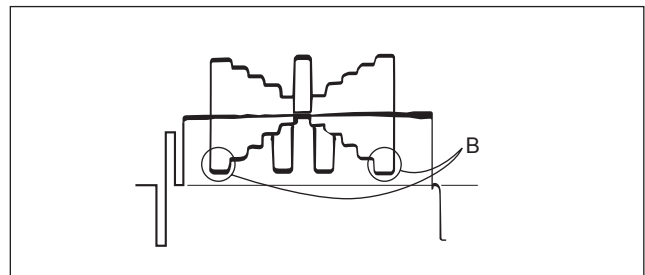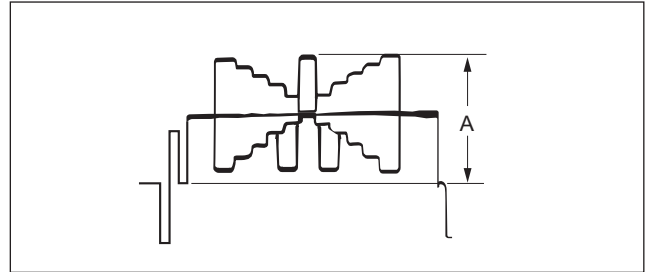
Note

After adjustment is completed, be sure to perform "Section 3-4-1 H/V Ratio Adjustment."

3-4-5. Detail Clip Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI connector
Object: Grayscale chart

Preparations

- Setting for MSU-900
  KNEE OFF button→ OFF (lit)
  DETAIL OFF button→ ON (dark)
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- **Iris of the lens:** A = 600 ±20 mV

Adjustment Procedure

1. Perform the automatic white balance adjustment.
   WHITE button/MSU-900 → ON (lit)
2. Make a line selection at the center white portion of the grayscale chart.
3. Adjust the white limiter.
   MSU menu operation:
   - PAINT button→ ON (lit)
   - Touch panel operation
     (Page 1/3) → | Detail | → | Detail 3 |
   Adjustment item: W.Limiter
   Specification: Adjust the edge at portion B to the desired clip level.

4. Adjust the black limiter.
   MSU menu operation:
   - PAINT button→ ON (lit)
   - Touch panel operation
     (Page 1/3) → | Detail | → | Detail 3 |
   Adjustment item: B.Limiter
   Specification: Adjust the edge at portion C to the desired clip level.

Line select

B

C
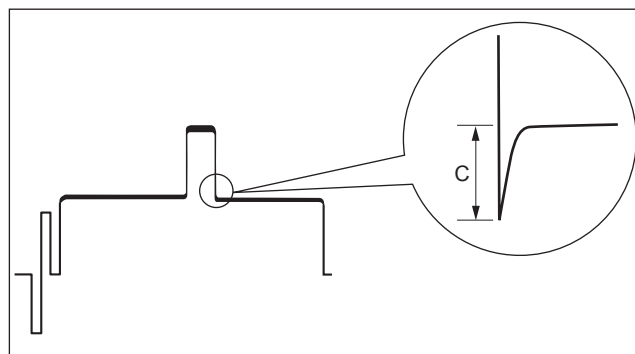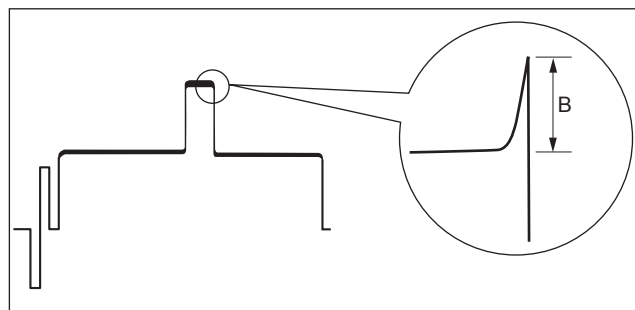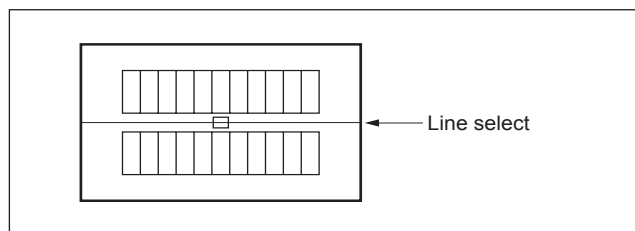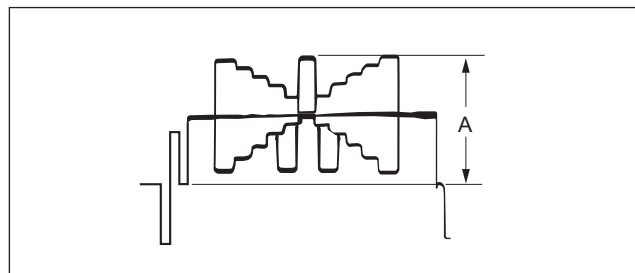
3-4-6. Auto-iris Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI connector
Object: Grayscale chart

Preparations

- Setting for MSU-900
  AUTO button (Iris control block) → ON (lit)
  KNEE OFF button → OFF (lit)
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.

Adjustment Procedure

1. Perform the automatic white balance adjustment.
   WHITE button/MSU-900 → ON (lit)
2. Adjust the APL ratio.
   MSU menu operation:
   - MAINTENANCE button → ON (lit)
   - Touch panel operation
   | Lens Adjusting | → | Auto Iris |
   Adjustment item: APL Ratio
   Specification: Set the auto-iris operation
                 mode as required. (It can be set
                 between the average and the
                 peak value of video signal.)
                 99 → average
                 −99 → peak value
3. Adjust the auto-iris level.
   MSU menu operation:
   Adjustment item: Level
   Specification: A = 700 ±7 mV
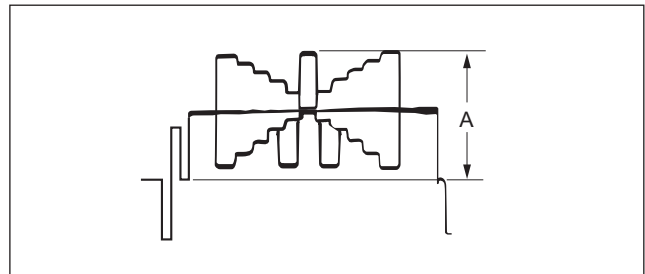
3-4-7. Pedestal Level Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI connector

Preparation

• Setting for MSU-900
  CLOSE button → ON (lit)

Adjustment Procedure

1. **MSU menu operation:**
   • PAINT button → ON (lit)
   • Touch panel operation
     (Page 1/3) → Black
   Adjustment item: R, G, B, Master
   Specification: Adjust the levels A to desired
                      level for R, G and B respectively.
                      To adjust all levels for R, G and
                      B simultaneously, adjust them
                      using Master.
                      (Reference value: A = 21 mV)
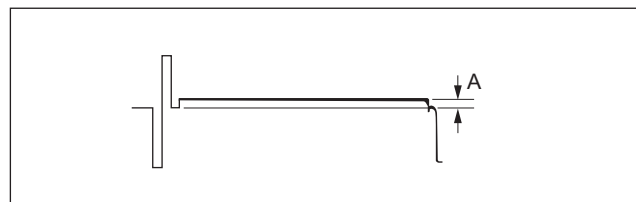
3-4-8. Flare Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI connector
Object: Grayscale chart

Preparations

- Setting for MSU-900
  KNEE OFF button → OFF (lit)
  DETAIL OFF button → OFF (lit)
  MATRIX OFF button → OFF (lit)
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- **Iris of the lens:** A = 600 ±20 mV
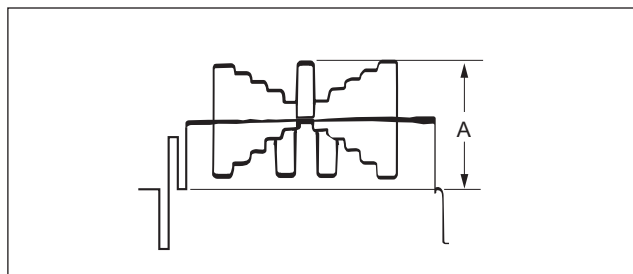
Adjustment Procedure

1. **MSU menu operation:**
   - PAINT button → ON (lit)
   - Touch panel operation
     (Page 1/3) → | Flare |

   Adjustment item: R, G, B
   Specification: Adjust the levels B to desired level for R, G and B respectively. Or adjust the levels of other channels to the lowest level B of a channel.
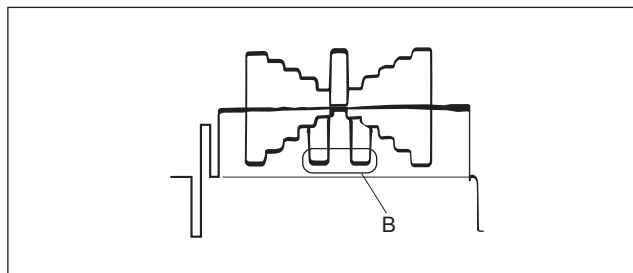
3-4-9. Gamma Correction Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI connector
Object: Grayscale chart

Preparations

- Setting for MSU-900
  KNEE OFF button → OFF (lit)
  GAMMA OFF button → ON (dark)
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- **Iris of the lens:** A = 700 ±20 mV

Adjustment Procedure

1. Perform the automatic white balance adjustment.
   WHITE button/ MSU-900 → ON (lit)
2. **MSU menu operation:**
   - PAINT button → ON (lit)
   - Touch panel operation
     (Page 2/3) → $\boxed{\text{Gamma}}$

   Adjustment item: R, G, B, Master
   Specification: Adjust the cross points B of the grayscale to desired level for R, G and B respectively.
   To adjust all cross points for R, G and B simultaneously, adjust them using Master.
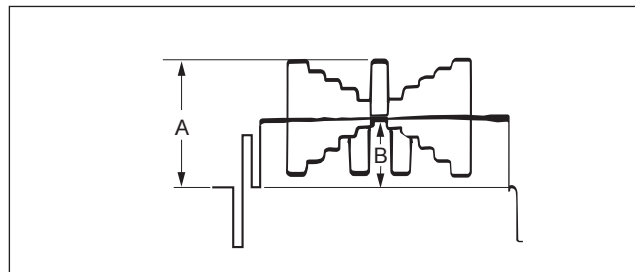
3-4-10. Knee Point/Knee Slope Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI connector

Preparation

· Setting for MSU-900
  MASTER GAIN → +6 dB
  TEST1 button → ON (lit)
  KNEE OFF button → ON (dark)

Adjustment Procedure

1. **MSU menu operation:**
   · PAINT button → ON (lit)
   · Touch panel operation
     (Page 2/3) → | Knee Slope |
   · Set Master to +99

2. **MSU menu operation:**
   · Touch panel operation
     (Page 2/3) → | Knee Point |

   Adjustment item: R, G, B, Master
   Specification: Adjust the levels A to desired
   level for R, G and B respectively.
   To adjust all levels for R, G and
   B simultaneously, adjust them
   using Master.
   Reference value: A = 686 mV
   (98% of factory setting)
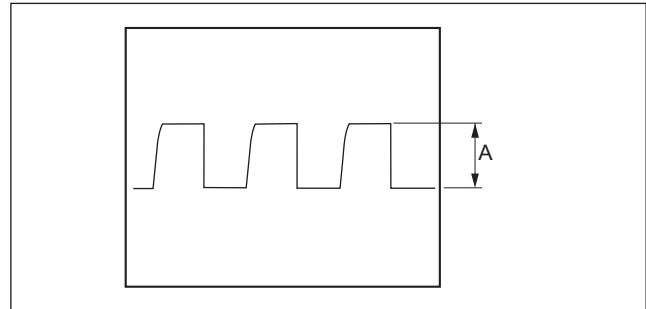
3. **MSU menu operation:**
   · Touch panel operation
     (Page 2/3) → | Knee Slope |

   Adjustment item: R, G, B, Master
   Specification: Adjust the levels B to desired
   level for R, G and B respectively.
   To adjust all levels for R, G and
   B simultaneously, adjust them
   using Master.
   Reference value: B = 735 mV
   (factory setting)
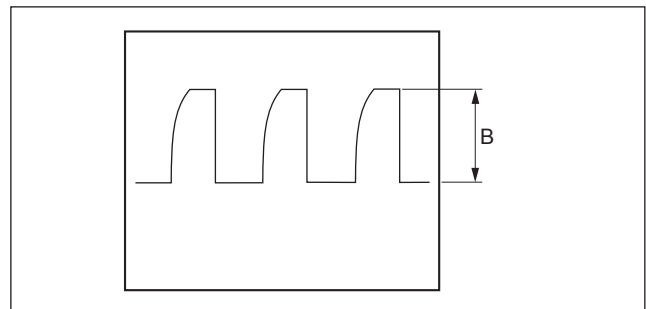
Setting after Adjustment

· MASTER GAIN/MSU-900 → 0 dB
· KNEE OFF button/MSU-900 → OFF (lit)

3-4-11. White Clip Level Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI connector

Preparation

• Setting for MSU-900
  MASTER GAIN → +12 dB
  TEST1 button → ON (lit)

Adjustment Procedure

1. **MSU menu operation:**
   • PAINT button → ON (lit)
   • Touch panel operation
     (Page 2/3) → White Clip
   Adjustment item: R, G, B, Master
   Specification: Adjust the levels B to desired
   level for R, G and B respectively.
   To adjust all levels for R, G and
   B simultaneously, adjust them
   using Master.
   (Reference value: A = 756 mV)
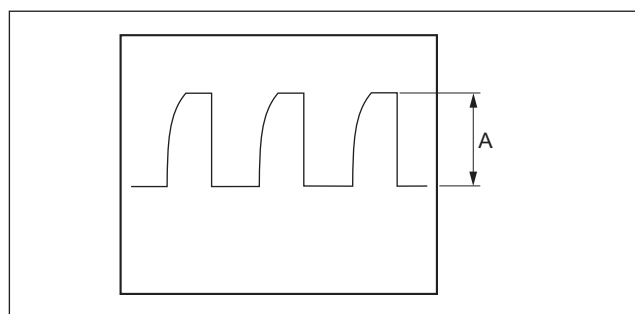
Setting after Adjustment

• MASTER GAIN/MSU-900 → 0 dB
• TEST1 button/MSU-900 → OFF (dark)

3-4-12. File Store

After adjustments described in Section 3-4 are completed,
be sure to execute the reference file store.

1. **MSU menu operation:**
   • FILE button → ON (lit)
   • Touch panel operation
   Reference → Ref Store → Start
2. When the store operation is completed, a message
   "Completed" appears.

3-5. ND Offset Adjustment

When the TG-265 board is replaced, correct the white balance using the following procedure.

Equipment: Waveform monitor (R, G, B)
Test Point: SDI connector
Object: Grayscale chart

Preparations

- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- Setting for MSU-900
  AUTO button (Iris control block) → ON (lit)
- **Iris of the lens:** A = 600 ±20 mV

Adjustment Procedure

1. Select ND filter 1.
2. Perform the automatic white balance adjustment.
   WHITE button/MSU-900 → ON (lit)
3. After the white balance adjustment is completed, switch the filter to ND filters 2 to 4, and adjust the white balance for each. Set the GAIN for each ND filter as follows so that the open end of the iris is not used.
   MASTER GAIN/MSU-900
   - ND filter 2: 6 dB
   - ND filter 3: 12 dB
   - ND filter 4: 12 dB
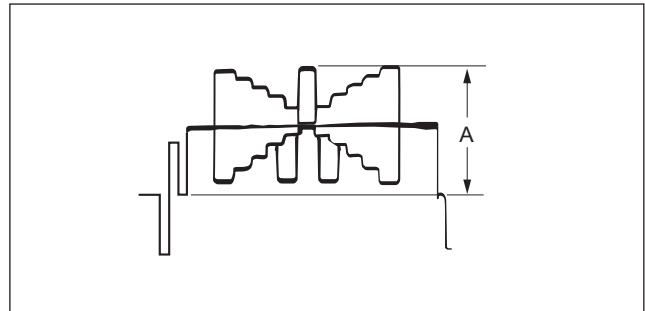
OHB File Store

1. **MSU menu operation:**
   - FILE button → ON (lit)
   - Touch panel operation
     OHB File → OHB Store → Store
2. When the store operation is completed, a message "OHB File Stored" appears.

Setting after Adjustment

- MASTER GAIN/MSU-900 → 0 dB

3-6. RPN Compensation

Notes
- The residual point noise (RPN) of the CCD is automatically compensated with the automatic compensation (APR) function usually during the automatic black balance adjustment (ABB). If the RPN still remains after the APR is executed, perform the manual RPN compensation adjustment.
- If any RPN still remains after the RPN compensation adjustment, handle it according to the flowchart.

3-6-1. Automatic Compensation (APR)

When an RPN is detected in the screen, perform the automatic black balance adjustment (ABB) and remove the RPN with the APR function.

Notes
- RPNs of only one channel (R, G, or B) can be detected and compensated with one-time APR. To scan these three channels, be sure to perform the ABB three times.
- The log of the address data of RPNs that have been compensated is updated each time the APR is performed. RPNs that are not detected with the APR function five times in a row, they are excluded from the scope of compensation and their data is deleted.

3-6-2. Manual RPN Compensation Adjustment

The manual RPN compensation adjustment uses the SERVICE menu.
For how to display the SERVICE menu, refer to Section 5-1.
Open the MANUAL RPN[S03] page of the SERVICE menu.

```
<MANUAL RPN>        S03 TOP

 RPN CH SELECT    :      R
 RPN CURSOR       :    OFF
 CURSOR H POS.    :   1008
 CURSOR V POS.    :    576
 CURSOR JUMP      :   CURR
 RPN WIDTH        :      1
 RECORD RPN       :   EXEC
 DELETE RPN       :   EXEC
```

Preparation

- Perform the automatic black balance adjustment.

Adjustment Procedure

> **Note**

Points that are adjacent laterally and diagonally to already compensated RPNs cannot be compensated.

1. Select the channel (R, G, or B) that is to be compensated.
   ITEM:RPN CH SELECT → R, G, B
2. Adjust the H and V values and set the cross cursor center at the target RPN.
   When the cursor is placed accurately at the RPN position, the RPN is compensated.

   > **Note**

   Some RPNs seem to have been compensated even if the cursor is placed off the RPNs by one line or one pixel.
   Before proceeding to step 3, shift the cursor by one line or one pixel and check that the compensation position is correct.
   ITEM: RPN CURSOR → ON
   ITEM: CURSOR H POS
   ITEM: CURSOR V POS

   > **Reference**

   One click of the rotary encoder is equivalent to one-pixel shift.
   On the other hand, the cursor moves by two clicks of the rotary encoder because the cursor has a size of two pixels.

3. Press the rotary encoder and record the RPN data (correction value).
   ITEM: RECORD RPN → EXEC
4. A message "RECORD DATA OK? YES → NO" appears.
   Check that the RPN has disappeared and then select YES with the rotary encoder.
5. Press the rotary encoder. A message "COMPLETE!" appears and the RPN compensation starts.

   > **Note**

   If a compensation pixel has been wrongly recorded, delete the RPN data.
   ITEM: DELETE RPN → EXEC

6. Repeat steps 2 to 5 to compensate other RPNs.

If any RPN still remains after this manual adjustment, handle it according to the flowchart in Section 3-6-5.

Setting after Adjustment

ITEM: RPN CURSOR → OFF

3-6-3. Procedures to Be Taken When the RPN Compensation Fails

When the RPN compensation is not successful even after the manual RPN compensation adjustment was made, the following causes are possible.
· An adjacent wrong position was compensated.
· The compensation failed due to the influence of other RPNs.
· The RPN with a very large level has an extent over one pixel that was made in the signal generation process.

Checking Correction Points

1. Open the MANUAL RPN[S03] page of the SERVICE menu.

```
<MANUAL RPN>       S03 TOP

 RPN CH SELECT    :       R
 RPN CURSOR       :     OFF
 CURSOR H POS.    :    1008
 CURSOR V POS.    :     576
 CURSOR JUMP      :    CURR
 RPN WIDTH        :       1
 RECORD RPN       :    EXEC
 DELETE RPN       :    EXEC
```

2. Set RPN CURSOR to ON.
3. Check whether there are any compensated pixels close to the pixel to be compensated with the CURSOR JUMP function.
    Reference
    Correction points can be checked effectively by placing the cursor in advance close to the pixel to be compensated by using CURSOR H POS and CURSOR V POS.

    When the target pixel is above the cursor position,
    ITEM: CURSOR JUMP → PREV
    When the target pixel is under the cursor position,
    ITEM: CURSOR JUMP → NEXT

4. When the cursor stopped at a position near the target pixel
    (1) Delete the data because the data is recorded so as to compensate the pixel at the cursor position.
         ITEM: DELETE RPN → EXEC
    (2) A message "DELETE DATA OK? YES → NO" appears. Select YES with the rotary encoder and then press the rotary encoder.
         Note
         Appearance of an RPN next to the pixel to be compensated means that adjacent RPNs exit. If an RPN appears in the diagonal direction, the RPN cannot be compensated. In this case, the CCD or the CCD block must be replaced. For more information, contact your local Sony Sales Office/ Service Center.

    (3) If nothing has changed, change the compensation position.
         Move the cursor horizontally or vertically to check whether the RPN can be compensated.
    (4) When the RPN has been successfully compensated, record the data.
         ITEM: RECORD RPN → EXEC
    (5) A message "RECORD DATA OK? YES → NO" appears. Select YES with the rotary encoder and then press the rotary encoder.

(6) A message "COMPLETE!" appears and the data is recorded.

| Note |

When two RPNs are vertically adjacent to each other, record the data at the position where one RPN can be compensated.

Then shift the cursor vertically by 1 at the same horizontal address and check whether the other RPN can be compensated.

When the other RPN has been successfully compensated, record the data of the RPN.

When two RPNs are horizontally adjacent to each other, move the cursor to the position where the left RPN can be compensated. Next, set RPN WIDTH to 2 and record the data, and then check whether these RPNs can be successfully compensated.

If the RPN compensation failed, delete the data. Increase RPN WIDTH to 3, 4, ..., and select a value that allows the best compensation.

For an RPN that has a horizontal extent (smear), increase RPN WIDTH from 1 to 2, 3, 4, ..., and select a value that allows the best compensation.

3-6-4. Performing Automatic RPN Detection Effectively

1. Open the RPN MANAGE[S05] page of the SERVICE menu.
2. Only perform the APR of RPNs.
   RPNs of three channels are automatically detected at the same time through this operation.
   ITEM: AUTO CONCEAL → EXEC

| Notes |

   · Set IRIS at the CLOSE position.
   · Set the BARS switch to OFF.
   · Set the SHUTTER switch to OFF.
   · If AUTO CONCEAL is executed with a wrong switch setting, delete all the recorded data. Make these settings and execute AUTO CONCEAL carefully so that the RPN compensated data is not deleted completely.
     ITEM: RPN ALL PRESET → EXEC

3-6-5. RPN Compensation Flowchart

If any RPN still remains after the manual RPN compensation adjustment, handle the RPN according to the following flowchart.

```
┌─────────────────────────────────────────┐
│  There is an RPN that was not compensated │
│  by the manual RPN compensation adjustment.│
└─────────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────────┐
│  Automatic black balance adjustment (ABB) │
│  (Set the AUTO W/B BAL switch to the BLK side.)│
│  Perform the ABB three times in a row.    │
└─────────────────────────────────────────┘
                  │
                  ▼
          ◇ RPN was removed? ◇ ──── YES ────────────────┐
                  │                                       │
                  NO                                      ▼
                  │                          ┌──────────────────────────┐
                  ▼                          │ Compensation is successful.│
┌─────────────────────────────────────────┐  └──────────────────────────┘
│  Press the SHUTTER switch on the front panel of│
│  camera, and set the shutter speed to 1/2000.  │
└─────────────────────────────────────────┘
                  │
                  ▼
      ◇ The RPN level decreased? ◇ ──── NO ────┐
                  │                              │
                  YES                            ▼
                  │            ┌──────────────────────────────────────┐
                  ▼            │ Check the connectors for connection between│
┌──────────────────────────┐  │ TG-265 and PA-353 boards.              │
│  Perform the RPN adjustment. │ └──────────────────────────────────────┘
│  (Refer to Section 3-3-6.)  │                │
└──────────────────────────┘                  ▼
                  │            ┌──────────────────────────────────────┐
                  │            │ Replace the flexible card wire between │
                  │            │ TG-265 and PA-353 boards.              │
                  │            └──────────────────────────────────────┘
                  │                            │
                  │                            ▼
                  │            ┌──────────────────────────┐
                  │            │ Perform the RPN adjustment. │
                  │            │ (Refer to Section 3-3-6.)  │
                  │            └──────────────────────────┘
                  │                            │
                  │                            ▼
                  │            ◇ The adjustment was successful? ◇
                  │            YES ────┘         │
                  ▼ ◄──────────────────          NO
┌──────────────────────────────┐              │
│ Perform the manual RPN compensation.│         ▼
└──────────────────────────────┘    ┌──────────────────────────────┐
                  │                  │ A failure in theTG-265         │
                  ▼                  │ or PA-353 board                │
      ◇ The RPN was compensated? ◇ ─NO─┐ │ Replace these boards one by one,│
                  │                  │ │ find the defective board, and  │
                  YES               │ │ repair the board.              │
                  │                  │ └──────────────────────────────┘
                  ▼                  │
┌──────────────────────────────┐    │
│ When there is another RPN, perform the│   │
│ automatic black balance adjustment or │   │
│ manual RPN compensation again.        │   │
└──────────────────────────────┘    │
                  │                  ▼
                  ▼           ┌──────────────────────────────────┐
┌──────────────────────────┐  │ The RPN cannot be compensated because│
│ Compensation is successful.│  │ the RPN is adjacent to another RPN.  │
└──────────────────────────┘  │ Replace the CCD block.               │
                              └──────────────────────────────────┘
```

3-7. Vertical Line Compensation

Notes

· Compensate the vertical line fixed-pattern noise of the CCD using the following procedure.
· Such vertical lines cannot be well compensated even with adjustment in some cases. In that case, re-place the CCD block.

Use the SERVICE menu for vertical line compensation.
For how to display the SERVICE menu, refer to Section 5-1.
Open the V.LINE [S04] page of the SERVICE menu.

```
<V.LINE>          S04 TOP

 RPN CH SELECT    :       R
 RPN CURSOR       :     OFF
 CURSOR H POS     :    1008
 CURSOR V POS     :     576
 CURSOR JUMP      :    CURR
 V.LINE LEVEL.    :     127
 RECORD V.LINE    :    EXEC
 DELETE V.LINE    :    EXEC
```

Preparation

· Perform the automatic black balance adjustment.

Adjustment Procedure

Note

An area of 11 lines right and left from the compensated vertical line cannot be compensated. If you at-tempt to compensate a vertical line in the area, a message "ADJACENT PIXEL" appears on the screen.

1. Select a channel (R, G, or B) you want to compensate.
   ITEM: RPN CH SELECT → R, G, B
2. Adjust the vertical cursor position to move the horizontal axis of the cross cursor to the vertical line position where you want to start compensation.
   ITEM: RPN CURSOR → ON
   ITEM: CURSOR V POS
3. Then adjust the horizontal cursor position to align the vertical axis of the cross cursor with the verti-cal line.
   ITEM: CURSOR H POS
   Note
   One click of the rotary encoder is equivalent to one pixel shift. On the other hand, the cursor moves by two clicks of the rotary encoder because the cursor has a size of two pixels.

4. Place the cursor at "RECORD V.LINE" and press the rotary encoder to display "RECORD DATA OK? YES → NO."
ITEM: RECORD V.LINE → EXEC

5. Choose "YES" and press the rotary encoder. A message "LEVEL SETTING" appears. Place the cursor at "V.LINE LEVEL" and make fine adjustment while paying attention to avoid overcompensation (black lines) and insufficient compensation (white lines).
ITEM: V.LINE LEVEL → 127 to 0

6. Confirm that the vertical line has already disappeared, and then place the cursor at "RECORD V.LINE" again. Then choose "YES" with the rotary encoder.

7. Press the rotary encoder. A message "COMPLETE!" appears and the compensation data is stored.

   Note

   If the data is stored at an incorrect compensation address, delete the V.LINE data.
   ITEM: DELETE V.LINE → EXEC

8. To compensate other vertical lines, repeat steps 1 to 7.

Setting after Adjustment

ITEM: RPN CURSOR → OFF

3-8. TRIAX Transmission System Adjustment

3-8-1. 1.4-MHz Modulation Circuit Adjustment

Frequency Adjustment

Preparations
- Supply the DC IN connector with external power (+12 V).
- Set the CAMERA POWER switch to EXT.
- Disconnect the INTERCOM connector.

Adjustment
1. Connect the frequency counter to the following terminals on the TX-126 board.
   Test Point: TP1 (B-1)
   GND: E2 (A-2)
2. Adjust the LV1 (B-2) on the TX-126 board so that the frequency counter shows 1.4 ±0.001 MHz.

Dev Adjustment

| Note |

Before starting this adjustment, check that the CCU demodulation circuit adjustment (DPR-300 board) has been completed.

Preparations
- Connect the camera to the CCU with the TRIAX cable.
- Set the power switches as follows.
   Camera: OFF
   CCU: ON
- Set the line selection switch on the intercom panel to ENG.
- Menu setting
   MENU: OPERATION
   PAGE: HEAD SET
   ITEM: INTERCOM MIC → MANUAL
          LEVEL → −20 dB
          POWER → OFF
          UNBAL → OFF
- Input the audio signal (1 kHz, −20 dBu) into the INTERCOM connector.

Adjustment
1. Connect the oscilloscope to the following terminals on the DPR-300 board in the CCU.
   Test Point: TP1503 (E-6)
   GND: E1501 (F-6)
2. Adjust the RV1 (B-1) on the TX-126 board so that the amplitude level becomes 220 ±10 mVp-p.

3-8-2. Demodulation Circuit Adjustment

Preparations

- Supply the DC IN connector with external power (+12 V).
- Set the CAMERA POWER switch to EXT.
- Disconnect the coaxial cable from the connector CN601 on the TX-126 board, and connect the FM signal generator to CN601.
  Input the following FM signal.
  Carrier: 1.0 MHz, AF: 1 kHz, Dev: ±3 kHz, RF level: −15 dBm

Tuning Adjustment

1. Connect the oscilloscope to the following terminals on the TX-126 board.
   Test Point: TP4 (B-2)
   GND: E301 (D-1)
2. Adjust the LV2 (B-3) on the TX-126 board so that the DC level becomes 6.3 ±0.5 V.
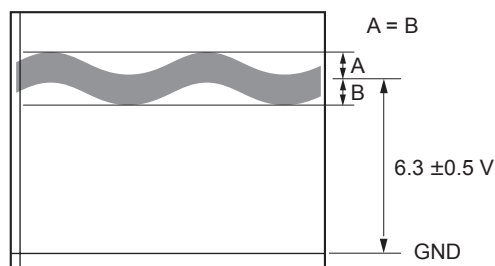
3. Connect the audio analyzer to the following terminals on the TX-126 board.
   Test Point: TP2 (A-3)
   GND: E2 (A-2)
   Audio analyzer:
            Unbalanced, high-impedance, HPF: 400 Hz, LPF 20 kHz
4. Measure the distortion with the audio analyzer and adjust the LV3 (B-3) on the TX-126 board so that the distortion becomes minimum.
5. Fine-adjust the LV2 (B-2) on the TX-126 board so that the waveform distortion becomes minimum.
6. Repeat steps 4 and 5 to minimize the distortion.
7. Check that the DC level of terminal TP4 on the TX-126 board is 6.3 ±1.5 V with the oscilloscope.
8. Check that the distortion is 0.40% or less with the audio analyzer.

Output Level Adjustment

1. Connect the oscilloscope to the following terminals on the TX-126 board.
   Test Point: TP2 (A-3)
   GND: E2 (A-2)
2. Adjust the RV2 (A-3) on the TX-126 board so that the waveform level becomes 220 ±10 mVp-p.

3-9. TEST OUT Output Level Adjustment

When fine adjustment is required for the VBS and VF outputs on the TEST OUT connector, perform the following procedure.

Equipment: Waveform monitor or oscilloscope
Test Point: TEST OUT connector

Preparation

• Set the color-bar to ON.
  Standalone operation: Set the BARS/OFF switch on the inside panel to BARS.
  When connected to CCU: Set M18:CAM BARS of the MAINTENANCE menu to ON.

Adjustment

VBS Adjustment
1. Open S06:VDA-ADJ of the SERVICE menu.
2. Set TEST OUT SELECT to VBS.
3. Adjust VBS-GAIN with the waveform monitor so that 100% White of the color-bar becomes the following level.
    NTSC: 714 mV (100 IRE)
    PAL: 700 mV

4. Adjust the burst level with M11:VBS OUT of the MAINTENANCE menu.
    NTSC: 286 mV (40 IRE)
    PAL: 300 mV

VF Adjustment
1. Open S06:VDA-ADJ of the SERVICE menu.
2. Set TEST OUT SELECT to VF.
3. Adjust Y-GAIN with the waveform monitor so that 100% White of the color-bar becomes 700 mV.

Section 4
File System

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

In this section, the menu operations are described as follows.

Example: When executing WRITE (CAM → MS) on the OPERATOR FILE page of the OPERATION menu.

$\boxed{\text{OPERATION}}$ → $\boxed{\text{OPERATOR FILE}}$ → $\boxed{\text{WRITE (CAM → MS)}}$

As for the details on the setup menu, refer to Section 5.

4-1. File Structure

The following six types of files are available. As for the items to be stored in each file, refer to "Section 4-8 File Items".

1. **Operator File**

   Stores the items displayed on the viewfinder and switch settings for camera operator. This file can be stored in a Memory Stick, yet video data (paint data) cannot be stored.

2. **Preset Operator File**

   Stores the standard settings of Operator File.

   This file can be stored in the camera, yet video data (paint data) cannot be stored.

3. **Scene File**

   Stores the temporary video setting data according to the scene. This file can be stored in the camera and a Memory Stick.

4. **Reference File**

   Stores the custom paint data adjusted by the video engineer. This file can be stored in the camera and a Memory Stick.

5. **Lens File**

   Used for compensation of the deviation which is generated by switching the lens extender from OFF to ON and for compensation of the difference in the characteristics between lenses. This file is stored in the camera.

6. **OHB File**

   Used for adjustment of the CCD block maintenance. This file can be stored in the camera.

```
                                    Scene File
                        Refer to "Section 4-8 File Items".
When STANDARD                         Lens File
  is executed  ────►     When lens extender setting is OFF:
                             Flare R/G/B and V Modulation Shading R/G/B/Master can be stored.
                             Auto Iris Gain can also be stored.
                         When lens extender setting is ON:
                             White R/B, Flare R/G/B, and V Modulation Shading R/G/B/Master can be stored.
                             Auto Iris Gain can also be stored.
                                                                                      ────► Output to
                                    Reference File                                          hardware *1
                        Refer to "Section 4-8. File Items".

                                     OHB File
                         •  Black shading:
                                 R/G/B for H SAW, H PARA, V SAW, V PARA can be stored.
                         •  White shading:
                                 R/G/B for H SAW, H PARA, V SAW, V PARA can be stored.
                         •  ND offset can be stored.
Factory-set value 0 ───► •  OHB matrix can be stored.
```

Fig. 4-1. Structure of Paint Related Files

(∗1): The additional data of each file is sent to each circuit in the unit.

4-2. Operator File

Operator File stores data in the memory stick.
Data is stored and read using the setup menu.

Notes
· Operator file data stored in the memory stick cannot be read when the power is just turned ON.
· The current operator file data is retained even when the power is turned off by the power switch.
· Before storing data in the memory stick, make sure that the LOCK switch on the memory stick is set to OFF.

Storing (Refer to step 1 of Fig. 4-2.)

Using OPERATION Menu of This Unit

Stores the current status in the memory stick.

OPERATION → OPERATOR FILE → WRITE (CAM → MS)

Reading (Refer to step 2 of Fig. 4-2.)

Using OPERATION Menu of This Unit

OPERATION → OPERATOR FILE → READ (MS → CAM)
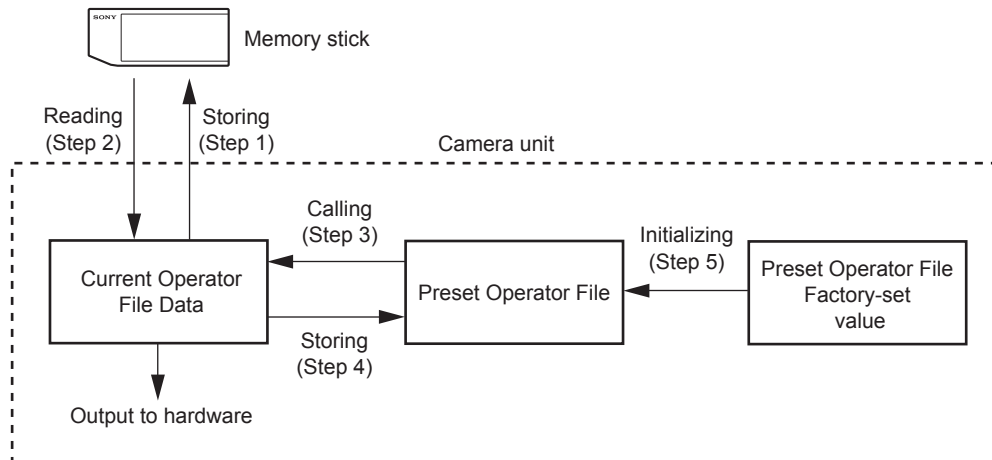
Fig. 4-2. Operator File Operating Procedure

4-3.   Preset Operator File

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

Calling (Refer to step 3 of Fig. 4-2.)

Using OPERATION Menu of This Unit
OPERATION → OPERATOR FILE → PRESET

Storing (Refer to step 4 of Fig. 4-2.)

Using FILE Menu of This Unit
Use this menu when you want to store the current settings in the Preset Operator File as the standard settings of Operator File.
FILE → OPERATOR FILE → STORE PRESET FILE

Initializing (Refer to step 5 of Fig. 4-2.)

Using FILE Menu of This Unit
Use this menu when you want to initialize the modified Preset Operator File data to the factory-set values.
FILE → FILE CLEAR → PRESET OPERATOR

4-4. Scene File

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

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

| Note |

Before storing data in the memory stick, make sure that the LOCK switch on the memory stick is set to OFF.

Storing (Refer to step 1 of Fig.4-3.)

Using PAINT Menu of This Unit
1. Change the scene file item to the desired value.
2. Select the scene file number to be stored.
   PAINT → SCENE FILE → STORE

With MSU
1. Change the scene file item to the desired value.
2. Press "STORE" of the scene file, and press the STORE number.

Calling and Clearing the Call (Refer to step 2 of Fig.4-3.)

Using PAINT Menu of This Unit
Select the scene file number to be called on the SCENE FILE page. A file currently being called is indicated with its file number highlighted. Select the number again to cancel the call and resume the previous status.

With MSU
Press and light a SCENE FILE button of the desired number while the STORE button is not lit. Press the lit button again to cancel the call and turn off the button.

Storing the Scene File to the Memory Stick (Refer to step 1 of Fig. 4-3.)

Using PAINT Menu of This Unit

Stores the scene file stored in the camera in the memory stick.

PAINT → SCENE FILE → WRITE (CAM → MS)

Reading the Scene File from the Memory Stick (Refer to step 3 of Fig. 4-3.)

Using PAINT Menu of This Unit

Reads the scene file stored in the memory stick to the camera.

PAINT → SCENE FILE → READ (MS → CAM)

Note

Scene File data stored in the memory stick cannot be read when the power is just turned on.
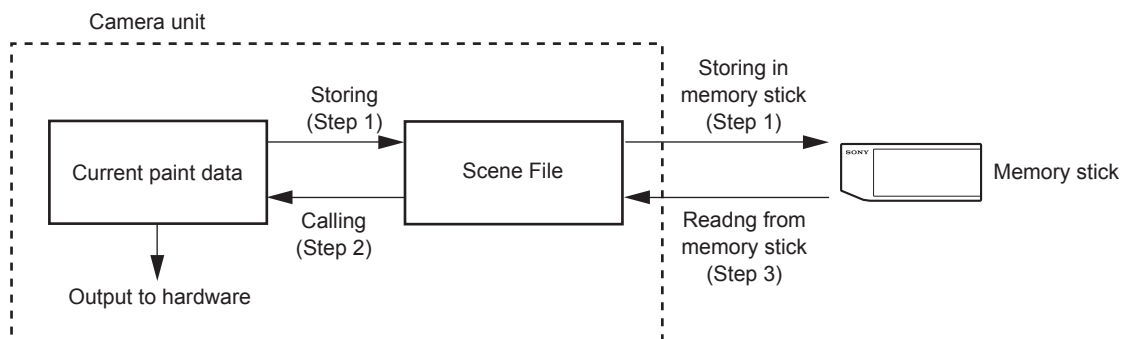
Fig. 4-3. Scene File Operating Procedure

4-5. Reference File

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

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

| Note |

Before storing data in the memory stick, make sure that the LOCK switch on the memory stick is set to OFF.

Storing (Refer to step 1 of Fig.4-4.)

Using FILE Menu of This Unit
| FILE | → | REFERENCE | → | STORE FILE |
The data is stored in the camera and the numerical data is displayed as 0. (Excluding some items. Refer to "Section 4-8 File Items".)

With MSU
Press the FILE button. Then select | REFERENCE | → | Ref Store |. The data is stored in the camera and the numerical data is displayed as 0. (Excluding some items. Refer to "Section 4-8 File Items".)

Calling (Refer to step 2 of Fig. 4-4, Fig. 4-1.)

Using PAINT Menu of This Unit
| PAINT | → | SCENE FILE | → | STANDARD |
The temporary paint amount and scene file amount are cleared, and the state when the reference file was stored is restored.

With MSU
Press the STANDARD button to restore the reference file items when they were stored.

Reading the Reference File from the Memory Stick (Refer to step 3 of Fig. 4-4.)

Using FILE/MAINTENANCE Menu of This Unit

1. Reference File data stored in the camera can be changed by reading the Reference File data stored in the memory stick.
    $\boxed{\text{FILE}} \rightarrow \boxed{\text{REFERENCE}} \rightarrow \boxed{\text{READ (MS} \rightarrow \text{CAM)}}$

2. The Reference File data in the memory stick cannot be applied to the camera only by reading the data. To apply the data, execute the automatic level adjustment.
    $\boxed{\text{MAINTENANCE}} \rightarrow \boxed{\text{AUTO SETUP}} \rightarrow \boxed{\text{AUTO LEVEL}}$

$\boxed{\text{Note}}$

Reference File data stored in the memory stick cannot be read when the power is just turned on.

Storing the Reference File in the Memory Stick (Refer to step 1 of Fig. 4-4.)

Using FILE Menu of This Unit

Stores the Reference File stored in the camera in the memory stick.
$\boxed{\text{FILE}} \rightarrow \boxed{\text{REFERENCE}} \rightarrow \boxed{\text{WRITE (CAM} \rightarrow \text{MS)}}$

Initializing All File Items (Refer to step 4 of Fig. 4-4.)

Using FILE Menu of This Unit
$\boxed{\text{FILE}} \rightarrow \boxed{\text{FILE CLEAR}} \rightarrow \boxed{\text{REFERENCE (ALL)}}$
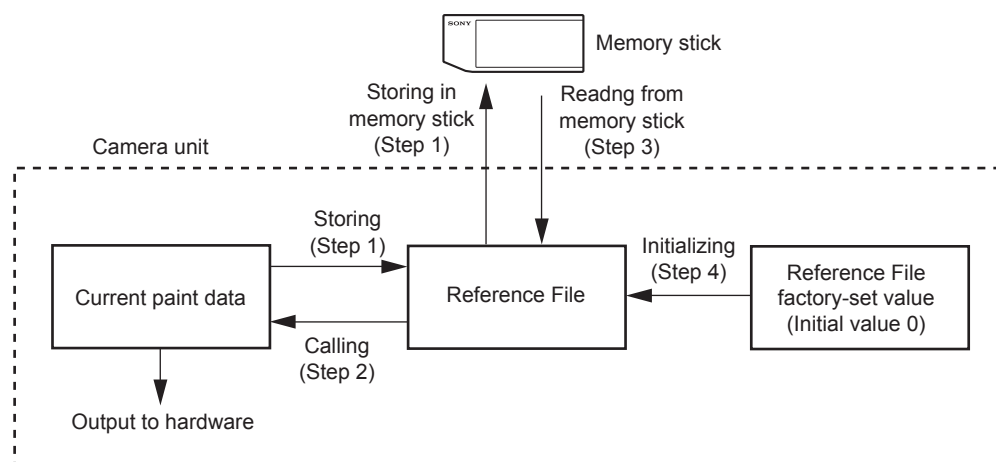
Fig. 4-4. Reference File Operating Procedure

4-6. Lens File

The Lens File stores the differential data from the Reference File.
Lens File stores the data to compensate the differences of the white shading, flare balance, and white balance, which occur when the lens extender is set to ON. It also stores the minimum f-stop value and name of the lens. These adjustment data are stored in the camera. Lens File data of up to 16 files can be stored. The adjustment data can be called by selecting a Lens File.

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

Adjusting the Lens and Setting the Lens File

Using a lens that is not compatible with serial communication
1. Mount the lens and select the file with the same name as the mounted lens from the setup menu. If no file with the same name as the lens exists, select NO OFFSET.
   FILE → LENS FILE → No. (Select a lens number.)

2. Set the lens name and minimum f-stop value.
3. Set the lens extender to OFF.
4. Shoot the white pattern, and fine-adjust it with V modulation R/G/B/Master so that the video level is around 560 mV (80%) with the lens iris set around F4 and the zoom control in the center of the ring.
   PAINT → VIDEO LEVEL → V MOD R/G/B/M

5. Adjust the white balance and flare balance with the grayscale chart.
6. Zoom the lens and adjust the center marker to a position at which the object does not deviate.
   Note
   The center marker position is stored in the Lens File immediately after the position is aligned. Note that the center marker position is not stored when Lens File Store is executed.

7. Execute Lens File Store.
   FILE → LENS FILE → STORE FILE

8. Set the lens extender to ON and repeat steps 4 to 7.

For lens compatible with serial communication

1. Check that the lens number is 17.
2. Also check the lens name and minimum f-stop value that are set automatically.
3. Turn on the dynamic shading.
   Adjust the white shading or V modulation only when the deviation occurs. In this case, the data is not stored in the Lens File.

   ・ **Automatic white shading adjustment**
      Shoot the white pattern so that the video level is around 560 mV (80%).
      MAINTENANCE → WHITE SHADING → AUTO WHITE SHADING
      Or adjust the R/G/B/ white shading V SAW, V PARA, H SAW, and H PARA.
      MAINTENANCE → WHITE SHADING → V SAW R/G/B , V PARA R/G/B , H SAW R/G/B ,
      H PARA R/G/B

   ・ **V modulation adjustment**
      Shoot the white pattern, and fine-adjust it with V modulation R/G/B/Master so that the video level is around 560 mV (80%) with the lens iris set around F4 and the zoom control in the center of the ring.
      PAINT → VIDEO LEVEL → V MOD R/G/B/M

4. Set the lens extender to OFF.
5. Adjust the white balance and flare balance with the grayscale chart.
6. Zoom the lens and adjust the center marker to a position at which the object does not deviate.
   Note
   The center marker position is stored in the Lens File immediately after the position is aligned, and is not stored when Lens File Store is executed.

7. Execute Lens File Store.
   FILE → LENS FILE → STORE FILE

8. Set the lens extender to ON and repeat steps 5 to 7.

Calling

Using OPERATION Menu of This Unit
Select the Lens File that is set by selecting OPERATION → LENS FILE .

4-7. OHB File

OHB File is used to store the adjustment values specific to the CCD block.
OHB File data is stored in the camera.

| Note |

Execute the OHB File Store after all adjustments are completed.
When adjusting only the individual item, first execute STANDARD in step 1, and then perform adjustment.

Adjusting and Storing

Using FILE/MAINTENANCE Menu of This Unit
1.   FILE → REFERENCE → STANDARD

2.   Perform the automatic black shading adjustment.
     MAINTENANCE → BLACK SHADING → AUTO BLACK SHADING
     Or adjust the R/G/B/ black shading V SAW, V PARA, H SAW, and H PARA.
     MAINTENANCE → BLACK SHADING → V SAW R/G/B , V PARA R/G/B ,
     H SAW R/G/B , H PARA R/G/B

3.   Perform the automatic black balance adjustment.
     MAINTENANCE → AUTO SETUP → AUTO BLACK

4.   Perform the automatic white shading adjustment.
     Shoot the white pattern so that the video level is around 560 mV (80%).
     MAINTENANCE → WHITE SHADING → AUTO WHITE SHADING
     Or adjust the R/G/B/ white shading V SAW, V PARA, H SAW, and H PARA.
     MAINTENANCE → WHITE SHADING → V SAW R/G/B , V PARA R/G/B ,
     H SAW R/G/B , H PARA R/G/B

5.   Perform the ND offset adjustment.
     | Notes |
     • Perform adjustments for all ND filters (1 to 4).
     • If the desired video level cannot be obtained with the lens iris in the ND offset adjustment, set the
       shutter mode to ECS and make the ND offset adjustment. If the ND offset is adjusted by increasing
       the gain, an error in the white balance may occur.

     (1) Select 4 with the ND filter knob, and shoot the white pattern so that the video level is 50% (350
          mV) or more.
     (2) Select 1 with the ND filter knob, and adjust the lens iris so that the video level is 80 to 50% (560
          to 350 mV), and then perform the automatic white balance adjustment.
          MAINTENANCE → AUTO SETUP → AUTO WHITE

     (3) Select 2 with the ND filter knob, and adjust in the same manner as step (2).
     (4) Select 3 with the ND filter knob, and adjust in the same manner as step (2).
     (5) Select 4 with the ND filter knob, and adjust in the same manner as step (2).
6.   Perform the OHB matrix adjustment.
     MAINTENANCE → OHB MATRIX → OHB MATRIX : ON
     | Note |
     Perform this adjustment only when it is necessary to adjust a slight difference in color reproduction.

7.   Store the OHB File.
     FILE → OHB FILE → STORE FILE

With MSU

1. Turn ON the STANDARD button (lit).
2. Perform the automatic black shading adjustment.
   Turn ON the FILE button (lit).
   [Touch panel selection]
   | OHB FILE | → | Auto B. Shading |
   Or adjust the R/G/B/ black shading V SAW, V PARA, H SAW, and H PARA.
   | OHB FILE | → | Adjusting | → | BLACK SHADING | → | R/G/B | → | V SAW |, | V PARA |, | H SAW |,
   | H PARA |

3. Perform the automatic black balance adjustment.
   Turn ON the BLACK button (lit) or | OHB FILE | → | AUTO BLACK |
4. Perform the automatic white shading adjustment.
   Shoot the white pattern so that the video level is around 560 mV (80%).
   | OHB FILE | → | Auto W. Shading |
   Or adjust the R/G/B/ white shading V SAW, V PARA, H SAW, and H PARA.
   | OHB FILE | → | Adjusting | → | White. shading | → | R/G/B | → | V SAW |, | V PARA |, | H SAW |,
   | H PARA |

5. Perform the ND offset adjustment.
   | Notes |
   - Perform adjustments for all ND filters (1 to 4).
   - If the desired video level cannot be obtained with the lens iris in the ND offset adjustment, set the shutter mode to ECS and make the ND offset adjustment. If the ND offset is adjusted by increasing the gain, an error in the white balance may occur.

   (1) Select 4 with the ND filter knob, and shoot the white pattern so that the video level is 50% (350 mV) or more.
   (2) Select 1 with the ND filter knob, and adjust the lens iris so that the video level is 80 to 50% (560 to 350 mV), and then perform the automatic white balance adjustment.
       Turn ON the WHITE button (lit) or | OHB FILE | → | AUTO WHITE |
   (3) Select 2 with the ND filter knob, and adjust in the same manner as step (2).
   (4) Select 3 with the ND filter knob, and adjust in the same manner as step (2).
   (5) Select 4 with the ND filter knob, and adjust in the same manner as step (2).
6. Perform the OHB matrix adjustment.
   | OHB FILE | → | Adjusting | → | Matrix |
   Change the adjustment display by pressing the button 1, 2 of sub menu, and adjust the value of the OHB matrix.
   | Note |
   Perform this adjustment only when it is necessary to adjust a slight difference in color reproduction.

7. Store the OHB File.
   | OHB FILE | → | OHB store | → | STORE |

4-8. File Items

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

Description on symbols

○: When executing each file store, it indicates items that can be stored in the file. (If ON or OFF is
    described in the list, the setting is stored as it is.)

✕: Setting is not stored in the file.

Function	Switch item	Analog item	scene file	refer- ence file	Lens file	opera- tor file	OHB file	note
GAIN	Master Gain Select		○	○	✕	✕	✕	−3 dB to +12 dB
Iris		IRIS	✕	✕	✕	✕	✕	
	Auto Iris on		○	○	✕	✕	✕	
		Level	○	○	✕	✕	✕	
		APL	○	○	✕	✕	✕	
		Gain	○	○	○	✕	✕	
		over ride	✕	✕	✕	✕	✕	
	Detect Pattern		○	○	○	✕	✕	
	Close		✕	OFF	✕	✕	✕	
Shutter	Shutter ON		○	OFF	✕	✕	✕	
	Shutter Select		○	✕	✕	✕	✕	
ECS	ECS ON		○	OFF	✕	✕	✕	
		ECS Frequency	○	✕	✕	✕	✕	
Black Shading		Black Shading H Saw-R	✕	✕	✕	✕	○	
		Black Shading H Saw-G	✕	✕	✕	✕	○	
		Black Shading H Saw-B	✕	✕	✕	✕	○	
		Black Shading V Saw-R	✕	✕	✕	✕	○	
		Black Shading V Saw-G	✕	✕	✕	✕	○	
		Black Shading V Saw-B	✕	✕	✕	✕	○	
		Black Shading H Para-R	✕	✕	✕	✕	○	
		Black Shading H Para-G	✕	✕	✕	✕	○	
		Black Shading H Para-B	✕	✕	✕	✕	○	
		Black Shading V Para-R	✕	✕	✕	✕	○	
		Black Shading V Para-G	✕	✕	✕	✕	○	
		Black Shading V Para-B	✕	✕	✕	✕	○	
	Auto Black Shading		✕	✕	✕	✕	✕	

(Continued)

Function	Switch item	Analog item	scene file	reference file	Lens file	operator file	OHB file	note
Black Set		Black Set-R	×	×	×	×	○	
		Black Set-G	×	×	×	×	○	
		Black Set-B	×	×	×	×	○	
Test	Test1 on (TEST SAW)		×	×	×	×	×	
	Test2 ON		×	×	×	×	×	
	Test2 Mode 3step/ 10step		×	×	×	×	×	
Optical filter	Filter1 (ND)		○	×	×	×	×	
	Filter Remote/Local		×	×	×	×	×	
5600k	5600K ON		○	OFF	×	×	×	
White Shading		White Shading H Saw-R	×	×	×	×	○	
		White Shading H Saw-G	×	×	×	×	○	
		White Shading H Saw-B	×	×	×	×	○	
		White Shading V Saw-R	×	×	×	×	○	
		White Shading V Saw-G	×	×	×	×	○	
		White Shading V Saw-B	×	×	×	×	○	
		White Shading H Para-R	×	×	×	×	○	
		White Shading H Para-G	×	×	×	×	○	
		White Shading H Para-B	×	×	×	×	○	
		White Shading V Para-R	×	×	×	×	○	
		White Shading V Para-G	×	×	×	×	○	
		White Shading V Para-B	×	×	×	×	○	
	Auto White Shading		×	×	×	×	×	
V Modulation	V Mod Shading OFF		×	ON	×	×	×	
		Mod Shading V Saw-R	×	×	○	×	×	
		Mod Shading V Saw-G	×	×	○	×	×	
		Mod Shading V Saw-B	×	×	○	×	×	
		Master V Mod Saw	×	×	○	×	×	
	Dynamic Shading Compensation ON		×	×	×	×	×	
White		White-R	○	○	OFFSET	×	×	
		White-G	○	○	×	×	×	
		White-B	○	○	OFFSET	×	×	
		color temp	–	–	–	–	–	
		balance	–	–	–	–	–	
		Master White Gain	×	×	×	×	×	
	Auto White Balance		×	×	×	×	×	
Flare	Flare OFF		○	ON	×	×	×	
		Flare-R	○	○	○	×	×	
		Flare-G	○	○	○	×	×	
		Flare-B	○	○	○	×	×	

(Continued)

Function	Switch item	Analog item	scene file	reference file	Lens file	operator file	OHB file	note
Black		Master Black	○	○	×	×	×	
		Black-R	○	×	×	×	×	
		Black-G	○	×	×	×	×	
		Black-B	○	×	×	×	×	
	Auto Black Balance		×	×	×	×	×	
Detail	Detail Off		○	ON	×	×	×	
		Detail Level	○	○	×	×	×	
		Detail Limiter	○	○	×	×	×	
		Detail White Limiter	○	○	×	×	×	
		Detail Black Limiter	○	○	×	×	×	
		Detail Crispening	○	○	×	×	×	
		H Detail Frequency	○	○	×	×	×	
		Mix Ratio	○	○	×	×	×	
	V DTL control mode		×	○	×	×	×	
		Detail H/V Ratio	○	○	×	×	×	
	Level Dep. Off		○	○	×	×	×	
		Detail Level Depend	○	○	×	×	×	
	Knee Aparture On		○	○	×	×	×	
		Knee Aparture	○	○	×	×	×	
Skin Detail	Skin DTL On		○	○	×	×	×	
	Skin gate ON		×	×	×	×	×	
	Skin gate (CCU)		×	×	×	×	×	
	Skin Detail Auto Hue (ch1)		×	×	×	×	×	
	Skin 1 On		ON	ON	×	×	×	
	Skin 1 Gate On		×	×	×	×	×	
		Skin 1 Level	○	○	×	×	×	
		Skin 1 Phase	○	○	×	×	×	
		Skin 1 Width	○	○	×	×	×	
		Skin 1 Sat	○	○	×	×	×	

(Continued)

Function	Switch item	Analog item	scene file	reference file	Lens file	operator file	OHB file	note
Matrix	Matrix Off		○	○	×	×	×	
	Preset Matrix on		○	○	×	×	×	
	Preset Matrix Sel		×	×	×	×	×	
	User Matrix on		○	○	×	×	×	
		R-G	○	○	×	×	×	
		R-B	○	○	×	×	×	
		G-R	○	○	×	×	×	
		G-B	○	○	×	×	×	
		B-R	○	○	×	×	×	
		B-G	○	○	×	×	×	
	Multi Matrix On		○	○	×	×	×	
		gate	×	×	×	×	×	
		Phase select	×	×	×	×	×	
		Hue	○	○	×	×	×	
		Saturation	○	○	×	×	×	
digital liner saturation	saturation on		○	○	×	×	×	
		saturation	○	○	×	×	×	
OHB matrix	OHB Matrix On		×	○	×	×	×	
		Phase select	×	×	×	×	×	
		Hue	×	×	×	×	○	
		Saturation	×	×	×	×	○	
Black Gamma	Black Gamma On		○	○	×	×	×	
		M Black Gamma	○	○	×	×	×	
	Black Gamma (RGB) Range		○	○	×	×	×	
Low key saturation	Low Key Saturation ON		○	○	×	×	×	
	Range		○	○	×	×	×	
		Low Key Saturation level	○	○	×	×	×	
Gamma	Gamma Off		○	ON	×	×	×	
	Gamma Category Select		×	○	×	×	×	
	STANDARD Gamma Table Select		×	○	×	×	×	
	HYPER Gamma Table Select		×	○	×	×	×	
	Step Gmma (0.90 to 0.35)		○	○	×	×	×	
		R Gamma	○	○ (RGB mode)	×	×	×	
		G Gamma	○	○	×	×	×	
		B Gamma	○	○ (RGB mode)	×	×	×	
		M Gamma	○	○	×	×	×	

(Continued)

Function	Switch item	Analog item	scene file	reference file	Lens file	operator file	OHB file	note
Knee	Knee Off		○	○	×	×	×	
		R Knee point	○	○	×	×	×	
		G Knee point	○	○	×	×	×	
		B Knee point	○	○	×	×	×	
		M Knee point	○	○	×	×	×	
		R Knee Slope	○	○	×	×	×	
		G Knee Slope	○	○	×	×	×	
		B Knee Slope	○	○	×	×	×	
		M Knee Slope	○	○	×	×	×	
	Knee Max On		×	OFF	×	×	×	
	Knee Sauration on		○	○	×	×	×	
		Knee saturation	○	○	×	×	×	
	Auto Knee (DCC) on		○	○	×	×	×	
		Auto Knee Point Limit	○	○	×	×	×	
		Auto Knee Slope	○	○	×	×	×	
White Clip	White Clip Off		○	ON	×	×	×	
		M White Clip	○	○	×	×	×	
Mono Color	Mono Color On		○	OFF	—	—	—	Only when CCU is connected.
		Mono Color Saturation	○	○	—	—	—	
		Mono Color Hue	○	○	—	—	—	
SD Detail	SD Detail Off		○	○	—	—	—	
		SD Detail Level	○	○	—	—	—	
		SD Detail Limiter	○	○	—	—	—	
		SD Detail White Limiter	○	○	—	—	—	
		SD Detail Black Limiter	○	○	—	—	—	
		SD Detail Crispening	○	○	—	—	—	
		SD H Detail Frequency	○	○	—	—	—	
		SD Detail H/V Ratio	○	○	—	—	—	
		SD Detail Level Depend	○	○	—	—	—	
		SD Detail Comb	○	○	—	—	—	
Cross Color Reduce	Cross Color Reduce Off		○	○	—	—	—	
		Cross Color Reduce Level	○	○	—	—	—	
		Cross Color Reduce Coring	○	○	—	—	—	
SD Matrix	SD Matrix Off		○	○	—	—	—	
	SD Preset Matrix On		○	○	—	—	—	
	SD User Matrix On		○	○	—	—	—	
		R-G	○	○	—	—	—	
		R-B	○	○	—	—	—	
		G-R	○	○	—	—	—	
		G-B	○	○	—	—	—	
		B-R	○	○	—	—	—	
		B-G	○	○	—	—	—	
	SD Multi Matrix On		○	○	—	—	—	
		Phase select	×	×	—	—	—	
		Hue	○	○	—	—	—	
		Saturation	○	○	—	—	—	

(Continued)

Function	Switch item	Analog item	scene file	reference file	Lens file	operator file	OHB file	note
SD Gamma	SD Gamma Off		○	ON	—	—	—	Only when CCU is connected.
		SD M Gamma	○	○	—	—	—	
Level auto set up	level auto set up		×	×	×	×	×	
	White Setup Mode		×	×	×	×	×	
file	Standard		–	–	–	–	–	
	reference file store		–	–	–	–	–	
	reference store to memory stick		–	–	–	–	–	
	reference recall from memory stick		–	–	–	–	–	
	Scene file recall		–	–	–	–	–	
	Scene file store		–	–	–	–	–	
	Scene file store to memory stick		–	–	–	–	–	
	Scene file recall from memory stick		–	–	–	–	–	
	Lens file recall		–	–	–	–	–	
	Lens file store		–	–	–	–	–	
	OHB file store		–	–	–	–	–	
format	1080 59.94i		–	–	–	–	–	
	1080 50i		–	–	–	–	–	
	720 59.94P		–	–	–	–	–	
	750 50P		–	–	–	–	–	

MENU	ITEM	scene file	reference file	Lens file	operator file	OHB file	note
USER MENU customize		–	–	–	○	–	
VF DISPLAY	EX	–	–	–	○	–	
	ZOOM	–	–	–	○	–	
	DISP	–	–	–	○	–	
	FOCUS	–	–	–	○	–	
	ND	–	–	–	○	–	
	5600K	–	–	–	○	–	
	IRIS	–	–	–	○	–	
	WHITE	–	–	–	○	–	
	GAIN	–	–	–	○	–	
	SHUTT	–	–	–	○	–	
	BATT	–	–	–	○	–	
	RETURN	–	–	–	○	–	
	TALK	–	–	–	○	–	
	MESSAG	–	–	–	○	–	
! IND	ND	–	–	–	○	–	
	WHITE	–	–	–	○	–	
	5600K	–	–	–	○	–	
	GAIN	–	–	–	○	–	
	SHUTT	–	–	–	○	–	
	FAN	–	–	–	○	–	
	EXT	–	–	–	○	–	
	FORMAT	–	–	–	○	–	
VF MARKER	MARKER	–	–	–	○	–	
	CENTER	–	–	–	○	–	
	SAFETY ZONE	–	–	–	○	–	
	EFFECT	–	–	–	○	–	
	ASPECT	–	–	–	○	–	
	MASK	–	–	–	○	–	
	SAFETY	–	–	–	○	–	
VF DETAIL	VF DETAIL	–	–	–	○	–	
	LEVEL	–	–	–	○	–	
	CRISP	–	–	–	○	–	
	FREQUENCY	–	–	–	○	–	
	FAT MODE	–	–	–	○	–	
	FLICKER	–	–	–	○	–	
	AREA	–	–	–	○	–	
	ZOOM LINK	–	–	–	○	–	
	COLOR DETAIL	–	–	–	○	–	
	COLOR SEL	–	–	–	○	–	
	PEAK COLOR	–	–	–	○	–	
	CHROMA LEVEL	–	–	–	○	–	

(Continued)

MENU	ITEM	scene file	reference file	Lens file	operator file	OHB file	note
FOCUS ASSIST	INDICATOR	–	–	–	○	–	
	MODE	–	–	–	○	–	
	LEVEL	–	–	–	○	–	
	GAIN	–	–	–	○	–	
	OFFSET	–	–	–	○	–	
	AREA MARKER	–	–	–	○	–	
	SIZE	–	–	–	○	–	
	POSITION	–	–	–	○	–	
	POSITION H	–	–	–	○	–	
	POSITION V	–	–	–	○	–	
ZEBRA	ZEBRA	–	–	–	○	–	
	ZEBRA1 LEVEL	–	–	–	○	–	
	WIDTH	–	–	–	○	–	
	ZEBRA2	–	–	–	○	–	
CURSOR	CURSOR	–	–	–	○	–	
	BOX/CROSS	–	–	–	○	–	
	H POSITION	–	–	–	○	–	
	V POSITION	–	–	–	○	–	
	WIDTH	–	–	–	○	–	
	HEIGHT	–	–	–	○	–	
VF OUT	VF OUT	–	–	–	○	–	
	RET MIX VF	–	–	–	○	–	
	MIX DIRECTION	–	–	–	○	–	
	MIX VF MODE	–	–	–	○	–	
	MIX VF LEVEL	–	–	–	○	–	
	VF SCAN	–	–	–	○	–	
SWITCH ASSIGN1	GAIN [L]	–	–	–	○	–	
	GAIN [M]	–	–	–	○	–	
	GAIN [H]	–	–	–	○	–	
	ASSIGNABLE 1	–	–	–	○	–	
	ASSIGNABLE 2	–	–	–	○	–	
	ASSIGNABLE REAR	–	–	–	○	–	
	RE.ROTATION	–	–	–	○	–	
SWITCH ASSIGN2	LENS VTR S/S	–	–	–	○	–	
	FRONT RET2	–	–	–	○	–	
	HANDLE SW1	–	–	–	○	–	
	HANDLE SW2	–	–	–	○	–	
	ZOOM SPEED	–	–	–	○	–	
HEAD SET	INTERCOM1 MIC	–	–	–	○	–	
	LEVEL	–	–	–	○	–	
	POWER	–	–	–	○	–	
	UNBAL	–	–	–	○	–	
INTERCOM LEVEL	SIDE TONE	–	–	–	○	–	

(Continued)

MENU	ITEM	scene file	reference file	Lens file	operator file	OHB file	note
RECEIVE SEL1	INTERCOM RECEIVE SELECT	–	–	–	○	–	
	INTERCOM	–	–	–	○	–	UC, J model only
	ENG	–	–	–	○	–	CE model only
	PROD	–	–	–	○	–	CE model only
	PGM1	–	–	–	○	–	
	PGM2	–	–	–	○	–	
	TRACKER	–	–	–	○	–	
RECEIVE SEL2	TRACKER RECEIVE SELECT	–	–	–	○	–	
	INTERCOM	–	–	–	○	–	UC, J model only
	TALK	–	–	–	○	–	CE model only
	ENG	–	–	–	○	–	CE model only
	PROD	–	–	–	○	–	CE model only
	PGM1	–	–	–	○	–	
	PGM2	–	–	–	○	–	
RECEIVE SEL3	EARPHONE RECEIVE SELECT	–	–	–	○	–	
	INTERCOM	–	–	–	○	–	UC, J model only
	ENG	–	–	–	○	–	CE model only
	PROD	–	–	–	○	–	CE model only
	PGM1	–	–	–	○	–	
	PGM2	–	–	–	○	–	
	TRACKER	–	–	–	○	–	

Section 5
Setup Menu

5-1. Entering the SERVICE Menu

Some of adjustments given in this section use the setup menu. The setup menu consists of the following menus.
Besides there is a TOP menu indicating the entire configuration of menu items.
- USER menu
- USER MENU CUSTOMIZE menu
- OPERATION menu
- PAINT menu
- MAINTENANCE menu
- FILE menu
- DIAGNOSIS menu
- SERVICE menu

This section describes the setup menu operation as follows.
For example: When AUTO SETUP in the MAINTENANCE menu is selected from the TOP menu and
            AUTO LEVEL is executed:
            MENU: MAINTENANCE
            PAGE: AUTO SETUP
            ITEM: AUTO LEVEL

How to display the SERVICE menu

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

How to change the setting values

Perform the following operation to enter or cancel the setting value of items that can be changed by turning the rotary encoder.

To enter the setting value: Press the rotary encoder.
To cancel the setting value: Before pressing the rotary encoder, press the MENU switch toward the
                            "CANCEL" side. The original setting is restored.
                            After the rotary encoder is pressed, the setting cannot be canceled.

5-2. Settable Special Functions

The following functions are made available by settings in the SERVICE menu. Note that they are limited functions.
- Setting of the number of scene files (Refer to "SETUP" in Section 5-3.)
- Setting for supporting auto-focus lens (Refer to "SETUP" in Section 5-3.)

5-3. Description on SERVICE Menu

SETUP

```
<SET UP>          S01 TOP
SCENE FILE TYPE : 5
AF DISPLAY      : OFF
LENS IF MODE    : AUTO
```

ITEM	Description	Factory setting
SCENE FILE TYPE	Setting of the number of scene files that a camera can have. 5: Five scene files can be set 32: 32 scene files can be set **Note** When the number of scene files is changed from 32 to 5, the data of the sixth and the following scene files are lost.	5
AF DISPLAY	When an autofocus lens (Fujinon or Canon) is used, a focal area marker and a focusing indicator can be displayed on the viewfinder. OFF: Focal area marker and focusing indicator are not displayed ON: Focal area marker and focusing indicator are displayed The focal area marker appears according to the area marker display switch on the lens. The area marker detects autofocus within the square frame. An item AF is added in VF DISPLAY from the OPERA-TION menu. Set AF to ON to display the focusing indicator. Focusing indicator ▲ Front focus ■ Focused ▼ Rear focus However, if AF DISPLAY is set to ON, effective area cannot be displayed.	OFF
LENS INTERFACE MODE	When a lens that is able to communicate with a camera through the serial interface, the interface mode can be changed forcibly to the parallel interface. AUTO: An interface is set automatically. PARA: The parallel interface is selected forcibly.	AUTO

MANUAL RPN

```
<MANUAL RPN>        S03 TOP

 RPN CH SELECT    :        R
 RPN CURSOR       :      OFF
 CURSOR H POS.    :     1008
 CURSOR V POS.    :      576
 CURSOR JUMP      :     CURR
 RPN WIDTH        :        1
 RECORD RPN       :     EXEC
 DELETE RPN       :     EXEC

```

The MANUAL RPN menu is used for manual RPN compensation. (Refer to Section 3-6-2.)

RPN MANAGE

```
<RPN MANAGE>        S05 TOP

 CONC. (APR) RESET:     EXEC
 RPN ALL PRESET   :     EXEC
 AUTO CONCEAL     :     EXEC
 APR AT ABB       :       ON




```

The RPN MANAGE menu is used for RPN compensation setting and management.
• Execute the RPN automatic detection efficiently. (Refer to Section 3-6-4.)

V LINE

```
<V.LINE>            S04 TOP

 RPN CH SELECT    :        R
 RPN CURSOR       :      OFF
 CURSOR H POS.    :     1008
 CURSOR V POS.    :      576
 CURSOR JUMP      :     CURR
 V.LINE LEVEL     :      127
 RECORD V.LINE    :     EXEC
 DELETE V.LINE    :     EXEC

```

The V LINE menu is used for vertical line compensation. (Refer to Section 3-7.)

VDA-ADJ

```
<VDA-ADJ>           S06 TOP

 Y  -GAIN     :→80
 Pb -GAIN     :  80
 Pr -GAIN     :  80
 VBS-GAIN     :  80


 TEST OUT SELECT:  HD-Y
 REF-SEL        :  HD-60i
 CHANNEL-SEL    :  COLOR

```

The VDA-ADJ menu is used for adjustment of the TEST OUT output level. (Refer to Section 3-9.)

OHB-ADJ1

```
<OHB-ADJ1>          S07 TOP

 FORMAT :→1080-59.94i
             [R1] [G1] [B1]
 DC_ADJ_A  :  80   80   80
 DC_ADJ_B  :  80   80   80
 GAIN_CONT :  80   80   80
             [R2] [G2] [B2]
 DC_ADJ_A  :  80   80   80
 GAIN_CONT :  80   80   80

 STORE FILE  : EXEC
```

The OHB-ADJ1 menu is used for adjustment of the CCD unit.
- Sensitivity Adjustment (Refer to Section 3-3-2.)
- RPN Adjustment (Refer to Section 3-3-6.)

OHB-ADJ2

```
<OHB-ADJ2>          S08 TOP

 FORMAT :→1080-59.94i
             [R1] [G1] [B1]
 SH_ADJ_A  :  80   80   80
 DC_ADJ_C  :  80   80   80
             [R2] [G2] [B2]
 SH_ADJ_A  :  80   80   80

 CONC.TEST MODE :   OFF

 STORE FILE  : EXEC
```

The OHB-ADJ2 menu is used for adjustment of the CCD unit.
- RPN Adjustment (Refer to Section 3-3-6.)

OHB-ADJ3

```
<OHB-ADJ3>          S09 TOP

 FORMAT :→1080-59.94i
             [R]  [G]  [B]
 V-SUB   :    80   80   80
 TEST_MODE  :    OFF
 STORE FILE :   EXEC

 SHUTTER      :   OFF
 SHUT_SPEED :   1/500
```

The OHB-ADJ3 menu is used for adjustment of the CCD unit.
- V-SUB Adjustment (Refer to Section 3-3-3.)

BLACK SHADING

```
<BLACK SHADING> →S10 TOP

 FORMAT : 1080-59.94i
             [R] [G] [B]
 V SAW  : 00  00   00
 V PARA : FF  FF   FF
 H SAW  : FF  01   01
 H PARA : FD  FE   FE
 BLK SET: EE  00   00
  OFFSET: 00  00   00
 GAIN:  12dB    TEST:  ---
  STORE FILE:    EXEC
```

The BLACK SHADING menu is used for adjustment of the black shading.
- BLACK SET Adjustment (Refer to Section 3-3-1.)
- Black Shading Adjustment (Refer to Section 3-3-4.)

WHITE SHADING

```
<WHITE SHADING>   S11 TOP

            [R]     [G]     [B]
 V SAW  :   →00     00      00
 V PARA :    00     00      00
 H SAW  :    01     00      00
 H PARA :    00     FF      00
 WHITE  :     0      0       0
 W CLIP CODE:   7E
  STORE FILE:   EXEC
  COLOR_TEMP_SEL: 3200K
```

The WHITE SHADING menu is used for adjustment of the white shading.
- Sensitivity Adjustment, Preparation (Refer to Section 3-3-2.)

EXT RETURN

```
<EXT RETURN>        S12 TOP

 EXT RET IN: VBS

   STATUSE : OK
   FORMAT  : NTSC

 SD ASPECT : SQ
```

Not used

INTERCOM

```
<INTERCOM>        S13 TOP

 INCOM FILE   : UCJ
  READ FILE


 INCOM LEVEL : +6dB

 RTS SW       : (NORMAL)
 RTS/CC       : RTS

```

ITEM	Description	Factory setting
INTERCOM FILE	Setting of intercom panel destination Automatic setting: Perform FILE menu → REFERENCE → ALL PRESET Manual setting: UC → UCJ CE → CE J → UCJ	UCJ
READ FILE	Not used	
INTERCOM LEVEL	Setting of intercom output level **Note** Do not change the factory setting.	+6dB
RTS SW	Indicates the position of RTS SW (S502) on the SY-363 board. (NORMAL) : The intercom connector is set to 4W (HEADSET). (RTS) : The intercom connector is set to 2W. **Note** • Do not set RTS SW to RTS with the headset connected. The headset will break down because the power (approx. 26 V) for belt pack is supplied. • After this setting is made, turn off the power and then restart the unit.	(NORMAL)
RTS/CC	Setting of the 2W interface level RTS: Set for RTS CC: Set for Clear-Com **Note** After this setting is made, turn off the power and then restart the unit.	RTS

SERIAL NO.

```
<SERIAL NO.>     S14 TOP

 MODEL: HXC-100
 NO.  : 10001
 DEST : UC

```

The SERIAL NO. menu is used to set the model name, serial number, and destination.

OPTION

```
<OPTION>          S15 TOP
GAIN EXTEND    :       OFF
ZOOM SKINDTL   : DISABLE
CHROMA FILTER  : FULL
```

ITEM	Description	Factory setting
GAIN EXTEND	Master gain setting OFF: +12 dB ON: Extended up to +36 dB	OFF
ZOOM SKINDTL	Setting of the function to interlock the Skin Tone Detail level with the lens zoom position DISABLE: Interlock with the lens zoom position is disabled ENABLE: Interlock with the lens zoom position is enabled	DISABLE
CHROMA FILTER	Setting for the color difference signal band FULL, SEMI WIDE, MEDIUM, SEMI NARROW, NARROW	FULL

BOOT VERUP

```
<BOOT  VERUP>     S16  TOP
MAIN    :V1.00
BOOT    :V1.00
```

The BOOT VERUP menu is used for upgrading the software. (Refer to Section 1-13.)