

SONY®

HD COLOR CAMERA

HDC3300

HD SUPER MOTION

Digital HDVS Power HAD EX



MAINTENANCE MANUAL

Volume 1 1st Edition (Revised 3)

Serial No. 10001 and Higher: HDC3300 (SY)

Serial No. 40001 and Higher: HDC3300 (CE)

Serial No. 50001 and Higher: HDC3300 (E)

⚠ 警告

このマニュアルは、サービス専用です。

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

危険をさけるため、サービストレーニングを受けた技術者のみご使用ください。

⚠ WARNING

This manual is intended for qualified service personnel only.

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

⚠ WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.

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

⚠ AVERTISSEMENT

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

CAUTION

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

CAUTION

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

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

This HD Color Camera is classified as a CLASS 1 LASER PRODUCT.

注意

指定以外の電池に交換すると、破裂する危険があります。
使用済の電池は、説明書に従って処理してください。

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Vorsicht!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.

Ersatz nur durch denselben oder einen vom Hersteller empfohlenen ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.

Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

ADVARSEL!

Lithiumbatteri-Eksplodingsfare ved fejlagtig håndtering.

Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

ADVARSEL

Lithiumbatteri - Eksplodingsfare.

Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten.

Brukt batteri returneres apparatleverandøren.

VARNING

Explosionsfara vid felaktigt batteribyte.

Använd samma batterityp eller en likvärdig typ som rekommenderas av apparattillverkaren.

Kassera använt batteri enligt gällande föreskrifter.

VAROITUS

Paristo voi räjähtää jos se on virheellisesti asennettu.

Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.

Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

Voor de klanten in Nederland

Gooi de batterij niet weg maar lever deze in als klein chemisch afval (KCA).



Für Kunden in Deutschland

Entsorgungshinweis: Bitte werfen Sie nur entladene Batterien in die Sammelboxen beim Handel oder den Kommunen. Entladen sind Batterien in der Regel dann, wenn das Gerät abschaltet und signalisiert "Batterie leer" oder nach längerer Gebrauchsdauer der Batterien "nicht mehr einwandfrei funktioniert". Um sicherzugehen, kleben Sie die Batteriepole z.B. mit einem Klebestreifen ab oder geben Sie die Batterien einzeln in einen Plastikbeutel.

For the customers in Taiwan only



廢電池請回收

Table of Contents

Manual Structure

Purpose of this manual	3
Related manuals	3

1. Service Overview

1-1. Checking before Installation	1-1
1-1-1. Checking the ROM and Software Version	1-1
1-1-2. HDCU Format Setting	1-1
1-2. Connectors and Cables	1-2
1-2-1. Connector Input/Output Signals	1-2
1-2-2. Wiring Diagrams for Cables	1-6
1-2-3. Connection Connectors/Cables	1-7
1-2-4. Note in connecting CCU connector	1-7
1-3. Location of Printed Circuit Boards	1-8
1-4. Opening/Closing the Side Panel	1-9
1-5. Switch Settings	1-10
1-6. Notes for Replacing Parts	1-13
1-6-1. Notes for Replacing the Flexible Card Wire	1-13
1-6-2. Notes for Replacing the Board	1-14
1-6-3. Notes for Replacing the Connector on the Board	1-14
1-7. Cleaning the Vent Portion of the Fan	1-15
1-8. Cleaning of Connector/Cable	1-16
1-8-1. When the Optical Connector Cleaner (Commercially Available) is Available	1-16
1-8-2. When the Optical Connector Cleaner (Commercially Available) is not Available	1-17
1-9. Notes on Flexible Card Wire	1-18
1-9-1. Disconnecting/Connecting Flexible Card Wire ..	1-18
1-9-2. Forming of the Flexible Card Wire	1-19
1-10. Notes on Replacement of Circuit Board	1-20
1-10-1. Description on EEPROM Data	1-20
1-10-2. Adjustment after Replacement of Board	1-20
1-11. How to Supply a Power of +12 V	1-20
1-12. Upgrading the Software	1-21
1-12-1. Upgrading the MAIN Program	1-21
1-12-2. Upgrading the Boot Program	1-22
1-13. Writing and Rewriting the PLD Internal Data	1-23
1-14. Note on Replacement of Lithium Battery	1-24
1-15. Periodic Maintenance and Inspection	1-25
1-15-1. Periodic Check/Replacement Parts	1-25
1-15-2. Recommended Replacing Parts	1-26

1-16. Description of CCD Block Number	1-27
1-17. Optional Fixtures	1-27
1-18. Notes on Repair Parts	1-27
1-19. Unleaded Solder	1-27

2. Replacement of Main Parts

2-1. Replacing the CCD Unit	2-1
2-2. Replacement of CCD Unit Boards	2-2
2-2-1. DR-566 Board	2-2
2-2-2. CN-2744 Board	2-2
2-2-3. PA-331 Board	2-3
2-2-4. TG-250 Board	2-3
2-2-5. CN-2743 Board	2-4
2-3. Replacing the Filter Disk Unit	2-4
2-4. Replacing the Fan	2-5
2-4-1. DC Fan (Front)	2-5
2-4-2. DC Fan (Rear)	2-6
2-4-3. Side Panel Fan (Outside)	2-7
2-5. Replacing the VF DISP Switches (SW-1237 Board)	2-8
2-6. Replacing the Side Switch Panel Assembly (SW-1240 Board)	2-9
2-7. Replacing the Connectors	2-9
2-7-1. EARPHONE Jack (CN-2640 Board)	2-9
2-7-2. DC IN Connector (CN-2623 Board)	2-10
2-7-3. INTERCOM 1/2 Connector (CN-2618 Board)	2-11
2-7-4. LENS Connector (CN-2616 Board)	2-11
2-7-5. MIC 1 IN Connector (CN-2615 Board)	2-12
2-7-6. REMOTE Connector (CN-2622 Board)	2-12
2-7-7. SDI 2 Connector	2-12
2-7-8. RET IN, TEST OUT Connector (CN-2620 Board)	2-13
2-7-9. PROMPTER2 Connector	2-13
2-7-10. BUILD UP Connector (Hot Shoe Assembly)	2-14
2-8. Replacing the Encapsulated Cable Assembly	2-15
2-9. Replacing the DC/DC Converter Unit	2-16
2-10. Replacing the Heatsink of the DC/DC Converter	2-17
2-11. Replacing the Switching Regulator	2-18
2-12. Replacing the Boards	2-20
2-12-1. CN-2617 Board	2-20
2-12-2. MB-1059 Board	2-21

3. Electrical Alignment

3-1. Preparations	3-1
3-1-1. Equipment Required	3-1
3-1-2. Precautions on Adjustments	3-1
3-1-3. File Data at Adjustment	3-1
3-1-4. Maintaining the Grayscale Chart	3-2
3-1-5. Description on Setup Menu	3-4
3-1-6. Connection of Equipment	3-4
3-1-7. Initial Settings	3-5
3-1-8. Adjustment Items and Setup Menu Items	3-6
3-2. (Not used)	3-7
3-3. Electrical Alignment	3-7
3-3-1. Clamp Level Adjustment between Channel A and Channel B	3-7
3-3-2. BLACK SET Adjustment	3-8
3-3-3. Sensitivity Adjustment	3-8
3-3-4. V-SUB Adjustment	3-9
3-3-5. BLACK SHADING Adjustment	3-9
3-3-6. RPN Adjustment	3-10
3-4. Video System Level Adjustment	3-10
3-4-1. H/V Ratio Adjustment	3-10
3-4-2. Detail Level Adjustment	3-11
3-4-3. Crispening Adjustment	3-12
3-4-4. Level Dependent Adjustment	3-12
3-4-5. Detail Clip Adjustment	3-13
3-4-6. Auto-iris Adjustment	3-14
3-4-7. Pedestal Level Adjustment	3-14
3-4-8. Flare Adjustment	3-15
3-4-9. Gamma Correction Adjustment	3-15
3-4-10. Knee Point/Knee Slope Adjustment	3-16
3-4-11. White Clip Level Adjustment	3-17
3-4-12. File Store	3-17
3-5. ND Offset Adjustment	3-18
3-6. RPN Compensation	3-19
3-6-1. Manual RPN Compensation Adjustment	3-19
3-6-2. Procedures to be Taken When the RPN Compensation Fails	3-20
3-6-3. RPN Compensation Flowchart	3-21

4. File System

4-1. File Structure	4-1
4-2. Operator File	4-2
4-3. Preset Operator File	4-3
4-4. Scene File	4-4
4-5. Reference File	4-6
4-6. Lens File	4-8
4-7. OHB File	4-10
4-8. File Items	4-12

5. Setup Menu

5-1. Entering the SERVICE Menu	5-1
5-2. Settable Special Functions	5-1

Manual Structure

Purpose of this manual

This manual is the maintenance manual Volume 1 for HD Color Camera HDC3300. This manual describes the information items that premise the service based on the components parts such as service overview, replacement of main parts, SERVICE menu, electrical alignment, assuming use of system and service engineers.

Related manuals

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

- **HDC3300 Operation Manual (Supplied with HDC3300)**

This manual is necessary for application and operation of HDC3300.

Part number: 3-992-725-0X

- **Maintenance Manual Volume 2 (Available on request)**

Describes the parts list, semiconductor pin assignments, block diagrams, schematic diagrams and board layouts of HDC3300.

Part number: 9-968-306-0X

- **“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 maintenance 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

Section 1

Service Overview

1-1. Checking before Installation

1-1-1. Checking the ROM and Software Version

When connecting the peripheral equipment in the list below to HDC3300, be sure to check that the ROM and software version on each peripheral device is corresponding to the camera to be connected.

If the ROM and software version is lower than the specified below, be sure to perform ROM replacement and updating the software.

If ROM replacement and updating the software are required, contact your local Sony Sales Office/Service Center.

ROM

Peripheral equipment	Board name	Ref No.	Rom version
MSU-700A/750	CPU-293/CPU-286	IC5, IC6/IC5, IC6	Ver. 1.30 or higher
CNU-700	AT-89 or AT-89A	IC4, IC5	Ver. 3.20 or higher
CNU-500	AT-100	IC4, IC5	Ver. 2.80 or higher
RCP-720/721	MPU-79	IC10	Ver. 2.90 or higher
RCP-730/731	MPU-79	IC10	Ver. 2.90 or higher
RCP-740/741	MPU-79	IC10	Ver. 2.90 or higher
RCP-700/701	MPU-92	IC6	Ver. 2.90 or higher
RM-B150	CPU-266	IC4	Ver. 1.00 or higher

Software

Peripheral equipment	Board name	Software version
MSU-900/950	CPU-396	Ver. 1.02 or higher
RCP-750/751	MPU-123	Ver. 1.21 or higher
RM-B750	MPU-124	Ver. 1.00 or higher
HDCU3300	AT-167S	Ver. 1.10 or higher
	CPU-395	Ver. 1.05 or higher

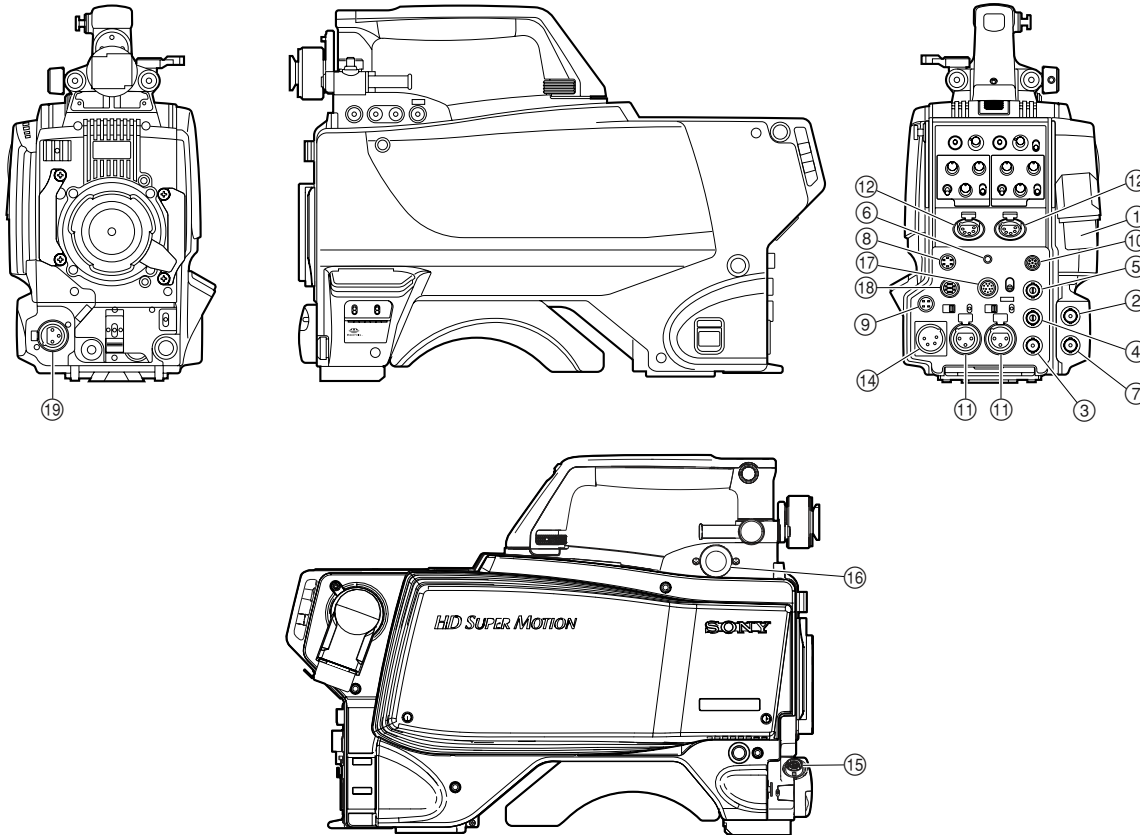
1-1-2. HDCU Format Setting

When setting the format on the HDCU3300 side in a system that uses HDC3300, be sure to select a format supported by the HDC3300.

1-2. Connectors and Cables

1-2-1. Connector Input/Output Signals

Connector Layout



Input/Output Signals

① CCU connector

10.692/10.681 Gbps serial

Output Signals

② Not used

③ SDI 2

BNC type 75 Ω , 0.8 V p-p

HD SDI signal

SMPTE 292M compliant

or

SD SDI signal

SMPTE 259M compliant

④ TEST OUT

BNC type 75 Ω , 1.0 V p-p

⑤ PROMPTER1 OUT

BNC type 75 Ω , 1.0 V p-p

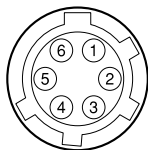
⑥ EARPHONE OUT

EARPHONE mini jack

⑦ PROMPTER2 OUT

BNC type 75 Ω , 1.0 V p-p

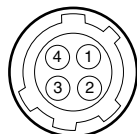
⑧ RET CONTROL (6P FEMALE)



(External view)

No.	Signal	I/O	Specifications
1	INCOM 1 MIC-ON/OFF	IN	$Z_i \geq 10 \text{ k}\Omega$ ON : GND OFF : OPEN
2	INCOM 2 MIC-ON/OFF	IN	$Z_i \geq 10 \text{ k}\Omega$ ON : GND OFF : OPEN
3	GND	—	
4	RET 3-ON/OFF	IN	$Z_i \geq 10 \text{ k}\Omega$ ON : GND OFF : OPEN
5	RET 1-ON/OFF	IN	$Z_i \geq 10 \text{ k}\Omega$ ON : GND OFF : OPEN
6	RET 2-ON/OFF	IN	$Z_i \geq 10 \text{ k}\Omega$ ON : GND OFF : OPEN

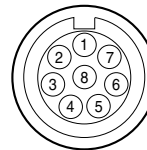
⑨ DC OUT (4P FEMALE)



(External view)

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

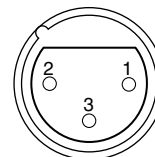
⑩ REMOTE (8P FEMALE)



(External view)

No.	Signal	I/O	Specifications
1	TX (+)	OUT	SERIAL DATA OUT
2	TX (–)	OUT	/TRUNK1 DATA OUT (for RS422A)
3	RX (+)	IN	SERIAL DATA IN
4	RX (–)	IN	/TRUNK1 DATA IN (for RS422A)
5	TX-GND	—	GND for TX
6	POWER (+) OUT	OUT	UNREG +10.5 V to +17 V dc, 200 mA (max)
7	POWER (–) OUT	—	GND for UNREG-OUT
8	VIDEO (X)	OUT	75 Ω , 1.0 V p-p (SD Video)
	CHASSIS GND	—	CHASSIS GND

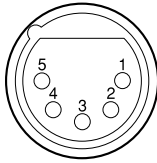
⑪ AUDIO IN CH1/CH2 (3P FEMALE)



(External view)

No.	Signal	I/O	Specifications
1	AUDIO 1/2 (G)	—	–60 dBu, –50 dBu, –40 dBu,
2	AUDIO 1/2 (X)	IN	–30 dBu, –20 dBu, selectable
3	AUDIO 1/2 (Y)	IN	High impedance, Balanced (0 dBu = 0.775 Vrms)

⑫ INTERCOM 1/2 (5P FEMALE)

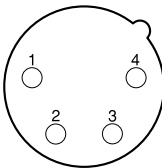


(External view)

No.	Signal	I/O	Specifications
1	EXT-INCOM-T (Y)	IN	−20 dBu (CARBON MIC)
2	EXT-INCOM-T (X)	IN	−60 dBu (DYNAMIC MIC)
3	GND	—	
4	EXT-INCOM-LEFT (X)	OUT	0 dBu
5	EXT-INCOM-RIGHT (X)	OUT	0 dBu

(0 dBu = 0.775 V_{rms})

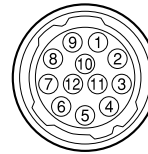
⑭ DC IN (4P MALE)



(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 V to +17 V dc

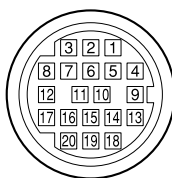
⑮ LENS (12P FEMALE)



(External view)

No.	Signal	I/O	Specifications
1	RET VIDEO ENABLE	IN	ENABLE : 0 V DISABLE : +5 V or OPEN
2	VTR CTL	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 V to +17 V dc
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	

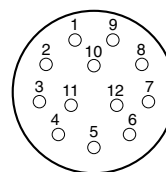
⑩ VF (20P FEMALE)



(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, $Z_o = 75 \Omega$
13	VIDEO GND	—	GND for VIDEO
14	Pb VIDEO	OUT	± 0.35 V p-p, $Z_o = 75 \Omega$
15	Pr VIDEO	OUT	± 0.35 V p-p, $Z_o = 75 \Omega$
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 V to +17 V dc

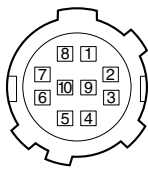
⑪ CRANE (12P FEMALE)



(External view)

No.	Signal	I/O	Specifications
1	Pr VIDEO (X)	OUT	± 0.35 V p-p, $Z_o = 75 \Omega$
2	Pb VIDEO (X)	OUT	± 0.35 V p-p, $Z_o = 75 \Omega$
3	NC		No connection
	for RS422A	for RS232C	
4	TX0 (+)	TX1	OUT TRUNK Data out
5	TX0 (-)	TX0	OUT
6	RX0 (-)	RX0	IN TRUNK Data in
7	RX0 (+)	RX1	IN
8	GND (VIDEO)	—	GND for VIDEO
9	Y VIDEO (X)	OUT	1.0 V p-p, $Z_o = 75 \Omega$
10	GND	—	GND for SCL/SDA
11	SCL EXT-VF	OUT	TTL level
12	SDA EXT-VF	IN/OUT	TTL level

⑱ TRACKER (10P FEMALE)

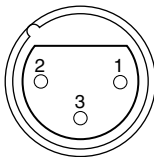


(External view)

No.	Signal	I/O	Specifications
1	TRACKER LEFT	OUT	TRACKER RECEIVE/PGM −20 dBu unbalanced
2	GND (TALK)	—	GND for TRACKER TALK
3	GND (RECEIVE/ PGM/TL)	—	GND for RECEIVE/PGM/TL
4	TRACKER RIGHT	OUT	TRACKER RECEIVE/PGM −20 dBu unbalanced
5	UNREG	OUT	+10.5 V to +17 V dc
6	GND (UNREG)	—	GND for UNREG
7	TRACKER TALK (X)	IN	TRACKER TALK 0 dBu /−20 dBu
8	TRACKER TALK (Y)	IN	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)

⑲ MIC 1 IN (3P FEMALE)



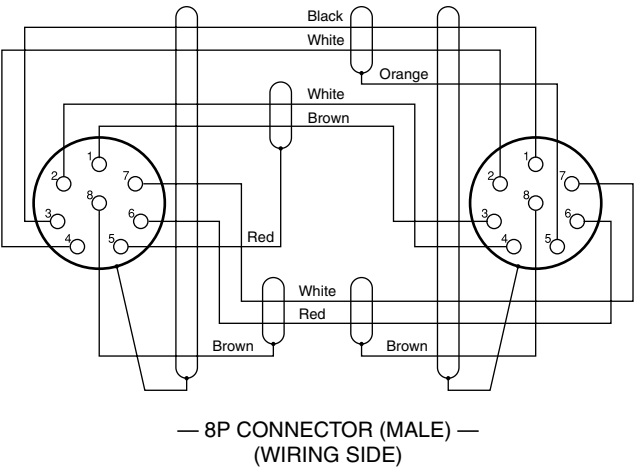
(External view)

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

(0 dBu = 0.755 Vrms)

1-2-2. Wiring Diagrams for Cables

CCA-5 Cable



1-2-3. 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.

Indication	Connection connector/cable
TEST OUT PROMPTER 1/2 OUT SDI 2 (BNC)	1-569-370-12 Plug, BNC
AUDIO IN CH1/CH2 MIC 1 IN (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 1/2 (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, or Cable assembly 1-551-577-00 (Supplied with AC-550/550CE)
CRANE (12P FEMALE)	1-819-261-11 Connector, Round Type 12P
REMOTE (8P FEMALE)	<ul style="list-style-type: none">1-766-848-11 Plug, 8P Male or CCA-5 cable assembly (CCA-5-10 (10 m) /CCA-5-3 (3 m)) (option) *2 *3REMOTE cable 1-783-372-XX (supplied with RM-B150/RM-B750, 10 m) *1 *2 *3
TRACKER (10P FEMALE)	1-506-522-12 Connector, Round Type 10P

*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 using 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).

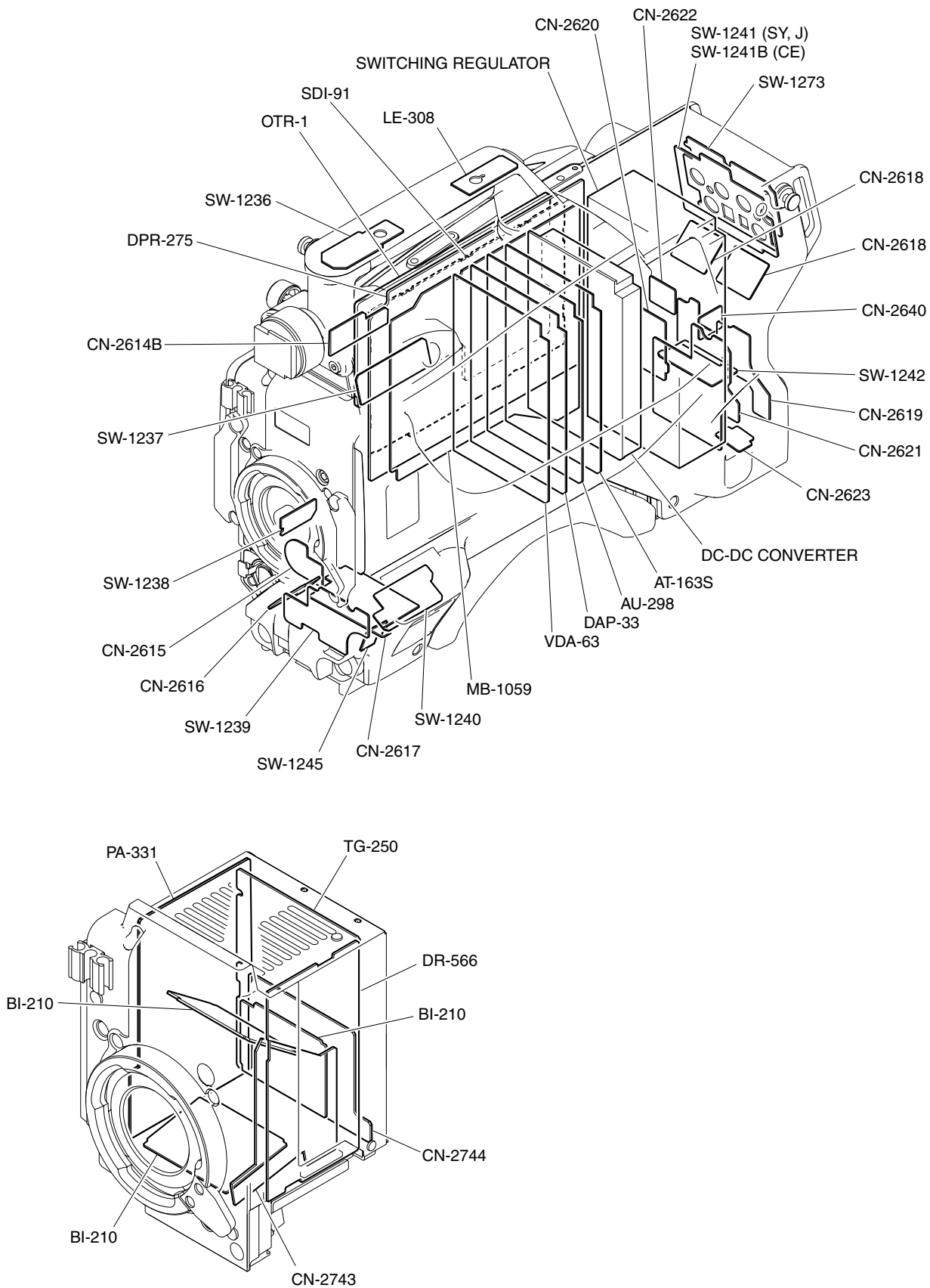
1-2-4. Note in connecting CCU connector

It is recommendable to clean the optical contact portions mentioned below before connecting this unit to the camera control unit.

- CCU connector of this unit
- Camera connector of the camera control unit
- Optical/Electrical cable

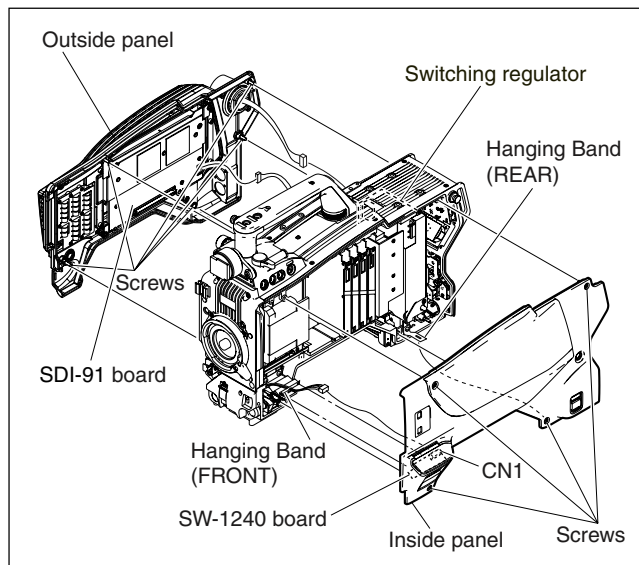
For details on a cleaning method, refer to Section 1-8 “Cleaning of Connector/Cable”.

1-3. Location of Printed Circuit Boards



1-4. Opening/Closing the Side Panel

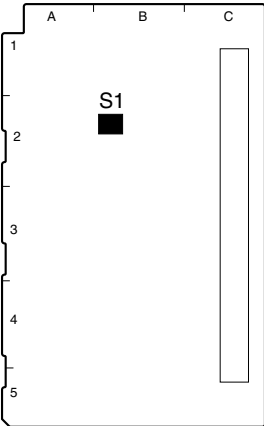
1. Unscrew the nine screws as shown in the figure, then open the inside panel and outside panel.
2. Release the hanging band (FRONT) and hanging band (REAR) from the inside panel.
3. Disconnect the harness from the connector (CN1) on the SW-1240 board, and remove the inside panel.
4. Disconnect the harness from the switching regulator connector and disconnect the harness from the connector on the SDI-91 board of the outside panel, and remove the outside panel.



5. Reinstall the panels by reversing the steps above.

1-5. Switch Settings

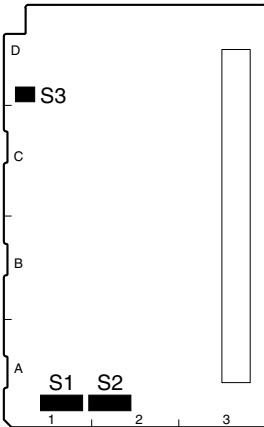
AT-163S Board



AT-163S BOARD (SIDE A)

Ref. No.	Name	Description	Factory setting
S1-1	Reserve	Not used (Fixed to OFF)	OFF
S1-2	All Preset	FRAM clear	OFF
S1-3	Reserve	Not used (Fixed to OFF)	OFF
S1-4	Firmware Load	Forcibly upgrading of firmware	OFF

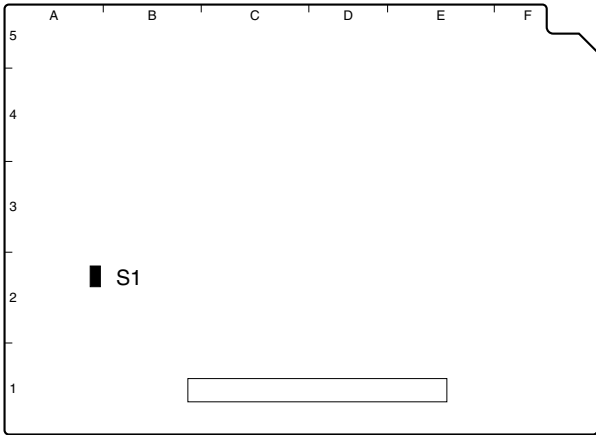
AU-298 Board



AU-298 BOARD (SIDE A)

Ref. No.	Name	Description	Factory setting
S1	Reserve	Not used (Fixed to OFF)	NORM
S2	Reserve	Not used (Fixed to OFF)	NORM
S3-1	AB POWER MIC1	Switch ON to supply +12 V for MIC POWER to the microphone connected to the AUDIO IN CH1 connector.	OFF
S3-2	AB POWER MIC2	Switch ON to supply +12 V for MIC POWER to the microphone connected to the AUDIO IN CH2 connector.	OFF

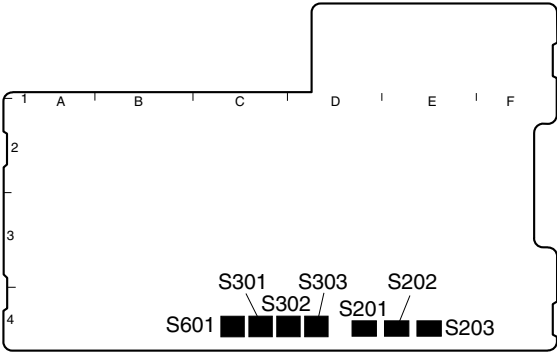
DPR-275 Board



DPR-275 BOARD (SIDE A)

Ref. No.	Name	Description	Factory setting
S1	Reserve	Not used (Fixed to OFF)	OFF

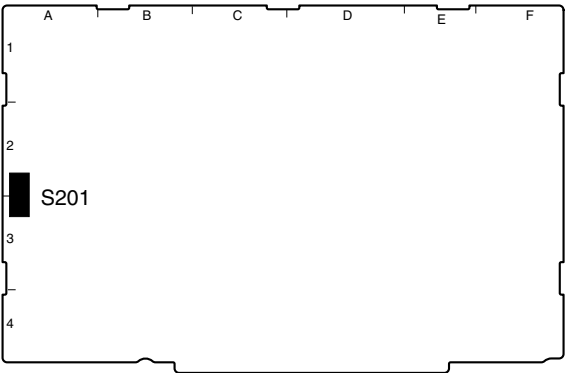
OTR-1 Board



OTR-1 BOARD (SIDE A)

Ref. No.	Name	Description	Factory setting
S201	GCNTRST	CRC error flag clear	OFF
S202	GRST	Data system reset	OFF
S203	DCMRST	Clock system reset	OFF
S301-1	LED Display	LED display	OFF
S301-2	LED Function1	Function select of LED display (D301 to 316)	OFF
S301-3	LED Function2	Function select of LED display (D201 to 208)	OFF
S301-4	Reserve	Not used (Fixed to OFF)	OFF
S302-1 to 4	Reserve	Not used (Fixed to OFF)	OFF
S303-1 to 4	Reserve	Not used (Fixed to OFF)	OFF
S601-1	SEL0	Mode select of CAMERA/CCU (Fixed to OFF)	OFF
S601-2	SEL1	Mode select of CAMERA/CCU (Fixed to OFF)	OFF
S601-3	EN EXT	External mode select: Enable (Fixed to OFF)	OFF
S601-4	CFG MODE	Configuration mode select: controller/ controlled (Fixed to OFF)	OFF

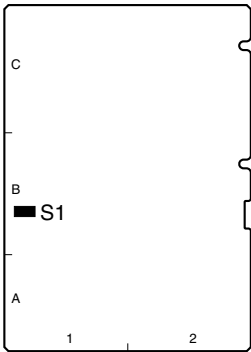
SDI-91 Board



SDI-91 BOARD (SIDE A)

Ref. No.	Name	Description	Factory setting
S201-1	Test	TEST MODE	OFF
S201-2	Prompter2	Prompter output: Active	ON
S201-3 to 8	Reserve	Not used (Fixed to OFF)	OFF

TG-250 Board



TG-250 BOARD (SIDE A)

Ref. No.	Name	Description	Factory setting
S1	Test	Not used	OFF

1-6. Notes for Replacing Parts

There are two kinds of types in the parts below used in this unit.

- Flexible card wires (Refer to Section 1-6-1.)
- Boards (Refer to Section 1-6-2.)
- Connectors on the board (for flexible card wires) (Refer to Section 1-6-3.)

When replacing the parts above, be sure to follow the instructions described in “1-6-1. Notes for Replacing the Flexible Card Wire”, “1-6-2. Notes for Replacing the Board”, and “1-6-3. Notes for Replacing the Connector on the Board”.

Be sure to use the specified parts. Using un-specified parts causes the change in the characteristics of this unit and the unit does not work properly.

Spare parts are listed in the spare parts list of “Spare Parts” Section. In the spare parts list, (GOLD) or (SILVER) is put after each part name to distinguish two kinds of types (gold and silver).

1-6-1. Notes for Replacing the Flexible Card Wire

When replacing the flexible card wires listed below, confirm the conductive (terminal) part color of the flexible card wires and follow the procedure below.

1. Replace the flexible card wire with a flexible card wire whose conductive part is gold when the conductive part of a flexible card wire is gold.

Note

For the board on which a connector whose contact surface is gold is used, “G” is put after the board name by silk-screen printing or a “G” seal is attached to the empty space on the board. Example: CN-2619G

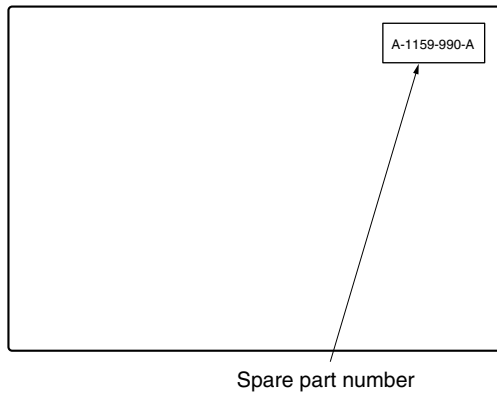
2. Replace the flexible card wire with a flexible card wire whose conductive part is silver when the conductive part of a flexible card wire is silver. In this case, silk “G” or a “G” seal is not put on the board name.

Board	Flexible card wire		Board
	Pin	Gold : Parts No.	
CN-2619G	40	1-831-662-11	MB-1059G
CN-2621G	36	1-831-663-11	MB-1059G
MB-1059G	36	1-831-661-11	SW-1273G
CN-2744	40	1-831-658-11	PA-331
CN-2744	30	1-831-656-11	DR-566
DR-566	50	1-831-660-11	TG-250

1-6-2. Notes for Replacing the Board

Replace the board with a board of the same number as the spare part number of the board to be removed when replacing a board.

Example: A spare part number is put on the board.



A spare part number is put on side A or B of the board by silk-screen printing or a spare part code label (spare part number) is attached on side A or B.

1-6-3. Notes for Replacing the Connector on the Board

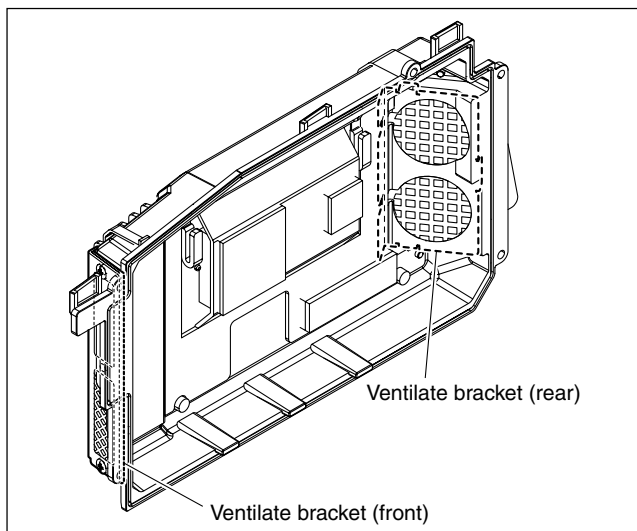
There are two types of connectors for the flexible card wire mounted on the board used in this unit. Distinguish them in the procedure below when replacing these connectors.

1. The contact surface of the connector used for a board is gold when the conductive part of a flexible card wire is gold.
In a spare parts list, (GOLD) is put after the part name.
2. The contact surface of the connector used for a board is silver when the conductive part of a flexible card wire is silver.
In a spare parts list, (SILVER) is put after the part name.

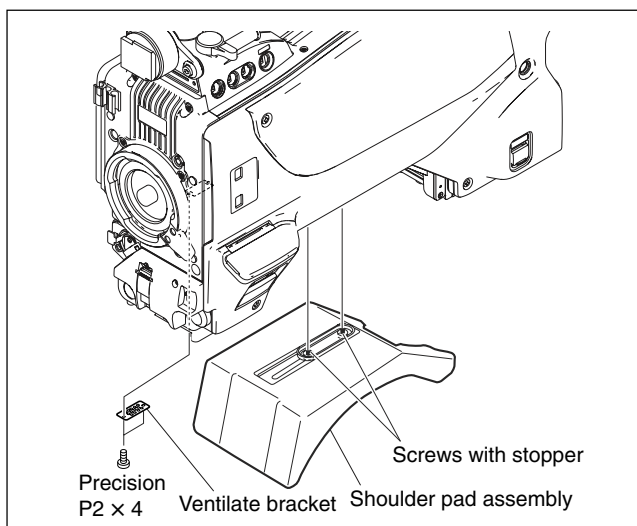
1-7. Cleaning the Vent Portion of the Fan

The ventilate bracket for preventing from dust is attached in the vent portion of the fan. Clean the ventilate bracket every two or three months. Clogging may cause the temperature increases inside the camera and result in a trouble.

1. Remove the heat sink sub assembly.
(Refer to Section 2-4-3. step 1 to 4)
2. Remove dust on the front and rear ventilate bracket with a vacuum cleaner.



3. Loosen the two screws with stopper, and remove the shoulder pad assembly.
4. Remove the two screws, and remove the ventilate bracket.
5. Remove dust on the ventilate bracket with a vacuum cleaner.



1-8. Cleaning of Connector/Cable

The photo receptive condition of the optical connector can be checked at OPTICAL CONDITION of the DTX board of the camera control unit.

When lit in green: Normal (-10.5 dBm or above)

When lit in yellow: Normal (-10.5 to -13.5 dBm)

When lit in red: Abnormal (Less than -13.5 dBm)

When lit in red, be sure to clean the optical contact portions.

When lit in yellow, cleaning is recommended.

The attenuation of the photo-receptive level may cause transmission error between the camera and HDCU. In the case of attenuation, be sure to clean optical contact portions proceeding as follows. The optical contact portions exist in the optical connector on the camera or HDCU, and in the optical/electrical cables.

1-8-1. When the Optical Connector Cleaner (Commercially Available) is Available

Tools required

- Optical connector cleaner (commercially available)

Product name: CLETOP®

14100402 or 14100403 (stick type) or equivalent

14100402: 2.0 mm

14100403: 2.0/2.5 mm double ended

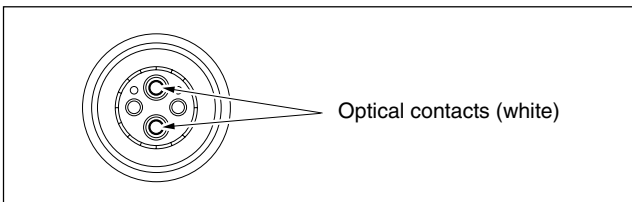
Notes

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

Cleaning procedure

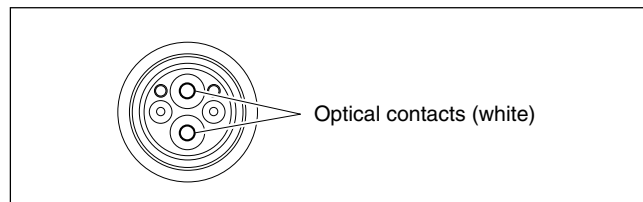
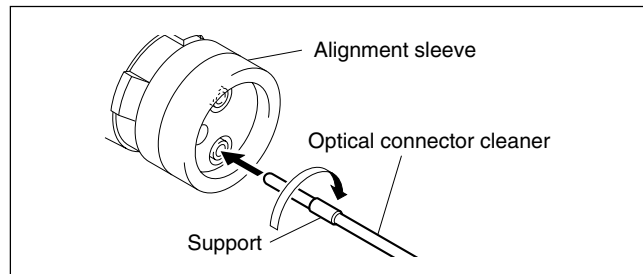
[Male connector]

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



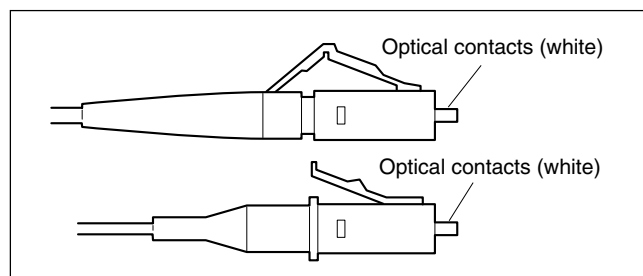
[Female connector]

1. Insert the optical connector cleaner straight. Ensure that it is held straight when inserting.
2. Apply sufficient pressure (approximately 600 g to 700 g) to ensure that the optical contact is a little depressed.
3. While pressing the optical connector cleaner against the tip of the optical contact, rotate the optical connector cleaner by 4 to 5 turns clockwise. Holding the optical connector cleaner at around its support facilitates to apply the pressure.



[LC type connector]

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



1-8-2. When the Optical Connector Cleaner (Commercially Available) is not Available

Clean the standard connector/cable (manufactured by LEMO) in the following steps.

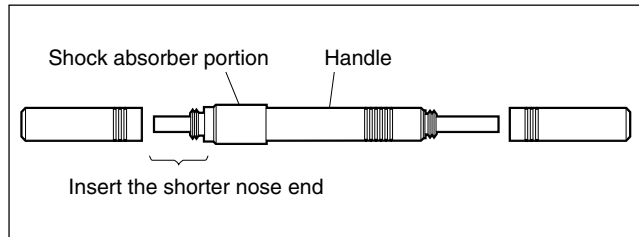
Tools required

- Alignment sleeve remover HC-001 (for female connector)
Sony P/N: J-6480-010-A or DCC.91.312.5LA manufactured by Lemo, or equipment

Note

Insert the shorter nose end when removing/installing the alignment sleeve.

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



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

Note

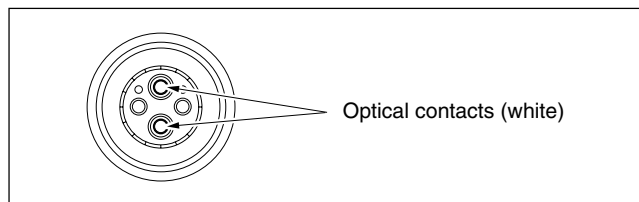
Use a cotton swab whose diameter is about 4 mm.

If a cotton swab whose diameter exceeds 5 mm is used, the cotton swab cannot be inserted into the end of the connector and the tip of the optical contact cannot be cleaned.

Cleaning Procedure

[Male connector]

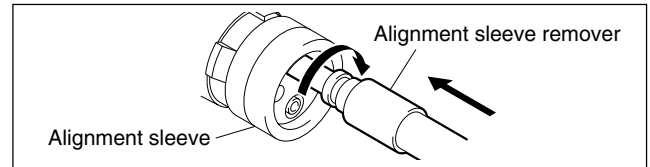
Clean the tip of the white optical contacts by a cotton swab moistened with alcohol.



[Female connector]

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

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

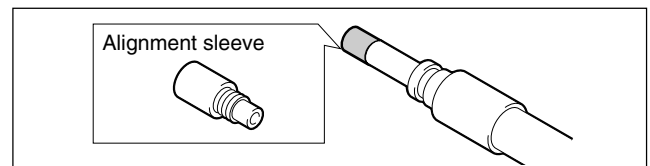


2. When the turn stops, pull out the remover in the straight line forcibly.

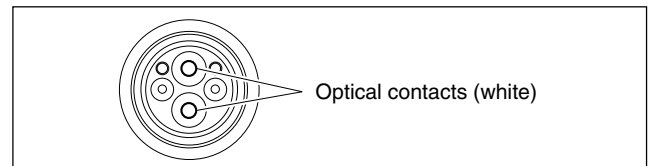
Note

The alignment sleeve can be removed/reinstalled with the sleeve itself attached to the tip of the remover. Great care should be taken so as not to lose or damage the alignment sleeve.

(Alignment sleeve: Sony P/N 9-980-074-01)



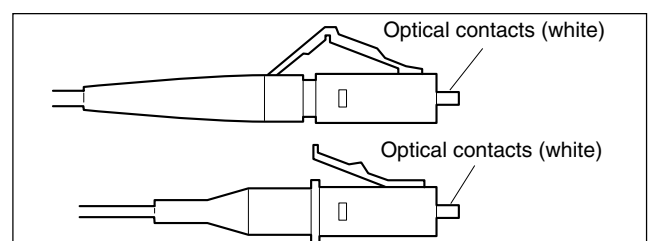
3. Clean the tip of the white optical contacts by a cotton swab moistened with alcohol.



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

[LC type connector]

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



1-9. Notes on Flexible Card Wire

1-9-1. Disconnecting/Connecting Flexible Card Wire

The flexible card wires are used between the boards of HDC3300. Take care not to bend forcibly these flexible card wires. This shortens the wire life.

Between CN-2744 and DR-566
Between CN-2744 and PA-331
Between TG-250 and DR-566
Between MB-1059 and CN-2619
Between MB-1059 and CN-2621
Between MB-1059 and SW-1273

Type-A

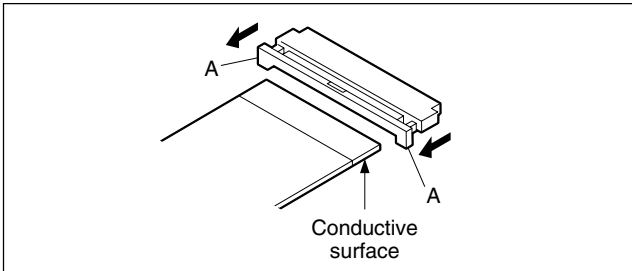
Disconnecting

Slide portions A in the direction of the arrow to unlock and pull out the flexible card wire.

Connecting

Notes

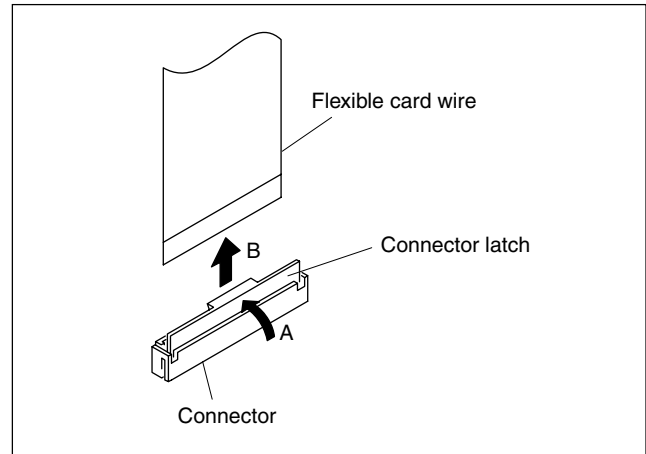
- Be careful not to insert the flexible card wire obliquely.
 - Check that the conductive surface of the flexible card wire is not soiled with dust.
1. Slide portions A in the direction of the arrow and insert the flexible card wire with the conductive surface downward as far as it will go.
 2. Slide portions A in the reverse direction to lock.



Type-B

Disconnecting

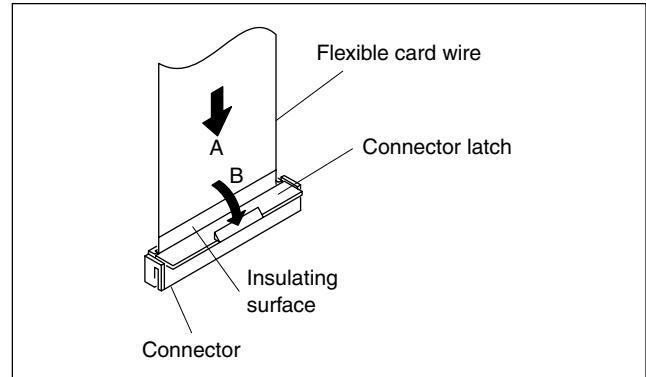
1. Open the connector latch in the direction of arrow A to release the lock.
2. Remove the flexible card wire in the direction of arrow B.



Connecting

Notes

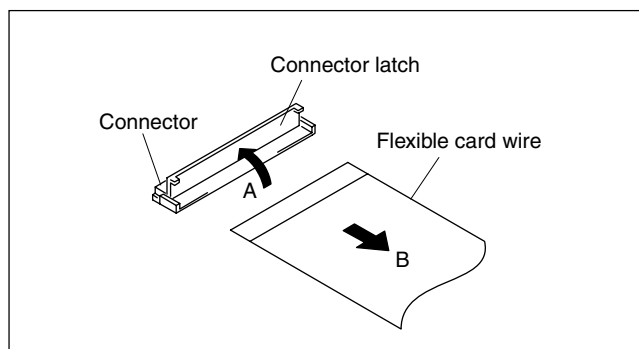
- Be careful not to insert the flexible card wire obliquely.
 - Check that the conductive surface of the flexible card wire is not soiled with dust.
1. Hold the flexible card wire with its insulating surface facing to the front, and insert it in the direction of arrow A.
 2. Close the connector latch in the direction of arrow B to lock it.



Type-C

Disconnecting

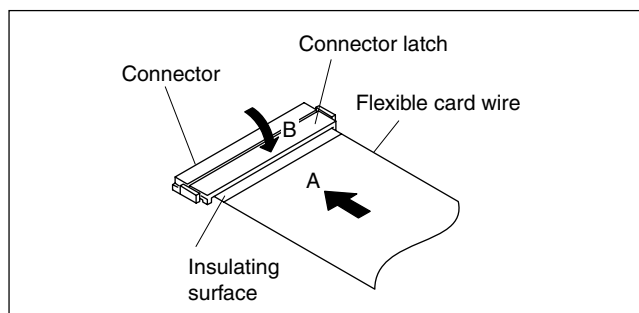
1. Open the connector latch in the direction of arrow A to release the lock.
2. Remove the flexible card wire in the direction of arrow B.



Connecting

Notes

- Be careful not to insert the flexible card wire obliquely.
 - Check that the conductive surface of the flexible card wire is not soiled with dust.
1. Hold the flexible card wire with its insulating surface facing upward, and insert it in the direction of arrow A.
 2. Close the connector latch in the direction of arrow B to lock it.



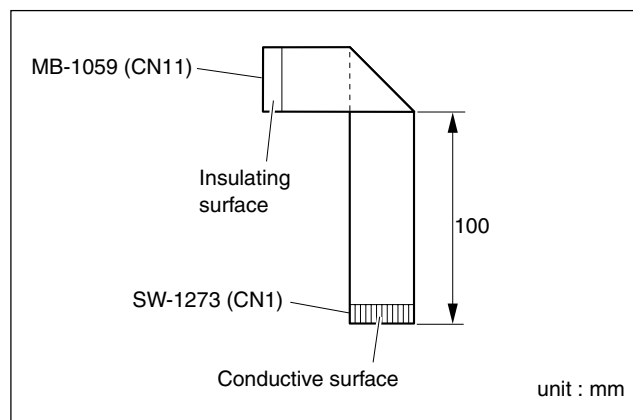
1-9-2. Forming of the Flexible Card Wire

If using a new flexible card wire, be sure to fold it by hand it as shown in the figure before installation.

Note

Never fold it back after being formed once.

MB-1059 board CN11 ↔ SW-1273 board CN1



1-10. Notes on Replacement of Circuit Board

1-10-1. Description on EEPROM Data

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

Board	Ref. No.	Stored data
AT-163S	IC133, IC139, IC141, IC142	Board adjustment data (VDA, DPR), and paint data
	IC403	PLD data
TG-250	IC6	PLD data
	IC39	RPN compensation data
	IC40	CCD adjustment data
AU-298	IC11, IC12, IC13	Status of the stand by intercom
SDI-91	IC212	PLD data
VDA-63	IC109	PLD data
DAP-33	IC202	PLD data
DPR-275	IC405	PLD data

Notes

- When the replacement is needed, remove the IC attached to the former board and replace it to the new board.
- The IC listed above cannot be replaced because it is the EEPROM that is the storing data inherent in the board. 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.

1-10-2. Adjustment after Replacement of Board

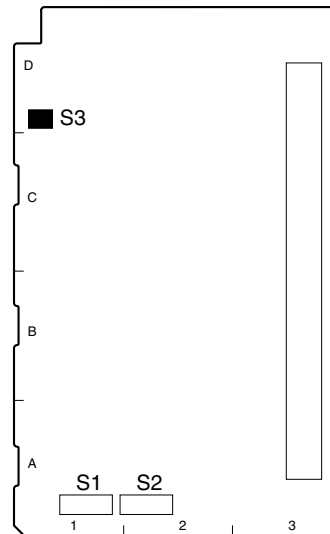
When replacing or repairing the board, perform the electrical alignment referring to Section 3.

1-11. How to Supply a Power of +12 V

HDC3300 can supply +12 V for MIC POWER to the microphone connected to the AUDIO IN connector.

Setting Procedure

Set the switch S3 on the AU-298 board to ON, and set on the MIC POWER switch of AUDIO IN connector referring to the Operation Manual.



AU-298 BOARD (SIDE A)

Ref. No.	Contents
S3-1	Switch ON to supply +12 V for MIC POWER to the microphone connected to the AUDIO IN CH1 connector.
S3-2	Switch ON to supply +12 V for MIC POWER to the microphone connected to the AUDIO IN CH2 connector.

1-12. Upgrading the Software

The ROM (IC109 and IC301 on the AT-163S board) version can be upgraded using the Memory Stick.
For upgrading the software, follow the procedure shown below.

1-12-1. Upgrading the MAIN Program

Tool

Memory stick

Preparation

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

Note

To get the upgrading program (program files “hdc1000.rom” and “boot.rom”), contact your local Sony Sales Office/Service Center.

- (1) Make the following directory on the Memory Stick.
 \MSSONYPRO\CAMERA\HDC1000
- (2) Copy the program files “hdc1000.rom” and “boot.rom” to the directory made by step (1).

Procedures

1. Insert the Memory Stick in which the upgrading program is already saved.
2. Turn on the power while pressing the RET 2 button on the camera front and rotary encoder simultaneously.
 The upgrading status is displayed on the screen of the view finder.
3. When the version upgrade is completed, the message “Complete” will be displayed.

1-12-2. Upgrading the Boot Program

Tools

- Memory Stick
- ROM-28 board: (Sony Part No. : A-8326-017-A)
- Extension board EX-738: (Sony Part No. : A-8327-351-A)

Preparation

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

Note

To get the upgrading program (program files “hdc1000.rom” and “boot.rom”), contact your local Sony Sales Office/Service Center.

- (1) Make the following directory on the Memory Stick.

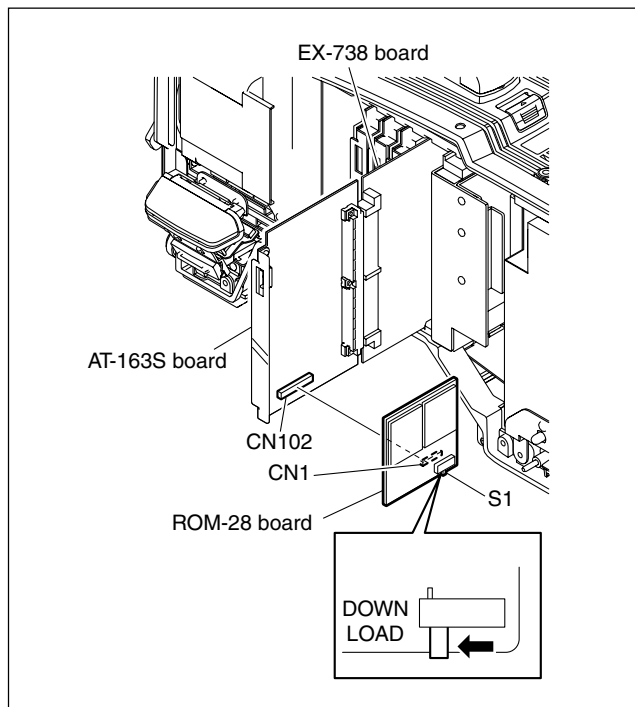
\\MSSONY\\PRO\\CAMERA\\HDC1000

- (2) Copy the program files “hdc1000.rom” and “boot.rom” to the directory made by 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.



Procedures

1. Open the inside panel. (Refer to Section 1-4.)
2. Extend the AT-163S board using the EX-738 board.
3. Insert the Memory Stick in which the upgrading program is already saved.
4. Connect the connector CN1 on the ROM-28 board to the connector CN102 on the AT-163S board.
5. Set the switch S1 on the ROM-28 board to DOWN LOAD side.
6. Turn on the power.
The upgrading status is displayed on the screen of the view finder.
7. When the version upgrade is completed, the message “Complete” will be displayed.
8. Turn off the power, and remove the ROM-28 board.
9. Put back the AT-163S board to the original position.
10. Turn on the power. The unit will start with the boot program upgraded.

1-13. Writing and Rewriting the PLD Internal Data

This unit uses the PLD (Programmable Logic Device) that supports the e-Production (EPR) system to write and rewrite the internal data.

If the part listed below needs to be replaced or to be upgraded, contact your local Sony Sales Office/Service Center.

Note

The part number of PLD (or ROM for PLD) in which data is not written yet, is shown in “Section 1. Spare Parts” of Maintenance Manual Volume 2.

Therefore, if part replacement is required, write the data by the following procedure.

In the case of the PLD type that runs on the program stored in external ROM, data needs not to be written only by replacing the part if the specific PLD only is defective.

e-Production system has the advantages shown below.

- To write/rewrite the PLD internal data:
 1. The standard fixture (cable) can be used.
 2. The standard software (PLD Download Tool) can be used.
- The PLD internal data is controlled in the Sony Database Server under the name of Project file (E_XXX_XXX_XX_XX).
- The printed circuit board is equipped with the standard connector (EPR connector) to write the PLD internal data. The indication “EPR” is shown on the printed circuit board.

Corresponding PLD

PLD (Ref No./board name)	EPR connector (Ref No./board name)	Project file No.
IC404/AT-163S IC403/AT-163S *1	CN401/AT-163S	*7 E_000_001_88_11
IC201/DAP-33 IC202/DAP-33 *2	CN2/DAP-33	*7 E_000_001_89_17
IC408/SDI-91 IC212/SDI-91 *3	CN202/SDI-91	*7 E_000_002_03_04
IC9/TG-250 IC6/TG-250 *4	CN2/TG-250	*7 E_000_002_05_04
IC110/VDA-63 IC109/VDA-63 *5	CN100/VDA-63	*7 E_000_001_90_13
IC1/DPR-275 (PLD) IC405/DPR-275 (ROM)	CN11/DPR-275	*7 E_000_002_04_02
IC1/OTR-1 IC601/OTR-1 *6	CN601/OTR-1	*7 E_000_003_37_01

*1: IC403/AT-163S is the ROM for IC404/AT-163S.

*2: IC202/DAP-33 is the ROM for IC201/DAP-33.

*3: IC212/SDI-91 is the ROM for IC408/SDI-91.

*4: IC6/TG-250 is the ROM for IC9/TG-250.

*5: IC109/VDA-63 is the ROM for IC110/VDA-63.

*6: IC601/OTR-1 is the ROM for IC1/OTR-1.

*7: The file name changes when upgrading.

Equipment required

- PLD download fixture
(Sony part number: J-7120-140-A)
The cable to connect PC to this unit.
- PC
A PC having parallel port.
A PC in which the PLD Download Tool software is already installed.
For the applicable OS and the operating environment, refer to “Download Tool Operating Instruction for Device Programming”.

Data writing procedure

Data writing procedure in the PLD (or ROM for PLD) is outlined below.

For details of data writing procedure, refer to “Download Tool Operating Instruction for Device Programming”, which is available in the same site where the PLD Download Tool software is available.

1. Prepare the Project file.

Note

Download the Project file from the Sony Database Server.

2. Turn off the power of this unit. Connect the PC parallel port to the EPR connector of the target board using the PLD download fixture (cable).
3. Turn on the power of this unit.
Start the Download Tool software and read the Project file.
4. Program the PLD (or ROM for PLD) with the Download Tool software.
5. Upon completion of programming, check that error message is not displayed. Turn off the power of this unit and back on.

1-14. Note on Replacement of Lithium Battery

A lithium battery is mounted on the DAP-33 board to back up Real Time Clock (RTC).

If a battery comes to the lifetime, then RTC stops.

Therefore the battery replacement is required.

DAP-33 board/CR2032 : Sony part No. (1-528-174-11)

CAUTION

In replacing, ensure that the battery is installed with “+” and “-” poles connected to the correct terminals.

An improper connection may cause an explosion or leakage of fluid.

1-15. Periodic Maintenance and Inspection

1-15-1. Periodic Check/Replacement Parts

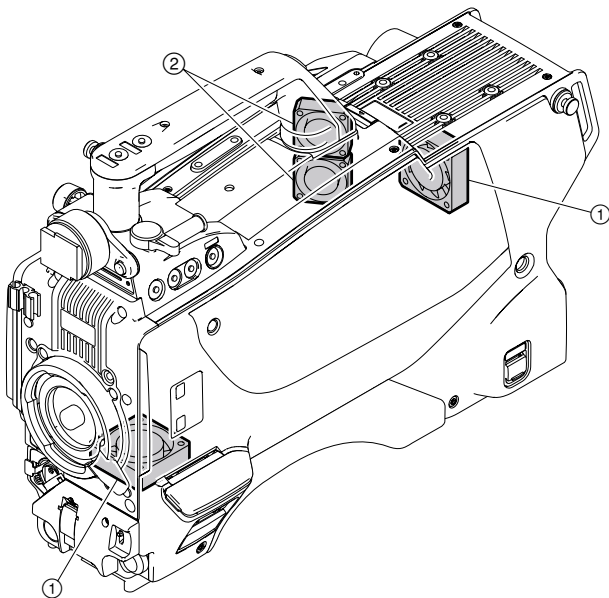
This table does not describe the guarantee period of each part.

The replacement period of each part is changed according to the environment and condition.

Refer to the “Section 2 Replacement of Main Parts” for the replacement method of part.

No.	Description	Sony Part No.	Check/ Replacement Period
①	FAN, DC (41 SQUARE)	1-787-070-11	Replace every two years*
②	FAN, DC (30 SQUARE)	1-787-554-11	Replace every two years*

※: When used for eight hours a day.

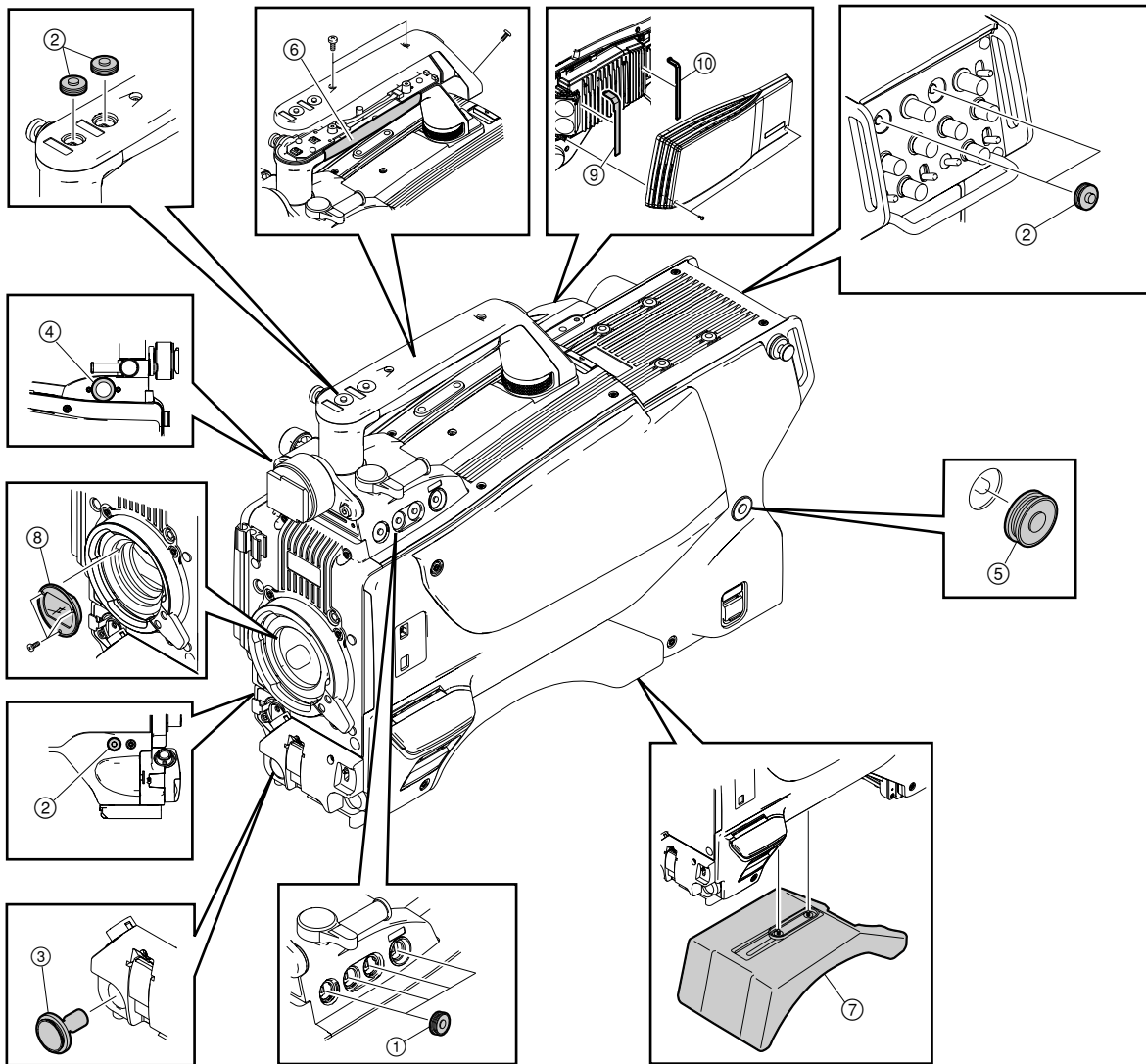


1-15-2. Recommended Replacing Parts

Following parts are recommended replacing parts. The optical filter unit may become clouded with the lapse of time. By such a cloudy optical filter unit, the characteristics of this camera could not fully exploited, therefore replace it if necessary.

Besides, the parts made of rubber used for this camera may become cracked and split with the lapse of time, therefore also replace it if necessary.

No.	Description	Sony Part No.
①	COVER, SWITCH	3-676-244-0X
②	COVER, SWITCH	3-676-244-2X
③	BUTTON, VTR START	3-679-668-0X
④	PACKING, VF	3-710-024-0X
⑤	CALL COVER	3-857-347-0X
⑥	SHEET, HANDLE	3-872-563-0X
⑦	PAD ASSY, SHOULDER	A-8286-163-X
⑧	FILTER UNIT, OPTICAL	1-758-483-11
⑨	SHEET (L), DROP PROTECTION	3-992-810-02
⑩	SHEET (L), DROP PROTECTION	3-992-811-02



1-16. 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 for the CCD block.

The CCD block number label is put in the CCD unit.

Example : MOA xxxxx

↑ Serial number for the CCD unit

↑ CCD block type

Model	CCD block type
HDC3300	MOA

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

1-17. Optional Fixtures

Name	Sony Part No.	Remarks
EX-738 Board	A-8327-351-A	For extension of plug-in boards
Extension assy, DPR-197	A-8344-327-A	For extension of DPR-275 and SDI-91 boards.
Alignment sleeve remover HC-001	J-6480-010-A	For female connector LEMO® DCC.91.312.5LA or equivalent
PLD download fixture	J-7120-140-A	PLD data download cable

1-18. Notes on Repair Parts

1. Safety Related Components Warning

WARNING

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

2. Standardization of Parts

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

Parts list has the present standardized repair parts.

3. Stock of Parts

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

4. Harness

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

1-19. Unleaded Solder

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



: LEAD FREE MARK

Notes

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

Section 2

Replacement of Main Parts

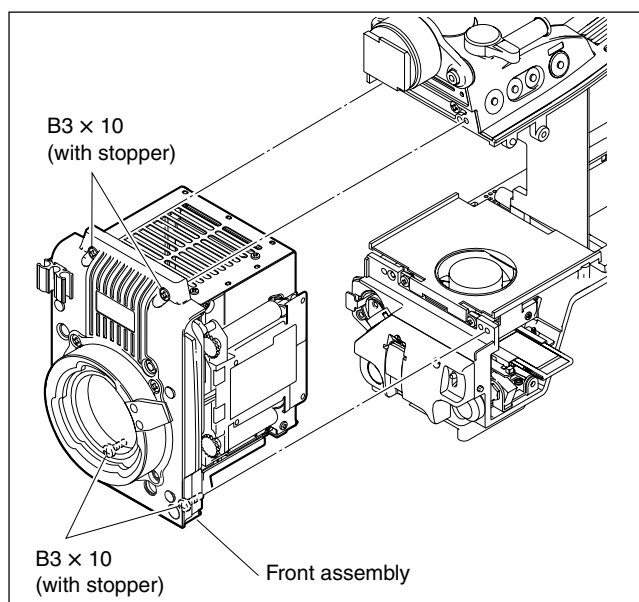
2-1. Replacing the CCD Unit

Note

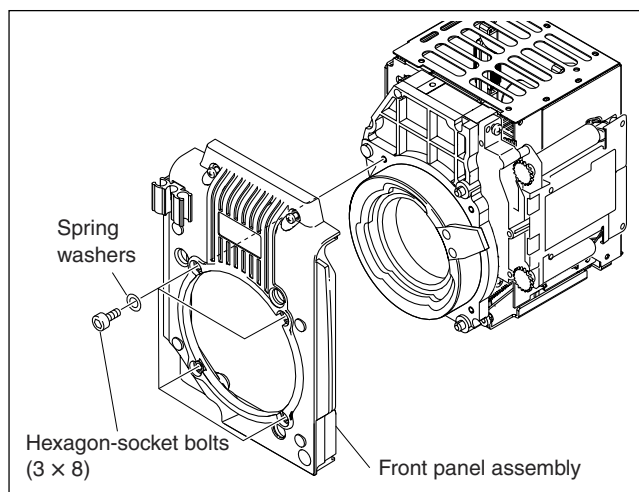
Never remove or install the CCD unit with the power turned on. Because touching internal harness to the cabinet or other printed circuit boards during replacement causes short circuits or electric hazards.

Prior to replacement, be sure to disconnect the optical/electrical cable or the cable connected to the DC IN connector in addition to turning off power switch.

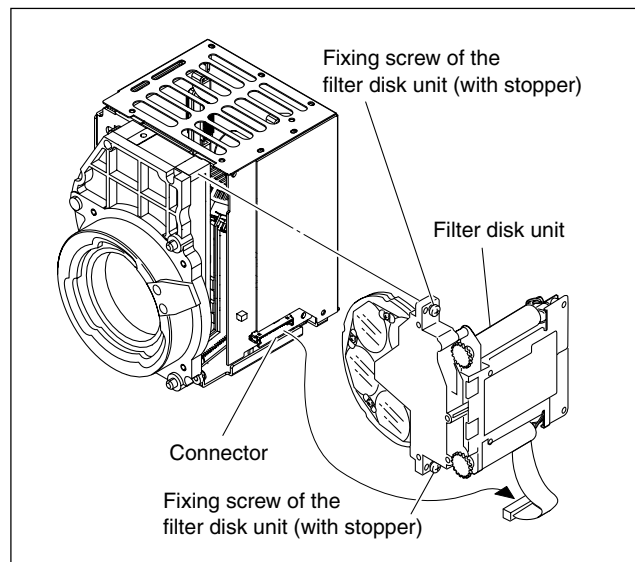
1. Loosen the four screws, and remove the front assembly.



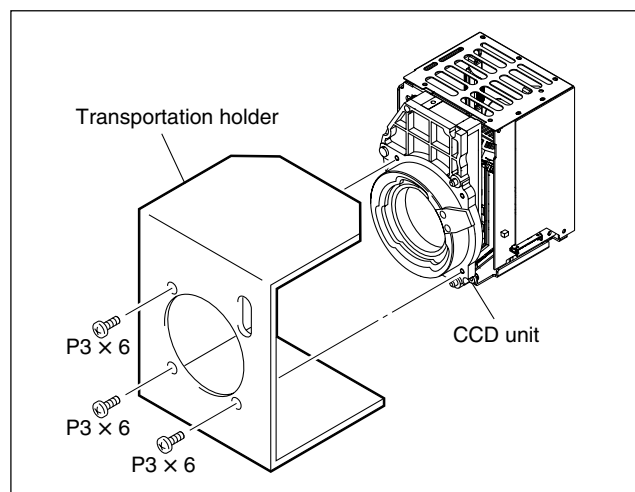
2. Remove the four hexagon-socket bolts and four spring washers, and remove the front panel assembly.



3. Disconnect the harness from the connector of CCD unit, loosen the two fixing screws of the filter disk unit, and remove the filter disk unit.



4. Remove the three screws, and remove the transportation holder from the CCD unit for repair (option).



5. Install the CCD by reversing the steps above.

2-2. Replacement of CCD Unit Boards

When replacing the boards in the CCD unit, remove the CCD unit from the main unit in advance.

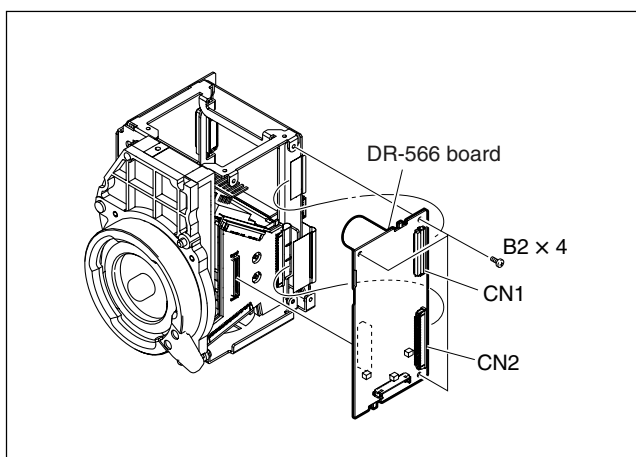
For removing the CCD unit, refer to Section 2-1.

Note

Be careful not to bend the flexible card wire. This shortens the wire life. (Refer to Section 1-9.)

2-2-1. DR-566 Board

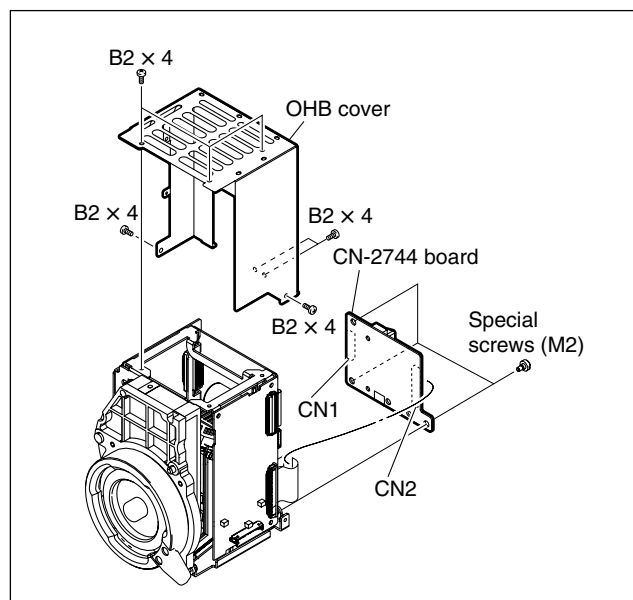
1. Remove the five screws to detach the OHB cover.
(Refer to Section 2-2-2.)
2. Disconnect the flexible card wires from the connectors (CN1, CN2) on the DR-566 board.
3. Remove the three screws to remove the DR-566 board.
Install the board by reversing the steps above.



2-2-2. CN-2744 Board

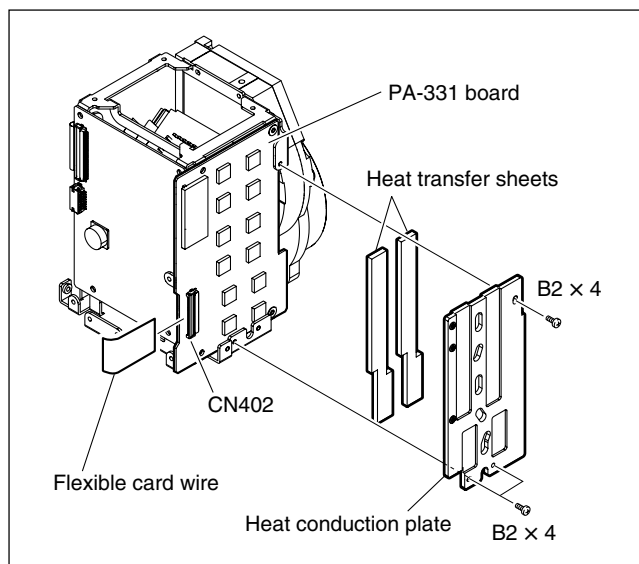
1. Remove the five screws to detach the OHB cover.
2. Disconnect the flexible card wires from the connectors (CN1, CN2) on the CN-2744 board.
3. Remove the three special screws to remove the CN-2744 board.

Install the board by reversing the steps above.

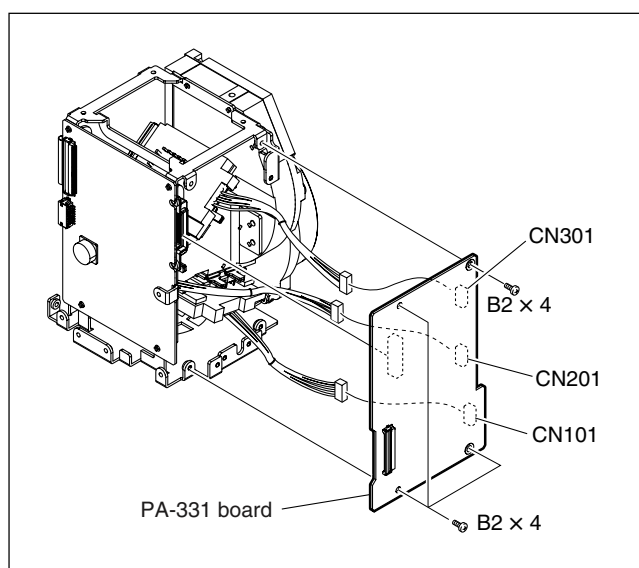


2-2-3. PA-331 Board

1. Remove the five screws to detach the OHB cover.
(Refer to Section 2-2-2.)
2. Disconnect the flexible card wire from the connector (CN402) on the PA-331 board.
3. Remove the three screws to detach the heat conduction plate.
4. Peel the two heat transfer sheets off the PA-331 board.

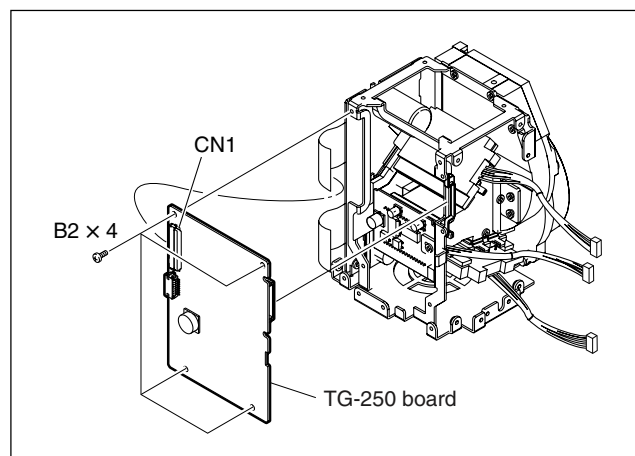


5. Remove the four screws to remove the PA-331 board.
 6. Disconnect the harness from the connectors (CN101, CN201, and CN301) on the PA-331 board.
- Install the board by reversing the steps above.



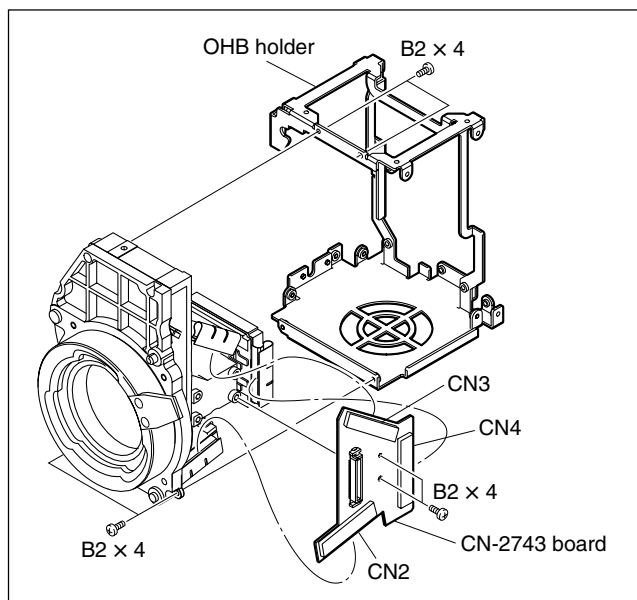
2-2-4. TG-250 Board

1. Remove the CN-2744 board. (Refer to Section 2-2-2.)
 2. Remove the PA-331 board. (Refer to Section 2-2-3.)
 3. Disconnect the flexible card wire from the connector (CN1) on the TG-250 board.
 4. Remove the four screws to remove the TG-250 board.
- Install the board by reversing the steps above.



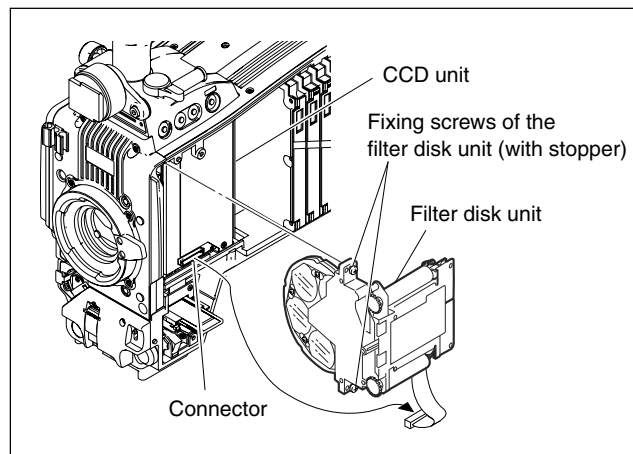
2-2-5. CN-2743 Board

1. Remove the CN-2744 board. (Refer to Section 2-2-2.)
2. Remove the DR-566 board. (Refer to Section 2-2-1.)
3. Remove the PA-331 board. (Refer to Section 2-2-3.)
4. Remove the TG-250 board. (Refer to Section 2-2-4.)
5. Remove the four screws to detach the OHB holder.
6. Disconnect the flexible card boards from the connectors (CN2, CN3, and CN4) on the CN-2743 board.
7. Remove the two screws to remove the CN-2743 board. Install the board by reversing the steps above.



2-3. Replacing the Filter Disk Unit

1. Remove the inside panel. (Refer to Section 1-4.)
2. Disconnect the harness of the filter disk unit from the connector of the CCD unit.
3. Loosen the two fixing screws of the filter disk unit, and remove the filter disk unit.



4. Install the filter disk unit by reversing the steps above.

Note

In installation, do not touch the surface of filters.

2-4. Replacing the Fan

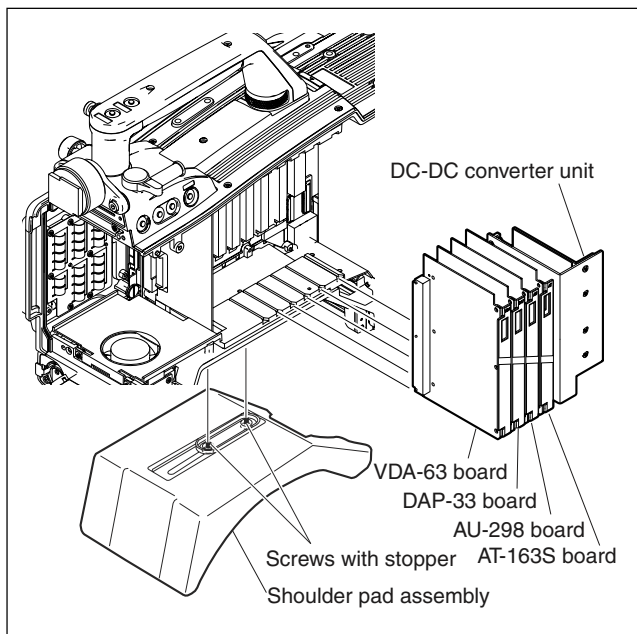
Note

If any fan fails, the inside temperature of the unit will rise. Touching the inside in this state may cause a burn. Power off the unit and leave the unit until the inside cools down before replacing the fan.

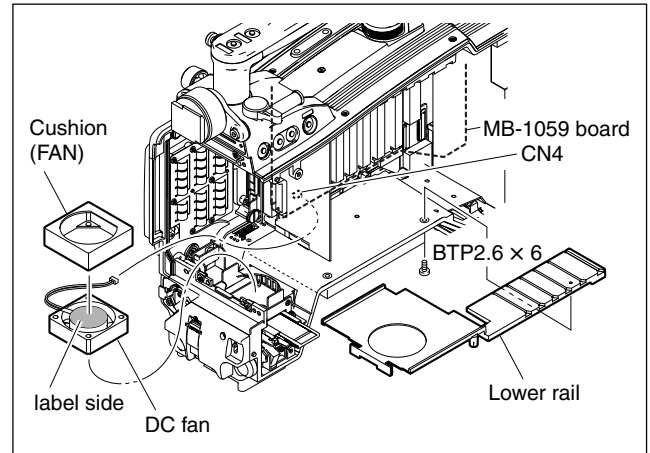
2-4-1. DC Fan (Front)

When replacing, be sure to use the specified part.
DC Fan (41 square) : Δ 1-787-070-11

1. Remove the inside panel. (Refer to Section 1-4.)
2. Remove the front assembly. (Refer to Section 2-1.)
3. Loosen the two screws with stopper, and remove the shoulder pad assembly.
4. Draw all the plug-in boards and the DC/DC converter unit along the board rail grooves and remove them.



5. Remove the three screws to detach the lower rail.
6. Disconnect the fan harness from the connector (CN4) on the MB-1059 board.
7. Remove the cushion (FAN) from the DC fan.



8. Install the front DC fan by reversing the steps above.

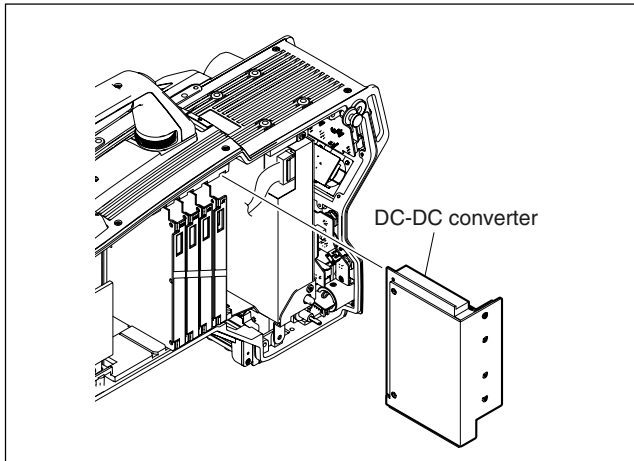
Note

Be careful of the orientation of the label side and the harness when installing the DC fan.

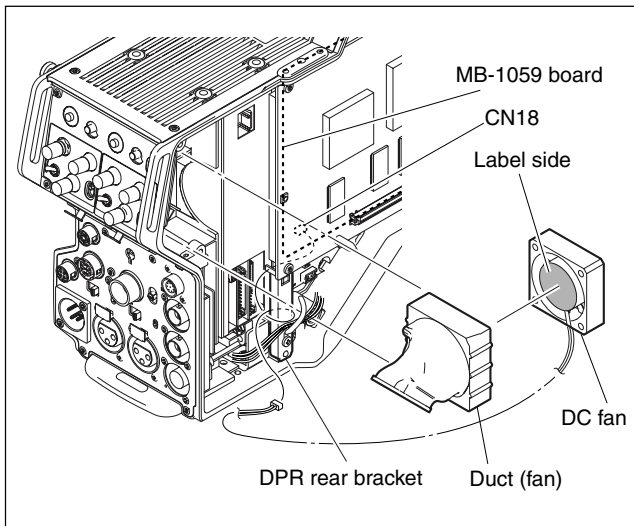
2-4-2. DC Fan (Rear)

When replacing, be sure to use the specified part.
DC Fan (41 square) : Δ 1-787-070-11

1. Remove the inside panel and outside panel.
(Refer to Section 1-4.)
2. Draw the DC/DC converter unit along the board rail grooves and remove it.



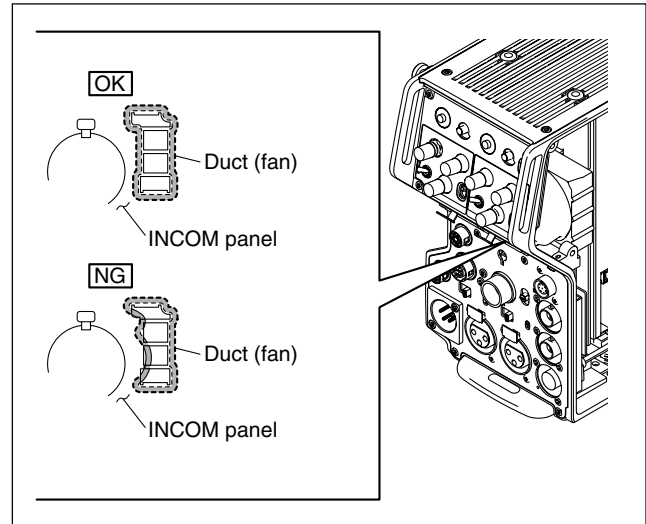
3. Disconnect the fan harness from the connector (CN18) on the MB-1059 board.
4. Remove the fan harness from the DPR rear bracket, and remove the duct (fan).
5. Detach the DC fan from the duct (fan).



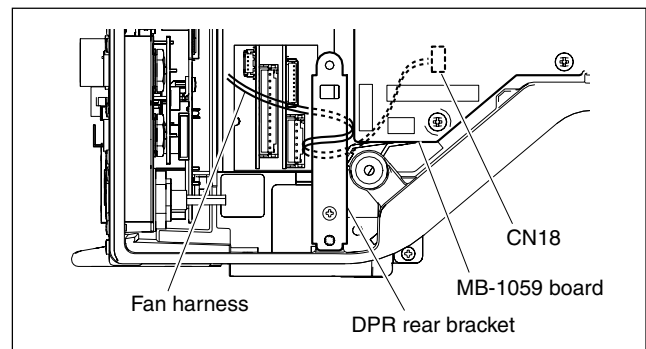
6. Install the rear DC fan by reversing the steps above.

Notes

- Be careful of the orientation of the label side and the harness when installing the DC fan.
- Attach the duct (fan) to the INCOM panel correctly so as to not block the ventilative hole.



- Arrange the fan harness around the DPR rear bracket as shown below, and then connect it to the connector (CN18) on the MB-1059 board.

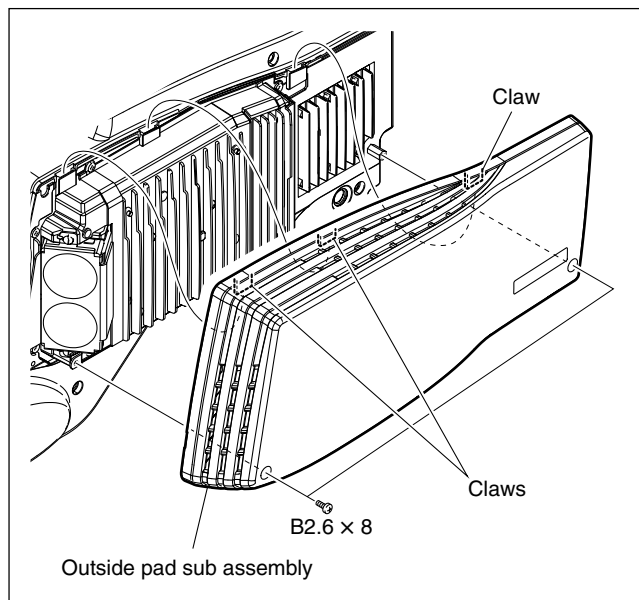


2-4-3. Side Panel Fan (Outside)

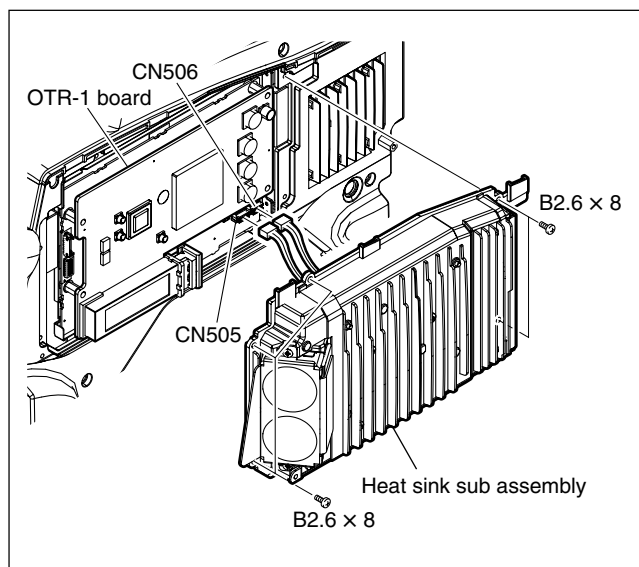
When replacing, be sure to use the specified part.

Side Panel Fan (DC Fan : 30 square) : Δ 1-787-554-11

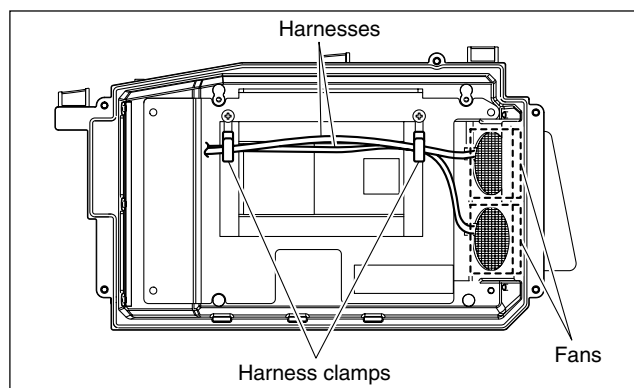
1. Remove the two screws.
2. Remove the outside pad sub assembly while releasing the three claws upward.



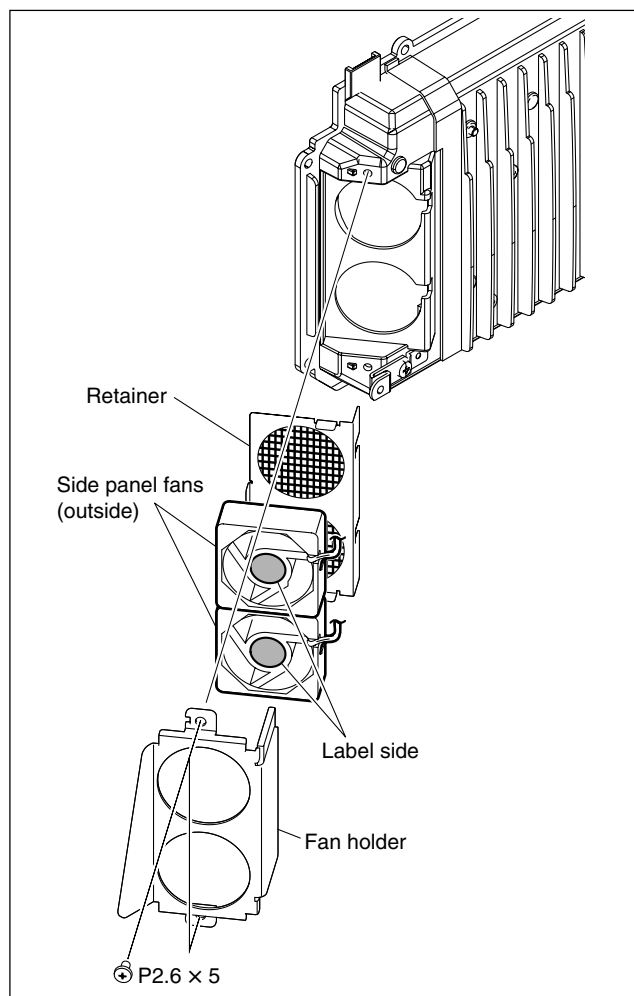
3. Remove the five screws.
4. Disconnect the harness from the connectors (CN505 and CN506) on the OTR-1 board, and remove the heat sink sub assembly.



5. Release the harness from the two harness clamps.



6. Remove the two screws, and remove the side panel fan (outside), fan holder and retainer.



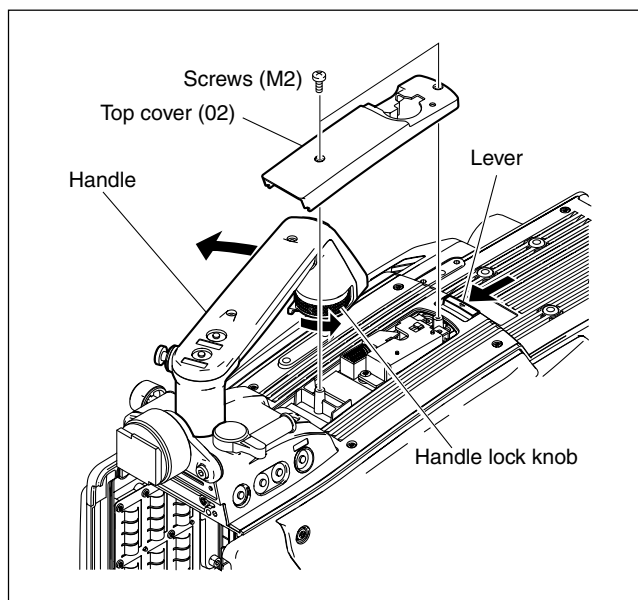
7. Install the side panel fan (outside) by reversing the steps above.

Notes

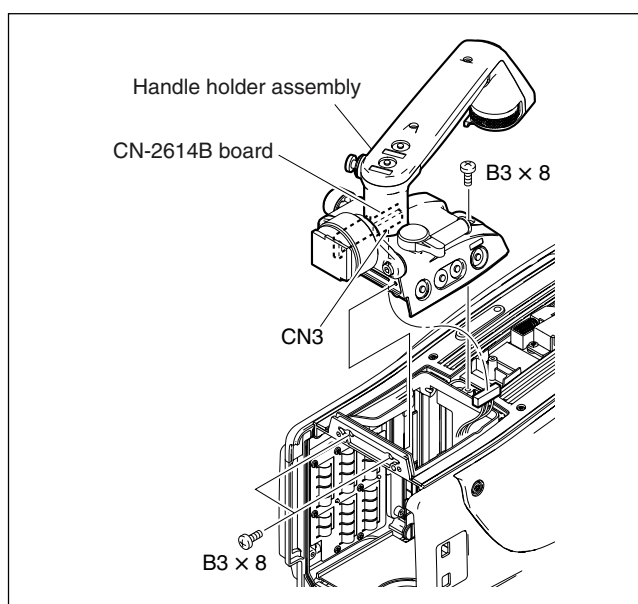
Be careful of the orientation of the label side and the harness when installing the side panel fan (outside).

2-5. Replacing the VF DISP Switches (SW-1237 Board)

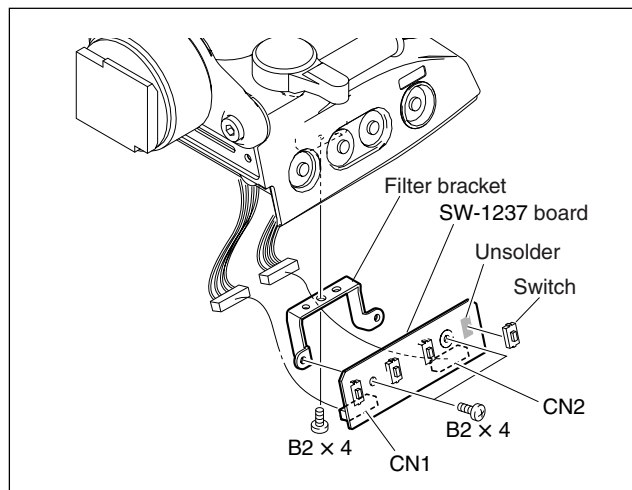
1. Remove the front assembly. (Refer to Section 2-1.)
2. Loosen the handle lock knob, and turn the handle while pressing the lever.
3. Remove the two screws, and remove the top cover (02) while pressing the lever.



4. Remove the three screws and pull out the handle holder assembly.
5. Disconnect the harness from the connector (CN3) on the CN-2614B board.



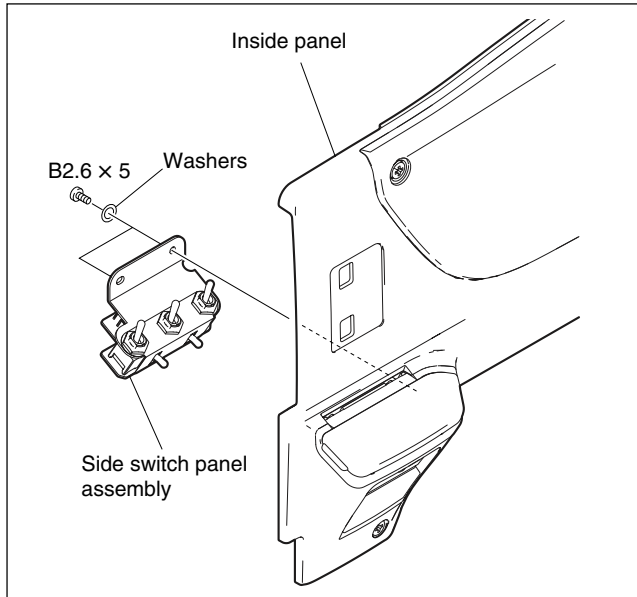
6. Disconnect the harnesses from the connectors (CN1, CN2) on the SW-1237 board.
7. Remove the screw, and remove the SW-1237 board.
8. Remove the two screws to detach the filter bracket from the SW-1237 board.
9. Unsolder the switch to be replaced from the SW-1237 board.



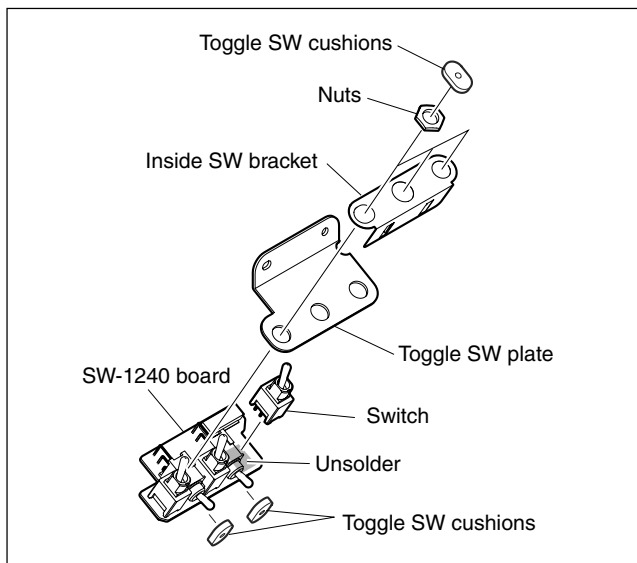
10. Install a new switch by reversing the steps above.

2-6. Replacing the Side Switch Panel Assembly (SW-1240 Board)

1. Remove the inside panel. (Refer to Section 1-4.)
2. Remove the two screws, and remove the side switch panel assembly.



3. Remove the five toggle switch cushions from the side switch panel assembly.
4. Remove the three nuts to detach the inside switch bracket and the toggle switch plate from the SW-1240 board.
5. Unsolder the switch to be replaced from the SW-1240 board.



6. Install a new switch by reversing the steps above.

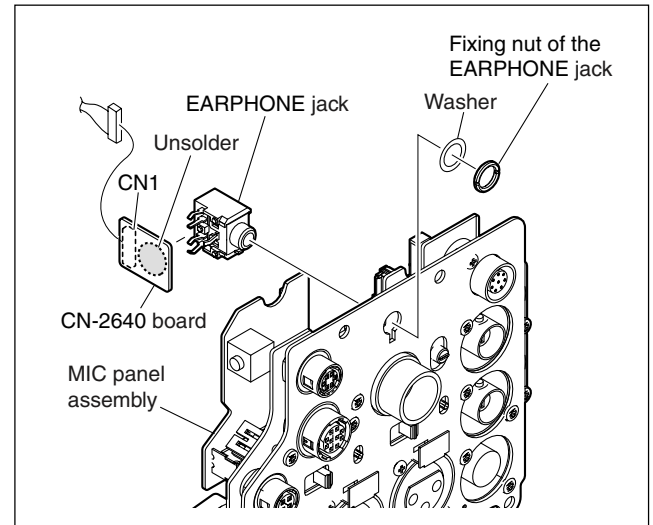
2-7. Replacing the Connectors

Note

Be careful not to bend the flexible card wire. This shortens the wire life. (Refer to Section 1-9.)

2-7-1. EARPHONE Jack (CN-2640 Board)

1. Remove the MIC panel assembly. (Refer to Section 2-7-2.)
2. Disconnect the harness from the connector (CN1) on the CN-2640 board.
3. Remove the fixing nut of the EARPHONE jack to detach the washer and the CN-2640 board.
4. Unsolder the EARPHONE jack from the CN-2640 board.



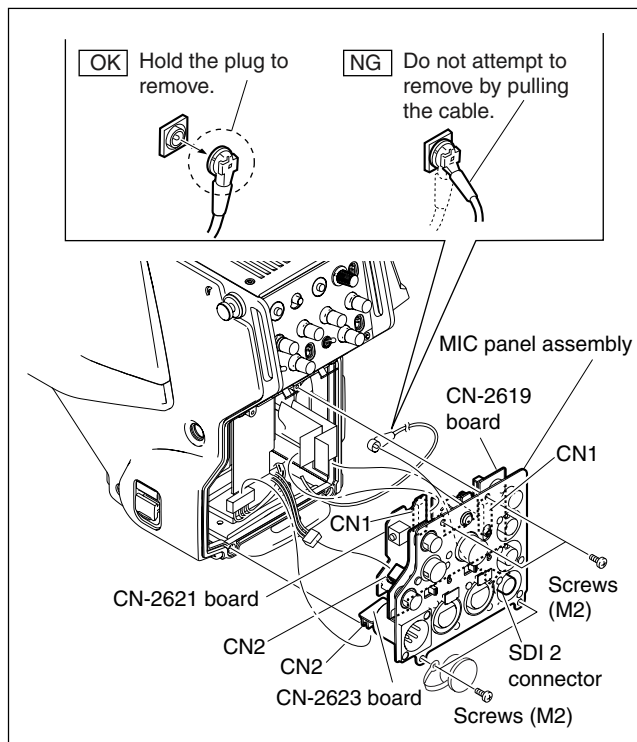
5. Install a new EARPHONE jack by reversing the steps above.

2-7-2. DC IN Connector (CN-2623 Board)

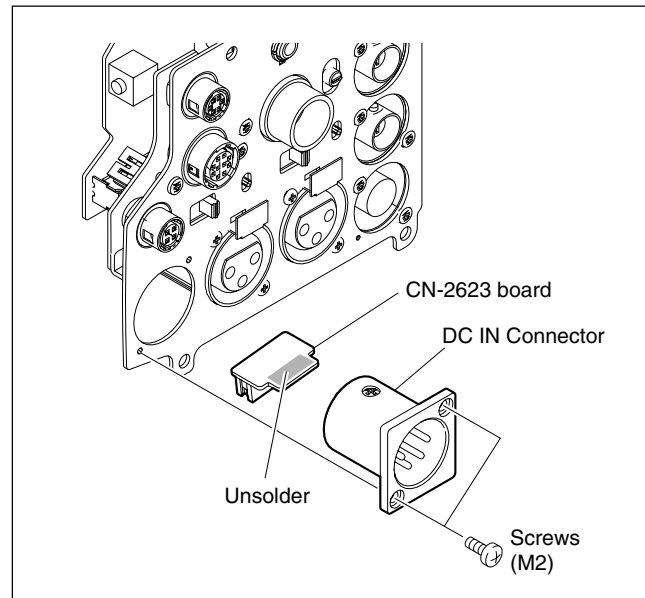
1. Remove the four screws, and pull out the MIC panel assembly.
2. Disconnect the flexible card wires from the connector (CN1) on the CN-2619 board and from the connector (CN1) on the CN-2621 board.
3. Disconnect the harnesses from the connector (CN2) on the CN-2619 board and from the connector (CN2) on the CN-2623 board.
4. Disconnect the coaxial cable from the SDI 2 connector, and remove the MIC panel assembly.

Note

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



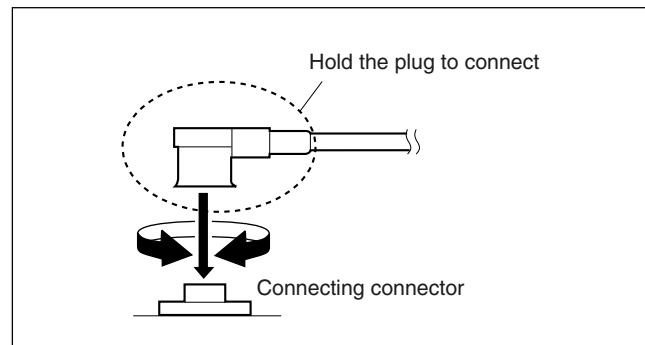
5. Remove the two screws, and remove the CN-2623 board.
6. Unsolder the DC IN connector from the CN-2623 board.



7. Install a new DC IN connector by reversing the steps above.

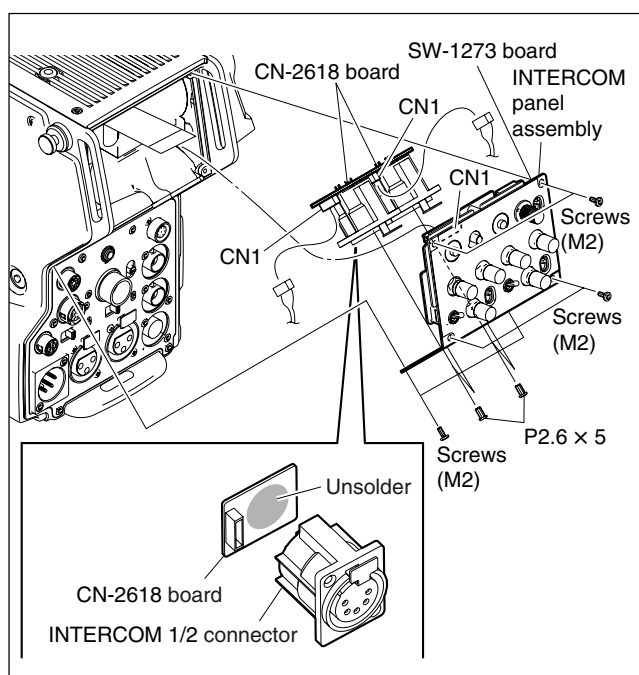
Note

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.



2-7-3. INTERCOM 1/2 Connector (CN-2618 Board)

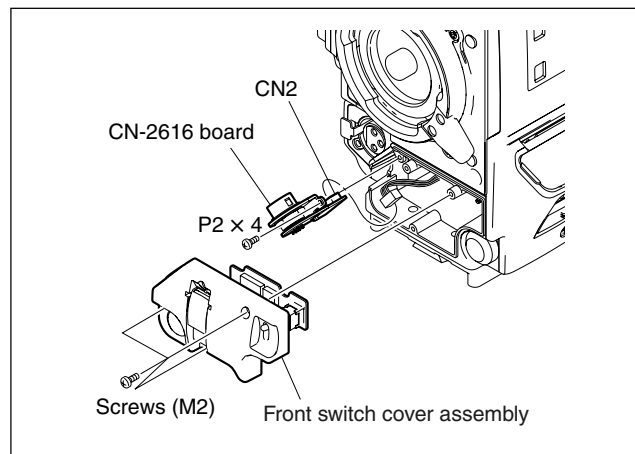
1. Remove the six screws and pull out the INTERCOM panel assembly.
2. Disconnect the flexible card wire from the connector (CN1) on the SW-1273 board.
3. Remove the two screws, and remove the CN-2618 board.
4. Disconnect the harness from the connector (CN1) on the CN-2618 board.
5. Unsolder the INTERCOM 1 or INTERCOM 2 connector from the CN-2618 board.



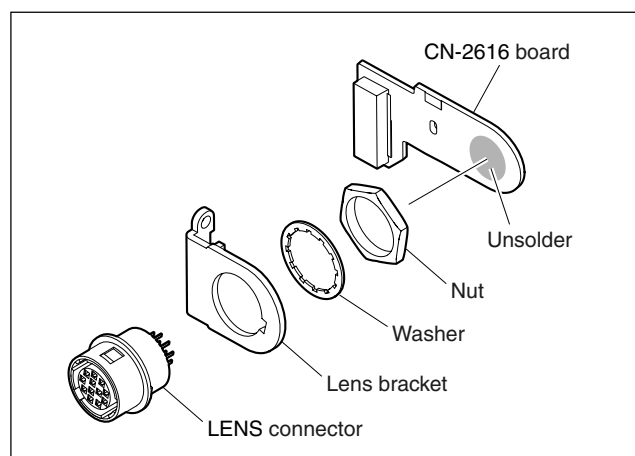
6. Install a new INTERCOM 1 or INTERCOM 2 connector by reversing the steps above.

2-7-4. LENS Connector (CN-2616 Board)

1. Remove the three screws, and pull out the front switch cover assembly.
2. Remove the screw, and pull out the CN-2616 board.
3. Disconnect the harness from the connector (CN2) on the CN-2616 board.



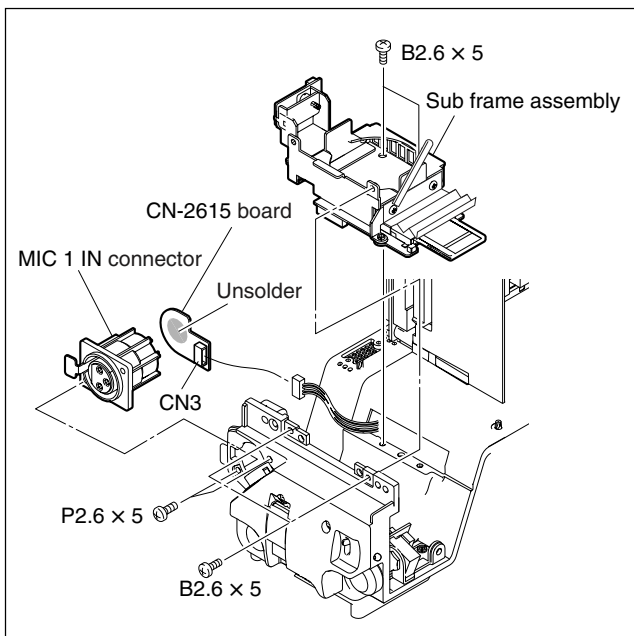
4. Unsolder the LENS connector from the CN-2616 board.
5. Remove the nut to detach the washer and lens bracket from the LENS connector.



6. Install a new LENS connector by reversing the steps above.

2-7-5. MIC 1 IN Connector (CN-2615 Board)

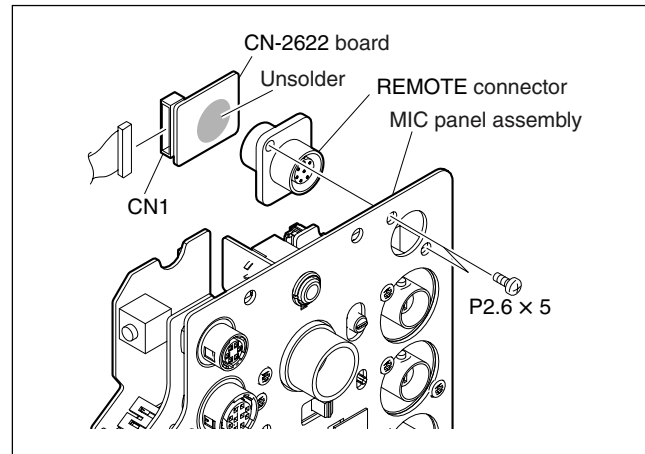
1. Remove the inside panel and outside panel.
(Refer to Section 1-4.)
2. Remove the DC fan (front). (Refer to Section 2-4-1.)
3. Remove the four screws, and lift the sub frame assembly.
4. Remove the two screws, and remove the CN-2615 board.
5. Disconnect the harness from the connector (CN3) on the CN-2615 board.
6. Unsolder the MIC 1 IN connector from the CN-2615 board.



7. Install a new MIC 1 IN connector by reversing the steps above.

2-7-6. REMOTE Connector (CN-2622 Board)

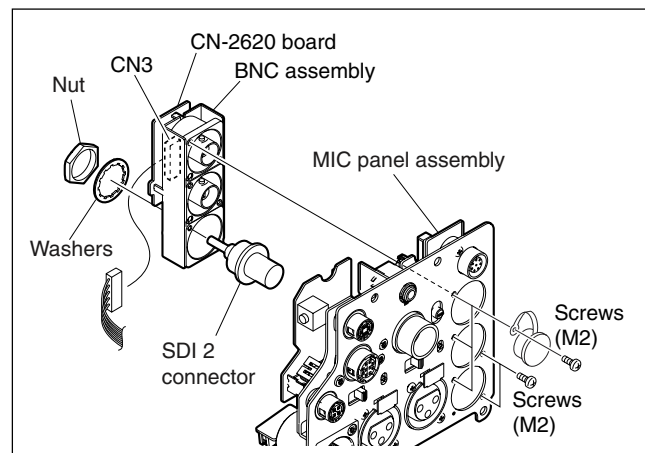
1. Remove the MIC panel assembly.
(Refer to Section 2-7-2.)
2. Remove the two screws, and remove the CN-2622 board.
3. Disconnect the harness from the connector (CN1) on the CN-2622 board.
4. Unsolder the REMOTE connector from the CN-2622 board.



5. Install a new REMOTE connector by reversing the steps above.

2-7-7. SDI 2 Connector

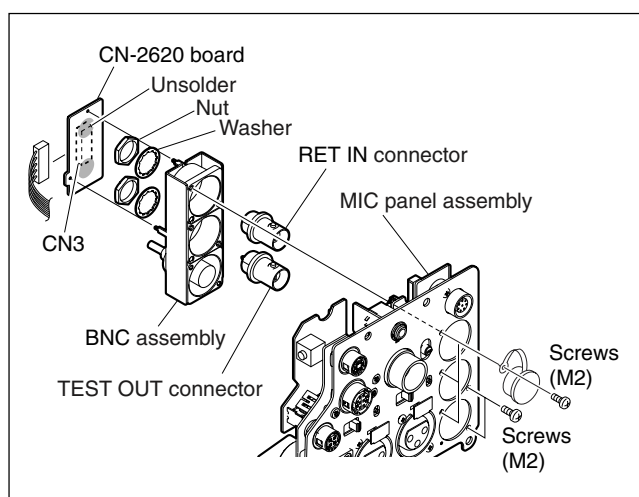
1. Remove the MIC panel assembly.
(Refer to Section 2-7-2.)
2. Remove the five screws, and remove the BNC assembly.
3. Disconnect the harness from the connector (CN3) on the CN-2620 board.
4. Remove the nut to detach the SDI 2 connector.



5. Install a new SDI 2 connector by reversing the steps above.

2-7-8. RET IN, TEST OUT Connector (CN-2620 Board)

1. Remove the MIC panel assembly.
(Refer to Section 2-7-2.)
2. Remove the five screws, and remove the BNC assembly.
3. Disconnect the harness from the connector (CN3) on the CN-2620 board.
4. Unsolder the RET IN, TEST OUT connector from the CN-2620 board.
5. Remove the nut to detach the RET IN, TEST OUT connector.



6. Install a new RET IN, TEST OUT connector by reversing the steps above.

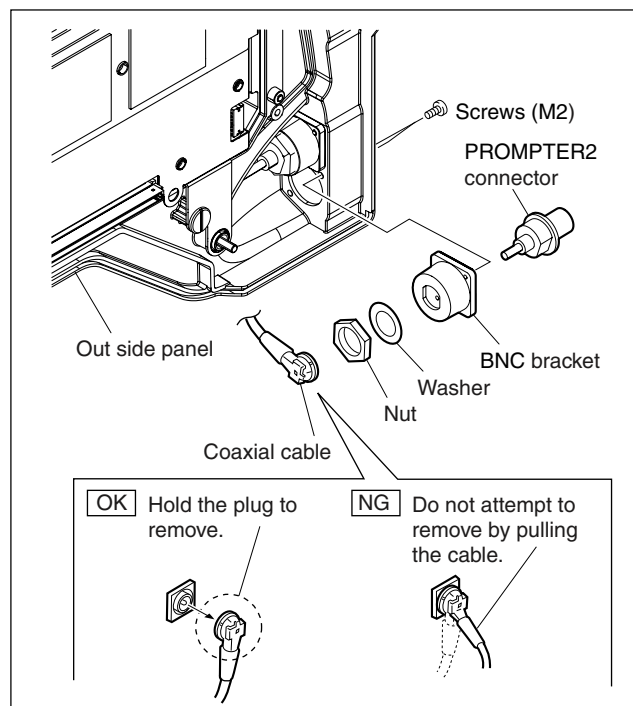
2-7-9. PROMPTER2 Connector

1. Remove the outside panel. (Refer to Section 1-4.)
2. Remove the two screws to detach the BNC bracket.
3. Disconnect the coaxial cable from the PROMPTER2 connector.

Note

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

4. Remove the nut to detach the PROMPTER2 connector.

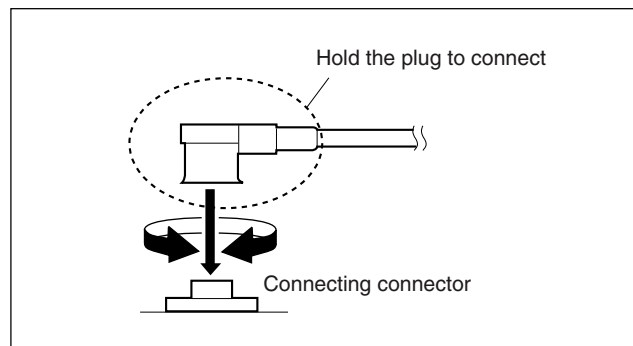


5. Install a new PROMPTER2 connector by reversing the steps above.

Note

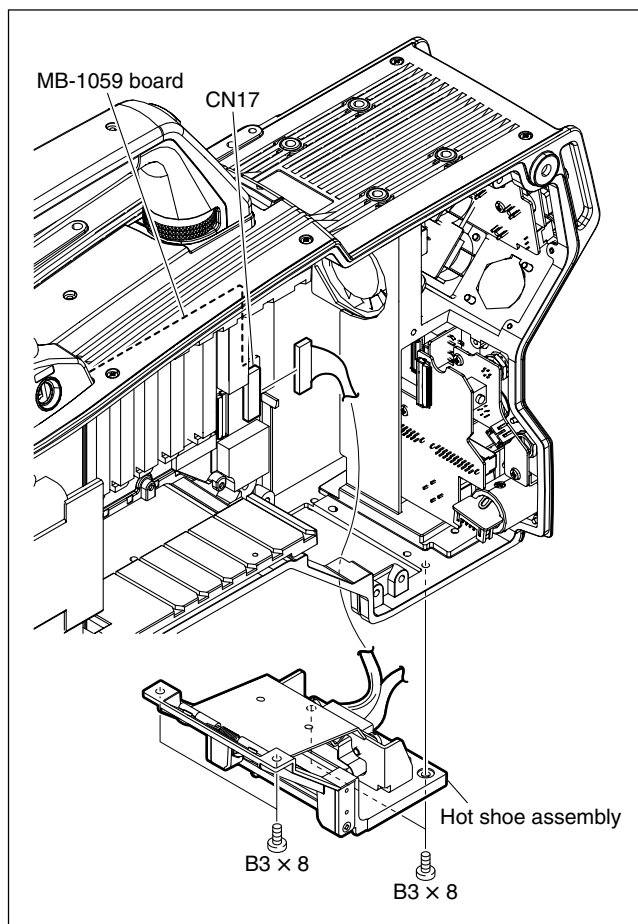
Hold the plug of the coaxial cable, and connect it perpendicularly to the connector.

Push the plug into the connector while turning it clockwise and counterclockwise several times.

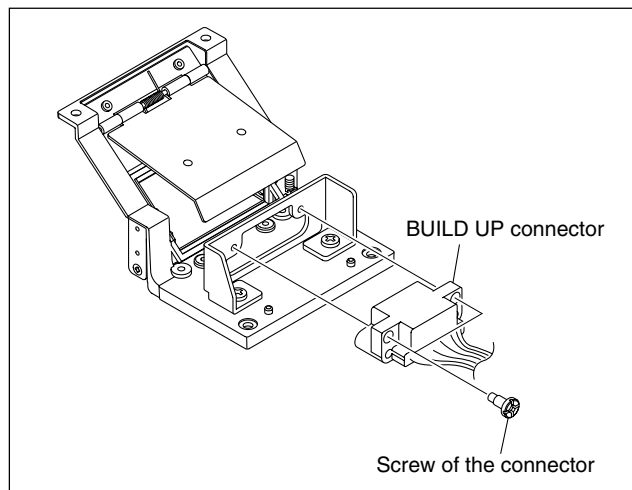


2-7-10. BUILD UP Connector (Hot Shoe Assembly)

1. Remove the inside panel and outside panel.
(Refer to Section 1-4.)
2. Remove the switching regulator.
(Refer to Section 2-11.)
3. Disconnect the harness from the connector (CN17) on the MB-1059 board.
4. Remove the four screws, and remove the hot shoe assembly.



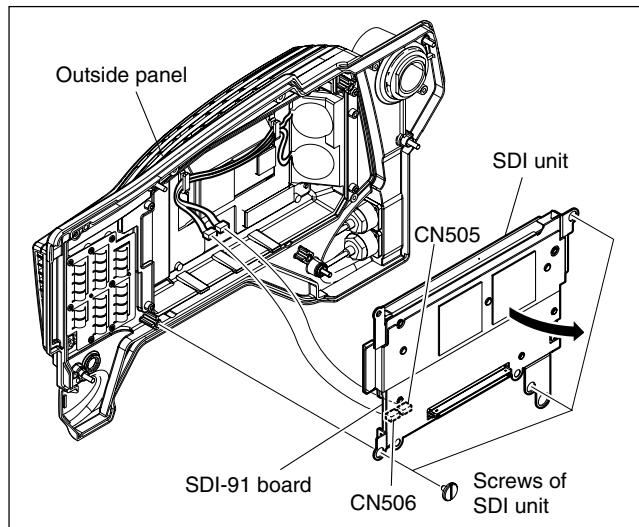
5. Remove the two fixing screws of the connector and remove the BUILD UP connector.



6. Install a new BUILD UP connector by reversing the steps above.

2-8. Replacing the Encapsulated Cable Assembly

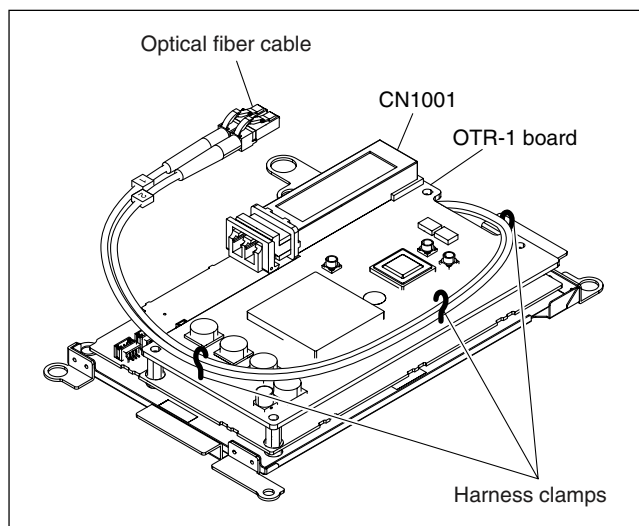
1. Remove the outside panel. (Refer to Section 1-4.)
2. Remove the three screws of the SDI unit, and open it in the arrow direction.
3. Disconnect the two harnesses from the connectors (CN505 and CN506) on the SDI-91 board.



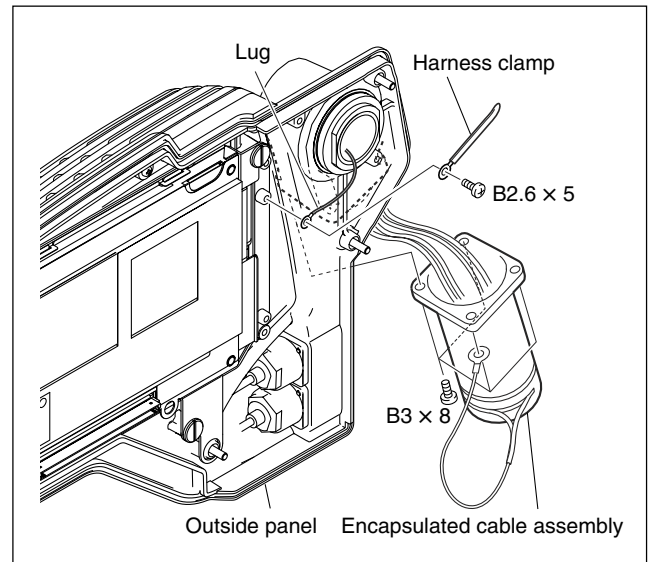
4. Release the cables from the three harness clamps.
5. Disconnect the optical fiber cables from the optical converter module CN1001 on the OTR-1 board.

Notes

- If optical fiber cable is bent or pulled strongly, it may be disconnected. Handle optical fiber cables carefully.
- Do not touch the tip of optical fiber cable connector. This may result in deterioration of signals.



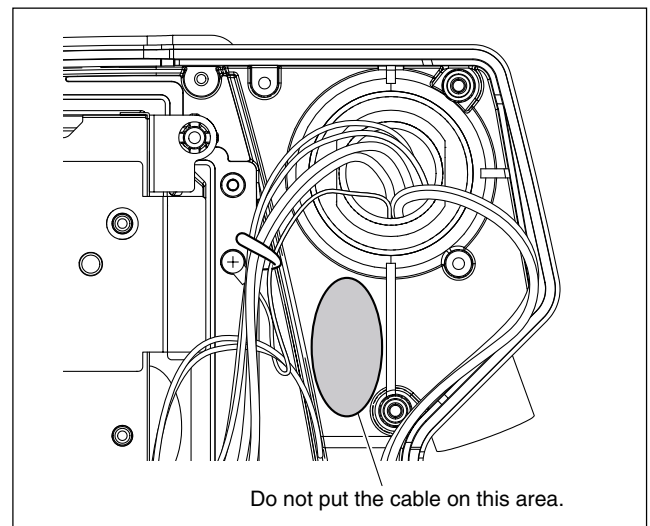
7. Remove the screw to detach the harness clamp and the lug.
8. Remove the four screws, and pull out the encapsulated cable assembly.



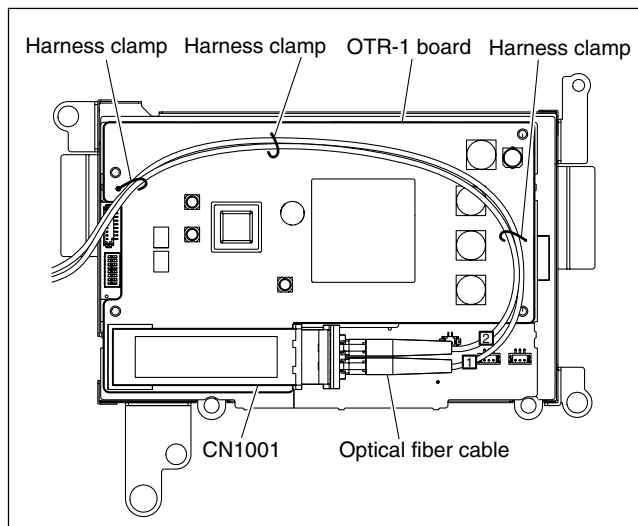
9. Install the encapsulated cable assembly by reversing the steps above.

Notes

- To clamp the optical fiber cable, draw it out of the hole in the outside panel as shown in the figure, and then clamp it with the cable clamp facing up.



- Check cable numbers when connecting optical fiber cables, and insert the cable connector as far as it will go.
- Arrange the harness and cables as shown below, and clamp them with the three harness clamps.



- When connecting the optical fiber cables to the optical converter module CN1001 on the OTR-1 board, clean the connecting connectors. (Refer to Section 1-8.)

2-9. Replacing the DC/DC Converter Unit

WARNING

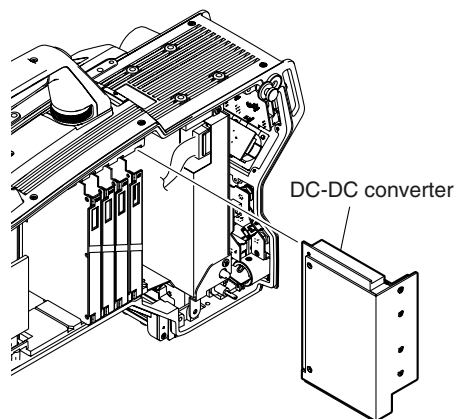
The DC/DC converter unit is a critical part for safety. If it is replaced with an unspecified part, a fire or electric shock may be caused.

There are two kinds of DC/DC converters unit on board this unit. Be sure to use the specified DC/DC converter unit below for replacement.

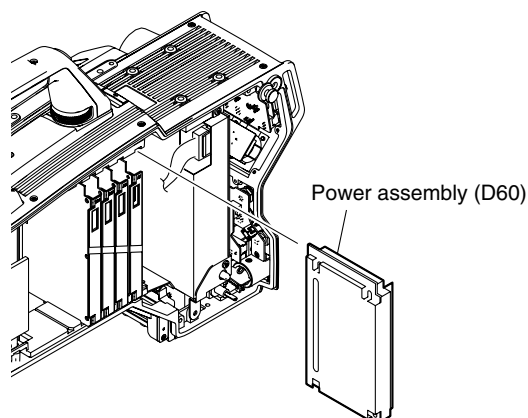
- CONVERTER UNIT, DC-DC: Δ 1-478-790-21
- POWER ASSEMBLY (D60): Δ A-1765-460-A

1. Remove the inside panel. (Refer to Section 1-4.)
2. Draw the DC/DC converter unit along the board rail groove, and remove it.

DC-DC Converter Unit (1-478-790-21)



Power Assembly (D60) (A-1765-460-A)



3. Install the DC/DC converter unit by reversing the steps above.

2-10. Replacing the Heatsink of the DC/DC Converter

When the following switching regulator is used, the heatsink of the DC/DC converter unit (part No.: △ 1-478-790-21) must be replaced.

Part name	Part No.
POWER BLOCK ASSEMBLY (A70)	△ A-1764-935-A

Note

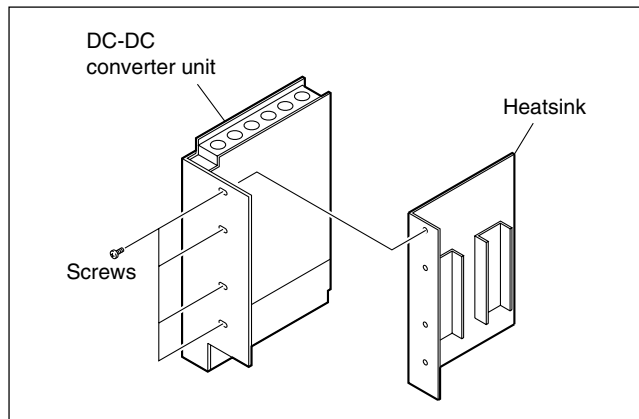
When the power supply assembly (D60) (part No.: △ A-1765-460-A) is used as a DC/DC converter unit, the heatsink need not be replaced.

Necessary part

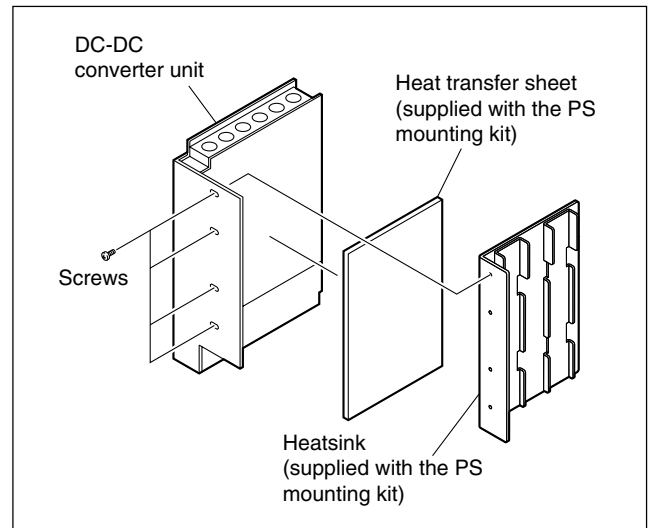
PS mounting kit (part No.: A-1778-956-A)

- Heatsink (supplied with the PS mounting kit)
- Heat transfer sheet (supplied with the PS mounting kit)

1. Remove the DC/DC converter unit.
(Refer to Section 2-9.)
2. Remove the four screws to detach the heatsink.



3. Attach the heat transfer sheet supplied with the PS mounting kit to the DC/DC converter unit.
4. Install the heatsink supplied with the PS mounting kit to the DC/DC converter unit with the four screws removed in step 2.



2-11. Replacing the Switching Regulator

WARNING

The switching regulator is a critical part for safety. If it is replaced with an unspecified part, a fire or electric shock may be caused.

There are two kinds of switching regulator on board this unit. Be sure to use the specified switching regulator for replacement.

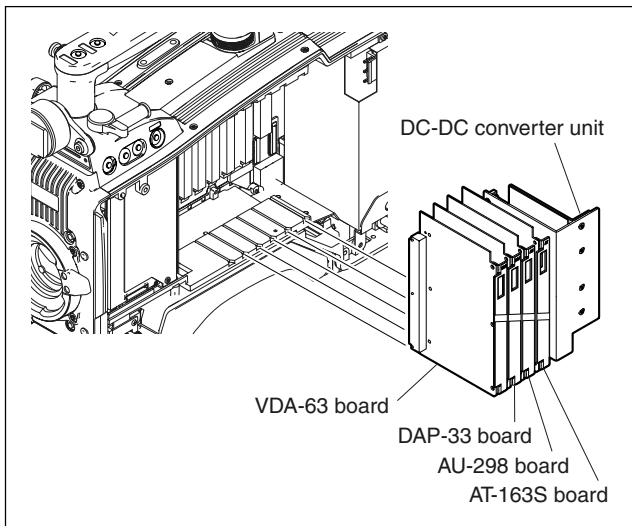
- REGULATOR, SWITCHING: \triangle 1-468-862-11
- POWER ASSEMBLY (A70): \triangle A-1764-935-A

Note

The power supply bracket is not used with the power assembly (A70).

The step 5 is not done in the power assembly (A70).

1. Remove the inside panel and outside panel.
(Refer to Section 1-4.)
2. Draw all the plug-in boards and the DC/DC converter unit along the board rail grooves and remove them.

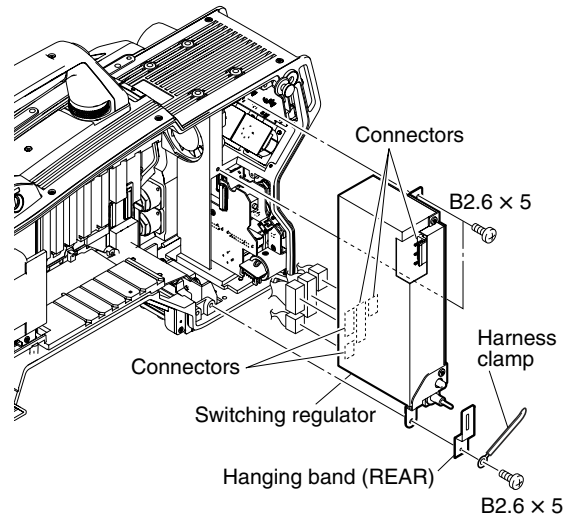


3. Disconnect the harnesses from the five connectors on the switching regulator.
4. Remove the three screws, and remove the switching regulator, hanging band (REAR), and the harness clamp.

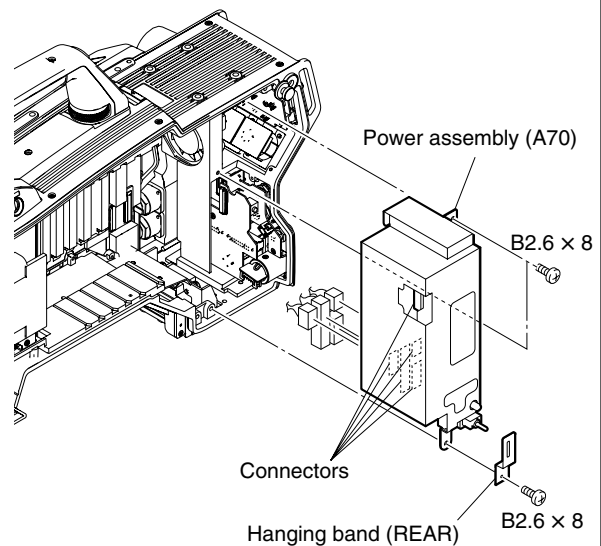
Note

The harness clamp is not used with the power assembly (A70).

Switching Regulator (1-468-862-11)



Power Assembly (A70) (A-1764-935-A)



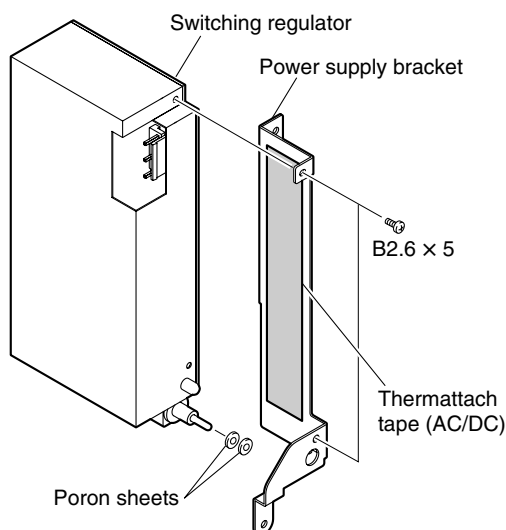
5. Remove the two screws to detach the power supply bracket from the switching regulator.

Notes

- There is the thermattach tape (AC/DC) between the switching regulator and power supply bracket. Detach the power supply bracket slowly and surely.
- Replace the thermattach tape (AC/DC) with new one.

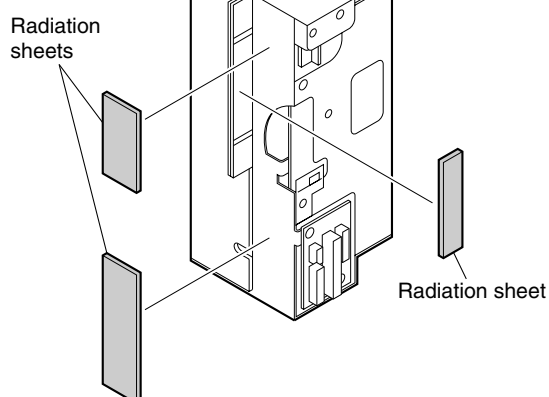
6. Switching regulator (Parts No.: \triangle 1-468-862-11): Remove the two poron sheets from the switching regulator.
Power assembly (A70) (Parts No.: \triangle A-1764-935-A): Remove the three radiator sheets from the power assembly (A70).

Switching Regulator (1-468-862-11)



Power Assembly (A70) (A-1764-935-A)

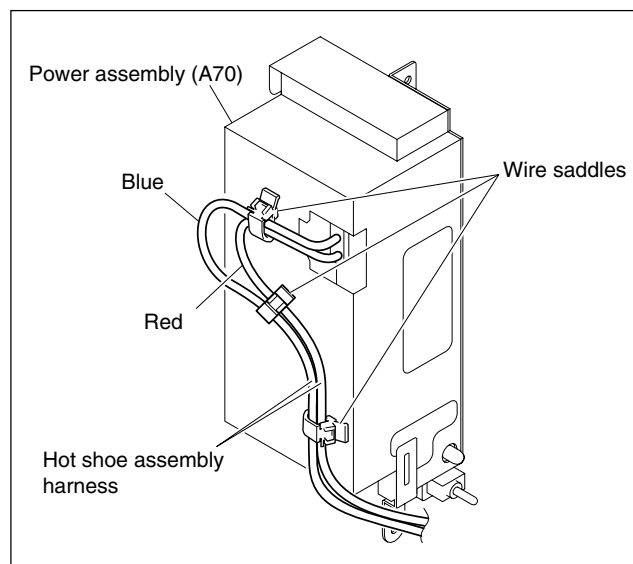
Power assembly (A70)



7. Install the switching regulator by reversing the steps above.

Note

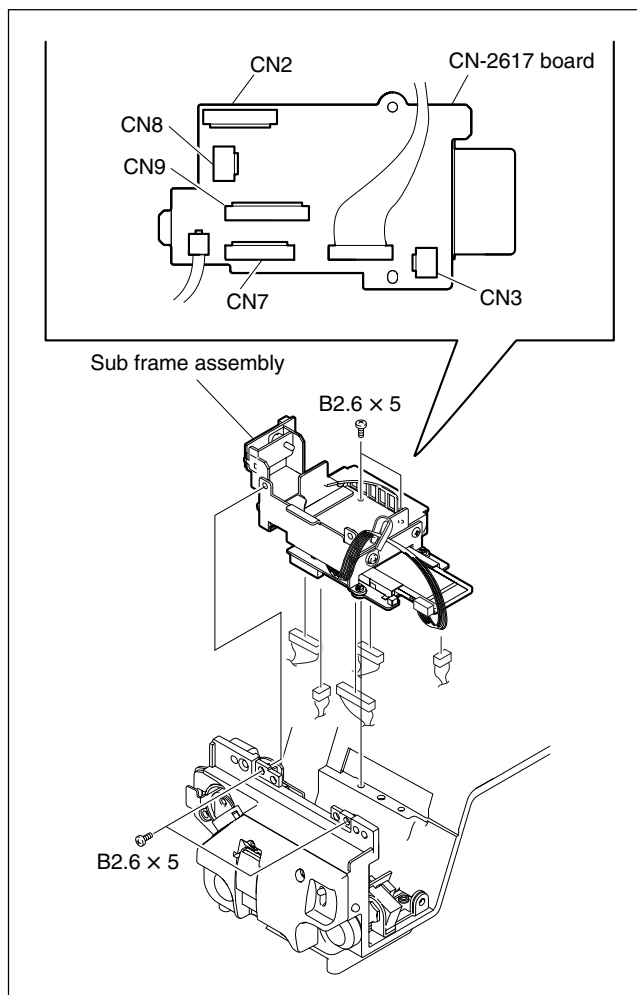
When connecting the hot shoe assembly harness to the power supply assembly (A70), extend the harness (red) and the harness (blue) so that they do not overlap or twist and clamp them with three wire saddles referring to the figure below.



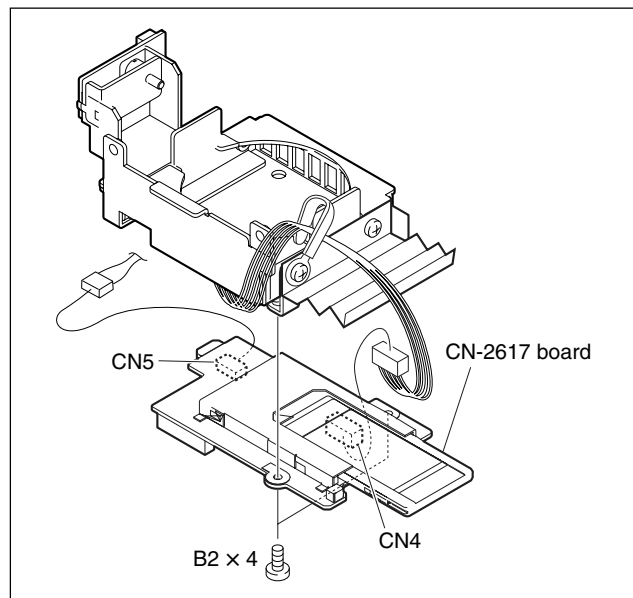
2-12. Replacing the Boards

2-12-1. CN-2617 Board

1. Remove the inside panel and outside panel.
(Refer to Section 1-4.)
2. Remove the DC fan (front). (Refer to Section 2-4-1.)
3. Remove the four screws, and lift the sub frame assembly.
4. Disconnect the harnesses from the connectors (CN2, CN3, CN7, CN8, and CN9) on the CN-2617 board, and remove the sub frame assembly.



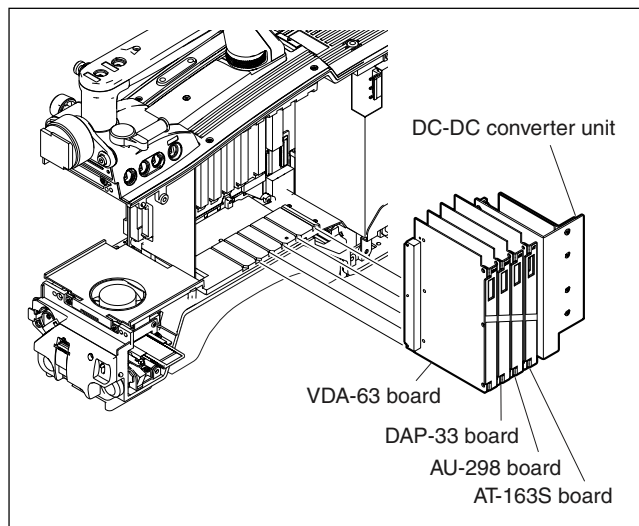
5. Disconnect the harnesses from the connectors (CN4, CN5) on the CN-2617 board.
6. Remove the two screws, and remove the CN-2617 board.



7. Install the CN-2617 board by reversing the steps above.

2-12-2. MB-1059 Board

1. Remove the inside panel and outside panel.
(Refer to Section 1-4.)
2. Remove the front assembly. (Refer to Section 2-1.)
3. Draw all the plug-in boards and the DC/DC converter unit along the board rail grooves and remove them.

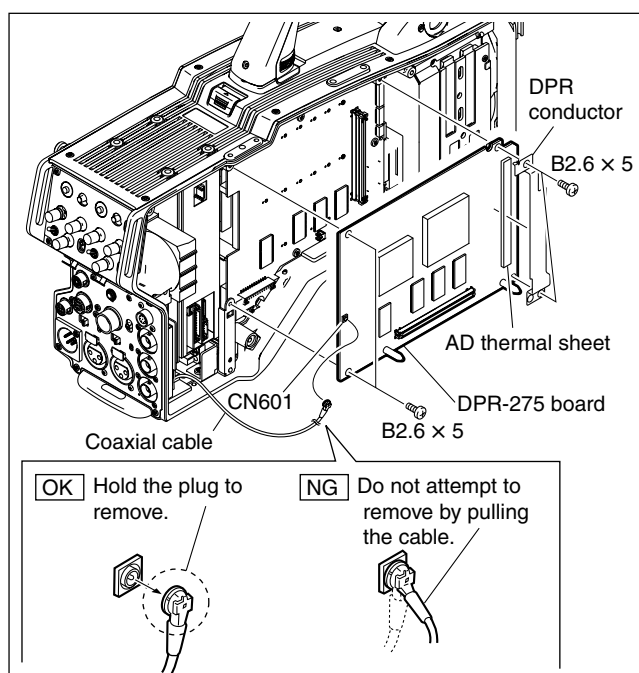


4. Disconnect the coaxial cable from the connector (CN601) on the DPR-275 board.

Note

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

5. Remove the four screws to detach the DPR-275 board.

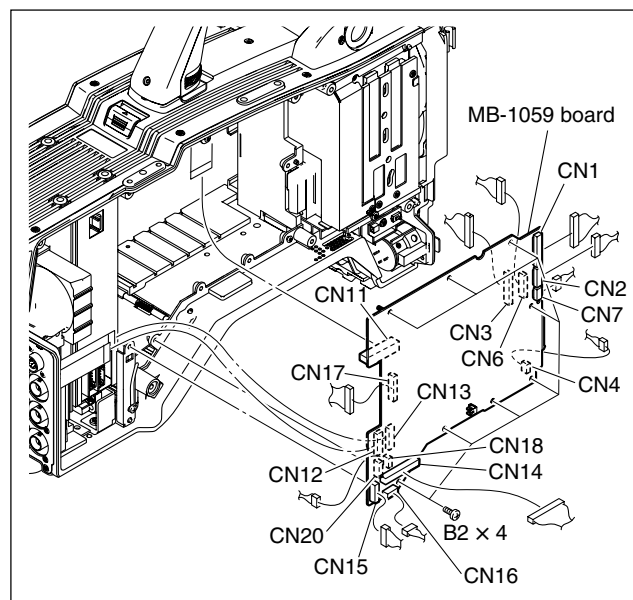


6. Disconnect the harnesses and flexible card wires from all the connectors on the MB-1059 board.

Note

Life of flexible card wire will be significantly shortened if it is folded. Be very careful not to fold the flexible card wires. (Refer to Section 1-9.)

7. Remove the eight screws, and remove the MB-1059 board.

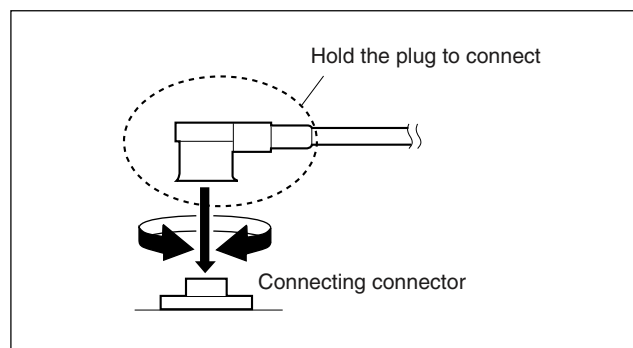


8. Install the MB-1059 board by reversing the steps above.

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.



Section 3

Electrical Alignment

When any board of HDC3300 is repaired or replaced, perform electrical adjustments of this section.

Adjust the unit combining with HDCU3300.

Notes

- Perform video system level adjustment (Section 3-4) according to customer needs.
- One of master setup units MSU-900, etc. is 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

Related Equipment

- HDVS camera system
HDCU3300 (HD Camera Control Unit)
MSU-700A/750/900/950 (Master Setup Unit)
HDVF-20A (HD Electronic Viewfinder)
- Lens
Canon HJ18

Tools

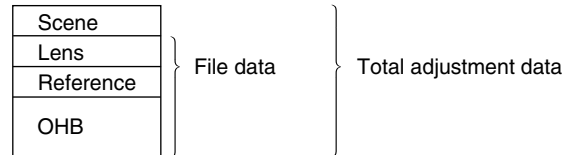
- Pattern box PTB-500
Sony Part No. : J-6029-140-B
- Grayscale chart (16 : 9 transparent type)
Sony Part No. : J-6394-080-A
- Grayscale chart (4 : 3 reflective type)
Commercially available

3-1-2. Precautions on Adjustments

- Turn ON the main power switch (external) before adjusting, and warm up the unit for about 10 minutes.
- All measuring equipment must be calibrated.
- Periodic Maintenance must be conducted for the pattern box.
- “Section 3-1-7. Initial Settings” must be completed.

3-1-3. File Data at Adjustment

The file structure of the adjustment data of HDC3300 is as follows.



- Lens file is 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. Mount the lens actually used during the adjustment.
- The reference file stores the custom paint data adjusted by the video engineer. This file is stored in the camera and memory stick. Therefore, before performing adjustment, store this data in the memory stick first, and reset this data from the memory stick after adjustment.
- OHB file is used for adjustment of the CCD block maintenance. This file is stored in the camera.

3-1-4. Maintaining the Grayscale Chart

For the adjustment, using an 89.9 %-reflective grayscale chart is preferable.

If a reflective chart is not available, use a well-maintained pattern box and a transparent grayscale chart for adjustment.

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.

Recommended chart: Reflective grayscale chart (with a special case)
MURAKAMI COLOR RESEARCH LABORATORY GS-3
or equivalent

Handling precautions

- Do not touch the chart's surface.
- Do not subject the surface to dirt, scratches or prolonged exposure to sunlight.
- Protect the chart from excessive moisture and 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 according to storage conditions of the chart.

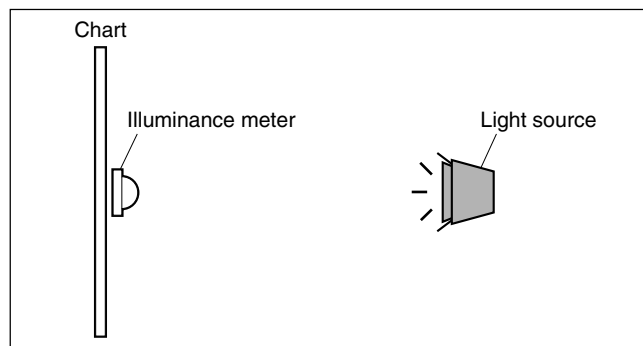
Setting illumination (when the reflective chart is used)

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.



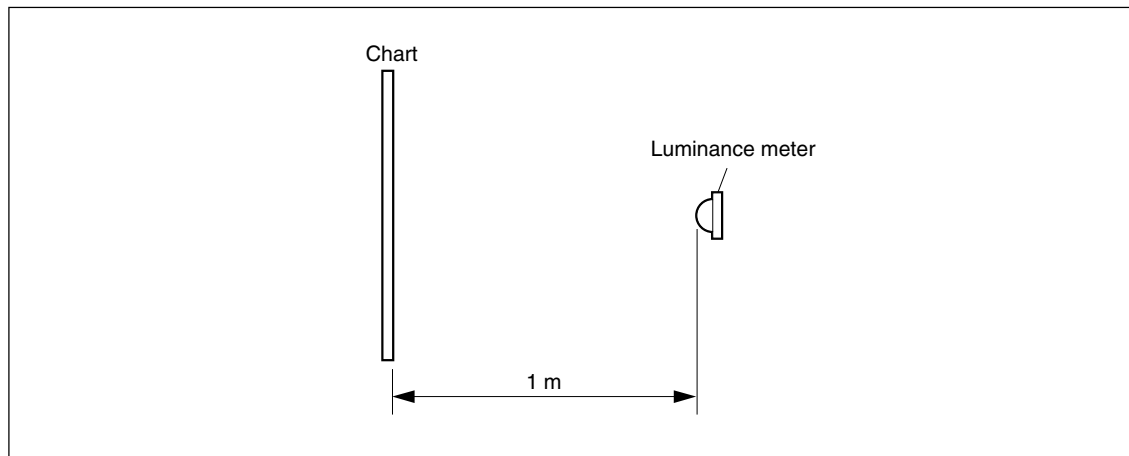
Setting luminous intensity (when the transparent chart is used)

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 $573 \pm 6 \text{ cd/m}^2$.

Note

This corresponds to the luminous intensity on the 89.9 %-reflective chart at 2000 lx.



3-1-5. Description on Setup Menu

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

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

In this section, describes the setup menu operation as follows.

For example:

When AUTO LEVEL in AUTO SETUP page of MAINTENANCE menu is performed:

MENU: MAINTENANCE
PAGE: AUTO SETUP
ITEM: AUTO LEVEL

How to display the SERVICE menu

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

How to change the setting values

To enter or cancel the setting value of items, which can be changed by turning the rotary encoder, proceed as follows.

To enter the setting value:

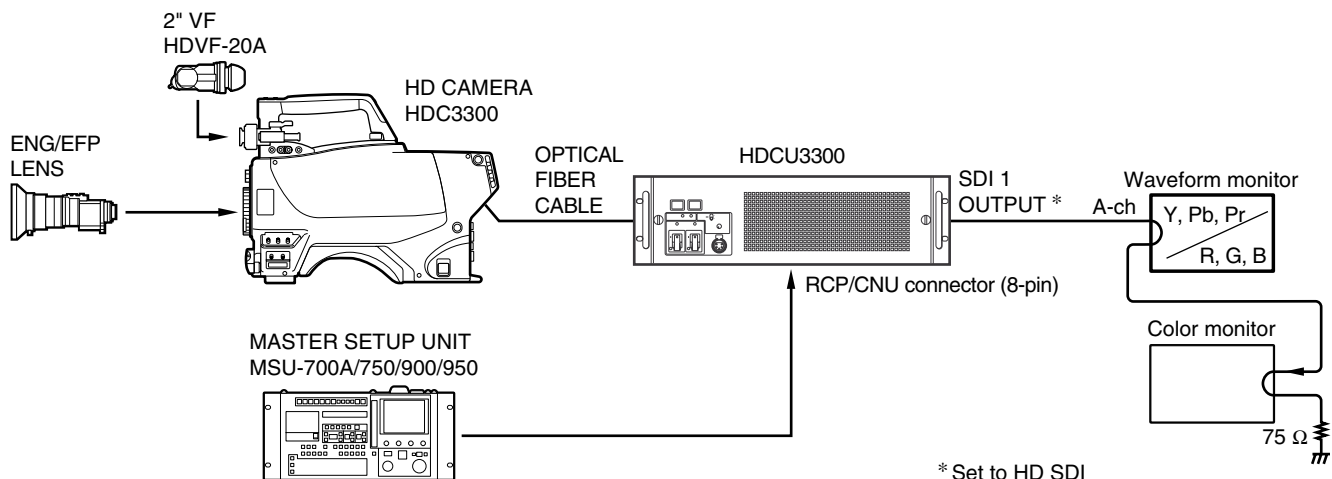
Press the rotary encoder.

To cancel the setting value:

Before pressing the rotary encoder, press the 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



3-1-7. Initial Settings

Note

In this section, describes the adjustment procedures using MSU-900.

MSU control panel

When MSU-700A/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)
 - FILTER(ND) button → 1 (CLEAR)
 - FILTER(CC) button → B (3200K)
 - ECS/SHUTTER ON button → OFF (dark)

When MSU-750/950 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)
 - ND (1/2/3/4/5)* → 1 (CLEAR)
 - CC (A/B/C/D/E)* → B (3200K)
 - ECS/Shutter* → OFF (lit normally)

※: Push the FUNCTION button, then select the function menu display.

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

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

Refer to the following table when using the camera setup menu for electrical adjustments without using MSU-900.
The table shows camera menu items corresponding to adjustment items of MSU-900.

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

Menu item of the MSU-900				Menu item of the camera		
Menu	Secondary menu	Sub menu	Adjusting 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 the MSU-900		Menu item of the 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 the MSU-900			Menu item of the camera		
Menu	Sub menu	Adjusting 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			CRISP
		Level Dep			LVL DEP
	Detail 2	H/V Ratio			H/V 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 the MSU-900		Menu item of the camera		
Menu	Adjusting 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. (Not used)

3-3. Electrical Alignment

3-3-1. Clamp Level Adjustment between Channel A and Channel B

Preparations

- Menu setting

MENU : SERVICE

PAGE : OHB_ADJ1

Adjustment Procedure

1. Adjustment Item:

MENU: SERVICE

PAGE: OHB-ADJ1

ITEM: DC_ADJ_A [R1], [G1], [B1]

DC_ADJ_A [R2], [G2], [B2]

Specification:

Set “DC_ADJ_A [R1], [G1], [B1]” and

“DC_ADJ_A [R2], [G2], [B2]” to 68.

2. Execute file storing for each format.

MENU: SERVICE

PAGE: OHB-ADJ1

ITEM: STORE FILE

3-3-2. 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: OFF SET [R], [G], [B]
BLK SET [R], [G], [B]

Specification:

- Adjust OFF SET R/G/B using WFM so that the waveform of each channel (R/G/B) becomes the minimum.
- Adjust BLK SET R/G/B using WFM so that the PED level of each channel becomes equal within a range of -3 to $+12$ dB.

2. Execute file storing for each format.

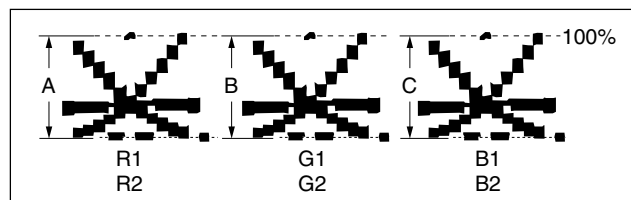
MENU: SERVICE
PAGE: BLACK SHADING
ITEM: STORE FILE

Adjustment Procedure

1. **Adjustment Item:**

MENU: SERVICE
PAGE: OHB_ADJ1
ITEM: GAIN_CONT [R1], [G1], [B1]
GAIN_CONT [R2], [G2], [B2]

Specification:



- Probe the R1/G1/B1 and R2/G2/B2 signals on the tool board by the oscilloscope, and adjust “GAIN_CONT [R1], [G1], [B1], [R2], [G2], [B2]” so that the “A”, “B”, “C” level becomes 88 ± 5 mV.

2. Execute file storing for each format.

MENU: SERVICE
PAGE: OHB_ADJ1
ITEM: STORE FILE

3-3-3. Sensitivity Adjustment

Preparation

- MSU-900 setting
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.

3-3-4. V-SUB Adjustment

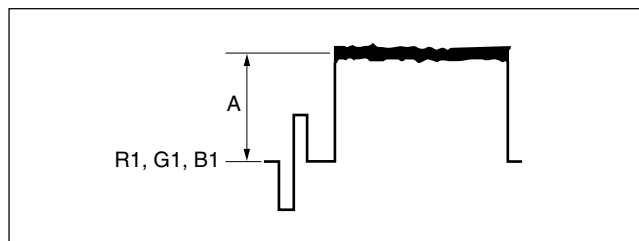
Preparation

- Setting for MSU-900
MASTER GAIN → 0
SHUTTER button → OFF (dark)
- Display a high-brightness chart with a size of half the monitor frame, and release the iris.

Adjustment Procedure

1. **Adjustment Item:**

MENU: SERVICE
PAGE: OHB_ADJ3
ITEM: V-SUB [R], [G], [B]



- Adjust “V-SUB [R], [G], [B]” in the same way so that the “A” level becomes 500 ± 25 mV.
2. Execute file storing for each format.
- MENU: SERVICE
PAGE: OHB_ADJ3
ITEM: STORE FILE

3-3-5. BLACK SHADING Adjustment

Preparation

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

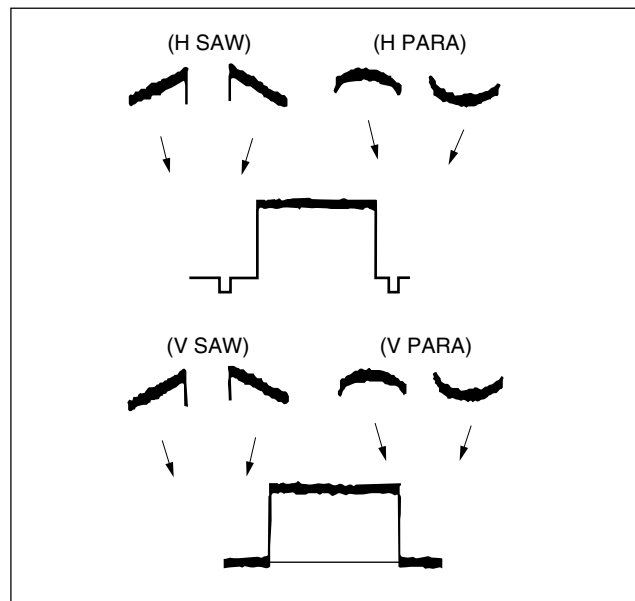
Adjustment Procedure

1. **Adjustment Item:**

MENU: SERVICE
PAGE: BLACK SHADING
ITEM: H SAW, H PARA, V SAW, V PARA [R], [G], [B]

Specification:

Adjust so that each WFM channel becomes as flat as possible.
(Check this in the mode of V: FIELD, H: LINE.)



2. Execute file storing for each format.
- MENU: SERVICE
PAGE: BLACK SHADING
ITEM: STORE FILE

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

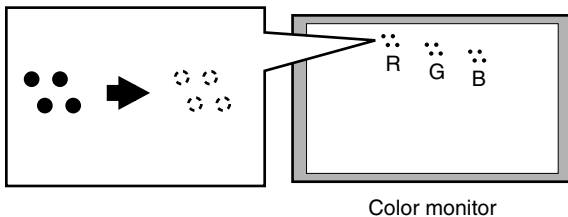
Adjustment Procedure

1. Adjustment Item:

MENU: SERVICE
PAGE: OHB_ADJ2
ITEM: SH_ADJ_A [R1], [G1], [B1]
SH_ADJ_A [R2], [G2], [B2]

Specification:

Adjust so that the dots displayed on the color monitor (R/G/B: four dots each) disappear.



The left 2 out of 4: SH_ADJ_A [R1], [G1], [B1]
The right 2 out of 4: SH_ADJ_A [R2], [G2], [B2]

2. Execute file storing.

MENU: SERVICE
PAGE: OHB_ADJ2
ITEM: STORE FILE

Note

If the residual point noise (RPN) still remains after the RPN adjustment, perform the RPN compensation (Section 3-6). However, this function is available for Software Version 1.05 and higher.

3-4. Video System Level Adjustment

Note

Perform the video system level adjustment at the request of the customer.

3-4-1. H/V Ratio Adjustment

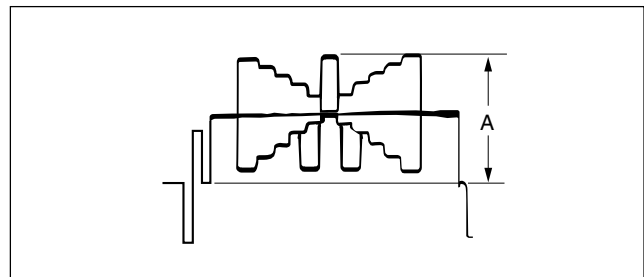
Equipment: Waveform monitor (R, G, B)

Test Point: HD SDI connector (HDCU3300)

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: $A = 600 \pm 20$ mV



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 → -25
Level Dep → 25

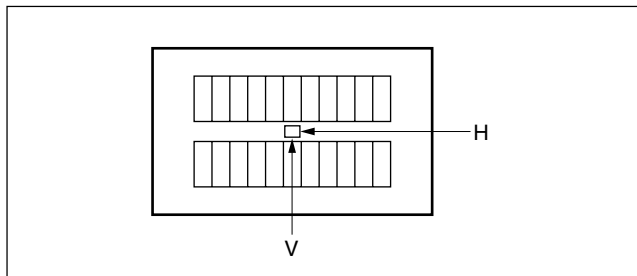
2. MSU menu operation:

- 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. (from 20 to 40)



3-4-2. Detail Level Adjustment

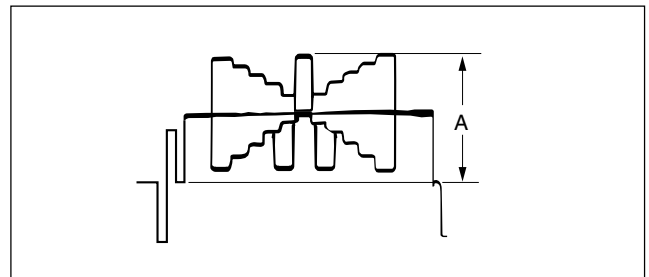
Equipment: Waveform monitor (R, G, B)

Test Point: HD SDI connector (HDCU3300)

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: $A = 600 \pm 20$ mV



Adjustment Procedure

MSU menu operation:

- PAINT button → ON (lit)
- Touch panel operation
(Page 1/3) → **Detail** → **Detail 1**

Adjustment Item: Level

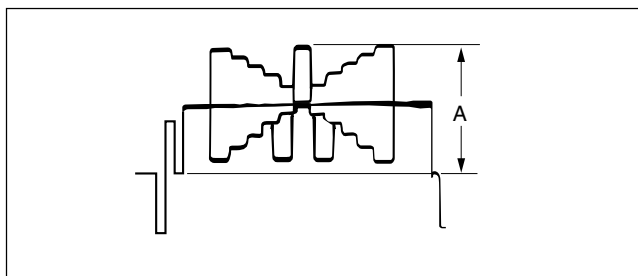
Specification: Adjust the detail level to be added to each step of the grayscale for the desired level.

3-4-3. Crispening Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: HD SDI connector (HDCU3300)
Object: Grayscale chart

Preparations

- Setting for MSU-900
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: $A = 600 \pm 20$ mV



Adjustment Procedure

1. Adjust the white balance.
WHITE button/MSU-900 → ON (lit)
2. Adjust the crispening level.

MSU menu operation:

- PAINT button → ON (lit)
- Touch panel operation
(Page 1/3) → **Detail** → **Detail 1**

Adjustment Item: Crispening

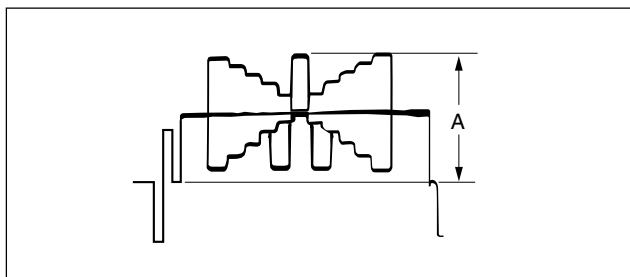
Specification: Set Crispening to -99 once, and turn slowly for increment until the noise at the black level of the waveform just decreases, or until an appropriate crispening level is obtained.

3-4-4. Level Dependent Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: HD SDI connector (HDCU3300)
Object: Grayscale chart

Preparations

- Setting for MSU-900
DETAIL OFF button → ON (dark)
LEVEL 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: $A = 600 \pm 20$ mV



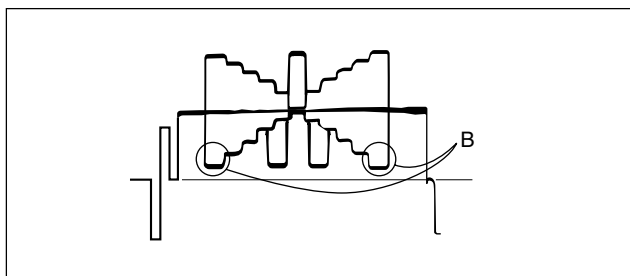
Adjustment Procedure

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

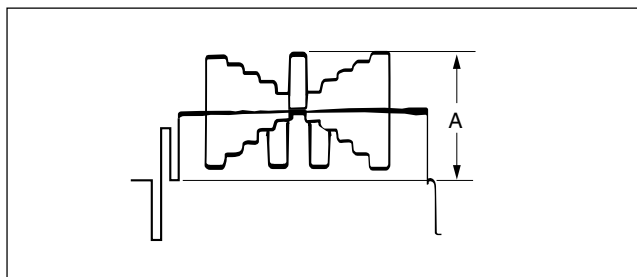
Equipment: Waveform monitor (R, G, B)

Test Point: HD SDI connector (HDCU3300)

Object: Grayscale chart

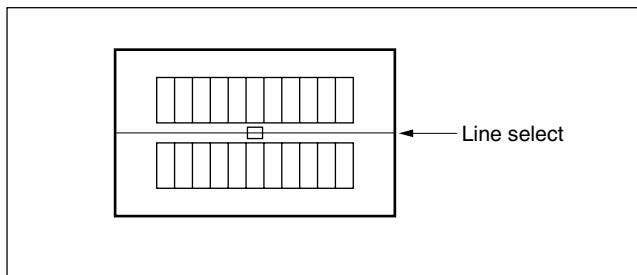
Preparations

- 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: $A = 600 \pm 20 \text{ mV}$



Adjustment Procedure

1. Adjust the white balance.
WHITE button/MSU-900 → ON (lit)
2. Make a line selection at the center white portion of the grayscale chart.



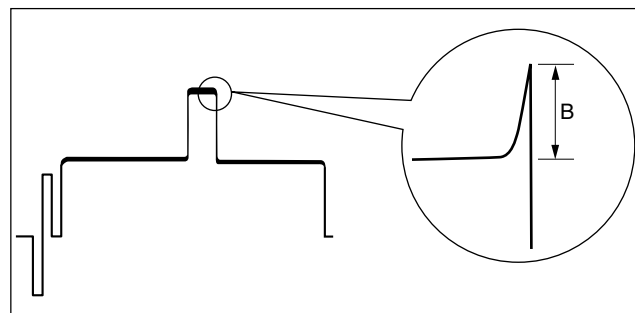
3. Adjust the white limiter.

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 for the desired clip level.



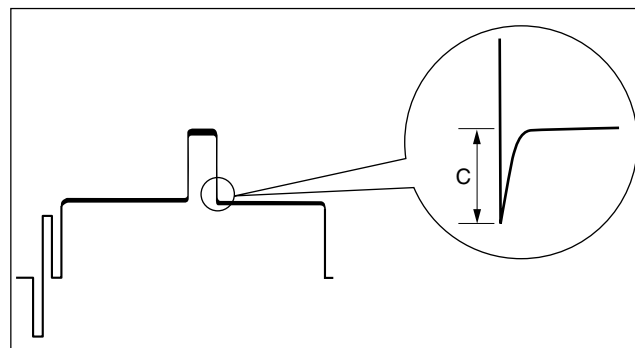
4. Adjust the black limiter.

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 for the desired clip level.



3-4-6. Auto-iris Adjustment

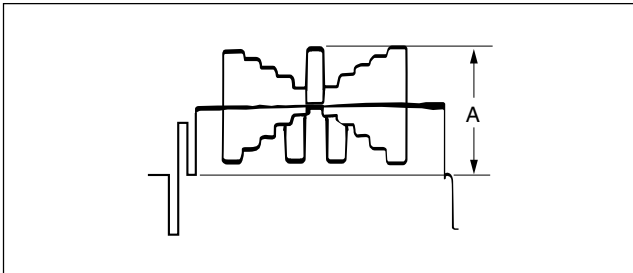
Equipment: Waveform monitor (R, G, B)
Test Point: HD SDI connector (HDCU3300)
Object: Grayscale chart

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. Adjust the white balance.
WHITE button/MSU-900 → ON (lit)
2. Adjust 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: $A = 700 \pm 7 \text{ mV}$



3-4-7. Pedestal Level Adjustment

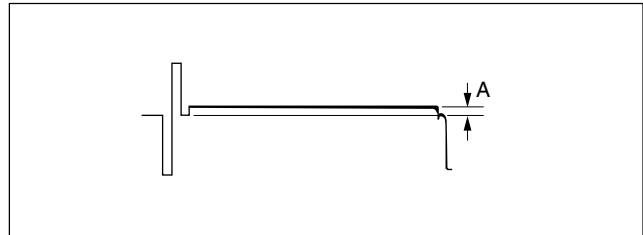
Equipment: Waveform monitor (R, G, B)
Test Point: HD SDI connector (HDCU3300)

Preparations

- Settings 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 for preferred level for R, G and B respectively.
To adjust all levels for R, G and B simultaneously, adjust them using the Master.
(Reference value: $A = 21 \text{ mV}$)



3-4-8. Flare Adjustment

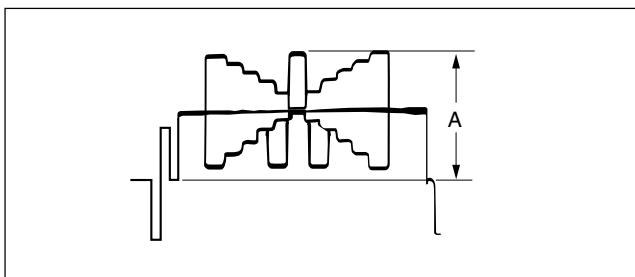
Equipment: Waveform monitor (R, G, B)

Test Point: HD SDI connector (HDCU3300)

Object: Grayscale chart

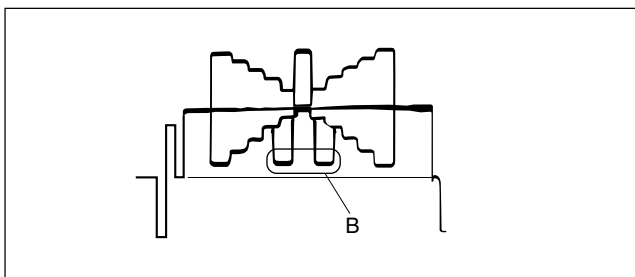
Preparations

- 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: $A = 600 \pm 20$ 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 for preferred level for R, G and B respectively.



3-4-9. Gamma Correction Adjustment

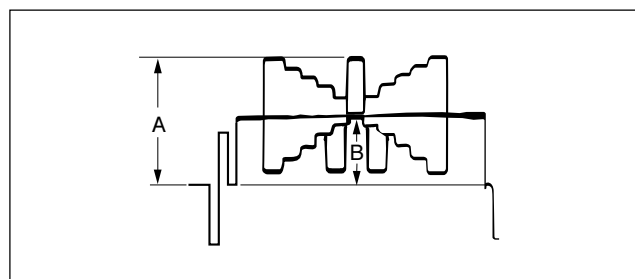
Equipment: Waveform monitor (R, G, B)

Test Point: HD SDI connector (HDCU3300)

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: $A = 700 \pm 20$ mV



Adjustment Procedure

1. Adjust the white balance.
WHITE button/MSU-900 → ON (lit)
2. **MSU menu operation:**
 - PAINT button → ON (lit)
 - Touch panel operation
(Page 2/3) → **Gamma**Adjustment Item: R, G, B, Master
Specification: Adjust the cross points B of the grayscale for preferred level for R, G and B respectively.
To adjust all cross points for R, G and B simultaneously, adjust them using the Master.

3-4-10. Knee Point/Knee Slope Adjustment

Equipment: Waveform monitor (R, G, B)

Test Point: HD SDI connector (HDCU3300)

Preparations

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

Adjustment Procedure

1. MSU menu operation:

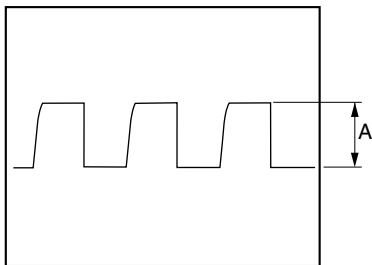
- PAINT button → ON (lit)
- Touch panel operation
(Page 2/3) → **Knee Slope**
- Set Master to +99.

2. MSU menu operation:

- Touch panel operation
(Page 2/3) → **Knee Point**

Adjustment Item: R, G, B Master

Specification: Adjust the levels A for preferred level for R, G and B respectively.
To adjust all levels for R, G and B simultaneously, adjust them using the Master.
(Reference value: A = 686 mV)

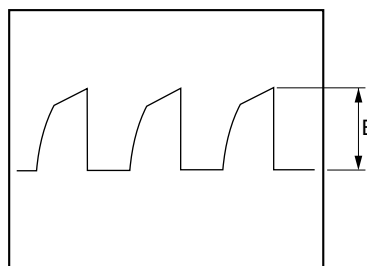


3. MSU menu operation:

- Touch panel operation
(Page 2/3) → **Knee Slope**

Adjustment Item: R, G, B Master

Specification: Adjust the levels B for preferred level for R, G and B respectively.
To adjust all levels for R, G and B simultaneously, adjust them using the Master.
(Reference value: B = 735 mV)



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: HD SDI connector (HDCU3300)

Preparations

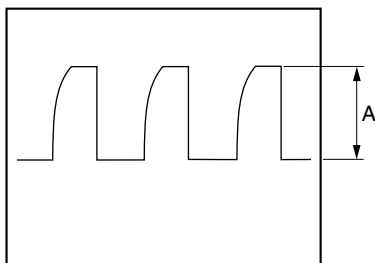
- Setting for MSU-900
MASTER GAIN → +12 dB
TEST1 button → ON (lit)

Adjustment Procedure

1. MSU menu operation:

- PAINT button → ON (lit)
- Touch panel operation
(Page 2/3) → **White Clip**

Adjustment Item: Adjust the levels A for preferred level for R, G and B respectively.
To adjust all levels for R, G and B simultaneously, adjust them using the 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, the message “Completed” is displayed.

3-5. ND Offset Adjustment

When the filter disk unit is replaced alone, the correction of white balance is required. Proceed as follows.

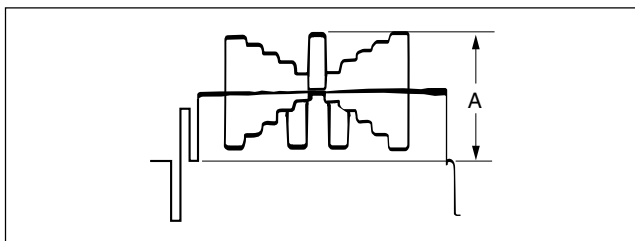
Equipment: Waveform monitor (R, G, B)

Test Point: HD SDI connector (HDCU3300)

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: $A = 600 \pm 20$ mV



Adjustment Procedure

1. FILTER CTRL button/MSU-900 → ON (lit)
2. Select the ND 1 filter.
ND 1 button/MSU-900 → ON (lit)
3. Adjust the white balance.
WHITE button/MSU-900 → ON (lit)
4. After the white balance adjustment is completed, switch the filter from ND2 to ND5, and adjust the white balance for each.
Set the GAIN for each ND filter as follows.
MASTER GAIN/MSU-900
 - ND filter 2: 0 dB
 - ND filter 3: 0 dB
 - ND filter 4: 6 dB
 - ND filter 5: 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, the message "OHB File Stored" is displayed.

Setting after Adjustment

- MASTER GAIN/MSU-900 → 0 dB

3-6. RPN Compensation

Notes

- The RPN compensation function is available for Software Version 1.05 and higher.
- The automatic compensation (APR) function is not provided.
- Remove the residual point noise (RPN) of the CCD with the manual RPN compensation adjustment.
- If any RPN still remains after the RPN compensation adjustment, handle it according to the flowchart.

3-6-1. Manual RPN Compensation Adjustment

The manual RPN compensation adjustment uses the SERVICE menu.

For how to display the SERVICE menu, refer to the Section 5-1.

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

<MANUAL RPN>		S03 TOP
RPN CH SELECT	:	R
RPN CURSOR	:	OFF
TEST OUT MENU	:	OFF
RPN WIDTH	:	1
CURSOR H POS	:	108
CURSOR V POS	:	37
RECORD RPN	:	EXEC
DELETE RPN	:	EXEC
FIELD/FRAME	:	FIELD

※: Ineffective in HDC3300.

Preparations

- 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 horizontally by four clicks of the rotary encoder and moves vertically by two clicks because the cursor has a size of two pixels and due to the operation clock.

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.

Setting after Adjustment

ITEM : RPN CURSOR → OFF

3-6-2. 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.

Checking Correction Points

1. Use the SERVICE2 menu.

Display the SERVICE2 menu using the following procedure.

- (1) Display the SERVICE menu.
(Refer to the Section 5-1.)
- (2) Open the S01 page and press the rotary encoder for 10 seconds at a cursor position of [?S01].
- (3) When “?” disappears like [S01], set MENU to OFF.
- (4) Set MENU to ON again.

	CONTENTS	S00	TOP
↓↓			
01.	<CONCEALMENT>		
02.	<CONCEALMENT2>		
03.	<COMPENSATION>		
04.	<V. LINE>		
05.	<RPN MANAGE>		
06.	<RPN STATUS>		
07.	<BACKUP FILE>		
08.	<FACTORY FILE>		
09.	<LENS FILEL2 >		
10.	<OUTPUT FORMAT>		

WARNING

Do not operate any pages other than the S01, S05, and S06 of the SERVICE2 menu.

2. Open the CONCEALMENT[S01] page of the SERVICE2 menu.

<CONCEALMENT>	S01	TOP
RPN CH SELECT	:	R
RPN CURSOR	:	OFF
CURSOR H POS.	:	108
CURSOR V POS.	:	37
CURSOR JUMP	:	CURR
RPN WIDTH	:	1
RECORD RPN	:	EXEC
DELETE RPN	:	EXEC
FIELD/FRAME	:	FIELD
CONCEALMENT	:	ON

3. Set RPN CURSOR to ON.

4. 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

5. 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.

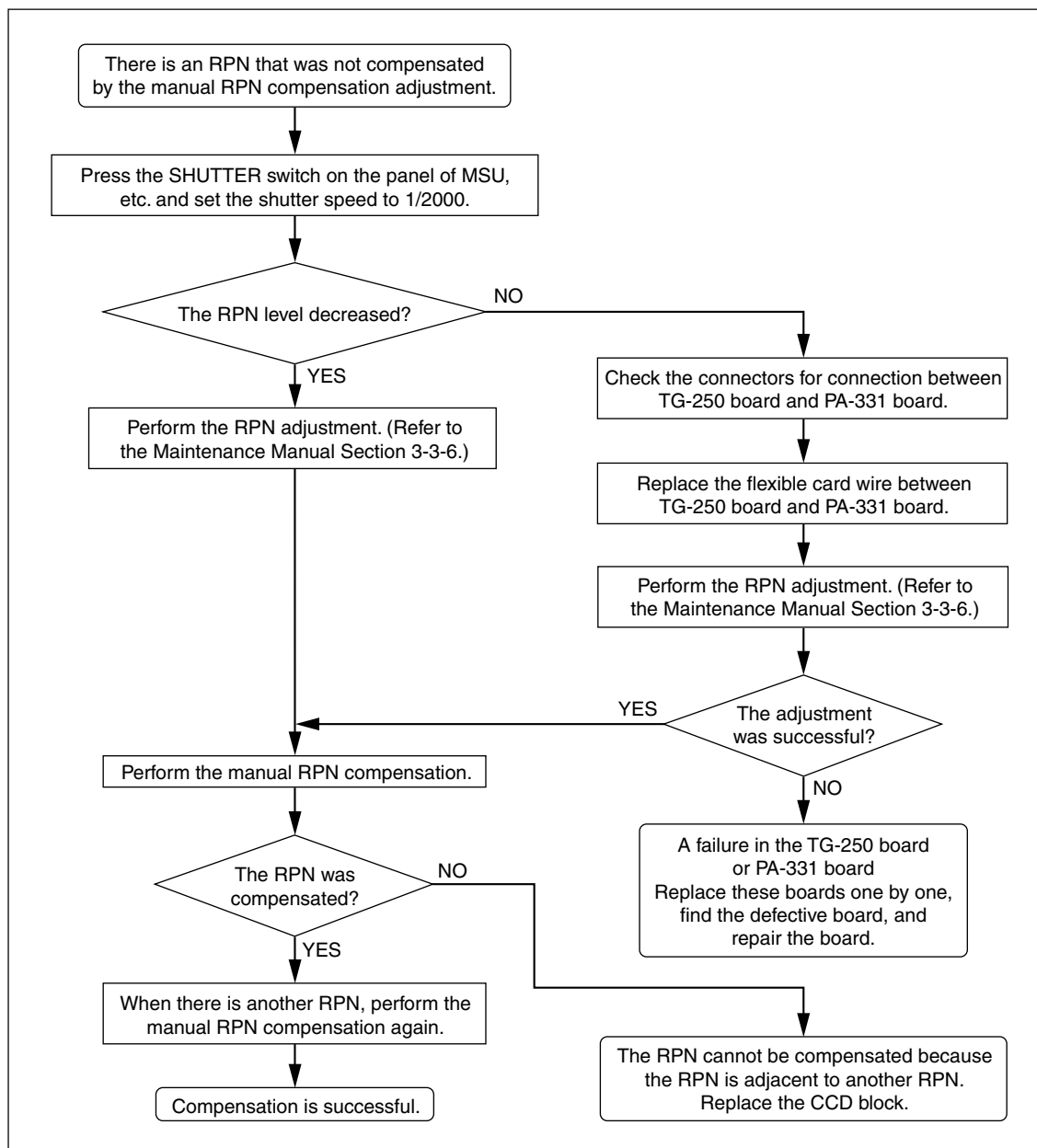
- (3) If nothing has changed, change the compensation position.
Move the cursor horizontally or vertically to check whether the RPN can be compensated.
- (4) When the RPN has been successfully compensated, record the data.
ITEM : RECORD RPN → EXEC
- (5) A message “RECORD DATA OK? YES → NO” appears. Select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

3-6-3. RPN Compensation Flowchart

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



Section 4

File System

The HDC3300 are equipped with various file systems for managing data.

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

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

OPERATION → OPERATOR FILE → 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 the memory stick, yet the 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 memory stick.

4. Reference File

Stores the custom paint data adjusted by the video engineer. This file can be stored in the camera and memory stick.

5. Lens File

Used for compensation of the deviation which generates 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.

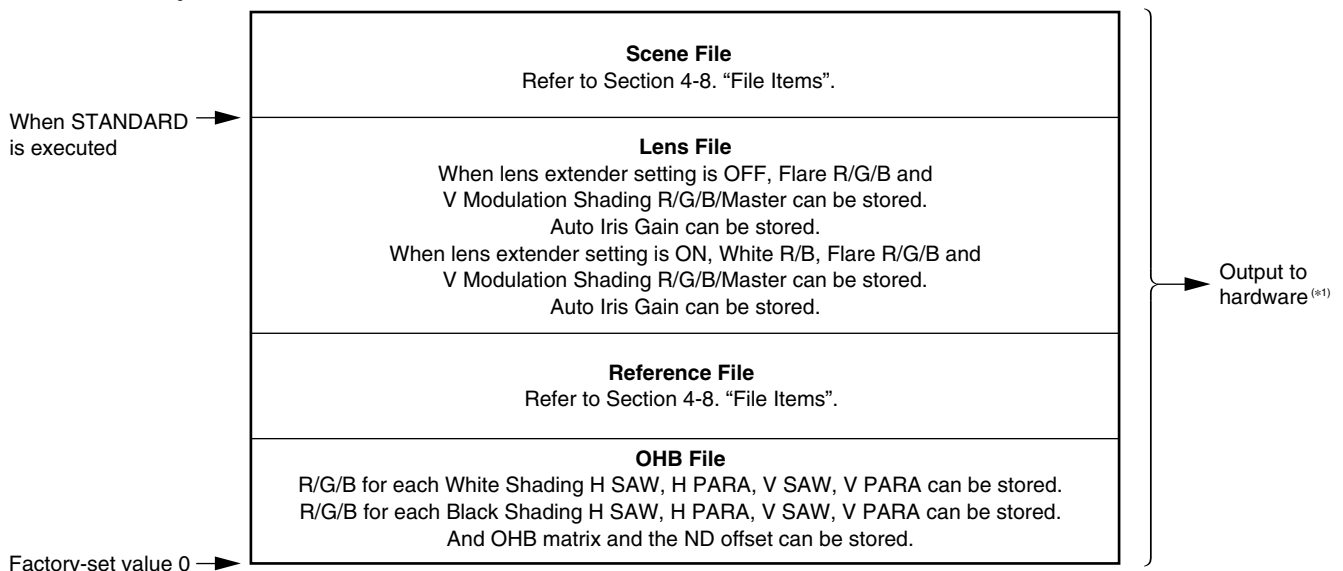


Fig. 4-1. Structure of Paint Related Files

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

4-2. Operator File

Operator File stores data in the memory stick.

Storing and reading data are implemented 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 the data in the memory stick, make sure that the LOCK switch on the memory stick is in OFF position.

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)

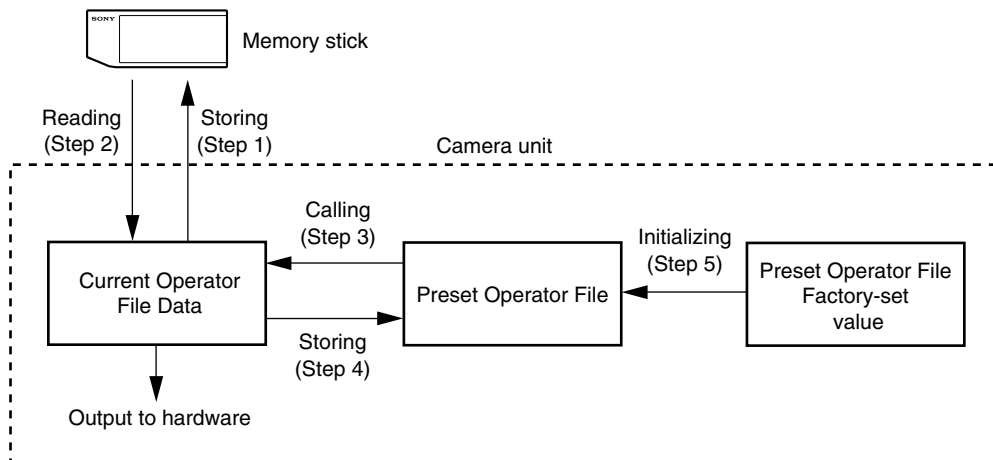


Fig. 4-2. Operating Procedure for Operator Files

4-3. Preset Operator File

Preset Operator File stores data in the camera.

Calling and Storing data are implemented 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 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 when initializing the changed Preset Operator File data to their factory-set values.

[FILE] → [FILE CLEAR] → [PRESET OPERATOR]

4-4. Scene File

Scene File stores data in the camera and memory stick.

It also stores in the memory stick if the MSU (master setup unit) is used. For the details, refer to the MSU-900/950 operation manual.

Storing and calling data are implemented using the setup menu or MSU.

Scene files can be copied between cameras using the memory stick.

Notes

- 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 with the item changed in the Reference File is also changed.
- Before storing the data in the memory stick, make sure that the LOCK switch on the memory stick is in OFF position.

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) **PAINT** → **SCENE FILE** → **STORE**

Select the scene file number to be stored.

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 shown with its file number highlighted. Select the number again to cancel the call and resume the previous status.

With MSU

Press and light up the SCENE FILES button of the desired number when the STORE button is dark. Press the lit button again to turn it dark and resume the previous status.

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 files 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 files 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.

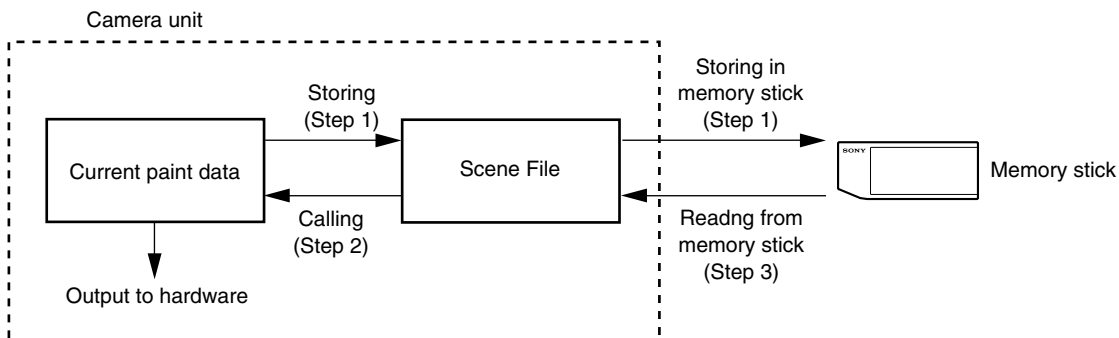


Fig. 4-3. Operating Procedure for Scene Files

4-5. Reference File

Reference File stores data in the camera and the memory stick.

It also stores in the memory stick if the MSU (master setup unit) is used. For the details, refer to the MSU-900/950 operation manual.

Storing and calling the data are implemented using the setup menu or MSU.

Reference Files stores the differential data taking the factory-setting as 0. Therefore, initializing the Reference File brings the settings to the same status at 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 whether to initialize the all file items or only the specified items.

Reference Files can be copied between cameras using the memory stick.

Note

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

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

Using FILE Menu of This Unit

FILE → **REFERENCE** → **STORE FILE**

The data will be stored in the camera and the numerical data will be displayed as 0. (Excluding some items. Refer to Section 4-8. “File Items”.)

With MSU

Press FILE button. Then press **Reference** and press **Ref Store**. The data will be stored in the camera and the numerical data will be 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 will be cleared and the reference file will be reset to the state stored in.

With MSU

Press STANDARD button to reset the reference file item to the state stored in.

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.

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

- (2) The Reference File data in the memory stick cannot be applied to the camera when the data are just read. For applying the data, adjust the level automatically.

[MAINTENANCE] → [AUTO SETUP] → [AUTO LEVEL]

Note

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

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

Using FILE Menu of This Unit

Stores Reference File stored in the camera in the memory stick.

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

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

Using FILE Menu of This Unit

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

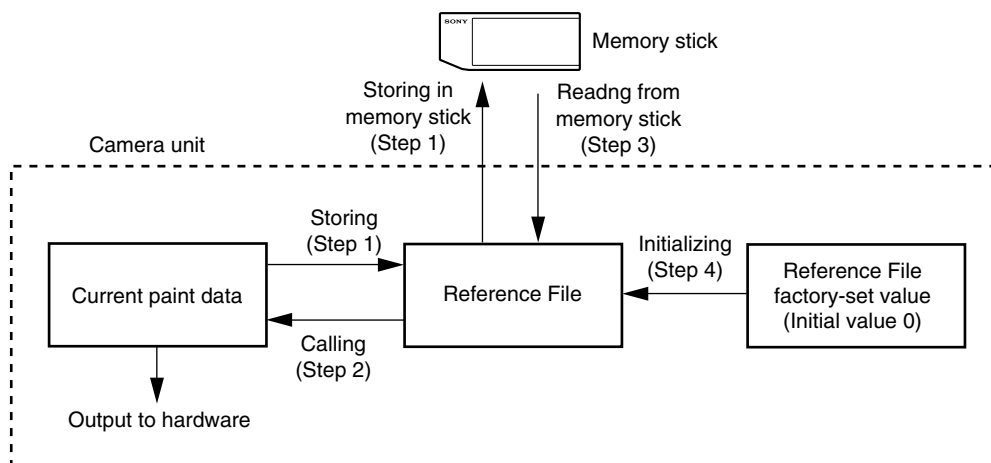


Fig. 4-4. Operating Procedure for Reference Files

4-6. Lens File

Lens File stores the data to compensate the differences of the white shading, flare balance, 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. Lens File data of up to 16 files can be stored for a lens that is not compatible with serial communication, and Lens File data of up to 50 files can be stored for a lens compatible with serial communication.

The adjustment data can be called by selecting the Lens File.

The Lens File stores the differential data from the Reference File.

Notes

Prior to creating the Lens File, perform the necessary adjustments by using the lens normally used to create the Reference File.

Adjusting the Lens File Data

(Using a lens not compatible with serial communication)

- (1) Mount the lens. Select the file with the same name as the lens mounted from the setup menu. If no file with the same name as the lens exists, select "NO OFFSET".

FILE → **LENS FILE** → **No.** → (Select the No.)

- (2) Select the name of the lens, and minimum f-stop value.
- (3) Set the lens extender to OFF.
- (4) Shoot the white pattern, and adjust 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.
- (5) Adjust the white balance and flare balance shooting the grayscale chart.
- (6) Zooming the lens, and adjust the center marker to a position at which the object does not deviate.*1
- (7) Store the data in the lens file.
FILE → **LENS FILE** → **STORE FILE**
- (8) Set the lens extender to ON.
- (9) Shoot the white pattern, and adjust 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.
- (10) Adjust the white balance and flare balance shooting the grayscale chart.
- (11) Zooming the lens, and adjust the center marker to a position at which the object does not deviate.*1
- (12) Store the Lens File.
FILE → **LENS FILE** → **STORE FILE**

*1 : The center marker position is stored in the Lens File immediately after the position is aligned and not when executing the Lens File store.

(For lens compatible with serial communication)

- (1) Check that the lens number is No. 17.
- (2) Also check that the name of the lens and minimum f-stop value.
- (3) Turn on the dynamic shading. *1
- (4) Set the lens extender to OFF.
- (5) Adjust the white balance and flare balance shooting the grayscale chart.
- (6) Zooming the lens, and adjust the center marker to a position at which the subject does not move. *2
- (7) Store the Lens File.
FILE → LENS FILE → STORE FILE
- (8) Set the lens extender to ON.
- (9) Adjust the white balance and flare balance shooting the grayscale chart.
- (10) Zooming the lens, and adjust the center marker to a position at which the subject does not move. *2
- (11) Store the Lens File.
FILE → LENS FILE → STORE FILE

*1 : If using the lens compatible with serial communication with the dynamic shading turned on, you do not require the V modulation adjustment. Adjust the white shading or V modulation only when the deviation occurs. In this case, the data will not be stored in the Lens File.

*2 : The center marker position is stored in the Lens File immediately after the position is aligned and not when executing the Lens File store.

Calling

Using OPERATION Menu of This Unit

Select the Lens File.

OPERATION → LENS FILE

4-7. OHB File

OHB File is used to store the adjustment values specific to the CCD block, and it stores the data in the camera.

Notes

- When you cannot adjust the video level for the specified value by the lens iris at the ND offset adjustment, adjust by Shutter/ECS. If adjusting by gain up, the error may occur in the white balance.
- Perform the OHB matrix adjustment only when it is necessary to unite the delicate difference in color reappearance.
- If adjusting the all items shown below, execute the OHB File Store after finishing all adjustments. If adjusting only the individual item, first execute STANDARD in step (1), and then perform adjustment. After finishing adjustment, execute the OHB File Store.

Adjusting and Storing

Using FILE/MAINTENANCE Menu of this unit

(1) **FILE** → **REFERENCE** → **STANDARD**

(2) Adjust the black shading automatically.

MAINTENANCE → **BLACK SHADING** → **AUTO BLACK SHADING**

Repeat this operation 3 times or more.

When adjustment is not completed correctly, adjust the black shading automatically again, or adjust the black shading V SAW, V PARA, H SAW, and H PARA on R/G/B respectively.

MAINTENANCE → **BLACK SHADING** → **V SAW R/G/B**, **V PARA R/G/B**, **H SAW R/G/B**, **H PARA R/G/B**

(3) Adjust the black balance automatically.

MAINTENANCE → **AUTO SETUP** → **AUTO BLACK**

(4) Adjust the white shading automatically.

Shoot the white pattern so that the video level is around 80 % (560 mV).

MAINTENANCE → **WHITE SHADING** → **AUTO WHITE SHADING**

Repeat this operation 3 times or more.

When adjustment is not completed correctly, adjust the white shading automatically again, or adjust the white shading V SAW, V PARA, H SAW, and H PARA on R/G/B respectively.

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.

Note

Perform adjustments while selecting all ND filters (1 to 5), or the ND offset adjustment will not be completed.

① Select 5 by the ND filter knob, and shoot the white pattern so that the video level is 50 % (350 mV) or more.

② Select 1 by the ND filter knob, and adjust the lens iris so that the video level is 80 to 50 % (560 to 350 mV), and then adjust the white balance automatically.

MAINTENANCE → **AUTO SETUP** → **AUTO WHITE**

③ Select 2 by the ND filter knob, and adjust in the same manner as step ②.

④ Select 3 by the ND filter knob, and adjust in the same manner as step ②.

⑤ Select 4 by the ND filter knob, and adjust in the same manner as step ②.

⑥ Select 5 by 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**

- (7) Store the OHB File.

FILE → **OHB FILE** → **STORE FILE**

With MSU

- (1) STANDARD button → ON (lit)

- (2) Adjust the black shading automatically.

FILE button → ON (lit)

[Touch panel selection]

OHB File → **Auto B. Shading**

Repeat this operation 3 times or more.

When adjustment is not completed correctly, adjust the black shading automatically again, or adjust the black shading V SAW, V PARA, H SAW, H PARA on R/G/B respectively.

OHB File → **Adjusting** → **Black shading** → **R/G/B** → **V SAW**, **V PARA**, **H SAW**, **H PARA**

- (3) Adjust the black balance automatically.

BLACK button → ON (lit), or **OHB File** → **Auto Black**

- (4) Adjust the white shading automatically.

Shoot the white pattern so that the video level is around 80 % (560 mV).

OHB File → **Auto W. Shading**

Repeat this operation 3 times or more.

When adjustment is not completed correctly, adjust the white shading automatically again, or adjust the white shading V SAW, V PARA, H SAW, H PARA on R/G/B respectively.

OHB File → **Adjusting** → **White shading** → **R/G/B** → **V SAW**, **V PARA**, **H SAW**, **H PARA**

- (5) Perform the ND offset adjustment.

Note

Perform adjustments while selecting all ND filters (1 to 5), or the ND offset adjustment will not be completed.

- ① Select 5 by the ND filter knob, and shoot the white pattern so that the video level is 50 % (350 mV) or more.

- ② Select 1 by the ND filter knob, and adjust the lens iris so that the video level is 80 to 50 % (560 to 350 mV), and then adjust the white balance automatically.

WHITE button → ON (lit), or **OHB File** → **Auto White**

- ③ Select 2 by the ND filter knob, and adjust in the same manner as step ②.

- ④ Select 3 by the ND filter knob, and adjust in the same manner as step ②.

- ⑤ Select 4 by the ND filter knob, and adjust in the same manner as step ②.

- ⑥ Select 5 by 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.

- (7) Store the OHB File.

OHB File → **OHB store** → **Store**

4-8. File Items

You can save each setting data set using the setup menu in files.

This section shows the destination files to which the respective setting data can be stored.

It 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 symbol

○ : 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	reference file	Lens file	operator 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		○	×	×	×	×	
	S-EVS ON		×	×	×	×	×	
		S-EVS ratio	×	×	×	×	×	
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)		○	×	×	×	×	
	Filter2 (CC)		○	×	×	×	×	
	Filter Remote/Local		×	×	×	×	×	
5600k	5600K ON		○	OFF	×	×	×	
White Shading		White Shading H Saw-R	×	×	×	×	○	
		White Shading H Saw-G	×	×	×	×	○	
		White Shading H Saw-B	×	×	×	×	○	
		White Shading V Saw-R	×	×	×	×	○	
		White Shading V Saw-G	×	×	×	×	○	
		White Shading V Saw-B	×	×	×	×	○	
		White Shading H Para-R	×	×	×	×	○	
		White Shading H Para-G	×	×	×	×	○	
		White Shading H Para-B	×	×	×	×	○	
		White Shading V Para-R	×	×	×	×	○	
		White Shading V Para-G	×	×	×	×	○	
		White Shading V Para-B	×	×	×	×	○	
	Auto White Shading		×	×	×	×	×	
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	—	—	—	—	—	
	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 Aperture On		○	○	×	×	×	
		Knee Aperture	○	○	×	×	×	
Skin Detail	Skin DTL On		○	○	×	×	×	
	Skin gate ON		×	×	×	×	×	
	Skin gate (CCU)		×	×	×	×	×	
	Skin Detail Auto Hue (ch1)		×	×	×	×	×	
	Skin Detail Auto Hue (ch2)		×	×	×	×	×	
	Skin Detail Auto Hue (ch3)		×	×	×	×	×	
	Skin 1 On		ON	ON	×	×	×	
	Skin 1 Gate On		×	×	×	×	×	
		Skin 1 Level	○	○	×	×	×	
		Skin 1 Phase	○	○	×	×	×	
		Skin 1 Width	○	○	×	×	×	
		Skin 1 Sat	○	○	×	×	×	
	Skin 2 On		○	○	×	×	×	
	Skin 2 Gate On		×	×	×	×	×	
		Skin 2 Level	○	○	×	×	×	
		Skin 2 Phase	○	○	×	×	×	
		Skin 2 Width	○	○	×	×	×	
		Skin 2 Sat	○	○	×	×	×	

(Continued)

Function	Switch item	Analog item	scene file	reference file	Lens file	operator file	OHB file	note
Skin Detail	Skin 3 On		○	○	×	×	×	
	Skin 3 Gate On		×	×	×	×	×	
		Skin 3 Level	○	○	×	×	×	
		Skin 3 Phase	○	○	×	×	×	
		Skin 3 Width	○	○	×	×	×	
		Skin 3 Sat	○	○	×	×	×	
Matrix	Matrix Off		○	○	×	×	×	
	Preset Matrix on		○	○	×	×	×	
	Preset Matrix Sel		×	×	×	×	×	
	User Matrix on		○	○	×	×	×	
		R-G	○	○	×	×	×	
		R-B	○	○	×	×	×	
		G-R	○	○	×	×	×	
		G-B	○	○	×	×	×	
		B-R	○	○	×	×	×	
		B-G	○	○	×	×	×	
	Multi Matrix On		○	○	×	×	×	
		gate	×	×	×	×	×	
		Phase select	×	×	×	×	×	
		Hue	○	○	×	×	×	
		Saturation	○	○	×	×	×	
digital liner	saturation on		○	○	×	×	×	
saturation		saturation	○	○	×	×	×	
OHB matrix	OHB Multi Matrix On		×	×	×	×	○	
		Phase select	×	×	×	×	×	
		Hue	×	×	×	×	○	
		Saturation	×	×	×	×	○	
Black Gamma	Black Gamma On		○	○	×	×	×	
		R Black Gamma	○	○	×	×	×	
		G Black Gamma	○	○	×	×	×	
		B Black Gamma	○	○	×	×	×	
		M Black Gamma	○	○	×	×	×	
		Black Gamma (RGB) Range	○	○	×	×	×	
Low key saturation	Low Key Saturation ON		○	○	×	×	×	
	Range		○	○	×	×	×	
		Low Key Saturation level	○	○	×	×	×	

(Continued)

Function	Switch item	Analog item	scene file	reference file	Lens file	operator file	OHB file	note
Gamma	Gamma Off		○	ON	×	×	×	
	Gamma curve select		○	○	×	×	×	
	Step Gamma (0.90 to 0.35)		○	○	×	×	×	
		R Gamma	○	○ (RGB mode)	×	×	×	
		G Gamma	○	○	×	×	×	
		B Gamma	○	○ (RGB mode)	×	×	×	
Knee		M Gamma	○	○	×	×	×	
	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	○	○	×	×	×	
	Adaptive Auto Knee		—	—	—	—	—	
White Clip	White Clip Off		○	ON	×	×	×	
		R White Clip	○	○	×	×	×	
		G White Clip	○	○	×	×	×	
		B White Clip	○	○	×	×	×	
		M White Clip	○	○	×	×	×	
Level auto	level auto set up		×	×	×	×	×	
set up	White Setup Mode		×	×	×	×	×	

(Continued)

Function	Switch item	Analog item	scene file	reference file	Lens file	operator file	OHB file	note
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		—	—	—	—	—	
	720 50P		—	—	—	—	—	

MENU	ITEM	scene file	reference file	Lens file	operator file	OHB file	note
USER MENU customize					○		
VF DISPLAY	EX	—	—	—	○	—	
	ZOOM	—	—	—	○	—	
	DISP	—	—	—	○	—	
	FOCUS	—	—	—	○	—	
	ND	—	—	—	○	—	
	CC	—	—	—	○	—	
	5600K	—	—	—	○	—	
	IRIS	—	—	—	○	—	
	WHITE	—	—	—	○	—	
	GAIN	—	—	—	○	—	
	SHUTT	—	—	—	○	—	
	BATT	—	—	—	○	—	
	RETURN	—	—	—	○	—	
	TALK	—	—	—	○	—	
	MESSAG	—	—	—	○	—	
! IND	ND	—	—	—	○	—	
	CC	—	—	—	○	—	
	WHITE	—	—	—	○	—	
	5600K	—	—	—	○	—	
	GAIN	—	—	—	○	—	
	SHUTT	—	—	—	○	—	
	FAN	—	—	—	○	—	
	EXT	—	—	—	○	—	
	FORMAT	—	—	—	○	—	
VF MARKER	MARKER	—	—	—	○	—	
	CENTER	—	—	—	○	—	
	SAFETY ZONE	—	—	—	○	—	
	EFFECT	—	—	—	○	—	
	ASPECT	—	—	—	○	—	
	MASK	—	—	—	○	—	
	SAFETY	—	—	—	○	—	
VF DETAIL	VF DETAIL	—	—	—	○	—	
	LEVEL	—	—	—	○	—	
	CRISP	—	—	—	○	—	
ZEBRA	ZEBRA	—	—	—	○	—	
	ZEBRA1 LEVEL	—	—	—	○	—	
	WIDTH	—	—	—	○	—	
	ZEBRA2 LEVEL	—	—	—	○	—	

(Continued)

MENU	ITEM	scene file	reference file	Lens file	operator file	OHB file	note
VF OUT	VF OUT	—	—	—	○	—	
	RET MIX VF	—	—	—	○	—	
	MIX DIRECTION	—	—	—	○	—	
	MIX VF MODE	—	—	—	○	—	
	MIX VF LEVEL	—	—	—	○	—	
SWITCH ASSIGN1	GAIN [L]	—	—	—	○	—	
	GAIN [M]	—	—	—	○	—	
	GAIN [H]	—	—	—	○	—	
	ASSIGNABLE	—	—	—	○	—	
	RE.ROTATION	—	—	—	○	—	
SWITCH ASSIGN2	LENS VTR S/S	—	—	—	○	—	
	FRONT RET1	—	—	—	○	—	
	FRONT RET2	—	—	—	○	—	
	HANDLE SW1	—	—	—	○	—	
	HANDLE SW2	—	—	—	○	—	
	ZOOM SPEED	—	—	—	○	—	
HEAD SET	INTERCOM1 MIC	—	—	—	○	—	
	INTERCOM1 LEVEL	—	—	—	○	—	
	INTERCOM1 POWER	—	—	—	○	—	
	INTERCOM1 UNBAL	—	—	—	○	—	
	INTERCOM2 MIC	—	—	—	○	—	
	INTERCOM2 LEVEL	—	—	—	○	—	
	INTERCOM2 POWER	—	—	—	○	—	
	INTERCOM2 UNBAL	—	—	—	○	—	
INTERCOM LEVEL	INTERCOM1 SIDE TONE	—	—	—	○	—	
	INTERCOM2 SIDE TONE	—	—	—	○	—	
RECEIVE SEL1	INTERCOM1 RECEIVE SELECT	—	—	—	○	—	
	INTERCOM	—	—	—	○	—	SY model only
	ENG	—	—	—	○	—	CE model only
	PROD	—	—	—	○	—	CE model only
	PGM1	—	—	—	○	—	
	PGM2	—	—	—	○	—	
	TRACKER	—	—	—	○	—	

(Continued)

MENU	ITEM	scene file	reference file	Lens file	operator file	OHB file	note
RECEIVE SEL2	INTERCOM2 RECEIVE SELECT	—	—	—	○	—	
	INTERCOM	—	—	—	○	—	SY model only
	ENG	—	—	—	○	—	CE model only
	PROD	—	—	—	○	—	CE model only
	PGM1	—	—	—	○	—	
	PGM2	—	—	—	○	—	
	TRACKER	—	—	—	○	—	
RECEIVE SEL3	TRACKER RECEIVE SELECT	—	—	—	○	—	
	INTERCOM	—	—	—	○	—	SY model only
	ENG	—	—	—	○	—	CE model only
	PROD	—	—	—	○	—	CE model only
	PGM1	—	—	—	○	—	
	PGM2	—	—	—	○	—	
	TRACKER	—	—	—	○	—	
RECEIVE SEL4	EARPHONE RECEIVE SELECT	—	—	—	○	—	
	INTERCOM	—	—	—	○	—	SY 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

In this section, describes the setup menu operation as follows.

For example:

When AUTO LEVEL in AUTO SETUP page of MAINTENANCE menu is performed:

MENU: MAINTENANCE
PAGE: AUTO SETUP
ITEM: AUTO LEVEL

How to display the SERVICE menu

HDC3300

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

How to change the setting values

To enter or cancel the setting value of items, which can be changed by turning the MENU SELECT control or rotary encoder, proceed as follows.

HDC3300

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. In addition, settings of the number of scene files, aspect ratio of the down-converter, and filter local return position are available. Refer to the description in the service menu.

When an autofocus lens is used

When an auto focus lens of Fujinon or Canon is used, a focal area marker and a focusing indicator can be displayed on the viewfinder.

When AF DISPLAY in “Setup” in the service menu is set to ON, the area marker appears according to the area marker display switch of the lens.

The area marker is a rectangular frame in which auto focus is detected.

“AF” is added to “VF DISPLAY” in the Operation menu.

When this “AF” is set to ON, the indicator appears.

Focusing indicator

- ▲ Front focus
- Focal point
- ▼ Rear focus

However, there are the following restrictions.

- If “AF DISPLAY” is set to ON, no effect area can be displayed.

Descriptions of Service Menu

SETUP

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

SCENE FILE TYPE

Setting of the number of scene files that a camera can have. A number of 5 or 32 can be set. Note that, when the number of scene files is changed from 32 to 5, the data of the sixth and the following scene files are lost. The factory setting of the number of scene files is 5.

AF DISPLAY

When an autofocus lens is used, a focal area marker and a focusing indicator can be displayed on the viewfinder. Refer to "When an autofocus lens is used."

FILTER RESUME

When the buildup connector is installed in HDC3300 and "FILTER LOCAL" is changed from ON to OFF on the rear panel, the camera filter position must be set. The factory setting is OFF. For HDC3300, set this function to OFF.

- | | |
|-------------------|--|
| FILTER RESUME OFF | The filter position is maintained. |
| FILTER RESUME ON | The filter position returns to the value immediately before FILTER LOCAL is set to ON. |

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. The factory setting is AUTO.

- | | |
|------|--|
| AUTO | Sets an interface automatically. |
| PARA | Selects the parallel interface forcibly. |

CC FILTER

<CC FILTER>	S02 TOP
A :	3200K
B :	3200K
C :	4300K
D :	6300K
E :	8000K

When the CC filter is replaced with a nonstandard color temperature conversion filter, change this setting. However, when the CC filter is replaced with a filter without color temperature conversion, such as CROSS FILTER, set 3200K. This setting is a reference for color temperature display and the color temperature control function. The factory settings are A: 3200K, B: 3200K, C: 4300K, D: 6800K, and E: 8000K.

MANUAL RPN

<MANUAL RPN>	S03 TOP
RPN CH SELECT	: R
RPN CURSOR	: OFF
TEST OUT MENU	: OFF
CURSOR H POS	: 1008
CURSOR V POS	: 576
RECORD RPN	: EXEC
DELETE RPN	: EXEC
FIELD/FRAME	: FIELD

The MANUAL RPN menu is used for manual RPN compensation.

VDA-ADJ

<VDA-ADJ>	S04 TOP
Y -GAIN	: →80
Pb -GAIN	: 80
Pr -GAIN	: 80
VBS-GAIN	: 80
TEST OUT SELECT	: HD-Y
REF-SEL	: HD-60 i
CHANNEL-SEL	: COLOR

The VDA-ADJ menu is used for adjustments of the VDA board.

OHB-ADJ1

<OHB-ADJ1>		S05 TOP	
FORMAT :→1080-59.94P			
	[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			

OHB-ADJ2

<OHB-ADJ2>		S06 TOP	
FORMAT :→1080-59.94P			
	[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			

OHB-ADJ3

<OHB-ADJ3>		S07 TOP	
FORMAT :→1080-60P			
	[R]	[G]	[B]
V-SUB :	80	80	80
STORE FILE : EXEC			
SHUTTER : OFF			
SHUT_SPEED : 1/500			

The OHB-ADJ menus are used for adjustments of the CCD block.

DAP/AU-ADJ

<DAP/AU-ADJ>		S08 TOP	
BOARD-TEST : OFF			
TRUNK-TEST : OFF			
INCOM1-GAIN :→60dB			
INCOM2-GAIN : 60dB			
MIC1-GAIN : 60dB			
MIC2-GAIN : 60dB			
2003/03/16 22:06:00			
RESET DATA : EXEC			

The DAP/AU-ADJ menu is used for setting of the DAP board and AU board.

SDI

<SDI>		S09 TOP	
TEST MODE :→OFF			
RX CRC ERR : 255			
CRC ERR RESET : EXEC			
STATUS : 11111111			
OPT LEVEL : 0.00V YEL			
TEMP : 100°C			
SDI2-VBS : OFF			
PROMPTER : 1CH			

The SDI menu is used to display the SDI board status.

EXT RETURN

<EXT RETURN>		S10 TOP	
EXT RET IN: VBS			
STATUSE : OK			
FORMAT : NTSC			
SD ASPECT : SQ			

The EXT RETURN menu is not used.

RAM FUNCTION

<RAM FUNCTION>		S11	TOP
RAM FUNC:	→DOWNCONV		

The RAM FUNCTION menu is used to change the priority of the memory functions.

DOWNCONV

The output of the down-converter is pulled down in the 23.98PsF, 24PsF, or 25PsF format.

LETTERBOX

The output of the down-converter is enabled when LETTER BOX is set. When RAM FUNC is set to LETTERBOX, SQ/ LB is selectable for ASPECT in DOWN CONVERTER of the MAINTENANCE menu.

INTERCOM

<INTERCOM>		S12	TOP
INCOM FILE	: UCJ		
READ FILE			

INTERCOM FILE

This menu is used for setting of intercom panel destinations.

In HDC3300, this setting is automatically made by performing file menu → reference → ALL preset, however, when not using ALL PRESET, set INTERCOM FILE in this menu. Set CE for CE destinations, or set UCJ for others.

READ FILE

Not used.

TRACKER

<TRACKER>		S13	TOP
INPUT LEVEL	:	0dB	
TALK LEVEL	:	0dB	
OUTPUT LEVEL	:	-20dB	
L-CH	:	-20dB	
R-CH	:	-20dB	

The TRACKER menu is used to set the input/output levels of the tracker terminal.

HDC3300 (E)
HDC3300 (CE)
HDC3300 (SY) E
9-968-305-04

Sony Corporation

Printed in Japan
2011. 1 08
©2006