SONY

COLOR CAMERA

HDC3500
HDC5500

SIDE PANEL ATTACHMENT KIT
HKC-CN50

FIBER TRANSMISSION ADAPTOR
HKC-FB30

TRIAX TRANSMISSION ADAPTOR
HKC-TR37

UHB FIBER TRANSMISSION ADAPTER
HKC-FB50

WIRELESS TRANSMISSION ADAPTER
HKC-WL50

SERVICE MANUAL
1st Edition (Revised 1)

⚠ 警告

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

⚠ WARNING

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

⚠ WARNUNG

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

⚠ AVERTISSEMENT

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

Model Name	**Serial No.**
HDC3500/L (UCJ): LEMO Optical Fiber Connector	10001 and Higher
HDC3500/H (UCJ): No outside panel	20001 and Higher
HDC3500/T (UCJ): Tajimi Optical Fiber Connector	30001 and Higher
HDC3500/UH (CED): No outside panel	200001 and Higher
HDC3500/UL (CED): LEMO Optical Fiber Connector	400001 and Higher
HDC5500/L (UCJ): LEMO Optical Fiber Connector	10001 and Higher
HDC5500/T (UCJ): Tajimi Optical Fiber Connector	10001 and Higher
HDC5500/UL (CED): LEMO Optical Fiber Connector	400001 and Higher
HDC5500/L (CN): LEMO Optical Fiber Connector	50001 and Higher
HDC5500/L (JN): LEMO Optical Fiber Connector	30001 and Higher
HDC5500/T (JN): Tajimi Optical Fiber Connector	30001 and Higher

安全のために，周辺機器を接続する際は，過大電圧を持つ可能性があるコネクターを以下のポートに接続しないでください。
：NETWORK TRUNK
上記のポートについては本書の指示に従ってください。

For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to the following port(s).
: NETWORK TRUNK
Follow the instructions for the above port(s).

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。
必ず指定の電池に交換してください。
使用済みの電池は，国または地域の法令に従って処理してください。

CAUTION

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

ATTENTION

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

VORSICHT

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

FÖRSIKTIGHET!

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

PAS PÅ

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

HUOMIO

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

FORSIKTIG

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

注意

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

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Section 1
Service Overview

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When connecting the peripheral equipment in the list below to this unit, 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

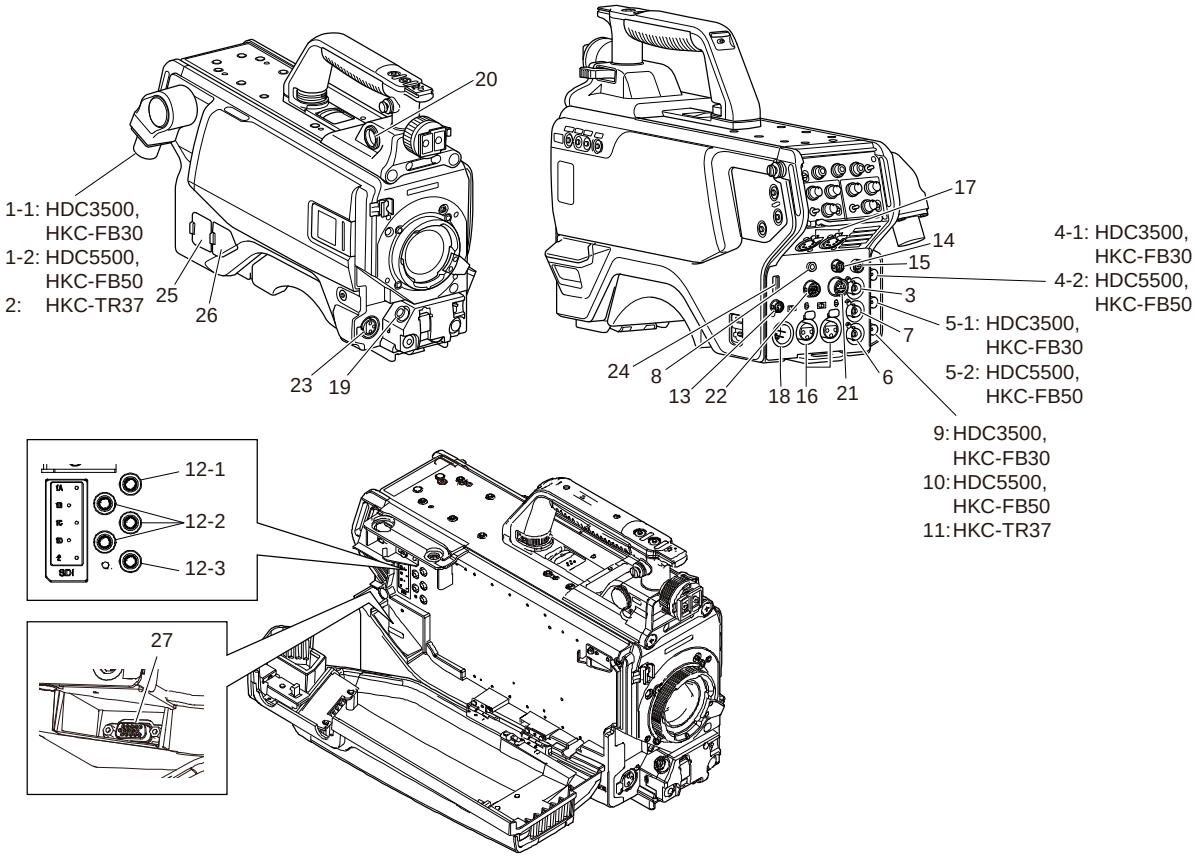
Peripheral Equipment	Board Name	Ref. No.	ROM Version
CNU-700	AT-89 board or AT-89A board	IC4, IC5	Ver. 3.43 and higher

Software

Peripheral Equipment	Board Name	Software Version
RCP-1000/1001	MPU-152 board	Ver. 2.50 and higher
RCP-1500/1501/1530	MPU-153 board	Ver. 3.20 and higher
HDCU2000/2500	AT-167A board	Ver. 3.30 and higher
MSU-1000	MPU-150 board	Ver. 3.20 and higher
MSU-1500	MPU-151 board	Ver. 3.20 and higher
HDCU3100/3170	AT-195 board	Ver. 2.05 and higher
RCP-3100	AT-195 board	Ver. 1.00 and higher

1-2. Connectors and Cables

1-2-1. Connector Input/Output Signals



1. CCU

1-1. CCU (HDC3500, HKC-FB30)

3.7125 Gbps/3.70879 Gbps Serial

1-2. CCU (HDC5500, HKC-FB50)

26.73 Gbps/26.7033 Gbps Serial

2. CCU (HKC-TR37)

UC: King Triax connector
CE: Fischer Triax connector

3. PROMPTER/GENLOCK

BNC type (1)
1 Vp-p 75 Ω

4. SDI 1

4-1. SDI 1 (HDC3500, HKC-FB30)

BNC type
3G SDI signal
SMPTE ST 424/425-1 compliant
0.8 Vp-p 75 Ω, 2.97 Gbps/2.9670 Gbps Serial
or HD SDI signal
SMPTE ST 292-1,, BTA-S004 compliant
0.8 Vp-p 75 Ω, 1.485 Gbps/1.48352 Gbps Serial

4-2. SDI 1 (HDC5500, HKC-FB50)

BNC type
12G SDI signal
SMPTE ST 2082-1/10 compliant
0.8 Vp-p 75 Ω, 11.88 Gbps/11.8681 Gbps Serial
or 6G SDI signal
SMPTE ST 2081-1/10 compliant
0.8 Vp-p 75 Ω, 5.94 Gbps/5.9341 Gbps Serial
or 3G SDI signal
SMPTE 424/425-1 compliant
0.8 Vp-p 75 Ω, 2.97 Gbps/2.9670 Gbps Serial
or HD SDI signal
SMPTE ST 292-1, BTA-S004 compliant
0.8 Vp-p 75 Ω, 1.485 Gbps/1.48352 Gbps Serial

5. SDI 2

5-1. SDI 2 (HDC3500, HKC-FB30)

BNC type
Output:3G (Level A/B)/HD SDI signal
SMPTE ST 424/425-1, ST 292-1, BTA-S004 compliant
0.8 Vp-p 75 Ω, 2.97 Gbps/2.9670 Gbps, 1.485Gbps/1.48352 Gbps Serial
Input: HD SDI signal
SMPTE ST 292-1, BTA-S004 compliant
0.8 Vp-p 75 Ω, 1.485 Gbps/1.48352 Gbps Serial

5-2. SDI 2 (HDC5500, HKC-FB50)

BNC type
Output:12G/6G/3G (Level A/B)/HD SDI signal
SMPTE ST 2082-1/10, ST 2081-1/10, ST 424/425-1, ST 292-1, BTA-S004 compliant
0.8 Vp-p 75 Ω, 11.88 Gbps/11.8681 Gbps, 5.94 Gbps/5.9341 Gbps, 2.97 Gbps/2.9670 Gbps, 1.485 Gbps/1.48352 Gbps Serial
Input: 12G/HD SDI signal
SMPTE ST 2082-1/10, ST 292-1 BTA-S004 compliant
0.8 Vp-p 75 Ω, 11.88 Gbps/11.8681 Gbps, 1.485 Gbps/1.48352 Gbps Serial

6. SDI-MONI

BNC type
HD SDI signal
SMPTE ST 292-1, BTA-S004 compliant
0.8 Vp-p 75 Ω, 1.485 Gbps/1.48352 Gbps Serial or SD SDI signal
SMPTE ST 259 compliant
0.8 Vp-p 75 Ω, 270 Mbps Serial

7. TEST OUT

BNC type 75 Ω, 1.0 Vp-p

8. EARPHONE

4 pole stereo mini jack

9. PROMPTER2 (HDC3500, HKC-FB30)

BNC type 75 Ω, 1.0 V p-p

10. SDI3 (HDC5500, HKC-FB50)

BNC type
HD SDI signal
SMPTE ST 292-1, BTA-S004 compliant
0.8 Vp-p 75 Ω, 1.485 Gbps/1.48352 Gbp

11. SDI (HKC-TR37)

BNC type
3G SDI signal
SMPTE ST 424/425-1 compliant
0.8 Vp-p 75 Ω, 2.97 Gbps/2.9679 Gbps sirial or HD SDI signal
SMPTE ST 292-1, BTA-S004 compliant
0.8 Vp-p 75 Ω, 1.485 Gbps/1.4835 Gbps serial

12. SDI (HKC-WL50)

12-1. SDI1-A

MCX type
12G SDI signal
SMPTE ST 2082-1/10 compliant
0.8 Vp-p 75 Ω, 11.88 Gbps/11.8681 Gbps serial
or 3G SDI (Level A/B) signal
SMPTE ST 424/425-1 compliant
0.8 Vp-p 75 Ω, 2.97 Gbps/2.9670 Gbps serial
or HD SDI signal
SMPTE ST 292-1 compliant
0.8 Vp-p 75 Ω, 1.485 Gbps/1.48352 Gbps serial

12-2. SDI1-B/C/D

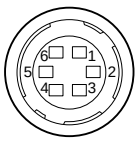
MCX type
3G SDI (Level A/B) signal
SMPTE ST 424/425-1 compliant
0.8 Vp-p 75 Ω, 2.97 Gbps/2.9670 Gbps serial

12-3. SDI2

MCX type
12G SDI signal
SMPTE ST 2082-1/10 compliant
0.8 Vp-p 75 Ω, 11.88 Gbps/11.8681 Gbps serial
or HD SDI signal
SMPTE ST 292-1 compliant
0.8 Vp-p 75 Ω, 1.485 Gbps/1.48352 Gbps serial
Input:
HD SDI signal
SMPTE ST 292-1 compliant
0.8 Vp-p 75 Ω, 1.485 Gbps/1.48352 Gbps serial

13. RET CTRL

6-pin, Female

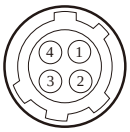


- External View -

No.	Signal	I/O	Specifications
1	INCOM 1 MIC-ON/OFF	IN	Zi ≧ 10 KΩ ON: GND OFF: OPEN
2	INCOM 2 MIC-ON/OFF	IN	Zi ≧ 10 KΩ ON: GND OFF: OPEN
3	GND	—	—
4	RET 3ON/OFF	IN	Zi ≧ 10 KΩ ON: GND OFF: OPEN
5	RET 1ON/OFF	IN	Zi ≧ 10 KΩ ON: GND OFF: OPEN
6	RET 2ON/OFF	IN	Zi ≧ 10 KΩ ON: GND OFF: OPEN

14. DC OUT

4-pin, Female

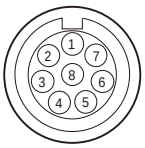


- External View -

No.	Signal	I/O	Specifications
1	UNREG GND	—	GND for power
2	NC	—	No connection
3	NC	—	No connection
4	UNREG	OUT	+12 V dc, 500 mA (max)

15. REMOTE

8-pin, Female

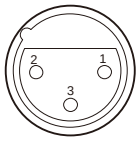


- External View -

No.	Signal	I/O	Specifications
1	• TX (X): for RCP • TX1 (+): for TRUNK (RS-422A)	OUT	• SERIAL DATA OUT: for RCP • TRUNK1 DATA OUT: for RS-422A
2	• TX (Y): for RCP • TX1 (-): for TRUNK (RS-422A)	OUT	
3	• RX (X): for RCP • RX1 (+): for TRUNK (RS-422A)	IN	• SERIAL DATA IN: for RCP • TRUNK1 DATA IN: for RS-422A
4	• RX (Y): for RCP • RX1 (-): for TRUNK (RS-422A)	IN	
5	TX-GND	—	GND for TX
6	UNREG-OUT	OUT	UNREG +10.5 V to +17 V dc, 200 mA (max)
7	UNREG-GND	—	GND for UNREG OUT
8	RCP-PIX: for RCP	OUT	75 Ω, 1.0 V p-p (SD Video)
	CHASSIS GND: for TRUNK (RS-422A)	—	CHASSIS GND

16. AUDIO IN CH1/CH2

XLR 3-pin, Female



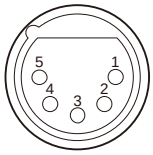
- External View -

(0 dBu = 0.775 Vrms)

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

17. INTERCOM 1, 2

XLR 5-pin, Female



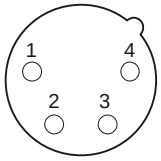
- External View -

(0 dBu = 0.775 V rms)

No.	Signal	I/O	Specifications
1	EXT-INCOM-T (Y)	IN	• –20 dBu: Carbon microphone • –60 dBu: Dynamic microphone
2	EXT-INCOM-T (X)	IN	
3	GND	—	GND
4	EXT-INCOMLEFT (X)	OUT	—
5	EXT-INCOMRIGHT (X)	OUT	

18. DC IN

XLR 4-pin, Male



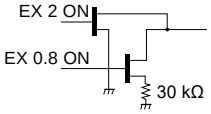
- External View -

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

19. LENS

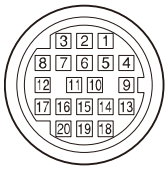
12-pin, Female

- 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
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	FOCUS POSI (LENS TX)	OUT	—

20. VF

20-pin, Female

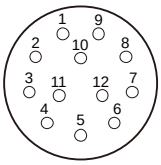


- External View -

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

21. CRANE

12-pin, Female



- External View -

No.	Signal	I/O	Specifications
1	Pr VIDEO (X)	OUT	±0.35 V p-p, Zo = 75Ω
2	Pb VIDEO (X)	OUT	±0.35 V p-p, Zo = 75Ω
3	NC	—	No connection
4	• TX0 (–): for RS-422A • TX1: for RS-232C	OUT	TRUNK data out
5	• TX0 (+): for RS-422A • TX0: for RS-232C	OUT	
6	• RX0 (+): for RS-422A • RX0: for RS-232C	IN	TRUNK data in
7	• RX0 (–): for RS-422A • RX1: for RS-232C	IN	
8	GND (VIDEO)	—	GND for VIDEO
9	Y VIDEO (X)	OUT	1.0 V p-p, Zo = 75Ω
10	GND	—	GND for SCL/SDA
11	SCL EXT-VF	OUT	TTL level
12	SDA EXT-VF	IN/OUT	TTL level

22. TRACKER

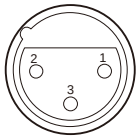
12-pin, Female

- External View -

No.	Signal	I/O	Specifications
1	TRACKER LEFT	OUT	TRACKER RECEIVE / 0 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 / 0 dBu unbalanced
5	UNREG	OUT	+12 V (+10.5 to +17.0 V)
6	GND (UNREG)	—	GND for UNREG
7	TRACKER TALK (X)	IN	TRACKER TALK 0 dBu / –20 dBu, High impedance, Balanced
8	TRACKER TALK (Y)	IN	
9	G TALLY	OUT	ON: GND OFF: High impedance (Open collector)
10	R TALLY	OUT	ON: GND OFF: High impedance (Open collector)
11	TRACKER2	OUT	TRACKER RECEIVE / 0 dBu unbalanced
12	Y TALLY	OUT	ON: GND OFF: High impedance (Open collector)

23. MIC 1 IN

XLR 3-pin, Female



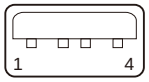
- External View -

(0 dBu = 0.775 Vrms)

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

24. USB

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

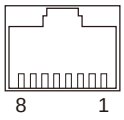


- External View -

No.	Signal	I/O	Specifications
1	VBUS	OUT	USB Vcc (+5 V)
2	D+	IN/OUT	USB+
3	D–	IN/OUT	USB–
4	GND	—	GND

25. LAN

8-pin, RJ-45, 10Base-T/100Base-TX

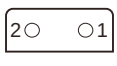


- External View -

No.	Signal	I/O	Specifications
1	TRD + (0)	IN/OUT	Transmitted/Received Data + (0)
2	TRD – (0)	IN/OUT	Transmitted/Received Data – (0)
3	TRD + (1)	IN/OUT	Transmitted/Received Data + (1)
4	TRD + (2)	IN/OUT	Transmitted/Received Data + (2)
5	TRD – (2)	IN/OUT	Transmitted/Received Data – (2)
6	TRD – (1)	IN/OUT	Transmitted/Received Data – (1)
7	TRD + (3)	IN/OUT	Transmitted/Received Data + (3)
8	TRD – (3)	IN/OUT	Transmitted/Received Data – (3)

26. DC OUT

2-pin, Female

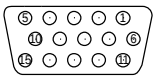


- External View -

No.	Signal	I/O	Specifications
1	LIGHT +12 V	OUT	+12 V dc, 2.5 A (max)
2	GND	—	GND for power

27. D-sub (HKC-WL50)

D-sub 15-pin, Female

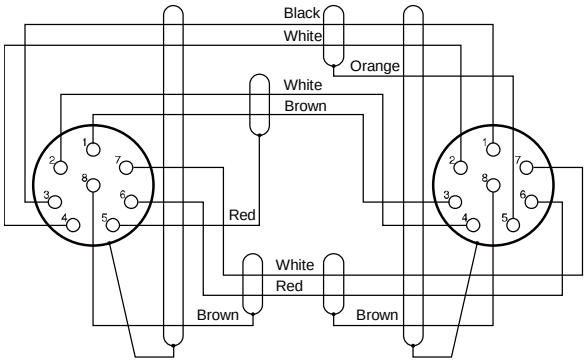


- External View -

No.	Signal	I/O	Specifications
1	700Protocol-RX (x) (to cam)	IN	RS-422A
2	700Protocol-RX (y) (to cam)	IN	RS-422A
3	Power (10.5-17V)	―	Power (10.5-17V) MAX 3.34 A (This specification is the sum of No.3 and No.13)
4	700Protocol-TX (x) (to cam)	OUT	RS-422A
5	700Protocol-TX (y) (to cam)	OUT	RS-422A
6	RS-232C-RX (to cam)	IN	RX-232C
7	RS-232C-TX (to cam)	OUT	RX-232C
8	GND	―	GND
9	NC	―	No connection
10	GND	―	GND
11	S-CLK (from cam)		LVCMOS (3.2 V)
12	S-DATA (from cam)		LVCMOS (3.2 V)
13	Power (10.5-17V)	―	Power (10.5-17V) MAX 3.34 A (This specification is the sum of No.3 and No.13)
14	NC	―	No connection
15	NC	―	No connection

1-2-2. Wiring Diagrams for Cables

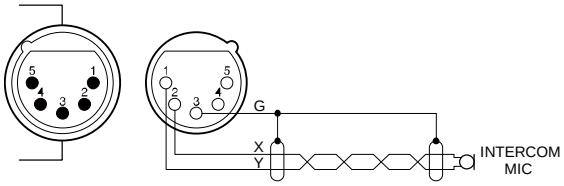
CCA-5 Cable (for REMOTE connector)



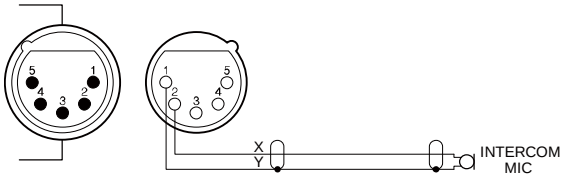
— 8P CONNECTOR (MALE) —
(WIRING SIDE)

INTERCOM MIC Cable

1. Balance (HEAD SET menu UNBAL: OFF)



2. Unbalance (HEAD SET menu UNBAL: ON)



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.

Connector Name	Connector/Cable
• SDI 1/2[*1] • SDI-MONI • TEST OUT • PROMPTER/GENLOCK • PROMPTER 2 (BNC type)	Plug, BNC (Part No.: 1-569-370-12) or 5C-FB coaxial cable/ Recommendation made by Fujikura
• AUDIO IN CH1/CH2 • MIC 1 IN (XLR type 3-pin, Female)	XLR, 3-Pin Male (Part No.: 1-508-084-00) or ITT Cannon XLR-3-12C or equivalent
RET CTRL (6-pin, Female)	Plug, 6-Pin Male (Part No.: 1-560-078-00) or HIROSE HR10-7PA-6P or equivalent
DC OUT (4-pin, Female)	Plug, 4-Pin Male (Part No.: 1-566-425-11) or HIROSE HR10A-7P-4P or equivalent
DC OUT (2-pin, Female)	Power tap (OE) ANTONBAUER 33710 or equivalent
INTERCOM 1/2 (XLR type 5-pin, Female)	XLR, 5-Pin Male (Part No.: 1-508-370-11) or ITT Cannon XLR-5-12C or equivalent
DC IN (XLR type 4-pin, Male)	XLR, 4-Pin Female (Part No.: 1-508-362-00) or ITT Cannon XLR-4-11C or equivalent, or Cable assembly (Part No.: 1-551-577-00) (Supplied with AC-550)
CRANE (12-pin, Female)	Connector, Round Type 12-Pin (Part No.: 1-819-261-11)
REMOTE (8-pin, Female)	• Plug, 8-Pin Male (Part No.: 1-766-848-11) or CCA-5 cable assembly (CCA-5-10 (10 m) /CCA-5-3 (3m)) (optional) [*2*3] • REMOTE cable (Part No.: 1-783-372-11) (supplied with RM-B150, 10 m) [*2*3*4]
TRACKER (12-pin, Female)	Connector, Round Type 12P (Part No.: 1-691-190-13)

*1: When using 12G-SDI signal at the SDI 1/2 connector, use a cable compatible with 12G-SDI.

*2: If using a cable of length different from a standard product, contact your local Sony Sales Office/Service Center.

*3: The pin 8 of CCA-5 cable is GND (ground). The pin 8 of REMOTE cable is not GND (ground).

*4: 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.

1-2-4. Note in Connecting CCU Connector

Tip

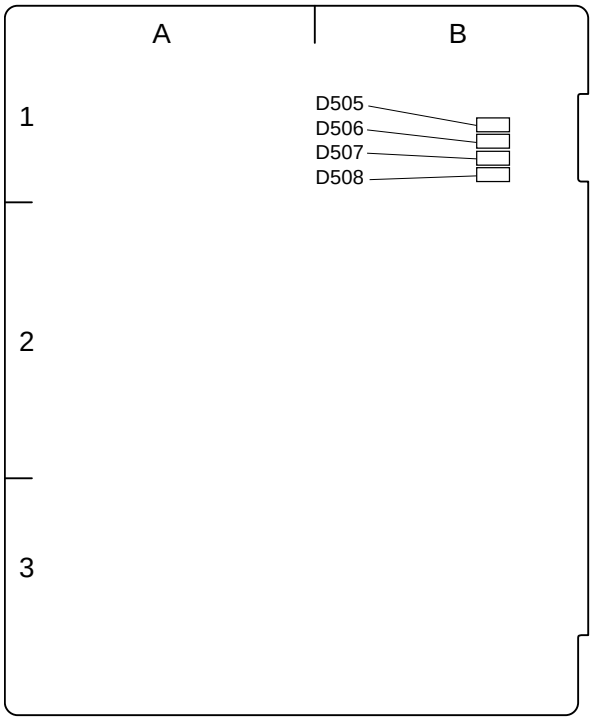
This section is required for the HDC3500, HDC5500, HKC-FB30, and HKC-FB50.
It is recommendable to clean the optical contact portions mentioned below before connecting this unit to the camera control unit.

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

For details on a cleaning method, refer to “2-4. Cleaning of Connector/Cable”.

1-3. Functions of Onboard Switches and LED Indicators

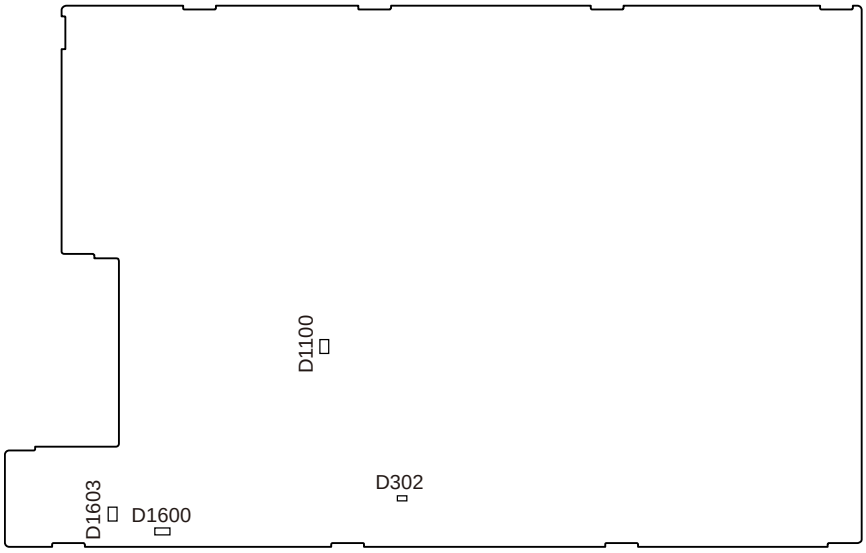
1-3-1. AT-195 Board



AT-195 BOARD (A side)

Ref. No.	Name	Color	Description	Normal State
D505	Debug LED 4	Orange	Core 0 access lamp of the CPU	flashing
D506	Debug LED 3	Orange	Core 1 access lamp of the CPU	flashing
D507	Debug LED 2	Orange	Access lamp of eMMC	flashing
D508	Debug LED 1	Orange	Access lamp of SD Card (ROM30)	OFF

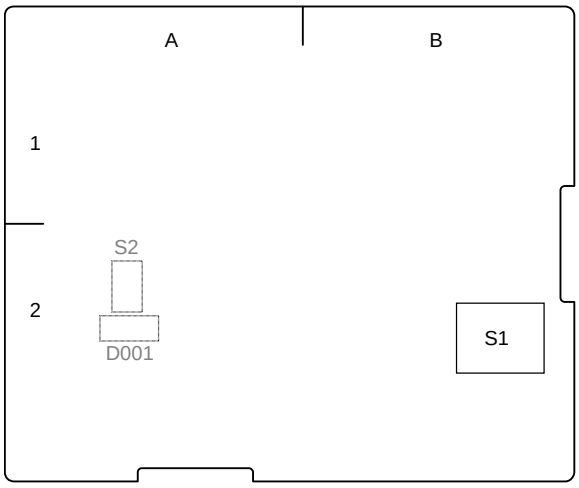
1-3-2. DPR-390 Board



DPR-390 BOARD (B side)

Ref. No.	Name	Color	Description	Normal State
D302	POWER	Green	Lights when the power supply regulators on the board are normal.	Lit
D1600	EXT	Green	Lights when receiving the external reference signal.	OFF
D1100	PRO-DONE	Red	Off when FPGA normally completed configuration.	OFF
D1603	PLL-NG	Red	Lights when the PLL is abnormal.	OFF

1-3-3. DR-697 Board



DR-697 BOARD (A side)

DR-697 BOARD (B side)

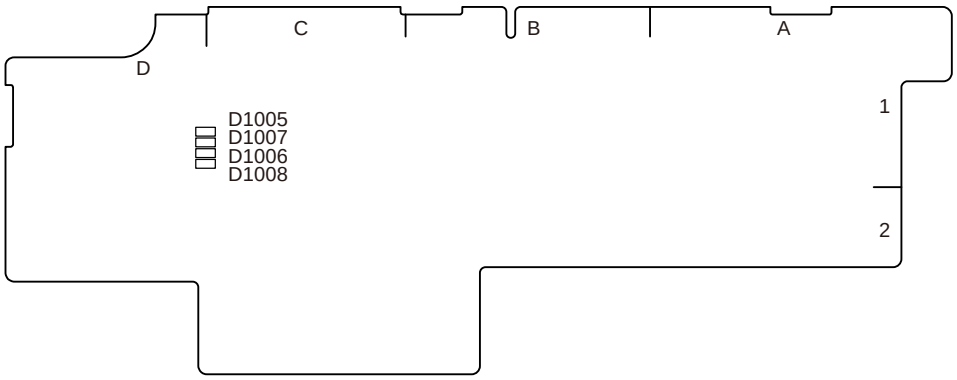
Ref. No.	Name	Color	Description	Normal State
D001	-	Green	Blinks while adjusting the filter position.	OFF

Note

Do not touch the unused switches.

Ref. No.	Name	Bit	Description	Factory Setting
S1	—	1	Not used	OFF
		2	Not used	OFF
		3	Not used	OFF
		4	Not used	OFF
S2	—	—	Filter position adjustment	-

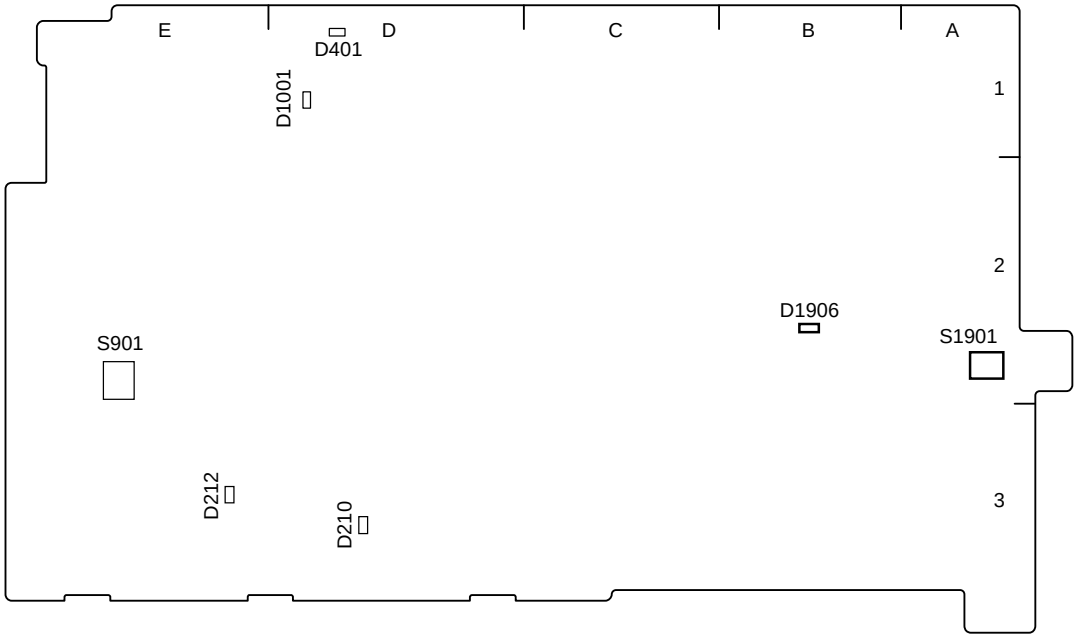
1-3-4. RE-347 Board



RE-347 BOARD (B side)

Ref. No.	Name	Color	Description	Normal State
D1005	VF_OCP	Red	Lights when an error occurs in the error detection (VF-OCP).	OFF
D1006	POWER_IN	Green	Normal operation	Lit
D1007	14V_OVP/14V_OCP DDCON_ERR	Red	Lights when an error occurs in the error detection (14V-OVP, 14V-OCP, +5V,-5V).	OFF
D1008	14V_UVP STANDBY_OVP	Red	Lights when an error occurs in the error detection (14V-UVP, Standby 13.5V-OVP).	OFF

1-3-5. SY-463 Board



SY-463 BOARD (B side)

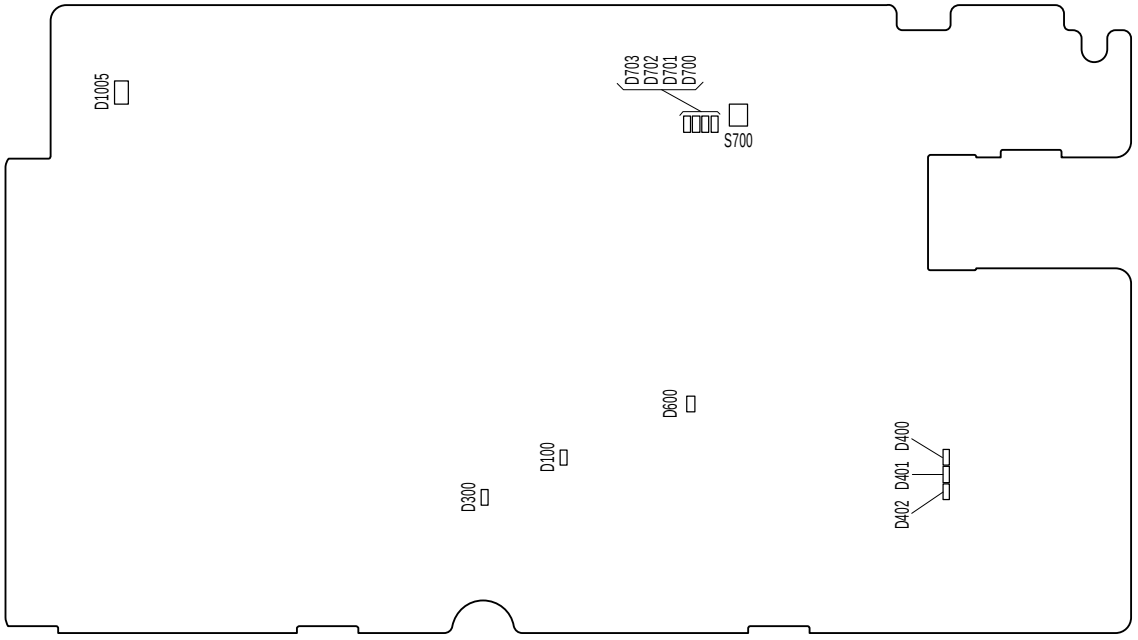
Ref. No.	Name	Color	Description	Normal State
D210	CAM-PW	Green	Lights when the main power is supplied.	Lit
D212	STANDBY	Orange	Lights when the standby power is supplied.	Lit
D401	STATUS	Green	For debugging	Lit
D1001	Conf Done	Red	Lights when FPGA (IC1001) cannot normally complete configuration.	OFF
D1906	RTS PW	Red	Lights when the RTS PW (+26 V) is supplied to the INTERCOM connector.	OFF

Note

Do not touch the unused switches.

Ref. No.	Name	Bit	Description	Factory Setting
S901	MODE	1	Not used	-
		2	Not used	-
		3	Not used	-
		4	Not used	-
S1901	RTS/NORMAL	-	Normal: Normal operation RTS: Intercom setup (Refer to [7-2-2. Description of SERVICE Menu] "INTERCOM".)	NORMAL

1-3-6. TX-164 Board



TX-164 BOARD (A side)

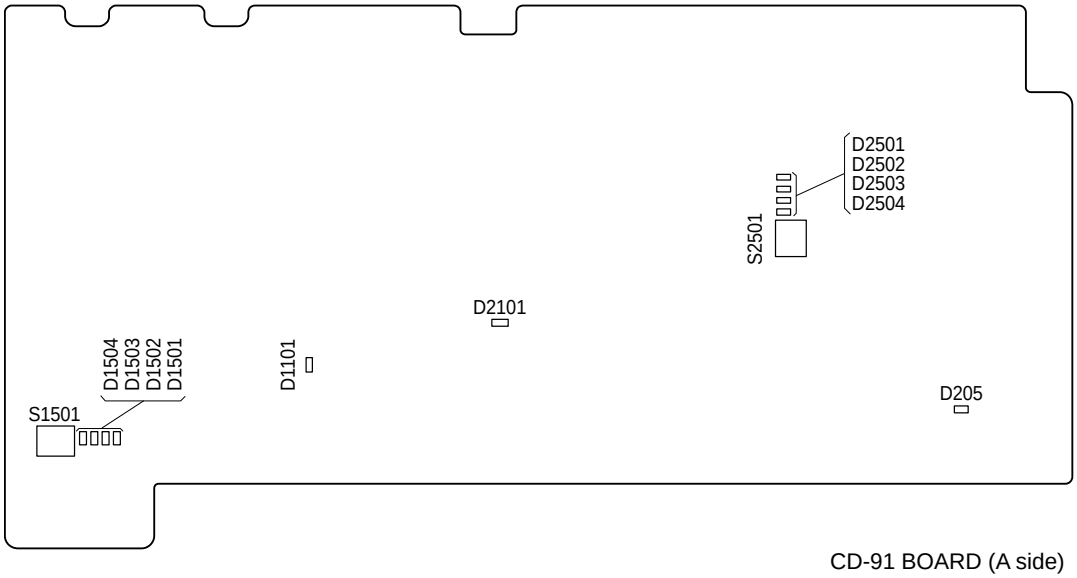
Ref. No.	Name	Color	Description	Normal State
D100	POWER_NG	Red	Lights when the power supply regulators on the board are abnormal.	OFF
D300	CONF_DONE	Red	Off when FPGA normally completed configuration.	OFF
D400	LOCK1	Red	Lights when the clock synthesizer is not locked.	OFF
D401	REF1	Red	Lights when the REF CLK is not input to the clock synthesizer.	OFF
D402	VCXO1	Red	Lights when the VCXO clock is not input to the clock synthesizer.	OFF
D600	LOCK_N	Red	Off when the reclocker of SDI2 is locked.	OFF
D700	TDIS	Red	Lights when controlling and stopping the transmitter of the optical module.	OFF
D701	TFAULT	Red	Lights when the transmitter of the optical module has a problem.	OFF
D702	MOD_ABS	Red	Lights when there is no optical module.	OFF
D703	RX_LOS	Red	Lights when the receiving level of the optical module is attenuated than the specified value.	OFF

Note

Do not touch the unused switches.

Ref. No.	Name	Bit	Description	Factory Setting
S700	LASER_ON	–	Factory use	OFF

1-3-7. CD-91 Board (HKC-TR37)



CD-91 BOARD (A side)

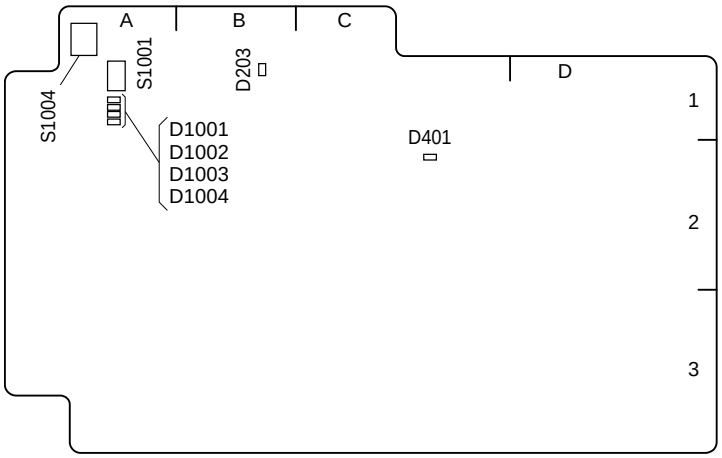
Ref. No.	Name	Color	Description	Normal State
D205	POWER	Green	Lights when the power supply regulators on the board are normal.	Lit
D1501	LED3	Green	Factory use	-
D1502	LED2	Green	Factory use	-
D1503	LED1	Green	Factory use	-
D1504	LED0	Green	Factory use	-
D2501	LED7	Green	Factory use	-
D2502	LED6	Green	Factory use	-
D2503	LED5	Green	Factory use	-
D2504	LED4	Green	Factory use	-
D1101	CV CONF DONE	Red	Off when FPGA (IC1001) normally completed configuration.	OFF
D2101	KU CONF DONE	Red	Off when FPGA (IC2001) normally completed configuration.	OFF

Note

Do not touch the unused switches.

Ref. No.	Name	Bit	Description	Factory Setting
S1501	–	1	Not used	OFF
		2	Not used	OFF
		3	Not used	OFF
		4	Not used	OFF
S2501	–	1	Not used	OFF
		2	Not used	OFF
		3	Not used	OFF
		4	Not used	OFF

1-3-8. TR-170 Board (HKC-TR37)



TR-170 BOARD (A side)

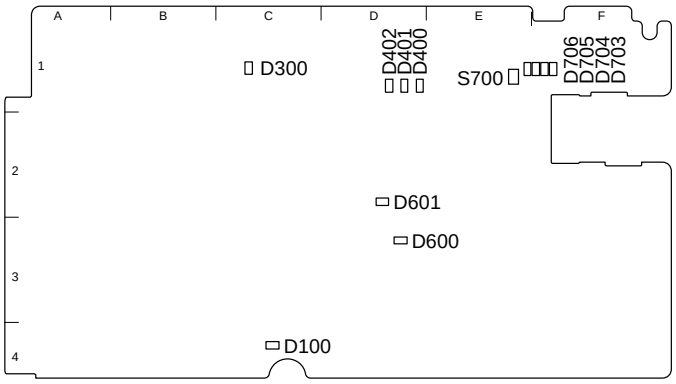
Ref. No.	Name	Color	Description	Normal State
D203	PWR	Blue	Lights when the power supply regulators on the board is normal.	Lit
D401	RB DETECT	Yellowish Green	Lights when the RET RF signal is detected.	Turn on only at the time of CCU connection
D1001	-	Yellowish Green	For debugging	-
D1002	-	Yellowish Green	For debugging	-
D1003	-	Yellowish Green	For debugging	-
D1004	-	Yellowish Green	For debugging	-

Note

Do not touch the unused switches.

Ref. No.	Name	Bit	Description	Factory Setting
S1004	MOD-SW	1	Not used	OFF
		2	Not used	OFF
		3	Not used	OFF
		4	Not used	OFF
S1001	RESET	—	Not used	OFF

1-3-9. TX-165 Board (HDC5500, HKC-FB50)



TX-165 Board/Side A

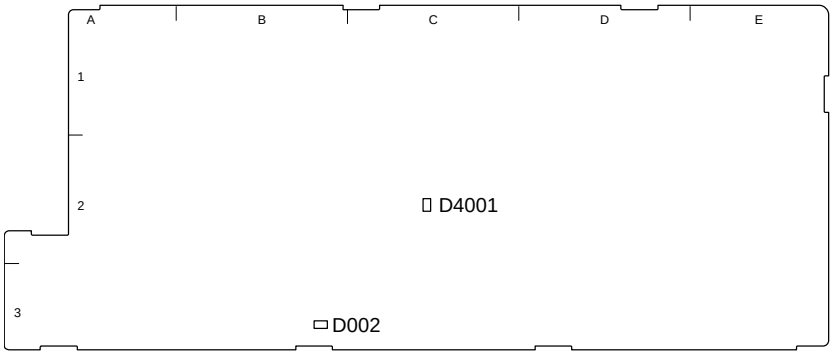
Ref. No.	Name	Color	Description	Normal State
D100	POWER_NG	Red	Lights when the power supply regulators on the board is abnormal.	OFF
D300	CONFIG_DONE	Red	Off when FPGA normally completed configuration.	OFF
D400	LOCK1	Red	Lights when the clock synthesizer is not locked.	OFF
D401	REF1	Red	Lights when the REF_CLK is not input to the clock synthesizer.	OFF
D402	VCXO1	Red	Lights when the VCXO clock is not input to the clock synthesizer.	OFF
D600	LOCK_N2	Red	Lights when the SDI2 reclocker is locked.	OFF
D601	LOCK_N1	Red	Lights when the SDI1 reclocker is locked.	OFF
D703	TX_DIS	Red	Lights when controlling to stop transmission of optical module.	OFF
D704	TX_FAULT	Red	Lights when there is an abnormality in the transmission part of the optical module.	OFF
D705	MOD ABS	Red	Lights when the optical module is not connected.	OFF
D706	RX_LOS	Red	Lights when the optical module reception level lower than specified value.	OFF

Note

Do not touch the unused switches

Ref. No.	Name	Bit	Description	Factory Setting
S700	Laser_ON	–	Not used	OFF

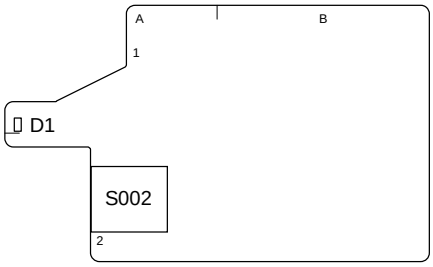
1-3-10. IF-1372 Board (HKC-WL50)



IF-1372 Board/Side B

Ref. No.	Name	Color	Description	Normal State
D002	PWR	Green	Lights when the power supply regulators on the board is normal.	Lit
D4001	IF_CONFDONE	Red	Off when the FPGA (IC3001) normally completed configuration.	OFF

1-3-11. CN-4074 Board (HKC-WL50)



CN-4074 Board/Side A

Ref. No.	Name	Color	Description	Normal State
D1	PWR	Red/Green	Red: Power standby Green: Power on	Lit

Ref. No.	Name	Bit	Description	Factory Setting
S002	–	–	The power supply module of the wireless switch Upper: Power on Middle: STANDBY Under: OFF	OFF

1-4. Microphone Power and Intercom Settings

1-4-1. Outputting Microphone Power Voltage +12 V (AB-Power)

A microphone power voltage of +12 V can be supplied to the microphone connected to the AUDIO IN connector.
1. Open the OPTION [S12] page of the SERVICE menu.
2. Set MIC AB POWER to “ENABLE”.
3. Set the microphone power switch on the connector panel at the rear of the unit to “•”.

Power voltage +12 V (AB-Power) is supplied to the microphone connected to the AUDIO IN connector.

1-4-2. Intercom Settings

Since there are several types and usages of the headset for intercom, make appropriate settings for each type.

Talk (Microphone) Settings

Check characteristics of the microphone attached to the headset and make settings by the menu of the unit. Microphone sensitivity, power supply method, balanced/unbalanced input can be set. Intercom 1 and intercom 2 are independent, and therefore make settings for each intercom.

General carbon microphone

1. Set INTERCOM1 MIC (or INTERCOM2 MIC) on the HEAD SET page of the OPERATION menu to “CARBON”.
   Microphone sensitivity, power supply method, and balanced/unbalanced input are automatically set.

General dynamic microphone

1. Set INTERCOM1 MIC (or INTERCOM2 MIC) on the HEAD SET page of the OPERATION menu to “DYNAMIC”.
2. Set UNBAL (balanced/unbalanced input) on the HEAD SET page according to the microphone.
   Microphone sensitivity and power supply method are automatically set.

Other microphones

1. Set INTERCOM1 MIC (or INTERCOM2 MIC) on the HEAD SET page of the OPERATION menu to “MANUAL”.
2. Set the following items on the HEAD SET page according to the microphone to be used.
   - LEVEL (microphone sensitivity)
   - POWER (power supply method)
   - UNBAL (balanced/unbalanced input)

Receive (Headphone) Settings

Headphone operation varies depending on the headset connection.
The following description is provided when the right ear is connected to Pin 5 of the intercom connector and the left ear is connected to Pin 4 of the intercom connector.

In the case of dual-type headphone to listen to the same sound with both ears or single-type headphone

1. Set INTERCOM RECEIVE SELECT on the RECEIVE SEL page of the OPERATION menu to “MIX”.
   The same sound is output from right and left.

In the case of dual-type headphone to listen to different right and left sound

1. Set INTERCOM RECEIVE SELECT on the RECEIVE SEL page of the OPERATION menu to “SEPARATE”.
2. Set channels (left, right, and both) of items INTRECOM, PGM1, PGM2, and TRACKER on the RECEIVE SEL page.

To adjust the volume of your voice

1. Set volume in SIDE TONE on the INTERCOM LEVEL page of the OPERATION menu.

1-4-3. Earphone Settings

Talk (Microphone) Settings

Set microphone sensitivity according to characteristics of the microphone in EARPHONE on the HEADSET MIC page of the OPERATION menu.

Note

Be sure to set the EARPHONE on the HEADSET MIC page of the OPERATION menu to OFF when the microphone is not used, or the earphone is plugged in or unplugged.

Receive Settings

In the case of dual-type earphone to listen to the same sound with both ears

Set EARPHONE RECEIVE SELECT on the EARPHONE page of the OPERATION menu to “MIX”.

In the case of dual-type earphone to listen to different right and left sound

Set EARPHONE RECEIVE SELECT on the EARPHONE page of the OPERATION menu to “SEPARATE”.

To adjust the volume of your voice

Set volume in SIDE TONE on the INTERCOM LEVEL page of the OPERATION menu.

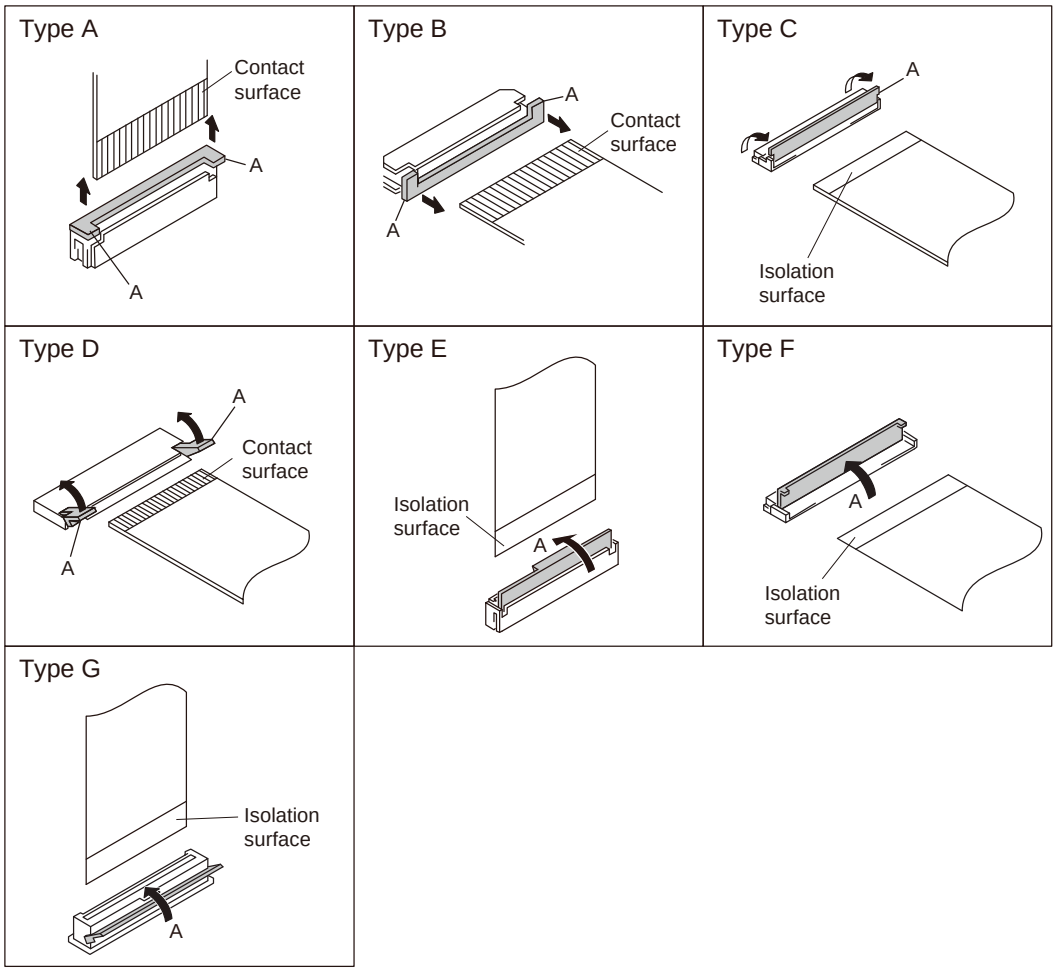
1-5. Flexible Card Wire and Fine-Wire Coaxial Cable

1-5-1. Disconnecting and Connecting Flexible Flat Cable and Flexible Board

Note

- Be very careful not to fold flexible flat cable or flexible board. Life of flexible flat cable and flexible board will be significantly shortened if they are folded.
- Each flexible flat cable and flexible board have conductor side and insulated side. If the flexible flat cable and flexible board are connected in the wrong orientation of the conductor side and the insulated side, the circuit will not function.
- Check that the conductive surface of the flexible flat cable and flexible board wire are not contaminated.
- Insert the flexible flat cable and flexible board straight and firmly in the interior of the connector.

Type A to G



Disconnecting

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

Connecting

1. Slide or lift up the portion A in the direction of the arrow and insert the flexible card wire firmly in the interior of the connector.
2. Slide or push down the portion A in the opposite direction of the arrow to lock the flexible card wire.

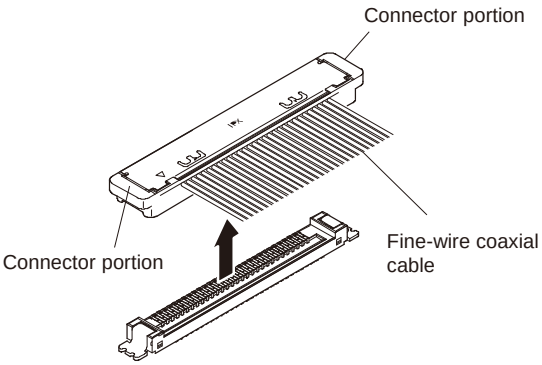
1-5-2. Disconnecting/Connecting Fine-Wire Coaxial Cable

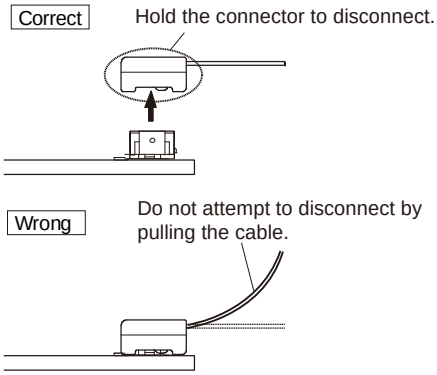
Note

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

Type A

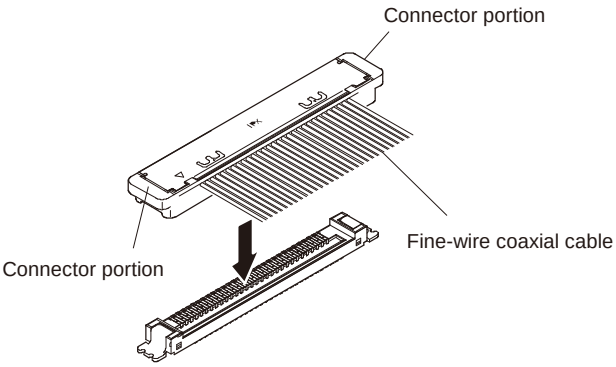
Disconnecting





1. Hold both sides of the fine-wire coaxial cable connector, and pull the connector portion of the fine-wire coaxial cable in the direction of the arrow to disconnect it.

Connecting



1. Insert the connector portion of the fine-wire coaxial cable in the direction of the arrow to connect it.

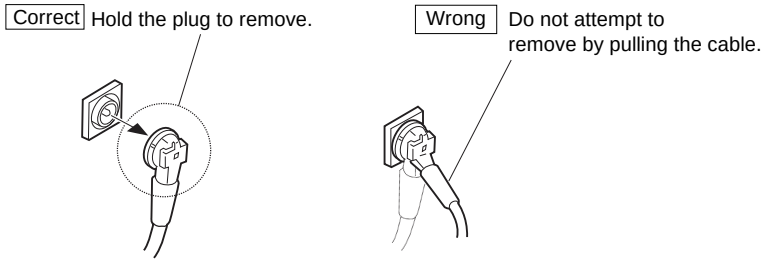
   Note

   Insert the connector portion of the fine-wire coaxial cable firmly into the interior.

1-5-3. Connecting/Disconnecting Coaxial Cable

Type A

Disconnecting

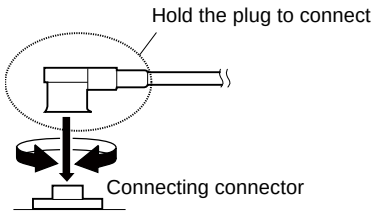


1. Hold the plug of coaxial cable.
2. Pull out the coaxial cable in the direction of the arrow.

Note

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

Connecting



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

1-5-4. Connecting/Disconnecting Coaxial Cable for SDI 1, 2

Coaxial Cable

HDC3500

SDI 1: COAXIAL CABLE (D.FL75) (SDI1) (Part No.: 1-912-828-11)
SDI 2: COAXIAL CABLE (D.FL75) (SDI2) (Part No.: 1-912-874-11)

HDC5500

SDI 1: COAXIAL CABLE (D.FL75) (SDI1) (Part No.: 1-912-828-21)
SDI 2: COAXIAL CABLE (D.FL75) (SDI2) (Part No.: 1-912-874-21)
SDI 3: COAXIAL CABLE (D.FL75) (SDI2) (Part No.: 1-912-829-21)

Required Tool

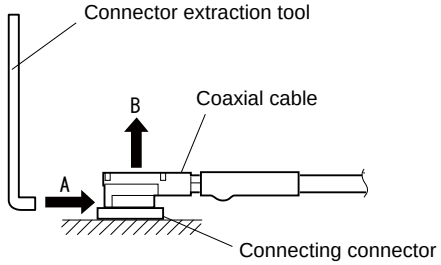
When disconnecting the coaxial cables for SDI 1 to 3, use the following tool.
D.FL75-LP-N75 Connector extraction tool: Part No.: J-7121-700-A

Disconnecting

1. Insert the tip of the connector extraction tool into the connector area of the coaxial cable in the direction of the arrow A.
2. Pull up the connector extraction tool upwards in the direction of the arrow B to disconnect the connector.

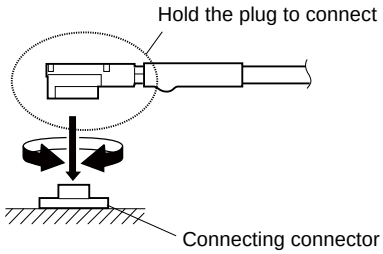
Note

Do not pull the cable of the coaxial cable.



Connecting

1. Hold the plug of the coaxial cable.
2. Push the plug vertical to the connecting connector turning it clockwise and counterclockwise.



1-6. Circuit Protection Parts

1-6-1. Fuses

WARNING

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

CAUTION

Replacing any fuse is replaced while power is supplied to the unit may cause electric shock. Before replacing any fuse, turn off the POWER switch and also disconnect the battery pack and the cable from the DC IN connector.

This unit is equipped with fuses. The fuses blow if overcurrent flows in the unit due to an abnormality. In that case, turn off the power of the unit, inspect inside of the unit, and then remove the cause of the overcurrent. After that, replace the defective parts.

Board Name	Ref. No.	Part No.	Part Name/Rating
PS-943	F101	⚠ 1-523-190-11	Fuse (SMD) 6.3 A/250 V
	F102	⚠ 1-523-190-11	Fuse (SMD) 6.3 A/250 V
	F3001	⚠ 1-576-566-21	Fuse (SMD) 15 A/65 V

1-6-2. Circuit Protection Element

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

The positive-characteristic thermistor limits the electric current flowing through the circuit as the internal resistance increases when an excessive current flows or when the ambient temperature increases. If the positive-characteristic thermistor works, turn off the main power of the unit and inspect the internal circuit of the unit.

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

Board Name	Ref. No.	Part No.	Hold Current
CN-3995	TH1	⚠ 1-802-108-11	1.50 A/20 °C
	TH2	⚠ 1-802-108-11	1.50 A/20 °C
IF-1331	TH001	⚠ 1-771-845-21	200 mA/20 °C
MB-1248	TH001	⚠ 1-802-063-21	1.10 A/20 °C
SY-463	TH111	⚠ 1-802-063-21	1.10 A/20 °C
	TH201	⚠ 1-803-615-21	500 mA/25 °C
	TH202	⚠ 1-805-726-11	0.20 A/25 °C
	TH203	⚠ 1-802-063-21	1.10 A/20 °C

1-7. Fixtures/Measuring Equipments List

1-7-1. Service Tools

Part No.	Name	Usage/Note
J-6029-140-B	Pattern box PTB-500	Camera adjustment
J-6323-430-A	Torque driver bit (M3)	Screw tightening
J-6325-110-A	Torque driver bit (M1.4)	Screw tightening
J-6325-380-A	Torque driver bit (M2)	Screw tightening
J-6325-400-A	Torque screwdriver (3 kg·cm) (0.3 N·m)	Screw tightening
J-6252-510-A	Torque screwdriver (6 kg·cm) (0.6 N·m)	Screw tightening
J-6252-520-A	Torque screwdriver (12 kg·cm) (1.2 N·m)	Screw tightening
J-6326-120-A	Hexagon bit (for torque driver) (size 1.5 mm))	Screw tightening
J-6394-080-A	Grayscale chart	Transparent type (16:9), Camera adjustment
J-6480-010-A	Alignment sleeve remover HC-001	For Female connector, DCC.91.312.5LA manufactured by LEMO or equivalent
J-7121-700-A	D.FL75-LP-N75 connector remover	Extracting coaxial plug for HIROSE D.FL series
J-7120-950-A	Chart adaptor	Adaptor that installs ITE test chart (16:9) 310 X200 in PTB-500 (pattern box)
J-7120-960-A	ITE STANDARD TEST CHART	ITE resolution chart (16 : 9)
J-7120-970-A	ITE STANDARD TEST CHART	ITE grayscale chart (γ=0.45) (16:9)
J-7120-980-A	ITE STANDARD TEST CHART	ITE in megacycle chart (16 : 9)
7-600-002-52	Three Bond (TB1401B)	For preventing screws from being loosened
Commercially available	Loctite (408)	Instant adhesives
Commercially available	Grayscale chart	Reflective type (16:9), Camera adjustment
Commercially available	Star chart	Reflective type, Camera adjustment
Commercially available	USB drive	Upgrading software, writing and rewriting the PLD internal data

1-7-2. Measuring Equipment

Use the calibrated equipment or equivalent as listed below for the adjustments.

Equipment	Model name
HD waveform monitor	Leader Electronics LV5770A or equivalent
HD color monitor	Sony BVM-E171 or equivalent
Luminance meter	Konica Minolta LS-150 or equivalent

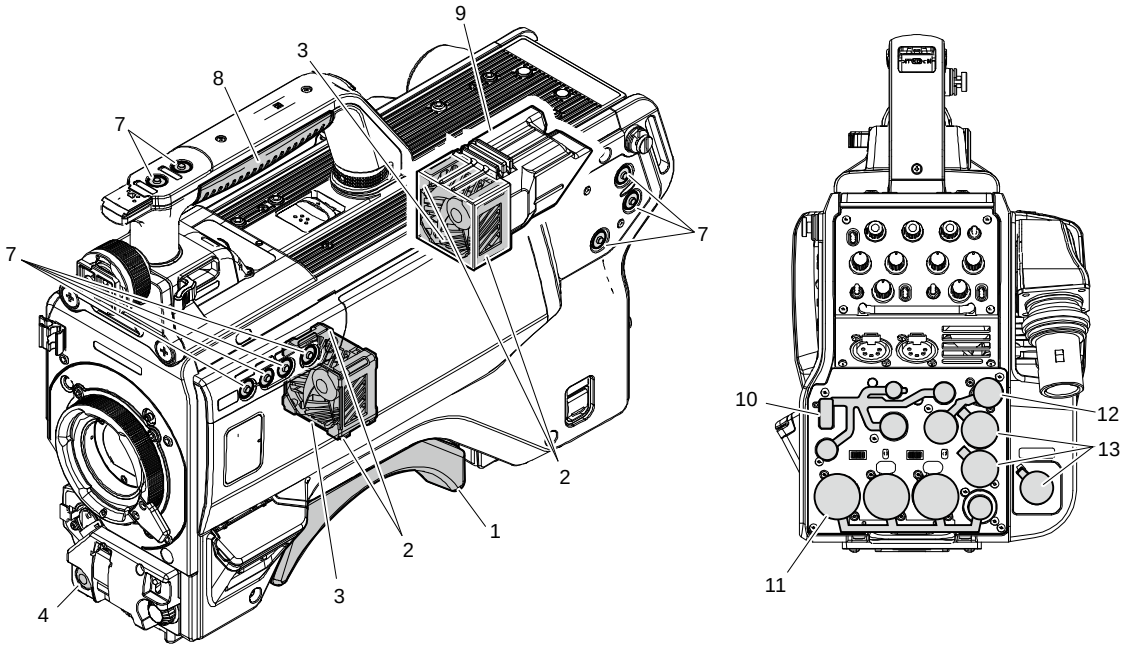
1-8. Explanation of Adhering Number

The CMOS imager adhering is managed by following mount assembly number.
Optical block assembly: A-2126-567-A
Mount assembly number (8-digit): A0000001 and higher

Section 2
Periodic Maintenance and Inspection

2-1. Recommended Replacement Parts

This section describes the recommended replacement parts and recommended replacement time.

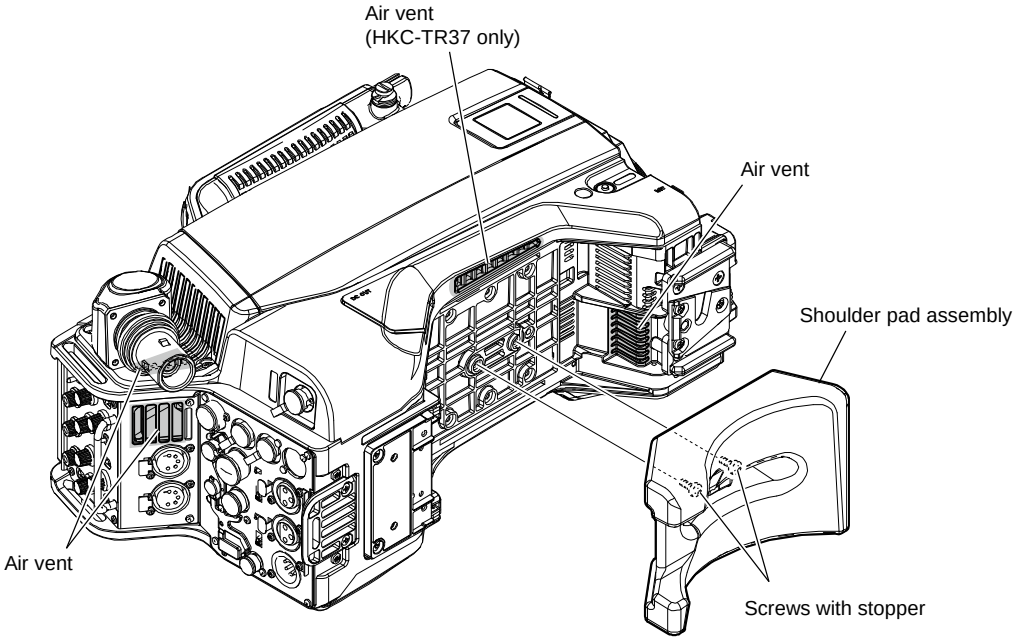


No.	Name	Part No.	Recommended Replacement Timing
1	Shoulder Pad Assembly	A-8286-163-D	Check for deformation and deterioration (abraded or damaged or lost) from time to time. Replace it as necessary.
	Shoulder Pad Assembly (Optional)	A-8286-346-A	
2	Cushion (fan)	4-546-928-01	
3	DC fan	⚠1-855-374-11	
4	VTR Start button	3-679-668-01	
7	SW Cover	3-676-244-03	Check for deformation and deterioration (abraded or damaged or lost) from time to time. Replace it as necessary.
8	Grip	4-740-601-01	
9	Fan Duct	4-742-319-01	
10	Rear Connector Cap	4-742-359-01	
11	Rear Connector Cap 2	4-414-618-01	
12	Tracker cap	4-742-360-01	
13	BNC cap	3-872-935-01	

2-2. Cleaning the Air Vents

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

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



2-3. Replacing Lithium Secondary Battery

2-3-1. Note on Replacement of Lithium Secondary Battery

A lithium secondary battery is mounted on the SY-463 board to back up the real time clock (RTC). RTC stops operating when the battery life expires. In that case, replace the battery.

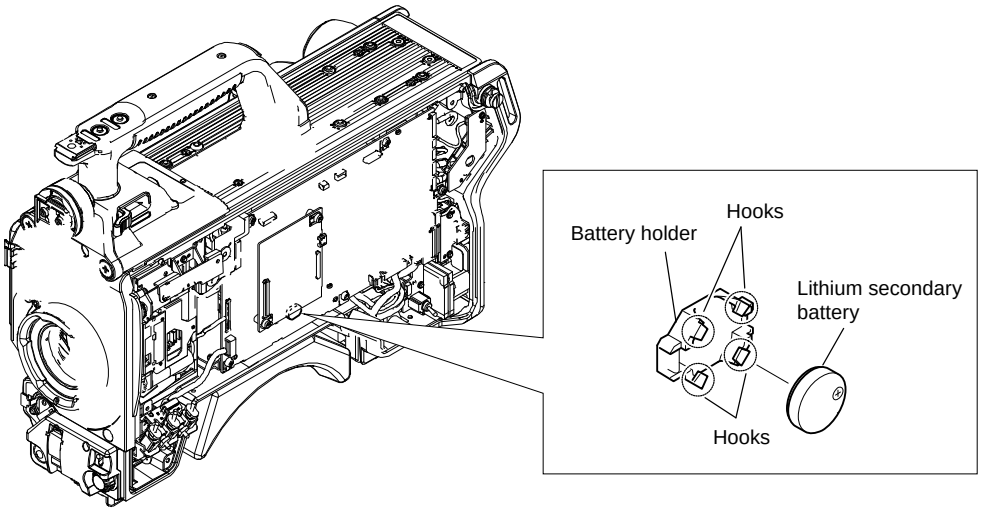
- SY-463 board / Lithium secondary battery
  Replace one of the following parts.
  - ML621 (U): Sony Part No. : 1-756-134-18
  - ML-621S/ZT: Sony Part No. : 1-528-900-52
  - MS-621FE: Sony Part No.: 1-756-135-34

CAUTION

When replacing the lithium secondary battery, ensure that the battery is installed with “+” and “-” poles connected to the correct terminals. Improper connection may cause an explosion or leakage of fluid, resulting in injury or damage to surrounding properties.

2-3-2. Replacing Lithium Secondary Battery

1. Remove the four screws and remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Replace the lithium secondary battery on the SY-463 board.



Note

Be sure to use an insulated stick when removing the lithium secondary battery.

3. Install the inside panel assembly by reversing the steps of removal.

2-4. Cleaning of Connector/Cable

Tip

This section is required for the following models.

- HDC3500
- HDC3500 with an option (HKC-CN50, HKC-FB30)
- HDC5500
- HDC5500 with an option (HKC-CN50, HKC-FB50)

The photo receptive condition of the optical connector can be checked at OPTICAL CONDITION indicator of the front panel of the camera control unit.

- When lit in green: Normal (-16 dBm and higher)
- When lit in yellow: Normal (-16 to -19 dBm)
- When lit in red: Abnormal (Less than -19 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. Clean optical contact portions proceeding as follows.
The optical contact portion exists in the optical connector on the camera or camera control unit, and in the optical/electrical cables.

2-4-1. When the Optical Connector Cleaner (Commercially Available) is Available

Fixtures

- 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

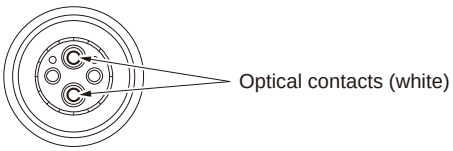
Tip

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

Cleaning Procedure

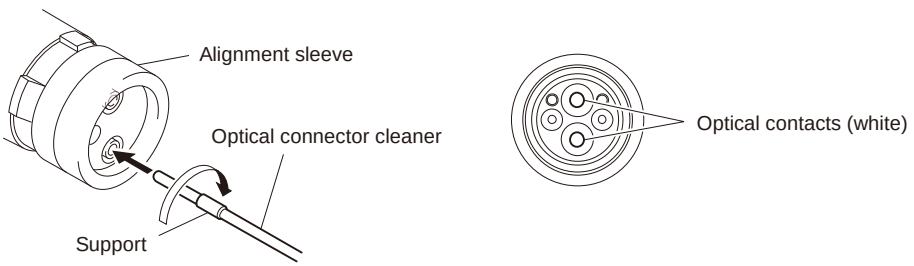
Male connector

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



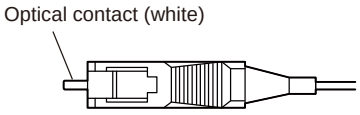
Female connector

1. Insert the optical connector cleaner straight.
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.



Connector

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



2-4-2. When the Optical Connector Cleaner (Commercially Available) is not Available (Connectors/Cables of LEMO)

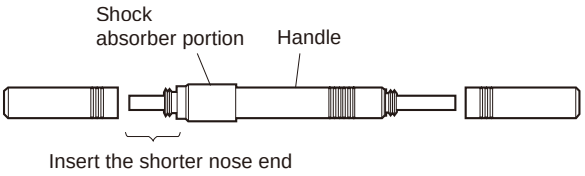
Clean the LEMO connectors and cables using the following procedure.

Fixtures

- Alignment sleeve remover HC-001 (for female connector)
  Sony Part No. : J-6480-010-A or DCC.91.312.5LA manufactured by LEMO, or equivalent

  Note

  Insert the shorter nose end when removing/installing the alignment sleeve. This fixture contains shock absorber portion. Do not hold the shock absorber portion of the remover but grasp the handle in use.



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

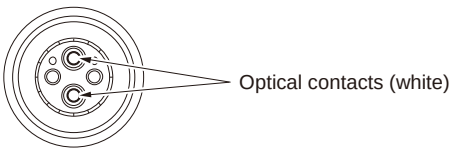
  Note

  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

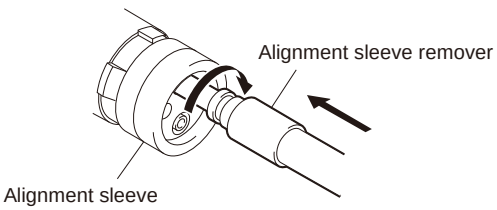
Clean the tip of the optical contacts (white) with a cotton swab moistened with alcohol.



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.

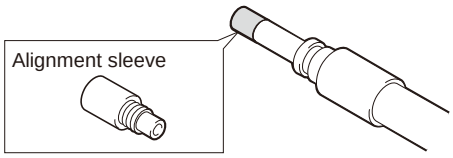
1. Insert the alignment sleeve remover into the alignment sleeve in the straight line and turn it clockwise.



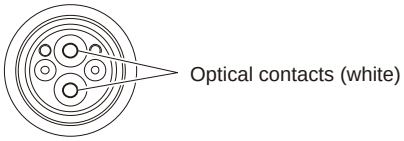
2. When the turn stops, pull out the remover in the straight line forcedly.

   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 Part No. : 9-980-074-01



3. Clean the tip of the optical contacts (white) with 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.

2-4-3. When the Optical Connector Cleaner (Commercially Available) is not Available (Connector of Tajimi Electronics Co., Ltd./Cable)

Clean the connectors of Tajimi Electronics and cables using the following procedure.

Fixtures

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

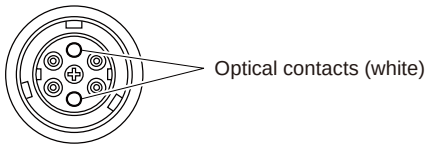
  Note

  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 optical contacts (white) with a cotton swab moistened with alcohol.



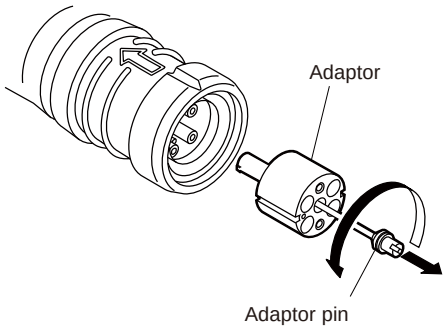
Female connector

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

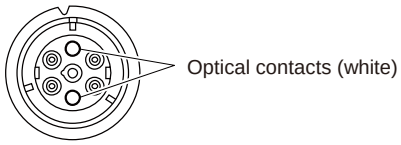
1. Loosen the adaptor pin at the center of the connector counterclockwise with a screwdriver.

   Tip

   If there is no screwdriver, use the plate attached to the connector cap.
2. Pull the adaptor pin out of the connector in the arrow direction. Remove the adaptor from the connector.



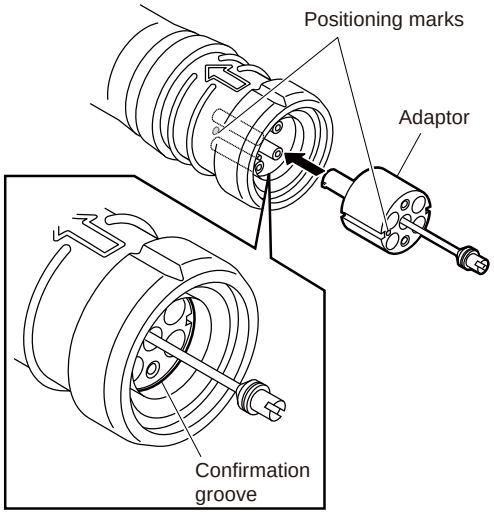
3. Clean the optical contacts (white) with a cotton swab moistened with alcohol.



4. Match the positioning marks of the adaptor and the connector, and then push the adaptor into the connector.

   Note

   Push the adaptor until the confirmation groove comes in sight as shown in the figure.



5. Tighten the adaptor pin clockwise until being lightly fixed.

   Note

   Do not fully tighten the adaptor pin. (Extent where adaptor pin is lightly fixed)

2-4-4. When the Optical Connector Cleaner (Commercially Available) is not Available (Connector)

Fixtures

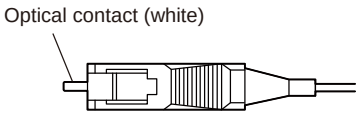
- Alcohol (commercially available)
- Cotton swabs (commercially available)

  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

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



Section 3
Replacement of Main Parts

3-1. Precautions before Work

3-1-1. Tightening Torque

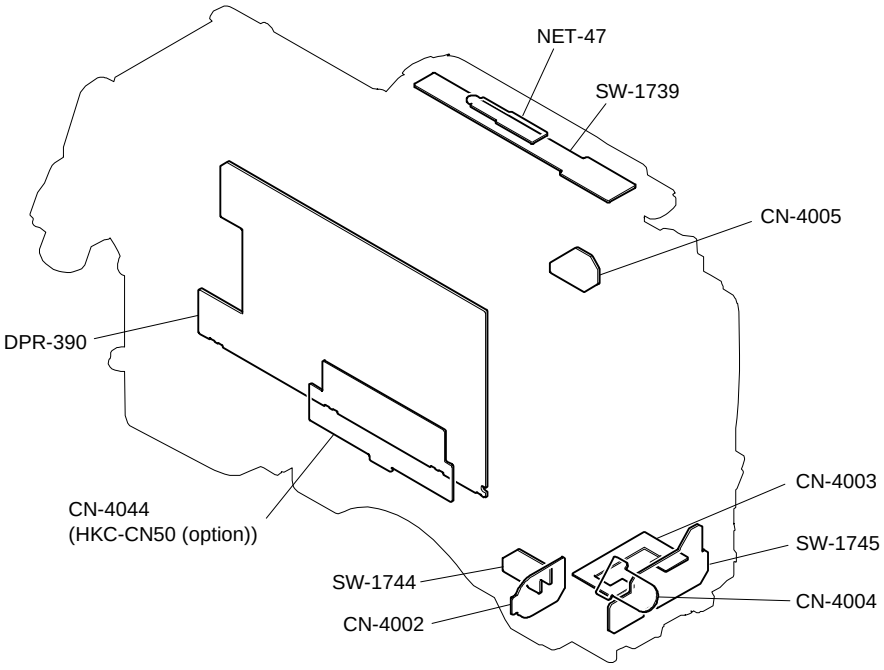
When tightening screws used in this unit, be sure to use a torque driver and tighten screws to the specified tightening torque.
If the specified tightening torque is described in the figure in this section, tighten screws to the specified tightening torque in the figure.

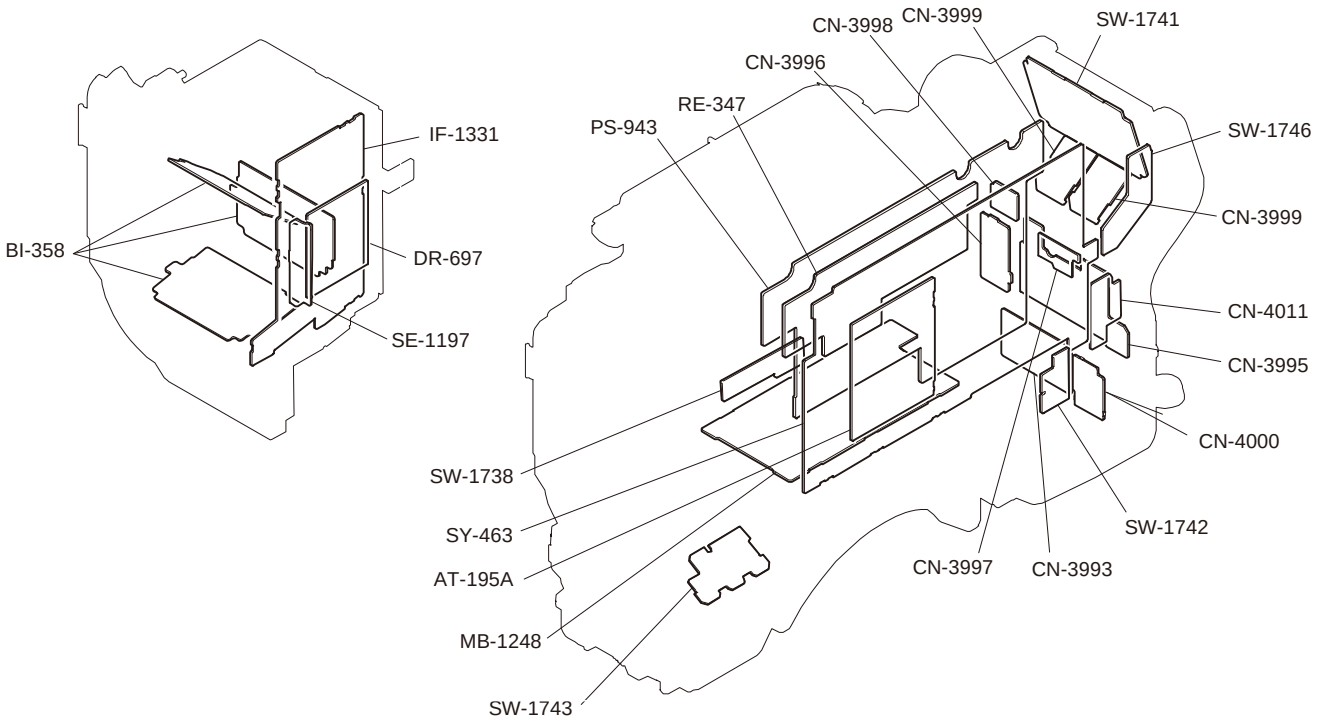
Tightening torque
M2: 0.19 ±0.02 N·m
M2.6: 0.53 ±0.07 N·m
M3.0: 0.80 ±0.12 N·m

Tip

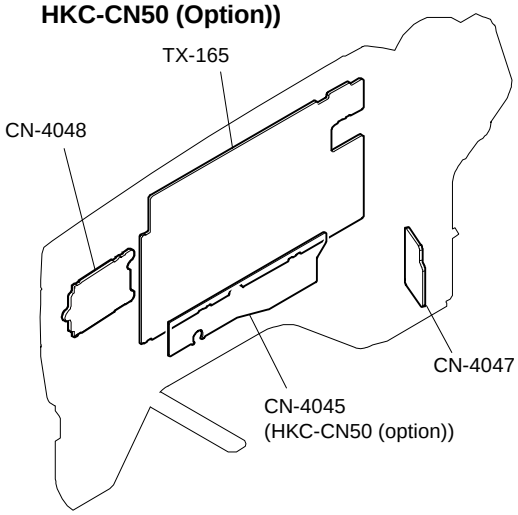
When using the torque driver with the notation of cN·m, interpret it as follows.
Example: 0.8 N·m = 80 cN·m

3-2. Location of Printed Wiring Boards

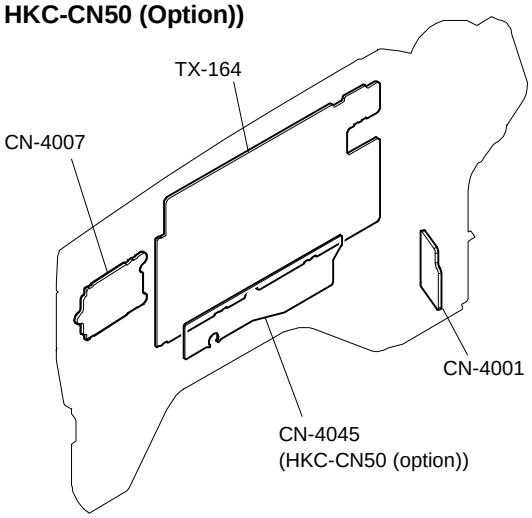




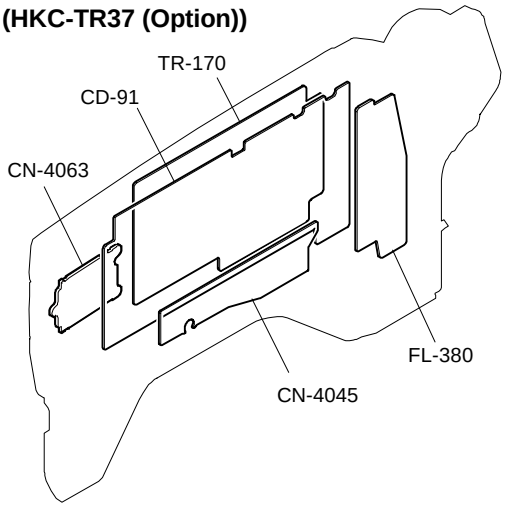
Outside Panel
(HDC5500, HKC-FB50 (Option),
HKC-CN50 (Option))



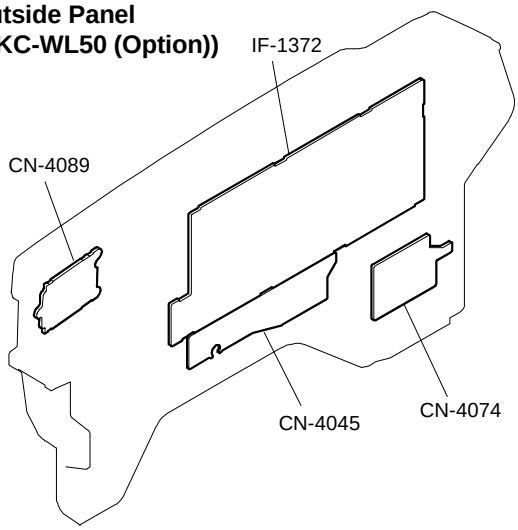
Outside Panel
(HDC3500, HKC-FB30 (Option),
HKC-CN50 (Option))



Outside Panel
(HKC-TR37 (Option))



Outside Panel
(HKC-WL50 (Option))



3-3. Actions to be Taken during Board Replacement and after Board Replacement or after Board Repair

3-3-1. Stored Data of ICs

The table below lists data retained in the IC on the following boards.
When any of the following boards or ICs is replaced, deal with action to be taken in replacing parts.

Note

- The part number listed in “9. Spare Parts” is for IC which is not programmed. If replacement is needed, contact your local Sony Sales Office/Service Center.
- When replacing the ICs on the AT-195/NET-47 board, update the model information data on the REFRESH SERIAL NO. page of the SERVICE menu. As for how to update the data, contact your local Sony Sales Office/Service Center.

Board	Ref. No.	Stored Data
IF-1331	IC010	CMOS adjustment data, RPN compensation data
AT-195	IC401	Model information data, APR compensation data, File system
MB-1248	IC009	Paint data, etc.
NET-47	IC1	Model information data
TR-170	IC101	TRIAX cable length compensation data

3-3-2. Alignment and Setting Required when Replacing AT-195 Board

Camera setting status and files are stored in the AT-195 board. When the AT-195 board is replaced, contents of the reference file, scene file, lens file, and operator file are lost. Store these files in a USB drive and then replace the AT-195 board.
The content of the OHB file stored in the OHB assembly is not lost.

Procedure

1. Store the reference file, scene file, and operator file in a USB drive.
   - Reference file (Refer to “6-5. Reference File”.)
   - Scene file (Refer to “6-4. Scene File”.)
   - Operator file (Refer to “6-2. Operator File”.)
2. Replace the AT-195 board.
3. Update to the latest version of the software. (Refer to “5-1. Upgrading Software Programs”.)
4. Execute REFERENCE (ALL) on the FILE CLEAR page of the FILE menu. (Refer to “6-5. Reference File”.)

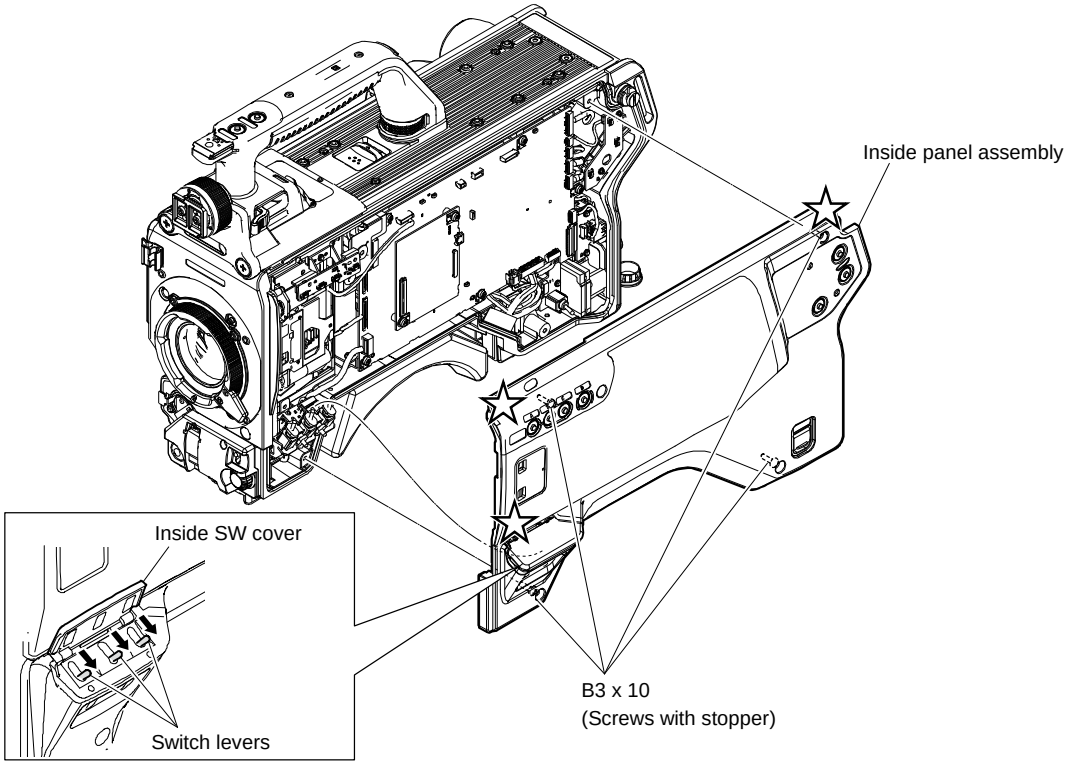
   Note

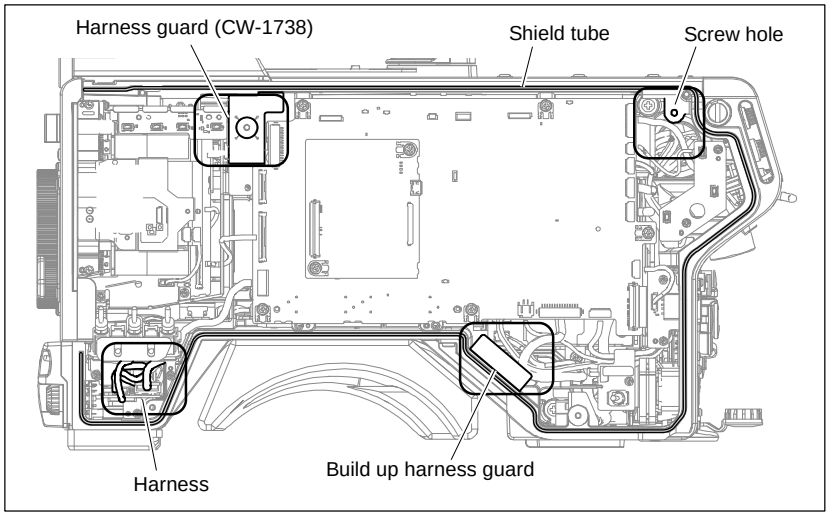
   If REFERENCE (ALL) is not executed, the intercom operating panel may not work correctly.
5. Execute STORE FILE on the REFERENCE page of the FILE menu. (Refer to “6-5. Reference File”.)
6. Execute the automatic adjustment. (Refer to “4-2. Automatic Adjustment”.)
7. Load the reference file, scene file, and operator file stored in the USB drive in step 1.
   - Reference file (Refer to “6-5. Reference File”.)
   - Scene file (Refer to “6-4. Scene File”.)
   - Operator file (Refer to “6-2. Operator File”.)
8. Execute AUTO LEVEL on the AUTO SETUP page of the MAINTENANCE menu. (Refer to “6-5. Reference File”.)

3-4. Inside Panel Assembly

Procedure

1. Open the inside SW cover and turn the three switch levers in the direction of arrow.
2. Loosen the four screws with stopper to remove the inside panel assembly.





Note

Install the inside panel assembly as follows.

- Turn the switch levers in the arrow direction, and then install the inside panel assembly.
- To prevent the harness from being pinched, make sure that the harness does not overlap the positions of the harness guard (CW-1738), the build-up harness guard, and the harness itself shown in the figure.
- Push the three star-shaped marks, and then tighten the four screws with stopper.

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

3-5. Outside Panel (HDC3500, HKC-FB30 (Option), HKC-CN50 (Option))

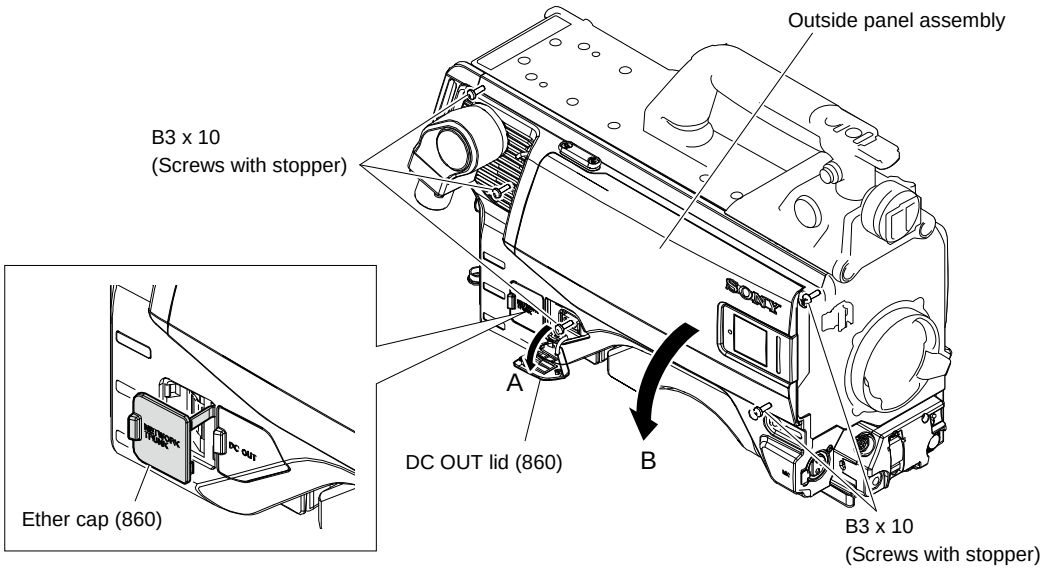
3-5-1. Outside Panel Assembly

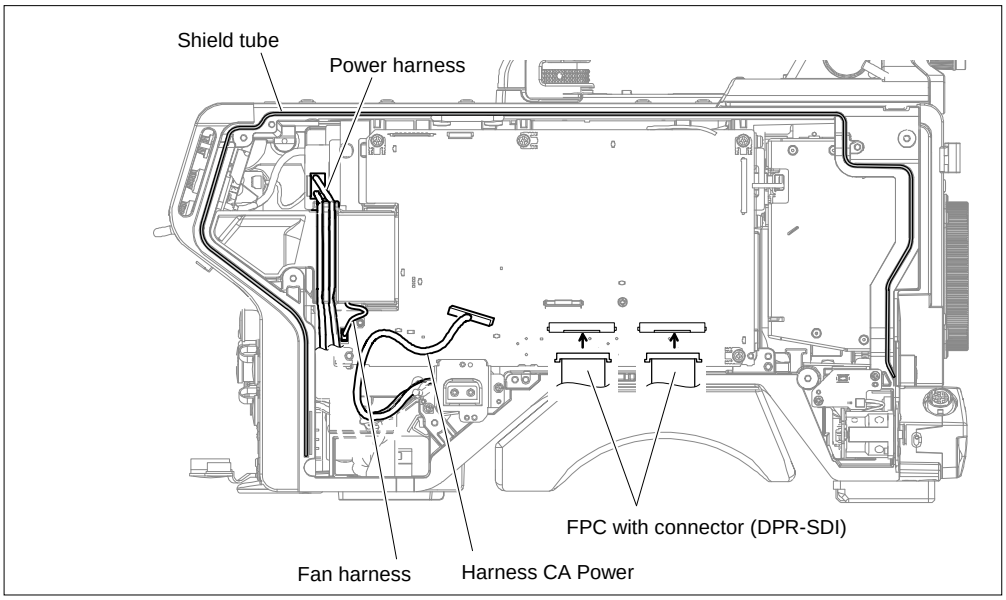
Tip

Replace the outside panel assembly (with HKC-FB50 and HKC-CN50) in the same way as the outside panel assembly (with HKC-TR37). (Refer to “3-7-1. Outside Panel Assembly”.)

Procedure

1. Open the DC OUT cover (860) in the direction of the arrow A.
2. Loosen the five screws with stopper to open the outside panel assembly in the direction of arrow B.



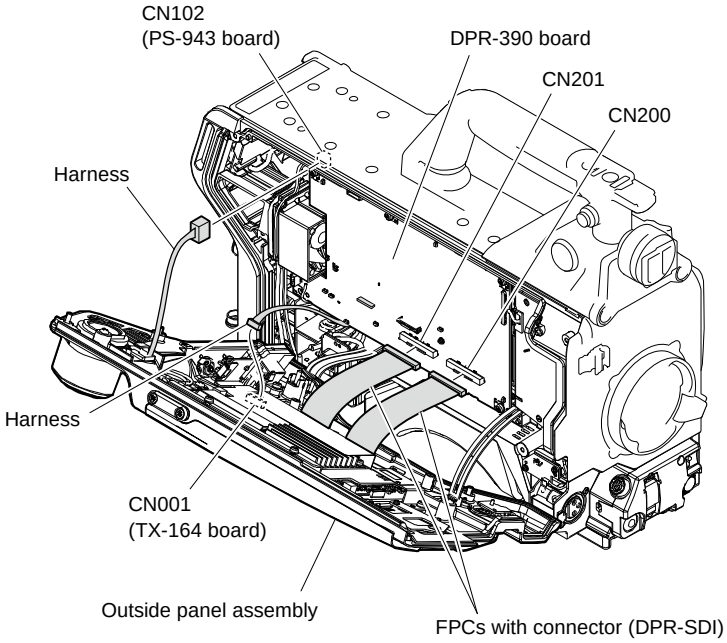


Note

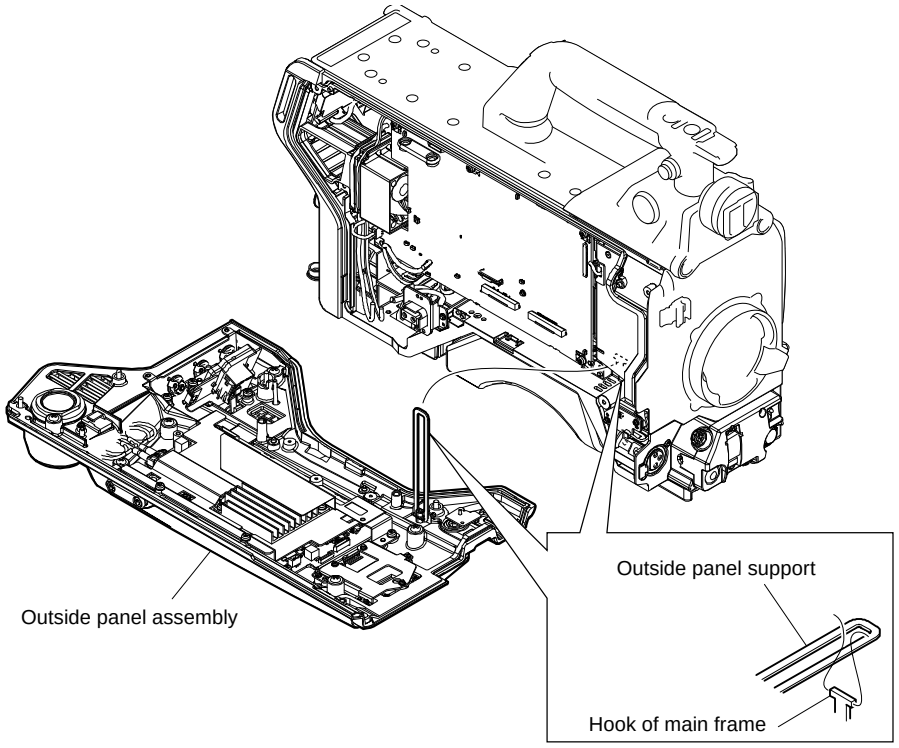
Install the outside panel assembly as follows.

- When the shield tube protrudes from the groove on the main chassis, push it into the groove.
- Close the outside panel assembly keeping the ether cap (860) open.
- When closing the outside panel assembly, avoid pinching the harness and the FPC shown in the figure.
- After installing the outside panel assembly, confirm that the ether cap (860) can open or close without any problem.

3. Disconnect the harness from the connector (CN102) on the PS-943 board.
4. Disconnect the two FPCs with connector (DPR-SDI) from the two connectors (CN200, CN201) on the DPR-390 board.
5. Disconnect the harness from the connector (CN001) on the TX-164 board.



6. Remove the outside panel support from the hook of the main frame and remove the outside panel assembly.



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

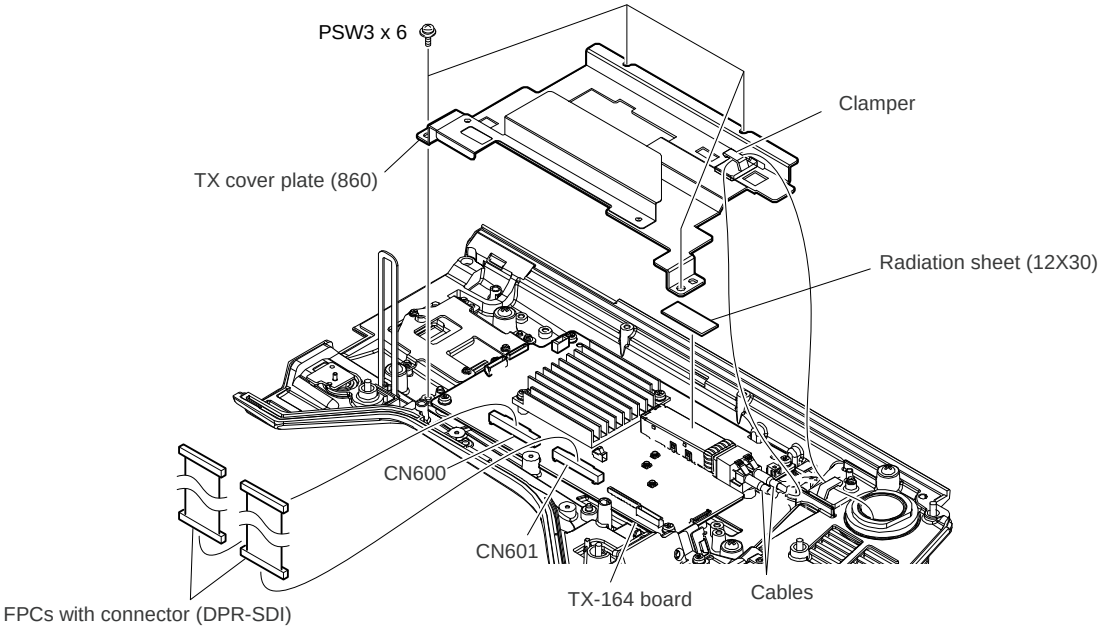
3-5-2. TX-164 Board

Preparation

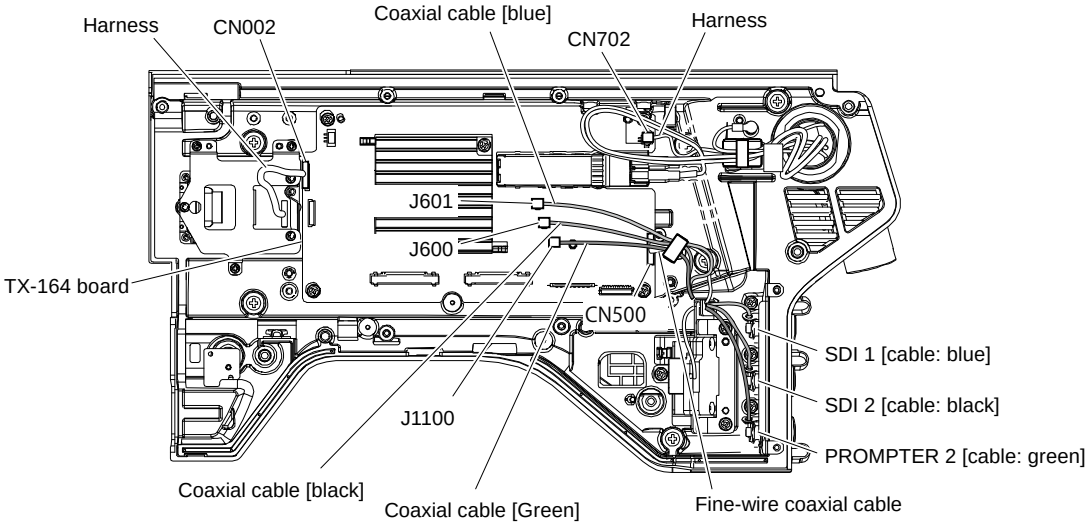
1. Remove the outside panel assembly. (Refer to “3-5-1. Outside Panel Assembly”.)

Procedure

1. Disconnect the two FPCs with connector (DPR-SDI) from the two connectors (CN601, CN600) on the TX-164 board.
2. Disconnect the cables from the clamper.
3. Remove the four screws to open the TX cover plate (860).
4. Detach the radiation sheet (12X30).



5. Disconnect the three coaxial cables from the three connectors (J601, J600, and J1100) on the TX-164 board.
6. Disconnect the fine-wire coaxial cable from the connector (CN500) on the TX-164 board.
7. Disconnect the two harnesses from the two connectors (CN002, CN702) on the TX-164 board.



Note

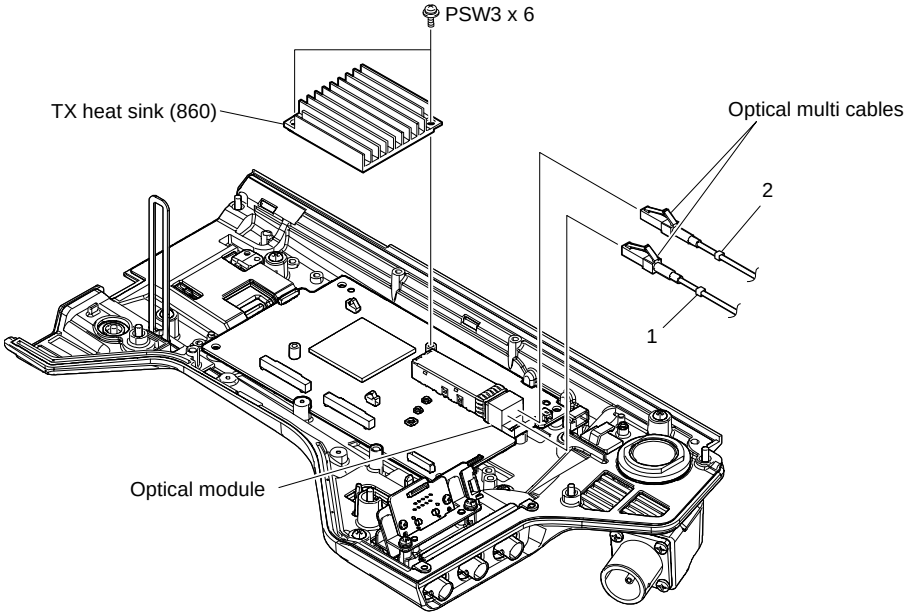
- When reconnecting the coaxial cables, connect right connectors.
- In the case of connecting the coaxial cable (Black or Blue) to the connector (CN1100) by mistake, discard the cable connected.

8. Disconnect two optical multi cables from the optical module.

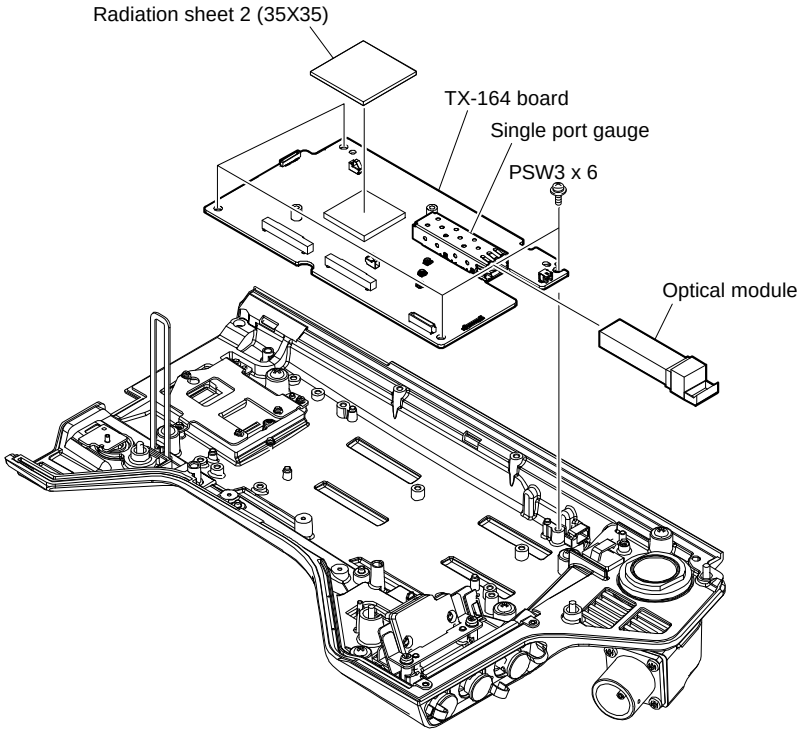
Note

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

9. Remove the two screws to detach the TX heat sink (860).



10. Remove the radiation sheet 2 (35X35) from the TX-164 board.
11. Remove the four screws and the TX-164 board.
12. Remove the optical module from the single port gauge.



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

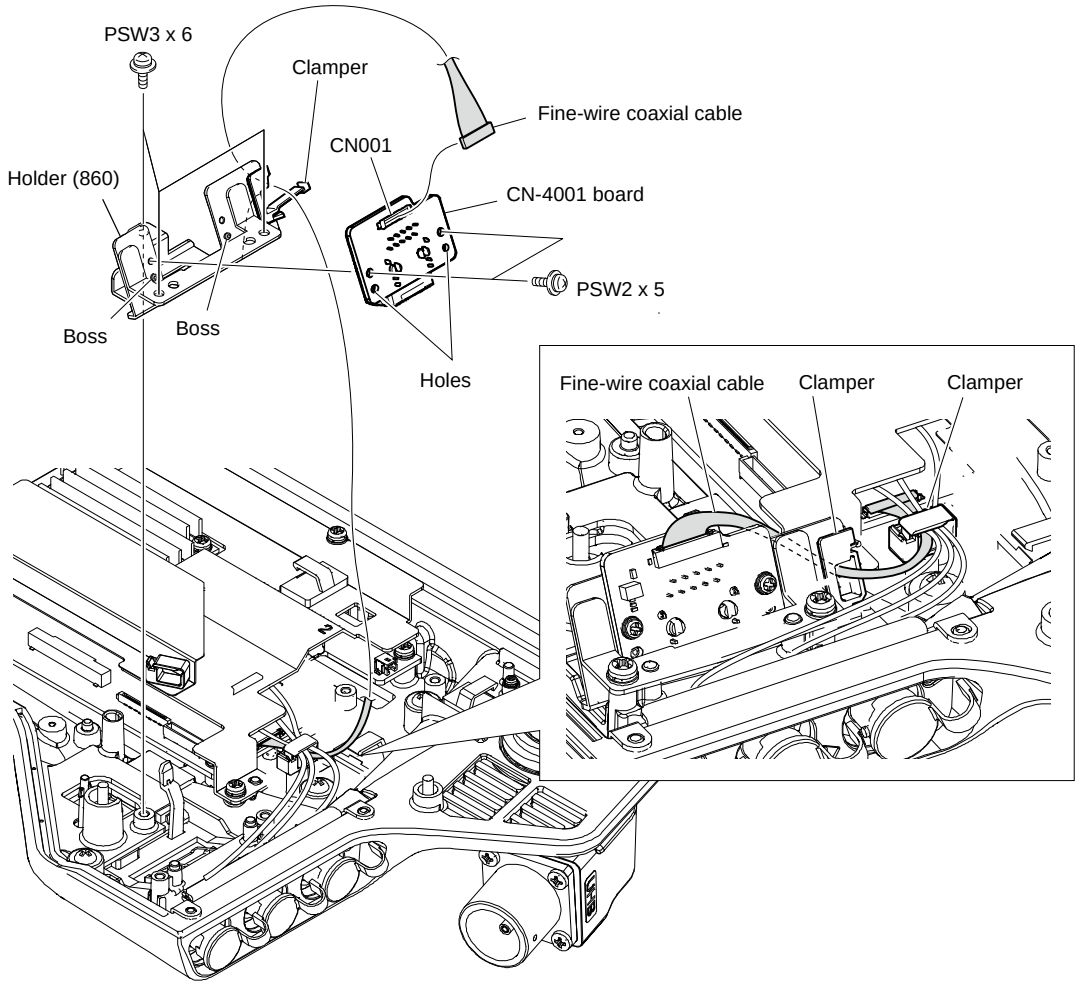
3-5-3. CN-4001 Board

Preparation

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

Procedure

1. Disconnect the harness from the clamper.
2. Disconnect the harness from the connector (CN001) on the CN-4001 board.
3. Remove the three screws to detach the holder (860).
4. Remove the two screws and the CN-4001 board.



Note

At the time of the installation, clamp the fine-wire coaxial cable with the clamper as shown in the figure.

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

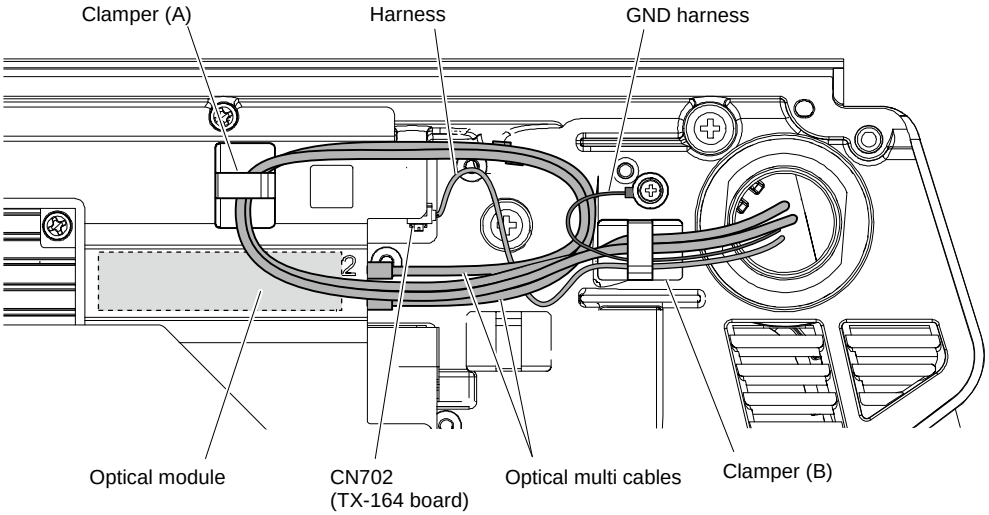
3-5-4. Optical Multi Cable Assembly

Preparation

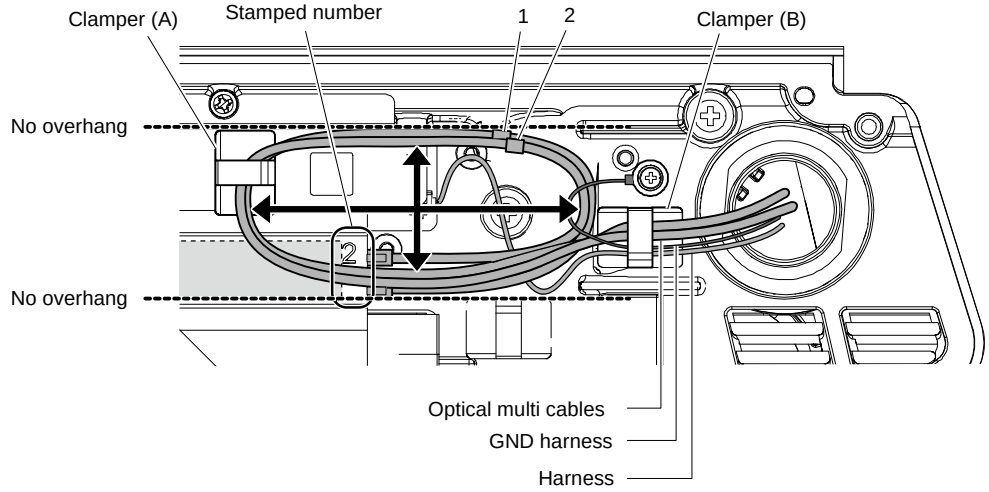
1. Remove the outside panel assembly. (Refer to “3-5-1. Outside Panel Assembly”.)

Procedure

1. Release the optical multi cable from the clamper (A).
2. Release the optical multi cable, GND harness, harness, from the clamper (B).
3. Disconnect the two optical multi cables from the optical module.
4. Disconnect the harness from the connector (CN702) on the TX-164 board.



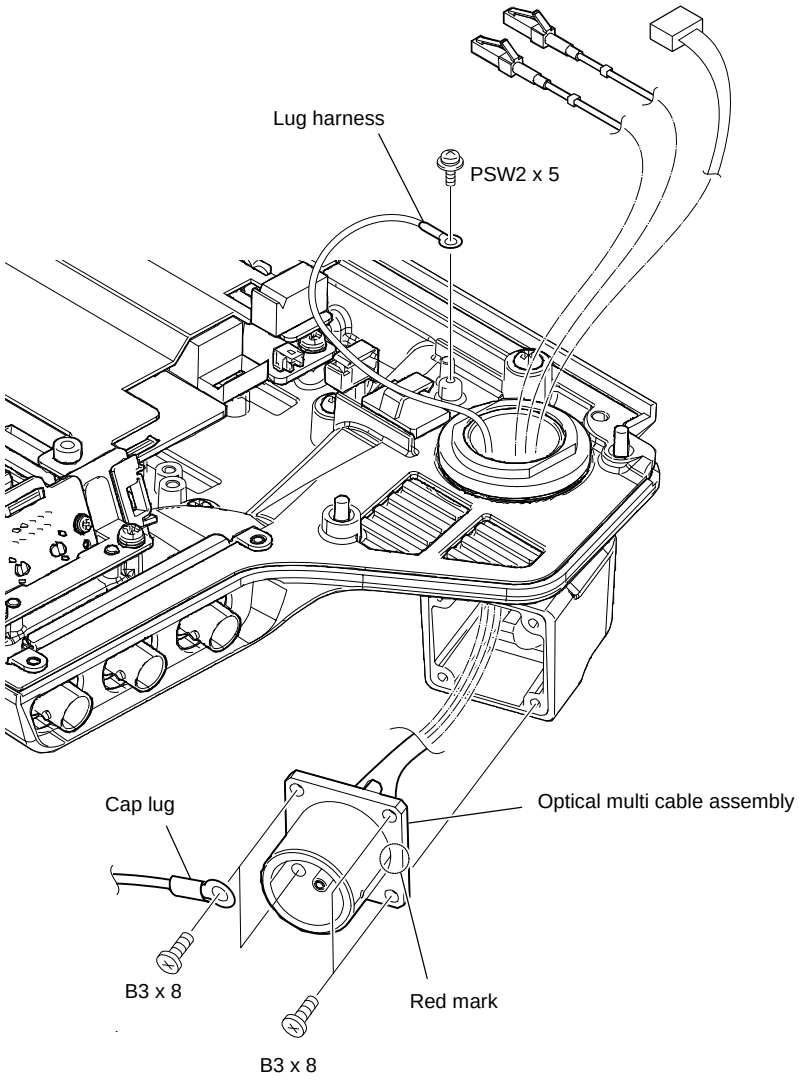
Arrangement of the cables, harness



Note

- If optical multi cable is bent or pulled strongly, it may be disconnected. Handle optical multi cables carefully.
- Do not touch the tip of optical multi cable connector. This may result in deterioration of signals.
- When connecting the optical multi cable, match the stamped number with the number on the optical multi cable.
- At the time of the installation, fully extend the optical multi cable in the direction of the arrow and arrange it within the broken lines.
- At the time of the installation, pass the harness first, and then the GND harness and the optical multi cable through the clamper (B).

5. Remove the screw (PSW2 x 5) to disconnect the lug harness.
6. Remove the four screws (B3 x 8) to disconnect the cap lug and optical multi cable assembly.



Note

When installing the optical multi cable assembly, carefully install it paying attention to the red mark shown in the figure.

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

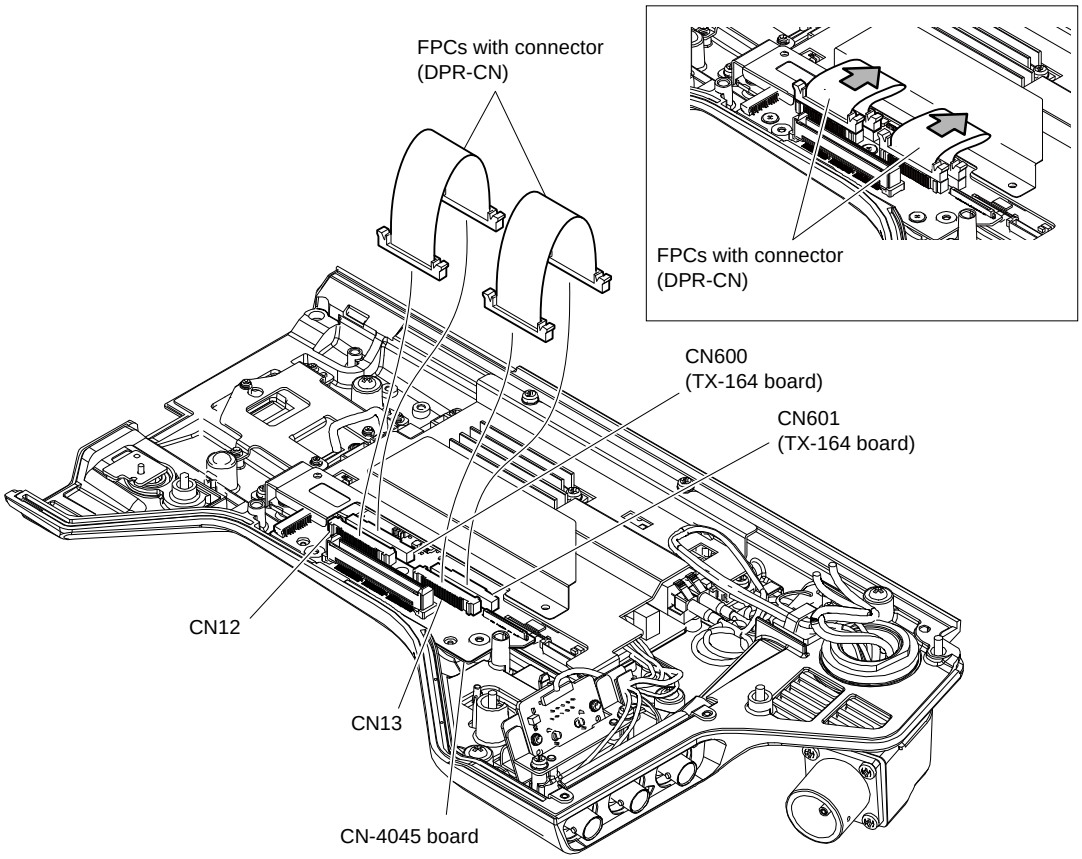
3-5-5. CN-4045 Board (HKC-FB30 (option), HKC-CN50 (option))

Preparation

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

Procedure

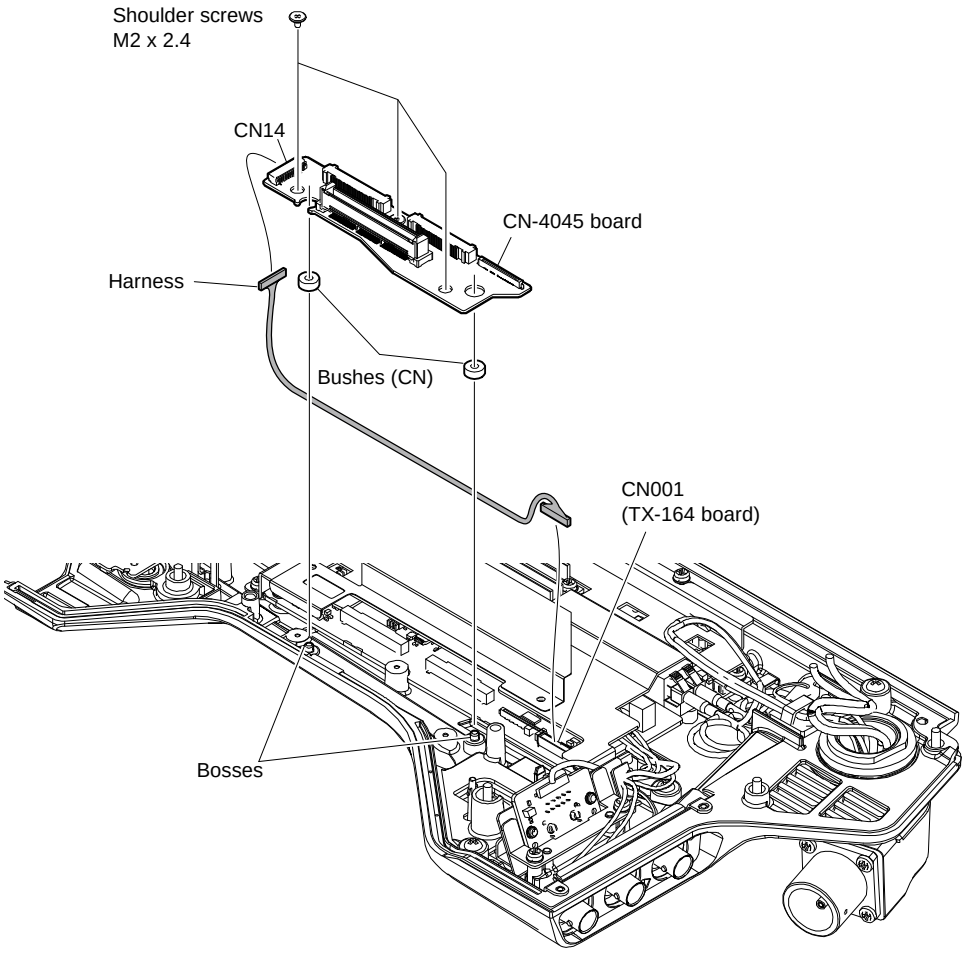
1. Disconnect the two FPCs with connector (DPR-CN) from the two connectors (CN12, CN13) on the CN-4045 board and the two connectors (CN600, CN601) on the TX-164 board.

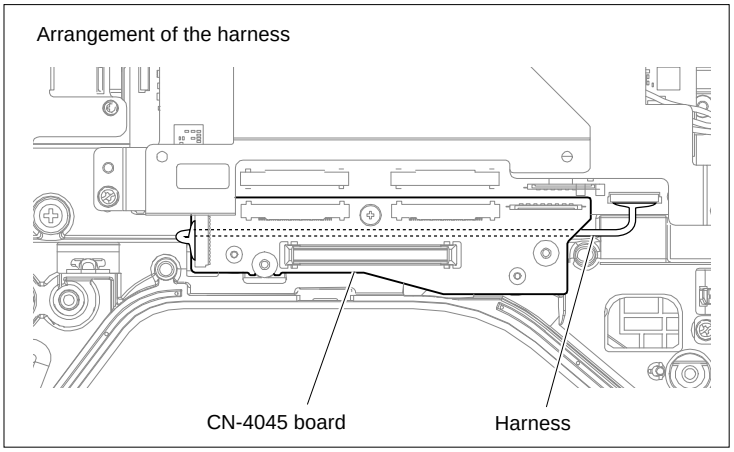


Note

When installing the two FPCs with connector (DPR-CN), press the FPCs in the direction of the arrows.

2. Remove the three screws.
3. Lift up the CN-4045 board and disconnect the harness from the connector (CN14) on the CN-4045 board.
4. Remove the two bushes (CN) from the bosses.
5. Disconnect the harness from the connector (CN001) on the TX-164 board.





Note

When connecting the harness, pass it between the CN-4045 board and the outside panel.

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

3-6. Outside Panel (HDC5500, HKC-FB50 (Option), HKC-CN50 (Option))

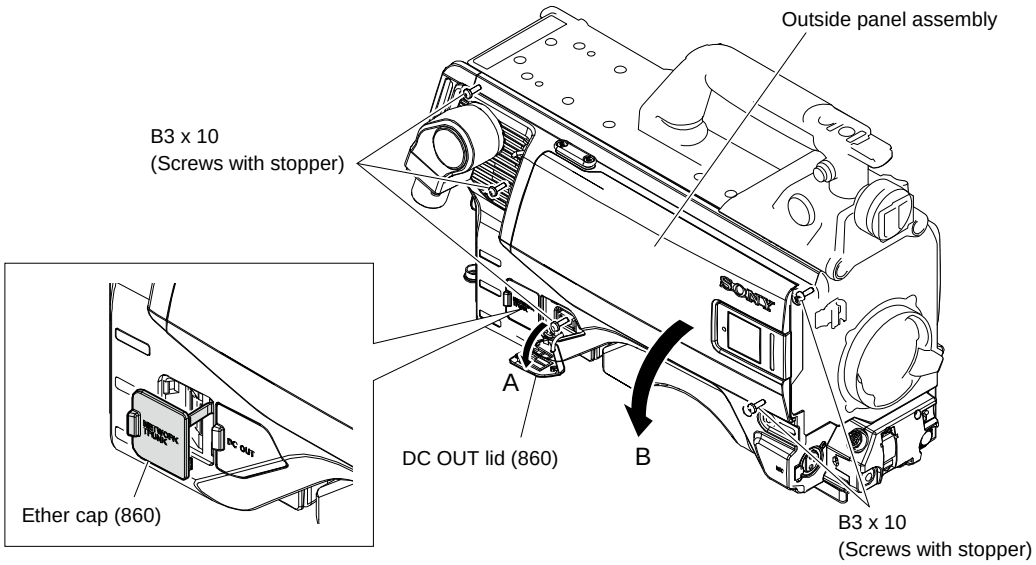
3-6-1. Outside Panel Assembly

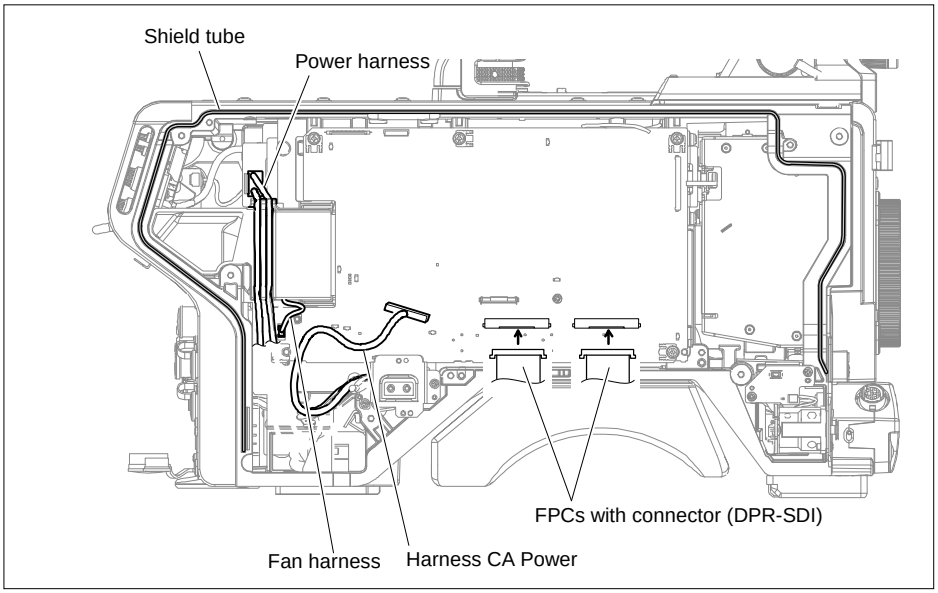
Tip

Replace the outside panel assembly (with HKC-FB50 and HKC-CN50) in the same way as the outside panel assembly (with HKC-TR37). (Refer to “3-7-1. Outside Panel Assembly”.)

Procedure

1. Open the DC OUT lid (860) in the direction of the arrow A.
2. Loosen the five screws with stopper to open the outside panel assembly in the direction of arrow B.



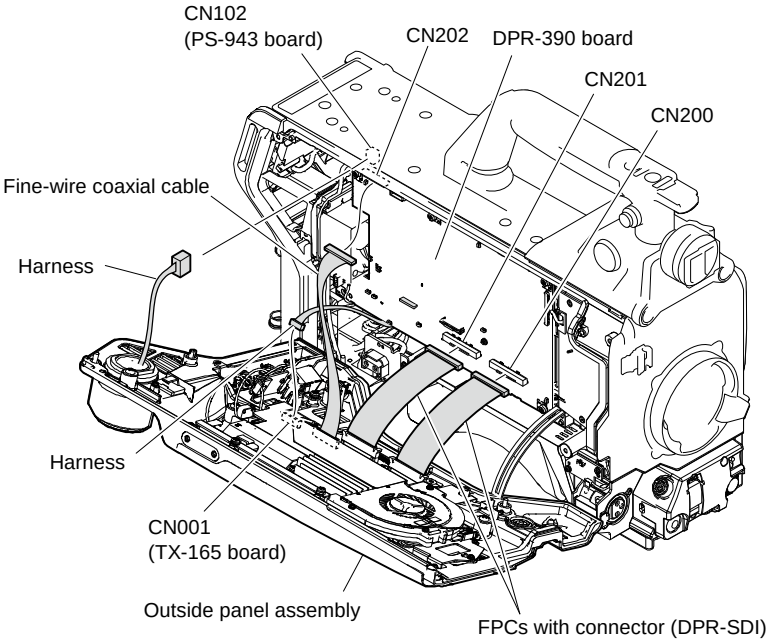


Note

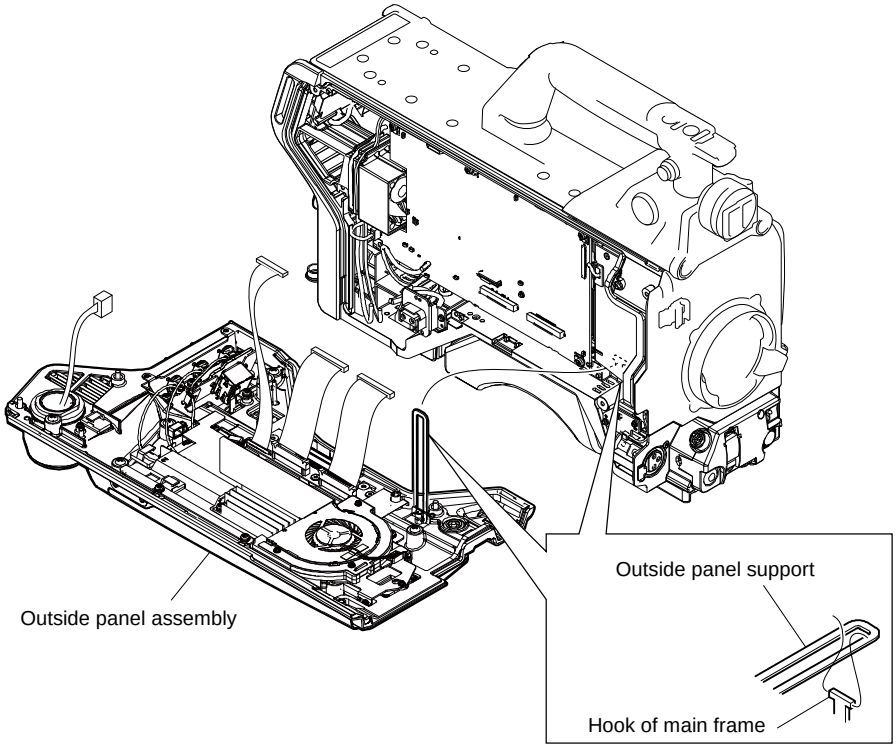
Install the outside panel assembly as follows.

- When the shield tube protrudes from the groove on the main chassis, push it into the groove.
- Close the outside panel assembly keeping the ether cap (860) open.
- When closing the outside panel assembly, avoid pinching the harness and the FPC shown in the figure.
- After installing the outside panel assembly, confirm that the ether cap (860) can open or close without any problem.

3. Disconnect the harness from the connector (CN102) on the PS-943 board.
4. Disconnect the fine-wire coaxial cable from the connector (CN202) on the DPR-390 board.
5. Disconnect the two FPCs with connector (DPR-SDI) from the two connectors (CN200, CN201) on the DPR-390 board.
6. Disconnect the harness from the connector (CN001) on the TX-165 board.



7. Remove the outside panel support from the hook of the main frame and remove the outside panel assembly.



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

3-6-2. DC Sirocco Fan

Preparation

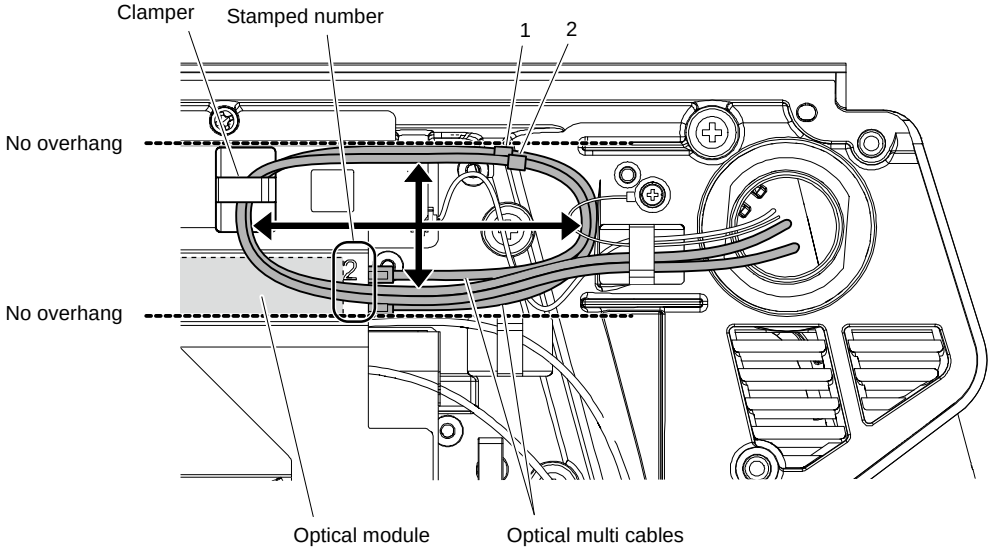
1. Remove the outside panel assembly. (Refer to “3-6-1. Outside Panel Assembly”.)

Procedure

1. Release the optical multi cable from the clamper.
2. Disconnect the two optical multi cable from the optical module.

Note

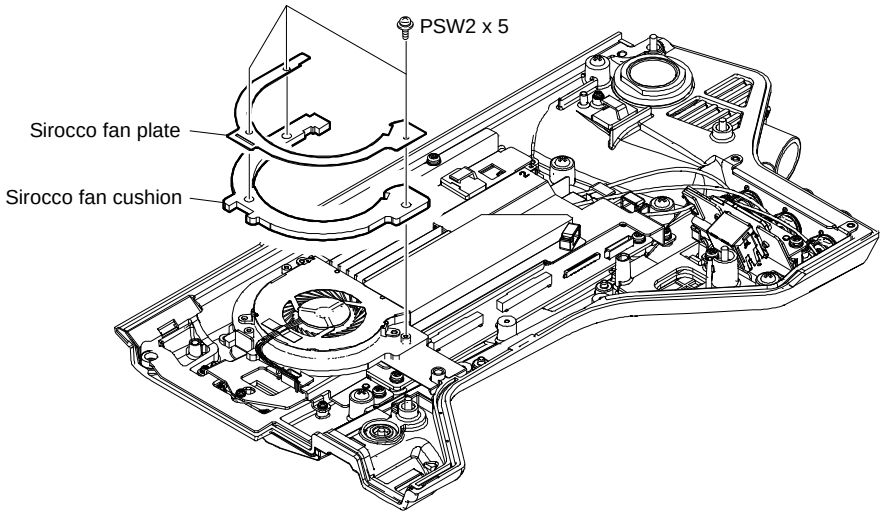
- If optical multi cable is bent or pulled strongly, it may be disconnected. Handle optical multi cables carefully.
- Do not touch the tip of optical multi cable connector. This may result in deterioration of signals.



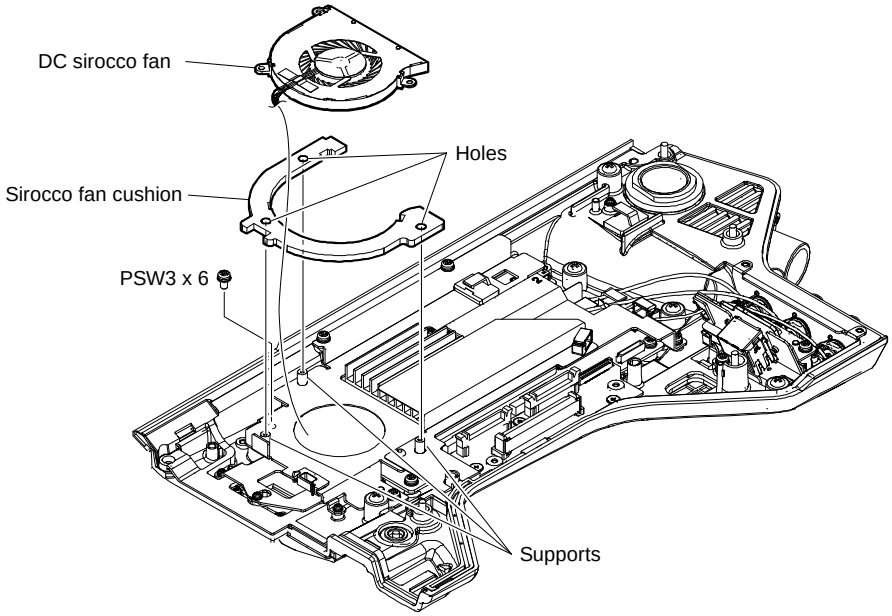
Note

- At the time of the installation, fully extend the optical multi cable in the direction of the arrow and arrange it within the broken lines.
- When connecting the optical multi cable, match the stamped number with the number on the optical multi cable.

3. Remove the three screws, and then remove the sirocco fan plate and the sirocco fan cushion.



4. Lift up the DC sirocco fan.
5. Remove the sirocco fan cushion, and then remove the screw.

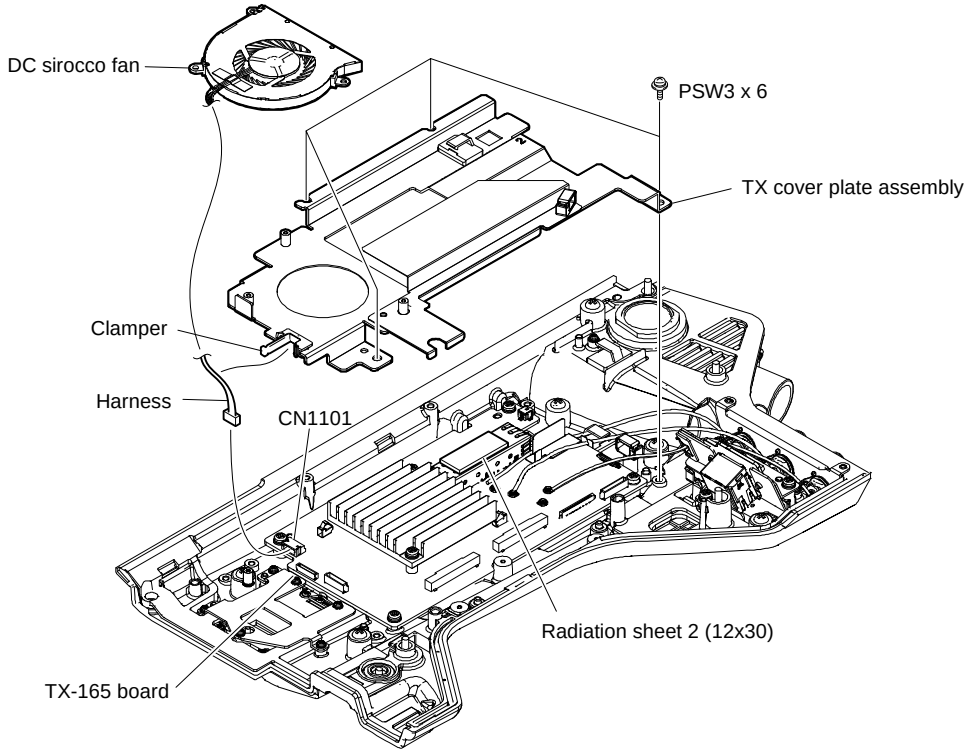


6. Remove the four screws, and then lift up the TX cover plate assembly.

   Tip

   The radiation sheet 2 (12X30) may adhere to the TX cover plate.

7. Disconnect the harness from the connector (CN1101) on the TX-165 board.
8. Release the harness from the clamper, and then remove the DC sirocco fan.



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

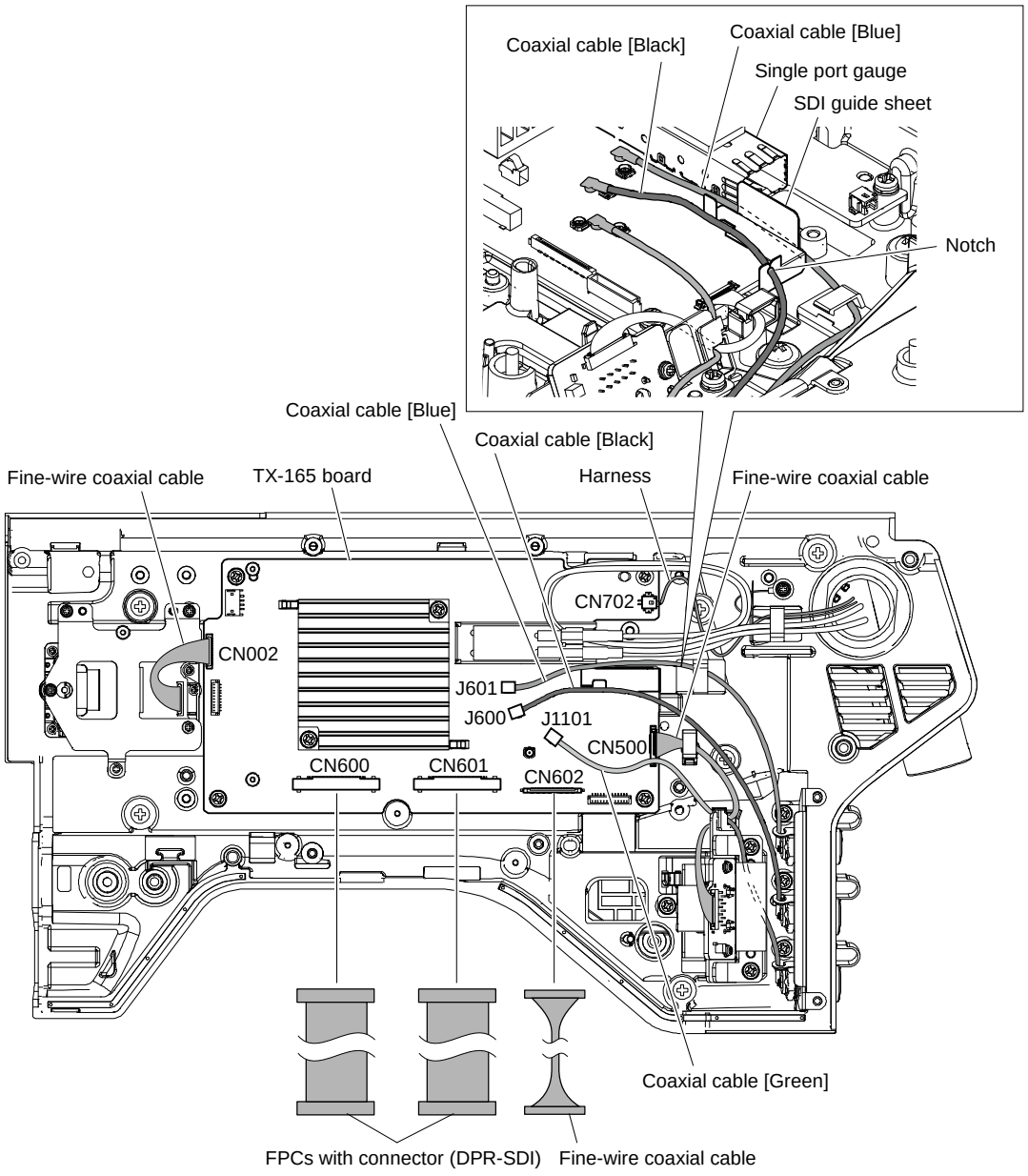
3-6-3. TX-165 Board

Preparation

1. Remove the outside panel assembly. (Refer to “3-6-1. Outside Panel Assembly”.)
2. Remove the DC sirocco fan. (Refer to “3-6-2. DC sirocco fan”.)

Procedure

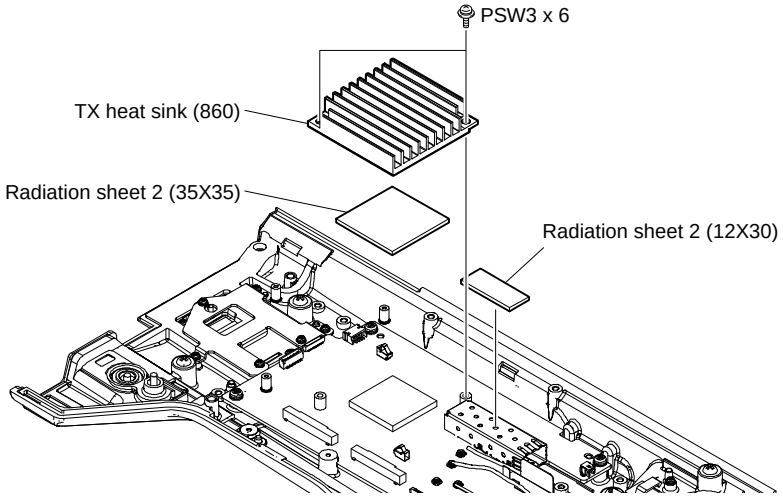
1. Disconnect the two FPCs with connector (DPR-SDI) from the two connectors (CN601, CN600) on the TX-165 board.
2. Disconnect the three coaxial cables from the three connectors (J601, J600, J1101) on the TX-165 board.
3. Disconnect the three fine-wire coaxial cables from the three connectors (CN002, CN500, CN602) on the TX-165 board.
4. Disconnect the harness from the connector (CN702) on the TX-165 board.
5. Release the coaxial cable [black] from the notch of the SDI guide sheet.



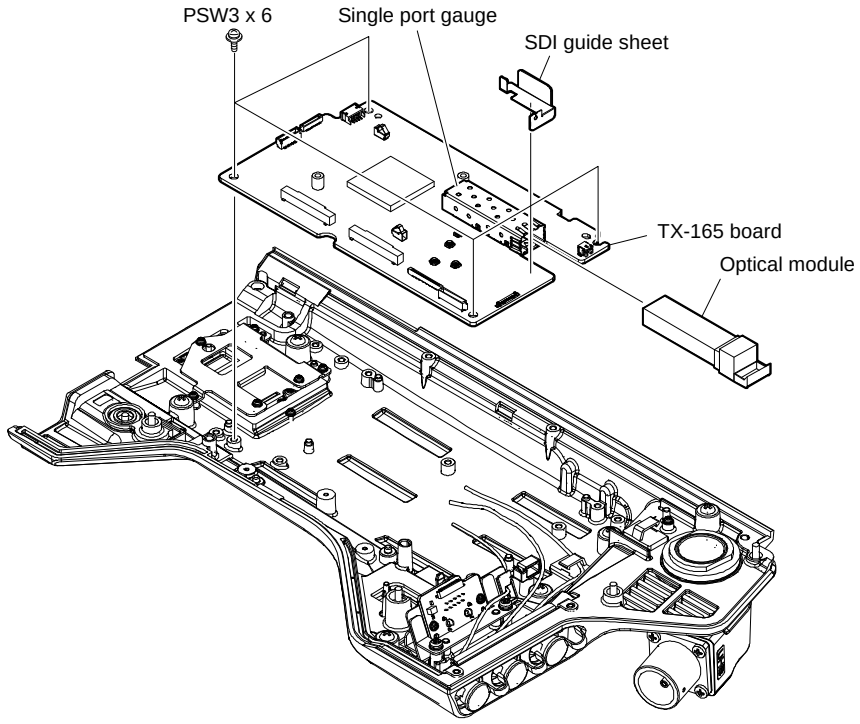
Note

- When reconnecting the three coaxial cables, connect right connectors.
- When connecting the coaxial cable [black], pass it through the space between the SDI guide sheet and the single port gauge.

6. Remove the two screws, and then remove the TX heat sink (860).
7. Remove the radiation sheet 2 (35X35) and the radiation sheet 2 (12X30).



8. Remove the four screws, and then remove the TX-165 board.
9. Remove the SDI guide sheet.
10. Remove the optical module from the single port gauge.



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

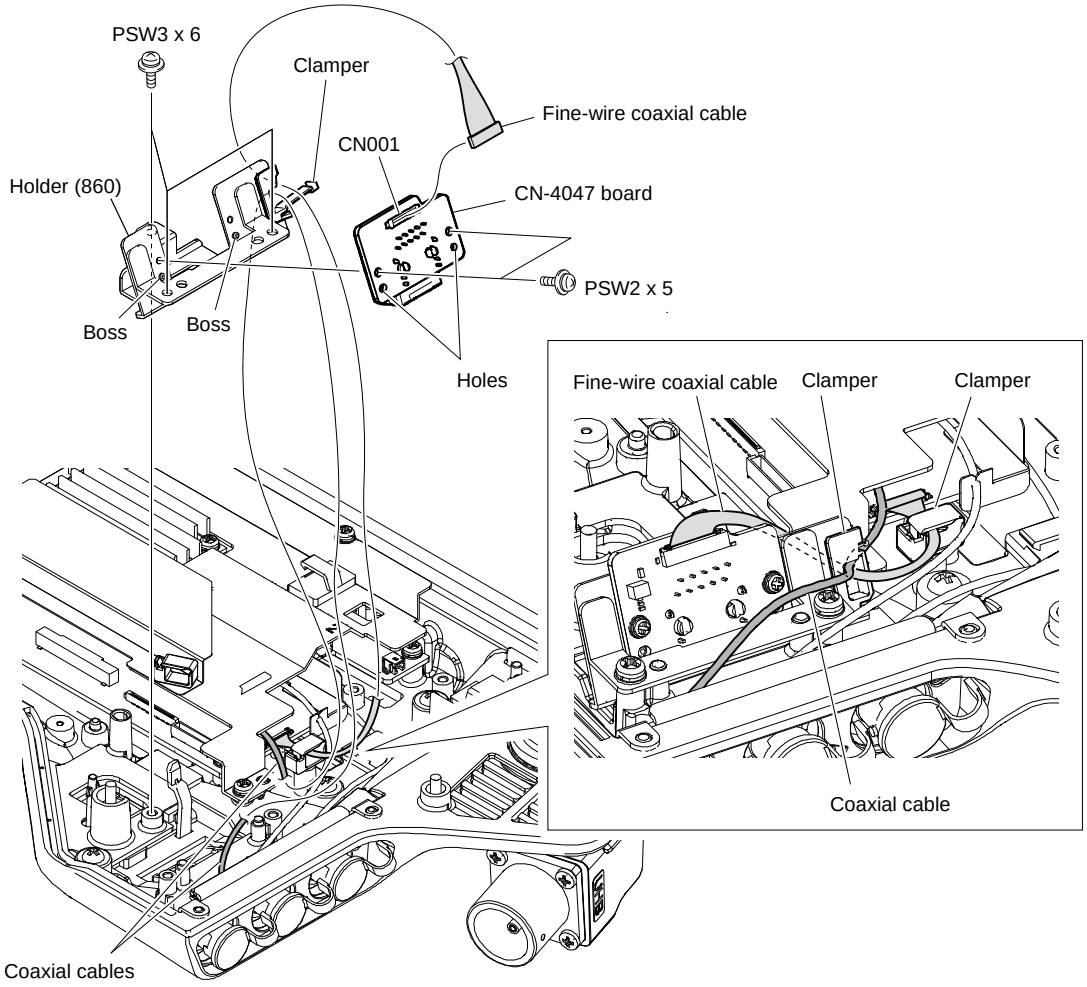
3-6-4. CN-4047 Board

Preparation

1. Remove the outside panel assembly. (Refer to “3-6-1. Outside Panel Assembly”.)

Procedure

1. Release the fine-wire coaxial cable and the coaxial cable from the clamper.
2. Disconnect the fine-wire coaxial cable from the connector (CN001) on the CN-4047 board.
3. Remove the three screws, and then remove the holder (860).
4. Remove the two screws, and then remove the CN-4047 board.



Note

At the time of the installation, clamp the fine-wire coaxial cable and the coaxial cable with the clamper as shown in the figure.

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

3-6-5. Optical Multi Cable Assembly

Replace the optical multi cable assembly in the same way as the HDC3500 optical multi cable assembly. (Refer to “3-5-4. Optical Multi Cable Assembly”.)

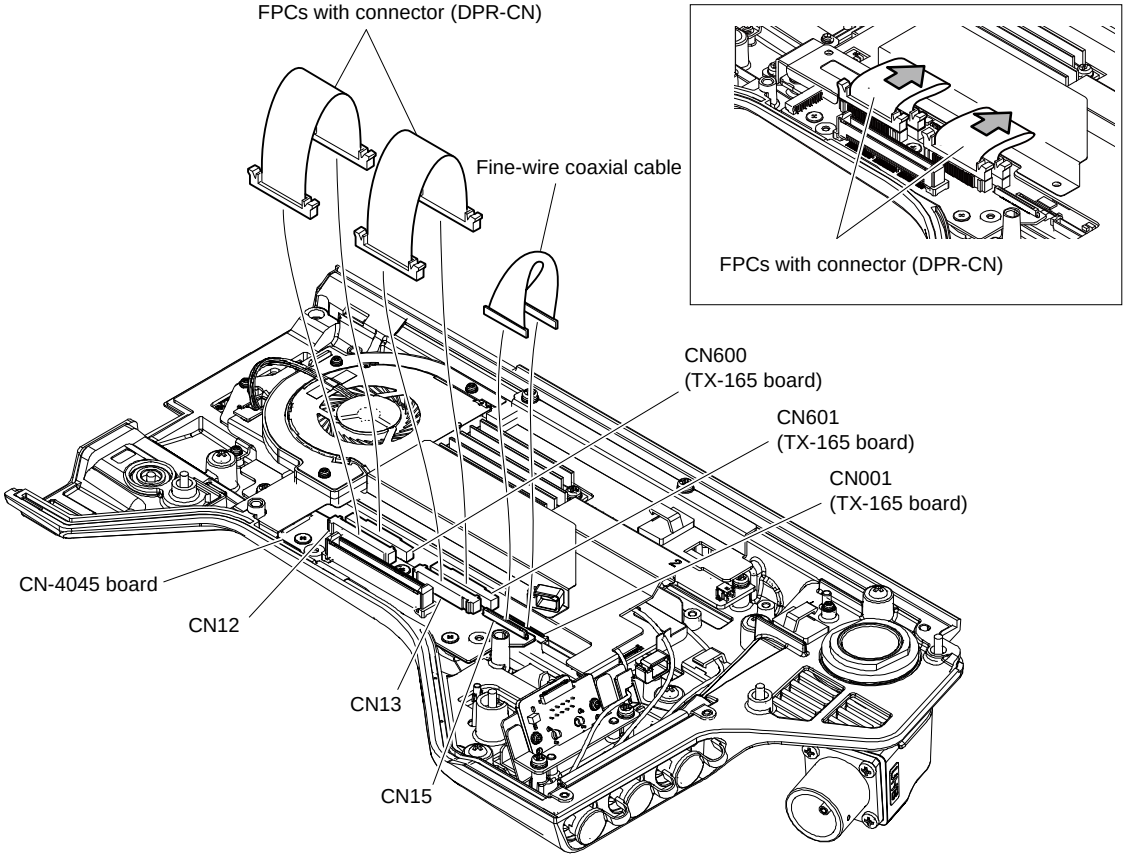
3-6-6. CN-4045 Board (HKC-FB50 (Option), HKC-CN50 (Option))

Preparation

1. Remove the outside panel assembly. (Refer to “3-6-1. Outside Panel Assembly”.)

Procedure

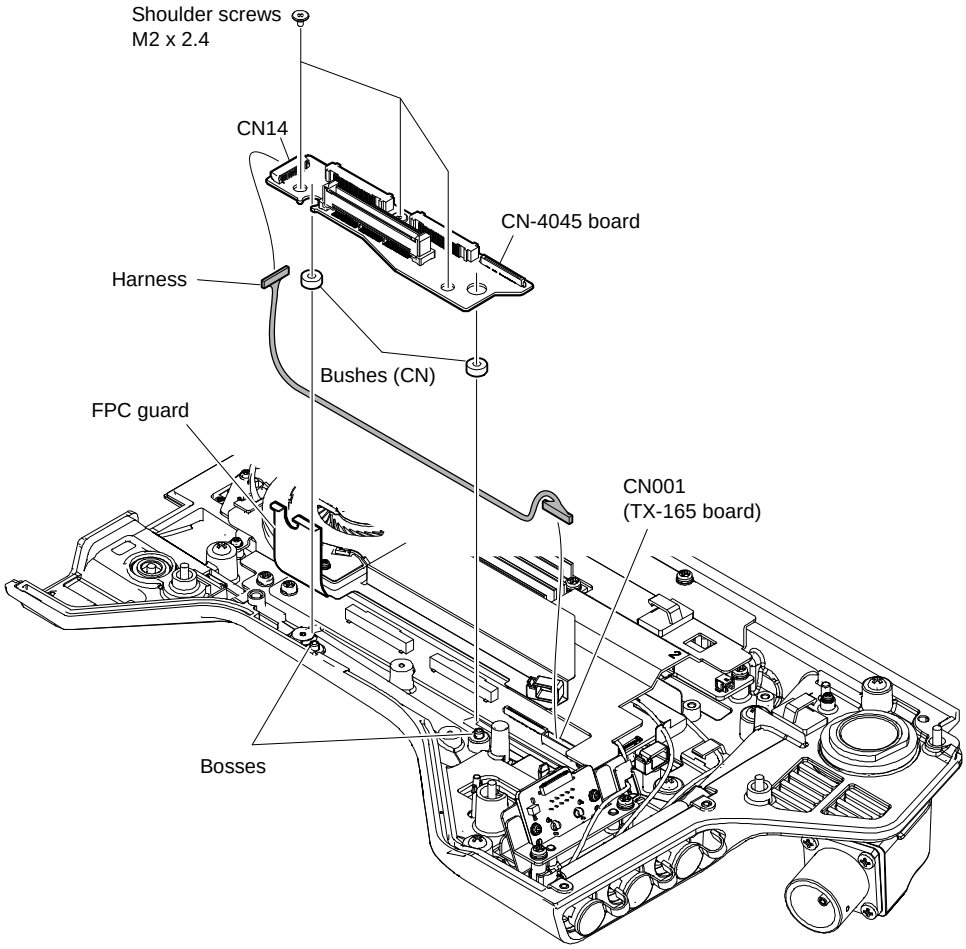
1. Disconnect the two FPCs with connector (DPR-CN) from the two connectors (CN12, CN13) on the CN-4045 board and the two connectors (CN600, CN601) on the TX-165 board.
2. Disconnect the fine-wire coaxial cable from the connector (CN15) on the CN-4045 board and the connector (CN001) on the TX-165 board.



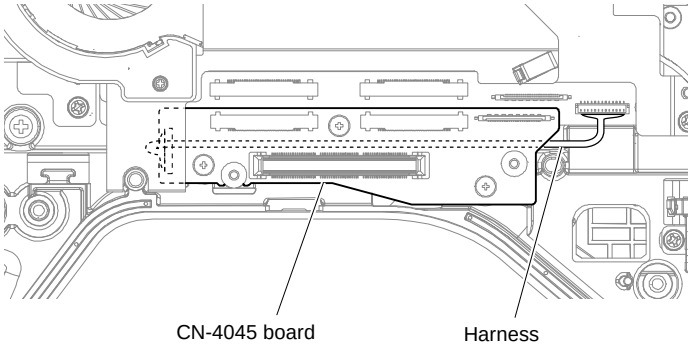
Note

When installing the two FPCs with connector (DPR-CN), press the FPCs in the direction of the arrows.

3. Remove the three screws.
4. Raise the FPC guard, and then lift up the CN-4045 board.
5. Disconnect the harness from the connector (CN14) on the CN-4045 board.
6. Remove the two bushes (CN) from the bosses.
7. Disconnect the harness from the connector (CN001) on the TX-165 board.



Arrangement of the harness



Note

When connecting the harness, pass it between the CN-4045 board and the outside panel.

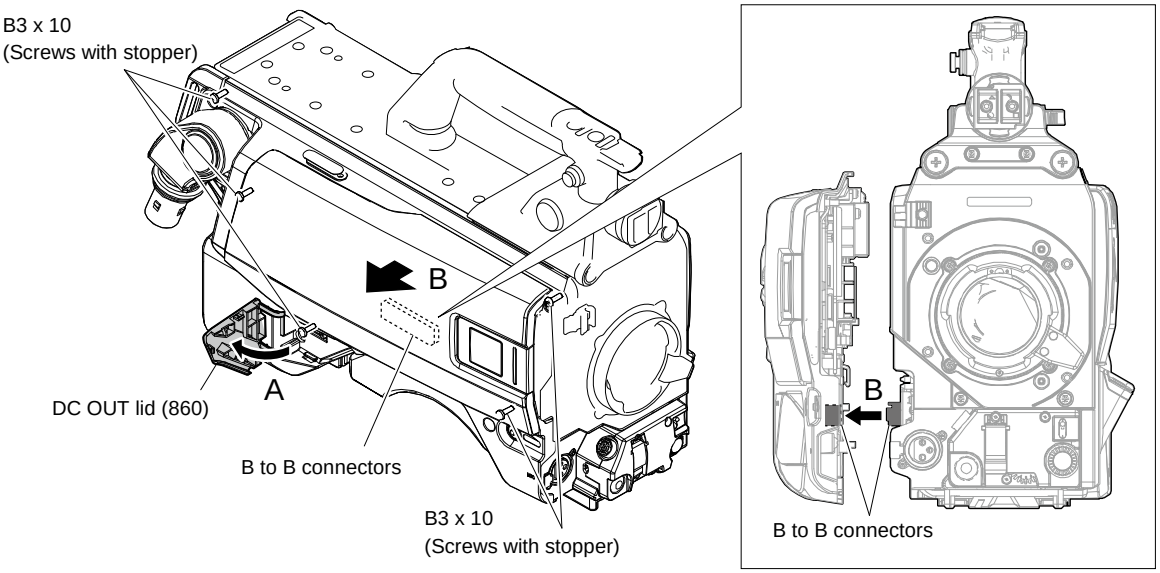
8. Install the removed parts by reversing the steps of removal.

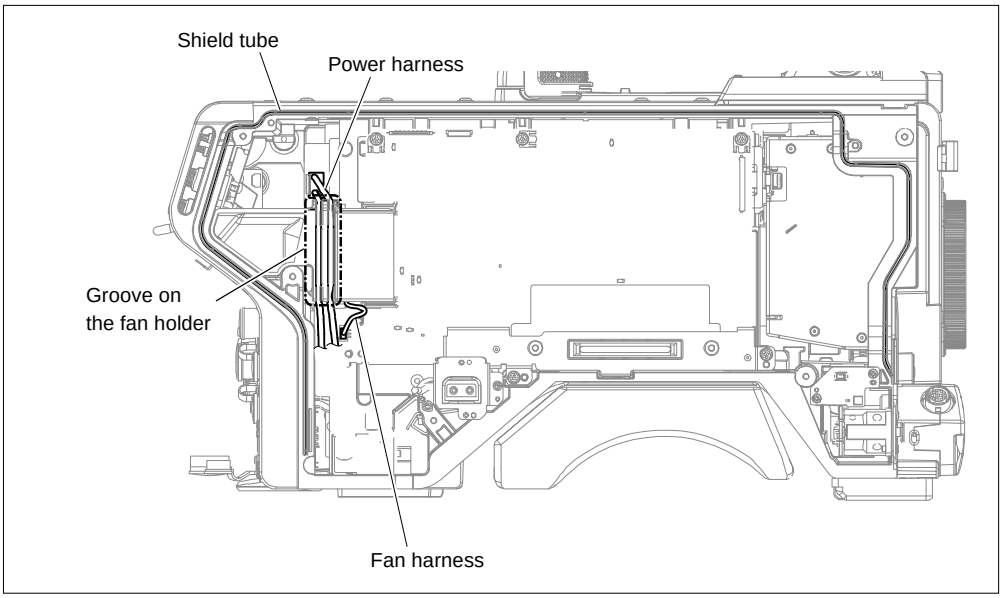
3-7. Outside Panel (with HKC-TR37 (Option))

3-7-1. Outside Panel Assembly

Procedure

1. Open the DC OUT lid (860) in the direction of the arrow A.
2. Loosen the five screws with stopper to open the outside panel assembly in the direction of arrow B and disconnect B to B connector.



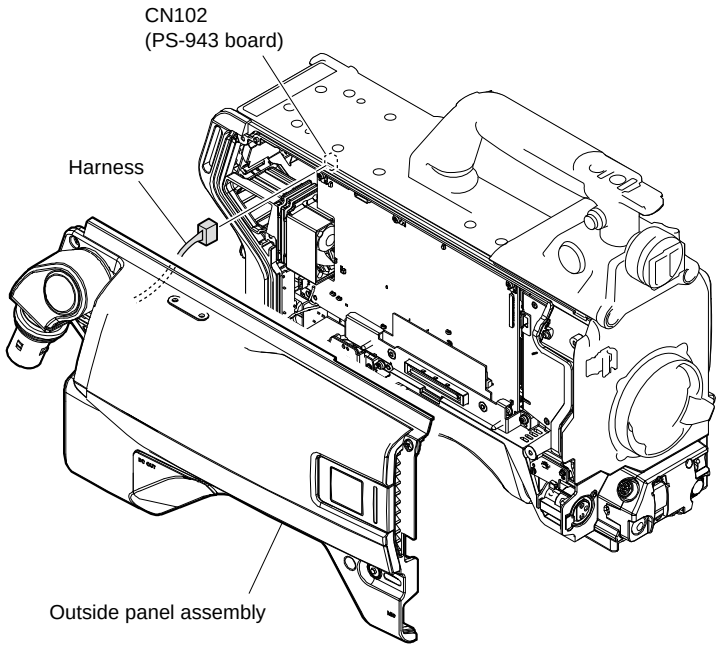


Note

Install the outside panel assembly as follows.

- When the shield tube protrudes from the groove on the main chassis, push it into the groove.
- Align the power harness along the groove of the fan holder shown in the figure.
- When closing the outside panel assembly, avoid pinching the harnesses as shown in the figure.

3. Disconnect the harness from the connector (CN102) on the PS-943 board.



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

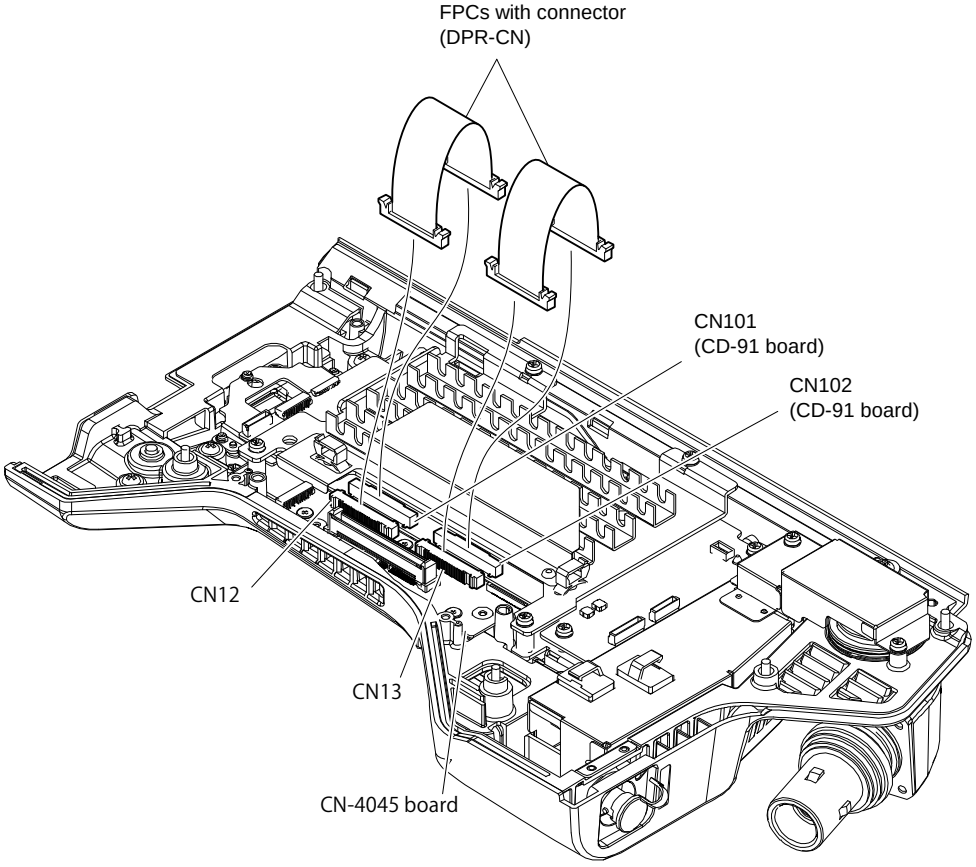
3-7-2. CN-4045 board

Preparation

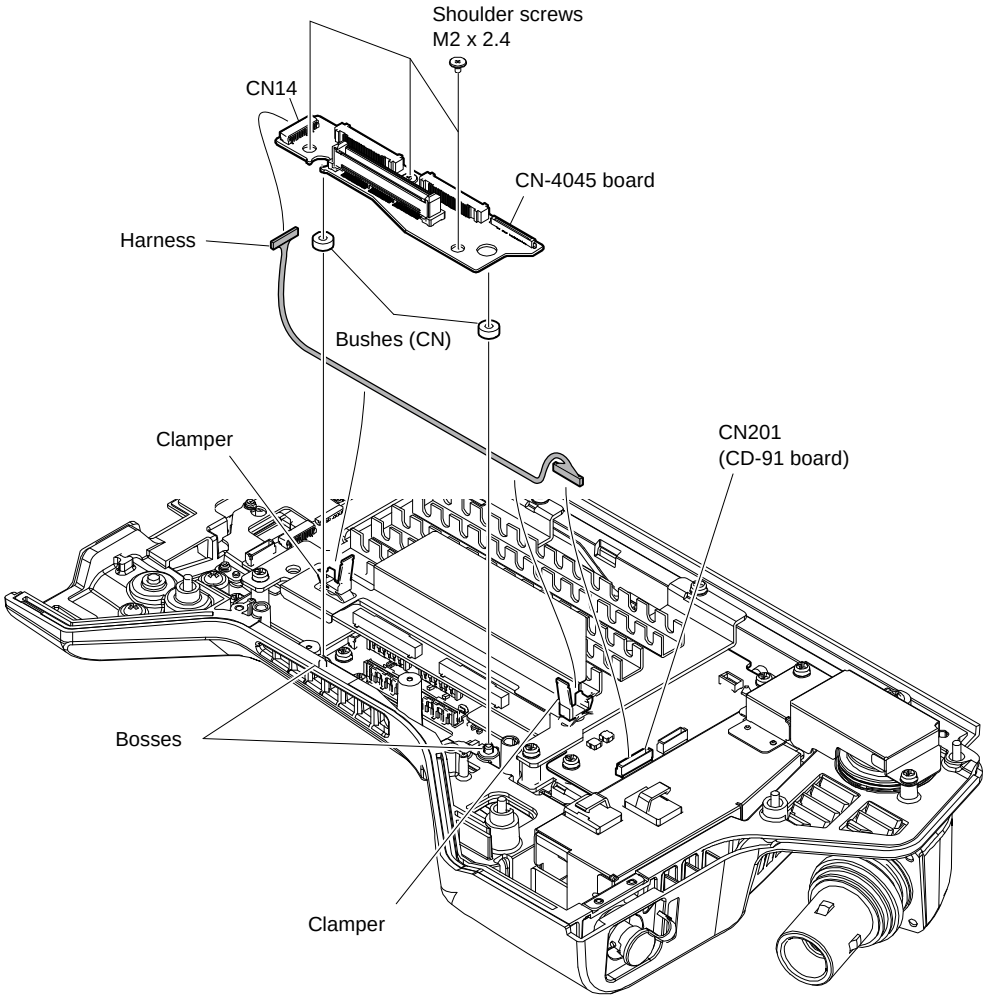
1. Remove the outside panel assembly. (Refer to “3-7-1. Outside Panel Assembly”.)

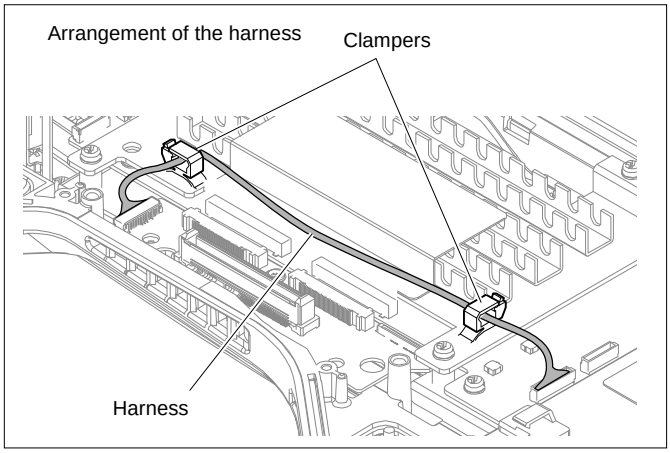
Procedure

1. Remove the FPCs with connector (DPR-CN) from the two connectors (CN12, CN13) on the CN-4045 board and the two connectors (CN101, CN102) on the CD-91 board.



2. Remove the three screws.
3. Lift up the CN-4045 board and disconnect the harness from the connector (CN14) on the CN-4045 board.
4. Remove the two bushes (CN) from the bosses.
5. Disconnect the harness from the connector (CN201) on the CD-91 board.





Note

When installing the harness, arrange the harness as shown in the figure.

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

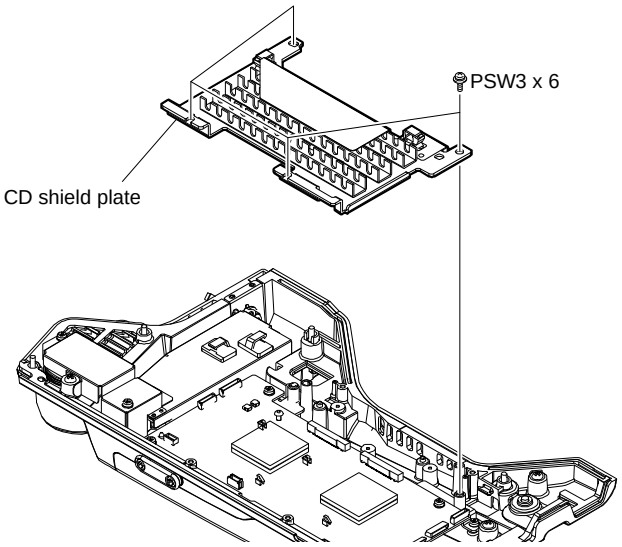
3-7-3. CD-91 Board

Preparation

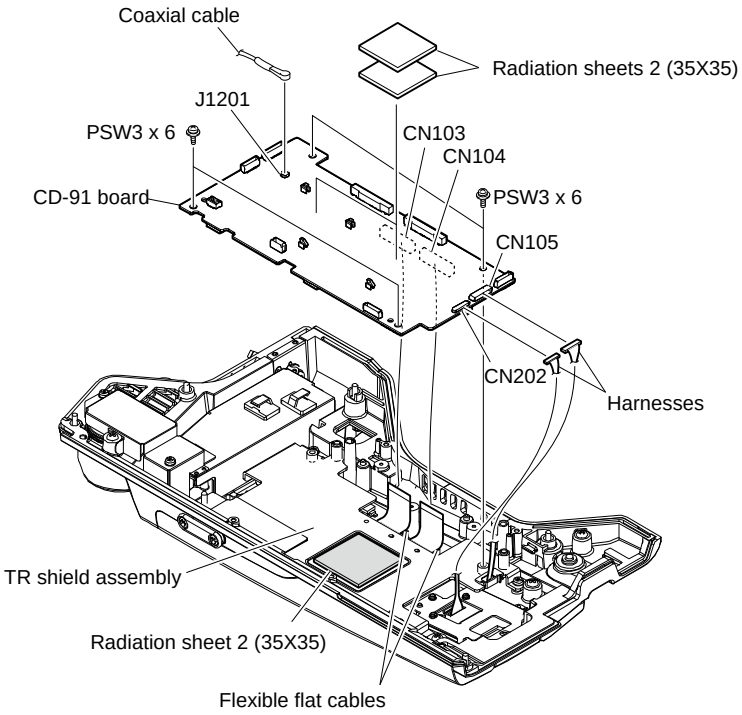
1. Remove the outside panel assembly. (Refer to “3-7-1. Outside Panel Assembly”.)

Procedure

1. Remove the four screws to detach the CD shield plate.



2. Detach the four radiation sheets 2 (35X35).
3. Remove the coaxial cable and the two harnesses from the three connectors (J1201, CN105, CN202) on the CD-91 board.
4. Remove the four screws, and then remove the CD-91 board.
5. Disconnect the two flexible flat cables from the two connectors (CN103, CN104) on the CD-91 board.



Note

If the radiation sheet 2 (35X35) peels off the TR shield assembly, stick it to the position shown in the figure.

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

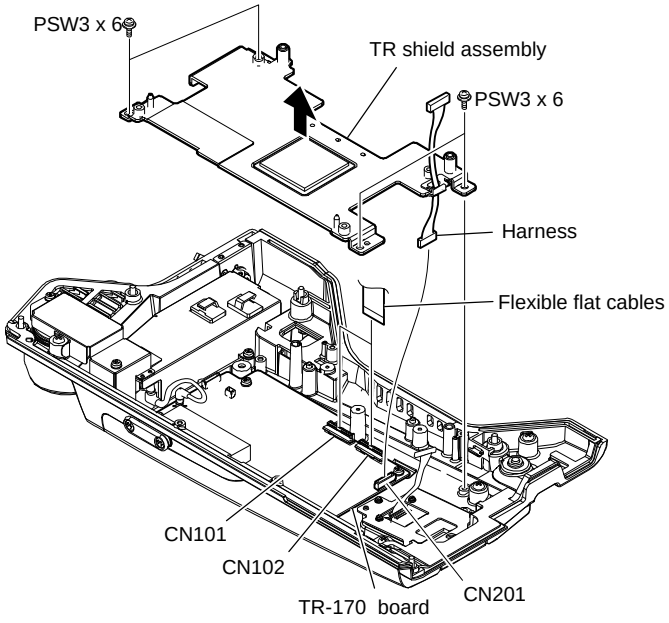
3-7-4. TR-170 Board

Preparation

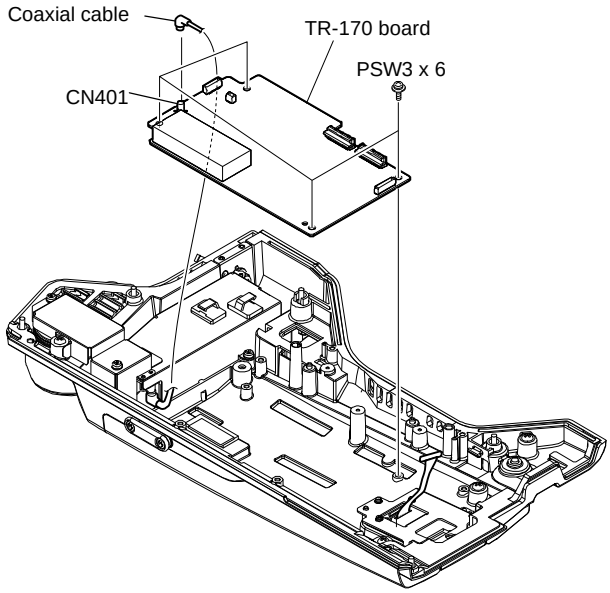
1. Remove the outside panel assembly. (Refer to “3-7-1. Outside Panel Assembly”.)
2. Detach the CD-91 board. (Refer to “3-7-3. CD-91 Board”.)

Procedure

1. Remove the four screws and lift up the TR shield assembly in the direction of the arrow.
2. Disconnect the harness from the connector (CN201) on the TR-170 board.
3. Disconnect the two flexible flat cables from the two connectors (CN101, CN102) on the TR-170 board.



4. Disconnect the coaxial cable from the connector (CN401) on the TR-170 board.
5. Remove the four screws, and then remove the TR-170 board.



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

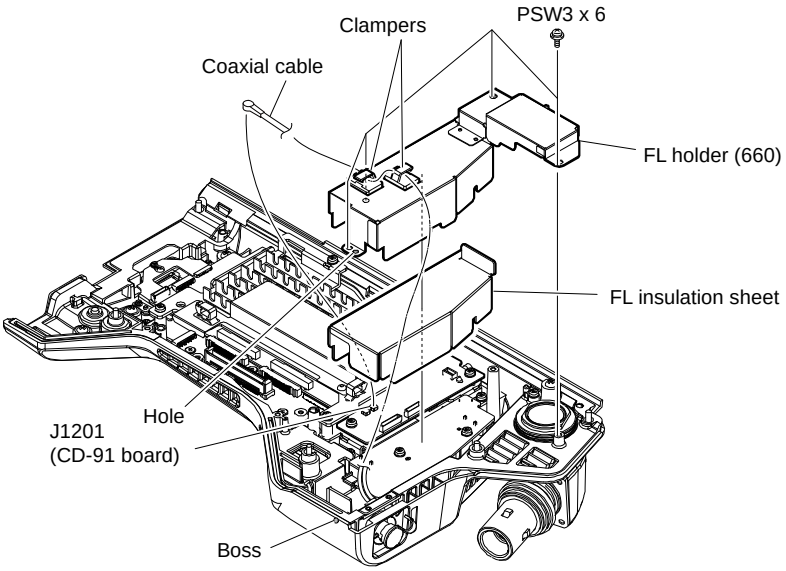
3-7-5. FL-380 Board

Preparation

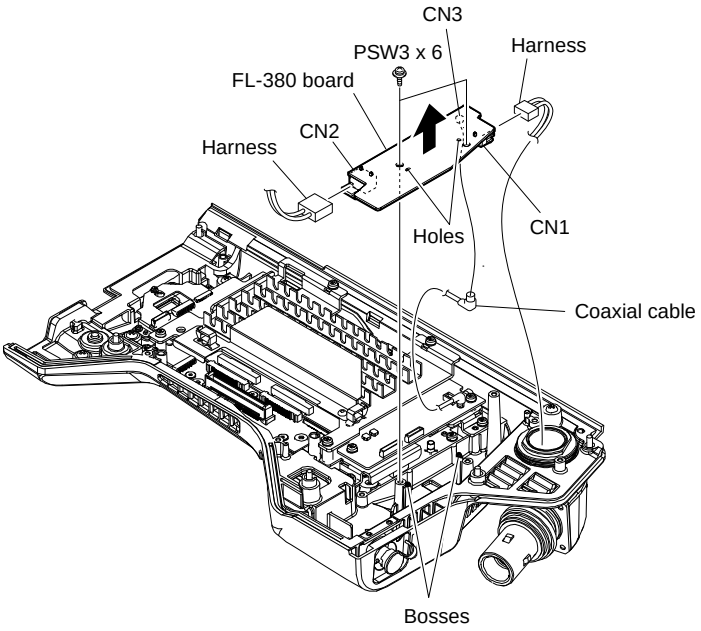
1. Remove the outside panel assembly. (Refer to “3-7-1. Outside Panel Assembly”.)

Procedure

1. Disconnect the coaxial cable from the connector (J1201) on the CD-91 board.
2. Remove the cable from the clampers.
3. Remove the four screws to detach the FL holder (660) and the FL insulation sheet.



4. Remove the two screws and lift up the FL-380 board in the direction of the arrow.
5. Disconnect the two harnesses and the coaxial cable from the three connectors (CN1 to CN3) on the FL-380 board.



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

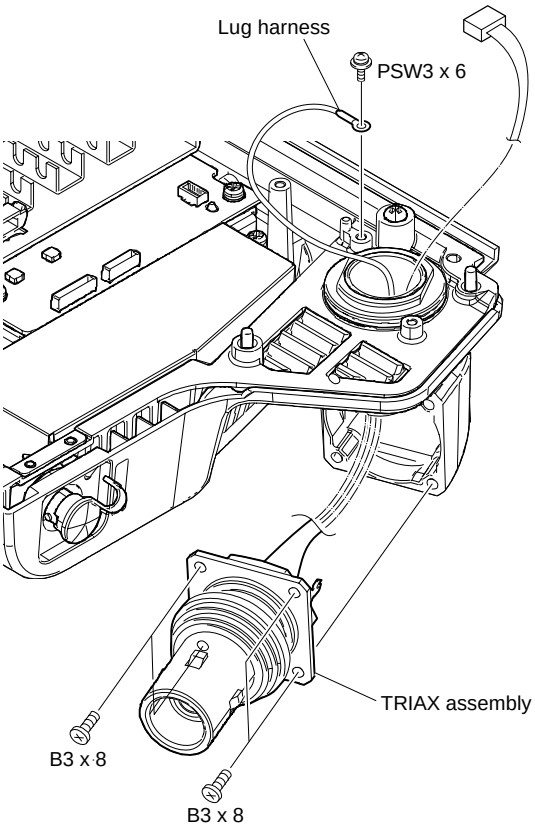
3-7-6. TRIAX Assembly

Preparation

1. Remove the outside panel assembly. (Refer to “3-7-1. Outside Panel Assembly”.)
2. Remove the FL-380 board. (Refer to “3-7-5. FL-380 Board”.)

Procedure

1. Remove the screw (PSW3 x 6) and disconnect the lug harness.
2. Remove the four screws (B3 x 8) and remove the TRIAX assembly.



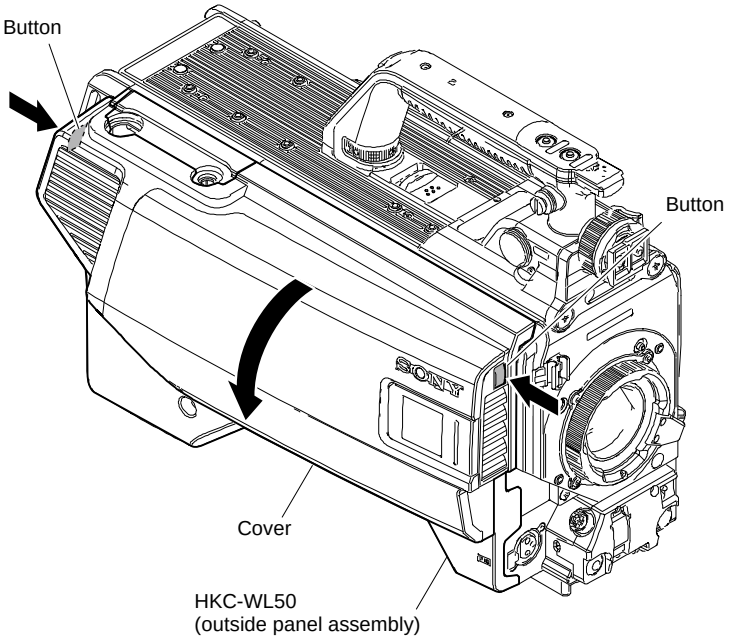
3. Install the removed parts by reversing the steps of removal.

3-8. Outside Panel (with HKC-WL50 (Option))

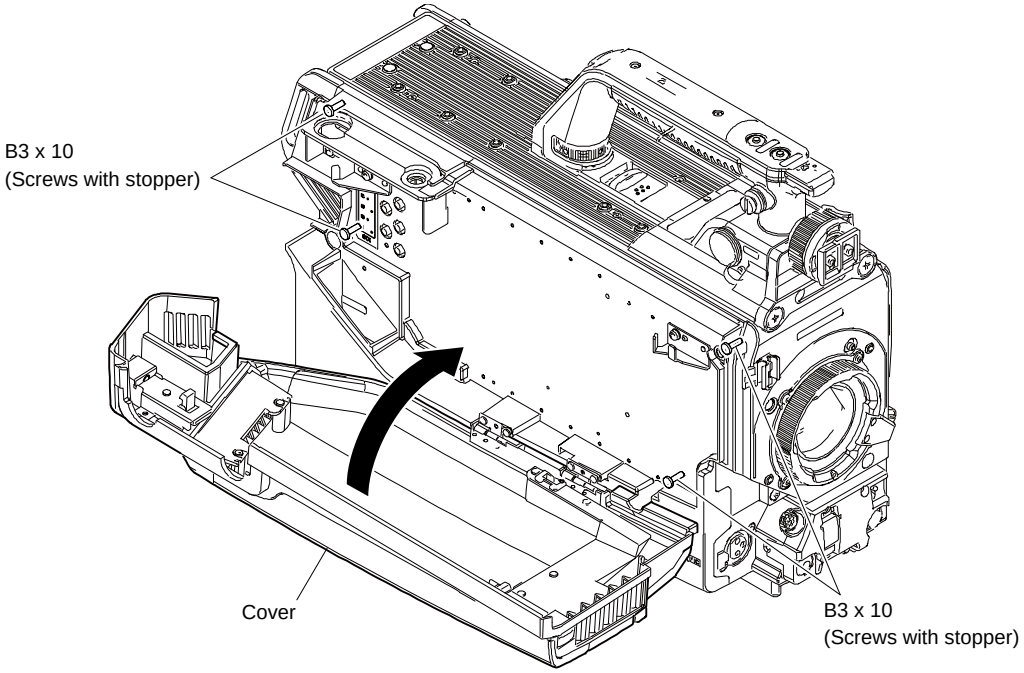
3-8-1. Outside Panel Assembly

Procedure

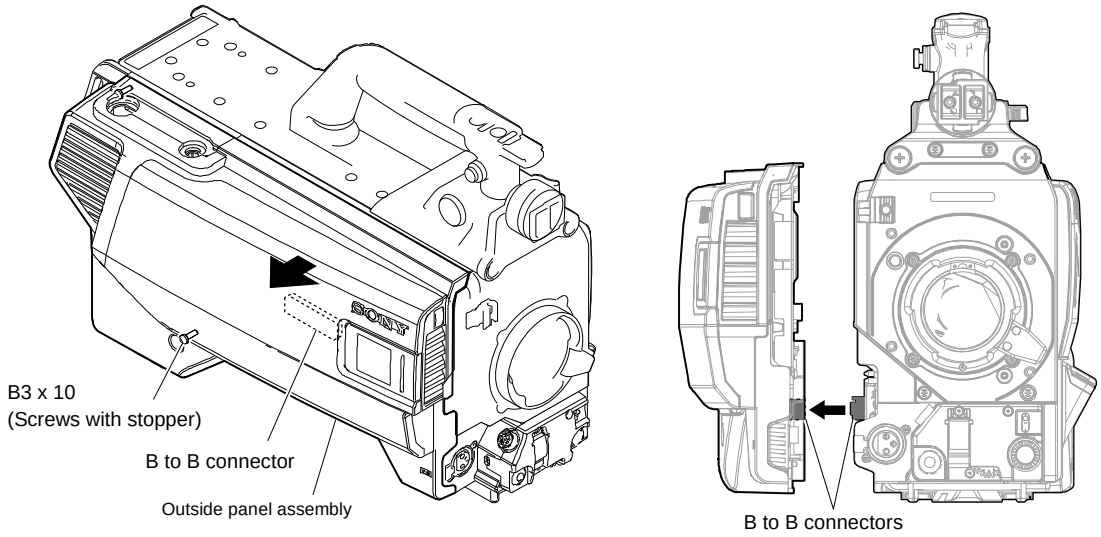
1. Push the two buttons and open the cover of the outside panel assembly.

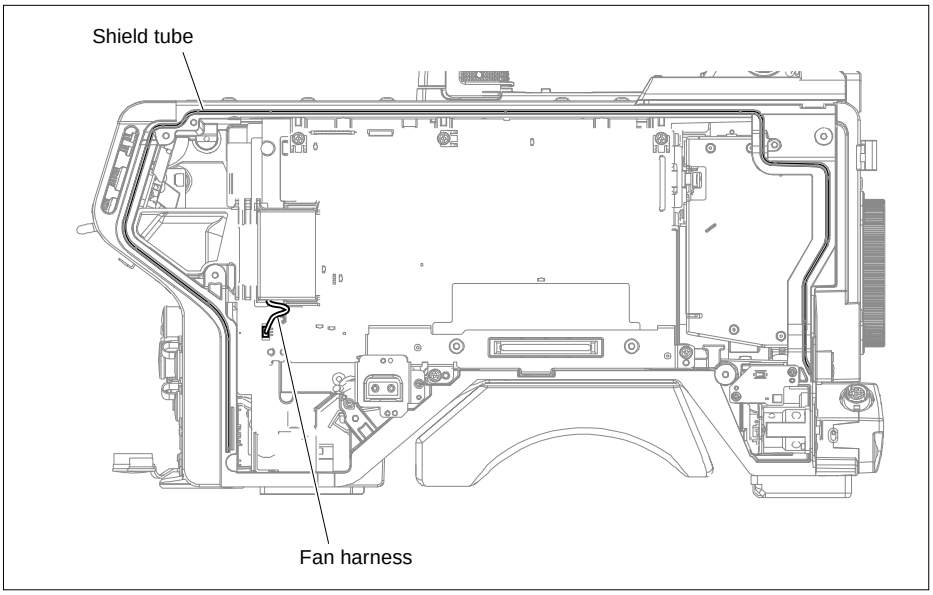


2. Tighten the four screws with stopper.
3. Close the cover.



3. Loosen the screw and open the outside panel assembly in the direction of arrow to disconnect B to B connector.



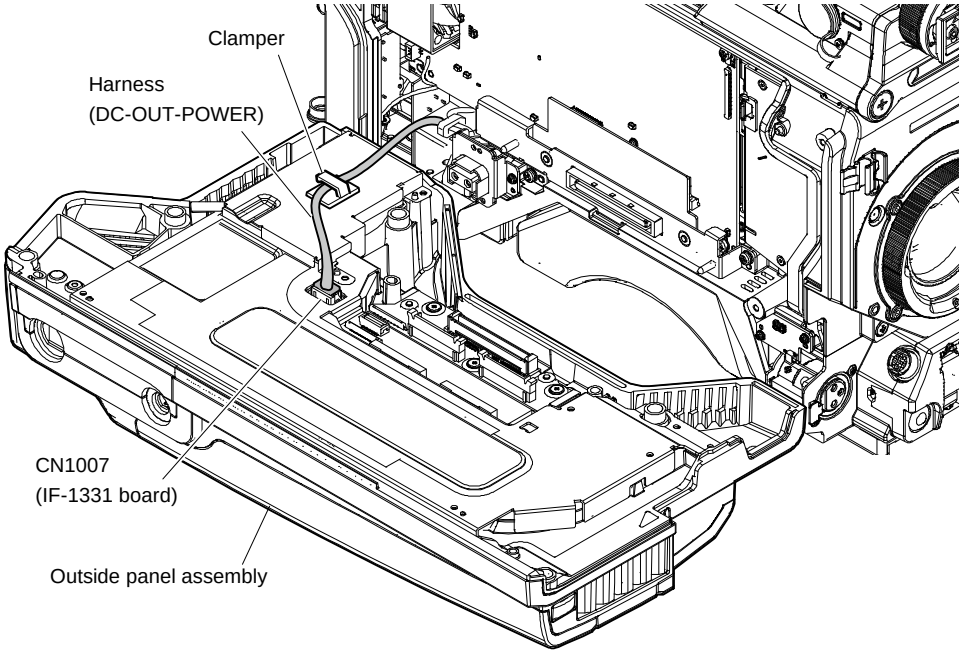


Note

Install the outside panel assembly as follows.

- When the shield tube protrudes from the groove on the main chassis, push it into the groove.
- When closing the outside panel assembly, avoid pinching the fan harness.

4. Disconnect the harness (DC-OUT-POWER) from the connector (CN1007) on the IF-1331 board.
5. Release the harness (DC-OUT-POWER) from the clamper.



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

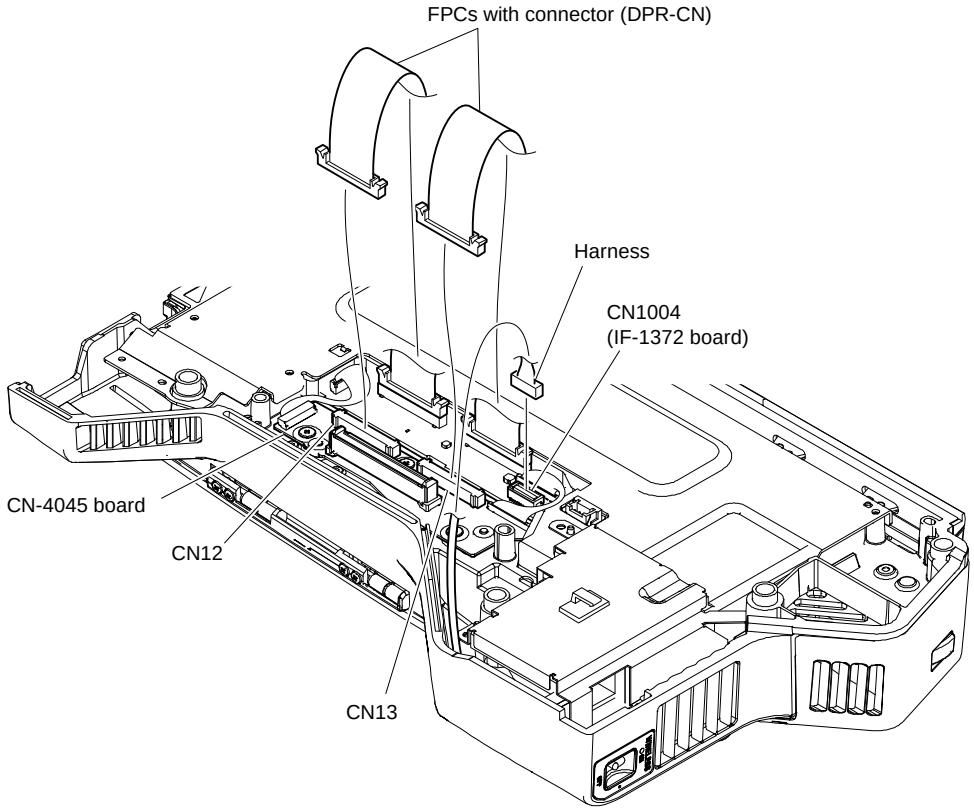
3-8-2. CN-4045 Board

Preparation

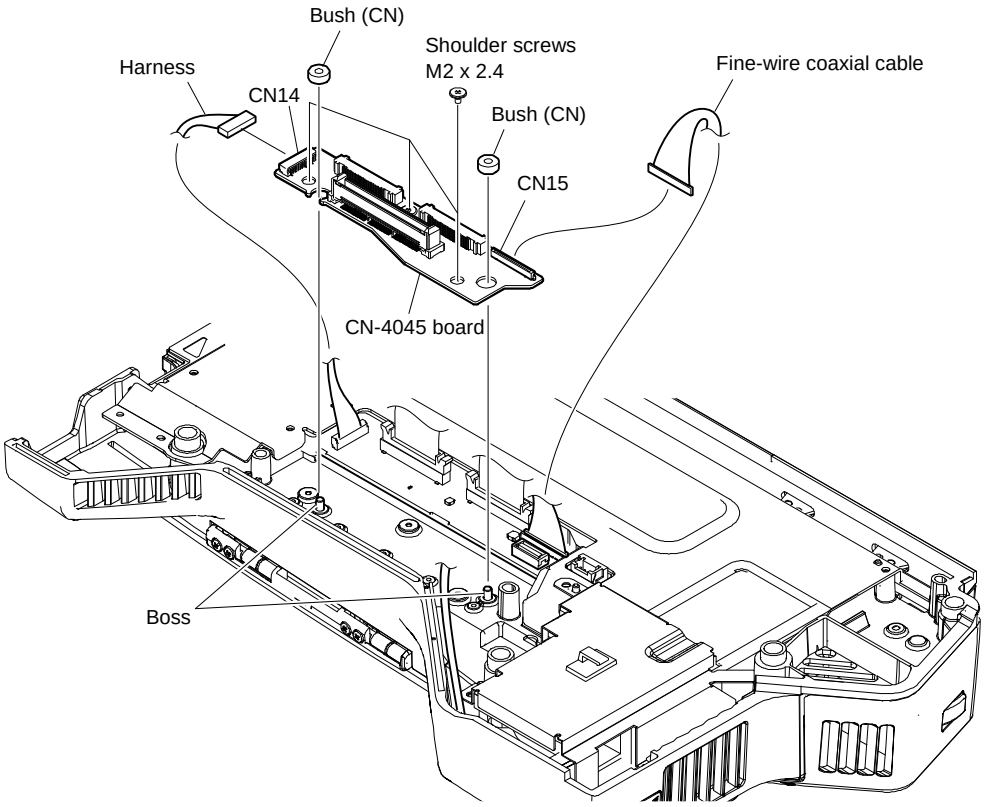
1. Remove the outside panel assembly. (Refer to “3-8-1. Outside Panel Assembly”.)

Procedure

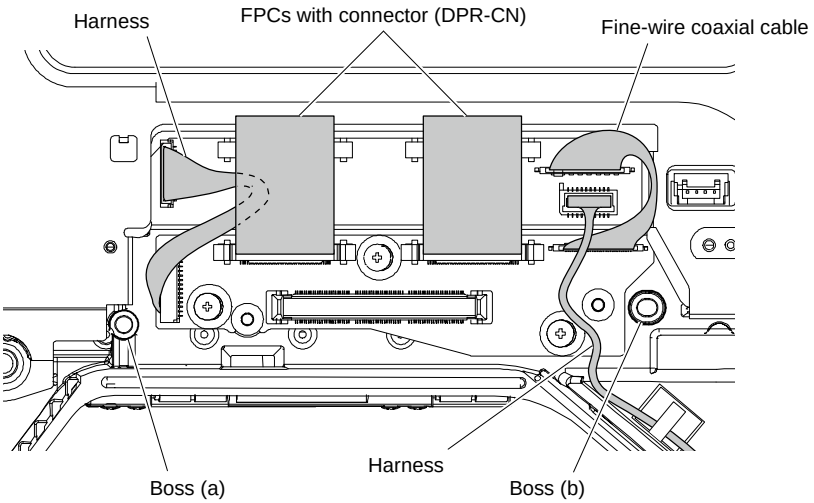
1. Disconnect the two FPCs with connector (DPR-CN) from the two connectors (CN12, CN13) on the on the CN-4045 board.
2. Disconnect the harness from the connector (CN1004) on the IF-1372 board.



3. Disconnect the fine-wire coaxial cable from the connector (CN15) on the CN-4045 board.
4. Remove the three screws.
5. Remove the two bushes (CN), and then lift up the CN-4045 board.
6. Disconnect the harness from the connector (CN14) on the CN-4045 board.



Arrangement of the harnesses



Note

At the time of the installation, arrange the harnesses so that they do not overlap with the bosses (a) and (b) as shown in the figure.

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

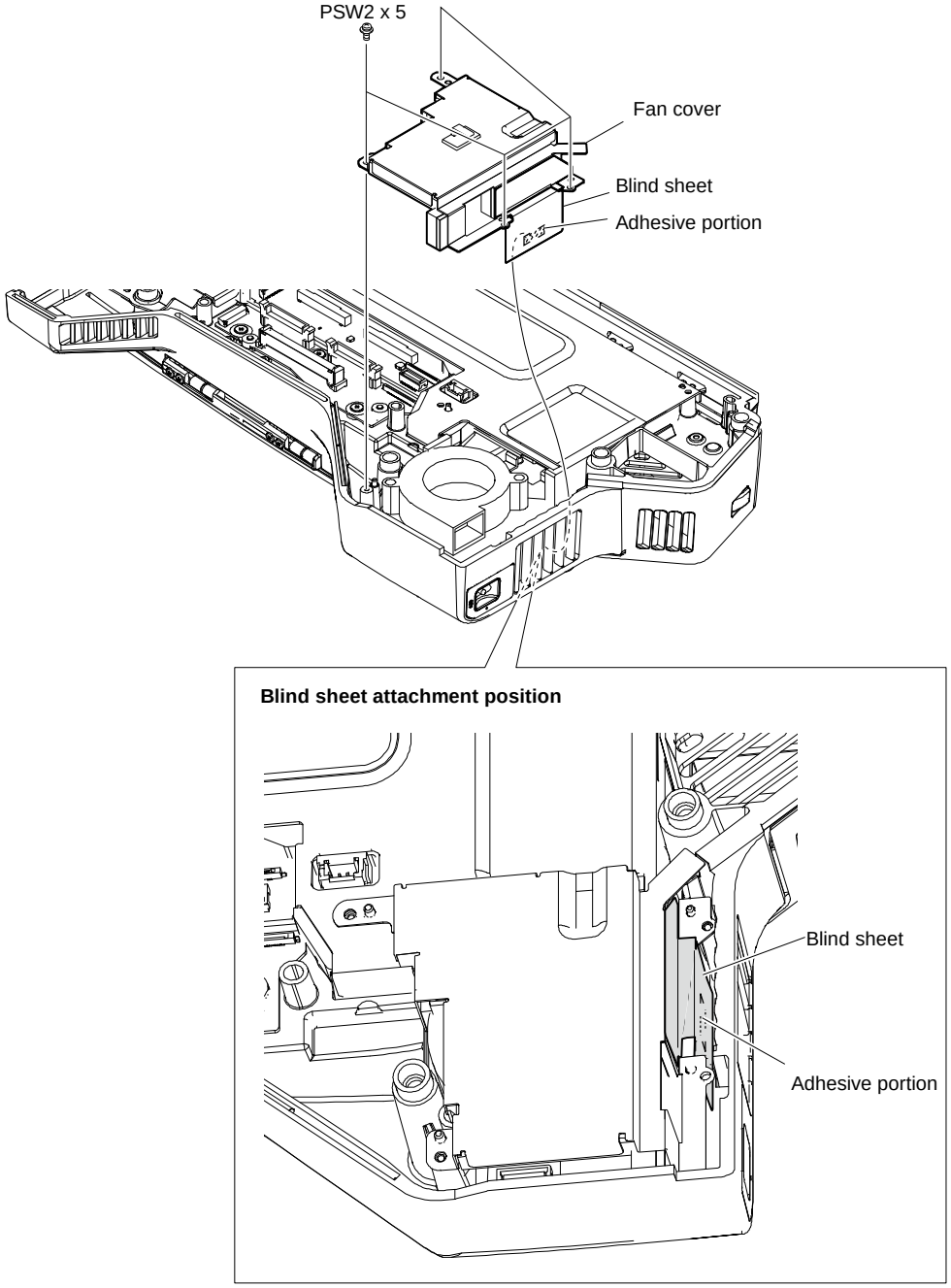
3-8-3. DC Sirocco Fan

Preparation

1. Remove the outside panel assembly. (Refer to “3-8-1. Outside Panel Assembly”.)

Procedure

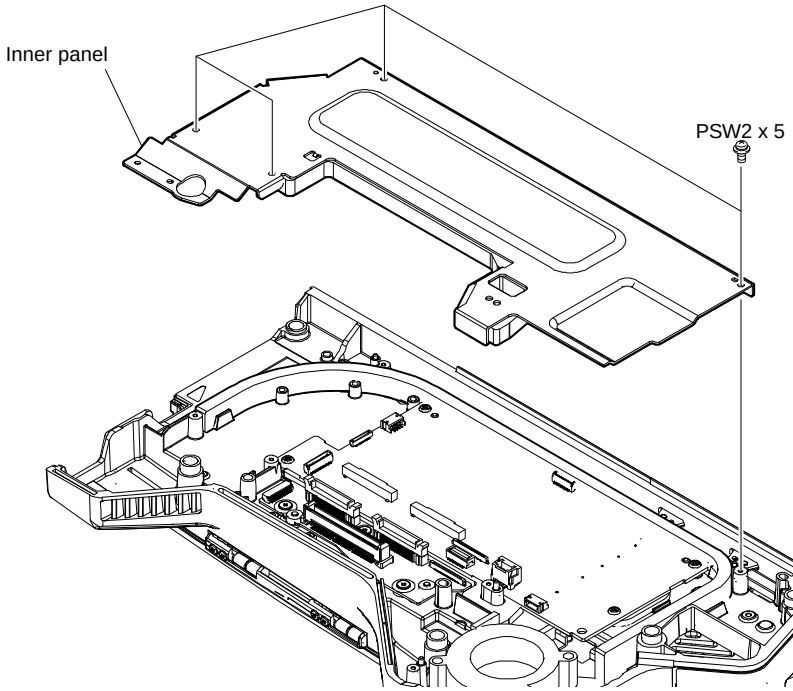
1. Peel off the adhesive portion of the blind sheet.
2. Remove the four screws, and then remove the fan cover.

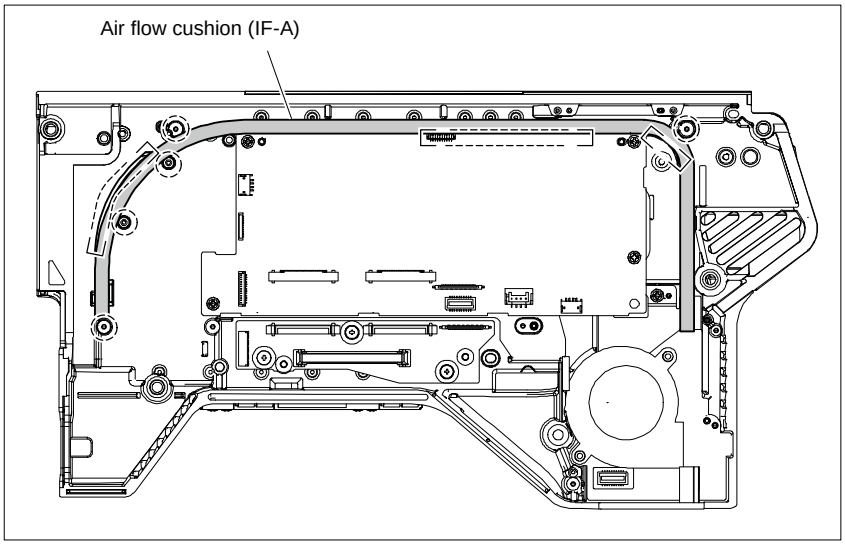


Note

At the time of the installation, attach the adhesive portion of the blind sheet to the outside panel as shown in the figure.

3. Remove four screws, and then remove the inner panel.

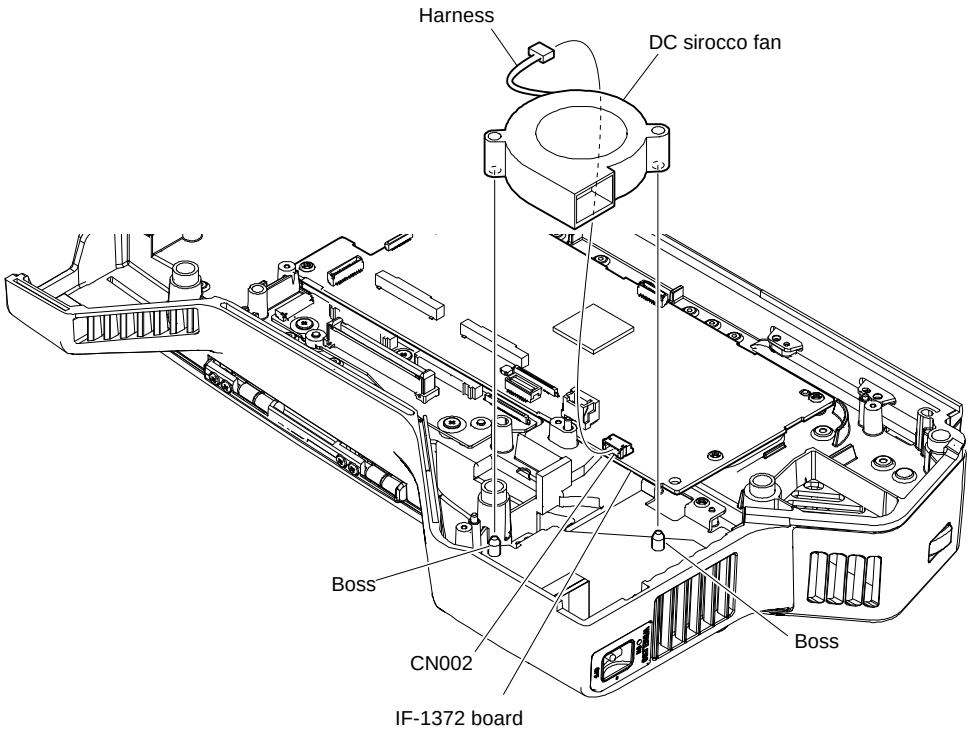




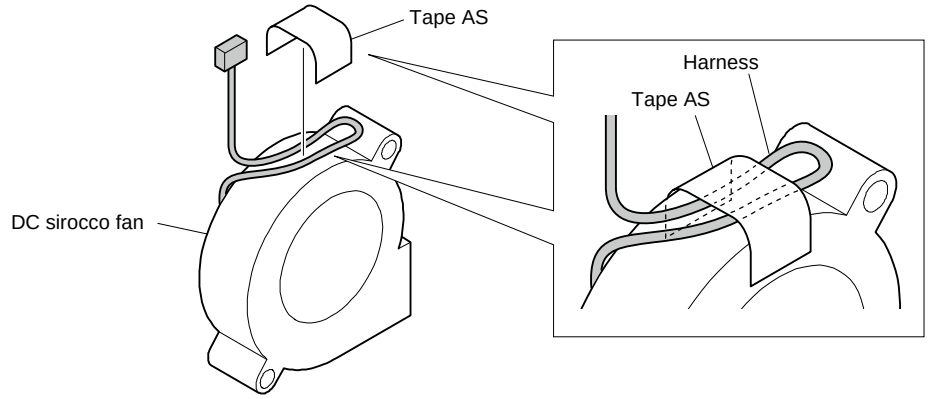
Note

Before assembling the inner panel, check that the air flow cushion (IF-A) does not overlap with the broken line area.

4. Disconnect the harness from the connector (CN002) on the IF-1372 board.
5. Remove the DC sirocco fan.



6. Attach a new tape AS to a new DC sirocco fan.



Note

Arrange the harness as shown in the figure.

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

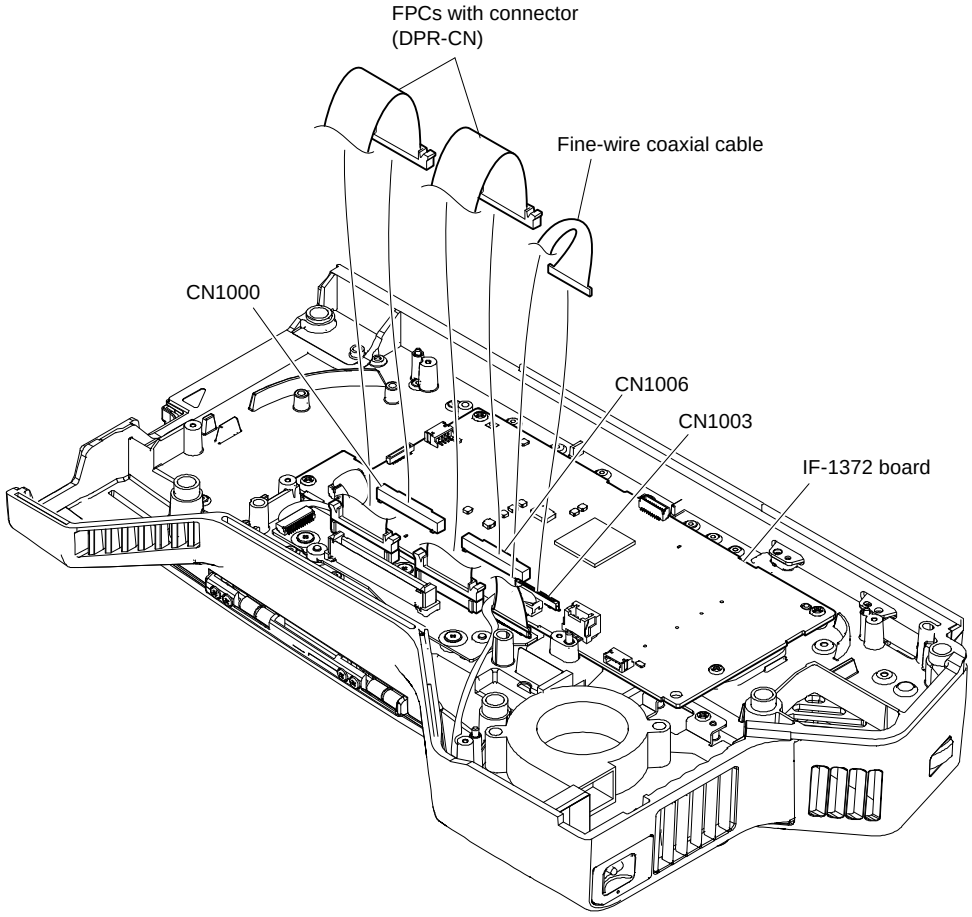
3-8-4. IF-1372 Board

Preparation

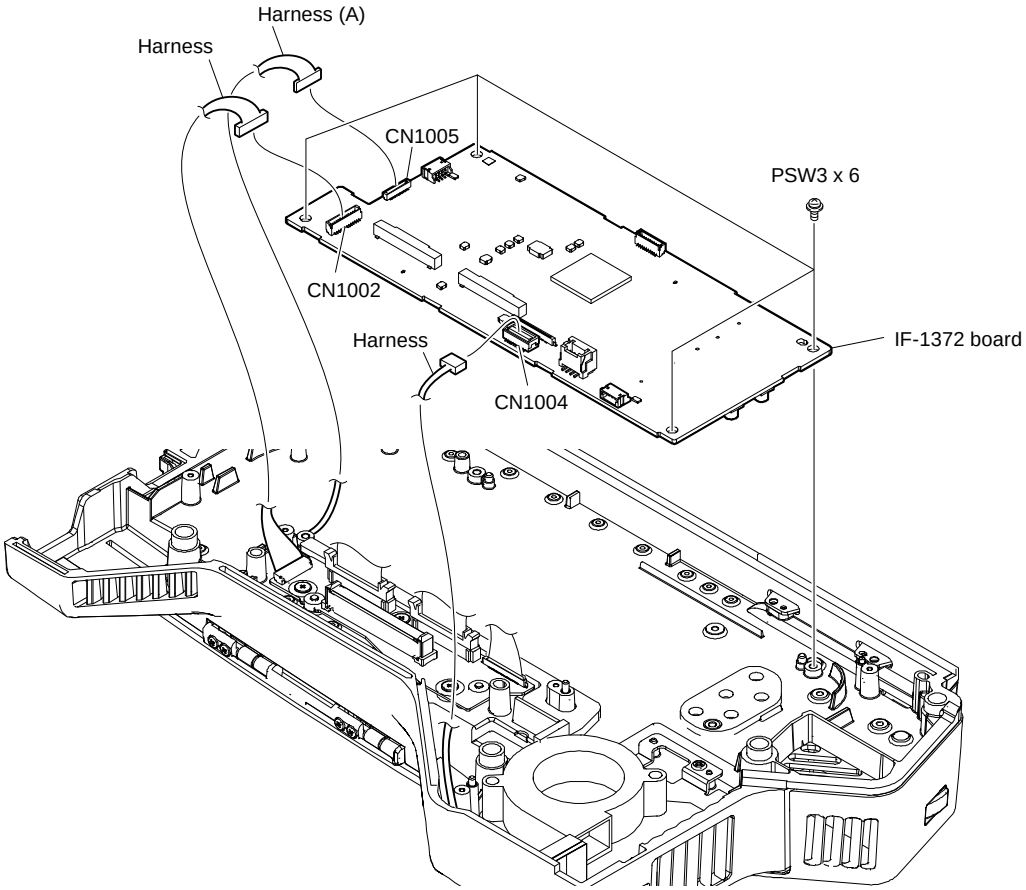
1. Remove the outside panel assembly. (Refer to “3-8-1. Outside Panel Assembly”.)
2. Remove the inner panel. (Refer to “3-8-3. DC sirocco fan”.)

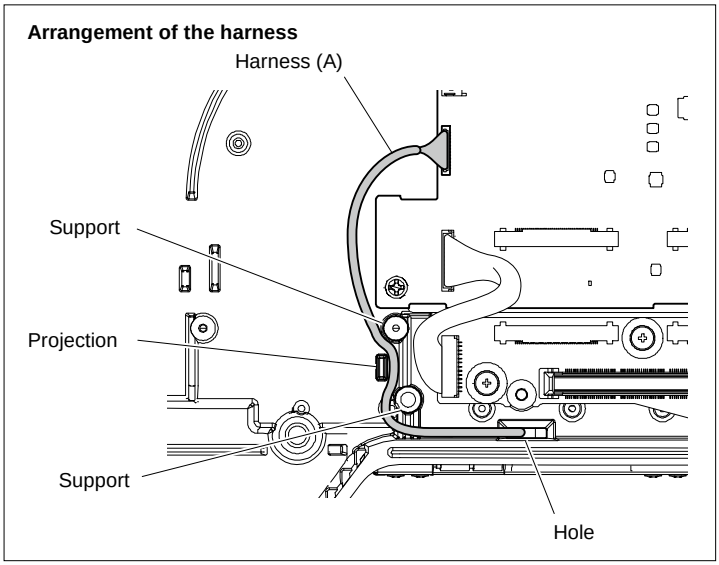
Procedure

1. Disconnect the two FPCs with connector (DPR-CN) from the two connectors (CN1000, CN 1006) on the IF-1372 board.
2. Disconnect the fine-wire coaxial cable from the connector (CN1003) on the IF-1372 board.



3. Disconnect the four harnesses from the four connectors (CN002, CN1004, CN1005, CN1002) on the IF-1372 board.
4. Remove the four screws, and then remove the IF-1372 board.





Note

When connecting the harness (A), arrange the harness (A) as shown in the figure.

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

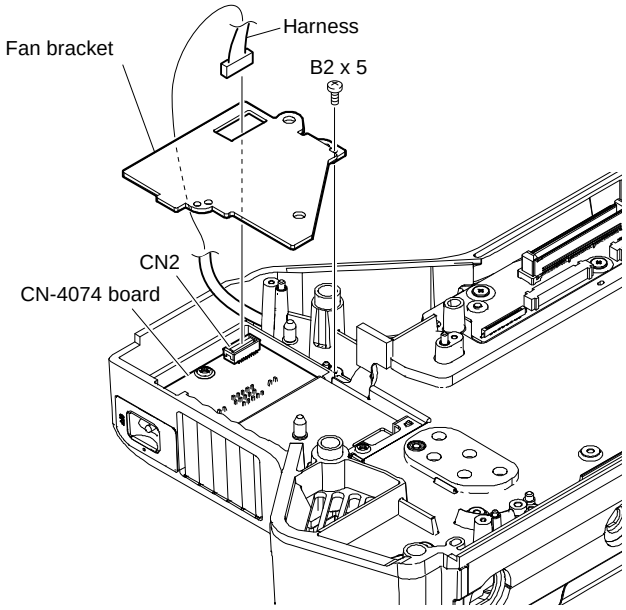
3-8-5. CN-4074 Board

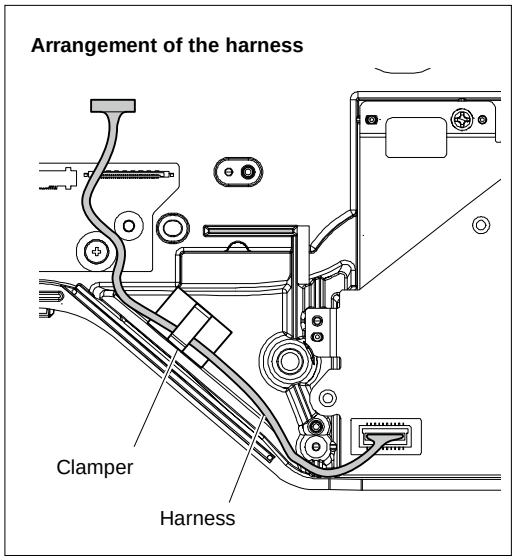
Preparation

1. Remove the outside panel assembly. (Refer to “3-8-1. Outside Panel Assembly”.)
2. Remove the inner panel. (Refer to “3-8-3. DC sirocco fan”.)
3. Remove the IF-1372 board. (Refer to “3-8-4. IF-1372 board”.)

Procedure

1. Disconnect the harness from the connector (CN2) on the CN-4074 board.
2. Remove the screw, and then remove the fan bracket.

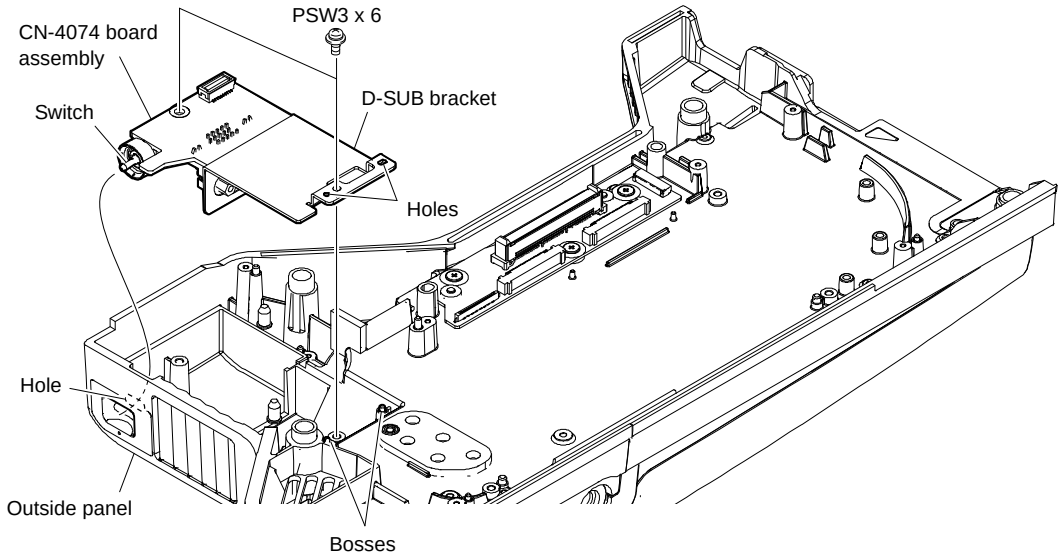




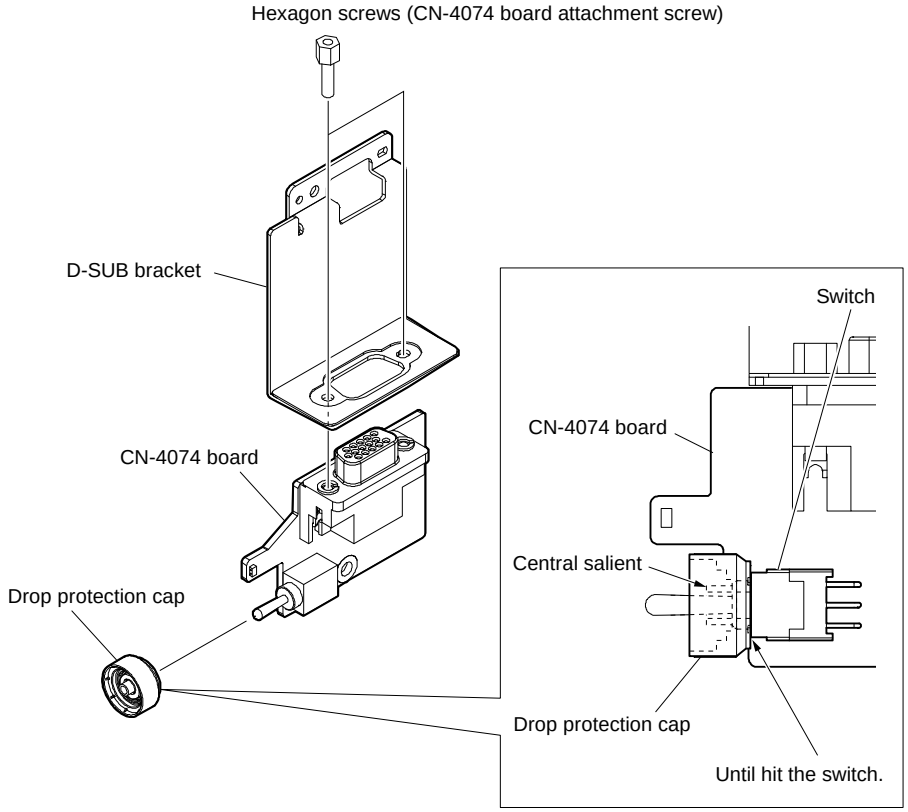
Note

When connecting the harness, arrange the harness as shown in the figure.

3. Remove the two screws, and then disengage the two holes of the D-SUB bracket from the bosses.
4. Pull the switch out of the hole in the outside panel, and then remove the CN-4074 board assembly.



5. Remove the drop protection cap from the CN-4074 board.
6. Remove the two hexagon screws, and then remove the CN-4074 board.



Note

When install the drop protection cap, push it until hit the switch in the direction of the figure and be careful so that the central salient of the drop protection cap does not become higher than circumference.

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

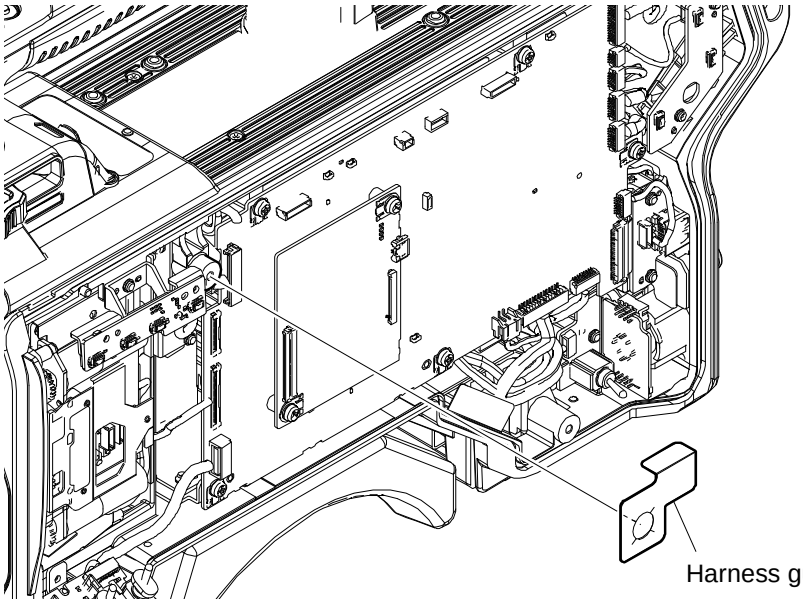
3-9. SY-463 Board

Preparation

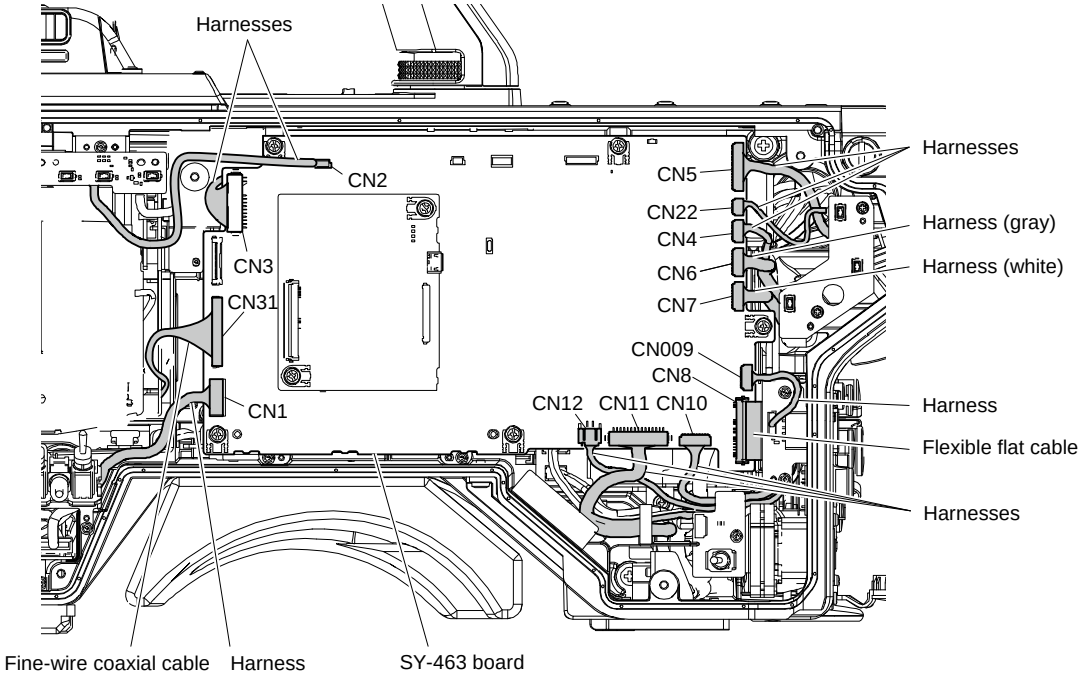
1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)

Procedure

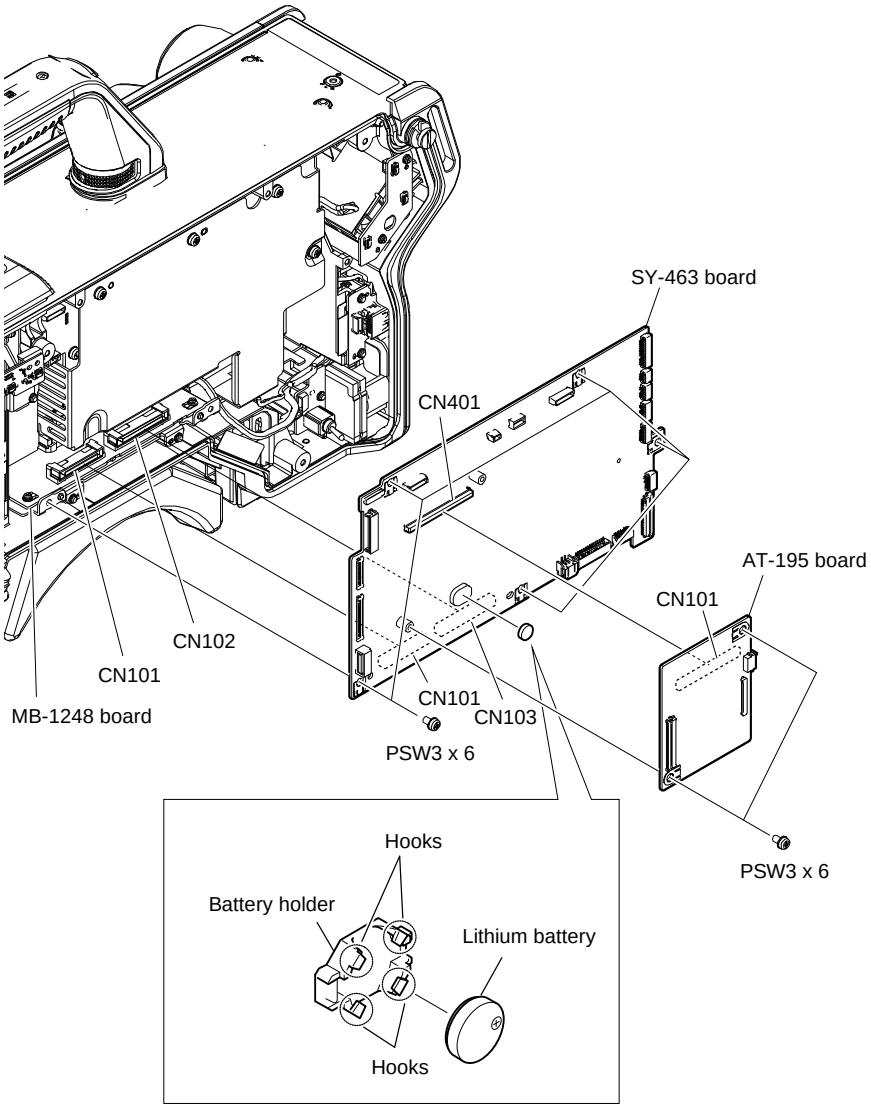
1. Remove the harness guard (SW-1738).



2. Disconnect the twelve harnesses from the twelve connectors (CN009, CN1 to CN7, CN10 to CN12 and CN22) on the SY-463 board.
3. Disconnect the fine-wire coaxial cable from the connector (CN31) on the SY-463 board.
4. Disconnect the flexible flat cable from the connector (CN8) on the SY-463 board.



5. Remove the five screws.
6. Remove the SY-463 board from the connectors (CN101, CN102) on the MB-1248 board.
7. Remove the two screws and AT-195 board from the connector (CN401) on the SY-463 board.
8. Remove the lithium battery with an non-conductive stick.



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

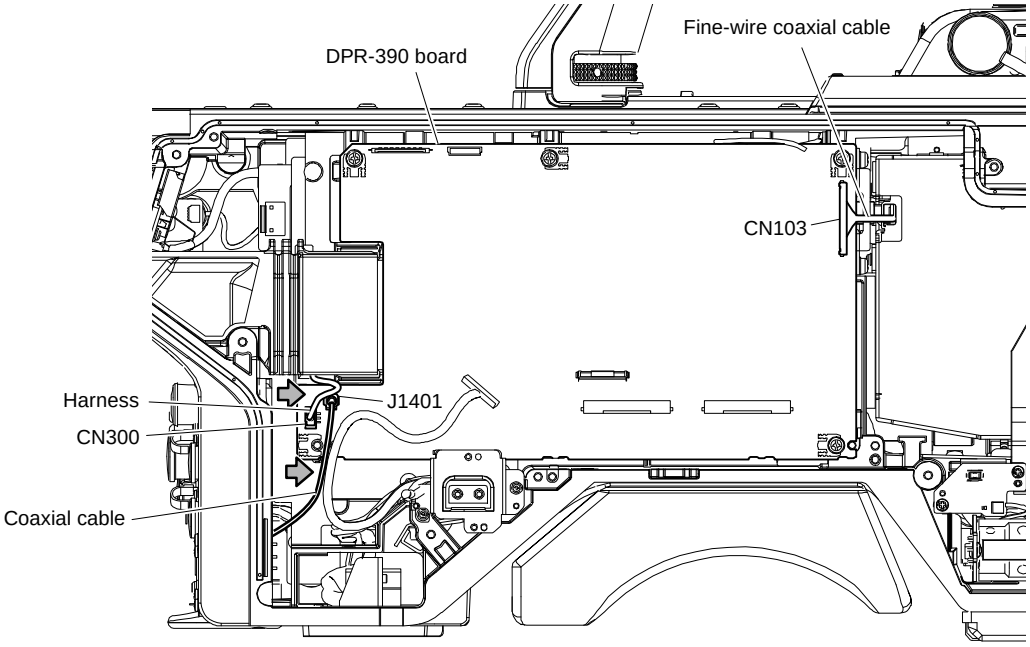
3-10. DPR-390 Board

Preparation

1. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”.

Procedure

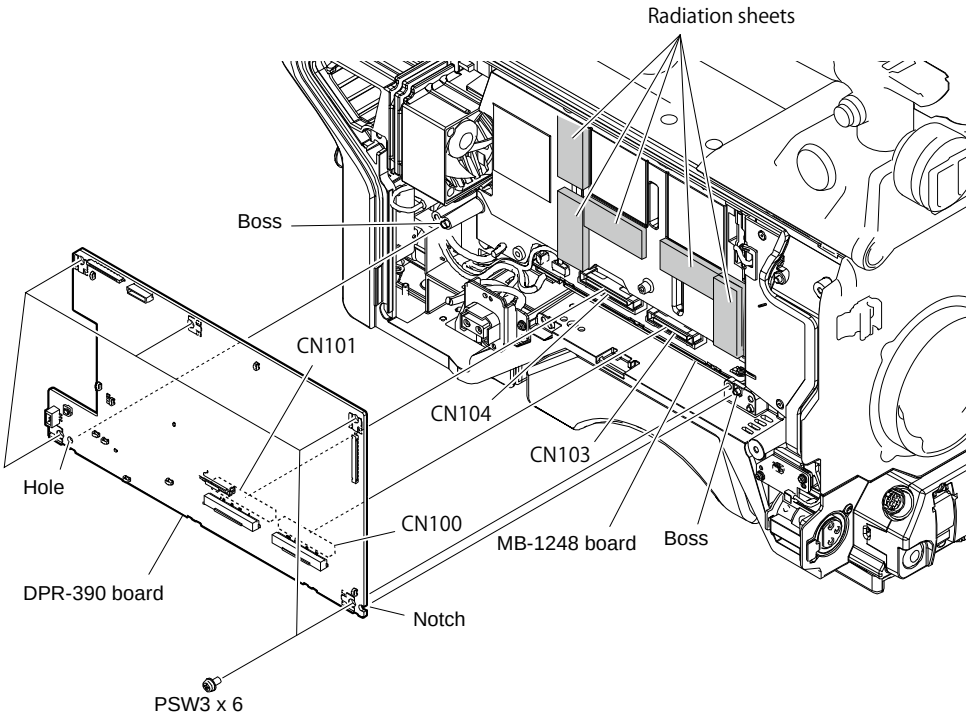
1. Disconnect the fine-wire coaxial cable, the harness, and the coaxial cable from the connectors (CN103, CN300, J1401) on the DPR-390 board.



Note

When connecting the harness and the coaxial cable, arrange them in the direction of the arrows.

2. Remove the five screws.
3. Remove the DPR-390 board from the two connectors (CN103, CN104) on the MB-1248 board.



Note

Before attaching the DPR-390 board, check that the heat radiation sheets are attached at the positions as shown in the figure.

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

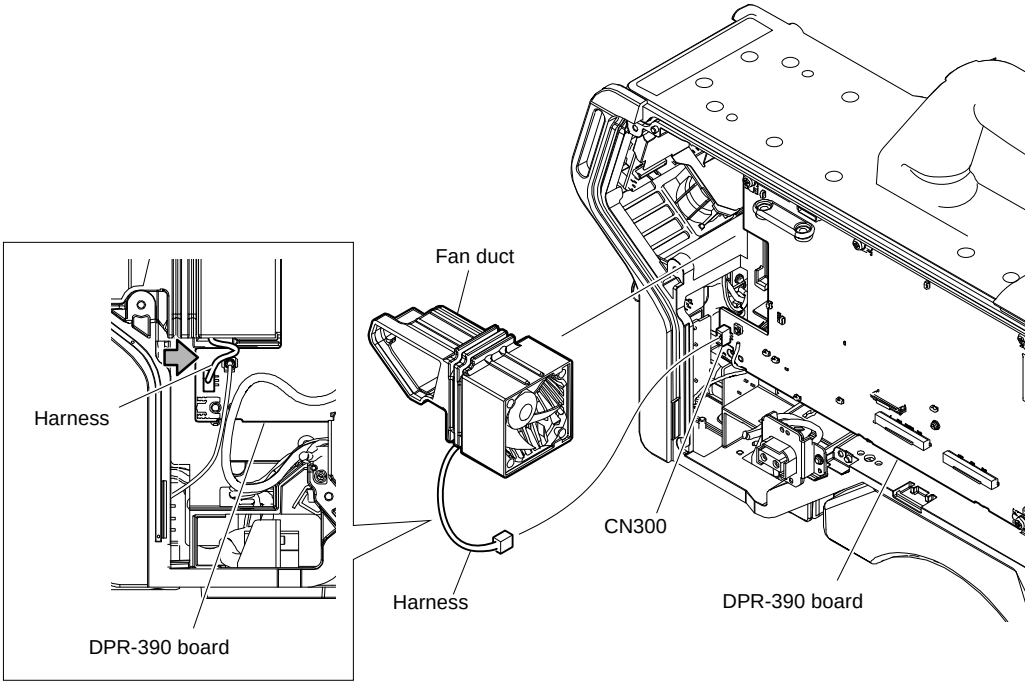
3-11. DC Fan (Rear)

Preparation

1. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”.

Procedure

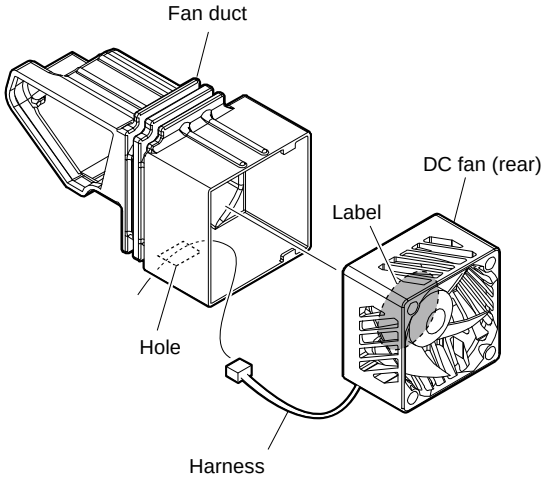
1. Disconnect the harness from the connector (CN300) on the DPR-390 board.
2. Remove the fan duct.



Note

When installing the fan duct, arrange the harness in the direction of the arrow.

3. Remove the DC fan (rear) from the fan duct.
4. Release the harness from the hole of the fan duct.



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

3-12. FD (Filter Disk) Assembly

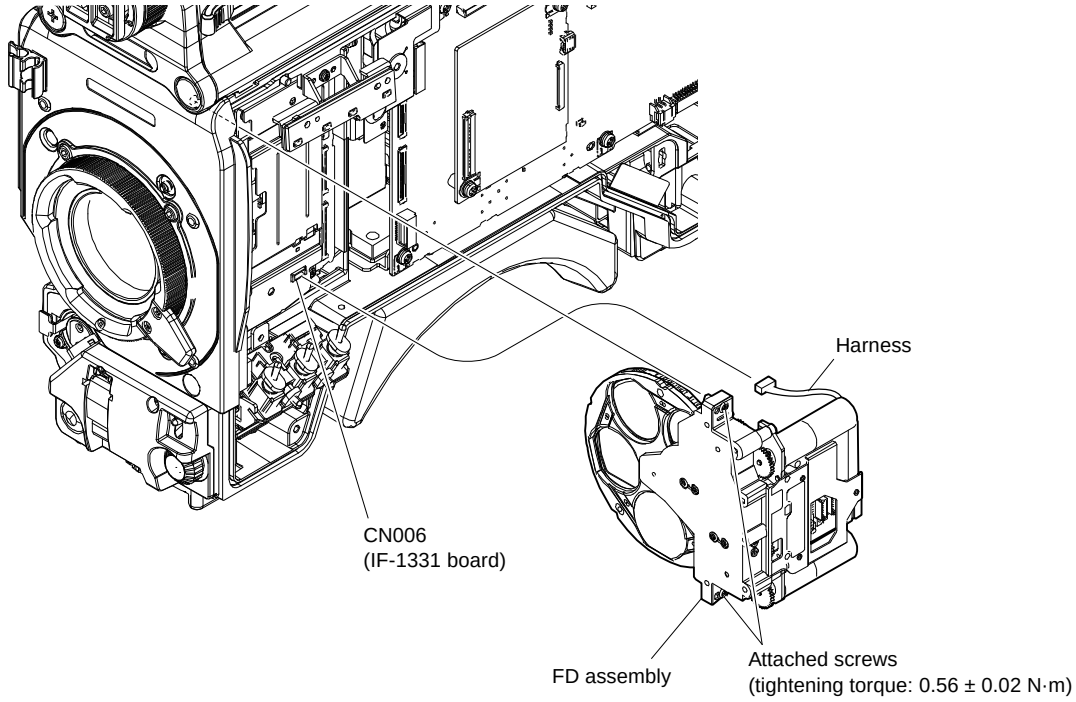
3-12-1. FD (Filter Disk) Assembly

Preparation

1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)

Procedure

1. Remove the harness from the connector (CN006) on the IF-1331 board.
2. Loosen the two attached screws and remove the FD assembly.



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

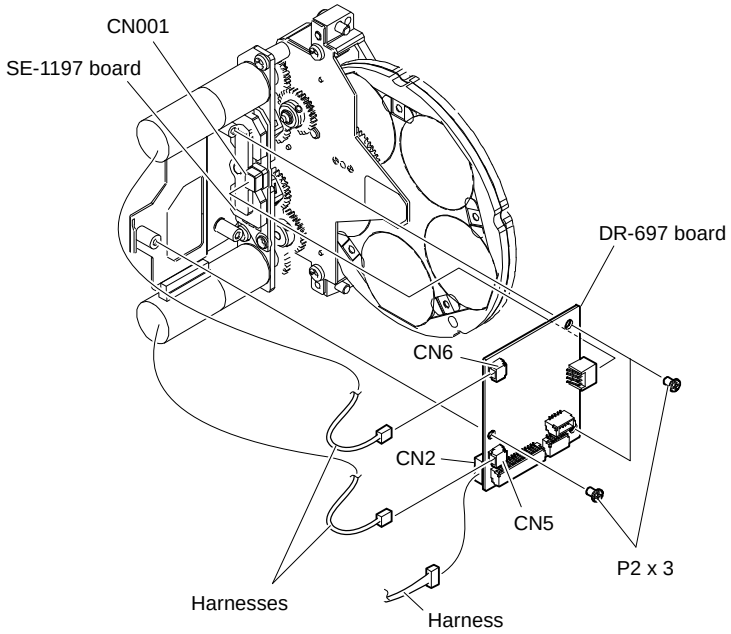
3-12-2. DR-697 Board

Preparation

1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the FD assembly. (Refer to “3-12-1. FD (Filter Disk) Assembly”.)

Procedure

1. Disconnect the two harnesses from the two connectors (CN5, CN6) on the DR-697 board.
2. Remove the three screws and DR-697 board from the connector (CN001) on the SE-1197 board.
3. Disconnect the harness from the connector (CN2) on the DR-697 board.



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

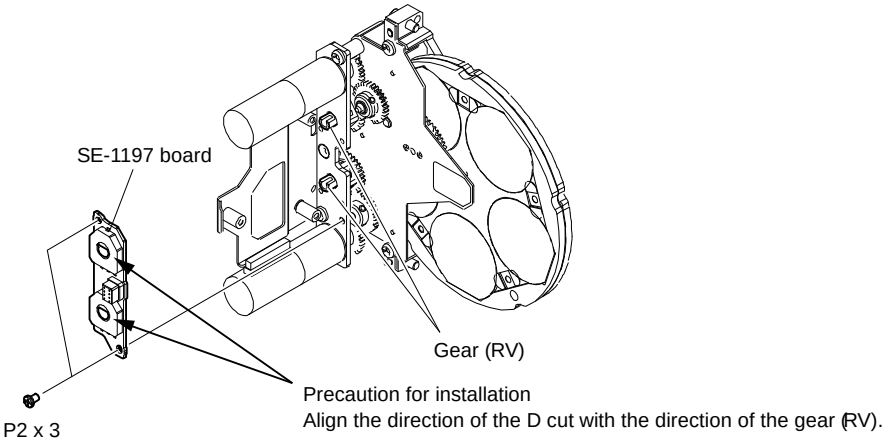
3-12-3. SE-1197 Board

Preparation

1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the FD assembly. (Refer to “3-12-1. FD (Filter Disk) Assembly”.)
3. Remove the DR-697 board. (Refer to “3-12-2. DR-697 Board”.)

Procedure

1. Remove the two screws and the SE-1197 board.



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

3-13. Front

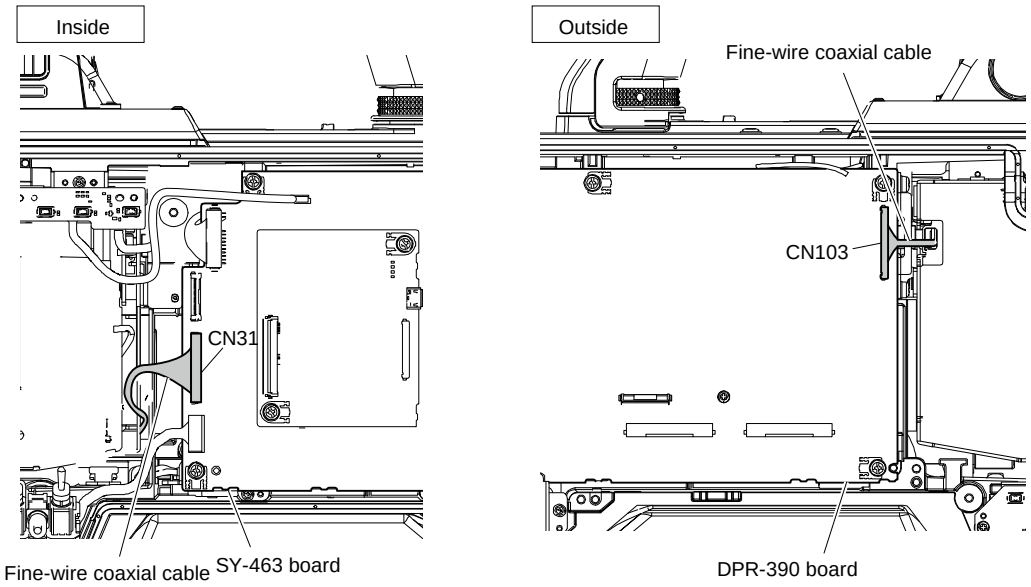
3-13-1. Front Assembly

Preparation

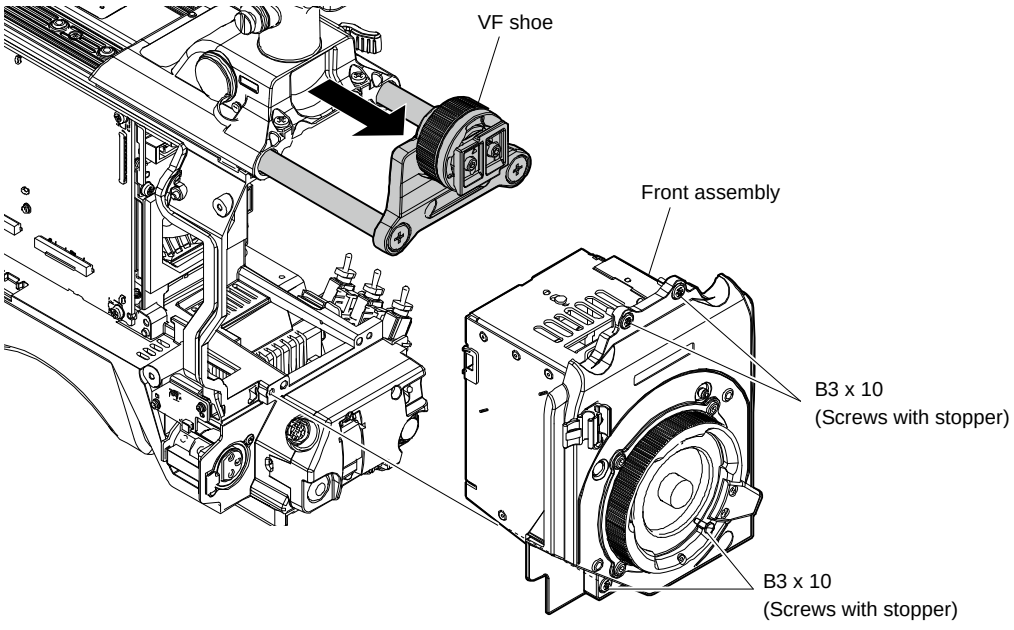
1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”.

Procedure

1. Disconnect the fine-wire coaxial cable from the connector (CN31) on the SY-463 board.
2. Disconnect the fine-wire coaxial cable from the connector (CN103) on the DPR-390 board.



3. Pull out the VF shoe.
4. Loosen the four screws with stopper and remove the front assembly.



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

3-13-2. OHB Assembly

Tip

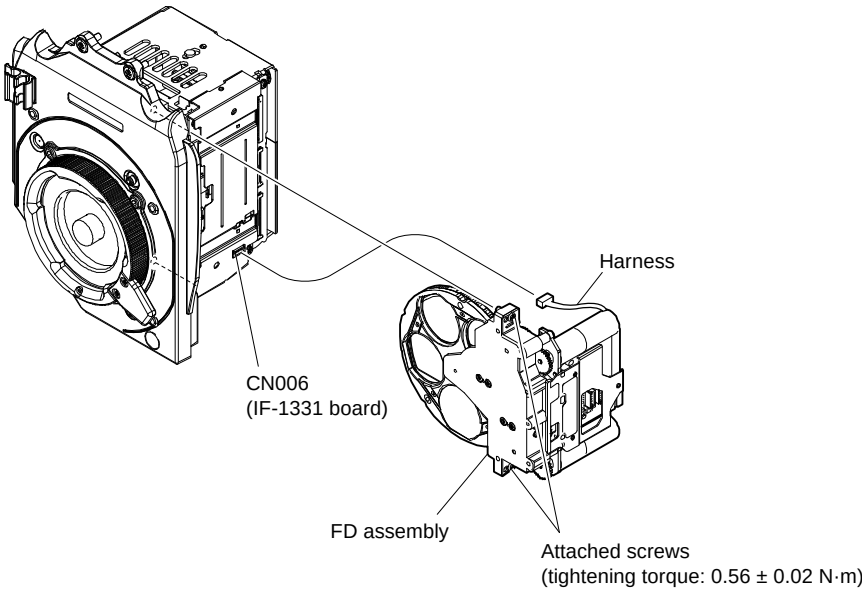
Hexagonal wrench (Width across : 2.5 mm) are necessary as tools.

Preparation

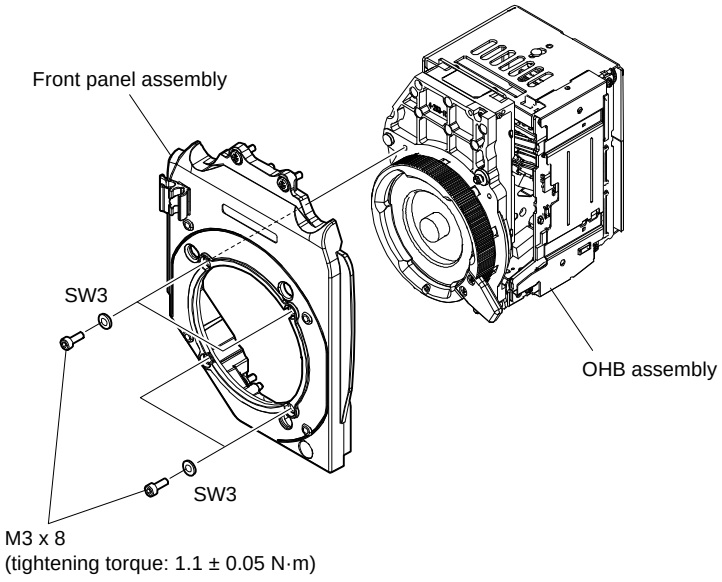
1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”.
3. Remove the front assembly. (Refer to “3-13-1. Front Assembly”.)

Procedure

1. Disconnect the harness from the connector (CN006) on the IF-1331 board.
2. Loosen the two attached screws and remove the FD assembly.



3. Remove the four screws and the four washers, and then remove the front panel assembly.



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

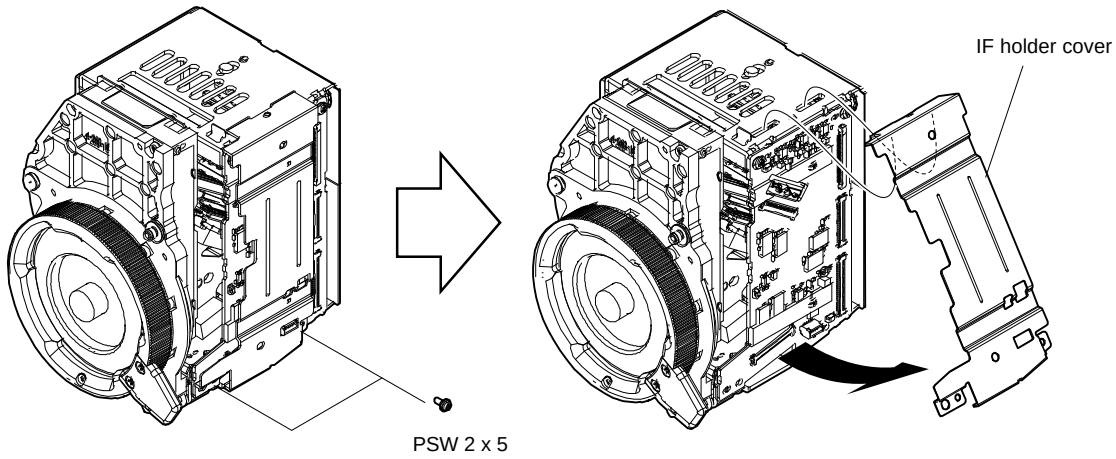
3-13-3. IF-1331 Board

Preparation

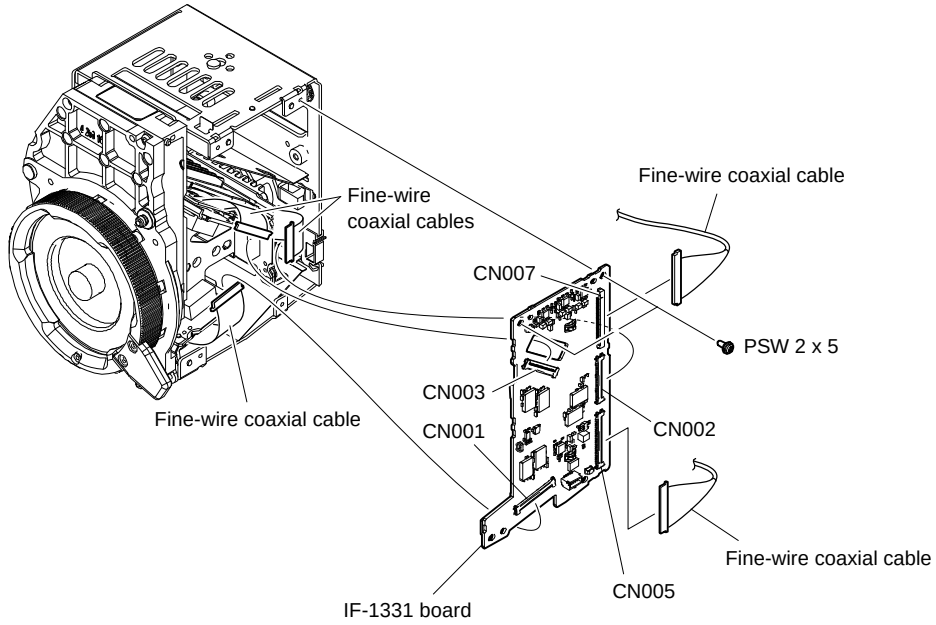
1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”.
3. Remove the front assembly. (Refer to “3-13-1. Front Assembly”.)
4. Remove the OHB assembly. (Refer to “3-13-2. OHB Assembly”.)

Procedure

1. Remove the two screws and the IF holder cover in the direction of the arrow.



2. Disconnect the five fine-wire coaxial cables from the five connectors (CN001, CN002, CN003, CN005, CN007) on the IF-1331 board.
3. Remove the two screws and the IF-1331 board.



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

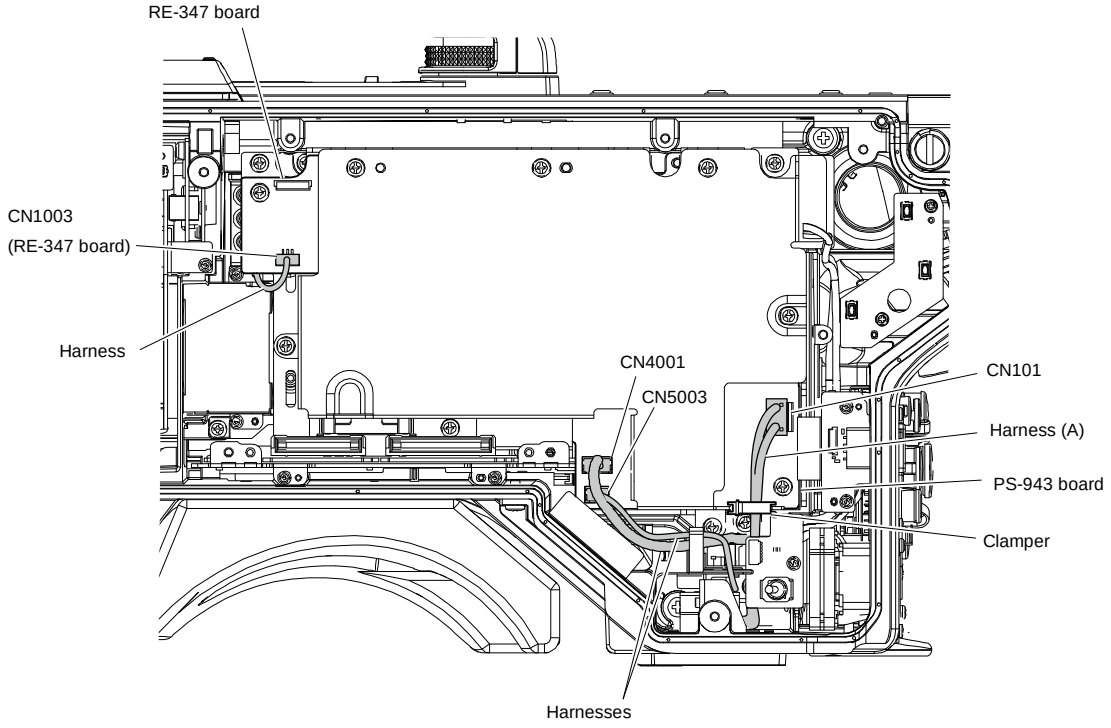
3-14. Power Block Assembly (PS-943 Board, RE-347 Board)

Preparation

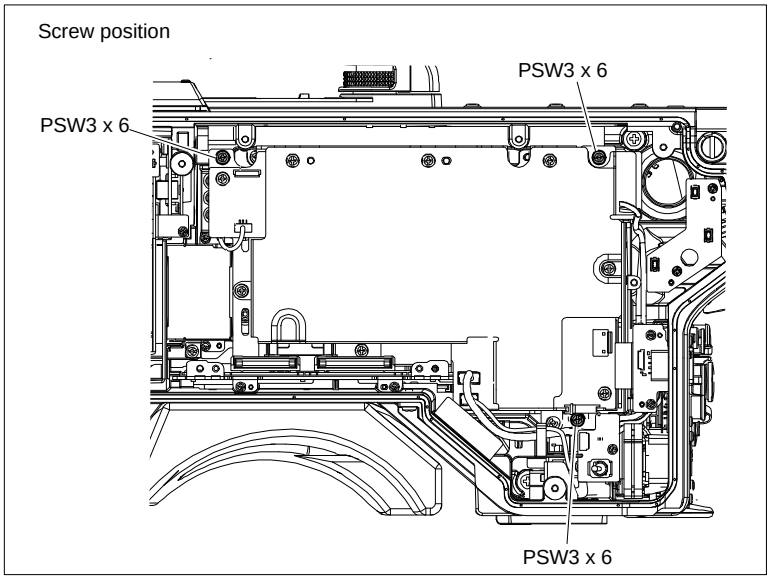
1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the SY-463 board. (Refer to “3-9. SY-463 Board”.)
3. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”.

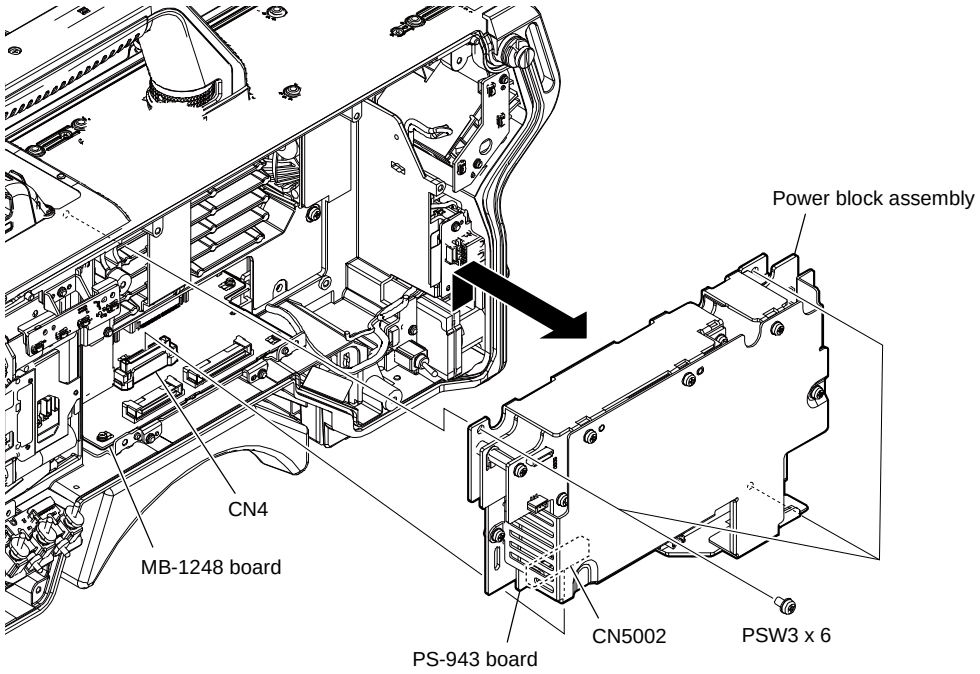
Procedure

1. Disconnect the harness from the connector (CN1003) on the RE-347 board.
2. Disconnect the three harnesses from the three connectors (CN101, CN4001, CN5003) on the PS-943 board.
3. Open the clamper to remove the harness (A).

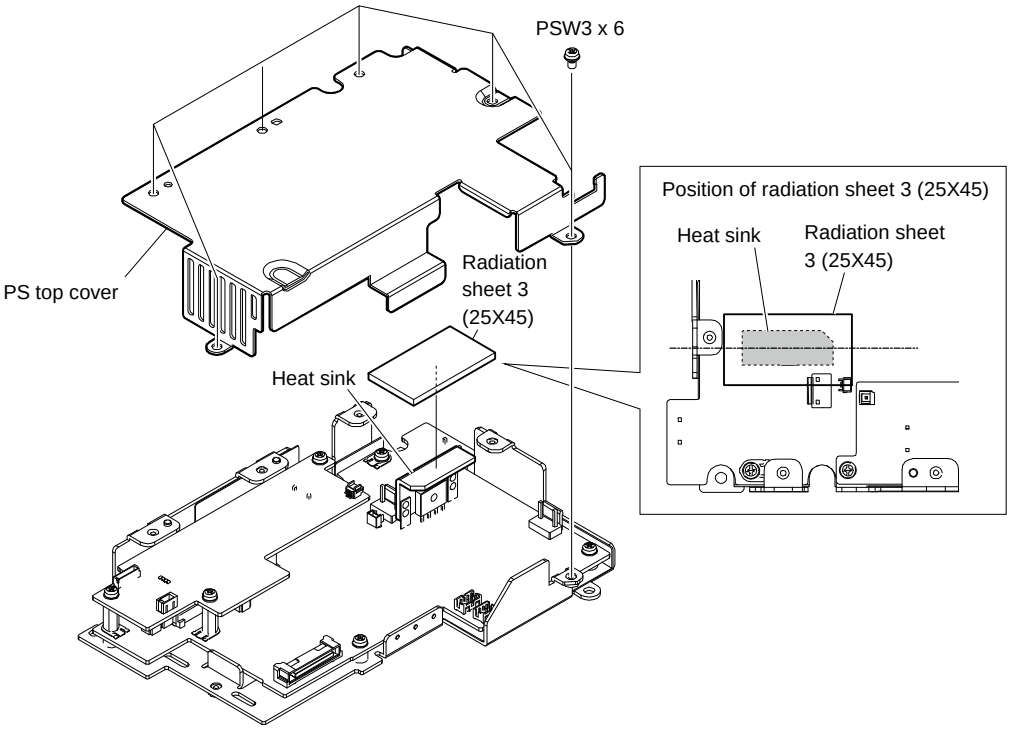


4. Remove the three screws.
5. Remove the power block assembly from the connector (CN4) on the MB-1248 board in the direction of the arrow.

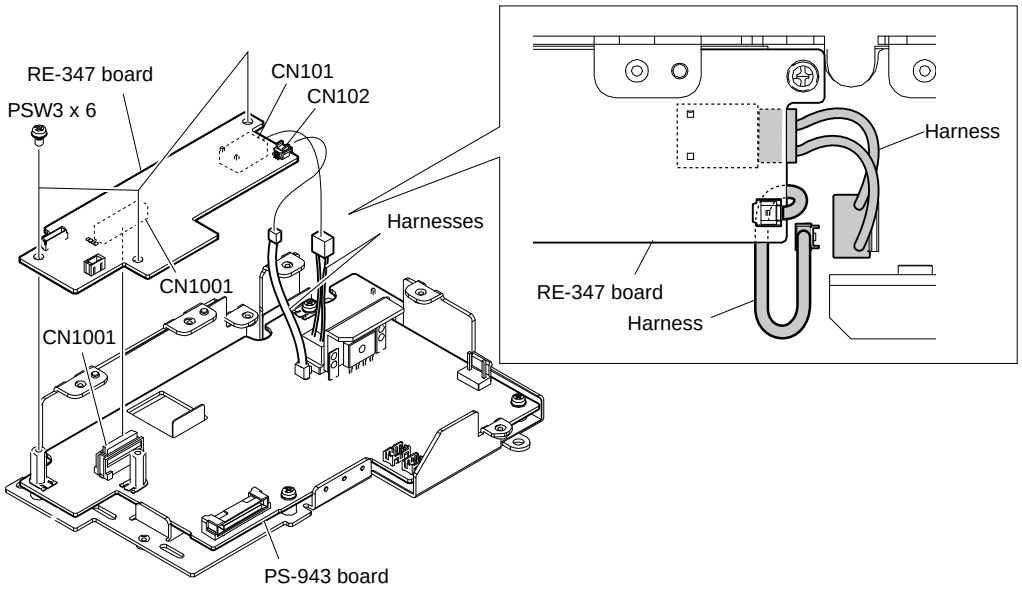




6. Remove the six screws and the PS top cover.
7. Detach the radiation sheet 3 (25X45).



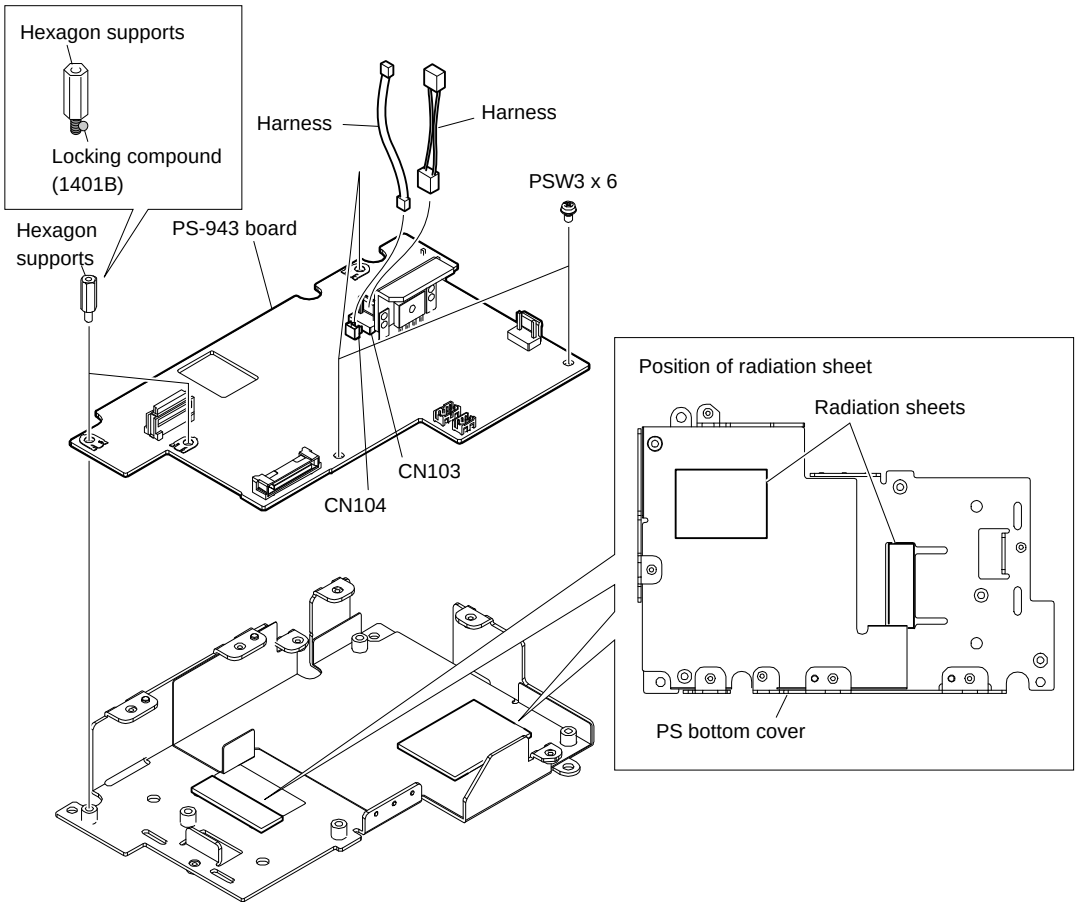
8. Disconnect the two harnesses from the two connectors (CN101, CN102) on the RE-347 board.
9. Remove the three screws and the RE-347 board from the connector (CN1001) on the PS-943 board.



Note

When installing the RE-347 board, arrange the harnesses as shown in the figure.

10. Disconnect the two harnesses from the two connectors (CN103, CN104) on the PS-943 board.
11. Remove the two hexagon supports and the three screws, and then remove the PS-943 board.



Note

Be sure to install as follows.

- If the radiation sheet peels off the PS bottom cover, stick it to the position as shown in the figure.
- Apply locking compound (1401B) to the side of the hexagon support.

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

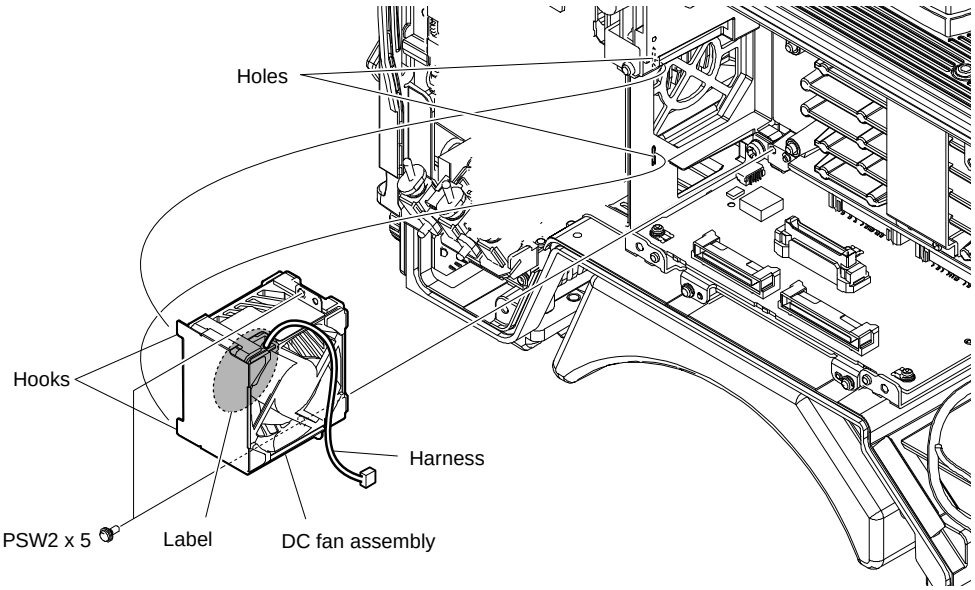
3-15. DC Fan (Front)

Preparation

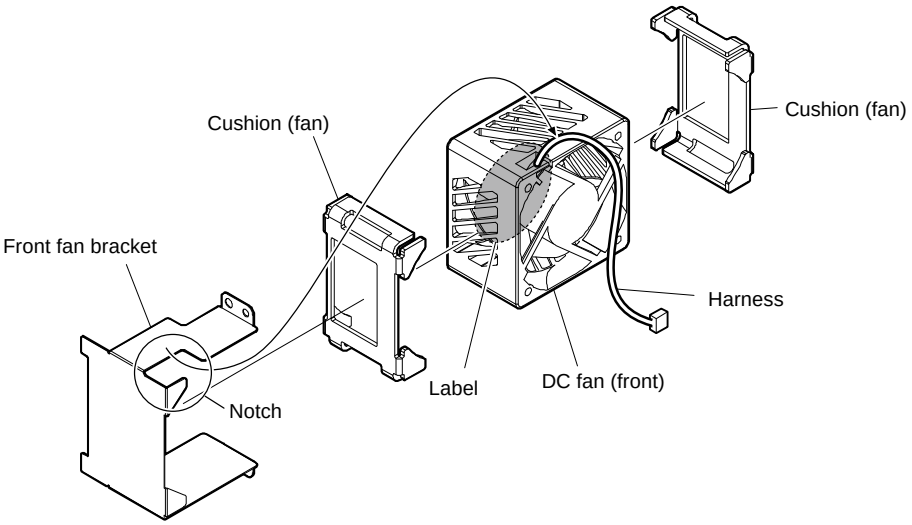
1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”.
3. Remove the SY-463 board. (Refer to “3-9. SY-463 Board”.)

Procedure

1. Remove the two screws.
2. Release the two hooks to remove the DC fan assembly.



3. Remove the front fan bracket.
4. Detach the two cushions (fan) from the DC fan (front).



Note

When installing the DC fan (front) assembly, pass the harness through the notch of the front fan bracket.

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

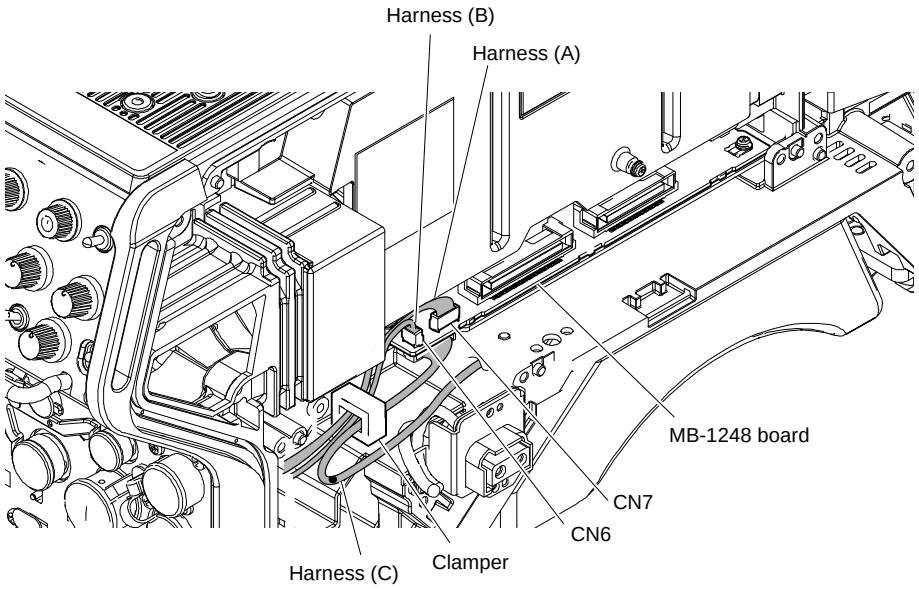
3-16. MB-1248 Board

Preparation

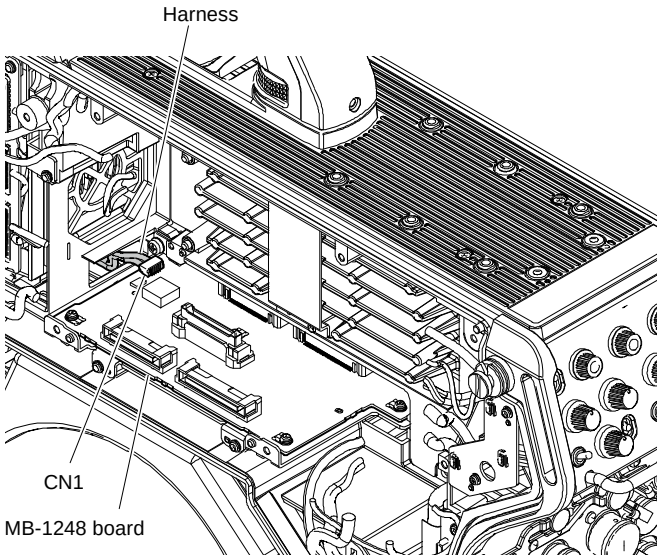
1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”.
3. Remove the SY-463 board. (Refer to “3-9. SY-463 Board”.)
4. Remove the power block assembly. (Refer to “3-14. Power Block Assembly (PS-943 Board, RE-347 Board)”.)
5. Remove the DPR-390 board. (Refer to “3-10. DPR-390 Board”.)

Procedure

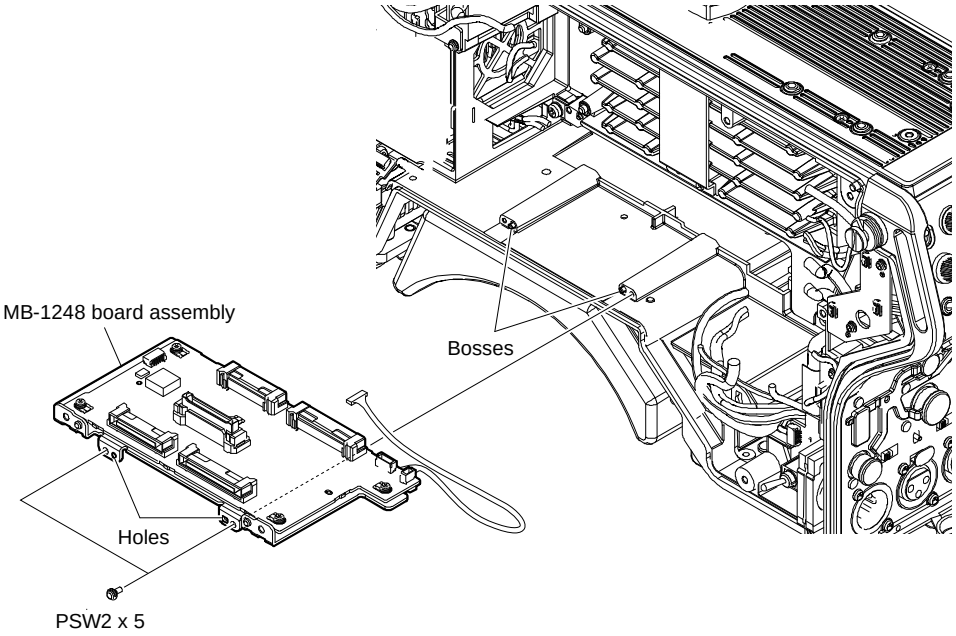
1. Disconnect the harnesses (A) and (B) from the two connectors (CN6, CN7) on the MB-1248 board.
2. Disconnect the harness (C) from the clamper.



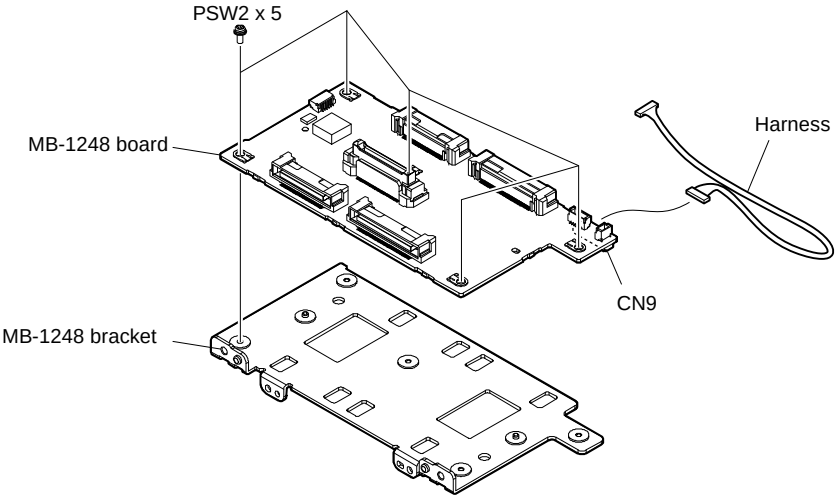
3. Disconnect the harness from the connector (CN1) on the MB-1248 board.



4. Remove the two screws, and then remove the MB-1248 board assembly.



5. Disconnect the harness from the connector (CN9) on the MB-1248 board.
6. Remove the five screws, and then remove the MB-1248 board.



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

3-17. MIC Panel

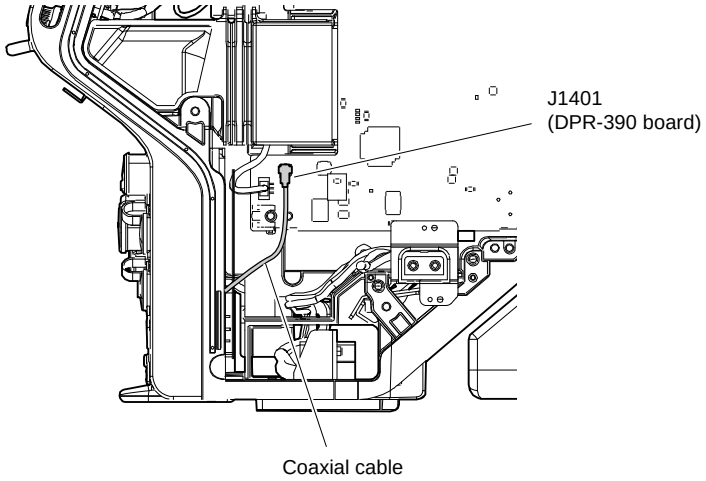
3-17-1. CN-3997 Board, CN-3995 Board

Preparation

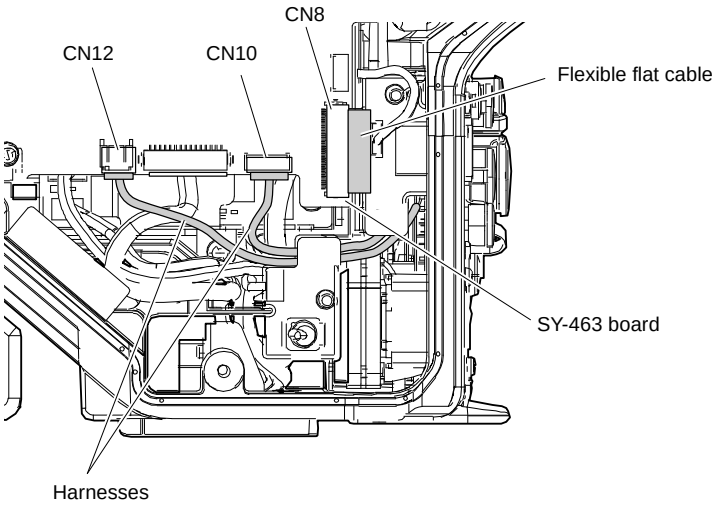
1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”.

Procedure

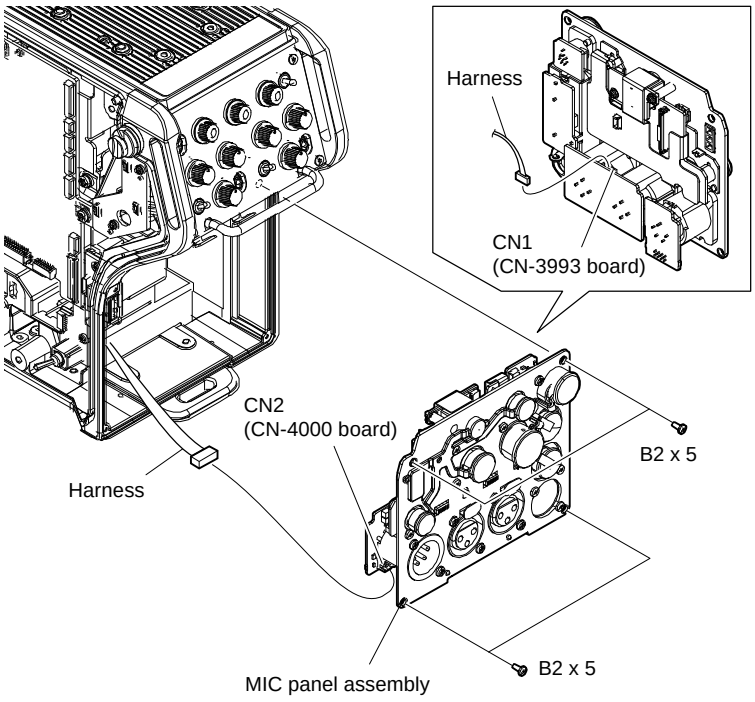
1. Disconnect the coaxial cable from the connector (J1401) on the DPR-390 board.



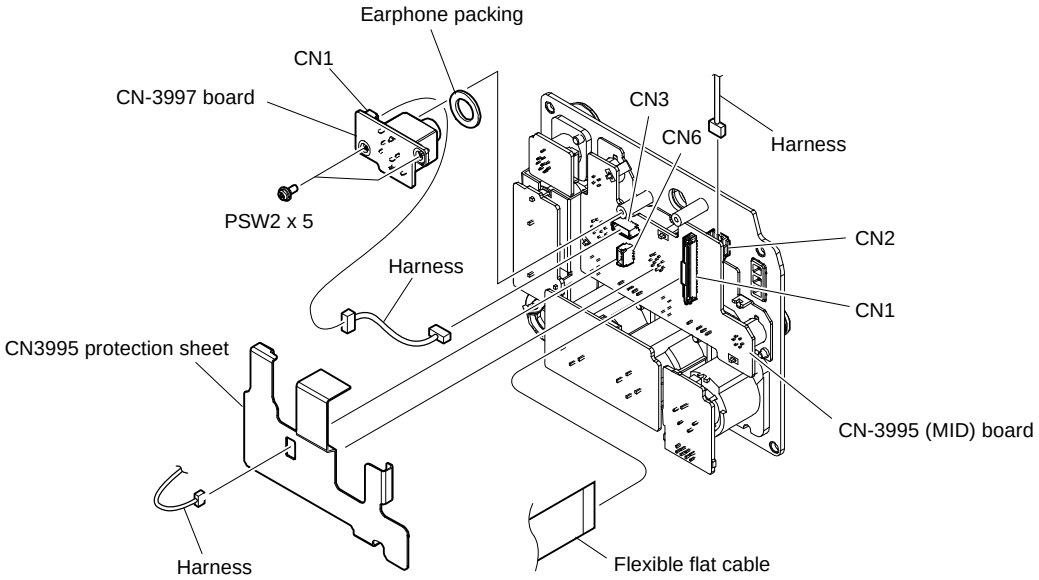
2. Disconnect the flexible flat cable from the connector (CN8) on the SY-463 board.
3. Disconnect the two harnesses from the two connectors (CN10, CN12) on the SY-463 board.



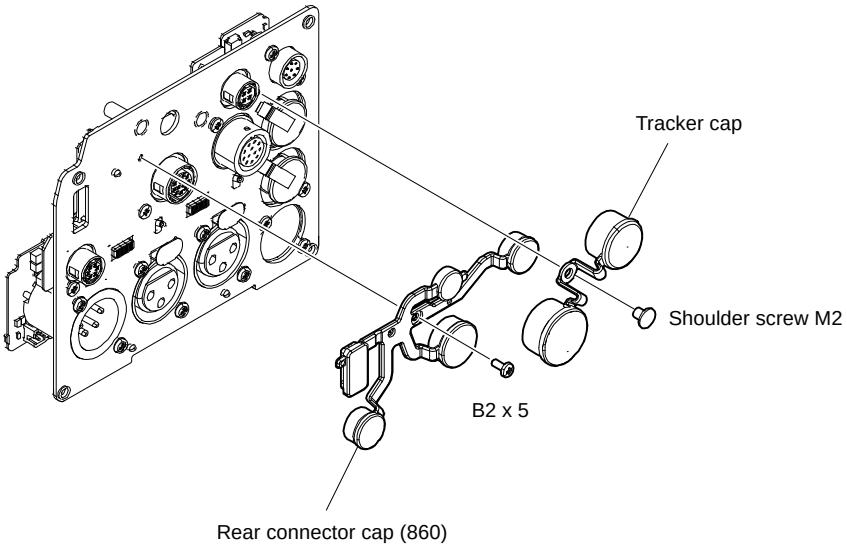
4. Remove the four screws and pull out the MIC panel assembly.
5. Disconnect the harness from the connector (CN2) on the CN-4000 board.
6. Disconnect the harness from the connector (CN1) on the CN-3993 board.



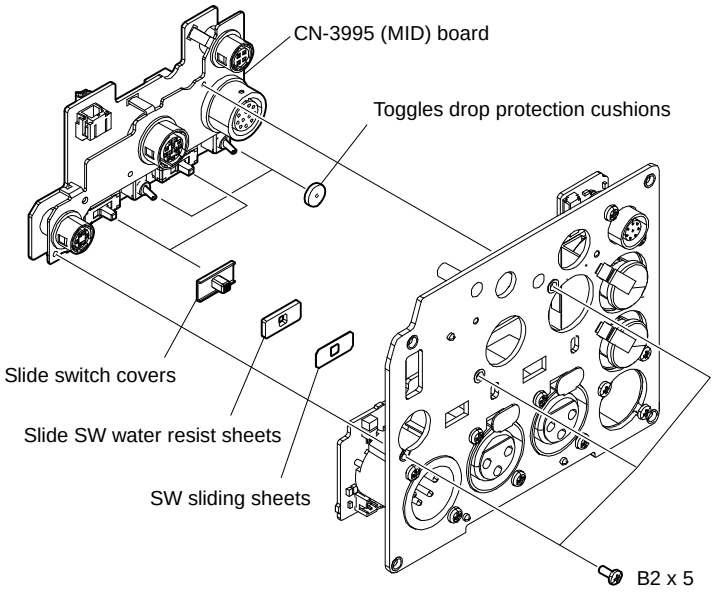
7. Disconnect the harness from the connector (CN6) on the CN-3995 (MID) board and detach the CN3995 protection sheet.
8. Remove the two screws and remove the CN-3997 board.
9. Disconnect the harness from the connector (CN1) on the CN-3997 board, and then remove the earphone packing from the CN-3997 board.
10. Disconnect the flexible flat cable from the connector (CN1) on the CN-3995 (MID) board.
11. Disconnect the two harnesses from the two connectors (CN2, CN3) on the CN-3995 (MID) board.



12. Remove the shoulder screw M2 and the tracker cap.
13. Remove the screw (B2 x 5) and the rear connector cap (860).



14. Remove the three screws, then remove the CN-3995 (MID) board, two toggle drop protection cushions, two SW sliding sheets, two slide SW water resist sheets, and two slide switch covers.



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

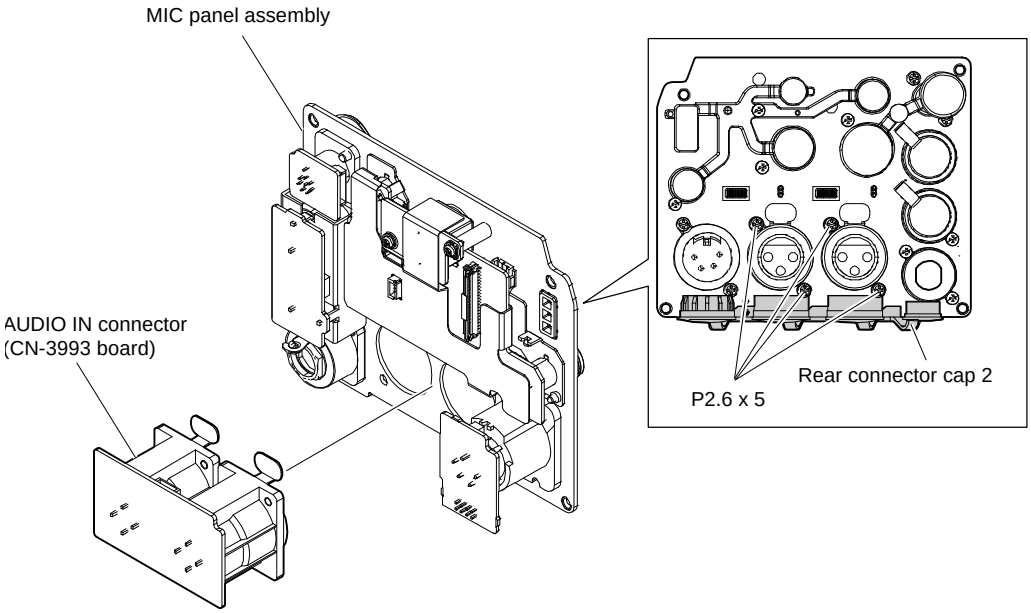
3-17-2. AUDIO IN Connector (CN-3993 Board)

Preparation

1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”.
3. Remove the MIC panel assembly. (Refer to "3-17-1. CN-3997 Board, CN-3995 Board".)

Procedure

1. Open the rear connector cap 2.
2. Remove the four screws to detach the AUDIO IN connector (CN-3993 board) from the MIC panel assembly.



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

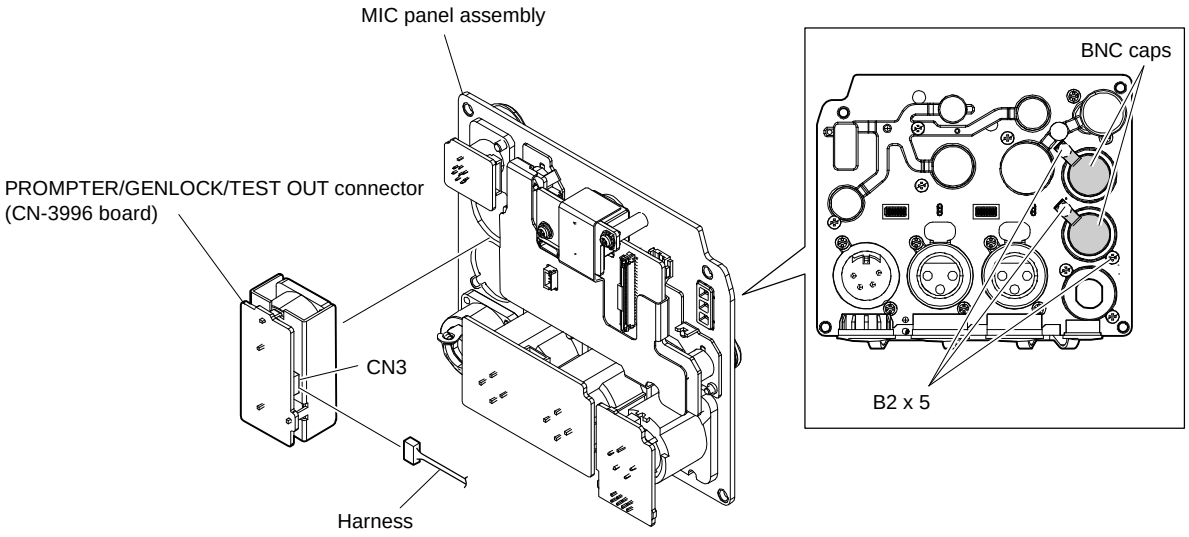
3-17-3. PROMPTER/GENLOCK/TEST OUT Connector (CN-3996 Board)

Preparation

1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”.
3. Remove the MIC panel assembly. (Refer to "3-17-1. CN-3997 Board, CN-3995 Board".)

Procedure

1. Remove the three screws to detach the two BNC caps and PROMPTER/GENLOCK/TEST OUT connector (CN-3996 board) from the MIC panel assembly.
2. Disconnect the harness from the connector (CN3) on the PROMPTER/GENLOCK/TEST OUT connector (CN-3996 board).



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

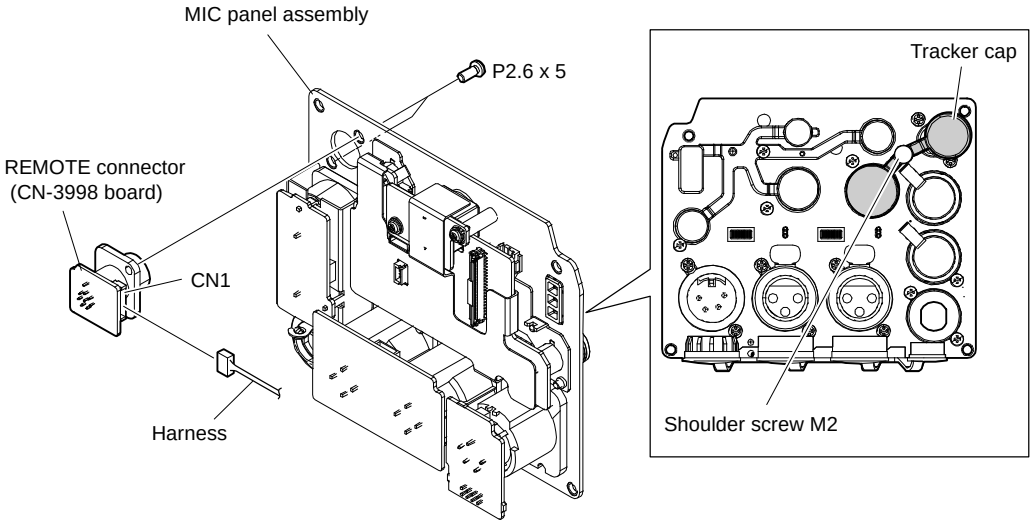
3-17-4. REMOTE Connector (CN-3998 Board)

Preparation

1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”.
3. Remove the MIC panel assembly. (Refer to "3-17-1. CN-3997 Board, CN-3995 Board".)

Procedure

1. Remove the shoulder screw M2 and the tracker cap.
2. Remove the two screws (P2.6 X 5) and disconnect the REMOTE connector (CN-3998 board) from the MIC panel assembly.
3. Disconnect the harness from the connector (CN1) on the REMOTE connector (CN-3998 board).



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

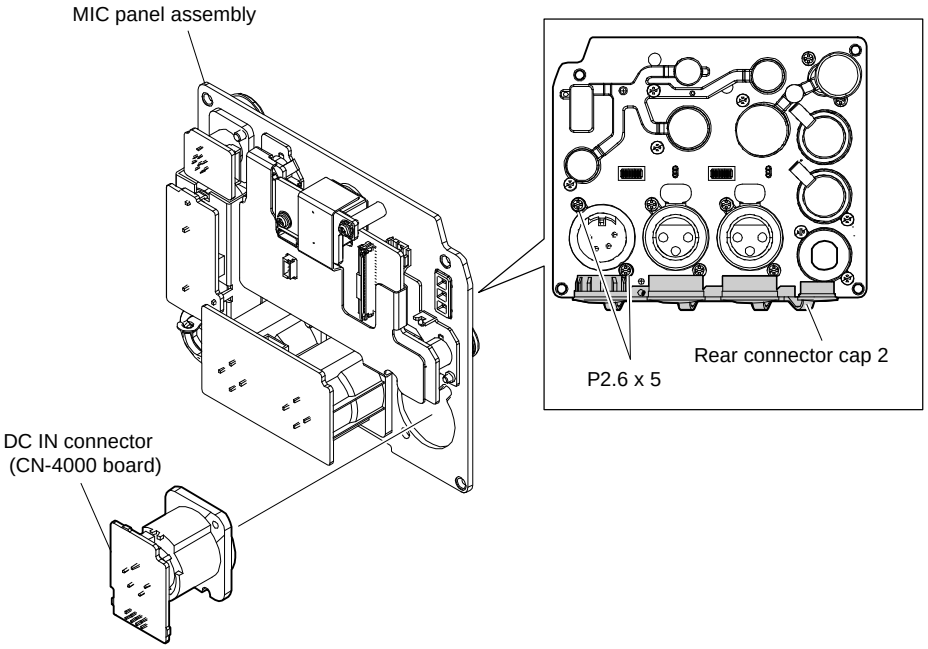
3-17-5. DC IN Connector (CN-4000 Board)

Preparation

1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”.
3. Remove the MIC panel assembly. (Refer to "3-17-1. CN-3997 Board, CN-3995 Board".)

Procedure

1. Open the rear connector cap 2.
2. Remove the two screws, and then remove the DC IN connector (CN-4000 board) from the MIC panel assembly.



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

3-18. INCOM Panel

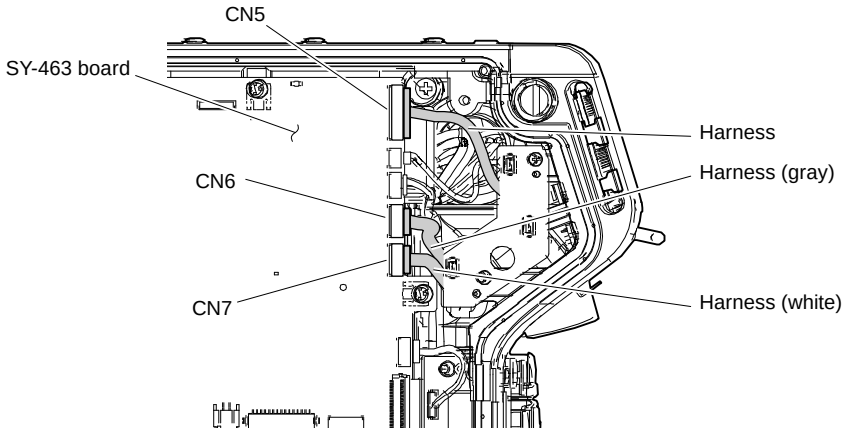
3-18-1. INTERCOM Connector (CN-3999 Board)

Preparation

1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)

Procedure

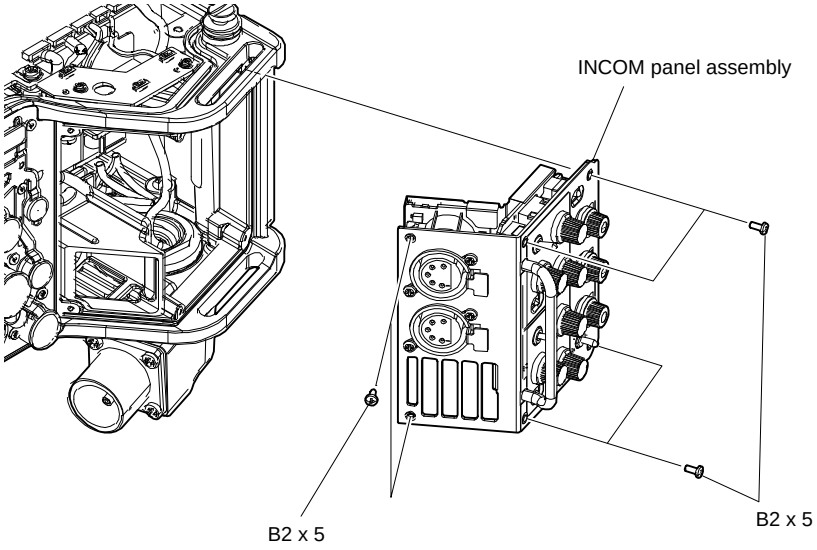
1. Remove the three harnesses from the three connectors (CN5, CN6, CN7) on the SY-463 board.



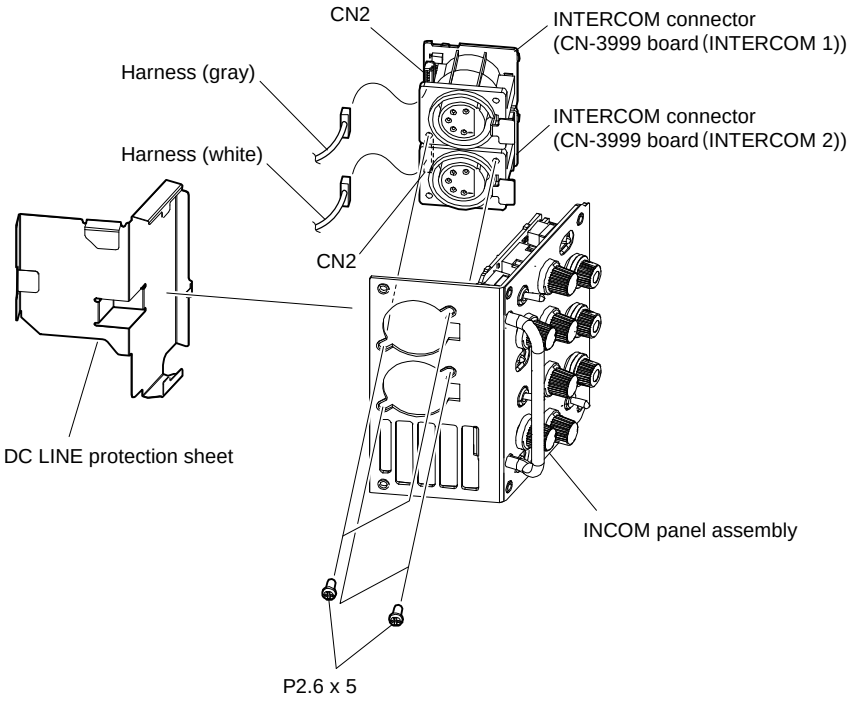
Note

When reconnecting the harnesses to the connectors (CN6, CN7), pay attention to their colors.

2. Remove the six screws, and then remove the INCOM panel assembly.



3. Detach the DC LINE protection sheet.
4. Remove the four screws and disconnect the two INTERCOM connectors (CN-3999 board).
5. Disconnect the two harnesses from the two connectors (CN2) on the INTERCOM connector (CN-3999 board).



Note

When reconnecting the harnesses, pay attention to their colors.

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

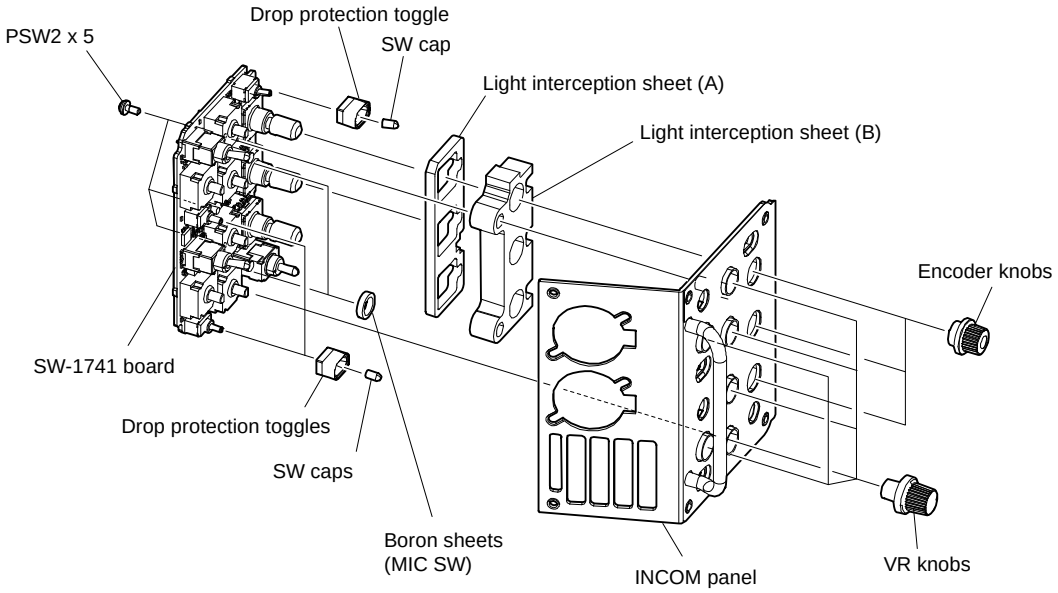
3-18-2. SW-1741 Board

Preparation

1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the INTERCOM connector (CN-3999 board). (Refer to "3-18-1. INTERCOM Connector (CN-3999 Board)".)

Procedure

1. Remove the three encoder knobs.
2. Remove the six VR knobs.
3. Remove the three screws, and then remove the SW-1741 board.
4. Remove the three SW caps, three drop protection toggles, two boron sheets (MIC SW), light interception sheet (A), and light interception sheet (B) from the SW-1741 board.



Note

When installing the encoder knobs and the VR knobs, apply a bit of locking compound inside the knobs.
Attach the light interception sheet (B) so that the glossy side of the sheet is placed toward the surface.

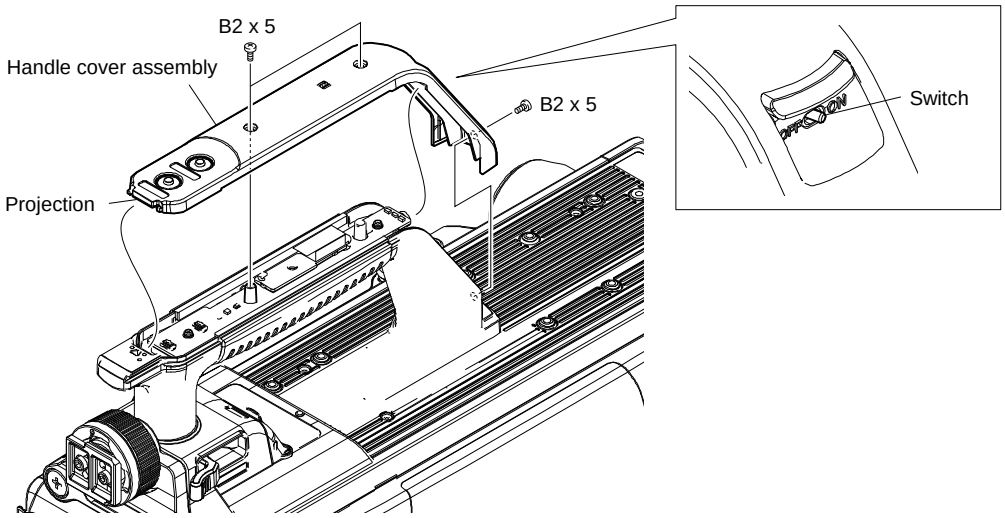
5. Install the removed parts by reversing the steps of removal.

3-19. Handle

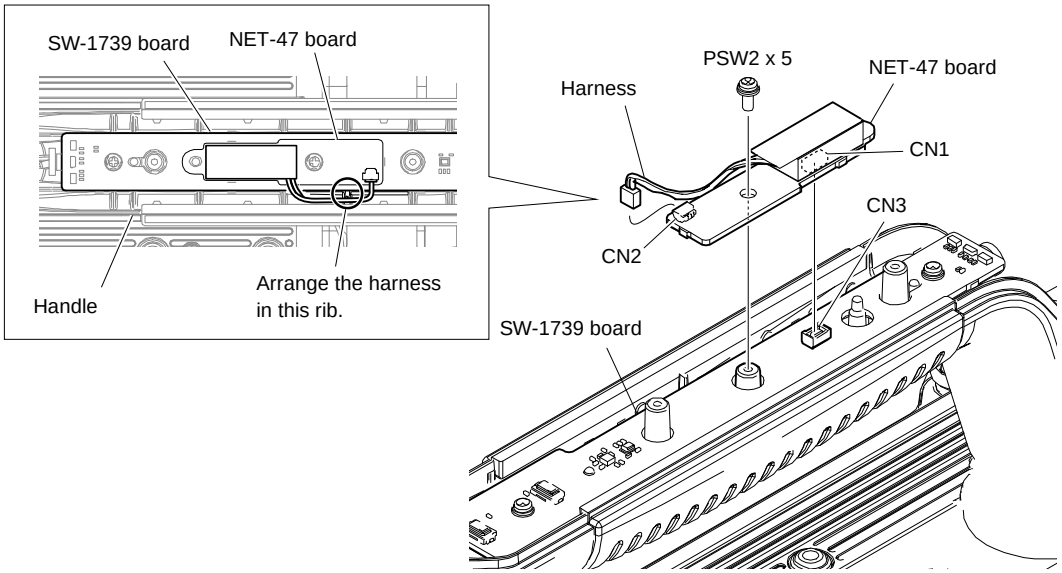
3-19-1. NFC Antenna, NET-47 Board, SW-1739 Board

Procedure

1. Remove the three screws.
2. Remove the switch through the hole of the handle cover, and then detach the projection of the handle cover.



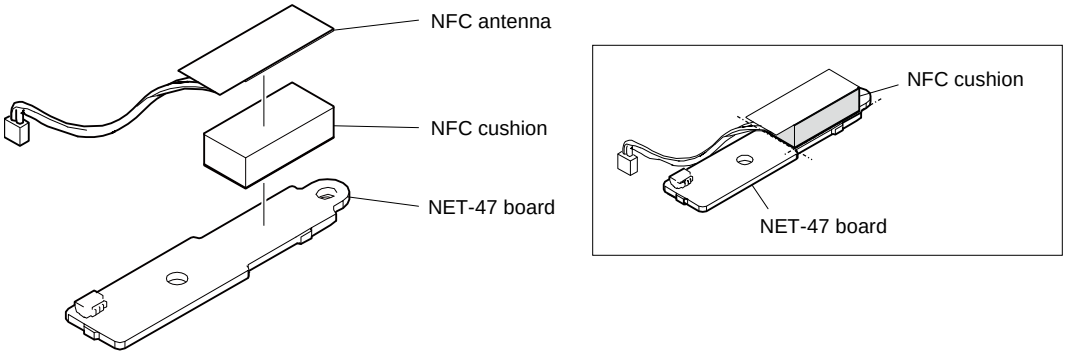
3. Disconnect the harness from the connector (CN2) on the NET-47 board.
4. Remove the screw, and then remove the NET-47 board from the connector (CN3) on the SW-1739 board.



Note

When installing the NET-47 board, arrange the harness as shown in the figure.

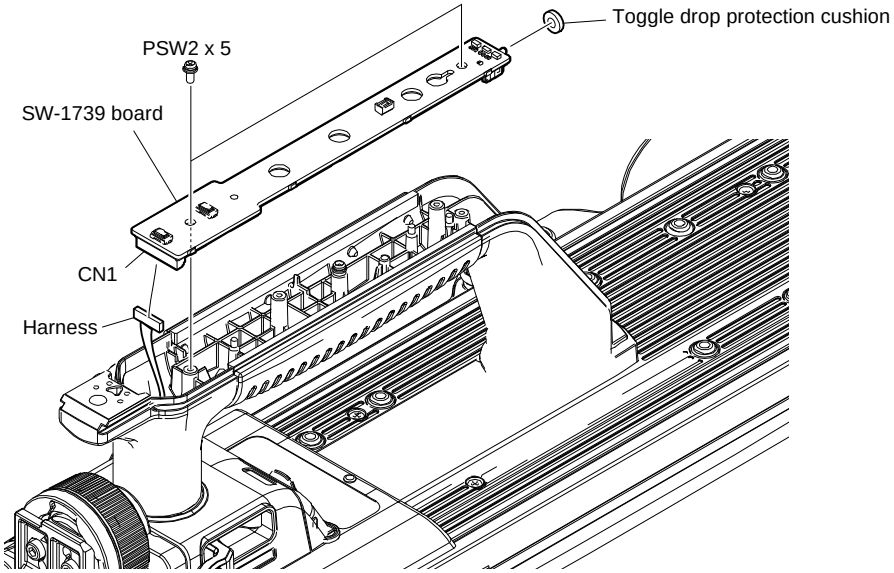
5. Detach the NFC cushion from the NET-47 board.
6. Detach the NFC antenna from the NFC cushion.



Note

Attach the NFC cushion to the NET-47 board aligning the side of the NFC cushion with the board as shown in the figure.

7. Remove the toggle drop protection cushion.
8. Remove the two screws.
9. Lift up the SW-1739 board to disconnect the harness from the connector (CN1).



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

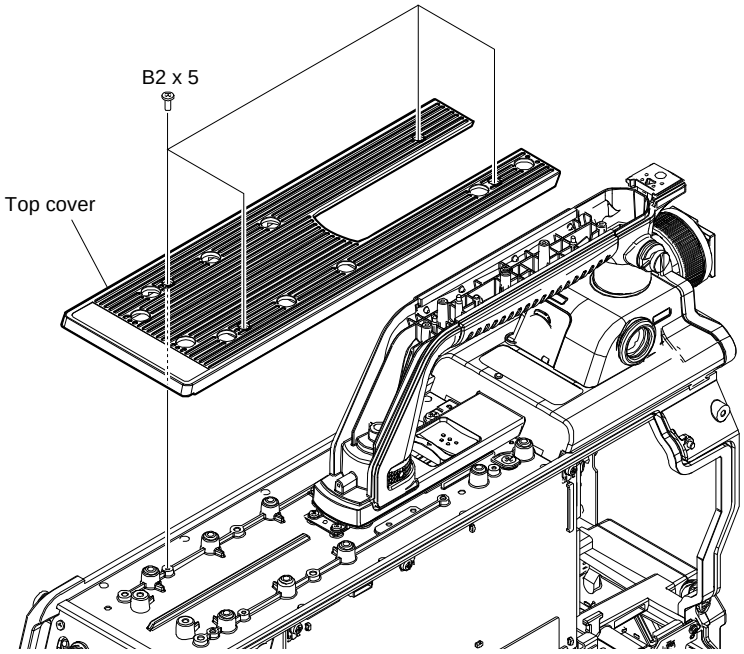
3-19-2. CN-4005 Board

Preparation

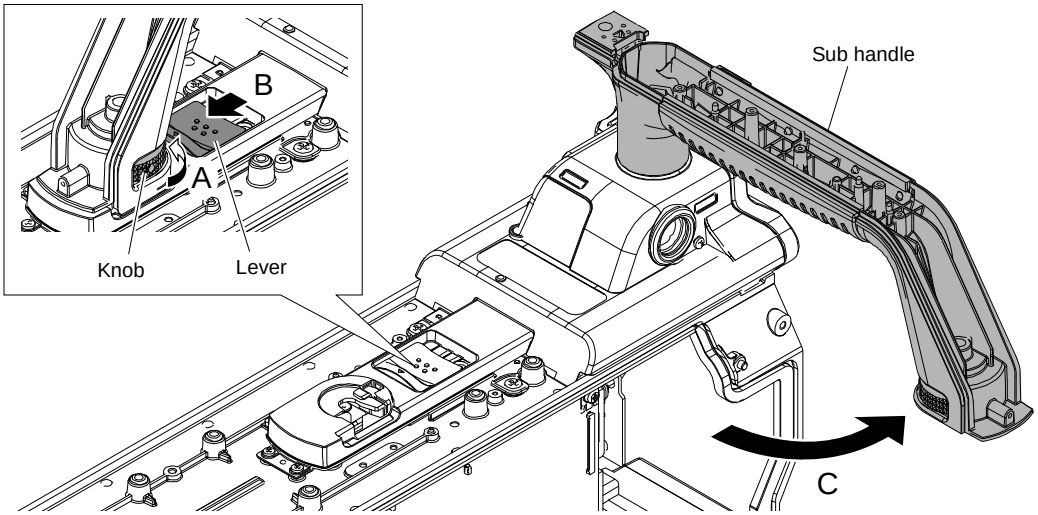
1. Remove the inside panel assembly. (Refer to “3-4. Inside Panel Assembly”.)
2. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”
3. Remove the front assembly. (Refer to "3-13-1. Front Assembly".)
4. Remove the SW-1739 board. (Refer to "3-19-1. NFC Antenna, NET-47 Board, SW-1739 Board".)

Procedure

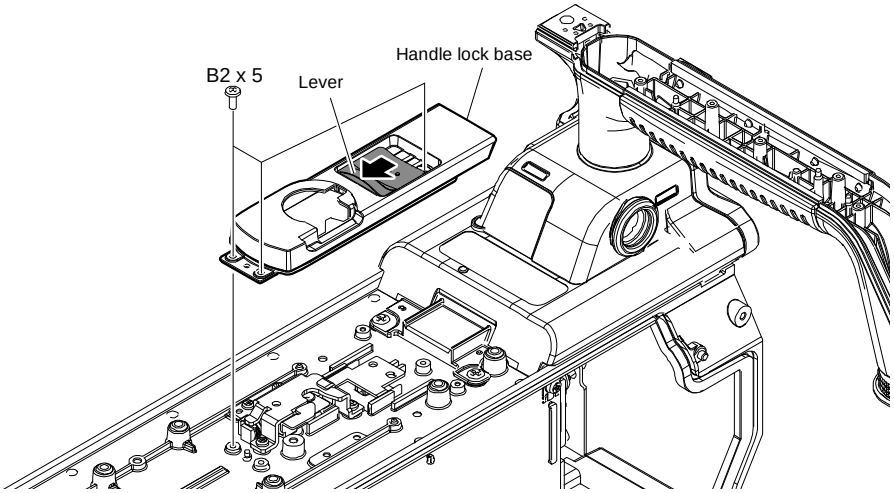
1. Remove the four screws and the top cover.



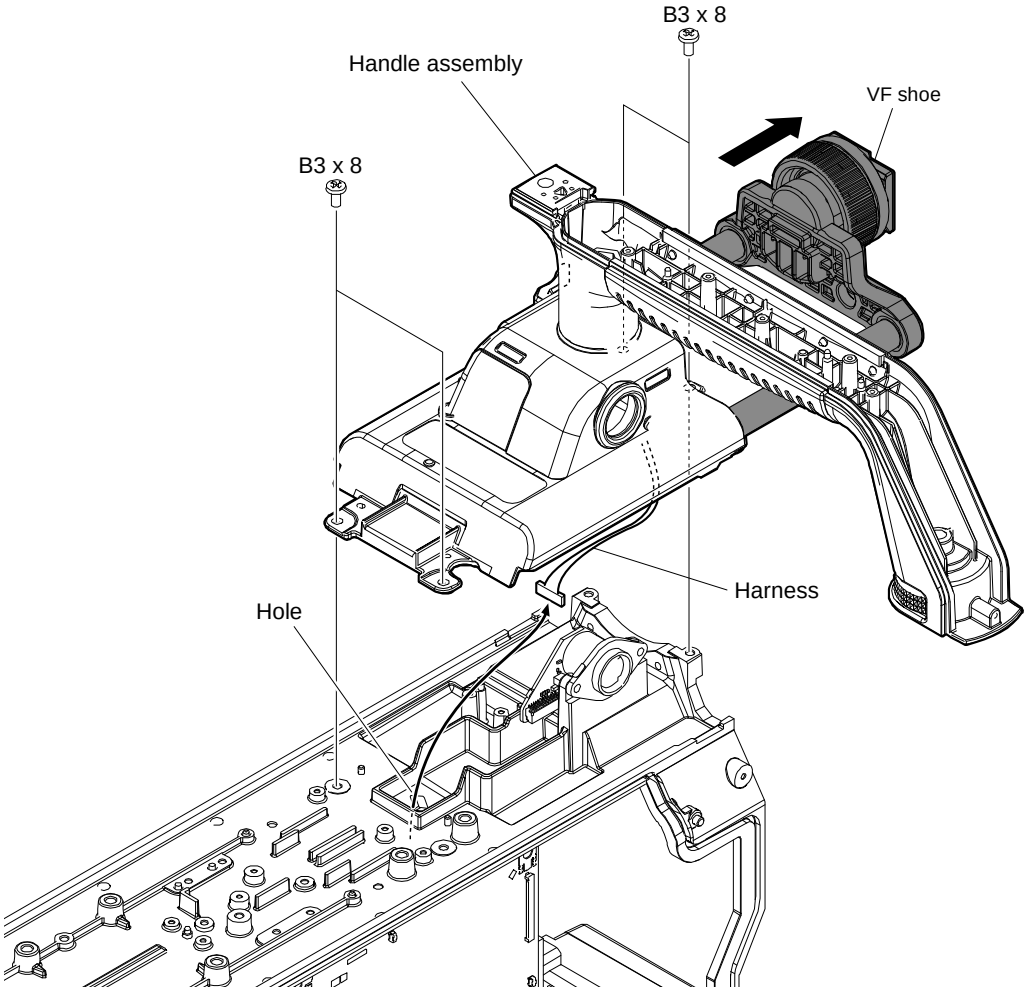
2. Rotate the knob in the direction of the arrow A to loosen it.
3. Slide the lever in the direction of the arrow B and rotate the sub handle in the direction of the arrow C.



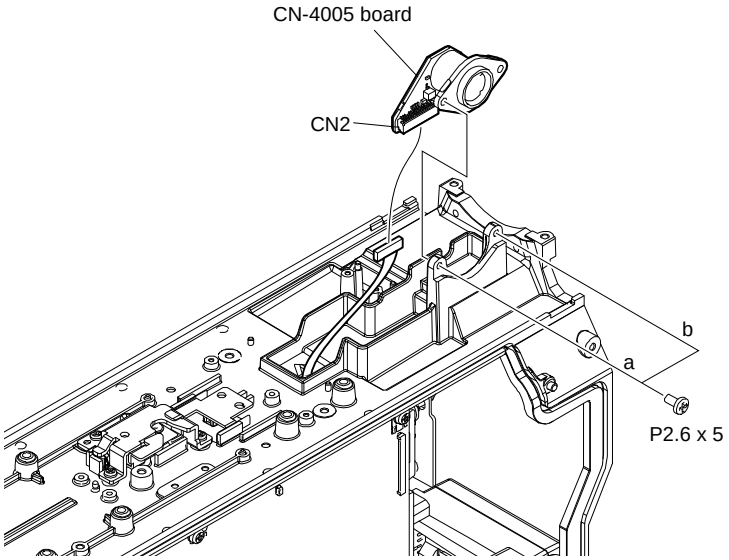
4. Slide the lever.
5. Remove the three screws to remove the handle lock base.



6. Pull out the VF shoe in the direction of the arrow.
7. Remove the four screws, and then remove the handle assembly.
8. Pull out the harness through the hole of the main chassis.



9. Remove the two screws, and then remove the CN-4005 board.
10. Disconnect the harness from the connector (CN2) on the CN-4005 board.



Note

When installing the CN-4005 board, tighten the screws in the following sequence: a, b.

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

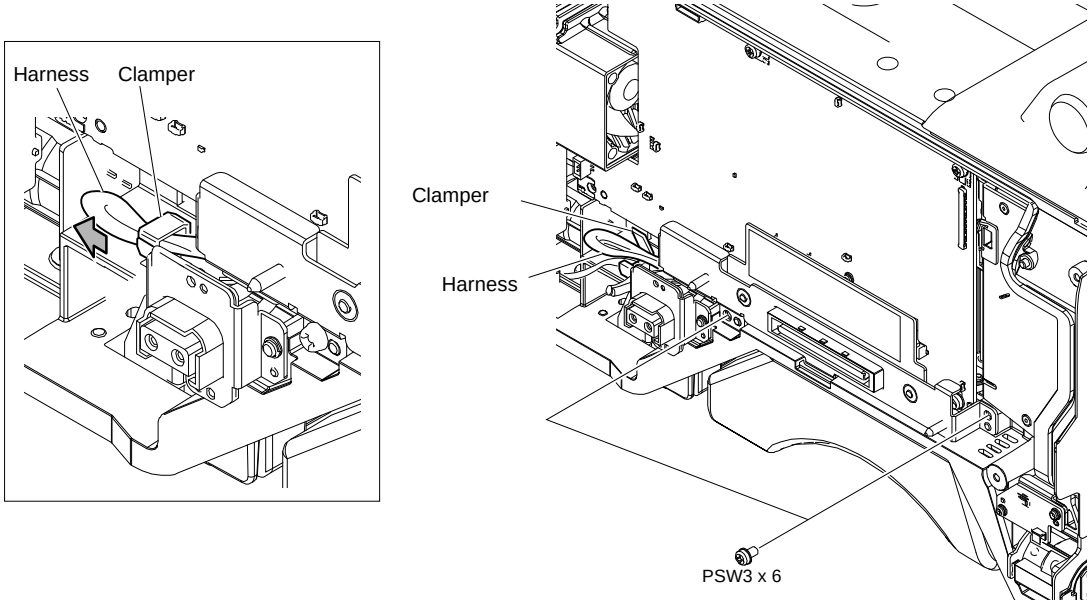
3-20. CN-4044 Board (HKC-CN50 (Option))

Preparation

1. Remove the outside panel assembly.
   For HDC3500, refer to “3-5-1. Outside Panel Assembly”.
   For HDC5500, refer to “3-6-1. Outside Panel Assembly”

Procedure

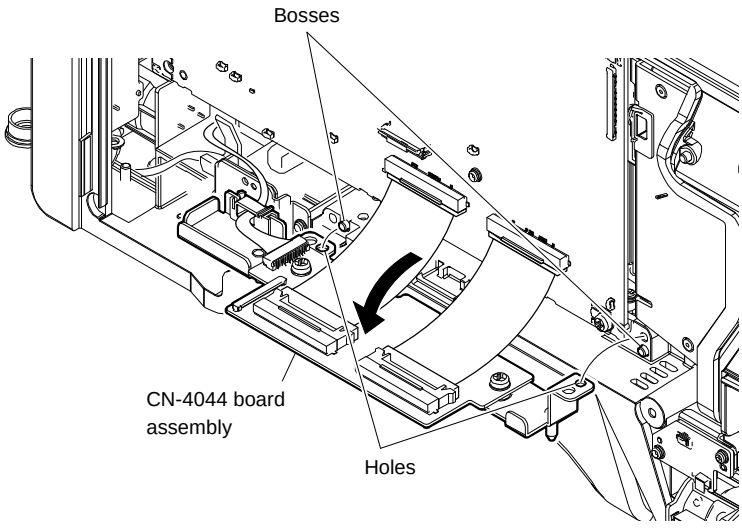
1. Disconnect the harness from the clamper.
2. Remove the two screws.



Note

When reconnecting the harness, put the excess harness to the direction of the arrow and push it to the rear side of the unit to clamp the harness with a clamper.

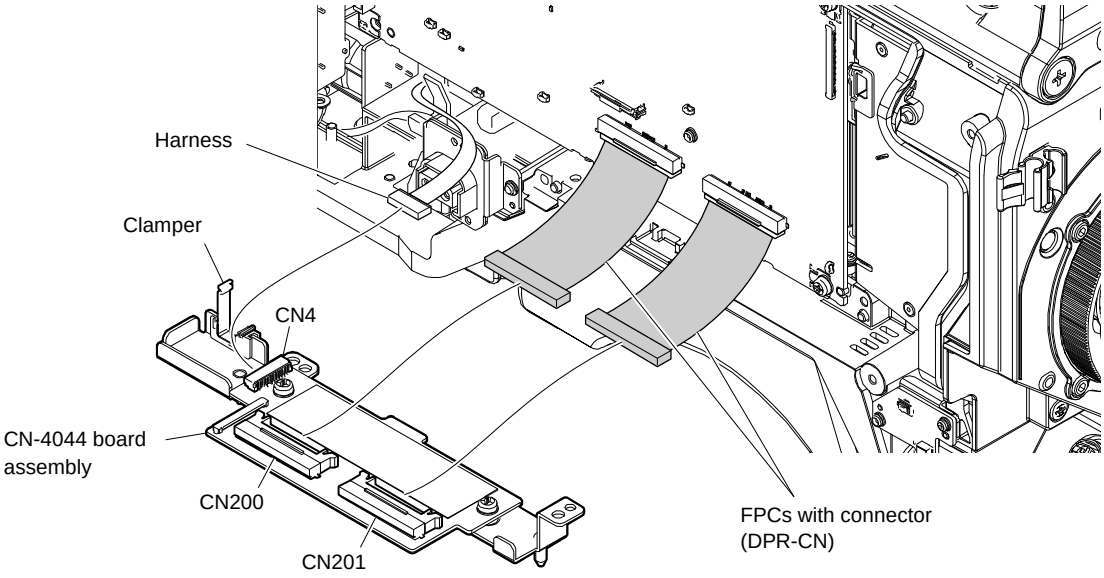
3. Tilt the CN-4044 board assembly.



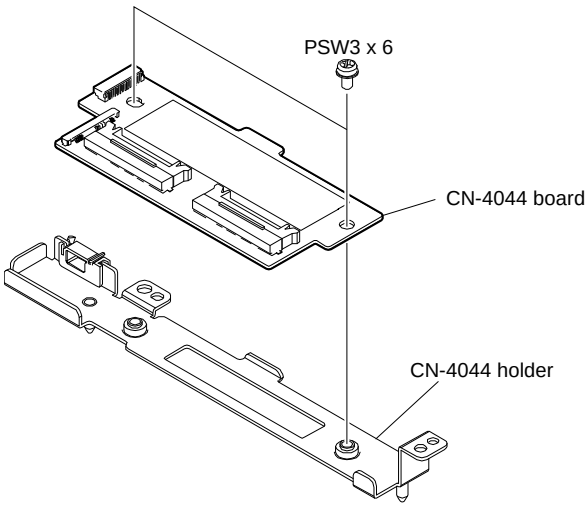
Note

When installing the CN-4044 board assembly, insert the two bosses into the two holes.

4. Release the harness from the clamper.
5. Disconnect the harness from the connector (CN4) on the CN-4044 board.
6. Disconnect the two FPCs with connector (DPR-CN) from the two connectors (CN200, CN201) on the CN-4044 board.



7. Remove the two screws, and then remove the CN-4044 board.



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

Section 4
Electrical Alignment

When any board of this unit is repaired or replaced, adjust this unit for electrical alignment as this section.

Note

- Perform the “4-4. Video System Level Adjustment” according to the system that the customer uses.
- Master setup unit MSU-1000/1500 is used for electrical alignment of the unit.
  Without using master setup unit (here after MSU), the electrical alignment also can be made using remote control unit (RCP-1000/1500) or setting menu of the camera.
  Refer to “4-1-7. Setup Menu Correspondence List” for detail of setup menu.

4-1. Preparations

Turn on the external main power switch before starting adjustments, and warm up the unit for about 10 minutes.

4-1-1. Required Equipment, Tool

Note

Use calibrated equipment and tools.

Equipment Required

Name	Equipment
HD waveform monitor	Leader Electronics LV5770A (multi waveform monitor) or equivalent
HD color monitor	Sony BVM-E171 or equivalent
Master setup unit	Sony MSU-1000/1500
HD viewfinder	Sony HDVF-EL20/EL30
Lens	Canon HJ18 or equivalent

Tool

Part Name	Sony Part No.	Remarks
Grayscale chart (16 : 9 reflective type)	—	Commercially available Since time degradation is appeared, replace for every two years. (The exchange time, change by the safekeeping situation.)
Grayscale chart (16 : 9 transparent type)	J-6394-080-A	Use when the grayscale chart (16 : 9 reflective type) is not available.
Pattern box PTB-500	J-6029-140-B	
Chart adaptor	J-7120-950-A	Adaptor that installs ITE test chart (16:9) 310 X200 in PTB-500 (pattern box)
ITE STANDARD TEST CHART	J-7120-970-A	ITE grayscale chart (γ=0.45) (16:9)

4-1-2. File Data at Adjustment

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

For detail of adjustment data, refer to “6. File System”.

Reference File

- The reference file stores the custom paint data adjusted by the video engineer as standard paint data.

- The service engineer can store reference file in the camera and USB drive.
- The reference file stored in the USB drive(For back up) can be reset after adjustment.

Lens File

- Lens file is used for compensating the deviation generated by switching the lens extender from OFF to ON and for compensating the difference in the characteristics between lenses.
- The lens file is saved to a camera.
- When adjusting with lens file, mount the lens that customers actually use.

OHB File

- OHB file is used for the CMOS block maintenance.
- OHB file is saved in the camera.

4-1-3. Handling the Grayscale Chart

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

Information on the Reflective Grayscale Chart (16:9)

Recommended chart

The reflective grayscale chart (16:9) is commercially available.
- Product name: Reflective grayscale chart
- Supplier: MURAKAMI COLOR RESEARCH LABORATORY

Handling precaution

- Do not touch the chart’s surface with bare hands.
- Do not subject the surface to dirt or scratches.
- Do not prolonged exposure to sunlight.
- Protect the chart from excessive moisture or harmful gas.
- Avoid resting articles against the case.
- When the chart is not used for a long period and is stored, open the case and dry the chart for about 30 miniutes to an hour once or twice a month.

Setting Illumination

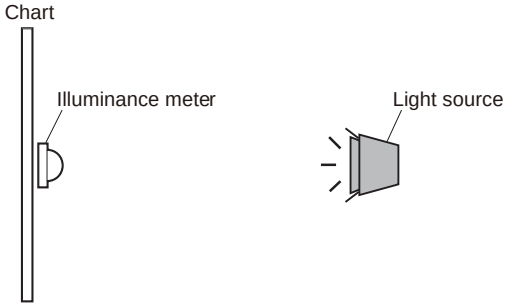
Measuring equipment: Illuminance meter (Calibrated)

Procedure

1. Turn on the light source.
2. Warm up the light source for about 30 minutes.
3. Place the illuminance meter on the chart surface.
4. 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.



Transparent grayscale chart (16:9)

Recommended chart

- Product name: Grayscale chart (16:9 transparent type)
- Sony Part No.: J-6394-080-A

Handling precaution

Use calibrated pattern box.

Setting Illumination

Measuring equipment: Illuminance meter
(KONICA MINOLTA LS-110 or equivalent, Calibrated)

Preparation

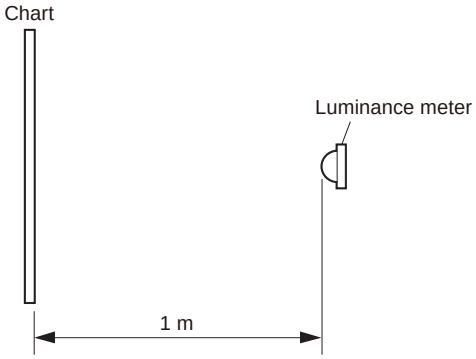
1. Place the pattern box where the chart is not exposed to light.
   (Such as a darkroom, or cover the pattern box with a cover whose inside is painted in black.)
2. Light the pattern box.
3. Warm up the pattern box for about 30 minutes.

Procedure

1. Fix the luminance meter facing straight to the chart at a distance of 1 m from it.
2. Adjust the luminance control of the pattern box so that the white portion in the center of the chart is 573 ±6 cd/m^2.

   Tip

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



4-1-4. Setup Menu

Camera equips setup menu. Some of adjustments given in this section use the setup menu without MSU.
In setup menu, operate from TOP MENU screen on the camera.
Configuration of TOP MENU screen is as follows.

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

  Note

  As for how to display the SERVICE menu, refer to “Displaying the SERVICE menu”.

The setup menu operation is described as follows.
Example: AUTO SETUP in the MAINTENANCE menu of TOP MENU screen is selected and AUTO LEVEL is performed.
MENU: MAINTENANCE

PAGE: AUTO SETUP
ITEM: AUTO LEVEL

Displaying TOP MENU screen

1. Turn the DISPLAY switch to the MENU side while pressing the MENU SEL knob/ENTER button.
   [TOP] appears at the upper right of the screen of viewfinder.
2. Set the cursor at [TOP] and press the MENU SEL knob/ENTER button.
   The TOP MENU screen showing the entire configuration of menu items appears.

Displaying the SERVICE menu

1. Set the DISPLAY switch to MENU while pressing the assignable switch on the side of the camera and MENU SEL knob/ENTER button.
   The SERVICE menu is displayed on the TOP MENU screen.

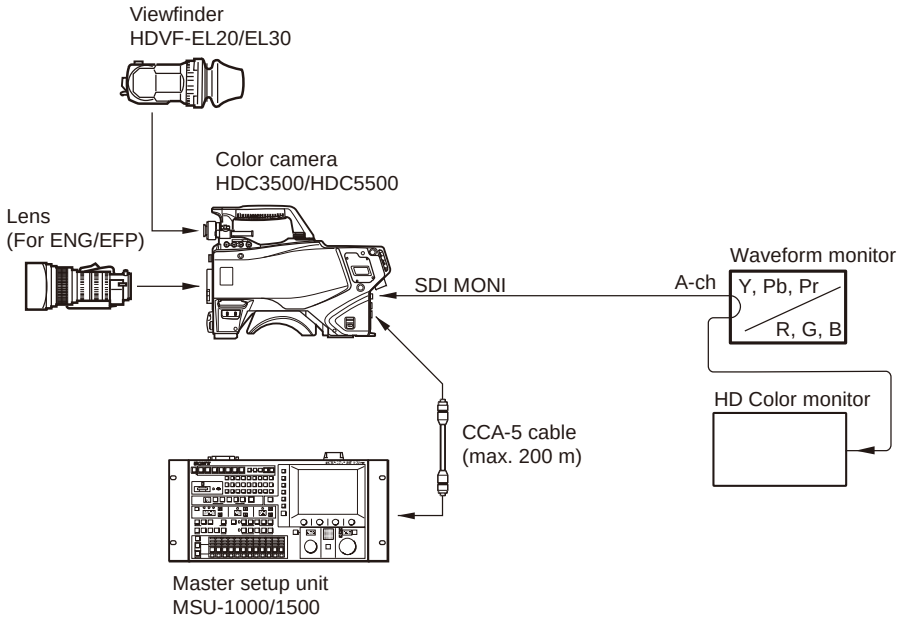
Changing Setting Values

- Select a menu item by turning the MENU SEL knob/ENTER button and it is entered by pressing the MENU SEL knob/ENTER button.
- For items whose values can be modified by turning the MENU SEL knob/ENTER button, set values can be entered, canceled or suspended by the following operations.
  To enter:
  Press the MENU SEL knob/ENTER button.
  To cancel:
  Before confirming, turn the STATUS/CANCEL switch to the CANCEL side.
  To suspend:
  Set the DISPLAY switch to OFF.
  To restart the setting operation, turn the DISPLAY switch to the MENU side again.

Exiting menu

Set the DISPLAY switch to OFF.

4-1-5. Connection of Equipment



4-1-6. Initial Settings

There are following Initial Settings.

- Set using the MSU.

- Set using setup menu and switches of the camera.

Before starting “4-2. Automatic Adjustment” or later, perform the initial setting.

When Adjusting with the MSU

Set each button on the MSU as follows.

- Power supply and signal switching block
  - ALL button → OFF (unlit)
  - CAM PW button → ON (lit)
  - VF PW button → OFF (unlit)
  - TEST 1 button → OFF (unlit)
  - TEST 2 button → OFF (unlit)
  - BARS button → OFF (unlit)
  - CLOSE button → ON (lit)
- Camera/CCU circuit ON/OFF block
  - KNEE OFF button → OFF (lit)
  - DETAIL OFF button → OFF(lit)
  - MATRIX OFF button → OFF (lit)
  - AUTO KNEE button → OFF (unlit)
  - SKIN DETAIL button → OFF (unlit)
- Others
  - GAMMA OFF button → ON (unlit)
  - MASTER GAIN → 0 (0 dB)
  - FILTER button (ND) → 1 (CLEAR)
  - FILTER button (CC) → B (3200 K)
  - ON button (shutter control block) → OFF (unlit)

When Adjusting with the Camera Setup Menu

Set each item and the switch, etc. as follows.

- 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
SHUTTER	SHUTTER	OFF

- MAINTENANCE Menu

Page	Setting Item	Initial Setting
BLACK SHADING	MASTER GAIN	0

Camera setting

- Side panel
  - GAIN switch → L (0 dB)
  - AUTO KNEE : switch → CAM/OFF
  - WHITE BAL : switch → PRST
- Front panel
  - SHUTTER : switch → OFF
- Filter position
  - ND filter → 1 (clear)
  - CC filter → B（3200K）

4-1-7. Setup Menu Correspondence List

The camera setup menu items corresponding to the adjustment items of MSU are described.
Refer to the following tables when using the camera setup menu for electrical adjustments without using MSU.

PAINT Menu

- MSU:
  [PAINT] button → ON (lit)
- Camera setup menu:
  Select the [PAINT] menu.

Menu item of MSU			**Menu item of camera**		
Menu	Sub Menu	Adjustment	Menu	Page	Item
Black		R/G/B	PAINT	VIDEO LEVEL	BLACK [R/G/B/M]
		Master			
Flare		R/G/B			FLARE [R/G/B/M]
		Master			
Detail	1/3	Level		DETAIL 1	LEVEL
		Limiter			LIMITER [M]
		Crispening			CRISP
		Level Dep			LEVEL DEPEND
	2/3	H/V Ratio		DETAIL 2	H/V RATIO
	3/3	W Limiter		DETAIL 1	LIMITER [WHT]
		B Limiter			LIMITER [BLK]
Gamma	Gamma	R/G/B		GAMMA	LEVEL [R/G/B/M]
		Master			
Knee	Knee Point	R/G/B		KNEE	K POINT [R/G/B/M]
		Master			
	Knee Slope	R/G/B			K SLOPE [R/G/B/M]
		Master			
White Clip		R/G/B		WHITE CLIP	–
		Master			W CLIP

FILE Menu

- MSU:
  [FILE] button → ON (lit)
- Camera setup menu:
  Select the [FILE] menu.

Menu item of MSU		**Menu item of camera**		
Menu	Sub Menu	Menu	Page	Item
Reference	Reference Store	FILE	REFERENCE	STORE FILE
Lens	Lens Store		LENS FILE	STORE FILE
OHB	OHB Store		OHB FILE	STORE FILE

MAINTENANCE Menu

- MSU:
  [MAINTENANCE] button → ON (lit)
- Camera setup menu:
  Select the [MAINTENANCE] menu.

Menu item of MSU				**Menu item of camera**		
Menu	Secondary Menu	Sub Menu	Adjustment	Menu	Page	Item
Camera	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]
Lens	Auto Iris Settings		Level		AUTO IRIS	IRIS LEVEL
			APL Ratio			APL RATIO

4-2. Automatic Adjustment

4-2-1. Execute the Automatic Level Setup

1. Press the LEVEL button (AUTO SETUP block) on MSU.
   LEVEL button lights up. (ON)
2. Press the START/BREAK button (AUTO SETUP block) on MSU.
   START/BREAK button lights (ON), automatic adjustment is executed.
   After the adjustment is completed, the message “Completed” is displayed.

Tip

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

4-3. Camera System Adjustment

4-3-1. Sensitivity Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI 1 connector
Subject: ITE grayscale chart (γ=0.45) (16 : 9)

Note

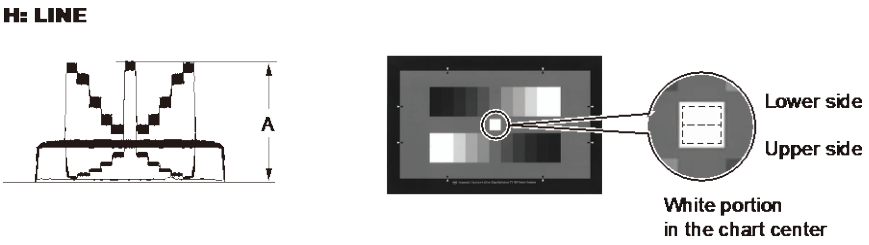
Adjust the luminance control of the pattern box so that the white portion in the center of the chart is 573 ± 10 cd/m².

Preparation

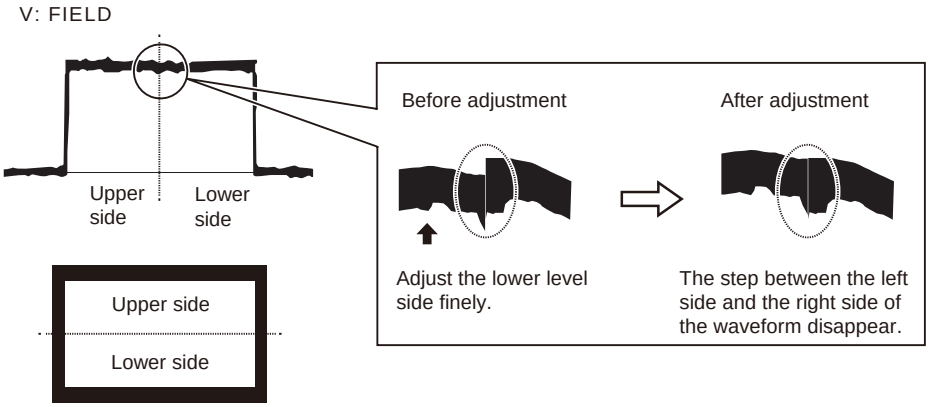
- Setting for the MSU
  CLOSE button → OFF (unlit)
  GAMMA OFF button → OFF (lit)
  MASTER GAIN → 0 (0 dB)
  DETAIL OFF button → OFF (lit)
  KNEE OFF button → OFF (lit)
- Shoot the ITE grayscale chart so that it is aligned with the under scanned monitor frame.

Procedure

1. Set as follows on the camera setup menu.
   MENU: MAINTENANCE
   PAGE: OUTPUT FORMAT
   ITEM: CURRENT 1080/59.94P
2. Open the following page on the camera setup menu.
   MENU: SERVICE
   PAGE: OHB-ADJ1
3. Adjust the level of G channel roughly, so that the level of portion A on the waveform becomes the specification.
   ITEM: GAIN CONT [G1], [G2]
   Specification: A = 700 mV
   (1) Adjust the [G1] so that the waveform level of the lower side of the white portion in the chart center becomes the specification.
   (2) Adjust the [G2] so that the waveform level of the upper side of the white portion in the chart center becomes the specification.



4. Also adjust R and B channels roughly in the same way as above step.
   ITEM: GAIN CONT [R1], [R2]
   ITEM: GAIN CONT [B1], [B2]
5. Remove the ITE grayscale chart, and shoot the full-white pattern so that it is aligned with the under scanned monitor frame.
   If waveform is saturated, adjust the light amount with the shutter.
6. Confirm the waveform of G channel in the verticalness direction, and adjust the lower level side finely, so that the step between the left side and the right side of the waveform disappear.
   ITEM: MONITOR SEL → G
   - Right side of waveform (waveform of lower side in full-white pattern)
     ITEM: GAIN CONT [G1]
   - Left side of waveform (waveform of upper side in full-white pattern)
     ITEM: GAIN CONT [G2]



7. Also adjust R and B channels finely in the same way as above step.
   ITEM: GAIN CONT [R1], [R2]
   ITEM: GAIN CONT [B1], [B2]
8. Repeat steps 2 to 7 to adjust sensitivity of G, R and B channels.
9. Store the file.
   MENU: SERVICE
   PAGE: OHB-ADJ1
   ITEM: STORE FILE

4-3-2. Black Shading Adjustment

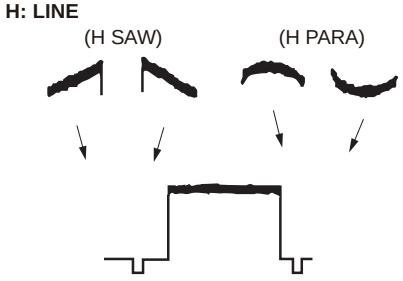
Equipment: Waveform monitor (R, G, B)
Test Point: SDI 1 connector

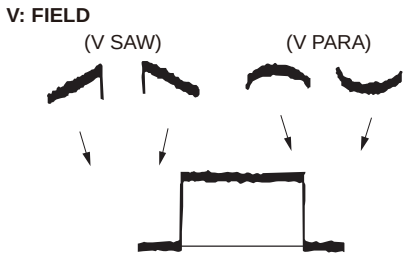
Preparation

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

Procedure

1. Set as follows on the camera setup menu.
   MENU: MAINTENANCE
   PAGE: OUTPUT FORMAT
   ITEM: CURRENT 1080/59.94P
2. Open the following page on the camera setup menu.
   MENU: SERVICE
   PAGE: BLACK SHADING
3. Adjust R channel waveform on the monitor so that it becomes as flat as possible.
   ITEM: H SAW [R]
   ITEM: H PARA [R]
   ITEM: V SAW [R]
   ITEM: V PARA [R]





4. Also adjust G and B channel waveforms in the same way as above step.
   ITEM: H SAW [G], H PARA [G], V SAW [G], V PARA [G]
   ITEM: H SAW [B], H PARA [B], V SAW [B], V PARA [B]
5. Store the file.
   MENU: SERVICE
   PAGE: BLACK SHADING
   ITEM: STORE FILE

4-3-3. White Shading Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI 1 connector
Subject: Full-white pattern

Note

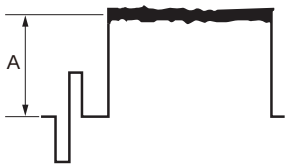
In the case of any of the following case is applicable, white shading is not adjusted correctly.

- The brightness of the subject is uneven.
- The brightness is not set correctly.
- Iris value of lens is not set correctly.
- Zoom position is not set correctly.

Obey the content of the following preparation and procedure, use calibrated equipment and tools.

Preparation

- Setting for the MSU
  KNEE OFF button→ OFF (lit)
  MASTER GAIN → 0 (0 dB)
- Shoot the full-white pattern so that it is aligned with the under scanned monitor frame.
- Lens iris: F4 to F5.6
- A = 600 ± 20 mV
  If the lens aperture is greater than F5.6, adjust the light amount with the shutter.



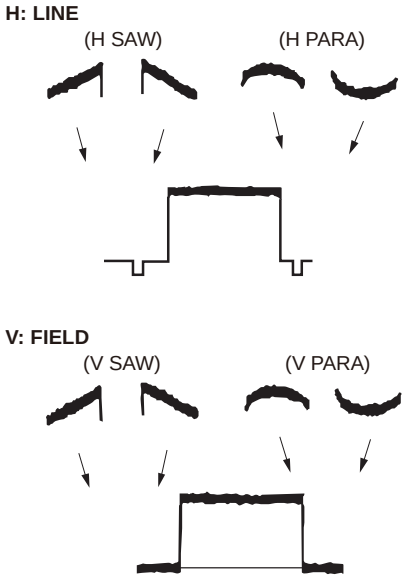
- Lens focus: ∞
- Set the lens extender or the lens shrinker to the following settings.
  Lens extender (×2) → OFF
  Lens shrinker (×0.8) → OFF
- Set as follows on the camera setup menu.
  MENU: OPERATION
  PAGE: LENS FILE
  ITEM: FILE
  1. Select the file in accordance with the lens attached. If there is no appropriate file, select NO OFFSET.
  2. Change the name of lens with MSU.

Procedure

1. Operate the control panel of MSU, and perform the automatic white balance adjustment.

WHITE button → ON (lit)
After the adjustment is completed, the message “AWB: OK” is displayed.

2. Open the following items using the MSU.
   (1) MAINTENANCE button → ON (lit)
   (2) Touch panel operation: [Camera] → [White Shading] → [R]
3. Adjust the waveform on the monitor so that it becomes as flat as possible.
   Adjustment item : H SAW
   Adjustment item : H PARA
   Adjustment item : V SAW
   Adjustment item : V PARA



4. Make the same adjustment to channel G and B.
5. Operate the control panel of MSU, and perform the automatic white balance adjustment.
   WHITE button → ON (lit)
   After the adjustment is completed, the message “AWB: OK” is displayed.

Storing the OHB file in the MSU menu

Store the OHB file in the MSU menu.

Procedure

1. [FILE] button → ON (lit)
2. Touch panel operation: [OHB] → [OHB Store] → [Store]
   After the store operation is completed, the message “OHB File Store” is displayed.

Adjustment for Lens Extender or Shrinker

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

Procedure

1. Operate the control panel of MSU, and perform the automatic white balance adjustment.
   WHITE button → ON (lit)
   After the adjustment is completed, the message “AWB: OK” is displayed.
2. Set the lens extender to ×1.
3. Operate the control panel of MSU, and store the lens file.
   (1) [FILE] button → ON (lit)
   (2) Touch panel operation: [Lens File] → [Lens Store] → [Store]
4. Set the lens extender as follows.
   - Lens extender (x2) → ON
   - Lens shrinker (×0.8) → ON

5. Operate the control panel of MSU, and perform the automatic white balance adjustment.
   WHITE button → ON (lit)
   After the adjustment is completed, the message “AWB: OK” is displayed.
6. Operate the control panel of MSU, and store the lens file.
   (1) [FILE] button → ON (lit)
   (2) Touch panel operation: [Lens File] → [Lens Store] → [Store]
7. Return the setting of lens extender and lens shrinker.
   - Lens extender (×2) → OFF
   - Lens shrinker (×0.8) → OFF

4-4. Video System Level Adjustment

Note

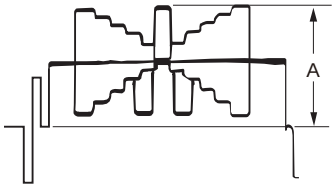
Perform the video system level adjustment according to the system that the customer uses.

4-4-1. H/V Ratio Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI 1 connector
Object: Grayscale chart

Preparation

- Setting for the MSU
  DETAIL OFF button → ON (unlit)
  KNEE OFF button → OFF (lit)
- Shoot the grayscale chart so that it is aligned with the under scanned monitor frame.
- Lens iris: F4 to F5.6
- A = 600 ±20 mV
  If the lens aperture is greater than F5.6, adjust the light amount with the shutter.



Procedure

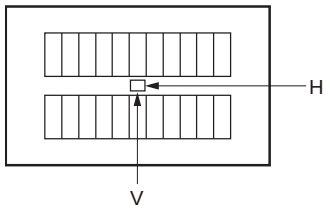
1. Operate the control panel of MSU, and set as follows.

Note

Customers' settings must be restored after the adjustment. Write down the customers' settings.

(1) PAINT button → ON (lit)
(2) Touch panel operation: (Page 1) → [Detail] → [1/3]
Setting:
• Level → 99
• Limiter → 0
• Crispening → –25
• Level Dep → 25

2. Operate the [PAINT] menu of MSU, and set as follows.
   Touch panel operation: (Page 1) → [Detail] → [2/3]
3. Adjust the H/V Ratio adjustment, a ratio between H and V detail amounts (white) to be added shall be equal.
   - Adjustment item : [H/V Ratio] (Reference value: 20 to 40)



4. Change the settings to the recorded customers' settings.
5. Store the reference file.
   (Refer to “4-4-12. File Store”.)

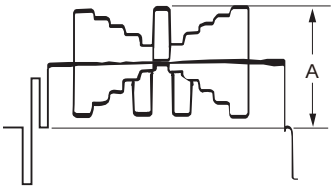
4-4-2. Detail Level Adjustment

Equipment: Waveform monitor (R, G, B)

Test Point: SDI 1 connector
Object: Grayscale chart

Preparation

- Setting for the MSU
  DETAIL OFF button → ON (unlit)
  KNEE OFF button → OFF (lit)
- Shoot the grayscale chart so that it is aligned with the under scanned monitor frame.
- Lens iris: F4 to F5.6
- A = 600 ±20 mV
  If the lens aperture is greater than F5.6, adjust the light amount with the shutter.



Procedure

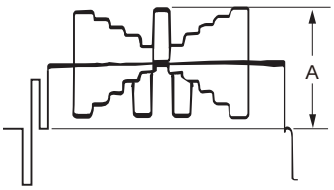
1. Operate the control panel of MSU, and set as follows.
   (1) PAINT button → ON (lit)
   (2) Touch panel operation: (Page 1) → [Detail] → [1/3]
2. Adjust the detail level to be added to each step of the grayscale to the desired level.
   - Adjustment item: [Level]
3. Store the reference file.
   (Refer to “4-4-12. File Store”.)

4-4-3. Crispening Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI 1 connector
Object: Grayscale chart

Preparation

- Setting for the MSU
  DETAIL OFF button → ON (unlit)
- Shoot the grayscale chart so that it is aligned with the under scanned monitor frame.
- Lens iris: F4 to F5.6
- A = 600 ± 20 mV
  If the lens aperture is greater than F5.6, adjust the light amount with the shutter.



Procedure

1. Operate the control panel of MSU, and perform the automatic white balance adjustment.
   WHITE button → ON (lit)
   After the adjustment is completed, the message “AWB: OK” is displayed.
2. Operate the control panel of MSU, and set as follows.
   (1) PAINT button → ON (lit)
   (2) Touch panel operation: (Page 1) → [Detail] → [1/3]
   (3) Set adjustment item [Crispening] to “–99”.
3. Adjust the value of crispening.
   - Adjustment item: [Crispening]

(1) Turn the adjustment knob of MSU to plus direction slowly.
(2) Stop the adjustment knob of MSU at the position where the noise at the black level of the waveform just decreases.

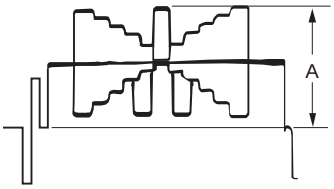
4. Store the reference file.
(Refer to “4-4-12. File Store”.)

4-4-4. Level Dependent Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI 1 connector
Object: Grayscale chart

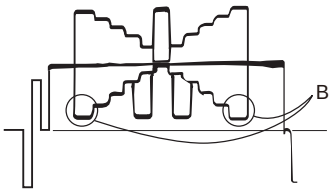
Preparation

- Setting for the MSU
DETAIL OFF button → ON (unlit)
- Shoot the grayscale chart so that it is aligned with the under scanned monitor frame.
- Lens iris: F4 to F5.6
- A = 600 ±20 mV
If the lens aperture is greater than F5.6, adjust the light amount with the shutter.



Procedure

1. Operate the control panel of MSU, and set as follows.
(1) PAINT button → ON (lit)
(2) Touch panel operation: (Page 1) → [Detail] → [1/3]
Setting:
    - Level Dep OFF → OFF
(3) Set adjustment item [Level Dep] to “–99”.
2. Adjust the level dependent.
    - Adjustment item: [Level Dep]
(1) Turn the adjustment knob of MSU to plus direction slowly.
(2) Stop the adjustment knob of MSU at the point where the edge of B portion on the waveform just decreases. Or adjust to the desired level.



3. Store the reference file.
(Refer to “4-4-12. File Store”.)

Note

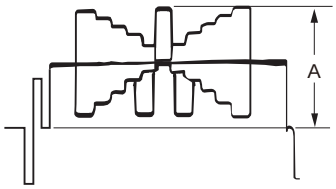
After adjustment is completed, be sure to perform “4-4-1. H/V Ratio Adjustment”.

4-4-5. Detail Clip Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI 1 connector
Object: Grayscale chart

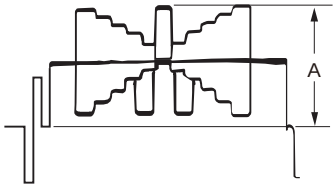
Preparation

- Setting for the MSU
  DETAIL OFF button → ON (unlit)
  KNEE OFF button → OFF (lit)
- Shoot the grayscale chart so that it is aligned with the under scanned monitor frame.
- Lens iris: F4 to F5.6
- A = 600 ±20 mV
  If the lens aperture is greater than F5.6, adjust the light amount with the shutter.

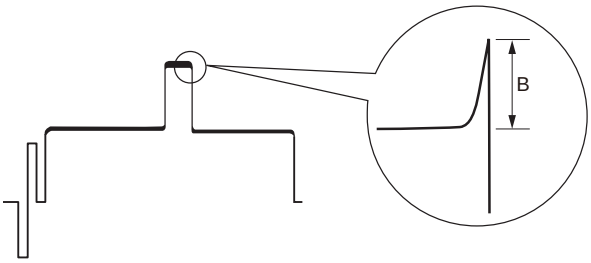


Procedure

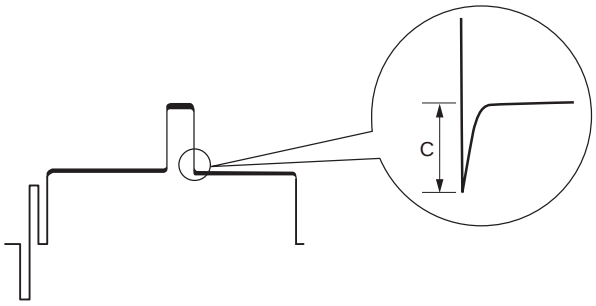
1. Operate the control panel of MSU, and perform the automatic white balance adjustment.
   WHITE button → ON (lit)
   After the adjustment is completed, the message “AWB: OK” is displayed.
2. Make a line selection at the center white portion of the grayscale chart.



3. Operate the control panel of MSU, and set as follows.
   (1) PAINT button → ON (lit)
   (2) Touch panel operation: (Page 1) → [Detail] → [3/3]
4. Adjust the edge at portion B (white) to the desired clip level.
   - Adjustment item: [W Limiter]



5. Adjust the edge at portion C (black) to the desired clip level.
   - Adjustment item: [B Limiter]



6. Store the reference file.
   (Refer to “4-4-12. File Store”.)

4-4-6. Auto-iris Adjustment

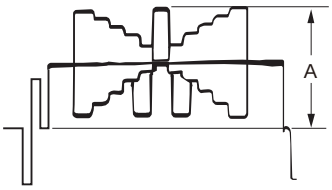
Equipment: Waveform monitor (R, G, B)
Test Point: SDI 1 connector
Object: Grayscale chart

Preparation

- Setting for the MSU
  AUTO IRIS button → ON (lit)
  DETAIL OFF button → ON (unlit)
  KNEE OFF button → OFF (lit)
- Shoot the grayscale chart so that it is aligned with the under scanned monitor frame.

Procedure

1. Operate the control panel of MSU, and perform the automatic white balance adjustment.
   WHITE button → ON (lit)
   After the adjustment is completed, the message “AWB: OK” is displayed.
2. Operate the control panel of MSU, and set as follows.
   (1) MAINTENANCE button → ON (lit)
   (2) Touch panel operation: [Lens] → [Auto Iris Settings]
3. To set the operation mode of auto-iris that is depending on a use, set the reaction degree of auto-iris.
   (It can be set between the average and the peak value of video signal.)
   - Adjustment item: [APL Ratio]
     (–99: peak value to 99: average)
4. Adjust the convergence level of auto-iris so that the level of portion A on the waveform becomes the specification.
   - Adjustment item: [Level]
   - Specification: A = 700±7 mV



5. Store the reference file.
   (Refer to “4-4-12. File Store”.)

4-4-7. Pedestal Level Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI 1 connector

Preparation

- Setting for the MSU
  CLOSE button → ON (lit)

Procedure

1. Operate the control panel of MSU, and set as follows.
   (1) PAINT button → ON (lit)
   (2) Touch panel operation: (Page 1) → [Black]
2. Adjust the levels A to desired level for R, G and B respectively.
   To adjust all levels for R, G and B simultaneously, adjust them using [Master].
   - Adjustment item : [R], [G], [B], [Master]
   - Reference value: A = 21 mV

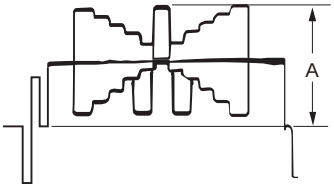
3. Store the reference file.
   (Refer to “4-4-12. File Store”.)

4-4-8. Flare Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI 1 connector
Object: Grayscale chart

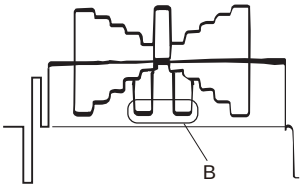
Preparation

- Setting for the MSU
  DETAIL OFF button → ON (unlit)
  KNEE OFF button → OFF (lit)
  MATRIX OFF button → OFF (lit)
- Shoot the grayscale chart so that it is aligned with the under scanned monitor frame.
- Lens iris: F4 to F5.6
- A = 600 ±20 mV
  If the lens aperture is greater than F5.6, adjust the light amount with the shutter.



Procedure

1. Operate the control panel of MSU, and set as follows.
   (1) PAINT button → ON (lit)
   (2) Touch panel operation: (Page 1) → [Flare]
2. Adjust the levels B to desired level for R, G and B respectively.
   To adjust all levels for R, G and B simultaneously, adjust them using [Master].
   - Adjustment item : [R], [G], [B], [Master]



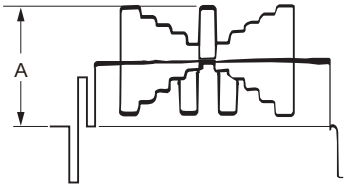
3. Store the reference file.
   (Refer to “4-4-12. File Store”.)

4-4-9. Gamma Correction Adjustment

Equipment: Waveform monitor (R, G, B)
Test Point: SDI 1 connector
Object: Grayscale chart

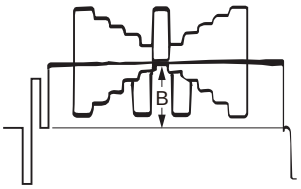
Preparation

- Setting for the MSU
  KNEE OFF button → OFF (lit)
  GAMMA OFF button → ON (unlit)
- Shoot the grayscale chart so that it is aligned with the under scanned monitor frame.
- Lens iris: A = 700 ±20 mV



Procedure

1. Operate the control panel of MSU, and perform the automatic white balance adjustment.
   WHITE button → ON (lit)
   After the adjustment is completed, the message “AWB: OK” is displayed.
2. Operate the control panel of MSU, and set as follows.
   (1) PAINT button → ON (lit)
   (2) Touch panel operation: (Page 1) → [Gamma]
3. Adjust the levels B to desired level for R, G and B respectively.
   To adjust all levels for R, G and B simultaneously, adjust them using [Master].
   - Adjustment item : [R], [G], [B], [Master]



4. Store the reference file.
   (Refer to “4-4-12. File Store”.)

4-4-10. Knee Point and Knee Slope Adjustments

Equipment: Waveform monitor (R, G, B)
Test Point: SDI 1 connector

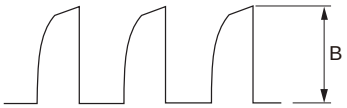
Preparation

- Setting for the MSU
  MASTER GAIN → 6 (6 dB)
  TEST 1 button → ON (lit)
  KNEE OFF button → ON (unlit)

Procedure

1. Operate the control panel of MSU, and set as follows.
   (1) PAINT button → ON (lit)
   (2) Touch panel operation: (Page 1) → [Knee] → [Knee Slope]
   (3) Set adjustment item [Master] to “–99”.
2. Operate the control panel of MSU, and set as follows.
   Touch panel operation: (Page 1) → [Knee] → [Knee Point]
3. Adjust the levels A to desired level for R, G and B respectively.
   To adjust all levels for R, G and B simultaneously, adjust them using [Master].
   - Adjustment item : [R], [G], [B], [Master]
   - Reference value: A = 686 mV

4. Operate the control panel of MSU, and set as follows.
   Touch panel operation: (Page 1) → [Knee] → [Knee Slope]
5. Adjust the levels B to desired level for R, G and B respectively.
   To adjust all levels for R, G and B simultaneously, adjust them using [Master].
   • Adjustment item : [R], [G], [B], [Master]
   • Reference value: B = 735 mV



6. Store the reference file.
   (Refer to “4-4-12. File Store”.)

Setting after Adjustment

- Setting for the MSU
  MASTER GAIN → 0 (0 dB)
  TEST 1 button → OFF (unlit)
  KNEE OFF button → OFF (lit)

4-4-11. White Clip Level Adjustment

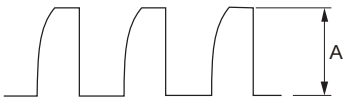
Equipment: Waveform monitor (R, G, B)
Test Point: SDI 1 connector

Preparation

- Setting for the MSU
  MASTER GAIN → 12 (12 dB)
  TEST 1 button → ON (lit)

Procedure

1. Operate the control panel of MSU, and set as follows.
   (1) PAINT button → ON (lit)
   (2) Touch panel operation: (Page 2) → [White Clip]
2. Adjust the levels A to desired level for R, G and B respectively.
   To adjust all levels for R, G and B simultaneously, adjust them using [Master].
   - Adjustment item : [R], [G], [B], [Master]
   - Reference value: A = 756 mV



3. Store the reference file.
   (Refer to “4-4-12. File Store”.)

Setting after Adjustment

- Setting for the MSU
  MASTER GAIN → 0 (0 dB)
  TEST 1 button → OFF (unlit)

4-4-12. File Store

After adjustments described in “4-4. Video System Level Adjustment” are completed, be sure to store the reference file.

Reference File Store

Operate the control panel of MSU, and store file.

Procedure

1. FILE button → ON (lit)
2. Touch panel operation: [Ref File] → [Ref Store] → [Start]
   After the reference file entry is completed, a message “Completed” is displayed.

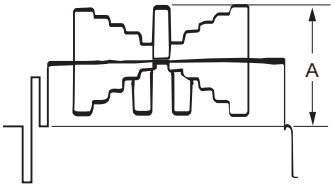
4-5. ND Offset Adjustment

4-5-1. White Balance Correction

Equipment: Waveform monitor (R, G, B)
Test Point: SDI 1 connector
Object: Grayscale chart

Preparation

- Setting for the MSU
  AUTO IRIS button → ON (lit)
  MASTER GAIN → 0 (0 dB)
- Shoot the grayscale chart so that it is aligned with the under scanned monitor frame.
- Lens iris: F4 to F5.6
- A = 600 ±20 mV
  If the lens aperture is greater than F5.6, adjust the light amount with the shutter.



Procedure

1. Set each button on the MSU as follows.
   - FILTER CONTROL button → ON (lit)
   - ND1 button → ON (lit)
2. Operate the control panel of MSU, and perform the automatic white balance adjustment.
   WHITE button → ON (lit)
   After the adjustment is completed, the message “AWB: OK” is displayed.
3. Set each button on the MSU as follows.
   - ND2 button → ON (lit)
   - MASTER GAIN → 0 (0 dB)
4. Operate the control panel of MSU, and perform the automatic white balance adjustment.
   WHITE button → ON (lit)
   After the adjustment is completed, the message “AWB: OK” is displayed.
5. Set each button on the MSU as follows.
   - ND3 button → ON (lit)
   - MASTER GAIN → 0 (0 dB)
6. Operate the control panel of MSU, and perform the automatic white balance adjustment.
   WHITE button → ON (lit)
   After the adjustment is completed, the message “AWB: OK” is displayed.
7. Set each button on the MSU as follows.
   - ND4 button → ON (lit)
   - MASTER GAIN → 6 (6 dB)
8. Operate the control panel of MSU, and perform the automatic white balance adjustment.
9. Set each button on the MSU as follows.
   - ND5 button → ON (lit)
   - MASTER GAIN → 12 (12 dB)
10. Operate the control panel of MSU, and perform the automatic white balance adjustment.
    WHITE button → ON (lit)
    After the adjustment is completed, the message “AWB: OK” is displayed.

Storing the OHB file in the MSU menu

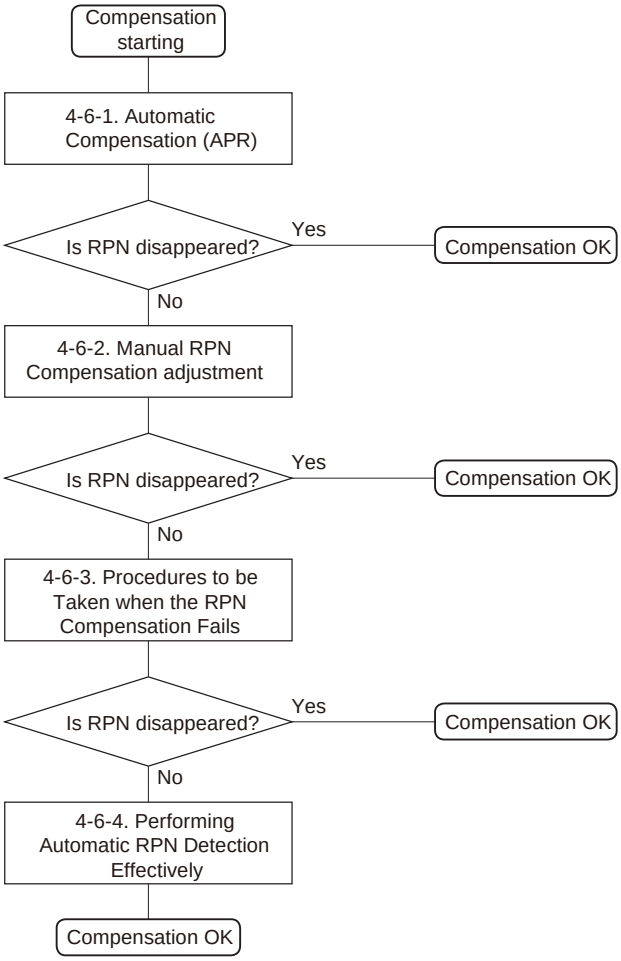
1. Operate the control panel of MSU, and set as follows.
   (1) [FILE] button → ON (lit)
   (2) Touch panel operation: [OHB File] → [OHB Store] → [Store]
   After the store operation is completed, the message “OHB File Store” is displayed.

Setting after Adjustment

- Setting for the MSU
  MASTER GAIN → 0 (0 dB)

4-6. RPN Compensation

- To compensate the RPN, age the camera for more than 30 minutes.
- When executing the automatic compensation (APR) from MSU or setting menu, the residual point noise (RPN) of the CMOS image sensor is compensated.
- To compensate the RPN, compensate according to the following chart.



4-6-1. Automatic Compensation (APR)

When an RPN is detected in the screen, perform the automatic compensation (APR).

Automatic RPN Compensation (APR)

Note

- Manual RPN compensation adjustment data is not affected by executing the automatic RPN compensation (APR).
- Automatic RPN compensation (APR) take several minutes.

Preparation

- Lens iris → CLOSE
  Or remove the lens and attach the lens mount cap to the lens mount.
- Setting for the MSU
  BARS button → OFF (unlit)
  SHUTTER button → OFF (unlit)

Procedure

1. Execute automatic RPN compensation (APR) from MSU or camera.
   - Execute automatic RPN compensation (APR) from MSU.
     [MAINTENANCE] button → ON (lit)

Touch panel operation: [Auto Setup] → [APR]

Note

Confirm that the operation of the Auto Setup menu is enabled in the Item Permission of the MSU. (Refer to Operation manual of MSU.)

- Execute automatic black balance adjustment (ABB) from camera to automatic RPN compensation (APR).
  MENU: SERVICE
  PAGE: RPN MANAGE
  ITEM: AUTO CONCEAL

4-6-2. Manual RPN Compensation Adjustment

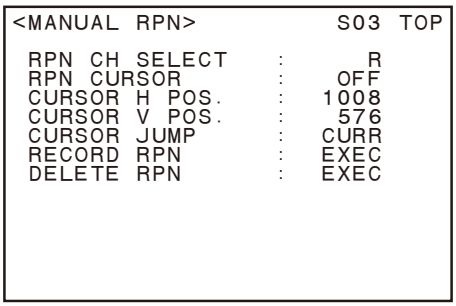
When RPN is not compensated after RPN automatic compensation was performed, execute the manual RPN compensation adjustment.

Preparation

1. Execute RPN automatic compensation (APR).
   (Refer to "4-6-1. Automatic Compensation (APR)".)

Procedure

1. Open the following page on the camera setup menu.
   MENU: SERVICE
   PAGE: MANUAL RPN



2. Select the channel (R, G, or B) that is to be compensated.
   ITEM: RPN CH SELECT → R, G, B
3. Display the cross cursor.
   ITEM: RPN CURSOR → ON
4. Set the cross cursor center at the target RPN.
   ITEM: CURSOR H POS.
   ITEM: CURSOR V POS.
5. Execute record of RPN compensation adjustment data.
   ITEM: RECORD RPN → EXEC
   A message "RECORD DATA OK? YES → NO" is displayed.

   Note

   In the case of RPN is disappeared in the screen, perform step 6.
   In the case of RPN is appeared in the screen, the cross cursor may not move to the position of RPN. Perform procedures as follows.
   (1) Select (turn the knob) "NO" by rotary encoder and confirm (press the button).
   (2) Shift the center of the cross cursor by one line or one pixel and move to the position of RPN.
   (3) Perform step 5.
6. Select (turn the knob) "YES" by rotary encoder and confirm (press the button).
   A message "COMPLETE" is displayed, the compensation data is recorded.

   Tip

   If a compensation pixel has been wrongly recorded, delete the RPN data.
   ITEM: DELETE RPN → EXEC
7. Repeat steps 4 to 6 to compensate other RPNs.

Tip

If adjust using the MSU, enter the engineer mode and operate in the following page. (Refer to Operation manual of MSU.)
[MAINTENANCE] button → ON (lit)
Touch panel operation: [RPN]

Setting after adjustment

1. Hide the cross cursor.
   ITEM: RPN CURSOR → OFF

4-6-3. Procedures to be Taken when the RPN Compensation Fails

When the RPN compensation is not successful even after the manual RPN compensation adjustment was made, the following causes are possible.

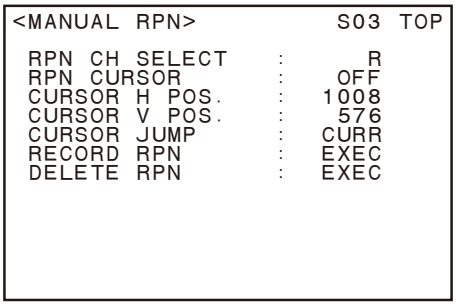
- An adjacent wrong position was compensated.
- The compensation failed due to the influence of other RPNs.

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 CMOS image sensors or the OHB assembly must be replaced.
For more information, contact your local Sony Sales Office/Service Center.

Procedure

1. Open the following page on the camera setup menu.
   MENU: SERVICE
   PAGE: MANUAL RPN



2. Display the cross cursor.
   ITEM: RPN CURSOR → ON
3. Check whether there are any compensated pixels close to the pixel to be compensated.
   - 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

   Tip

   To compensate effectively RPN, perform as follows.
   - After placing the cursor in advance close to the pixel to be compensated by using CURSOR H POS. and CURSOR V POS., execute the CURSOR JUMP function.
4. When the cursor stopped at a position near the target pixel, delete the compensation data at stop position of cursor.
   (1) Delete the compensation data.
   ITEM: DELETE RPN → EXEC
   A message “DELETE DATA OK? YES → NO” appears.
   (2) Select (turn the knob) “YES” by rotary encoder and confirm (press the button).
5. When the cursor is not moved by executing the CURSOR JUMP, move the cursor in the direction of horizontal or vertical, and execute it again.
   ITEM: CURSOR H POS.
   ITEM: CURSOR V POS.
6. Record the RPN compensation adjustment data.
   ITEM: RECORD RPN → EXEC

A message “RECORD DATA OK? YES → NO” is displayed.

7. After confirming that RPN disappears, select (turn the knob) “YES” by rotary encoder and confirm (press the button).
   A message “COMPLETE” is displayed, the compensation data is recorded.

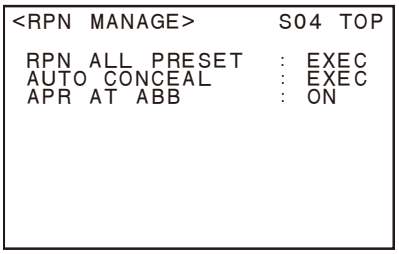
4-6-4. Performing Automatic RPN Detection Effectively

Preparation

- Lens iris→ CLOSE
- Setting for the MSU
  BARS button → OFF (unlit)
  SHUTTER button → OFF (unlit)

Procedure

1. Open the following page on the camera setup menu.
   MENU: SERVICE
   PAGE: RPN MANAGE



2. Perform the APR of RPNs.
   ITEM: AUTO CONCEAL → EXEC

Section 5
Software Upgrade

5-1. Upgrading Software Programs

Software programs stored in the ROM (IC401) on the AT-195 board are upgraded by using a USB drive.
The software programs include camera application and operating system (OS), which is independently upgraded.
Use the following procedures to upgrade the software programs.

5-1-1. Upgrading Camera Application

Equipment Required

USB drive (commercially available)

Tip

For recommended USB drive, refer to “Using a USB Drive” on the operating instructions.

Preparation

Copy the camera application update data to the USB drive using the following procedure.

Note

As for how to obtain the data file for update (hdc3000_app.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
   ¥MSSONY¥PRO¥CAMERA¥HDC3000
2. Copy the data file for update “hdc3000_app.pkg” to the directory created.

Procedure

1. Connect the USB drive that contains the program for update to the USB connector of this unit.
2. Turn on the power of the unit.
3. Display the ROM VERSION page of the DIAGNOSIS menu.
4. Confirm that the cursor “?” is displayed to the left of D03, and then press ENTER button long.
5. Updatable items become selectable. Select “CAMERA APP” and then press ENTER button.
6. A message “VERSION UP OK?” appears. Select “YES”.
7. The unit restarts automatically and the version update starts.
   Upon completion of the version update, a message “UPDATE SUCCEEDED” appears.
8. Turn off and on the power of the unit and confirm that the version has been updated on the ROM VERSION page of the DIAGNOSIS menu.

5-1-2. Upgrading OS

Equipment Required

USB drive (commercially available)

Tip

For recommended USB drive, refer to “Using a USB Drive” on the operating instructions.

Preparation

Copy the OS update data to the USB drive using the following procedure.

Note

As for how to obtain the data file for update (hdc3000_os.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
   ¥MSSONY¥PRO¥CAMERA¥HDC3000
2. Copy the data file for update “hdc3000_os.pkg” to the directory created.

Procedure

1. Connect the USB drive that contains the program for update to the USB connector of this unit.
2. Turn on the power of the unit.
3. Display the ROM VERSION page of the DIAGNOSIS menu.
4. Confirm that the cursor “?” is displayed to the left of D03, and then press ENTER button long.
5. Updatable items become selectable. Select “OS” and then press ENTER button.
6. A message “VERSION UP OK?” appears. Select “YES”.
7. The unit restarts automatically and the version update starts.
   Upon completion of the version update, a message “UPDATE SUCCEEDED” appears.
8. Turn off and on the power of the unit and confirm that the version has been updated on the ROM VERSION page of the DIAGNOSIS menu.

5-1-2. Upgrading UPDATER

Equipment Required

USB drive (commercially available)

Tip

For recommended USB drive, refer to “Using a USB Drive” on the operating instructions.

Preparation

Copy the OS update data to the USB drive using the following procedure.

Note

As for how to obtain the data file for update (hdc3000_updater.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
   ¥MSSONY¥PRO¥CAMERA¥HDC3000
2. Copy the data file for update “hdc3000_updater.pkg” to the directory created.

Procedure

1. Connect the USB drive that contains the program for update to the USB connector of this unit.
2. Turn on the power of the unit.
3. Display the ROM VERSION page of the DIAGNOSIS menu.
4. Confirm that the cursor “?” is displayed to the left of D03, and then press ENTER button long.
5. Updatable items become selectable. Select “UPDATER” and then press ENTER button.
6. A message “VERSION UP OK?” appears. Select “YES”.
7. The unit restarts automatically and the version update starts.
   Upon completion of the version update, a message “UPDATE SUCCEEDED” appears.
8. Turn off and on the power of the unit and confirm that the version has been updated on the ROM VERSION page of the DIAGNOSIS menu.

5-2. PLD

This unit uses the PLD (Programmable Logic Device) that supports USB drive 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 numbers of PLD (or ROM for PLD) shown in “9. Spare Parts” are the ones in which data is not written yet.
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, not a data writing but instead parts replacement is needed only if the specific PLD is defective.

5-2-1. Corresponding PLD

PLD (Ref. No./Board Name)	File Name
IC1001/SY-463 IC1002/SY-463*1	hdc3000_sy.pkg
IC1100/DPR-390 IC1101/DPR-390*2	hdc3000_dpr.pkg
IC200/TX-164 IC315/TX-164*3	hdc3000_txm.pkg
IC1001/CD-91 IC1101/CD-91*4	hdc3000_cd1.pkg
IC1001/CD-91 IC2101/CD-91*5	hdc3000_cd2.pkg
IC200/TX-165 IC308, IC316/TX-165*6	hdc3000_txh.pkg
IC3001/IF-1372 IC4001/IF-1372*7	hdc3000_.pkg

*1: IC1102/SY-463 is the ROM for IC1001/SY-463.

*2: IC1101/DPR-390 is the ROM for IC1100/DPR-390.

*3: IC315/TX-164 is the ROM for IC200/TX-164.

*4: IC1101/CD-91 is the ROM for IC1001/CD-91.

*5: IC2101/CD-91 is the ROM for IC2001/CD-91.

*6: IC308, IC316/TX-165 is the ROM for IC200/TX-165.

*7 IC4001/IF-1372 is the ROM for IC3001/IF-1372.

5-2-2. Upgrading PLD Data

Equipment Required

USB drive (commercially available)

Tip

For recommended USB drive, refer to “Using a USB Drive” on the operating instructions.

Preparation

Copy the PLD update data to the USB drive using the following procedure.

Note

As for how to obtain the data file for update (hdc3000_sy.pkg, hdc3000_dpr.pkg, hdc3000_txm.pkg, hdc3000_cd1.pkg, hdc3000_cd2.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
   ¥MSSONY¥PRO¥CAMERA¥HDC3000
2. Copy the data files for PLD update to be updated to the directory created.

Procedure

1. Connect the USB drive that contains the program for update to the USB connector of this unit.
2. Turn on the power of the unit.
3. Display the “ROM VERSION” page of the DIAGNOSIS menu.
4. Confirm that the cursor “?” is displayed to the left of D03, and then press ENTER button long.
5. Updatable items become selectable. Select the PLD to be updated and then press ENTER button.

6. A message “VERSION UP OK?” appears. Select “YES”.
7. The unit restarts automatically and the version update starts.
   Upon completion of the version update, a message “UPDATE SUCCEEDED” appears.
8. Turn off and on the power of the unit and confirm that the version has been updated on the “ROM VERSION” page of the DIAGNOSIS menu.

5-3. Forced Version Update

If the version of program or data cannot be updated from the ROM VERSION page of the DIAGNOSIS menu, the software or PLD data version can be updated by the “forced version update”.

5-3-1. Forced Version Upgrade of Software or PLD Data

Equipment Required

USB drive (commercially available)

Tip

For recommended USB drive, refer to “Using a USB Drive” on the operating instructions.

Preparation

Copy the software or PLD data version update data file to the USB drive using the following procedure.

Note

As for how to obtain the data files for update, contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
   ¥MSSONY¥PRO¥CAMERA¥HDC3000
2. Copy the data file for update to be updated to the directory created.

   Note

   Do not copy the software or PLD data that is not to be updated.

Procedure

1. Connect the USB drive that contains the program for update to the USB connector of this unit.
2. While pressing the RET 2 button and rotary encoder on the front panel, turn on the power of the unit.
   Each data file for update copied in the USB drive is updated.

   Tip

   The version update progress status is displayed on the viewfinder.
3. Upon completion of the version update, a message “UPDATE SUCCEEDED” appears.
4. Turn off and on the power of the unit and confirm that the version has been updated on the “ROM VERSION” page of the DIAGNOSIS menu.

Section 6
File System

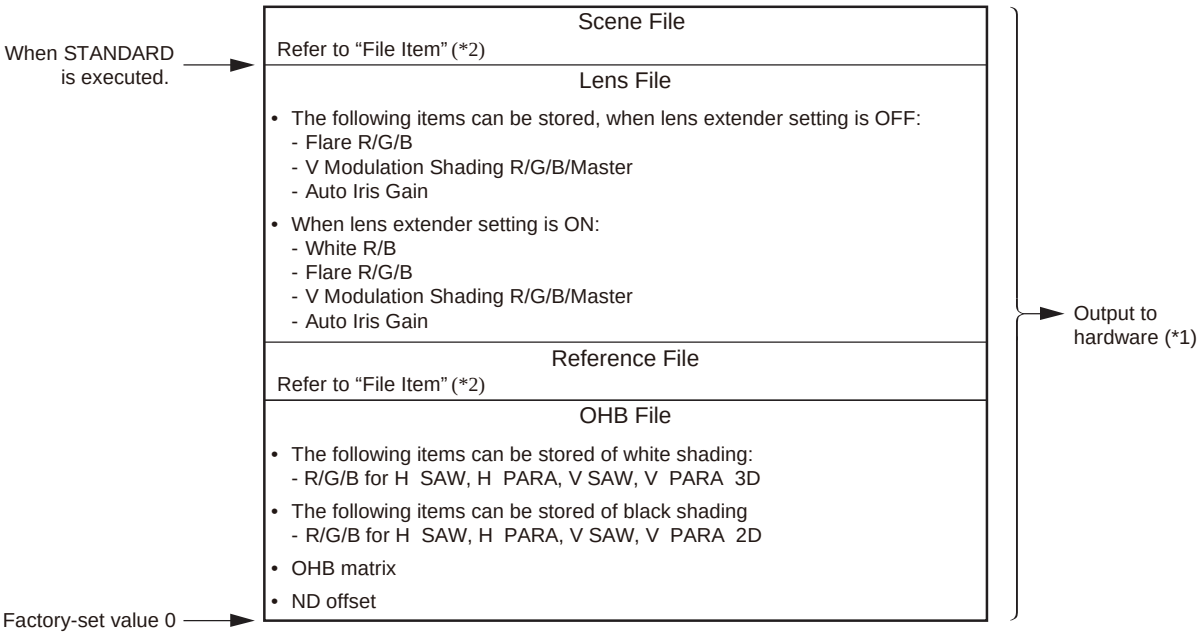
This unit is equipped with the file systems for managing data.
In this section, the menu operations are described as follows.
Example: When executing WRITE (CAM → USB) on the OPERATOR FILE page of the OPERATION menu
[OPERATION] → [OPERATOR FILE] → [WRITE (CAM → USB)]
For the details on the setup menu, refer to “7. Setup Menu”.

6-1. File Structure

The following six types of files are available. As for the items to be stored in each file, refer to “6-8. File Items” .

1. Operator File (Refer to “6-2. Operator File”.)
   Stores the items displayed on the viewfinder and switch settings for camera operator.
   This file can be stored in a USB drive, yet video data (paint data) cannot be stored.
2. Preset Operator File (Refer to “6-3. Preset Operator File”.)
   Stores the factory settings of Operator File.
   This file can be stored in the camera, yet video data (paint data) cannot be stored.
3. Scene File (Refer to “6-4. Scene File”.)
   Stores the temporary video setting data according to the scene.
   This file can be stored in the camera and a USB drive.
4. Reference File (Refer to “6-5. Reference File”.)
   Stores the custom paint data adjusted by the video engineer.
   This file can be stored in the camera and a USB drive.
5. Lens File (Refer to “6-6. Lens File”.)
   Used for compensation of the deviation which is generated by switching the lens extender from OFF to ON and for compensation of the difference in the characteristics between lenses.
   This file is stored in the camera.
6. OHB File (Refer to “6-7. OHB File”.)
   Used for adjustment of the CCD block maintenance.
   This file can be stored in the camera.

6-1-1. Structure of Paint Related Files



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

*2: For items that can be stored in the scene file and the reference file, refer to “6-8. File Items”.

6-2. Operator File

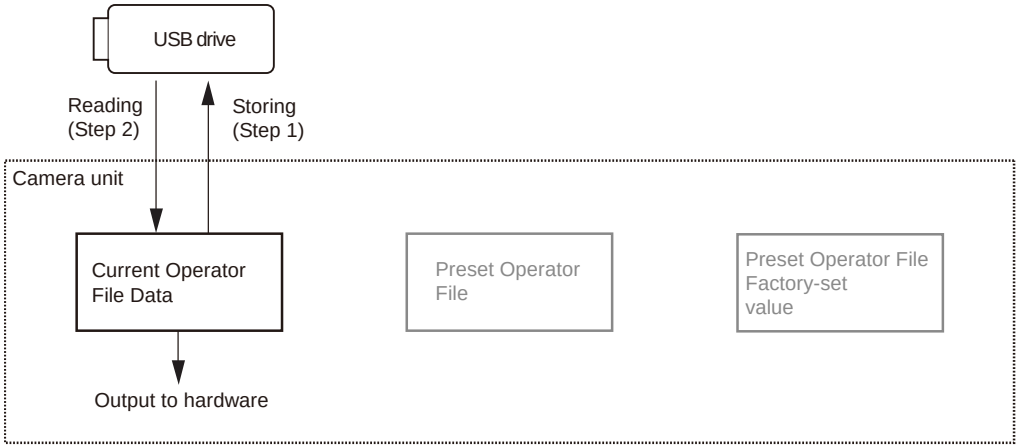
The operator file can be stored and read in the camera.
Use the setup menu to store the operator file in and read the operator file from the USB drive.

Note

- Operator file data stored in the USB drive cannot be read when the power is just turned ON.
- The current operator file data is retained even when the power is turned off.

6-2-1. Operator File Operation

Outline Figure of Operation



Storing

Reference: Refer to step 1 of “Outline Figure of Operation”.

Using OPERATION Menu of This Unit

Store the current status in the USB drive.
[OPERATION] → [OPERATOR FILE] → [WRITE (CAM → USB)]

Reading

Reference: Refer to step 2 of “Outline Figure of Operation”.

Using OPERATION Menu of This Unit

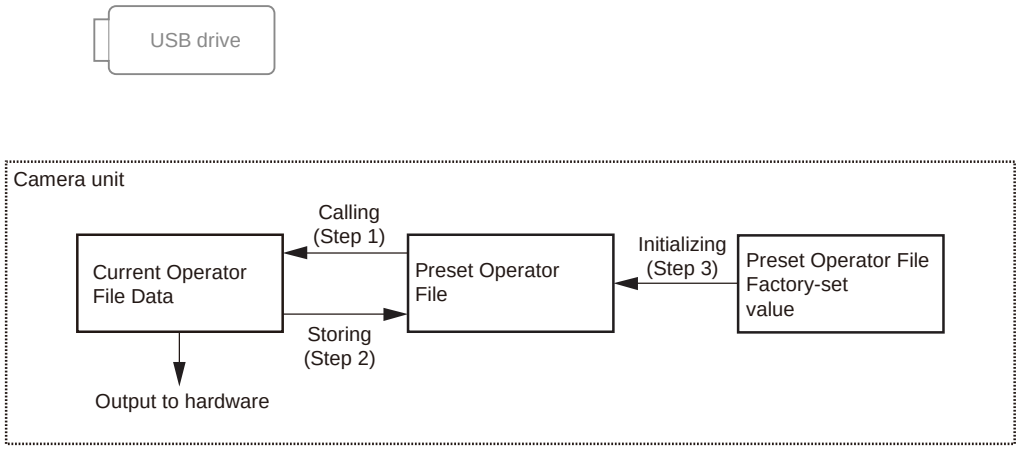
Read the operator file stored in the USB drive to the camera.
[OPERATION] → [OPERATOR FILE] → [READ (USB → CAM)]

6-3. Preset Operator File

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

6-3-1. Preset Operator File Operation

Outline Figure of Operation



Calling

Reference: Refer to step 1 of “Outline Figure of Operation”.

Using OPERATION Menu of This Unit

Call the preset operator file stored in the camera as the current operator file.
[OPERATION] → [OPERATOR FILE] → [PRESET]

Storing

Reference: Refer to step 2 of “Outline Figure of Operation”.

Using FILE Menu of This Unit

Store the current operator file as the preset operator file.
[FILE] → [OPERATOR FILE] → [STORE PRESET FILE]

Initializing

Reference: Refer to step 3 of “Outline Figure of Operation”.

Using FILE Menu of This Unit

Introduce preset operator file from the factory settings.
[FILE] → [FILE CLEAR] → [PRESET OPERATOR]

6-4. Scene File

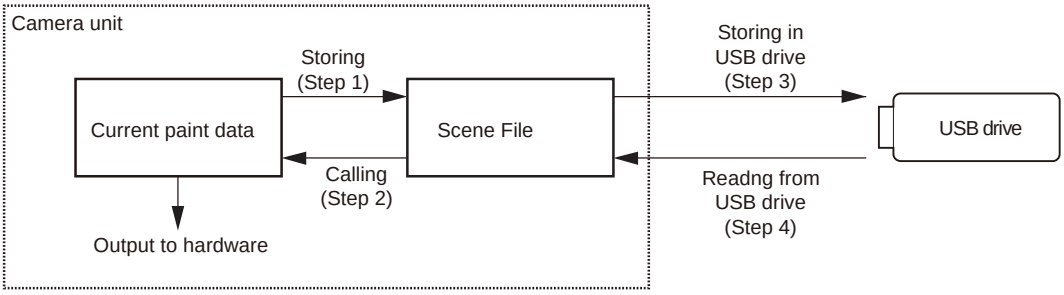
Scene files can be stored in the camera and USB drive.
Scene files can also be stored in the USB drive if the master setup unit (MSU) is used. For details, refer to the MSU operation manual.
Data is stored and called using the setup menu or MSU.
Scene files can be copied between cameras using the USB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

Note

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

6-4-1. Scene File Operation

Outline Figure of Operation



Storing

Reference: Refer to step 1 of “Outline Figure of Operation”.

Using PAINT Menu of This Unit

1. Change the scene file item to the desired value.
2. Select the scene file number [1] to [5] to be stored.
   [PAINT] →[SCENE FILE] → [STORE] → [1] to [5]

With MSU (Master Setup Unit)

1. Change the scene file item to the desired value.
2. Press the STORE button in the functional operation area on the operation panel.
3. Press the scene file number button in the functional operation area on the operation panel.

Calling and Clearing the Call

Reference: Refer to step 2 of “Outline Figure of Operation”.

Using PAINT Menu of This Unit

Select the scene file number to be called on the SCENE FILE page.
[PAINT] →[SCENE FILE] → [1] to [5]
A file currently being called is indicated with its file number highlighted. Select the number again to cancel the call and resume the previous status.

With MSU (Master Setup Unit)

When the number button of the scene file you want to call is pressed and lit while the STORE button on the operation panel is not lit, the scene file of the number is called. Repressing the number button cancels calling of the scene file and the state before calling is restored.

Storing the Scene File to the USB Drive

Reference: Refer to step 3 of “Outline Figure of Operation”.

Using PAINT Menu of This Unit

Store the scene file stored in the camera to the USB drive.
[PAINT] → [SCENE FILE] → [WRITE (CAM → USB)]

Reading the Scene File from the USB Drive

Reference: Refer to step 4 of “Outline Figure of Operation”.

Using PAINT Menu of This Unit

Read the scene file stored in the USB drive to the camera.
[PAINT] → [SCENE FILE] → [READ (USB → CAM)]

Note

Scene File data stored in the USB drive cannot be read when the power is just turned on.

6-5. Reference File

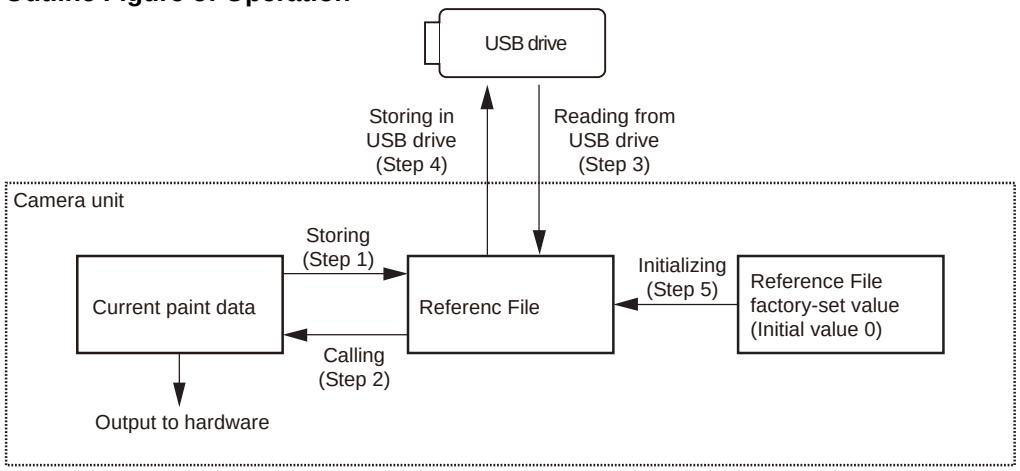
Reference files can be stored in the camera and USB drive.
Reference files can also be stored in the memory stick if the master setup unit (MSU) is used. For details, refer to the MSU operation manual.
Data is stored and called using the setup menu or MSU.
Reference files can be copied between cameras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

Note

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

6-5-1. Reference File Operation

Outline Figure of Operation



Storing

Reference: Refer to step 1 of “Outline Figure of Operation”.

Using FILE Menu of This Unit

Reference file is stored in the camera and the numerical data is displayed as 0. (Excluding some items. Refer to “6-8. File Items”.)
[FILE] → [REFERENCE] → [STORE FILE]

With MSU (Master Setup Unit)

1. Press the FILE button in the functional operation area on the operation panel.
2. Select [Reference] → [Reference Store] by the menu operation.
   Reference file is stored in the camera and the numerical data is displayed as 0. (Excluding some items. Refer to “6-8. File Items”.)

Calling

Reference: Refer to step 2 of “Outline Figure of Operation”. Refer to “6-1-1. Structure of Paint Related Files”.

Using PAINT Menu of This Unit

Temporary paint (values of each item) and selection of scene file are reset, and the state when the reference file was stored is resumed.
[PAINT] →[SCENE FILE] → [STANDARD]

With MSU (Master Setup Unit)

Pressing the STANDARD button in the camera/panel control area on the operation panel restores the state when the reference file was stored.

Reading the Reference File from the USB Drive

Reference: Refer to step 3 of “Outline Figure of Operation”.

Using FILE Menu of This Unit

Reference File data stored in the camera can be changed by reading the Reference File data stored in the USB drive.
[FILE] → [REFERENCE] → [READ (USB → CAM)]

Note

Reference file data stored in the USB drive cannot be read when the power is just turned on.

Storing the Reference File in the USB Drive

Reference: Refer to step 4 of “Outline Figure of Operation”.

Using FILE Menu of This Unit

Store the reference file stored in the camera in the USB drive.
[FILE] → [REFERENCE] → [WRITE (CAM → USB)]

Initializing All File Items

Reference: Refer to step 5 of “Outline Figure of Operation”.

Using FILE Menu of This Unit

Reset the reference file to the factory settings (default value: 0).
[FILE] → [FILE CLEAR] → [REFERENCE (ALL)]

6-6. Lens File

The Lens File stores the differential data from the Reference File.
Lens File stores the data to compensate the differences of the white shading, flare balance, and white balance, which occur when the lens extender is set to ON. It also stores the minimum f-stop value and name of the lens. These adjustment data are stored in the camera.
Lens File data of up to 16 files can be stored for a lens that is not compatible with serial communication and Lens File data of up to 25 files can be stored for a lens compatible with serial communication.
The adjustment data can be called by selecting a Lens File.

Note

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

6-6-1. Lens File Operation

Adjusting the Lens File Data

Using a lens that is not compatible with serial communication

1. Mount the lens and select the file with the same name as the mounted lens from the setup menu. If no file with the same name as the lens exists, select NO OFFSET.
   [FILE] → [LENS FILE] → [No.] (Select a lens number)
2. Set the lens name and minimum f-stop value.
3. Set the lens extender to OFF.
4. Shoot the white pattern, and fine-adjust it with V modulation R/G/B/Master so that the video level is around 80% (560 mV) with the lens iris set around F4 and the zoom control in the center of the ring.
   [PAINT] → [VIDEO LEVEL] → [V MOD R/G/B/M]
5. Adjust the white balance and flare balance with the grayscale chart.
6. Zoom the lens and adjust the center marker to a position at which the object does not deviate.

   Note

   The center marker position is stored in the Lens File immediately after the position is aligned.
   Note that the center marker position is not stored when Lens File Store is executed.
7. Execute Lens File Store.
   [FILE] → [LENS FILE] → [STORE FILE]
8. Set the lens extender to ON and repeat steps 4 to 7.

For lens compatible with serial communication

1. Check that the lens number is No. 17.
2. Also check that the name of the lens and minimum f-stop value.
3. Turn on the dynamic shading.

   Note

   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.
   - Automatic white shading adjustment:
     Shoot the white pattern so that the video level is around 80% (560 mV).
     [MAINTENANCE] → [WHITE SHADING] → [AUTO WHITE SHADING]
     Or adjust the R/G/B/ white shading V SAW, V PARA, H SAW, and H PARA.
     [MAINTENANCE] → [WHITE SHADING] → [V SAW R/G/B], [V PARA R/G/B], [H SAW R/G/B], [H PARA R/G/B]
   - V modulation adjustment:
     Shoot the white pattern, and fine-adjust it with V modulation R/G/B/Master so that the video level is around 80% (560 mV) with the lens iris set around F4 and the zoom control in the center of the ring.
     [PAINT] → [VIDEO LEVEL] → [V MOD R/G/B/M]
4. Set the lens extender to OFF.
5. Adjust the white balance and flare balance with the grayscale chart.
6. Zoom the lens and adjust the center marker to a position at which the object does not deviate.

   Note

   The center marker position is stored in the Lens File immediately after the position is aligned, and is not stored when Lens File Store is executed.
7. Execute Lens File Store.
   [FILE] → [LENS FILE] → [STORE FILE]
8. Set the lens extender to ON and repeat steps 5 to 7.

Calling

Using OPERATION Menu of This Unit

Call the lens file stored in the camera.
[FILE] → [LENS FILE] → [No.]

6-7. OHB File

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

Note

Store the OHB file after all items have been adjusted. Before adjusting and storing only specific items, be sure to execute STANDARD in Step 1 below.

6-7-1. OHB File Operation

Adjusting and Storing

Using FILE and MAINTENANCE Menu of This Unit

1. Load the reference file stored in the camera.
   [FILE] → [REFERENCE] → [STANDARD]
2. Perform the automatic black balance adjustment.
   [MAINTENANCE] → [AUTO SETUP] → [AUTO BLACK]
3. Adjust the ND offset for all of ND filter 1 to ND filter 5.

   Tip

   To change ND filters, press the ND filter switching button while pressing the FILTER LOCAL button.

   1) Select 5 with the ND filter knob, and shoot the white pattern so that the video level is 50% (350 mV) or more.
   2) Select 1 with the ND filter knob, and adjust the lens iris so that the video level is 80 to 50% (560 to 350 mV), and then perform the automatic white balance adjustment.
   3) Select 2 with the ND filter knob, and adjust in the same manner as step 2).
   4) Select 3 with the ND filter knob, and adjust in the same manner as step 2).
   5) Select 4 with the ND filter knob, and adjust in the same manner as step 2).
   6) Select 5 with the ND filter knob, and adjust in the same manner as step 2).
4. Store the OHB File.
   [FILE] → [OHB FILE] → [STORE FILE]

With MSU (Master Setup Unit)

1. Press the STANDARD button in the camera/panel control area on the operation panel (ON: lit).
2. Press the FILE button in the menu operation area on the operation panel (ON: lit).
3. Perform the automatic black balance adjustment.
   Press the BLACK button in the camera/panel control area on the operation panel (ON: lit).
   Or select [OHB] → [Auto Black] by the menu operation.
4. Adjust the ND offset for all of ND filter 1 to ND filter 5.

   Tip

   To change ND filters, press the ND filter switching button while pressing the FILTER LOCAL button.

   1) Select 5 with the ND filter knob, and shoot the white pattern so that the video level is 50% (350 mV) or more.
   2) Select 1 with the ND filter knob, and adjust the lens iris so that the video level is 80 to 50% (560 to 350 mV), and then perform the automatic white balance adjustment.
   3) Perform the automatic white shading adjustment.
      Press the WHITE button in the camera/panel control area on the operation panel (ON: lit).
      Or select [OHB] → [Auto White] by the menu operation.
   4) Select 2 with the ND filter knob, and adjust in the same manner as step 2) to 3).
   5) Select 3 with the ND filter knob, and adjust in the same manner as step 2) to 3).
   6) Select 4 with the ND filter knob, and adjust in the same manner as step 2) to 3).
   7) Select 5 with the ND filter knob, and adjust in the same manner as step 2) to 3).
5. Store the OHB File.
   [OHB] → [OHB Store] → [Store]

6-8. File Items

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

Description on symbols

○: When executing each file store, it indicates items that can be stored in the file. (If ON or OFF is described in the list, the setting is stored as it is.)
×: Setting is not stored in the file.
-: Unstorable because of temporary operation, etc.

Function	Switch Item	Analog Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	OHB File	Note
GAIN	Master Gain Select		○	○	×	×	×	-6 dB to +12 dB
Iris		IRIS	×	×	×	×	×	
	Auto Iris on		○	○	×	×	×	
		Level	○	○	×	×	×	
		APL	○	○	×	×	×	
		Gain	○	○	○	×	×	
		Over ride	×	×	×	×	×	
	Detect Pattern		○	○	○	×	×	
Zoom/Forcus Control	Zoom/Forcus Control Active		×	×	×	×	×	
		Zoom	×	×	×	×	×	
		Forcus	×	×	×	×	×	
	Zoom/Forcus Control Mode		×	×	×	×	×	
		Follow Forcus Offset Adjust Sens	×	×	×	×	×	
		Follow Forcus Offset Cancel Gain	×	×	×	×	×	
	Close		×	OFF	×	×	×	
Shutter	Shutter ON		○	OFF	×	×	×	
	Shutter Select		○	×	×	×	×	
ECS	ECS ON		○	OFF	×	×	×	
		ECS Frequency	○	×	×	×	×	
Black Shading		Black Shading H Saw-R	×	×	×	×	○	
		Black Shading H Saw-G	×	×	×	×	○	
		Black Shading H Saw-B	×	×	×	×	○	
		Black Shading V Saw-R	×	×	×	×	○	
		Black Shading V Saw-G	×	×	×	×	○	
		Black Shading V Saw-B	×	×	×	×	○	
		Black Shading H Para-R	×	×	×	×	○	
		Black Shading H Para-G	×	×	×	×	○	
		Black Shading H Para-B	×	×	×	×	○	
		Black Shading V Para-R	×	×	×	×	○	
		Black Shading V Para-G	×	×	×	×	○	
		Black Shading V Para-B	×	×	×	×	○	
	Auto Black Shading		×	×	×	×	×	
Black set		Black Set-R	×	×	×	×	○	
		Black Set-G	×	×	×	×	○	
		Black Set-B	×	×	×	×	○	

Continued

Function	Switch Item	Analog Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	OHB File	Note
Test	Test1 on (TEST SAW)		×	×	×	×	×	
	Test2 ON		×	×	×	×	×	
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	×	×	×	×	○	
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	×	×	○	×	×	
ALAC	ALAC ON		×	×	×	×	×	
F Drop Comp.	F Drop Comp. ON		×	×	×	×	×	
		F Drop Comp. Max Gain			○			
		F Drop Comp. Drop Point			○			
		F Drop Comp. Roundness			○			
White		White-R	○	○	OFF SET	×	×	
		White-G	○	○	×	×	×	
		White-B	○	○	OFF SET	×	×	
		color temp	—	—	—	—	—	
		balance	—	—	—	—	—	
		Master White Gain	×	×	×	×	×	
	Auto White Balance		×	×	×	×	×	
Flare	Flare OFF		○	ON	×	×	×	
		Flare-R	○	○	○	×	×	
		Flare-G	○	○	○	×	×	
		Flare-B	○	○	○	×	×	

Continued

Function	Switch Item	Analog Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	OHB File	Note
Flicker Reduction	Flicker Reduction ON		×	×	×	×	×	
	Power Line Freq.							
	Flicker Reduction Mode							
		Flicker Reduction Gain						
		Flicker Reduction Offset						
	Flicker Reduction ACM Type							
Down Convert	HD Downconv Filter		×	×	×	×	×	
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 Detail Creation Mode		○	○	×	×	×	
	V Detail Control Mode		×	○	×	×	×	
		HD Detail Level	○	○	×	×	×	
		HD Detail Limiter	○	×	×	×	×	
		HD Detail Crispening	○	○	×	×	×	
		HD Detail H Detail Frequency	○	○	×	×	×	
		HD Detail Mix Ratio	○	○	×	×	×	
		HD Detail White Limiter	○	○	×	×	×	
		HD Detail Black Limiter	○	○	×	×	×	
		4K Detail Level	○	○	×	×	×	
		4K Detail Limiter	○	×	×	×	×	
		4K Detail Crispening	○	○	×	×	×	
		4K Detail Frequency	○	○	×	×	×	
		4K Detail Mix Ratio	○	○	×	×	×	
		4K Detail White Limiter	○	○	×	×	×	
		4K Detail Black Limiter	○	○	×	×	×	
	V DTL control mode		×	○	×	×	×	
		Detail H/V Ratio	○	○	×	×	×	
		HD Detail H/V Ratio	○	○	×	×	×	
		4K Detail H/V Ratio	○	○	×	×	×	
	Level Dep. Off		○	○	×	×	×	
		Detail Level Depend	○	○	×	×	×	
		HD Detail Level Depend	○	○	×	×	×	
		4K Detail Level Depend	○	○	×	×	×	

Continued

Function	Switch Item	Analog Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	OHB File	Note
Detail	Knee Aparture On		○	○	×	×	×	
		Knee Aparture	○	○	×	×	×	
		HD Detail Knee Aperture	○	○	×	×	×	
		4K Detail Knee Aperture	○	○	×	×	×	
HDR Operation	Live HDR		×	×	×	×	×	
		SDR Gain	×	×	×	×	×	
		HDR Black Offset	×	×	×	×	×	
	HDR Knee ON		×	×	×	×	×	
		Knee Point	×	×	×	×	×	
		Knee Slope	×	×	×	×	×	
	HDR White Clip ON		×	×	×	×	×	
		HDR White Clip	×	×	×	×	×	
	HDR Black Clip ON		×	×	×	×	×	
	HDR Black Compression ON		×	×	×	×	×	
Skin Detail	Skin DTL On		○	○	×	×	×	
	Natural Skin Detail 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 1 Limit	○	○	×	×	×	
	Skin 2 On		○	○	×	×	×	
	Skin 2 Gate On		×	×	×	×	×	
		Skin 2 Level	○	○	×	×	×	
		Skin 2 Phase	○	○	×	×	×	
		Skin 2 Width	○	○	×	×	×	
		Skin 2 Sat	○	○	×	×	×	
		Skin 2 Limit	○	○	×	×	×	
	Skin 3 On		○	○	×	×	×	
	Skin 3 Gate On		×	×	×	×	×	
		Skin 3 Level	○	○	×	×	×	
		Skin 3 Phase	○	○	×	×	×	
		Skin 3 Width	○	○	×	×	×	
		Skin 3 Sat	○	○	×	×	×	
		Skin 3 Limit	○	○	×	×	×	
	Skin Detail Zoom Link ON		×	×	×	×	×	
		Skin Detail Zoom Link Tele	×	×	×	×	×	
		Skin Detail Zoom Link Wide	×	×	×	×	×	

Continued

Function	Switch Item	Analog Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	OHB File	Note
Matrix	Matrix Off		○	○	×	×	×	
	Preset Matrix on		○	○	×	×	×	
	Preset Matrix Sel		×	×	×	×	×	
	User Matrix on		○	○	×	×	×	
		R-G	○	○	×	×	×	
		R-B	○	○	×	×	×	
		G-R	○	○	×	×	×	
		G-B	○	○	×	×	×	
		B-R	○	○	×	×	×	
		B-G	○	○	×	×	×	
	Multi Matrix On		○	○	×	×	×	
		gate	×	×	×	×	×	
		Phase select	×	×	×	×	×	
		Hue	○	○	×	×	×	
		Saturation	○	○	×	×	×	
	Adaptive Matrix On		○	○	×	×	×	
	Adaptive Matrix Level		○	○	×	×	×	
Digital liner saturation	saturation on		○	○	×	×	×	
		saturation	○	○	×	×	×	
OHB matrix	OHB Matrix On		×	○	×	×	×	
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	○	○	×	×	×	
Gamma	Gamma Off		○	ON	×	×	×	
	Gamma Category Select		○	○	×	×	×	
	STANDARD Gamma Table Select		○	○	×	×	×	
	HYPER Gamma Table Select		○	○	×	×	×	
	User Gamma Table Select		○	○	×	×	×	
	Step Gamma (0.90 ～ 0.35)		○	○	×	×	×	
		R Gamma	○	○ (RGB mode)	×	×	×	
		G Gamma	○	○	×	×	×	
		B Gamma	○	○ (RGB mode)	×	×	×	
		M Gamma	○	○	×	×	×	
Knee	Knee Off		○	○	×	×	×	
		R Knee point	○	○	×	×	×	
		G Knee point	○	○	×	×	×	
		B Knee point	○	○	×	×	×	
		M Knee point	○	○	×	×	×	
		R Knee Slope	○	○	×	×	×	
		G Knee Slope	○	○	×	×	×	
		B Knee Slope	○	○	×	×	×	
		M Knee Slope	○	○	×	×	×	

Continued

Function	Switch Item	Analog Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	OHB File	Note
Knee	Knee Max On		×	OFF	×	×	×	
	Knee Saturation on		○	○	×	×	×	
		Knee saturation	○	○	×	×	×	
	Auto Knee (DCC) on		○	○	×	×	×	
		Auto Knee Point Limit	○	○	×	×	×	
		Auto Knee Slope	○	○	×	×	×	
White Clip	White Clip Off		○	ON	×	×	×	
		R White Clip	○	○	×	×	×	
		G White Clip	○	○	×	×	×	
		B White Clip	○	○	×	×	×	
		M White Clip	○	○	×	×	×	
Noise Suppression	Noise Suppression ON		○	○	×	×	×	
	Level		○	○	×	×	×	
Chroma Filter	Chrome Filter Type		×	×	×	×	×	
Mono Color	Mono Color On		○	OFF	-	-	-	Connected with CCU only
		Mono Color Saturation	○	○	-	-	-	Connected with CCU only
		Mono Color Hue	○	○	-	-	-	Connected with CCU only
SD Detail	SD Detail Off		○	○	-	-	-	Connected with CCU only
		SD Detail Level	○	○	-	-	-	Connected with CCU only
		SD Detail Limiter	○	○	-	-	-	Connected with CCU only
		SD Detail White Limiter	○	○	-	-	-	Connected with CCU only
		SD Detail Black Limiter	○	○	-	-	-	Connected with CCU only
		SD Detail Crispening	○	○	-	-	-	Connected with CCU only
		SD H Detail Frequency	○	○	-	-	-	Connected with CCU only
		SD Detail H/V Ratio	○	○	-	-	-	Connected with CCU only
		SD Detail Level Depend	○	○	-	-	-	Connected with CCU only
		SD Detail Comb	○	○	-	-	-	Connected with CCU only
Cross Color Reduce	Cross Color Reduce Off		○	○	-	-	-	Connected with CCU only
		Cross Color Reduce Level	○	○	-	-	-	Connected with CCU only
		Cross Color Reduce Coring	○	○	-	-	-	Connected with CCU only

Continued

Function	Switch Item	Analog Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	OHB File	Note
SD Matrix	SD Matrix Off		○	○	-	-	-	Connected with CCU only
	SD Preset Matrix On		○	○	-	-	-	Connected with CCU only
	SD User Matrix On		○	○	-	-	-	Connected with CCU only
		R-G	○	○	-	-	-	Connected with CCU only
		R-B	○	○	-	-	-	Connected with CCU only
		G-R	○	○	-	-	-	Connected with CCU only
		G-B	○	○	-	-	-	Connected with CCU only
		B-R	○	○	-	-	-	Connected with CCU only
		B-G	○	○	-	-	-	Connected with CCU only
SD Matrix		Hue	○	○	-	-	-	Connected with CCU only
		Saturation	○	○	-	-	-	Connected with CCU only
SD Gamma	SD Gamma Off		○	ON	-	-	-	Connected with CCU only
		SD M Gamma	○	○	-	-	-	Connected with CCU only
Digital extender	digital extender on		×	×	×	×	×	

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	-	-	-	○	-	
	D.EXT	-	-	-	○	-	
	GAIN	-	-	-	○	-	
	SHUTTER	-	-	-	○	-	
	BATT	-	-	-	○	-	
	RETURN	-	-	-	○	-	
	TALK	-	-	-	○	-	
	MESSAGE	-	-	-	○	-	
	FOLLOW F	-	-	-	○	-	
	FORCUS NAME	-	-	-	○	-	
	FOCUS FORM	-	-	-	○	-	
! IND	ND	-	-	-	○	-	
	CC	-	-	-	○	-	
	WHITE	-	-	-	○	-	
	5600K	-	-	-	○	-	
	GAIN	-	-	-	○	-	
	SHUTTER	-	-	-	○	-	
	FAN	-	-	-	○	-	
	EXT	-	-	-	○	-	
	Y TALLY	-	-	-	○	-	
VF MARKER	MARKER	-	-	-	○	-	
	LEVEL	-	-	-	○	-	
	CENTER	-	-	-	○	-	
	SAFETY ZONE	-	-	-	○	-	
	EFFECT	-	-	-	○	-	
	ASPECT	-	-	-	○	-	
	MASK	-	-	-	○	-	
	SAFETY	-	-	-	○	-	
VF DETAIL	VF DETAIL	-	-	-	○	-	
	CRISP	-	-	-	○	-	
	FREQUENCY	-	-	-	○	-	
	FLICKER	-	-	-	○	-	
	AREA	-	-	-	○	-	
	ZOOM LINK	-	-	-	○	-	
	COLOR DETAIL	-	-	-	○	-	
	PEAK COLOR	-	-	-	○	-	
	CHROMA LEVEL	-	-	-	○	-	
	RETURN DISABLE	-	-	-	○	-	
FOCUS POSITION METER1	FOCUS POSITION METER	-	-	-	○	-	
	NEAR LIMIT	-	-	-	○	-	
	FAR LIMIT	-	-	-	○	-	
	DIRECTION	-	-	-	○	-	
	SIZE	-	-	-	○	-	
	RULED LINE	-	-	-	○	-	
	INDEX COLOR	-	-	-	○	-	
	INDEX WIDTH	-	-	-	○	-	
	MARKER WIDTH	-	-	-	○	-	
FOCUS POSITION METER2	ADJUSTED SIGN	-	-	-	○	-	
	SENSE	-	-	-	○	-	
	NAME DISP	-	-	-	○	-	
	FRAME DISP	-	-	-	○	-	
	FRAME WIDTH	-	-	-	○	-	
	MARKER CONFIG	-	-	-	-	-	

Continued

Menu	Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	OHB File	Note
FOCUS ASSIST	INDICATOR	-	-	-	○	-	
	MODE	-	-	-	○	-	
	LEVEL	-	-	-	○	-	
	GAIN	-	-	-	○	-	
	OFFSET	-	-	-	○	-	
	AREA MAKER	-	-	-	○	-	
	SIZE	-	-	-	○	-	
	POSITION	-	-	-	○	-	
	POSITION H	-	-	-	○	-	
	POSITION V	-	-	-	○	-	
ZEBRA	ZEBRA	-	-	-	○	-	
	ZEBRA1	-	-	-	○	-	
	LEVEL	-	-	-	○	-	
	WIDTH	-	-	-	○	-	
	ZEBRA2	-	-	-	○	-	
CURSOR	CURSOR	-	-	-	○	-	
	LEVEL	-	-	-	○	-	
	BOX/CROSS	-	-	-	○	-	
	H POSITION	-	-	-	○	-	
	V POSITION	-	-	-	○	-	
	WIDTH	-	-	-	○	-	
	HEIGHT	-	-	-	○	-	
	BOX MEMORY	-	-	-	○	-	
	H POSI	-	-	-	○	-	
	V POSI	-	-	-	○	-	
	WIDTH	-	-	-	○	-	
	HEIGHT	-	-	-	○	-	
SPIRIT LEVEL	INDICATOR	-	-	-	○	-	
	MODE	-	-	-	○	-	
	REVERSE	-	-	-	○	-	
	SCALE	-	-	-	○	-	
	H POSITION	-	-	-	○	-	
	V POSITION	-	-	-	○	-	
	OFFSET	-	-	-	○	-	
VF OUT	VF OUT	-	-	-	○	-	
	CHARACTER LEVEL	-	-	-	○	-	
	PinP	-	-	-	○	-	
	POSITION	-	-	-	○	-	
	SIZE	-	-	-	○	-	
	MODE	-	-	-	○	-	
SWITCH ASSIGN1	GAIN	-	-	-	○	-	
	ASSIGNABLE	-	-	-	○	-	
	VF ASSIGN	-	-	-	○	-	
	VF OUT SW	-	-	-	○	-	
SWITCH ASSIGN2	LENS VTR S/S	-	-	-	○	-	
	FRONT RET1	-	-	-	○	-	
	FRONT RET2	-	-	-	○	-	
	HANDLE SW1	-	-	-	○	-	
	HANDLE SW2	-	-	-	○	-	
	ZOOM SPEED	-	-	-	○	-	
REAR FUNCTION SWITCH	A PUSH	-	-	-	○	-	
	B PUSH	-	-	-	○	-	
	C PUSH	-	-	-	○	-	
	A ROT	-	-	-	○	-	
	B ROT	-	-	-	○	-	
	C ROT	-	-	-	○	-	
EXT SWITCH	RET CTRL CONNECTOR	-	-	-	○	-	
	RET1 Pin5:	-	-	-	○	-	
	RET2 Pin6:	-	-	-	○	-	
	RET3 Pin4:	-	-	-	○	-	
	INCOM1 Pin1:	-	-	-	○	-	
	INCOM2 Pin2:	-	-	-	○	-	

Continued

Menu	Item	SCENE File	REFERENCE File	LENS File	OPERATOR File	OHB File	Note
RETURN	RET1 SW SEL	-	-	-	○	-	
	RET2 SW SEL	-	-	-	○	-	
	RET3 SW SEL	-	-	-	○	-	
	RET1 SW-RET2 SW	-	-	-	○	-	
HEADSET MIC	INTERCOM1	-	-	-	○	-	
	LEVEL	-	-	-	○	-	
	POWER	-	-	-	○	-	
	UNBAL	-	-	-	○	-	
	INTERCOM2	-	-	-	○	-	
	LEVEL	-	-	-	○	-	
	POWER	-	-	-	○	-	
	UNBAL	-	-	-	○	-	
	EARPHONE	-	-	-	○	-	
	LEVEL	-	-	-	○	-	
INTERCOM 1	INTERCOM1 RECEIVE SELECT	-	-	-	○	-	
	INTERCOM	-	-	-	○	-	
	PGM1	-	-	-	○	-	
	PGM2	-	-	-	○	-	
	PGM3	-	-	-	○	-	
	TRACKER	-	-	-	○	-	
	SIDE TONE	-	-	-	○	-	
	INTERCOM1/2	-	-	-	○	-	
	MIX TALK	-	-	-	○	-	
INTERCOM 2	INTERCOM2 RECEIVE SELECT	-	-	-	○	-	
	INTERCOM	-	-	-	○	-	
	PGM1	-	-	-	○	-	
	PGM2	-	-	-	○	-	
	PGM3	-	-	-	○	-	
	TRACKER	-	-	-	○	-	
	SIDE TONE	-	-	-	○	-	
	INTERCOM1/2	-	-	-	○	-	
	MIX TALK	-	-	-	○	-	
TRACKER	TRACKER RECEIVE SELECT	-	-	-	○	-	
	INTERCOM	-	-	-	○	-	
	PGM1	-	-	-	○	-	
	PGM2	-	-	-	○	-	
	PGM3	-	-	-	○	-	
	INPUT LEVEL	-	-	-	○	-	
	OUTPUT LEVEL L-CH	-	-	-	○	-	
	OUTPUT LEVEL R-CH	-	-	-	○	-	
	OUTPUT LEVEL 2	-	-	-	○	-	
EARPHONE	EARPHONE RECEIVE SELECT	-	-	-	○	-	
	INTERCOM	-	-	-	○	-	
	PGM1	-	-	-	○	-	
	PGM2	-	-	-	○	-	
	PGM3	-	-	-	○	-	
	TRACKER	-	-	-	○	-	
	SIDE TONE	-	-	-	○	-	
	MIX TALK	-	-	-	○	-	

Section 7
Setup Menu

7-1. Overview of 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

7-1-1. How to Display the SERVICE Menu/ How to Change the Setting Values

How to Display the SERVICE Menu

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

How to Change the Setting Values

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: Press the STATUS/CANCEL switch toward the “CANCEL” side.
After the setting value is entered, the setting cannot be canceled.

7-1-2. 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 and setting of the resume of filter position are available.
Refer to the description in “7-2. SERVICE Menu”.

7-2. SERVICE Menu

This unit is provided with the SERVICE menu that is useful for maintenance and adjustment of the camera.
The menu content is displayed on the viewfinder.
As for how to display the SERVICE menu, refer to “7-1-1. How to Display the SERVICE Menu/ How to Change the Setting Values”.

7-2-1. SERVICE Menu List

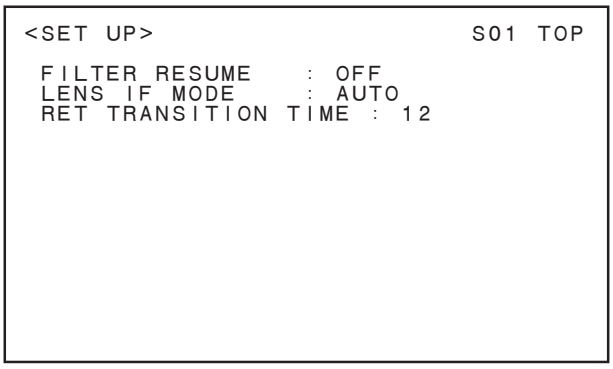
Menu No.	Menu Page Name	Remarks	Reference page
S01	SET UP	Resume setting of filter position, Lens communications setting, Return transition time setting	page 177
S02	CC FILTER	Color temperature conversion filter setting	page 177
S03	MANUAL RPN	Manual RPN compensation	page 178
S04	RPN MANAGE	RPN automatic detection	page 178
S05	OHB-ADJ1	Sensitivity adjustment	page 178
S06	BLACK SHADING	Black shading adjustment	page 179
S07	WHITE SHADING	White shading adjustment	page 179
S08	INTERCOM	INTERCOM 2 input/output interface setting	page 180
S09	SERIAL NO.	Model name displaying, Serial number displaying	page 181
S10	OPTION	Gain extend, Chroma filter characteristic setting, Microphone AB power active setting, VR overflow setting, Stereo setting of the front microphone	page 181
S11	SCENE FILE CUSTOMIZE	Additional items setting	page 181
S12	UPDATE	Executing VERSION UP or displaying VERSION. ALL IN PACKAGE FILE is not used in this model.	page 182
S13	RF MONITOR	Reception state of the RF signal displaying	page 182
S14	CD BASEBAND MONITOR 1	Reception state of the sync and the audio displaying	page 183
S15	CD BASEBAND MONITOR 2	Used at the time of factory shipment	page 183
S16	REFRESH SERIAL NO.	Model name, recovery data of the serial number reading FeliCa ID displaying	page 183
S17	VCO ADJUST	Used at the factory default	Page 184

7-2-2. Description of SERVICE Menu

Tip

The display screen appearing in this section shows the factory settings.

SET UP



FILTER RESUME

When the FILTER LOCAL button is set to ON and OFF in these cameras, the filter position of camera operates as follows by setting the FILTER RESUME.
ON: Filter position before the FILTER LOCAL button is set to ON.
OFF: Filter position is not changed.

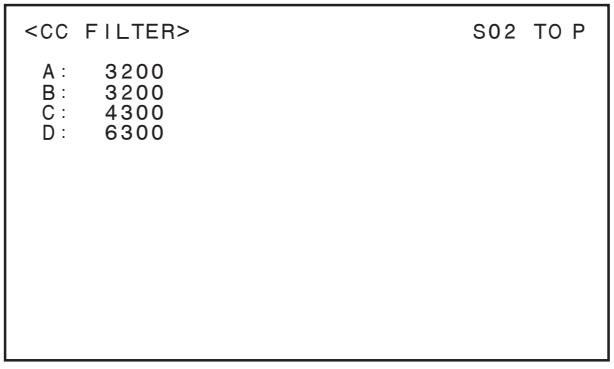
LENS IF MODE

When a lens that is able to communicate with a camera through the serial interface, the interface mode can be changed forcibly to the parallel interface.
AUTO: Sets an interface automatically.
PARA: Sets a parallel interface forcibly.

RET TRANSITION TIME

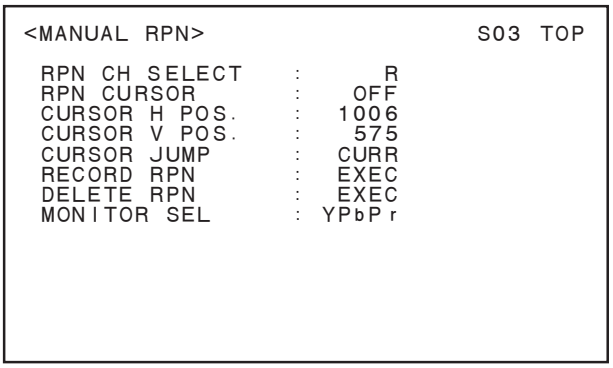
Sets the transition time of the RET signals.

CC FILTER



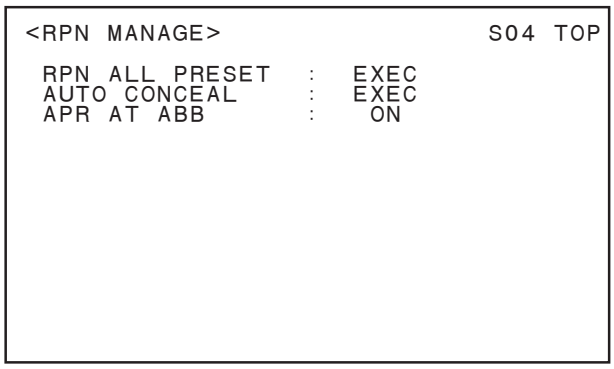
When the CC filter is replaced with a nonstandard color temperature conversion filter, change this setting. However, when the CC filter is replaced with a filter without color temperature conversion, such as cross filter, set 3200K. This setting is a reference for color temperature display and the color temperature control function.

MANUAL RPN



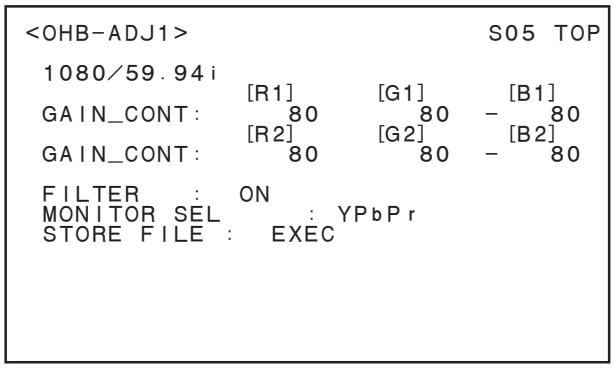
The MANUAL RPN menu is used for manual RPN compensation. For details, refer to “4-6-2. Manual RPN Compensation Adjustment Preparation”.

RPN MANAGE



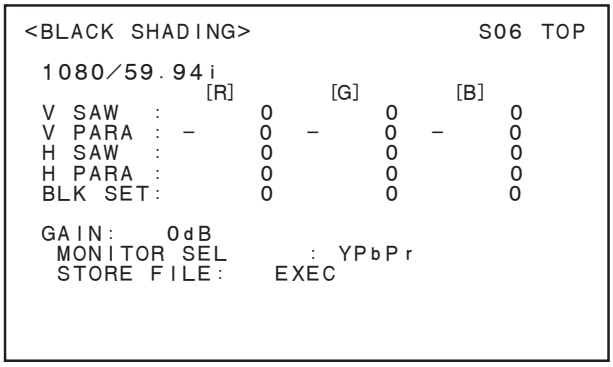
The RPN MANAGE menu is used for RPN compensation setting and management. For details, refer to “4-6-4. Performing Automatic RPN Detection Effectively”.

OHB-ADJ1



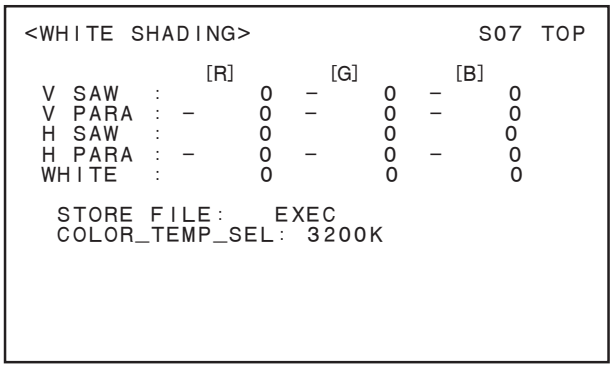
The OHB_ADJ1 menu is used for adjustment of the CMOS block. For details, refer to “4-3-1. Sensitivity Adjustment”.

BLACK SHADING



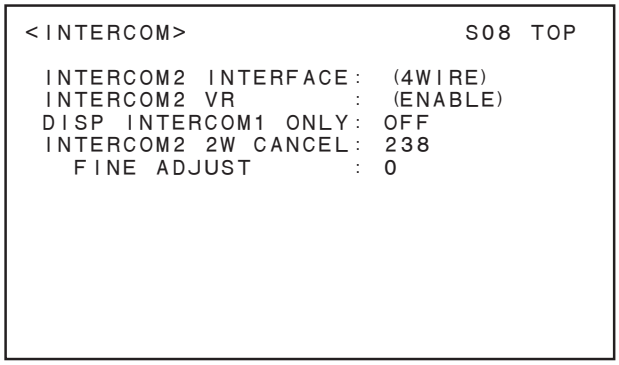
The BLACK SHADING menu is used for adjustment of the black shading. For details, refer to “4-3-2. Black Shading Adjustment”.

WHITE SHADING



The WHITE SHADING menu is used for adjustment of the white shading. For details, refer to “4-3-3. White Shading Adjustment”.

INTERCOM



The intercom displays current settings of the input/output interface of INTERCOM 2.

DISP INTERCOM1 ONLY

When DISP INTERCOM1 ONLY is set to “ON”, only INTERCOM1 is displayed.

INTERCOM2 2W CANCEL

When INTERCOM2 is used with 2 WIRE, adjust the value.

FINE ADJUST

Adjust the value of “INTERCOM2 2W CANCEL” more finely.

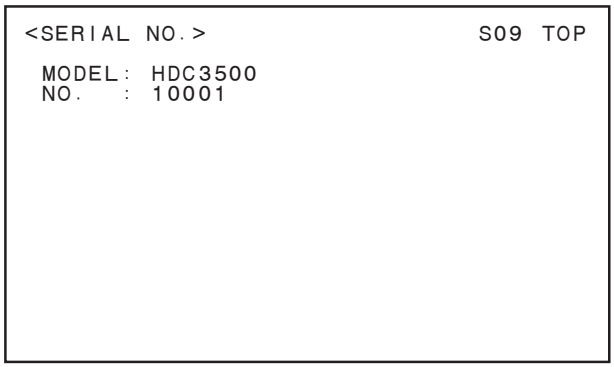
Note

When INTERCOM2 is used with 2 WIRE, a change of hardware is required.
For more information, contact your local Sony Sales Office/Service Center.

SERIAL NO.

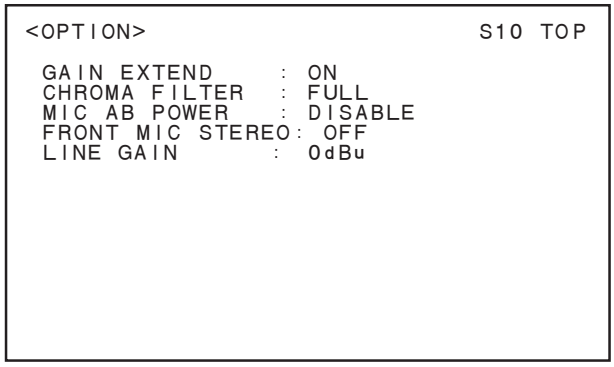
Tip

The display screen is the case of serial number 10001 of HDC3500.



The SERIAL NO. menu is used for displaying the current model name and serial number.

OPTION



GAIN EXTEND

When GAIN EXTEND is set to “ON”, the master gain is extended up to + 36 dB.
When it is set to “OFF”, the master gain is extended to + 12 dB.

CHROMA FILTER

CHROMA FILTER is used for Chroma filter characteristic setting.

MIC AB POWER

It is used in the microphone power setting.
When MIC AB POWER is set to “ENABLE” and the microphone power switch on the connector panel at the rear of the unit is set to “•” (down), AB POWER (12 V) is supplied to the microphone.

Note

When the microphone power switch is set to “•” (down) with this function enabled, do not connect any microphone that does not support AB POWER. If such microphone is connected, it may be damaged.

FRONT MIC STEREO

Change the front microphone to the stereo. However, a change of hardware is required.
For more information, contact your local Sony Sales Office/Service Center.

LINE GAIN

Line input level can be changed +4 dBu.

SCENE FILE CUSTOMIZE

```
<SCENE FILE CUSTOMIZE>          S11 TOP

 IRIS                : OFF
 MASTER WHITE GAIN   : OFF
 WHITE SHADING       : OFF
 V MOD SAW           : OFF
```

The SCENE FILE CUSTOMIZE menu is used for applying additional options.
Set the additional items to “ON” if necessary.

UPDATE

```
<UPDATE>                        S12 TOP

 ALL    : Vx.xx xxx/xx/xxxx
```

The UPDATE menu is used for executing VERSION UP or displaying VERSION on the ALL IN PACKAGE FILE.
ALL IN PACKAGE FILE is not used in this model.

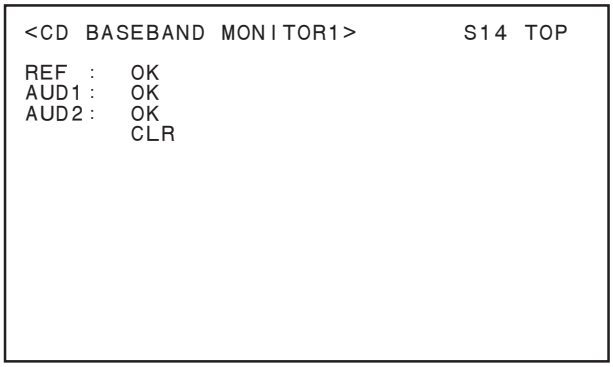
RF MONITOR

```
<RF MONITOR>                    S13 TOP

        R1    R2
RSSI: -12.1-11.3
DMDL:  LOCK LOCK
SNR :  30.9 34.3
       30.9 34.3
MER :  30.3 33.2
       30.3 33.2
LBER: 8.6e37.7e4
BBER: 0.0e00.0e0
I   :     3    1
IMX :     6    3
FEC :     1    0
  TUNE        IMAX RST   LENGTH 0m
  RSSI READ   FEC  RST   STATUS DET
```

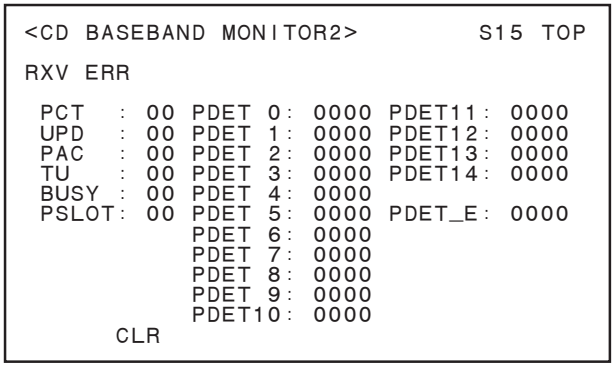
The RF MONITOR menu displays the signal reception status of the Digital-Triax model. (Factory use)

CD BASEBAND MONITOR1



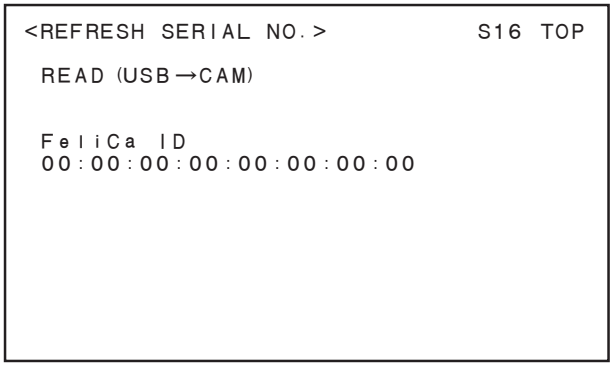
(Factory use)

CD BASEBAND MONITOR2



(Factory use)

REFRESH SERIAL NO.



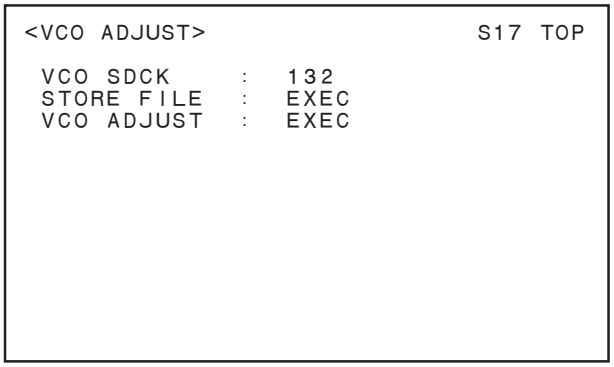
READ

READ is used for reading the model name stored in the USB drive and the recovery data on the serial number.
After replacement of AT board or NET board, perform this menu.

FeliCa ID

FeliCa ID displays ID of the FeliCa chip mounted on the camera.

VCO ADJUST



(Factory use)

Section 8
Circuit Description

8-1. Optical System (OHB Block)

8-1-1. BI-358 Board

The BI-358 board contains a 2/3-inch CMOS image sensor (IC001), a thermometer (IC007), and power ICs (IC003, IC005) for analog circuits.
The common BI-358 board is used for R, G, and B respectively.

8-1-2. IF-1331 Board

The IF-1331 board contains a CMOS image sensor power circuit and a flash memory IC (IC010) that stores RPN automatic compensation (APR) data and sensor adjustment data.

8-1-3. DR-697 Board

The DR-697 board contains a CPU (IC001) and Motor Drivers (IC002, IC006) that control Filter Disc Unit.

8-1-4. SE-1197 Board

The SE-1197 board contains a potentiometer that detects a position of the Filter Disc Unit.

8-2. Signal Processing/Transmission System

8-2-1. DPR-390 Board

The imaging signal that is input from the BI-358 board (R/G/B) is corrected by the camera signal processor ASIC IC (IC500). Then paint processing is added to the corrected signal in the camera processor IC (IC800).
The FPGA (IC1100) performs baseband signal processing. The ASIC ICs and the FPGA have the following functions.

- Correction processor ASIC (IC500)
  Correction processing (defects, shading, etc.)
- Paint processor ASIC (IC800)
  Camera process processing (Knee, Gamma, etc.) and enhanced processing
- Baseband processor FPGA (IC1100)
  Generating SDI signal
  Multiplexing audio signal with the main-line signal
  Separating prompter video signal, audio signal, and command multiplexed with the return signal
  Generating video signal for the viewfinder
  Down-conversion to SD signal
  Converting optical serial signal to/from the camera control unit (CCU) to parallel signal
- Equipped with an analog video D/A converter and a reference clock signal generator

8-2-2. TX-164 Board

The TX-164 board is used with the HDC3500 or color camera equipped with the HKC-FB30 (option).
This board multiplexes the HD-SDI signal from the DPR-390 board using the FPGA IC (IC200), and then sends the multiplexed signal to the CCU through the mounted optical module.
The TX-164 board separates the return signal sent from the CCU from the prompter signal and other signals using the FPGA IC (IC200).
The interface IC (IC500) on the TX-164 board performs mutual communication of the Ethernet signal. The TX-164 board has functions to multiplex the received Ethernet signal using the FPGA IC (IC200) and then send the multiplexed signal to the CCU, and to separate the Ethernet signal from the return signal sent from the CCU using the FPGA IC (IC200) and then output the Ethernet signal from the interface IC (IC500).
The FPGA IC (IC200) has the following functions.

- Return signal processing
  Separating the 700 protocol signal sent from the CCU
  Separating prompter 1 and prompter 2 signals
  Separating the network trunk signal
- Main-line signal processing
  Multiplexing the 700 protocol signal sent to the CCU
  Multiplexing the network trunk signal
- Side-panel input/output interface
  SDI1 output (J601) (main-line signal, HD prompter signal)
  SDI2 input/output (J600) (main-line signal output, HD trunk input (with CCU connected) / return input (standalone))
  Prompter 2 output (J1100)

8-2-3. TX-165 Board

The TX-165 board is used with the HDC5500 or color camera equipped with the HKC-FB50 (option).
This board multiplexes the SDI signal from the DPR-390 board using the FPGA IC (IC200), and then sends the multiplexed signal to the CCU through the mounted optical module.
The TX-165 board separates the return signal sent from the CCU from the prompter signal and other signals using the FPGA IC (IC200).
The interface IC (IC500) on the TX-165 board performs mutual communication of the Ethernet signal. The TX-165 board has functions to multiplex the received Ethernet signal using the FPGA IC (IC200) and then send the multiplexed signal to the CCU, and to separate the Ethernet signal from the return signal sent from the CCU using the FPGA IC (IC200) and then output the Ethernet signal from the interface IC (IC500).
The FPGA IC (IC200) has the following functions.

- Return signal processing
  Separating the 700 protocol signal sent from the CCU
  Separating analog prompter signal
  Separating HD/UHD prompter signal
  Separating the network trunk signal
- Main-line signal processing
  Multiplexing the 700 protocol signal sent to the CCU
  Multiplexing the network trunk signal
  Multiplexing the HD/UHD trunk signal
- Side-panel input/output interface
  SDI1 output (J601) (main-line signal, UHD prompter signal)
  SDI2 input/output (J600) (main-line signal output, HD/UHD trunk input (with CCU connected) / return input (standalone))
  SDI3 output (J1101) (HD prompter signal)

8-2-4. CN-4001/4047 Board

The CN-4001 board is used with the HDC3500 or color camera equipped with the HKC-FB30 (option), and the CN-4047 board is used with the HDC5500 or color camera equipped with the HKC-FB50 (option).
This board contains a connector for network trunk.

- RJ45 connector (CN002)

8-2-5. CN-4007/4048 Board

The CN-4007 board is used with the HDC3500 or color camera equipped with the HKC-FB30 (option), and the CN-4048 board is used with the HDC5500 or color camera equipped with the HKC-FB50 (option).
This board contains a peripheral circuit for controlling electronic paper and a LED driver IC (IC005) for Tally.

8-3. TRIAX Transmission System

8-3-1. CD-91 Board

The CD-91 board is used with the color camera equipped with the HKC-TR37 (option).
This board performs encoding and OFDM modulation processing of the serial main-line video signal (audio signal multiplexed) sent from the DPR-390 board, and then outputs the processed signal to the TR-170 board. The CD-91 board also decodes the data stream of the OFDM-demodulated return line sent from the TR-170 board into the return video signal, prompter video signal, audio signal, and command signal, and then outputs these signals to the DPR-390 board. The FPGA ICs and the codec IC have the following functions.

Serial/parallel converter FPGA (IC1001/CD-91 board)

- Converting the serial main-line video signal from the DPR-390 board to a parallel signal
- Converting the baseband-decoded parallel return video signals to a serial signal and outputting the serial signal to the DPR-390 board
- Side-panel output interface: SDI1output (J1201) (main-line video signal)

Video CODEC and OFDM modulator FPGA (IC2001/CD-91 board)

- Separating audio signal from the main-line video signal
- Encoding the main-line video signal
- OFDM-modulating the encoded main-line video/audio signals and command signal and outputting the D/A-converted RF-modulated signal to the TR-170 board
- Separating the return video data stream, prompter video data stream, audio signal, and command signal from the OFDM-demodulated data stream sent from the TR-170 board
- Decoding the separated return video data stream into a baseband signal
- Multiplexing audio signal with the decoded return video signal
- Generating a CCU synchronization signal from the TRIAX synchronization signal sent from the TR-170 board

Prompter video codec IC (IC3001/CD-91 board)

- Decoding the prompter video data stream separated in IC2001 into a baseband signal
- Converting the decoded prompter video signal to a composite signal and outputting the composite signal to the DPR-390 board

8-3-2. TR-170 Board

The TR-170 board is used with the color camera equipped with the HKC-TR37 (option).
This board amplifies the main-line RF-modulated signal generated on the CD-91 board according to the cable length, and then outputs the signal to the FL-380 board through the MPX filter.
The TR-170 board also separates the return-line RF-modulated signal sent from the CCU using the MPX filter through the FL-380 board, then demodulates the signal using the OFDM demodulator (IC505, IC507/TR-170 board), and then outputs the demodulated signal as a data stream to the CD-91 board.
Furthermore, the TR-170 board extracts the FM signal with the MPX filter and the bandpass filter from the RF signal sent from the CCU, then demodulates the extracted signal using the demodulator (IC603/TR-170 board), and then outputs the demodulated signal as a synchronization signal for the TRIAX to the CD-91 board.
Finally, using the CPLD (IC1001/TR-170 board), the TR-170 board modulates the camera power switch condition (CCU/EXT) and the information equivalent to the cable length detected by the camera as a STANDBY-ID, and then outputs the modulated information to the CCU through the MPX filter and the FL-380 board.

8-3-3. FL-380 Board

The FL-380 board is used with the color camera equipped with the HKC-TR37 (option).
This board has a function to separate the DC power voltage (+240 V) from the RF signal sent from the CCU with the TRIAX cable. The separated RF signal is sent to the MPX filter on the TR-170 board with the coaxial cable from the FL-380 board.
The DC power voltage (+240 V) is sent to the S-943 board (power supply block) as the power voltage for the unit from the FL-380 board.

8-3-4. CN-4063 Board

The CN-4063 board is used with the color camera equipped with the HKC-TR37 (option).
This board contains a peripheral circuit for controlling electronic paper and a LED driver (IC005) for Tally.

8-4. WIRELESS Transmission System

8-4-1. IF-1372 Board

The IF-1372 board is used with the color camera equipped with the HKC-WL50 (option).
This board is used to convert the parallel main-line signal that is input from the DPR-390 board to serial signal and send the serial signal to the wireless module as SDI signal.
The main-line signal received from the wireless module is input from J6009 and sent to the DPR-390 board.

8-4-2. CN-4074 Board

The CN-4074 board is used with the color camera equipped with the HKC-WL50 (option).
This board contains with an external power control switch (S002), and sends an ON / OFF control signal to the IF-1372 board.
In addition this board contains a D-sub connector (CN1) for external 700 protocol output and external power supply.

8-2-3. CN-4089 Board

The CN-4089 board is used with the color camera equipped with the HKC-WL50 (option).
This board contains a peripheral circuit for controlling electronic paper and a LED driver IC (IC005) for Tally.

8-5. System Control System

8-5-1. AT-195 Board

The AT-195 board consists of a system control microcomputer IC (IC001) and a peripheral circuit. The flash memory (IC401) on the board stores the main program.
The AT-195 is connected to the SY-463 board.

8-5-2. SY-463 Board

The SY-463 board consists of an FPGA IC (IC1001) and its peripheral devices. The SY-463 board also contains an interface control circuit, a video amplifier circuit, an audio signal processing circuit, and a sync separator circuit.

Interface control circuits

The interface control circuits are equipped with the following functions.

- Parallel bus communication among the AT-195 board, the DPR-390 board, and other transmission system boards
- SPI communication with image sensors
- I^2C communication with the FDU
- 700 protocol communication between the main unit and the remote control unit (RM), and between the main unit and the camera control unit (CCU)
- Trunk communication (RS-232C)
- Serial/parallel lens control
- Fan control
- Tally control
- I²C communication with the viewfinder and tally control
- Rotary encoder input
- Switch and potentiometer input
- Clock generation for audio PLL and A/D and D/A converters
- Power supply to NFC and sensors and communication control
- I^2C communication with the power supply unit

Video amplifier circuit

The following video amplifier circuits and synchronization signal selection control circuits are provided.

- Analog VF
- Build up
- Crane
- Prompter

Audio signal processing circuit

The following audio AD/DA ICs and analog/digital signal processing circuits are provided.

- Intercom1 : 1 input, 2 outputs (L/R)
- Intercom2 : 1 input, 2 outputs (L/R)
- Tracker : 1 input, 3 outputs (L/R/2)
- Earphone : 1 input, 2 outputs (L/R)
- Audio1, Audio2 : Audio1 is front or rear analog input and Audio2 is rear analog input or AES/EBU input

8-6. Interface Boards

8-6-1. SW-1738 Board

The SW-1738 board contains LOCAL, ND, CC, and ASSIGNABLE switches.
The SW-1738 board also contains an I/O expander (IC1) for switches.

8-6-2. SW-1739 Board

The SW-1739 board contains back tally LEDs (red/green/yellow), a back tally LED switch (ON/OFF), and switches for RET1 and INCOM MIC.

8-6-3. SW-1741 Board

Two types of INCOM panel (UCJ/CE) are provided. The SW-1741 board contains the following switches, potentiometers, and a rotary encoder.

【UCJ】

- Rear-panel light ON/OFF switch
- Menu switch
- PROD/MIX/ENG select switch for INCOM1/INCOM2
- LEVEL/MIC switch for INCOM1/INCOM2
- Rotary encoder for RET/ASSIGNABLE (A/B/C)
- Potentiometers (INCOM/PGM1/PGM2) for INCOM1/INCOM2

In addition to these components, the SW-1741 board also contains LEDs, LED driver ICs (IC004, IC005), I/O expander ICs (IC1, IC201) for switches, and A/D converter ICs (IC2, IC3) for potentiometers.

【CE】

- Rear-panel light ON/OFF switch
- Menu switch
- PROD/OFF/ENG select switch for INCOM1/INCOM2
- Tracker level switch
- Rotary encoder for RET/ASSIGNABLE (A/B/C)
- Potentiometers (ENG/PROD/PGM1/PGM2) for INCOM
- Potentiometer for TRACKER

In addition to these components, the SW-1741 board also contains LEDs, LED driver ICs (IC004, IC005), I/O expander ICs (IC1, IC201) for switches, and A/D converter ICs (IC2, IC3) for potentiometers.

8-6-4. SW-1746 Board

The SW-1746 board contains switches for RET1, RET2, and CALL.

8-6-5. CN-3995 Board

The CN-3995 board contains the following connectors for external interface and switches for microphone.

- TRACKER connector (CN4)
- CRANE connector (CN5)
- DC-OUT connector (CN7)
- RET control connector (CN8)
- Audio input select switches (CH1, CH2)
- MIC power switches (CH1, CH2)
  In addition, this board also contains an I/O expander for switches (IC1) and a 3-pin/4-pin earphone automatic detection IC (IC2).

8-6-6. CN-3997 Board

The CN-3997 board contains a 4 pole EARPHONE connector. (3-pin connector also supported.)
- ϕ 3.5 mm stereo mini-jack: J1

8-6-7. SW-1742 Board

The SW-1742 board contains a CAMERA POWER (camera power) switch.

8-6-8. SW-1743 Board

The SW-1743 board contains GAIN, OUTPUT/AUTO KNEE, WHITE BAL, DISPLAY, and STATUS/CANCEL switches.

8-6-9. SW-1744 Board

The SW-1744 board contains a RET1 switch.

8-6-10. SW-1745 Board

The SW-1745 board contains switches, a rotary encoder, and a potentiometer for the following functions.
- MIC power switch
- RET2 switch
- Shutter switch
- White balance switch
- Menu rotary encoder
- INCOME potentiometer

8-6-11. CN-3993 Board

The CN-3993 board contains audio input connectors.
- MIC1 IN/MIC2 IN connectors (3-pin XLR: CN2, CN4)

8-6-12. CN-3996 Board

The CN-3996 board contains a test output connector and a prompter signal output/external synchronization signal input connector.
- TEST OUT connector (BNC: CN2)
- PROMPTER/GENLOCK connector (BNC: CN1)

8-6-13. CN-3998 Board

The CN-3998 board contains a remote control connector.
- REMOTE connector (8-pin round type: CN2)

8-6-14. CN-3999 Board

The CN-3999 board contains an intercom connector.
- INTERCOM connector (5-pin XLR: CN1)
  *Two connectors of this type are mounted on the unit.

8-6-15. CN-4000 Board

The CN-4000 board contains a DC power input connector.
- DC IN connector (4-pin XLR: CN1)

8-6-16. CN-4002 Board

The CN-4002 board contains audio input connectors.

- AUDIO IN (CH1/CH2) connectors (3-pin XLR: CN1, CN2)

8-6-17. CN-4003 Board

The CN-4003 board contains two I^2C controllers (IC1, IC2) for signal input from and output to the SW-1744 and the SW-1745 boards on the front panel and the SW-1743 board and the CN-4004 board (for connection with the lens) on the inside front panel.

8-6-18. CN-4004 Board

The CN-4004 board contains a lens connection connector.

- LENS connector (12-pin round type: CN1)

8-6-19. CN-4005 Board

The CN-4005 board contains a connector compatible with an analog HD viewfinder.

- VF connector (20-pin round type: CN1)

8-6-20. CN-4011 Board

The CN-4011 board contains a USB connector for storing files and version update.

- USB connector (USB 2.0, type A: CN2)

This board also contains a USB hub IC (IC002).

8-6-21. NET-47 Board

The NET-47 board contains an NFC IC (IC1).

8-6-22. MB-1248 Board

The MB-1248 board contains an interface connector (for the SY board, DPR board, power unit, MIC, and BUILD_UP), an FRAM IC (IC009) for storing set values, an acceleration sensor (SE001), and ICs for monitoring power consumption of each board (IC004 to ICIC008).

8-7. Power Supply System

8-7-1. PS-943 Board

The PS-943 board contains +14V_UNREG AC/DC insulation converter ICs (IC201, IC2001) and CPLD (IC5003) for each output control.
This board also monitors input voltages (IC304) and 14V_Other power voltage (IC4017) by means of the I^2C interface.
The following voltages are output.

CN5002

- 13.5V_Standby
- -5.5V_Standby
- +5.5V
- -5.5V
- +14V_Unreg
- +14V_VF
- +14V_LENS&PL
- 14V_OTHER
- Fan power (for rear panel)

CN101

- Output voltages for Build Up

8-7-2. RE-347 Board

- 13.5V_Standby AC/DC insulation converter (IC102)
- -5.5V_Standby DC/DC converter (IC2001)
- +5.5V DC/DC converter (IC2002)
- -5.5V DC/DC converter (IC2003)
- Fan DC/DC converter (IC1002, 1003)

Fan power (for front panel) is output from CN1003.

Section 9
Spare Parts

9-1. Note on Repair Parts

1. Safety Related Components Warning

WARNING

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

2. Standardization of Parts

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

3. Stock of Parts

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

4. Harness

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

1. 安全重要部品

⚠警告

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

2. 部品の共通化

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

3. 部品の在庫

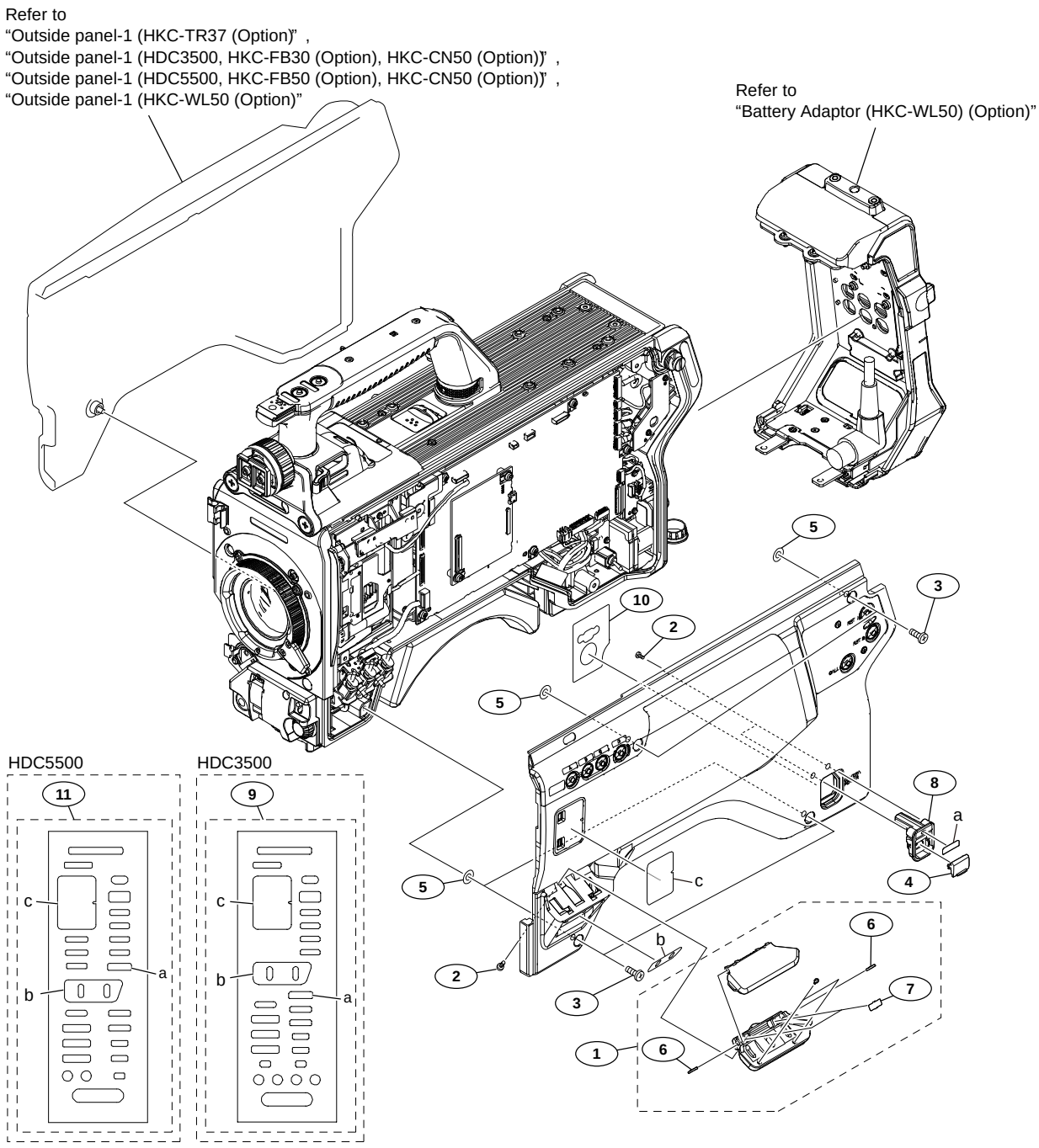
部品表のSP（Supply code）欄に “o” で示される部品は在庫していないことがあり，納期が長くなることがあります。

4. ハーネス

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

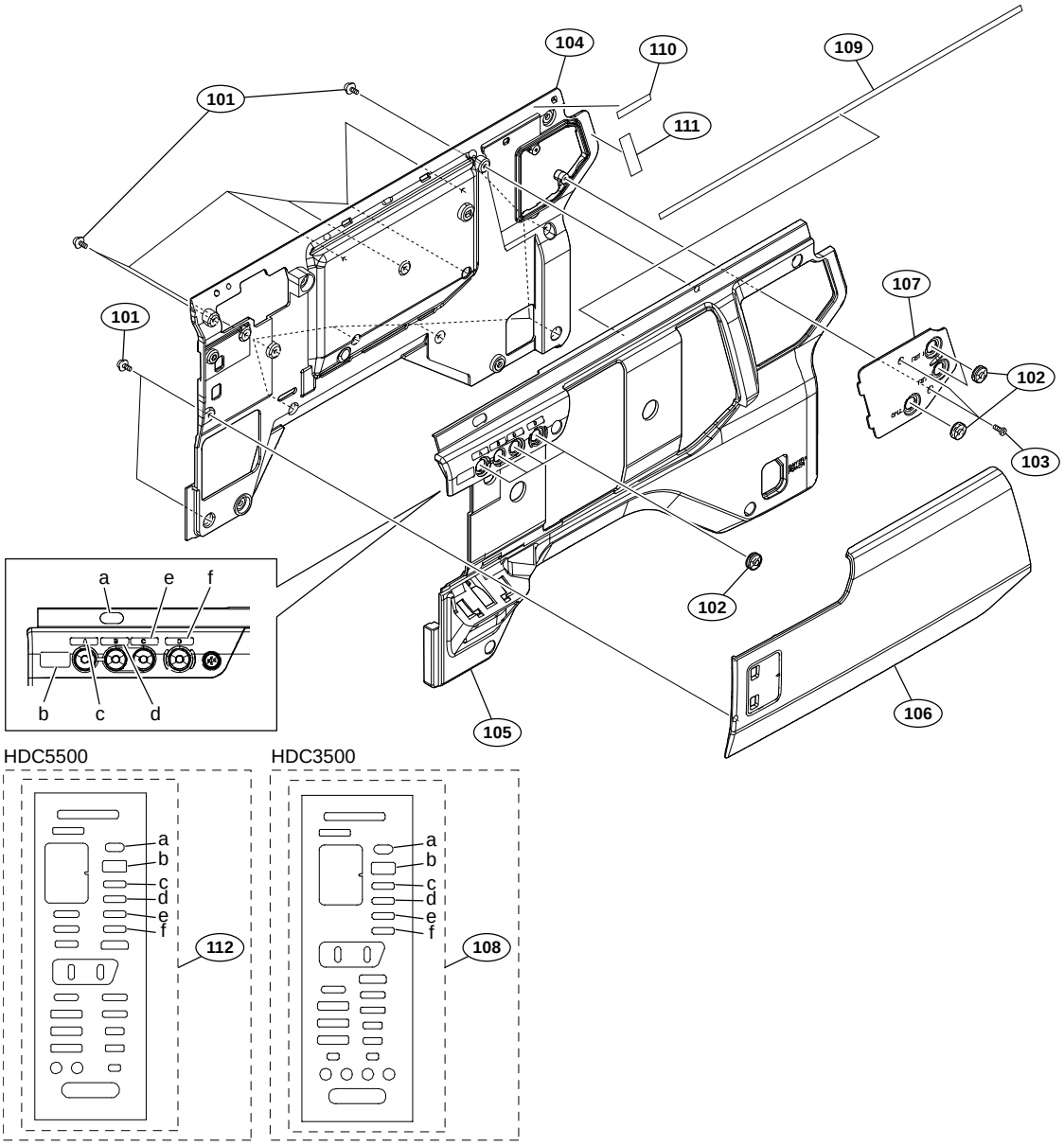
9-2. Exploded Views

Inside Panel-1



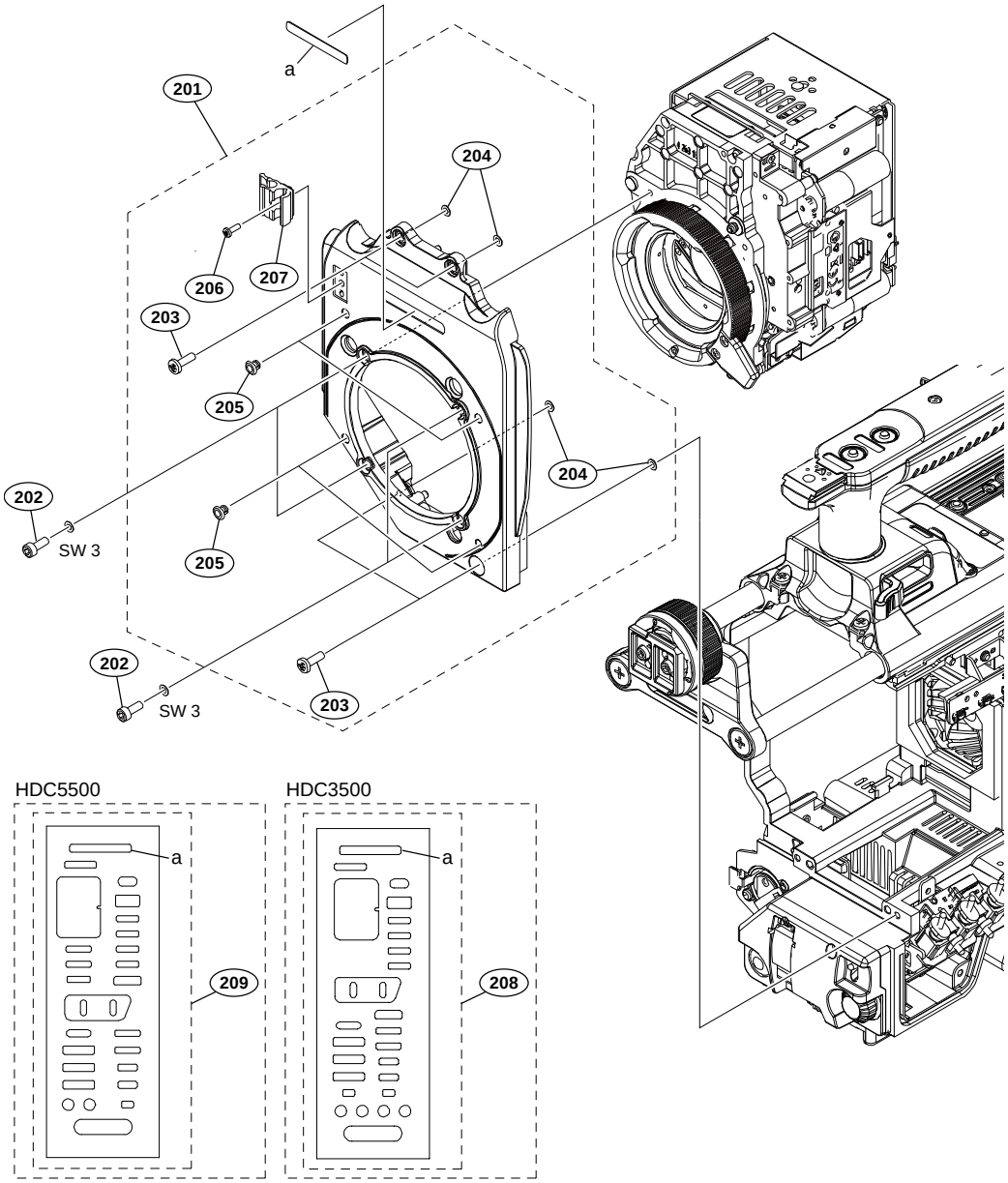
No.	Part No.	SP	Description
1	A-2227-432-A	s	INSIDE SW COVER ASSY
2	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
3	3-603-679-02	s	STAINLESS SCREW +B3X10
4	3-612-669-01	o	LID,POWER SW
5	3-701-438-11	s	WASHER, 2.5
6	3-703-575-11	s	PIN (DIA. 1.2X8), PARALLEL
7	3-742-066-11	o	SPRING, SHUTTER
8	4-400-101-01	s	POWER SW HOUSING
9	4-745-745-02	s	LABEL (860), MULTI
10	4-747-172-01	s	SHEET, INSIDE DROP PROTECTION
11	5-003-110-01	s	LABEL (870), MULTI

Inside Panel-2



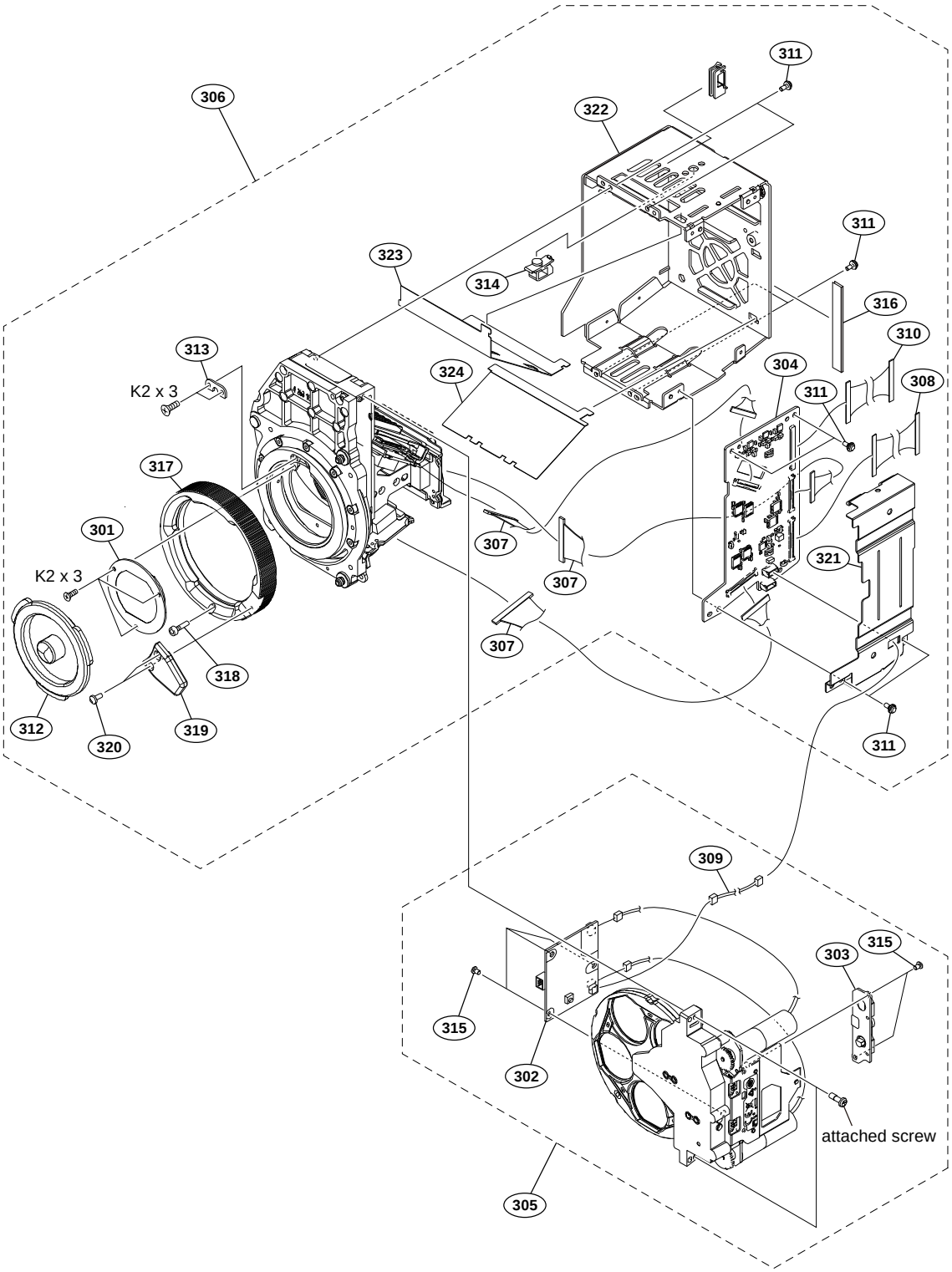
No.	Part No.	SP	Description
101	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
102	3-676-244-04	s	COVER, SWITCH
103	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)
104	4-740-577-01	s	PANEL (860), INSIDE INNER
105	4-740-578-02	s	CABINET (860), INSIDE
106	4-740-579-02	s	PAD (860), IN SIDE
107	4-740-581-02	s	PANEL, INSIDE BLIND
108	4-745-745-02	s	LABEL (860), MULTI
109	4-747-171-01	s	CUSHION, DROP PROTECTION
110	4-748-558-01	s	SHEET (A),SIDE COVER ADHESIVE
111	4-748-559-01	s	SHEET (B),SIDE COVER ADHESIVE
112	5-003-110-01	s	LABEL (870), MULTI

Front Panel



No.	Part No.	SP	Description
201	A-2227-519-A	s	FRONT PANEL ASSY (860)
202	2-623-773-11	s	BOLT (M3X8), STAINLESS
203	3-603-679-02	s	STAINLESS SCREW +B3X10
204	3-701-438-11	s	WASHER, 2.5
205	4-138-679-01	s	SCREW, BLIND
206	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)
207	4-743-115-01	s	CLAMP, CABLE
208	4-745-745-02	s	LABEL (860), MULTI
209	5-003-110-01	s	LABEL (870), MULTI
	7-623-208-22	s	SW 3,TYPE 2

OHB Block


306
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313
K2 x 3
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321
K2 x 3
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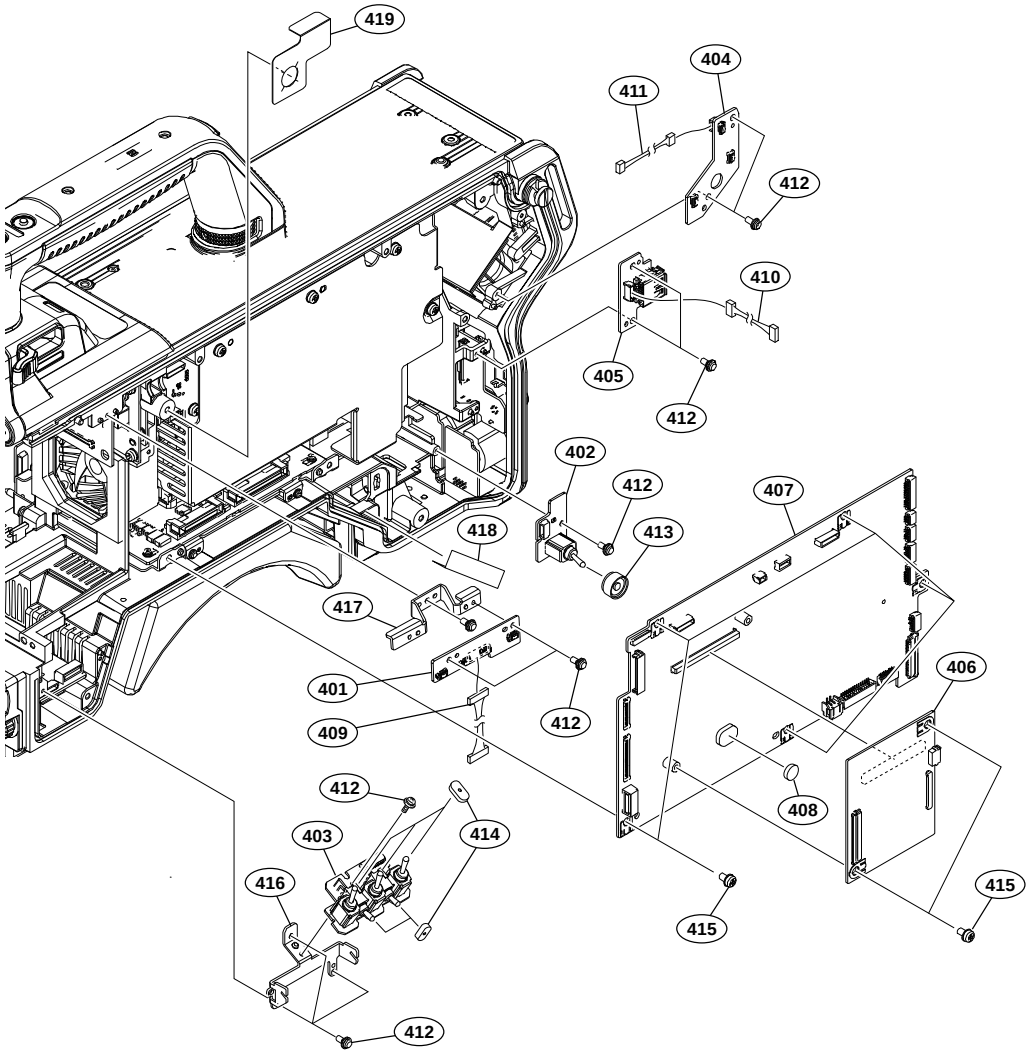
315
302
attached screw
305

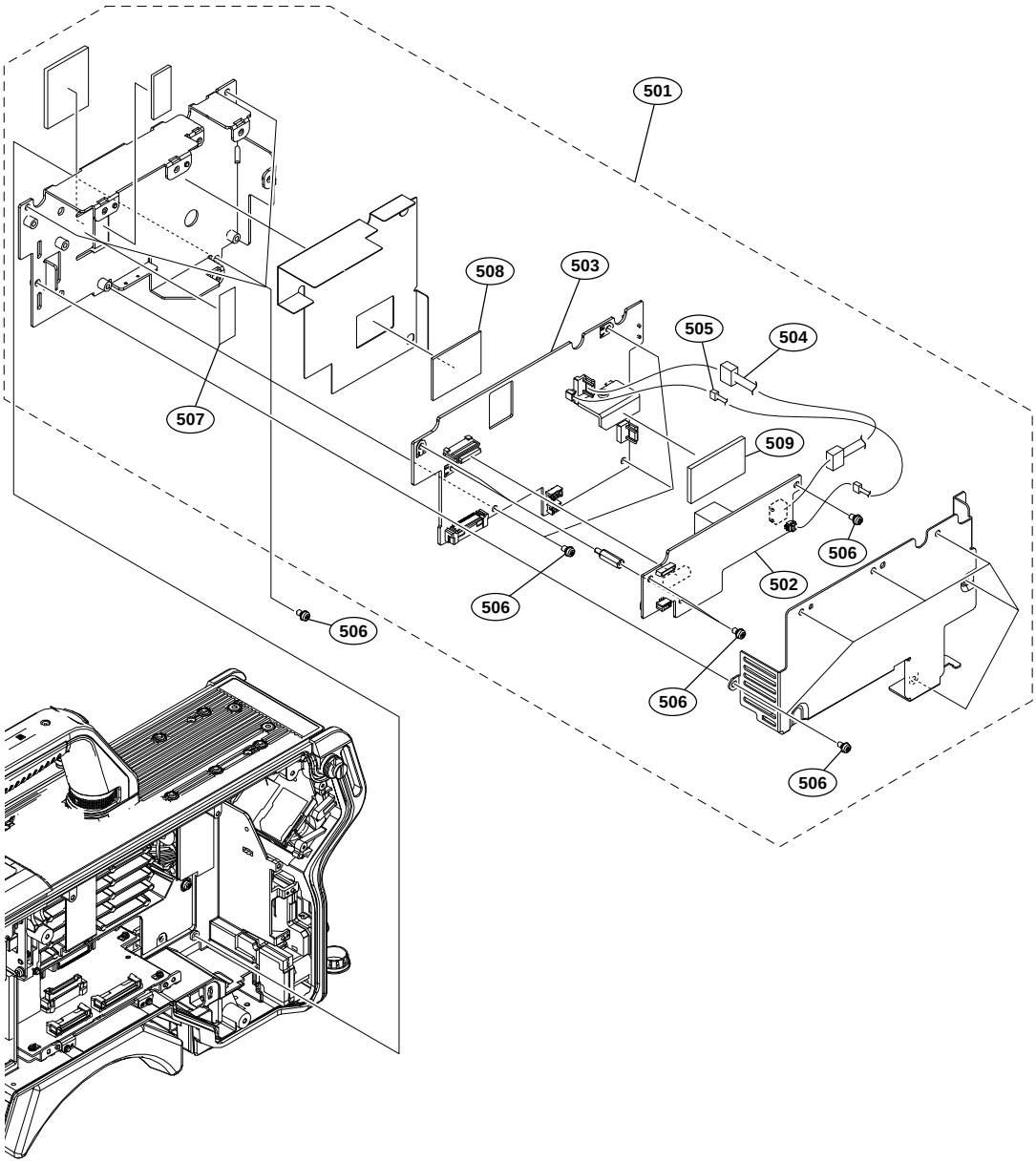
No.	Part No.	SP	Description
301	A-2144-615-A	s	OLPF ASSY
302	A-2197-779-A	s	DR-697 MOUNT
303	A-2197-780-A	s	SE-1197 MOUNT
304	A-2197-795-A	s	IF-1331 MOUNT
305	A-2229-264-A	s	FD ASSY(Z) (RP)
306	A-2231-025-A	s	CMOS BLOCK ASSY (RP)
307	1-912-824-11	s	MICRO COAXIAL CABLE (IF-BI(40))
308	1-912-825-11	s	MICRO COAXIAL CABLE (SY-IF(50))
309	1-967-833-11	s	HARNESS, SUB (FT-I2C)
310	1-971-973-21	s	HARNESS (DPR-SDI)
311	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
312	3-699-048-02	s	CAP, MOUNT
313	3-776-897-02	s	GUIDE PLATE
314	3-853-802-01	s	CLAMP,REUSE
315	3-968-729-82	s	SCREW (M2), NEW TRUSTER, P2
316	4-119-886-01	s	TAPE (13X50)
317	4-263-184-04	s	RING, BAYONET
318	4-264-474-01	s	BOLT,BHS M2X15
319	4-562-323-01	s	LEVER, MOUNT
320	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)
321	4-740-597-01	s	COVER (860), IF HOLDER
322	4-740-630-01	s	HOLDER (860),IF
323	4-740-631-01	s	SHEET (A (860)), OHB DUCT
324	4-740-632-01	s	SHEET (B (860)), OHB DUCT
	7-627-452-18	s	SCREW,PRECISION +K 2X3

SY Block



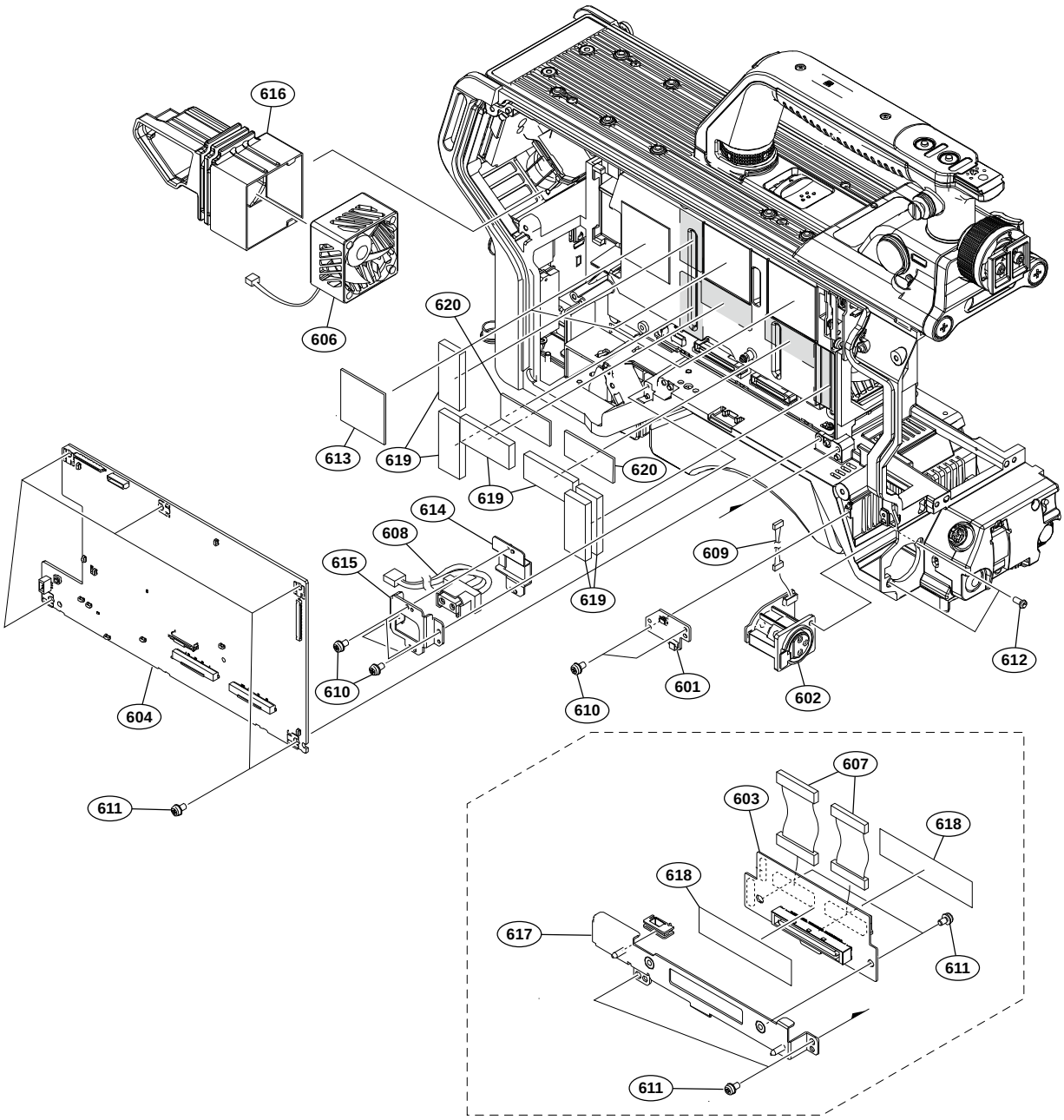
No.	Part No.	SP	Description
401	A-2197-746-A	s	SW-1738 MOUNT
402	A-2197-750-A	s	SW-1742 MOUNT
403	A-2197-751-A	s	SW-1743 MOUNT
404	A-2197-754-A	s	SW-1746 MOUNT
405	A-2197-775-A	s	CN-4011 MOUNT
406	A-2229-028-A	s	AT-195A COMPL
407	A-2229-030-B	s	SY-463 COMPL
408	⚠ 1-756-134-18	s	BATTERY, LITHIUM (SECONDARY)
409	1-972-469-11	s	HARNESS, SUB (FILTER SW)
410	1-972-473-11	s	HARNESS, SUB (USB)
411	1-972-490-11	s	HARNESS, SUB (INSIDE-RET)
412	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
413	3-870-137-02	s	CAP, DROP PROTECTION
414	3-872-587-01	s	CUSHION,TOGGLE-SW
415	4-382-854-51	s	SCREW (M3X6), P, SW (+)
416	4-740-564-01	s	BRACKET, SW1743
417	4-740-565-01	s	BRACKET, SW1738
418	4-747-541-01	s	GUARD, BUILD UP HARNESS
419	5-000-163-01	s	GUARD, HARNESS(SW-1738)

PS Block



No.		Part No.	SP	Description
501	⚠	A-2226-226-A	s	POWER SUPPLY ASSY(860)
502		A-2226-283-A	s	RE-347 MOUNT
503		A-2226-284-A	s	PS-943 COMPL
504	⚠	1-971-352-11	s	HARNESS(PRI-HI)
505	⚠	1-971-353-11	s	HARNESS(PRI-LOW)
506		4-382-854-51	s	SCREW (M3X6), P, SW (+)
507		4-415-280-01	s	SHEET (T1), THERMAL
508	⚠	4-489-125-01	s	SHEET (1), RADIATION
509		4-742-796-01	s	SHEET (3 (25X45)), RADIATION

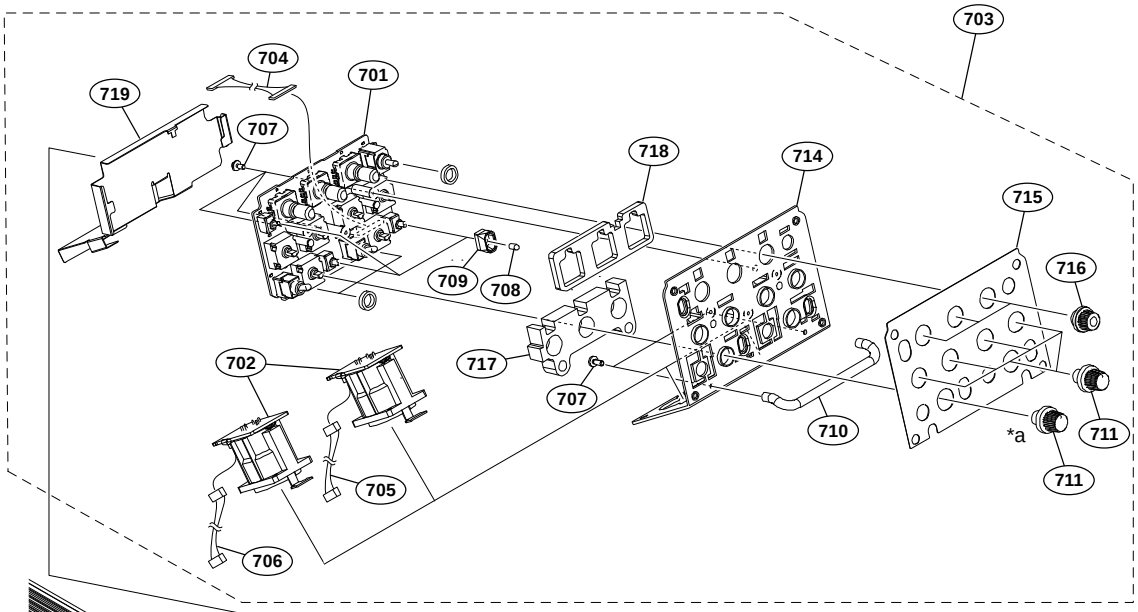
DPR Block



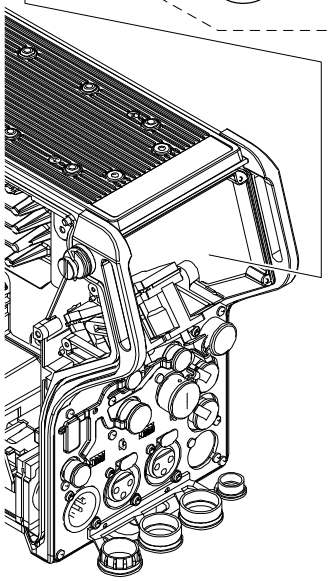
HKC-CN50 (Option)

No.		Part No.	SP	Description
601		A-2197-752-A	s	SW-1744 MOUNT
602		A-2197-766-A	s	CN-4002 MOUNT
603		A-2218-635-A	s	CN-4044 MOUNT
604		A-2229-029-A	s	DPR-390 (MID) COMPL
606	⚠	1-855-374-11	s	DC FAN
607		1-912-827-11	s	WITH, CONNECTOR FPC (DPR-CN)
608		1-972-484-21	s	HARNESS, SUB (DC-OUT)
609		1-972-485-11	s	HARNESS, SUB (FRONT MIC)
610		2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
611		4-382-854-51	s	SCREW (M3X6), P, SW (+)
612		4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
613		4-587-426-01	s	SHEET (2 (35X35)), RADIATION
614		4-740-559-01	s	HOLDER, DC OUT
615		4-740-560-01	s	COVER, DC OUT
616		4-742-319-01	s	DUCT, FAN
617		4-742-816-01	s	HOLDER, CN-4044
618		4-745-741-01	s	SHEET, CN50 PROTECTION
619		5-004-743-01	s	SHEET(3(15X35)), RADIATION
620		5-005-139-01	s	SHEET(05(15X35)), RADIATION

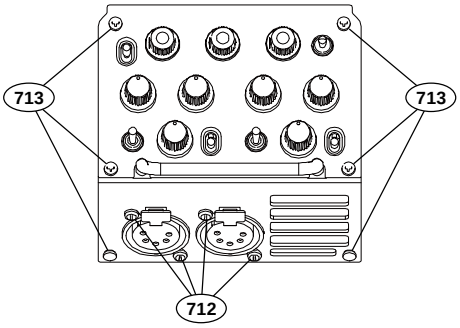
Incom Panel



*a: UC, J only

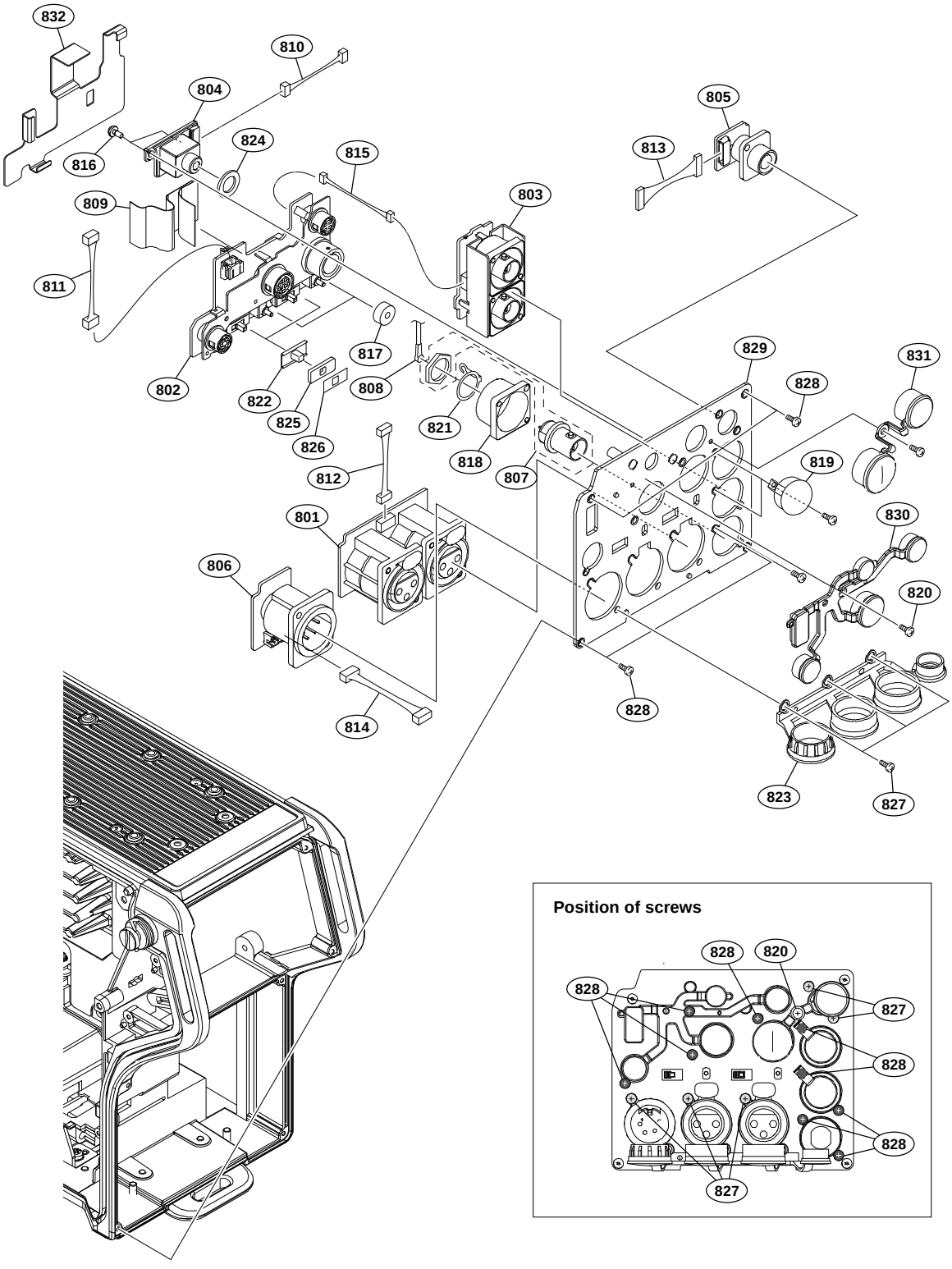


Position of screws



No.	Part No.	SP	Description
701	A-2197-749-B	s	SW-1741(UCJ) MOUNT [For UC, J]
	A-2197-761-B	s	SW-1741(CE) MOUNT [For CE]
702	A-2197-763-A	s	CN-3999 MOUNT
703	A-2226-238-A	s	INCOM PANEL ASSY (UCJ) [For UC, J]
	A-2227-233-A	s	INCOM PANEL ASSY (CED) P [For CE]
704	1-972-472-11	s	HARNESS, SUB (SY-INCOM PANEL)
705	1-972-478-11	s	HARNESS, SUB (INCOM2)
706	1-972-479-11	s	HARNESS, SUB (INCOM1)
707	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
708	3-869-842-01	s	CAP,SW
709	3-903-660-01	s	DROP PROTECTION,TOGGLE
710	3-903-661-01	s	ROD,GURAD
711	4-414-615-01	s	KNOB, VR
712	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
713	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)
714	4-742-351-01	s	PANEL, INCOME [For UC, J]
	4-742-351-11	s	PANEL, INCOME [For CE]
715	4-742-353-01	s	SHEET (UCJ),INCOME PANEL [For UC, J]
	4-742-354-01	s	SHEET (CE), INCOME PANEL [For CE]
716	4-742-807-01	s	KNOB, ENCODER
717	4-742-808-01	s	SHEET (A), LIGHT INTERCEPTION
718	4-744-319-01	s	SHEET (B), LIGHT INTERCEPTION
719	4-744-320-01	s	SHEET, DC LINE PROTECTION

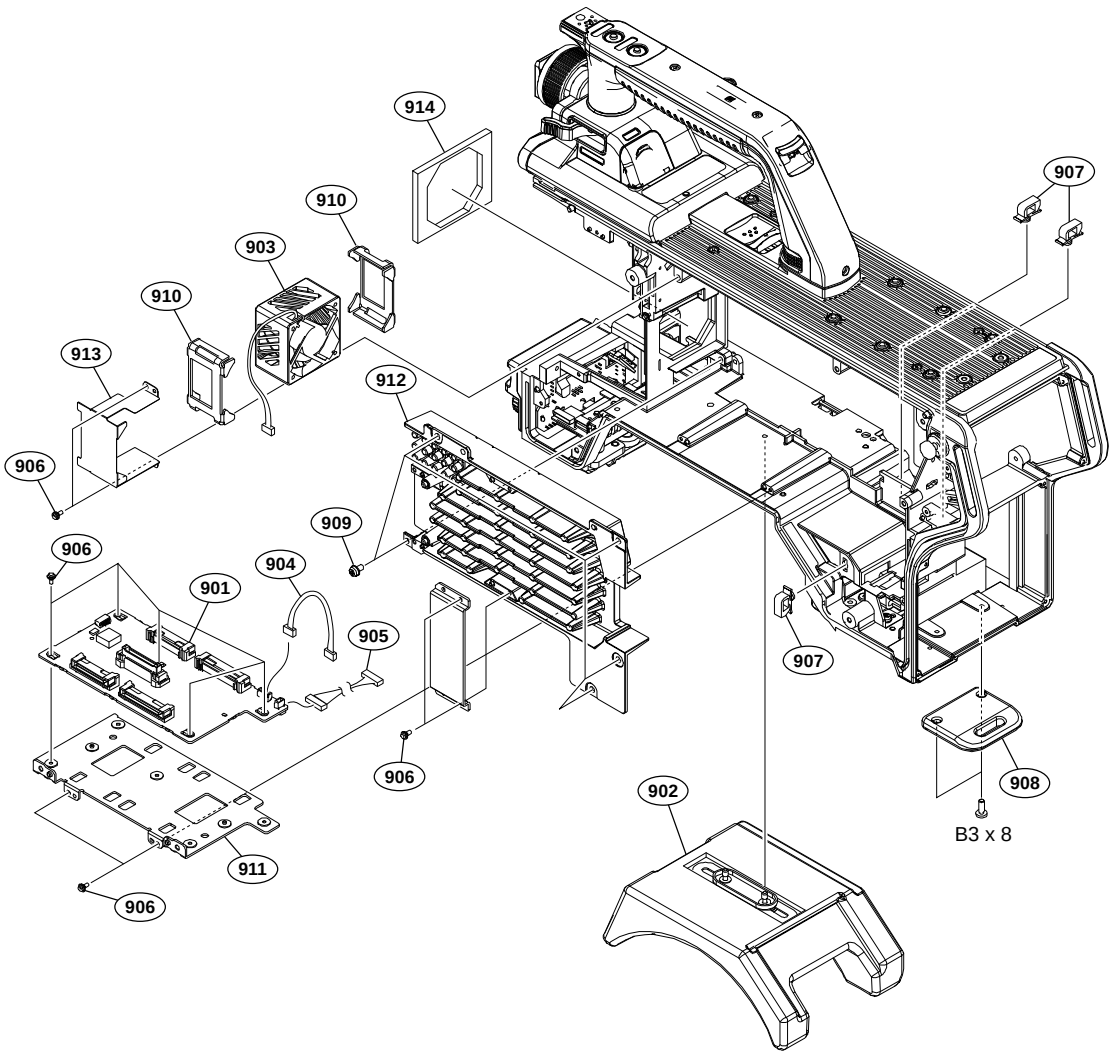
Mic Panel



Position of screws

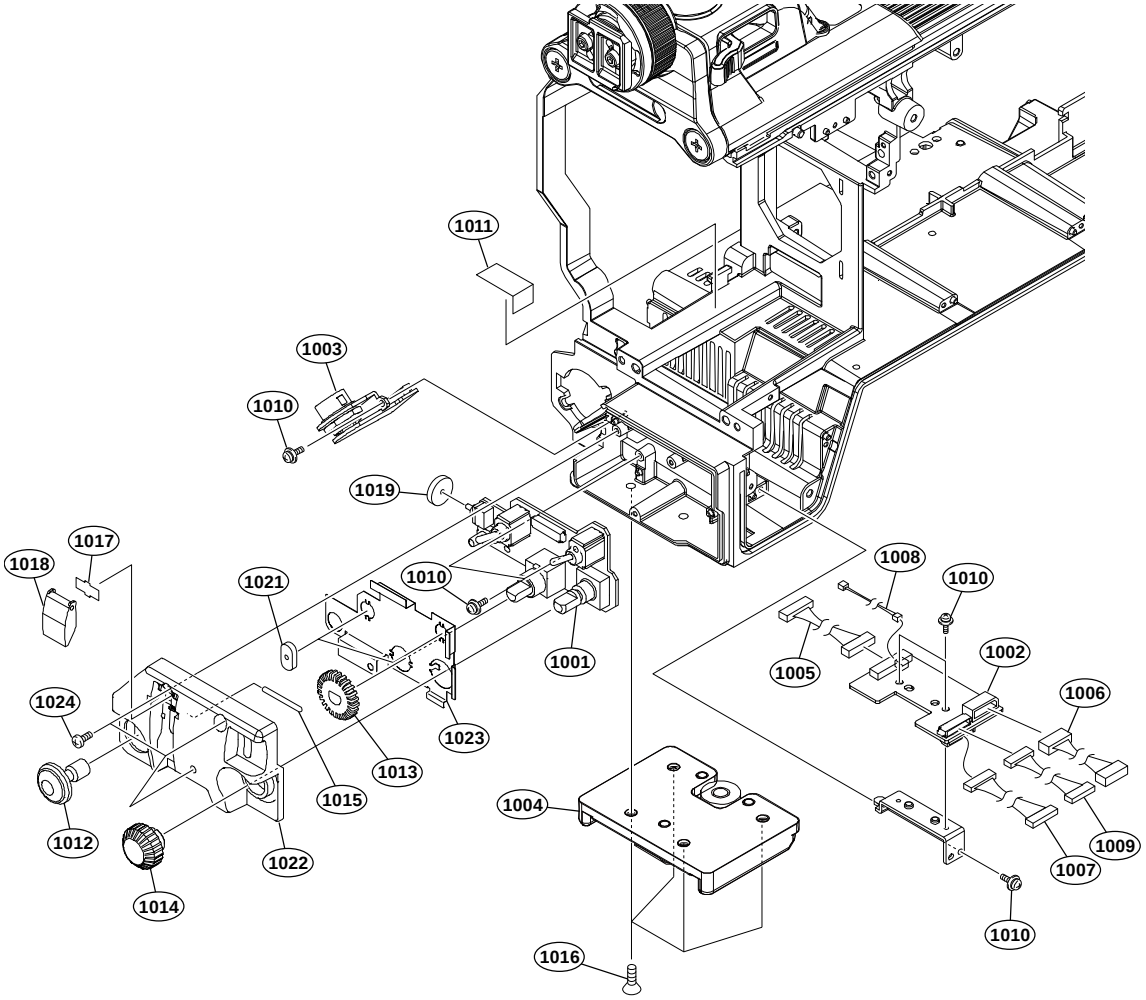
No.	Part No.	SP	Description
801	A-2197-755-A	s	CN-3993 MOUNT
802	A-2197-757-A	s	CN-3995(MID) MOUNT
803	A-2197-758-A	s	CN-3996 MOUNT
804	A-2197-759-A	s	CN-3997 MOUNT
805	A-2197-762-A	s	CN-3998 MOUNT
806	A-2197-764-A	s	CN-4000 MOUNT
807	1-784-240-11	s	CONVERTER, COAXIAL CONNECTOR
808	1-846-805-11	s	HARNESS, COAXIAL(85MM)(GREEN)
809	1-848-735-11	s	FLEXIBLE FLAT CABLE (40 CORE)
810	1-972-471-11	s	HARNESS, SUB (EARPHONE)
811	1-972-480-11	s	HARNESS, SUB (UNREG)
812	1-972-481-11	s	HARNESS, SUB (MIC)
813	1-972-482-11	s	HARNESS, SUB (REMOTE)
814	1-972-483-11	s	HARNESS, SUB (EXT DC IN)
815	1-972-490-11	s	HARNESS, SUB (INSIDE-RET)
816	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
817	3-796-993-01	s	CUSHION DROP PROTEICTION TOGGLE
818	3-863-319-01	s	BRACKET BNC
819	3-872-935-01	s	CAP,BNC
820	3-965-077-03	s	SCREW, SPECIAL (M2)
821	4-136-517-01	s	WASHER, BNC COAXIAL FIXED
822	4-138-687-01	s	COVER, SLIDE SWITCH
823	4-414-618-01	s	CAP, REAR CONNECTER 2
824	4-414-624-01	s	PACKING, EARPHONE
825	4-414-625-01	s	SHEET, SLIDE SW WATER REGIST
826	4-432-516-02	s	SLIDING SHEET, SW
827	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
828	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)
829	4-742-357-02	s	PANEL, MICROPHONE
830	4-742-359-01	s	CAP (860), REAR CONNECTOR
831	4-742-360-02	s	CAP, TRACKER
832	4-746-110-01	s	SHEET, CN3995 PROTECTION

MB Block



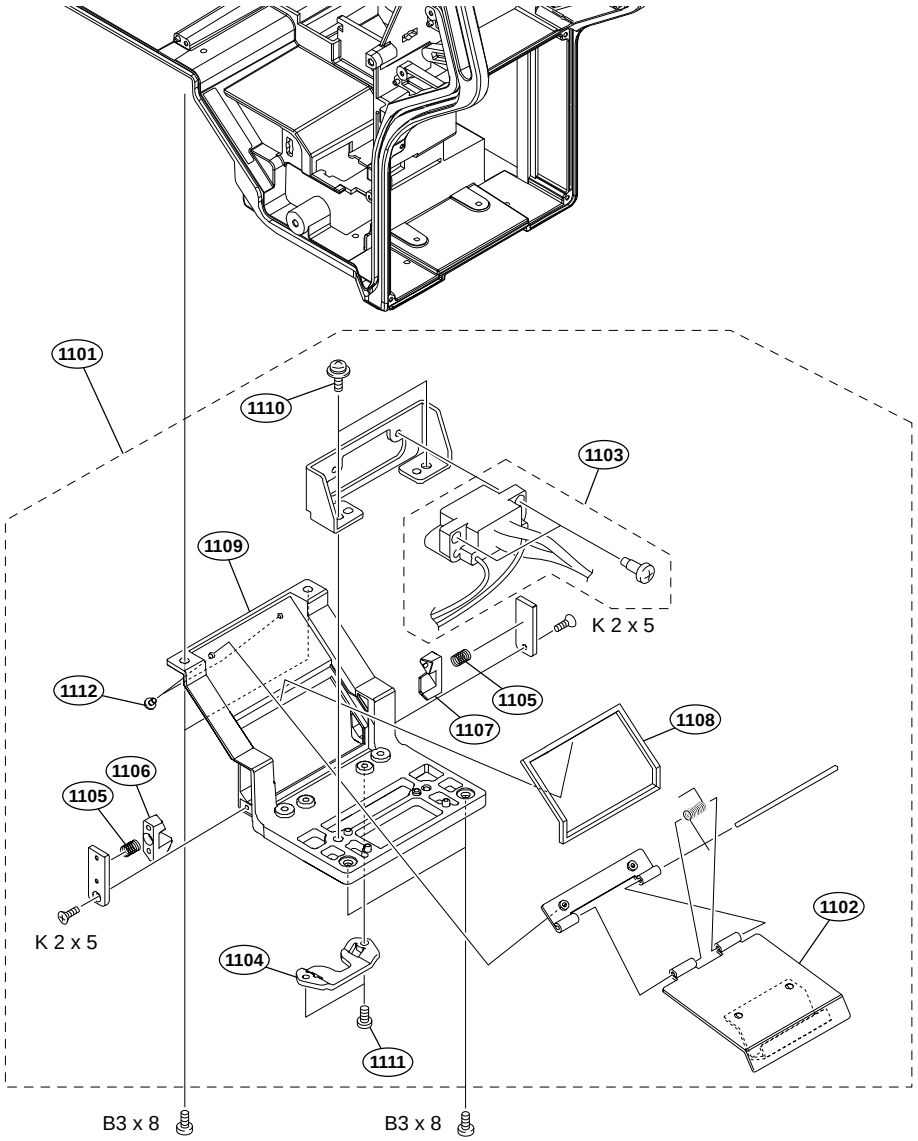
No.		Part No.	SP	Description
901		A-2197-776-A	s	MB-1248 MOUNT
902		A-8286-163-D	s	PAD ASSY,SHOULDER
903	⚠	1-855-374-11	s	DC FAN
904		1-972-475-11	s	HARNESS, SUB (POWER SW)
905		1-972-488-11	s	HARNESS, SUB (CA POWER)
906		2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
907		4-098-147-01	s	CLAMP
908		4-293-492-01	s	GUARD, TAIL
909		4-382-854-51	s	SCREW (M3X6), P, SW (+)
910		4-546-928-01	s	CUSHION (FAN)
911		4-740-566-01	s	BRACKET, MB1248
912		4-740-567-02	s	FRAME (860), CENTER
913		4-742-320-01	s	BRACKET, FRONT FAN
914		4-742-321-01	s	CUSHION, FRONT FAN
		7-682-548-09	s	SCREW +B 3X8

Front SW Block



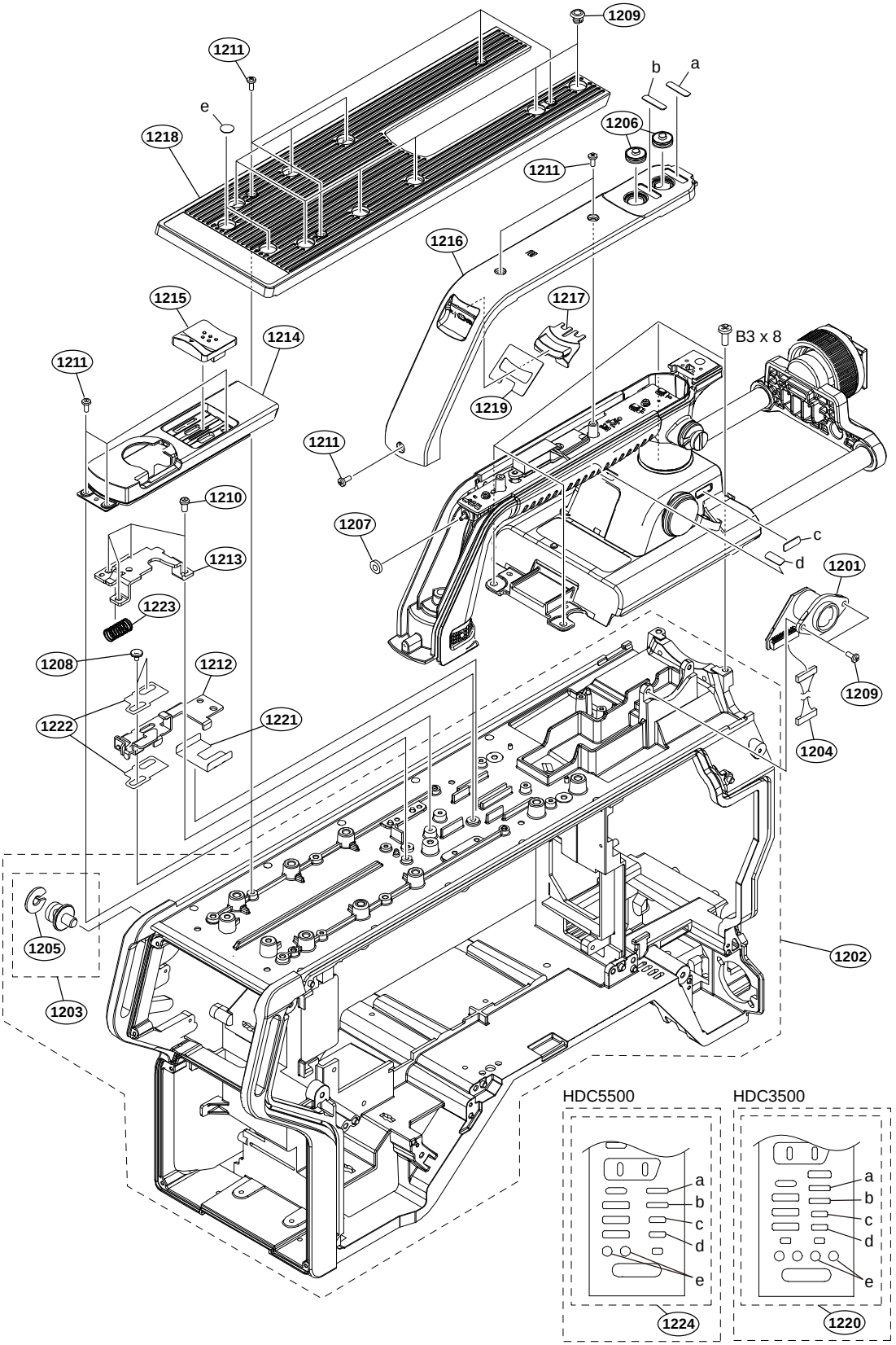
No.	Part No.	SP	Description
1001	A-2197-753-A	s	SW-1745 MOUNT
1002	A-2197-767-A	s	CN-4003 MOUNT
1003	A-2197-768-A	s	CN-4004 MOUNT
1004	A-8279-993-D	s	SHOE(D)ASSY,V
1005	1-972-476-11	s	HARNESS, SUB (LENS)
1006	1-972-477-11	s	HARNESS, SUB (FRONT)
1007	1-972-486-11	s	HARNESS, SUB (FRONT SW)
1008	1-972-487-11	s	HARNESS, SUB (RETURN SW)
1009	1-972-489-11	s	HARNESS, SUB (INSIDE-SW)
1010	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
1011	3-079-115-01	s	TAPE AS
1012	3-679-668-02	s	BUTTON,VTR START
1013	3-679-679-05	s	KNOB,VR(AUDIO)
1014	3-692-111-02	s	KNOB,RE
1015	3-703-357-08	s	PIN (DIA. 1.6 SERISE)
1016	3-729-072-02	s	SCREW, +K (4X8)
1017	3-742-066-01	s	SPRING, SHUTTER
1018	3-742-067-06	s	LID, SHUTTER
1019	3-796-993-01	s	CUSHION DROP PROTEICTION TOGGLE
1021	3-872-587-01	s	CUSHION,TOGGLE-SW
1022	4-293-503-01	s	FRONT SW COVER
1023	4-298-963-02	s	FRONT SHIELD PLATE
1024	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)

Hotshoe Block



No.	Part No.	SP	Description
1101	A-1842-424-A	s	HOTSHOE ASSY(AL)
1102	X-3704-670-2	s	HOT DOOR
1103	1-968-152-11	s	HARNESS, SUB (BUILD UP)
1104	3-626-781-03	s	STOPPER
1105	3-872-522-02	s	SPRING,COMPRESSION(STOPPER)
1106	3-872-550-02	s	STOPPER(R),HOT DOOR
1107	3-872-551-02	s	STOPPER(L),HOT DOOR
1108	3-872-573-02	s	WATER PROTECT(HOT DOOR)
1109	4-295-666-01	s	BASE, HOT SHOE
1110	4-382-854-51	s	SCREW (M3X6), P, SW (+)
1111	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
1112	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)
	7-621-555-30	s	SCREW +K 2X5
	7-682-548-09	s	SCREW +B 3X8

Handle-1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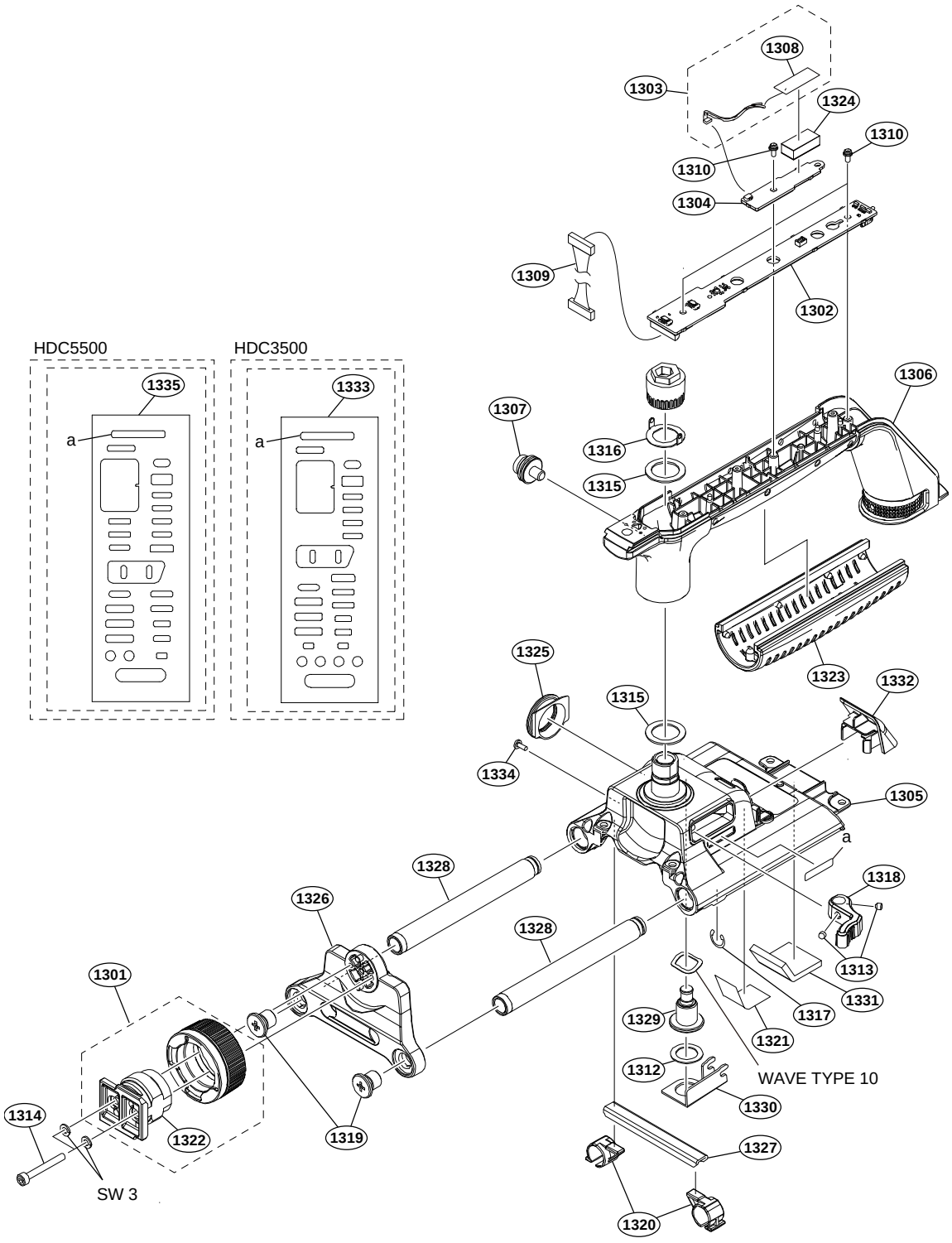
No.	Part No.	SP	Description
1201	A-2197-769-A	s	CN-4005 MOUNT
1202	A-2223-258-A	s	CHASSIS SUB ASSY, MAIN
1203	X-3710-037-1	s	SUSPENSION ASSY (C)
1204	1-972-474-11	s	HARNESS, SUB (VF)
1205	3-654-615-02	s	COLLAR, SUSPENSION
1206	3-676-244-04	s	COVER, SWITCH
1207	3-796-993-01	s	CUSHION DROP PROTEICTION TOGGLE
1208	3-965-077-03	s	SCREW, SPECIAL (M2)
1209	4-138-679-01	s	SCREW, BLIND
1210	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
1211	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)
1212	4-740-603-01	s	PLATE, HANDLE LOCK
1213	4-740-604-01	s	PLATE, HANDLE LOCK BASE
1214	4-740-605-01	s	BASE, HANDLE LOCK
1215	4-740-606-01	s	LEVER, HANDLE RELEASE
1216	4-740-608-01	s	COVER (860), HANDLE
1217	4-740-609-01	s	COVER (860), REAR TALLY
1218	4-742-803-01	s	COVER (M), TOP
1219	4-745-744-01	s	SHEET, REAR TALLY COVER
1220	4-745-745-02	s	LABEL (860), MULTI
1221	4-747-203-01	s	SHEET (1), HANDLE LOCK
1222	4-747-204-01	s	SHEET (2), HANDLE LOCK
1223	4-747-206-02	s	SPRING, COMPRESSION
1224	5-003-110-01	s	LABEL (870), MULTI
	7-682-548-09	s	SCREW +B 3X8

Handle-2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WAVE TYPE 10
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SW 3
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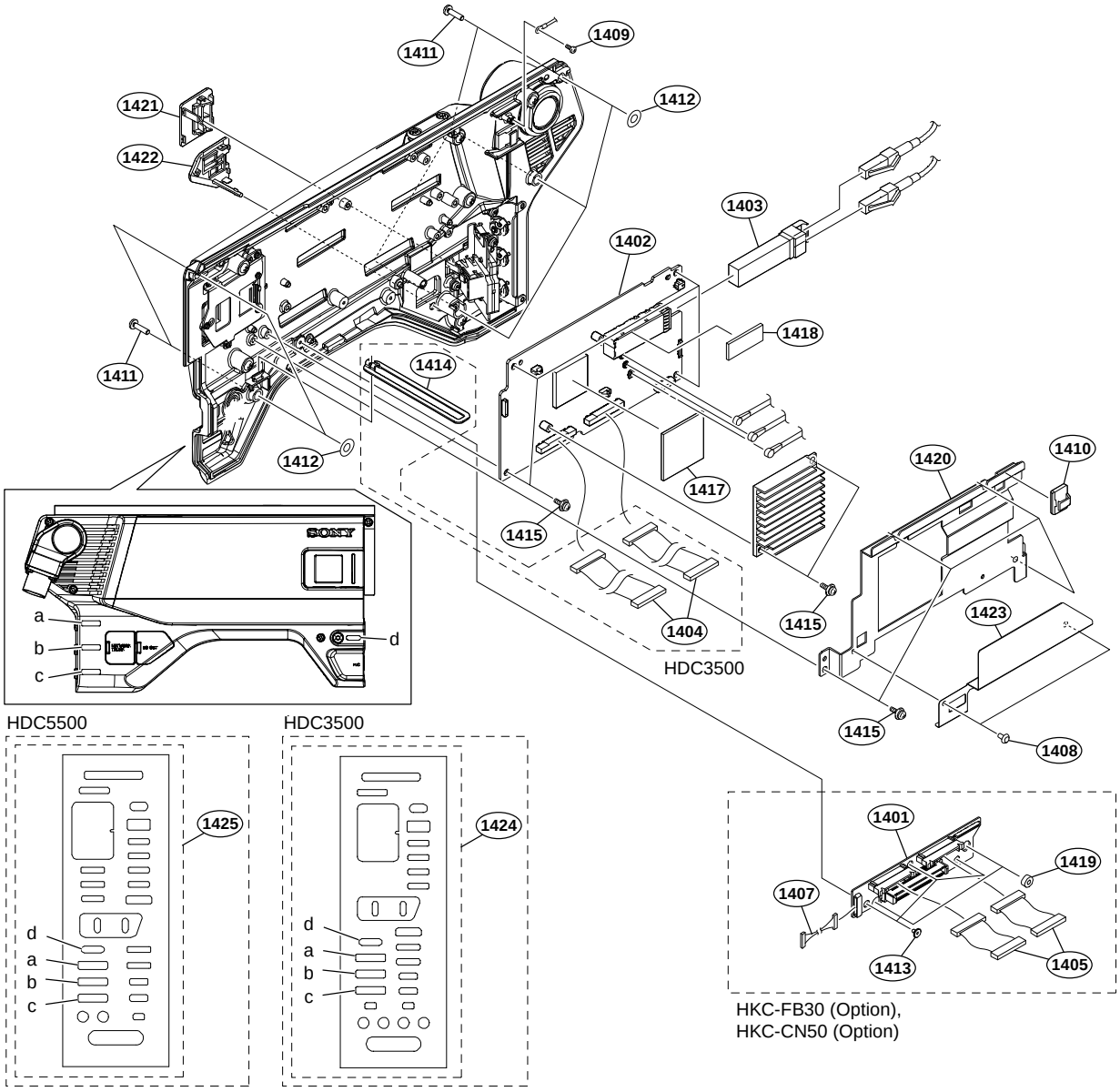
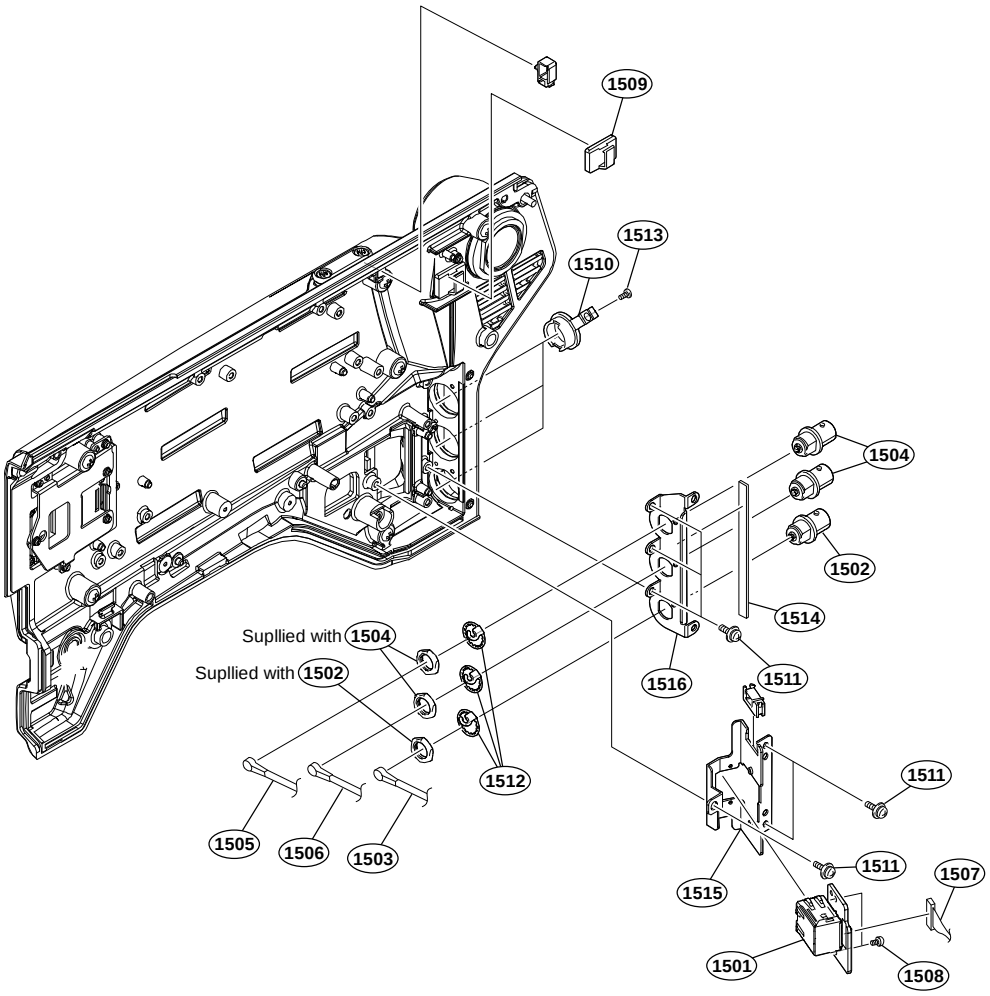
No.	Part No.	SP	Description
1301	A-2065-043-A	s	SHOE ASSY,VF
1302	A-2197-747-A	s	SW-1739 MOUNT
1303	A-2227-055-A	s	ANTENNA ASSY
1304	A-2231-024-A	s	NET-47 COMPL
1305	X-2597-476-1	s	BASE SUB ASSY (860), HANDLE
1306	X-2597-657-1	s	HANDLE (860) SUB ASSY
1307	X-3710-037-1	s	SUSPENSION ASSY (C)
1308	1-754-972-12	s	NFC ANTENNA
1309	1-972-470-11	s	HARNESS, SUB (HANDLE SW)
1310	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
1312	3-701-447-11	s	WASHER, 10
1313	3-701-505-01	s	SET SCREW, DOUBLE POINT 3X3
1314	3-711-765-01	s	BOLT (M3), HEXAGON SOCKET
1315	3-872-534-02	s	WASHER02
1316	3-872-609-02	s	WASHER01
1317	4-138-139-01	s	STOP RING 9, TYPE-CE
1318	4-138-536-01	s	LEVER, LOCK
1319	4-138-691-02	s	SCREW, PIPE CAP
1320	4-138-694-01	s	LOCK, VF SLIDE
1321	4-446-014-01	s	TAPE AS (2040)
1322	4-558-057-01	s	SHOE,SLIDE
1323	4-740-601-01	s	GRIP (860)
1324	4-740-611-01	s	CUSHION, NFC
1325	4-740-615-01	s	PACKING (860), VF
1326	4-740-616-01	s	PLATE, VF SLIDE PIPE
1327	4-740-617-01	s	SUPPORT, VF SLIDE LOCK
1328	4-740-618-01	s	PIPE (87), VF SLIDE
1329	4-740-619-01	s	SCREW, VF SLIDE LOCK
1330	4-740-620-01	s	SUPPORT (B), SLIDE LOCK
1331	4-740-621-01	s	SHEET, HANDLE HOLDER
1332	4-740-625-01	s	COVER, DVF
1333	4-745-745-02	s	LABEL (860), MULTI
1334	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)
1335	5-003-110-01	s	LABEL (870), MULTI
	7-623-208-22	s	SW 3,TYPE 2
	7-623-710-57	s	WASHER 10, WAVE TYPE

Outside Panel-1 (HDC3500, HKC-FB30 (Option), HKC-CN50 (Option))



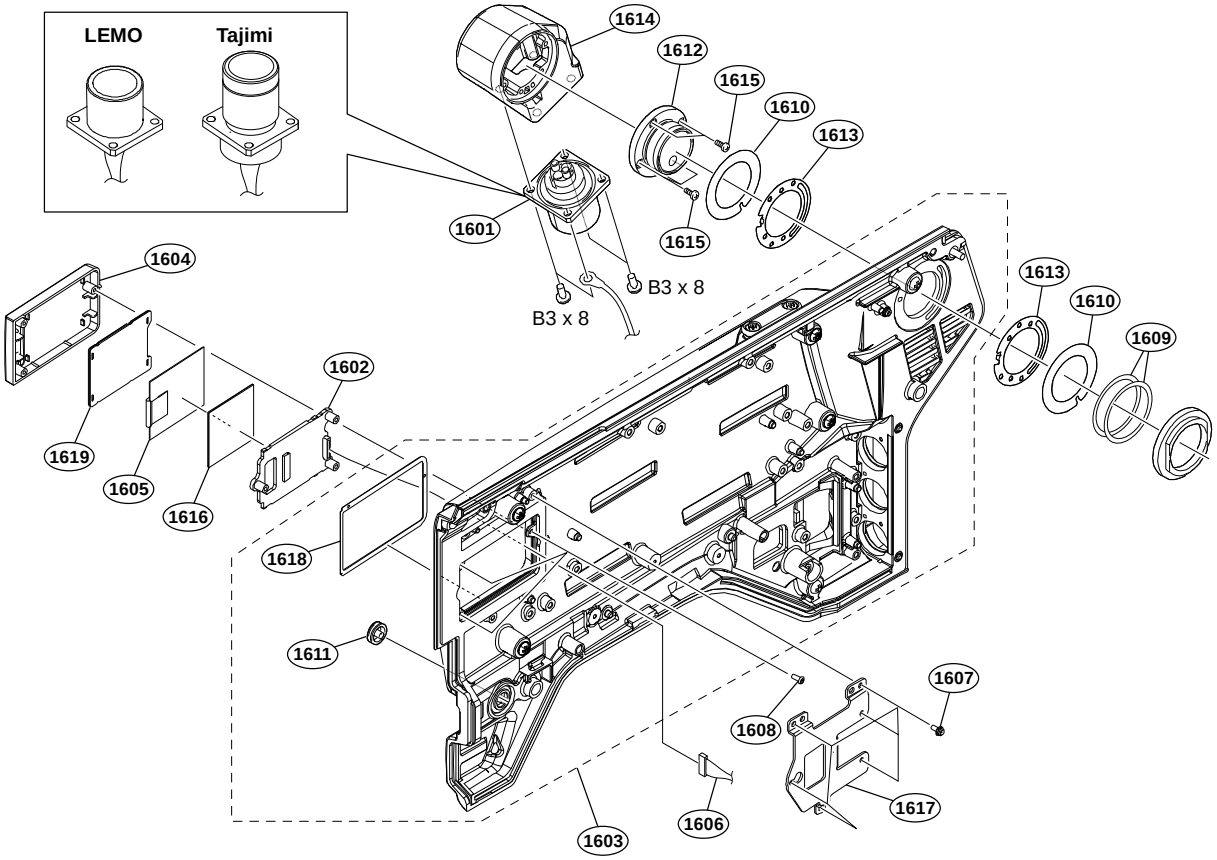
No.	Part No.	SP	Description
1401	A-2218-636-A	s	CN-4045 MOUNT
1402	A-2224-264-A	s	TX-164 COMPL
1403	⚠ 1-510-039-11	s	OPTICAL MODULE (1.8725/3.7G)
1404	1-839-904-11	s	FPC WITH CONNECTOR (DPR-SDI)
1405	1-912-827-11	s	WITH, CONNECTOR FPC (DPR-CN)
1407	1-972-488-11	s	HARNESS, SUB (CA POWER)
1408	2-279-715-21	s	RIVET, NYLON
1409	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
1410	3-257-200-01	s	CLAMP, CORD
1411	3-603-679-02	s	STAINLESS SCREW +B3X10
1412	3-701-438-11	s	WASHER, 2.5
1413	3-965-077-03	s	SCREW, SPECIAL (M2)
1414	4-299-747-01	s	SUPPORT, PANEL
1415	4-382-854-51	s	SCREW (M3X6), P, SW (+)
1417	4-587-426-01	s	SHEET (2 (35X35)), RADIATION
1418	4-587-426-11	s	SHEET (2 (12X30)), RADIATION
1419	5-003-646-01	s	BUSH(CN)
1420	4-740-585-01	s	PLATE (860), TX COVER
1421	4-740-594-01	s	CAP (860), ETHER
1422	4-740-595-01	s	CAP (860), DC OUT
1423	4-745-737-02	s	GUARD, FPC
1424	4-745-745-02	s	LABEL (860), MULTI
1425	5-003-110-01	s	LABEL (870), MULTI

Outside Panel-2 (HDC3500, HKC-FB30 (Option))



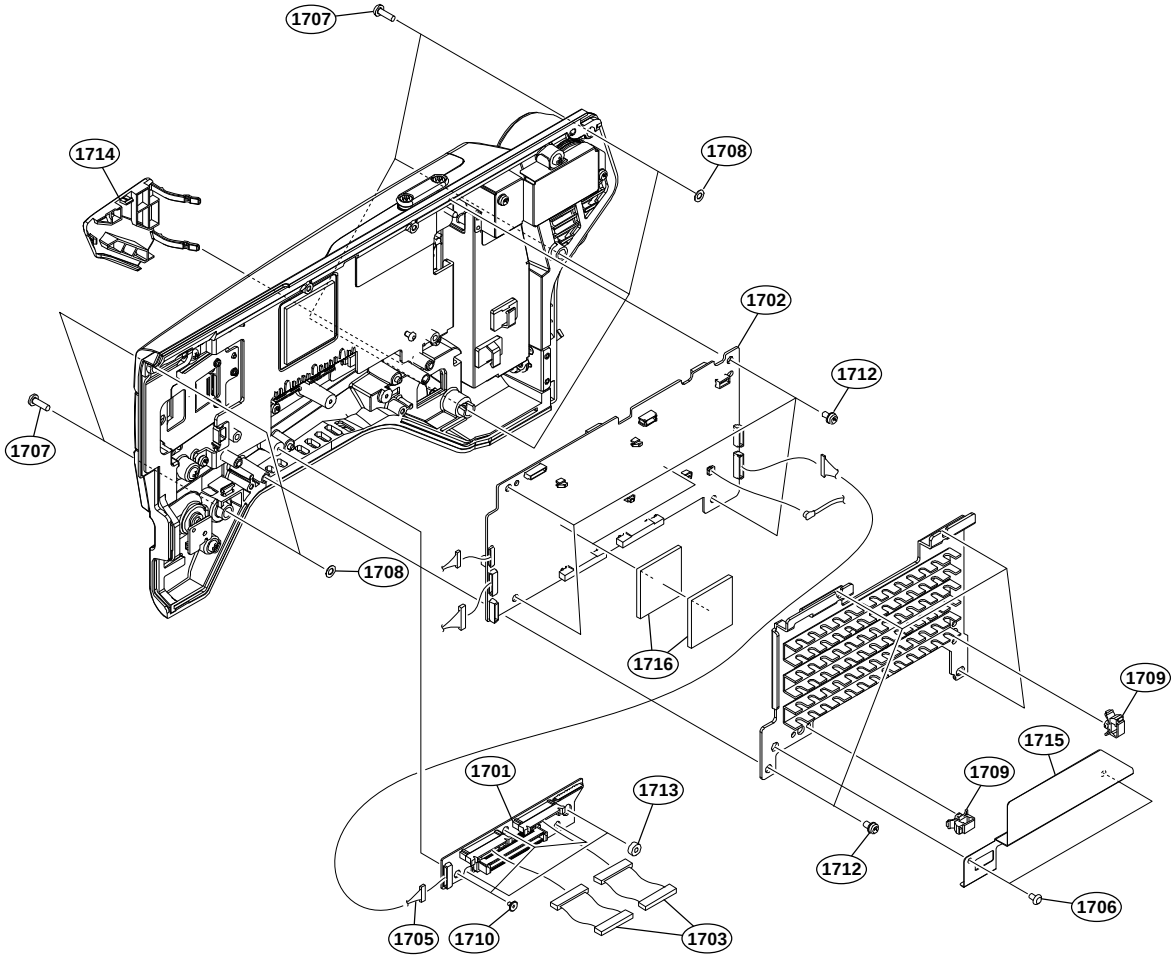
No.	Part No.	SP	Description
1501	A-2197-765-A	s	CN-4001 MOUNT
1502	1-784-240-11	s	CONVERTER, COAXIAL CONNECTOR
1503	1-838-667-11	s	CABLE ASSEMBLY, COAXIAL [GREEN]
1504	1-844-930-11	s	CONNECTOR, COAXIAL (BNC)
1505	1-912-828-11	s	COAXIAL CABLE(SDI1) [BLUE]
1506	1-912-874-12	s	COAXIAL CABLE (D.FL75)(SDI 2) [BLACK]
1507	1-971-958-12	s	HARNESS (EC-RE)
1508	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
1509	3-257-200-01	s	CLAMP, CORD
1510	3-872-935-01	s	CAP,BNC
1511	4-382-854-51	s	SCREW (M3X6), P, SW (+)
1512	4-428-368-01	s	WASHER, BNC COAXIAL FIXED
1513	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)
1514	5-006-075-01	s	GASKET (1X3 (L)), SOFT
1515	4-740-586-01	s	HOLDER (860)
1516	4-740-587-02	s	PLATE, BNC HOLDER

Outside panel-3 (HDC3500, HKC-FB30 (Option))



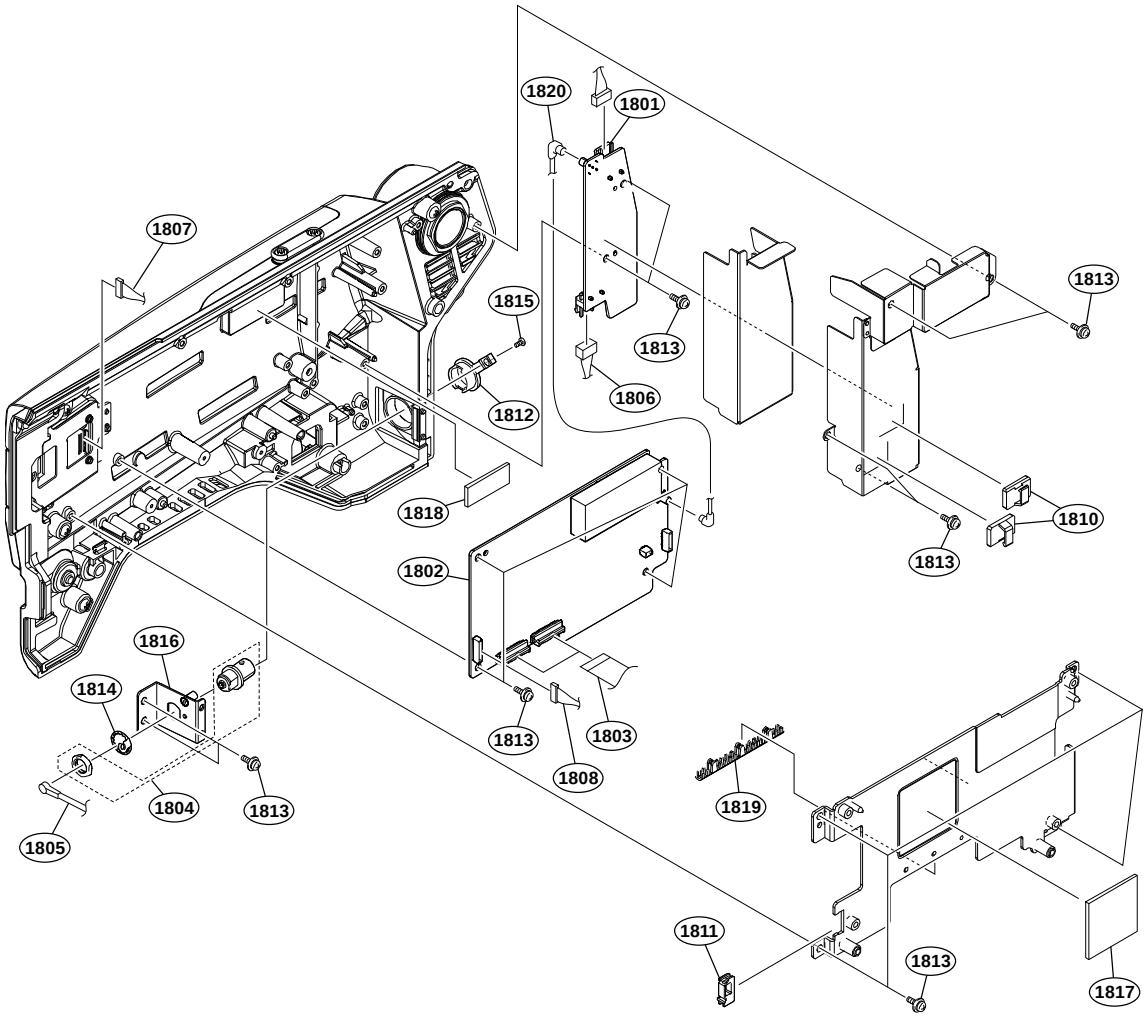
No.		Part No.	SP	Description
1601	⚠	A-2189-815-A	s	LEMO CONNECTOR ASSY-A(EDW)EXP [LEMO]
	⚠	1-838-667-11	s	CABLE ASSEMBLY, COAXIAL [Tajimi]
1602		A-2197-771-A	s	CN-4007 MOUNT
1603		A-2223-261-A	s	PANEL SUB ASSY, OUT SIDE
1604		X-2597-591-1	s	CAMERA NUMBER CASE ASSY (860)
1605		1-812-456-11	s	E-PAPER (HINK-E0154A05)
1606		1-972-491-11	s	HARNESS, SUB (EPD-TX)
1607		2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
1608		3-080-206-21	s	SCREW, TAPPING, P2
1609		3-176-525-01	o	WASHER, SPRING
1610		3-602-464-02	s	WASHER, CONDUCTIVE
1611		3-676-244-04	s	COVER, SWITCH
1612		4-138-689-02	s	SHAFT, ROTARY(TRIAX)
1613		4-138-707-01	s	WASHER, TRIAX(2)
1614		4-293-502-01	s	CONNECTOR HOUSING
1615		4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
1616		4-740-593-01	s	CUSHION, CAMERA NUMBER
1617		4-747-106-01	s	BRACKET(860), CAMEARA NUMBER
1618		4-747-109-01	s	CUSHION(COVER), CAMERA NUMBER
1619		4-747-110-01	s	CUSHION(PANEL), CAMERA NUMBER
		7-682-548-09	s	SCREW +B 3X8

Outside Panel-1 (HKC-TR37 (Option))



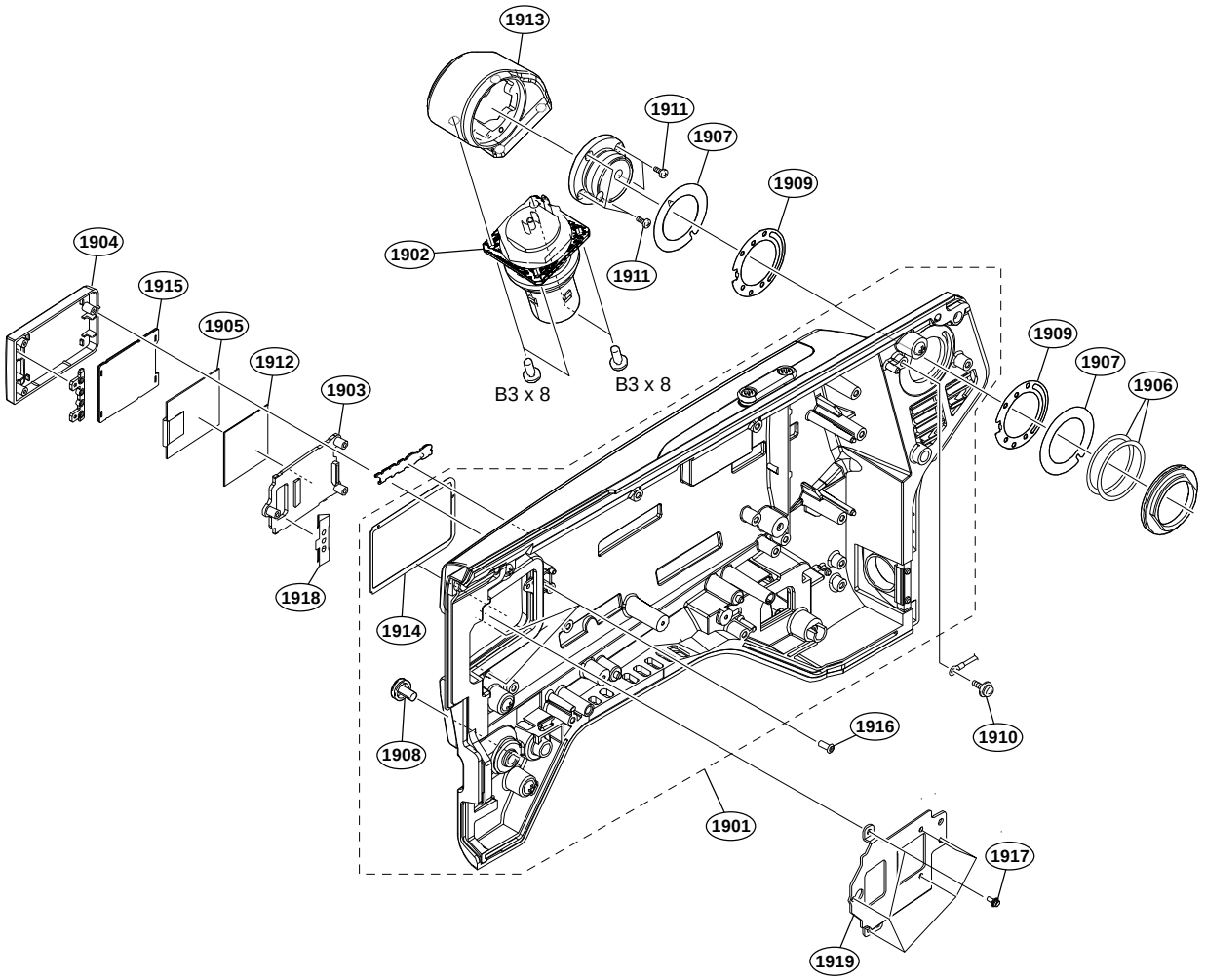
No.	Part No.	SP	Description
1701	A-2218-636-A	s	CN-4045 MOUNT
1702	A-2228-536-A	s	CD-91 COMPL
1703	1-912-827-11	s	WITH, CONNECTOR FPC (DPR-CN)
1705	1-972-488-11	s	HARNESS, SUB (CA POWER)
1706	2-279-715-21	s	RIVET, NYLON
1707	3-603-679-02	s	STAINLESS SCREW +B3X10
1708	3-701-438-11	s	WASHER, 2.5
1709	3-853-802-01	s	CLAMP,REUSE
1710	3-965-077-03	s	SCREW, SPECIAL (M2)
1712	4-382-854-51	s	SCREW (M3X6), P, SW (+)
1713	5-003-646-01	s	BUSH(CN)
1714	4-742-810-01	s	CAP (660), DC OUT
1715	4-745-737-02	s	GUARD, FPC
1716	4-587-426-01	s	SHEET (2 (35X35)), RADIATION

Outside Panel-2 (HKC-TR37 (Option))



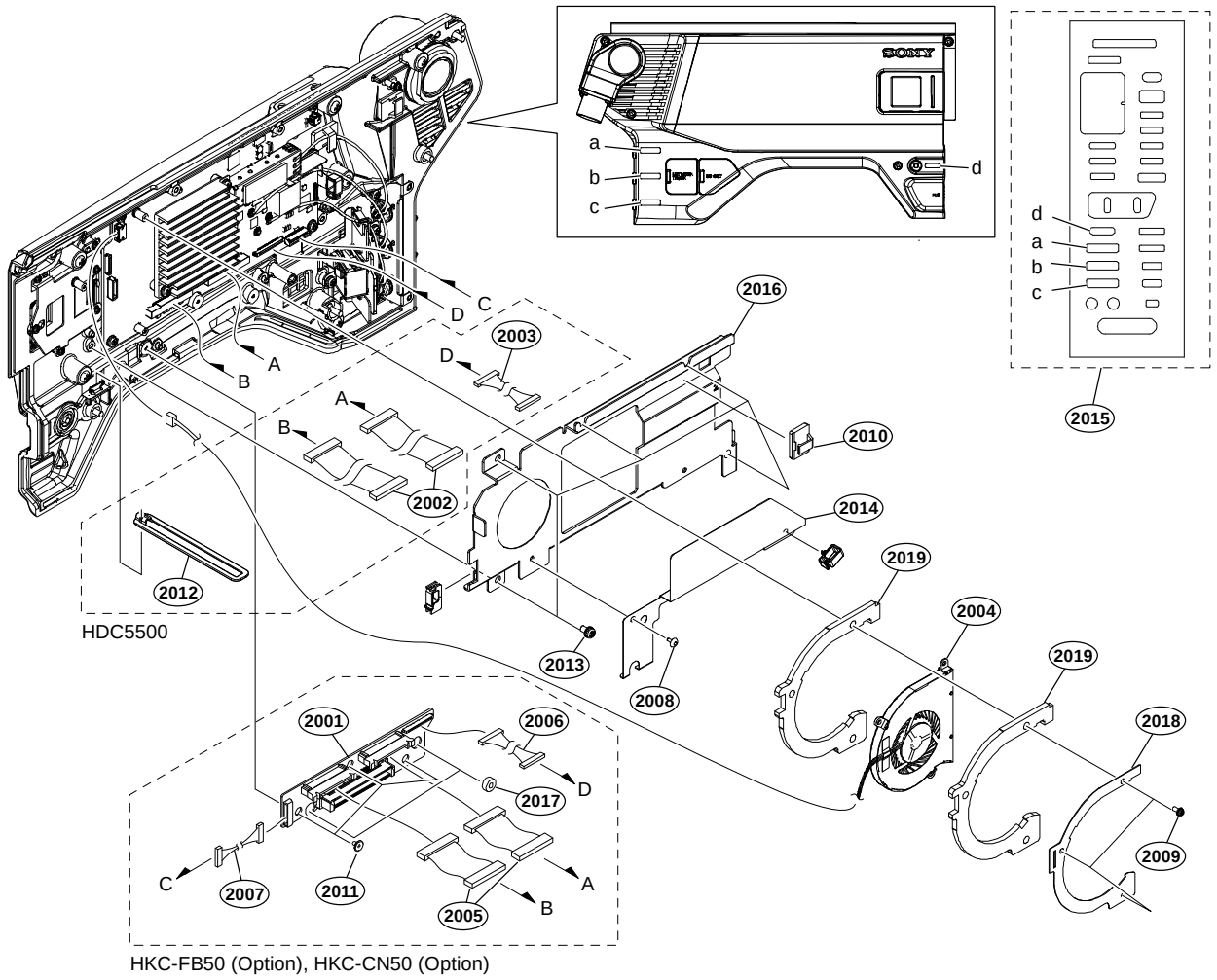
No.	Part No.	SP	Description
1801	A-2199-819-A	s	FL-380 MOUNT
1802	A-2228-537-A	s	TR-170 COMPL
1803	1-833-470-31	s	CABLE, FLEXIBLE FLAT (33P)
1804	1-844-930-11	s	CONNECTOR, COAXIAL (BNC)
1805	1-912-828-12	s	COAXIAL CABLE(SDI1)
1806	1-969-850-21	s	HARNESS, SUB (POWER IN(PS))
1807	1-972-491-11	s	HARNESS, SUB (EPD-TX)
1808	1-972-497-11	s	HARNESS, SUB (TR-POWER)
1810	3-257-200-01	s	CLAMP, CORD
1811	3-210-579-01	s	LOCKING SADDLE, EDGE
1812	3-872-935-01	s	CAP,BNC
1813	4-382-854-51	s	SCREW (M3X6), P, SW (+)
1814	4-428-368-01	s	WASHER, BNC COAXIAL FIXED
1815	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)
1816	4-742-809-01	s	PLATE (660), BNC HOLDER
1817	4-587-426-01	s	SHEET (2 (35X35)), RADIATION
1818	4-587-426-11	s	SHEET (2 (12X30)), RADIATION
1819	4-747-108-01	s	GUARD 60, EDGE
1820	1-836-686-11	s	CABLE, CONNECTOR WITH COAXIAL

Outside panel-3 (HKC-TR37 (Option))



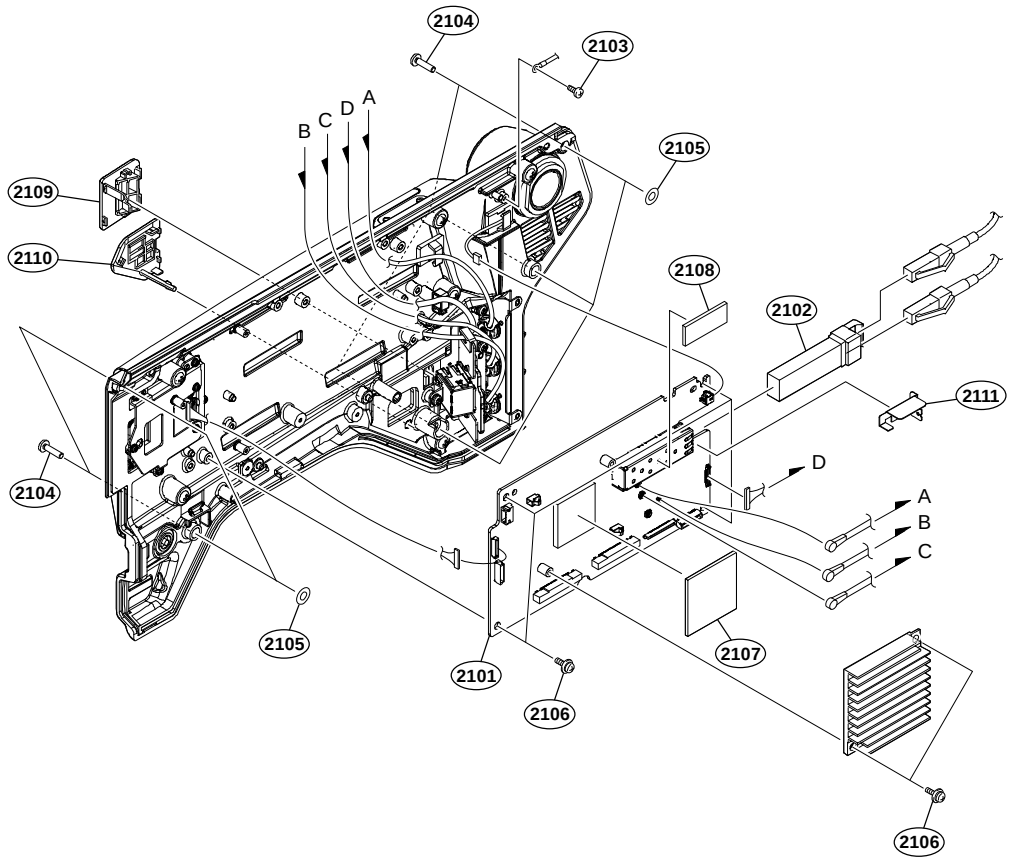
No.	Part No.	SP	Description
1901	A-2227-358-A	s	OUTSIDE PANEL SUB ASSY(660)
1902	⚠ A-2227-361-A	s	TRIAX(F) CAM ASSY [Female]
	⚠ A-2227-362-A	s	TRIAX(K) CAM ASSY [LEMO]
1903	A-2226-678-A	s	CN-4063 MOUNT
1904	X-2597-591-1	s	CAMERA NUMBER CASE ASSY (860)
1905	1-812-456-11	s	E-PAPER (HINK-E0154A05)
1906	3-176-525-01	o	WASHER, SPRING
1907	3-602-464-02	s	WASHER, CONDUCTIVE
1908	4-138-682-01	s	SW COVER
1909	4-138-707-01	s	WASHER, TRIAX(2)
1910	4-382-854-51	s	SCREW (M3X6), P, SW (+)
1911	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
1912	4-740-593-01	s	CUSHION, CAMERA NUMBER
1913	4-742-330-01	s	HOUSING (660), CONNECTOR
1914	4-747-109-01	s	CUSHION(COVER), CAMERA NUMBER
1915	4-747-110-01	s	CUSHION(PANEL), CAMERA NUMBER
1916	3-080-206-21	s	SCREW, TAPPING, P2
1917	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
1918	4-298-877-01	s	SPRING, NUMBER FRAME
1919	4-747-107-01	s	BRACKET(660), CAMEARA NUMBER
	7-682-548-09	s	SCREW +B 3X8

Outside Panel-1 (HDC5500, HKC-FB50 (Option), HKC-CN50 (Option))



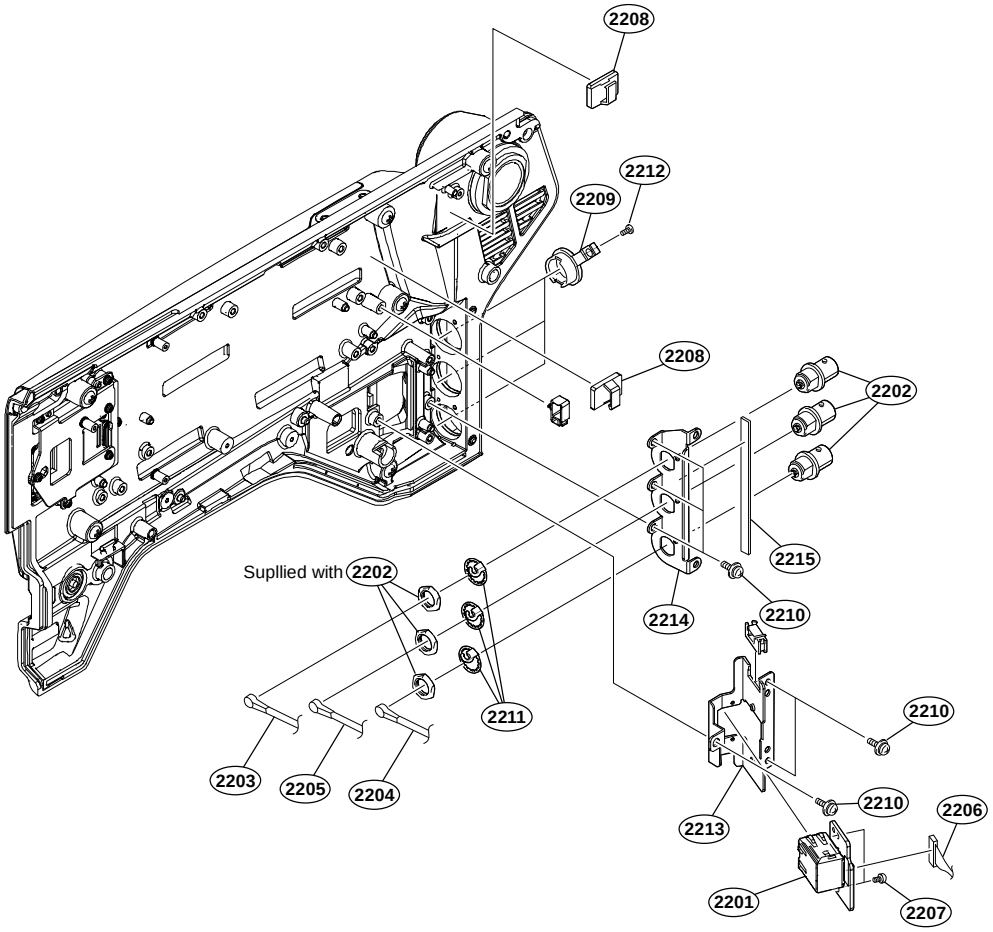
No.	Part No.	SP	Description
2001	A-2218-636-A	s	CN-4045 MOUNT
2002	1-839-904-11	s	FPC WITH CONNECTOR (DPR-SDI)
2003	1-849-035-21	s	COAXIAL CABLE WITH CONNECTOR
2004	⚠ 1-855-301-11	s	DC SIROCCO FAN (60)
2005	1-912-827-11	s	WITH, CONNECTOR FPC (DPR-CN)
2006	1-965-708-21	s	HARNESS (DPR-EC)
2007	1-972-488-11	s	HARNESS, SUB (CA POWER)
2008	2-279-715-21	s	RIVET, NYLON
2009	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
2010	3-257-200-01	s	CLAMP, CORD
2011	3-965-077-03	s	SCREW, SPECIAL (M2)
2012	4-299-747-01	s	SUPPORT, PANEL
2013	4-382-854-51	s	SCREW (M3X6), P, SW (+)
2014	4-745-737-02	s	GUARD, FPC
2015	5-003-110-01	s	LABEL(870), MULTI
2016	5-003-167-01	s	PLATE(870), TX COVER
2017	5-003-646-01	s	BUSH(CN)
2018	5-006-135-01	s	PLATE, SIROCCO FAN
2019	5-006-188-01	s	CUSHION, SIROCCO FAN

Outside Panel-2 (HDC5500, HKC-FB50 (Option))



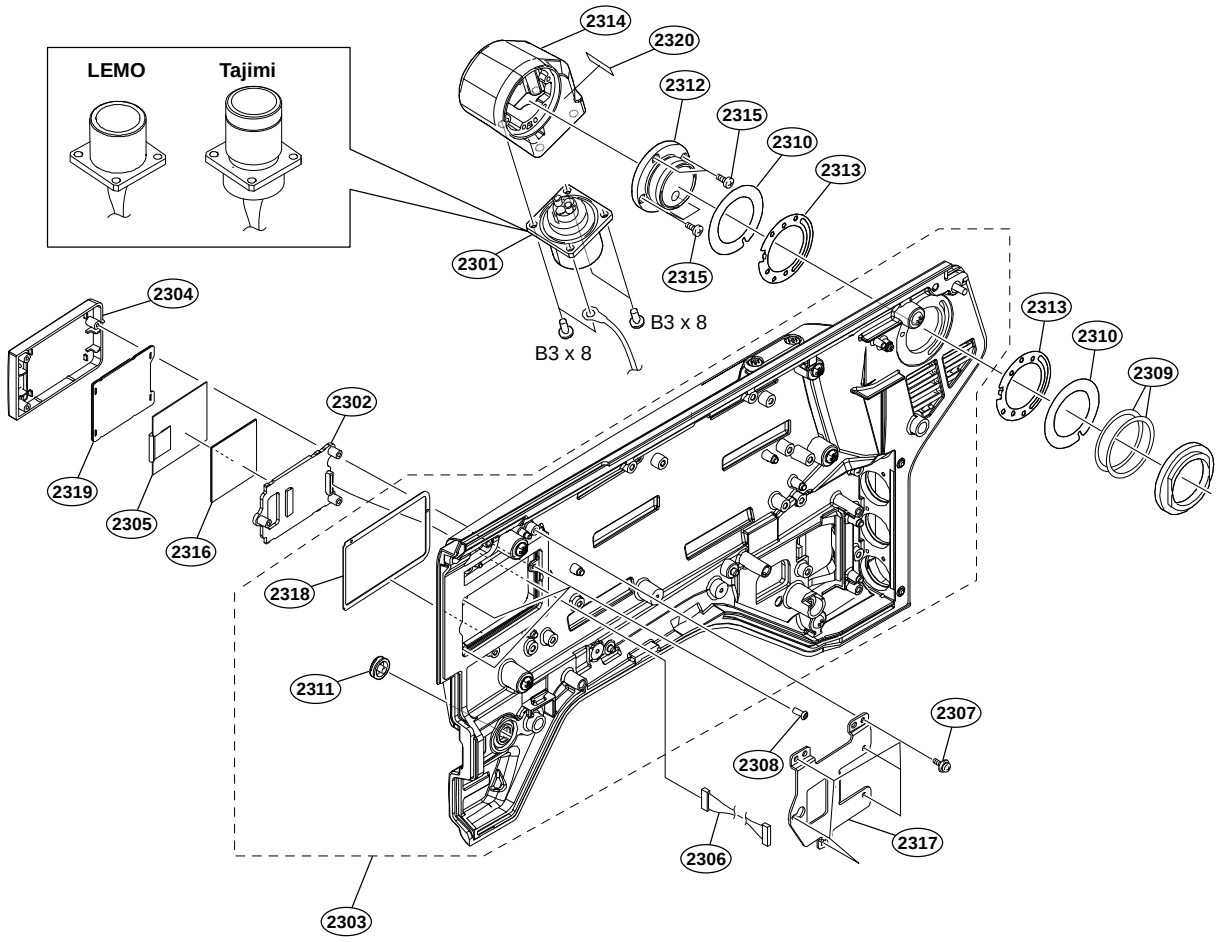
No.		Part No.	SP	Description
2101		A-5001-291-A	s	TX-165 COMPL
2102	⚠	1-510-062-11	s	OPTICAL MODULE (SFP28)
2103		2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
2104		3-603-679-02	s	STAINLESS SCREW +B3X10
2105		3-701-438-11	s	WASHER, 2.5
2106		4-382-854-51	s	SCREW (M3X6), P, SW (+)
2107		4-587-426-01	s	SHEET (2 (35X35)), RADIATION
2108		4-587-426-11	s	SHEET (2 (12X30)), RADIATION
2109		4-740-594-01	s	CAP (860), ETHER
2110		4-740-595-01	s	CAP (860), DC OUT
2111		5-006-047-01	s	SHEET GUIDE, SDI

Outside Panel-3 (HDC5500, HKC-FB50 (Option))



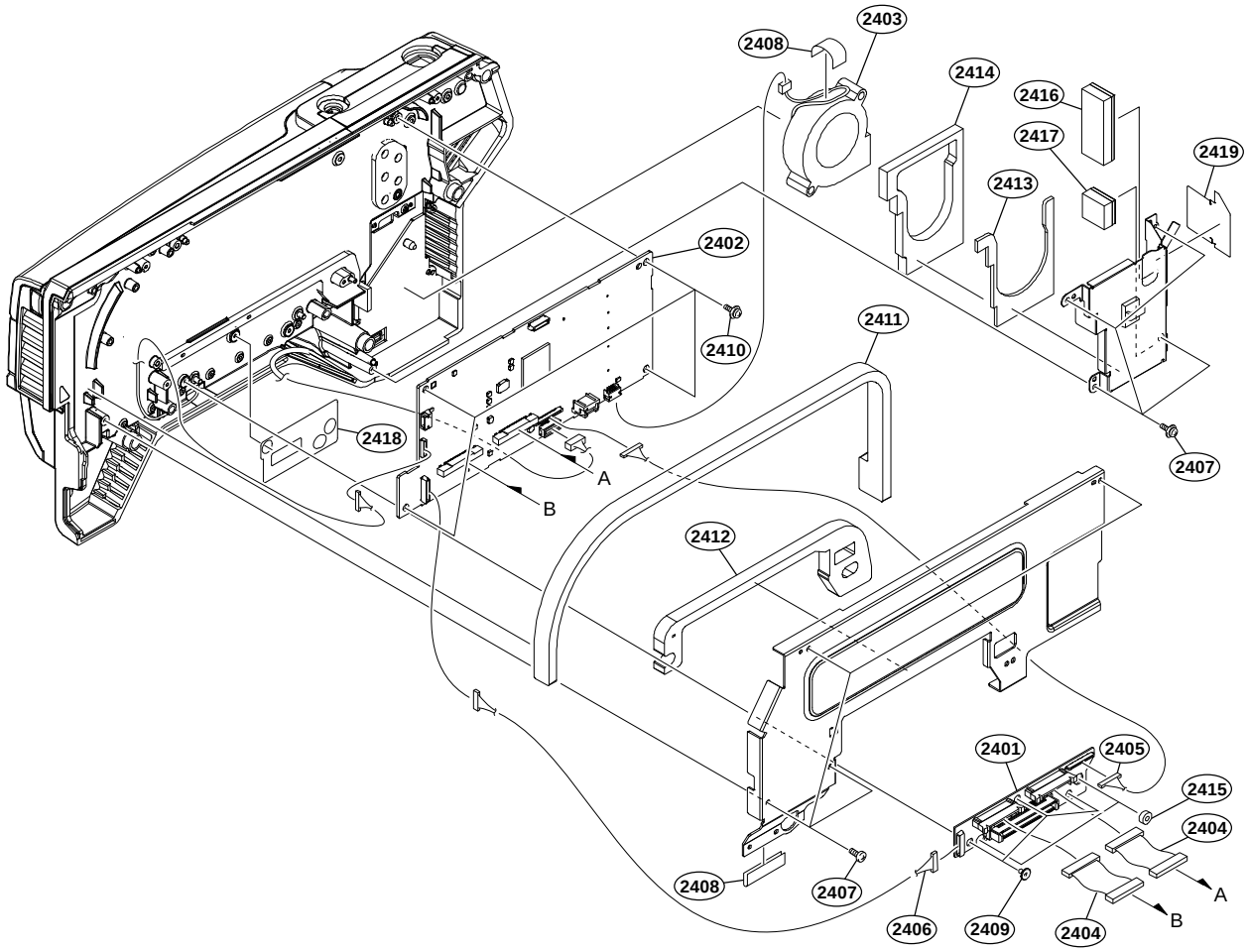
No.	Part No.	SP	Description
2201	A-2218-852-A	s	CN-4047 MOUNT
2202	1-844-930-11	s	CONNECTOR, COAXIAL (BNC)
2203	1-912-828-21	s	COAXIAL CABLE(SDI1) [Blue]
2204	1-912-829-21	s	COAXIAL CABLE(SDI3) [Green]
2205	1-912-874-21	s	COAXIAL CABLE (D.FL75)(SDI 2) [Black]
2206	1-971-958-11	s	HARNESS (EC-RE)
2207	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
2208	3-257-200-01	s	CLAMP, CORD
2209	3-872-935-01	s	CAP,BNC
2210	4-382-854-51	s	SCREW (M3X6), P, SW (+)
2211	4-428-368-01	s	WASHER, BNC COAXIAL FIXED
2212	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)
2213	4-740-586-01	s	HOLDER (860)
2214	4-740-587-02	s	PLATE, BNC HOLDER
2215	5-006-075-01	s	GASKET (1X3 (L)), SOFT

Outside Panel-4 (HDC5500, HKC-FB50 (Option))



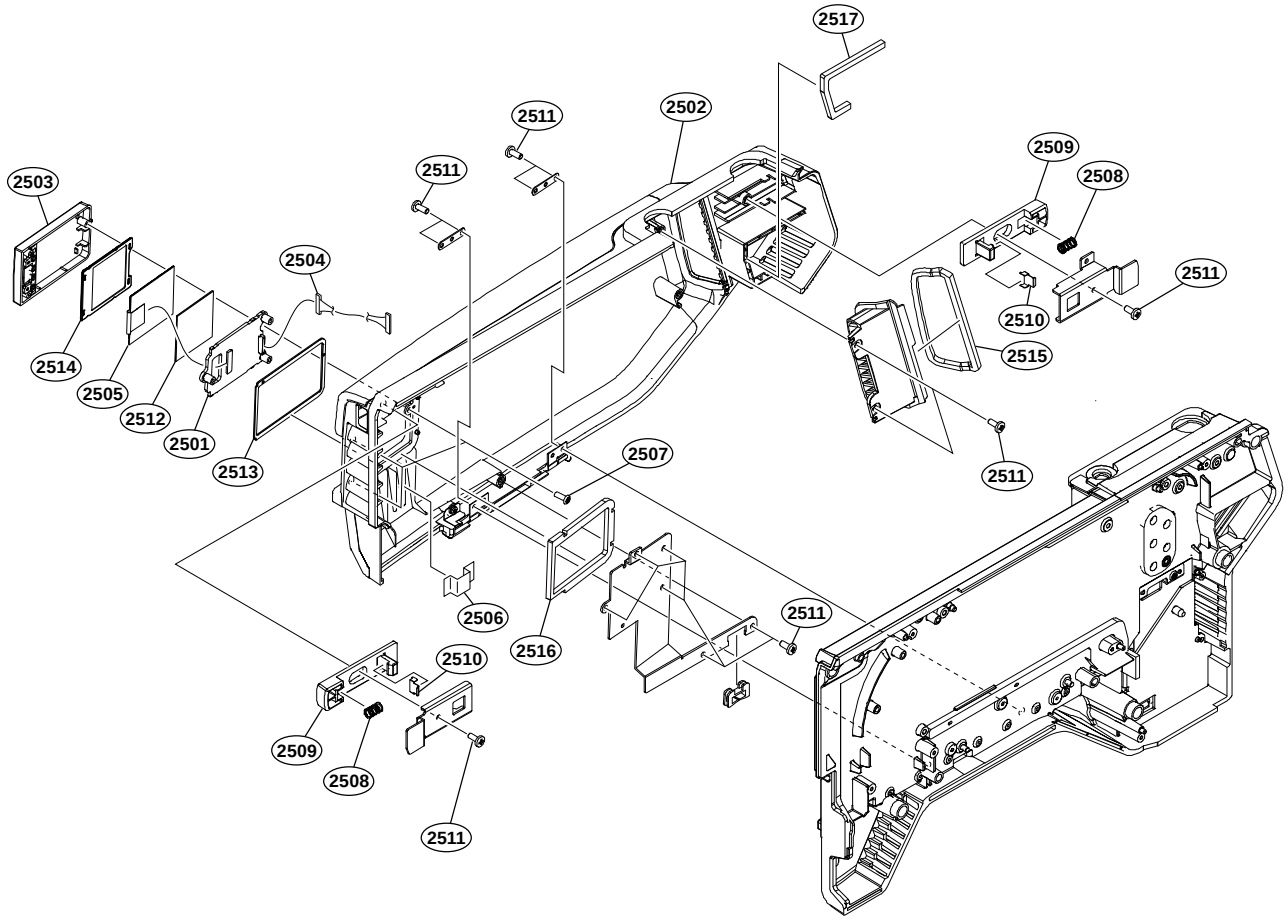
No.		Part No.	SP	Description
2301	⚠	A-2189-815-A	s	LEMO CONNECTOR ASSY-A(EDW)EXP [LEMO]
	⚠	1-839-827-11	s	OPTICAL MULTI CABLE ASSEMBLY [Tajimi]
2302		A-2218-853-A	s	CN-4048 MOUNT
2303		A-5003-777-A	s	OUTSIDE PANEL SUB ASSY(870)
2304		X-2597-591-1	s	CAMERA NUMBER CASE ASSY (860)
2305		1-812-456-11	s	E-PAPER (HINK-E0154A05)
2306		1-972-491-11	s	HARNESS, SUB (EPD-TX)
2307		2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
2308		3-080-206-21	s	SCREW, TAPPING, P2
2309		3-176-525-01	o	WASHER, SPRING
2310		3-602-464-02	s	WASHER, CONDUCTIVE
2311		3-676-244-04	s	COVER, SWITCH
2312		4-138-689-02	s	SHAFT, ROTARY(TRIAX)
2313		4-138-707-01	s	WASHER, TRIAX(2)
2314		4-293-502-01	s	CONNECTOR HOUSING
2315		4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
2316		4-740-593-01	s	CUSHION, CAMERA NUMBER
2317		4-747-106-01	s	BRACKET(860), CAMEARA NUMBER
2318		4-747-109-01	s	CUSHION(COVER), CAMERA NUMBER
2319		4-747-110-01	s	CUSHION(PANEL), CAMERA NUMBER
2320		5-004-742-01	s	LABEL UHB
		7-682-548-09	s	SCREW +B 3X8

Outside Panel-1 (HKC-WL50 (Option))



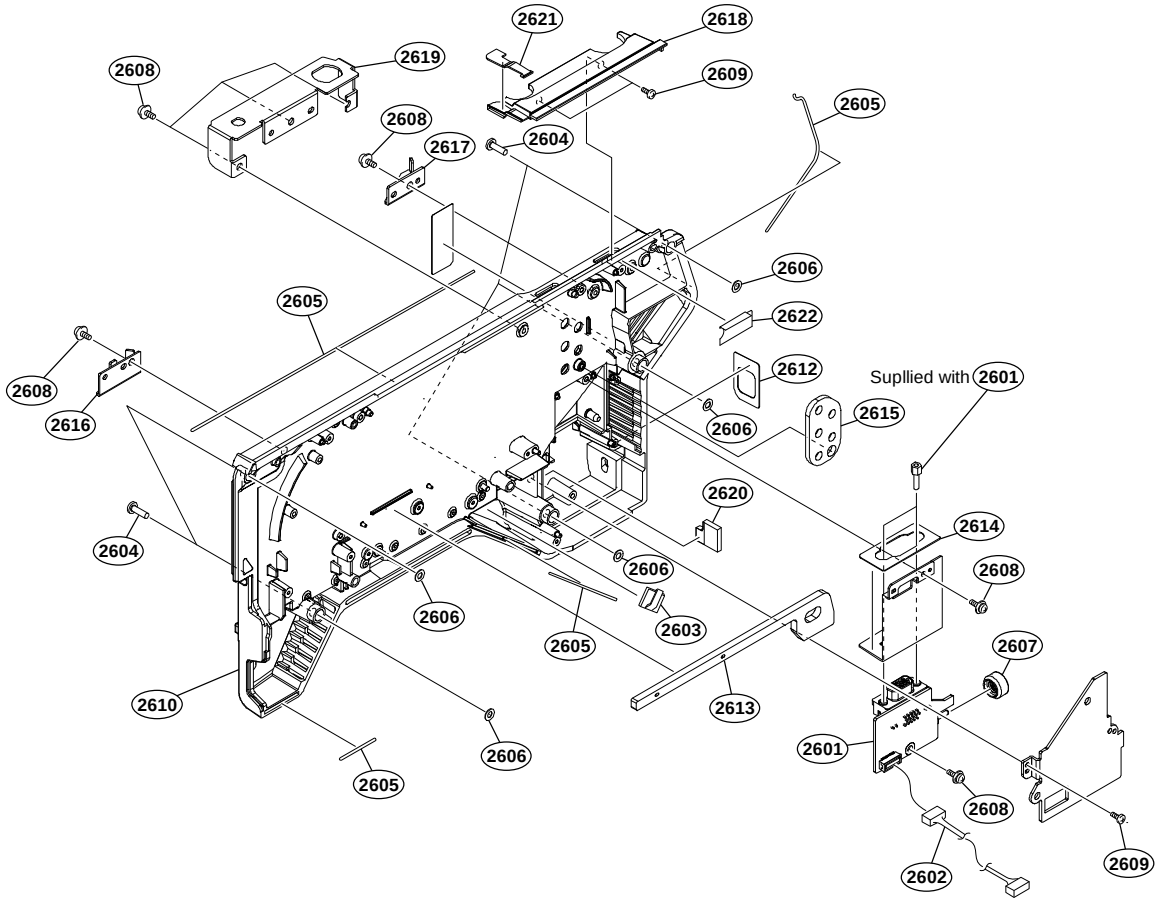
No.	Part No.	SP	Description
2401	A-2218-636-A	s	CN-4045 MOUNT
2402	A-5005-764-A	s	IF-1372 COMP
2403	⚠ 1-855-289-11	s	FAN, DC (SIROCCO, 12V)
2404	1-912-827-11	s	WITH, CONNECTOR FPC (DPR-CN)
2405	1-965-708-21	s	HARNESS (DPR-EC)
2406	1-970-397-11	s	HARNESS, SUB(REG1)
2407	2-640-315-02	o	SCREW (M2X5), SMALL, +P, SW
2408	3-079-115-01	s	TAPE AS
2409	3-965-077-03	s	SCREW, SPECIAL (M2)
2410	4-382-854-51	s	SCREW (M3X6), P, SW (+)
2411	5-001-128-01	s	CUSHION (IF-A), AIR FLOW
2412	5-001-130-01	s	CUSHION (IF-SHIELD)
2413	5-001-131-01	s	CUSHION (2), FAN
2414	5-001-133-01	s	CUSHION, FAN
2415	5-003-646-01	s	BUSH(CN)
2416	5-004-868-01	s	CUSHION (4), FAN
2417	5-004-869-01	s	CUSHION (5), FAN
2418	5-005-778-01	s	SHEET, PROTECTION
2419	5-005-779-01	s	SHEET, BLIND

Outside Panel-2 (HKC-WL50 (Option))



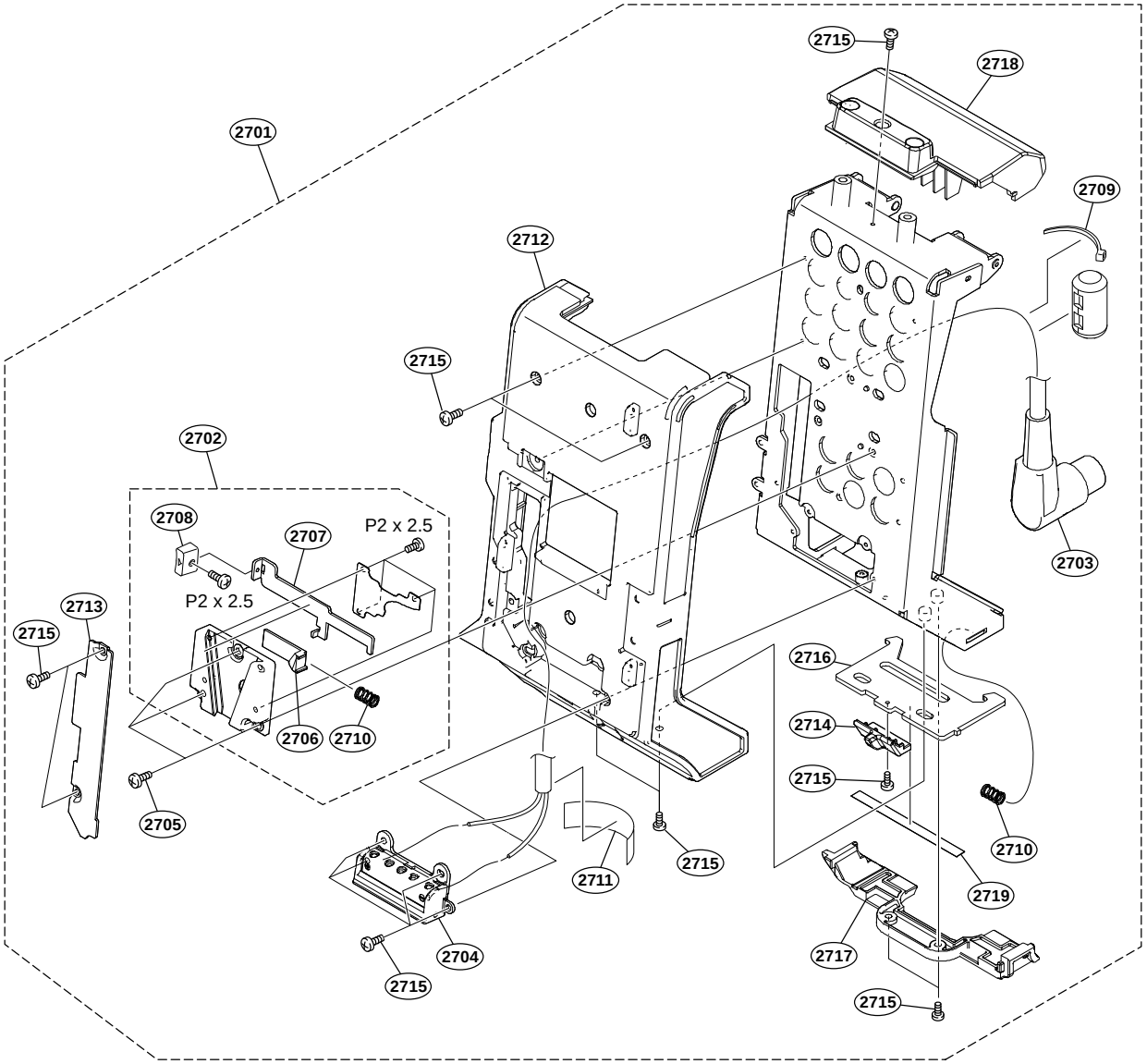
No.	Part No.	SP	Description
2501	A-5001-922-A	s	CN-4089 MOUNT
2502	A-5006-325-A	s	COVER ASSY, OUTSIDE SUB(S)
2503	X-2597-591-1	s	CAMERA NUMBER CASE ASSY (860)
2504	1-001-791-11	s	HARNESS (EPD-TX-WL)
2505	1-812-456-11	s	E-PAPER (HINK-E0154A05)
2506	3-079-115-01	s	TAPE AS
2507	3-080-206-21	s	SCREW, TAPPING, P2
2508	3-704-964-01	s	SPRING,COMPRESSION
2509	4-448-344-01	s	KNOB, LATCH
2510	4-448-345-01	s	SUPPORT, LATCH
2511	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)
2512	4-740-593-01	s	CUSHION, CAMERA NUMBER
2513	4-747-109-01	s	CUSHION(COVER), CAMERA NUMBER
2514	4-747-110-01	s	CUSHION(PANEL), CAMERA NUMBER
2515	5-001-132-01	s	CUSHION, LOUVER
2516	5-001-347-01	s	CUSHION (WL5), CAMERA NUMBER
2517	5-004-265-01	s	CUSHION (2), LOUVER

Outside Panel-3 (HKC-WL50 (Option))



No.	Part No.	SP	Description
2601	A-2229-240-A	s	MOUNT, CN-4074
2602	1-971-341-11	s	SUB HARNESS (HN1-HN2 20P)
2603	3-257-200-01	s	CLAMP, CORD
2604	3-603-679-02	s	STAINLESS SCREW +B3X10
2605	3-624-455-01	s	TUBE,SHIELD
2606	3-701-438-11	s	WASHER, 2.5
2607	3-870-137-02	s	CAP, DROP PROTECTION
2608	4-382-854-51	s	SCREW (M3X6), P, SW (+)
2609	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)
2610	5-001-089-01	s	PANEL, OUTSIDE
2612	5-001-127-01	s	LABEL, SW
2613	5-001-129-01	s	CUSHION (IF-B), AIR FLOW
2614	5-001-134-01	s	CUSHION, D-SUB
2615	5-001-135-01	s	CUSHION, MCX
2616	5-001-345-01	s	CATCHER (FRONT), LATCH
2617	5-001-346-01	s	CATCHER (REAR), LATCH
2618	5-003-571-01	s	COVER, ANTENNA PLATE
2619	5-003-572-01	s	BRACKET, ANTENNA
2620	5-004-867-01	s	CUSHION (3), FAN
2621	5-004-934-01	s	SHEET, ANTENNA PLATE
2622	5-005-780-01	s	SHEET(ANTENNA), WATERPROOF

Battery Adaptor (HKC-WL50 (Option))



No.	Part No.	SP	Description
2701	A-5005-204-A	s	ADAPTOR (WL5) ASSY, BATTERY
2702	A-8279-000-G	s	MOUNT,V(B)ASSY
2703	1-002-684-11	s	SUB HARNESS (BATTERY)
2704	1-820-459-22	s	CONNECTOR, BATTERY
2705	3-364-990-12	s	SCREW (M3X8)
2706	3-614-294-02	s	LOCK,SLIDE(B)
2707	3-614-295-03	s	LEVER,RELEASE(B)
2708	3-614-298-01	o	KNOB,RELEASE LEVER
2709	3-655-653-21	s	BAND (TAITON), BINDING
2710	3-704-964-01	s	SPRING,COMPRESSION
2711	4-119-886-01	s	TAPE (13X50)
2712	4-448-351-02	s	COVER (MAIN), ADAPTOR
2713	4-448-352-01	s	PLATE, BLIND
2714	4-448-353-01	s	KNOB, LOCK
2715	4-696-019-01	s	SCREW IB-LOCK(M2,BINDING HEAD)
2716	5-000-191-01	s	PLATE, LOCK
2717	5-001-100-01	s	COVER, ADAPTOR BOTTOM
2718	5-001-136-01	s	COVER, ADAPTOR UPPER
2719	5-005-091-01	s	SHEET, SLIDE
	7-627-553-28	s	SCREW,PRECISION +P 2X2.5

9-3. Supplied Accessories

HDC3500

Q'ty	Part No.	SP	Description
1pc	4-138-677-01	S	BRACKET, BELT
1pc	4-138-758-01	S	CLAMP BELT, CABLE
1pc	4-740-557-02	S	LABEL, ACCESSORY
1pc	⚠ 4-745-629-01	S	CD-ROM PACK
2pcs	7-682-548-09	S	SCREW +B 3X8

HDC5500

Q'ty	Part No.	SP	Description
1pc	4-138-677-01	S	BRACKET, BELT
1pc	4-138-758-01	S	CLAMP BELT, CABLE
1pc	4-740-557-02	S	LABEL, ACCESSORY
1pc	⚠ 5-006-577-01	S	CD-ROM PACK
2pcs	7-682-548-09	S	SCREW +B 3X8

HKC-CN50

Q'ty	Part No.	SP	Description
1pc	1-965-708-11	s	HARNESS (DPR-EC)
3pcs	3-965-077-03	s	SCREW, SPECIAL (M2)
2pcs	4-382-854-51	s	SCREW (M3X6), P, SW (+)
2pcs	4-599-318-01	s	BUSH (IF)
1pc	⚠ 4-745-636-01	s	OPERATING INSTRUCTIONS

HKC-FB30

Q'ty	Part No.	SP	Description
1pc	4-740-557-01	s	LABEL, ACCESSORY
1pc	⚠ 4-745-635-02	s	OPERATING INSTRUCTIONS

HKC-TR37

Q'ty	Part No.	SP	Description
1pc	4-740-557-01	s	LABEL, ACCESSORY
1pc	⚠ 4-745-635-02	s	OPERATING INSTRUCTIONS

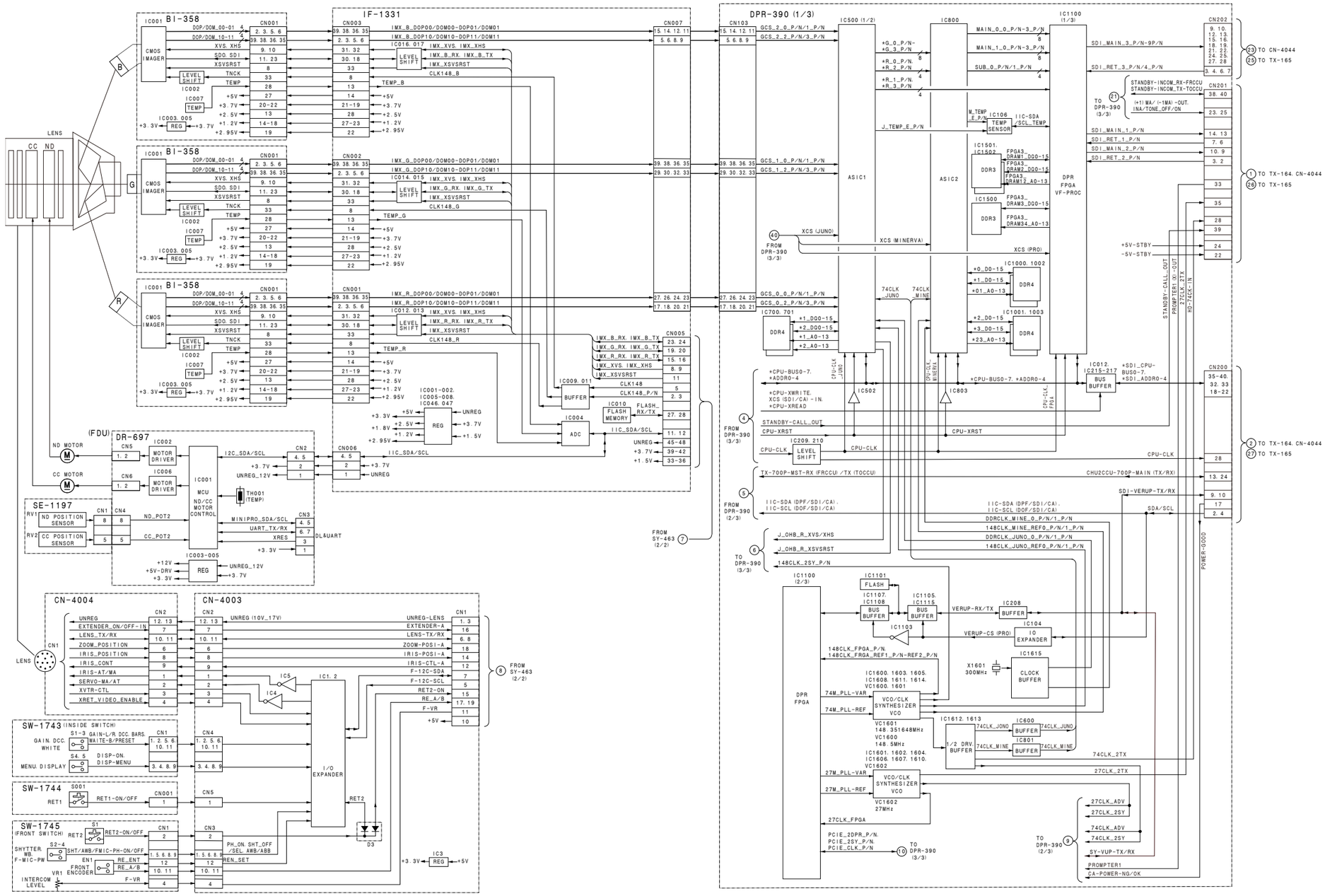
HKC-WL50

Q'ty	Part No.	SP	Description
1pc	A-5006-326-A	s	BRACKET ASSY, FITTING
1pc	1-002-266-11	s	HARNESS(DC-OUT-POWER)
1pc	5-004-033-01	s	LABEL, RATING
1pc	5-006-460-01	s	NUT (N CONNECTOR)
1pc	5-001-124-01	s	CUSHION, ANTENNA
1pc	⚠ 5-004-959-01	s	OPERATING INSTRUCTIONS

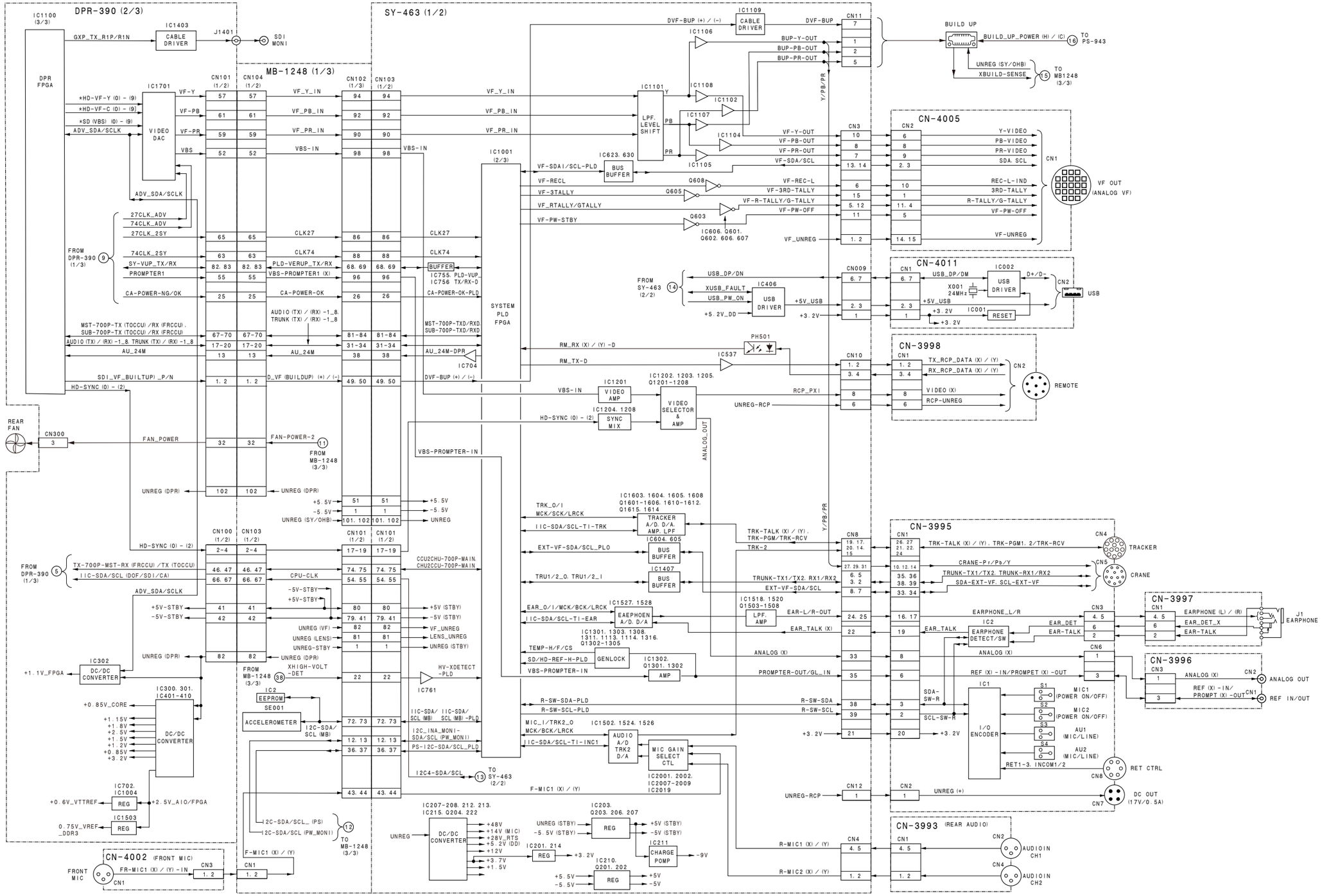
Section 10
Diagrams

Overall

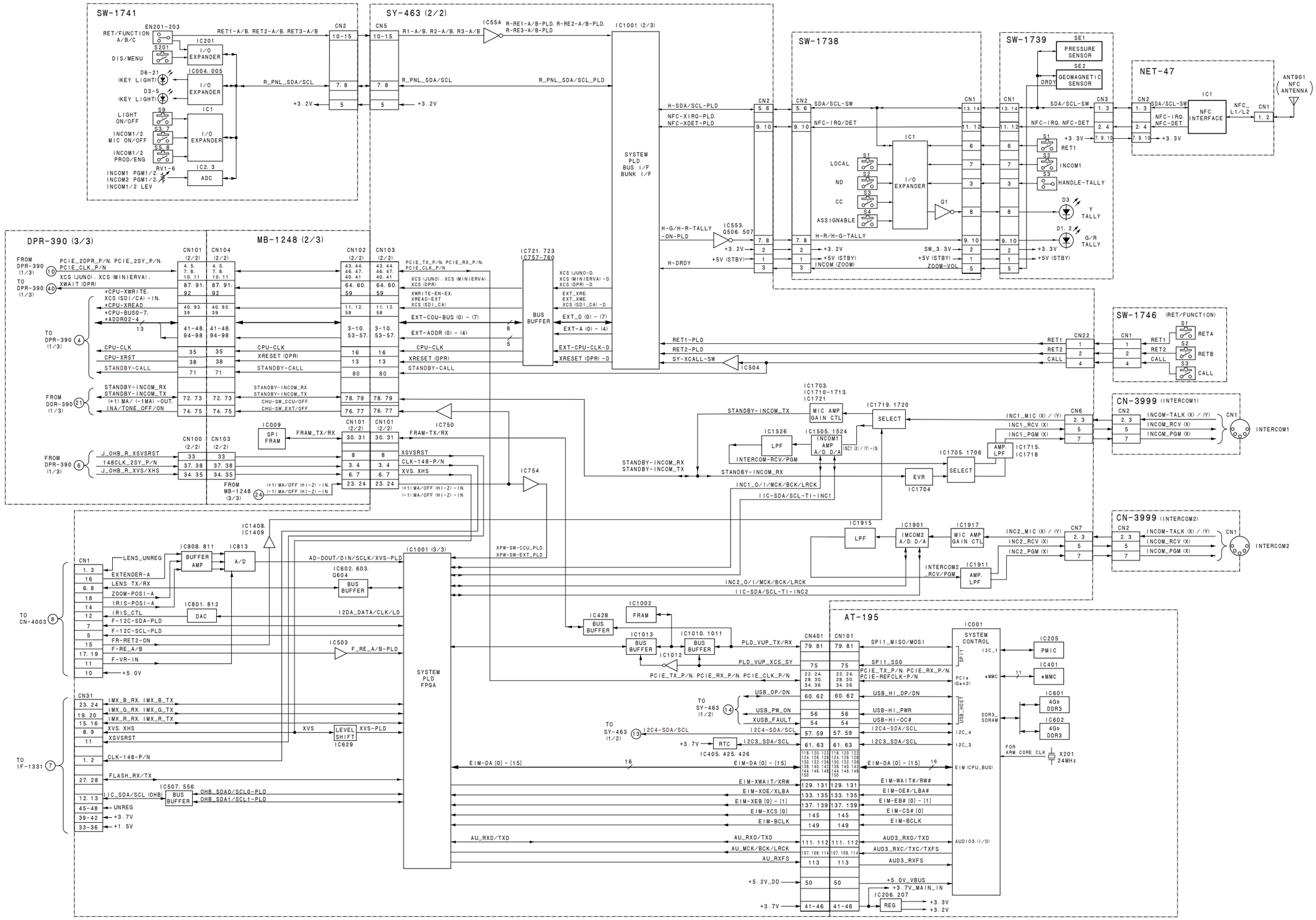
Overall (1/8)



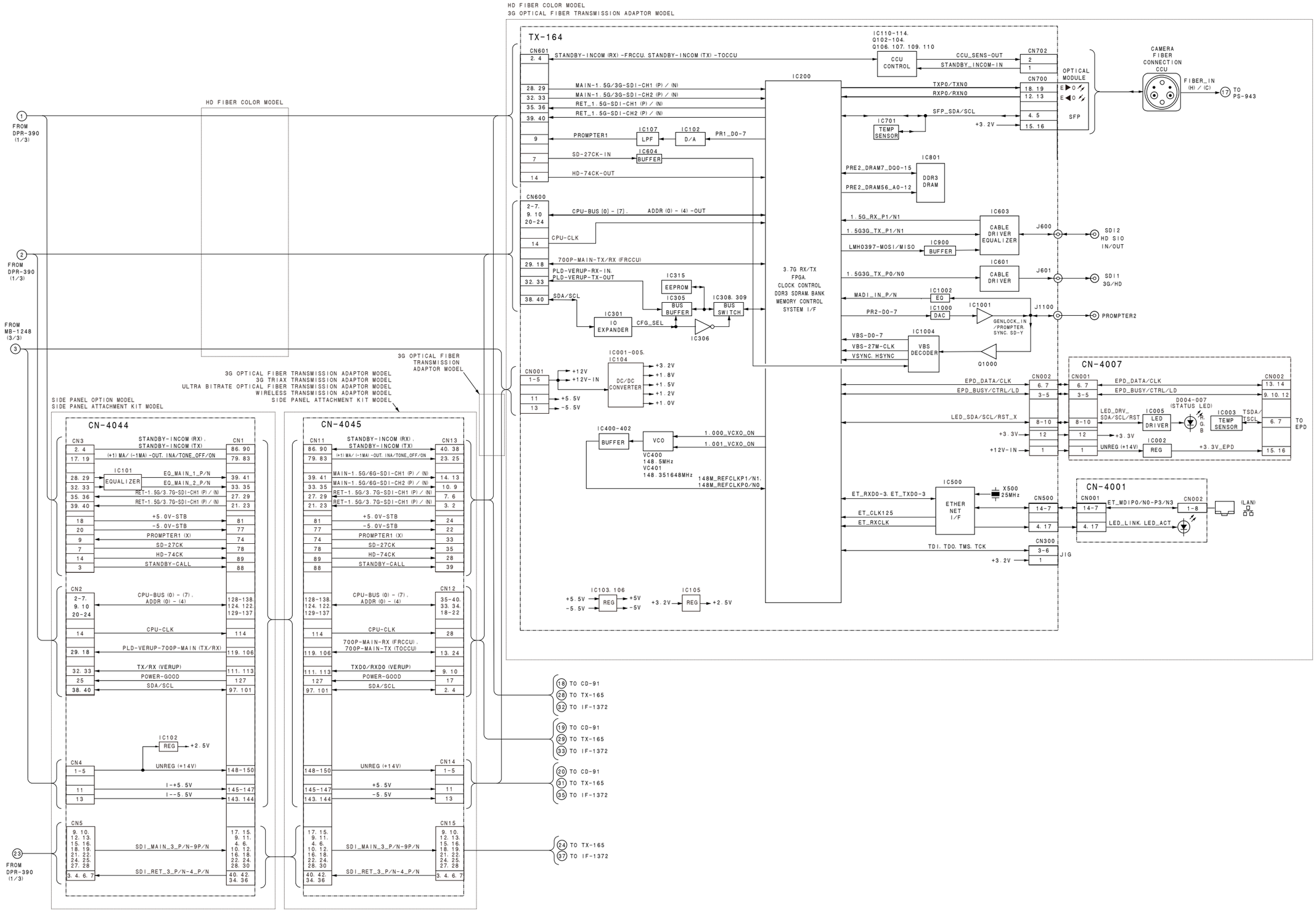
Overall (2/8)


DPR-390 (2/3)
SY-463 (1/2)
MB-1248 (1/3)
IC1100 (3/3)
DPR FPGA
IC1403 CABLE DRIVER
J1401
SDI MONI
GXP_TX_R1P/R1N
IC1701 VIDEO DAC
VF-Y
VF-PB
VF-PR
VBS
*HD-VF-Y (0) - (9)
*HD-VF-C (0) - (9)
*SD (VBS) (0) - (9)
ADV_SDA/SCLK
CN101 (1/2)
CN104 (1/2)
CN102 (1/3)
CN103 (1/2)
VF_Y_IN
VF_PB_IN
VF_PR_IN
VBS-IN
27CLK_ADV
74CLK_ADV
27CLK_2SY
74CLK_2SY
SY-VUP_TX/RX
PROMPTER1
CA-POWER-NG/OK
CLK27
CLK74
PLD-VERUP_TX/RX
VBS-PROMPTER1 (X)
CA-POWER-OK
FROM DPR-390 (1/3)
IC1001 (2/3)
SYSTEM PLD FPGA
BUFFER
IC755. PLD-VUP. IC756 TX/RX-D
CA-POWER-OK-PLD
AUDIO (TX) / (RX) -1_8. TRUNK (TX) / (RX) -1_8
MST-700P-TX (TOCCU) /RX (FRCCU). SUB-700P-TX (TOCCU) /RX (FRCCU)
MST-700P-TXD/RXD. SUB-700P-TXD/RXD
AU_24M
AU_24M-DPR
IC704
SDI_VF_BUILTUP) _P/N
HD-SYNC (0) - (2)
D_VF (BUILDUP) (+) / (-)
DVF-BUP (+) / (-)
IC1109 CABLE DRIVER
DVF-BUP
IC1106
BUP-Y-OUT
BUP-PB-OUT
BUP-PR-OUT
Y/PB/PR
CN11
BUILD UP
BUILD_UP_POWER (H) / (C)
TO PS-943
UNREG (SY/OHB)
XBUILD-SENSE
TO MB1248 (3/3)
IC1101 LPF. LEVEL SHIFT
IC1108
IC1102
IC1107
IC1104
IC1105
IC623. 630 BUS BUFFER
VF-SDAI/SCL-PLD
VF-RECL
VF-3TALLY
VF_RTALLY/GTALLY
VF-PW-STBY
Q608
Q605
Q603
IC606. Q601. Q602. 606. 607
VF-Y-OUT
VF-PB-OUT
VF-PR-OUT
VF-SDA/SCL
VF-REC-L
VF-3RD-TALLY
VF-R-TALLY/G-TALLY
VF-PW-OFF
VF_UNREG
CN3
CN-4005
CN2
Y-VIDEO
PB-VIDEO
PR-VIDEO
SDA. SCL
REC-L-IND
3RD-TALLY
R-TALLY/G-TALLY
VF-PW-OFF
VF-UNREG
CN1
VF OUT (ANALOG VF)
FROM SY-463 (2/2)
USB_DP/DN
XUSB_FAULT
USB_PW_ON
+5.2V_DD
IC406 USB DRIVER
+5V_USB
+3.2V
CN009
CN-4011
USB_DP/DM
IC002 USB DRIVER
D+/D-
X001 24MHz
IC001 RESET
USB
CN-3998
TX_RCP_DATA (X) / (Y)
RX_RCP_DATA (X) / (Y)
VIDEO (X)
RCP-UNREG
REMOTE
PH501
IC537
RM_RX (X) / (Y) -D
RM_TX-D
CN10
IC1201 VIDEO AMP
IC1202. 1203. 1205. Q1201-1208 VIDEO SELECTOR & AMP
VBS-IN
HD-SYNC (0) - (2)
RCP_PXI
UNREG-RCP
ANALOG_OUT
IC1204. 1208 SYNC MIX
VBS-PROMPTER-IN
REAR FAN
CN300
FAN_POWER
FAN-POWER-2
FROM MB-1248 (3/3)
UNREG (DPR)
+5.5V
-5.5V
UNREG (SY/OHB)
IC1603. 1604. 1605. 1608 Q1601-1606. 1610-1612. Q1615. 1614
TRACKER A/D. D/A. AMP. LPF
IC604. 605 BUS BUFFER
IC1407 BUS BUFFER
TRK_O/I
MCK/SCK/LRCK
IIC-SDA/SCL-TI-TRK
EXT-VF-SDA/SCL_PLO
TRU1/2_O. TRU1/2_I
TRK-TALK (X) / (Y). TRK-PGM/TRK-RCV
TRK-2
TRUNK-TX1/TX2. RX1/RX2
EXT-VF-SDA/SCL
CN8
CN-3995
CN4 TRACKER
CRANE-Pr/Pb/Y
TRUNK-TX1/TX2. TRUNK-RX1/RX2
SDA-EXT-VF. SCL-EXT-VF
CN5 CRANE
CN100 (1/2)
CN103 (1/2)
CN101 (1/2)
CN101 (1/2)
HD-SYNC (0) - (2)
FROM DPR-390 (1/3)
TX-700P-MST-RX (FRCCU) /TX (TOCCU)
IIC-SDA/SCL (DOF/SDI/CA)
CCU2CHU-700P-MAIN. CHU2CCU-700P-MAIN
CPU-CLK
ADV_SDA/SCLK
+5V-STBY
-5V-STBY
UNREG (VF)
UNREG (LENS)
UNREG-STBY
VF_UNREG
LENS_UNREG
UNREG (STBY)
IC1527. 1528 EAEPHOEN A/D. D/A
EAR_O/I/MCK/BCK/LRCK
IIC-SDA/SCL-TI-EAR
IC1301. 1303. 1308. 1311. 1113. 1114. 1316. Q1302-1305
TEMP-H/F/CS
SD/HD-REF-H-PLD
VBS-PROMPTER-IN
GENLOCK
IC1302. Q1301. 1302 AMP
IC1518. 1520 Q1503-1508 LPF. AMP
EAR-L/R-OUT
EAR_TALK (X)
ANALOG (X)
PROMPTER-OUT/GL_IN
EARPHONE_L/R
EAR_TALK
EAR_DET
EAR-TALK
IC2 EARPHONE DETECT/SW
CN-3997
EARPHONE (L) / (R)
EAR_DET_X
EAR-TALK
J1 EARPHONE
CN-3996
ANALOG (X)
REF (X) -IN/PROMPET (X) -OUT
ANALOG OUT
REF IN/OUT
SDA-SW-R
SCL-SW-R
IC1 I/O ENCODER
S1 MIC1 (POWER ON/OFF)
S2 MIC2 (POWER ON/OFF)
S3 AU1 (MIC/LINE)
S4 AU2 (MIC/LINE)
RET1-3. INCOM1/2
CN8 RET CTRL
CN7 DC OUT (17V/0. 5A)
IC302 DC/DC CONVERTER
+1. 1V_FPGA
IC300. 301. IC401-410 DC/DC CONVERTER
+0. 85V_CORE
+1. 15V
+1. 8V
+2. 5V
+1. 5V
+1. 2V
+0. 85V
+3. 2V
IC702. IC1004 REG
+0. 6V_VTTREF
+2. 5V_AIO/FPGA
IC1503 REG
0. 75V_VREF _DDR3
XHIGH-VOLT -DET
FROM MB-1248 (3/3)
IC2 EEPROM SE001
ACCELEROMETER
IIC-SDA/ SCL (MB)
I2C-SDA/ SCL (MB)
I2C_INA_MONI- SDA/SCL (PW_MONI)
PS-I2C-SDA/SCL_PLD
I2C4-SDA/SCL
TO SY-463 (2/2)
HV-XDETECT -PLD
IC761
IIC-SDA/ IIC-SDA/ SCL (MB) SCL (MB) -PLD
MIC_I/TRK2_O
MCK/BCK/LRCK
IIC-SDA/SCL-TI-INC1
IC1502. 1524. 1526
AUDIO A/D TRK2 D/A
MIC GAIN SELECT CTL
IC2001. 2002. IC2007-2009 IC2019
F-MIC1 (X) / (Y)
R-SW-SDA-PLD
R-SW-SCL-PLD
R-SW-SDA
R-SW-SCL
+3. 2V
CN-3993 (REAR AUDIO)
R-MIC1 (X) / (Y)
R-MIC2 (X) / (Y)
AUDIOIN CH1
AUDIOIN CH2
CN-4002 (FRONT MIC)
FRONT MIC
FR-MIC1 (X) / (Y) -IN
I2C-SDA/SCL_ (PS)
I2C-SDA/SCL (PW_MONI)
TO MB-1248 (3/3)
IC207-208. 212. 213. IC215. Q204. 222 DC/DC CONVERTER
+48V
+14V (MIC)
+28V_RTS
+5. 2V (DD)
+12V
+3. 7V
+1. 5V
IC201. 214 REG
IC203. Q203. 206. 207 REG
IC210. Q201. 202 REG
IC211 CHARGE POMP
-9V
UNREG (STBY)
-5. 5V (STBY)
+5V (STBY)
-5V (STBY)
UNREG-RCP
UNREG (+)

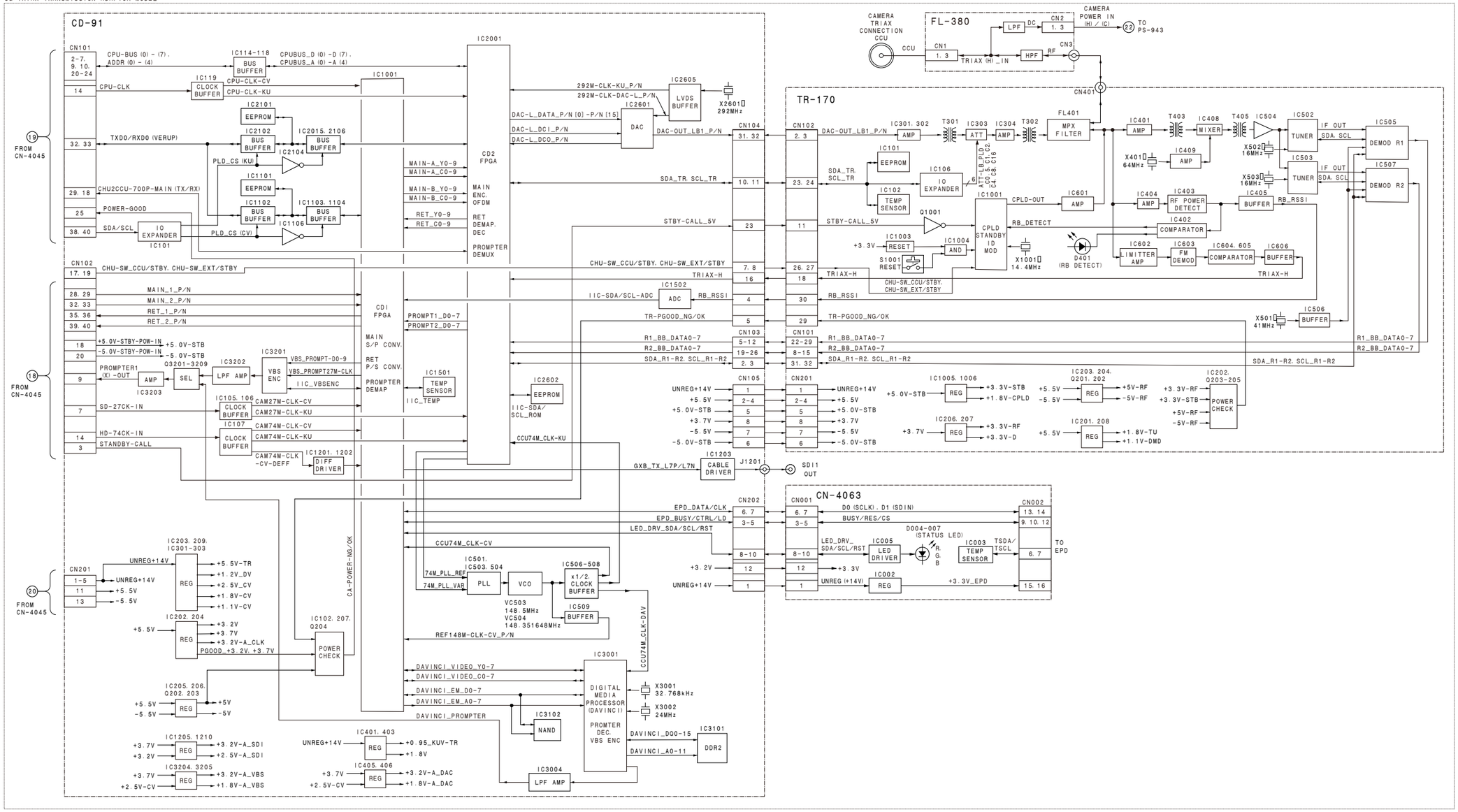
Overall (3/8)


SW-1741
SY-463 (2/2)
SW-1738
SW-1739
NET-47
DPR-390 (3/3)
MB-1248 (2/3)
SW-1746 (RET/FUNCTION)
CN-3999 (INTERCOM1)
CN-3999 (INTERCOM2)
AT-195
SYSTEM PLD BUS I/F BUNK I/F
SYSTEM PLD FPGA
BUS BUFFER
I/O EXPANDER
MIC AMP GAIN CTL
SELECT
LPF
AMP LPF
EVR
IC1704
IC1705. 1706
IC1719. 1720
IC1901
IC1915
IC1917
IC1911
IMCOM1 A/D. D/A
IMCOM2 A/D. D/A
INCOM1 AMP A/D. D/A
SPI FRAM
IC1001 (2/3)
IC1002
IC1408. IC1409
IC754
IC504
IC750
IC629
IC801. 812
IC808. 811
IC813
IC1721
IC1526
IC1505. 1524
IC1715. IC1718
SYSTEM CONTROL
PMIC
MMC
DDR3 SDRAM
4Gb DDR3
RTC
REG
X201 24MHz
INTERCOM1
INTERCOM2
ANT901 NFC ANTENNA
NFC INTERFACE
PRESSURE SENSOR
GEOMAGNETIC SENSOR
HANDLE-TALLY
Y TALLY
G/R TALLY
RETA
RETB
CALL
LOCAL
ND
CC
ASSIGNABLE
TO CN-4003
TO IF-1331
TO DPR-390 (1/3)
TO SY-463 (1/2)
FROM DPR-390 (1/3)
FROM MB-1248 (3/3)
R_PNL_SDA/SCL
R_PNL_SDA/SCL_PLD
H-SDA/SCL-PLD
NFC-XIRQ-PLD.
NFC-XDET-PLD
H-G/H-R-TALLY -ON-PLD
H-DRDY
RET1-PLD
RET2-PLD
SY-XCALL-SW
EXT-COU-BUS (0) - (7)
EXT-ADDR (0) - (4)
CPU-CLK
XRESET (DPR)
STANDBY-CALL
STANDBY-INCOM_RX
STANDBY-INCOM_TX
FRAM-TX/RX
XSVSRST
CLK-148-P/N
XVS. XHS
INC1_O/I/MCK/BCK/LRCK
IIC-SDA/SCL-TI-INC1
INC2_O/I/MCK/BCK/LRCK
IIC-SDA/SCL-TI-INC2
AD-DOUT/DIN/SCLK/XVS-PLD
I2DA_DATA/CLK/LD
F_RE_A/B-PLD
XVS-PLD
EIM-DA [0] - [15]
EIM-XWAIT/XRW
EIM-XOE/XLBA
EIM-XEB [0] - [1]
EIM-XCS [0]
EIM-BCLK
AU_RXD/TXD
AU_MCK/BCK/LRCK
AU_RXFS
PLD_VUP_TX/RX
PLD_VUP_XCS_SY
SPI1_MISO/MOSI
SPI1_SS0
USB_DP/DN
USB_PW_ON
XUSB_FAULT
I2C4-SDA/SCL
I2C3_SDA/SCL
OHB_SDA0/SCL0-PLD
OHB_SDA1/SCL1-PLD
IC_SDA/SCL (OHB)
PCIE_TX_P/N. PCIE_RX_P/N. PCIE_CLK_P/N
PCIE_2DPR_P/N. PCIE_2SY_P/N. PCIE_CLK_P/N
XCS (JUNO). XCS (MINIERVA). XWAIT (DPR)
*CPU-XWRITE. XCS (SDI/CA) -IN.
*CPU-XREAD
*CPU-BUS0-7.
*ADDR02-4
STANDBY-INCOM_RX STANDBY-INCOM_TX
(+1) MA/ (-1MA) -OUT
INA/TONE_OFF/ON
148CLK_2SY_P/N
J_OHB_R_XSVS/XHS
J_OHB_R_XSVSRST
IMX_B_RX. IMX_B_TX
IMX_G_RX. IMX_G_TX
IMX_R_RX. IMX_R_TX
FLASH_RX/TX
UNREG
+3.7V
+1.5V
+5.0V
+5.2V_DD
+3.7V_MAIN_IN
+3.3V
+5V (STBY)
INCOM1 PGM1/2. INCOM2 PGM1/2. INCOM1/2 LEV
RET/FUNCTION A/B/C
DIS/MENU
(KEY LIGHT)
LIGHT ON/OFF
INCOM1/2 MIC ON/OFF
INCOM1/2 PROD/ENG
INCOM-TALK (X) / (Y)
INCOM_RCV (X)
INCOM_PGM (X)
INC1_MIC (X) / (Y)
INC1_RCV (X)
INC1_PGM (X)
INC2_MIC (X) / (Y)
INC2_RCV (X)
INC2_PGM (X)
NFC-IRQ. NFC-DET
NFC_ L1/L2
SDA/SCL-SW
NFC-IRQ/DET
SW_3. 3V
ZOOM-VOL
INCOM (ZOOM)
DRDY
RET1
INCOM1
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN22
CN100 (2/2)
CN101 (2/2)
CN102 (2/2)
CN103 (2/2)
CN104 (2/2)
CN401
CN101

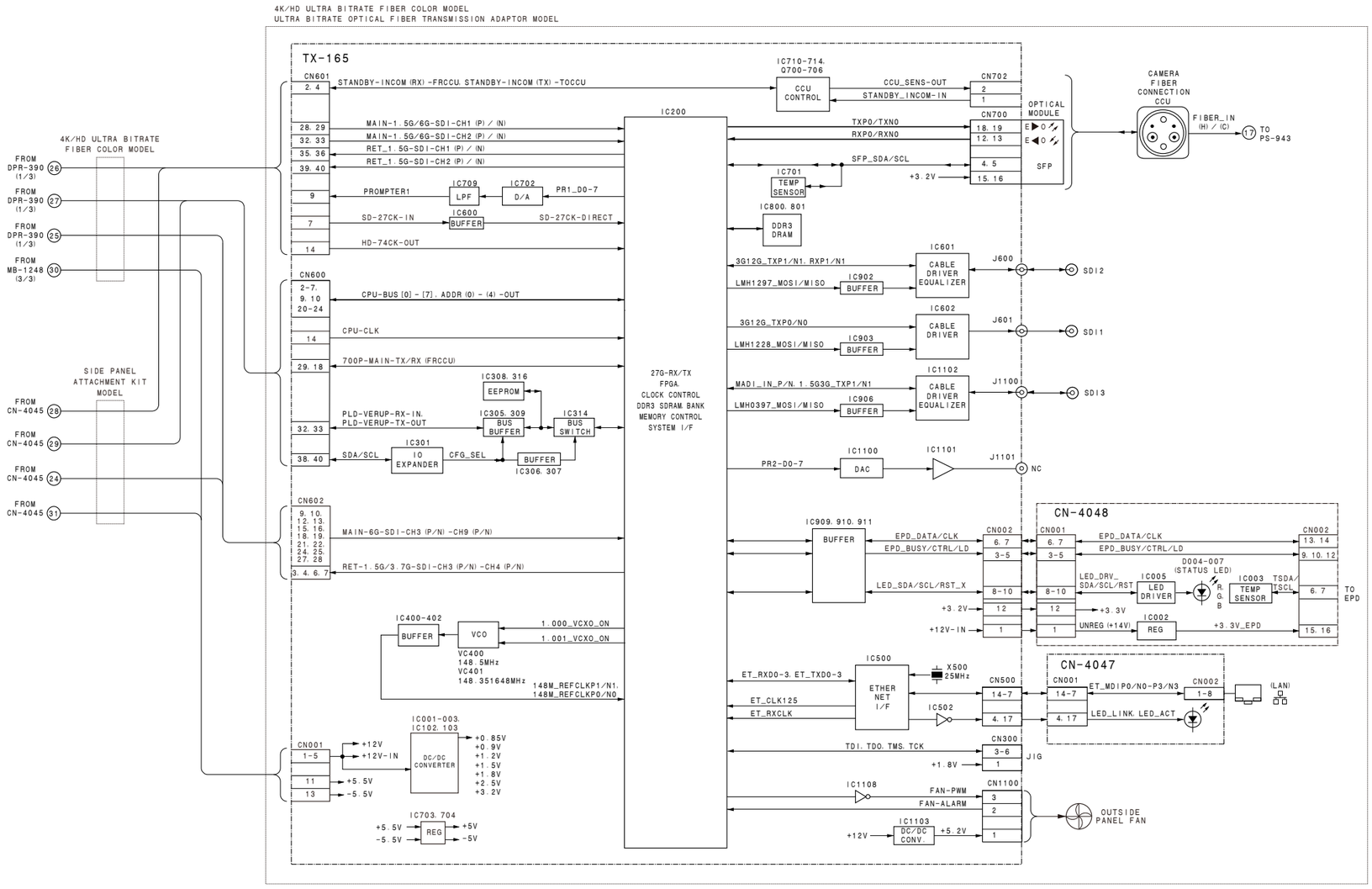
Overall (4/8)


HD FIBER COLOR MODEL
3G OPTICAL FIBER TRANSMISSION ADAPTOR MODEL
TX-164
IC110-114. Q102-104. Q106. 107. 109. 110
CCU CONTROL
CCU_SENS-OUT
STANDBY_INCOM-IN
CN702
OPTICAL MODULE
SFP
CN700
CAMERA FIBER CONNECTION CCU
FIBER_IN (H) / (C)
TO PS-943
STANDBY-INCOM (RX) -FRCCU. STANDBY-INCOM (TX) -TOCCU
MAIN-1. 5G/3G-SDI-CH1 (P) / (N)
MAIN-1. 5G/3G-SDI-CH2 (P) / (N)
RET_1. 5G-SDI-CH1 (P) / (N)
RET_1. 5G-SDI-CH2 (P) / (N)
TXP0/TXN0
RXP0/RXN0
SFP_SDA/SCL
+3. 2V
IC701 TEMP SENSOR
PROMPTER1
IC107 LPF
IC102 D/A
PR1_D0-7
SD-27CK-IN
IC604 BUFFER
HD-74CK-OUT
IC200
3. 7G RX/TX FPGA. CLOCK CONTROL DDR3 SDRAM BANK MEMORY CONTROL SYSTEM I/F
IC801 DDR3 DRAM
PRE2_DRAM7_DQ0-15
PRE2_DRAM56_A0-12
CPU-BUS [0] - [7]. ADDR (0) - (4) -OUT
CPU-CLK
700P-MAIN-TX/RX (FRCCU)
PLD-VERUP-RX-IN. PLD-VERUP-TX-OUT
SDA/SCL
IC315 EEPROM
IC305 BUS BUFFER
IC308. 309 BUS SWITCH
IC301 IO EXPANDER
CFG_SEL
IC306
1. 5G_RX_P1/N1
1. 5G3G_TX_P1/N1
LMH0397-MOSI/MISO
IC900 BUFFER
IC603 CABLE DRIVER EQUALIZER
J600
SDI2 HD SIO IN/OUT
1. 5G3G_TX_P0/N0
IC601 CABLE DRIVER
J601
SDI1 3G/HD
MADI_IN_P/N
IC1002 EQ
PR2-D0-7
IC1000 DAC
IC1001
J1100
PROMPTER2
GENLOCK_IN /PROMPTER. SYNC. SD-Y
VBS-D0-7
VBS-27M-CLK
VSYNC. HSYNC
IC1004 VBS DECODER
Q1000
CN001
+12V
+12V-IN
+5. 5V
-5. 5V
IC001-005. IC104
DC/DC CONVERTER
+3. 2V
+1. 8V
+1. 5V
+1. 2V
+1. 0V
IC400-402 BUFFER
VCO
1. 000_VCXO_ON
1. 001_VCXO_ON
VC400 148. 5MHz
VC401 148. 351648MHz
148M_REFCLKP1/N1. 148M_REFCLKP0/N0
EPD_DATA/CLK
EPD_BUSY/CTRL/LD
LED_SDA/SCL/RST_X
+3. 3V
+12V-IN
CN002
CN-4007
LED_DRV_ SDA/SCL/RST
IC005 LED DRIVER
D004-007 (STATUS LED)
IC003 TEMP SENSOR
TSDA/ TSCL
TO EPD
UNREG (+14V)
IC002 REG
+3. 3V_EPD
IC500 ETHER NET I/F
X500 25MHz
ET_RXD0-3. ET_TXD0-3
ET_CLK125
ET_RXCLK
CN500
CN-4001
ET_MDIP0/N0-P3/N3
LED_LINK. LED_ACT
(LAN)
TDI. TDO. TMS. TCK
CN300
JIG
IC103. 106 REG +5V -5V
IC105 REG +2. 5V
FROM DPR-390 (1/3)
FROM MB-1248 (3/3)
3G OPTICAL FIBER TRANSMISSION ADAPTOR MODEL
3G TRIAX TRANSMISSION ADAPTOR MODEL
ULTRA BITRATE OPTICAL FIBER TRANSMISSION ADAPTOR MODEL
WIRELESS TRANSMISSION ADAPTOR MODEL
SIDE PANEL ATTACHMENT KIT MODEL
SIDE PANEL OPTION MODEL
SIDE PANEL ATTACHMENT KIT MODEL
CN-4044
CN-4045
STANDBY-INCOM (RX). STANDBY-INCOM (TX)
(+1) MA/ (-1MA) -OUT. INA/TONE_OFF/ON
IC101 EQUALIZER
EQ_MAIN_1_P/N
EQ_MAIN_2_P/N
RET-1. 5G/3. 7G-SDI-CH1 (P) / (N)
RET-1. 5G/3. 7G-SDI-CH2 (P) / (N)
MAIN-1. 5G/6G-SDI-CH1 (P) / (N)
MAIN-1. 5G/6G-SDI-CH2 (P) / (N)
+5. 0V-STB
-5. 0V-STB
PROMPTER1 (X)
SD-27CK
HD-74CK
STANDBY-CALL
CN1
CN13
CN2
CPU-BUS (0) - (7). ADDR (0) - (4)
CPU-CLK
PLD-VERUP-700P-MAIN (TX/RX)
700P-MAIN-RX (FRCCU). 700P-MAIN-TX (TOCCU)
TX/RX (VERUP)
TXD0/RXD0 (VERUP)
POWER-GOOD
SDA/SCL
IC102 REG +2. 5V
UNREG (+14V)
I-+5. 5V
I--5. 5V
CN4
CN14
CN5
CN15
SDI_MAIN_3_P/N-9P/N
SDI_RET_3_P/N-4_P/N
FROM DPR-390 (1/3)
TO CD-91
TO TX-165
TO IF-1372

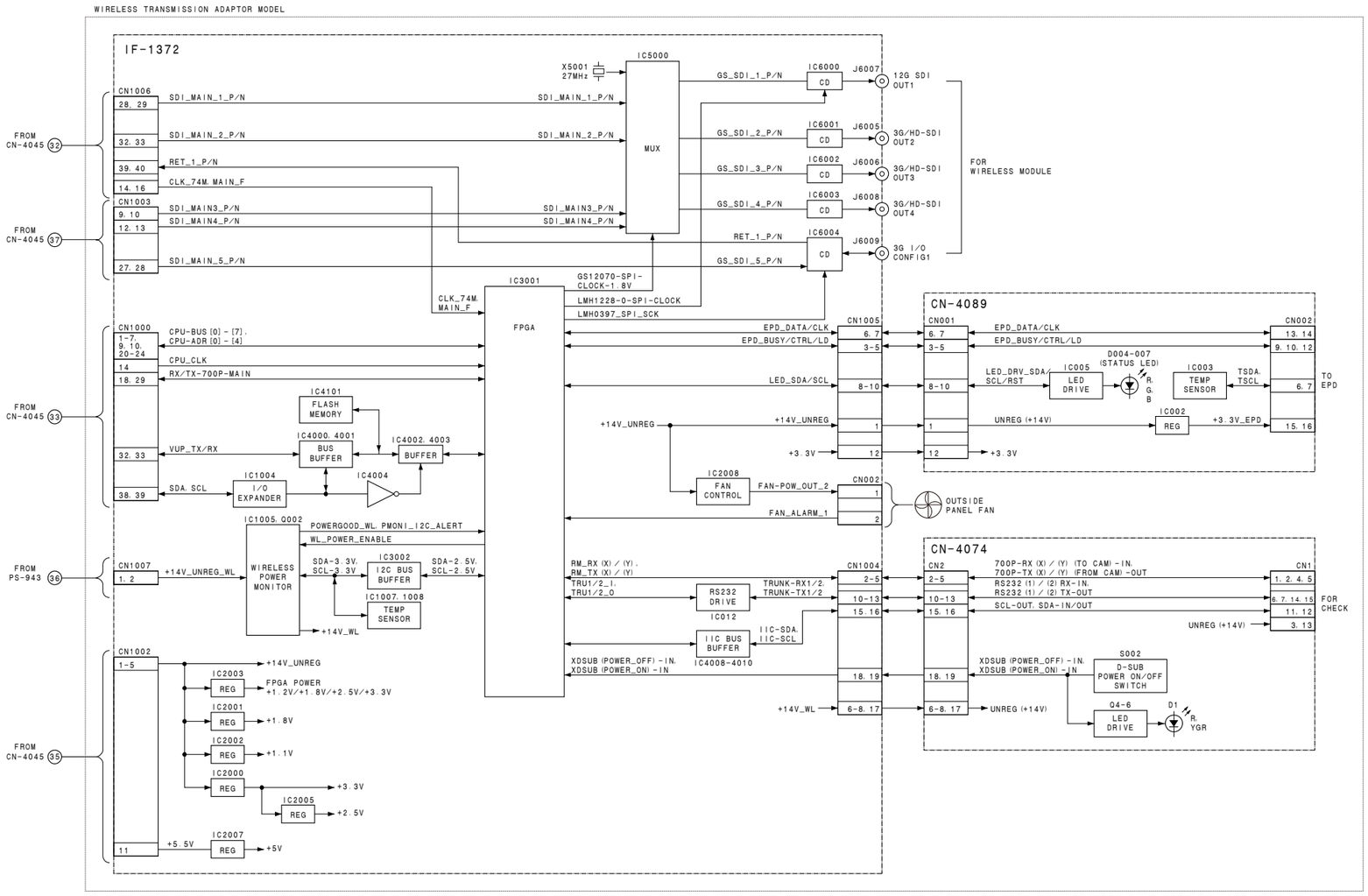
Overall (5/8)


3G TRIAX TRANSMISSION ADAPTOR MODEL
CD-91
TR-170
FL-380
CN-4063
CAMERA TRIAX CONNECTION CCU
CAMERA POWER IN (H) / (C)
TO PS-943
FROM CN-4045
CD2 FPGA
MAIN ENC. OFDM
RET DEMAP. DEC
PROMPTER DEMUX
CDI FPGA
MAIN S/P CONV.
RET P/S CONV.
PROMPTER DEMAP
DAC
LVDS BUFFER
IO EXPANDER
CPLD STANDBY ID MOD
MPX FILTER
TUNER
DEMOD R1
DEMOD R2
CABLE DRIVER
ADC
TEMP SENSOR
VBS ENC
LPF AMP
SEL
CLOCK BUFFER
DIFF DRIVER
POWER CHECK
PLL
VCO
x1/2. CLOCK BUFFER
DIGITAL MEDIA PROCESSOR (DAVINCI)
PROMTER DEC. VBS ENC
NAND
DDR2
LED DRIVER
TEMP SENSOR
TO EPD

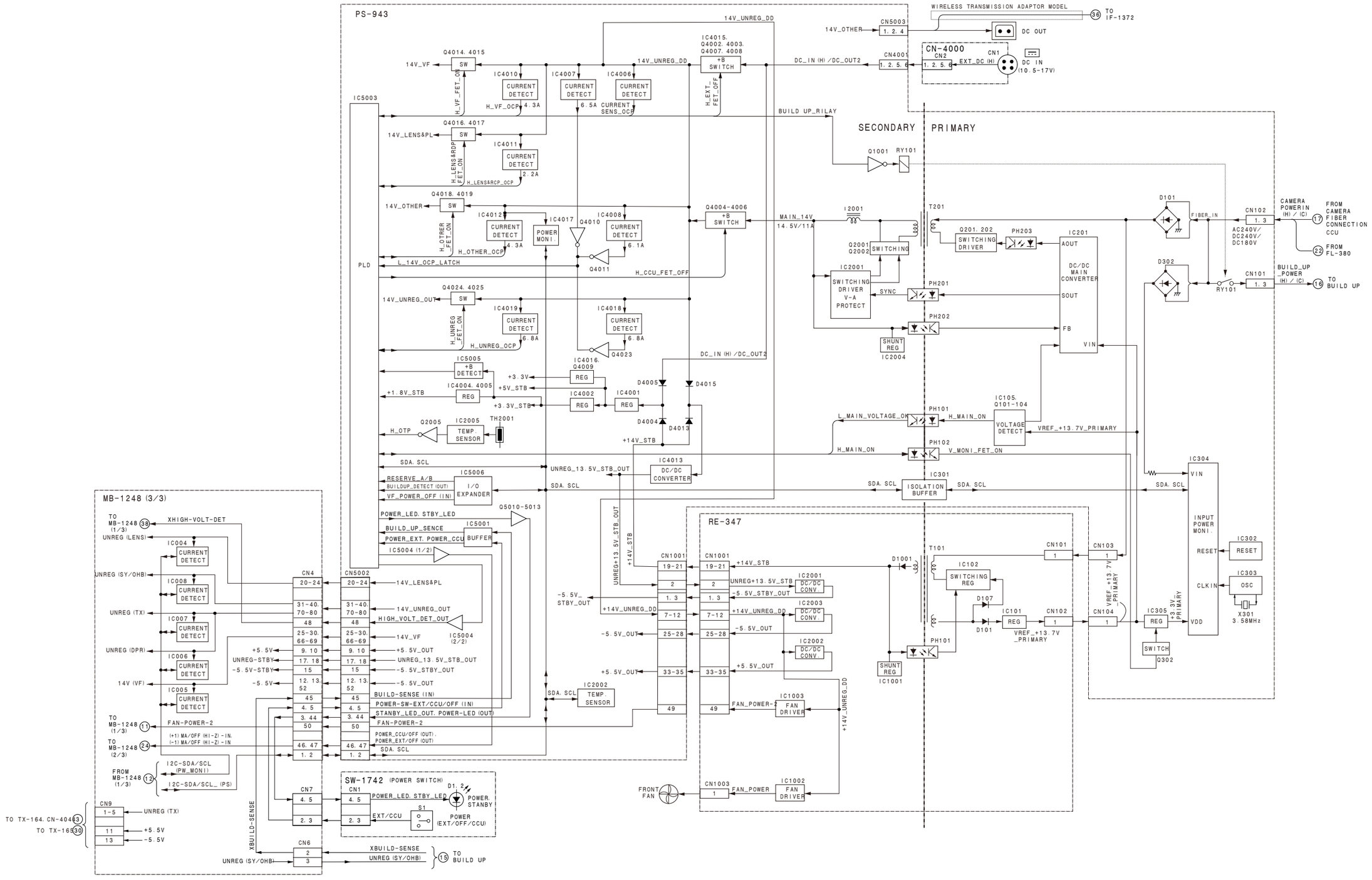
Overall (6/8)


4K/HD ULTRA BITRATE FIBER COLOR MODEL
ULTRA BITRATE OPTICAL FIBER TRANSMISSION ADAPTOR MODEL
TX-165
4K/HD ULTRA BITRATE FIBER COLOR MODEL
SIDE PANEL ATTACHMENT KIT MODEL
CN601
STANDBY-INCOM (RX) -FRCCU, STANDBY-INCOM (TX) -TOCCU
MAIN-1, 5G/6G-SDI-CH1 (P) / (N)
MAIN-1, 5G/6G-SDI-CH2 (P) / (N)
RET_1, 5G-SDI-CH1 (P) / (N)
RET_1, 5G-SDI-CH2 (P) / (N)
PROMPTER1
SD-27CK-IN
HD-74CK-OUT
CN600
CPU-BUS [0] - [7], ADDR (0) - (4) -OUT
CPU-CLK
700P-MAIN-TX/RX (FRCCU)
PLD-VERUP-RX-IN, PLD-VERUP-TX-OUT
SDA/SCL
CFG_SEL
CN602
MAIN-6G-SDI-CH3 (P/N) -CH9 (P/N)
RET-1, 5G/3, 7G-SDI-CH3 (P/N) -CH4 (P/N)
IC709 LPF
IC702 D/A
PR1_D0-7
IC600 BUFFER
SD-27CK-DIRECT
IC308, 316 EEPROM
IC305, 309 BUS BUFFER
IC314 BUS SWITCH
IC301 IO EXPANDER
BUFFER IC306, 307
IC400-402 BUFFER
VCO
VC400 148.5MHz
VC401 148.351648MHz
1.000_VCXO_ON
1.001_VCXO_ON
148M_REFCLKP1/N1, 148M_REFCLKP0/N0
IC200
27G-RX/TX FPGA, CLOCK CONTROL, DDR3 SDRAM BANK MEMORY CONTROL, SYSTEM I/F
IC710-714, 0700-706 CCU CONTROL
CCU_SENS-OUT
STANDBY_INCOM-IN
CN702
CN700
OPTICAL MODULE
SFP
TXP0/TXN0
RXP0/RXN0
SFP_SDA/SCL
+3.2V
IC701 TEMP SENSOR
IC800, 801 DDR3 DRAM
CAMERA FIBER CONNECTION CCU
FIBER_IN (H) / (C)
TO PS-943
3G12G_TXP1/N1, RXP1/N1
LMH1297_MOSI/MISO
IC902 BUFFER
IC601 CABLE DRIVER EQUALIZER
J600 SDI2
3G12G_TXP0/N0
LMH1228_MOSI/MISO
IC903 BUFFER
IC602 CABLE DRIVER
J601 SDI1
MADI_IN_P/N, 1, 5G3G_TXP1/N1
LMH0397_MOSI/MISO
IC906 BUFFER
IC1102 CABLE DRIVER EQUALIZER
J1100 SDI3
PR2-D0-7
IC1100 DAC
IC1101
J1101 NC
IC909, 910, 911 BUFFER
EPD_DATA/CLK
EPD_BUSY/CTRL/LD
LED_SDA/SCL/RST_X
CN-4048
CN001
CN002
LED_DRV_SDA/SCL/RST
IC005 LED DRIVER
D004-007 (STATUS LED)
R, G, B
IC003 TEMP SENSOR
TSDA/TSCL
TO EPD
+3.2V
+3.3V
+12V-IN
UNREG (+14V)
IC002 REG
+3.3V_EPD
CN-4047
ET_MDIP0/N0-P3/N3
LED_LINK, LED_ACT
(LAN)
IC500 ETHER NET I/F
X500 25MHz
ET_RXD0-3, ET_TXD0-3
ET_CLK125
ET_RXCLK
IC502
CN500
CN300
JIG
TDI, TDO, TMS, TCK
+1.8V
IC1108
IC1103 DC/DC CONV.
+5.2V
CN1100
FAN-PWM
FAN-ALARM
OUTSIDE PANEL FAN
IC001-003, IC102, 103 DC/DC CONVERTER
+12V
+12V-IN
+5.5V
-5.5V
+0.85V
+0.9V
+1.2V
+1.5V
+1.8V
+2.5V
+3.2V
IC703, 704 REG
+5V
-5V
FROM DPR-390 (1/3)
FROM MB-1248 (3/3)
FROM CN-4045

Overall (7/8)

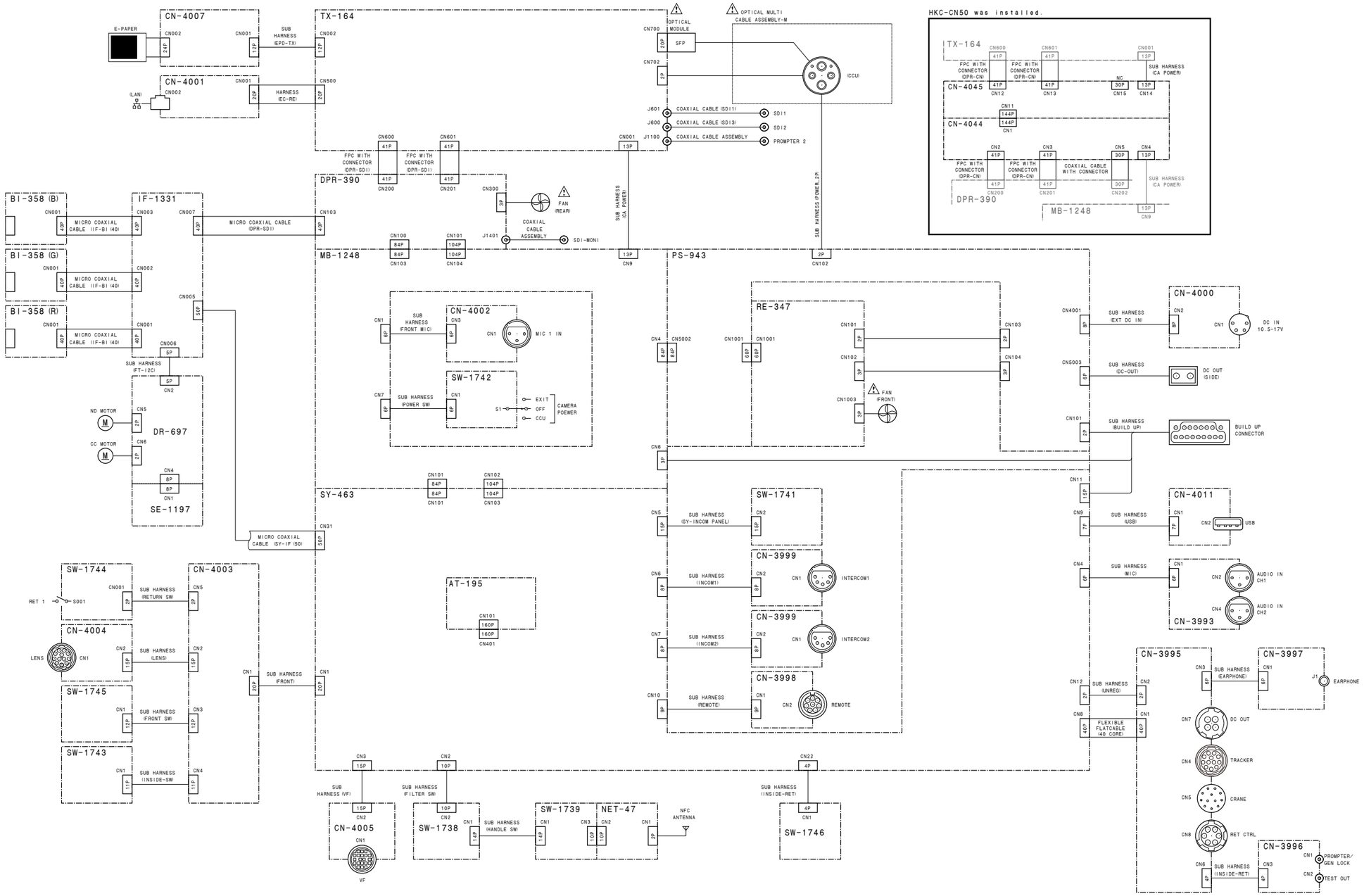

WIRELESS TRANSMISSION ADAPTOR MODEL
IF-1372
FROM CN-4045 (32)
FROM CN-4045 (37)
FROM CN-4045 (33)
FROM PS-943 (36)
FROM CN-4045 (35)
CN1006
CN1003
CN1000
CN1007
CN1002
SDI_MAIN_1_P/N
SDI_MAIN_2_P/N
RET_1_P/N
CLK_74M_MAIN_F
SDI_MAIN3_P/N
SDI_MAIN4_P/N
SDI_MAIN_5_P/N
CPU-BUS [0] - [7].
CPU-ADR [0] - [4]
CPU_CLK
RX/TX-700P-MAIN
VUP_TX/RX
SDA. SCL
+14V_UNREG_WL
+5.5V
X5001 27MHz
IC5000
MUX
IC6000 CD
IC6001 CD
IC6002 CD
IC6003 CD
IC6004 CD
J6007 12G SDI OUT1
J6005 3G/HD-SDI OUT2
J6006 3G/HD-SDI OUT3
J6008 3G/HD-SDI OUT4
J6009 3G I/O CONFIG1
FOR WIRELESS MODULE
GS_SDI_1_P/N
GS_SDI_2_P/N
GS_SDI_3_P/N
GS_SDI_4_P/N
GS_SDI_5_P/N
IC3001
FPGA
GS12070-SPI-CLOCK-1.8V
LMH1228-0-SPI-CLOCK
LMH0397_SPI_SCK
CLK_74M_MAIN_F
IC4101 FLASH MEMORY
IC4000. 4001 BUS BUFFER
IC4002. 4003 BUFFER
IC4004
IC1004 I/O EXPANDER
IC1005. 0002 WIRELESS POWER MONITOR
IC3002 I2C BUS BUFFER
IC1007. 1008 TEMP SENSOR
POWERGOOD_WL. PMONI_I2C_ALERT
WL_POWER_ENABLE
SDA-3.3V. SCL-3.3V
SDA-2.5V. SCL-2.5V
+14V_WL
IC2003 REG FPGA POWER +1.2V/+1.8V/+2.5V/+3.3V
IC2001 REG +1.8V
IC2002 REG +1.1V
IC2000 REG +3.3V
IC2005 REG +2.5V
IC2007 REG +5V
EPD_DATA/CLK
EPD_BUSY/CTRL/LD
LED_SDA/SCL
+14V_UNREG
+3.3V
IC2008 FAN CONTROL
FAN-POW_OUT_2
FAN_ALARM_1
OUTSIDE PANEL FAN
RM_RX (X) / (Y).
RM_TX (X) / (Y)
TRU1/2_I.
TRU1/2_O
RS232 DRIVE
IC012
IIC BUS BUFFER
IIC-SDA. IIC-SCL
IC4008-4010
TRUNK-RX1/2.
TRUNK-TX1/2
XDSUB (POWER_OFF) - IN.
XDSUB (POWER_ON) - IN
CN-4089
CN001
CN002
D004-007 (STATUS LED)
LED_DRV_SDA/SCL/RST
IC005 LED DRIVE
IC003 TEMP SENSOR
TSDA. TSCL
IC002 REG
UNREG (+14V)
+3.3V_EPD
TO EPD
CN-4074
CN2
CN1
700P-RX (X) / (Y) (TO CAM) - IN.
700P-TX (X) / (Y) (FROM CAM) -OUT
RS232 (1) / (2) RX-IN.
RS232 (1) / (2) TX-OUT
SCL-OUT. SDA-IN/OUT
FOR CHECK
S002 D-SUB POWER ON/OFF SWITCH
Q4-6 LED DRIVE
D1 R. YGR

Overall (8/8)


PS-943
WIRELESS TRANSMISSION ADAPTOR MODEL
TO IF-1372
DC OUT
CN-4000
EXT_DC (H)
DC IN (10.5-17V)
14V_UNREG_DD
14V_OTHER
DC_IN (H) /DC_OUT2
IC4015. Q4002. 4003. Q4007. 4008
+B SWITCH
Q4014. 4015
14V_VF
IC4010
IC4007
IC4006
CURRENT DETECT
H_VF_FET_ON
H_VF_OCP
4.3A
6.5A
CURRENT SENS_OCP
H_EXT_FET_OFF
IC5003
BUILD UP_RILAY
SECONDARY
PRIMARY
Q4016. 4017
14V_LENS&PL
IC4011
2.2A
H_LENSARCP_FET_ON
H_LENSARCP_OCP
Q1001
RY101
Q4018. 4019
IC4012
IC4017
IC4008
POWER MONI.
Q4010
6.1A
H_OTHER_FET_ON
H_OTHER_OCP
Q4004-4006
MAIN_14V
14.5V/11A
I2001
T201
D101
FIBER_IN
CN102
CAMERA POWERIN (H) / (C)
FROM CAMERA FIBER CONNECTION CCU
FROM FL-380
AC240V/ DC240V/ DC180V
PLD
L_14V_OCP_LATCH
H_CCU_FET_OFF
Q4011
Q2001 Q2002
SWITCHING
Q201. 202
SWITCHING DRIVER
PH203
IC201
AOUT
DC/DC MAIN CONVERTER
SOUT
FB
VIN
D302
CN101
BUILD_UP _POWER (H) / (C)
TO BUILD UP
RY101
IC2001
SWITCHING DRIVER V-A PROTECT
SYNC
PH201
PH202
SHUNT REG IC2004
Q4024. 4025
14V_UNREG_OUT
IC4019
IC4018
H_UNREG_FET_ON
H_UNREG_OCP
6.8A
Q4023
IC5005
+B DETECT
IC4004. 4005
REG
IC4016. Q4009
IC4002
IC4001
+3.3V
+5V_STB
+1.8V_STB
+3.3V_STB
D4005
D4015
D4004
D4013
+14V_STB
Q2005
IC2005
TH2001
H_OTP
TEMP. SENSOR
IC105. Q101-104
VOLTAGE DETECT
L_MAIN_VOLTAGE_ON
H_MAIN_ON
PH101
PH102
VREF_+13.7V_PRIMARY
V_MONI_FET_ON
SDA. SCL
IC4013
DC/DC CONVERTER
UNREG_13.5V_STB_OUT
IC5006
I/O EXPANDER
RESERVE_A/B
BUILDUP_DETECT (OUT)
VF_POWER_OFF (IN)
IC301
ISOLATION BUFFER
IC304
VIN
INPUT POWER MONI.
IC302
RESET
IC303
OSC
X301 3.58MHz
CLKIN
VDD
POWER_LED. STBY_LED
BUILD_UP_SENCE
POWER_EXT. POWER_CCU
IC5001
BUFFER
Q5010-5013
IC5004 (1/2)
RE-347
CN1001
UNREG+13.5V_STB
-5.5V_STBY_OUT
+14V_UNREG_DD
-5.5V_OUT
+5.5V_OUT
IC2001 DC/DC CONV.
IC2003 DC/DC CONV.
IC2002 DC/DC CONV.
T101
IC102
SWITCHING REG
D107
IC101
REG
CN101
CN102
CN103
CN104
VREF_+13.7V _PRIMARY
IC305
+3.3V _PRIMARY
SWITCH
Q302
-5.5V_ STBY_OUT
UNREG+13.5V_STB_OUT
+14V_STB
D1001
SHUNT REG IC1001
IC2002 TEMP. SENSOR
SDA. SCL
FAN_POWER-2
IC1003 FAN DRIVER
+14V_UNREG_DD
FRONT FAN
CN1003
FAN_POWER
IC1002 FAN DRIVER
MB-1248 (3/3)
TO MB-1248 (38) (1/3)
XHIGH-VOLT-DET
UNREG (LENS)
IC004
IC008
IC007
IC006
IC005
CURRENT DETECT
UNREG (SY/OHB)
UNREG (TX)
UNREG (DPR)
14V (VF)
CN4
CN5002
20-24
31-40. 70-80
48
25-30. 66-69
9. 10
17. 18
15
12. 13. 52
45
4. 5
3. 44
50
46. 47
1. 2
14V_LENS&PL
14V_UNREG_OUT
HIGH_VOLT_DET_OUT
14V_VF
+5.5V_OUT
UNREG_13.5V_STB_OUT
-5.5V_STBY_OUT
-5.5V_OUT
BUILD-SENSE (IN)
POWER-SW-EXT/CCU/OFF (IN)
STANBY_LED_OUT, POWER-LED (OUT)
FAN-POWER-2
POWER_CCU/OFF (OUT), POWER_EXT/OFF (OUT)
SDA. SCL
+5.5V
UNREG-STBY
-5.5V-STBY
-5.5V
TO MB-1248 (11) (1/3)
TO MB-1248 (24) (2/3)
(+1) MA/OFF (HI-Z) -IN. (-1) MA/OFF (HI-Z) -IN
FROM MB-1248 (12) (1/3)
I2C-SDA/SCL_ (PW_MONI)
I2C-SDA/SCL_ (PS)
CN7
CN6
XBUILD-SENSE
UNREG (SY/OHB)
TO BUILD UP
SW-1742 (POWER SWITCH)
CN1
POWER_LED. STBY_LED
D1, 2
POWER. STANBY
EXT/CCU
S1
POWER (EXT/OFF/CCU)
CN9
1-5
11
13
UNREG (TX)
+5.5V
-5.5V
TO TX-164. CN-4043
TO TX-165 (30)

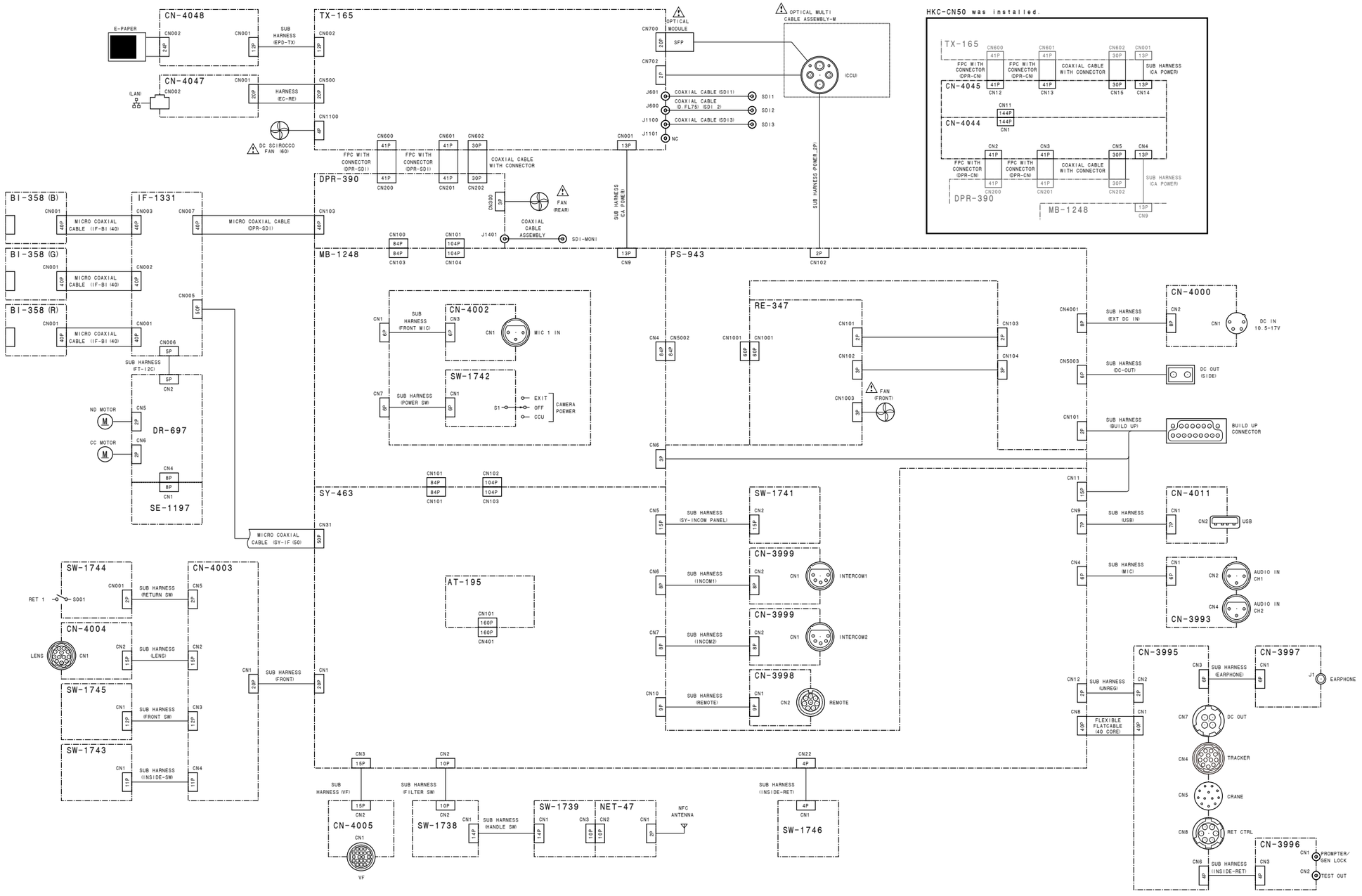
Frame Wiring

Frame Wiring (1/3) (HDC3500, HKC-CN50)



Frame Wiring
HDC3500, HKC-CN50

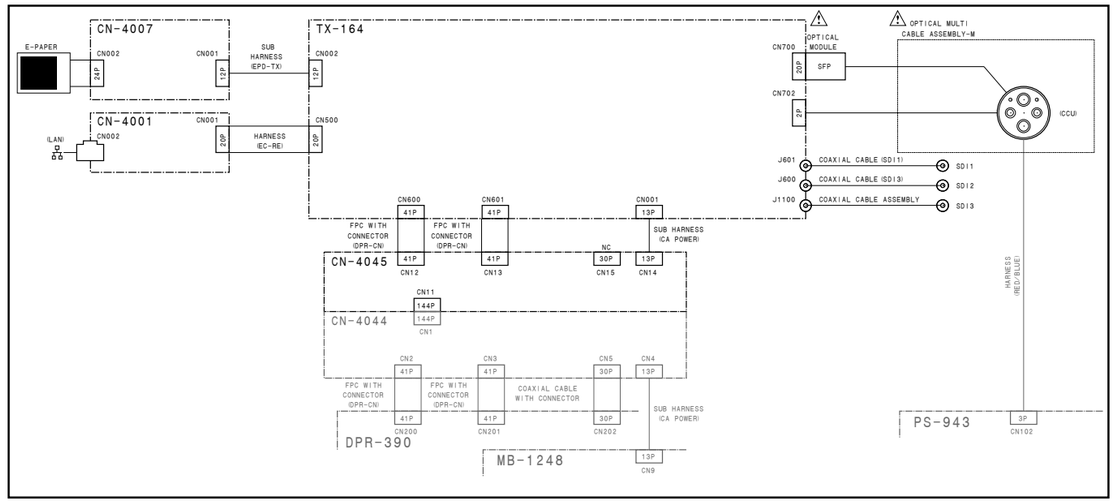
Frame Wiring (2/3) (HDC5500, HKC-CN50)



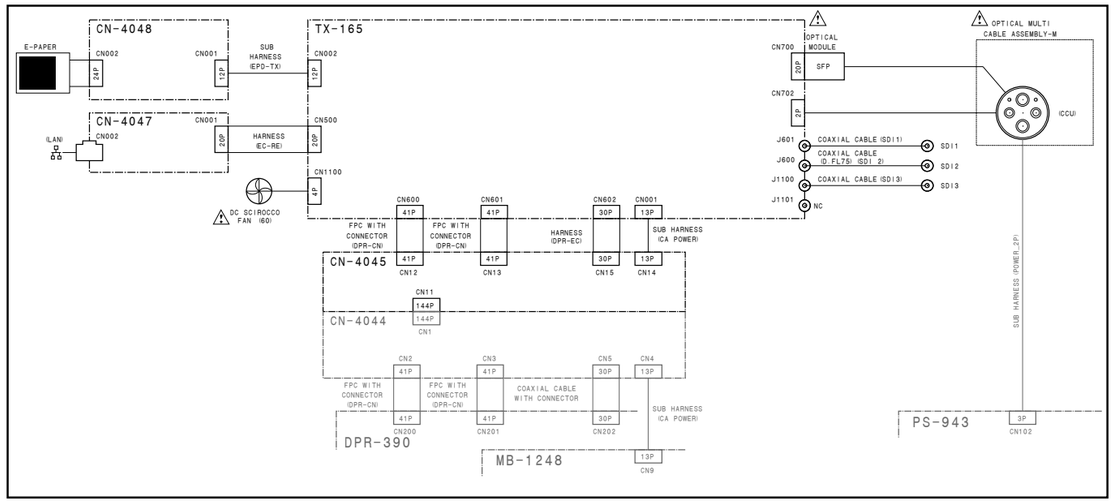
Frame Wiring
HDC5500, HKC-CN50

Frame Wiring (3/3) (HKC-CN50/FB30/FB50/TR37/WL50)

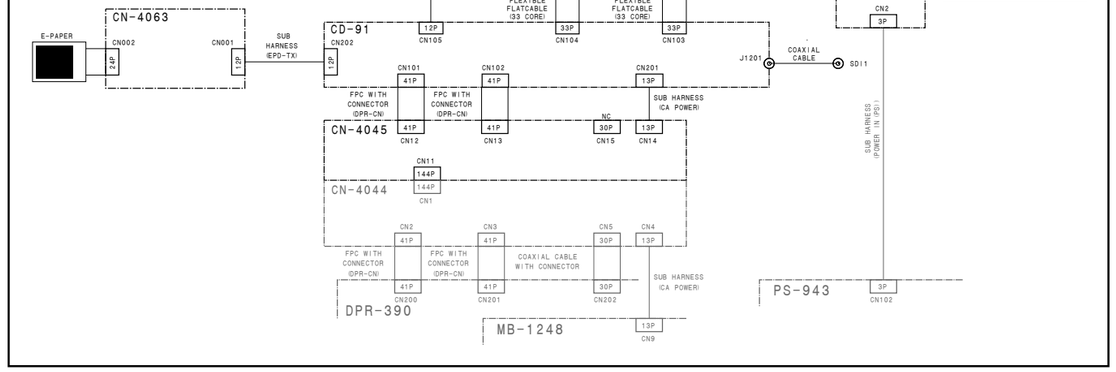
HKC-CN50/FB30



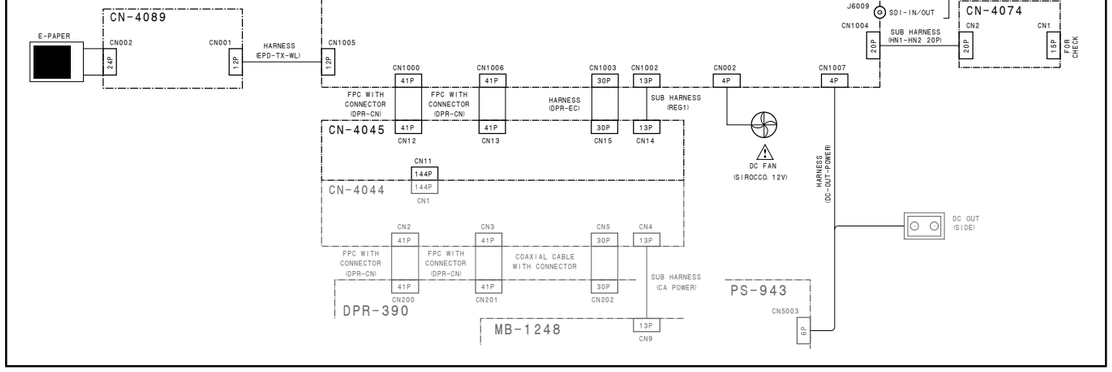
HKC-CN50/FB50



HKC-CN50/TR37



HKC-CN50/WL50



Frame Wiring

HKC-CN50/FB30/FB50/TR37/WL50

Revision History

Date	History	Contents
2018. 11	1st Edition 9-932-660-01	—
2019. 4	Revised-1 9-932-660-02	Added the models: HDC5500, HKC-FB50 and HKC-WL50. • **Modifications:** 1-1-1. Checking the ROM and Software Version, 1-2-1. Connector Input/Output Signals 1-2-3. Connection Connectors/Cables, 1-2-4. Note in Connecting CCU Connector, 1-3-6. TX-164 Board, 1-5-4. Connecting/Disconnecting Coaxial Cable for SDI 1, 2, 1-7-2. Measuring Equipment 2-4. Cleaning of Connector/Cable 3-2. Location of Printed Wiring Boards, 3-4. Inside Panel Assembly, 3-5. Outside Panel (HDC3500, HKC-FB30 (Option), HKC-CN50 (Option)), 3-5-1. Outside Panel Assembly, 3-5-2. TX-164 Board, 3-5-3. CN-4001 Board, 3-5-4. Optical Multi Cable Assembly, 3-8-3. DC Sirocco Fan, 3-10. DPR-390 Board, 3-11. DC Fan (Rear), 3-13. Front, 3-14. Power Block Assembly (PS-943 Board, RE-347 Board), 3-15. DC Fan (Front), 3-16. MB-1248 Board, 3-17. MIC Panel, 3-20. CN-4044 Board (HKC-CN50 (Option)) 4-1-1. Required Equipment, Tool, 4-1-5. Connection of Equipment, 5-2-1. Corresponding PLD, 6-8. File Items 7-2. SERVICE Menu 8-2-2. TX-164 Board, 8-2-4. CN-4001/4047 Board, 8-2-5. CN-4007/4048 Board, 8-3-1. CD-91 Board, 8-3-2. TR-170 Board, 8-3-3. FL-380 Board, 9-3. Supplied Accessories, Overall, Frame Wiring • **Additions:** 1-3-9. TX-165 Board (HDC5500, HKC-FB50), 1-3-10. IF-1372 Board (HKC-WL50), 1-3-11. CN-4074 Board (HKC-WL50), 3-6. Outside Panel (HDC5500, HKC-FB50 (Option), HKC-CN50 (Option)), 3-8. Outside Panel (with HKC-WL50 (Option)), 5-1-2. Upgrading UPDATER 8-2-3. TX-165 Board, 8-4. WIRELESS Transmission System • **Modifications of the exploded view:** Inside Panel-1, Inside Panel-2, Front Panel, OHB Block, SY Block, DPR Block, Incom Panel, Mic Panel, MB Block, Handle-1, Handle-2, Outside Panel-1 (HDC3500, HKC-FB30 (Option), HKC-CN50 (Option)), Outside Panel-2 (HDC3500, HKC-FB30 (Option)), Outside panel-3 (HDC3500, HKC-FB30 (Option)), Outside Panel-1 (HKC-TR37 (Option)), Outside Panel-2 (HKC-TR37 (Option)) • **Additions of the exploded view:** Outside Panel-2 (HDC5500, HKC-FB50 (Option)), Outside Panel-3 (HDC5500, HKC-FB50 (Option)), Outside Panel-4 (HDC5500, HKC-FB50 (Option)), Outside Panel-1 (HKC-WL50 (Option)), Outside Panel-2 (HKC-WL50 (Option)), Outside Panel-3 (HKC-WL50 (Option)), Battery Adaptor (HKC-WL50),

HDC3500 (CED)
HDC3500 (UCJ)
HDC5500 (CED)
HDC5500 (UCJ)
HDC5500 (JN)
HDC5500 (CN) J, E
9-932-660-02

Sony Corporation

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