SONY

COLOR VIDEO CAMERA

BVP-900
BVP-900P
BVP-900WSPK

CAMERA UPGRADE UNIT

BKP-7090

Power HAD 1000

MAINTENANCE MANUAL

Volume 1 1st Edition (Revised 2)

Serial No. 10001 and Higher: BVP-900

Serial No. 40001 and Higher: BVP-900P

Serial No. 55001 and Higher: BVP-900WSPK

⚠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.

Table of Contents

Manual Structure

1. Installation

2. Service Overview

3. Electrical Alignment

Manual Structure

Purpose of this manual

This manual is the maintenance manual for Color Video Camera BVP-900/900P/900WSPK and Camera Upgrade Unit BKP-7090.
This manual describes the information items necessary when the unit is supplied and installed, items on maintenance, and items that premise the service based on the components parts such as alignment, schematic diagrams, board layouts and spare parts list, assuming use of system and service engineers.

Contents

The following are summaries of all the sections for understanding the contents of this manual.

Maintenance Manual Volume 1

Section 1 Installation
Describes information about connector input/output signals, instance of configuration and function of internal switches.

Section 2 Service Overview
Describes information about board locations, circuit description, replacement of part and notes on services.

Section 3 Electrical Alignment
Describes electrical adjustment necessary for maintenance of the unit or replacement of parts.

Maintenance Manual Volume 2

Section 1 Spare Parts
Describes parts list, exploded views, supplied accessories and fixtures list used in the unit.

Section 2 Semiconductor Pin Assignments
Describes function diagrams and pin names of semiconductor used in the unit.

Section 3 Block Diagrams
Describes overall block diagram and the block diagrams for every circuit board.

Section 4 Schematic Diagrams
Describes schematic diagrams for every circuit board.

Section 5 Board Layouts
Describes board layouts for every circuit board.

Relative manuals

Besides this maintenance manual the following manuals are available for this unit.

- **BVP-900/900P/900WSPK Operation Manual (Supplied with BVP-900/900P/900WSPK)**
  This manual is necessary for application and operation of BVP-900/900P/900WSPK.

- **BVP-700/700P Operation Manual (Supplied with BVP-700/700P)**
  This manual is necessary for application and operation of the camera upgraded by the BKP-7090.

- **BKP-7090 Installation Manual (Supplied with BKP-7090)**
  This manual describes the information items necessary when the BKP-7090 is supplied and installed.

- **BVP-700/700P Maintenance Manual Volume 1, Volume 2 (Supplied with BVP-700/700P)**
  This manual describes the information items on maintenance, and items that premise the service based on the components parts such as alignment, schematic diagrams, board layouts and spare parts list. When servicing the camera upgraded by the BKP-7090, see the BKP-7090 maintenance manual and BVP-700/700P maintenance manual together.

- **OHB Installation Manual (Supplied with OHB-730/750A series)**
  This manual describes the information items necessary when the OHB is supplied and installed.

- **OHB Maintenance Manual (Supplied with OHB-730/750A series)**
  This manual describes the information items on maintenance, and items that premise the service based on the components parts such as alignment, schematic diagrams, board layouts and spare parts list.

- **Maintenance Manual for CCD Unit (Supplied with BVP-900WSPK)**
  This manual describes items on maintenance, items that premise the service based on the components parts such as alignment, schematic diagrams, board layouts and spare parts list for the CCD unit of BVP-900WSPK.

- **System Manual BKP-9901 (Available on request)**
  This manual is necessary for connection and operation of this unit and other peripheral equipments.
  If this manual is required, please contact your local Sony Sales Office/Service Center.

Section 1
Installation

1-1. Check of ROM Version

When the BVP-900/900P is used under the camera system using MSU-700 and CNU-700, be sure to check that the ROM version for IC10 on the CPU-171 board of the MSU-700 is Ver. 3.00 or higher and that the ROM versions for IC4 and IC5 on the AT-89 board of the CNU-700 are Ver. 3.00 or higher. If ROM replacement is required, contact your local Sony Sales Office/Service Center.

ROM Version

MSU-700
IC10/CPU-171 board Ver. 3.00 or higher

CNU-700
IC4 and IC5/AT-89 board Ver. 3.00 or higher

1-2. Supplied Accessories

Accessories	Sony Part No.	Qt'y
Angle adjustment brackets	2-280-511-01	2
Number plates (For side panel)	3-185-945-01	2
Clamp bands	3-612-712-01	2
Number plate (For rear panel)	3-612-749-01	1
Number plate (For UP tally lamp)	4-027-937-01	1

1-3. Connectors and Cables

1-3-1. Connector Input/Output Signals

TEST OUT

BNC 75 Ω 1.0 V p-p

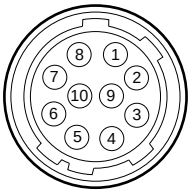
PROMPTER

BNC 75 Ω 1.0 V p-p

TRIAX

King type (for BVP-900)
Fischer type (for BVP-900P)

TRACKER (10P FEMALE)

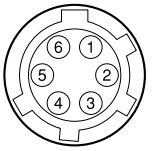


(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	TRACKER R OUT (X)	TRACKER RECEIVE 0 dBu unbalanced
2	TRACKER T IN (G)	GND for TRACKER T
3	TRACKER R OUT (G)	GND for TRACKER R
4	PGM OUT (X)	–20 dBu unbalanced
5	+12 V (T) OUT	+12 V dc, 100 mA (MAX)
6	PGM OUT (G)	GND for PGM
7	TRACKER T IN(X)	TRACKER TALK 0 dBu/–20 dBu High impedance balanced
8	TRACKER T IN(Y)	
9	UP TALLY OUT (G)	GND for UP TALLY
10	UP TALLY OUT (X)	+12 V dc, 200 mA (MAX)

(0 dBu = 0.775 Vrms)

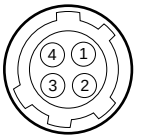
RET CONTROL (6P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	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 3 ON/OFF IN	Zi ≧ 10 kΩ ON: GND OFF: OPEN
5	RET 1 ON/OFF IN	Zi ≧ 10 kΩ ON: GND OFF: OPEN
6	RET 2 ON/OFF IN	Zi ≧ 10 kΩ ON: GND OFF: OPEN

DC OUT 12 V *1 (4P FEMALE)

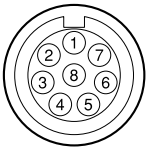


(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	GND	GND for POWER
2	NC	No connection
3	NC	No connection
4	+12 V OUT	+12 V dc, 0.5 A (MAX)

∗1: In connection with BVF-7700/7700P, the DC OUT 12 V connector and REMOTE connector cannot be used together, because of a limit of power supply capacity.

REMOTE *1 (8P FEMALE)

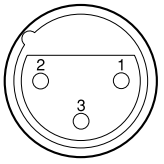


(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	TX (+)	BVP SERIAL DATA
2	TX (–)	
3	RX (+)	CCU/MSU/RCP/CNU/VCS SERIAL DATA
4	RX (–)	
5	VIDEO (G)	GND for VIDEO
6	POWER (+) OUT	+12 V, 500 mA(MAX)
7	POWER (–) OUT	GND for +12V
8	VIDEO (X) OUT	VBS 1.0 V p-p, Zo = 75 Ω
	CHASSIS GND	CHASSIS GND

∗1: In connection with BVF-7700/7700P, the DC OUT 12 V connector and REMOTE connector cannot be used together, because of a limit of power supply capacity.

AUDIO IN CH1/CH2 (3P FEMALE)

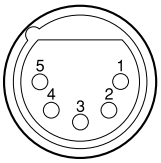


(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	MIC IN (G)	–60 dBu High impedance balanced
2	MIC IN (X)	
3	MIC IN (Y)	

(0 dBu = 0.775 Vrms)

INTERCOM 1/2 (5P FEMALE)

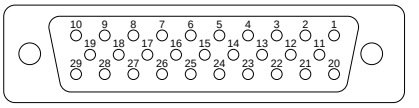


(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	INCOM MIC IN (Y)	–20 dBu (CARBON MIC)
2	INCOM MIC IN (X)	–60 dBu (DYNAMIC MIC)
3	GND (PGM)	
4	INCOM RECEIVE OUT	0 dBu
5	PGM OUT	0 dBu

(0 dBu = 0.775 Vrms)

OHB (29P FEMALE)

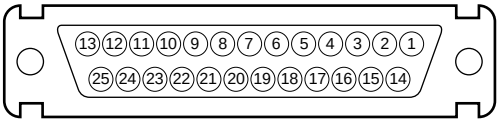


(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	R VIDEO IN (G)	GND for R VIDEO
2	R VIDEO IN	V = 500 mV p-p 100 % white, positive Zi = 22 Ω
3	G VIDEO IN (G)	GND for G VIDEO
4	G VIDEO IN	V = 500 mV p-p 100 % white, positive Zi = 22 Ω
5	B VIDEO IN (G)	GND for B VIDEO
6	B VIDEO IN	V = 500 mV p-p 100 % white, positive Zi = 22 Ω
7	GND	
8	GND	
9	−11.5 V OUT	−11.5 V dc
10	GND (UNREG)	GND for UNREG
11	+15.5 V OUT	+15.5 V dc
12	+8.0 V OUT	+8.0 V dc
13	+5.5 V OUT	+5.5 V dc
14	HD IN	0 - 5 V, negative
15	ND POSITION IN	ND-1: 0.4 V dc ND-2: 1.45 V dc ND-3: 2.50 V dc ND-4: 3.55 V dc ND-5: 4.60 V dc

No.	SIGNAL	SPECIFICATIONS
16	RXD OUT	CHU → OHB 0 - 5 V
17	S. LD OUT	Serial Data Load Pulse Output
18	−3.5 V OUT	−3.5 V dc
19	UNREG OUT	10.5 - 17.0 V
20	HD OUT	0 - 5 V, negative
21	+6.5 V OUT	+6.5 V dc
22	VD OUT	0 - 5 V, negative
23	DIAG IN	Open Collector
24	CC POSITION IN	CC-A: 0.4 V dc CC-B: 1.45 V dc CC-C: 2.50 V dc CC-D: 3.55 V dc CC-E: 4.60 V dc
25	TXD IN	OHB → CHU
26	SHD IN	0 - 5 V, positive
27	SHD IN (G)	GND for SHD
28	S. DT OUT	Serial Data Output
29	S. CK OUT	Clock Input for Serial Data

VF (25P FEMALE)



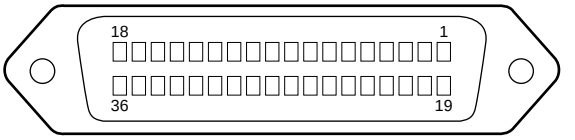
(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	VF R VIDEO OUT (X) *2	V = 714 mV p-p (NTSC) 700 mV p-p (PAL) Zo = 75 Ω ±5 % POSI
2	NC	No connection
3	VF G OUT(X)	B/W: Y/RET, COLOR: G Zo = 75 Ω ±5 % 1 V p-p
4	NC	No connection
5	VF B VIDEO OUT (X) *2	V = 714 mV p-p (NTSC) 700 mV p-p (PAL) Zo = 75 Ω ±5 % POSI
6	NC (RET $\overline{\text{ON}}$ OUT)	No connection (ON: GND, OFF: +5 V)
7	+12 V (VF) OUT	+12 V dc (at 3.1 A)
8	+12 V (VF) OUT	+12 V dc (at 3.1 A)
9	UP TALLY ON OUT	ON: +12 V OFF: 0 V
10	NC (VF RET VIDEO OUT (X))	No connection (V = 1.0 V p-p Zo = 75 Ω ±5 %)
11	R TALLY ON OUT	ON: 5.0 V ±0.5 V OFF: 0 +0.5 V
12	$\overline{\text{VF SEL}}$ $\overline{\text{COL}}$/BW IN	COLOR:GND B/W: High impedance
13	NC	No connection

No.	SIGNAL	SPECIFICATIONS
14	VF R VIDEO OUT (G)	GND for VF R VIDEO
15	PEAKING OFF OUT	OFF: GND ON: High impedance
16	VF G VIDEO OUT (G)	GND for VF G VIDEO
17	CHASSIS GND	CHASSIS GND
18	VF B VIDEO OUT (G)	GND for VF B VIDEO
19	VF DC GND	GND for +12 V (VF)
20	VF DC GND	GND for +12 V (VF)
21	TALLY GND	GND for TALLY
22	NC (VF RET VIDEO OUT (G))	No connection (GND for VF RET VIDEO)
23	G TALLY ON OUT	ON: 5.0 V ±0.5 V OFF: 0 +0.5 V
24	NC	No connection
25	16 : 9 ON OUT	ON: GND OFF: High impedance

*2: Signals at pins 1 and 5 are output only when a color viewfinder is connected to the camera.

LENS (36P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	NC	No connection
2	NC	No connection
3	NC	No connection
4	+12 V (LENS)OUT	+12 V (at 0.3 A)
5	LENS DC GND	GND for +12 V (LENS)
6	GND	GND
7	NC	No connection
8	LENS EXT-A IN	*4
9	LENS EXT-B IN	*4
10	LENS EXT-C IN	*4
11	LENS AUX OUT	ON: GND OFF: High impedance
12	IRIS POSI IN	Zi ≧ 10 kΩ 2 to 7 V “3.4 ±0.1 V (F16)” “6.2 ±0.1 V (F2.8)”
13	ZOOM POSI IN	Zi ≧ 10 kΩ 2 to 7 V “2 V (WIDE), 7 V (TELE)”
14	RET 1 $\overline{\text{ON}}$ IN	Zi ≧ 10 kΩ ON: L OFF: High impedance
15	RET 2 $\overline{\text{ON}}$ IN	Zi ≧ 10 kΩ ON: L OFF: High impedance
16	FOCUS POSI IN	Zi ≧ 10 kΩ 2 to 7 V “2 V (MIN), 7 V (∞)”
17	IRIS CONT OUT	2 to 7 V “3.4 ±0.1 V (F16)” “6.2 ±0.1 V (F2.8)” Zo ≦ 1 kΩ
18	IRIS $\overline{\text{AUTO}}$/MANU OUT	AUTO: L MANU: H Zo ≦ 1 kΩ

No.	SIGNAL	SPECIFICATIONS
19	NC	No connection
20	NC	No connection
21	LENS R TALLY ON OUT	ON: L OFF: H Zo ≦ 1 kΩ
22	EXP POSITION IN	Zi ≧ 10 kΩ 1 to 4 V 1 V: −7.5° 4 V: +7.5°
23	RET 3 $\overline{\text{ON}}$ IN	Zi ≧ 10 kΩ ON: L OFF: High impedance
24	LENS ADRS A IN	*3
25	LENS ADRS B IN	*3
26	LENS ADRS C IN	*3
27	LENS ADRS D IN	*3
28	EXTENDER 1 $\overline{\text{ON}}$ OUT	ON: GND OFF: High impedance
29	EXTENDER 2 $\overline{\text{ON}}$ OUT	ON: GND OFF: High impedance
30	NC	No connection
31	INCOM 1 ENG/PRD IN	Zi ≧ 10 kΩ ENG: GND PRD: High impedance
32	INCOM 2 ENG/PRD IN	Zi ≧ 10 kΩ ENG: GND PRD: High impedance
33	INCOM MIC 1 $\overline{\text{ON}}$ IN	Zi ≧ 10 kΩ ON: GND OFF: High impedance
34	INCOM MIC 2 $\overline{\text{ON}}$ IN	Zi ≧ 10 kΩ ON: GND OFF: High impedance
35	NC (REGI VD OUT ⎍⎍)	No connection
36	NC(LENS DC GND)	No connection

*3 Zi ≧ 10 kΩ
1: High impedance
0: 0 +0.5 V
LENS ADRS A (Low-order bit)
LENS ADRS D (High-order bit)

*4 Zi ≧ 10 kΩ
1: High impedance
0: 0 ±0.5 V

EX1	EX2	EX3	MODE
1	1	1	EXTENDER OFF
1	0	1	EXT-A (×1.5) ON
0	1	1	EXT-B (×2) ON
0	0	1	EXT-C (×2.5) ON

1-3-2. Connection Connector

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.

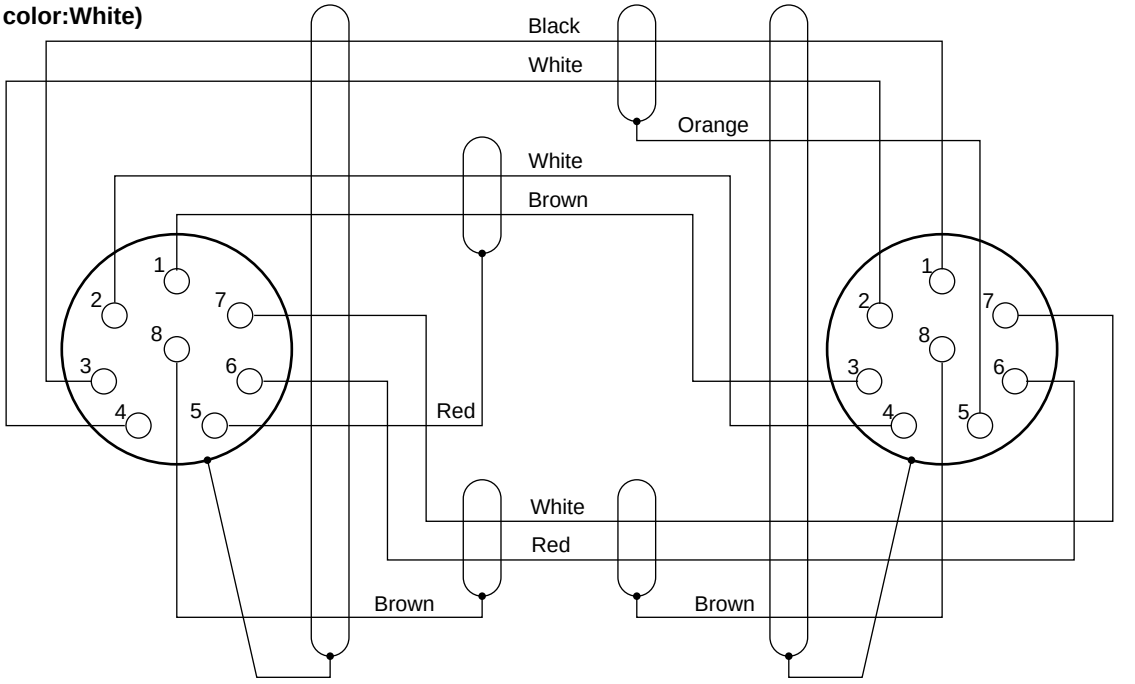
Connector name	Connection connectors/cables
TEST OUT PROMPTER (BNC)	1-569-370-12 Plug, BNC
TRACKER (10P FEMALE)	1-506-522-11 Plug, 10P Male or HIROSE HR10R-10P-10P equivalent
RET CONTROL (6P FEMALE)	1-560-078-00 Plug, 6P Male or HIROSE HR10-7PA-6P equivalent
DC OUT 12V (4P FEMALE)	1-566-425-11 Plug, 4P Male or HIROSE HR10A-7P-4P equivalent
REMOTE (8P FEMALE)	1-766-848-11 Plug, 8P Male or 1-783-372-11 REMOTE cable *1 *2 (Supplied with RM-B150, 10 m) or CCA cable assembly (option) CCA-5-10 (10 m)/CCA-5-3 (3 m) *2
AUDIO IN (3P FEMALE)	1-508-084-00 XLR, 3P Male or ITT Cannon XLR-3-12C equivalent
INTERCOM (5P FEMALE)	1-508-370-11 XLR, 5P Male or ITT Cannon XLR-5-12C equivalent

*1: The use of REMOTE cable enables to monitor video signals.
*2: If using a cable of length different from a standard product, contact your local Sony Sales Office/Service Center.

1-3-3. Wiring Diagram for Cable

CCA-5 Cable

(Outer sheath color:White)

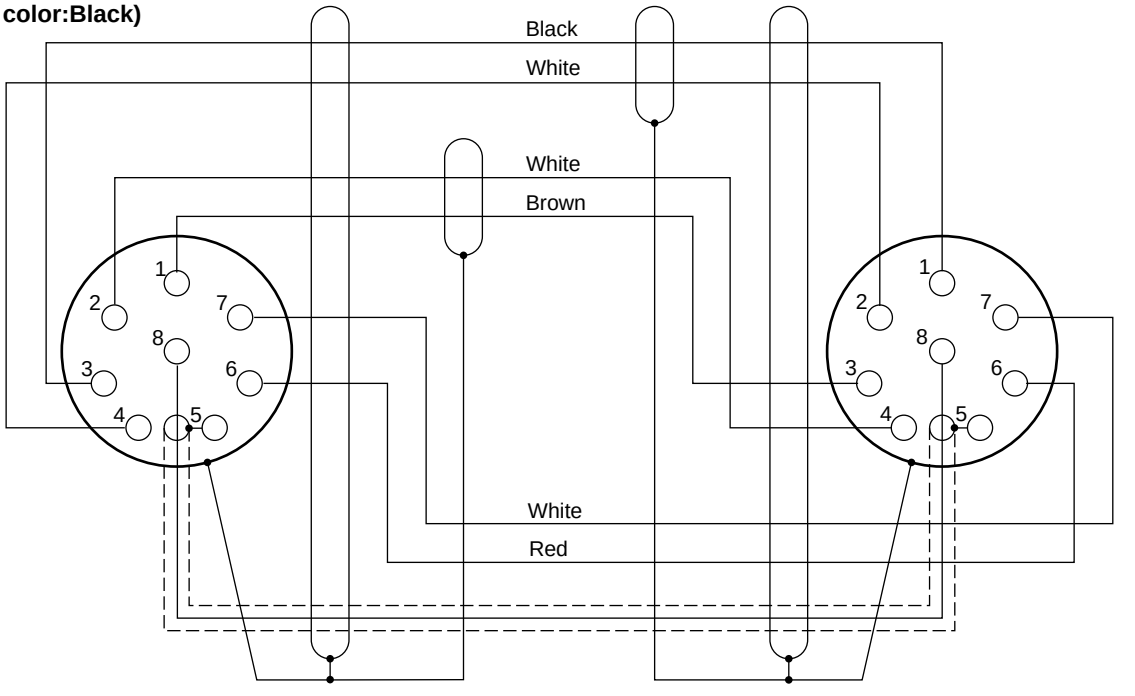


8P CONNECTOR(MALE)
(WIRING SIDE)

8P CONNECTOR(MALE)
(WIRING SIDE)

REMOTE Cable (Supplied with RM-B150)

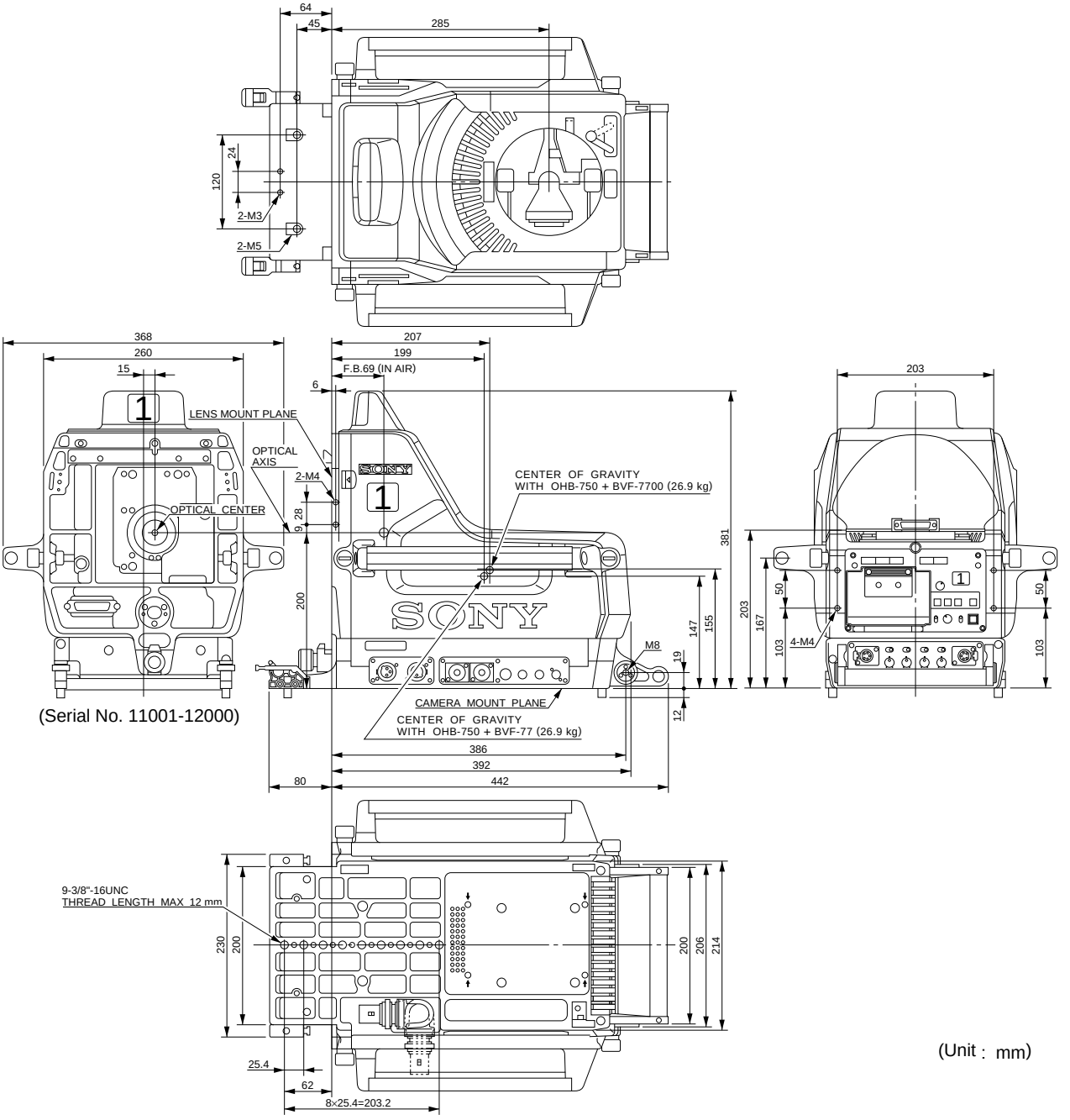
(Outer sheath color:Black)



8P CONNECTOR(MALE)
(WIRING SIDE)

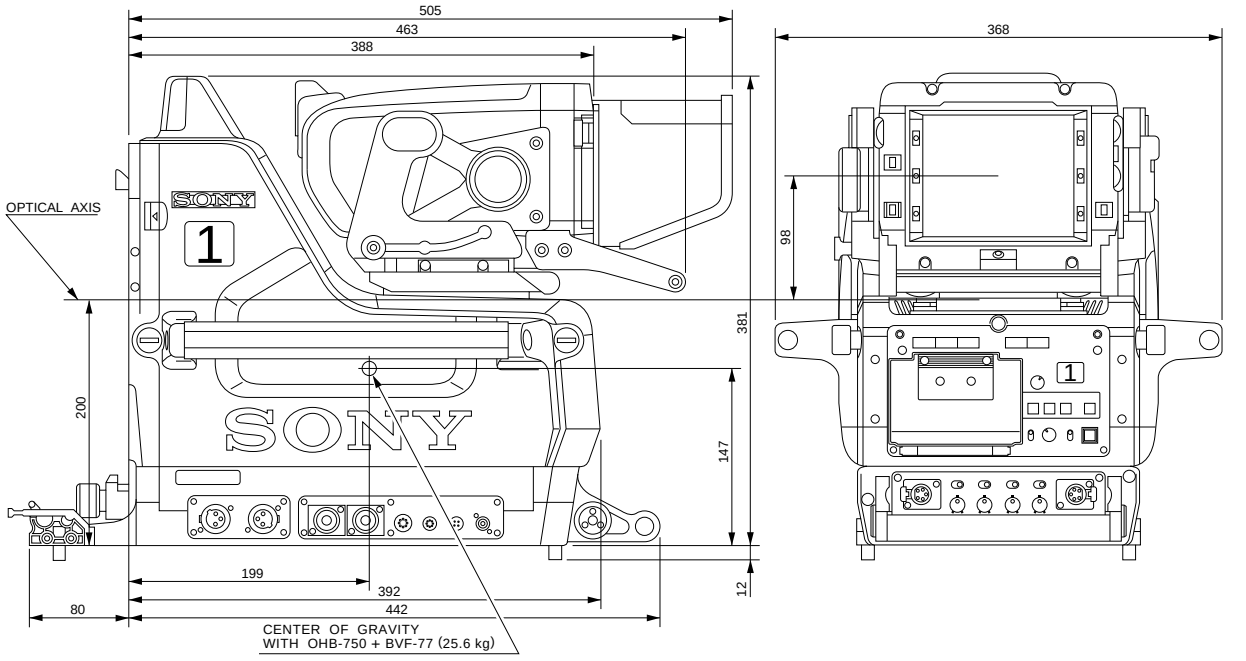
8P CONNECTOR(MALE)
(WIRING SIDE)

1-4. Outside Dimensions

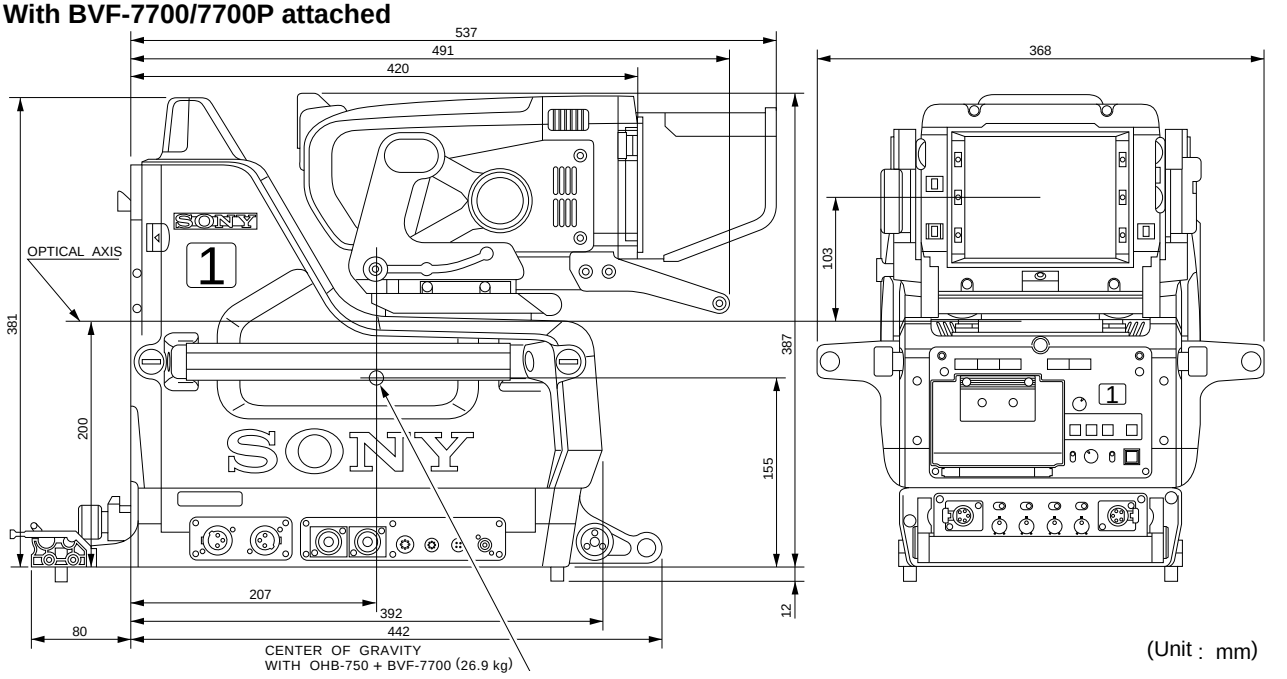


(Unit : mm)

With BVF-77/77CE attached



With BVF-7700/7700P attached



(Unit : mm)

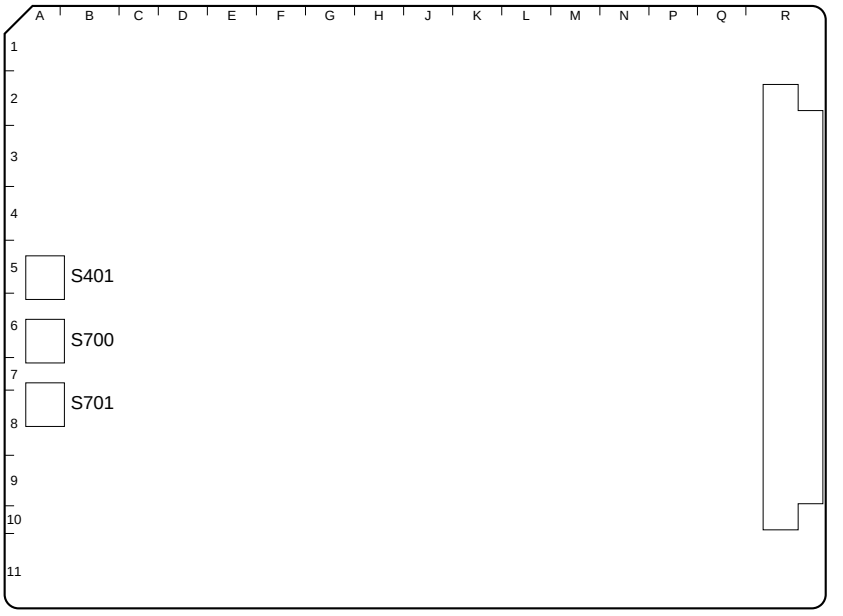
1-5. Installation Conditions

Operating temperature: −20 ˚C to +45 ˚C
Storage temperature: −20 ˚C to +50 ˚C
Humidity: No condense

- Install the unit in a location as dry and well-ventilated as possible.
- Do not install the unit in the following conditions.
  High temperature room or near the heat source
  Excessive dust or mechanical vibration
  Intense magnetic and electric fields
  A place subjected to direct sunlight or strong light

1-6. Function of Internal Switches

MS-57 board

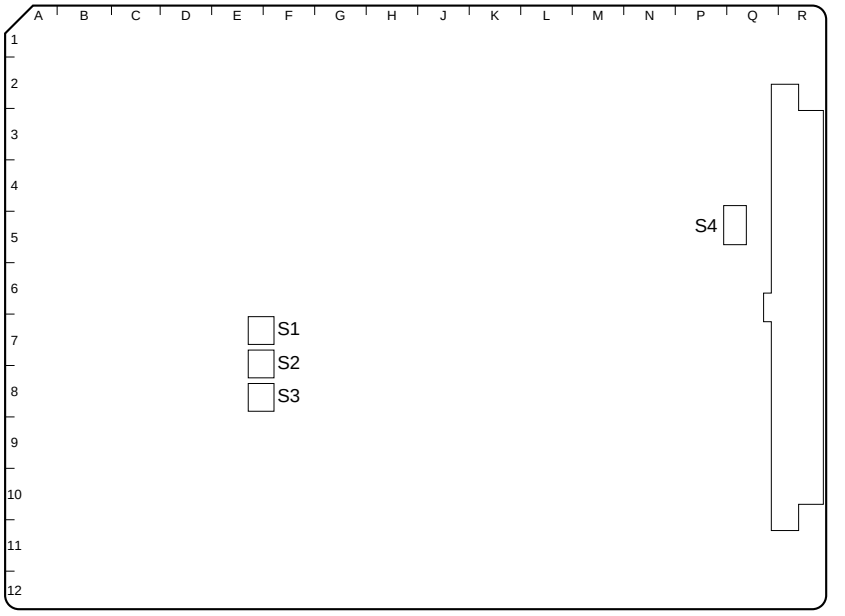


MS-57 BOARD (A SIDE)

Ref. No.	Switch name	Description	Factory setting
S401	TEST OUT connector signal select switch	Selects an output signal at the TEST OUT connector. VBS: VBS signal *1 VF: VF video signal RET: Return video signal from CCU	VF
S700	CCU CALL ON/OFF switch	Turn on to light up the UP TALLY lamps of the camera and viewfinder while they are not lit, or to light off them while they are lit, when pressing the CALL button of the MSU and RCP.	OFF
S701	CHU CALL ON/OFF switch	Turn on to light up the UP TALLY lamps of the camera and viewfinder while they are not lit, or to light off them while they are lit, when pressing the CALL button on the rear panel of the camera.	OFF

*1: To output a VBS signal, the standalone unit BKP-7910/7910P (option) is required.

MD-83 board



MD-83 BOARD (A SIDE)

Ref. No.	Switch name	Description	Factory setting
S1	R ON/OFF switch	Select the combination of R, G and B signals input to the Y, R-Y and B-Y matrix circuits for board adjustment.*2	All ON
S2	G ON/OFF switch		
S3	B ON/OFF switch		
S4	PROMPTER DIRECTION select switch	Selects the direction of the prompter signal to be transmitted between the camera and CCU. CCU → CAM: The prompter signal is transmitted from the CCU to the camera and then it is output at the PROMPTER connector of the camera. CAM → CCU: The prompter signal is input at the PROMPTER connector of the camera and then it is transmitted to the CCU.	CCU → CAM

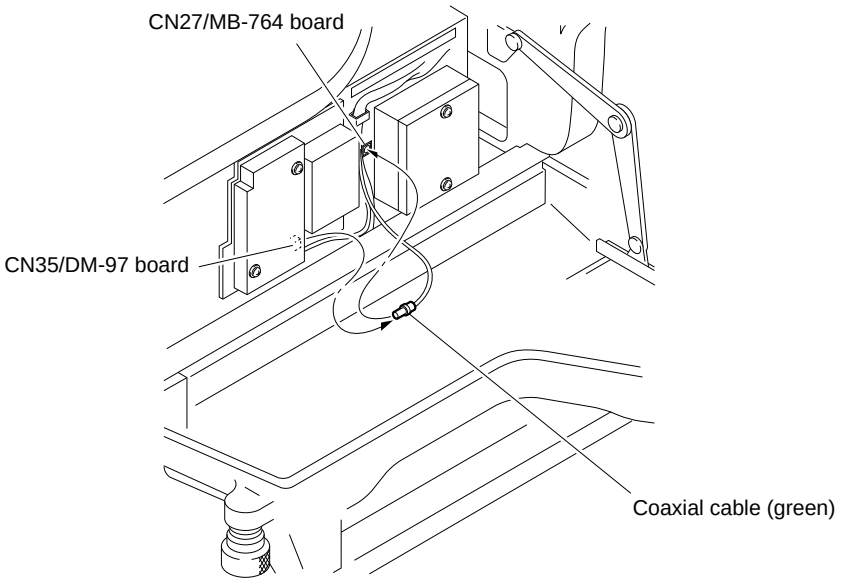
*2

Adjusting point	S1	S2	S3
RV101 (Y REF)	ON	ON	ON
RV201 (R-Y REF)	OFF	ON	ON
RV301 (B-Y REF)	OFF	OFF	ON

Note

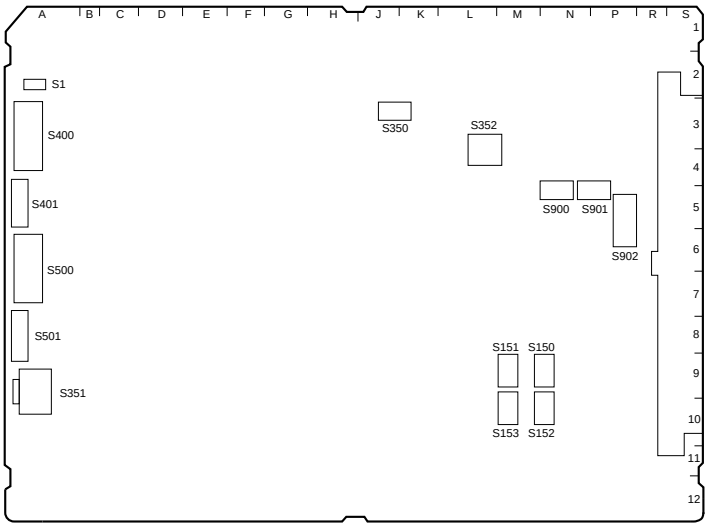
When changing S4 switch setting to the “CAM → CCU” position, be sure to take the following steps.

(1) Disconnect the TRIAX cable from the camera.
(2) Open the left side panel of the camera.
(3) Disconnect the coaxial cable (green) from CN35 (PROMPT) on the DM-97 board.
(4) Reconnect the coaxial cable to CN27 (PROMPT REVERSE) on the MB-764 board. (Insert until it clicks.)



The coaxial cable has been connected to CN35 on the DM-97 board at the factory.

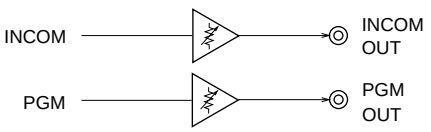
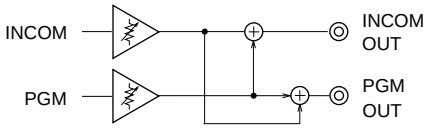
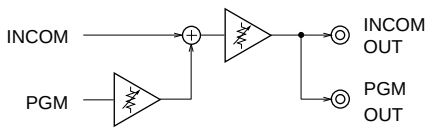
AU-250 board



AU-250 BOARD (A SIDE)

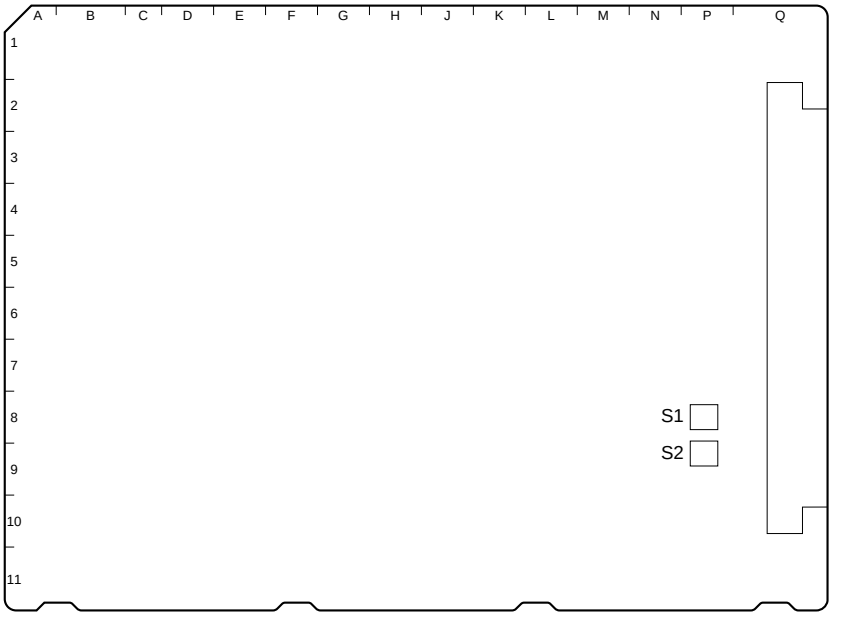
Ref. No.	Switch name	Description	Factory setting
S1	INCOM 1/2 MIC UNBALANCE switch	When a headset with a dynamic microphone is connected to the INTERCOM 1 or 2 connector and the connection is unbalanced, the intercom line may hum. Turn on to reduce the hum.	OFF
S150, S151	INCOM 1/PGM MIX switch	Selects how the INCOM and PGM of the INCOM 1 connector are output. (See the table below)	
S152, S153	INCOM 2/PGM MIX switch	Selects how the INCOM and PGM of the INCOM 2 connector are output. (See the table below)	

INCOM/PGM MIX mode select switches

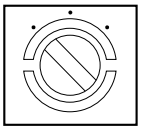
INCOM1 / INCOM2	S150 / S152	S151 / S153	Description	
	IND	IND		INCOM and PGM are output independently.
	(Factory setting)			
	MIX	IND		Mixed signal of INCOM and PGM is output as INCOM and PGM outputs. INCOM level control knob adjusts INCOM audio level and PGM level control knob adjusts the PGM audio level.
	MIX	MIX		Mixed signal of INCOM and PGM is output as INCOM and PGM outputs. INCOM level control knob adjusts mixed signal level of the INCOM and PGM, and PGM level control knob adjusts the balance between them.

Ref. No.	Switch name	Description	Factory setting
S350	TRACKER TALK LEVEL select switch	Selects the MIC input level at TRACKER connector, 0 dBu or –20 dBu.	0 dBu (0 dBu = 0.775 V rms)
S351	MIC MONITOR ON/OFF switch	Turn on to add the program MIC input to the INCOM output of the INTERCOM connector and to monitor.	OFF
S352	TRACKER/INTERCOM 2 mode select switch (S352-1 to S352-4)		
S352-1	TRACKER PGM ON/OFF switch	Turn on to add the program audio to the TRACKER RECEIVE output.	OFF
S352-2	TRACKER INCOM 2 ON/OFF switch	Turn on to add the INCOM 2 audio signal to the TRACKER RECEIVE output. Set S352-2, S352-3 and S352-4 to the same position.	OFF
S352-3	TRACKER INCOM 2 ON/OFF switch	Turn on to add the TRACKER audio signal to the INCOM 2 MIC output to be transmitted to the CCU. Set S352-3, S352-2 and S352-4 to the same position.	OFF
S352-4	TRACKER INCOM 2 ON/OFF switch	Turn on to add the TRACKER audio signal to the INCOM 2 RECEIVE output to be transmitted from the CCU. Set S352-4, S352-2 and S352-3 to the same position.	OFF
S400	INCOM 1 MIC select switch	Select according to a microphone of the headset to be connected to INTERCOM connector. C: Carbon microphone D: Dynamic microphone	C
S500	INCOM 2 MIC select switch		C
S401	INTERCOM 1 audio level select switch	Select the audio levels of the INTERCOM audio signals to be transmitted to the CCU, –6 dBu, 0 dBu or +6 dBu.	0 dBu (0 dBu = 0.775 V rms)
S501	INTERCOM 2 audio level select switch		
S900	RTS 1 select switch	When an RTS kit BKP-7913 (option) is connected to the INTERCOM 2 connector, S900 and S901 take effect. Set S900 to RTS position so that the RTS CH1 can be activated as the INTERCOM 1 connector. Set S901 to RTS position so that the RTS CH2 can be activated as the INTERCOM 2 connector.	NORM
S901	RTS 2 select switch		NORM
S902	RTS PS select switch	When an RTS kit BKP-7913 (option) is connected to the INTERCOM 2 connector, S902 takes effect. Selects whether the power to the RTS belt pack is supplied to RTS CH1 or RTS CH2.	CH2

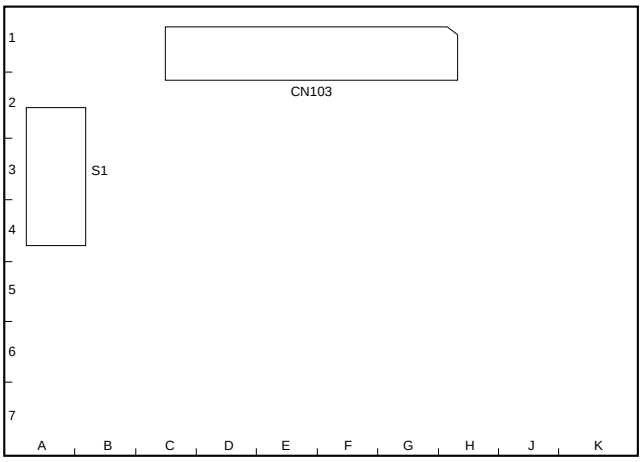
AT-120 board



AT-120 BOARD (A SIDE)

Ref. No.	Switch name	Description	Factory setting
S1	Factory use only	Be sure to use these switches with factory-set position.	
S2			

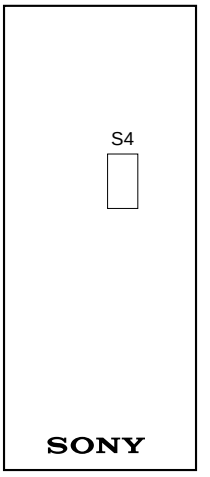
AT-73 board



AT-73 BOARD (A SIDE)

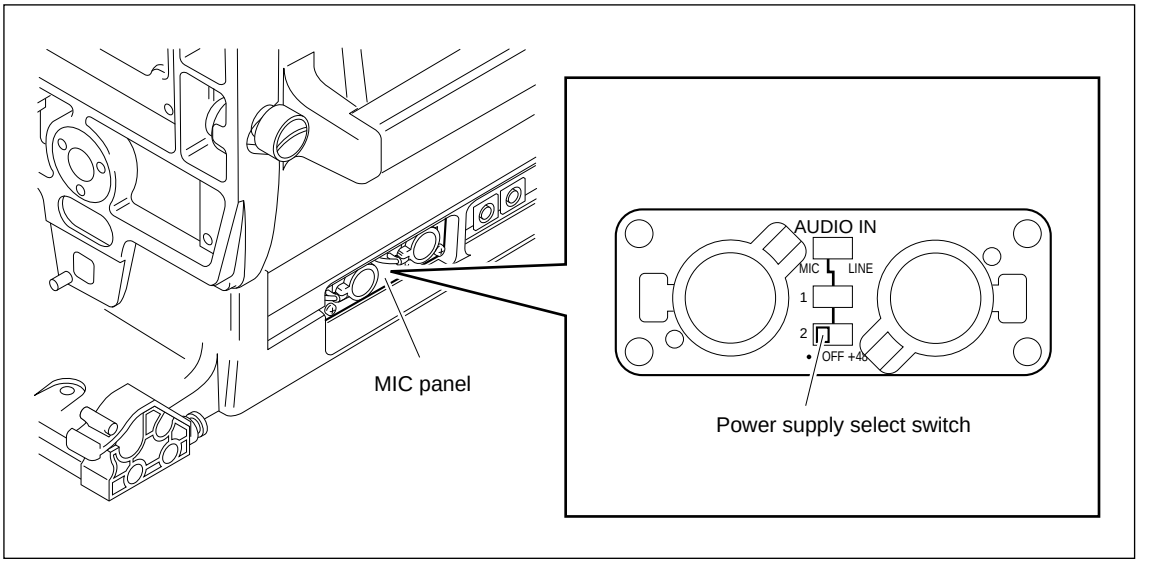
Ref. No.	Switch name	Description	Factroy setting
S1	Not used	—	OPEN

CN-1607 board



CN-1607 BOARD (B SIDE)

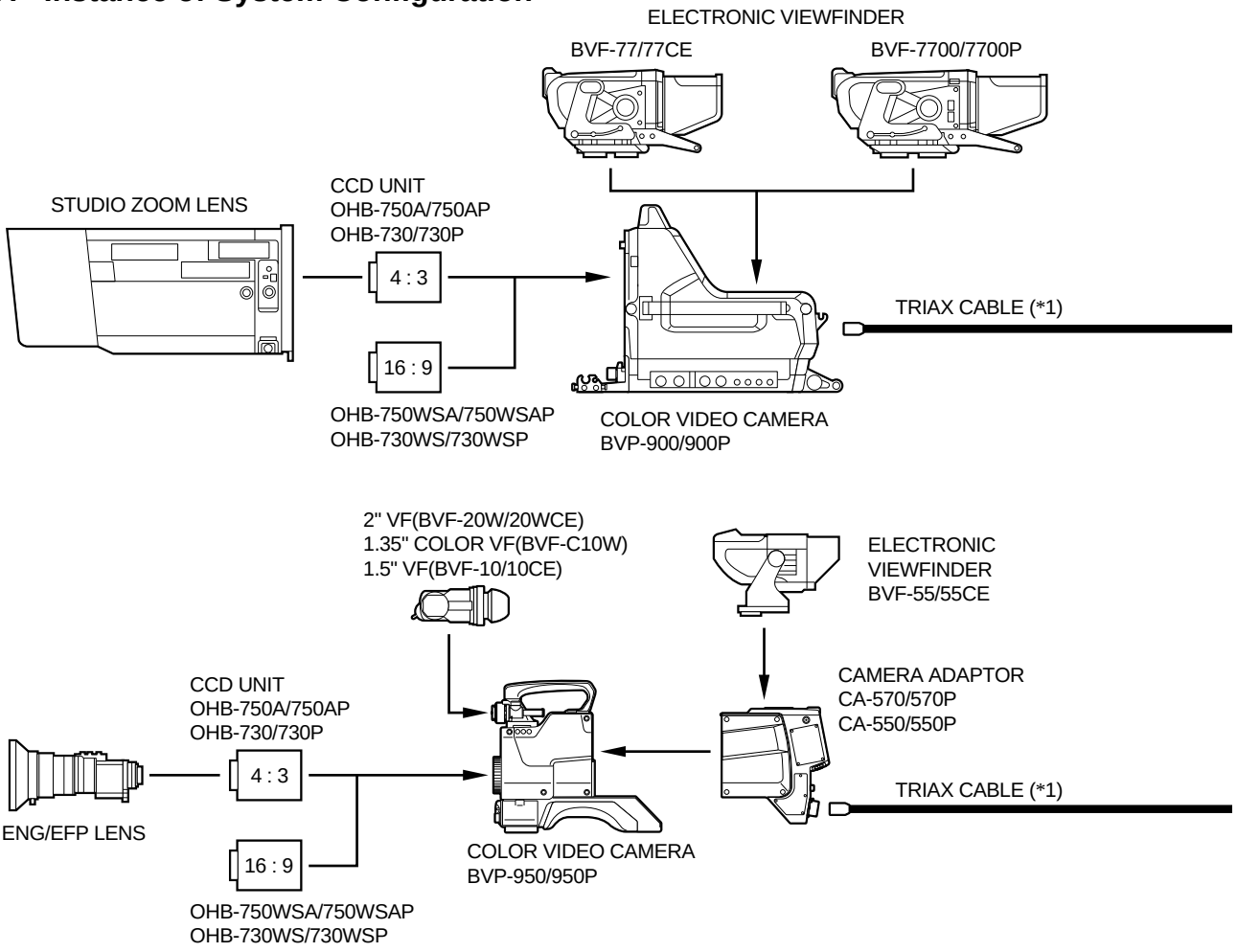
Ref. No.	Switch name	Description	Factory setting
S4	+12 V power supply switch	Turn on to power the microphone with +12 V while setting the power supply select switch on the MIC panel to "•" position.	OFF



Note

Be sure to set this switch in accordance with a power of microphone. If not, it will cause the failure of a microphone.

1-7. Instance of System Configuration



OTHER OPTIONAL ACCESSORIES

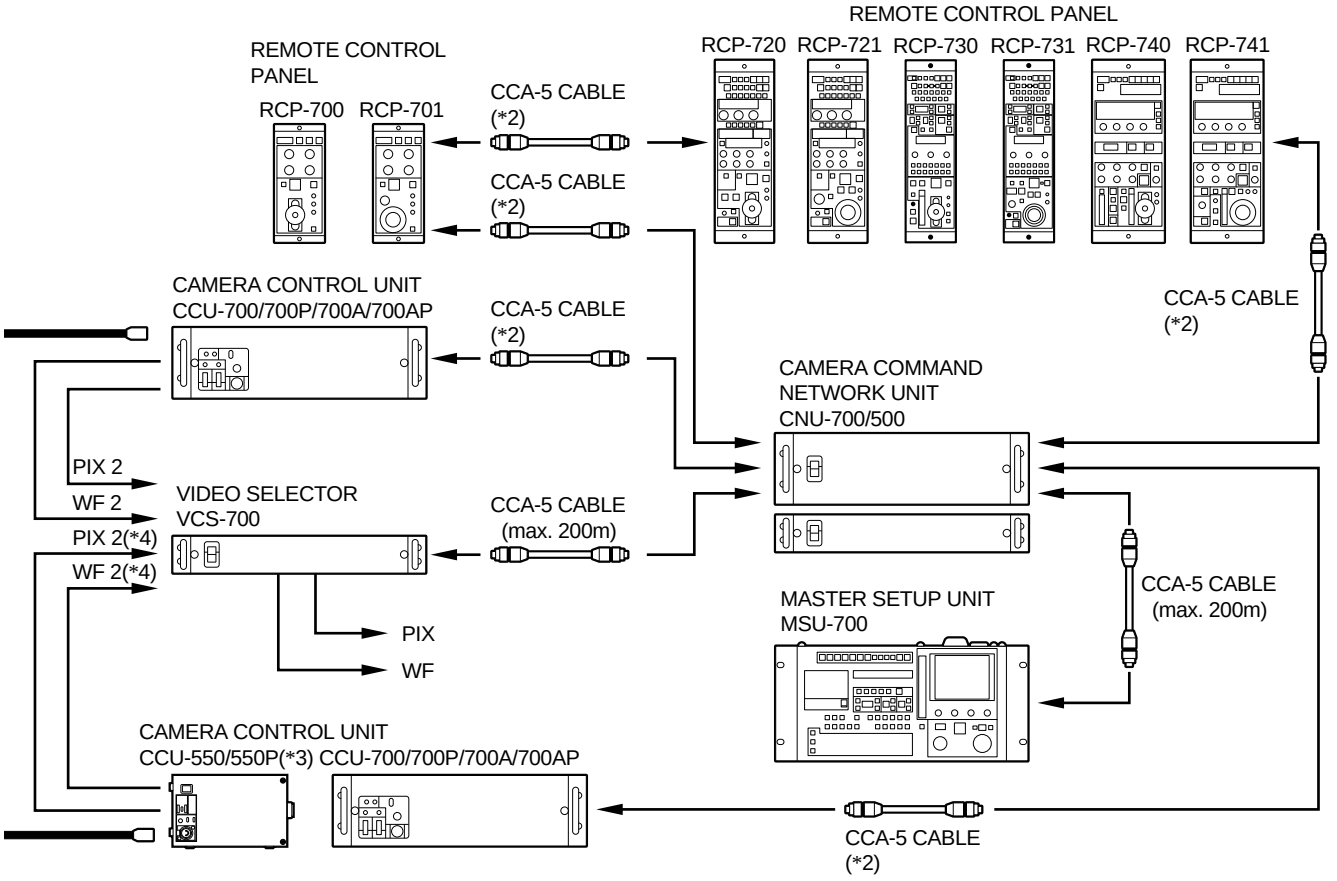
For BVP-900/900P	STANDALONE UNIT BKP-7910/7910P
	SCRIPT HOLDER BKP-7911/7912
	TRIAX UNIT BKP-7010
	RTS KIT BKP-7913

For BVP-950/950P	ELECTRET CONDENSER MICROPHONE ECM-MS5
	MICROPHONE C-74 (Sony P/N 1-542-099-11)
	CRADLE SUSPENSION CRS-3P
	CARRYING CASE LC-303SFT
For CA-550/550P	TELEPROMPTER UNIT BKP-5971

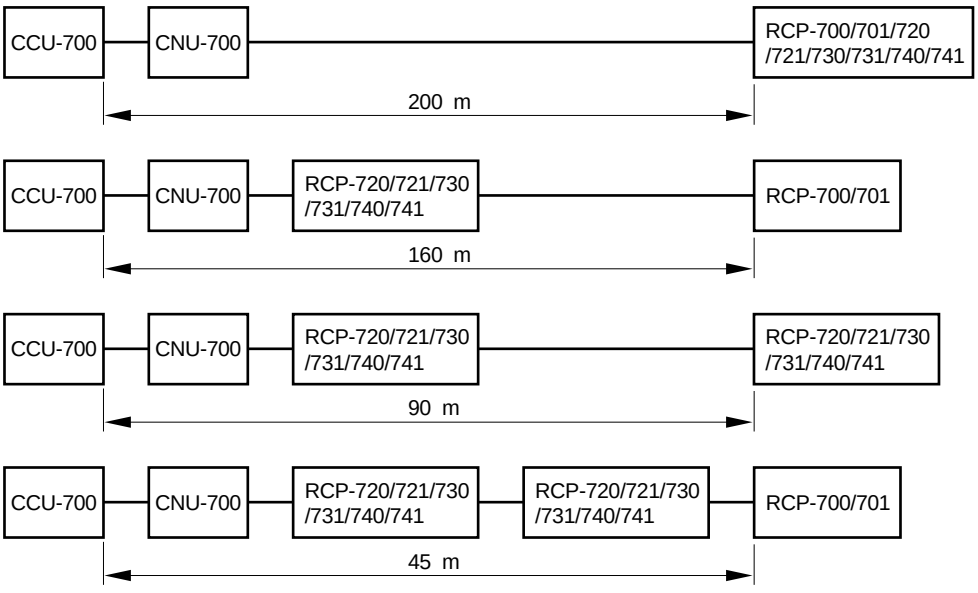
∗1: TRIAX CABLE LENGTH

Diameter	Maximum length	
	CCU-700	CCU-550
8.5 mm	1000 m	700 m
14.5 mm	2000 m	1400 m

Diameter	Cable-length limitation for prompter signal transmission	
	CCU → CAM	CAM → CCU
8.5 mm	500 m	400 m
14.5 mm	1000 m	800 m



*2: CCA-5 CABLE LENGTH



∗3: When the CA-570/570P is connected with the CCU-550/550P, use of intercom transmission channel is limited to only one channel.
In this case, use the INCOM 1 connector of the CA-570/570P.

∗4: When the CCU is connected with the VCS-700, the PIX 2 and WF 2 connectors of the CCU are normally used. When the CCU-550/550P is connected, use of PIX and WF transmission channels are limited to only one channel respectively.
In this case, use the PIX and WF connectors for the CCU-550/550P.

Section 2
Service Overview

Note

The standard tightening torque for the screws used in BVP-900/900P are as follows.

M2: 19×10^{-2} N•m (1.9 kgf•cm)
M2.6: 53×10^{-2} N•m (5.3 kgf•cm)
M3: 80×10^{-2} N•m (8.0 kgf•cm)
M4: 140×10^{-2} N•m (14.0 kgf•cm)

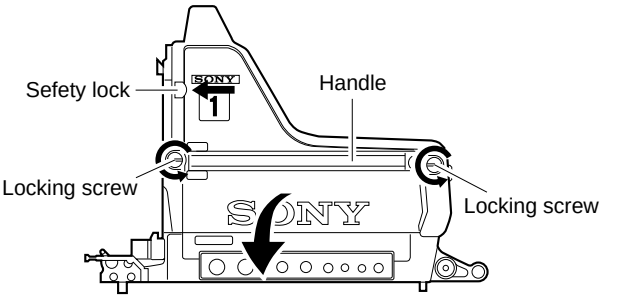
2-1. Opening and Closing the Side Panel

Opening

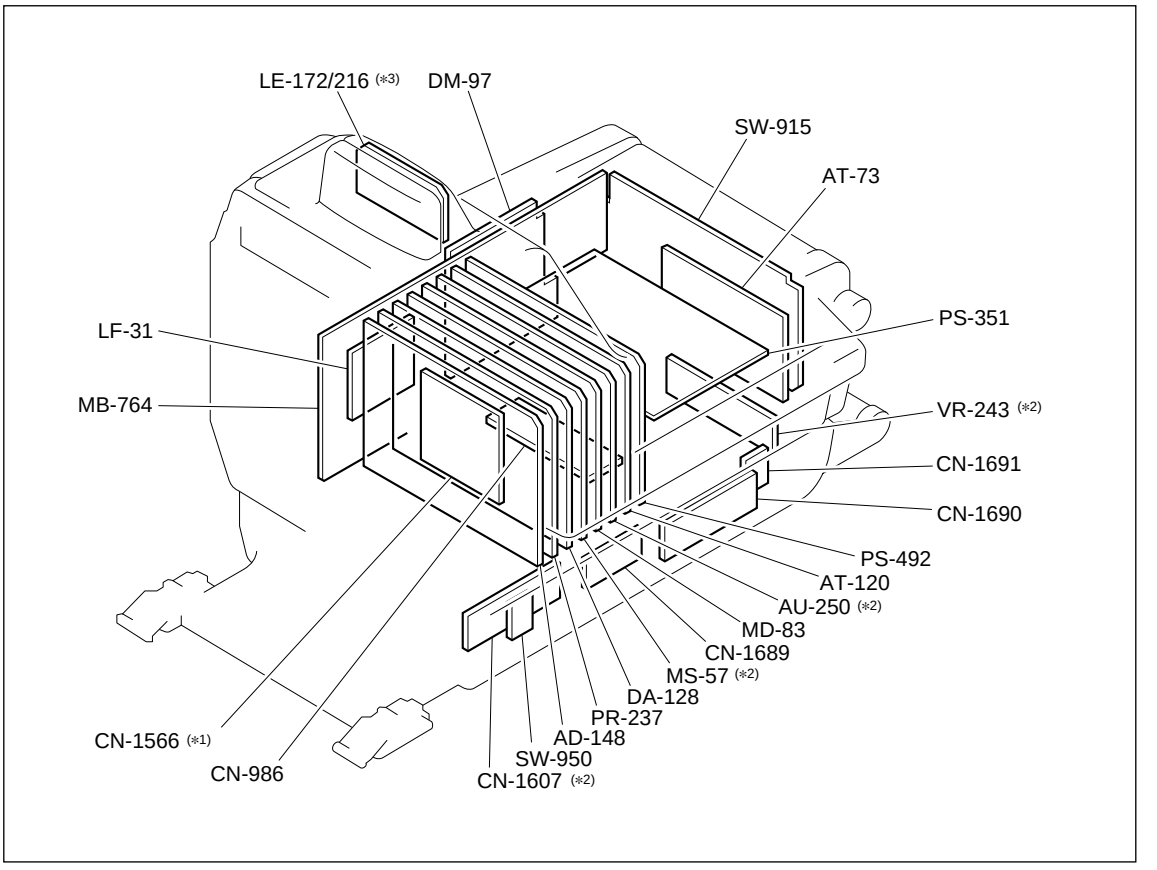
Loosen the two side-panel locking screws, and while sliding the safety lock toward the lens, open the side panel by holding the handle.

Closing

When you close the side panel, the safety lock is automatically locked. Fasten the side-panel locking screws securely.



2-2. Location of Printed Circuit Boards



∗1 : The CN-1566 board is installed on the DA-128 board.
∗2 : The actual name varies depending on the model.

Model name	AU-250	CN-1607	MS-57	VR-243
BVP-900 (UC)	AU-250	CN-1607A	MS-57A	VR-243A
BVP-900P (CE)	AU-250P	CN-1607A	MS-57P	VR-243P

∗3 : The LE-172 and LE-216 boards are compatible each other.
LE-172 S/N 10001 through 15000 : BVP-900 (UC)
40001 through 45000 : BVP-900P (CE)
LE-216 S/N 15001 and Higher : BVP-900 (UC)
45001 and Higher : BVP-900P (CE)

2-3. Circuit Description

The electric circuit of the BVP-900/900P consists of the blocks below.
- Power supply block
- Video signal processing block
- Video signal modulation/demodulation block
- Audio signal modulation/demodulation block
- Viewfinder signal processing block
- System control block

(1) Power supply block

The multiplex signal and power are supplied from CCU through a TRIAX cable. They are separated into a power of 240 Vac and a high-frequency signal by the LF-31 board.
The 240 Vac is supplied to the PS-351 board. The PS-351 board generates 12 Vdc from the 240 Vac, and then supplies the 12 Vdc to the lens, viewfinder, and the PS-492 board. When the standalone kit BKP-7910 (option) is installed, the PS-351 board switches between an external 12 Vdc and the 12 Vdc generated from 240 Vac. The PS-492 board generates the various voltages required for camera and CCD unit from 12 Vdc, and supplies them to each board.

(2) Video signal processing block

AD-148 board

The AD-148 board performs the following processings for the R, G, and B signals sent from an optional CCD unit.
- Gain control
- White shading correction
- Flare correction
- Pre-knee correction

After the signal processings above are completed, each video signal is converted into digital signals using a 12-bit A/D converter and sent to the PR-237 board.

PR-237 board

The PR-237 board performs the following processings for the digital video signals sent from the AD-148 board, and sent them to the DA-128 board.
- Various detail correction
- Linear matrix correction
- Knee correction
- Knee saturation correction
- Pedestal control
- Black gamma correction
- Gamma correction
- White clip
- Black clip

The PR-237 board produces the signals below.
- White shading correction signal
- VF detail signal
- Various timing pulses

DA-128 board

The DA-128 board converts the digital R, G, and B video signals and VF detail signal sent from the PR-237 board into analog signals.

RC-68 board

When a wide-screen-ready CCD unit is installed in camera and when the CN-1566 board is replaced with the RC-68 board of CCD unit, the RC-68 board can select aspect ratio between 16:9 and 4:3. The RC-68 board performs the time base conversion and its accompanying filter processing.

(3) Video signal modulation/demodulation block

Modulation block

The R, G, and B signals sent from the DA-128 board are converted into luminance signal Y and color-difference signals R-Y and B-Y by the MD-83 board.
The Luminance signal Y is amplitude-modulated in 22.5 MHz. The color-difference signals R-Y and B-Y are quadrature-modulated in 45 MHz and added to each other after quadrature-modulating. The modulated Y and R-Y/B-Y signals are sent to a multiplexer unit and added to other signals. Then the signal is passed through the LF-31 board and sent through a TRIAX cable to the CCU.
When the switch setting is changed, the video signal can also be sent over prompter line to the CCU. (The prompter signal has been frequency-modulated on the MD-83 board.)

Demodulation block

The multiplex signal and power are supplied from CCU through a TRIAX cable. They are separated into a power of 240 Vac and a high-frequency signal by the LF-31 board. The high-frequency signal is separated into various signals by a multiplexer unit. The return signal and prompter signal of them are demodulated by the DM-97 board.

(4) Audio signal modulation/demodulation block

Demodulation block

The multiplex signal is sent from CCU through a TRIAX cable. The audio RF signal is separated from the multiplex signal by a multiplexer unit and sent to the AU-250 board. The audio RF signal is passed through six ceramic filters so as to demodulate the six types of signals below.

- INCOM 1 and INCOM 2 signals
- PGM 1 and PGM 2 signals
- CCU data (serial data)
- H CONT signal

The INCOM 1, INCOM 2, PGM 1, and PGM 2 signals are sent to the INTERCOM 1/2 connectors of the camera. The CCU data is sent to the interface circuit on the AT-120 board, and the H CONT signal is sent to the sync signal generator on the PR-237 board.

Modulation block

The signals below are frequency-modulated, and they are multiplexed to produce an audio RF signal. The audio RF signal is added to other signals using a multiplexer unit and sent through the LF-31 board to the CCU.

- INCOM 1 and INCOM 2 signals
- MIC 1 and MIC 2 signals
- CHU data from AT-120 board

(5) Viewfinder signal processing block

MS-57 board

The select buttons on the rear panel select from among the R, G, and B signals sent from the DA-128 board and the return signal sent from the DM-97 board. The selected signal is sent to the viewfinder and the TEST OUT connector of the camera. The signals below can be added to the signal to be sent to the viewfinder.

- Character signal generated on the AT-120 board
- Cursor and center marker signals generated on the PR-237 board
- VF DTL signal from the DA-128 board

The return video signal (composite signal) is decoded into a component signal using an adaptive comb filter and displayed on the viewfinder as R, G, and B signals. The P in P (Picture in Picture) function that inserts these video signals into other video signals as a sub-screen is also processed by the MS-57 board.

(6) System control block

The AT-120 board manages the information inside of the camera and exchange the information with the external source using a 32-bit RISC microprocessor. The AT-120 board communicates with the CCU via the AU-250 board in serial data. The major functions of this block are as follows:

- Controls the camera according to the information from CCU.
- Transmits the camera head’s information such as self-diagnosis and iris position to the CCU.
- Manages each file.
- Transmits and receives an OHB file to and from the microcomputer in a CCD unit .
- Auto setup
- Generates characters for a viewfinder.
- Transfers the information for switch and display by communicating with the AT-73 board.

2-4. Notes on Service

2-4-1. Installing Jumper Board

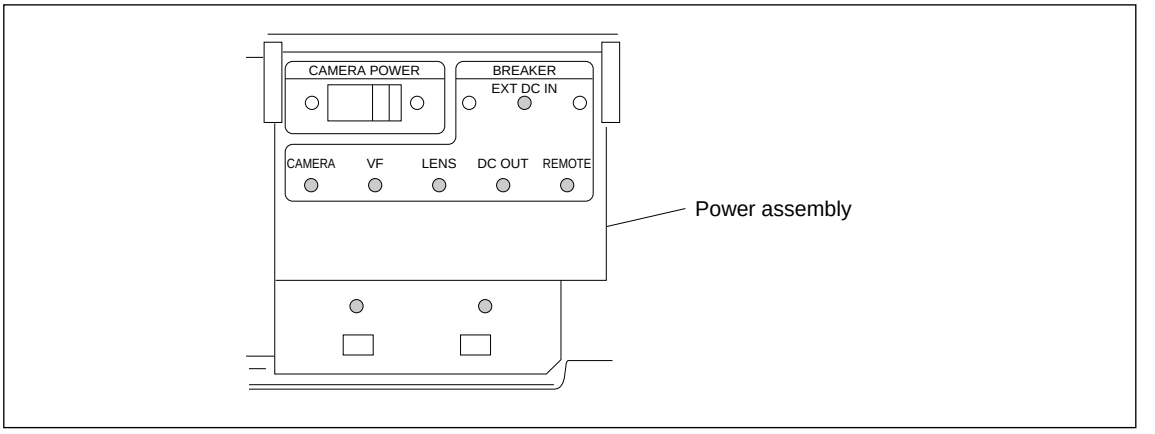
The DA-128 board is provided with a jumper board CN-1566 on it. The CN-1566 board is necessary when the RC-68 board of OHB-730WS/730WSP/750WSA/750WSAP is not installed. Unless the RC-68 board is installed, be sure to connect the CN-1566 board to the DA-128 board. If not, the video image will not be displayed normally.

2-4-2. Replacing CN-1689/1690/1691 Board

The CN-1689/1690/1691 boards are small printed circuit boards used for the camera's right side panel equipped with the REMOTE connector, DC OUT 12 V connector and so on. If you order one of these boards, a combined board of the above three will be supplied from the Sony parts center. When using it for service, cut off a necessary board from it.

2-4-3. Reset of Breaker

Excessive current in the internal circuitry will trip the internal circuit breaker regardless of causes. If the circuit breaker trips once, check the circuit or block concerned, and then press the appropriate breaker release button. If there is no trouble, the power to the unit will be turned on.



2-4-4. Note on Replacement of Flash Memory

The flash memories (IC8 and IC9) are mounted on the AT-120 board. The program has been written into them at the factory.
If the flash memory requires replacing, be sure to replace it with written one.
For details, contact your local Sony Sales Office/Service Center.

2-4-5. Note on Replacement of EEPROM

The stored data of EEPROM on the AT-120 board is as shown below.

Ref.No.	Stored data
IC7	Reference file, Scene file and Lens file

When replacing the above EEPROM, all data stored in memory will be lost. After replacing the EEPROM, reset the above data.

2-4-6. Power Voltage Error Detection Circuit

The DC/DC converter in a power assembly has the error detection circuit of power voltage. If the error is detected, the circuit will stop powering to the camera at once.
When the circuit stops powering by detecting the error, it will not start powering again unless the main power is turned off once. Turn off the power and eliminate the problems, and then turn on the power again.

2-4-7. Notes on Repair Parts

1. Safety Related Components 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.
Parts list has the present standardized repair parts.

3. Stock of Parts

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

4. Units Representation

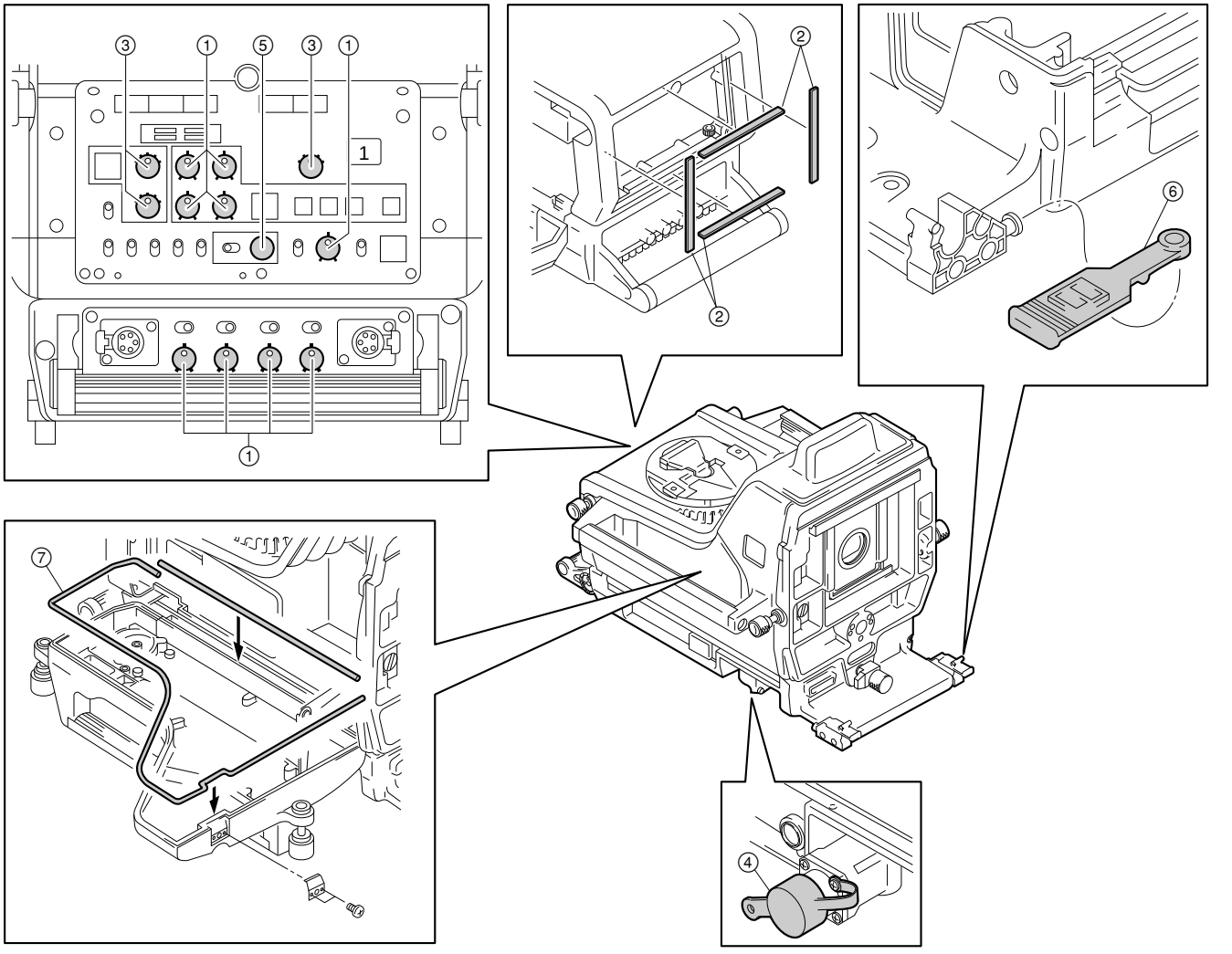
The following represented units are changed or omitted in writing.

Units		Representation
Capacitance	μF	uF
Inductance	μH	uH
Resistance	Ω	Abbreviation
Temperature	˚C	XXX-DEG-C

2-5. Recommended Replacement Part

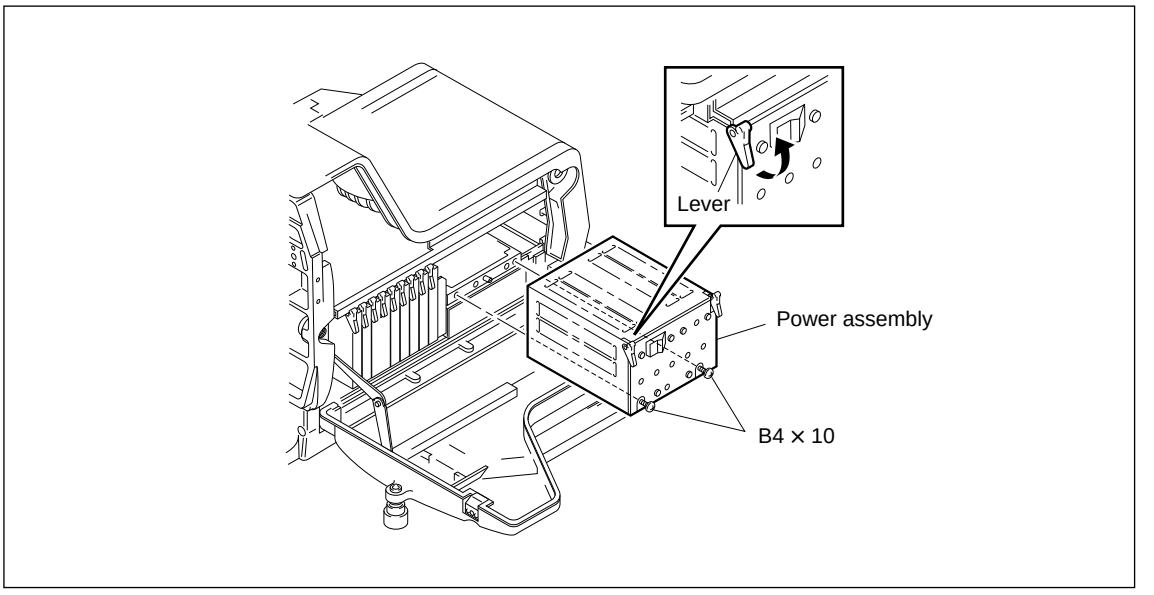
Parts listed below are recommended replacement parts. They are subject to cracks with the lapse of time. Check sometimes by visual, and replace as necessary.

No.	Description	Sony P/N
①	Control knob assembly	X-3167-563-X
②	Shielding rubber	3-185-869-0X
③	Control knob	3-185-872-0X
④	Connector cap	3-186-499-0X
⑤	Control knob	3-602-483-0X
⑥	Clamp band	3-612-712-0X
⑦	Shielding cushion	3-613-595-0X



2-6. Replacing Power Assembly

1. Open the right side panel referring to Section 2-1.
2. Loosen the two screws and pull out the power assembly while pushing the levers in the direction of arrow.

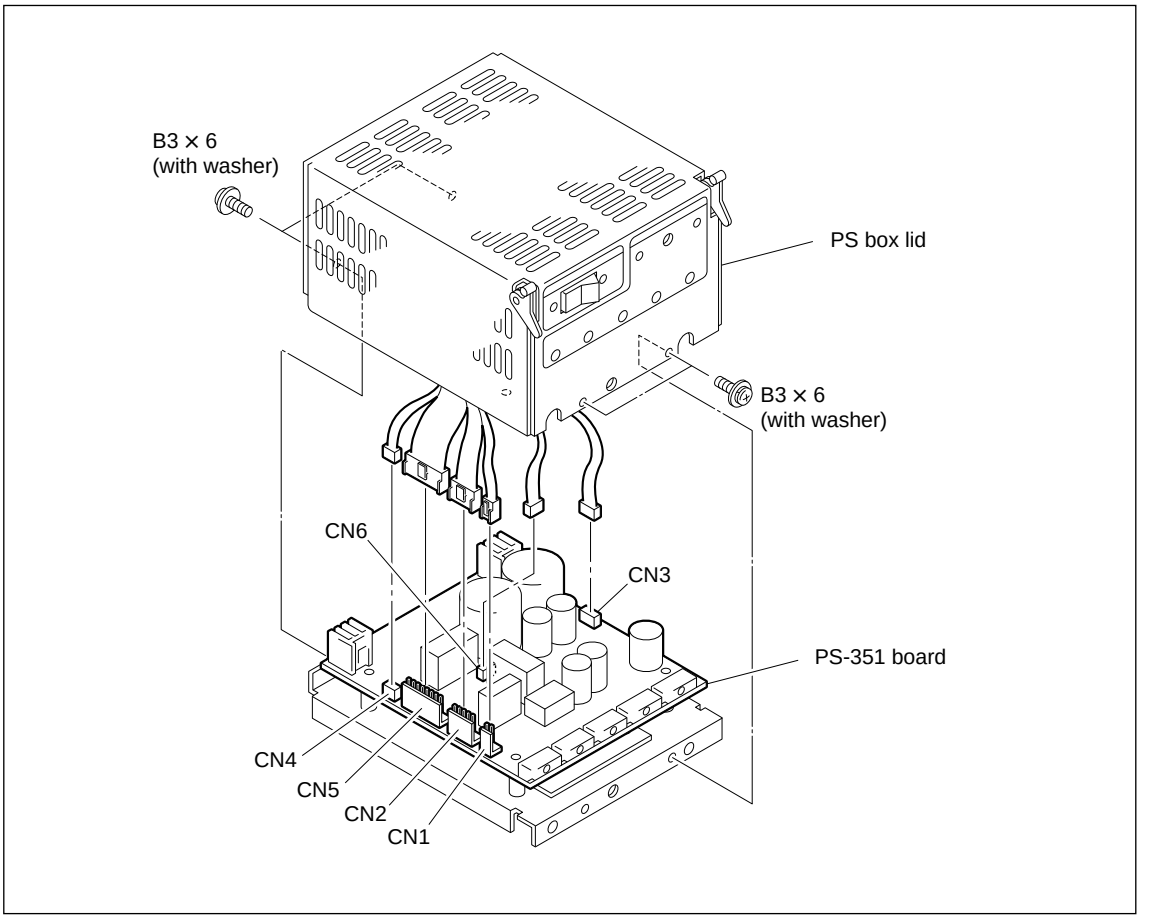


3. Install a new power assembly in the reverse order of removal.

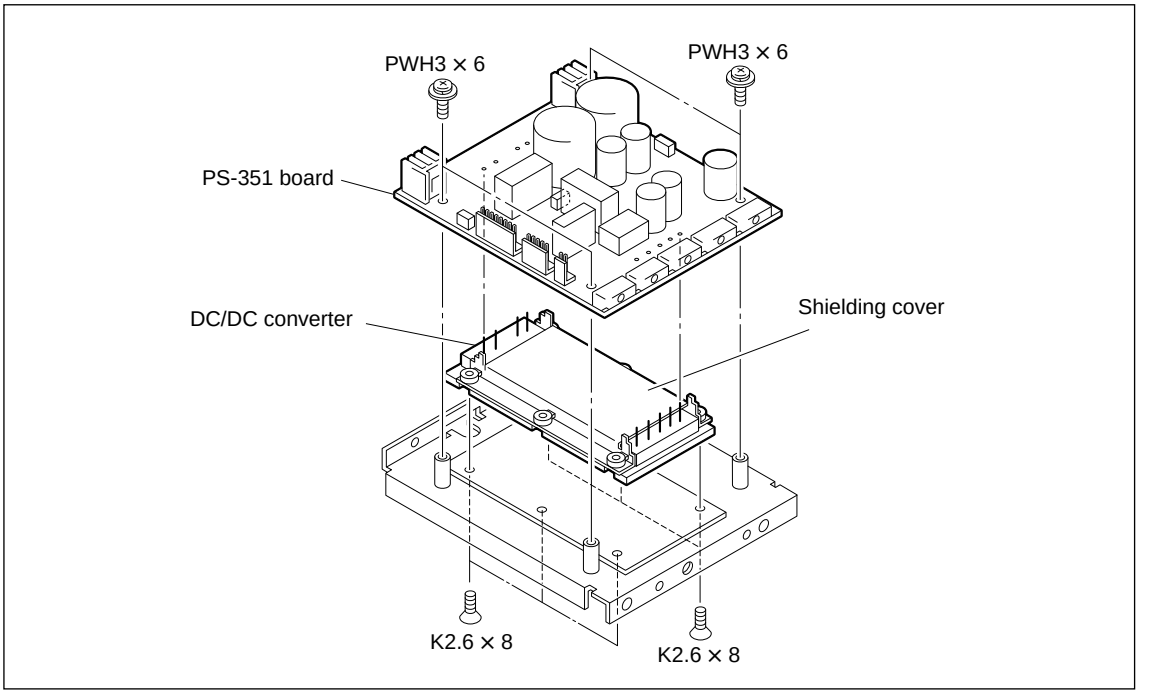
2-7. Replacing DC/DC Converter

2-7-1. Power Assembly (PS-351 Board)

1. Remove the power assembly referring to Section 2-6.
2. Remove the four screws to remove the PS box lid.
3. Disconnect the six connectors CN1 to CN6 on the PS-351 board.



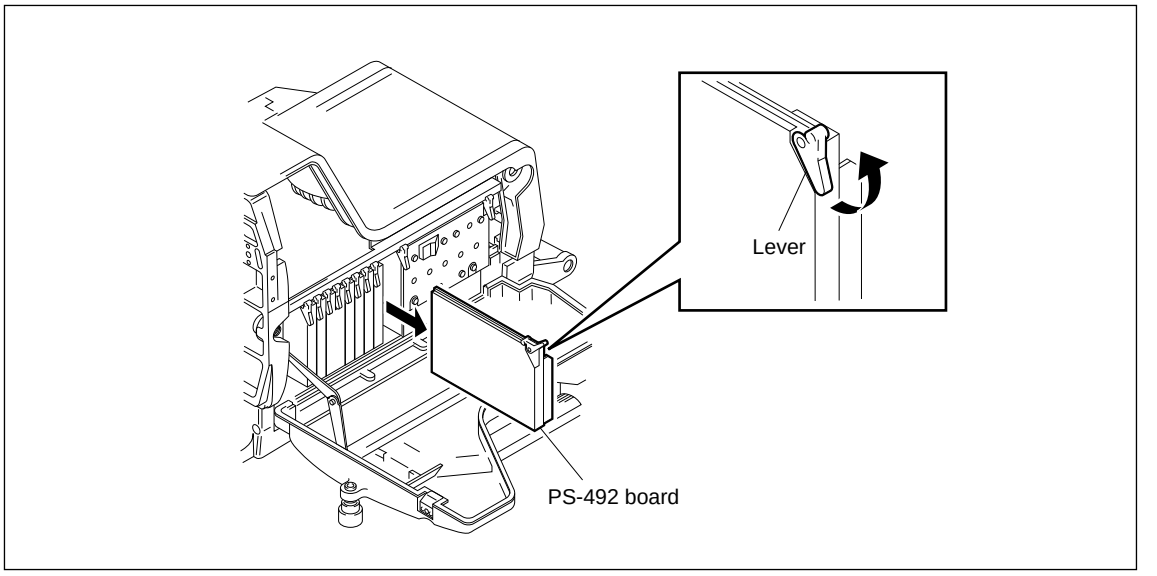
4. Desolder the DC/DC converter and the shielding cover.
5. Remove the four screws to remove the PS-351 board.
6. Remove the six screws to remove the DC/DC converter.



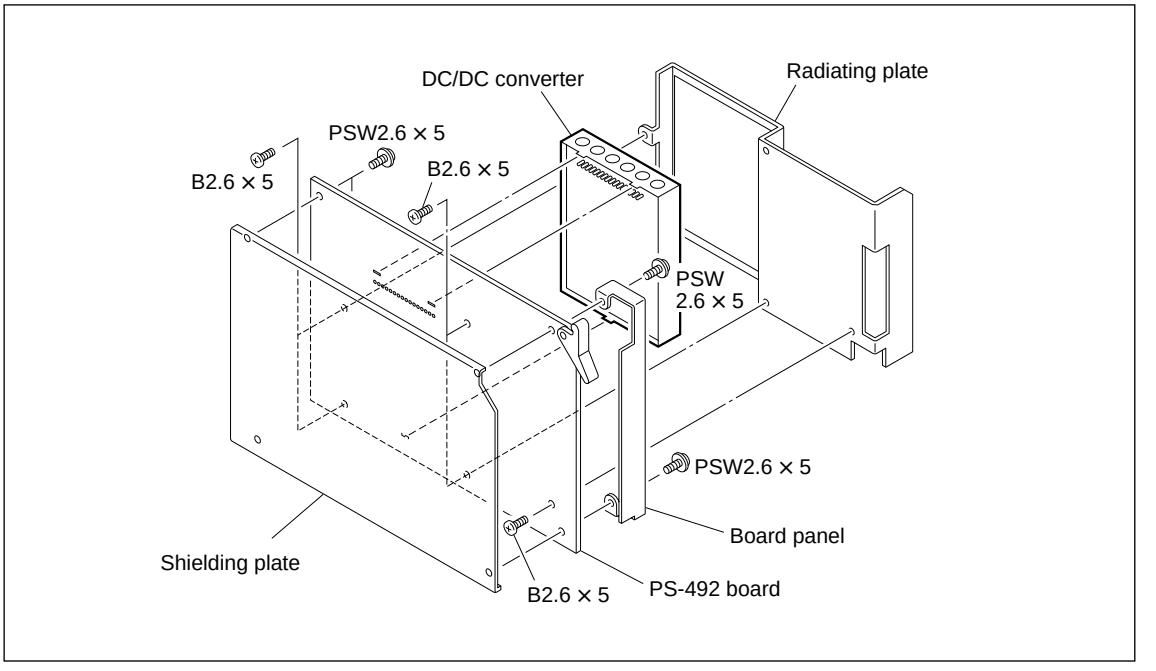
7. Install a new DC/DC converter in the reverse order of removal.

2-7-2. PS-492 Board

1. Open the right side panel referring to Section 2-1.
2. Pull out the PS-492 board while pushing the board lever in the direction of arrow.



3. Remove the four screws on the PS-492 board and remove the shielding plate and the board panel.
4. Remove the five screws to remove the radiating plate.
5. Desolder the DC/DC converter.

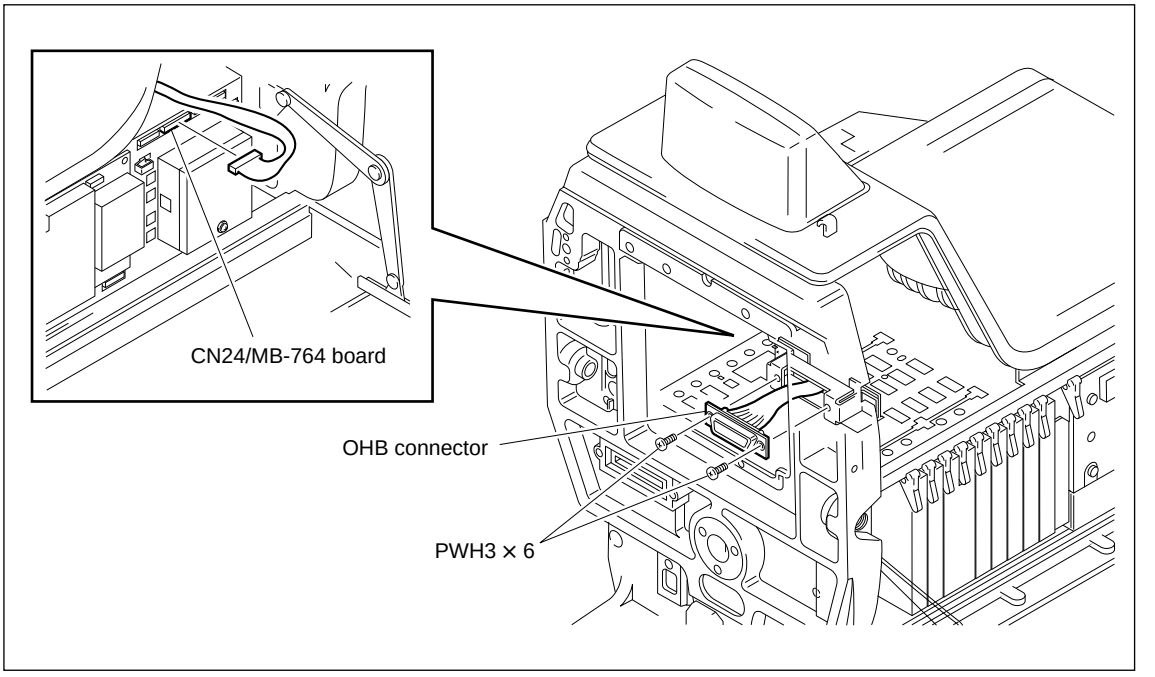


6. Install a new DC/DC converter in the reverse order of removal.

2-8. Replacing External Connectors

2-8-1. OHB Connector

1. Remove the CCD unit referring to OHB-730/750A series installation manual.
2. Open the left side panel referring to Section 2-1.
3. Disconnect the connector (CN24) on the MB-764 board.
4. Remove the two screws and pull out the OHB connector with harness.



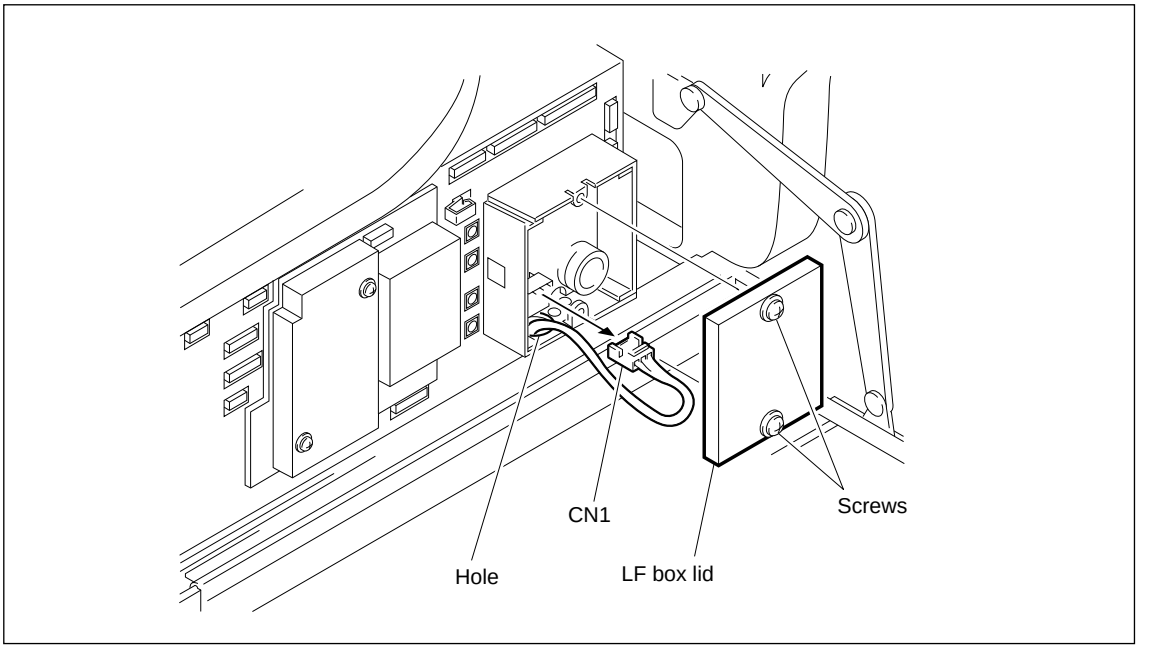
5. Install a new OHB connector in the reverse order of removal.

Note at installation

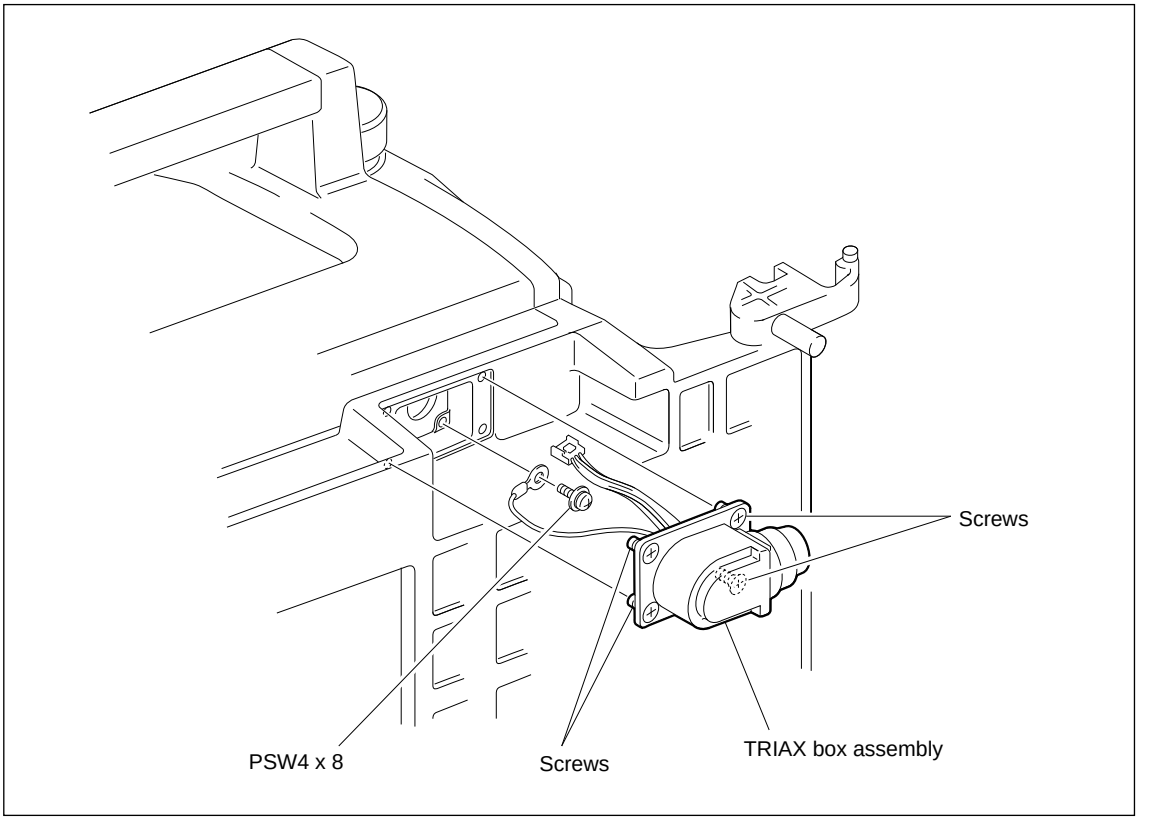
When installing the OHB connector, check that pin 1 is on the upper side of connector.

2-8-2. TRIAX Connector

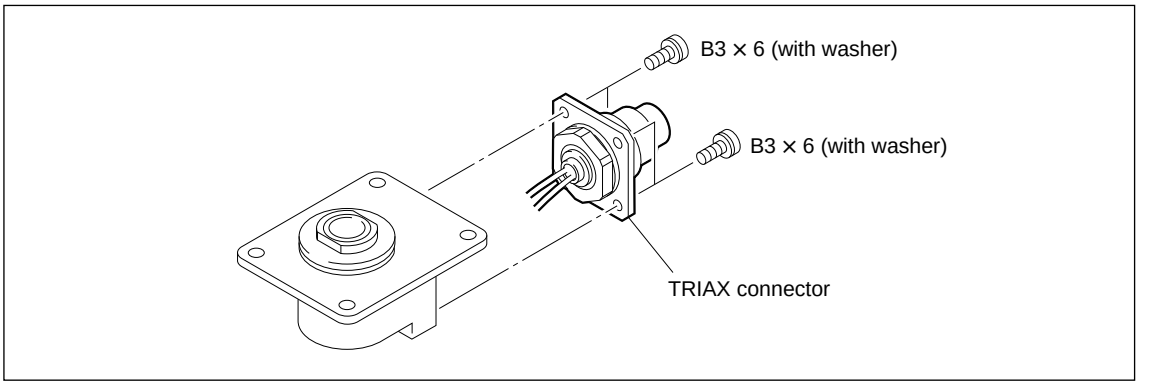
1. Open the left side panel referring to Section 2-1.
2. Loosen the two screws to remove the LF box lid.
3. Disconnect the connector CN1 on the LF-31 board and push the CN1 harness into a hole.



4. Lay the camera as shown in the following figure. Loosen the four screws and pull out the TRIAX box assembly.
5. Remove the screw securing a lug terminal and remove the TRIAX box assembly.



6. Remove the four screws and pull out the TRIAX connector with harness.



7. Install a new TRIAX connector in the reverse order of removal.

2-9. Disconnecting /Connecting Flexible Card Wire

The flexible card wire is used between the MB-764 board and AT-73 board. Take care not to crimp it. It shorten the wire life.
When disconnecting and connecting the flexible card wire, be sure to disconnect and connect the connector on the MB-764 board.

Disconnecting

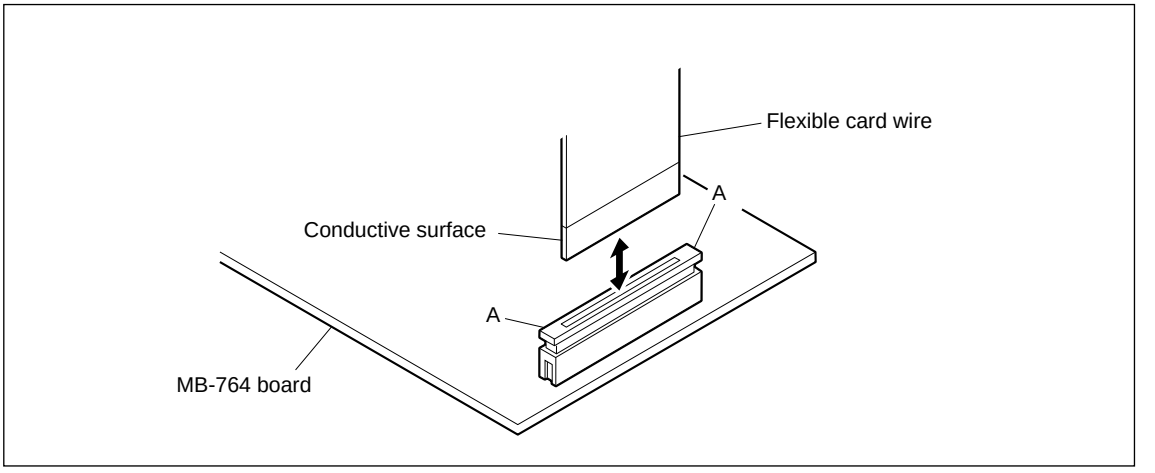
1. Turn off the power.
2. Lift up the portion A and disconnect the flexible card wire.

Connecting

Notes at connection

- Be careful not to insert the flexible card wire obliquely.
- Check that the conductive surface of the flexible card wire is not soiled with dust.

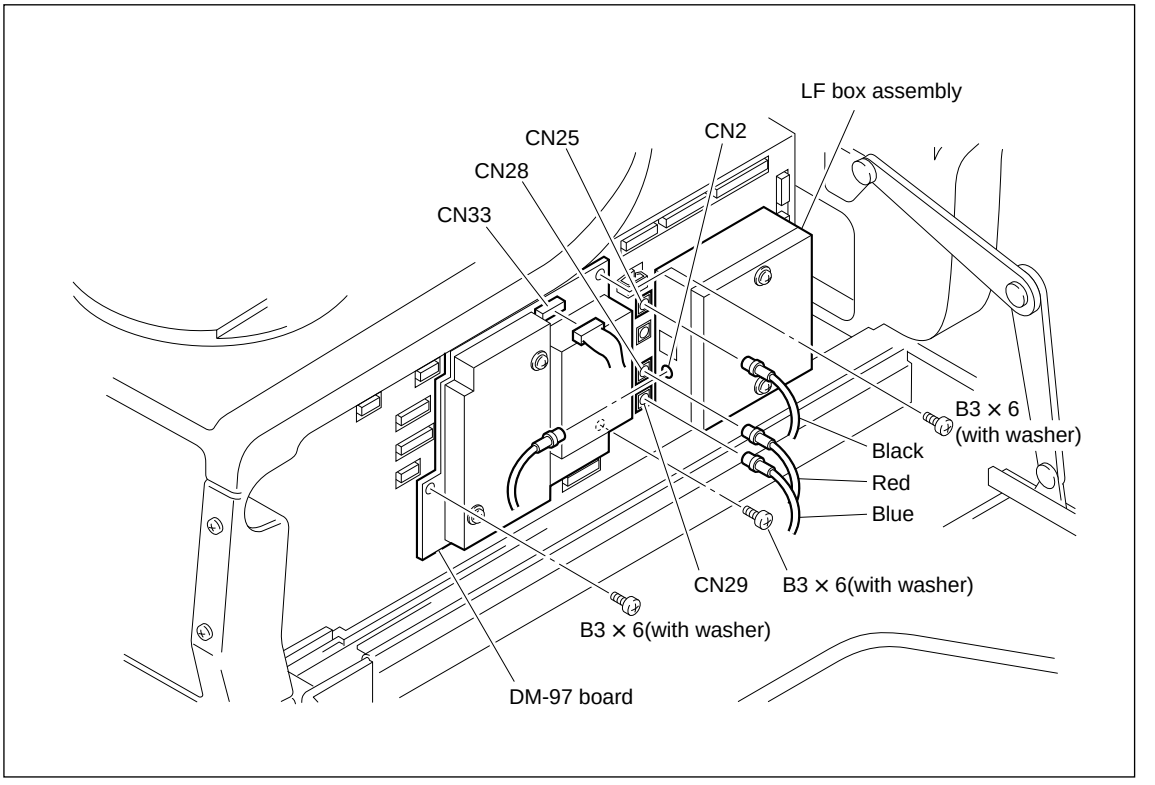
1. Insert the flexible card wire as far as it will go.
2. Push down the portions A to secure the flexible card wire.



2-10. Replacing Boards

2-10-1. Replacing DM-97 Board

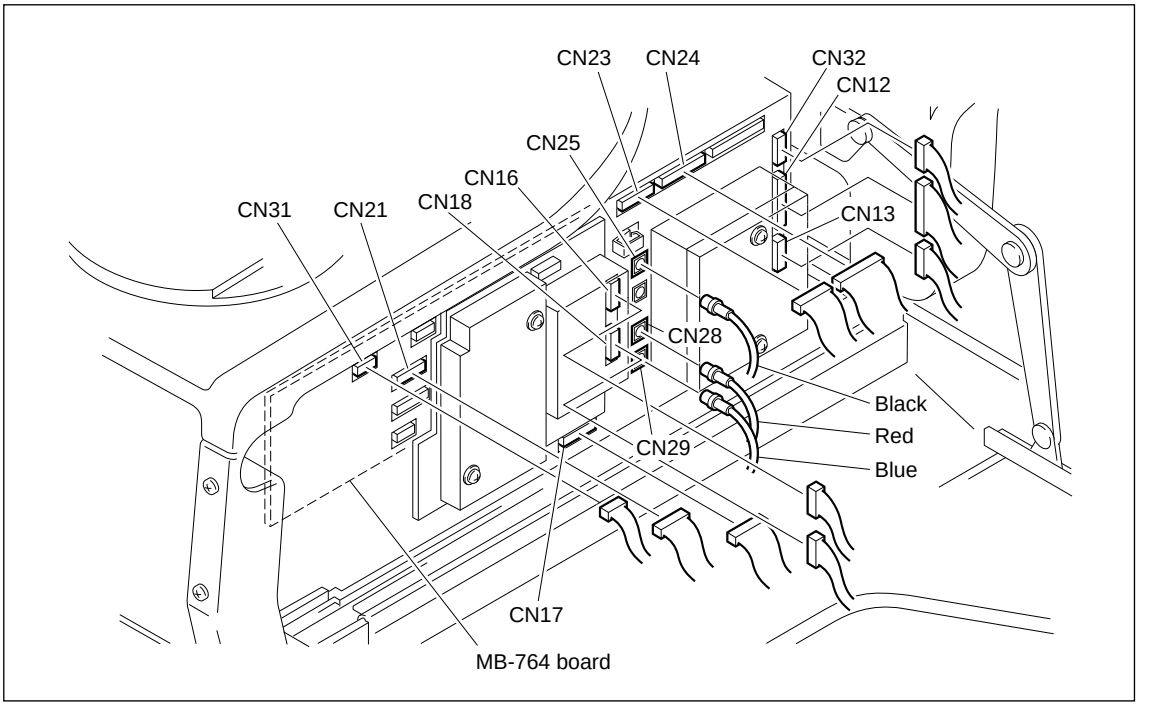
1. Open the left side panel referring to Section 2-1.
2. Disconnect the connector CN33 on the DM-97 board.
3. Disconnect the three connectors CN25, CN28 and CN29 on the MB-764 board.
4. Disconnect the connector CN2 from the LF box assembly.
5. Remove the three screws to remove the DM-97 board.



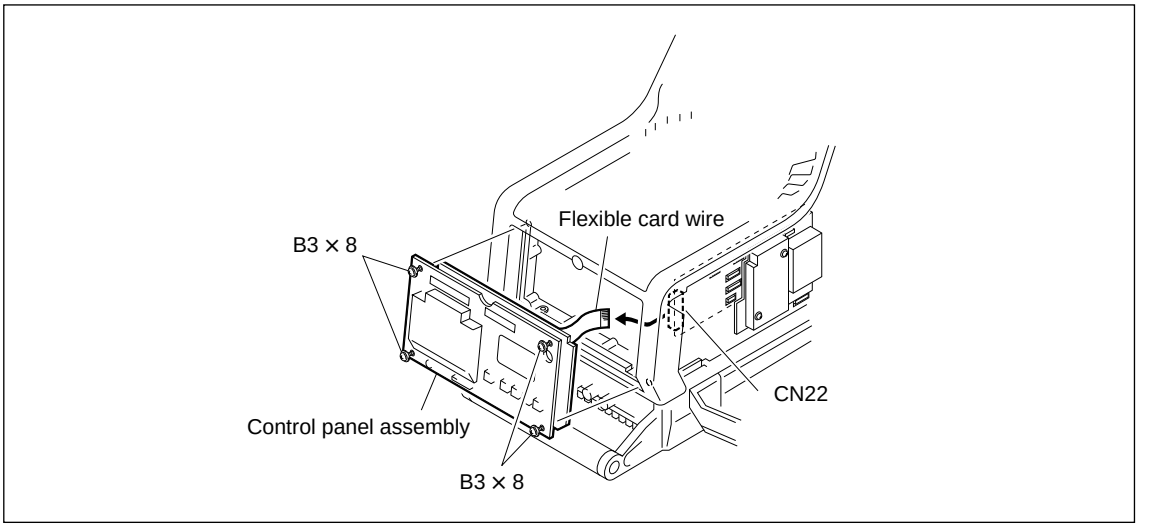
6. Install a new DM-97 board in the reverse order of removal.

2-10-2. Replacing MB-764 Board

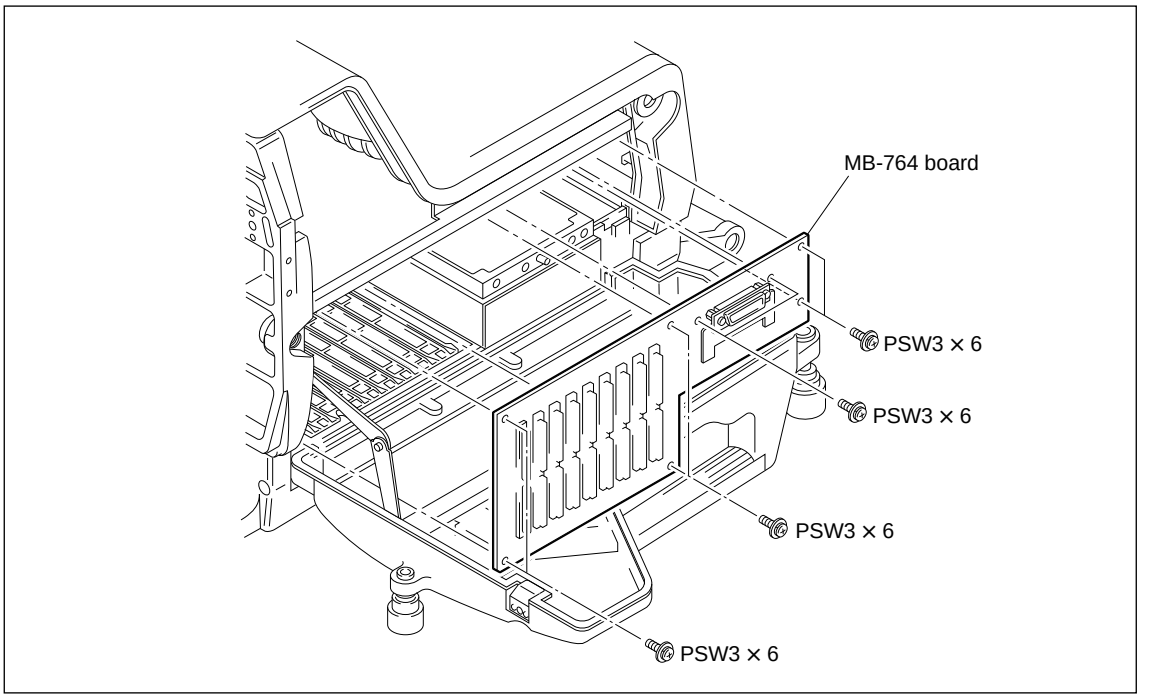
1. Open the both side panels referring to Section 2-1.
2. Remove the power assembly referring to Section 2-6.
3. Pull out all plug-in boards from the camera.
4. Disconnect the thirteen connectors on the MB-764 board.



5. Loosen the four screws to remove the control panel assembly.
6. Disconnect the flexible card wire from the MB-764 board referring to Section 2-9.



7. Remove the eight screws on the MB-764 board.



8. Install a new MB-764 board in the reverse order of removal.

2-10-3. Adjustment after Replacing Board

Some boards may need electrical adjustment after replacing it. Check whether the board should be adjusted or not referring to the following table. If necessary, adjust the board referring to Section 3 “Electrical Alignment”.

Board	Adjustment required
AD-148	Section 3-4. AD, DA System Adjustment
AT-73	—
AT-120 (※1)	—
AU-250	Section 3-6. Intercom System Adjustment
DA-128	Section 3-4. AD, DA System Adjustment
DM-97	Section 3-5. TRIAX System Adjustment
MD-83	Section 3-5. TRIAX System Adjustment
MS-57	Section 3-3. Video Signal System Adjustment, Section 3-4. AD, DA System Adjustment
PR-237	Section 3-4. AD, DA System Adjustment
SW-915	—

※1 : The EEPROM (IC7) is mounted on the AT-120 board. When the AT-120 board was replaced, reset the data of EEPROM. For details of data, refer to “2-4-5. Note on Replacement of EEPROM”.

2-11. Replacing Tally Cover

Tool

RTV adhesive
Sony P/N: 7-320-000-90

Procedures

1. Remove one on two tally cover, dripproof cushion, and RTV adhesive from the chassis T.
   Note
   When one or two hooks of tally cover and RTV adhesive are left in rectangular holes of the chassis T, unstick the coppery tapes, and remove the hooks and RTV adhesive with tweezers. Stick the coppery tapes on the chassis T again.
2. Attach a new dripproof cushion to the chassis T while aligning a notch of the dripproof cushion with a pit of the chassis T.
3. Apply the RTV adhesive into the rectangular holes of the chassis T.
4. Apply the RTV adhesive onto the dripproof cushion. (thickness: about 0.2 mm, wide: about 4 mm)
5. Apply the RTV adhesive onto the silicon tube. (thickness: about 0.2 mm, wide: about 1 mm)
6. Align a projection of a new tally cover with the pit of chassis T, and insert the tally cover until the both hooks lock in the rectangular holes.
   Note
   Ensure that the both hooks lock. If only one hook locks, it will be broken.
7. Wipe off any excess of RTV adhesive.

Fig. 1

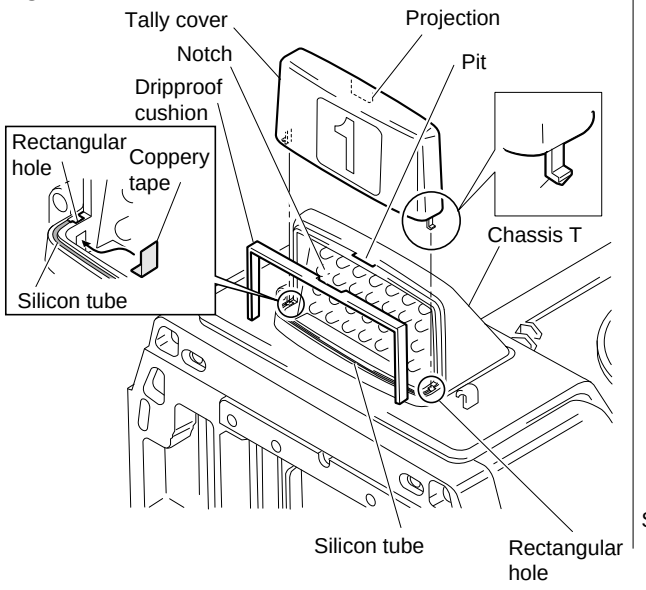
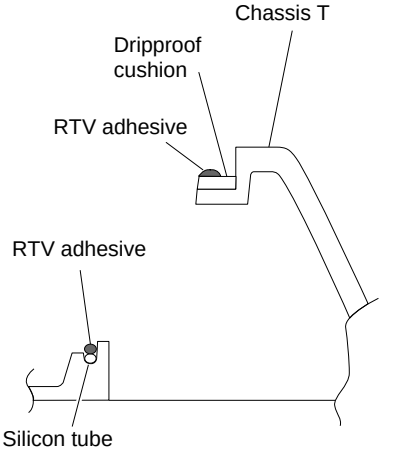


Fig. 2



Note

The RTV adhesive sets in about twenty-four hours. Within twenty-four hours after replacing, do not put an extra strain on the tally cover.

2-12. Tools and Fixtures

Description	Sony P/N
Extension board EX-439 *1	A-8314-124-A
Extension cable for power assembly	J-6470-430-A
Extension cable for OHB	J-6394-290-A
RTV adhesive	7-320-000-90

*1:When adjusting the DA-128 board and PR-237 board, the two extension boards are necessary.

2-13. Attaching Portable Lens

A portable lens can be attached to the camera. This attachment should be used for limited application such as adjustment. Because the characteristics of the camera are not satisfied when it is used for shooting.

2-14. Error Message in Automatic Adjustment Mode

If an error occurs during automatic adjustments, an error message appears on a viewfinder screen. Take following measures according to the displayed message.

① "OVER FLOW"

The adjusted value overflowed the adjustable range. Check whether the settings on the camera are correct or not. If they are correct, adjustments of the internal boards are necessary.

② "LOW LEVEL"

The video signal level was too low for white balance or skin detail phase adjustment, and the white balance or skin detail phase could not be adjusted. Raise the video signal level by using brighter illumination, opening the lens iris, or raising the gain of the video signal.

③ "TIME LIMIT"

Automatic adjustment did not finish within a specified period. Check whether the settings on the camera are correct or not. If they are correct, adjustments of the internal boards are necessary.

④ "NOT CLOSE"

The lens did not close for black balance or black shading adjustment.

⑤ "LOW SATURATION"

The saturation of subject was too low for skin detail phase adjustment, and color tone could not be discriminated.

⑥ "OVER LEVEL"

The video signal level was too high for skin detail phase adjustment, and the color tone could not be discriminated.

Other message

- **"BREAK"**

The automatic adjustment was interrupted with the BREAK command.

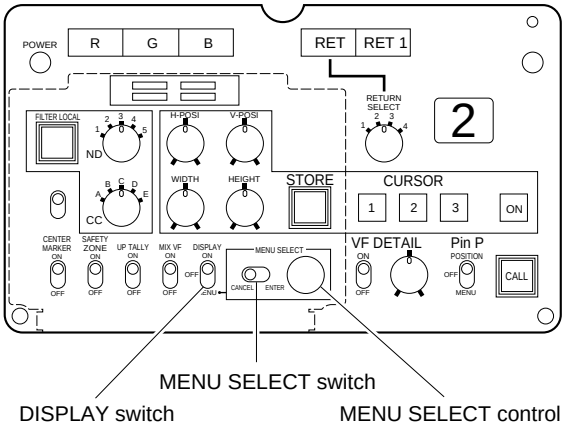
2-15. Self-Diagnosis

The DIAGNOSIS page of the OPERATION menu is used for self-diagnosis of every plug-in board and the OHB. The OPERATION menu appears on the viewfinder screen. By changing an internal switch on the MS-57 board, the same signal as output to the viewfinder is enabled to be output at the TEST OUT connector.

Equipment required

CCD unit	OHB-730/730P/730WS/730WSP/750A/750AP/750WSA/750WSAP
Camera control unit	CCU-700/700P/700A/700AP
Electronic viewfinder	BVF-77/77CE/7700/7700P (or B/W monitor)

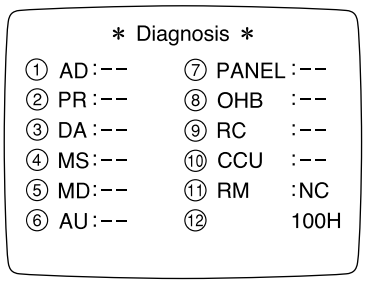
Switches and control knob



Operational procedures

1. Change the DISPLAY switch from OFF to MENU. The OPERATION menu is displayed.
2. Turn the MENU SELECT control to display the DIAGNOSIS page.
3. Set the MENU SELECT switch to ENTER.
4. The menu page is returned to the previous page every time the MENU SELECT switch is pressed.
5. To cancel the menu operation, set the DISPLAY switch to OFF.

Display descriptions



Marks	Board/Block	Judging point
①	AD-148	The serial data is correctly received from the AT-120 board.
②	PR-237	There is no problem when IC8, IC24 and IC33 run diagnostics on themselves.
③	DA-128	The serial data is correctly received from the AT-120 board.
④	MS-57	A multiplex sync signal is output to the viewfinder.
⑤	MD-83	An RF signal is output to the TRIAX connector.
⑥	AU-250	The level of AUDIO RF signal exceeds the standard level.
⑦	PANEL	Communication with the AT-73 board (rear panel) is normal.
⑧	OHB	The serial data is correctly received from the AT-120 board.
⑨	RC-68 *1	There is no problem when IC1 to IC3 run diagnostics on themselves.
⑩	CCU *2	The serial data is correctly received from the CCU.
⑪	RM *3	The serial data is correctly received from the RM.
⑫	—	A power-on time of the camera is displayed. (Unit:Hour)

*1: The RC-68 board is supplied with the OHB-730WS/730WSP/750WSA/750WSAP.
When the RC-68 board is not installed in the camera, the column ⑨ is not displayed.
*2: When the CCU is not connected to the camera, the column ⑩ is not displayed.
*3: When the RM is not connected to the camera, “NC” is displayed in the column ⑪.

Section 3
Electrical Alignment

3-1. Preparation

3-1-1. Equipment required

Tools

- Extension board (EX-439) : A-8314-124-A
- Extension board (BKP-7900)
- Multi-burst chart: J-6026-110-A
- Pattern box (PTB-500, 90-240 Vac) : J-6029-140-B

Equipment

- DC variable voltage supply
- Frequency counter: Advantest TR5821AK or equivalent
- Spectrum analyzer: Advantest R3261A or equivalent
- Audio generator: Tektronix SG-5010 or equivalent
- Oscilloscope: Tektronix 2465 or equivalent
- Waveform monitor/Vectorscope: Tektronix 1750 (for NTSC)/1751 (for PAL) or equivalent
- Video analyzer: Tektronix VM700A or equivalent
- Digital voltmeter: Advantest TR6845 or equivalent
- Video signal generator: Tektronix 1410 (for NTSC)/1411 (for PAL) or equivalent
- Audio level meter

Peripheral equipment

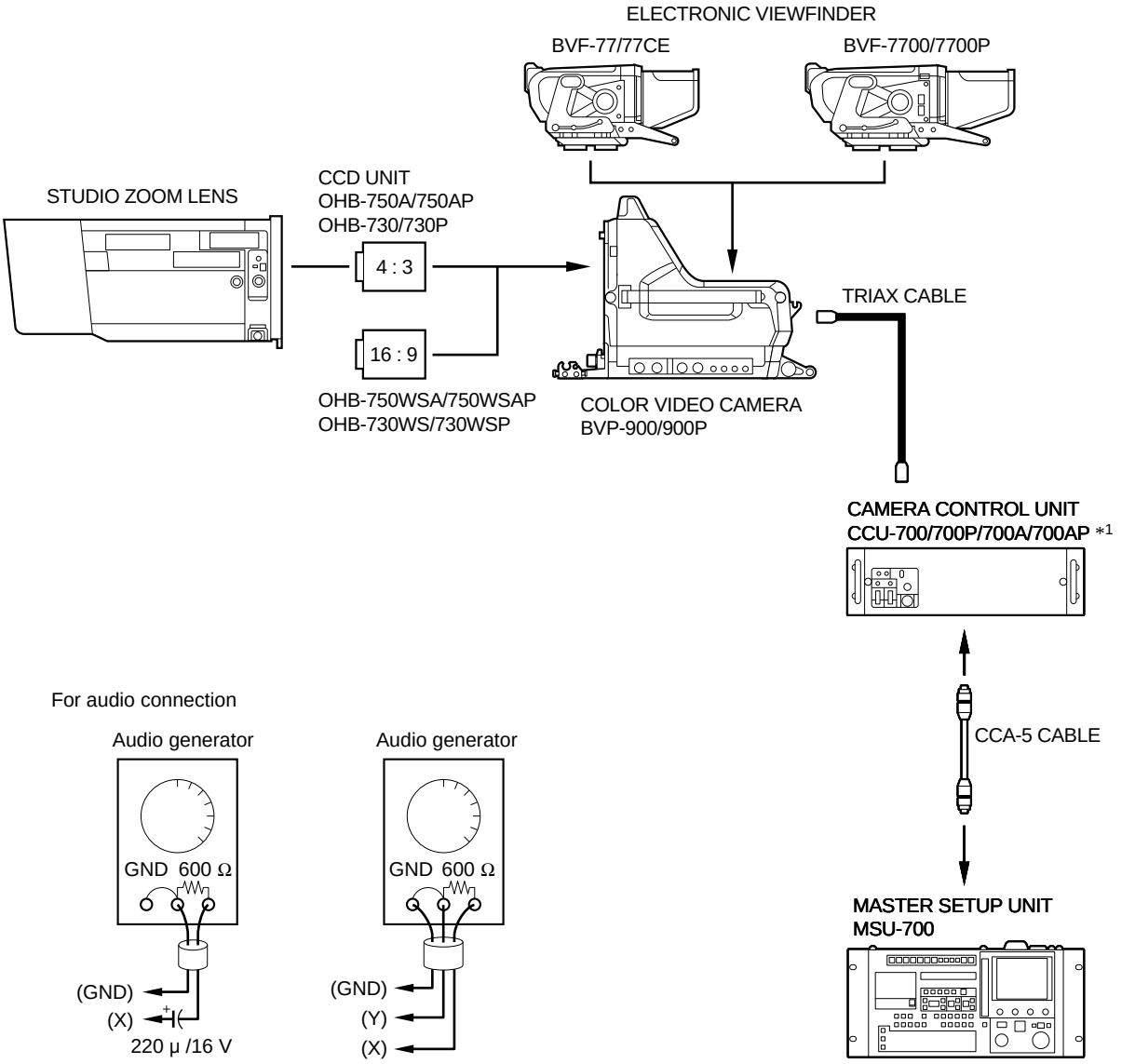
- CCD unit: OHB-730/730P/730WS/730WSP/750A/750AP/750WSA/750WSAP
- Camera control unit: CCU-700/700P/700A/700AP*1
- Master setup unit: MSU-700
- TRIAX cable (Reference:150 m)
- Viewfinder: BVF-77/77CE/7700/7700P

*1: Represented as “CCU-700A” simply for convenience in writing in this section.

3-1-2. Notes on adjustment

- All measuring equipment should be calibrated.
- All the adjustment of peripheral equipment (OHB, CCU, MSU) should be completed.
- As for initial settings before beginning adjustment, refer to section 3-1-4.
- Be sure to power off before disconnecting boards.
- Before adjustment, allow for more than 10 minutes warm-up time.
- Use a plastic (or ceramic) core driver to adjust ⊘LV, ⊘FL, ⊘T, ⊘CV and so on.

3-1-3. Connection



*1: Represented as “CCU-700A” simply for convenience in writing in this section.

3-1-4. Initial Settings

BVP-900

Note

When switching the following switches from a customer-set position, it is recommended to record the setting state of the customer in the table below.
After adjustment is complete, be sure to return the switches to their customer-set positions.

Board	Switch	Initial setting	Customer-set position
AT-120	S1		Fully counterclockwise
	S2		Fully counterclockwise
MS-57	S401		VF
AU-250	S1-1		OFF
	S1-2		OFF
	S151		OFF
	S152		OFF
	S153		OFF
	S350		0 (0 dBu)
	S351		OFF
	S352-1		OFF
	S352-2		OFF
	S352-3		OFF
	S352-4		OFF
	S400		C (CARBON)
	S401		0 (0 dBu)
	S500		C (CARBON)
	S501		0 (0 dBu)

MSU-700 Operation Panel

- Power/Signal output select buttons
  - ALL button → OFF (dark)
  - CAM PW button → ON (lit)
  - VF PW button → ON (lit)
  - TEST 1 button → OFF (dark)
  - TEST 2 button → OFF (dark)
  - BARS button → OFF (dark)
  - CLOSE button → ON (lit)
- Camera/CCU function ON/OFF buttons
  - KNEE OFF button → OFF (lit)
  - DETAIL OFF button → OFF (lit)
  - LEV DEP OFF button → OFF (lit)
  - MATRIX OFF button → OFF (lit)
  - AUTO KNEE button → OFF (dark)
  - SKIN DETAIL button → OFF (dark)
- Others
  - GAMMA OFF button → ON (dark)
  - MASTER GAIN button → 0 (0 dB)
  - FILTER button (ND) → 1 (lit)
  - FILTER button (CC) → B (lit)
- Menu operation block (touch panel)
  - PAINT button → ON

  [△] → (2/3) [White Clip] → [White Clip Off]

Presetting Compensation Data

Before beginning adjustment of AD-148 board, preset all compensation data output from the microcomputer. To preset proceed as follows. By presetting the data, the microcomputer will output the center value of each data. If you adjust each item without presetting, it cannot be regarded as completion of adjustment.

Presetting

Perform the preset operation on the camera using the viewfinder displays.

Note

- Make sure the no display appears on the viewfinder before beginning presetting.

Use the DISPLAY switch, MENU SELECT control and ENTER/CANCEL switch on the camera rear panel.

1. Set the DISPLAY switch to OFF. While holding the ENTER/CANCEL switch up in the ENTER position, slide the DISPLAY switch downward to MENU.
   The Maintenance menu appears in the viewfinder.
2. Set the arrow (⇨) to the “Reference Store” line by turning the MENU SELECT control, and slide the ENTER/CANCEL switch to ENTER once.
   The Reference Store menu now appears.
3. Turn the MENU SELECT control and set the arrow to the “All Preset” line and slide the ENTER/CANCEL switch to ENTER once.
   When presetting is completed, a message “Completed” is displayed.
4. Set the DISPLAY switch to OFF.

3-2. Adjustment Item after Board Replacement

After the following board is replaced, excutes the adjustment.

board	Adjustment item
MS-57	3-3. Video Signal System Adjustment, 3-4. AD, DA System Adjustment
AD-148	3-4. AD, DA System Adjustment
DA-128	
PR-237	
MD-83	3-5. TRIAX System Adjustment
DM-97	
AU-250	3-6. Intercom System Adjustment

3-3. Video Signal System Adjustment

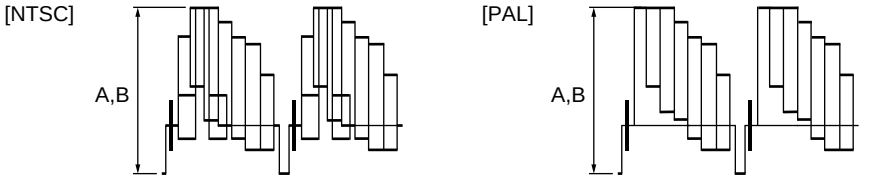
3-3-1. MS Monitor Gain Adjustment

Preparation

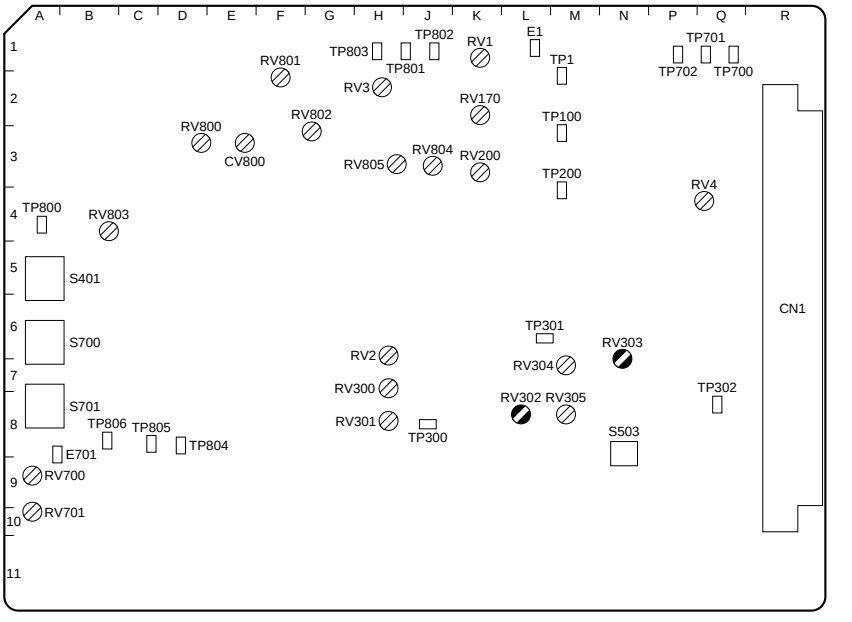
- BARS button/MSU-700 → ON
- RET 1 button/BVP rear panel → ON
- Connect between VBS 1 OUT connector and RET 1 IN connector/CCU rear panel with a BNC cable (terminated with 75 Ω).

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: Pin 74/extension board (MS-57)
   GND: Pin 73/extension board (MS-57)
   Specification: Measure the level A



2. Equipment: Oscilloscope
   Test point: Pin 44/extension board (MS-57)
   GND: Pin 43/extension board (MS-57)
   Adj. point: ◓RV303 (MONITOR GAIN) /MS-57 board
   Specification: B = A



MS-57 BOARD (A SIDE)

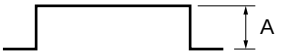
3-3-2. MS Pedestal Adjustment

Preparation

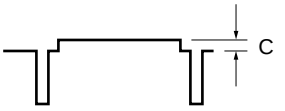
- CLOSE button/MSU-700 → ON
- Video signal select button/BVP rear panel → G
- RESPONSE switch/Waveform monitor → LUM
- ⊘RV302 (PED)/MS-57 board → Fully counterclockwise (UC model only)

Adjustment procedure

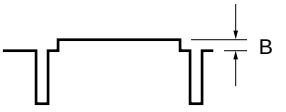
1. Equipment: Oscilloscope
   Test point: Pin 50/extension board (MS-57)
   GND: Pin 49/extension board (MS-57)
   Adj. point: ⊘MASTER BLACK control/MSU-700
   Specification: A = 35 ± 3 mV



2. Setup level adjustment (UC model only)
   Equipment: Waveform monitor
   Test point: TEST OUT connector (terminated with 75 Ω)
   Adj. point: ⊘RV305 (SETUP LEVEL) /MS-57 board
   Specification: C = 7.5 ± 0.5 IRE



3. Equipment: Waveform monitor
   Test point: TEST OUT connector (terminated with 75 Ω)
   Adj. point: ⊘RV302 (PED) /MS-57 board
   Specification: B = 5.0 ± 0.5 IRE [J model]
   B = 10.5 ± 0.5 IRE [UC model]
   B = 21 ± 3 mV [PAL]



3-3-3. MS Gain Adjustment

Note

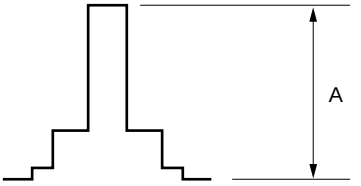
- This adjustment and “3-3-2. MS Pedestal Adjustment” affect each other. Therefore repeat these adjustments until these specifications are satisfied.

Preparation

- BARS button/MSU-700 → OFF
- TEST 2 button/MSU-700 → ON
- Video signal select button/BVP rear panel → All OFF
- RESPONSE switch/Waveform monitor → LUM

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: Pin 50/extension board (MS-57)
   GND: Pin 49/extension board (MS-57)
   Adj. point: ⊘G WHITE level control/MSU-700
   Specification: A = 700 ±3 mV

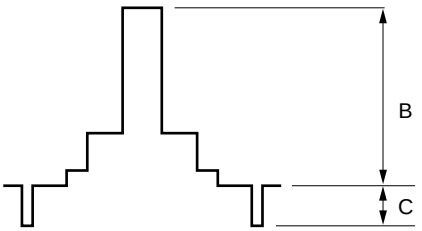


2. Equipment: Oscilloscope
   Test point: Pin 52/extension board (MS-57)
   GND: Pin 51/extension board (MS-57)
   Adj. point: ⊘R WHITE level control/MSU-700
   Specification: A = 700 ±3 mV

3. Equipment: Oscilloscope
   Test point: Pin 48/extension board (MS-57)
   GND: Pin 47/extension board (MS-57)
   Adj. point: ⊘B WHITE level control/MSU-700
   Specification: A = 700 ±3 mV

4. Video signal select button/BVP rear panel → G

5. Equipment: Waveform monitor
   Test point: TEST OUT connector (terminated with 75 Ω)
   Adj. point: ⊘RV300 (R/G/B LEVEL) /MS-57 board
   Specification: B = 100.0 ±0.5 IRE [NTSC]
   B = 700 ±3 mV [PAL]



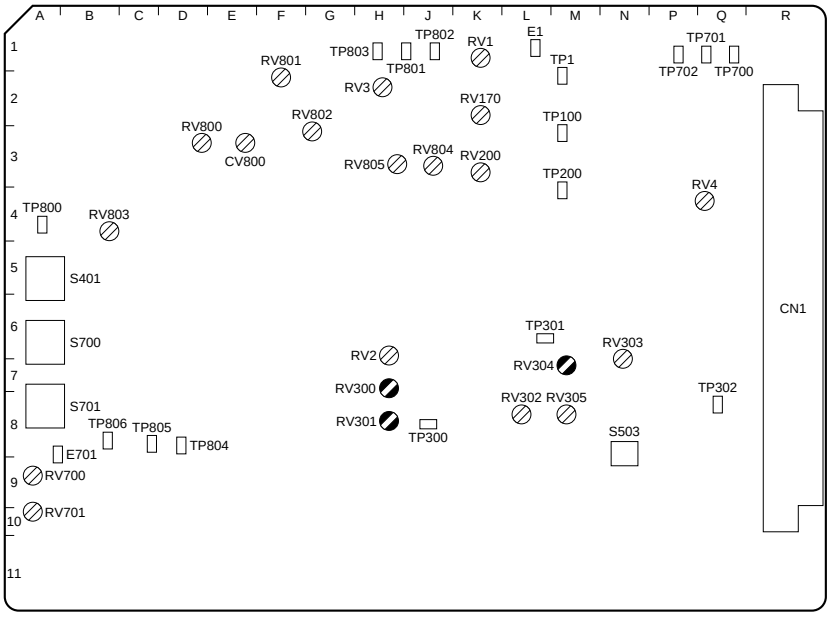
6. Video signal select button/BVP rear panel → All OFF

7. Equipment: Waveform monitor
   Test point: TEST OUT connector (terminated with 75 Ω)
   Adj. point: ⊘RV301 (Y LEVEL) /MS-57 board
   Specification: B = 100.0 ±0.5 IRE [NTSC]
   B = 700 ±3 mV [PAL]

8. Equipment: Waveform monitor
   Test point: TEST OUT connector (terminated with 75 Ω)
   Adj. point: ⊘RV304 (SYNC) /MS-57 board
   Specification: C = 40.0 ±0.5 IRE [NTSC]
   C = 300 ±3 mV [PAL]

Settings after adjustment

- R WHITE level control/MSU-700 → 0
- G WHITE level control/MSU-700 → 0
- B WHITE level control/MSU-700 → 0



MS-57 BOARD (A SIDE)

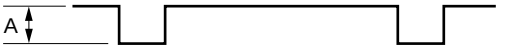
3-3-4. VF Pedestal Adjustment

Preparation

- CLOSE button/MSU-700 → ON
- Video signal select button/BVP rear panel → G

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: Pin 50/extension board (MS-57)
   GND: Pin 49/extension board (MS-57)
   Adj. point: ⊘MASTER BLACK control/MSU-700
   Specification: A = 35 ±3 mV



2. Equipment: Oscilloscope
   Test point: Pin 64/extension board (MS-57)
   GND: Pin 63/extension board (MS-57)
   Adj. point: ⊘RV1/MS-57 board
   Specification: B = 35 ±5 mV

3. Equipment: Oscilloscope
   Test point: Pin 62/extension board (MS-57)
   GND: Pin 61/extension board (MS-57)
   Adj. point: ⊘RV170/MS-57 board
   Specification: B = 35 ±5 mV

4. Equipment: Oscilloscope
   Test point: Pin 60/extension board (MS-57)
   GND: Pin 59/extension board (MS-57)
   Adj. point: ⊘RV200/MS-57 board
   Specification: B = 35 ±5 mV

Settings after adjustment

- Video signal select button/BVP rear panel → All OFF
- MASTER BLACK control/MSU-700 → 0

3-3-5. MS RET Y Gain Adjustment

Note

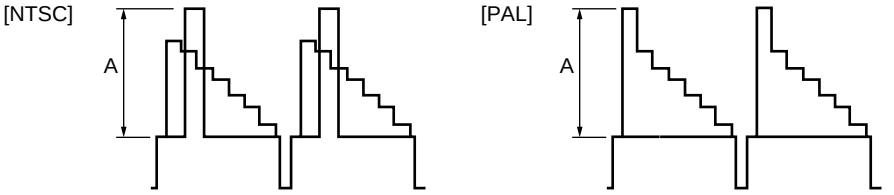
- Adjustment of CCU-700A must be completed.

Preparation

- BARS button/MSU-700 → ON
- GAMMA OFF button/MSU-700 → ON (dark)
- RET 1 button/BVP rear panel → ON
- Connect between VBS 1 OUT connector and RET 1 IN connector/CCU rear panel with a BNC cable (terminated with 75 Ω).

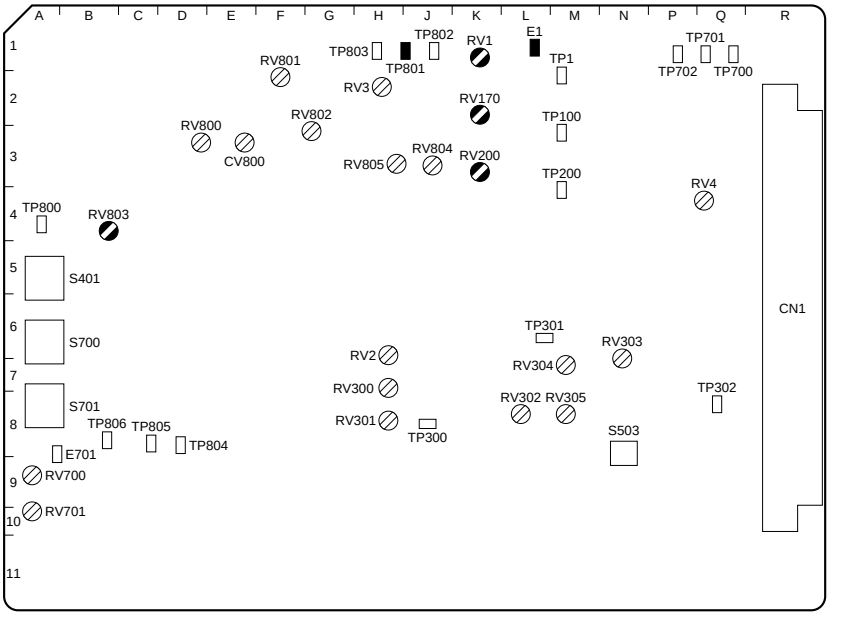
Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP801/MS-57 board
   GND: E1/MS-57 board
   Adj. point: ⊘RV803 (Y GAIN) /MS-57 board
   Specification: A = 500 ± 5 mV



Settings after adjustment

- Disconnect the BNC cable from RET 1 IN connector/CCU rear panel.



MS-57 BOARD (A SIDE)

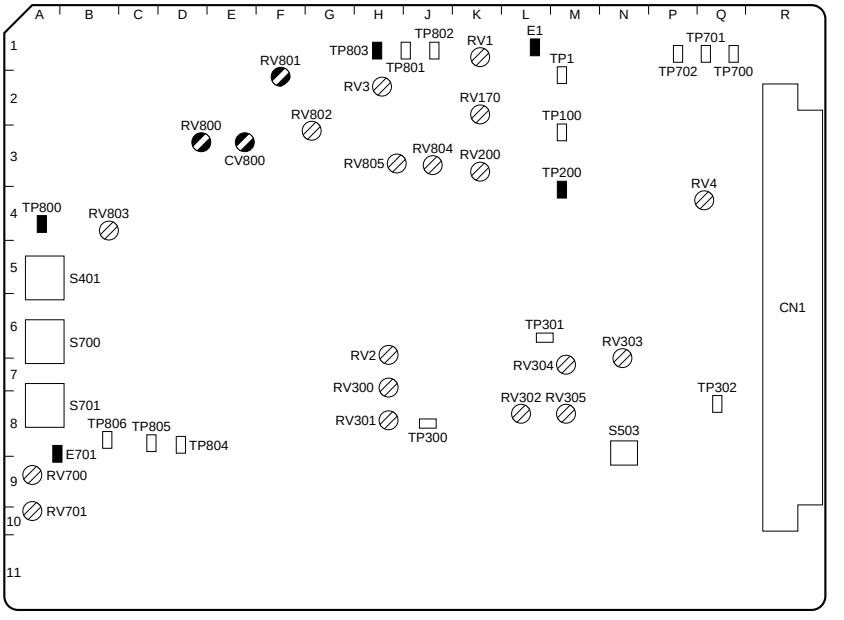
3-3-6. RET 4fsc Adjustment

Note

- Before adjustment, allow for more than 10 minutes warm-up time.
- Make sure that the RET 1 IN through RET 4 IN connectors are no input.

Adjustment procedure

1. Equipment: Frequency counter
   Test point: TP800/MS-57 board
   GND: E1/MS-57 board
   Adj. point: ◓CV800 (4FSC) /MS-57 board
   Specification: 14,318,180 ±10 Hz [NTSC]
   17,734,475 ±10 Hz [PAL]



MS-57 BOARD (A SIDE)

3-3-7. MS RET CHROMA Adjustment

Note

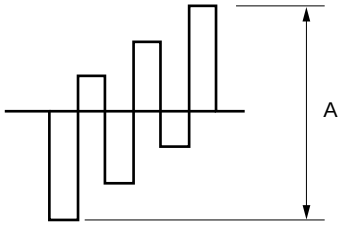
- Adjustment of CCU-700A must be completed

Preparation

- BARS button/MSU-700 → ON
- RET 1 button/BVP rear panel → ON
- Connect between VBS 1 OUT connector and RET 1 IN connector/CCU rear panel with a BNC cable (terminated with 75 Ω).

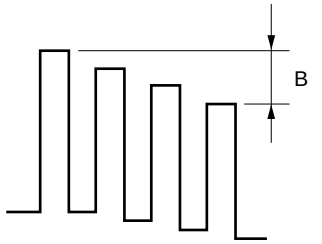
Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP803/MS-57 board
   GND: E1/MS-57 board
   Adj. point: ⊘RV801 (TINT) /MS-57 board
   Specification: Adjust the waveform as following figure (coarse adjustment)



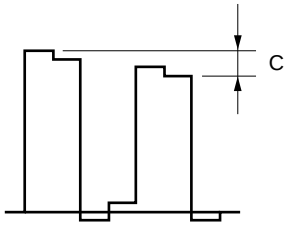
2. Equipment: Oscilloscope
   Test point: TP803/MS-57 board
   GND: E1/MS-57 board
   Adj. point: ⊘RV800 (CHROMA) /MS-57 board
   Specification: A = 538 ± 5 mV

3. Equipment: Oscilloscope
   Test point: TP200/MS-57 board
   GND: E701/MS-57 board
   Adj. point: ⊘RV801 (TINT) /MS-57 board
   Specification: B = 0 ± 25 mV

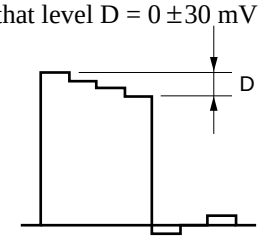


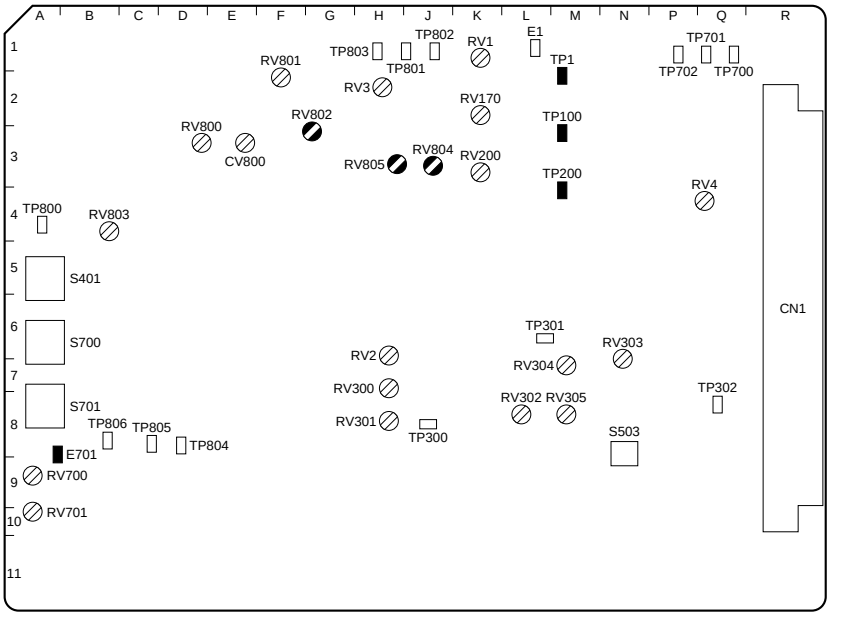
4. Repeat steps 2 and 3 until the specifications A and B are met.

5. Equipment: Oscilloscope
   Test point: TP1/MS-57 board
   GND: E701/MS-57 board
   Adj. point: ◢RV802 (R-Y GAIN) /MS-57 board
   Specification: C = 0 ±25 mV



6. Equipment: Oscilloscope
   Test point: TP100/MS-57 board
   GND: E701/MS-57 board
   Make sure that level D = 0 ±30 mV





MS-57 BOARD (A SIDE)

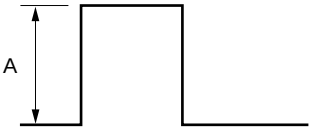
3-3-8. VF RET R/B Gain Adjustment

Preparation

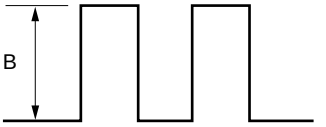
• RET1 button/BVP rear panel → ON

Adjustment procedure

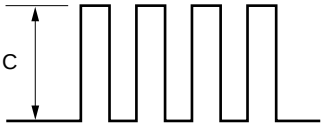
1. Equipment: Oscilloscope
   Test point: TP100/MS-57 board
   Measure the level A



2. Equipment: Oscilloscope
   Test point: TP1/MS-57 board
   Adj. point: ⊘RV804 (RET R GAIN) /MS-57 board
   Specification: B = A



2. Equipment: Oscilloscope
   Test point: TP200/MS-57 board
   Adj. point: ⊘RV805 (RET B GAIN) /MS-57 board
   Specification: C = A



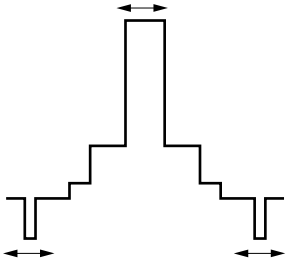
3-3-9. VF PHASE Adjustment

Preparation

- BARS button/MSU-700 → OFF
- TEST 2 button/MSU-700 → ON

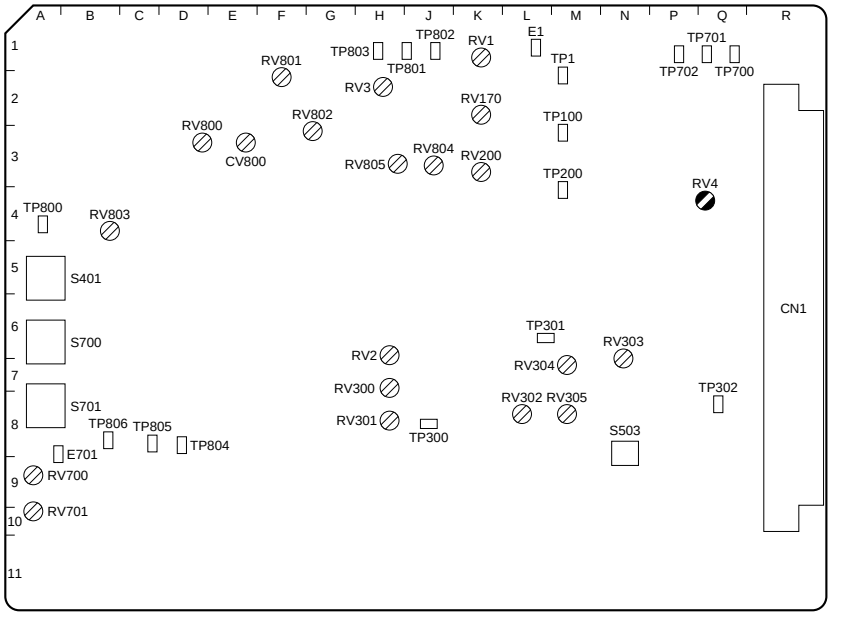
Adjustment procedure

1. Equipment: Waveform monitor
   Test point: TEST OUT connector
   Adj. point: ◓RV4 (VF PHASE) /MS-57 board
   Specification: Adjust that the waveform does not change even if RET 1 button/BVP rear panel is turned to ON/OFF.



Settings after adjustment

- Disconnect the BNC cable from RET 1 IN connector/CCU rear panel.



MS-57 BOARD (A SIDE)

3-4. AD, DA System Adjustment

Note

• Adjustment of MS-57 board and OHB must be completed.

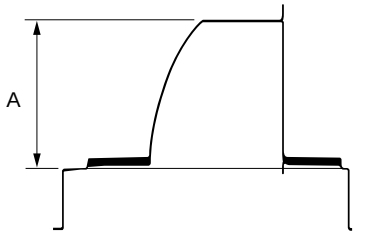
3-4-1. DA Gain Adjustment

Preparation

• TEST 1 button/MSU-700 → ON
• WHITE CLIP OFF/MSU-700 (PAINT menu) → OFF (lit)
• MASTER GAIN/MSU-700 → +18 dB

Adjustment procedure

1. Video signal select button/BVP rear panel → R
2. Equipment: Video analyzer
   Test point: TEST OUT connector/BVP side panel
   Adj. point: ⊘RV1 (R GAIN) /DA-128 board
   Specification: A = 109.5 ± 0.5 IRE [NTSC]
   A = 766 ± 3 mV [PAL]

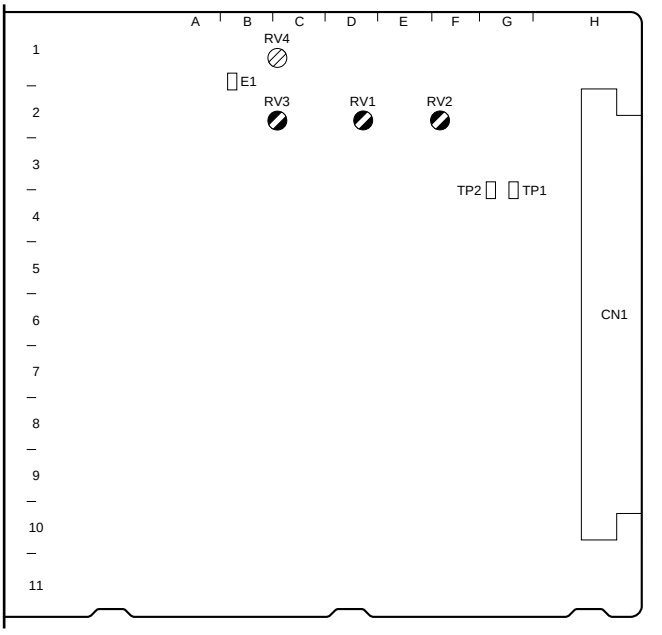


3. Video signal select button/BVP rear panel → G

4. Equipment: Video analyzer
   Test point: TEST OUT connector/BVP side panel
   Adj. point: ⊘RV2 (G GAIN) /DA-128 board
   Specification: A = 109.5 ± 0.5 IRE [NTSC]
   A = 766 ± 3 mV [PAL]

5. Video signal select button/BVP rear panel → B

6. Equipment: Video analyzer
   Test point: TEST OUT connector/BVP side panel
   Adj. point: ⊘RV3 (B GAIN) /DA-128 board
   Specification: A = 109.5 ± 0.5 IRE [NTSC]
   A = 766 ± 3 mV [PAL]



DA-128 BOARD (A SIDE)

3-4-2. AD Gain Adjustment

Note

- Before adjustment, make sure that the “3-4-1. DA Gain Adjustment” is completed.
- Preset the compensation data (refer to section 3-1-4)

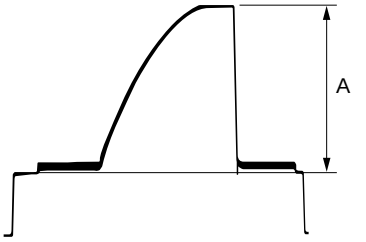
Preparation

- TEST 1 button/MSU-700 → ON
- WHITE CLIP OFF/MSU-700 (PAINT menu) → OFF (lit)
- KNEE OFF button/MSU-700 → OFF (lit)
- MASTER GAIN/MSU-700 → 0 dB

Adjustment procedure

1. Video signal select button/BVP rear panel → R

2. Equipment: Video analyzer
   Test point: TEST OUT connector/BVP side panel
   Adj. point: ⊘RV1 (R GAIN) /AD-148 board
   Specification: A = 100.0 ±0.5 IRE [NTSC]
   A = 700 ±3 mV [PAL]

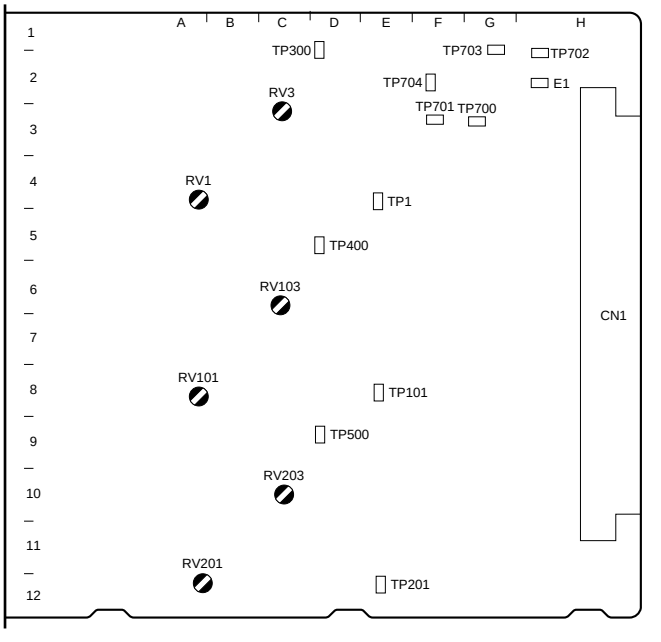


3. Video signal select button/BVP rear panel → G

4. Equipment: Video analyzer
   Test point: TEST OUT connector/BVP side panel
   Adj. point: ⊘RV101 (G GAIN) /AD-148 board
   Specification: A = 100.0 ±0.5 IRE [NTSC]
   A = 700 ±3 mV [PAL]

5. Video signal select button/BVP rear panel → B

6. Equipment: Video analyzer
   Test point: TEST OUT connector/BVP side panel
   Adj. point: ⊘RV201 (B GAIN) /AD-148 board
   Specification: A = 100.0 ±0.5 IRE [NTSC]
   A = 700 ±3 mV [PAL]



AD-148 BOARD (A SIDE)

3-4-3. V Modulation Balance Adjustment

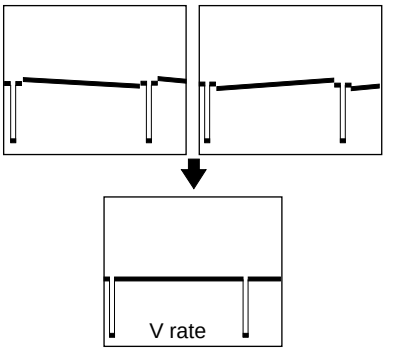
Preparation

- CLOSE button/MSU-700 → ON
- V MOD SAW/MSU-700 (PAINT menu) → ON
  V MOD adjustment control (R) /MSU-700 → +99
  V MOD adjustment control (G) /MSU-700 → +99
  V MOD adjustment control (B) /MSU-700 → +99
  V MOD adjustment control (MASTER) /MSU-700 → 0

Adjustment procedure

1. Video signal select button/BVP rear panel → R

2. Equipment: Waveform monitor (×5 range)
   Test point: TEST OUT connector/BVP side panel
   Adj. point: ⊘RV3 (R MOD BAL) /AD-148 board
   Specification: Adjust that the waveform does not change even if V MOD SAW switch/MSU-700 (PAINT menu) is turned to OFF/ON
   For reference : 3 mV (0.5 IRE) or less



3. Video signal select button/BVP rear panel → G

4. Equipment: Waveform monitor
   Test point: TEST OUT connector/BVP side panel
   Adj. point: ⊘RV103 (G MOD BAL) /AD-148 board
   Specification: Adjust that the waveform does not change even if V MOD SAW switch/MSU-700 (PAINT menu) is turned to OFF/ON
   For reference : 3 mV (0.5 IRE) or less

5. Video signal select button/BVP rear panel → B

6. Equipment: Waveform monitor
   Test point: TEST OUT connector/BVP side panel
   Adj. point: ⊘RV203 (B MOD BAL) /AD-148 board
   Specification: Adjust that the waveform does not change even if V MOD SAW switch/MSU-700 (PAINT menu) is turned to OFF/ON
   For reference : 3 mV (0.5 IRE) or less

Settings after adjustment

- CLOSE button/MSU-700 → OFF
- V MOD SAW/MSU-700 (PAINT menu) → OFF
  V MOD adjustment control (R)/MSU-700 → 0
  V MOD adjustment control (G)/MSU-700 → 0
  V MOD adjustment control (B)/MSU-700 → 0

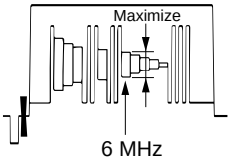
3-4-4. AD PHASE Adjustment

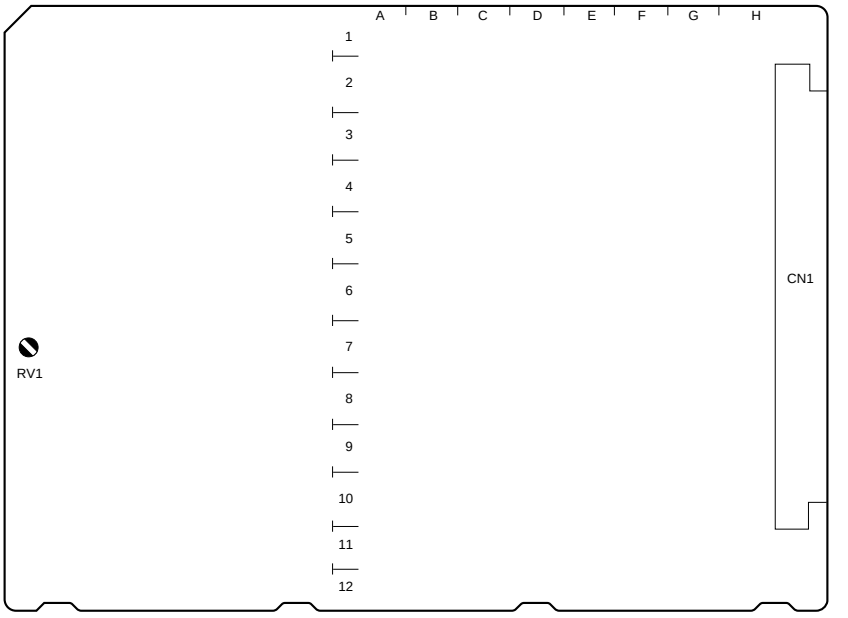
Preparation

• Shoot a multi-burst chart.

Adjustment procedure

1. Equipment: Waveform monitor
   Test point: TEST OUT connector/BVP side panel
   Adj. point: ⊘RV1 (OHB PHASE) /PR-237 board (panel side)
   Specification: Maximize the level at 6 MHz portion of the multi-burst chart





PR-237 BOARD (A SIDE)

3-5. TRIAX Interface System Adjustment

3-5-1. VCO DC Set Adjustment

Note

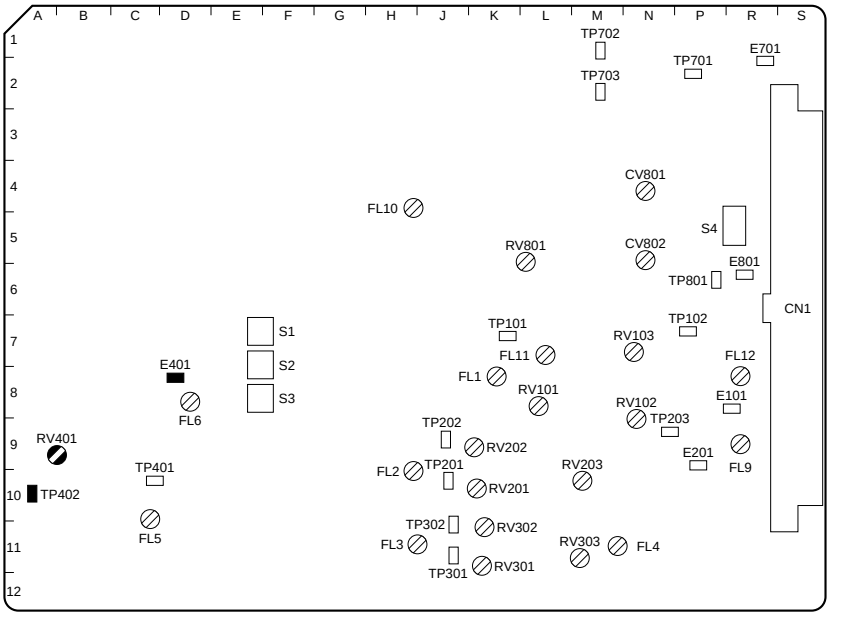
- Before adjustment, allow for more than 10 minutes warm-up time.
- Use the video signal generator that the sub-carrier frequency meets the following specification.
  [For NTSC] 3,579,545 ±3 Hz
  [For PAL] 4,433,618 ±3 Hz

Preparation

- Inputs a black burst signal to REFERENCE IN connector on CCU-700A (terminated with 75 Ω).

Adjustment procedure

1. Equipment: Oscilloscope (DC mode)
   Test point: TP402/MD-83 board
   GND: E401/MD-83 board
   Adj. point: ⊘RV401 (VCO ADJ) /MD-83 board
   Specification: A = 2.00 ± 0.03 V dc



MD-83 BOARD (A SIDE)

3-5-2. Y REF level Adjustment

Note

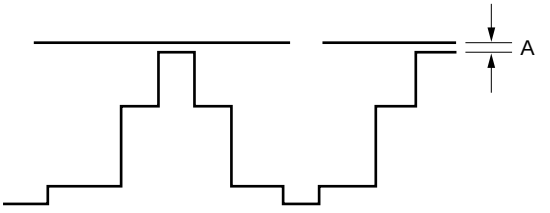
- Make sure that the adjustments of “3-3. Video Signal System Adjustment” and “3-4. AD, DA System Adjustment” should be completed.

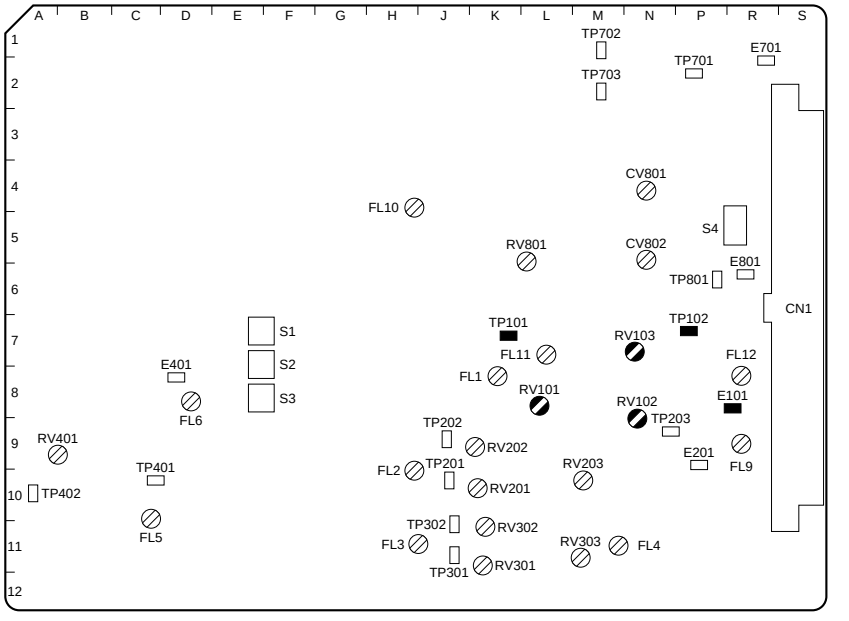
Preparation

- Set switches of MSU-700 to initial settings (refer to section 3-1-4).
- BARS button/MSU-700 → OFF
- TEST 2 button/MSU-700 → ON
- KNEE OFF button/MSU-700 → OFF (lit)

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP101/MD-83 board
   GND: E101/MD-83 board
   Adj. point: ◓RV101 (Y REF) /MD-83 board
   Specification: A = 0 ±2 mV



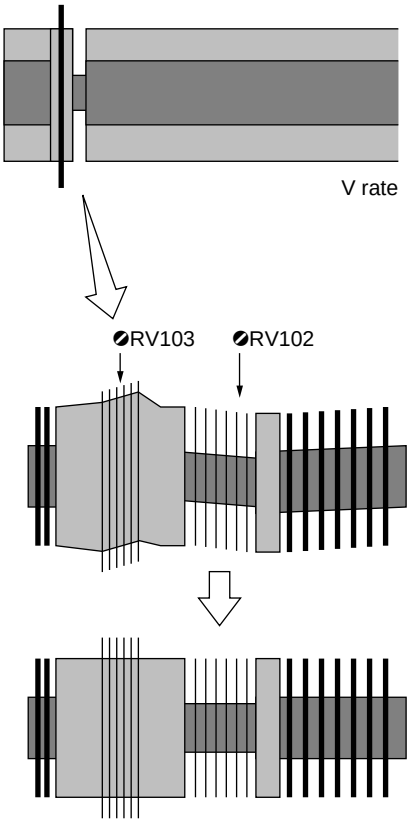


MD-83 BOARD (A SIDE)

3-5-3. Y/SKIN DC Balance Adjustment

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP102/MD-83 board
   GND: E101/MD-83 board
   TRIG: SYNC OUT connector/CCU rear panel
   Adj. point: ⊘RV102 (Y DC BAL) /MD-83 board
   Specification: Flatten the waveform



2. Equipment: Oscilloscope
   Test point: TP102/MD-83 board
   GND: E101/MD-83 board
   TRIG: SYNC OUT connector/CCU rear panel
   Adj. point: ⊘RV103 (SKIN DC BAL) /MD-83 board
   Specification: Flatten the waveform

3. Repeat steps 1 and 2 in several times.

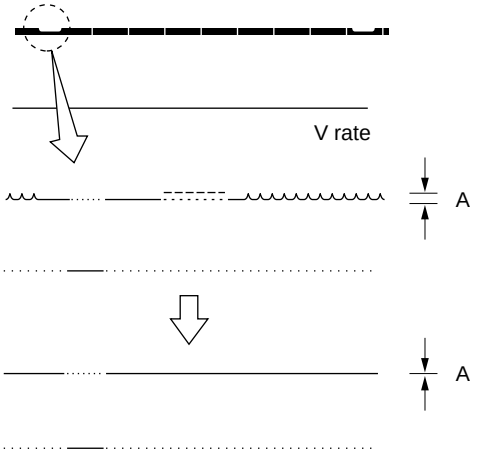
3-5-4. Y/SKIN 90 ° Adjustment

Note

• Perform this adjustment only when replacing ⊘FL11 on the MD-83 board.

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP26 (GND:E5) /DM-94 board (CCU-700A)
   TRIG: SYNC OUT connector/CCU rear panel
   Adj. point: ⊘FL11/MD-83 board
   Specification: A = 0 ±2 mV



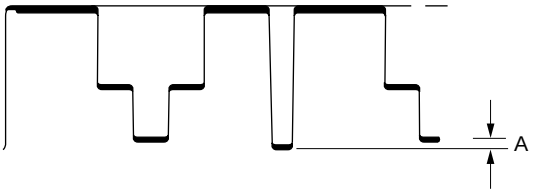
3-5-5. R-Y REF Level Adjustment

Preparation

- BARS button/MSU-700 → OFF
- TEST 2 button/MSU-700 → ON
- KNEE OFF button/MSU-700 → OFF (lit)
- S1 (R ON/OFF) /MD-83 board → OFF

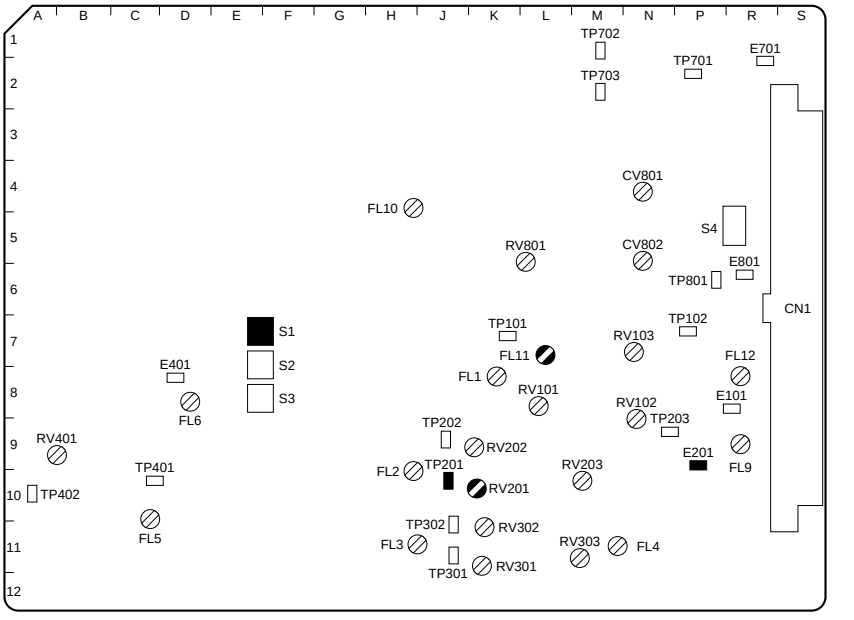
Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP201/MD-83 board
   GND: E201/MD-83 board
   Adj. point: ⊘RV201 (R-Y REF) /MD-83 board
   Specification: A = 0 ± 2 mV



Settings after adjustment

- TEST 2 button/MSU-700 → OFF
- S1 (R ON/OFF) /MD-83 board → ON



MD-83 BOARD (A SIDE)

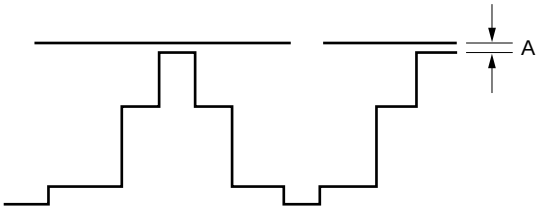
3-5-6. B-Y REF Level Adjustment

Preparation

- BARS button/MSU-700 → OFF
- TEST 2 button/MSU-700 → ON
- KNEE OFF button/MSU-700 → OFF (lit)
- S1 (R ON/OFF) /MD-83 board → OFF
- S2 (G ON/OFF) /MD-83 board → OFF

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP301/MD-83 board
   GND: E201/MD-83 board
   Adj. point: ◓RV301 (B-Y REF) /MD-83 board
   Specification: A = 0 ±2 mV



Settings after adjustment

- TEST 2 button/MSU-700 → OFF
- S1 (R ON/OFF) /MD-83 board → ON
- S2 (G ON/OFF) /MD-83 board → ON

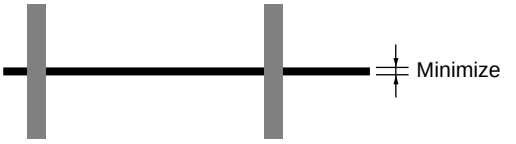
3-5-7. R-Y/B-Y Carrier Balance Adjustment

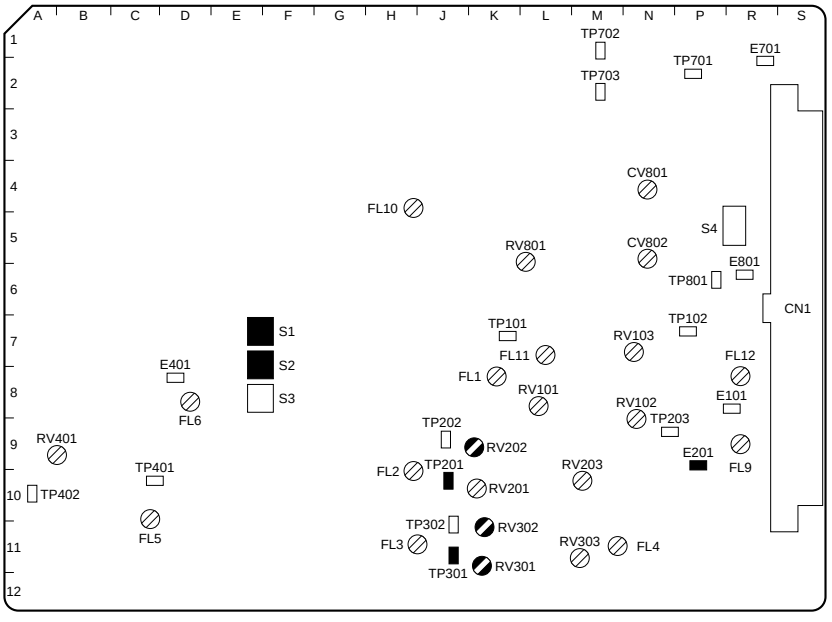
Preparation

• CLOSE button/MSU-700 → ON

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP201/MD-83 board
   GND: E201/MD-83 board
   Adj. point: ⊘RV202 (R-Y CAR BAL) /MD-83 board
   ⊘RV302 (B-Y CAR BAL) /MD-83 board
   (Adjust ⊘RV202 and ⊘RV302 alternately)
   Specification: Minimize



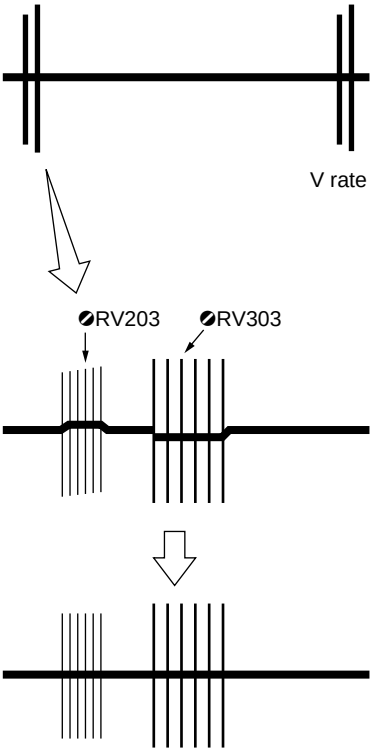


MD-83 BOARD (A SIDE)

3-5-8. R-Y/B-Y DC Balance Adjustment

Adjustment procedure

1. Equipment: Oscilloscope
   (TRIG COUPLING : FIELD)
   Test point: TP203/MD-83 board
   GND: E201/MD-83 board
   TRIG: SYNC OUT connector/CCU rear panel
   Adj. point: ⊘RV203 (R-Y DC BAL) /MD-83 board
   ⊘RV303 (B-Y DC BAL) /MD-83 board
   (Adjust ⊘RV203 and ⊘RV303 alternately)
   Specification: Flatten the waveform shown in the figure.



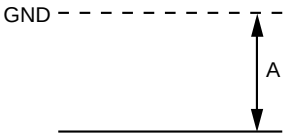
3-5-9. R-Y/B-Y 90 ° Adjustment

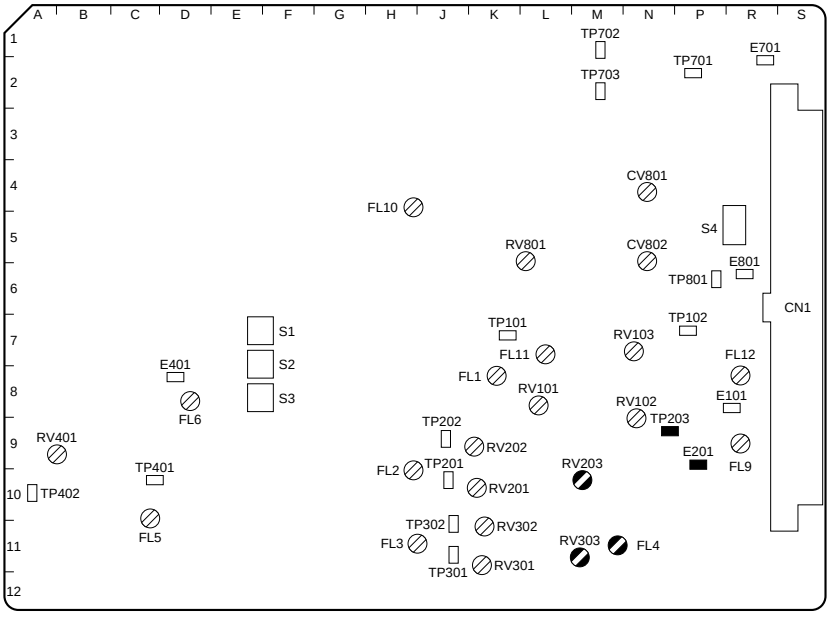
Note

- Perform this adjustment only when replacing ⊘FL4 on the MD-83 board
- The voltage changes slowly. Therefore read the value for 2 or 3 seconds after turning ⊘FL4 on the MD-83 board.

Adjustment procedure

1. Equipment: Digital voltmeter or Oscilloscope
   Test point: TP14 (GND:E12) /DM-94 board (CCU-700A)
   TRIG: SYNC OUT connector/CCU rear panel
   Adj. point: ⊘FL4/MD-83 board
   Specification: A = Maximize





MD-83 BOARD (A SIDE)

3-5-10. 67.5 MHz TRAP Adjustment

Note

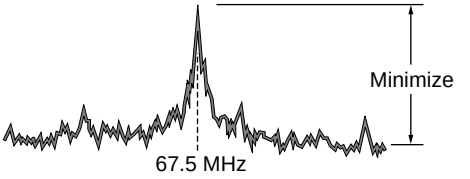
• Perform this adjustment only when replacing ◓FL12 (67.5 MHz TRAP) on the MD-83 board.

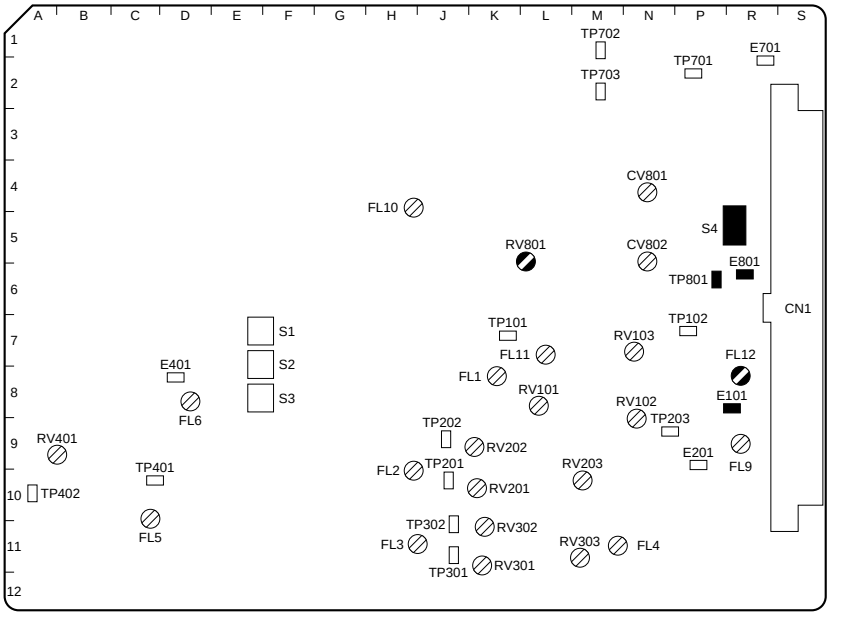
Preparation

• CLOSE button/MSU-700 → ON

Adjustment procedure

1. Equipment: Spectrum analyzer
   Test point: Pin 37/extension board (MD-83)
   GND: E101/MD-83 board
   Adj. point: ◓FL12 (67.5 MHz TRAP) /MD-83 board
   Specification: A = Minimize





MD-83 BOARD (A SIDE)

3-5-11. TX PROMPT VIDEO Modulation Factor Adjustment

Note

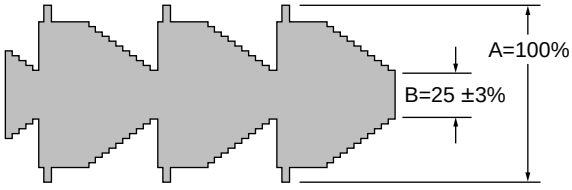
- When adjusting this item, the TRIAX cable of 100 to 300 meters long is required.
- Adjustment of CCU-700A should be completed.

Preparation

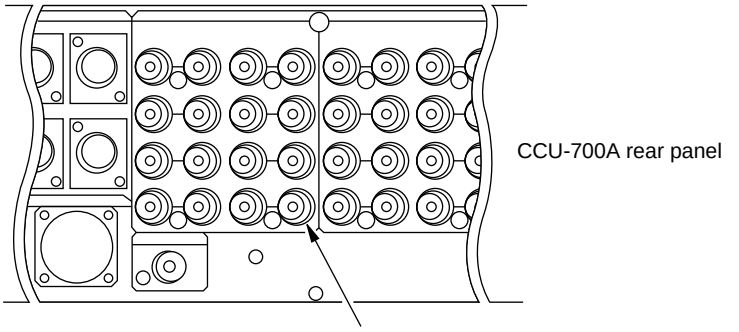
- S4 (CCU → CAM/CAM → CCU) /MD-83 board → "CAM → CCU"
- Disconnect the green harness of MPX filter from CN35 (PROMPT) on the DM-97 board, and connect it to CN27 (PROMPT REVERSE) /MB-764 board.
- Inputs a 10 STEP signal from the video signal generator to PROMPTER IN connector/camera side panel.
- S1001-4/AT board (CCU-700A) → ON
- S5 (TX/RX) /DM-94 board (CCU-700A) → RX
- S6 (TX/RX) /DM-94 board (CCU-700A) → RX
- S1 (MODE AUTO/MAN) /DM-94 board (CCU-700A) → MANU
- S2 (CABLE LENGTH) /DM-94 board (CCU-700A) → 1

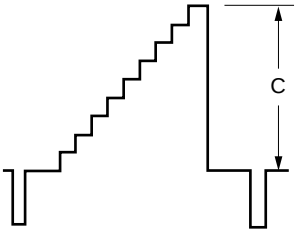
Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP801/MD-83 board
   GND: E801/MD-83 board
   Adj. point: ⊘RV801 (PROMPT DEV) /MD-83 board
   Specification: B/A × 100 = 25 ±3 %



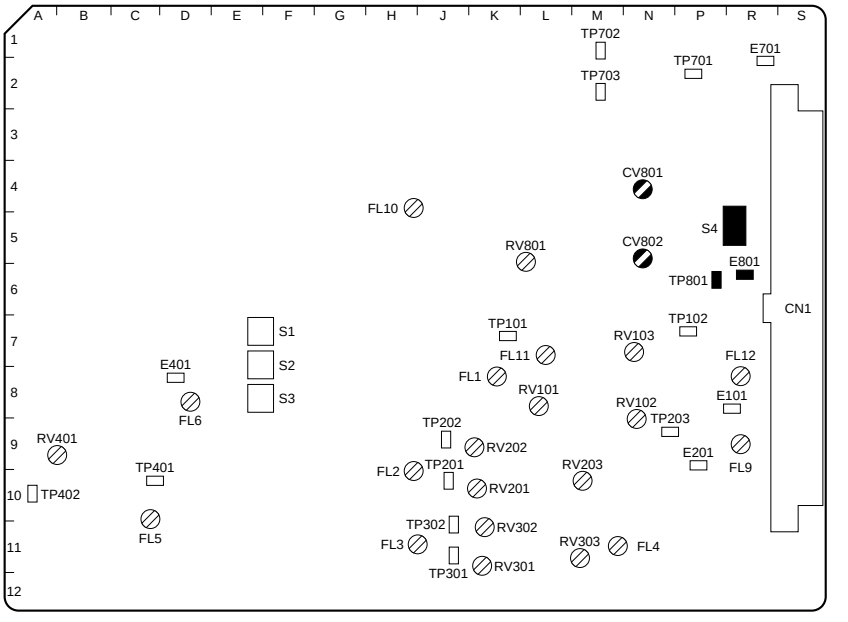
2. Equipment: Oscilloscope
   Test point: Following connector/CCU-700A
   Specification: Make sure that the level C = 714 ±7 mV [NTSC]
   C = 700 ±7 mV [PAL]
   If the specification is not met, perform the step 1 again.





Settings after adjustment

- S4 (CCU → CAM/CAM → CCU) /MD-83 board → "CCU → CAM"
- Disconnect the green harness of MPX filter and connect it to CN35 (PROMPT) /DM-97 board.
- Disconnect the cable from PROMPTER IN connector.
- Set switches of CCU-700A to former positions.



MD-83 BOARD (A SIDE)

3-5-12. TX PROMPT VIDEO BPF Adjustment

Note

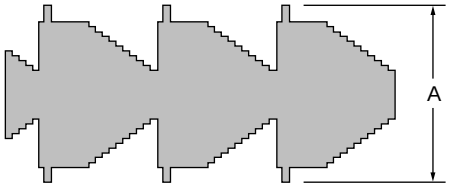
- Make sure that the “3-5-11. TX PROMPT VIDEO Modulation Factor Adjustment” is completed.
- When adjusting this item, the TRIAX cable of 100 to 300 meters long is required.
- Adjustment of CCU-700A should be completed.

Preparation

- Disconnect the green harness of MPX filter from CN35 (PROMPT) /DM-97 board, and connect it to CN27 (PROMPT REVERSE) /MB-764 board.
- Inputs a 10 step signal from video signal generator to PROMPTER IN connector (camera side panel).
- S4 (CCU → CAM/CAM → CCU) /MD-83 board → “CAM → CCU”
- S1001-4/AT board (CCU-700A) → ON
- S5 (TX/RX) /DM-94 board (CCU-700A) → RX
- S6 (TX/RX) /DM-94 board (CCU-700A) → RX
- S1 (MODE AUTO/MAN) /DM-94 board (CCU-700A) → MANU
- S2 (CABLE LENGTH) /DM-94 board (CCU-700A) → 1

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP801/MD-83 board
   GND: E801/MD-83 board
   Adj. point: ⊘CV801 (BPF ADJ 1) /MD-83 board
   ⊘CV802 (BPF ADJ 2) /MD-83 board
   (Adjust ⊘CV801 and ⊘CV802 alternately.)
   Specification: A = Maximize



Settings after adjustment

- S4 (CCU → CAM/CAM → CCU) /MD-83 board → “CCU → CAM”
- Disconnect the green harness of MPX filter and connect it to CN35 (PROMPT) /DM-97 board.
- Disconnect the cable from PROMPTER IN connector.
- Set switches of CCU-700A to former positions.

3-5-13. RETURN VIDEO Demodulation Adjustment

Note

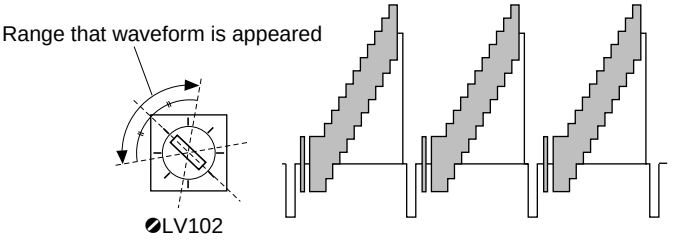
- Perform this adjustment only when replacing ⊘LV101 (RET FREQ) and/or ⊘LV102 (RET TUNE) on the DM-97 board.
- When adjusting this item, the TRIAX cable of 100 to 600 meters long is required.
- Adjustment of CCU-700A should be completed.

Preparation

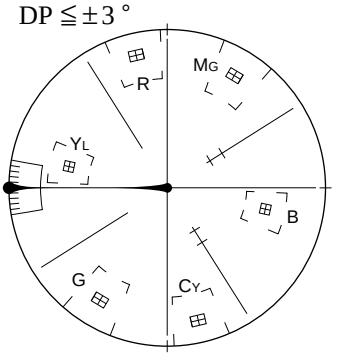
- Remove the shield case of the DM-97 board.
- RET 1 button/BVP rear panel → ON
- Inputs a 10 step signal (with chroma signal) from video signal generator to RET 1 IN connector/CCU rear panel. (terminated with 75 Ω)

Adjustment procedure

1. Equipment: Waveform monitor
   Test point: TEST OUT connector (camera side panel)
   Adj. point: ⊘LV102 (RET TUNE) /DM-97 board (coarse adjustment)
   (set the center position of range that waveform is appeared)
   Specification: Waveform is appeared



2. Equipment: Vectorscope
   Test point: TEST OUT connector (camera side panel)
   Adj. point: ⊘LV101 (RET FREQ) /DM-97 board
   ⊘LV102 (RET TUNE) /DM-97 board
   (Adjust ⊘LV101 and ⊘LV102, alternately)
   Specification: DG ≦ ±3 %
   DP ≦ ±3 °



3-5-14. RETURN VIDEO Level Adjustment

Note

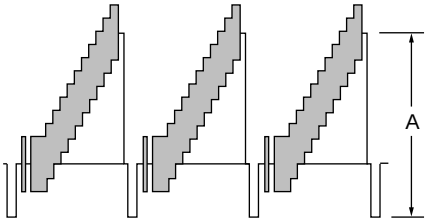
- When adjusting this item, the TRIAX cable of 100 to 600 meters long is required.
- Adjustment of CCU-700A should be completed.

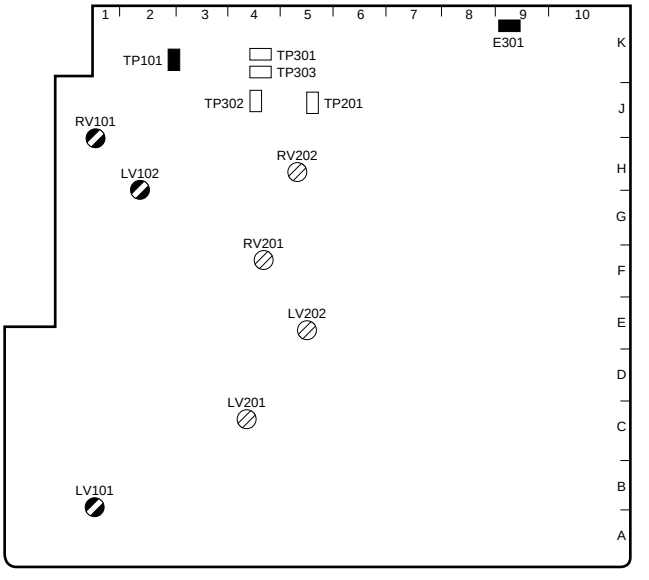
Preparation

- RET 1 button/BVP rear panel → ON
- Inputs a 10 step signal (with chroma signal) from video signal generator to RET 1 IN connector/CCU rear panel. (terminated with 75 Ω).

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP101/DM-97 board
   GND: E301/DM-97 board
   Adj. point: ⊘RV101 (RET LEVEL) /DM-97 board
   Specification: A = 1.00 ± 0.05 mV p-p





DM-97 BOARD (A SIDE)

3-5-15. RX PROMPT VIDEO Demodulation Adjustment

Note

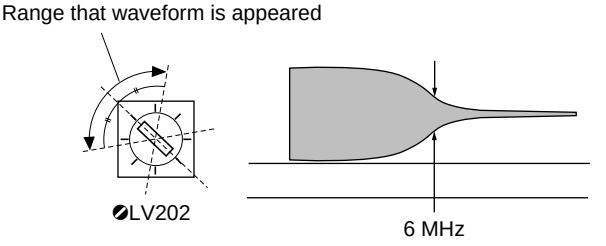
- Perform this adjustment only when replacing ⊘LV201 (PROMPT FREQ) and/or ⊘LV202 (PROMPT TUNE) /DM-97 board.
- When adjusting this item, the TRIAX cable of 100 to 300 meters long is required.
- Adjustment of CCU-700A should be completed.

Preparation

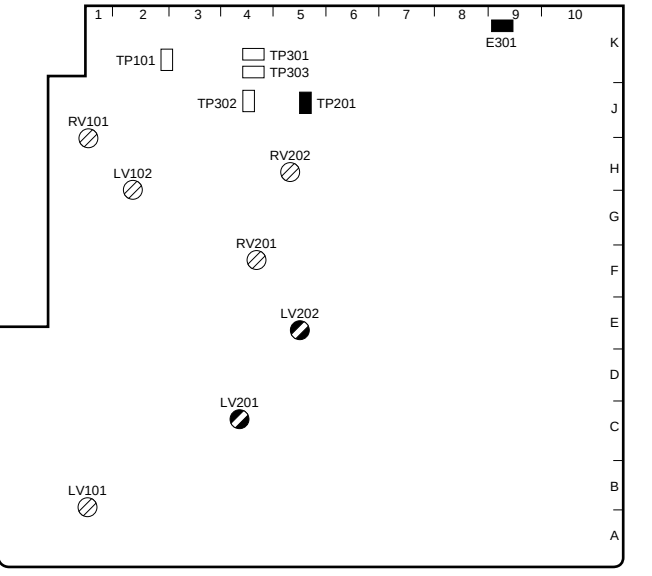
- S4 (CCU → CAM/CAM → CCU) /MD-83 board → "CCU → CAM"
- Connect the green harness of MPX filter to CN35 (PROMPT) /DM-97 board.
- Inputs a V SWEEP signal from video signal generator to PROMPTER IN connector/camera panel (terminated with 75 Ω).
- S5 (TX/RX) /DM-94 board (CCU-700A) → TX
- S6 (TX/RX) /DM-94 board (CCU-700A) → TX
- S1 (MODE AUTO/MAN) /DM-94 board (CCU-700A) → AUTO
- S2 (CABLE LENGTH) /DM-94 board (CCU-700A) → 1

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP201/DM-97 board
   GND: E301/DM-97 board
   Adj. point: ⊘LV202 (PROMPT TUNE) /DM-97 board (coarse adjustment)
   (set the center position of range that waveform is appeared)
   Specification: Waveform is appeared

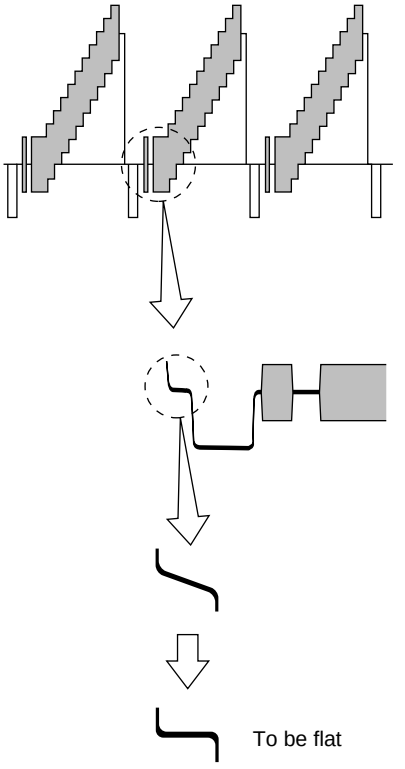


2. Equipment: Oscilloscope
   Test point: TP201/DM-97 board
   GND: E301/DM-97 board
   Adj. point: ⊘LV201 (PROMPT FREQ) /DM-97 board
   Specification: Minimize at 6 MHz portion



DM-97 BOARD (A SIDE)

3. Inputs a 10 STEP signal from the video signal generator to PROMPTER IN connector/camera side panel (terminated with 75 Ω).



4. Equipment: Oscilloscope
   Test point: TP201/DM-97 board
   GND: E301/DM-97 board
   Adj. point: ⊘LV202 (PROMPT TUNE) /DM-97 board
   Specification: Flatten the waveform
   If specification is not met, perform this adjustment again after “3-5-16. RX PROMPT VIDEO RF AGC Level Adjustment” is completed.

3-5-16. RX PROMPT VIDEO RF AGC Level Adjustment

Note

- When adjusting this item, the TRIAX cable of 50 to 150 meters long is required.
- Adjustment of CCU-700A should be completed.

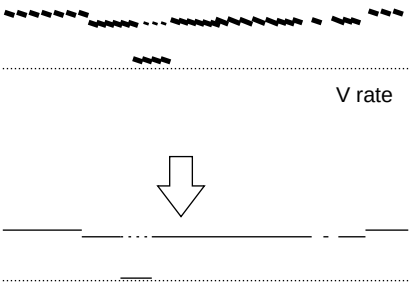
Preparation

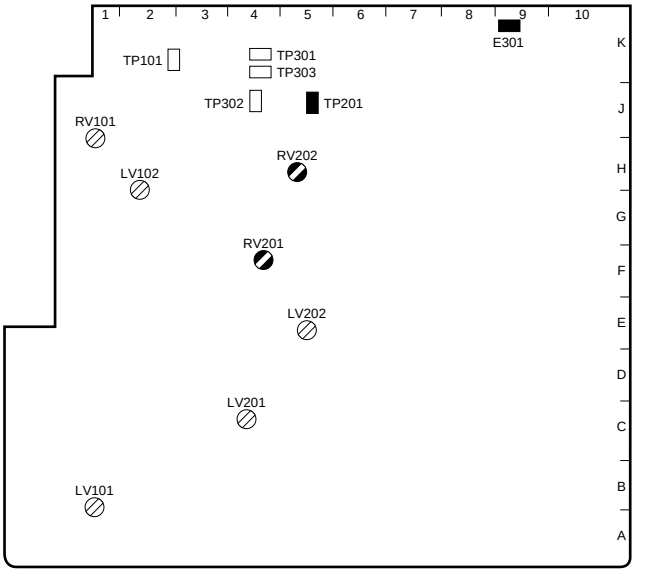
- S4 (CCU → CAM/CAM → CCU) /MD-83 board → “CCU → CAM”
- Connect the green harness of MPX filter to CN35 (PROMPT) /DM-97 board.
- Input a 10 STEP signal from the video signal generator to PROMPTER IN connector/camera side panel (75 Ω termination).
- S5 (TX/RX) /DM-94 board (CCU-700A) → TX
- S6 (TX/RX) /DM-94 board (CCU-700A) → TX
- S1 (MODE AUTO/MAN) /DM-94 board (CCU-700A) → MANU
- S2 (CABLE LENGTH) /DM-94 board (CCU-700A) → 1

Adjustment procedure

1. ◓RV201 → Turn fully clockwise

2. Equipment: Oscilloscope
   Test point: TP201/DM-97 board
   GND: E301/DM-97 board
   Adj. point: ◓RV201 (RF AGC DLY) /DM-97 board
   Specification: Turn ◓RV201 counterclockwise slowly and stop the turning it where SYNC level is maximum and sag is not appeared.





DM-97 BOARD (A SIDE)

3-5-17. RX PROMPT VIDEO Level Adjustment

Note

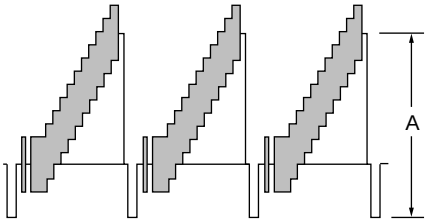
- When adjusting this item, the TRIAX cable of 100 to 300 meters long is required.
- Adjustment of CCU-700A should be completed.

Preparation

- S4 (CCU → CAM/CAM → CCU) /MD-83 board → "CCU → CAM"
- Connect the green harness of MPX filter to CN35 (PROMPT) /DM-97 board.
- Inputs a 10 STEP signal from the video signal generator to PROMPTER IN connector/camera side panel (terminated with 75 Ω).
- S5 (TX/RX) /DM-94 board (CCU-700A) → TX
- S6 (TX/RX) /DM-94 board (CCU-700A) → TX
- S1 (MODE AUTO/MAN) /DM-94 board (CCU-700A) → AUTO

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP201/DM-97 board
   GND: E301/DM-97 board
   Adj. point: ⊘RV202 (PROMPT LEVEL) /DM-97 board
   Specification: A = 2.00 ± 0.05 V p-p



Settings after adjustment

- Set switches of CCU-700A to former positions.

3-6. Intercom System Adjustment

3-6-1. Tuning Adjustment

Note

• Adjustment of CCU-700A should be completed.

Adjustment procedure

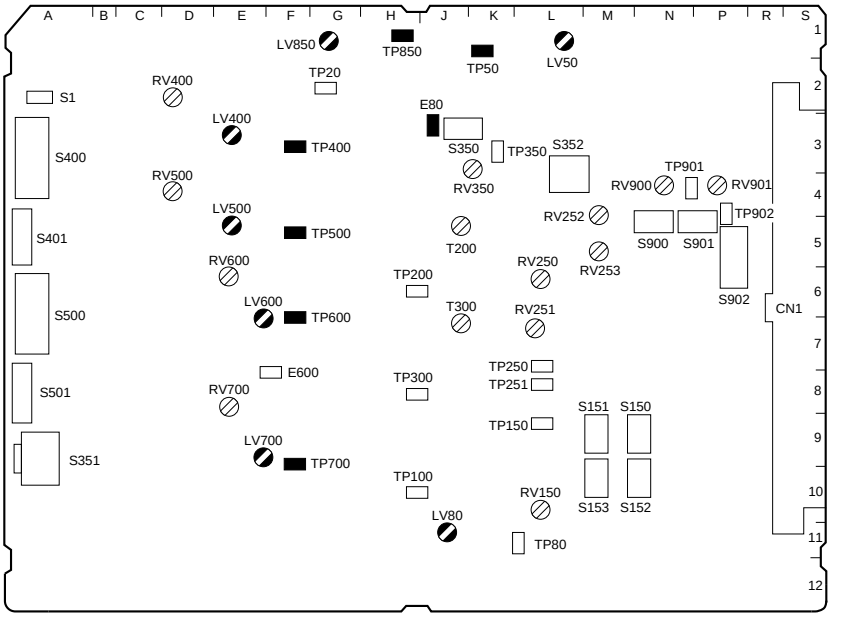
1. Equipment: Digital voltmeter
   Test point: TP50/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ⊘LV50 (3.0 MHz TUNE) /AU-250 board
   Specification: + 4.8 ±0.1 V dc

2. Pull out the VA-156 board (CCU-700A).

3. Feed +2.5 V dc voltage to C19 pin/extension board (AT-88 board/CCU-700A) from the DC variable voltage supply.

4. Equipment: Digital voltmeter
   Test point: Pin 8/extension board (AU-250)
   GND: Pin 9/extension board (AU-250)
   Adj. point: ⊘LV80 (2.5 MHz TUNE) /AU-250 board
   Specification: + 2.5 ±0.1 V dc

5. Insert the AT-88 and the VA-156 boards (CCU-700A).



AU-250 BOARD (A SIDE)

3-6-2. Frequency Set Adjustment

Note

• Before adjustment, allow the camera and equipments xfor more than 10 minutes warm-up time.

Adjustment procedure

1. Equipment: Frequency counter
   Test point: TP850/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ⊘LV850 (CHU DATA FREQ) /AU-250 board
   Specification: 5.600 ±0.005 MHz

2. Equipment: Frequency counter
   Test point: TP400/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ⊘LV400 (INCOM1 FREQ) /AU-250 board
   Specification: 7.100 ±0.005 MHz

3. Equipment: Frequency counter
   Test point: TP500/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ⊘LV500 (INCOM2 FREQ) /AU-250 board
   Specification: 7.400 ±0.005 MHz

4. Equipment: Frequency counter
   Test point: TP600/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ⊘LV600 (MIC1 FREQ) /AU-250 board
   Specification: 6.200 ±0.005 MHz

5. Equipment: Frequency counter
   Test point: TP700/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ⊘LV700 (MIC2 FREQ) /AU-250 board
   Specification: 6.700 ±0.005 MHz

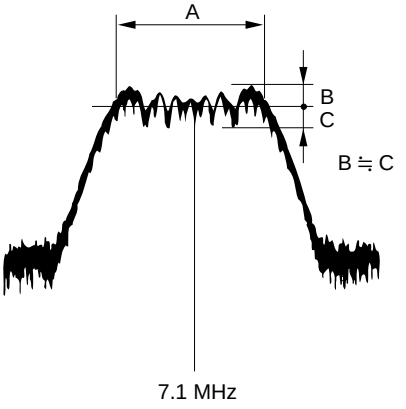
3-6-3. INCOM 1 Deviation Adjustment

Preparation

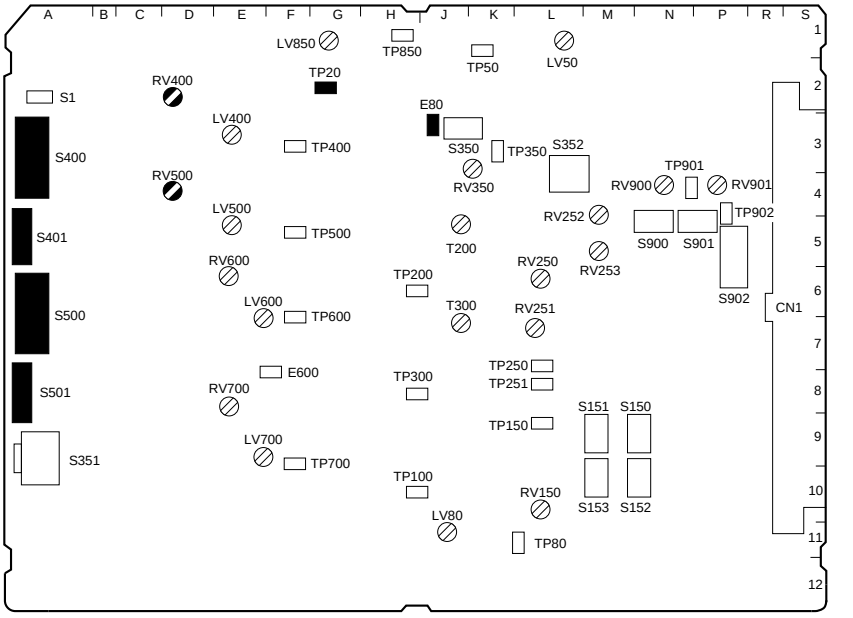
- MIC 1 (ON/OFF) switch/BVP rear panel → ON
- S401 (MIC 1 GAIN) /AU-250 board → 0
- S400 (INCOM 1) /AU-250 board → CM
- Feed the following signal from the audio generator to pin 54 (X) and pin 55 (GND) on the extension board.
  Signal: sine wave
  Frequency: 400 Hz
  Output level: 220 mV p-p (−20 dBu)

Adjustment procedure

1. Equipment: Spectrum analyzer
   Test point: TP20/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ⊘RV400 (INCOM 1 DEV) /AU-250 board
   Specification: A = 20.0 ±0.5 kHz



CENT FREQ: 7.1 MHz
FREQ SPAN: 50 kHz



AU-250 BOARD (A SIDE)

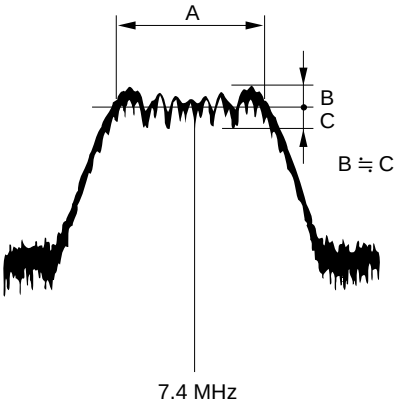
3-6-4. INCOM 2 Deviation Adjustment

Preparation

- MIC 2 (ON/OFF) switch/BVP rear panel → ON
- S501 (MIC 2 GAIN) /AU-250 board → 0
- S500 (INCOM 2) /AU-250 board → CM
- Feed the following signal from the audio generator to pin 48 (X) and pin 49 (GND) on the extension board (AU-250).
  Signal: sine wave
  Frequency: 400 Hz
  Output level: 220 mV p-p (−20 dBu)

Adjustment procedure

1. Equipment: Spectrum analyzer
   Test point: TP20/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ⊘RV500 (INCOM 2 DEV) /AU-250 board
   Specification: A = 20.0 ± 0.5 kHz



CENT FREQ: 7.4 MHz
FREQ SPAN: 50 kHz

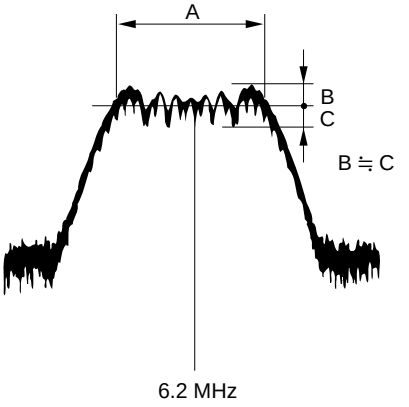
3-6-5. MIC 1 Deviation Adjustment

Preparation

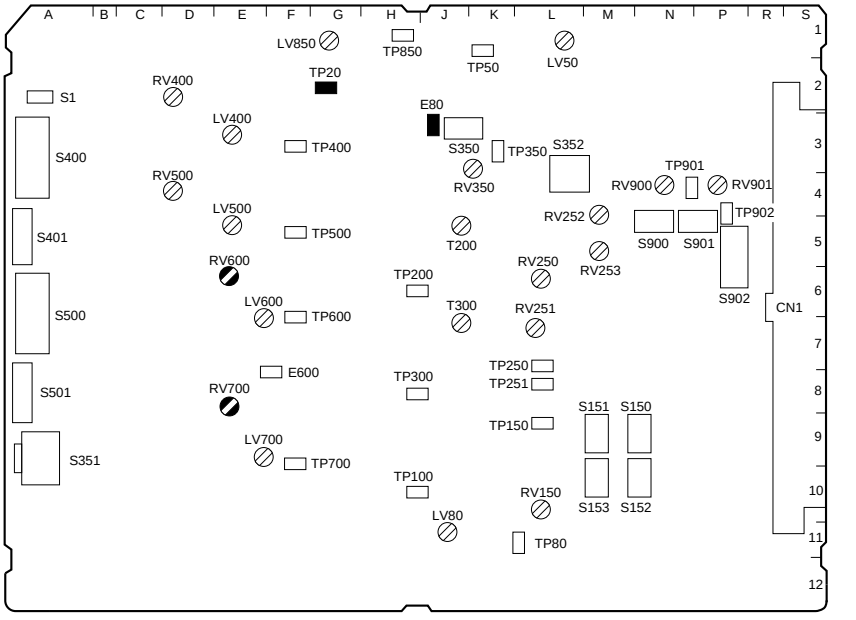
- S1003 (MIC 1 GAIN) /AT-88 board (CCU-700A) → 0
- Feed the following signal from the audio generator from audio generator to pin 66 (X) , pin 65 (Y) , and pin 67 (GND) on the extension board (AU-250).
  Signal: sine wave
  Frequency: 400 Hz
  Output level: 220 mV p-p (−20 dBu)

Adjustment procedure

1. Equipment: Spectrum analyzer
   Test point: TP20/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ◓RV600 (MIC 1 DEV) /AU-250 board
   Specification: A = 16.0 ±0.5 kHz



CENT FREQ: 6.2 MHz
FREQ SPAN: 30 kHz



AU-250 BOARD (A SIDE)

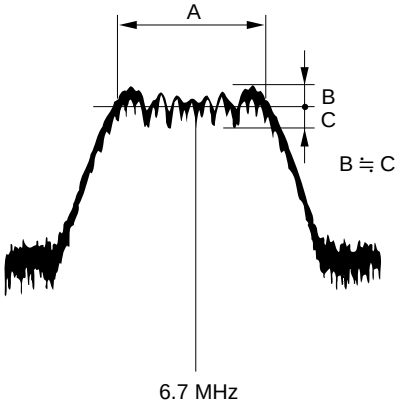
3-6-6. MIC 2 Deviation Adjustment

Preparation

- S1004 (MIC 2 GAIN) /AT-88 (CCU-700A) → 0
- Feed the following signal from the audio generator to pin 60 (X) , pin 59 (Y) , and pin 61 (GND) on the extension board (AU-250).
  Signal: sine wave
  Frequency: 400 Hz
  Output level: 220 mV p-p (−20 dBu)

Adjustment procedure

1. Equipment: Spectrum analyzer
   Test point: TP20/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ⊘RV700 (MIC 2 DEV) /AU-250 board
   Specification: A = 16.0 ± 0.5 kHz



CENT FREQ: 6.7 MHz
FREQ SPAN: 30 kHz

3-6-7. INCOM 1 Demodulation Adjustment

Note

- Perform this adjustment only when replacing ◓T200/AU-250 board.

Preparation

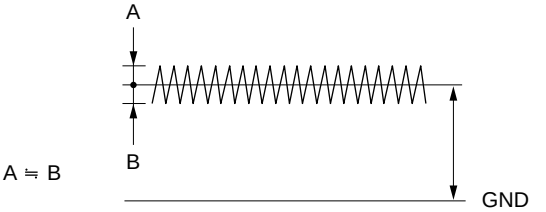
- S2081 (0 dB/−20 dB) /AT-88 board (CCU-700A) → 0 dB
- Feed the following signal from the audio generator to pin D68 (X) , pin A69 (Y) , and pin B69 (GND) on the extension board (AT-88 board/CCU-700A).
  Signal: sine wave
  Frequency: 1 kHz

Adjustment procedure

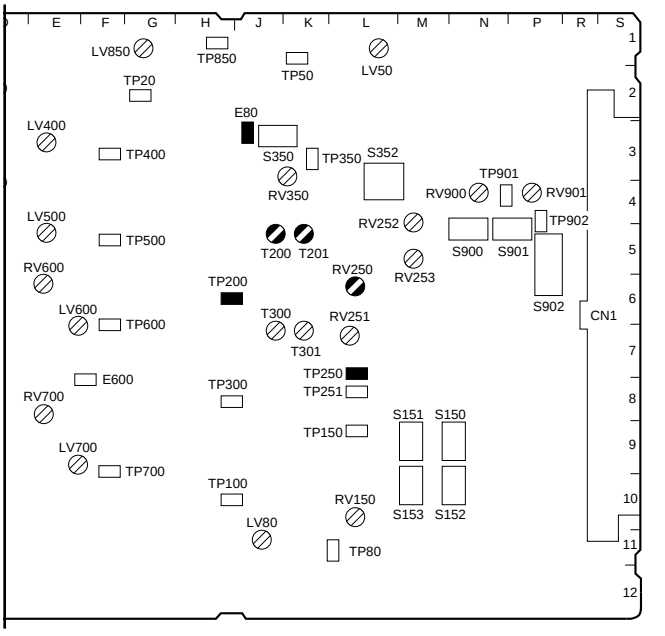
1. Equipment: Oscilloscope
   Test point: TP44 (GND:E1) /AT-88 board (CCU-700A)
   Adj. point: ◓Output level control/audio generator
   Specification: A = 200 mV p-p

2. S2082 (PGM MIX ON/OFF) /AT-88 board → ON (CCU-700A)

3. Equipment: Oscilloscope
   Test point: TP200/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ◓T200/AU-250 board
   Specification: C = 4.9 ±0.1 V dc



4. Equipment: Oscilloscope or audio level meter
   Test point: TP200/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ◓T201/AU-250 board
   Specification: Minimize



AU-250 BOARD (A SIDE)

3-6-8. INCOM 1 Level Adjustment

Preparation

- S2081 (0 dB/−20 dB) /AT-88 board (CCU-700A) → 0 dB
- S2082 (PGM MIX)/AT-88 (CCU-700A) → ON
- Feed the following signal from the audio generator to pin D68 (X) , pin A69 (Y) , and pin B69 (GND) on the extension board (AU-250).
  Signal: sine wave
  Frequency: 1 kHz

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP44 (GND:E1) /AT-88 board (CCU-700A)
   Adj. point: ⊘Output level control/audio generator
   Specification: A = 200 mV p-p

2. Equipment: Oscilloscope or audio level meter
   Test point: TP250/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ⊘RV250 (INCOM 1 LEVEL) /AU-250 board
   Specification: B = 220 ±10 mV p-p (−20.0 ±0.4 dBu)

Setting after adjustment

- S2082 (PGM MIX)/AT-88 (CCU-700A) → OFF
- Disconnects the audio generator.

Note

- After this adjustment is completed, Perform the “3-6-9. INCOM 1 Side Tone Adjustment”.

3-6-9. INCOM 1 Side Tone Adjustment

Note

- Before adjustment, make sure that the “3-6-8. INCOM 1 Level Adjustment” is completed.

Preparation

- MIC 1 (ON/OFF) switch/BVP rear panel → ON
- Feed the following signal from the audio generator to pin D68 (X) , pin A69 (Y) , and pin B69 (GND) on the extension board (AU-250).
  Signal: sine wave
  Frequency: 1 kHz

Adjustment procedure

1. Equipment: Oscilloscope or audio level meter
   Test point: Pin 36/extension board (AU-250)
   GND: Pin 37/extension board (AU-250)
   Adj. point: ◓INCOM 1 level adjustment control/BVP rear panel
   Specification: A = 2.2 V p-p (0 dBu)

2. Disconnects the audio generator.

3. S401 (MIC 1 GAIN) /AU-250 board → 0
   S400 (INCOM 1) /AU-250 board → CM

4. Feed the following signal from the audio generator to pin 54 (X) and pin 55 (GND) on the extension board (AU-250).
   Signal: sine wave
   Frequency: 1 kHz
   Output level: 220 mV p-p (−20 dBu)

5. Equipment: Oscilloscope
   Test point: Pin 36/extension board (AU-250)
   GND: Pin 37/extension board (AU-250)
   Adj. point: ◓RV252 (SIDE 1) /AU-250 board
   Specification: B = 220 ±10 mV p-p (−20.0 ± 0.4 dBu)

3-6-10. RTS 1 CANCEL Adjustment

Preparation

- S2081 (0 dB/−20 dB) /AT-88 board (CCU-700A) → 0 dB
- S2082 (PGM MIX) /AT-88 (CCU-700A) → ON
- S900 (RTS 1 RTS/NORM) /AU-250 board → RTS
- Feed the following signal from the audio generator to pin D68 (X) , pin A69 (Y) , and pin B69 (GND) on the extension board (AU-250).
  Signal: sine wave
  Frequency: 1 kHz

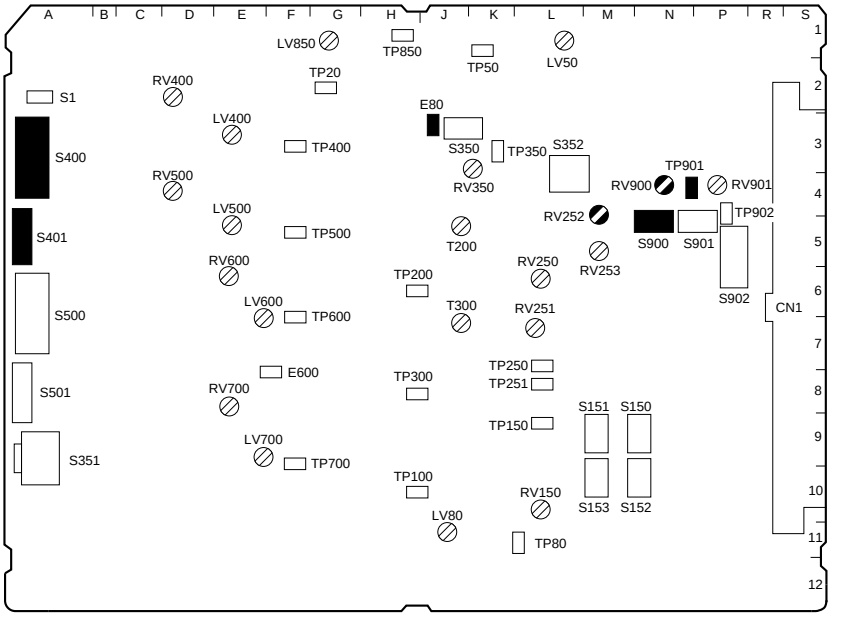
Adjustment procedure

1. Equipment: Oscilloscope or audio level meter
   Test point: Pin 36/extension board
   GND: Pin 37/extension board
   Adj. point: ⊘INCOM 1 level adjustment control/BVP rear panel
   Specification: A = 2.2 V p-p (0 dBu)

2. Equipment: Oscilloscope or audio level meter
   Test point: TP901/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ⊘RV900 (RTS 1 CANSEL) /AU-250 board
   Specification: B = Minimize

Setting after adjustment

- S2082 (PGM MIX) /AT-88 (CCU-700A) → OFF



AU-250 BOARD (A SIDE)

3-6-11. INCOM 2 Demodulation Adjustment

Note

• Perform this adjustment only when replacing ⊘T300 on the AU-250 board.

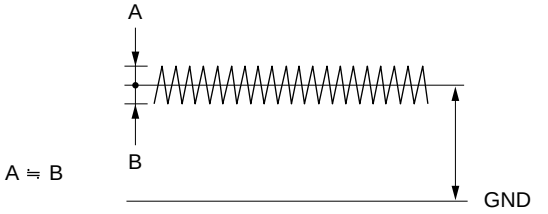
Preparation

• S2081 (0 dB/−20 dB) /AT-88 board (CCU-700A) → 0 dB
• S2082 (PGM MIX) /AT-88 (CCU-700A) → ON
• Feed the following signal from the audio generator to pin D68 (X) , pin A69 (Y) , and pin B69(GND) on the extension board (AT-88 baord/CCU-700A).
  Signal: sine wave
  Frequency: 1 kHz

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP44 (GND:E1) /AT-88 board (CCU-700A)
   Adj. point: ⊘Output level control/audio generator
   Specification: A = 200 mV p-p

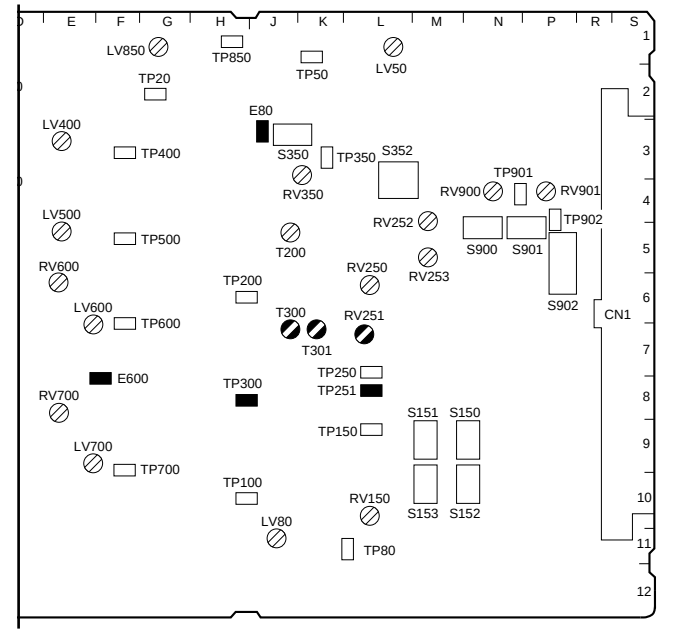
2. Equipment: Oscilloscope
   Test point: TP300/AU-250 board
   GND: E600/AU-250 board
   Adj. point: ⊘T300/AU-250 board
   Specification: B = 4.9 ±0.1 V dc



3. Equipment: Oscilloscope or audio level meter
   Test point: TP300/AU-250 board
   GND: E600/AU-250 board
   Adj. point: ⊘T301/AU-250 board
   Specification: C = Minimize

Setting after adjustment

• S2082 (PGM MIX) /AT-88 (CCU-700A) → OFF



AU-250 BOARD (A SIDE)

3-6-12. INCOM 2 Level Adjustment

Preparation

- S2081 (0 dB/−20 dB) /AT-88 board (CCU-700A) → 0 dB
- S2082 (PGM MIX) /AT-88 (CCU-700A) → ON
- Feed the following signal from the audio generator to pin D68 (X) , pin A69 (Y) , and pin B69 (GND) on the extension board (AT-88 board/CCU-700A).
  Signal: sine wave
  Frequency: 1 kHz

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP44 (GND:E1) /AT-88 board (CCU-700A)
   Adj. point: ⊘Output level control/audio generator
   Specification: A = 200 mV p-p

2. Equipment: Oscilloscope or audio level meter
   Test point: TP251/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ⊘RV251 (INCOM 2 LEVEL) /AU-250 board
   Specification: B = 220 ±10 mV p-p (−20.0 ±0.4 dBu)

Setting after adjustment

- S2082 (PGM MIX) /AT-88 (CCU-700A) → OFF
- Disconnect the audio generator.

Note

- After this adjustment is completed, perform the “3-6-13. INCOM 2 Side Tone Adjustment”.

3-6-13. INCOM 2 Side Tone Adjustment

Note

• Before adjustment, make sure that the “3-6-12. INCOM 2 Level Adjustment” is completed.

Preparation

• MIC 1 (ON/OFF) switch/BVP rear panel → ON
• Feed the following signal from the audio generator to pin D68 (X) , pin A69 (Y) , and pin B69 (GND) on the extension board (AT-88 board/CCU-700A).
  Signal: sine wave
  Frequency: 1 kHz

Adjustment procedure

1. Equipment: Oscilloscope or audio level meter
   Test point: Pin 30/extension board (AU-250)
   GND: Pin 31/extension board (AU-250)
   Adj. point: ◓INCOM 1 level adjustment control/BVP rear panel
   Specification: A = 2.2 V p-p (0 dBu)

2. Disconnect the audio generator.

3. S501 (MIC 2 GAIN) /AU-250 board → 0
   S500 (INCOM 2) /AU-250 board → CM

4. Feed the following signal from the audio generator to pin 48 (X) and pin 49 (GND) on the extension board (AU-250).
   Signal: sine wave
   Frequency: 1 kHz
   Output level: 220 mV p-p (−20 dBu)

5. Equipment: Oscilloscope or audio level meter
   Test point: Pin 30/extension board (AU-250)
   GND: Pin 31/extension board (AU-250)
   Adj. point: ◓RV253 (SIDE 2) /AU-250 board
   Specification: B = 220 ±10 mV p-p (−20.0 ± 0.4 dBu)

3-6-14. RTS 2 CANCEL Adjustment

Preparation

- S2081 (0 dB/−20 dB) /AT-88 board (CCU-700A) → 0 dB
- S2082 (PGM MIX) /AT-88 (CCU-700A) → ON
- S901 (RTS 2 RTS/NORM) /AU-250 board → RTS
- Feed the following signal from the audio generator to pin D68 (X) , pin A69 (Y) , and pin B69 (GND) on the extension board (AT-88 board/CCU-700A).
  Signal: sine wave
  Frequency: 1 kHz

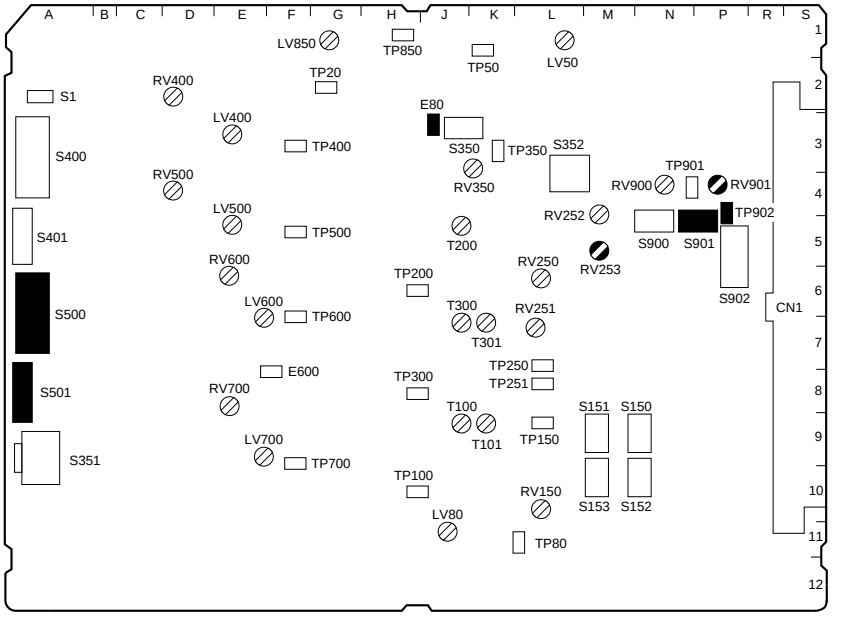
Adjustment procedure

1. Equipment: Oscilloscope or audio level meter
   Test point: Pin 36/extension board (AU-250)
   GND: Pin 37/extension board (AU-250)
   Adj. point: ⊘INCOM 1 level adjustment control/BVP rear panel
   Specification: A = 2.2 V p-p (0 dBu)

2. Equipment: Oscilloscope or audio level meter
   Test point: TP902/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ⊘RV901 (RTS 2 CANSEL) /AU-250 board
   Specification: B = Minimize

Setting after adjustment

- S2082 (PGM MIX) /AT-88 (CCU-700A) → OFF



AU-250 BOARD (A SIDE)

3-6-15. PGM Demoduration Adjustment

Note

• Perform this adjustment only when replacing ⊘T100/AU-250 board.

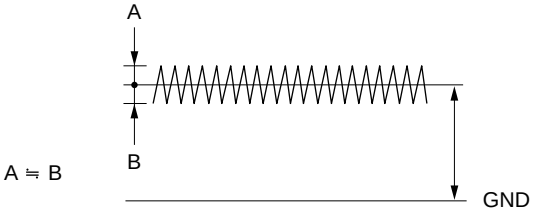
Preparation

• S2081 (0 dB/−20 dB) /AT-88 (CCU-700) → 0 dB
• Feed the following signal from the audio generator to pin D68 (X) , pin A69 (Y) , pin B69 (GND) on the extension board (AU-250).
  Signal: sine wave
  Frequency: 1 kHz

Adjustment procedure

1. Equipment: Oscilloscope
   Test point: TP44 (GND:E1) /AT-88 board (CCU-700A)
   Adj. point: ⊘Output level control/audio generator
   Specification: A = 200 mV p-p

2. Equipment: Oscilloscope
   Test point: TP100/AU-250 board
   GND: E600/AU-250 board
   Adj. point: ⊘T100/AU-250 board
   Specification: B = 4.9 ±0.1 V dc



3. Equipment: Oscilloscope or audio level meter
   Test point: TP100/AU-250 board
   GND: E600/AU-250 board
   Adj. point: ⊘T101/AU-250 board
   Specification: C = Minimize

3-6-16. PGM Level Adjustment

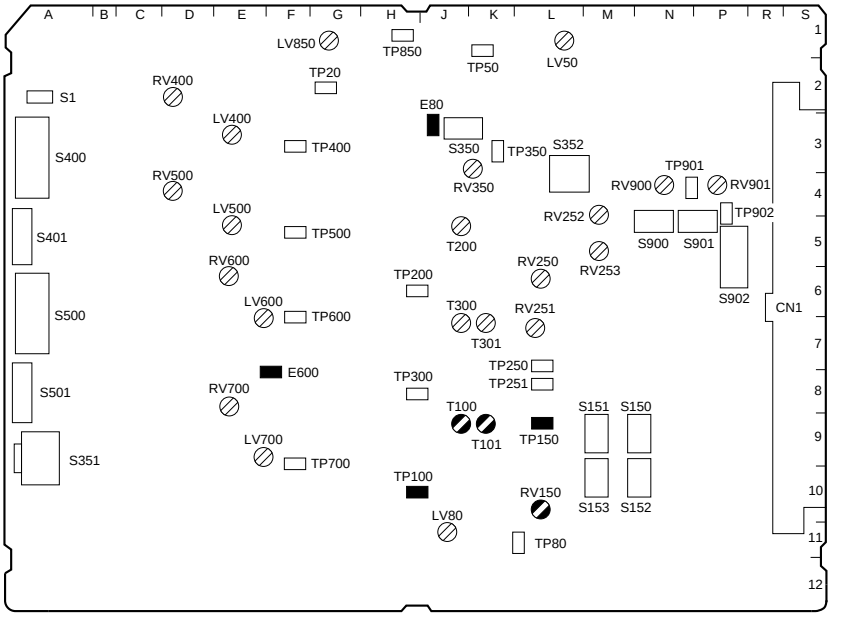
Preparation

- S2081 (0 dB/−20 dB) /AT-88 (CCU-700) → 0 dB
- Feed the following signal from the audio generator to pin D68 (X) , pin A69 (Y) , pin B69 (GND) on the extension board (AU-250).
  Signal: sine wave
  Frequency: 1 kHz

Adjustment procedure

1. Equipment: Oscilloscope or audio level meter
   Test point: TP44 (GND:E1) /AT-88 board (CCU-700A)
   Adj. point: ⊘Output level control/audio generator
   Specification: A = 220 mV p-p (−20.0 dBu)

2. Equipment: Oscilloscope or audio level meter
   Test point: TP150/AU-250 board
   GND: E80/AU-250 board
   Adj. point: ⊘RV150 (PGM LEVEL) /AU-250 board
   Specification: B = 220 ±10 mV p-p (−20.0 ±0.4 dBu)



AU-250 BOARD (A SIDE)

BVP-900 (UC)
BVP-900P (CE)
BVP-900WSPK (CE)
BKP-7090 (SY) E
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