SONY

CAMERA CONTROL UNIT

CCU-900
CCU-900P

DIGITAL INTERFACE UNIT
BKP-9330

MAINTENANCE MANUAL
Volume 1 1st Edition
Serial No. 10001 and Higher: CCU-900 (UC)
Serial No. 40001 and Higher: CCU-900P (CE)
Serial No. 10001 and Higher: BKP-9330 (SY)

⚠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。

設置や保守，点検，修理などを行う前に，別冊のオペレーションマニュアルの「安全のために」を必ずお読みください。

⚠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.

Note

The cautions on this page are applied to CCU-900/900P.

Laser Diode Properties

Material	: In GaAsP
Wave length	: 1310 nm
Emission duration	: Pulse code modulation
Laser output power	: –8 dBm

CLASS 1
LASER PRODUCT

LASER KLASSE 1
PRODUKT

This camera control unit is classified as a CLASS 1 LASER PRODUCT.
The CLASS 1 LASER PRODUCT label is located on the rear panel.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer :

Check the metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 3.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 5.25 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 20 V AC range are suitable. (See Fig. A)

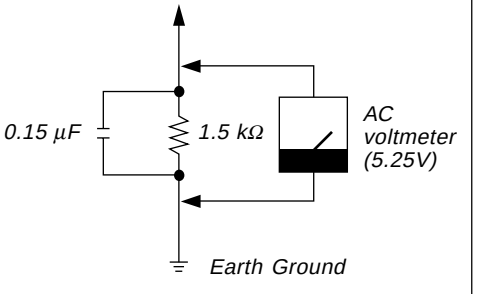

Fig A. Using an AC voltmeter to check AC leakage.

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1. Service Overview

2. Replacement of Main Parts

3. Electrical Alignment

Manual Structure

Purpose of this manual

This manual is the maintenance manual volume 1 of Camera Control Unit CCU-900/900P.
This manual is intended for use by trained system and service engineers, and describes the information regarding the circuit description, character display function, replacement of main parts and electrical alignment.

Related manuals

Beside this Maintenance Manual Volume 1, the following manuals are available for the unit.

- **Operation Manual (supplied with CCU-900/900P)**
  This manual describes how to operate the CCU-900/900P.

- **Installation and Maintenance Manual (supplied with CCU-900/900P)**
  This manual intended for use by trained system and service engineers describes the information regarding the installation of the CCU-900/900P and the information required for initial services.
  Part number: 3-204-336-0X

- **Maintenance Manual Vol. 2 (available on request)**
  This manual intended for use by trained system and service engineers describes (the parts list, semiconductor pin assignments, block diagrams, schematic diagrams and board layouts) required for parts-level service.
  For obtaining, contact your local Sony Sales Office/Service Center.
  Part number: 9-968-570-0X

- **“Semiconductor Pin Assignments” CD-ROM (available on request)**
  This “Semiconductor Pin Assignments” CD-ROM allows you to search for semiconductors used in Communication System Solutions Network Company equipment.
  Semiconductors that cannot be searched for on this CD-ROM are listed in the maintenance manual for the corresponding unit. The maintenance manual contains a complete list of all semiconductors and their ID Nos., and thus should be used together with the CD-ROM.
  Part number: 9-968-546-XX

Contents

The following is a summary of the sections of this manual.

Section 1 Service Overview

Describes information about circuit description, on-board indicators, adjustments after board replacement and character display functions.

Section 2 Replacement of Main Parts

Describes replacement of parts.

Section 3 Electrical Alignment

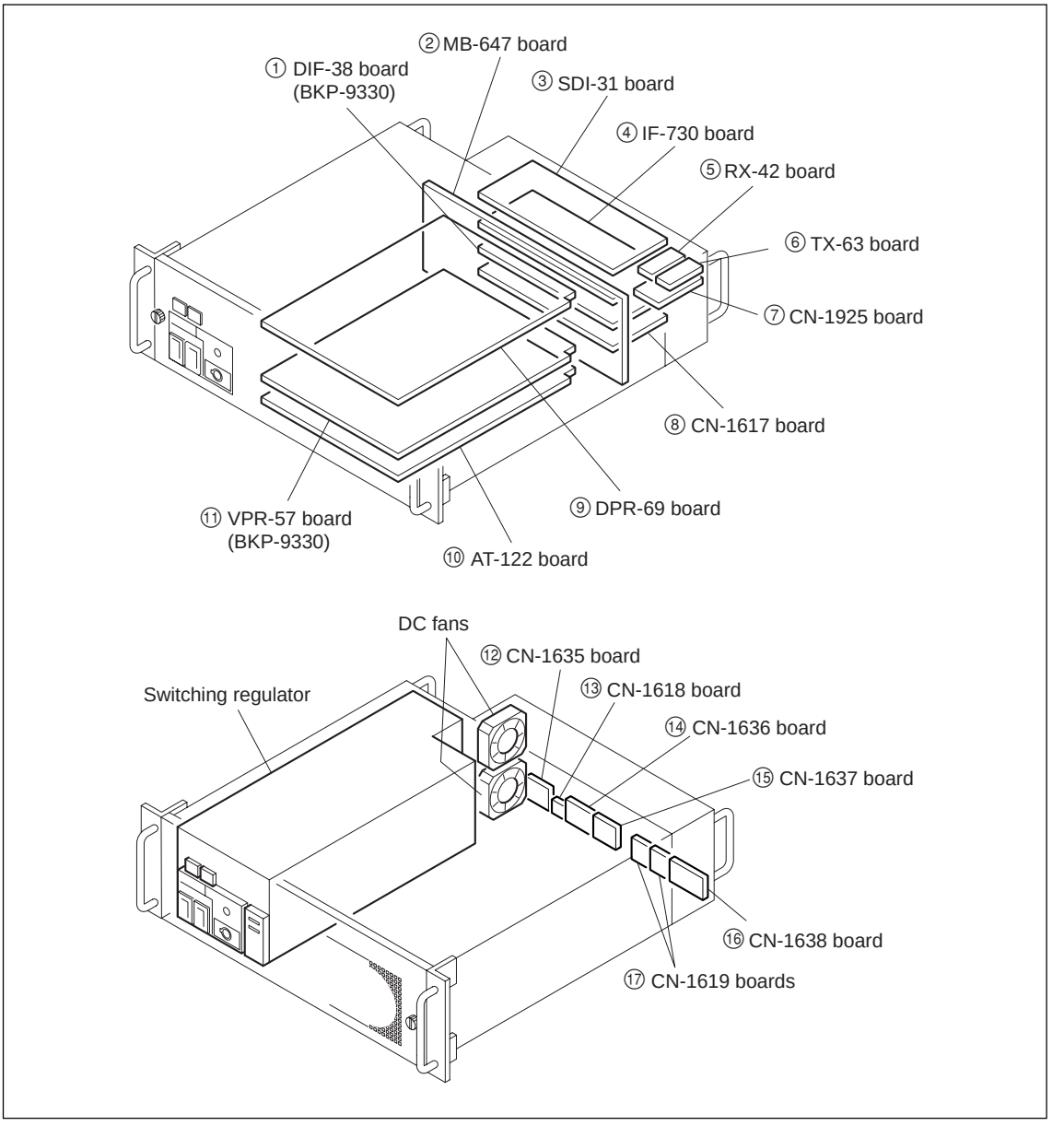
Describes the general information for electrical adjustment and the adjustment procedure of this unit.

Section 1
Service Overview

1-1. Tools

Name	Sony P/N	Remark
Extension board BKP-7900	–	Front extension board
Extension board JX-428	J-6394-280-A	Front extension board Used to check side B of the board.
Extension board EX-525A	A-8326-353-A	Rear side extension board
Extension board EX-464	J-6395-040-A	For CA-950/950P
Alignment sleeve remover HC-001	J-6480-010-A	For female connector
Cotton swab	–	Commercially available For cleaning optical contact block (4 mm or less in diameter)

1-2. Board Layout



No.	Board	Function
①	DIF-38 board (BKP-9330)	Super Motion Output
②	MB-647 board	Motherboard
③	SDI-31 board	Digital Interface
④	IF-730 board	Interface
⑤	RX-42 board	Optical Interface
⑥	TX-63 board	Optical Interface
⑦	CN-1925 board	Connector
⑧	CN-1617 board	Connector
⑨	DPR-69 board	SG, Video Process
⑩	AT-122 board	System Control, Audio Process

No.	Board	Function
⑪	VPR-57 board (BKP-9330)	Super Motion Video Process
⑫	CN-1635 board	Connector
⑬	CN-1618 board	Connector
⑭	CN-1636 board	Connector
⑮	CN-1637 board	Connector
⑯	CN-1638 board	Connector
⑰	CN-1619 board	Connector

1-3. Circuit Outline

- **AT-122 board**
  Receives and sends control data between the camera and the CCU and between the RCP or CNU and the CCU, and controls the input/output signals of each board of the unit and TALLY, etc. Also, performs D/A conversion of the digital MIC signal sent from the camera, A/D conversion of the PGM signal, A/D and D/A conversion of the INCOM signal between the camera and the CCU, and A/D and D/A conversion of the control data. In addition, switches the INCOM line.

- **DPR-69 board**
  The DPR-69 board has the following functions.
  - Decodes 1.08Gbps digital signal sent from the camera to generate the 3ch video signal that is output as the camera signal, AUX signal and PROMPTER signal. The camera signal is output as SDI, SDI MONI and analog (PIX1/2, WF1/2).
  - Generates various sync signals and color-bar signals.
  - Receives the video signals input at the RET1/2/3/4 and the PROMPTER, AUX connector of the rear panel as the RET, AUX and PROMPTER signals via the SDI-31 and IF-730 boards, encodes them to 1.08Gbps signal for optical transmission, then sends them to the camera.

- **IF-730 board**
  Outputs the analog (PIX1/2, WF1/2) signal and PROMPTER signal supplied from the DPR-69 board. In addition, receives the four systems of analog RET input and the system of PROMPTER and performs A/D conversion according to the RET MATRIX setup, AUX MATRIX setup and PROMPTER setup of the setup menu. Then, outputs the setup data to the DPR-69 board.

- **RX-42 board**
  Converts the optical signal transmitted from the CA-950/950P to an electric signal and outputs it to the DPR-69 board.
  In addition, detects the level of the lighting receiver and outputs it to the AT-122 board.

- **SDI-31 board**
  Performs parallel-to-serial conversion of the SDI, SDI MONI and AUX signals of the parallel data supplied from the DPR-69 board, and outputs the data as the SDI1/2/3, SDI MONI and the SDI AUX signals.
  In addition, receives all five input systems consisting of the four SDI RET inputs and the one SDI AUX input. Then, outputs the selected signals to the DPR-69 board according to the RET MATRIX setup and AUX MATRIX setup of the setup menu.

- **TX-63 board**
  Converts the serial signal multiplexed in the DPR-69 board to an optical signal and outputs the signal to the CA-950/950P.

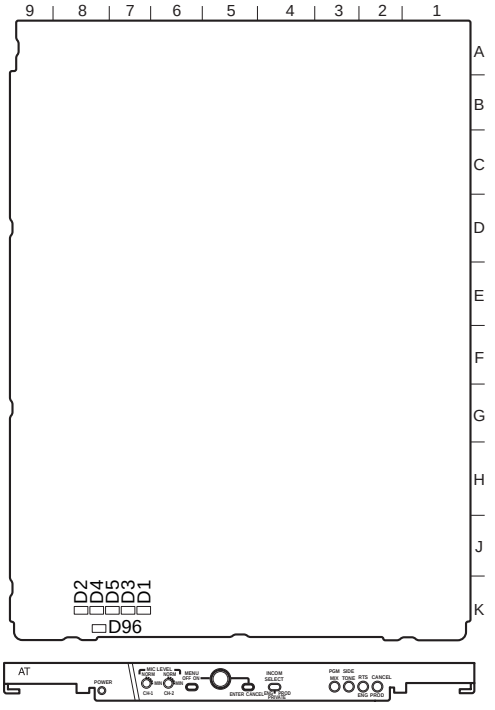
- **DIF-38 board (BKP-9330)**
  Performs parallel-to-serial conversion of three systems (SS-A, SS-B, SS-C) of the super slow signal supplied from the VPR-57 board (BKP-9330) and outputs the signal.

- **VPR-57 board (BKP-9330)**
  Receives the 3-times speed video signal from the BVP-9500WS/9500WSP super motion camera as the 3-channel video signal, and outputs the signal in conformity with the various VTR formats.
  The standard ×1 speed video signal can be constructed from the 3-times speed video signal and output to the DPR-69 board as a camera image.

- **Switching regulator**
  Supplies current to the camera and supplies current to each board of the unit.

1-4. Functions of the Indicators on the Boards

1-4-1. AT-122 Board



D1 : +12 V
Lights up when +12 V used on this board is normally supplied.

D2 : −12 V
Lights up when −12 V used on this board is normally supplied.

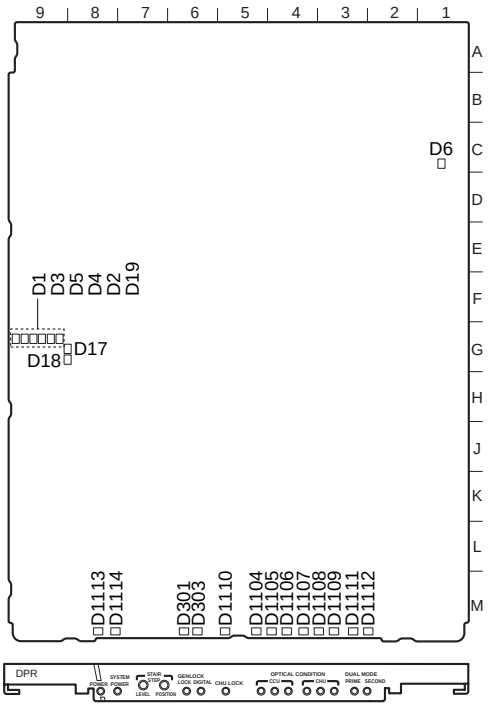
D3 : +5 V
Lights up when +5 V used on this board is normally supplied.

D4 : −5 V
Lights up when −5 V used on this board is normally supplied.

D5 : +3.3 V
Lights up when +3.3 V used on this board is normally supplied.

D96 : Power supply display
Lights up when voltage used on this board is normally supplied.

1-4-2. DPR-69 Board



Note
When D1106 or D1109 (red) lights up, be sure to clean the CAMERA connector of the unit, the CCU connector of the camera adaptor and the optical/electrical cable. Also, when D1105 or D1108 (yellow) lights up, you should clean them. For the cleaning procedure, refer to Section 1-7.

D1 : +12 V
Lights up when +12 V used on this board is normally supplied.

D2 : −12 V
Lights up when −12 V used on this board is normally supplied.

D3 : +5 V
Lights up when +5 V used on this board is normally supplied.

D4 : −5 V
Lights up when −5 V used on this board is normally supplied.

D5 : +3.3 V (for analog)
Lights up when +3.3 V (for analog) used on this board is normally supplied.

D6 : +8 V
Lights up when +8 V used on this board is normally supplied.

D17 : +3.3 V-2 (for digital)
Lights up when +3.3 V-2 (for digital) used on this board is normally supplied.

D18 : +2.5 V
Lights up when +2.5 V used on this board is normally supplied.

D19 : +5 V (for digital)
Lights up when +5 V (for digital) used on this board is normally supplied.

D301 : GEN LOCK display
Lights up when external synchronization is established.

D303 : GENLOCK SIGNAL (DIGITAL) display
Lights up when the sync signal mode is set by digital and external synchronization is established in the SERIAL RET1 input.

D1104, D1105, D1106 : OPTICAL CONDITION (CCU) display
Displays the optical level received at the unit.
(0 dBm = 1 mW)

D1104 lights up : (green)	Normal (Optical level is −17 dBm or more.)
D1105 lights up : (yellow)	Normal (Optical level is −17 to −20 dBm.)
D1106 lights up : (red)	Abnormal (Optical level is less than −20 dBm.)

Note
Attenuates about 0.5 dB for every 1 km of cable.
Attenuates about 0.5 dB at each relay connector.

D1107, 1108, 1109 : OPTICAL CONDITION (CHU) display
Displays the optical level received at the camera side.
(0 dBm = 1 mW)

D1107 lights up : (green)	Normal (Optical level is −17 dBm or more.)
D1108 lights up : (yellow)	Normal (Optical level is −17 to −20 dBm.)
D1109 lights up : (red)	Abnormal (Optical level is less than −20 dBm.)
All lights off :	Abnormality of the line to the camera (The CHU LOCK display is also off.)

Note
Attenuates about 0.5 dB for every 1 km of cable.
Attenuates about 0.5 dB at each relay connector.

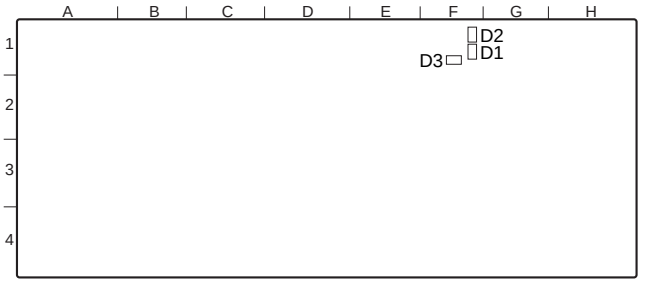
D1110 : CHU LOCK display
Lights up when communication with the connected camera is normally established.

D1111, D1112 : DUAL MODE display
When the dual system is used, displays the setting state of the unit.
D1111 (green) : Lights up when PRIMARY is set.
D1112 (green) : Lights up when SECONDARY is set.

D1113 : Power supply display
Lights up when voltage used on this board is normally supplied.

D1114 : System power supply display
Lights up when the power supply of this system is normal.

1-4-3. SDI-31 Board

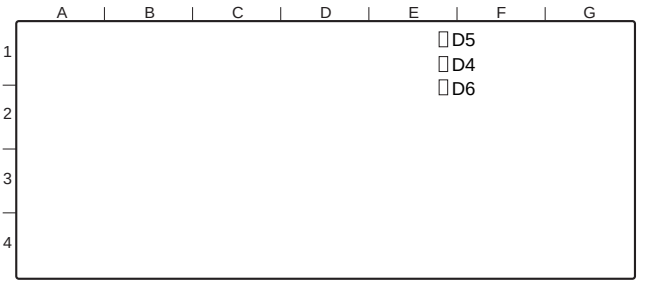


D1 : +5 V
Lights up when +5 V used on this board is normally supplied.

D2 : −5 V
Lights up when −5 V used on this board is normally supplied.

D3 : +3.3 V
Lights up when +3.3 V used on this board is normally supplied.

1-4-4. IF-730 Board

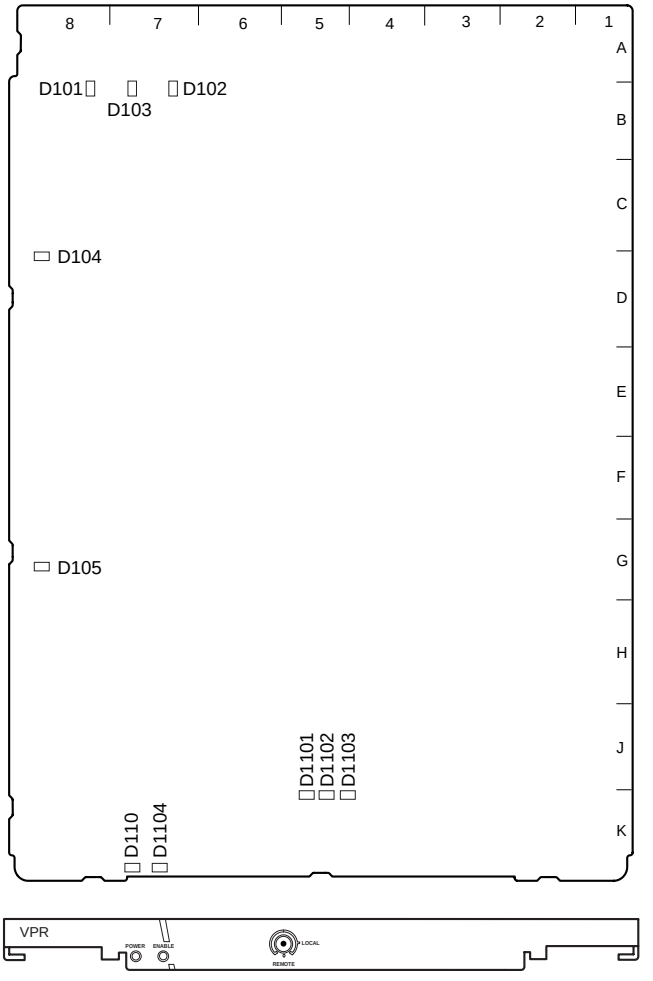


D4 : +5 V
Lights up when +5 V used on this board is normally supplied.

D5 : −5 V
Lights up when −5 V used on this board is normally supplied.

D6 : +3.3 V
Lights up when +3.3 V used on this board is normally supplied.

1-4-5. VPR-57 Board (BKP-9330)



D101 : −5 V
Lights up when the −5 V used on this board is normally supplied.

D102 : +3.3 V
Lights up when the +3.3 V used on this board is normally supplied.

D103 : +5 V (+5 V)
Lights up when the +5 V (+5 V) used on this board is normally supplied.

D104 : +5 V (+3.3 V)
Lights up when the +3.3 V used on this board is normally supplied.

D105 : +5 V (+2.5 V)
Lights up when the +2.5 V used on this board is normally supplied.

D110 : Power supply display
Lights up when the voltage used on this board is normally supplied.

D1101 : NRML
This is used for test. Lights off normally.

D1102 : 3P
This is used for test. Lights off normally.

D1103 : FPGA
Lights up when the FPGA configuration is failed.

D1104 : Board ENABLE display
Lights up when the VPR board works.

1-5. Adjustment and Setting after Replacing the Boards

After replacing each plug-in board, readjust and reset the following items.

1-5-1. When Replacing the AT-122 Board

Data set on the setup menu is saved in NV-RAM of the AT-122 board. Therefore, after replacing the AT-122 board, reset the items of the setup menu set by the user.
(For more details, refer to Section 2, “Setting Menu” of the separate-volume Installation and Maintenance Manual.)
In addition, do the following adjustment and settings.
(For more details, refer to Section 3, “System Setup” of the separate-volume Installation and Maintenance Manual.)

Adjustment and setting items

3-1-1. Setting the Intercom System
- Selecting the Intercom System
- Setting the input level of the PGM audio signal
- Selecting an intercom line to be connected to the INTERCOM connector

3-1-2. Setting the Microphone
- Controlling the Microphone Input Level from the Remote Control
- Adjusting the microphone input level using the MIC LEVEL switch
- Setting the Microphone Output Level

3-2-1. Setting the Tally System

3-2-2. Setting the Camera Number

1-5-2. When Replacing the DPR-69 Board

The data set on the DA1, DA2 and Others of the engineering menu are saved in EEPROM of the DPR-69 board. Therefore, when after replacing the DPR-69 board, perform the following adjustments and setting.
(For more details, refer to Section 3, “System Setup” of the separate-volume Installation and Maintenance Manual.)

Adjustment and setting items

3-3-3. Adjusting the Signal Phase
- Adjusting the Phase of the Sync Signal

3-3-4. Adjusting the Level of Signals for Waveform Monitor
- Adjusting the Staircase Signal

If required, perform the following adjustments.

3-3-4. Adjusting the Level of Signals for Waveform Monitor
- Adjusting the WF Output Signal Level

3-3-5. Adjusting the Level of Signals for Picture Monitor

When installing the BKP-9330 (VPR-57, DIF-38 board):

3-3-6. Setting for the Signals of the Optional Boards

1-5-3. When Replacing the IF-730 Board

The data set on the DA3 of the engineering menu is saved in EEPROM of the IF-730 board. Therefore, when after replacing the IF-730 board, perform the following adjustments and setting.
(For more details, refer to Section 3, “System Setup” of the separate-volume Installation and Maintenance Manual.)

Adjustment and setting items

3-3-4. Adjusting the Level of Signals for Waveform Monitor

3-3-5. Adjusting the Level of Signals for Picture Monitor

1-6. Connecting/Disconnecting the Flexible Card Wire

The flexible card wire is used to connect between the following boards. Bending the flexible card wire may result in shortening the lifespan. Be careful not to bend it.

- Between the CN-1617 and CN-1635 boards 1 wire
- Between the CN-1617 and CN-1636 boards 2 wires
- Between the CN-1617 and CN-1637 boards 1 wire

Disconnecting

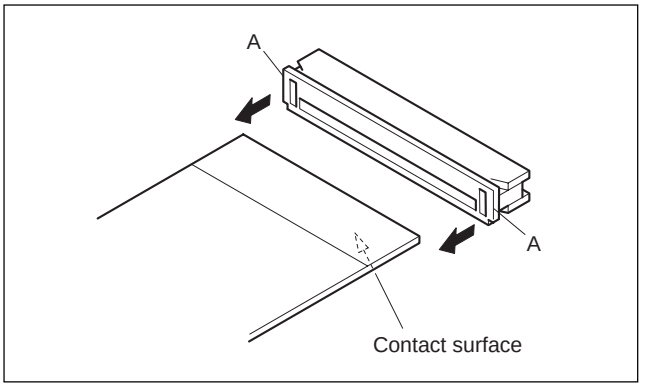
1. Turn off the main power.
2. Slide portion A in the direction of the arrow to unlock and pull out the flexible card wire.

Connecting

Notes

- Do not insert the flexible card wire sideways.
- Confirm that there is no stain or dust on the contact surface of the flexible card wire.

1. Slide portion A in the direction of the arrow, turn over the contact surface of the flexible card wire, then securely insert it into the connector.
2. Return portion A to its original position and lock the connector.



1-7. Cleaning of Connector/Cable

The state of the optical connector while the receptor is receiving signals can be checked using the indicators on the DPR-69 board. (For more details, refer to Section 1-4-2. “Funcions of the Indicators on the Boards−DPR-69 Board”)
When the relevant indicator lights, clean the following optical contact blocks.

- CAMERA connector of the unit
- CCU connector of the camera adaptor side
- Optical/electrical cable
- Connection connector of RX-42/TX-63 board

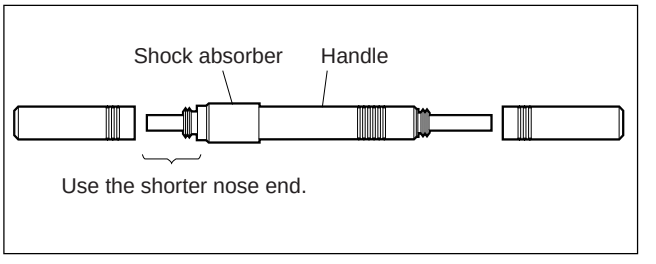
When replacing the CAMERA connector or replacing the RX-42/TX-63 board, cleaning is also required.
Follow the procedures below for cleaning.

Tools Required

- Alignment sleeve remover HC-001
  (for female connector)
  Sony P/N : J-6480-010-A

Note

Insert the shorter nose end when removing/installing the alignment sleeve.
Grasp not the shock absorber portion of the remover but the handle in use.



- Cotton swabs (commercially available)

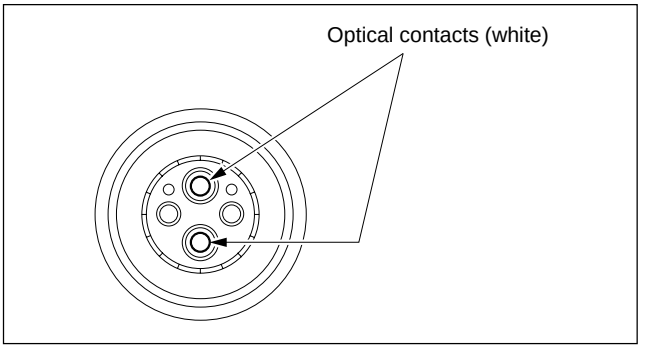
Note

Use a cotton swab whose diameter is about 4 mm.
If a cotton swab whose diameter exceeds 5 mm is used, the cotton swab cannot be inserted into the end of the connector and the tip of the optical contact cannot be cleaned.

Cleaning

Male connector

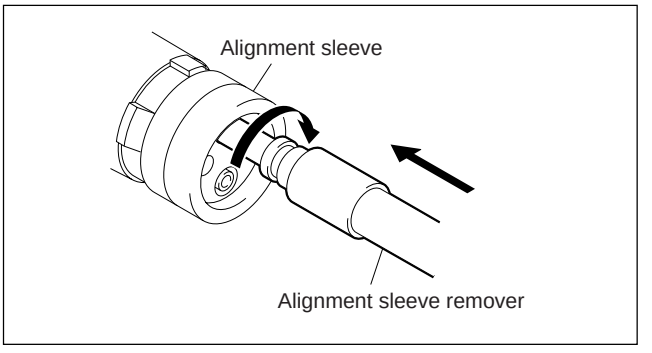
Clean the tip of the white optical contacts by a cotton swab moistened with alcohol.



Female connector

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

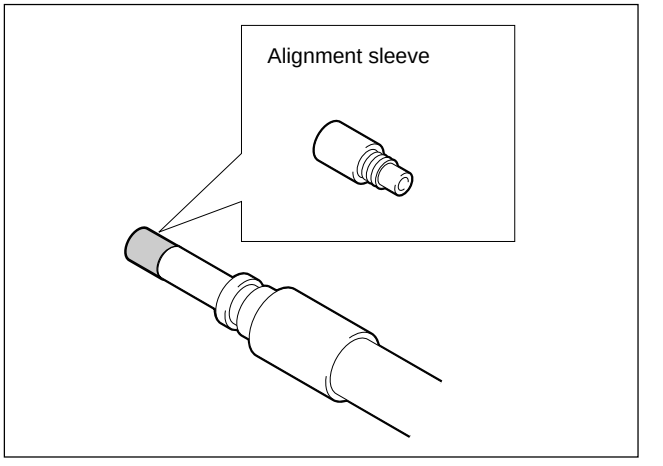
1. Insert the alignment sleeve remover into the alignment sleeve in the straight line and turn it clockwise.



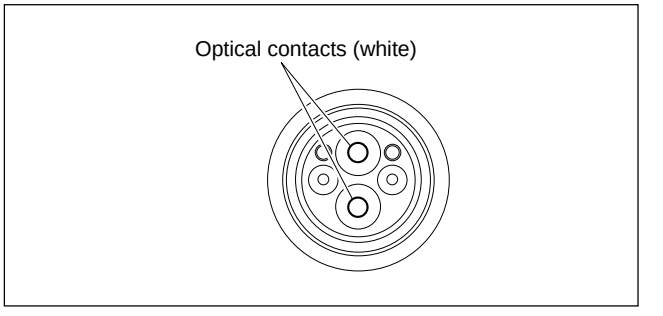
2. When the turn stops, pull out the remover in the straight line forcedly.

Note

The alignment sleeve can be removed/reinstalled with the sleeve itself attached to the tip of the remover. Great care should be taken so as not to lose or damage the alignment sleeve.
(Alignment sleeve: Sony P/N 9-980-074-01)



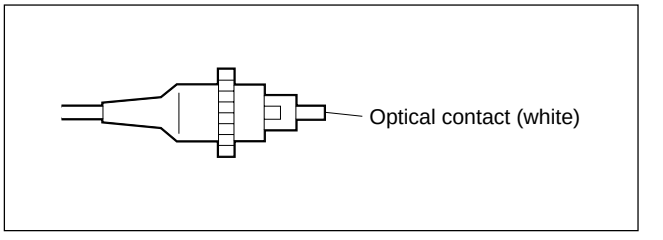
3. Clean the tip of the white optical contacts by a cotton swab moistened with alcohol.



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

Connection connector

Clean the optical contact block of the connector using a cotton swab moistened with alcohol.



1-8. Notes for Service

1-8-1. Notes for RX-42 and TX-63 Boards

The electric parts mounted on the RX-42 or the TX-63 board cannot be replaced or adjusted.
If the electric parts need to be replaced or adjusted, replace the entire unit.

1-8-2. Circuit Protective Elements

The positive characteristic thermistor (for power supply) functions as a circuit protective element on the AT-122, DPR-69, IF-730, SDI-31 and VPR-57 (BKP-9330) boards of the unit. The thermistor increases the internal resistance and limits the current flowing to the circuits when an overcurrent flows or when the ambient temperature increases and the element reaches the specified temperature. If the elements operates, turn off the main power and inspect the equipment connected to the internal CCU and the INCOM REMOTE and MIC REMOTE connectors. After removing the cause of the equipment abnormality and the temperature of the element decreases, turn on the power again and operate the unit correctly. It takes about 1 minute for the elements to cool down after the main power is turned off.

Board	Ref. No.	Address	Protective circuit/equipment
AT-122	THP1	A8	Circuit inside the board
	THP2	A8	
	THP3	B8	
	THP4	A8	
	THP5	A2	
	THP6	A2	
	THP7	A8	Equipment connected to the INCOM REMOTE and MIC REMOTE connectors
DPR-69	THP1	C9	Circuit inside the board
	THP2	B9	
	THP3	F9	
	THP4	B9	
	THP5	E9	
	THP6	C1	
	THP7	D8	
	THP8	C8	
	THP9	A8	
IF-730	THP1	F1	Circuit inside the board
	THP2	E1	
	THP4	E2	
SDI-31	THP1	F1	Circuit inside the board
	THP2	F1	
	THP3	F2	
VPR-57	THP101	B7	Circuit inside the board
(BKP-9330)	THP102	B7	
	THP103	C8	
	THP104	G8	

1-8-3. Notes on Repair Parts

1. Safety Related Components Warning

WARNING

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

2. Standardization of Parts

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

3. Stock of Parts

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

4. Harness

Harnesses with no part number are not registered as spare parts.
In need of repair, get components shown in the list and repair using them.

5. Destination Representation

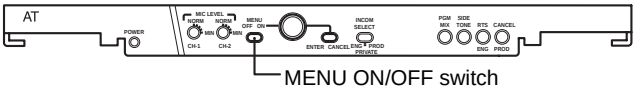
The part indicated “For J/UC/CE” in the spare parts list is used in the unit written below.
For J : The part is used in a unit for Japan.
For UC : The part is used in a unit for the U.S.A. and Canada.
For CE : The part is used in a unit for regions except the above countries.

1-9. Character Display Function

The character generation circuit built into the unit can mix character information with the video signal and display the state of the unit on the external monitor connected to the PIX1, SERIAL MONITOR and CHARACTER connectors of the rear panel.

Operating procedure

To display the self-diagnostics, set the MENU ON/OFF switch on the AT-122 board panel to OFF and press the CHARACTER button of the RCP to lights up the button. To change the display, press the CHARACTER button again. To change the page continuously, press the button continuously. After all the pages are displayed, the button is lit off.



AT-122 board

Required equipment

- Color monitor
  Sony BVM-1911/2811 or equivalent (for NTSC)
  Sony BVM-2011P/3011P or equivalent (for PAL)
- Remote control unit
  RCP-700 series
- BVP-950/950P Camera System
  BVP-950, CA-950/950P
  OHB-730/750A series, or

  BVP-550/570 Camera System
  BVP-550/570, CA-950/950P
  OHB-450/550 series, or

  BVP-9500WS/9500WSP Camera System
  BVP-9500WS/9500WSP
  CA-950/950P

Page 1

Diag Display

```
** Auto Black Balance **
  Knee Point R ─┐─①
   Completed    ┘

*Diagnosis*
DPR-69 OK ②  SDI-31 OK ⑦
-      ③  IF-730 OK ⑧
VPR-57 OK ④  DIF-38 OK ⑨
AT-122 OK ⑤         ⑩
OPT    OK ⑥  Power  OK ⑪
             Camera OK ⑫
```

No.	Contents
①	Displays the state of the camera side during auto setup.
②	Displays the self-diagnosis result of the board mounted in the top slot of the front side. (OK/NG)*1
③	Displays the self-diagnosis result of the board mounted in the second slot from the top of the front side. (OK/NG)*1
④	Displays the self-diagnosis result of the board mounted in the third slot from the top of the front side. (OK/NG)*1
⑤	Displays the self-diagnosis result of the board mounted in the bottom slot of the front side. (OK/NG)*1
⑥	Displays the self-diagnosis result of optical transmission. (OK/NG) NG : Refer to Page 4.
⑦	Displays the self-diagnosis result of the board mounted in the top slot of the rear side. (OK/NG)*1
⑧	Displays the self-diagnosis result of the board mounted in the second slot from the top of the rear side. (OK/NG)*1
⑨	Displays the self-diagnosis result of the board mounted in the third slot from the top of the rear side. (OK/NG)*1
⑩	Displays the self-diagnosis result of the board mounted in the bottom slot of the rear side. (OK/NG)*1
⑪	State of the power supply (OK/NG) NG : Check the switching regulator and fan of the unit.
⑫	State of the camera (OK/NG) NG : Refer to Page 13

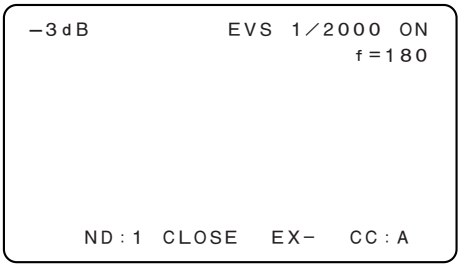
*1 : Refer to the description on page 7 to page 12 of the character display for details on the self-diagnosis.

Note

As for ② to ⑫, NG appears when any abnormality occurs only.

Page 2

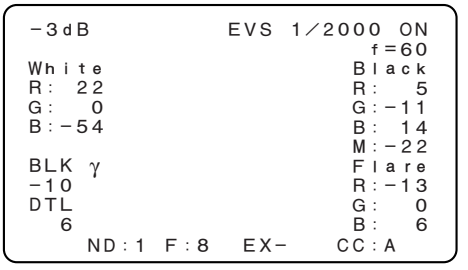
Information from the Camera 1



Contents
Displays information of GAIN, ND, CC, Extender, Shutter, aperture, FIELD RATE (when BVP-9500WS/9500WSP is connected only), etc.

Page 3

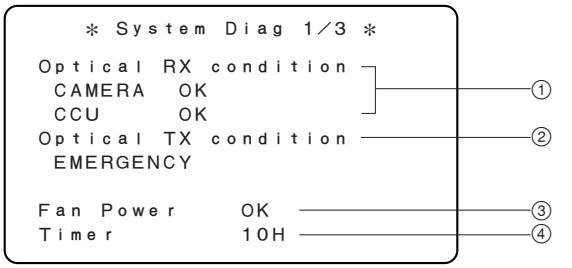
Information from the Camera 2



Contents
Displays information of GAIN, ND, CC, Extender, Shutter, aperture, FIELD RATE (when BVP-9500WS/9500WSP is connected only), White, Black, Flare, Blackγ, Detail, etc.

Page 4

Camera System Self-diagnosis Display 1/3

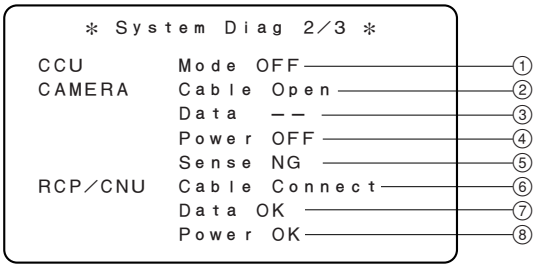


No.	Contents
①	State of the optical receiving level (OK/CARE/WARN/NG)*2 CARE : The optical receiving level is −17 to −20 dBm. WARN : The optical receiving level is −20 to −25 dBm. NG : The state when the optical level is low and any signal waveform cannot be obtained When either of CARE, WARN or NG appears, clean the connector and cable while referring to Section 1-7.
②	State of the optical sending level (Normal/EMERGENCY)*2 EMERGENCY : Clean the connector and cables while referring to Section 1-7.
③	State of the fan of the power supply block and the fan of the rear panel (OK/PW NG/RR NG/NG) PW NG : The fan of the switching regulator of the unit is defective. RR NG : The fan of the rear panel of the unit is defective. NG : The fan of the switching regulator and the fan of the rear panel are defective.
④	Accumulated power supply time to the AT-122 board is displayed

*2 : The optical sending/receiving state also can be checked using the indicator on the panel of the DPR-69 board.
(For more details, refer to Section 1-4-2, “Functions of the Indicators on the Boards−DPR-69 Board”.)

Page 5

Camera System Self-diagnosis Display 2/3

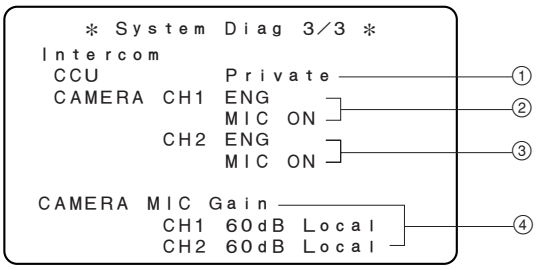


No.	Contents
①	State of the mode of the unit when the dual system is used (OFF/Primary/Secondary) OFF : When only one unit is used Primary : When used at the primary side during dual system Secondary : When used at the secondary side during dual system
②	State of camera cable connection (Open/Connect)
③	Existence of data from the camera (– –/Sense/OK) – – : The communication with the camera cannot be established. Sense : Sense the camera is being established.
④	State of power supply of the camera (ON/OFF)
⑤	State of connection of the camera (OK/NG*3)
⑥	State of cable connection of the RCP/CNC connector of the rear panel on the unit (Open/Connect)
⑦	Existence of data from the RCP/CNC connector of the rear panel of the unit (– –/Sense/OK) – – : The communication with the equipment connected to the RCP/CNU connector cannot be established. Sense : The communication with the equipment connected to the RCP/CNU connector is being established.
⑧	State of the power supply of the RCP/CNU connector of the rear panel of the unit (OK/NG)

*3 : When power of the camera is supplied from the outside too, NG appears.

Page 6

Camera System Self-diagnosis Display 3/3

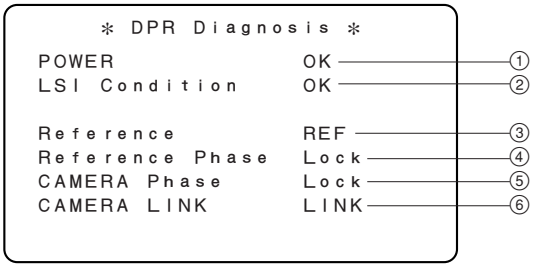


No.	Contents
①	Setting state of the intercom (setting of switch S702 on the AT-122 board) of the unit (Private/System)
②	Setting state of the intercom 1ch of the camera side (ENG/PROD)
③	Setting state of the intercom 2ch of the camera side (ENG/PROD)
④	Gain and control state of the microphone circuit of the camera side (Remote/Local)

Page 7

DPR-69 Board Self-diagnosis Display

Displays the details of self-diagnosis of the DPR-69 board of the unit.

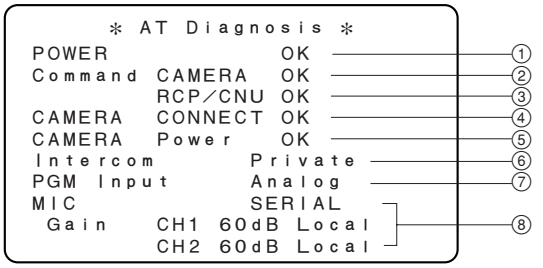


No.	Contents
①	Operating state of the power supply circuit of the DPR-69 board (OK/NG)
②	Setting state of LSI of the DPR-69 board (OK/NG)
③	Selection state of the genlock source signal (REF/SDI)
④	Whether the unit synchronizes the input reference signal (Lock/Unlock)
⑤	Whether the H phase of the camera and the unit is synchronized (Lock/Hlock/Unlock)
⑥	Whether the camera and the unit are linked (Link/Unlink)

Page 8

AT-122 Board Self-diagnosis Display

Displays the details of self-diagnosis of the AT-122 board of the unit.



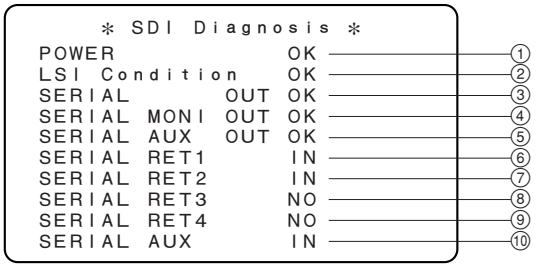
No.	Contents
①	Operating state of the power supply circuit of the AT-122 board (OK/NG)
②	Command connection state of the CAMERA connector (– –/Sense/OK) – – : The communication with the camera cannot be established. Sense : Sense the camera is being established.
③	Command connection state of the RCP/CNU connector of the rear panel of the unit (– –/Sense/OK) – – : The communication with the equipment connected to the RCP/CNU connector cannot be established. Sense : The communication with the equipment connected to the RCP/CNU connector is being established.
④	Detection of connection to the camera (OK/NG)
⑤	Power supply state of the camera (OK/NG*4)
⑥	Setting state of the INCOM SELECT switch (S702) on the panel of the AT-122 board (PROD/PRIVATE/ENG)
⑦	Selection state of the AUDIO input used as PGM (Serial/Analog)
⑧	Setting state of the microphone gain (setting of MIC LEVEL switch S1010/1011 on the panel of the AT-122 board) (20 to 60 dB/Local/Remote)

*4 : When power of the camera is supplied from the outside too, NG appears.

Page 9

SDI-31 Board Self-diagnosis Display

Displays the details of self-diagnosis of the SDI-31 board of the unit.

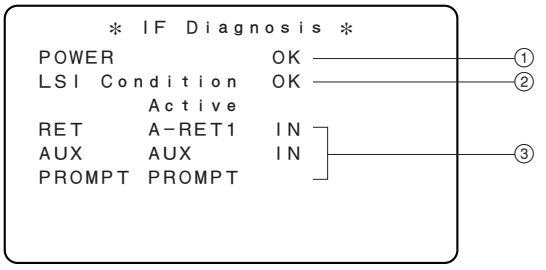


No.	Contents
①	Operating state of the power supply circuit of the SDI-31 board (OK/NG)
②	Setting state of LSI of the SDI-31 board (OK/NG)
③	PLL state of the SERIAL OUTPUT connector output signal (IC406) of the rear panel of the unit (OK/NG) NG : Defects of IC406 and peripheral circuits
④	PLL state of the SERIAL MONITOR OUTPUT connector output signal (IC407) of the rear panel of the unit (OK/NG) NG : Defects of IC407 and peripheral circuits
⑤	PLL state of the SERIAL AUX OUTPUT connector output signal (IC409) of the rear panel of the unit (OK/NG) NG : Defects of IC409 and peripheral circuits
⑥	State of the SERIAL RET1 connector input signal (IC202) of the Rear panel of the unit (IN/NO/NG) NO : No input signal NG : Defects of IC202 and peripheral circuits
⑦	State of the SERIAL RET2 connector input signal (IC201) of the rear panel of the unit (IN/NO/NG) NO : No input signal NG : Defects of IC201 and peripheral circuits
⑧	State of the SERIAL RET3 connector input signal (IC208) of the rear panel of the unit (IN/NO/NG) NO : No input signal NG : Defects of IC208 and peripheral circuits
⑨	State of the SERIAL RET4 connector input signal (IC207) of the rear panel of the unit (IN/NO/NG) NO : No input signal NG : Defects of IC207 and peripheral circuits
⑩	State of the SERIAL AUX connector input signal (IC213) of the rear panel of the unit (IN/NO/NG) NO : No input signal NG : Defects of IC213 and peripheral circuit

Page 10

IF-730 Board Self-diagnosis Display

Displays the details of self-diagnosis of the IF-730 board of the unit.



No.	Contents
①	Operating state of the power supply circuit of the IF-730 board (OK/NG)
②	Setting state of LSI of the IF-730 board (OK/NG)
③	State of the signal assigned to the unit of the line transmitting to the camera

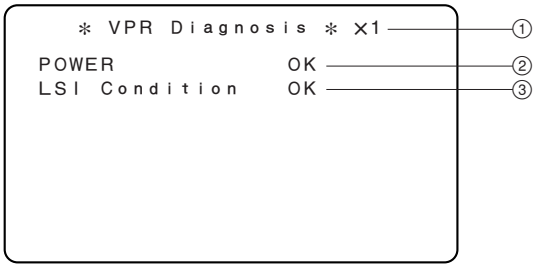
Page 11

VPR-57 Board (BKP-9330) Self-diagnosis Display

Displays the details of self-diagnosis of the VPR-57 board of the unit.

Note

This display appears when the BKP-9330 is attached only.



No.	Contents
①	Indication whether the mode is the 3-times mode operation or normal operation (× 1/× 3)
②	Operating state of the power supply circuit of the VPR-57 board (OK/NG)
③	Setting state of LSI of the VPR-57 board (OK/NG)

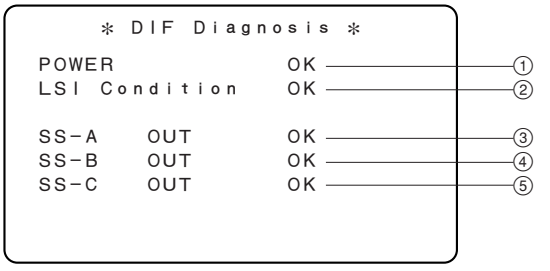
Page 12

DIF-38 Board (BKP-9330) Self-diagnosis Display

Displays the details of self-diagnosis of the DIF-38 board of the unit.

Note

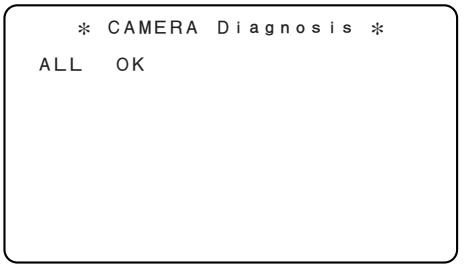
This display appears when the BKP-9330 is attached only.



No.	Contents
①	Operating state of the power supply circuit of the DIF-38 board (OK/NG)
②	Setting state of LSI of the DIF-38 board (OK/NG)
③	PLL state of the SS-A connector output signal (IC403) of the rear panel of the unit (OK/NG) NG : Defects of IC403 and peripheral circuits
④	PLL state of the SS-B connector output signal (IC503) of the rear panel of the unit (OK/NG) NG : Defects of IC503 and peripheral circuits
⑤	PLL state of the SS-C connector output signal (IC603) of the rear panel of the unit (OK/NG) NG : Defects of IC603 and peripheral circuits

Page 13

Camera Self-diagnosis Display

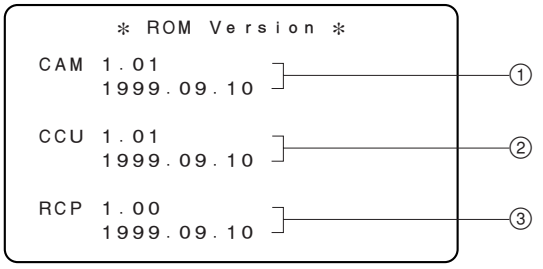


Contents
Displays the self-diagnosis result of the board at the camera side which is sent from the camera by the Diag command.

Page 14

ROM Version Display

Displays the ROM versions of the CCU-900/900P and the peripheral equipment of the unit.



No.	Contents
①	Displays the ROM version of the camera.
②	Displays the ROM versions (IC1007 and IC1008 on the AT-122 board) of the CCU-900/900P.
③	Displays the ROM version of RCP.

Section 2
Replacement of Main Parts

2-1. Replacing the Switching Regulator

WARNING

The components marked ⚠ are critical to safe operation. If you replace with parts other than the specified ones, fire or electric shock may result.

CAUTION

When repairing or replacing the power supply block, set the voltage. If the voltage is set incorrectly, a fire or electric shock may result.

- When repairing or replacing the power supply block, set to the same power supply voltage as that of repair shop work bench.
- When delivering to the user, adjust the power supply voltage to suit the user.

Gently remove or attach the power supply unit while holding it by hand.
Otherwise, the unit may fall, causing an injury.

If the power supply unit is not attached securely, the contact resistance of the unit increases, which may result in damage to parts or a fire. Tighten completely the fixing screws of the power supply unit.
Do not turn on the power before fixing the power supply unit securely.

Replacement Part

Part : Switching regulator
Part No. : ⚠ A-8312-120-B

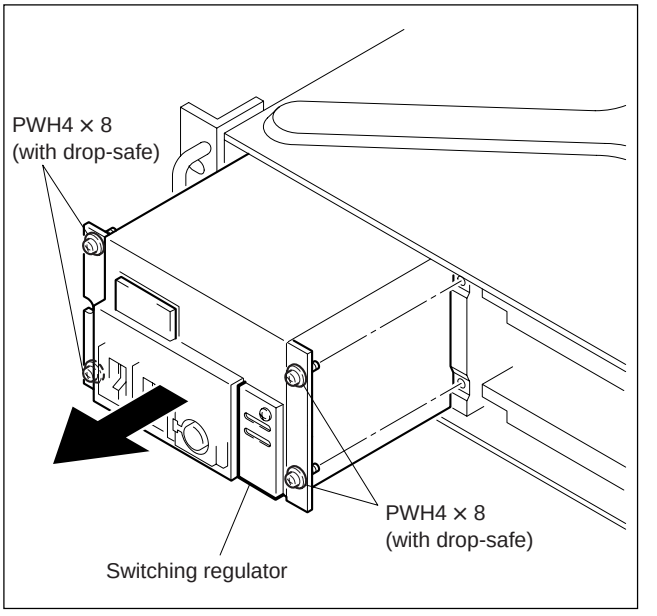
Replacement Procedure

1. Turn off the main power and disconnect the plug from the outlet.

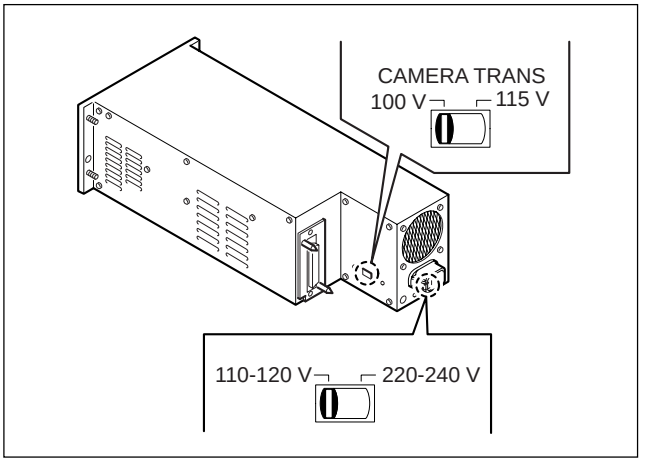
   Note

   Wait for at least three minutes before starting replacement, because there are electrically live blocks inside the machine that could cause electric shock.

2. Remove the front panel. (Refer to Section 1 of the Installation and Maintenance Manual.)
3. Fully loosen the four screws (with drop-safe) and remove the switching regulator in the direction of the arrow.



4. Set the two voltage selectors of the new switching regulator as shown in the following figure.
5. Attach the switching regulator in reverse order of step 3.



Note

When using the unit at a voltage other than the specified voltage, contact your local Sony Sales Office/Service Center.

2-2. Replacing the Fuse

WARNING

The components marked ⚠ are critical to safe operation. If you replace with parts other than the specified ones, fire or electric shock may result.

Replacement Part

MAIN fuse

Part : Fuse (6.3 A, 250 V)
Part No. : ⚠1-576-233-11

CAMERA fuse

Part : Fuse (100 to 120 V, 6.3 A, 250 V)
Part No. : ⚠1-576-233-11
Part : Fuse (220 to 240 V, 4 A, 250 V)
Part No. : ⚠1-576-231-11

Replacement Procedure

1. Turn off the main power and disconnect the plug from the outlet.

   Notes

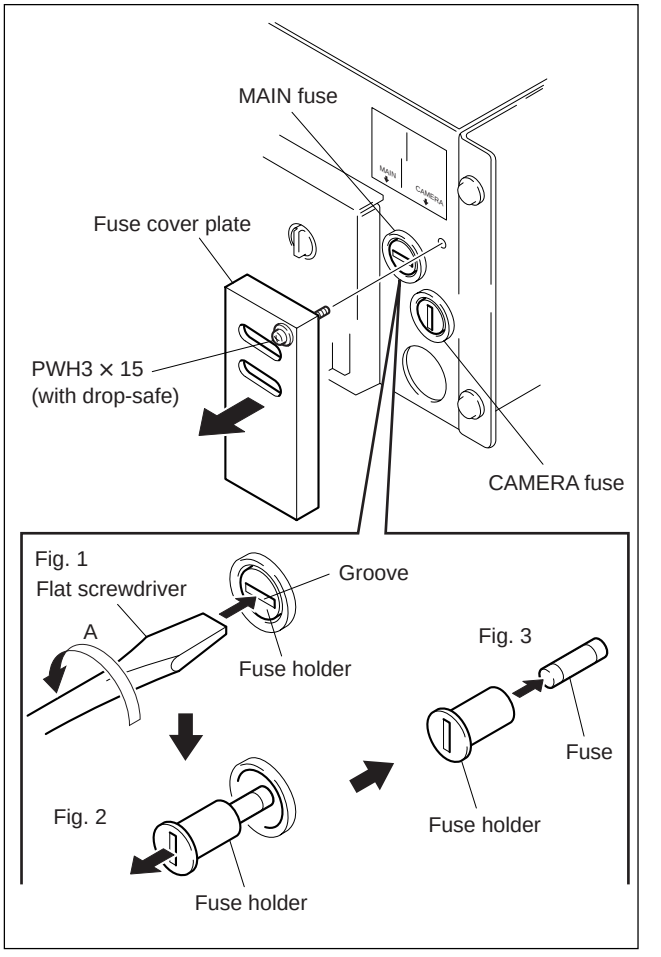
   - Wait for at least three minutes before starting replacement, because there are electrically live blocks inside the machine that could cause electric shock.
   - Remove any foreign objects inside the machine that could cause a short before replacement.

2. Remove the front panel. (Refer to Section 1 of the Installation and Maintenance Manual.)
3. Fully loosen the screw (with drop-safe) and remove the fuse cover plate.

   Note

   The MAIN and CAMERA fuses can be replaced in the same way.

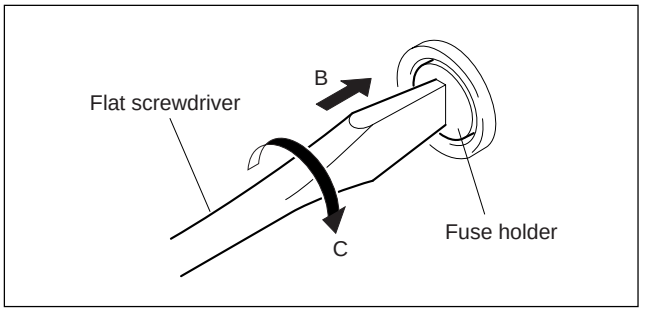
4. Insert a flat screwdriver into the groove of the fuse holder, and rotate it in the direction of arrow A (by about 90°) to unlock. (Fig. 1)
5. Remove the fuse with the entire fuse holder. (Fig. 2)
6. Remove the fuse from the fuse holder. (Fig. 3)



7. Attach a new fuse in reverse order of steps 3 to 6.

   Note

   A spring is already attached in the fuse holder. When attaching a new fuse, rotate the flat screwdriver in the direction of arrow C (by about 90°) while pressing it in the direction of arrow B to lock the fuse holder.

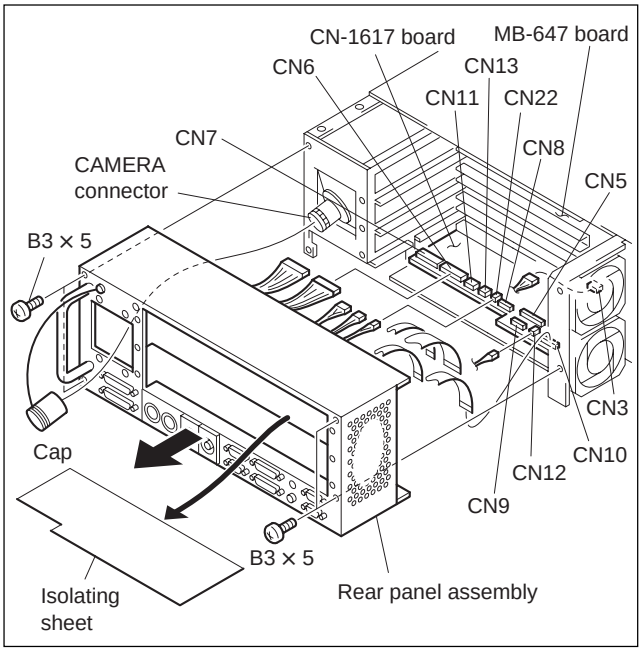


2-3. Removing the Rear Panel

1. Turn off the main power and disconnect the plug from the outlet.
   Notes
   - Wait for at least three minutes before starting replacement, because there are electrically live blocks inside the machine that could cause electric shock.
   - If you bend or pull out the optical fiber cable forcibly, disconnection may result. Handle the cable carefully.

2. Remove the boards and the blank panel from the rear panel. (Refer to Section 1 of the Installation and Maintenance Manual.)
3. Remove the cap from the CAMERA connector.
4. Remove the four screws and slide the rear panel assembly in the direction of the arrow.
5. Remove the isolating sheet.
   Note
   The isolating sheet is not fixed.

6. Disconnect the connectors (CN5, CN6, CN7, CN8, CN9, CN10, CN11, CN12, CN13, CN22) of the CN-1617 board, disconnect the connector (CN3) of the MB-647 board, then remove the rear panel assembly.



7. Reattach the rear panel in reverse order of the disassembling procedure.

2-4. Replacing the DC Fan (Rear Panel)

If the fan is defective, the temperature inside the unit will rise. Touching the inside of the unit in this state may cause a burn.
Replace the parts after turning off the power and cooling the inside.
The fans that are used in the unit of the rear panel are recommended replacement parts.
The lifespan of these fans is about 30,000 hours, which means that the fans can be used for about three and a half years if the power is on all the time, so as a guideline the fans should be replaced every three and a half years.

Note
The rear panel is provided with the two DC fans.

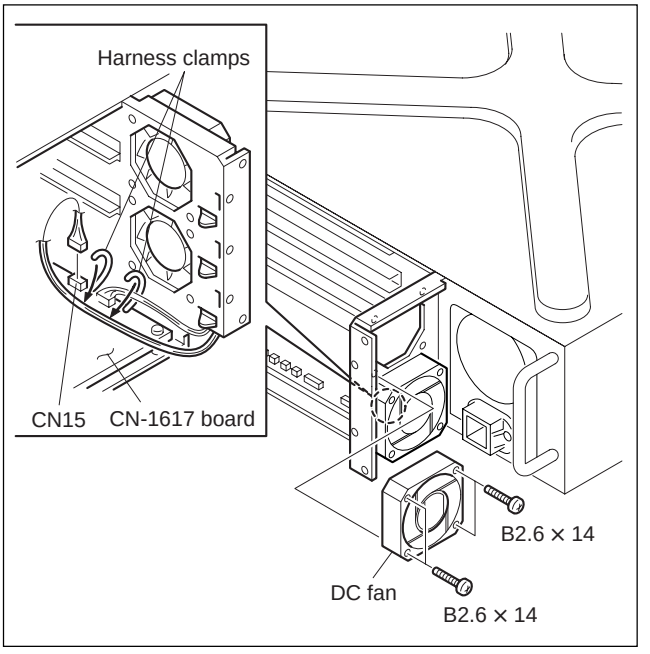
Replacement Procedure

1. Turn off the main power and disconnect the plug from the outlet.
   Note
   Wait for at least three minutes before starting replacement, because there are electrically live blocks inside the machine that could cause electric shock.

2. Remove the rear panel. (Refer to Section 2-3.)
   Note
   Only either the upper or the lower DC fan can be replaced.

Replacing the upper fan

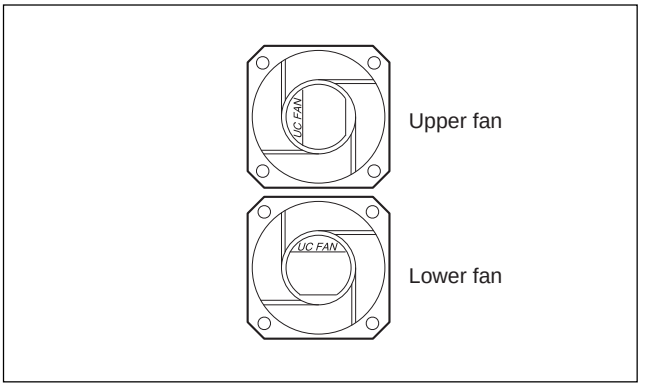
1. Disconnect the harness from the two harness clamps.
2. Disconnect the connector (CN15) from the CN-1617 board.
3. Remove the four screws and remove the DC fan.



4. Attach a new DC fan in reverse order of steps 1 to 3.

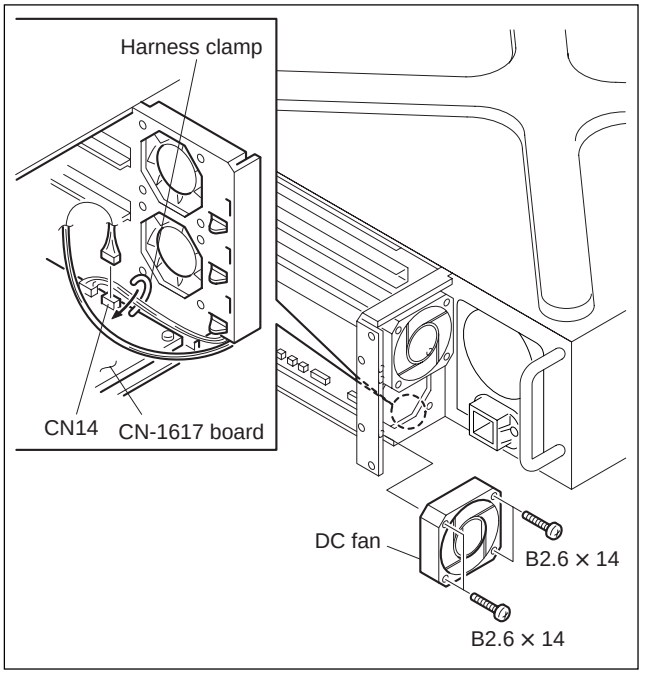
Note

Attach the DC fan in the direction shown below.



Replacing the lower fan

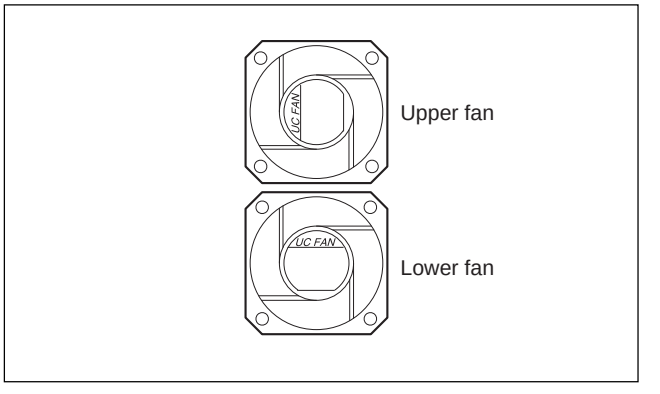
1. Disconnect the harness from the harness clamp.
2. Disconnect the connector (CN14) from the CN-1617 board.
3. Remove the four screws and remove the DC fan.



4. Attach a new DC fan in reverse order of steps 1 to 3.

Note

Attach the DC fan in the direction shown below.



2-5. Replacing the CN-1617 Board

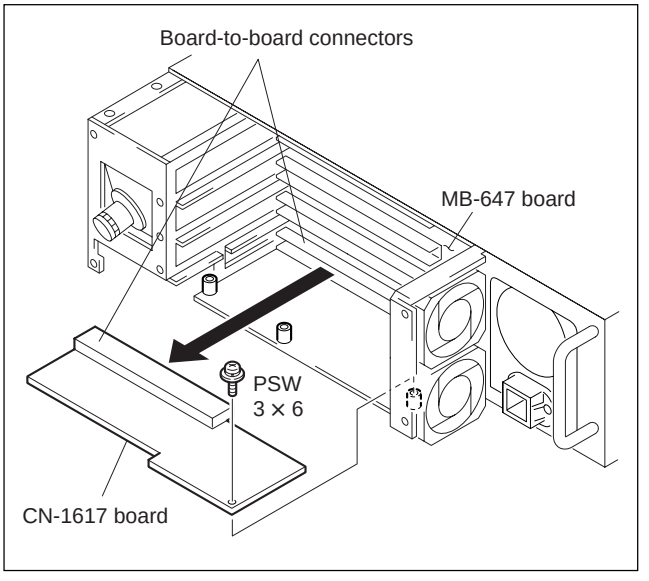
Replacement Procedure

1. Turn off the main power and disconnect the plug from the outlet.

   Note

   Wait for at least three minutes before starting replacement, because there are electrically live blocks inside the machine that could cause electric shock.

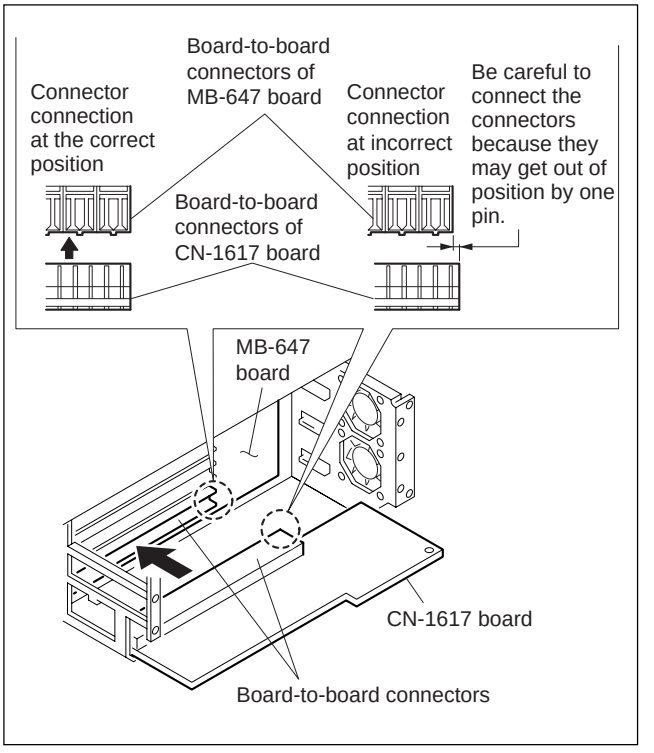
2. Remove the rear panel. (Refer to Section 2-3.)
3. Disconnect the connectors (CN14, CN15) of the DC fan. (Refer to Section 2-4.)
4. Remove the screw and remove the CN-1617 board from the board-to-board connector connected to the MB-647 board.



5. Attach a new CN-1617 board in reverse order of step 4.

   Note

   When connecting the CN-1617 board and MB-647 board, the MB-647 board may get out of position by one pin. Connect the boards securely with great care.



2-6. Replacing the RX-42 Board

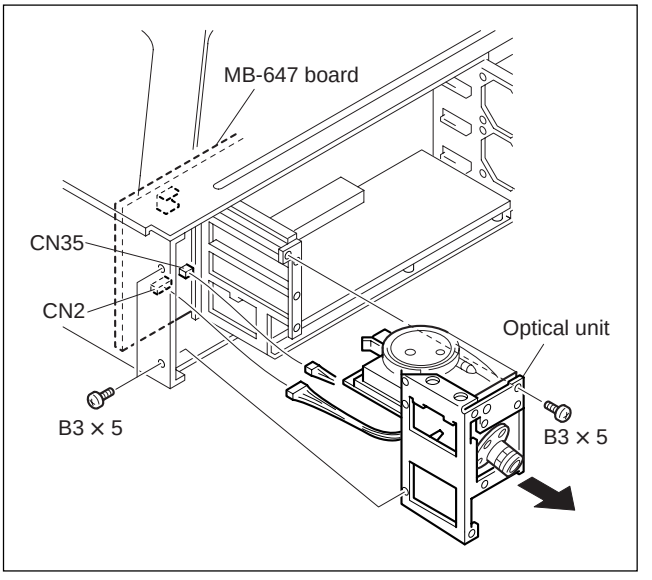
Notes

- The electric parts mounted on the RX-42 board cannot be replaced or adjusted.
  If the electric parts need to be replaced or adjusted, replace the entire unit.
- If you bend or pull out the optical fiber cable forcibly, disconnection may result. Handle the cable carefully.

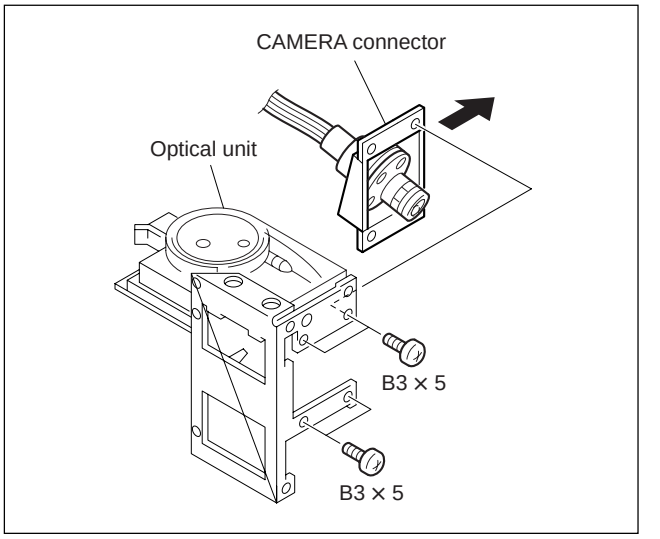
Replacement Procedure

1. Turn off the main power and disconnect the plug from the outlet.
   Note
   Wait for at least three minutes before starting replacement, because there are electrically live blocks inside the machine that could cause electric shock.

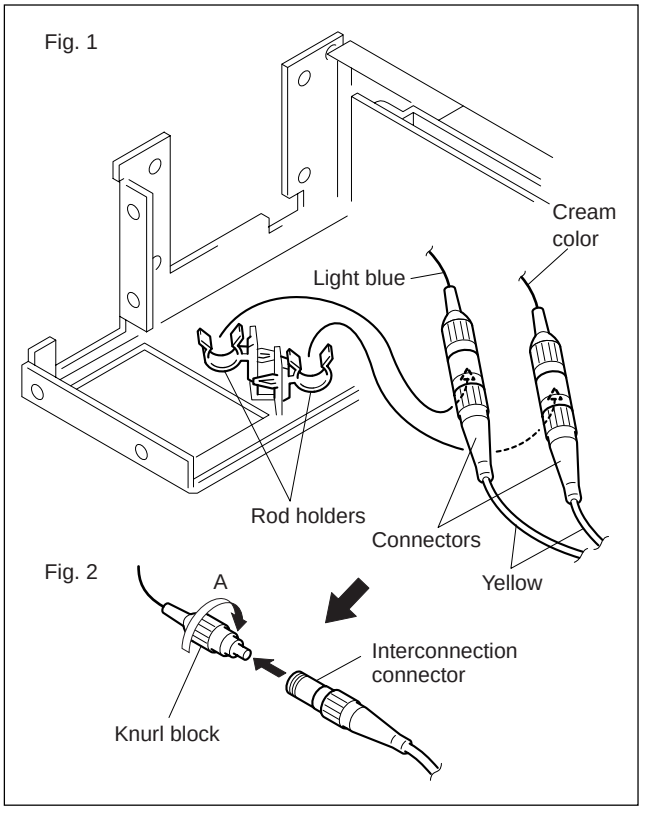
2. Remove the rear panel. (Refer to Section 2-3.)
3. Remove the three screws and slide the optical unit in the direction of the arrow.
4. Disconnect the connectors (CN2, CN35) of the MB-647 board and remove the optical unit.



5. Remove the four screws and remove the CAMERA connector from the optical unit.



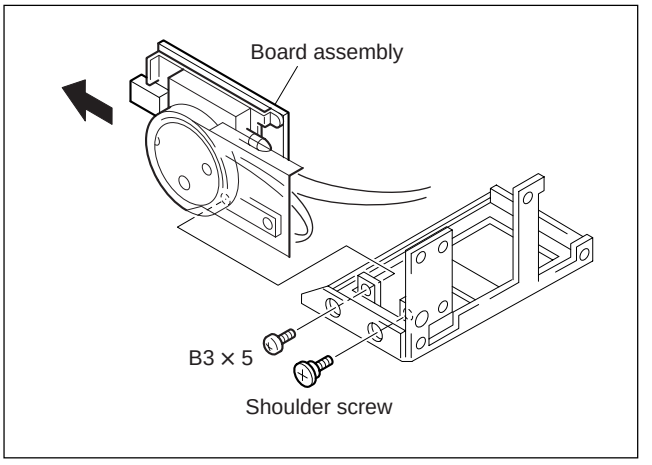
6. Disconnect the two connectors from the rod holder. (Fig. 1)
7. Rotate each knurl block in the direction of arrow A to remove the connector. (Fig. 2)
   Note
   The interconnection connector should be remain connected to the mate connector (yellow). To avoid the signal degration, do not touch an exposed tip of the connector.



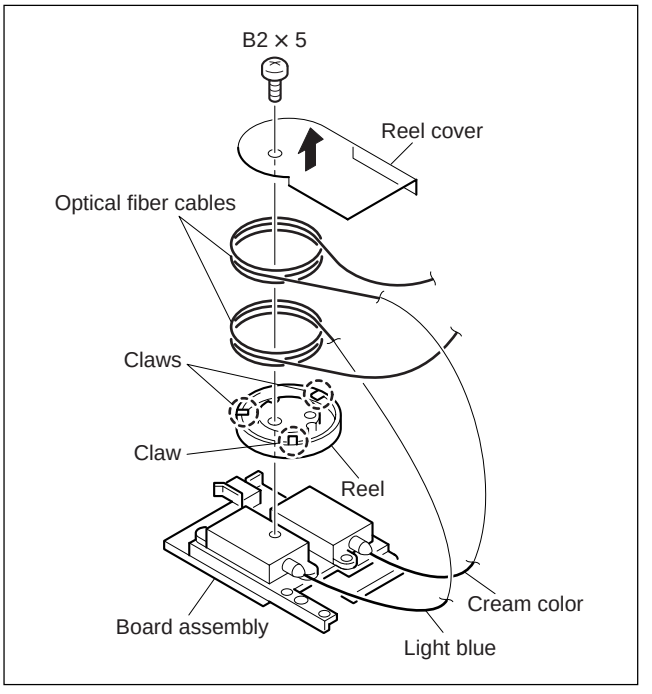
8. Remove the two screws (B3 × 5, shoulder screw) and remove the board assembly in the direction of the arrow.

Note

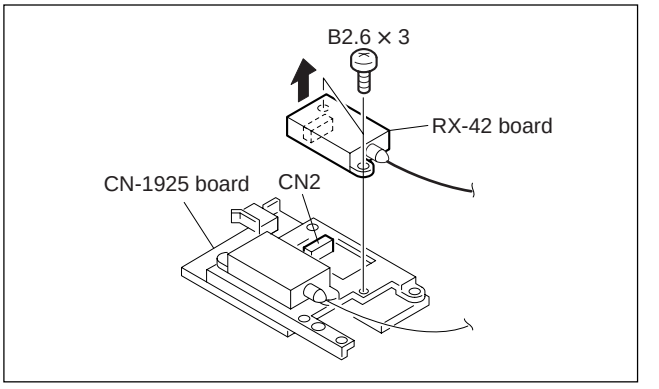
Be careful not to bend the cables (especially light blue and cream color).



9. Remove the reel cover from the three claws of the reel.
10. Remove the optical fiber cable from the reel.
11. Remove the screw and remove the reel from the board assembly.



12. Remove the two screws, disconnect the board-to-board connector (CN2) connected to the CN-1925 board and remove the RX-42 board.

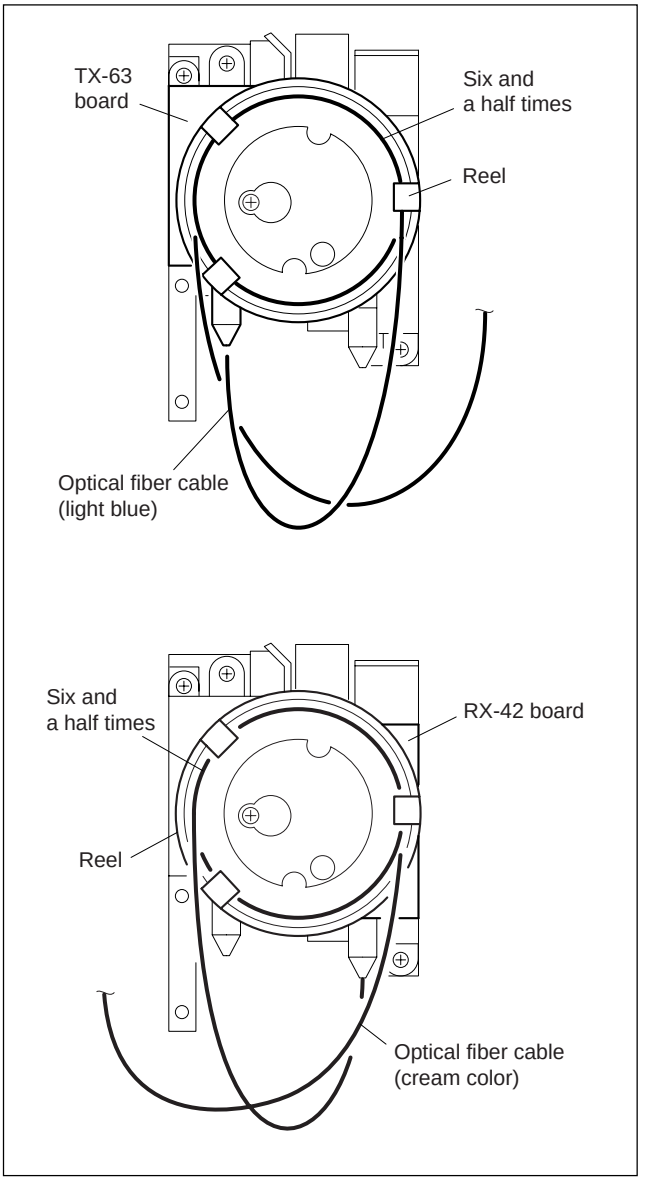


13. Attach a new RX-42 board in reverse order of step 12.

14. Attach the optical unit in reverse order of steps 4 to 11.

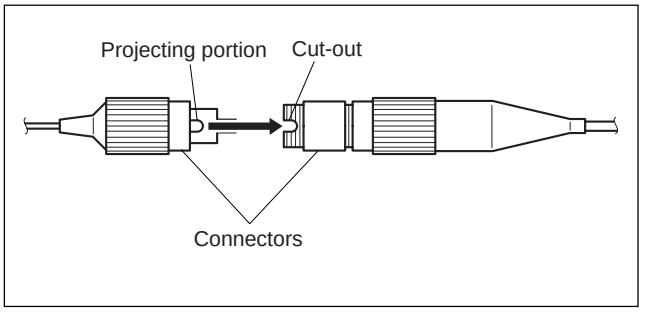
Notes

- Wind the optical fiber cable into the reel six and a half times.
- Wind the optical cable of the TX-63 board and RX-42 board in the direction shown in the figure.



Notes

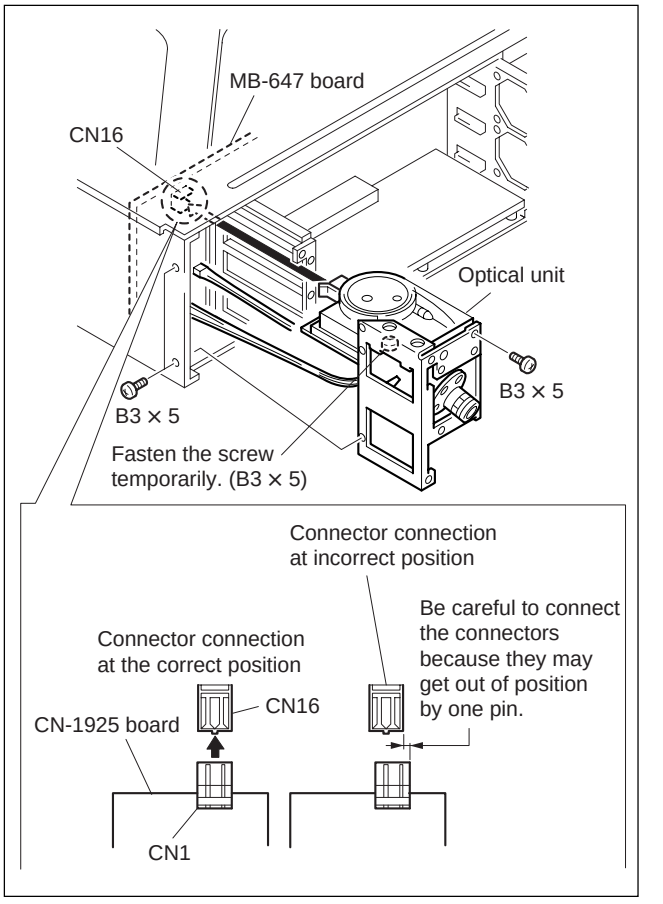
- Before connecting the connector, clean the tip of the connector pin with alcohol.
- When connecting the connector, align the projecting portion with the cut-out.



15. Attach the optical unit to the unit with three screws. First, fasten temporally the screws shown in the figure, then fasten them securely.

Note

When connecting the connector (CN1) of the CN-1925 board and the connector (CN16) of the MB-647 board, the connectors may get out of position by one pin. Connect the boards securely with great care.



16. Attach the rear panel. (Refer to Section 2-3.)

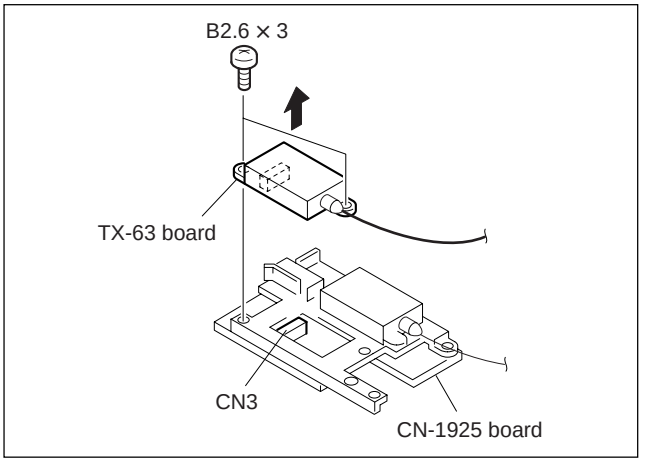
2-7. Replacing the TX-63 Board

Notes

- The electric parts mounted on the TX-63 board cannot be replaced or adjusted.
  If the electric parts need to be replaced or adjusted, replace the entire unit.
- If you bend or pull out the optical fiber cable forcibly, disconnection may result. Handle the cable carefully.

Replacement Procedure

1. Follow steps 1 to 11 of Section 2-6, “Replacing the RX-42 Board”.
2. Remove the two screws, disconnect the board-to-board connector connected to the CN-1925 board and remove the TX-63 board.



3. Attach a new TX-63 board in reverse order of step 2.
4. Follow steps 14 to 16 of Section 2-6, “Replacing the RX-42 Board”, then attach the optical unit.

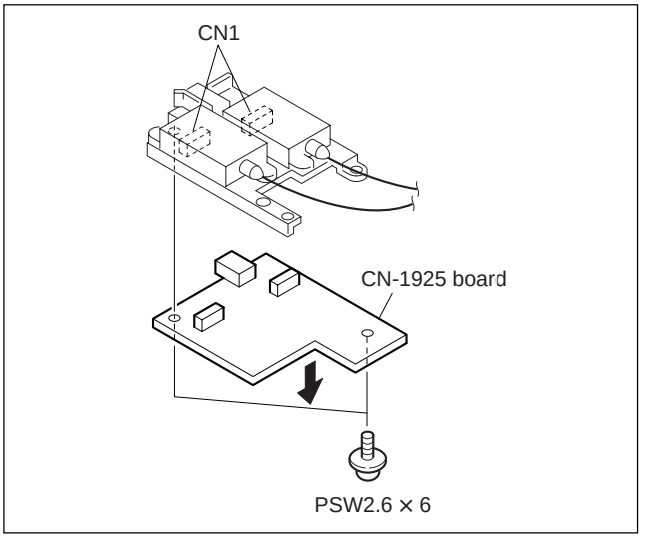
2-8. Replacing the CN-1925 Board

Note

If you bend or pull out the optical fiber cable forcibly, disconnection may result. Handle the cable carefully.

Replacement Procedure

1. Follow steps 1 to 11 of Section 2-6, “Replacing the RX-42 Board”.
2. Remove the two screws, disconnect the two board-to-board connectors (both CN1) connected to the TX-63 board and RX-42 board, then remove the CN-1925 board.



3. Attach a new CN-1925 board in reverse order of step 2.
4. Follow steps 14 to 16 of Section 2-6, “Replacing the RX-42 Board”, then attach the optical unit.

2-9. Replacing the CAMERA Connector

Note

If you bend or pull out the optical fiber cable forcibly, disconnection may result. Handle the cable carefully.

Replacement Procedure

1. Follow steps 1 to 7 of Section 2-6, “Replacing the RX-42 Board”.

   Note

   The interconnection connector should be remain connected to the mate connector (light blue and cream color). To avoid the signal degration, do not touch an exposed tip of the connector.

Fig. 1

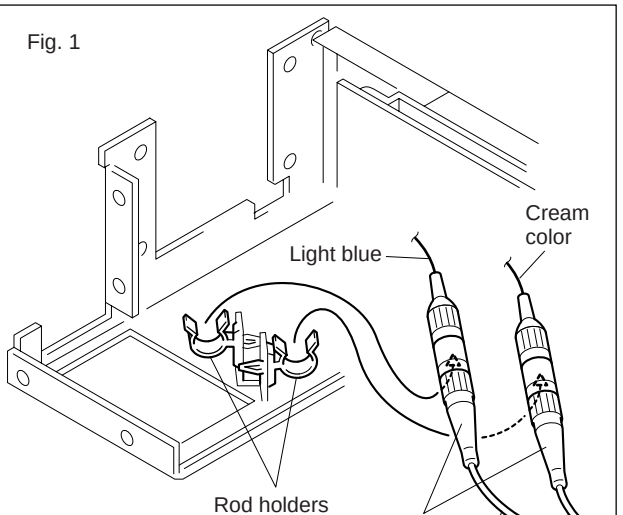
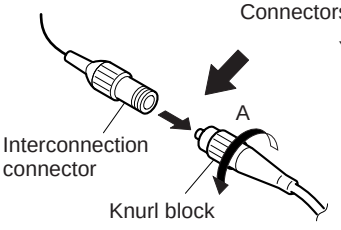


Fig. 2



2. Attach a new CAMERA connector in reverse order of removal.

   Note

   For the notes during assembling, refer to step 14 of Section 2-6 and hgiher.

Section 3
Electrical Alignment

3-1. Preparation

3-1-1. Required Equipment

Tools

- Front side extension board BKP-7900
- Rear side extension board EX-525A
  (Sony P/N : A-8326-353-A)
- Extension board (for CA-950/950P) EX-464
  (Sony P/N : J-6395-040-A)

Measure

- SDI waveform monitor
  Tektronix WFM601i or equivalent
- Waveform/Vector monitor
  Tektronix 1780R or equivalent (for NTSC)
  Tektronix 1781R or equivalent (for PAL)
- Oscilloscope (300 MHz or higher)
  Tektronix 2465 or equivalent
- Video signal generator
  Tektronix TG2000 or equivalent
- Frequency counter
  ADVANTEST TR5821AK or equivalent
- Audio oscillator
- Color monitor
  Sony BVM-1911/2811 or equivalent (for NTSC)
  Sony BVM-2011P/3011P or equivalent (for PAL)

Related equipment

- Remote control unit
  Sony RCP-700 series
- BVP-950/950P Camera System
  BVP-950/950P, CA-950/950P
  OHB-730/750A series, or
  BVP-550/550WSPK/570/570WSPK Camera System
  BVP-550/550WSPK/570/570WSPK, CA-950/950P
  OHB-450/550 series, or
  BVP-9500WS/9500WSP Camera System
  BVP-9500WS/9500WSP
  CA-950/950P
- Master setup unit
  MSU-700A/750

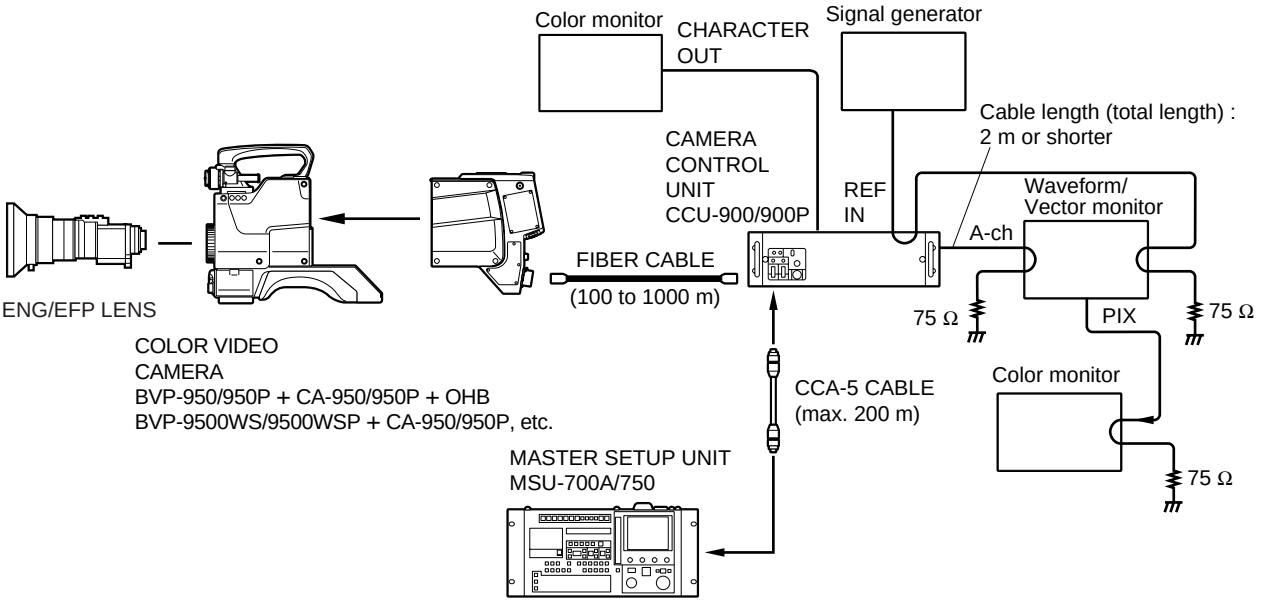
3-1-2. Notes on Adjustments

- The measure should have already been calibrated.
- The adjustments of BVP, OHB, CA, etc. should have already been finished.
- To adjust the unit, extend each plug-in board.
  Before pulling out the boards, be sure to turn off the main power.
- Before starting adjustment, warm up for about 10 minutes.
- To perform adjustment using the menu, be sure to execute EEPROM Store before turning off for board extension or other purpose.
- Before using the BVP-550/570/950/950P or MSU-700A/750, check the ROM version.
  For more details, refer to the Installation and Maintenance Manual.

3-1-3. Connection

Note

Confirm that the camera adjustment is complete.



3-1-4. Initialization Settings

1. Settings of various switches

CCU-900/900P

[DPR-69 board]

S101-8 OFF, S101-6	→	ON (for CCU-900)
S101-8 ON, S101-6	→	OFF (for CCU-900P)

[AT-122 board]

S101 (MIC1 OUT LEVEL 0 dBu/−20 dBu)	→	0 dBu
S102 (MIC2 OUT LEVEL 0 dBu/−20 dBu)	→	0 dBu
S201 (PGM1 IN 0 dBu/−20 dBu)	→	0 dBu
S202 (PGM2 IN 0 dBu/−20 dBu)	→	0 dBu
S701 (INPUT SELECT 1ch/2ch)	→	2ch
S703 (INCOM MIX ON/OFF)	→	ON

When using the MSU-700A :

- Power supply and signal switching block

ALL button	→	OFF (Dark)
CAM PW button	→	ON (Lit)
TEST 1 button	→	OFF (Dark)
TEST 2 button	→	OFF (Dark)
BARS button	→	OFF (Dark)
CLOSE button	→	ON (Lit)

- AUTO SETUP block

LEVEL button	→	OFF (Dark)
WHITE button	→	OFF (Dark)
BLACK button	→	OFF (Dark)

- Others

GAMMA OFF button	→	ON (Dark)
MASTER GAIN switching button	→	0

When using the MSU-750 :

- Power supply and signal switching block

ALL button	→	OFF (Dark)
CAM PW button	→	ON (Lit)
TEST button	→	OFF (Dark)
BARS button	→	OFF (Dark)
CLOSE button	→	ON (Lit)

- AUTO SETUP block

LEVEL button	→	OFF (Dark)
WHITE button	→	OFF (Dark)
BLACK button	→	OFF (Dark)

- Others

GAMMA OFF*	→	ON (Not highlighted)
MASTER GAIN*	→	0 (0 dB)

* : Press the FUNCTION button and select it on the function menu display.

2. Presetting the offset data

- Before adjustment, preset (center value) the offset data output of the microprocessor.
  If you perform the adjustment without presetting the offset data, the specifications will not be satisfied.
- Presetting the offset data
  ① Turn off the main power of the CCU.
  ② S1002-8 (initialization of backup data)/ AT-122 board → ON
  ③ Turn on the main power of the CCU.

Notes

- This presetting is valid when the CCU number is set to 96 or smaller on S1001 of the AT-122 board.
- If you set S1002-8 on the AT-122 board to ON when all of 1 to 8 of S1001 on the AT-122 board are set to ON, the data of the hour meter accumulated in the microprocessor of the AT-122 board will be preset.
- If you set S1002-8 on the AT-122 board to ON when all of 2 to 8 of S1001 on the AT-122 board are set to ON, the BARS character signal set by the user is deleted.
- After all adjustments, set S1002-8 (initialization of backup data) on the AT-122 board to OFF.

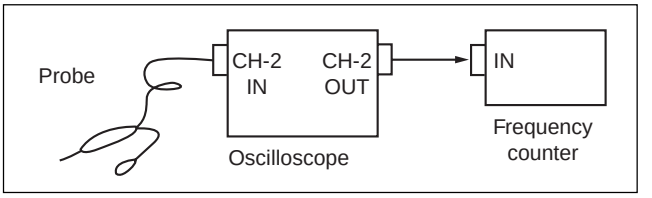
3-2. Video Reference Signal System Adjustment

3-2-1. Free-run Frequency Adjustment

Measure : Frequency counter

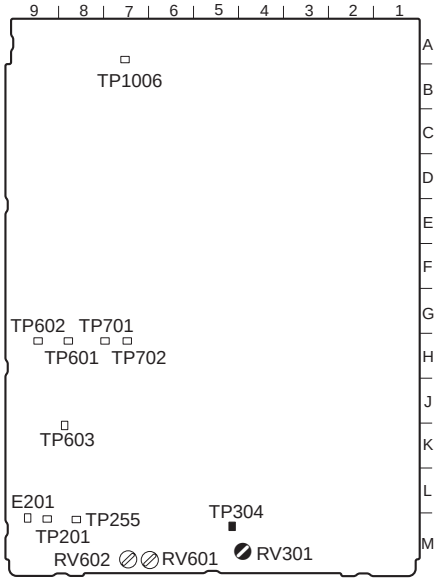
Preparation

- Board extension : DPR-69 board (front side)
- Remove the cable connected to the REFERENCE IN connector of the rear panel.
- Connect the measures as shown in the following figure.
- After turning on the power, wait for 10 minutes at least and start the adjustment.

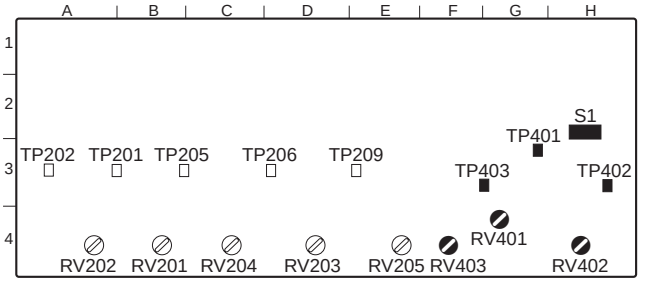


Adjustment Procedure

Measuring point : TP304 (M-5)/DPR-69
Adjusting point : ◓RV301 (M-5)/DPR-69
Specifications : 27,000,000 ±20 Hz



DPR-69 board (A side)



SDI-31 board (A side)

3-2-2. SDI Output VCO Adjustment

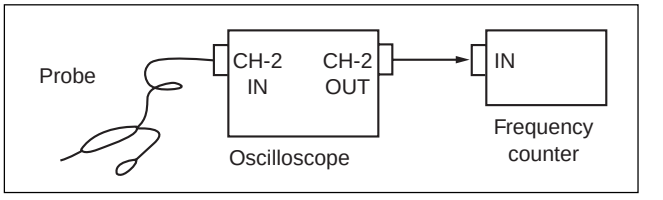
Measure : Frequency counter

Note

After replacing IC406, IC407 or IC409 of the SDI-31 board only, perform this adjustment.

Preparation

- Board extension : SDI-31 board (rear side)
- S1-2 (H-2)/SDI-31 → ON
- Connect the measures as shown in the following figure.
- After turning on the power, wait for 10 minutes at least and start adjustment.



Adjustment Procedure

After replacing the IC406 :
Measuring point : TP401 (G-3)/SDI-31
Adjusting point : ◓RV401 (G-4)/SDI-31
Specifications : 27.0 ±0.2 MHz

After replacing the IC407 :
Measuring point : TP402 (H-3)/SDI-31
Adjusting point : ◓RV402 (H-4)/SDI-31
Specifications : 27.0 ±0.2 MHz

After replacing the IC409 :
Measuring point : TP403 (G-3)/SDI-31
Adjusting point : ◓RV403 (F-4)/SDI-31
Specifications : 27.0 ±0.2 MHz

Note

After finishing the adjustment and waiting for 10 minutes at least, confirm that each specification is satisfied.
If the specifications are not satisfied, perform the adjustment again.

Setting after Adjustment

S1-2 (H-2)/SDI-31 → OFF

3-2-3. SDI Input VCO Adjustment

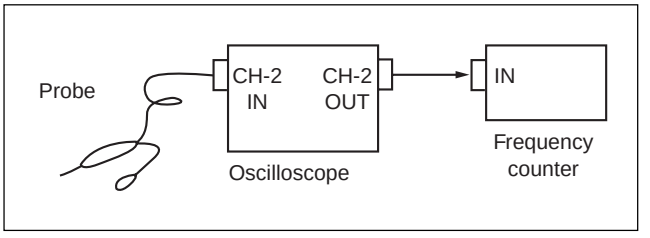
Measure : Frequency counter

Note

After replacing IC201, IC202, IC207, IC208 or IC213 of the SDI-31 board only, perform this adjustment.

Preparation

- Board extension: SDI-31 board (rear side)
- S1-1 (H-2)/SDI-31 → ON
- Connect the measures as shown in the following figure.
- After turning on the power, wait for 10 minutes at least and start adjustment.



Adjustment Procedure

After replacing the IC201 :
Measuring point : TP201 (A-3)/SDI-31
Adjusting point : ⊘RV201 (B-4)/SDI-31
Specifications : 27.0 ±0.2 MHz

After replacing the IC202 :
Measuring point : TP202 (A-3)/SDI-31
Adjusting point : ⊘RV202 (A-4)/SDI-31
Specifications : 27.0 ±0.2 MHz

After replacing the IC207 :
Measuring point : TP206 (D-3)/SDI-31
Adjusting point : ⊘RV203 (D-4)/SDI-31
Specifications : 27.0 ±0.2 MHz

After replacing the IC208 :
Measuring point : TP205 (B-3)/SDI-31
Adjusting point : ⊘RV204 (C-4)/SDI-31
Specifications : 27.0 ±0.2 MHz

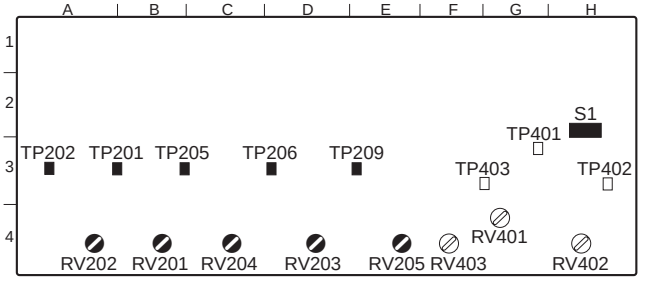
After replacing the IC213 :
Measuring point : TP209 (D-3)/SDI-31
Adjusting point : ⊘RV205 (E-4)/SDI-31
Specifications : 27.0 ±0.2 MHz

Note

After finishing the adjustment and waiting for 10 minutes at least, confirm that each specification is satisfied.
If the specifications are not satisfied, perform the adjustment again.

Setting after Adjustment

S1-1 (H-2)/SDI-31 → OFF



SDI-31 board (A side)

3-2-4. SS Output VCO Adjustment

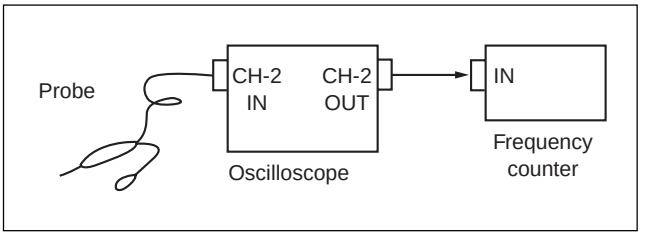
Measure : Frequency counter

Note

After replacing IC403, IC503, IC603 or IC704 of the DIF-38 board only, perform this adjustment.

Preparation

- Board extension : DIF-38 board (rear side)
- S401 (G-2)/DIF-38 → 27M_ADJ
- Connect the measures as shown in the following figure.
- After turning on the power, wait for 10 minutes at least and start adjustment.



Adjustment Procedure

After replacing the IC403 :
Measuring point : TP401 (B-4)/DIF-38
Adjusting point : ⊘RV401 (B-4)/DIF-38
Specifications : 27.0 ±0.2 MHz

After replacing the IC503 :
Measuring point : TP501 (E-4)/DIF-38
Adjusting point : ⊘RV501 (D-4)/DIF-38
Specifications : 27.0 ±0.2 MHz

After replacing the IC603 :
Measuring point : TP601 (G-4)/DIF-38
Adjusting point : ⊘RV601 (F-4)/DIF-38
Specifications : 27.0 ±0.2 MHz

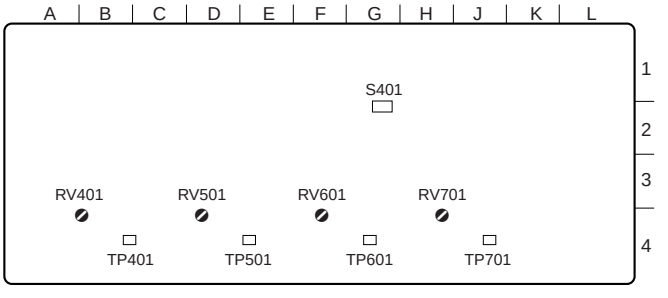
After replacing the IC704 :
Measuring point : TP701 (J-4)DIF-38
Adjusting point : ⊘RV701 (H-4)/DIF-38
Specifications : 27.0 ±0.2 MHz

Note

After finishing the adjustment and waiting for 10 minutes at least, confirm that each specification is satisfied.
If the specifications are not satisfied, perform the adjustment again.

Setting after Adjustment

S401 (G-2)/DIF-38 → NORM



DIF-38 board (A side)

3-2-5. DPR Board Output Level Adjustment

Measure : Oscilloscope

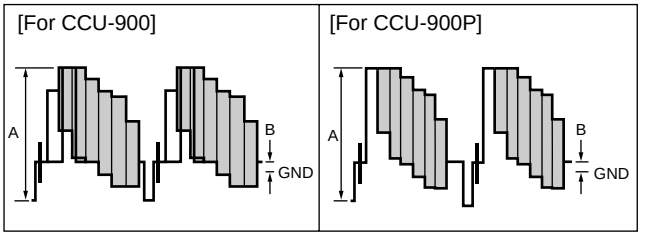
Preparation

- Board extension : DPR-69 board (front side)
- BARS button/MSU → ON
- PIX monitor select switch/MSU → ENC
- WF monitor select switch/MSU → ENC
- Use the setup to make the following settings.
  Menu : WFM OUT
  Item : SYNC → ON

Adjustment Procedure

1. Perform the adjustments on the engineering menu as shown in the following table.

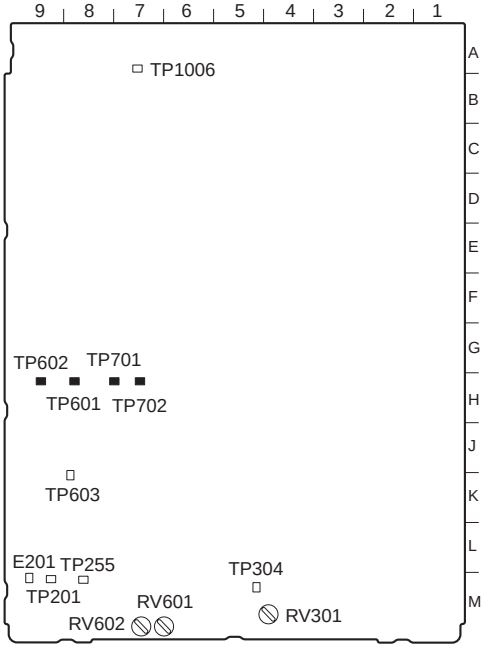
	Measuring point	Menu	Item	Specification
PIX1	TP602 (H-9)/DPR-69	DA1	PIX1 Gain	A = 2000 ±10 mV p-p
			PIX1 DC	B = 0 ±100 mV dc
PIX2	TP701 (H-7)/DPR-69	DA2	PIX2 Gain	A = 2000 ±10 mV p-p
			PIX2 DC	B = 0 ±100 mV dc
WFM1	TP601 (H-8)/DPR-69	DA1	WFM1 Gain	A = 2000 ±10 mV p-p
			WFM1 DC	B = 0 ±100 mV dc
WFM2	TP702 (H-7)/DPR-69	DA2	WFM2 Gain	A = 2000 ±10 mV p-p
			WFM2 DC	B = 0 ±100 mV dc



2. Select EEPROM Store on the engineering menu and save the adjustment value.

Setting after Adjustment

- BARS button/ MSU → OFF
- PIX monitor select switch/MSU → ENC
- WF monitor select switch/MSU → ENC
- Return the settings of the setup menu.



DPR-69 board (A side)

3-2-6. PIX Output Level Adjustment

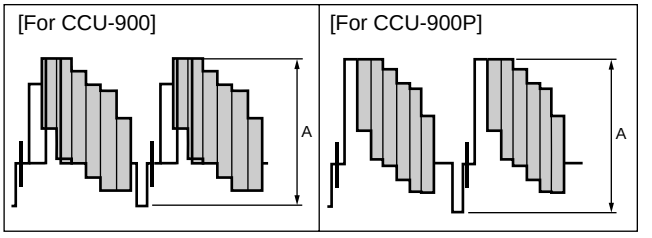
Measures : NTSC/PAL waveform monitor

Preparation

- The DPR board output level adjustment of section 3-2-5 should be completed.
- Board extension : IF-730 board (rear side)
- PIX monitor select switch/MSU → ENC
- BARS button/MSU → ON

Adjustment Procedure

Measuring points : PIX1 connector/rear panel
PIX2 connector/rear panel
Adjusting points : ⊘RV307 (E-4)/IF-730 (PIX1)
⊘RV309 (F-4)/IF-730 (PIX2)
Specifications : A = 140.0 ±0.5 IRE (CCU-900)
(terminated at 75Ω)
A = 1000.0 ±3.5 mV p-p (CCU-900P)
(terminated at 75Ω)



Setting after Adjustment

- PIX monitor select switch/MSU → ENC
- BARS button/MSU → OFF

3-2-7. WF Output Level Adjustment

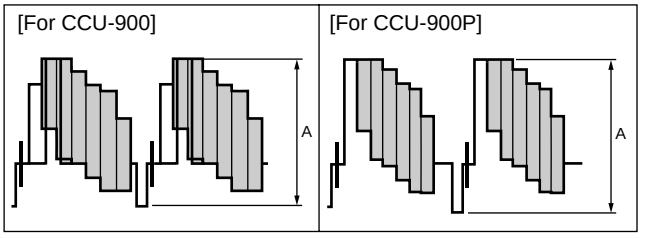
Measures : Oscilloscope, NTSC/PAL waveform monitor

Preparation

- The DPR board output level adjustment of section 3-2-5 should be completed.
- Board extension : IF-730 board (rear side)
- WF monitor select switch/MSU → ENC
- BARS button/MSU → ON
- Use the setup menu to make the following settings.
  Menu : WFM OUT
  Item : SYNC → ON

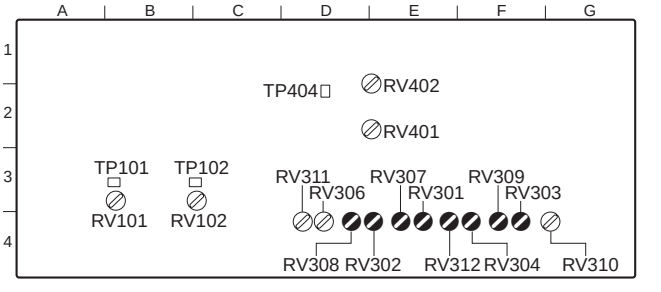
Adjustment Procedure

Measuring points : WF1 connector/rear panel
WF2 connector/rear panel
Adjusting points : ⊘RV308 (D-4)/IF-730 (WF1)
⊘RV312 (E-4)/IF-730 (WF2)
Specifications : A = 140.0 ±0.5 IRE (CCU-900)
(terminated at 75Ω)
A = 1000.0 ±3.5 mV p-p (CCU-900P)
(terminated at 75Ω)



Setting after Adjustment

- WF monitor select switch/MSU → ENC
- BARS button/MSU → OFF
- Return the settings on the setup menu.



IF-730 board (A side)

3-2-8. PIX1/2, WF1/2 Chroma Level Adjustment

Measure : Vector monitor

Preparation

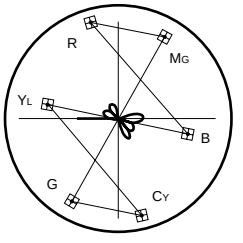
- The DPR board output level adjustment of section 3-2-5 should be completed.
- The PIX output level adjustment of section 3-2-6 should be completed.
- The WF output level adjustment of section 3-2-7 should be completed.
- GAIN switch/vector monitor → 75% CAL
- Board extension : IF-730 board (rear side)
- BARS button/MSU → ON
- Use the setup menu to make the following settings.
  Menu : WFM OUT
  Item : SYNC → ON
- Adjust the PHASE knob of the vector monitor so that 75% of the luminescent spot of the burst is aligned with the axis.

Adjustment Procedure

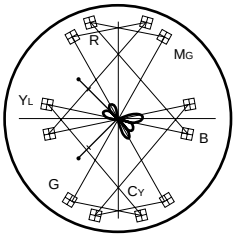
Adjust the adjustment volumes in the following table so that the luminescent spot of each color is located inside the specified value "⊞".

Measuring point	Adjustment point
PIX1 connector/rear panel	⊘RV301 (E-4)/IF-730
PIX2 connector/rear panel	⊘RV303 (F-4)/IF-730
WF1 connector/rear panel	⊘RV302 (D-4)/IF-730
WF2 connector/rear panel	⊘RV304 (E-4)/IF-730

[For CCU-900]



[For CCU-900P]



Setting after Adjustment

- BARS button/MSU → OFF
- Return the settings on the setup menu.

3-2-9. Analog Input Level Adjustment

1. Return video level adjustment

Measure : Oscilloscope

Preparation

- Connect the video signal generator (CCU-900 : EIA color bar/CCU-900P : EBU color bar) to the RET1 connector of the rear panel.
- Board extension : IF-730 board (rear side)
- Use the setup menu to make the following settings.
  Menu : Return
  Item : RET1 → A-RET1

Adjustment Procedure

Measuring point : TP101 (A-3)/IF-730
Adjusting point : ⊘RV101 (A-3)/IF-730
Specifications : A = 2000 ±10 mV p-p

Setting after Adjustment

Return the settings on the setup menu.

2. AUX Video Level Adjustment

Measure : Oscilloscope

Preparation

- Connect the video signal generator (CCU-900 : EIA color bar/CCU-900P : EBU color bar) to the AUX1 connector of the rear panel.
- Board extension : IF-730 board (rear side)
- Use the setup menu to make the following settings.
  Menu : AUX
  Item : AUX MATRIX → ACTIVE
  Item : AUX1 → A-RET1

Adjustment Procedure

Measuring point : TP102 (B-3)/IF-730
Adjusting point : ⊘RV102 (B-3)/IF-730
Specifications : A = 2000 ±10 mV p-p

Setting after Adjustment

Return the settings on the setup menu.

3. PROMPTER Video Level Adjustment

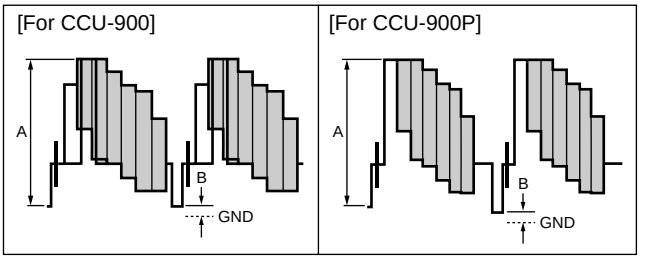
Measure : Oscilloscope

Preparation

- Terminate the loop through terminal at 75 Ω.
- Connect the video signal generator (CCU-900 : EIA color bar/CCU-900P : EBU color bar) to the PROMPTER INPUT connector of the rear panel.
- Board extension : IF-730 board (rear side)
- Use the setup menu to make the following settings.
  Menu : PROMPTER
  Item : PROMPTER → PROMPTER

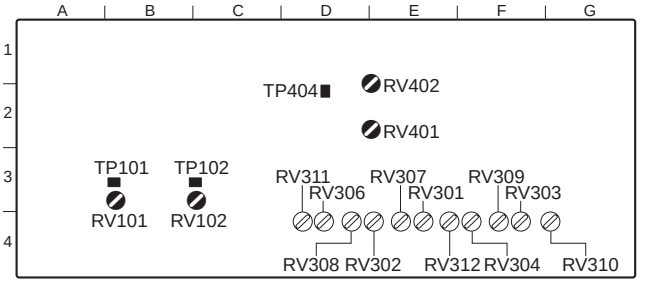
Adjustment Procedure

Measuring point : TP404 (D-2)/IF-730
Adjusting points : ⊘RV401 (D-2)/IF-730
⊘RV402 (D-2)/IF-730
Specifications : A = 1.60 ±0.05 V p-p (⊘RV401)
B = 1.60 ±0.10 V dc (⊘RV402)



Setting after Adjustment

Return the settings on the setup menu.



IF-730 board (A side)

3-2-10. Return Video Output Level Adjustment

Measures : Oscilloscope, NTSC/PAL waveform monitor, vector monitor

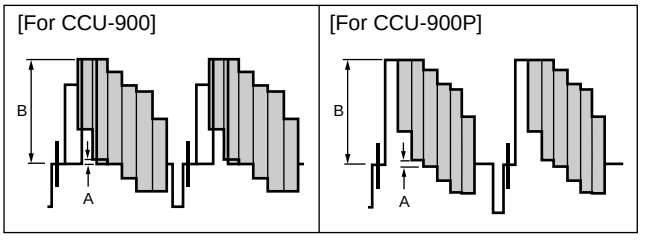
Preparation

- The analog input level adjustment of section 3-2-9 should be completed.
- Connect the video signal generator (CCU-900 : EIA color bar/CCU-900P : EBU color bar) to the RET1 connector of the rear panel.
- CA-950/950P S1-2/IF-633 board → OFF
- Use the setup menu to make the following settings.
  Menu : Return
  Item : RET1 → A-RET1

Adjustment Procedure

1. Setup level adjustment
   Measure : Oscilloscope
   Measuring point : TEST OUT connector/CA-950/950P

   Use the engineering menu to make the following adjustments.
   Menu : DA3
   Item : RET IN-Brightness
   Specifications : A = 0 ±0.5 IRE (CCU-900)
   A = 0 ±3.5 mV p-p (CCU-900P)



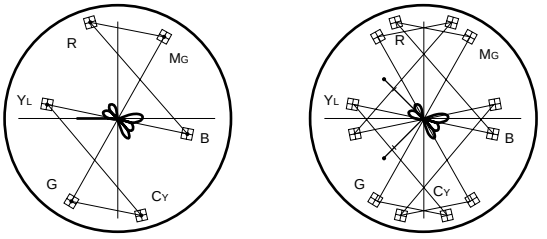
2. Video Level Adjustment
   Measures : Oscilloscope, NTSC/PAL waveform monitor
   Measuring point : TEST OUT connector/CA-950/950P

   Use the engineering menu to make the following adjustments.
   Menu : DA3
   Item : RET IN-Contrast
   Specifications : B = 100.0 ±0.5 IRE (CCU-900)
   (terminated at 75 Ω)
   B = 700.0 ±3.5 mV p-p (CCU-900P)
   (terminated at 75 Ω)

3. Chroma adjustment
   Measure : Vector monitor
   Measuring point : TEST OUT connector/ CA-950/950P

   Use the engineering menu to make the following adjustments.
   Menu : DA3
   Item : RET IN-Saturation
   Specifications : The luminescent spot should be located inside "⊞".

[For CCU-900] [For CCU-900P]



4. Select EEPROM Store on the engineering menu and save the adjustment value.

Setting after Adjustment

- CA-950/950P S1-2/IF-633 board →
  Return to the original setup.
- Return the settings on the setup menu.

3-2-11. AUX Level Adjustment

Measure : SDI waveform monitor

Preparation

- The analog input level adjustment of section 3-2-9 should be completed.
- Connect the video signal generator (CCU-900 : EIA color bar/CCU-900P : EBU color bar) to the RET1 connector of the rear panel.
- Use the setup menu to make the following settings.
  Menu : AUX
  Item : AUX MATRIX → ACTIVE
  AUX1 → A-RET1

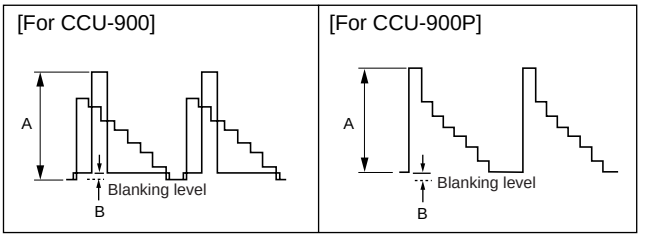
Adjustment Procedure

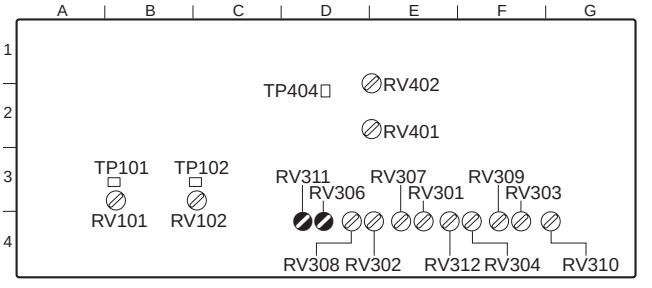
1. Y Level Adjustment
   Measuring point : SDI OUT connector/ CA-950/950P

   Use the engineering menu to make the following adjustment.
   Menu : DA3
   Item : AUX IN-Contrast
   Specifications : A = 700 ±5 mV p-p

2. BLACK Level Adjustment
   Measuring point : SDI OUT connector/ CA-950/950P

   Use the engineering menu to make the following adjustment.
   Menu : DA3
   Item : AUX IN-Brightness
   Specifications : B = 0 ±5 mV dc

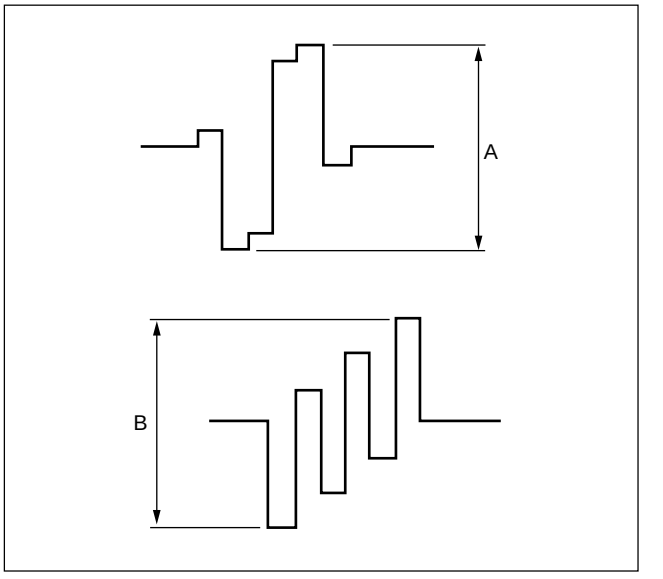




IF-730 board (A side)

3. R-Y OUT Level Adjustment/B-Y OUT Level Adjustment
   Measuring point : SDI OUT connector CA-950/950P

   Use the engineering menu to make the following adjustment.
   Menu : DA3
   Item : AUX IN-Saturation
   Specifications : A = 525 ±5 mV p-p (CCU-900)
   A = 700 ±10 mV p-p (CCU-900P)
   B = 525 ±5 mV p-p (CCU-900)
   B = 700 ±10 mV p-p (CCU-900P)



4. Select EEPROM Store on the engineering menu and save the adjustment value.

Setting after Adjustment

Return the settings on the setup menu.

3-2-12. PROMPTER Output Level Adjustment

Measures : Oscilloscope, NTSC/PAL waveform monitor, vector monitor

Preparation

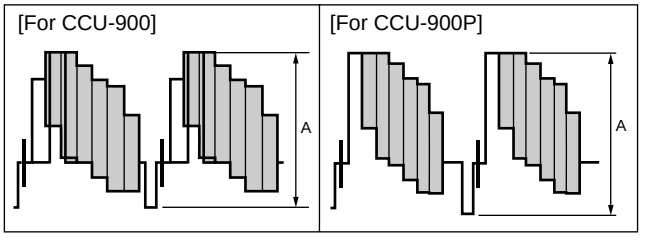
Connect the video signal generator (CCU-900 : EIA color bar/CCU-900P : EBU color bar) to the PROMPTER connector of the CA-950/950P board.

Adjustment Procedure

1. Video level adjustment
   Board extension : IF-730 board (rear side)
   Measure : Oscilloscope
   Measuring point : TP1006 (A-7)/DPR-69

   Use the engineering menu to make the following adjustment.
   Menu : DA2
   Item : PROMPT Gain
   Specifications : A = 2000 ±10 mV p-p

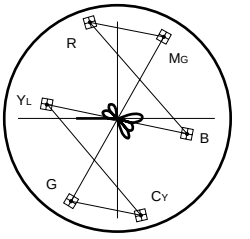
   Select EEPROM Store on the engineering menu and save the adjustment value.



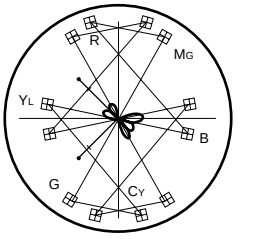
2. PROMPT OUT level adjustment
   Board extension : DPR-69 board (front side)
   Measures : Oscilloscope, NTSC/PAL waveform monitor
   Measuring point : PROMPTER OUTPUT/rear panel
   Adjusting point : ◓RV311 (D-4)/IF-730
   Specifications : A = 140.0 ±0.5 IRE
   (terminated at 75 Ω)

3. Chroma adjustment
   Board extension : DPR-69 board (front side)
   Measures : Vector monitor
   Measuring point : PROMPTER OUTPUT/rear panel
   Adjusting point : ◓RV306 (D-4)/IF-730
   Specifications : The luminescent spot should be located inside "⊞".

[For CCU-900]



[For CCU-900P]



3-2-13. STAIR CASE Adjustment

Measure : Oscilloscope

Note

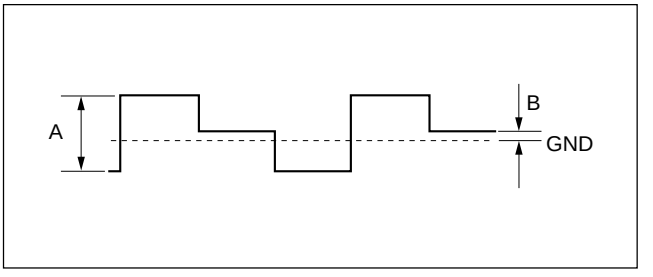
Perform temporarily this adjustment after repairing. When the system is set up, perform the adjustment again according to the characteristic of the waveform monitor. In this case, the WF MODE connector of the CCU rear panel and the remote control connector of the waveform monitor should be connected with the 3-pin cord.

Preparation

- Board extension : DPR-69 board (front side)
- Use the setup menu to make the following settings.
  Menu : WFM OUT
  Item : SEQ 4/3 → 3

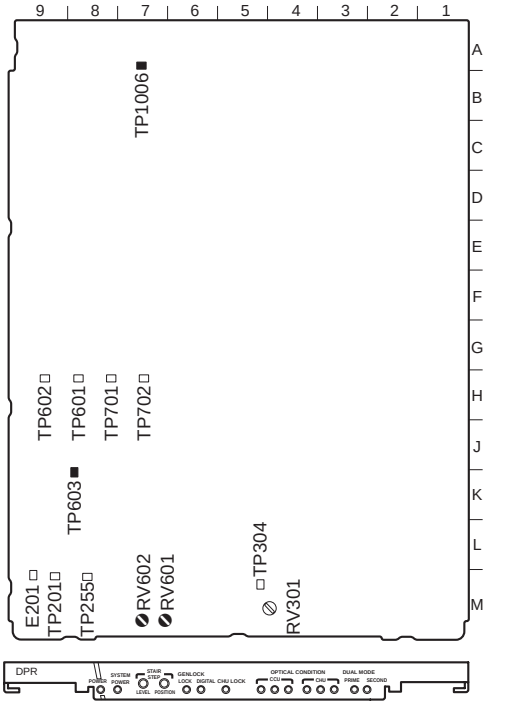
Adjustment Procedure

Measuring point : TP603 (K-8)/DPR-69
Adjusting points : ⊘RV601 (STAIR STEP POSITION)/ DPR-69 board panel side
⊘RV602 (STAIR STEP LEVEL)/ DPR-69 board panel side
Specifications : A = 10.0 ±0.5 V p-p (⊘RV602)
B = 0 ±0.5 V dc (⊘RV601)



Setting after Adjustment

Return the settings on the setup menu.



DPR-69 board (A side)

3-2-14. SYNC Output Level Adjustment

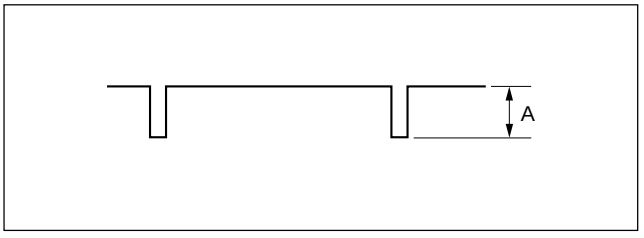
Measure : NTSC/PAL waveform monitor

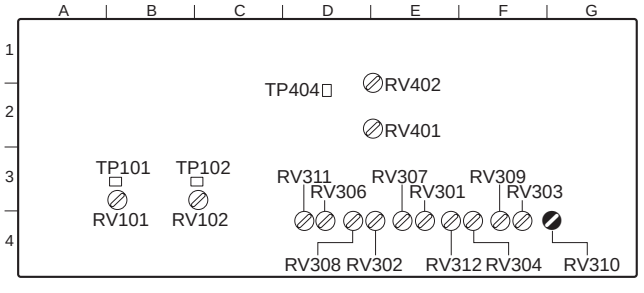
Preparation

Board extension : IF-730 board (rear side)

Adjustment Procedure

Measuring point : SYNC connector/rear panel
Adjusting point : ⊘RV310 (G-4)/IF-730
Specifications : A = 40 ±1 IRE (terminated at 75 Ω) (CCU-900)
A = 300 ±7 mV p-p (terminated at 75 Ω) (CCU-900P)





IF-730 board (A side)

3-2-15. H Phase Adjustment

Measure : Oscilloscope (CHOP mode)

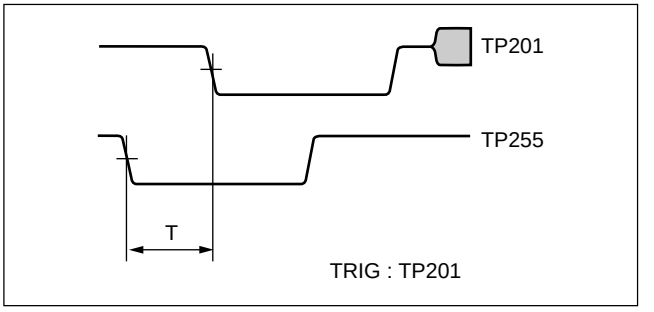
Preparation

- GEN LOCK should be already performed.
- Board extension : DPR-69 board (front side)

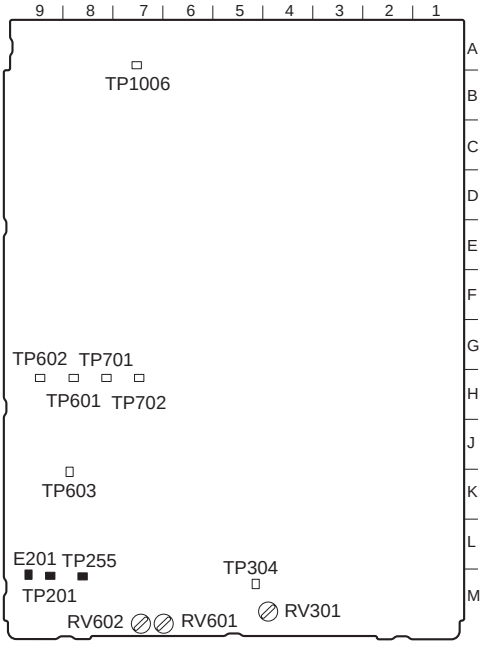
Adjustment Procedure

1. Measuring points : CH-1 TP201/DPR-69 board
   CH-2 TP255/DPR-69 board

   Use the engineering menu to make the following adjustment.
   Menu : Others
   Item : H-Phase
   Specifications : T = 7.7 ±0.1 µs



2. Select EEPROM Store on the engineering menu and save the adjustment value.



DPR-69 board (A side)

3-3. Audio System Adjustment

3-3-1. MIC CH-1 Level Adjustment

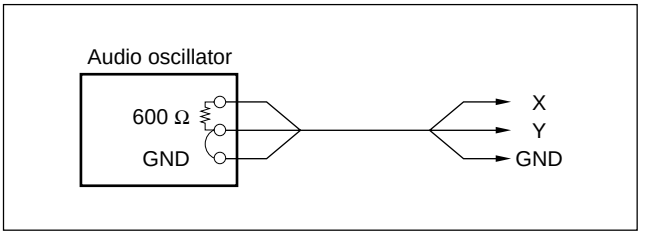
Measures : Oscilloscope, Audio oscillator

Preparation

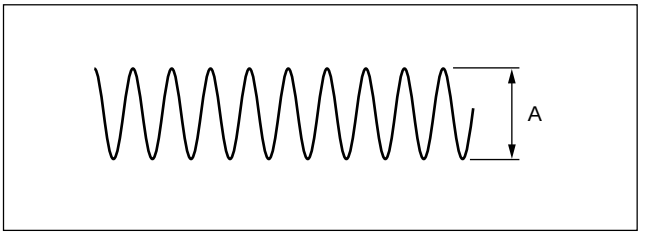
- Board extension : AT-122 board (rear side)
- Board extension : DA-121 (CA-950/950P)
- AUDIO 1 LINE/MIC/CA-950/950P rear panel → MIC
- AUDIO 1 OFF/48 V/CA-950/950P rear panel → OFF
- MIC1 SELECT REAR/FRONT/DA-121 board (CA-950/950P) → REAR
- S1010 (MIC CH-1 LEVEL)/AT-122 board panel side → MIN
- S101 (C-3)/AT-122 → 0 dBu

Adjustment Procedure

1. Input a sine wave of 1 kHz, 220 mV p-p to 77-pin (X), 76-pin (Y) and 78-pin (GND) of the extension board (CA-950/950P side) from the audio oscillator.

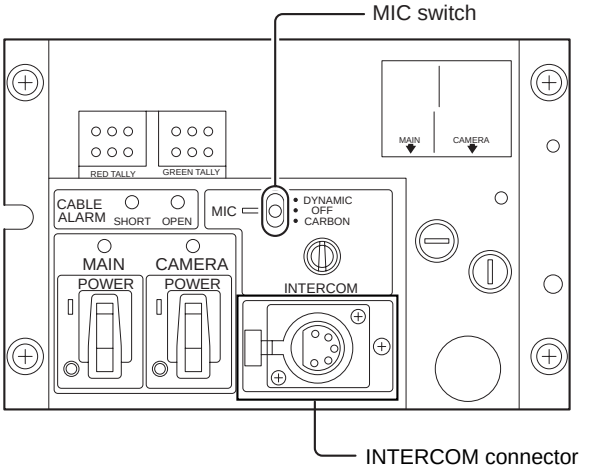


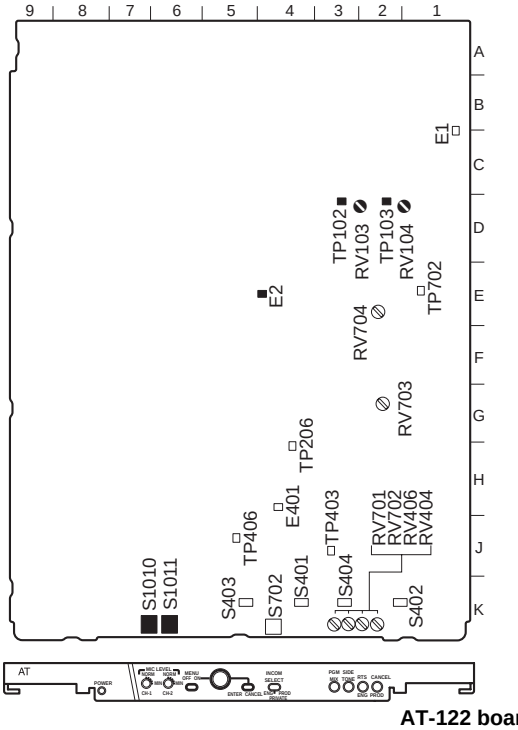
2. Measuring point : TP102 (GND : E2)/AT-122
   Adjusting point : ⊘RV103 (MIC CH-1 LEVEL)/AT-122
   Specifications : A = 1100 ±50 mV p-p



Setting after Adjustment

S101 (C-3)/AT-122 → Return to the original setup.





AT-122 board (A side)

3-3-2. MIC CH-2 Level Adjustment

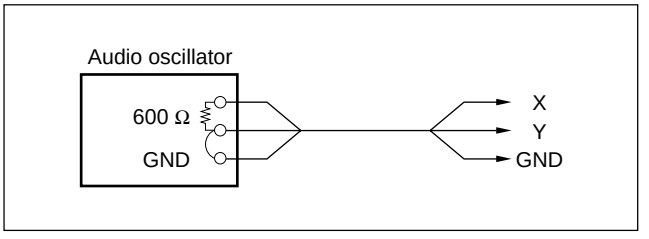
Measures : Oscilloscope, Audio oscillator

Preparation

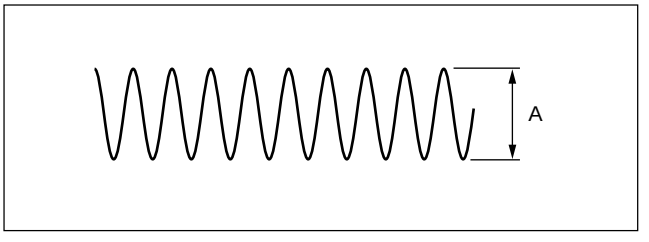
- Board extension : AT-122 board (front side)
- Board extension : DA-121 (CA-950/950P)
- AUDIO 2 IN LINE/MIC/CA-950/950P rear panel → MIC
- AUDIO 2 IN OFF/+48 V/CA-950/950P rear panel → OFF
- S1011 (MIC CH-2 LEVEL)/AT-122 board panel side → MIN
- S102 (C-2)/AT-122 → 0 dBu

Adjustment Procedure

1. Input a sine wave of 1 kHz, 220 mV p-p to 73-pin (X), 72-pin (Y) and 74-pin (GND) of the extension board (CA-950/950P) from the audio oscillator.



2. Measuring point : TP103 (GND : E2)/AT-122
   Adjusting point : ◓RV104 (MIC CH-2 LEVEL)/ AT-122
   Specifications : A = 1100 ±50 mV p-p



Setting after Adjustment

S102 (C-2)/AT-122 → Return to the original setup.

3-3-3. INCOM (T) Level Set

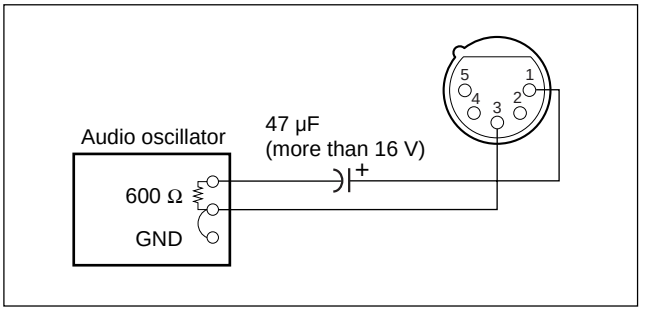
Measures : Oscilloscope, Audio oscillator

Preparation

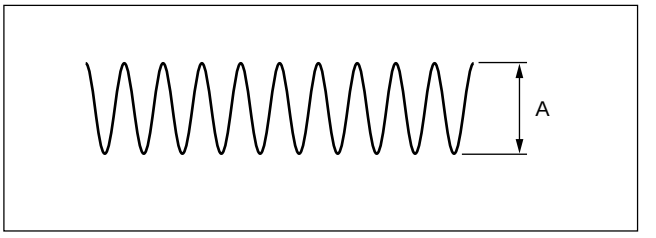
- MIC switch/CCU front panel → CARBON
- Board extension : AT-122 board (front side)

Adjustment Procedure

1. Connect the audio oscillator and the INTERCOM connector of the CCU front panel as shown in the following figure.



2. Input a sine wave of 1 kHz, 220 mV p-p from the audio oscillator.
   Measuring point : TP702 (GND : E2)/AT-122
   Adjusting point : ◓RV704 (FRONT MIC GAIN)/ AT-122
   Specifications : A = 200 ±10 mV p-p



3-3-4. INCOM (R) Level Set

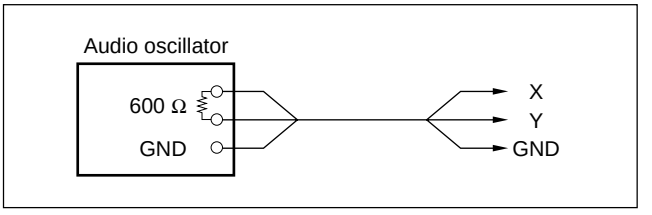
Measures : Oscilloscope, Audio oscillator

Preparation

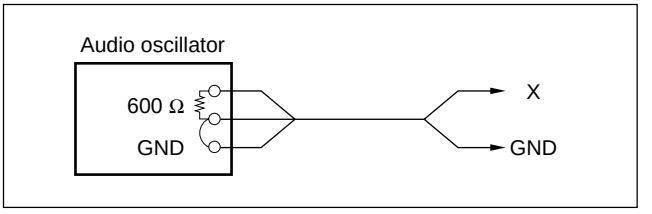
- S702 (INCOM SELECT)/AT-122 board panel side → PROD
- INTERCOM knob/CCU front panel → Fully clockwise ↺
- Board extension : AT-122 board (front side)

Adjustment Procedure

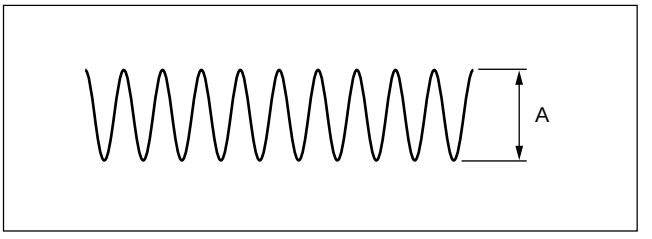
1. (4W intercom)
   Input a sine wave of 1 kHz to A77-pin (X), B77-pin (Y) and C77-pin (GND) of the extension board of the AT-122 board from the audio oscillator.



   (RTS/Clear-Com intercom)
   Input a sine wave of 1 kHz to A76-pin (X) and C76-pin (GND) of the extension board of the AT-122 board from the audio oscillator.



2. Adjust the output level of the audio oscillator so that the sine wave of 200 mV p-p appears on TP406 (GND : E1) of the AT-122 board.
3. Measuring point : D74-pin (GND : D77-pin)/ extension board
   Adjustment point : ⊘RV703 (INCOM FP LEVEL)/ AT-122
   Specifications : A = 2.2 ±0.1 V p-p



3-3-5. SIDE TONE Adjustment

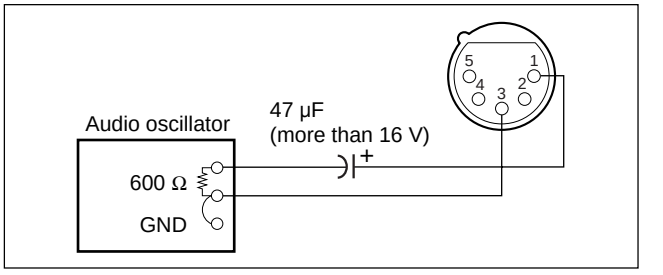
Measures : Oscilloscope, Audio oscillator

Preparation

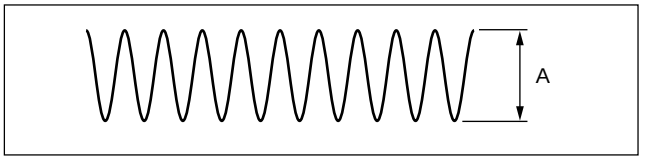
- MIC switch/CCU front panel → CARBON
- Board extension : AT-122 board (front side)

Adjustment Procedure

1. Connect the audio oscillator and the INTERCOM connector of the CCU front panel as shown in the following figure, and input a sine wave of 1 kHz.

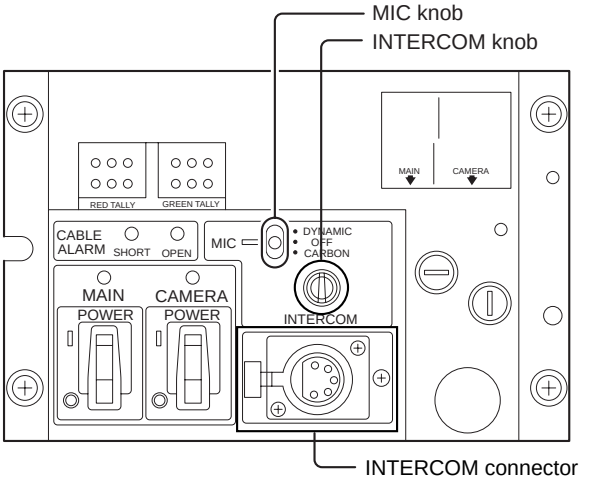


2. Adjust the output level of the audio oscillator so that a sine wave of 1 kHz, 200 mV p-p appears on TP702 (GND : E2) of the AT-122 board.
3. Measuring point : D74 (GND : D77)/extension board
   Adjustment point : ⊘RV702 (SIDE TONE)/ AT-122 board panel side
   Specifications : A = 200 ±10 mV p-p



Note

These specifications are set for service. When using this unit, adjust the level to suit the user.



3-3-6. PGM MIX Adjustment

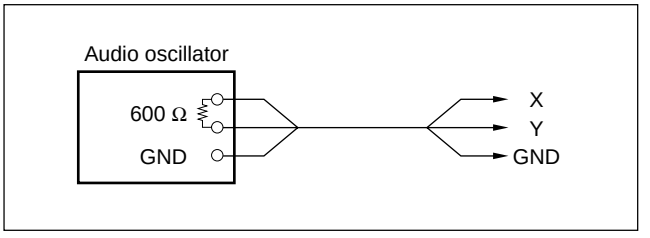
Measures : Oscilloscope, Audio oscillator

Preparation

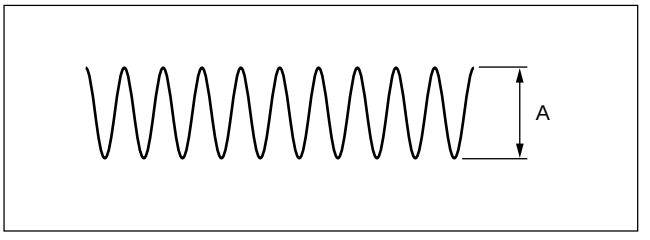
- Board extension : AT-122 board (front side)
- Use the setup menu to make the following adjustment.
  Menu : Others
  Item : FRONT PGM → PGM1
  Item : PGM INPUT → Analog

Adjustment Procedure

1. Input a sine wave of 1 kHz to A73-pin (X), B73-pin (Y) and C73-pin (GND) of the extension board of the AT-122 board from the audio oscillator.



2. Adjust the output level of the audio oscillator so that the sine wave of 200 mV p-p appears on TP206 (GND : E1) of the AT-122 board.
3. Measuring point : D74 (GND : D77)/extension board
   Adjustment point : ⊘RV701 (PGM MIX)/
   AT-122 board panel side
   Specifications : A = 2.2 ±0.2 V p-p

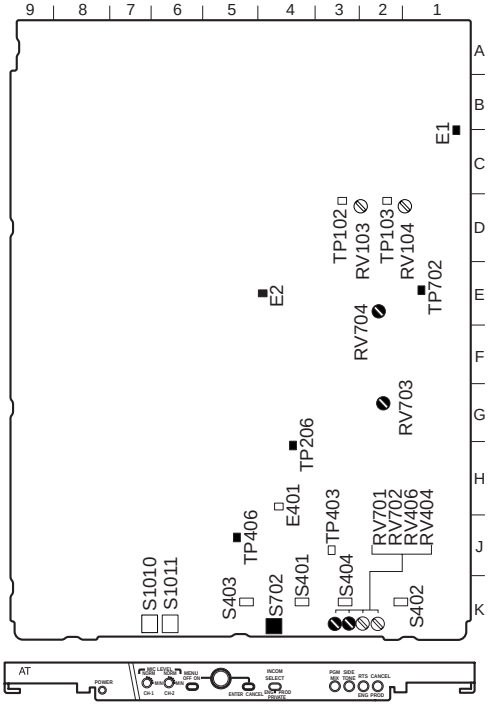


Note

These specifications are set for service. When using this unit, adjust the level to suit the user.

Setting after Adjustment

Return the settings on the setup menu.



AT-122 board (A side)

3-3-7. ENG RTS CANCEL Adjustment

Measures : Oscilloscope, Audio oscillator

Note

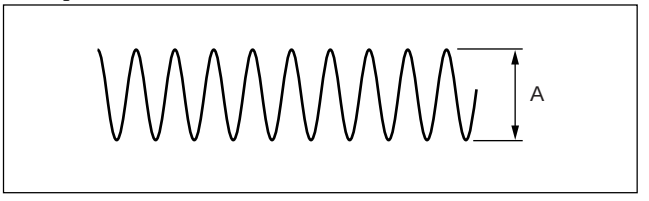
When the intercom system is the RTS system or the Clear-Com system, perform the adjustment as follows.

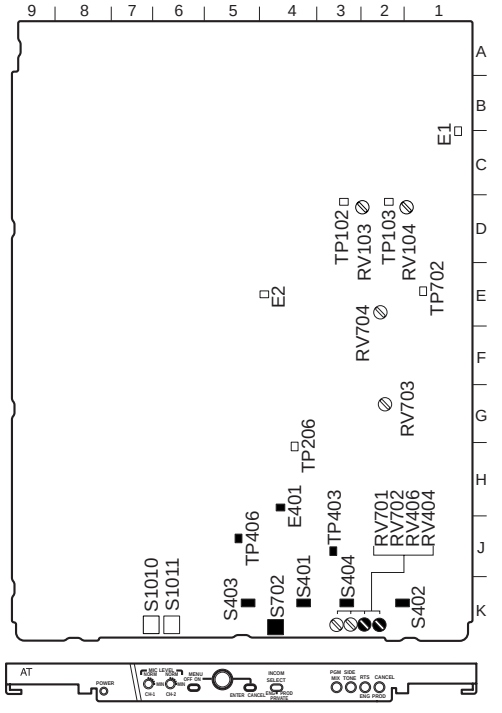
Preparation

- Board extension : AT-122 board (front side)
- MIC switch/CCU front panel → CARBON
- S702 (INCOM SELECT)/AT-122 board panel side → ENG
- S402 (K-1)/AT-122 → RTS
- S404 (K-3)/AT-122 → RTS or CLEAR
- Connect a resistance of 200 Ω between the A74-pin and the C74-pin of the extension board.

Adjustment Procedure

1. Input a sine wave of 1 kHz, 220 mV p-p to the IN-TERCOM connector of the CCU front panel using the audio oscillator.
2. Measuring point : TP403 (GND : E401)/AT-122
   Adjustment point : ⊘RV406 (ENG RTS CANCEL)/ AT-122 board panel side
   Specifications : A = Minimize





AT-122 board (A side)

3-3-8. PROD RTS CANCEL Adjustment

Measures : Oscilloscope, Audio oscillator

Note

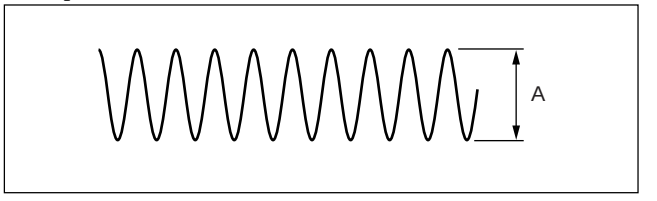
When the intercom system is the RTS system or the Clear-Com system, perform the adjustment as follows.

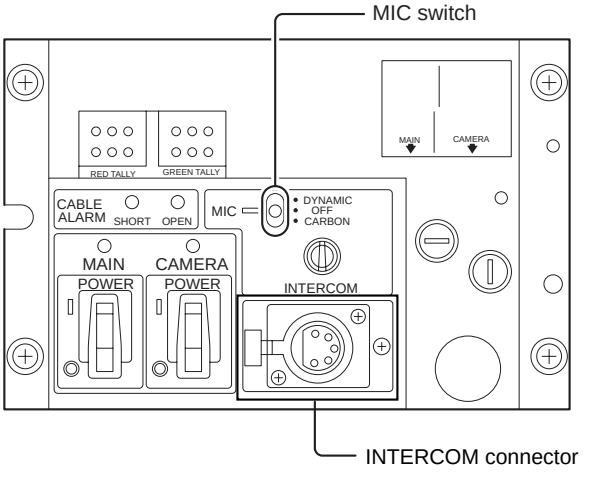
Preparation

- Board extension : AT-122 board (front side)
- MIC switch/CCU front panel → CARBON
- S702 (INCOM SELECT)/AT-122 board panel side → PROD
- S402 (K-4)/AT-122 → RTS
- S403 (K-5)/AT-122 → RTS or CLEAR
- Connect a resistance of 200 Ω between the A76-pin and the C76-pin of the extension board.

Adjustment Procedure

1. Input a sine wave of 1 kHz, 220 mV p-p to the IN-TERCOM connector of the CCU front panel using the audio oscillator.
2. Measuring point : TP406 (GND : E401)/AT-122
   Adjustment point : ⊘RV404 (PROD RTS CANCEL)/ AT-122 board panel side
   Specifications : A = Minimize





CCU-900 (UC)
CCU-900P (CE)
BKP-9330 (SY) E
9-968-569-01

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Printed in Japan
2000. 5 16