

SONY[®]

AD CONVERTER BOARD

BKPF-101A/101CB

DA CONVERTER BOARD

BKPF-102CB

INSTALLATION MANUAL

1st Edition

Serial No. 10001 and Higher (BKPF-101A)

Serial No. 10001 and Higher (BKPF-101CB)

Serial No. 10001 and Higher (BKPF-102CB)

⚠ 警告

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

危険をさけるため、サービストレーニングを受けた技術者のみご使用ください。

⚠ WARNING

This manual is intended for qualified service personnel only.

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

⚠ WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.

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

⚠ AVERTISSEMENT

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

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Manual Structure

Purpose of this manual

This manual is the installation manual of the following models.

This manual is intended for use by trained system and service engineers, and describes the information for installing.

- AD Converter Board BKPF-101A
 BKPF-101CB
- DA Converter Board BKPF-102CB

Contents

This manual is organized by following sections.

Section 1 Installation

1-1. Installing the Board

This section explains the board installation into the digital video interface unit PFV-D20/D50/D100A/D200A/D300, with taking PFV-D300 as an example.

1-2. Information on BKPF-101A

1-3. Information on BKPF-101CB

1-4. Information on BKPF-102CB

These sections product configuration, location and function of connectors and switches/LEDs, and ISR (Interactive Status Reporting).

Section 2 Electrical Alignment

This section explains the adjustment when installing.

Related manuals

The following manuals are prepared for this unit.

- **Operation Manual (Supplied with BKPF-101A/101CB/102CB)**

This manual describes the notes on operating, and the locations and functions of parts and controls of BKPF-101A/101CB/102CB.

- **BKPF-101A Maintenance Manual (Optional manual)**
- **BKPF-101CB Maintenance Manual (Optional manual)**
- **BKPF-102CB Maintenance Manual (Optional manual)**

These manuals describe the information for periodic maintenance and detailed service.

For obtaining the maintenance manual, please contact to your local Sony's sales/service office.

Section 1 Installation

1-1. Installing the Board

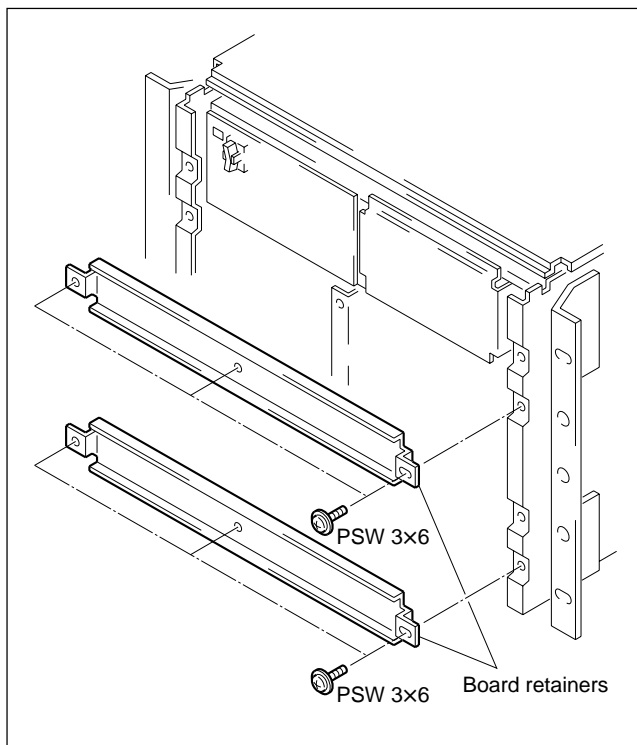
This section describes how to install the board into the PFV-D300. If the board is installed into other PFV, refer to the manual packing with the PFV. The board can be installed in any empty slot of the PFV-D300.

Note

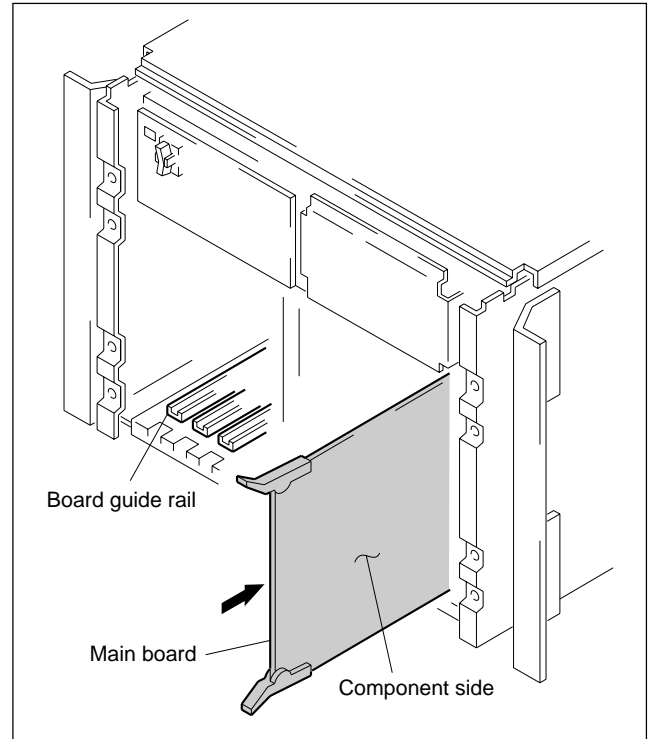
Turn off the power of the PFV-XXX and unplug the power plug from the outlet before installing or removing the board.

Main board installation

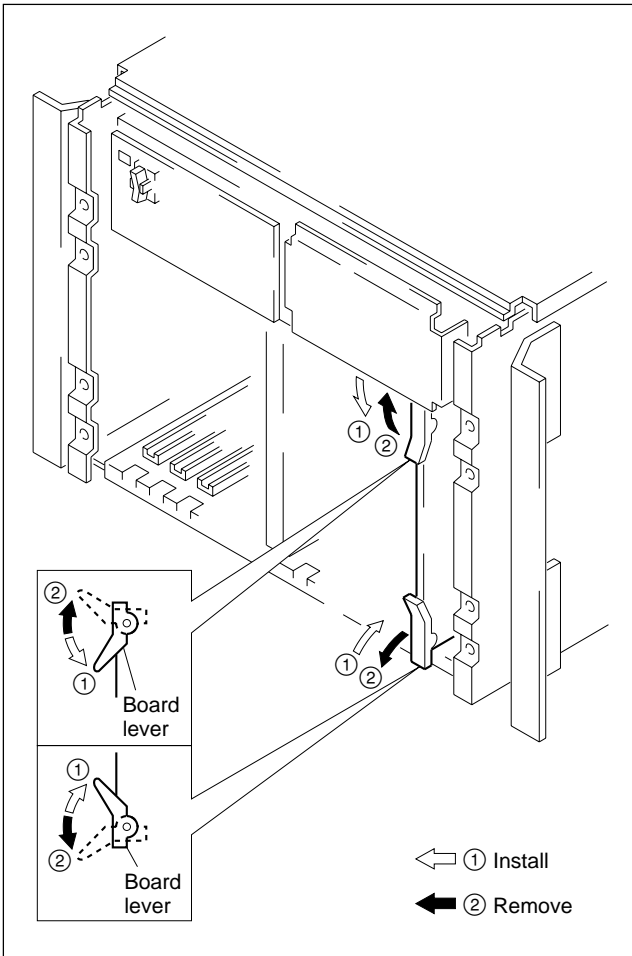
1. Loosen the four screws (with stoppers) and remove the front panel.
2. Remove the six screws and remove the board retainers.



3. Insert the main board along the board guide rails.



- Turn the board levers in the direction of the arrows ① after inserting the main board to the end of the slot by hand.



- Stick the slot label supplied with the optional board onto the board lever.
- Install the board retainers.
- Install the front panel.

Notes

When removing the main board, turn the board levers in the direction of the arrows ②, and pull out the board toward you.

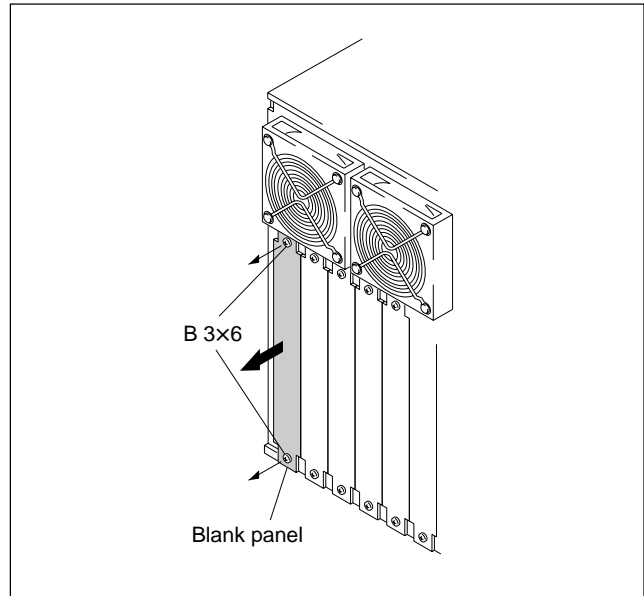
Connector Panel Installation

Insert the connector panel to the slot in which the main board has been installed.

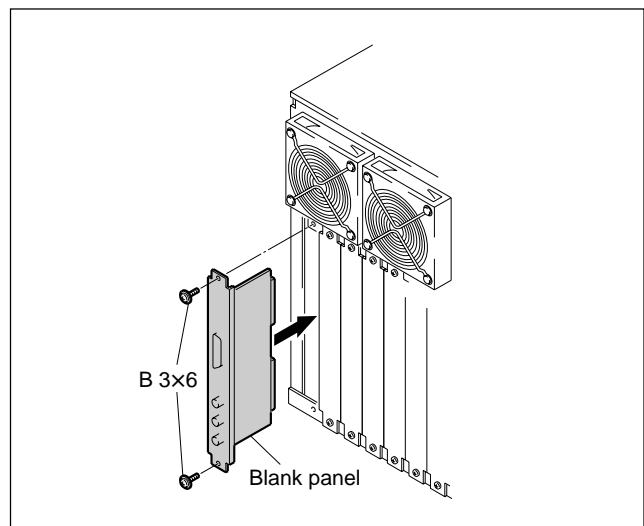
- Remove the two screws at the slot which the main board has been installed and remove the blank panel.

Note

Keep the removed blank panel.



- Insert the connector panel.
- Secure the connector panel with the two screws securing the blank panel.



Note

Do not open the slot for air-cooled effect of the PFV-D300. Install the blank panel to an empty slot.

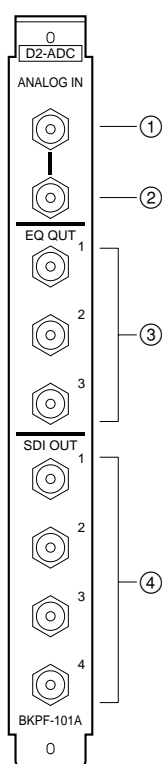
1-2. Information on BKPF-101A

1-2-1. Supplied Accessories

The BKPF-101A has the following supplied accessories.

- AD-147 Board (1)
- Connector Panel (CN-1448 board) (1)
- Operation Manual (1)
- Installation Manual (1)
- Slot Label (1)

1-2-2. Location and Function of the Connectors



- ① ANALOG IN connector (BNC type)
Used to input an analog composite video signal.
- ② Loop-through output connector (BNC type)
Used to output the video signal supplied to the ANALOG IN connector, just as it is. When this connector is not used, attach a 75-ohm terminal connector.
- ③ EQ OUT (equalizer output) connectors (BNC type)
Used to output the signals supplied to the ANALOG IN connector after the cable-length compensation. The same signals are output from the EQ OUT 1 through 3 connectors.
- ④ SDI OUT connectors (BNC type)
Used to output the 4fsc composite serial digital video signals which have been converted from the analog video signal supplied to the ANALOG IN connector. The same signals are output from the SDI OUT 1 through 4 connectors.

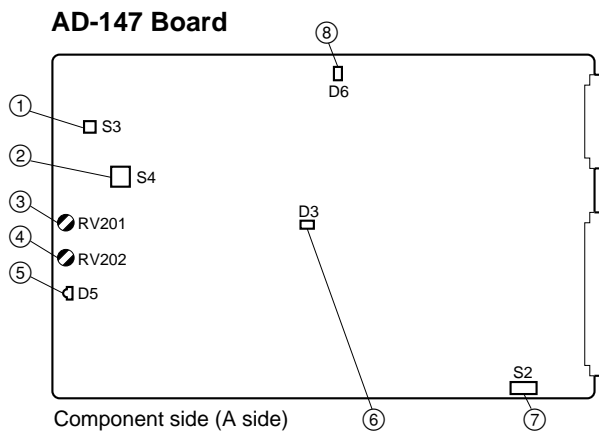
1-2-3. Connecting Connector and Cable

If any cable is connected to the connectors on the connector panel when installing or servicing, use the connector or cable listed below or equivalent.

BKPF-101A Connector Panel		Matching Connector/Cable	
Panel Indication	Connector	Connector	Sony Part No.
ANALOG IN	BNC (75 Ω)	BNC (75 Ω)	1-569-370-12
EQ OUT 1-3		5C-2V cable*	—
SDI OUT 1-4			

* ; It is recommended to use the coaxial cable 5C-2V (Max. 200 m) of Fujikura America Inc./Fujikura Europe Ltd. (FEL) or equivalent.

1-2-4. Location and Function of Switches/LEDs



Note

The address of the switches or indicators on the board is shown inside the parentheses followed by the reference No.

① S3 (B-3) : SYSTEM RESET switch

Used to reset the AD-147 board.

Note

Do not push this switch under normal operation.

② S4 (B-3) : V-BLANKING AREA Selection switch

Used to select the blanking area of the video signal.

S4 Setting	Vertical Blanking Area	S4 Setting	Vertical Blanking Area
0	10 H (Factory setting)	8	10 to 18 H
1	10 to 11 H	9	10 to 19 H
2	10 to 12 H	A	10 to 20 H
3	10 to 13 H	B	10 to 21 H
4	10 to 14 H	C	10 to 22 H
5	10 to 15 H	D	10 to 23 H
6	10 to 16 H	E	10 to 24 H
7	10 to 17 H	F	10 to 25 H

③ RV201 (A-4) : EQ Adjustment

Used to correct the frequency characteristics deterioration of the video signal input to the ANALOG IN connector with a long cable (more than 10 m). For the details, refer to "2-1-6. EQ OUT Frequency Response Adjustment".

④ RV202 (A-5) : LEVEL Adjustment

Used to correct the level deterioration of the video signal input to the ANALOG IN connector with a long cable (more than 10 m). For the details, refer to "2-1-5. EQ OUT Level Adjustment".

⑤ D5 (A-6) : INPUT VIDEO indicator

When an NTSC analog composite video signal is input to the ANALOG IN connector, it lights in green. When no signal is input, it lights in red.

⑥ D3 (F-4) : SCH indicator

When the SCH phase of the video signal input to the ANALOG IN connector is in correct phase, it lights in green.

⑦ S2 (L-8) : Parallel/Serial Convert Free-running Adjustment

In a free-running frequency adjustment, set this switch to ON.

ON : In the free-running frequency adjustment

OFF : In normal operation (Factory setting)

⑧ D6 (G-1) : DIAG indicator

In the following cases, it lights in red.

- When no signal is input to the ANALOG IN connector
- When the free-running frequency switch S2 is set to ON

1-2-5. ISR (Interactive Status Reporting)

When this board is installed in combination with the BKPF-500 ISR Interface Board in a digital video interface unit, such as the PFV-D20/D50/D100A/D200A/D300, the following messages are sent to the ISR system, permitting the operating status of the BKPF-101A to be monitored.

Refer to the operation and maintenance manual of BKPF-500 for details.

Status message

Message	Description
NO INPUT	Indicates that no signal is input to the ANALOG IN connector or no input signal is detected
NO OUTPUT	Indicates that the free-running adjustment switch for the parallel-serial conversion (S2) is set to ON, or the same condition as the "NO INPUT" message appears
PROCESS ERROR	Indicates that the communication between the main CPU and each IC is impossible on the AD-147 board

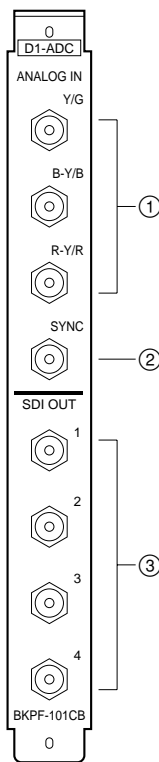
1-3. Information on BKPF-101CB

1-3-1. Supplied Accessories

The BKPF-101CB has the following supplied accessories.

- ADC-35 Board (1)
- Connector Panel (CN-1567 board) (1)
- Operation Manual (1)
- Installation Manual (1)
- Slot Label (1)

1-3-2. Location and Function of the Connectors



- ① ANALOG IN connectors (BNC type)
Used to input analog component signals (Y, R-Y, B-Y) or RGB signals, and a sync signal. Set the signal level select switch (S601) and the INPUT SEL switch (S602) on the ADC-35 board according to the signal input to these connectors.
- ② SYNC connector (BNC type)
Used to input a sync signal.
- ③ SDI OUT 1 through 4 connectors (BNC type)
Used to output the 4:2:2 component digital serial signals which have been converted from the signals input to the ANALOG IN connectors.
The same signals are output from the SDI OUT 1 through 4 connectors.

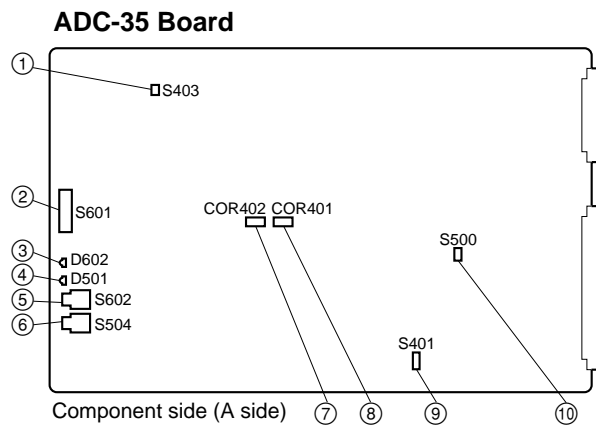
1-3-3. Connecting Connector and Cable

If any cable is connected to the connectors on the connector panel when installing or servicing, use the connector or cable listed below or equivalent.

BKPF-101CB Connector Panel		Matching Connector/Cable	
Panel Indication	Connector	Connector	Sony Part No.
Y/G	BNC (75 Ω)	BNC (75 Ω)	1-569-370-12
B-Y/B		5C-2V cable*	—
R-Y/R			
SYNC			
SDI OUT 1-4			

* ; It is recommended to use the coaxial cable 5C-2V (Max. 200 m) of Fujikura America Inc./Fujikura Europe Ltd. (FEL) or equivalent.

1-3-4. Location and Function of Switches/LEDs



Note

The address of the switches or indicators on the board is shown inside the parentheses followed by the reference No.

① S403 (B-1) : SYSTEM RESET switch

Used to reset the ADC-35 board

Note

Do not push this switch under normal operation.

② S601 (A-4) : Signal Level Select switch

Set to the appropriate position according to the level of the signals input to the ANALOG IN connectors.

SET UP (7.5%) : When Betacam format signals with 7.5% setup are input

CCIR : When Y, B-Y, R-Y (SMPTE) component signals are input (Factory setting)

NO SETUP (0%) : When Betacam format signals with 0% setup are input

③ D602 (A-5) : OUTPUT indicator

When signals are output from the SDI OUT connectors, it lights in green. When no analog video signal is input to the ANALOG IN connectors or when the free-running adjustment switch S401 is set to ON, it lights in red.

④ D501 (A-5) : INPUT indicator

When analog video signals are input to the ANALOG IN connectors, it lights in green. When no signal is input, it lights in red.

⑤ S602 (A-5) : INPUT SEL (input signal select) switch

Set to the appropriate position according to the signals input to the ANALOG IN connectors.

YUV : When Y, B-Y, R-Y component signals are input (Factory setting)

RGB : When RGB signals are input

⑥ S504 (A-6) : SYNC SELECT switch

Used to select the sync signal.

INT : When the sync signal of the Y signal input to the ANALOG IN connector is used (Factory setting)

EXT : When the sync signal input to the SYNC connector is used

⑦ COR402 (D-4) : Y/R-Y Delay Adjustment

Used in the Y/R-Y delay adjustment.

Factory setting : Not fixed settings

(Depends on the factory adjustment)

⑧ COR401 (E-4) : Y/B-Y Delay Adjustment

Used in the Y/B-Y delay adjustment.

Factory setting : Not fixed settings

(Depends on the factory adjustment)

⑨ S401 (G-6) : Parallel/Serial Convert Free-running Adjustment

In the free-running frequency adjustment, set this switch to ON.

ON : In the free-running frequency adjustment

OFF : In normal operation (Factory setting)

⑩ S500 (H-5) : SYNC LEVEL SELECT switch

Set to the appropriate position according to the level of the sync signal input to the SYNC connector.

H : When the level of less than 1 V is input (Factory setting)

L : When the level of 1 V or more is input

1-3-5. ISR (Interactive Status Reporting)

When this board is installed in combination with the BKPF-500 ISR Interface Board in a digital video interface unit, such as the PFV-D20/D50/D100A/D200A/D300, the following messages are sent to the ISR system, permitting the operating status of the BKPF-101CB to be monitored.

Refer to the operation and maintenance manual of BKPF-500 for details.

• **Status message**

Message	Description
NO INPUT	Indicates that no signal is input to the ANALOG IN connectors or no input signal is detected
NO OUTPUT	Indicates that the free-running adjustment switch for the parallel-serial conversion (S401) is set to ON, or the same condition as the "NO INPUT" message appears

• **Setup message**

Message	Status	Description
525/625	525 625	Indicates whether the input signal is 525 mode or 625 mode
INPUT MODE	RGB YUV CCIR YUV SETUP 7.5% YUV SETUP 0%	Indicates the setting of the signal level select switch (S601) and INPUT SEL switch (S602)

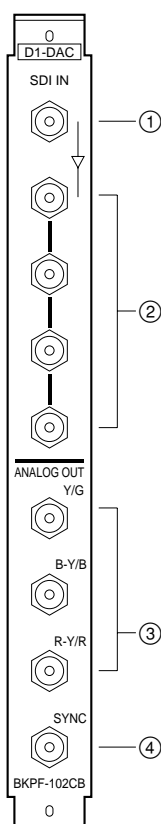
1-4. Information on BKPF-102CB

1-4-1. Supplied Accessories

The BKPF-102CB has the following supplied accessories.

- DAC-30 Board (1)
- Connector Panel (CN-1527 board) (1)
- Operation Manual (1)
- Installation Manual (1)
- Slot Label (1)

1-4-2. Location and Function of the Connectors



- ① SDI IN connector (BNC type)
Used to input 4:2:2 component serial digital video signal.
- ② Active through output connectors (BNC type)
Used to output the video signal input to the SDI IN connector and whose waveform has been shaped. The same signals are output from the four connectors.
- ③ ANALOG OUT connectors (BNC type)
Used to output the analog component signals which have been converted from the signals input to the SDI IN connector. Select the output signals with the signal level select switch (S504) and the YUV/RGB select switch (S505) on the DAC-30 board.
- ④ SYNC OUT connector (BNC type)
Used to output a sync signal.

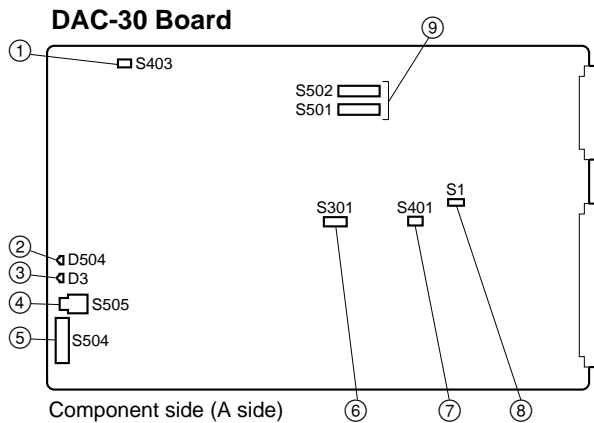
1-4-3. Connecting Connector and Cable

If any cable is connected to the connectors on the connector panel when installing or servicing, use the connector or cable listed below or equivalent.

BKPF-102CB Connector Panel		Matching Connector/Cable	
Panel Indication	Connector	Connector	Sony Part No.
SDI IN	BNC (75 Ω)	BNC (75 Ω)	1-569-370-12
ANALOG OUT		5C-2V cable*	—

* ; It is recommended to use the coaxial cable 5C-2V (Max. 200 m) of Fujikura America Inc./Fujikura Europe Ltd. (FEL) or equivalent.

1-4-4. Location and Function of Switches/LEDs



Note

The address of the switches or indicators on the board is shown inside the parentheses followed by the reference No.

① S403 (B-1) : SYSTEM RESET switch

Used to reset the DAC-30 board.

Note

Do not push this switch under normal operation.

② D504 (A-5) : INPUT indicator

When a digital video signal is input to the SDI IN connector, it lights in green. When no signal is input, it lights in red.

③ D3 (A-5) : EDH* indicator

The digital video signal input to the SDI IN connector is detected whether on EDH signal is multiplexed onto the signal or not.

This indicator shows the result as shown below.

Indicator	Description
Lights (green)	EDH signal is multiplexed onto the video signal and the video signal is normal
Lights (red)	EDH signal is multiplexed onto the video signal but the video signal is abnormal
Not light	EDH signal is not multiplexed onto the video signal

④ S505 (A-5) : YUV/RGB (output signal) Select switch

Set to the appropriate position according to the signals output to the ANALOG OUT connectors.

YUV : When Y, B-Y, R-Y component signals are output (Factory setting)

RGB : When RGB signals are output

⑤ S504 (A-6) : Signal Level Select switch

Set to the appropriate position according to the level of the signals output from the ANALOG OUT connectors.

SET UP : When Betacam format signals with 7.5% setup are output

CCIR : When Y, B-Y, R-Y (SMPTE) component signals are output (Factory setting)

BETA-CAM : When Betacam format signals with 0% setup are output

⑥ S301 (F-4) : Y/C Delay Adjustment

Used in the Y/C delay adjustment.

Factory setting : Not fixed settings

(Depends on the factory adjustment)

⑦ S401(G-4) : Factory Use Only

Factory setting : Not fixed settings

(Depends on the factory adjustment)

Note

Do not change the setting.

⑧ S1 (H-4) : Parallel/Serial Convert Free-running Adjustment

In the free-running frequency adjustment, set this switch to ON.

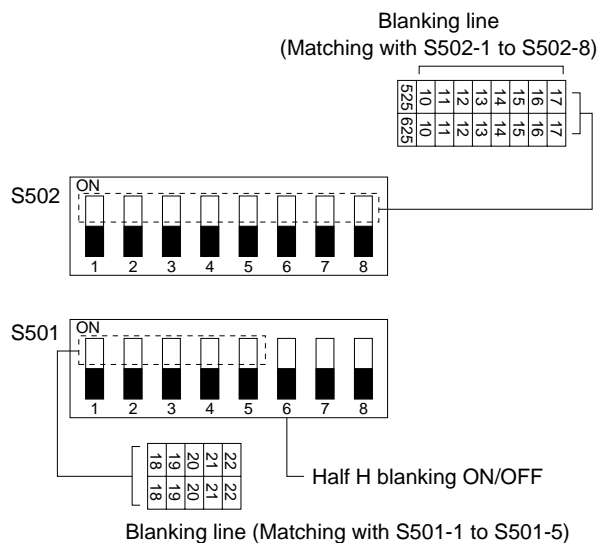
ON : In the free-running frequency adjustment

OFF : In normal operation (Factory setting)

* EDH: Error Detect Handling

⑨ S501 (F-2): Blanking switch S502 (F-2)

Used to select the blanking line of the video signal.
The illustration indicated as V BLK SELECT on the DAC-30 board shows the blanking lines assigned to the ON position of each switch lever.
To select half H blanking line, use S501-6 to S501-8.
Factory setting : All OFF positions
(both S501 and S502)



S501-6 : Half H Blanking ON/OFF

When the half H blanking line mode is selected, set this switch to ON.

Factory setting : OFF

S501-7, S501-8 : Half H Blanking Line Setting (Only for 525 system)

Used to select the half H blanking line when S501-6 is set to ON. The half H blanking line is not selected in area, such as 20 through 22 lines blanking.

S501-7	S501-8	Blanking Line
ON	ON	20
ON	OFF	21
OFF	ON	22
OFF	OFF	– (Factory setting)

1-4-5. ISR (Interactive Status Reporting)

When this board is installed in combination with the BKPF-500 ISR Interface Board in a digital video interface unit, such as the PFV-D20/D50/D100A/D200A/D300, the following messages are sent to the ISR system, permitting the operating status of the BKPF-102CB to be monitored.

Refer to the operation and maintenance manual of BKPF-500 for details.

• Status message

Message	Description
NO INPUT	Indicates that no signal is input to the SDI IN connector, that no input signal is detected, or that the free-running adjustment switch for the parallel-serial conversion (S1) is set to ON

• Setup message

Message	Status	Description
525/625	525 625	Indicates whether the input signal is 525 mode or 625 mode (Automatic detection)
OUTPUT MODE	RGB YUV CCIR YUV SETUP 7.5% YUV SETUP 0%	Indicates the setting of the YUV/RGB select switch (S505) and the signal level select switch (S504)

Section 2

Electrical Alignment (Only for BKPF-101A)

2-1. Video Characteristics Adjustment

When a long cable (more than 10 m) is connected to the ANALOG IN connector, adjust as follows.

- EQ OUT level adjustment
- EQ OUT frequency response adjustment

2-1-1. Required Equipment and Tools

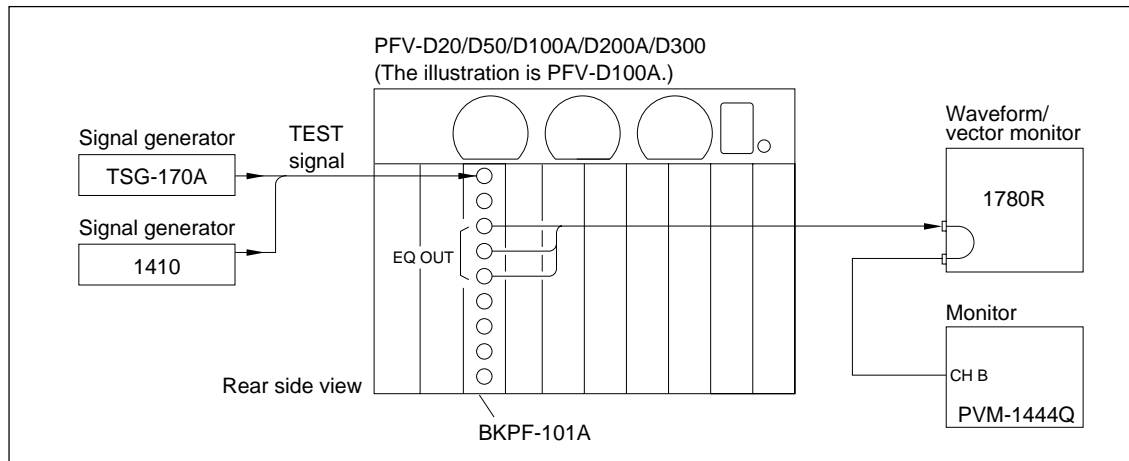
Use the equipment listed below or equivalent.

No.	Item	Model	Remarks
1	Extension board	EX-331 (Sony part No. J-6185-960-A)	For the main board extension
2	Signal generator	Tektronix 1410	For a color-frame check
3	Signal generator	Tektronix TSG-170A	
4	Digital interface unit	Sony PFV-D20/D50/D100A/D200A/D300	
5	Monitor	Sony PVM-1444Q	
6	Waveform/vector monitor	Tektronix 1780R	
7	Adjustment screwdriver	—	Insulation type

Note

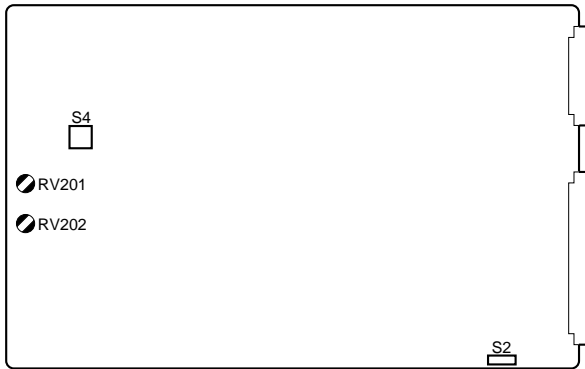
Use the equipment No.2 through 4, and 6 after calibration has been completed.

2-1-2. Connection



2-1-3. Initial Setting of Switches

AD-147 Board



Component side (A side)

Set the switches before the adjustment as below.

Ref. No. (Address)	Initial Setting
S2 (L-8)	OFF
S4 (B-3)	0

2-1-4. Preparation for Adjustment

1. Connect the equipment and tools. (Refer to Section 2-1-2.)
2. Set the switches on the AD-147 board. (Refer to Section 2-1-3.)
3. Turn on the power of the digital interface unit (PFV-D20/D50/D100A/D200A/D300) and warm up the unit for about 10 minutes.

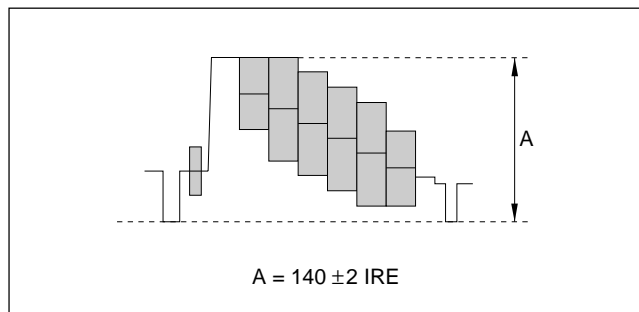
2-1-5. EQ OUT Level Adjustment

Measurement equipment

Waveform/vector monitor

Procedure

1. Supply 75% (SMPTE) color bars signal from the signal generator (TSG-170A) to the ANALOG IN connector.
2. Set the waveform/vector monitor as follows.
MODE : WAVEFORM
INPUT : CH B1
Measuring point : EQ OUT 1 through 3 connectors
(BKPF-101A connector panel)
Adjustment point : ⓪RV202 (A-5)/AD-147



2-1-6. EQ OUT Frequency Response Adjustment

Measurement equipment

Waveform/vector monitor

Procedure

1. Supply 6 MHz SWEEP signal from the signal generator (1410) to the ANALOG IN connector.

Note

Check to see that a coaxial cable is connected to the MODULE OUTPUT 6 connector (1410 connector panel).

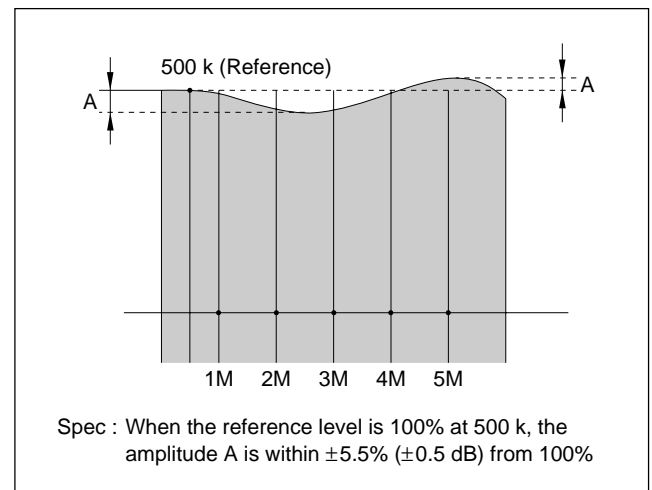
2. Set the waveform/vector monitor as follows.

MODE : WAVEFORM

INPUT : CH B1

Measuring point : EQ OUT 1 through 3 connectors
(BKPF-101A connector panel)

Adjustment point : ⓪RV201 (A-4)/AD-147



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