SECTION 1

SERVICE INFORMATION

Model No. : AK-HC3800G/GS, AK-HC2500MC/MS

CONTENTS

# 1. Service Fixture & Tools

No	Part No.	Fixture & Tool Name	Remarks	Purpose
1	VVS0108	PC EVR Software	Download from Global Service WEB Site	CAMERA Adj.
2	VVS0110	Data Backup Software for AK-HC3500/HC2500 series	Download from Global Service WEB Site	Data backup
3	VFK1642	Gray Scale Chart (Reflection type)	16:9	CAMERA Adj.
4	----	Inmega Chart (Transparency type)	16:9, For HD Test chart L High-class inmega cycle chart (DNP) is recommended	CAMERA Adj.
5	VFK1988	Measuring Board	For PC EVR and Data Backup Software	
6	VFK1989	Extension Cable	For PC EVR and Data Backup Software	
7	VFK1982	Extension Cable	For PC EVR and Data Backup Software	
8	----	RS232C cross cable (9P)	For PC EVR and Data Backup Software	
9	K2GJ2DC00002	DC Cable	For Measuring Board. It is equal to VJA1128	
10	----	AC Adapter	For Measuring Board	

1 VVS0108

PC EVR Software

DOWN LOAD

2 VVS0110

Data Backup Software for AK-HC3800/HC2500 series

DOWN LOAD

3 VFK1642

Gray-scale Chart (16:9, Reflection Type)
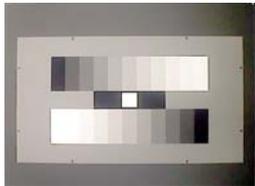
4 ----

Inmega Chart (For HD, Transparency Type)
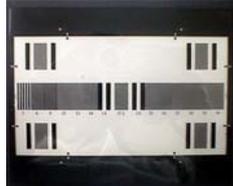
5 VFK1988

Measuring Board

6 VFK1989

Extension Cable

7 VFK1982

Extension Cable

8 ----

RS-232C Cross Cable (9P)
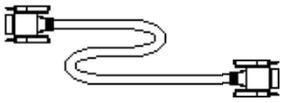
9 K2GJ2DC00002

DC Cable

10 ----

AC Adapter

2. List of Recommended Measuring and Instruments

NAME	REMARKS
HD Monitor TV	with SDI input
Monitor TV	
HD/SD Waveform Monitor	• with SDI INPUT
Vector Scope	• R,G,B/Y,Pb,Pr Display Switching
Audio Analyzer	
Halogen Lamp (X2)	500W 3200K
Lux Meter	
Color Pyrometer	
Light Box	Recommend Spherical Type for white shading adjustment

3. Basic Setting Menu Operations

3-1. Construction of Menu

MENU	USER MENU	OPERATION
		MAINTENANCE

The contents of the USER menu is mentioned in the Operating Instructions.

Please refer to item "4. SERVICE & FACTORY Menu" about contents of the SERVICE, FACTORY and DESIGN menu.

SERVICE MENU	WHITE SHADING
	DEFECT (SETTING)
	DEFECT (EDIT)
	CAM SERVICE CARD R/W
	CAC SERVICE
	ROP DISPLAY1
	ROP DISPLAY2
	GAIN SWITCH
	HOUR METER
	DIAGNOSTIC
	ALL MENU INITIALIZE
	FLASH W_P CLEAR

FACTORY MENU	CCD ADJUST
	PREAMP ADJUST
	OUTPUT LEVEL
	MIC/INCOM SETTING
	ND COMPENSATION
	LINEAR COMPENSATION
	FLARE
	GAMMA
	FACTORY INITIALIZE

DESIGN MENU	INITIALIZE
	B.SHD
	B.SHD EXE

3-2. Menu Operation

1. Set the following switches of camera as follows.
    GAIN: LOW, OUTPUT: BAR, W BAL: B, SHUTTER: ON
2. While pressing the **"USER1"** and **"USER2"** buttons simultaneously and press the **"MENU"** button, then *SERVICE / FACTORY / DESSIGN* menu screen can be displayed in addition to a user menu.
3. Rotate the **"JOG dial"** button to select the SUB MENU. And then press **"JOG dial"** button to open the selected SUB menu.
4. Rotate the **"JOG dial"** button to select the item (Move the arrow character top to button). And then press **"JOG dial"** button so that the setting data is blinking.
5. Rotate the **"JOG dial"** button to change the setting. Then press again the **"JOG dial"** button to set the setting.

While pressing the **"USER1"** and **"USER2"** buttons simultaneously and press the **"MENU"** button.

DESIGN MENU	Rotate and press the **"JOG dial"** button.	**SUB MENU**	Rotate and press the **"JOG dial"** button to change the setting.

Press "JOG DIAL" button

USER MENU	Rotate and press the **"JOG dial"** button.	**SUB MENU**	Rotate and press the **"JOG dial"** button to change the setting.

Press "JOG DIAL" button

SERVICE MENU	Rotate and press the **"JOG dial"** button.	**SUB MENU**	Rotate and press the **"JOG dial"** button to change the setting.

Press "JOG DIAL" button

SERVICE MENU	Rotate and press the **"JOG dial"** button.	**SUB MENU**	Rotate and press the **"JOG dial"** button to change the setting.

Press "JOG DIAL" button

SHUTTER SW

GAIN SW

MENU BUTTON

USER1 BUTTON   OUTPUT SW   W.BAL SW   USER2 BUTTON

4. SERVICE & FACTORY MENU

The items shown in gray are used in the electrical adjustments.

4-1. SERVICE MENU screen

[WHITE SHADING]
This menu is used for white shading adjustment.

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
DETECTION(DIG)	-----	------	Execute the DIGITAL WHITE SHADING (YES/NO screen appears by selecting this item.)

[DEFECT (SETTING)]
This menu is used for blemish compensation.

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
CONPENSATION	ON OFF	ON	Select the Blemish Compensation ON/OFF.
MEDIAN FILTER	ON OFF	ON	Select the Median Filter ON/OFF.
USER PICKUP (ABB)	ON OFF	ON	Select function of the automatic blemish compensation. and detection ON/OFF during ABB.
USER PICKUP LEVEL	1-15	3	Set the detection level of automatic blemish compensation for USER PICKUP(ABB).
READ DEFECT DATA	-----	-----	Read the defect (Blemish) data from the Flash memory (MAIN Board). (YES/NO screen appears by selecting this item.)
WRITE DEFECT DATA	-----	-----	Backup the current defect (Blemish) data to the Flash memory (MAIN Board). (YES/NO screen appears by selecting this item.)
ALL DATA CLEAR	-----	-----	All current defect (Blemish) data in MRAM (MAIN Board) is deleted. (Backup data in FLASH memory is not deleted.) (YES/NO screen appears by selecting this item.)
CHECK CAC MAX RANGE	ON OFF	OFF	The picture on outside effective area can be seen on the screen display. For the blemish confirmation and correction of the video signal on outside effective area used in CAC. (The setting is reset to OFF at power supply ON. Even if the menu is closed, the setting is kept.) Effective area (Screen display)
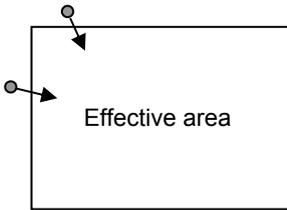
[DEFECT (EDIT)]
This menu is used for blemish compensation.

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
MODE	EDIT NEW	EDIT	Select EDIT mode or NEW mode. **EDIT:** If the current defect data need to change the compensation position, set this mode. **NEW:** If new blemish is appeared, set this mode.
DEFECT NO.	0 - 255	0	Selection of compensation No(000 to 255). <NOTE> Only the EDIT mode is effective.
H CURSOR COARSE	0-8	0	Coarse adjustment for horizontal cursor position.
H CURSOR FINE	0-FF	00	Fine adjustment for horizontal cursor position.
V CURSOR COARSE	0-4	0	Coarse adjustment for vertical cursor position.
V CURSOR FINE	0-FF	00	Fine adjustment for vertical cursor position.
SIZE	1,2,3,5,7	1	Select the compensation size (Horizontal direction). **1**: 1pixel **2**: 2pixel **3**: 3pixel **5**: 5pixel **7**: 7pixel
COLOR	Y R G B	Y	Select the Compensation color. **Y**: R.G.B channel are compensated simultaneously. **R**: R channel is compensated. **G**: G channel is compensated. **B**: B channel is compensated.
ENTRY	-----	-----	Memorize the above data for each DEFECT NO.. (YES/NO screen appears by selecting this item.)
DELETE	------	------	Each compensation data (the setting of the parameter with all kinds which is registered on each DEFECT No) can delete. (YES/NO screen appears by selecting this item.)

[CAMERA SERVICE CARD R/W]
This menu is used for transfer the data to/from the SD memory card.

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
R/W SEL	FACTORY LOG	FACTORY	Select the data read/write into card. **FACTORY**: The setting value data in the FACTORY menu. **LOG**: Operation log data.
READ	-----	-----	Read the data from the card. (YES/NO screen appears by selecting this item.)
WRITE	-----	-----	Write the data to the card. (YES/NO screen appears by selecting this item.)

[CAC SERVICE]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
CAC AUTO/MANUAL	AUTO/ MANUAL	AUTO	Selection of CAC operation mode. When some lenses, which are not introduced on the operating instructions or website but have the same characteristics as introduced ones, are attached to the camera, CAC may be able to operate on such lenses. In that case, set this item to MANUAL. Usually it is set to AUTO.
CAC FILE ALL DELETE	-----	-----	All CAC files saved in this unit are deleted. (YES/NO screen appears by selecting this item.)
CAC FULL ERASE	-----	-----	The CAC related data saved in FLASH and MRAM are erased. (YES/NO screen appears by selecting this item.)
MAKE CAC FILE	-----	-----	CAC files as factory default are made by the CAC data saved in FLASH. (YES/NO screen appears by selecting this item.)

[ROP DISPLAY1]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
GAIN	-----	-----	-----
RED	-800 - 800	000	Display of setting value of GAIN RED (white balance).
BLUE	-800 - 800	000	Display of setting value of GAIN BLUE (white balance).
PEDESTAL	-----	-----	-----
MASTER	-800 - 800	000	Display of setting value of MASTER PEDESTAL.
GREEN	-800 - 800	000	Display of setting value of GREEN PEDESTAL.
RED	-800 - 800	000	Display of setting value of RED PEDESTAL.
BLUE	-800 - 800	000	Display of setting value of BLUE PEDESTAL.

[ROP DISPLAY2]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
FLARE	-----	-----	-----
GREEN	-100 - 100	000	Display of setting value of GAIN FLARE.
RED	-100 - 100	000	Display of setting value of RED FLARE.
BLUE	-100 - 100	000	Display of setting value of BLUE FLARE.
DETAIL	-----	-----	-----
HORIZONTAL	0 - 63	0	Display of setting value of H DETAIL.
VERTICAL	0 - 63	0	Display of setting value of V DETAIL.
IRIS	0 - 100	0	Display of setting value of IRIS.

[GAIN SWITCH]

The value of GAIN SW of AK-HC3800 can be set by this item of menu.

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
SWITC SETTING	-----	-----	-----
LOW	-3/0/3/6/9/12/18/2736dB	0	Select the value, when the GAIN SW is LOW.
MIDDLE	-3/0/3/6/9/12/18/2736dB	6	Select the value, when the GAIN SW is MIDDLE.
HIGH	-3/0/3/6/9/12/18/2736dB	12	Select the value, when the GAIN SW is HIGH.

[HOURS METER]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
HEAD	0 - 65000:00	-----	Display the operating time of the camera head.
RESET	-----	-----	Reset the operating time. (YES/NO screen appears by selecting this item.)
FAN	0 - 65000:00	-----	Display the operating time of the fan.
RESET	-----	-----	Reset the operating time. (YES/NO screen appears by selecting this item.)

[DIAGNOSTIC]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
PULSE	-----	-----	Display the PULSE FPGA version.
CAM	-----	-----	Display the CAM FPGA version.
AVIO	-----	-----	Display the AVIO FPGA version.
CAMERA SOFT	-----	-----	Display the CAMERA SOFT version.
CAMERA TABLE	-----	-----	Display the CAMERA TABLE version.
SH	-----	-----	Display the SH version.
PLD	-----	-----	Display the CPLD version.

[ALL MENU INITIALIZE]

This menu is used for restoring the data to factory default settings or for reading USER settings out from FLASH MEMORY.
● READ FACTORY: Data is transferred from FLASH MEMORY (factory default values) to MRAM (current values).
● READ USER: Data is transferred from FLASH MEMORY (factory default values) to MRAM (USER stored data).
　Factory default values for USER setting data stored in FLASH MEMORY.

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
READ FACTORY ALL DATA	-----	------	Data of USER, SERVICE, FACTORY and DESIGN menus is initialized to factory default by executing this item. (YES/NO screen appears by selecting this item.)
READ USER ALL DATA	-----	------	USER setting data is initialized to factory default by executing this item .(Flash to MRAM) The contents of user setting data are as follows. ● Setting data of USER MENU ● Setting data of PAINT MENU by ROP ● SCENE FILE data by ROP ● USER FILE data by ROP ● LENS FILE data by ROP ● AWB, ABB result data (YES/NO screen appears by selecting this item.)

[FLASH W_P_CLEAR]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
FLASH W_P CLEAR	ON OFF	OFF	The write-protected clearance to FLASH.

4-2. FACTORY MENU screen

[CCD ADJUST] → [SUB]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
INTERLACE	-----	-----	-----
RED	00 - FF	80	Setting of Rch CCD SUB VOLTAGE 0dB (i)
GREEN	00 - FF	80	Setting of Gch CCD SUB VOLTAGE 0dB (i)
BLUE	00 - FF	80	Setting of Bch CCD SUB VOLTAGE 0dB (i)
PROGRESSIVE	-----	-----	-----
RED	00 - FF	80	Setting of Rch CCD SUB VOLTAGE 0dB (p)
GREEN	00 - FF	80	Setting of Gch CCD SUB VOLTAGE 0dB (p)
BLUE	00 - FF	80	Setting of Bch CCD SUB VOLTAGE 0dB (p)

[CCD ADJUST] → [MOD ADJUST]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
60 MOD	00 - FF	70	Modulation adjustment (59.94Hz)
50 MOD	00 - FF	70	Modulation adjustment (50.00Hz)

[CCD ADJUST] → [RDC]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
RED	00 - FF	40	Setting of Rch CCD RESET DC VOLTAGE
GREEN	00 - FF	40	Setting of Gch CCD RESET DC VOLTAGE
BLUE	00 - FF	40	Setting of Bch CCD RESET DC VOLTAGE

[PREAMP ADJUST] → [PRE CLIP]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
INTERLACE	-----	-----	-----
RED	00 - FF	FF	Adjustment of Clip Level for Rch pre-amp output (i)
GREEN	00 - FF	FF	Adjustment of Clip Level for Gch pre-amp output (i)
BLUE	00 - FF	FF	Adjustment of Clip Level for Bch pre-amp output (i)
PROGRESSIVE	-----	-----	-----
RED	00 - FF	E0	Adjustment of Clip Level for Rch pre-amp output (p)
GREEN	00 - FF	E0	Adjustment of Clip Level for Gch pre-amp output (p)
BLUE	00 - FF	FF	Adjustment of Clip Level for Bch pre-amp output (p)

[PREAMP ADJUST] → [PUL-CAN]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
RED	00 - FF	67	Adjustment for Rch PULSE CANCEL TIMING (59.94Hz)
GREEN	00 - FF	67	Adjustment for Gch PULSE CANCEL TIMING (59.94Hz)
BLUE	00 - FF	67	Adjustment for Bch PULSE CANCEL TIMING (59.94Hz)

[PREAMP ADJUST] → [SENSITIVE]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
INTERLACE	-----	-----	-----
RED	000 – FFF	620	Sensitivity adjustment for Rch (i)
GREEN	000 – FFF	620	Sensitivity adjustment for Gch (i)
BLUE	000 – FFF	620	Sensitivity adjustment for Bch (i)
PROGRESSIVE	-----	-----	-----
RED	000 – FFF	620	Sensitivity adjustment for Rch (p)
GREEN	000 – FFF	620	Sensitivity adjustment for Gch (p)
BLUE	000 – FFF	620	Sensitivity adjustment for Bch (p)

[OUTPUT LEVEL]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
INT FREQUENCY	000 - FFF	880	Adjustment of INTERNAL FREQUENCY
OUTPUT LEVEL	-----	-----	-----
HD VIEW FINDER Y	00 - 3F	1E	Adjustment of HD VF Y OUTPUT LEVEL
HD VIEW FINDER Pb	00 - 3F	1E	Adjustment of HD VF PB OUTPUT LEVEL
HD VIEW FINDER Pr	00 - 3F	1E	Adjustment of HD VF PR OUTPUT LEVEL
PROMPT	00 - 3F	2E	Adjustment of PROMPT OUTPUT LEVEL

[MIC/INCOM SETTING]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
MIC1 GAIN	-10 - +10	00	Adjustment of input level for MIC1
MIC2 GAIN	-10 - +10	00	Adjustment of input level for MIC2
INCOM MIC GAIN	-3 - +3	00	Adjustment of input level for INCOM MIC

[ND COMPENSATION]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
ND1	-----	-----	-----
RED GAIN	-127 - +127	000	Adjustment of Rch GAIN at ND FILTER POSITION1
BLUE GAIN	-127 - +127	000	Adjustment of Bch GAIN at ND FILTER POSITION1
ND2	-----	-----	-----
RED GAIN	-127 - +127	000	Adjustment of Rch GAIN at ND FILTER POSITION2
BLUE GAIN	-127 - +127	000	Adjustment of Bch GAIN at ND FILTER POSITION2
ND3	-----	-----	-----
RED GAIN	-127 - +127	000	Adjustment of Rch GAIN at ND FILTER POSITION3
BLUE GAIN	-127 - +127	000	Adjustment of Bch GAIN at ND FILTER POSITION3
ND4	-----	-----	-----
RED GAIN	-127 - +127	000	Adjustment of Rch GAIN at ND FILTER POSITION4
BLUE GAIN	-127 - +127	000	Adjustment of Bch GAIN at ND FILTER POSITION4

[LINEAR COMPENSATION] → [REFERENCE CLIP P (-3dB)]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
RED	00 - FF	C0	Adjustment of Clip Level for Rch pre-amp output (p) (-3dB)
GREEN	00 - FF	C0	Adjustment of Clip Level for Gch pre-amp output (p) (-3dB)
BLUE	00 - FF	C0	Adjustment of Clip Level for Bch pre-amp output (p) (-3dB)

[LINEAR COMPENSATION] → [LINEAR R P]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
LINEAR	-----	-----	-----
RED P	0 - 16	0	Adjustment of linearity correction for Rch pre-amp output (p)
GREEN P	0 - 16	0	Adjustment of linearity correction for Gch pre-amp output (p)
BLUE P	0 - 16	0	Adjustment of linearity correction for Bch pre-amp output (p)

[FLARE]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
FLARE RED	-100 - +100	+000	Rch FLARE adjustment
FLARE GREEN	-100 - +100	+000	Gch FLARE adjustment
FLARE BLUE	-100 - +100	+000	Bch FLARE adjustment

[GAMMA]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
INTERLACE	-----	-----	-----
RED GAMMA	-75 - +75	+00	Rch GAMMA adjustment
BLUE GAMMA	-75 - +75	+00	Bch GAMMA adjustment
PROGRESSIVE	-----	-----	-----
RED GAMMA	-75 - +75	+00	Rch GAMMA adjustment
BLUE GAMMA	-75 - +75	+00	Bch GAMMA adjustment

[FACTORY INIT]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
WRITE FACTORY ALL DATA	------	------	Data of USER, SERVICE, FACTORY and DESIGN menus at current condition are written to FLASH memory as factory default data. (YES/NO screen appears by selecting this item.)
WRITE EEPROM IN D/A	------	------	Write the adjustment data to EEPROM (PULSE & DRIVE board.). (YES/NO screen appears by selecting this item.)
READ EEPROM IN D/A	------	------	Read the adjustment data in EEPROM (PULSE & DRIVE board.). (YES/NO screen appears by selecting this item.)
SERIAL NUMBER	------	------	Display the serial number ***NOTE:**
MODULE NAME	------	------	Display the model number ***NOTE:**

*NOTE: Please refer to item **"8. Serial No. and Model Name registration procedure"**.

4-3. DESIGN MENU screen

[INITIALIZE]

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
ALL	------	------	Data of USER, SERVICE, FACTORY and DESIGN menus is initialized by executing this item. (YES/NO screen appears by selecting this item.) **NOTE:** Serial number and Model name also initialized. Hour meter is not initialized.
SERVICE	------	------	Data of SERVICE menu is initialized by executing this item. (YES/NO screen appears by selecting this item.)
FACTORY.	------	------	Data of FACTORY menu is initialized by executing this item. (YES/NO screen appears by selecting this item.)

[B.SHD]

This menu is used for black shading adjustment.

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
B.SHD	ON OFF	ON	Setting the function of Black shading correction.

[B.SHD EXE]

This menu is used for black shading adjustment.

ITEM	RANGE & SET VALUE	PRESET	Setting contents and outline function explanation
B.SHD EXE	-----	------	Execute the BLACK SHADING (YES/NO screen appears by selecting this item.)

5. Software update procedure

5-1. Version display method

Each software version can be confirmed at item **"DIAGNOSTIC"** in MAINTENANCE menu.
1. Press **MENU** button to display the USER MENU.
2. Select **"MAINTENANCE"** and press the **JOG DIAL** button to open the MAINTENANC menu screen.
3. Select **"DIAGNOSTIC"** and pressing the **JOG DIAL** button, DIAGNOSTIC screen is displayed.
4. Each software version is displayed on the DIAGNOSTIC screen as follows.

→< DIAGNOSTIC >		
PULSE	1.02-00-0.00	→ PULSE FPGA (IP200: PULSE AD P.C.B.)
CAM	1.02-00-0.00	→ CAM FPGA (IP1303: MAIN P.C.B.)
AVIO	1.05-00-0.00	→ AVIO FPGA (IP2129: MAIN P.C.B.)
CAMERA SOFT	1.15-00-0.00	→ CAM MICON (IC1606: MAIN P.C.B.)
CAMERA TABLE	1.00-00-0.00	→ FLASH (IP1805: MAIN P.C.B.)

MENU BUTTON

JOG DIAL BUTTON
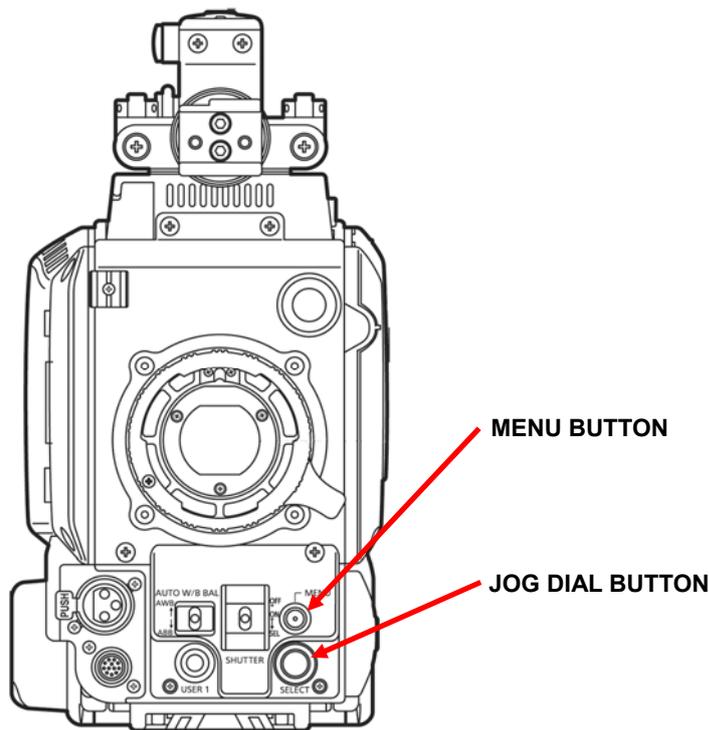
5-2. Update with the SD memory card

CAUTION: Before Updating Software
● **Do not power down or pull card while upgrading.** If the program quits during loading, the data will be erased or part writing condition and the restart is not made. However software can not be updated, please contact Panasonic Service Engineering.

5-2-1. Preparation of update

< Preparation for SD memory card >
1. One piece of SD memory cards (SD: 64MB to 2GB, SDHC: 4GB to 32GB memory card) is required. Use only SD memory cards that comply with the SD or SDHC specifications.
2. Insert an SD memory card into the card slot of this unit and format it.

NOTE: SD memory card used in this unit requires to be conformed to SD^{TM} standards. Be sure to format SD memory card on this unit.

< Copy of Image data for update >
1. Download Image Data **"VSI*****.zip"** for the update from **"Support Desk"** web site.
2. Copy the file **"VSI*****.zip"** to hard disk of your PC and extract the file.
3. Insert a formatted SD memory card into the card slot of PC.
4. Copy the folder **"PRIVATE"** to one piece of SD memory cards. The downloaded image data (upgrade file: **VSI*****.img**) is included in folder **"PRIVATE"**.

NOTE: Do not change the construction of folder and file name. The folder construction shown in the following and top of directory should be **"PRIVATE"**.
　　　　**Folder: PRIVATE \ MEIGROUP \ PAVCN \ SBG \ P2SD \ FW **
　　　　File Name: VSI***.img**

ND FILTER LED

MENU BUTTON

JOG DIAL BUTTON

SD MEMORY CARD ACCESS LED
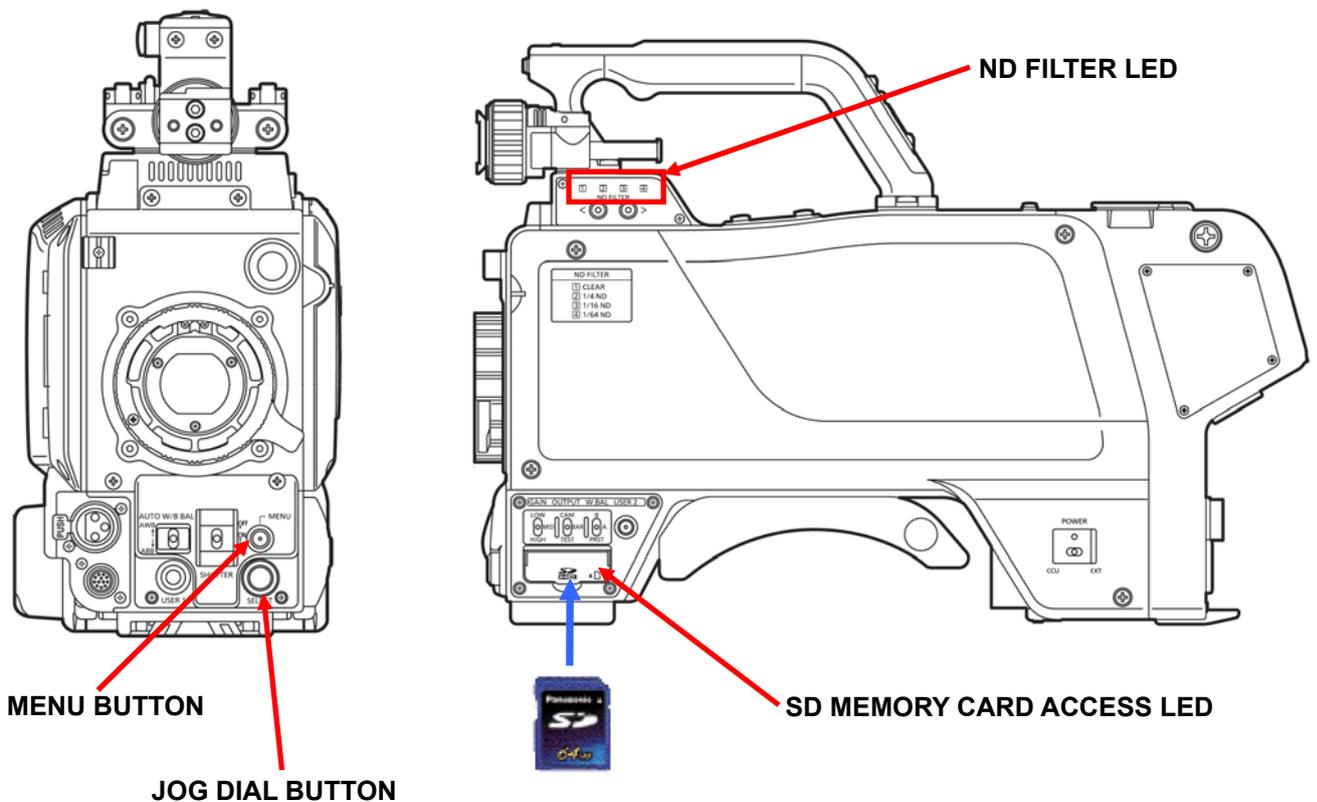
5-2-2. Updated procedure

1. Insert the SD memory card into the SD memory card slot.
2. Turn the power on.
3. Press **MENU** button to display the USER MENU.
4. Select **"MAINTENANCE"** and press the **JOG DIAL** button to open the MAINTENANCE menu screen.
5. Select the item **"UPDATE"** and pressing the **JOG DIAL** button, YES/NO screen appears to confirm execution of update.
6. When update is executed, select the item **"YES"** and pressing **JOG DIAL** button, update program is started.

NOTE: When the update file is not recognized on SD memory card etc., the messages **"UPDATE NG CHECK CARD"** is displayed. Please confirm whether the update file is correctly written on the SD memory card.

7. During updating software, **SD MEMORY CARD ACCESS LED** is blinking at 2Hz and **ND FILTER LED** is blinking as follows.
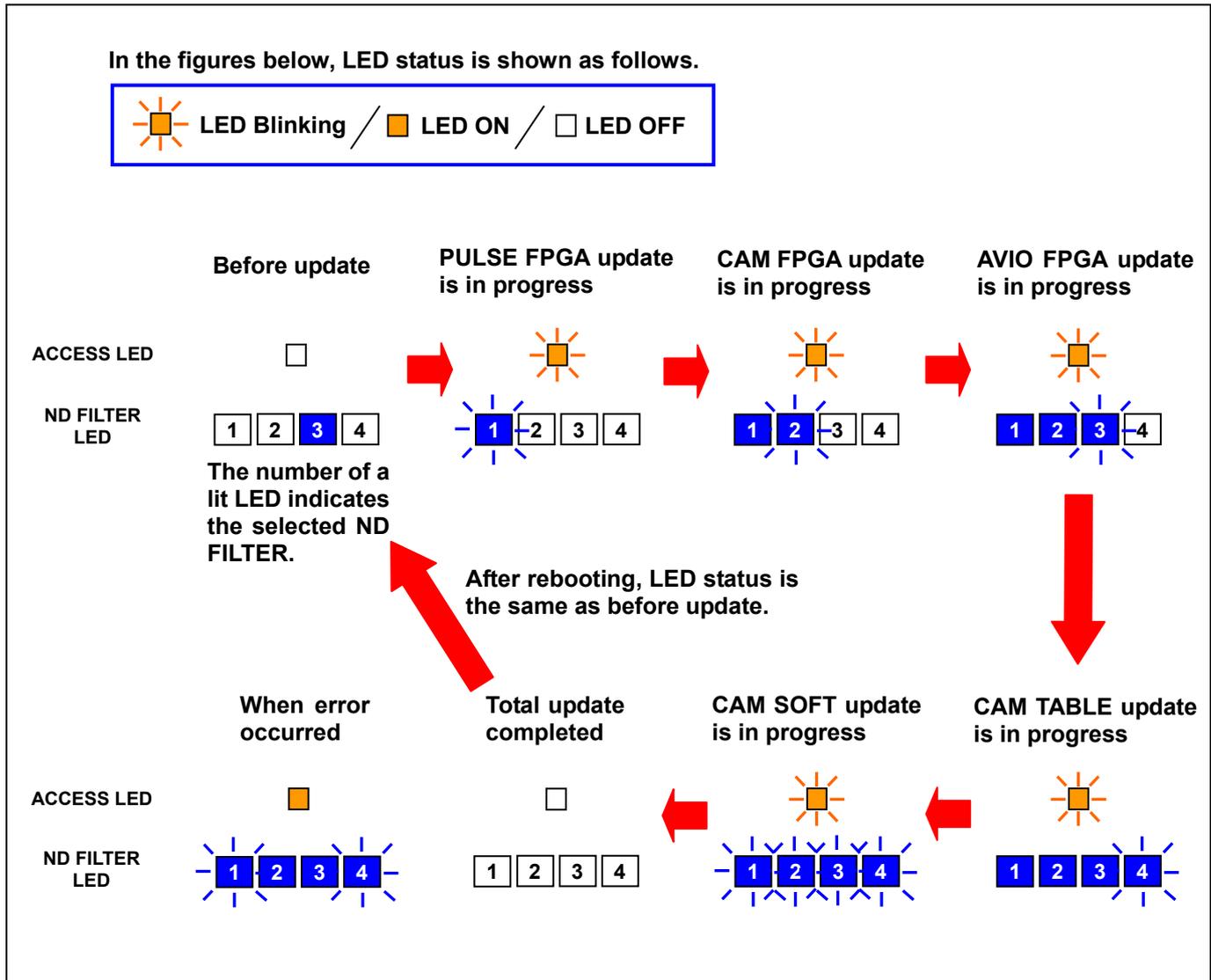
◆ Software update takes **approx. 16min**. **Do not power down while updating.**

8. When the update is completed, the power automatically turns OFF / ON and **SD MEMORY CARD ACCESS LED** is off.
9. Confirm that the version number is renewed for your confirmation update was correctly done follow the item **"5-1. Version display method"**.

6. PC EVR software

6-1. Required tools and equipment for PC EVR software

When the EVR software is used, the following tools are required.

NAME	Part Number	Pcs.	Remark
PC EVR SOFTWARE	VVS0108	1	Download from the Global Service WEB site.
Measuring board	VFK1988	1	
Extension cable	VFK1989	1	
Extension cable	VFK1982	1	
DC cable	K2GJ2DC00002 or VJA1128	1	For Measuring board
AC Adaptor	---	1	For Measuring board
9pin RS232C cross cable	---	1	
Personal Computer	---	1	***OS: WINDOWS XP SP2 / SP3**

6-2. Connection

1. Unless otherwise specified, set the switches on the Measuring Board (VFK1988) as shown in the table below.

NAME	SETTING POSITION
SW5	CROSS
SW6	D-SUB
SW7	NORMAL
SW8	**VTR**
SW31	NORMAL
SW32	NORMAL
SW41	ON
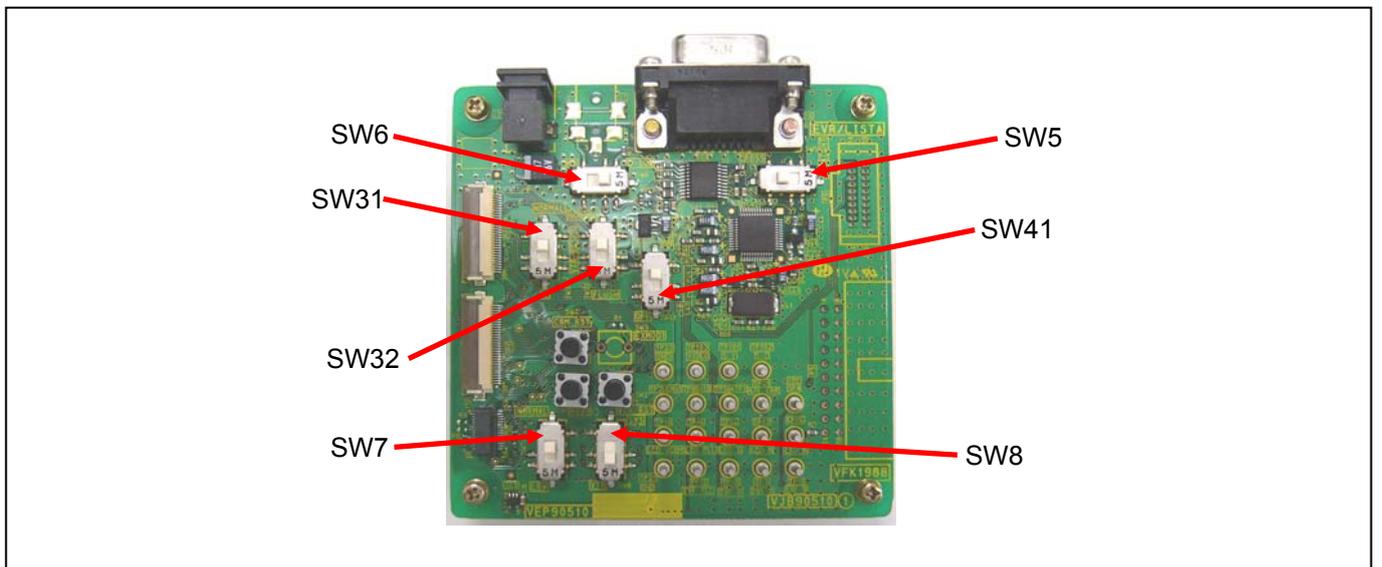
Figure 1

2. Remove the SIDE L Unit.
3. Connect the Extension Cable (VFK1982) to EVR connector on MAIN P.C.B.. Then make sure that the direction of the VFK1982 is correct as shown in figure 2.

When the VFK1982 is connected to EVR connector, be careful of the direction of connector on VFK1982. Please follow as shown in the figure.

EVR CONNECTOR
(CN1007)
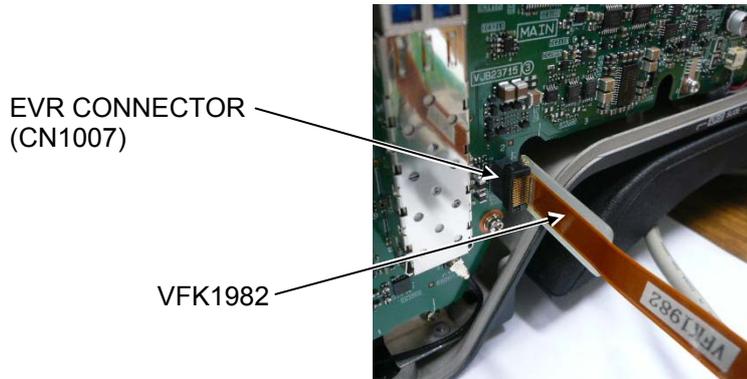
VFK1982

Figure 2

4. Connect the Extension Cable (VFK1989) to connector P2 on Measuring Board (VFK1988) as shown in figure

Connect VFK1989 with connector P2 as shown in picture.
The unit will not work if the connector is attached backwards.

VFK1989

P2
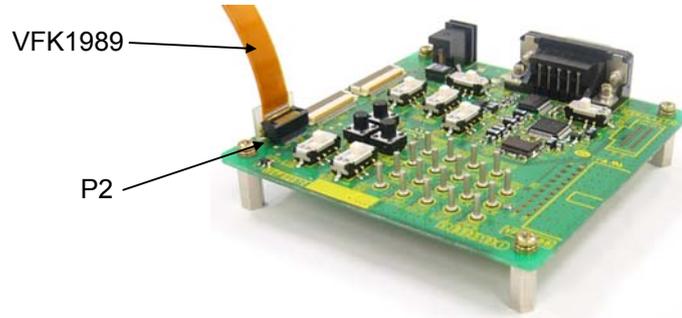
3.

Figure 3

5. Connect the VFK1989 (Extension Cable) to VFK1982 (Extension Cable) as shown in figure 4.

VFK1982

Connect VFK1989 with VFK1982 as shown in picture.
The unit will not work if the connector is attached backwards.

VFK1989

Figure 4

INF-16
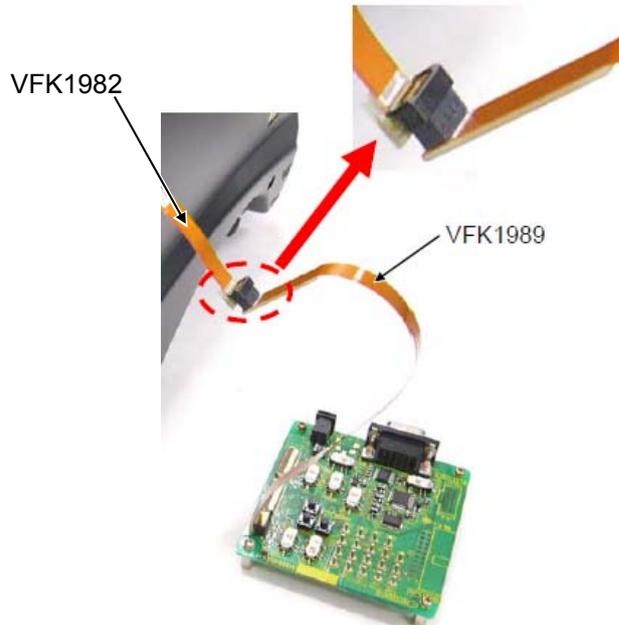
6. Supply DC6V-9V to the Measuring Board (VFK1988). Please use the DC cable and AC Adaptor to supply DC voltage to Measuring Board.
7. Connect a 9 pin RS-232C cross cable between the Measuring Board and RS-232C connector on Personal Computer as shown in figure 5.

VFK1982

VFK1989

VFK1988

AC ADAPTOR

DC CABLE

RS232C CROSS CABLE
This cable is connected to serial port of PC.
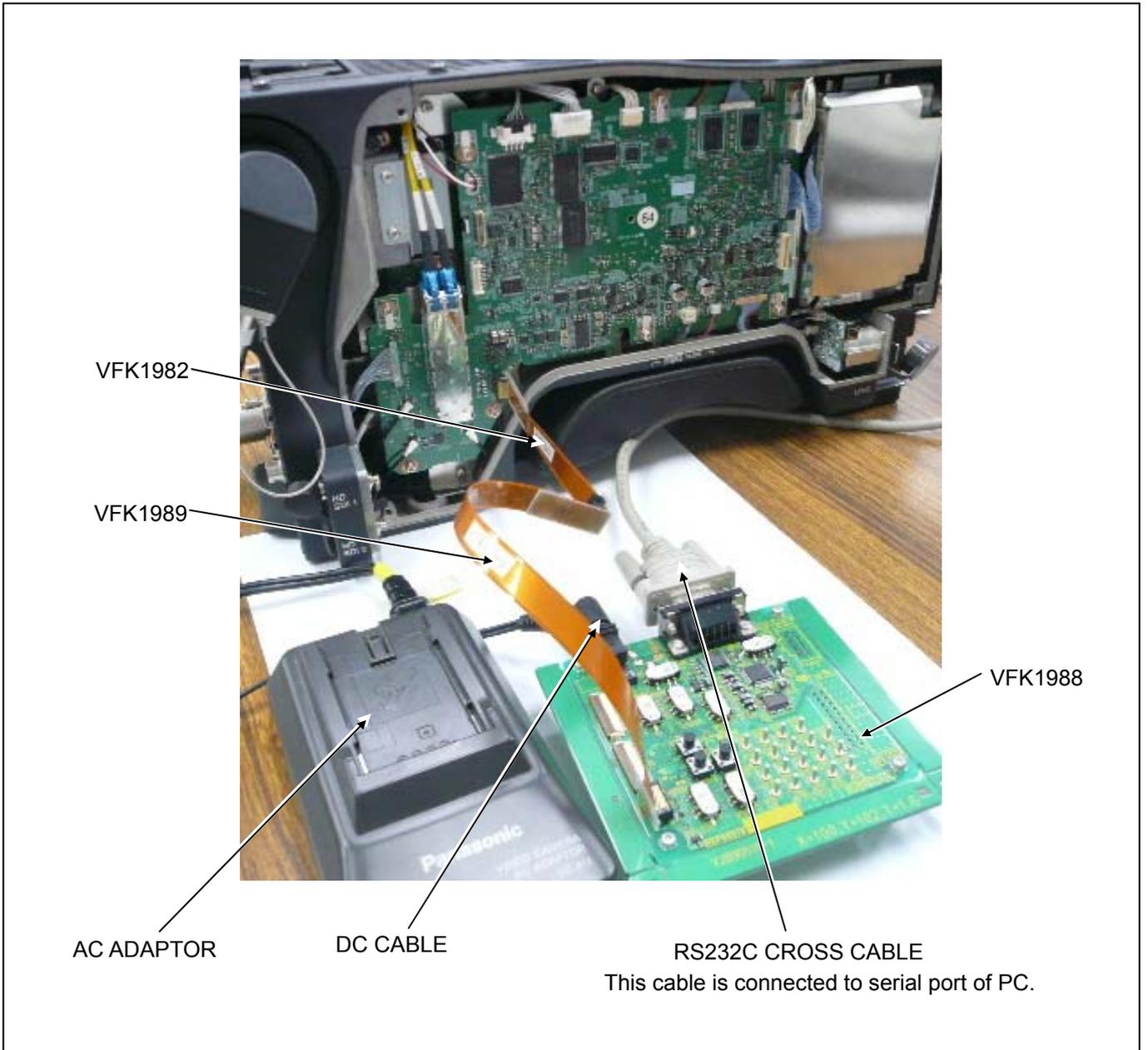
Figure 5

6-3. Setup of PC EVR software

1. Download the file **"PC EVR Software (VVS0108)"** from Global Service Web Site.
2. Make any directory and then copy all files in VVS0108.
3. Double click the **"VVS0108.exe"** in the **"VVS0108"** folder to boot-up the software. The following screen is displayed.
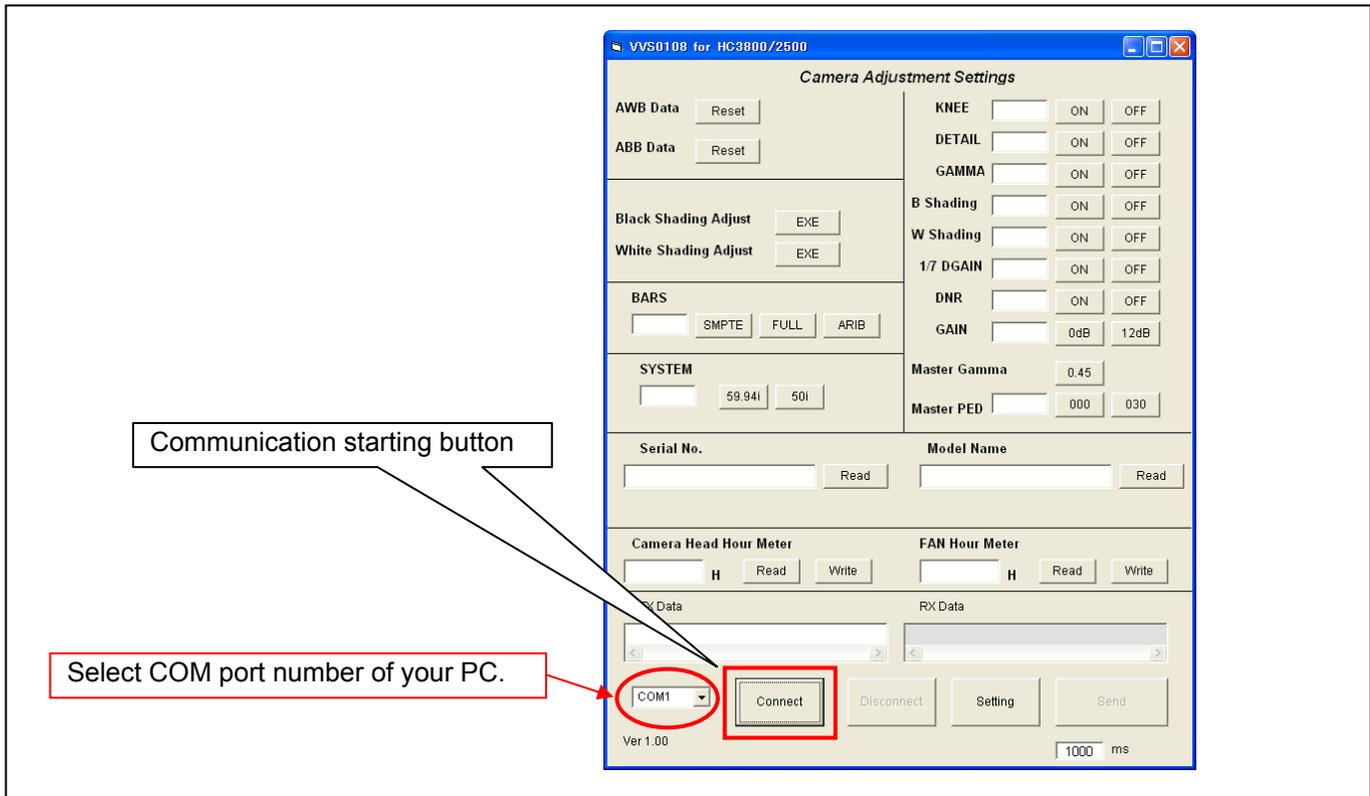
4. Click the **"Connect"** button to start communication between Camera and VVS0108. When the communication is established, the setting values of Camera are displayed.

6-4. Function of PC EVR software

Reset button for AWB and ABB adjustment data.

Setting buttons for PAINT function.

Execution button for Black and White Shading.

BARS setting button.

SYSTEM setting button.

Read button for Serial No. and Model Name.

Read and Write button for Camera Head and FAN Hour Meter.

VVS... for HC3800/2500
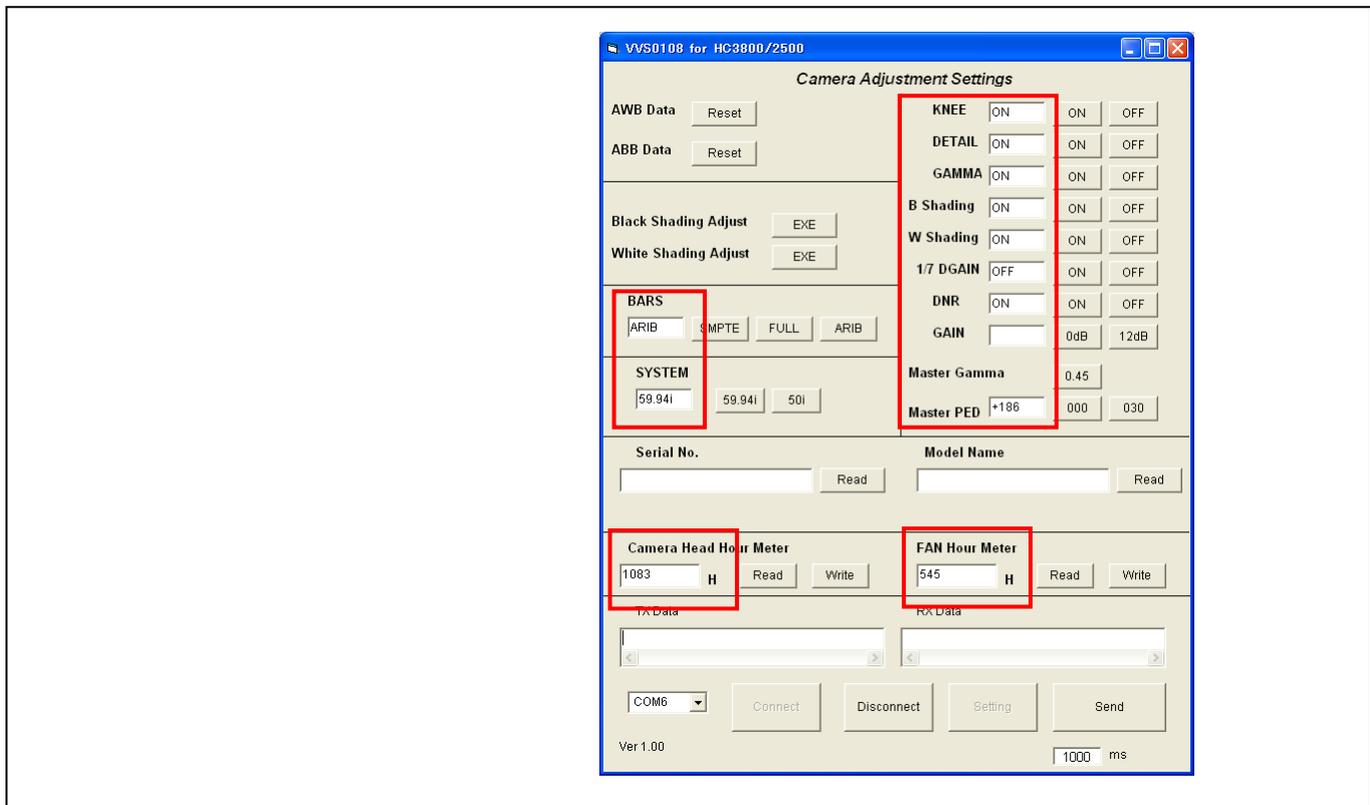
Camera Adjustment Settings

| AWB Data | Reset |
| ABB Data | Reset |

KNEE	ON	ON	OFF
DETAIL	ON	ON	OFF
GAMMA	ON	ON	OFF
B Shading	ON	ON	OFF
W Shading	ON	ON	OFF
1/7 DGAIN	OFF	ON	OFF
DNR	ON	ON	OFF
GAIN	0dB	0dB	12dB

| Black Shading Adjust | EXE |
| White Shading Adjust | EXE |

| Master Gamma | | 0.45 |
| Master PED | +0 | 000 | 030 |

BARS

| ARIB | SMPTE | FULL | ARIB |

SYSTEM

| 59.94i | 59.94i | 50i |

| Serial No. | | | Model Name | |
| J2QA00004 | Read | | AK-HC3800G | Read |

| Camera Head Hour Meter | | | FAN Hour Meter | | |
| 1083 | H | Read | Write | 545 | H | Read | Write |

TX Data

RX Data

| COM6 | Connect | Disconnect | Setting |

Ver 1.00

< 1. Setting of System format >
The system format of Camera can be set.
Clicking **"59.94i"** button, it can be set to **""59.94i"**.
Clicking **"50i"** button, it can be set to **"50i"**.
Clicking button, the message "TURN POWER OFF" is displayed. Please turn off the power of the unit.
NOTE: The message "TURN POWER OFF" is not displayed on the screen from CCU OUTPUT.

< 2. BARS >
The type of color bar of Camera can be set.

< 3. Execution button for Black and White Shading Adjustment >
The White and Black Shading can be executed.
Clicking **"EXE"** button of **Black Shading Adjust**, Black Shading adjustment is executed.
Clicking **"EXE"** button of **White Shading Adjus**t, Black Shading adjustment is executed.

< 4. Reset button for AWB and ABB adjustment data >
The AWB and ABB adjustment data can be reset.
Clicking **"Reset"** button of AWB Data, AWB adjustment data is reset.
Clicking **"Reset"** button of ABB Data, ABB adjustment data is reset.

< 5. Setting button for PAINT >
The function of following items can be set to ON and OFF by clicking the ON/OFF button.
KNEE, **DETAIL**, **GAMMA**, **B Shading**, **W Shading**, **1/7 GAIN**, **DNR**
The **GAIN** can be set to 0dB or 12dB by clicking the **0dB** or **12dB** button.
The **MASTER GAMMA** can be set to **0.45** by clicking the **0.45** button.
The **MASTER PED** can be set to **000** or **030** by clicking the **000** or **030** buttons.

< 6. Serial No. and Model Name display >
Clicking **"Read"** button for Serial No., Serial No. is displayed.
Clicking **"Read"** button for Model Name, Model Name is displayed.

< 7. Setting of Hour Meter >
Operating times for Camera Head and FAN can be displayed by clicking **"Read"** button.
Operating times for Camera Head and FAN can be written by clicking **"Write"** button.
For the value of hour meter is written, input hour meter value into the input window and click **"Write"** button.

< 8. Other >
COM Port and communication setting can be set in the communication un-connection.

It is possible to change from COM1 to COM6 in the port setting. Please set to the COM port number of PC.

Clicking **"SETTING"** button, the following screen is displayed and following items can be set.
● Baud Rate, ● Party, ● Data Length, ● Stop Bit
The setting need not be changed.
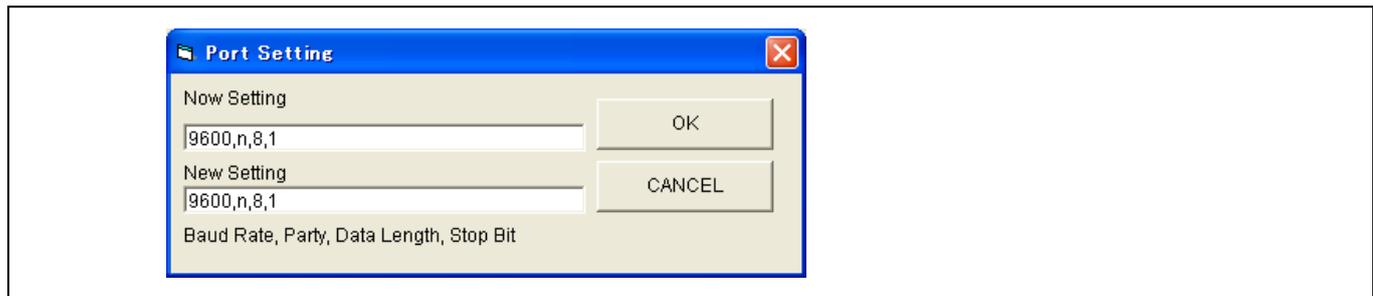
7. Memory Data Backup Procedure

The Flash Memory(IP1805) data and the MRAM(IC1801) data on MAIN P.C.B. can be backup by using Flash Memory Backup Software **"VVS0110"**.
For the data backup, following tools are required. They are same as for PC EVR software.

< Required tools and equipment >

NAME	Part Number	Pcs.	Remark
Measuring board	VFK1988	1	
Extension cable	VFK1989	1	
Extension cable	VFK1982	1	
DC cable	K2GJ2DC00002 or VJA1128	1	For Measuring board
AC Adaptor	---	1	For Measuring board
9pin RS232C cross cable	---	1	
Personal Computer	---	1	***OS: WINDOWS XP SP2 / SP3**

Please refer to item **"6-2. Connection"** about connection of above tools.

1. Download the file **"Data Backup Software for AK-HC3500/HC2500 series (VVS0110)"** from Global Service Web Site.
2. Make any directory and then copy all files in VVS0110.

7-1. Data back up and restoration Flowchart

---

1. Back up the FLASH data

FLASH data Read (Refer to item 7-2-1.)
   1) Execute FLASH_READ.BAT

---

2. Back up the MRAM data

Write MRAM data to FLASH Rom (Refer to item 7-2-2.)
   2) Execute WRITE FACTORY DATA

FACTORY MENU
  → FACTORY INIT
    → WRITE FACTORY DATA

FLASH data Read (MRAM DATA) (Refer to item 7-2-3.)
   3) Execute MRAM_READ.BAT

Exchange the MAIN P.C.Board   ---

---

3. Restore the MRAM data

FLASH data Write (MRAM DATA) (Refer to item 7-2-4.)
   4) Execute MRAM_WRITE.BAT

MRAM data Write (Refer to item 7-2-5.)
   5) Execute READ FACTORY ALL DATA

SERVICE MENU
  → ALL MENU INITIALIZE
    → READ FACTORY ALL DATA

FLASH data Write

FLASH data Write (Refer to item 7-2-6.)
   6) Execute FLASH_WRITE.BAT

7-2. Back Up Procedure

7-2-1. Flash memory data backup procedure

1. Turn on the Camera Recorder and the Personal Computer.
2. Open the SERVICE MENU.
3. Set the item **"FLASH W_P CLEAR"** to **"ON"**.
4. Open Command Prompt screen of your PC, and move to the directory with VVS0110 folder.
5. In case of the downloaded file is in **c:＼>VVS0110**, it types in as follows.
   C:＼>cd VVS0110
   C:＼> VVS0110>

```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:¥Documents and Settings¥sachio>cd ../..

C:¥>cd vvs0110

C:¥vvs0110>
```

6. Type **"FLASH_READ.bat"** and press Enter button to start Data backup.

```
C:¥vvs0110>FLASH_READ.bat
```

NOTE: If **"FLASH W_P CLEAR"** setting in SERVICE MENU remains OFF, "ERROR : RS232C : Line Open Error"
is displayed and Data backup will not start.
If Data backup is normally executed, the progress indicator will appear as shown in the following figure.
Data backup of Flash memory takes about 20 minutes.

```
C:¥vvs0110>FLASH_READ.bat

C:¥vvs0110>flmemv Flash.BIN r /F=ALL.txt

Flush Memory Transfer Program(for DOS/V) Version 1.20
Copyright (C) 1998 Vical
RS232C : SPEED 38400bps

*** Flush Memory: Read ***
Top Address=0x10000  Size=0x3f0000(4128768)
BIN File Name=Flash.BIN

Flush Memory: Read

0  10  20  30  40  50  60  70  80  90  100(%)
>>>>>>>>>>>-+---+---+---+---+---+---+---+
```

7. When "Read Complete" is displayed as shown in the following figure, Data backup is completed. Flash memory data is saved as **"FLASH.BIN"** file in VVS0110 folder (about 4MByte).


```
*** Flush Memory: Read ***
Top Address=0x10000   Size=0x3f0000(4128768)
BIN File Name=Flash.BIN

Flush Memory: Read Complete

C:¥vvs0110>pause
```

8. Turn the Camera power OFF.

NOTE: When **"FLASH W_P CLEAR"** in SERVICE MENU is set to ON, MENU operation is impossible unless the Camera power is turned off.

7-2-2. Transfer procedure of MRAM memory data to Flash memory

1. Turn the Camera power ON.
2. Open FACTORY MENU.
3. Select the item **"WRITE FACTORY DATA"** in FACTORY INIT screen (FACTORY MENU > FACTTORY INIT > WRITE FACTORY DATA). Press the **"JOG dial"** button to open the YES/NO screen.
4. Rotate the **"JOG dial"** button to select the **"YES"**. And then press the **"JOG dial"** button to execute the **"WRITE FACTORY DATA"**. MRAM memory data is transferred to Flash memory.

7-2-3. MRAM memory data backup procedure

1. Turn on the Camera Recorder and the Personal Computer.
2. Open the SERVICE MENU and set the item **"FLASH W_P CLEAR"** to **"ON"**.
3. Open Command Prompt screen of your PC, and move to the directory with VVS0110 folder.
4. In case of the downloaded file is in **c:＼>VVS0110**, it types in as follows.
   C:＼>cd VVS0110
   C:＼> VVS0110>

```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:¥Documents and Settings¥sachio>cd ../..

C:¥>cd vvs0110

C:¥vvs0110>
```

5. Type **"MRAM_READ.bat"** and press Enter button to start Data backup.

```
C:¥vvs0110>MRAM_READ.bat
```

NOTE: If **FLASH W_P CLEAR** setting in SERVICE MENU remains OFF, "ERROR : RS232C : Line Open Error" is displayed and Data backup will not start.
If Data backup is normally executed, the progress indicator will appear as shown in the following figure.
Data backup of MRAM memory takes about 1 minute.

```
C:¥vvs0110>MRAM_READ.bat

C:¥vvs0110>flmemv MRAM.BIN r /F=MRAM.txt

Flush Memory Transfer Program(for DOS/V) Version 1.20
Copyright (C) 1998 Vical
RS232C : SPEED 38400bps

*** Flush Memory: Read ***
Top Address=0xd0000  Size=0x20000(131072)
BIN File Name=MRAM.BIN

Flush Memory: Read

0  10  20  30  40  50  60  70  80  90  100(%)
>>>>>>>>>>--+---+---+---+---+---+---+---+
```

6. When **"Read Complete"** is displayed as shown in the following figure, Data backup is completed. MRAM memory data is saved as **"MRAM.BIN"** file in VVS0110 folder (about 128Kbyte).

```
*** Flush Memory: Read ***
Top Address=0xd0000  Size=0x20000(131072)
BIN File Name=MRAM.BIN

Flush Memory: Read Complete
```

7. Turn the Camera power OFF.

NOTE: When **"FLASH W_P CLEAR"** in SERVICE MENU is set to ON, MENU operation is impossible unless the Camera power is turned off.

7-2-4. Return procedure of MRAM memory data to Flash memory

1. Turn on the Camera Recorder and the Personal Computer.
2. Open the SERVICE MENU and set the item **"FLASH W_P CLEAR"** to **"ON"**.
3. Open Command Prompt screen of your PC, and move to the directory with VVS0110 folder.
4. In case of the downloaded file is in **c:\ >VVS0110**, it types in as follows.
   C:\ >cd VVS0110
   C:\ > VVS0110>

```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:¥Documents and Settings¥sachio>cd ../..

C:¥>cd vvs0110

C:¥vvs0110>
```

5. Type **"MRAM_WRITE.bat"** and press Enter button to start MRAM data transfer to Flash memory.

```
C:¥vvs0110>MRAM_WRITE.bat_
```

NOTE: If **FLASH W_P CLEAR** setting in SERVICE MENU remains OFF, "ERROR : RS232C : Line Open Error" is displayed and Data transfer will not start.
If Data transfer is normally executed, the progress indicator will appear as shown in the following figure.
Data transfer to Flash memory takes about 1 minute.

```
C:¥vvs0110>MRAM_WRITE.bat

C:¥vvs0110>flmemv MRAM.BIN t /F=MRAM.txt

Flush Memory Transfer Program(for DOS/V) Version 1.20
Copyright (C) 1998 Vical
RS232C : SPEED 38400bps

*** Flush Memory: write ***
Top Address=0xd0000  Size=0x20000(131072)
BIN File Name=MRAM.BIN

Flush Memory: Erase Complete
Flush Memory: Write

0  10  20  30  40  50  60  70  80  90  100(%)
>>>>>>>-+---+---+---+---+---+---+---+---+
```

6. When "Write Complete" is displayed as shown in the following figure, Data transfer to Flash memory is completed.


```
*** Flush Memory: write ***
Top Address=0xd0000  Size=0x20000(131072)
BIN File Name=MRAM.BIN

Flush Memory: Erase Complete
Flush Memory: Write Complete
```

7. Turn the Camera power OFF.
NOTE: When **"FLASH W_P CLEAR"** in SERVICE MENU is set to ON, MENU operation is impossible unless the Camera power is turned off.

7-2-5. Transfer procedure of MRAM memory data from Flash memory

1. Turn the Camera power ON.
2. Open FACTORY MENU.
3. Select the item **"READ FACTORY ALL DATA"** in ALL MENU INITIALIZE screen (SERVICE MENU > ALL MENU INITIALIZE > READ FACTORY ALL DATA). Press the **"JOG dial"** button to open the YES/NO screen.
4. Rotate the **"JOG dial"** button to select the **"YES"**. And then press the **"JOG dial"** button to execute the **"READ FACTORY ALL DATA"**. MRAM memory data has been returned to Flash memory at previous step (item 7-3-4), and is transferred to the original MRAM memory at this step.

7-2-6. Return procedure of Flash memory data

1. Turn on the Camera Recorder and the Personal Computer.
2. Open the SERVICE MENU and set the item **"FLASH W_P CLEAR"** to **"ON"**.
3. Open Command Prompt screen of your PC, and move to the directory with VVS0110 folder.
4. In case of the downloaded file is in **c:＼>VVS0110**, it types in as follows.
   C:＼>cd VVS0110
   C:＼> VVS0110>

```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:¥Documents and Settings¥sachio>cd ../..

C:¥>cd vvs0110

C:¥vvs0110>
```

5. Type **"FLASH_WRITE.bat"** and press Enter button to start returning Flash memory data.

```
C:¥vvs0110>FLASH_WRITE.bat
```

NOTE: If **FLASH W_P CLEAR** setting in SERVICE MENU remains OFF, "ERROR : RS232C : Line Open Error" is displayed and Data transfer will not start.
If Data transfer is normally executed, the progress indicator will appear as shown in the following figure.
Data transfer to Flash memory takes about 20 minute.

```
C:¥vvs0110>FLASH_WRITE.bat

C:¥vvs0110>flmemv Flash.BIN t /F=ALL.txt

Flush Memory Transfer Program(for DOS/V) Version 1.20
Copyright (C) 1998 Vical
RS232C : SPEED 38400bps

*** Flush Memory: write ***
Top Address=0x10000   Size=0x3f0000(4128768)
BIN File Name=Flash.BIN

Flush Memory: Erase Complete
Flush Memory: Write

0  10  20  30  40  50  60  70  80  90  100(%)
>---+---+---+---+---+---+---+---+---+---+
```

6. When **"Write Complete"** is displayed as shown in the following figure, Flash memory data transfer is completed.

```
*** Flush Memory: write ***
Top Address=0x10000  Size=0x3f0000(4128768)
BIN File Name=Flash.BIN

Flush Memory: Erase Complete
Flush Memory: Write Complete
```
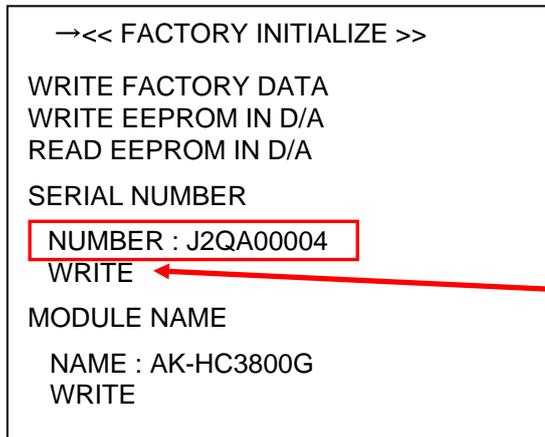
7. Turn the Camera power OFF.

NOTE: When **"FLASH W_P CLEAR"** in SERVICE MENU is set to ON, MENU operation is impossible unless the Camera power is turned off.

8. Serial No. and Model Name registration procedure

Basically Serial No. and Model Name can not be written by using FACTORY menu. But when the MAIN P.C.B. is replaced new one, it becomes possible to register.

8-1. Serial No. registration procedure

1. Turn the Camera power ON.
2. Open the FACTORY INITIALIZE screen in FACTORY MENU.
3. Select the item **"NUMBER"** to enter the Serial number input mode.

```
   →<< FACTORY INITIALIZE >>

WRITE FACTORY DATA
WRITE EEPROM IN D/A
READ EEPROM IN D/A

SERIAL NUMBER

  NUMBER : J2QA00004
  WRITE  ←
MODULE NAME

  NAME : AK-HC3800G
  WRITE
```

This character **"WRITE"** is only appears on screen when new MAIN P.C.B is installed.

4. Press the **JOG dial** button to activate the character input mode and to move the arrow to the position of the first character.

```
      SERIAL NUMBER
            ↓
      NUMBER : J2QA00004
      WRITE
```

5. Select a character or number by rotating the **JOG dial** button. And then press the **JOG dial** button to decide the character or number.
6. Move the arrow to the second character's position by rotating the **JOG dial** button. Press the **JOG dial** button to activate the character input mode. Like the first character, rotate the **JOG dial** button to select a character or number and press it to decide the character or number.
7. Repeat the operation of step "6" to input the 9 characters of Serial number.
8. Move the arrow to the position of ":" (colon) and press the **JOG dial** button to exit the Serial number input mode.

```
      SERIAL NUMBER
            ↓
      NUMBER : J2QA00004
      WRITE
```

9. When **"WRITE"** is selected and then the **JOG dial** button is pressed, write confirmation message **"SERIAL NUMBER WRITE?"** is displayed. Select **YES** and press **JOG dial** button to register the Serial number. When **"WRITE OK"** is displayed, the registration is completed.

Caution !
Once WRITE operation is executed, the item WRITE in the menu is no longer displayed, and it becomes impossible to re-register the Serial number.
If the registration is mistaken, please consult service department of Professional AV Business unit.

8-2. Model Name registration procedure

1. Turn the Camera power ON.
2. Open the FACTORY INITIALIZE screen in FACTORY MENU.
3. Select the item **"NAME"** to enter the Model Name input mode.

```
→<< FACTORY INITIALIZE >>

WRITE FACTORY DATA
WRITE EEPROM IN D/A
READ EEPROM IN D/A

SERIAL NUMBER

  NUMBER : J2QA00004
  WRITE

MODULE NAME

  NAME : AK-HC3800G
  WRITE
```

This character **"WRITE"** is only appears on screen when new MAIN P.C.B is installed.

4. Press the **JOG dial** button to activate the character input mode and to move the arrow to the position of the first character.

```
MODULE NAME
         ↓
  MAME : AK-HC3800G
  WRITE
```

5. Select a character or number by rotating the **JOG dial** button. And then press the **JOG dial** button to decide the character or number.
6. Move the arrow to the second character's position by rotating the **JOG dial** button. Press the **JOG dial** button to activate the character input mode. Like the first character, rotate the **JOG dial** button to select a character or number and press it to decide the character or number.
7. Repeat the operation of step "6" to input Model Name (AK-HC3800G, etc).
8. Move the arrow to the position of ":" (colon) and press the **JOG dial** button to exit the Model Name input mode.

```
MODULE NAME
         ↓
  MAME : AK-HC3800G
  WRITE
```

9. When **"WRITE"** is selected and then the **JOG dial** button is pressed, write confirmation message **"SERIAL NUMBER WRITE?"** is displayed. Select **YES** and press **JOG dial** button to register the Serial number. When **"WRITE OK"** is displayed, the registration is completed.
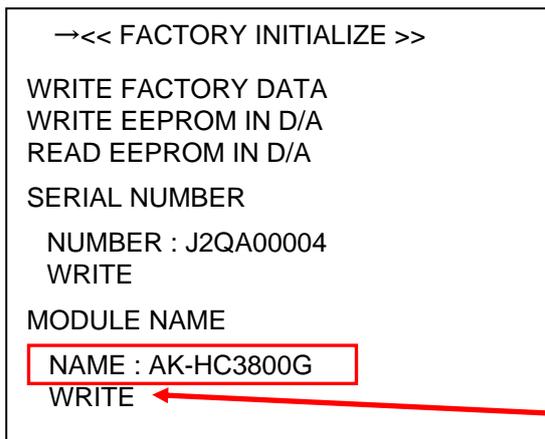
Caution !
Once WRITE operation is executed, the item WRITE in the menu is no longer displayed, and it becomes impossible to re-register the Model Name.
If the registration is mistaken, please consult service department of Professional AV Business unit.
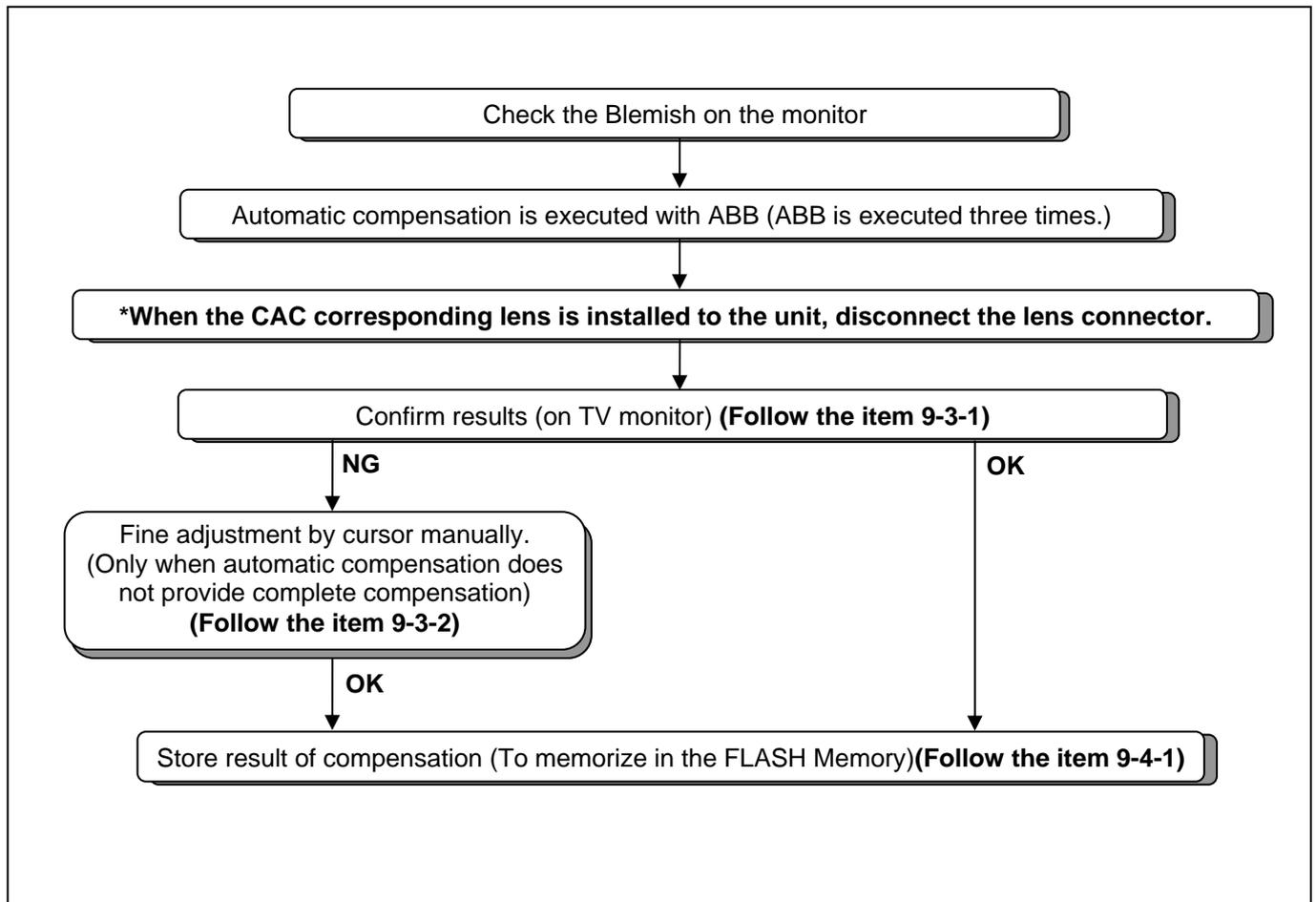
9. White Blemish Compensation

< Features >
a)   It is possible to compensate blemish of each color signal individually (R, G, B and Y).
      (Total amount: 256 points)
b)   It is possible to compensate blemish without extra equipment (PC, Service fixtures etc.).
c)   Automatic blemish compensation function. Also it is possible to compensate manually.

9-1. Blemish Compensation flow

This machine has Automatic blemish compensation function.
Blemish compensation is executed automatically when ABB is executed in the normal operation.
(Start ABB functions first and goes on to compensate the blemish.)

```
                    ┌──────────────────────────────────────────┐
                    │      Check the Blemish on the monitor     │
                    └──────────────────────────────────────────┘
                                      │
                    ┌──────────────────────────────────────────┐
                    │ Automatic compensation is executed with   │
                    │ ABB (ABB is executed three times.)        │
                    └──────────────────────────────────────────┘
                                      │
        ┌────────────────────────────────────────────────────────────┐
        │ *When the CAC corresponding lens is installed to the unit,  │
        │  disconnect the lens connector.                             │
        └────────────────────────────────────────────────────────────┘
                                      │
                    ┌──────────────────────────────────────────┐
                    │ Confirm results (on TV monitor)           │
                    │ (Follow the item 9-3-1)                   │
                    └──────────────────────────────────────────┘
                     NG                               OK
                      │                                │
        ┌─────────────────────────────────┐           │
        │ Fine adjustment by cursor        │           │
        │ manually.                        │           │
        │ (Only when automatic compensation│           │
        │ does not provide complete        │           │
        │ compensation)                    │           │
        │ (Follow the item 9-3-2)          │           │
        └─────────────────────────────────┘           │
                     OK                                │
                      │                                │
        ┌──────────────────────────────────────────────────────────┐
        │ Store result of compensation (To memorize in the FLASH    │
        │ Memory)(Follow the item 9-4-1)                            │
        └──────────────────────────────────────────────────────────┘
```

9-2. Connection

Connect the HD SDI1 OUT terminal of the camera and the TV-monitor (Confirms with HD SDI).

HD SDI1 OUT

TV-monitor
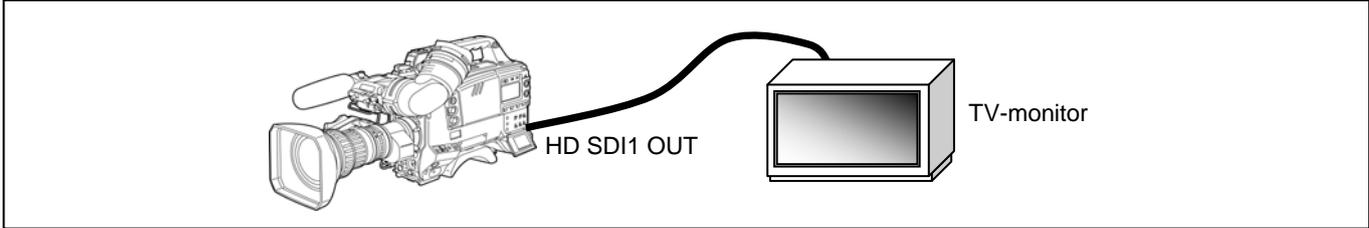
9-3. Blemish Compensation Procedures

1. About 2-hours aging or operation is required before starting an adjustment.
2. Set WHITE BAL SW and SHUTTER SW as shown below.
   - WHITE BAL SW   : PRST
   - SHUTTER SW   : OFF

9-3-1. Blemish confirmation

Please confirm whether all blemishes were compensated with this status display by viewing the TV-monitor. As the standard of a confirmation, Blemish compensation specification is shown below.

Observation environment

Measurement part	HD SDI1 OUT connector (Confirms with HD SDI)
Circumstance temperature	77°F (25°C) About 2-hours aging
SYSTEM	59.94i or 50i (Either is OK)
GAIN setting	12dB
AWB SW setting	PRST (PRESET)
MEDIAN FILTER	ON or OFF (Either is OK)

Specification
Confirm that the blemish is in specification (watch).

< Specification (watch) >
Condition: GAIN: 12dB
The white blemish does not appear on the monitor TV.
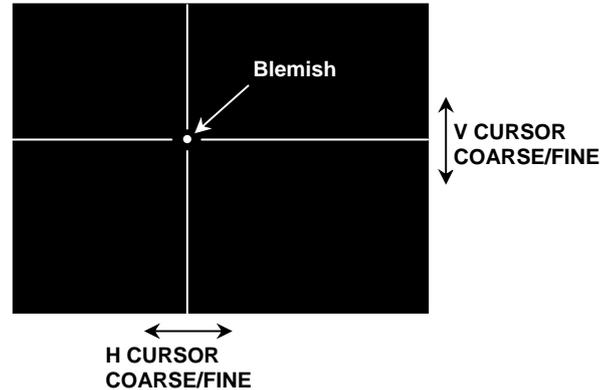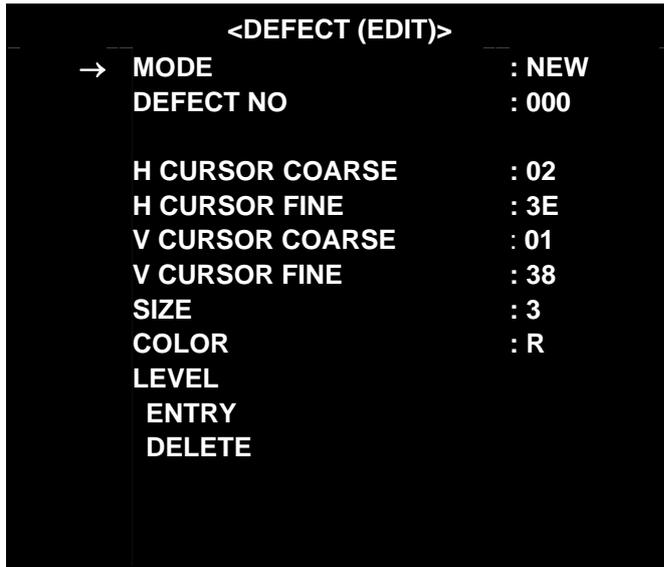
9-3-2. Manual compensation procedure

In case all blemishes are not compensated in automatic compensation (ABB), it is also possible to perform blemish compensation manually by using the cursor. Following shows then concrete manual compensation procedures for various cases.

I) Manual compensation for position which was not detected automatically
1. Close LENS iris and open the **"<DEFECT (EDIT)>"** page in SERVICE menu.
2. Select **"MODE"** item and set it from **"EDIT" to "NEW"**.
   (No need to decide **"DEFECT NO."**. DEFECT NO. is automatically set by CAMERA CPU.)
3. Set following item.

SIZE	:	3
COLOR	:	***NOTE**

*NOTE: Select to R, G or B where blemish has been generated.

```
          <DEFECT (EDIT)>
  →   MODE                    : NEW
      DEFECT NO               : 000

      H CURSOR COARSE         : 02
      H CURSOR FINE           : 3E
      V CURSOR COARSE         : 01
      V CURSOR FINE           : 38
      SIZE                    : 3
      COLOR                   : R
      LEVEL
       ENTRY
       DELETE
```

ENTRY (EDIT) page

Blemish

V CURSOR COARSE/FINE

H CURSOR COARSE/FINE

4. Observe TV-monitor and then adjust item **"H CURSOR COARSE"** or **"H CURSOR FINE"** so that the H cursor position moves to the target blemish.
5. Observe TV-monitor and then adjust item **"V CURSOR COARSE"** or **"V CURSOR FINE"** so that the V cursor position moves to the target blemish. Then the blemish will disappear automatically.
6. When the blemish does not disappear by positional specification of cursor, the item of **"COLOR"** is used. Set item **"COLOR"** as follows.
   <COLOR>
   This item specifies the color of CCD with a blemish. When the setting value of this item is changed with R, G, and B from Y and a blemish disappears, a color when a blemish disappears is set up.
   NOTE: When the blemish does not disappear well by R, G or B is selected, Y is selected. When Y is selected, R, G, and B colors are corrected.
7. Select **"ENTRY"** item, and push **JOG Dial** button. Then Select **"YES"** and push **JOG dial** button again.
8. When **"ENTRY"** character appears on the lower left of the screen, data store will be completed.
9. Close menu screen and then turn off the power of the Unit.

9-4. Remarks

9-4-1. Backup the blemish compensation data

1. Open **"<DEFECT (SETTING)>"** page in SERVICE menu.
2. Select **"WRITE DEFECT DATA"** item, and push **"JOG dial"** button.
3. Appear **"WRITE?" "YES/NO"** message, then select **"YES"** and push **"JOG dial"** button.
4. When **"WRITE OK"** appears on the lower left of the screen, blemish data will be memorized in Flash memory.
5. Close the menu and then turn off the power of the Unit.

9-4-2. Restore the blemish compensation data

1. Open **"<DEFECT (SETTING)>"** page in SERVICE menu.
2. Select **"READ DEFECT DATA"** item, and push **"JOG dial"** button.
3. Appear **"READ?" "YES/NO"** message, then select **"YES"** and push **"JOG dial"** button.
4. When **"READ OK"** appears on the lower left of the screen, Backup blemish data which is memorized in Flash memory by **"WRITE DEFECT DATA"**, will be stored.
5. Close the menu and then turn off the power of the Unit.

9-4-3. Delete all cursor position data (Blemish data)

1. Open **"<DEFECT (SETTING)>"** page in SERVICE menu.
2. Select **"ALL DATA CLEAR"** item, and push **"JOG dial"** button.
3. Appear **"CLEAR?" "YES/NO"** message, then select **"YES"** and push **"JOG dial"** button.
4. When **"CLEAR OK"** appears on the lower left of the screen, all blemish data in Flash memory will be deleted.
5. Close the menu and then turn off the power of the Unit.

9-4-4. Delete registered data one by one

1. Open **"<DEFECT (EDIT)>"** page in SERVICE menu.
2. Select **"DEFECT NO."** to desired position of cursor.
3. Select **"DELETE"** item, and push **"JOG dial"** button.
4. Appear **"DELETE?" "YES/NO"** message, then select **"YES"** and push **"JOG dial"** button.
5. When **"DELETE OK"** appears on the lower left of the screen, One blemish data will be deleted.
6. Close menu screen and then turn off the power of the Unit.

9-4-5. Change Parameter about blemish compensation

1. Open **"<DEFECT (EDIT)>"** page in SERVICE menu.
2. Select **"DEFECT NO."** to desired position of cursor.
3. Change some parameters in **"<DEFECT (EDIT)>"** page (COLOR, SIZE etc.).
4. Select **"ENTRY"** item, and push **"JOG dial"** button.
5. Appear **"ENTRY?" "YES/NO"** message, then select **"YES"** and push **"JOG dial"** button.
6. When **"ENTRY"** appears on the lower right of the screen, data change will be completed.
7. Close menu screen and then turn off the power of the Unit.

9-4-6. About the position inhibited to register the compensation data

When there is already registered blemish compensation data, depending on the position relation of the newly registered blemish compensation position (cursor position), blemish compensation operation may not be performed normally. In that case, cursor is flashed on the screen, and a blemish compensation position cannot be registered.

When blemish compensation data is added with the registered blemish compensation data, the inhibit position for blemish compensation is as follow.

Registered blemish compensation size	Additional blemish compensation size	Range of inhibit position	
		Horizontal direction	Vertical direction
1,2,3	1,2,3	± 5	± 1
	5	± 6	
	7	± 7	
5	5	± 7	
	7	± 8	
7	7	± 9	

Ex.: When the 5 pixel compensation data is added to registered 7 pixel compensation data
The position shown in the gray of the following figure turns into a registration prohibition position.
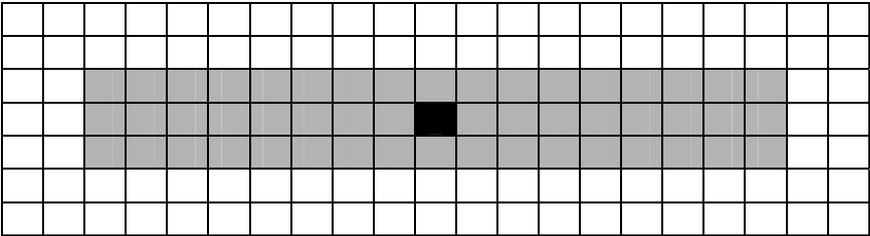
■ : Registered blemish compensation position (There is compensation data of 5 pixel)

▨ : Registration inhibited position (The compensation data of the 7 pixel cannot register additionally.)

10. Operation after major part exchanged
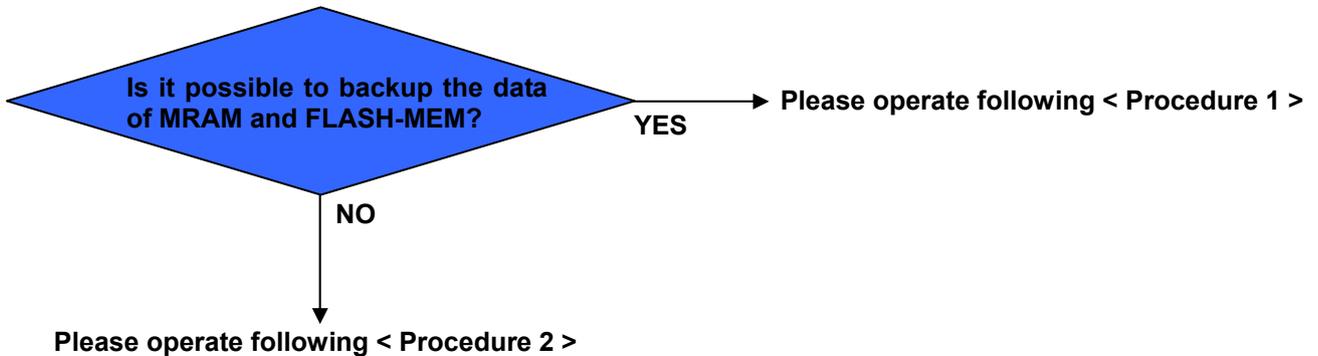
10-1. Operation List

X: Operation required

	Replacement Parts	Adj.	Version conf.	MRAM/ FLASH	EEPROM	Remark
MAIN U	MAIN P.C.B.	X	X	X		
	POWER DCDC P.C.B.					Not required
POWER U	POWER P.C.B.					Not required
	POWER SW P.C.B.					Not required
CAMERA U	DRIVE P.C.B.	X			X	
	PREAMP P.C.B.	X				
	PULSE AD P.C.B.	X	X		X	
OPTICAL U — OPTICAL U	X				
	SENSOR P.C.B.	X				
	ND POS SENS P.C.B.	X				
FRONT U — FRONT SW P.C.B.					Not required
	MENU SW P.C.B.					Not required
BOTTOM U SIDE SW CASE U	FRONT MIC P.C.B.					Not required
	SDCARD P.C.B.					Not required
	TOGGLE SW P.C.B.					Not required
REAR CASE U INCOM SW U	INCOM SW P.C.B.	X				
	INCOM P.C.B.					Not required
REAR JACK U	REAR JACK P.C.B.	X				
	REAR SW P.C.B.					Not required
TOP U	EVF CN P.C.B.					Not required
	ND POS P.C.B.					Not required
HANDLE U	HANDLE SW P.C.B.					Not required
	HANDLE TALLY P.C.B.					Not required

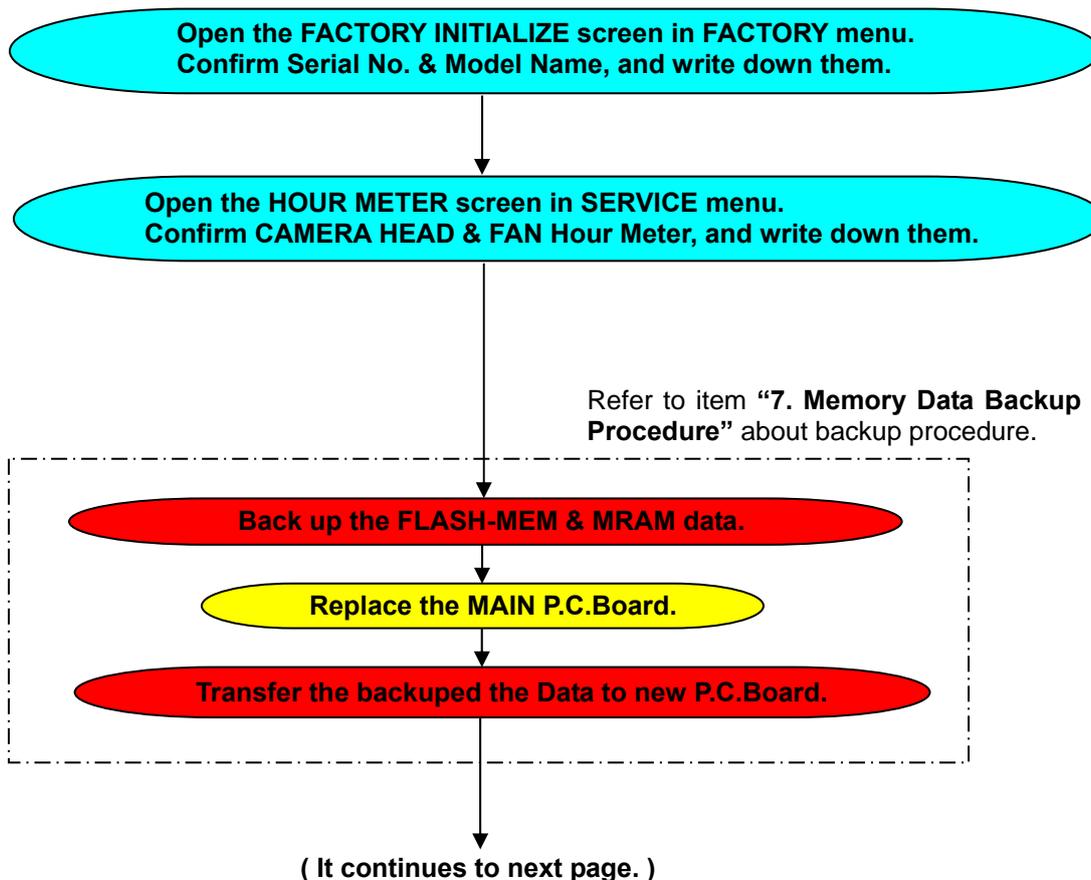# 10-2. Operation flow chart after replacement of major parts
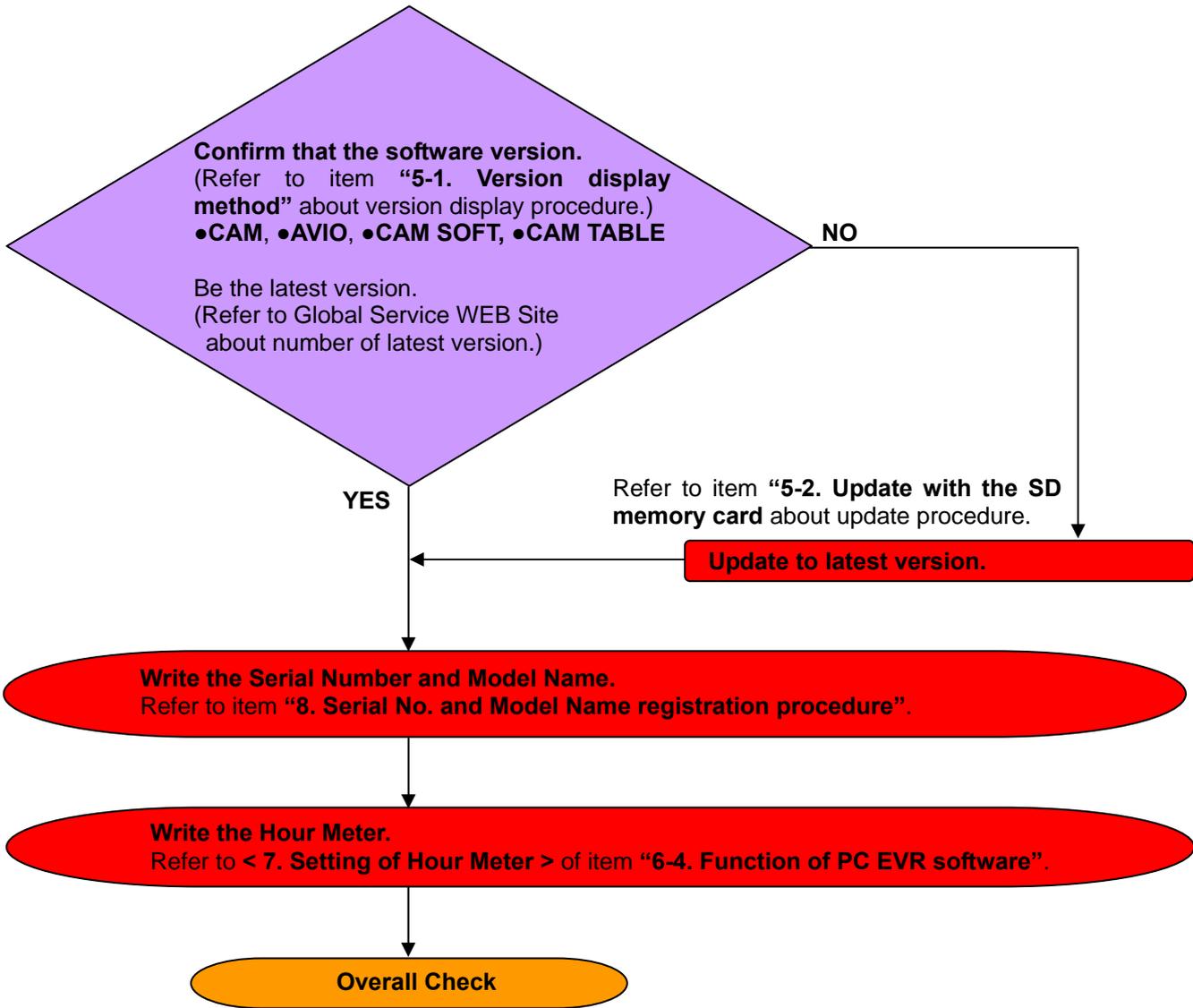
10-2-1. MAIN P.C.Board.

*NOTE:
OPT MODULE is not on a new MAIN P.C.B. (spare part). When replacing MAIN P.C.B., please remove the OPT MODULE from the old MAIN P.C.B. and attach it to a new MAIN P.C.B. (spare part)
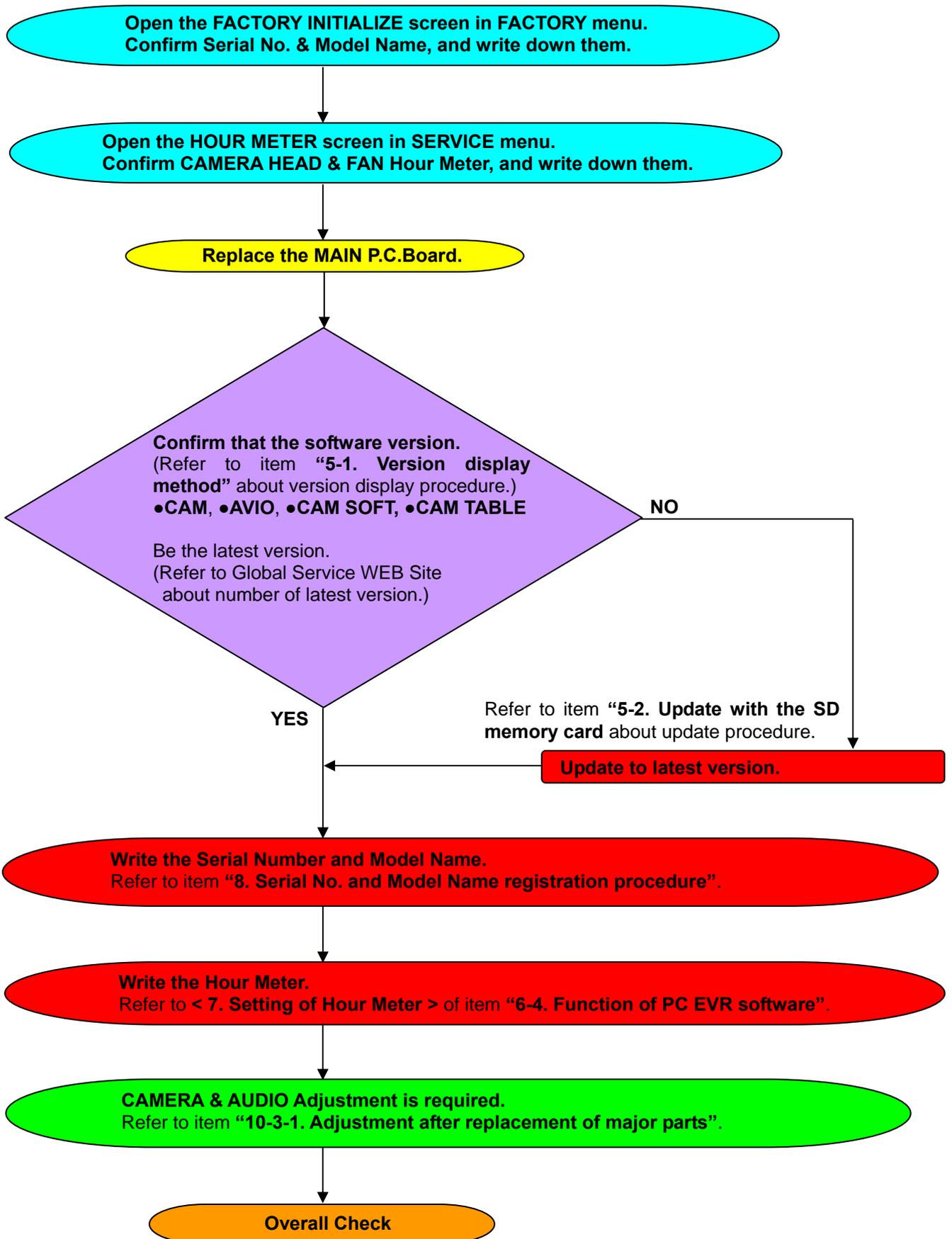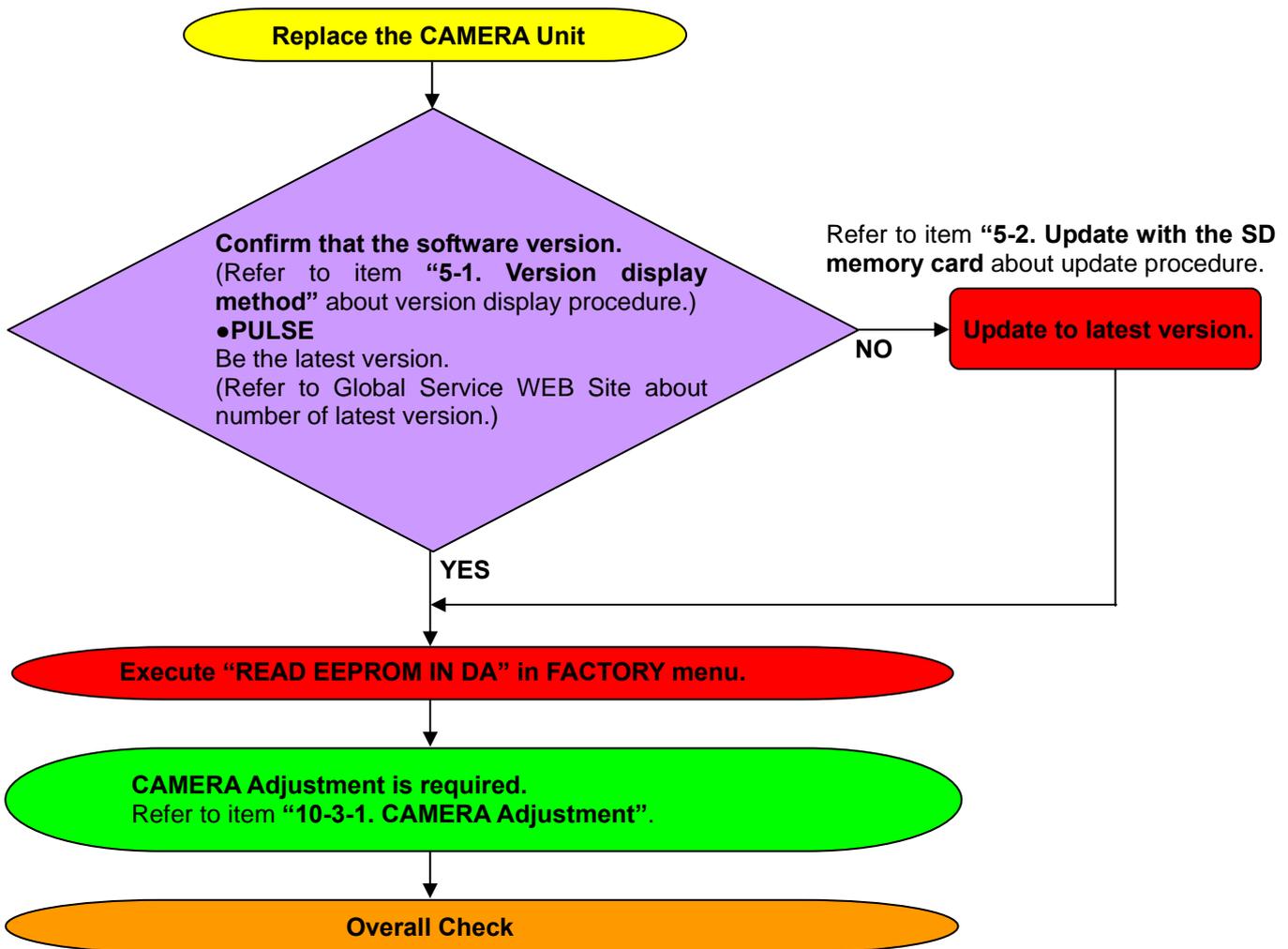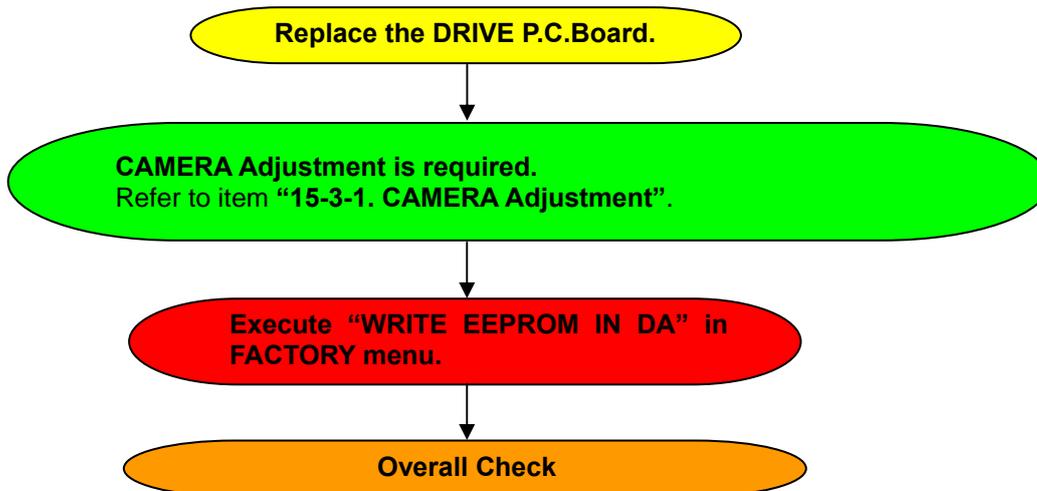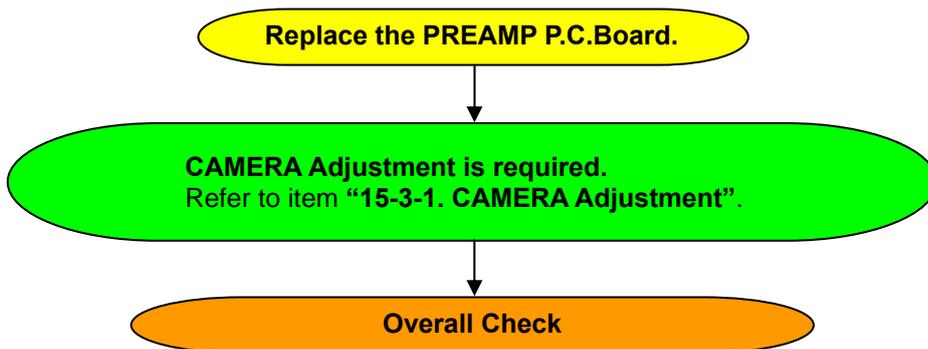
Is it possible to backup the data of MRAM and FLASH-MEM?

YES → **Please operate following < Procedure 1 >**

NO

Please operate following < Procedure 2 >

< PROCEDURE 1 >

**Open the FACTORY INITIALIZE screen in FACTORY menu.
Confirm Serial No. & Model Name, and write down them.**

**Open the HOUR METER screen in SERVICE menu.
Confirm CAMERA HEAD & FAN Hour Meter, and write down them.**

Refer to item **"7. Memory Data Backup Procedure"** about backup procedure.

Back up the FLASH-MEM & MRAM data.

Replace the MAIN P.C.Board.

Transfer the backuped the Data to new P.C.Board.

(It continues to next page.)

Confirm that the software version.
(Refer to item **"5-1. Version display method"** about version display procedure.)
●CAM, **●AVIO**, **●CAM SOFT, ●CAM TABLE**

Be the latest version.
(Refer to Global Service WEB Site about number of latest version.)

NO

YES

Refer to item **"5-2. Update with the SD memory card** about update procedure.

Update to latest version.

Write the Serial Number and Model Name.
Refer to item **"8. Serial No. and Model Name registration procedure"**.

Write the Hour Meter.
Refer to **< 7. Setting of Hour Meter >** of item **"6-4. Function of PC EVR software"**.

Overall Check

< PROCEDURE 2 >

Open the FACTORY INITIALIZE screen in FACTORY menu.
Confirm Serial No. & Model Name, and write down them.

↓

Open the HOUR METER screen in SERVICE menu.
Confirm CAMERA HEAD & FAN Hour Meter, and write down them.

↓

Replace the MAIN P.C.Board.

↓

Confirm that the software version.
(Refer to item **"5-1. Version display method"** about version display procedure.)
●CAM, ●AVIO, ●CAM SOFT, ●CAM TABLE

Be the latest version.
(Refer to Global Service WEB Site about number of latest version.)

NO →

Refer to item **"5-2. Update with the SD memory card** about update procedure.

Update to latest version.

YES ↓

Write the Serial Number and Model Name.
Refer to item **"8. Serial No. and Model Name registration procedure"**.

↓

Write the Hour Meter.
Refer to **< 7. Setting of Hour Meter >** of item **"6-4. Function of PC EVR software"**.

↓

CAMERA & AUDIO Adjustment is required.
Refer to item **"10-3-1. Adjustment after replacement of major parts"**.

↓

Overall Check

INF-41

10-2-2. CAMERA Unit

Replace the CAMERA Unit

Confirm that the software version.
(Refer to item **"5-1. Version display method"** about version display procedure.)
●**PULSE**
Be the latest version.
(Refer to Global Service WEB Site about number of latest version.)

NO →

Refer to item **"5-2. Update with the SD memory card** about update procedure.

Update to latest version.

YES

Execute "READ EEPROM IN DA" in FACTORY menu.

CAMERA Adjustment is required.
Refer to item **"10-3-1. CAMERA Adjustment"**.

Overall Check

10-2-3. DRIVE P.C.Board.

Replace the DRIVE P.C.Board.

CAMERA Adjustment is required.
Refer to item **"15-3-1. CAMERA Adjustment"**.

Execute "WRITE EEPROM IN DA" in FACTORY menu.

Overall Check

10-2-4. PREAMP P.C.Board.

Replace the PREAMP P.C.Board.

CAMERA Adjustment is required.
Refer to item **"15-3-1. CAMERA Adjustment"**.

Overall Check

10-2-5. PULSE AD P.C.Board.

Replace the PULSE AD P.C.Board.

Confirm that the software version.
(Refer to item **"5-1. Version display method"** about version display procedure.)
●**PULSE**
Be the latest version.
(Refer to Global Service WEB Site about number of latest version.)

NO

Refer to item **"5-2. Update with the SD memory card** about update procedure.

Update to latest version.

YES

CAMERA Adjustment is required.
Refer to item **"10-3-1. CAMERA Adjustment"**.

Execute "WRITE EEPROM IN DA" in CAM FACTORY menu.

Overall Check

10-2-6. Optical Unit

Replace the Optical Unit.

↓

CAMERA Adjustment is required.
Refer to item **"10-3-1. CAMERA Adjustment"**.

↓

Overall Check

10-2-7. SENSOR P.C.Board.

Replace the SENSOR P.C.Board.

↓

CAMERA Adjustment is required.
Refer to item **"10-3-1. CAMERA Adjustment"**.

↓

Overall Check

10-2-8. ND POS SENS P.C.Board.

Replace the ND POS SENS P.C.Board.

↓

CAMERA Adjustment is required.
Refer to item **"10-3-1. CAMERA Adjustment"**.

↓

Overall Check

10-2-9. INCOM SW P.C.Board.

Replace the INCOM SW P.C.Board.

AUDIO Adjustment is required.
Refer to item **"10-3-2. AUDIO Adjustment"**.

Overall Check

10-2-10. REAR JACK P.C.Board.

Replace the REAR JACK P.C.Board.

AUDIO Adjustment is required.
Refer to item **"10-3-2. AUDIO Adjustment"**.

Overall Check

10-3. Adjustment after replacement of major parts

When the following parts are exchanged showing in the table, the adjustment and confirmation are required follow the items shown by mark "X" in the table.
The adjustment procedure has been described to electric adjustment procedure (SECTION 3).

10-3-1. CAMERA Adjustment

| | | *MAIN P.C.B. | | | Camera Unit | | | | |
| | | | | | Optical Unit | | Drive P.C.B. | Pulse AD P.C.B. | Pre Amp P.C.B. |
NO	ADJUSTMENT	When Back up	When no back up		SENSOR P.C.B.	FILTER P.C.B.			
----	READ EEPROM IN DA*		X	X					
2-1	HD SDI Out Level Conf.	X							
2-2	HD VF Out Level	X							
2-3	R, G, B Reset DC				X		X	X	
2-4	Pulse Cancel				X		X	X	X
2-5	Sub Voltage Conf.				X		X	X	
2-6	Standard Sensitivity (1)				X		X	X	X
2-7	R, G, B Sub Voltage				X		X	X	X
2-8	Standard Sensitivity (2)				X		X	X	X
2-9	Modulation Ratio	X			X		X	X	X
2-10	Dark Shading	X		X	X		X	X	X
2-11	White Shading (Standard)	X	X		X				X
2-12	White Shading (Ext. Lens)	X	X		X				X
2-13	R, B Gamma	X	X		X		X	X	X
2-14	Flare	X	X		X		X	X	X
2-15	ND Filter Compensation	X		X		X			
----	WRITE EEPROM IN DA*						X	X	
----	Blemish Compensation	X		X	X		X	X	X

X: Adjustment / Confirmation Required

● The method of data backup (FLASH MEMORY and MRAM) has been described to the item **"7. Memory Data Backup Procedure"** of service information (SECTION 1).

● The adjustment data of a new Camera Unit is pre-installed in the Camera Unit. When the Camera Unit or MAIN board is exchanged, please execute **"READ EEPROM IN DA"** to transfer the adjustment data saved in EEPROM from the DRIVE and PULSE AD board to the MRAM on MAIN board. Then the data will available (FACTORY MENU > FACTORY INIT > READ EEPROM IN DA).

● Please execute **"WRITE EEPROM IN DA"** after completing the adjustment of the correspondence shown in the above table when DRIVE board or PULSE AD board exchanged (FACTORY MENU > FACTORY INIT > WRITE EEPROM IN DA).

● The method of white blemish compensation has been described to the item **"9. White Blemish Compensation"** of service information (SECTION 1).

10-3-2. AUDIO Adjustment

| | | *MAIN P.C.B. | | REAR JACK P.C.B. | INCOM SW P.C.B. |
NO	ADJUSTMENT	When Back up	When no back up		
3-3	MIC1 Input Level (LINE) Adjustment		X	X	
3-4	MIC2 Input Level (LINE) Adjustment		X	X	
3-5	INCOM MIC Level Adjustment		X		X

X: Adjustment / Confirmation Required

11. P.C.Board Location

HANDLE SW P.C.B.

MENU SW P.C.B.

HANDLE TALLY P.C.B.

FRONT SW P.C.B.

POWER DCDC P.C.B.

ND POS SENS P.C.B.

MAIN P.C.B.

SENSOR P.C.B.

PREAMP P.C.B.

DRIVE P.C.B.

PULSE AD P.C.B.

EVF CN P.C.B.

ND POS P.C.B.

FRONT   MIC

INCOM P.C.B.

TOGGLE SW P.C.B.

REAR JACK P.C.B.

REAR SW P.C.B.

INCOM SW P.C.B.

SDCARD P.C.B.

POWER P.C.B.

POWER SW P.C.B.
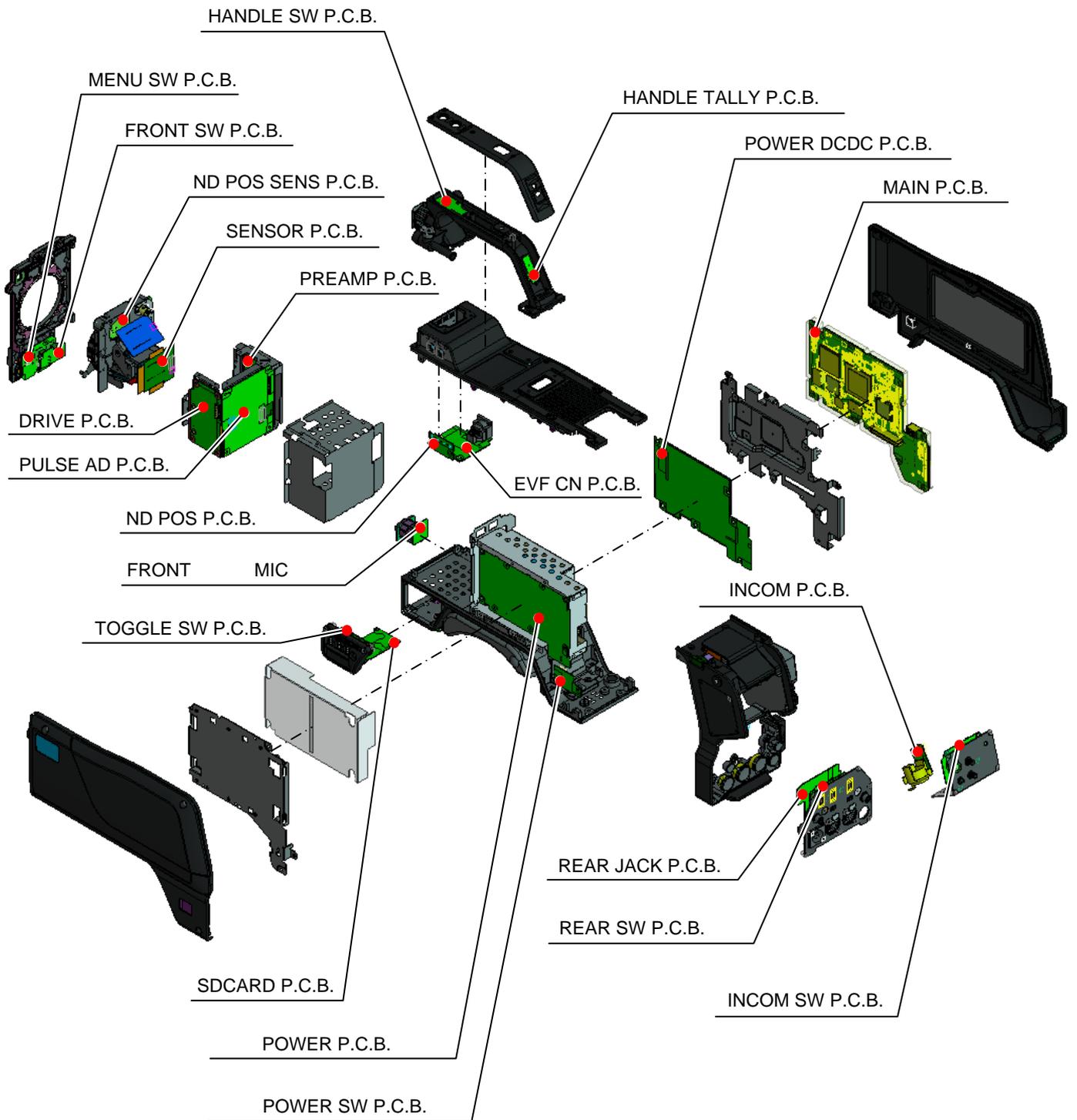
12. Optical Connector & Cable cleaning procedure

12-1. Pin assignment of Optical Connector

< TAJIMI: AK-HC3800G >

OPT FIBER (OPT-TX: CCU → CAMERA)

DC190V (C)

DC190V (H)

STBY PWR

STBY SIG

OPT FIBER (OPT RX: CAMERA → CCU)

< LEMO: AK-HC3800GS >

OPT FIBER (OPT-TX: CCU → CAMERA)

STBY PWR

STBY SIG

DC190V (C)

DC190V (H)

OPT FIBER (OPT RX: CAMERA → CCU)
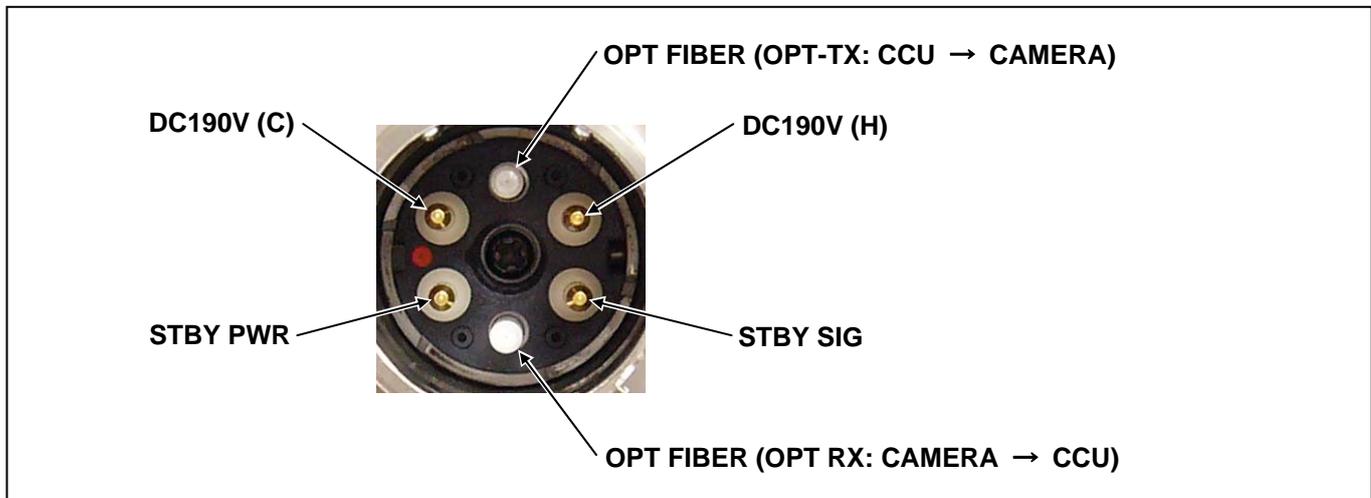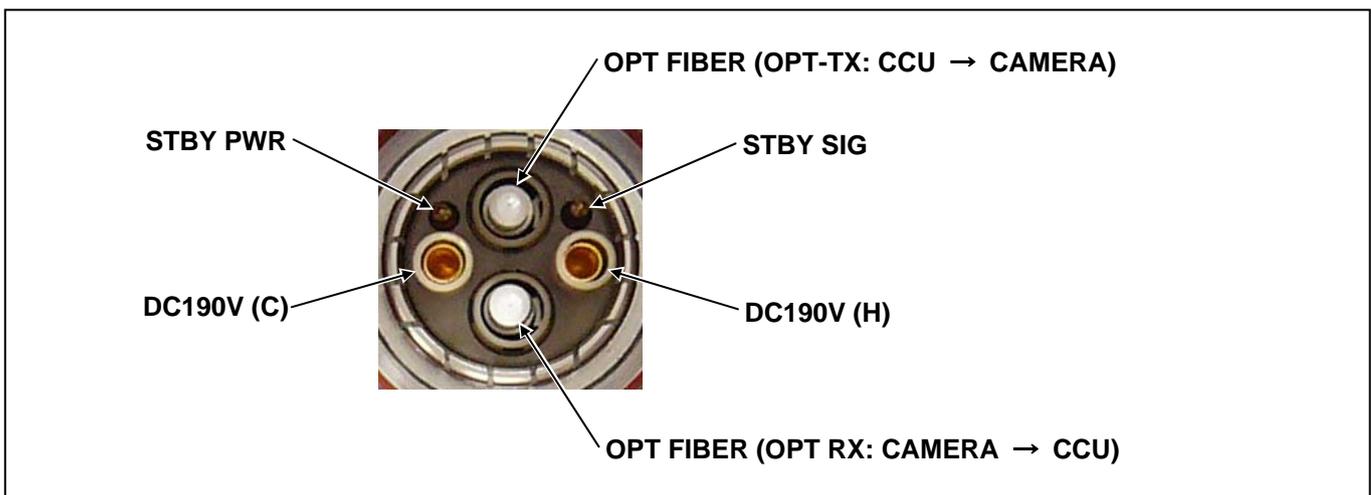
12-2. Construction of Optical Fiber

< End of Optical Fiber >

CLAD (Optical is reflected back by this.)

CORE (Optical passes through the inside of this.)

FERRULE (This is used to adjust the positions and fit both end faces together precisely in connecting the connector.)
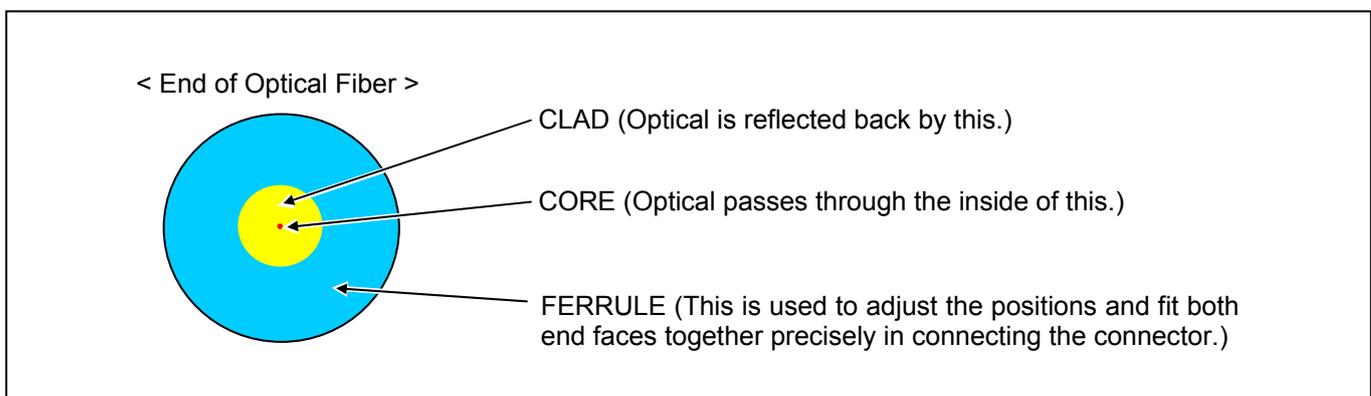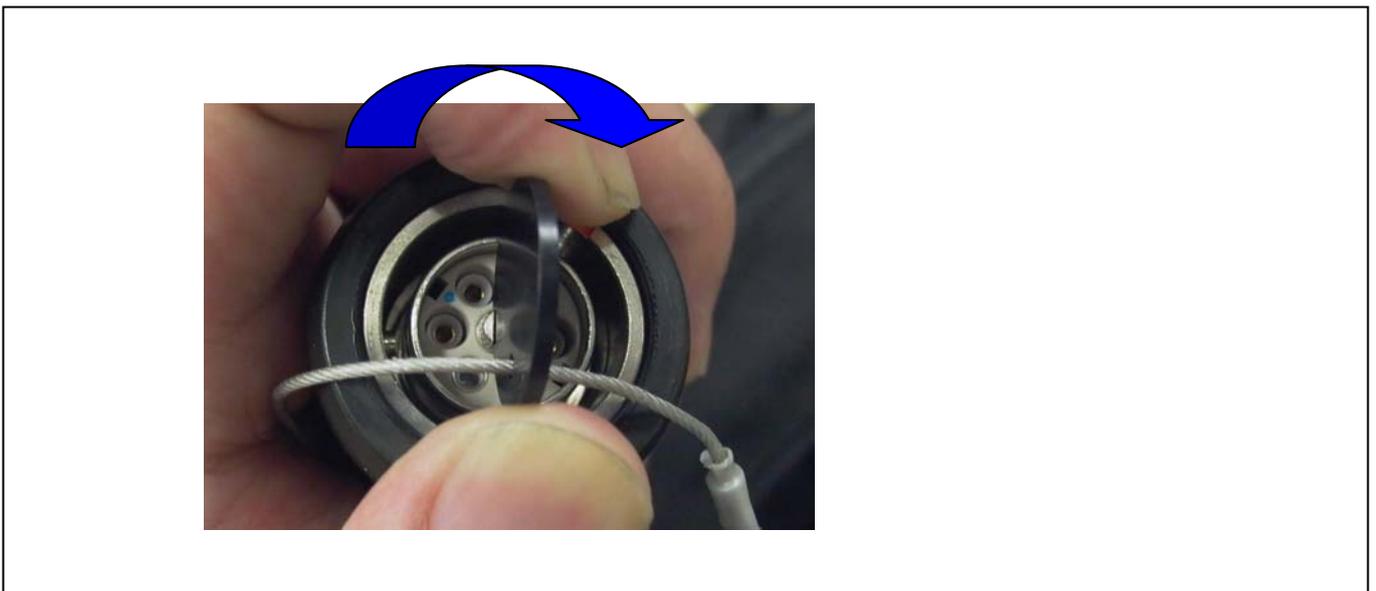
12-3. TAJIMI Optical Connector (AK-HC3800G)

1. Dip a cotton swab in volatile alcohol (ethanol, isopropyl alcohol, etc.) and wipe the FERRULE end face (tip of CORE) clean with it.
2. It is recommended that the end face should be wiped with a dry cotton swab immediately (to remove the liquid).
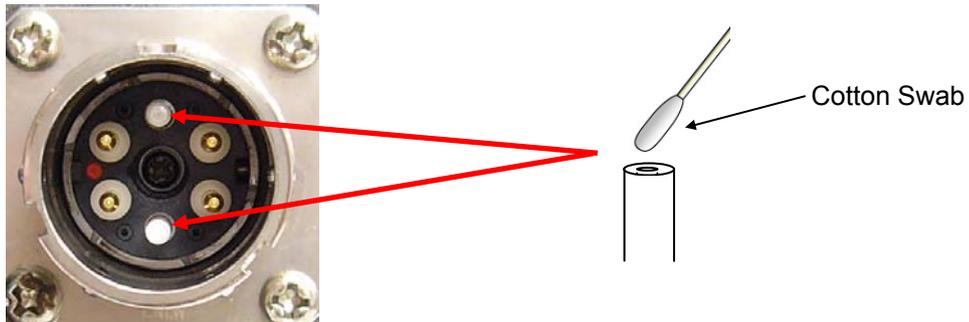
Cotton Swab

Perform the cleaning avoiding dust entering into the core ($\varphi 0.01$mm for passage of optical signals) in the optical transmission line.

Core

12-4. LEMO Optical Connector (AK-HC3800GS)

1. Dip a cotton swab in volatile alcohol (ethanol, isopropyl alcohol, etc.) and wipe the FERRULE end face (tip of CORE) clean with it.
2. It is recommended that the end face should be wiped with a dry cotton swab immediately (to remove the liquid).

Cotton Swab
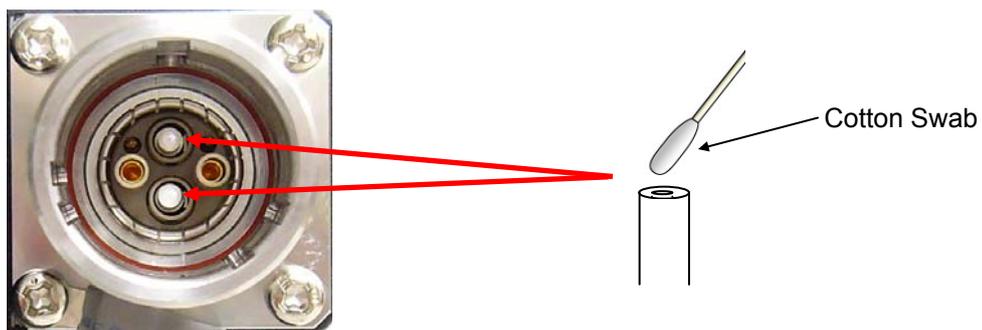
Make sure that dust will not come into the core optical portion when cleaning it up.

Core portion

12-5. TAJIMI Optical Cable

1. Clean the camera insertion side of optical cable.

To be cleaned (optical transmission line)

2. Insert the part attached to be cable cap shown below into the slot of the connector and rotate it in the blue arrow's direction to remove the guard as shown below.

CABLE CAP

GUARD

Pull the GUARD out of connector in the arrow's direction.
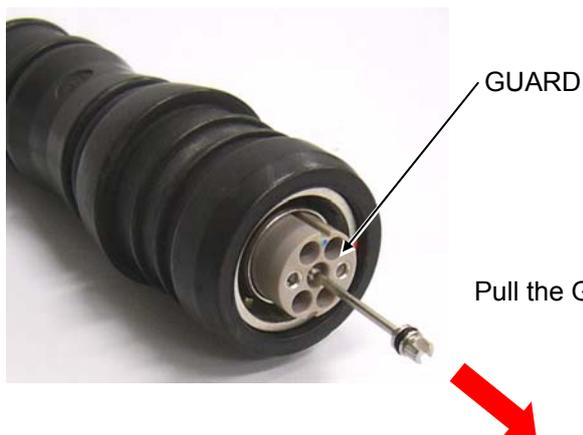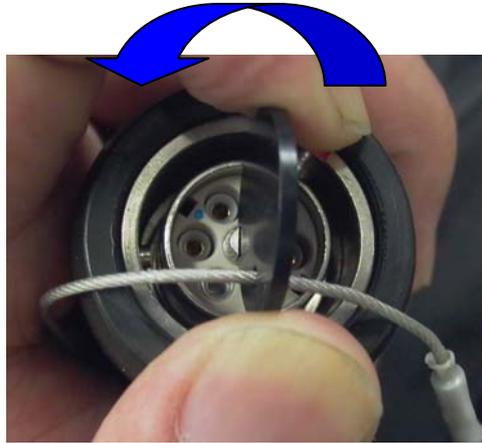
3. Dip a cotton swab in volatile alcohol (ethanol, isopropyl alcohol, etc.) and wipe the FERRULE end face (tip of CORE) clean with it.
4. It is recommended that the end face should be wiped with a dry cotton swab immediately (to remove the liquid).

Cotton Swab
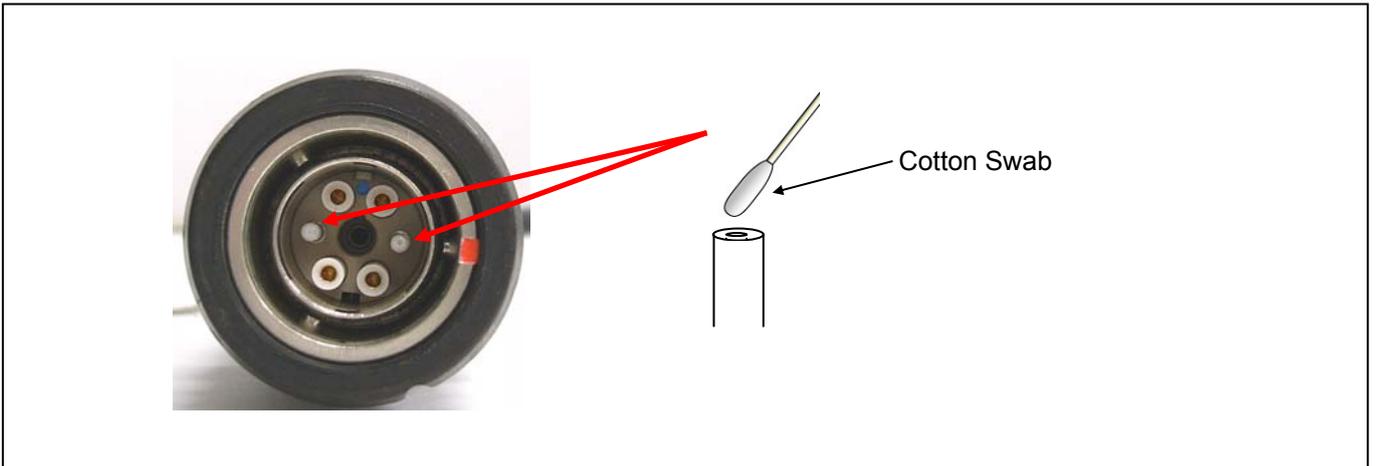
5. After cleaning completed, insert the guard with blue markings aligned.

Insert the guard with blue markings aligned.
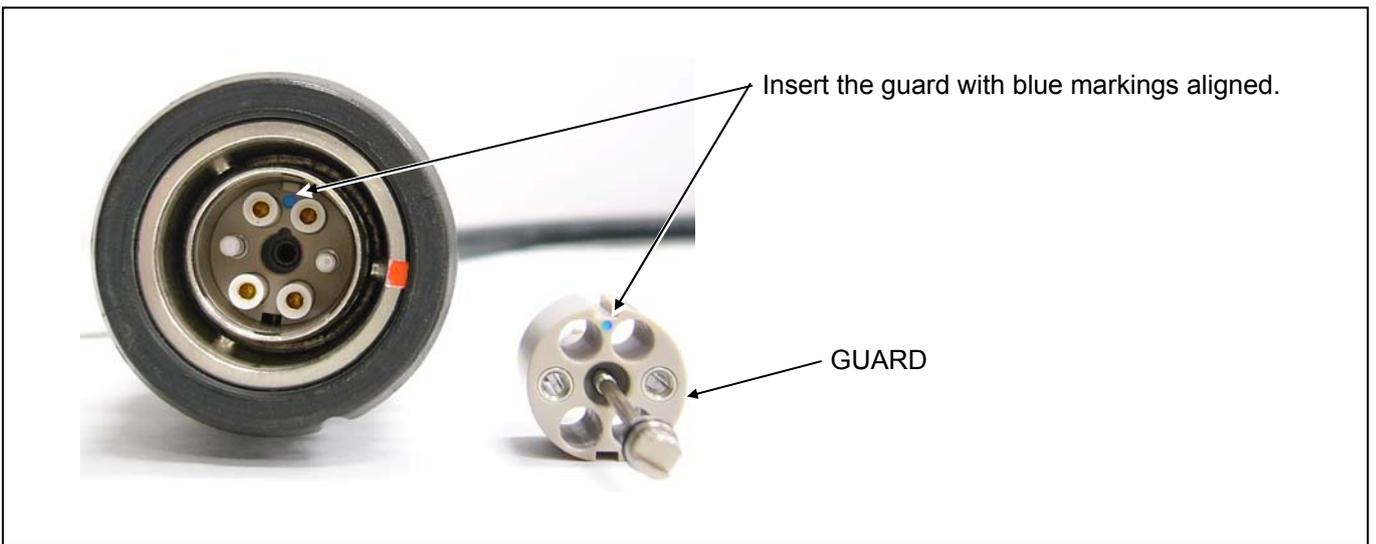
GUARD

6. Rotate in the arrow's direction to secure the guard completely.

12-6. LEMO Optical Cable

1. Clean the camera insertion side of optical cable. Cleaning Jig is required.
NOTE: Cleaning Jig is not included in our service parts. It is available on the market and can be used.

Cleaning Portion (Optical Fiber)

Cleaning Jig

No Ditch
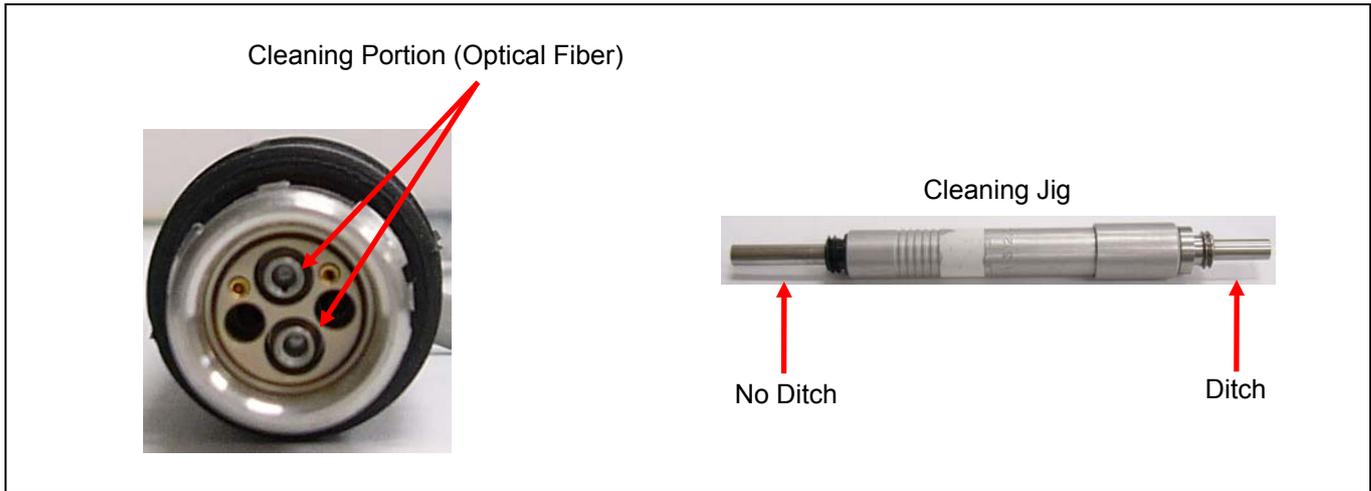
Ditch

2. Insert ditch side of cleaning jig into the cleaning portion. Rotate the jig slowly in a clockwise direction. (Rotate it slowly and then stop it when its rotation stops.)
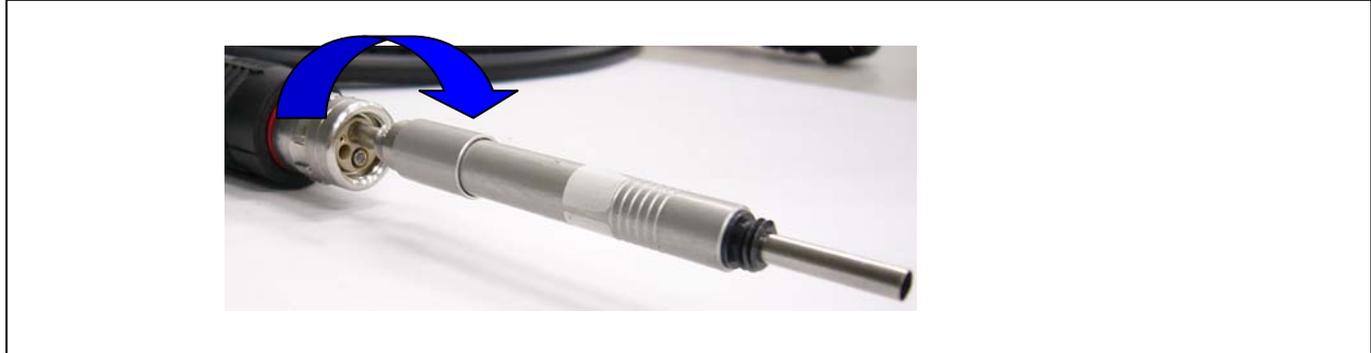
3. Keep the connector and cleaning jig horizontal to pull the jig out in the arrow's direction. (SLEEVE is inside and removed together with the jig.)

SLEEVE is inside the cleaning jig.

4. Dip a cotton swab in volatile alcohol (ethanol, isopropyl alcohol, etc.) and wipe the FERRULE end face (tip of CORE) clean with it.
5. It is recommended that the end face should be wiped with a dry cotton swab immediately (to remove the liquid).

Cotton Swab
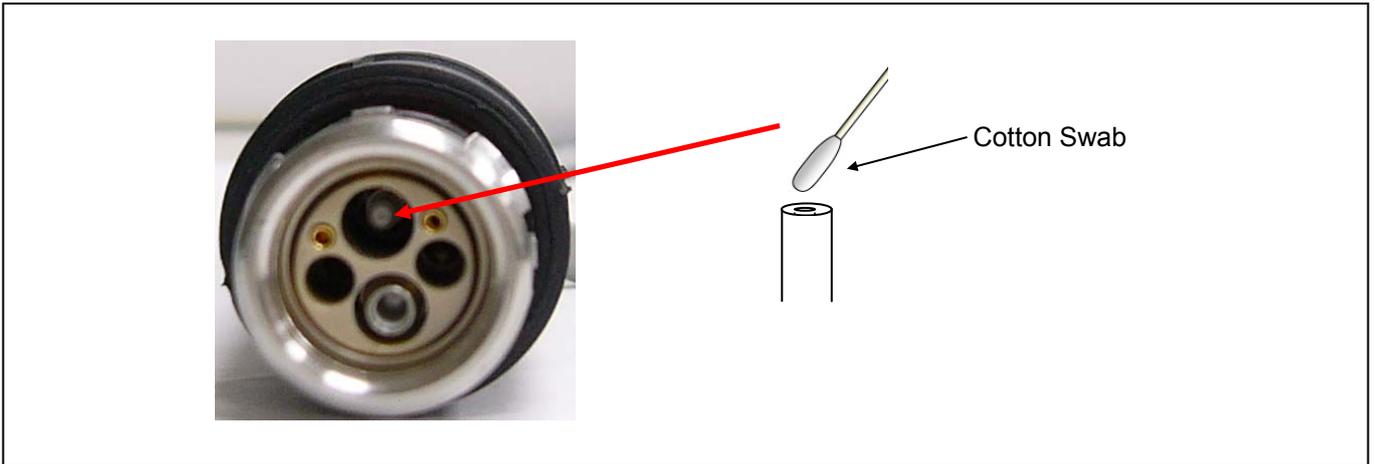
6. After cleaning is completed, attach the SLEEVE. As shown below, insert cleaning jig and push it in the arrow's direction (until it makes a sound).
7. Rotate the jig in a counterclockwise direction to remove the jig from the SLEEVE.

8. Follow the procedures of Steps 2 – 6 to clean the other Optical Fiber.

13. Notes in Replacing MAIN P.C.B. & OPT MODULE

In replacing MAIN P.C.B. or OPT MODULE, please be careful about the points described in this Item.

13-1. About OPT CABLE Connected To OPT MODULE

When disconnecting the OPT cable from OPT MODULE, please keep the following points in mind.
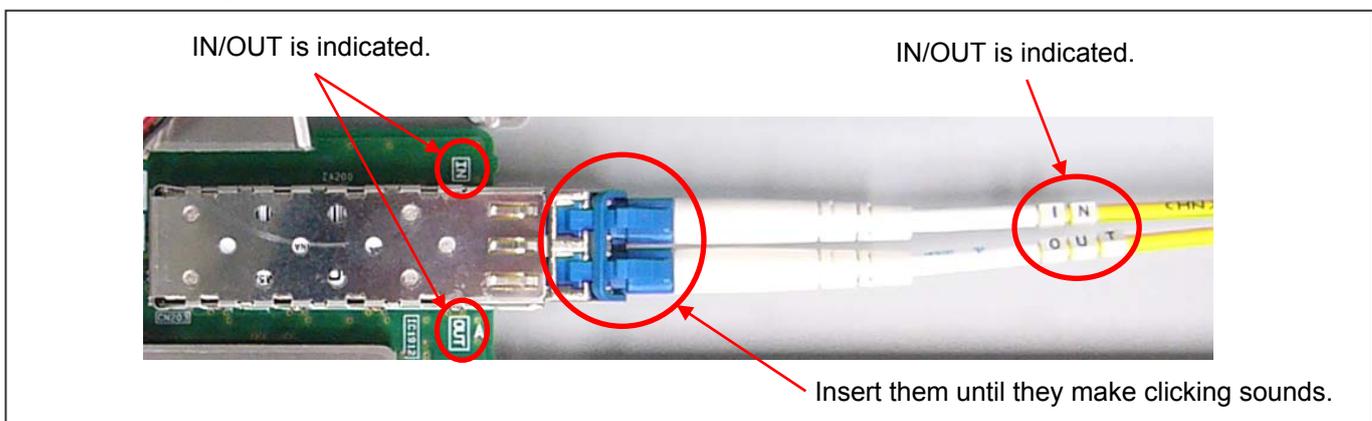
● Please press the part shown in figure to disconnect.

Press this part.
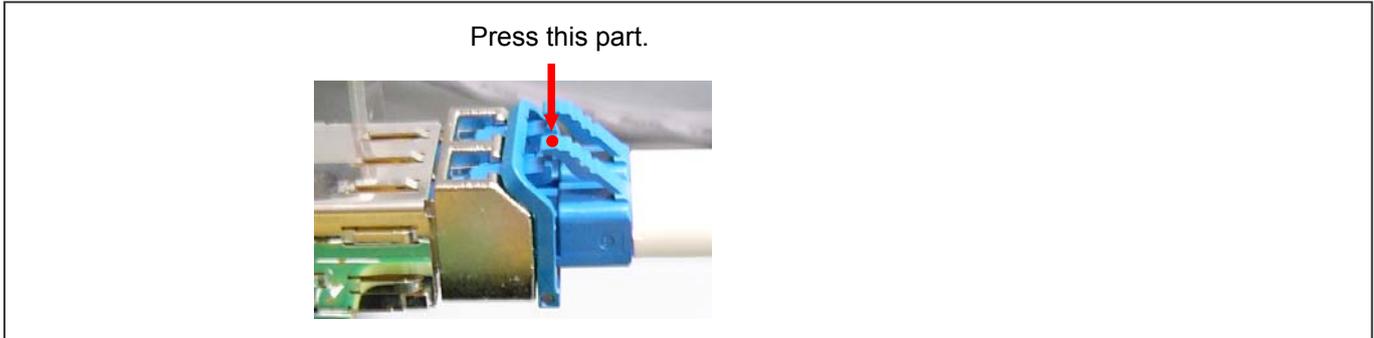
● After the OPT cables are disconnected from OPT MODULE, pins on OPT cable and OPT MODULE should be protected from dust. As shown in figure, please put CAPs on OPT cable and OPT MODULE pins.
  (A CAP for OPT cable pin is on a new OPT CONNECTOR with cable (spare part).)
 (A CAP for OPT MODULE pins is on a new OPT MODULE (spare part).)

CAP for OPT module

CAP for OPT cable

If dust is on the core (red dot) of OPT CABLE shown in the figure, optical signals can not be transmitted correctly.
The wire for optical transmission is placed at the red dot.
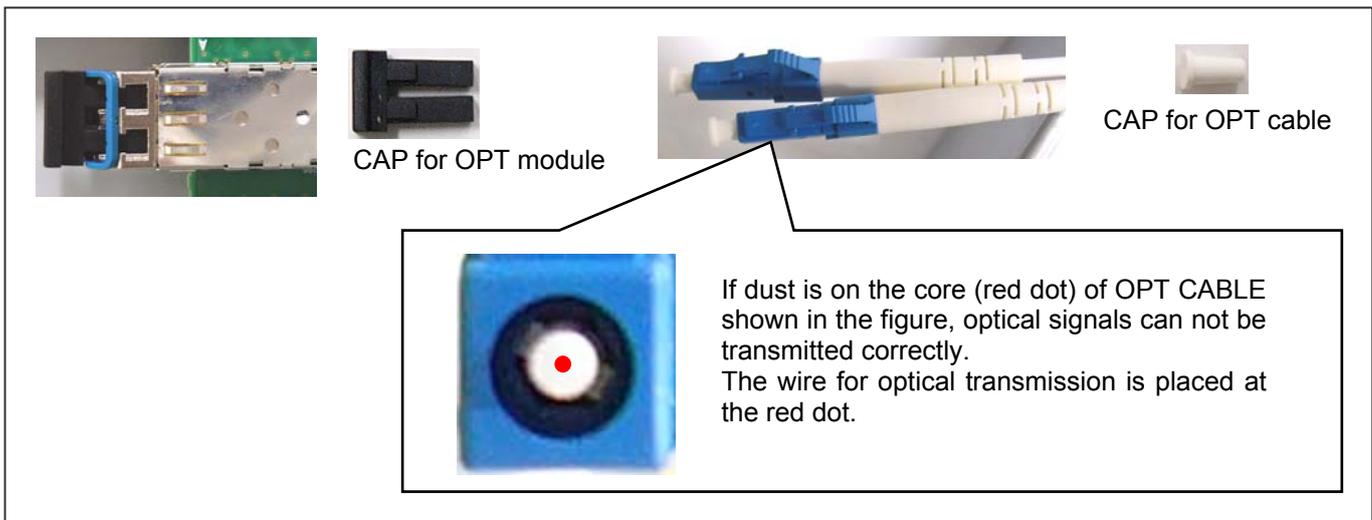
● When connecting the OPT cables with OPT MODULE, please be careful not to confuse IN and OUT.

IN/OUT is indicated.

IN/OUT is indicated.

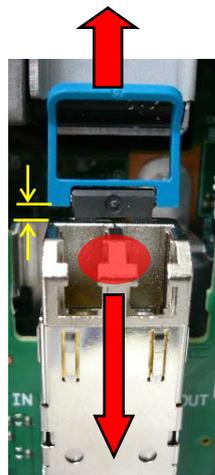Insert them until they make clicking sounds.

13-2. About OPT MODULE

OPT MODULE is not on a new MAIN P.C.B. (spare part). When replacing MAIN P.C.B., please remove the OPT MODULE from the old MAIN P.C.B. and attach it to a new MAIN P.C.B. (spare part). Please refer to the following.

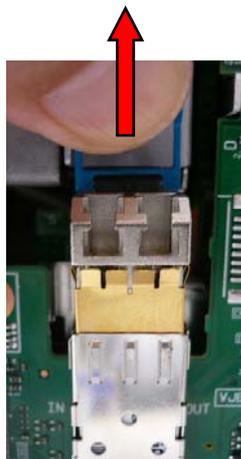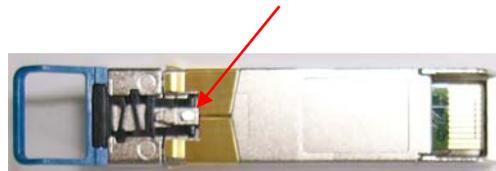**< How to disassemble and assemble the OPT MODULE >**
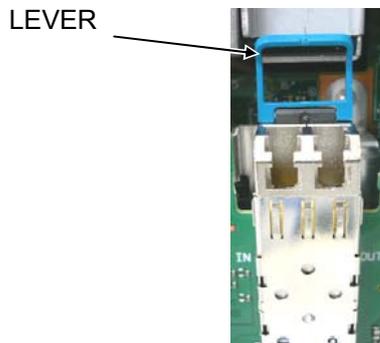
LEVER

1. Release the LEVER of OPT MODULE.

2. Pinch the LEVER and push the red-circled part of OPT MODULE in the direction of the arrow.

   This hook will be released from the socket.

3. Keep pushing it and pull the LEVER in the direction of the arrow to take the MODULE out of the socket.

< Note for assembling >
When attaching OPT MODULE, insert it until it makes a clicking sound.