

DSC-T1

SONY®

Auto-ADJ

SERVICE MANUAL

Ver 1.1 2004.03

SUPPLEMENT-1

File this supplement with the service manual
(PV03-015)

- Addition of Automatic Adjustment Program

- Use This Service Manual together with the Automatic Adjustment Program (DSC-T1 Auto-Adj Ver_1.□□□.exe).

Note: □ (numeric value) of the file name varies depending on the version of Automatic Adjustment Program.

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* The color reproduction frame is shown on page 6-27.

* The AF illumination frame is shown on page 6-27.

SECTION 6 ADJUSTMENTS

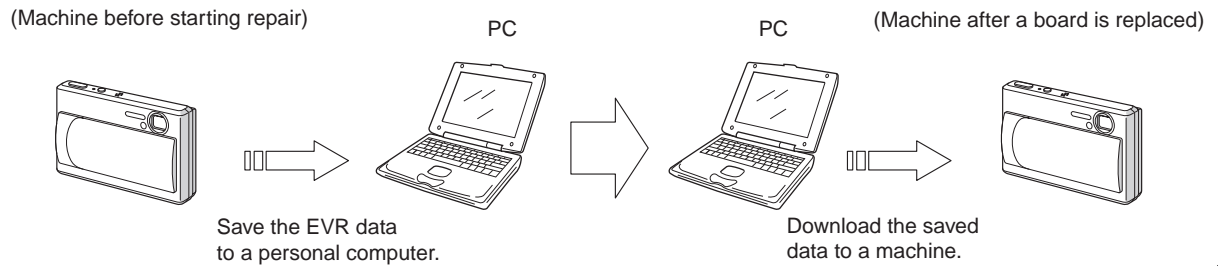
1. Before starting adjustment

EVR Data Re-writing Procedure When Replacing Board

The data that is stored in the repair board, is not necessarily correct.
Perform either procedure 1 or procedure 2 or procedure 3 when replacing board.

Procedure 1

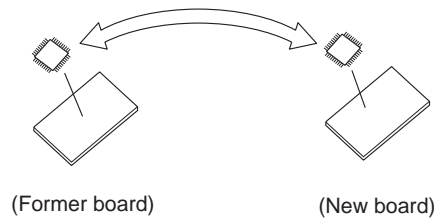
Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.



Procedure 2

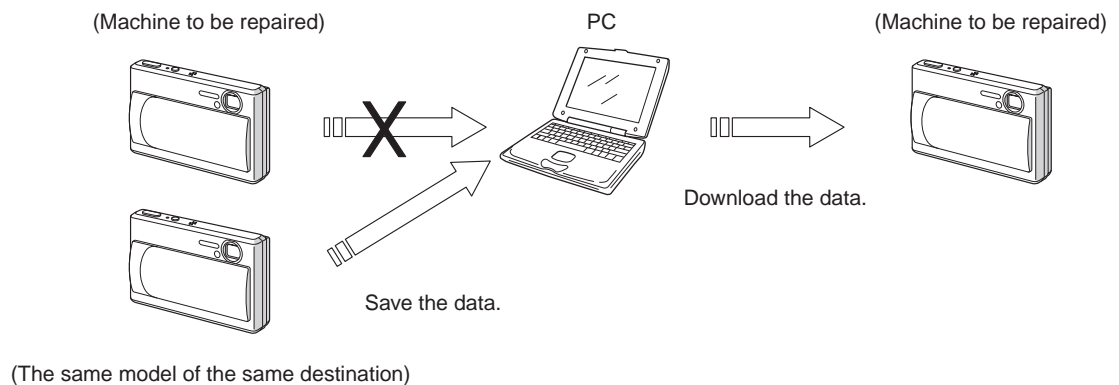
Remove the flash memory from the board of the machine that is going to be repaired. Install the removed flash memory to the replaced board.

Remove the flash memory and install it.



Procedure 3

When the data cannot be saved due to defective flash memory, or when the flash memory cannot be removed or installed, save the data from the same model of the same destination, and download it.



After the EVR data is saved and downloaded, check the respective items of the EVR data.
(Refer to page 6-2 for the items to be checked.)

1-1. Adjusting items when replacing main parts and boards

When replacing main parts and boards, adjust the items indicated by ● in the following table.

Note: The automatic Adjustment Program does not support the “Initialization of data” and “Wide Limit Adjustment”. Perform them manually.

Adjusting item	Adjustment	Replaced parts																		
		Block replacement					Mounted parts replacement					Board replacement		Flash memory replacement						
		CCD block	Lens device	Xenon tube	LCD block	LCD block	MS-148 board	IC803 (RGB drive, Timing gen.) (LCD)	ST-86 board	D003 (AF illumination LED)	SY-95 board	IC151 (Timing gen., S/H, AGC, A/D conv.)	SY-95 board	IC301 (Camera DSP)	SY-95 board	IC302 (Video amp.)	MS-148 board (COMPLETE)	ST-86 board (COMPLETE)	SY-95 board (COMPLETE)	SY-95 board
(Note)	Initialization of data																		●	●
VIDEO adjustment	Video output level adj.											●	●						●	●
(Note)	Wide limit adj.		●																●	●
CAMERA adjustment 1	Flange back adj.	●	●																●	●
CAMERA adjustment 2	Flange back check	●	●																●	●
CAMERA adjustment 3	F No. compensation																			
	Mechanical shutter adj.																			
	Light value adj.																			
	AWB 3200K standard data input																			
	AWB 5800K standard data input																			
	AWB 5800K check	●	●								●								●	●
	AWB 3200K check																			
	CCD linearity check																			
	Color reproduction adj.																			
	CCD white defect compensation check																			
	CCD black defect compensation check																			
CAMERA adjustment 4	Strobe adj.	●	●	●					●	●						●	●		●	●
	Auto focus illumination check																●	●		●
LCD adjustment	LCD initial data input																			
	VCO adj.																			
	Bright adj.																			
	Contrast adj.				●	●	●				●			●		●		●		●
	V-COM adj.																			
	White Balance adj. (1)																			
	White Balance adj. (2)																			

Table 6-1-1

6-1. ADJUSTMENT

1-1. PREPARATIONS BEFORE ADJUSTMENT

1-1-1. List of Service Tools

- Oscilloscope
- Color monitor
- Vectorscope
- AC power adapter
- Calculator which can hexadecimal calculation.



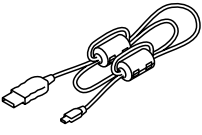
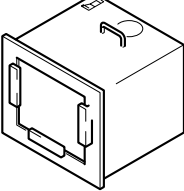
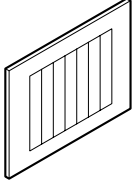
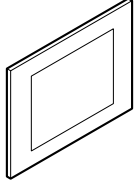
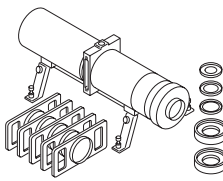
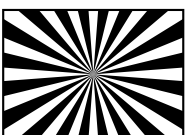
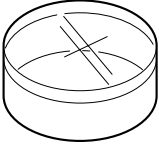
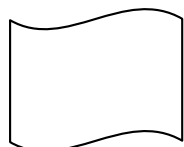
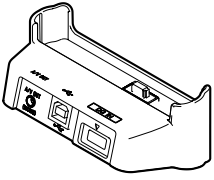
<p>J-1</p>  <p>Personal computer</p> <p>OS: Windows98/98SE/ Me/2000/ XP Home/XP Pro</p> <p>USB connector × 2</p>	<p>J-2</p>  <p>HASP key and application for adjustment (SEUS)</p> <p>Contact our service headquarter of each area how to get the application for adjustment (SEUS) and HASP key.</p>	<p>J-3</p>  <p>USB cable 1-828-073-11</p>
<p>J-4</p>  <p>Pattern box PTB-450 J-6082-200-A or Small pattern box PTB-1450 J-6082-557-A</p>	<p>J-5</p>  <p>Color bar chart</p> <p>For PTB-450: J-6020-250-A</p> <p>For PTB-1450: J-6082-559-A</p>	<p>J-6</p>  <p>Clear chart</p> <p>For PTB-450: J-6080-621-A</p> <p>For PTB-1450: J-6082-560-A</p>
<p>J-7</p>  <p>Minipattern box J-6082-353-B</p>	<p>J-8</p>  <p>Siemens star chart J-6080-875-A</p>	<p>J-9</p>  <p>Filter for color temperature correction (C14) J-6080-058-A</p>
<p>J-10</p>  <p>Back ground paper J-2501-130-A</p>	<p>J-11</p>  <p>Cradle 1-817-742-11</p>	

Fig. 6-1-1

1-1-2. Preparations

- 1) Connect the equipment for adjustments according to Fig. 6-1-3.
- 2) Start up the application for adjustment (SEUS).

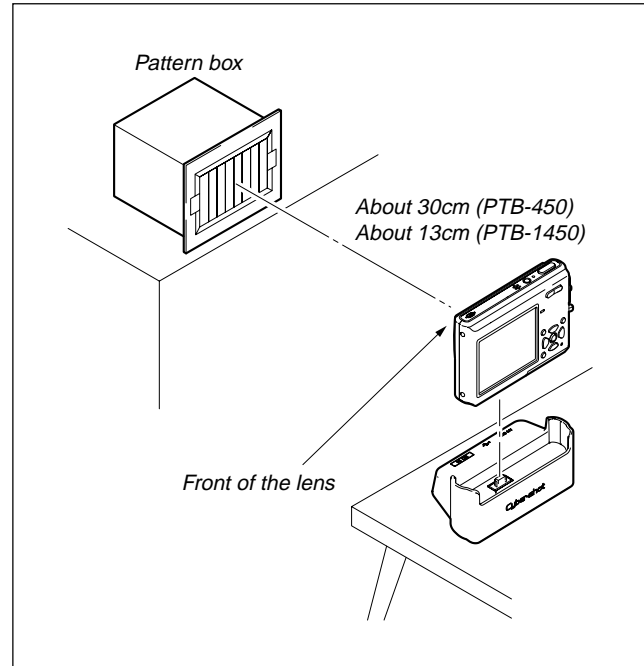
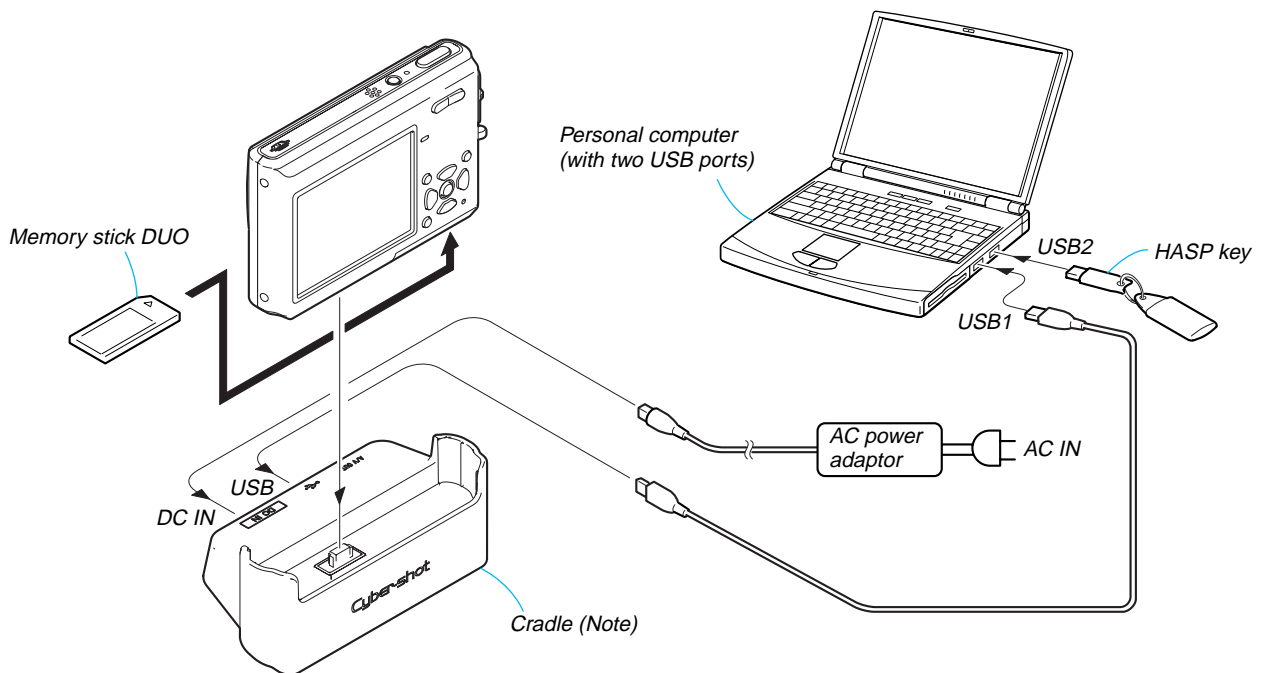


Fig. 6-1-2

[CONNECTION OF EQUIPMENT]



Note: When performing “CAMERA Adjustment 1”, connect the cables after disassembling the cradle.
Unless the cradle is disassembled, the USB cable and the power cable will interfere with the mini pattern box, and thus the subject cannot be set correctly.



Fig. 6-1-3

1-1-3. Precaution

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments.

Switch settings

- | | | | |
|----------------------|---|--|------|
| 1. Mode switch | STILL () | 3. MACRO () | ON |
| 2. Lens cover | Open | 4. SCENE (Menu) | Auto |
| 3. ZOOM | WIDE end | 5. VIDEO OUT (SET UP of Menu) | NTSC |

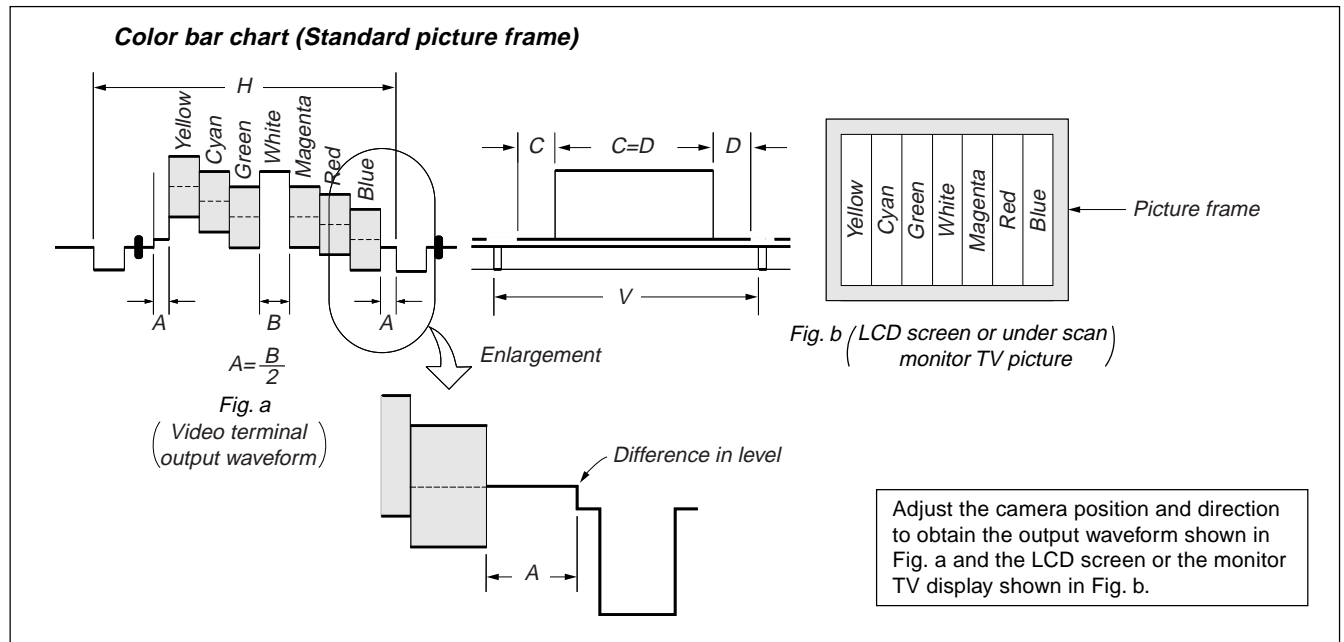


Fig.6-1-4

2. Subjects

- 1) Color bar chart (Standard picture frame)
When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 6-1-4. (Standard picture frame)
- 2) Clear chart (Color reproduction adjustment frame)
Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time.)

3. Preparing the Flash Adjustment Box

A dark room is required to provide an accurate strobe adjustment.
If it is not available, prepare the flash adjustment box as given below;

- 1) Provide woody board A, B and C of 15 mm thickness.

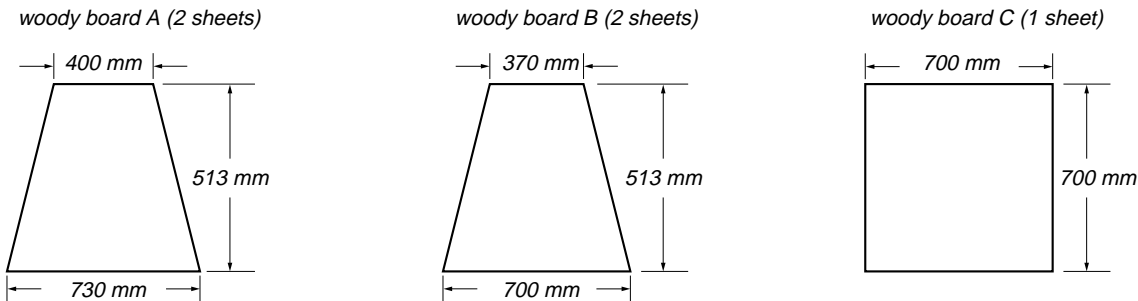


Fig. 6-1-5

- 2) Apply black mat paint to one side of woody board A and B.
- 3) Attach background paper (J-2501-130-A) to woody board C.
- 4) Assemble so that the black sides and the background paper side of woody board A, B and C are internal. (Fig. 6-1-6)

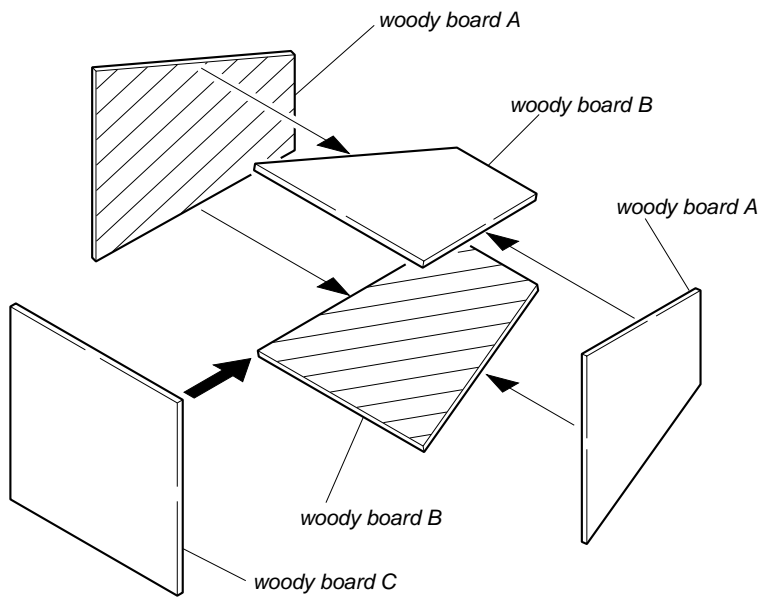


Fig. 6-1-6

1-1-4. Using Method of SEUS

The application for adjustment (SEUS) is used to change the coefficient for calculating the signal processing or EVR data. The SEUS performs two-way communication between PC and set through the USB terminal. The two-way communication result data can be written to the nonvolatile memory.

1. Connection

- 1) Connect the HASP key to the USB terminal of the PC.
- 2) Connect the PC and set with the USB cable.
- 3) Confirm that the set starts in the USB mode.
- 4) Start the SEUS on the PC.
- 5) Click **Connect** on the SEUS screen. If the connection is normal, the SEUS screen will be as shown in Fig. 6-1-7, indicating the "connected" state.

Note: The SEUS will go in "disconnect" state, if the set is turned off (for instance, by resetting the set). In such a case, click **Connect** on the SEUS screen to restore the "connected" state.

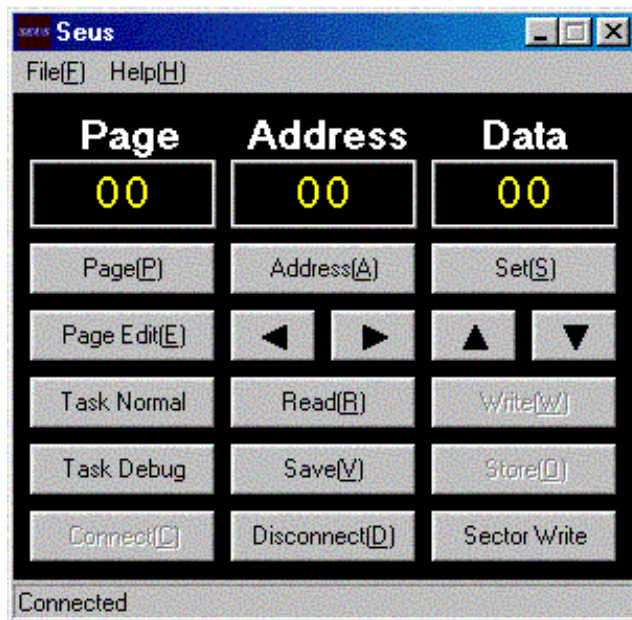


Fig. 6-1-7

2. Operation

- **Page change**
To change the page, click **Page** on the SEUS screen and enter the page to be changed. The page is displayed in hexadecimal notation.
- **Address change**
To change the address, click **Address** on the SEUS screen and enter the address to be changed. The address is displayed in hexadecimal notation.
- **Data change**
To change the data, click **Set** on the SEUS screen and enter the data. The data is displayed in hexadecimal notation. This operation does not write the data to the nonvolatile memory.
- **Data saving**
To write the all changed data to the nonvolatile memory, click **Save** on the SEUS screen and wait for 3 sec.
- **Data reading**
The data displayed on the SEUS screen are the data values at the time when the pages and addresses were set, and they are not updated automatically. To check the data change, click **Read** on the SEUS screen and update the displayed data.

1-1-5. Precaution on Use of SEUS

Wrong SEUS operation could clear correct adjustment data. To prevent the data clear by mistake, it is recommended to save all adjustment data by clicking **Page Edit** on the SEUS screen before starting the adjustment.

Saving Method:

- 1) Click **Page Edit** on the SEUS screen to display the SEUS PAGE EDIT screen.
- 2) Click **Page**, and enter the page number to be saved.
- 3) Click **Page** to read the data to be saved from the camera.
- 4) Click **File** and save the data to PC.

Loading Method:

- 1) Select page: 00, address: 01 and set data: 01.
- 2) Click **Page Edit** on the SEUS screen to display the SEUS PAGE EDIT screen.
- 3) Click **File** and load the data from PC.
- 4) Click **Write** on the SEUS PAGE EDIT screen.
- 5) Click **Close** to close the SEUS PAGE EDIT screen.
- 6) Click **Save** on the SEUS screen.
- 7) Wait for 3 sec.
- 8) Select page: 00, address: 01 and set data: 00.

1-2. AUTOMATIC ADJUSTMENT

The DSC-T1 is adjusted with the Automatic Adjustment Program. The Automatic Adjustment Program controls automatically the adjustment operations that conventionally were entered manually on the operation screen (however, partially some adjustments will require manual operation on the SEUS operation screen).

1-2-1. Precautions When Using Automatic Adjustment Program

- 1) The Automatic Adjustment Program writes the adjustment results such as EVR data to the set through two-way communication with the camera via the SEUS. Accordingly, the Automatic Adjustment Program must be used in the environment where the SEUS operates.
- 2) The program run time may vary depending on the environment of the personal computer used.
- 3) Even if the Automatic Adjustment Program is used without starting the SEUS, the SEUS will start automatically when the adjustment is executed. However, it may take time for the SEUS to start, and therefore the Automatic Adjustment Program should be used with the SEUS started in order to reduce the program run time.

1-2-2. Start of Automatic Adjustment Program

Double-click the application file (DSC-T1 Auto-Adj Ver_1.□r□□.exe), and the Automatic Adjustment Program will start.

Note: □ (numeric value) of the file name varies depending on the version of Automatic Adjustment Program.

1-2-3. Function of Each Button on Main Menu Screen

When the Automatic Adjustment Program started, the Main Menu screen in Fig. 6-1-8 will appear. On this screen, select each adjustment section.

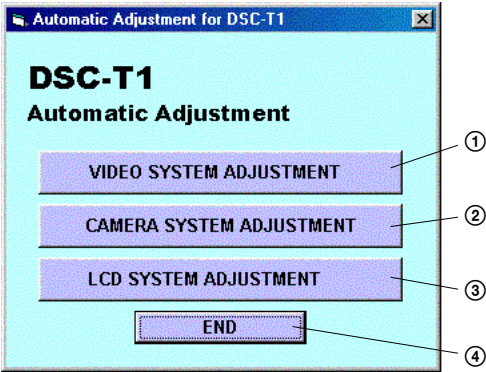


Fig. 6-1-8

- ① VIDEO SYSTEM ADJUSTMENT button
The “VIDEO SYSTEM ADJUSTMENT” screen appears.
- ② CAMERA SYSTEM ADJUSTMENT button
The “CAMERA SYSTEM ADJUSTMENT” screen appears.
- ③ LCD SYSTEM ADJUSTMENT button
The “LCD SYSTEM ADJUSTMENT” screen appears.
- ④ END button
The Automatic Adjustment Program finishes.

1-3. VIDEO SYSTEM ADJUSTMENTS

1-3-1. Function of Each Button on Video System Adjustment Screen

Click the **VIDEO SYSTEM ADJUSTMENT** button on the Main Menu screen, and the “VIDEO SYSTEM ADJUSTMENT” screen in Fig. 6-1-9 will appear.

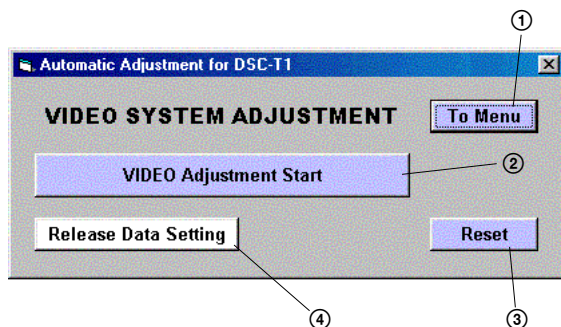


Fig. 6-1-9

- ① **To Menu** button
The Main Menu screen comes back.
- ② **VIDEO Adjustment Start** button
“Video Adjustment” starts.
- ③ **Reset** button
This button functions same as the Reset button of the camera.
- ④ **Release Data Setting** button
The data setting at the adjustment is cancelled.
During the data setting, the button color changes from “white” to “red”. When the data setting is cancelled, the button color returns to “white”.
(Use this button when an error occurred in the video adjustment. If the adjustment completed successfully, the data setting is automatically cancelled and the button color returns to “white”.)

1-3-2. Adjustment Items of VIDEO System Adjustment

The adjustment items of video system adjustment are as listed in Table 6-1-2. The Automatic Adjustment Program executes the adjustment items if the VIDEO Adjustment Start button is clicked.

Button Name	Adjustment	Signal	Page	Address
VIDEO Adjustment	VIDEO Output Level Adj.	Arbitrary	8F	D0

Table 6-1-2

1-3-3. Adjusting Method

[Automatic Adjustment Program execution items and sequence]

- 1. Data Setting during Video Adj.
- 2. Video Output Level Adj.
- 3. Release of Data Setting during Video Adj.

[Specified value of video output level adj.]

Measurement Point	Video terminal of AV OUT jack of the cradle (75Ω terminated)
Measuring Instrument	Oscilloscope
Specified Value	Sync level: A = 286 ± 5 mV (NTSC mode) A = 300 ± 5 mV (PAL mode) Burst level: B = 286 ± 30 mV (NTSC mode) B = 300 ± 30 mV (PAL mode)

[Adjusting method]

- 1) Click the [VIDEO Adjustment Start] button.
- 2) The Automatic Adjustment Program executes the “1. Data Setting during Video Adj.”.
- 3) If “1. Data Setting during Video Adj.” completed successfully, the next message is displayed during the execution of “2. Video Output Level Adj.”. Using the UP/DOWN key on the SEUS Operation screen, adjust so that the sync level of the video signals satisfies the specified value. After the adjustment, check that the burst level of the video signals satisfies the specified value, and click the [OK] button in the message.

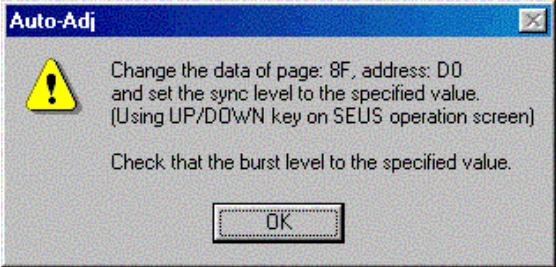


Fig. 6-1-10

- 4) If the [OK] button is clicked, “3. Release of Data Setting during Video Adj.” will be executed.
- 5) Upon successful completion of all items of the VIDEO adjustment, the following message is displayed. Click the [OK] button.



Fig. 6-1-11

SEUS operation screen



Fig. 6-1-12

Check on the osilloscope

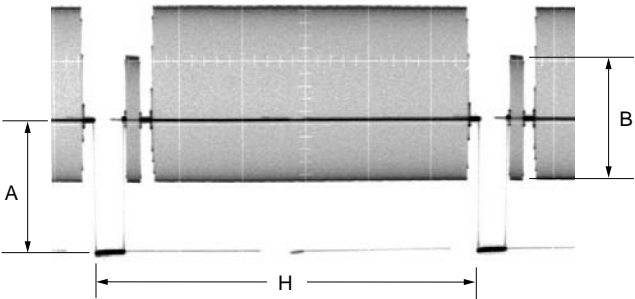


Fig. 6-1-13

1-4. CAMERA SYSTEM ADJUSTMENTS

1-4-1. Function of Each Button on Camera System Adjustment Screen

Click the **CAMERA SYSTEM ADJUSTMENT** button on the Main Menu screen, and the “CAMERA SYSTEM ADJUSTMENT” screen in Fig. 6-1-14 will appear.

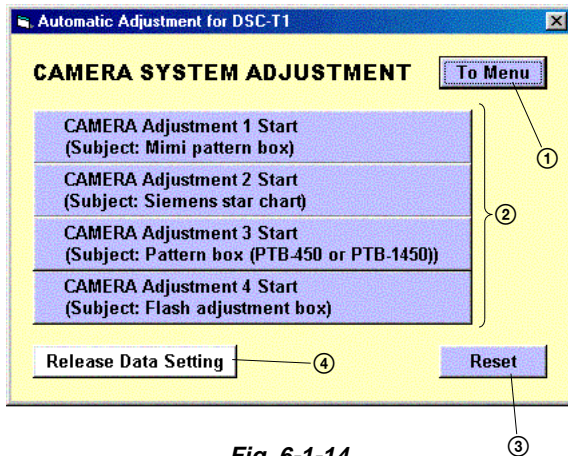


Fig. 6-1-14

- ① **To Menu** button
The Main Menu screen comes back.
- ② Adjustment start buttons
 - **CAMERA Adjustment 1 Start** button
“Camera Adjustment 1” starts.
 - **CAMERA Adjustment 2 Start** button
“Camera Adjustment 2” starts.
 - **CAMERA Adjustment 3 Start** button
“Camera Adjustment 3” starts.
 - **CAMERA Adjustment 4 Start** button
“Camera Adjustment 4” starts.
- ③ **Reset** button
This button functions same as the Reset button of the camera.
- ④ **Release Data Setting** button
The data setting at the adjustment is cancelled.
During the data setting, the button color changes from “white” to “red”. When the data setting is cancelled, the button color returns to “white”.
(Use this button when an error occurred in the camera adjustment 1-4. If the adjustment completed successfully, the data setting is automatically cancelled and the button color returns to “white”.)

1-4-2. Adjustment Items of Camera System Adjustment

The adjustment items of camera system adjustment are as listed in Table 6-1-3. The Automatic Adjustment Program divides the adjustment items into four, camera adjustment 1-4. Clicking either CAMERA Adjustment Start button allows the adjustment item which corresponds to that button to be executed.

The adjustment conditions of the subject and filter vary depending on which item is adjusted. The Adjustment Program displays an instruction for the subject and filter as a message during the adjustment.

Button Name	Adjustment	Subject	Adjustment Page	Adjustment Address
(Note 1)	Wide Limit Adj.	Not required	6F	18, 19
CAMERA Adjustment 1	Flange Back Adj.	Siemens star chart with ND filter for minipattern box (Note 2)	6F	18 to 53
CAMERA Adjustment 2	Flange Back Check.	Siemens star chart with ND filter (1.0m from front the lens) (Luminance: 200 to 400 lux)		
CAMERA Adjustment 3	F No. Compensation	Clear chart (Standard picture frame)	6F	60 to 64, 6B to 6D
	Mechanical Shutter Adj.		6F	6B to 6D, B8 to D7
	Light Value Adj.		6F	65 to 67
	AWB 3200K Data Input		6E	04 to 21
	AWB 5800K Data Input	Clear chart (Standard picture frame)	6E	00 to 03, 24 to 41
	AWB 5800K Check	Filter C14 for color temperature correction		
	AWB 3200K Check	Clear chart (Standard picture frame)		
	CCD Linearity Check			
	Color Reproduction Adj.	Color bar chart (Standard picture frame)	6E	60 to 67
	CCD White Defect Compensation Check	Clear chart (Standard picture frame)		
	CCD Black Defect Compensation Check			
CAMERA Adjustment 4	Strobe Adj.	Flash adjustment box	6E	72 to 75
			6F	D8 to EF
	Auto Focus Illumination Check		6F	10 to 17

Note 1: The Automatic Adjustment Program does not support “Wide Limit Adjustment”.

Note 2: Dark Siemens star chart.

Table 6-1-3

1-4-3. Adjusting Method

1. Wide Limit Adjustment

Adjustment to remove variations at the wide end of the inner focus lens.

Adjustment Page	6F
Adjustment Address	18, 19

1-1. Adjusting method when the lens is replaced:

Adjusting method:

Order	Page	Address	Data	Procedure
1	00	01	01	Set the data.
2	6F	18		Set the data. (Note)
3	6F	19		Set the data. (Note)
4	7C	16	01 → 00	Change the data. (The data is OK if it is "00".)
5				Save the data.
6				Wait for 2 sec.
7				Perform "Flange Back Adjustment".

Note: The data of page: 6F, address: 18 and 19, that are set in the Orders 2 and 3 as described above, are shown on the data sheet supplied with the replacement lens for repair.
Set the upper single byte of the 2-byte data shown on the sheet to address: 18, and the lower byte of the data to the address: 19.

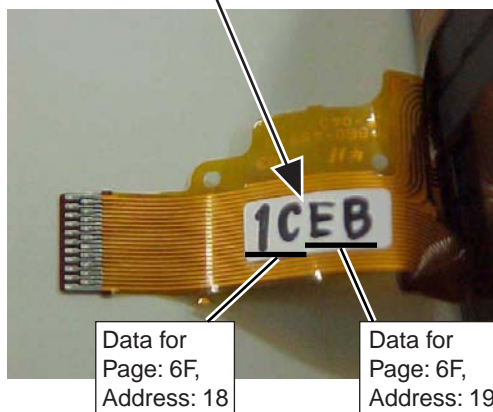


Fig. 6-1-15

1-2. Adjusting method when replacement of lens is not required and the SY-95 board is replaced:

When the data of page: 6F, address: 18 and 19 can be read from the defective SY-95 board before replacement, and both of the data are not "00":

Adjusting method:

Order	Page	Address	Data	Procedure
1	00	01	01	Set the data.
2	6F	18		Set the previous data
3	6F	19		Set the previous data
4	7C	16	01 → 00	Change the data. (The data is OK if it is "00".)
5				Save the data.
6				Wait for 2 sec.
7				Perform "Flange Back Adjustment".

When the data of the page: 6F, address: 18 and 19 can be read out from the defective SY-95 board before replacing it, and both of the data are "00":

- 1) Replace the lens with the replacement lens and perform "1-1. Adjusting method when the lens is replaced".

When the data of page: 6F, address: 18 and 19 cannot be read from the defective SY-95 board:

- 1) Replace the lens with the replacement lens and perform "1-1. Adjusting method when the lens is replaced".

Note: The data of page: 7C, address: 16, that is set in the Order 4 of the adjusting method of 1-1 or 1-2, is "01" when shipped from the factory. Let the data remain "00" after completion of the service adjustment.

2. CAMERA Adjustment 1

Note: When performing “CAMERA Adjustment 1”, connect the cables after disassembling the cradle.
Unless the cradle is disassembled, the USB cable and the power cable will interfere with the mini pattern box, and thus the subject cannot be set correctly.

[Automatic Adjustment Program execution items and sequence]

- 1. Data Setting during Camera Adj.
- 2. Flange Back Adj.
- 3. Release of Data Setting during Camera Adj.

[Adjusting method]

- 1) If the **CAMERA Adjustment 1 Start** button is clicked, the following message is displayed.
If “Wide Limit Adjustment” is necessary, click the **Cancel** button to interrupt the Adjustment Program, and perform “1. Wide Limit Adjustment”.

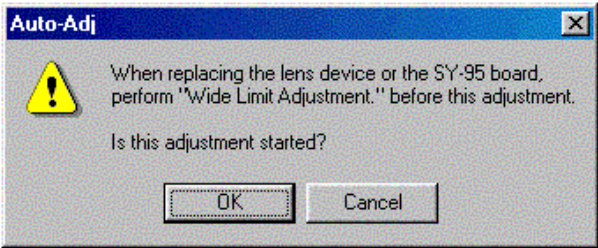


Fig. 6-1-16

- 2) If the **OK** button is clicked, the Automatic Adjustment Program executes “1. Data Setting during Camera Adj.”.
- 3) Upon successful completion of the “1. Data Setting during Camera Adj.”, the following message is displayed. Set the subject by referring to “Preparation of Flange Back Adj.”.



Fig. 6-1-17

- 4) If the **OK** button is clicked, “2. Flange Back Adj.” and “3. Release of Data Setting during Camera Adj.” will be executed.
- 5) Upon successful completion of all items of the CAMERA Adjustment 1, the following message is displayed. Click the **OK** button.

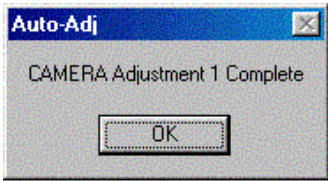


Fig. 6-1-18

Preparation of Flange Back Adj.

- 1) The minipattern box is installed as shown in the following figure.
Note: The attachment lenses are not used.
- 2) Install the minipattern box so that the distance between it and the front of lens of camera is less than 3 cm.
- 3) Make the height of minipattern box and the camera equal.
- 4) Check the output voltage of the regulated power supply is the specified voltage ± 0.01 Vdc.
- 5) Check that the center of Siemens star chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

Specified voltage: The specified voltage varies according to the minipattern box, so adjustment the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

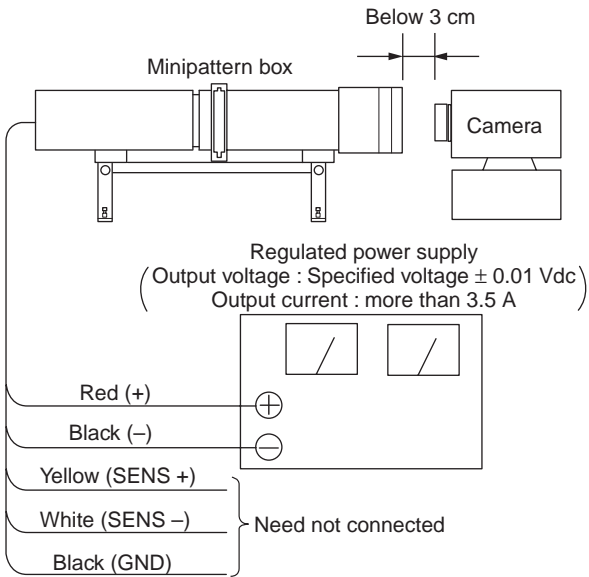


Fig. 6-1-19

3. CAMERA Adjustment 2

[Automatic Adjustment Program execution items and sequence]

1. Data Setting during Camera Adj.
2. Flange Back Check
3. Release of Data Setting during Camera Adj.

[Adjusting method]

- 1) Click the **CAMERA Adjustment 2 Start** button.
- 2) The Automatic Adjustment Program executes “1. Data Setting during Camera Adj.”.
- 3) Upon successful completion of the “1. Data Setting during Camera Adj.”, the following message is displayed. Set the subject in accordance with the message.

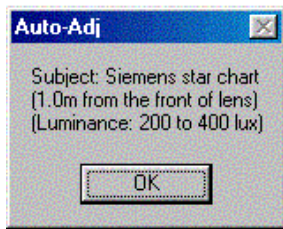


Fig. 6-1-20

- 4) Click the **OK** button is clicked, “2. Flange Back Check” is executed. The following messages are displayed, and then operate the camera to make a check in accordance with the messages.

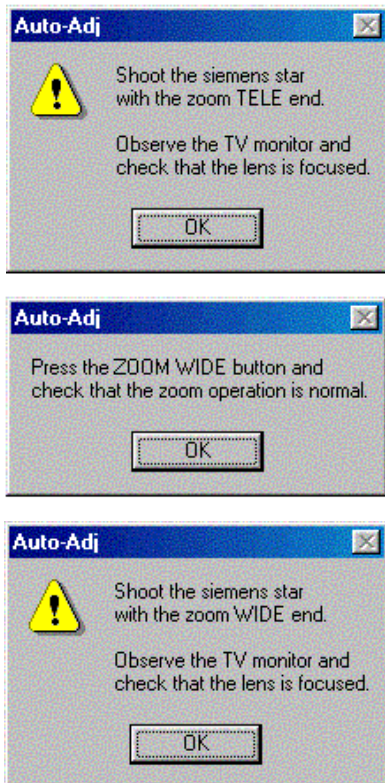


Fig. 6-1-21

- 5) Upon completion of “2. Flange Back Check”, “3. Release of Data Setting during Camera Adj.” is executed.

- 6) Upon successful completion of all items of the CAMERA Adjustment 2, the following message is displayed. Click the **OK** button.

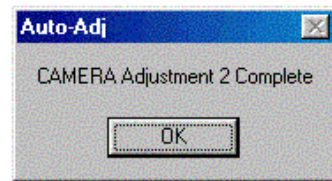


Fig. 6-1-22

4. CAMERA Adjustment 3

[Automatic Adjustment Program execution items and sequence]

- 1. Data Setting during Camera Adj.
- 2. Picture Frame Setting
- 3. F No. Compensation
- 4. Mechanical Shutter Adj.
- 5. Light Value Adj.
- 6. AWB 3200K Standard Data Input
- 7. AWB 5800K Standard Data Input
- 8. AWB 5800K Check
- 9. AWB 3200K Check
- 10. CCD Linearity Check
- 11. Color Reproduction Adj.
- 12. CCD White Defect Compensation Check
- 13. CCD Black Defect Compensation Check
- 14. Release of Data Setting during Camera Adj.

[Adjusting method]

- 1) Click the [CAMERA Adjustment 3 Start] button.
- 2) The Automatic Adjustment Program executes the “1. Data Setting during Camera Adj.”.
- 3) Upon successful completion of “1. Data Setting during Camera Adj.”, “2. Picture Frame Setting” is executed. The following message is displayed, and then referring to Fig. 6-1-25 to Fig. 6-1-27, set the subject and click the [OK] button.

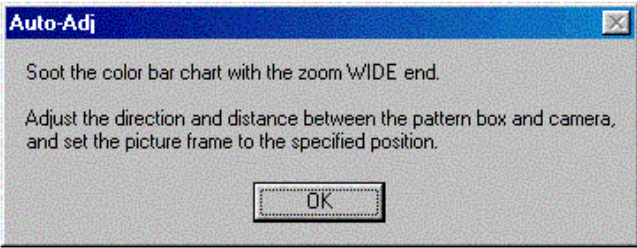


Fig. 6-1-23

After that, the next message is displayed. Then, change the chart in accordance with the message.



Fig. 6-1-24

- 4) Click the [OK] button, and the items from “3. F No. Compensation” to “6. AWB 3200K Standard Data Input” will be executed.

Check on the oscilloscope

Measurement Point: Video terminal of A/V OUT jack (75Ω terminated)

1. Horizontal period

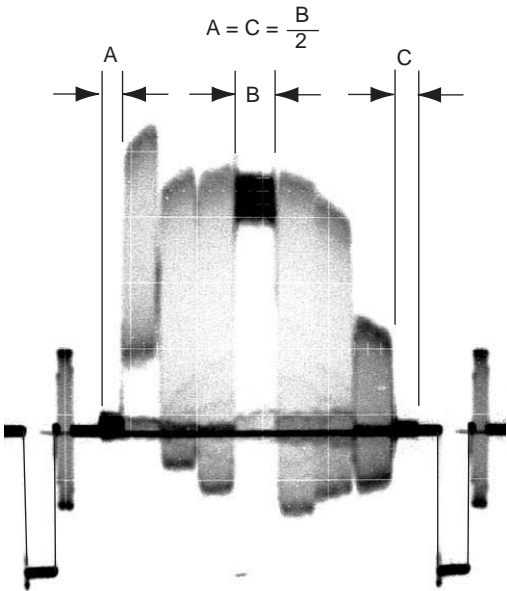


Fig. 6-1-25

2. Vertical period

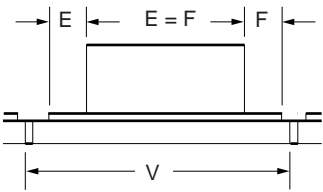


Fig. 6-1-26

Check on the monitor TV

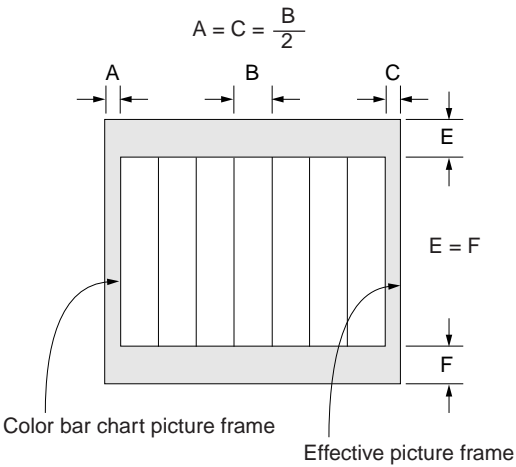


Fig. 6-1-27

- 5) Upon successful completion of the “AWB 3200K Check”, the following message is displayed. Set the filter in accordance with the message.



Fig. 6-1-28

- 6) Click the button, and the “7. AWB 5800K Standard Data Input” and “8. AWB 5800K Check” will be executed.
 7) Upon successful completion of the “AWB 5800K Check”, the following message is displayed. Set the filter in accordance with the message.

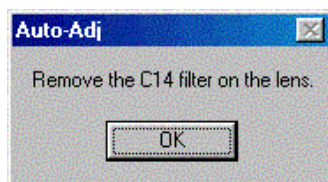


Fig. 6-1-29

- 8) Click the button, and the “9. AWB 3200K Check” and “10. CCD Linearity Check” will be executed.
 9) Upon successful completion of “10. CCD Linearity Check”, the following message is displayed. Change the chart in accordance with the message.

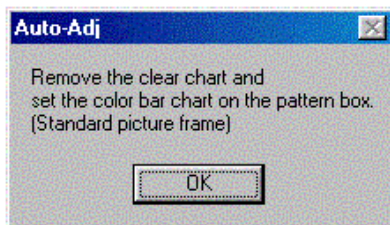


Fig. 6-1-30

- 10) Click the button, and “11. Color Reproduction Adj.” will be executed. The following messages are displayed in order, and then operate the vectorscope to make a check with the color reproduction frame in accordance with the message.

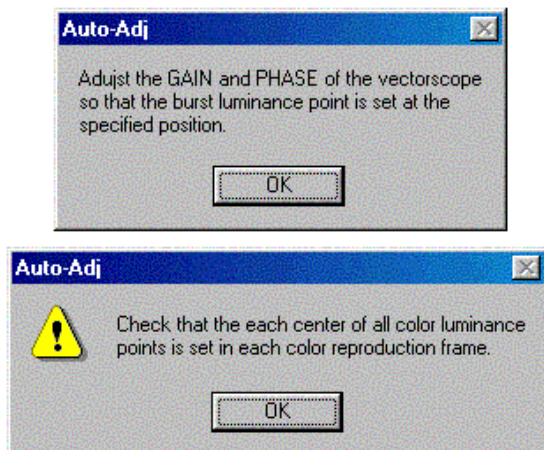


Fig. 6-1-31

- 11) Upon successful completion of “11. Color Reproduction Adj.”, the following message is displayed. Change the chart in accordance with the message.

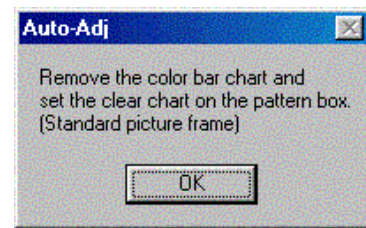


Fig. 6-1-32

- 12) Click the button, and the “12. CCD White Defect Compensation Check”, “13. CCD Black Defect Compensation Check” and “14. Release of Data Setting during Camera Adj.” will be executed.
 13) Upon successful completion of all items of the CAMERA Adjustment 3, the following message is displayed. Click the button.

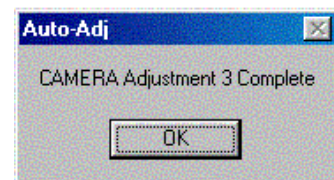


Fig. 6-1-33

Check on the vectorscope

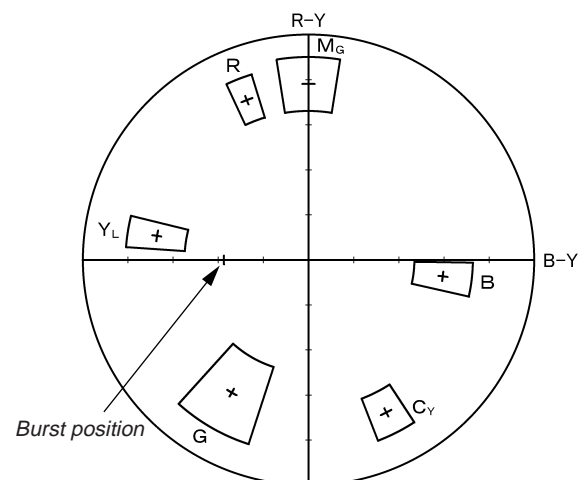


Fig 6-1-34

5. CAMERA Adjustment 4

Note: “CAMERA Adjustment 4” is available only once after the power is turned on. If the adjustment is retried, turn off the power and turn on again.

[Automatic Adjustment Program execution items and sequence]

- 1. Data Setting during Camera Adj.
- 2. Strobe Adj.
- 3. Auto Focus Illumination Check
- 4. Release of Data Setting during Camera Adj.

[Adjusting method]

- 1) Click the **CAMERA Adjustment 4 Start** button.
- 2) The Automatic Adjustment Program executes the “1. Data Setting during Camera Adj.”
- 3) Upon successful completion of the “1. Data Setting during Camera Adj.”, the following message is displayed. Set the subject in accordance with the message.
(For the Flash adjustment box, refer to “3. Preparing the Flash Adjustment Box” (see page 6-6).)

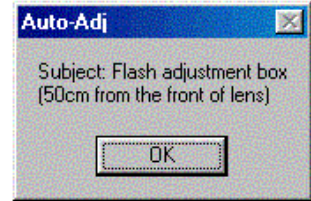


Fig. 6-1-35

- 4) Press the **OK** button, and the “2. Strobe Adj.” will be executed.
- 5) During execution of “2. Strobe Adj.”, the following message is displayed. After checking the flashing of strobe light, click the **OK** button. (This message is displayed 2 times during execution of adjustment.)



Fig. 6-1-36

- 6) Upon successful completion of “2. Strobe Adj.”, “3. Auto Focus Illumination Check” is executed. The following messages are displayed, and then attach the AF illumination axis frame to the monitor TV screen to make a check in accordance with the messages.

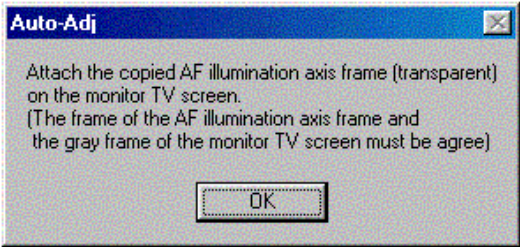
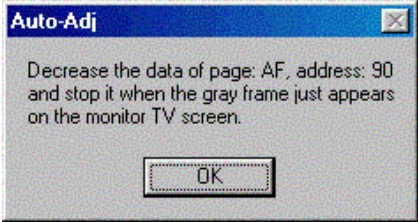


Fig. 6-1-37

- 7) Upon successful completion of the “3. Auto Focus Illumination Check”, the “4. Release of Data Setting during Camera Adj.” will be executed successively.
- 8) Upon successful completion of all items of the CAMERA Adjustment 4, the following message is displayed. Click the **OK** button.

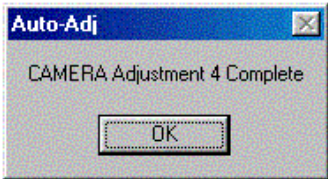


Fig. 6-1-38

Check on the monitor TV

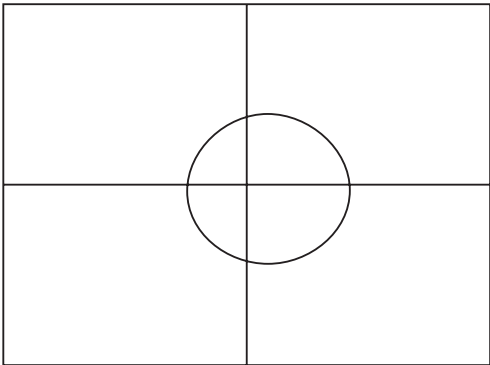


Fig. 6-1-39

1-5. LCD SYSTEM ADJUSTMENTS

1-5-1. Function of Each Button on LCD System Adjustment Screen

Click the **LCD SYSTEM ADJUSTMENT** button on the Main Menu screen, and the “LCD SYSTEM ADJUSTMENT” screen in Fig. 6-1-40 will appear.

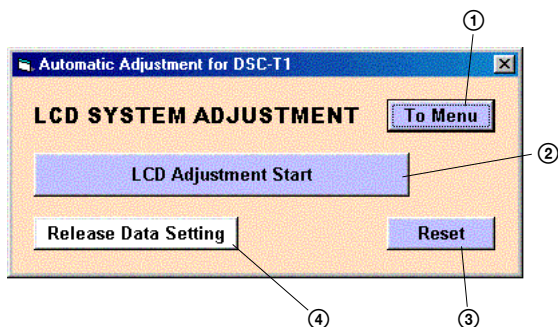


Fig. 6-1-40

- ① **To Menu** button
The Main Menu screen comes back.
- ② **LCD Adjustment Start** button
“LCD Adjustment” starts.
- ③ **Reset** button
This button functions same as the Reset button of the camera.
- ④ **Release Data Setting** button
The data setting at the adjustment is cancelled.
During the data setting, the button color changes from “white” to “red”. When the data setting is cancelled, the button color returns to “white”.
(Use this button when an error occurred in the LCD adjustment. If the adjustment completed successfully, the data setting is automatically cancelled and the button color returns to “white”.)

1-5-2. Adjustment Items of LCD System Adjustment

The adjustment items of LCD system adjustment are as listed in Table 6-1-4. The Automatic Adjustment Program executes the adjustment items if the LCD Adjustment Start button is clicked.

Button Name	Adjustment	Signal	Page	Address
LCD Adjustment	LCD Initial Data Input	Arbitrary	8F	20, 21, 23 to 2C
	VCO adj.		8F	23
	Bright adj.		8F	25
	Contrast adj.		8F	2C
	V-COM adj.		8F	24
	White Balance adj. (1)		8F	28, 2A
	White Balance adj. (2)		8F	29, 2B

Table 6-1-4

1-5-3. Adjusting Method

[Automatic Adjustment Program execution items and sequence]

- 1. LCD Initial Data Input
- 2. Data Setting during LCD Adj.
- 3. VCO Adj.
- 4. Bright Adj.
- 5. Contrast Adj.
- 6. V-COM Adj.
- 7. White Balance Adj. (1)
- 8. White Balance Adj. (2)
- 9. Release of Data Setting during LCD Adj.

[Adjusting method]

- 1) Click the [LCD Adjustment Start] button.
- 2) The Automatic Adjustment Program executes the items from “1. LCD Initial Data Input” to “5. Contrast Adj.”.
- 3) Upon successful completion of the “5. Contrast Adj.”, the following message is displayed during execution in “6. V-COM Adj.”. On the SEUS screen, operate the UP/DOWN key so that the brightness of portions A and B on the LCD panel is equal. After the adjustment, click the [OK] button.

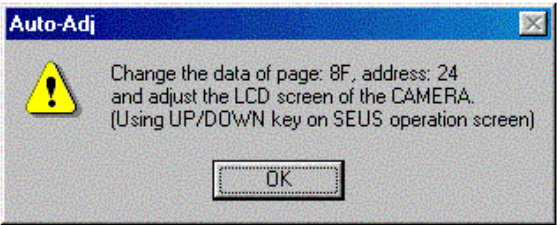


Fig. 6-1-41

- 4) Upon completion of “6. V-COM Adj.”, “7. White Balance Adj. (1)” is executed. The following message is displayed, and then check that LCD screen is not colored.
If colored, change the data of page: 8F, address: 28 and 2A on the SEUS Operation screen to adjust so that the LCD screen is not colored.

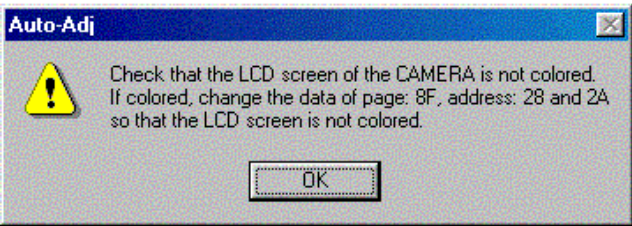


Fig. 6-1-42

- 5) If the [OK] button is clicked, “8. White Balance Adj. (2)” and “9. Release of Data Setting during LCD Adj.” will be executed.



Fig. 6-1-43

SEUS operation screen

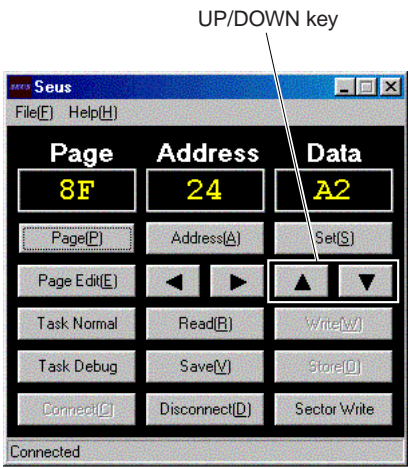


Fig. 6-1-44

Check on the LCD screen (V-COM Adj.)

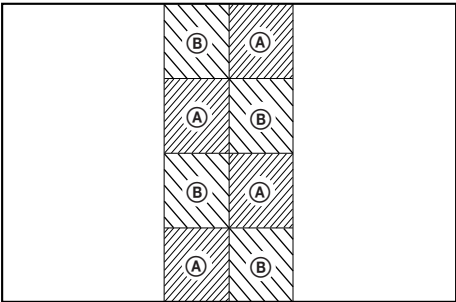


Fig. 6-1-45

1-6. ERROR

In case of an error during the execution of adjustment, the Automatic Adjustment Program interrupts the processing at that point, and displays an error message, and then terminates the program execution there.

1-6-1. Error Message

When an error message is displayed, perform the remedy given below, and then retry adjustment. If the error message is displayed though the remedy was performed, the circuits will be faulty.

1. Connect Error



Fig. 6-1-46

Symptom	USB communication with the set is abnormal.
Cause	<ul style="list-style-type: none"> • USB cable is not inserted tightly. • Power supply is not installed correctly. • Communication with SEUS is abnormal.
Remedy	<ul style="list-style-type: none"> • Disconnect the USB cable once, and then re-connect it tightly and check that the set is in "USB Mode". • Install the power supply correctly. • Start the SEUS and click the Connect to check that the connection state is established.

2. RESET the CAMERA and Try Again

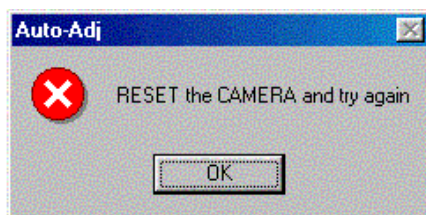
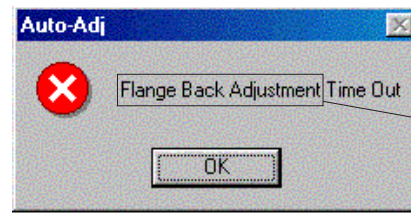


Fig. 6-1-47

Symptom	The camera is not ready for adjustment.
Cause	<ul style="list-style-type: none"> • Data error exists in the camera.
Remedy	<ul style="list-style-type: none"> • Reset the camera.

3. Adjustment Time Out

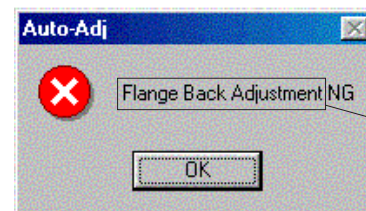


This part indicates the adjustment item in which an error occurred.

Fig. 6-1-48

Symptom	Adjustment does not finish within the specified time.
Cause	<ul style="list-style-type: none"> • Adjustment conditions are wrong. • Data error exists in the camera.
Remedy	<ul style="list-style-type: none"> • Check that the conditions such as a subject are correct. • Reset the camera.

4. Adjustment NG



This part indicates the adjustment item in which an error occurred.

Fig. 6-1-49

Symptom	The adjusted data does not become the specified value.
Cause	<ul style="list-style-type: none"> • Adjustment conditions are wrong. • Data error exists in the camera.
Remedy	<ul style="list-style-type: none"> • Check that the conditions such as a subject are correct. • Reset the camera.

5. Data Save Error

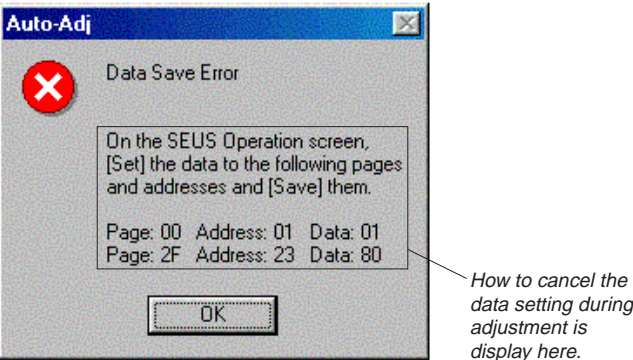


Fig. 6-1-50

Symptom	data cannot be saved normally. (The data setting during adjustment cannot be cancelled)
Cause	<ul style="list-style-type: none">• Data writing to the flash memory failed.• Connection is faulty.• Power supply is not installed correctly.
Remedy	<ul style="list-style-type: none">• On the SEUS Operation screen, [Set] the data to the pages and addresses displayed in the message, and [Save] them. (Cancel manually the data setting during adjustment.)• Check the connection.• Install the power supply correctly.

1-6-2. Precautions When an Error Occurred

The Automatic Adjustment Program sets the data for adjustment before the adjustment starts. Accordingly, if the adjustment terminates by an error, the data during the adjustment may be left in the camera.

Note 1: With this data left in the camera, the camera will not operate normally.

In this case, the [Release Data Setting] button is displayed in “red” on the screen as shown in Fig. 6-1-51, 52 and 53. Click the [Release Data Setting] button to cancel the data setting. When the data setting is cancelled, the button color becomes “white”.

Note 2: When “Data Save Error” occurred, the [Release Data Setting] button is displayed in “white”.

To cancel the data setting, perform it on the SEUS Operation screen. How to cancel the data setting is displayed in the error message.

Video System Adjustment screen

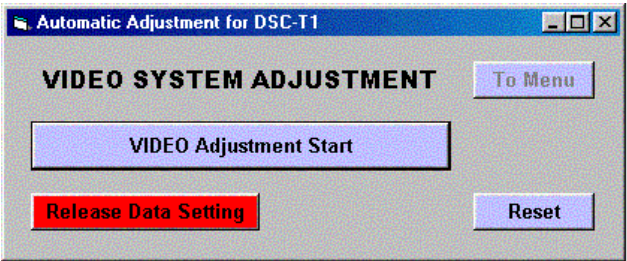


Fig. 6-1-51

Camera System Adjustment screen

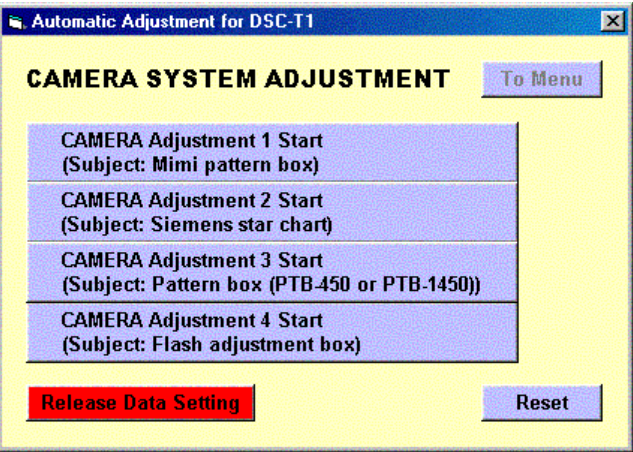


Fig. 6-1-52

LCD System Adjustment screen

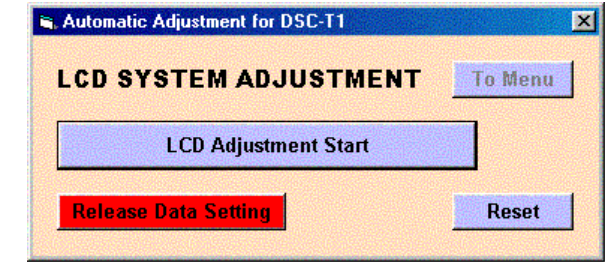


Fig. 6-1-53

1-7. INITIALIZATION OF DATA

1-7-1. INITIALIZATION OF DATA

1. Initializing All Pages Data

By performing the following procedure, data of all the pages will be initialized.

Initializing Method:

- 1) Select page: 00, address: 01, and set data: 01.
- 2) Click **Sector Write** on the SEUS screen to display the SEUS SECTOR WRITE screen.
- 3) Check that the SET ID is "04".
- 4) Click **All** of the ALL SELECT buttons to select all pages. (Fig. 6-1-54. **A**)
- 5) Click **Write** to write the initializing data to the flash memory of the camera.
- 6) Wait for 3 sec.
- 7) Click **Close** to close the SEUS PAGE EDIT screen.

Processing after Completing Initializing of data

Order	Page	Address	Data	Procedure
1	20	00	29	Set the data.
2	20	01	29	Set the data.
3				Check "Receive Paket Error" is displayed on the SEUS screen.
4				Turn on the power of the camera.
5				Click Connect on the SEUS screen.

2. Initializing Single Page Data

By performing the following procedure, data of the page that you want to initialize will be initialized.

Initializing Method:

- 1) Select page: 00, address: 01, and set data: 01.
- 2) Click **Sector Write** on the SEUS screen to display the SEUS SECTOR WRITE screen.
- 3) Check that the SET ID is "04".
- 4) Click "All" of the option buttons of the target page. (Fig. 6-1-54. **B**)
- 5) Click **Write** to write the initializing data to the flash memory of the camera.
- 6) Wait for 3 sec.
- 7) Click **Close** to close the SEUS PAGE EDIT screen.

Processing after Completing Initializing of data

Order	Page	Address	Data	Procedure
1	20	00	29	Set the data.
2	20	01	29	Set the data.
3				Check "Receive Paket Error" is displayed on the SEUS screen.
4				Turn on the power of the camera.
5				Click Connect on the SEUS screen.

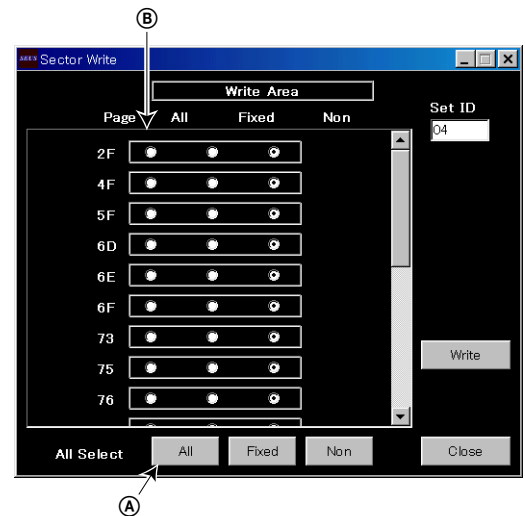


Fig. 6-1-54

6-2. SERVICE MODE

1. Setting the Test Mode

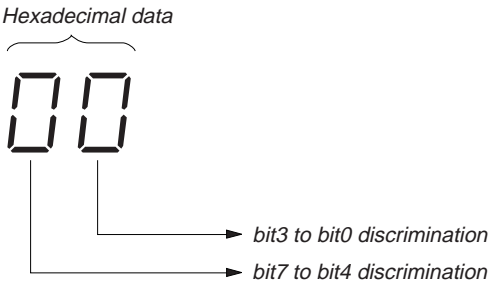
Page 2F	Address 23
---------	------------

Data	Function
80	Normal
01	Forced STILL mode power ON
02	Forced PLAY mode power ON
00	Forced MOVIE mode power ON

- Before setting the data, select page: 00, address: 01, and set data: 01.
- For page 2F, the data set is recorded in the non-volatile memory by saving data. In this case, take note that the test mode will not be exited even when the main power is turned off.
- After completing adjustments/repairs, release the data setting .
 - Select page: 00, address: 01, and set data: 01.
 - Select page: 2F, address: 23, and set data: 80.
 - Save the data.
 - Wait for 3 sec.
 - Select page: 00, address: 01, and set data: 00.

2. Bit value discrimination

Bit values must be discriminated using the hexadecimal data for following items. Use the table below to discriminate if the bit value is “1” or “0”.



Display on the adjustment remote commander	Bit values			
	bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
Ⓐ 8	1	0	0	0
9	1	0	0	1
A (H)	1	0	1	0
B (h)	1	0	1	1
C (L)	1	1	0	0
D (d)	1	1	0	1
Ⓑ E (E)	1	1	1	0
F (F)	1	1	1	1

Examples: If the hexadecimal data is “8E”, the bit values for bit7 to bit4 are shown in the Ⓐ column, and the bit values for bit3 to bit0 are shown in the Ⓑ column.

3. Switch check (1)

Page 20	Address 80
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Bit	Function	When bit value=1	When bit value=0
0	POWER switch (XPWER ON) (Control switch block S001)	OFF	ON
2	Lens cover open switch (XLENS CAP ON) (SY-95 board S401)	Closed	Open

Using method:

- 1) Select page: 20, address: 80.
- 2) Read the data. By discriminating the bit value of the data, the state of the switches can be discriminated.

4. Switch check (2)

Page 20	Address 90 to 92, 95
---------	----------------------

Using method:

- 1) Select page: 20, address: 90 to 92, 95.
- 2) Read the data. By discriminating the data, the pressed key can be discriminated.

Address	Data				
	00 to 0B	0C to 26	27 to 47	48 to 72	73 to FF
90 (MODE AD0) (IC491(J6))	MENU (Control switch block) (S007)	Control button LEFT (Control switch block) (S005)	DISPLAY/LCD BACK LIGHT (Control switch block) (S013)	Control button DOWN (Control switch block) (S011)	No key input
91 (KEY AD1) (IC491(H6))	Control button UP (Control switch block) (S006)	IMAGE SIZE/DELETE (Control switch block) (S009)	Control button RIGHT (Control switch block) (S010)	Control button SET (Control switch block) (S008)	No key input
92 (KEY AD2) (IC491(G6))	WIDE (Control switch block) (S003)	TELE (Control switch block) (S004)			No key input
94 (MODE DIAL0) (IC491(J8))	Mode switch MOVIE (MS-148 board) (S101)	Mode switch STILL (MS-148 board) (S101)	Mode switch PLAY (MS-148 board) (S101)		

5. Switch check (3)

Page 80	Address 13
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Function	When data = 00	When data = 01	When data = 02
Shutter button (XAE LOCK SW) (Control switch block S002)	Off	On	On
Shutter button (XSHTR ON SW) (Control switch block S002)	Off	Off	On

Using method:

- 1) Select page: 80, address: 13.
- 2) Read the data. By discriminating the data, the state of the switches can be discriminated.

6. LED check

Page 20	Address 04
Page 80	Address 12
Page 8E	Address FE

Using method:

- 1) Select page: 00, address: 01, set data: 01.
- 2) Select page: 8E, address: FE, set data: 20.
- 3) Select page: 80, address: 12, set data: 01.
- 4) Select page: 20, address: 04, set data: 02.
- 5) Check that all LED (Power, Flash/Charge, MS access, AF illumination) are lit.
- 6) Select page: 20, address: 04, set data: 00.
- 7) Select page: 80, address: 12, set data: 00.
- 8) Select page: 8E, address: FE, set data: 00.
- 9) Select page: 00, address: 01, set data: 00.

7. Record of Use check

Page 4F	Address 94 to 97
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Address	Function	Remarks
94	Recording counter (Hexadecimal)	1000000-digit and 1000000-digit
95		1000000-digit and 10000-digit
96		1000-digit and 100-digit
97		10-digit and 1-digit

Using method:

- 1) The recording counter data is displayed at page: 4F, addresses: 94 to 97. These data are named D₉₄, D₉₅, D₉₆ and D₉₇ respectively.
- 2) Calculate the recording counter (N) using following equation. (Hexadecimal calculation)

$$N = D_{97} + D_{96} \times 100 + D_{95} \times 10000 + D_{94} \times 1000000$$

8. Self Diagnostics Log check

Page 20	Address B0 to B8
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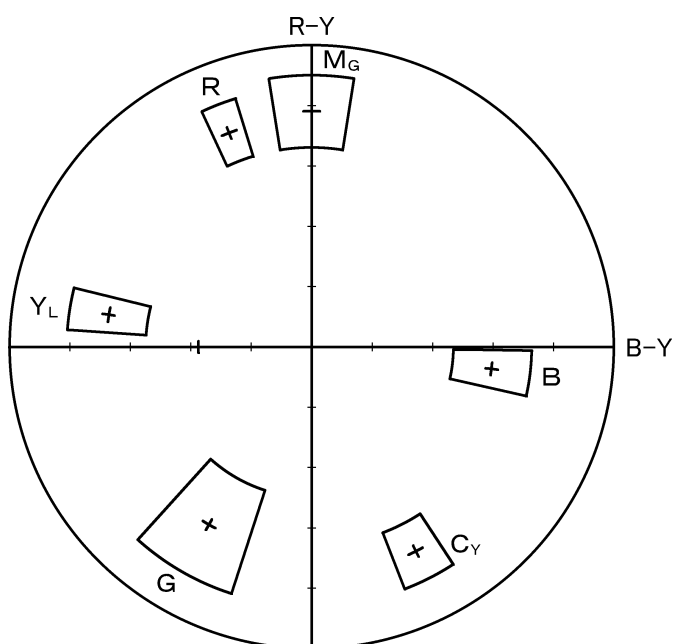
Address	Initial value	Function
B0	00	“Repaired by” code (Occurred 1st time) *1
B1	00	“Block function” code (Occurred 1st time)
B2	00	“Detailed” code (Occurred 1st time)
B3	00	“Repaired by” code (Occurred 2nd time) *1
B4	00	“Block function” code (Occurred 2nd time)
B5	00	“Detailed” code (Occurred 2nd time)
B6	00	“Repaired by” code (Occurred 3rd time) *1
B7	00	“Block function” code (Occurred 3rd time)
B8	00	“Detailed” code (Occurred 3rd time)

*1: “C” → “01”, “E” → “03”

Using method:

- 1) The self diagnostics log is displayed at page: 20, addresses: B0 to B5.
Note: These data will be erased when the lithium battery (CN-198 board) is removed.

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