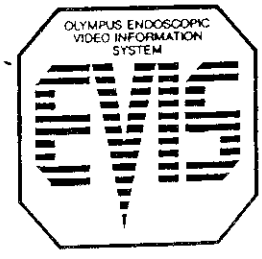
OLYMPUS®

INSTRUCTIONS

EVIS VIDEO SYSTEM CENTER

OLYMPUS CV-140



CAUTION: Federal (USA) law restricts this device to sale by or on the order of a physician.

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1 SAFETY

1.1 Intended Use

This instrument has been designed to be used with Olympus endoscopes, light source, monitors, Endo-Therapy accessories, and other ancillary equipment for endoscopic diagnosis, treatment and video observation. Only trained medical personnel should use this instrument. Do not use for any purpose other than its intended use.

1.2 Instruction Manual

Before use, thoroughly review this manual and the manuals of all equipment which will be used during the procedure.
Endoscopic technique and the medical aspects of endoscopy are not covered by this manual.
Keep the manuals in safe, accessible location.
If you have any questions and comments about any information in this manual, please contact Olympus.

1.3 Instrument Compatibility

Refer to the system chart in Section 11 to confirm that the CV-140 is compatible with the ancillary equipment being used. Using incompatible instruments can result in patient injury or equipment damage.

1.4 Upon Receipt

Visually inspect the instrument for damage and confirm that it operates correctly. Do not use if it appears damaged; contact Olympus.

1.5 Repair/Modification

This instrument contains no user serviceable parts. Do not modify or attempt repair; patient injury or equipment damage can result.

1.6 Signal Words

The following signal words are used throughout this manual.

DANGER • Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING • Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION • Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices or potential equipment damage.

NOTE • Indicates additional helpful information.

1.7 Cautions and Warnings

DANGER

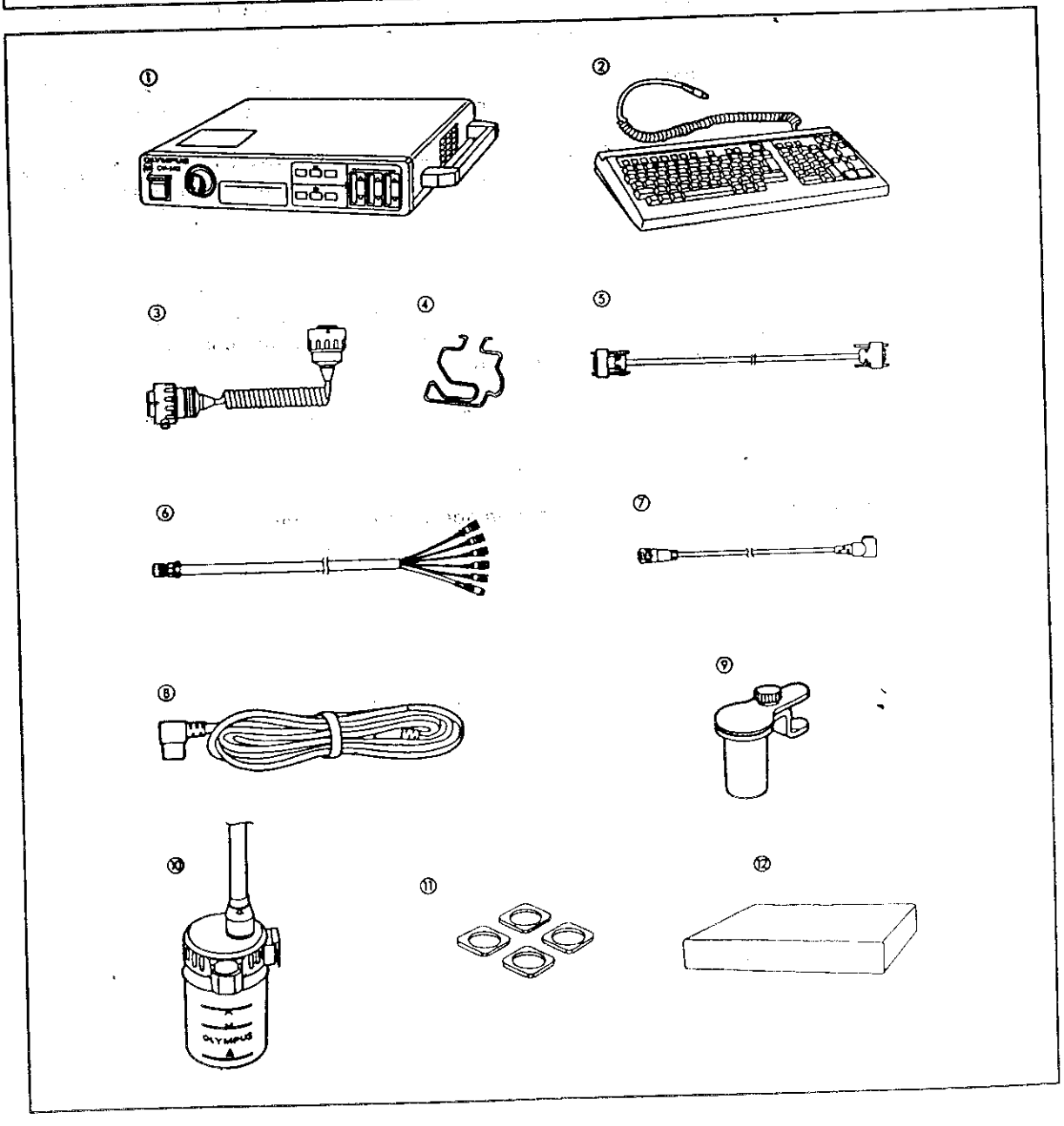
- As a Type BF (Body Floating) piece of electro-medical equipment, the endoscope attached to the CV-140 must never be applied directly to the heart. Leakage current from Type BF equipment may be dangerous and cause ventricular fibrillation or otherwise seriously affect the cardiac function of the patient.
  Accordingly, always adhere to the following points:
  — Never apply the connected endoscope to the heart or an area near the heart.
  — Never allow an accessory or another endoscope, which is in contact with the heart (or an area near the heart) to contact the endoscope connected to the CV-140.
- Failure to observe the following precautions may place the patient and medical personnel in danger of electrical shock.
  — When this equipment is used to examine a patient, do not allow the metal parts of endoscope or accessories to touch metal parts of other system components to avoid unexpected leakage current.
  — Keep liquids away from all electrical equipment. If spilled fluids have entered the unit, stop operation of the equipment at once and contact Olympus.
  — Do not prepare, inspect or use this equipment with wet hands.
- Never install and operate the CV-140 where there is the risk of flammable gases. As the CV-140 is not designed to be explosion proof, explosion or fire may result.

2 STANDARD SET

- Please check each item in the set against the list of standard components below.
- After removing the CV-140 from the packaging material, place it on a stable surface in a horizontal position.
- If anything is missing or you have any questions, immediately contact Olympus.

Description	Quantity
① CV-140	1
② Keyboard (MH-857) (with MAJ-29 Keyboard cover)	1
③ Videoscope Cable 100 (MD-148)	1
④ Videoscope Cable Holder (MD-511)	1
⑤ Light Source Cable (MD-434)	1
⑥ Monitor Cable (MD-685)	1

Description	Quantity
⑦ Light Control Cable (MH-993)	1
⑧ Power Cord	1
⑨ White Cap Set (MH-154)	1
⑩ Water Container (MH-884)	1
⑪ Foot Holder (MD-512)	1 set (4)
⑫ Vinyl Dust Cover (MD-454)	1
⑬ Instruction Manual	1



3 NOMENCLATURE

3.1 Explanation of Terms

— OES Video Converter : A device that converts a fiberscope image to an electrical signal and outputs it to the CV-140.

— Light Source Unit : Provides light and electrical signals to the endoscope, and provides the electrical signals to the CV-140.

— Video Printer : Printer for frozen images.

— EVIS Automatic Monitor Photo Unit : Photo documentation device for frozen images.

— Hospital Grade Receptacle : An electrical outlet that has a terminal exclusively used for grounding.

— Isolation Transformer : A safety device used to isolate non-insulated, high leakage equipment to decrease the possibility of electric shock.

— Automatic brightness control : Automatically adjusts the intensity of the lamp light from the light source unit so that the endoscope image will be maintained at constant brightness even if the distance from the distal end of the endoscope insertion tube and the subject changes.

— Iris : Electrically measures the brightness of an endoscopic image to obtain a control signal for the purpose of automatic light adjustment.

— Freeze : A stationary endoscopic view of the image.

— Field Freeze : Freeze image is made of field image.

— Frame Freeze : Freeze image is made of frame image.

— Release : Captures and sends the image to a recording device.

— Image Enhancement : An image process which intensifies the outline electrically at the boundary of an image.

— Image Sensor : A device that converts light to electrical signals.

— Washed-out : Brightening of the image to the level at which details can no longer be recognized, because of excessive light.

3.2 CV-140 Functions and Accessories

1. CV-140
   Used for the purpose listed in Section 1-1.

2. Keyboard
   This keyboard, exclusively for use with the CV-140, is used to control the CV-140 functions and data input.

3. Videoscope Cable 100
   Connects the videoscope to the CV-140.

4. Videoscope Cable Holder
   Attached to the CV-140 for hanging up the videoscope cable.

5. Light Source Cable
   Connects the CLV-U20 or CLV-U40 light source unit to the CV-140.

6. Monitor Cable
   Connects the monitor to the CV-140.

7. Light Control Cable
   Connects the CLV-U20 light source unit to the CV-140.

8. Power Cord
   Supplies electric power to the CV-140 from a hospital grade receptacle.

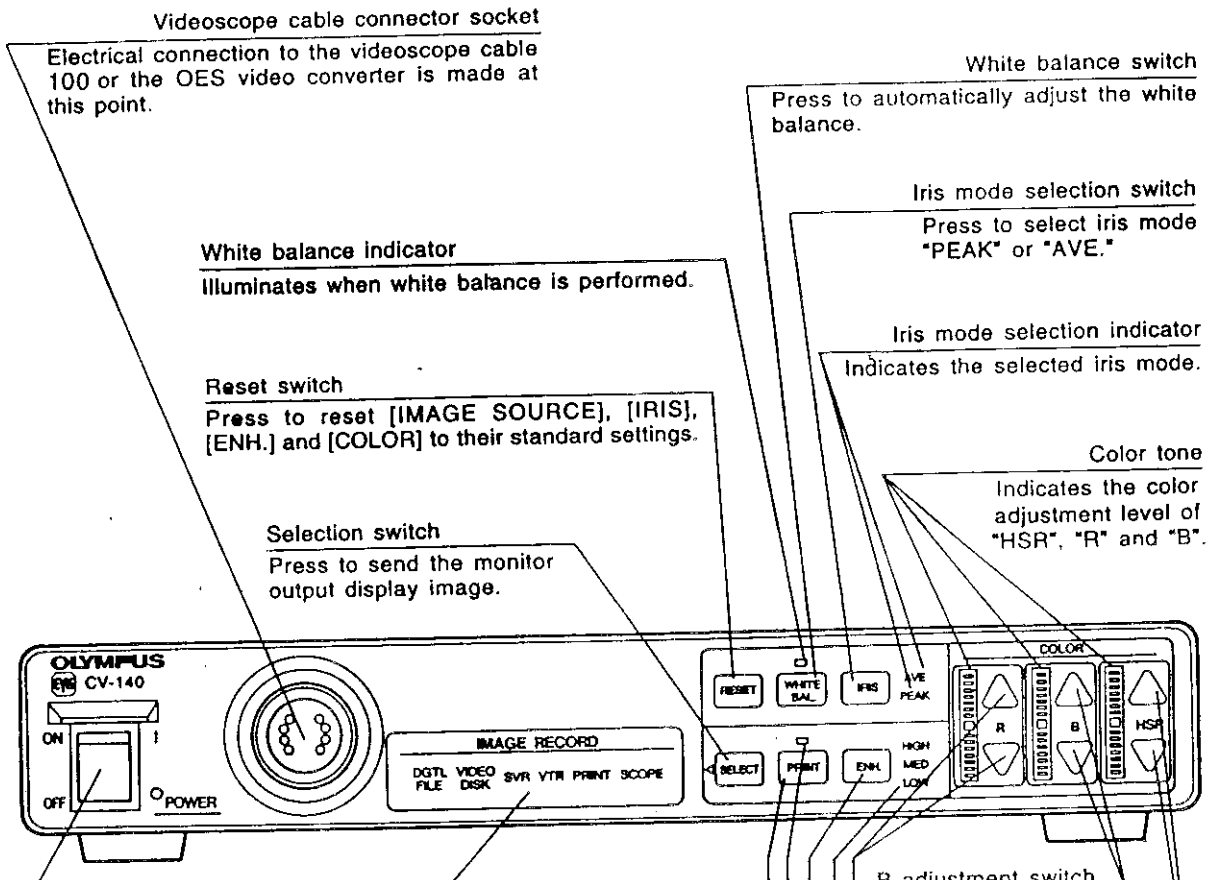
9. White Cap Set
   The distal end of the endoscope insertion tube is inserted into the white cap to set the white balance.

10. Water Container
    Holds the sterile water for feeding.

11. Foot Holder
    Helps hold the CV-140 in its installed position. For details read the foot holder instruction manual.

12. Vinyl Dust Cover
    Fits over the CV-140 to prevent accumulation of dust and dirt.

3.3 Description of Front Panel



Videoscope cable connector socket

Electrical connection to the videoscope cable 100 or the OES video converter is made at this point.

White balance switch

Press to automatically adjust the white balance.

Iris mode selection switch

Press to select iris mode "PEAK" or "AVE."

White balance indicator

Illuminates when white balance is performed.

Iris mode selection indicator

Indicates the selected iris mode.

Reset switch

Press to reset [IMAGE SOURCE], [IRIS], [ENH.] and [COLOR] to their standard settings.

Color tone

Indicates the color adjustment level of "HSR", "R" and "B".

Selection switch

Press to send the monitor output display image.

Power switch

Press to turn on the CV-140.

B adjustment switch

Press to adjust blue tone required.

Video printer switch

Press to input the image on the screen to the video printer.

HSR adjustment switch

Press to adjust deep red tone required.

Video printer status indicator

Indicates that the video printer is in operation.

R adjustment switch

Press to adjust red tone required.

Image enhancement selection switch

Press to adjust image enhancement level required.

Image enhancement indicator

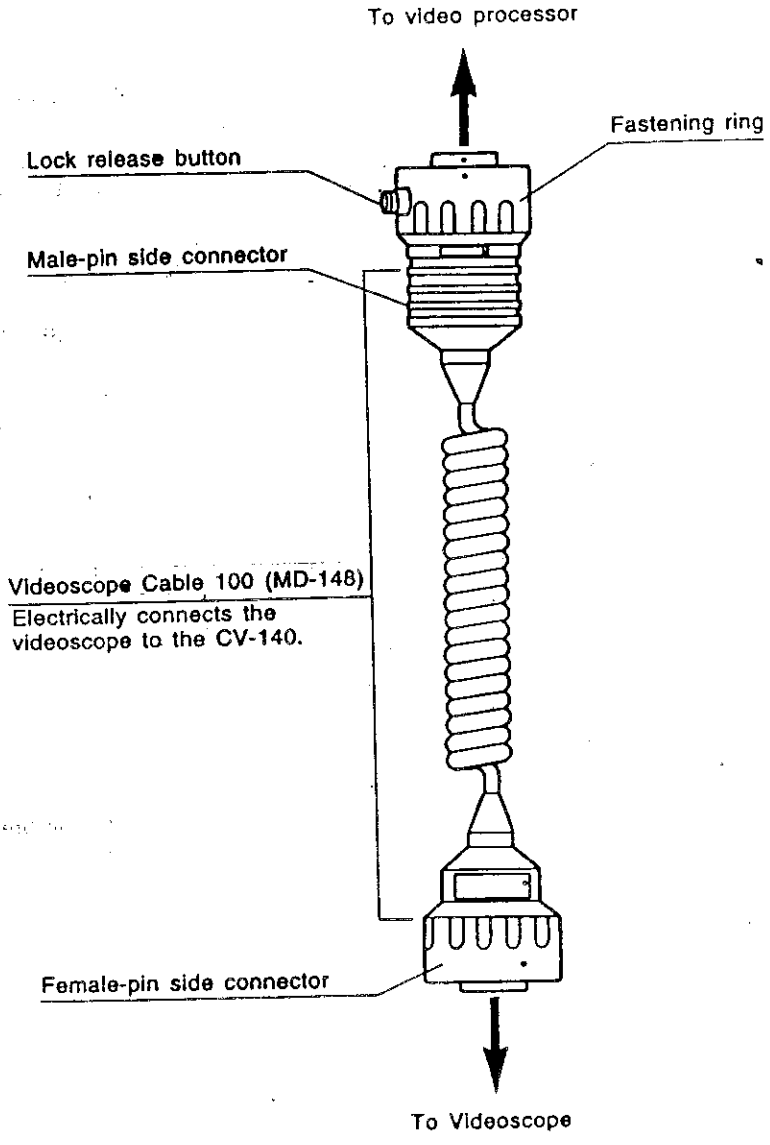
Indicates the image enhancement level.

Monitor output indicator

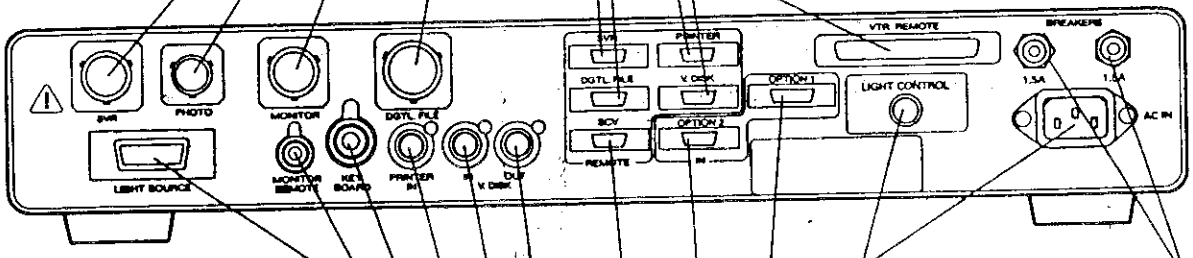
The image from the device for which the indicator is lit is displayed on the monitor.

SCOPE	: Videoscope image
PRINTER	: The image input from the "PRINTER IN" terminal
VTR	: The image input from the "VTR REMOTE" terminal
SVR	: The image input from the "SVR" terminal
VIDEO DISK	: The image input from the "V.DISK IN" terminal
DGTL FILE	: The image input from the "DGTL.FILE" terminal

3.4 Description of Videoscope Cable (MD-148)



3.5 Description of Rear Panel



"DGTL.FILE" terminal
The video signal for digital filing is output here.

"MONITOR" terminal
The video signal for the monitor is output here.

"PHOTO" terminal
The video signal for external camera or video printer is output here.

"SVR" terminal
The video signal for the SVR is input and output here.

"LIGHT SOURCE" terminal
Data from the light source unit are input and output here.

"MONITOR REMOTE" terminal
The signal for monitor control is output here.

"KEYBOARD" terminal
Data from the keyboard are input and output here.

"PRINTER IN" terminal
The video signal from the video printer is input here.

"V.DISK IN" terminal
The video signal from the video disk is input here.

"V.DISK OUT" terminal
The video signal for the endoscope image file equipment is output here.

"SVR REMOTE" terminal
Communication signals to and from the SVR are input and output here.

"DGTL.FILE REMOTE" terminal
Digital file communication signals are input and output here.

"PRINTER REMOTE" terminal
Communication signals to and from the video printer are input and output here.

"V.DISK REMOTE" terminal
Communication signals to and from the video disk are input and output here.

"VTR REMOTE" terminal
The video signal for the VTR and communication signals to and from the VTR are input and output here.

Circuit breaker
Protects the CV-140 from electrical surges.

Inlet
AC power is input here.

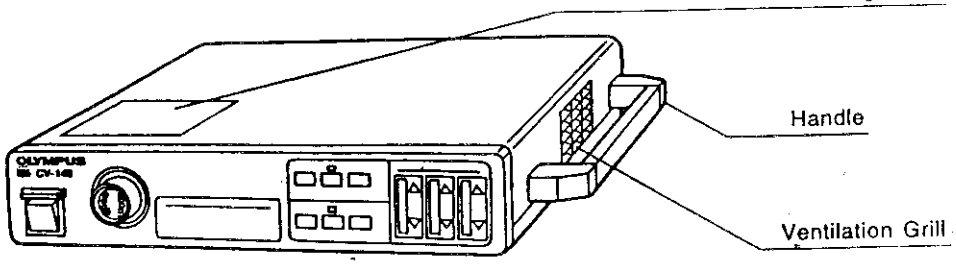
"LIGHT CONTROL" terminal
The signal used for automatic light adjustment is output here.

"OPTION 1 to 2" terminal
These are spare connection terminals.

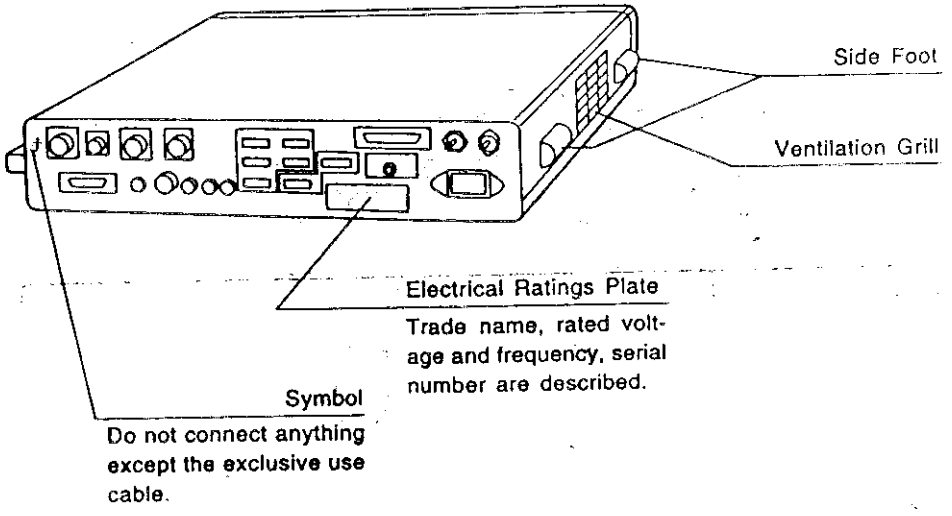
"SCV REMOTE" terminal
Communication signals to and from the external camera are input and output here.

3.6 Description of Main Body and Labels

FRONT VIEW

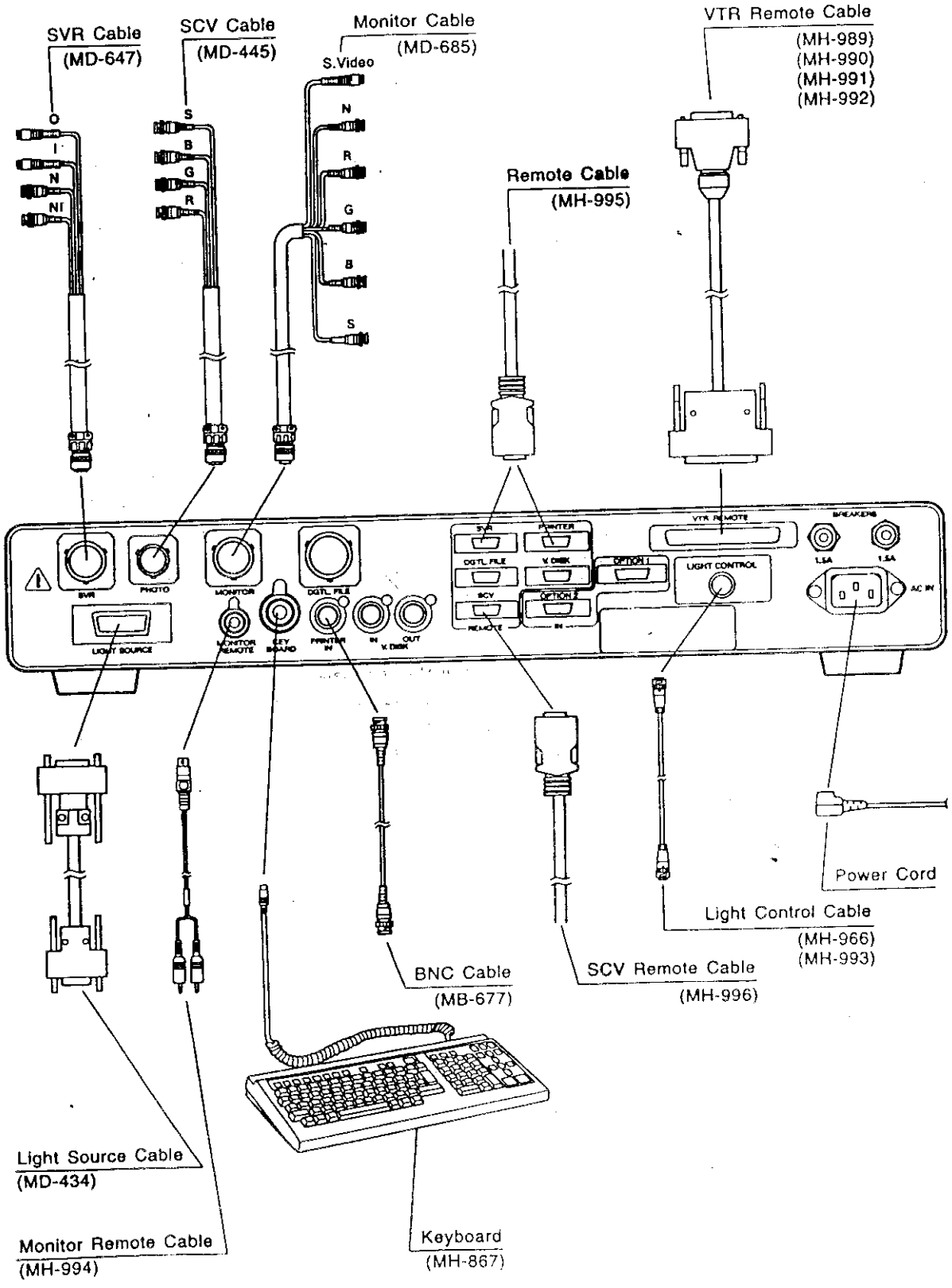


REAR VIEW

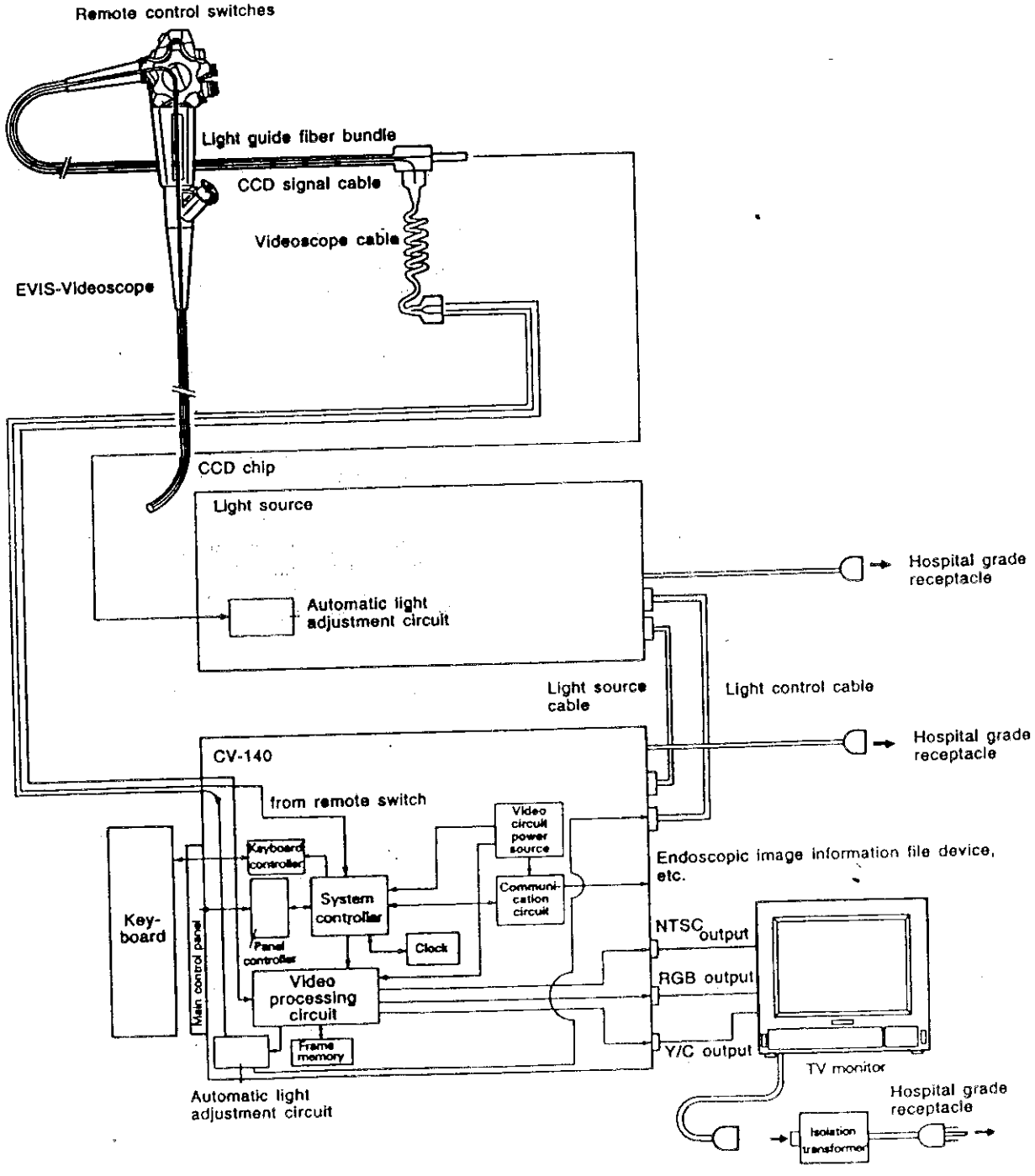


3.7 Connecting Cables to the Rear Panel

For the connections of the cables to the ancillary equipment, refer to Section 6.



3.8 Construction

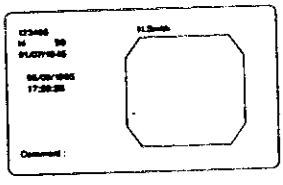
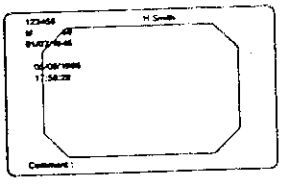


4 SPECIFICATIONS

4.1 Operating Environment

Operating Environment	Ambient temperature	10 to 40°C (50 to 104°F)
	Relative humidity	30 to 85%
	Atmospheric pressure	700 to 1060 hPa

4.2 CV-140 Specifications

Items	Specifications	
Power Requirements	Voltage Voltage fluctuation Frequency Frequency fluctuation Input current	120V AC Within ±10% 50/60 Hz Within ±1 Hz 0.8A
Size	Dimensions	450 (W) x 72 (H) x 465 (D) mm
	Weight	10 kg
Observation	Video signal output	VBS composite (NTSC), Y/C, RGB; simultaneous output is possible.
	Semi-full screen indication	When some EVIS-140 endoscopes are used, the endoscopic image on the monitor is about 1.7 times larger than when an EVIS-100 or EVIS-130 series scopes are used. Some 140 models display the same size as EVIS-100 or EVIS-130 series scopes.   EVIS-100 series scope EVIS-130 series scope Some EVIS-140 series scopes Some EVIS-140 series scopes
	White balance	By pressing the "WHITE BAL." switch on the front panel, automatic white balance will occur.
	Standard color chart output	The color bar image and 50% white image can be displayed using the "CHANGE SCREEN" key on the keyboard.

Items	Specifications	
Observation (continued)	Color tone adjustment	The color tone of the endoscopic image can be adjusted. The following adjustment is possible using the "HSR" switch, the "R" switch and the "B" switch on the front panel. • "HSR" control: ±7 steps • "R" control: ±7 steps • "B" control: ±7 steps In addition, the following adjustment can be performed using the "CHROMA" key on the keyboard and the "HSR" switch on the front panel. • "Chrom" level: ±7 steps
	Automatic gain control (AGC)	The image can be electrically amplified when the light is inadequate due to the distal end of the endoscope being too far from the subject.
	Contrast	The endoscopic image contrast can be set to any of the following four modes using the "CONTRAST" key on the keyboard. Mode I : Normal image. Mode II : The dark areas are darker and the light areas are lighter than in a normal image. Mode III : The dark areas are lighter and the light areas are darker than in a normal image. Mode IV : Exclusively for image processing use.
	Iris mode selection	The area over which light is measured can be changed according to the body part that is being observed. The following selections can be performed using the "IRIS" switch on the front panel. AVE. : During normal observation. PEAK : When focusing on and observing a small bright area.
	Image enhancement	A sharper image can be obtained by enhancing the outline of an endoscope image. Its level can be selected to be [LOW], [MED] or [HIGH] by the "ENH." switch on the front panel.
	Settings reset	From the "RESET" switch on the front panel, the endoscope image can be set to be the image output to the monitor. The color tone, iris setting and image enhancement settings can be reset to the standard settings.
	Freeze screen display	A stationary image can be displayed using the endoscope switch, keyboard, foot switch or OVC switch.
	Screen center mode	When an EVIS-100 endoscope, EVIS-130 endoscope or OVC-100 is used, the endoscopic image can be displayed in the center of the monitor screen using the "SHIFT SCREEN" key on the keyboard.
	Subscreen	Real-time image visible on an inset screen during use of the freeze mode.

Items	Specifications	
Documentation	Remote control	The following ancillary equipment can be controlled by the endoscope remote switch, the front panel and the keyboard: (Only the specified device types are valid.) • Monitor • Photography equipment • VTR • Video printer equipment • SVR (Still Video Recorder)
	Documentation/destination/ selection	Images can be transferred to the SCV, VIDEO DISK or DGTL FILE by keyboard setting.
	Patient data	The following data may be recorded on the screen through the keyboard. Items: 1. ID number 2. Patient name 3. Sex, age 4. Date of birth 5. Date/Time (built-in clock, stopwatch) 6. Comments 7. Number of exposed frames
	Pre-procedural patient data	For a maximum of 40 patients: Items: 1. ID number 2. Patient name 3. Sex, age 4. Date of birth
Image storage and retrieval	Image source switch	By pressing the "SELECT" switch on the front panel, it is possible to select an image from the endoscope or video printer on the monitor.
	Memorization of selected setting	The following settings on the front panel are retained even when the power is turned "OFF". • COLOR • ENH. • WHITE BAL.
Memory backup	Lithium battery life	5 years
Classification (electro-medical equipment)	Type of protection against electric shock	Class I
	Degree of protection against electric shock	Type BF (Body Floating)
	Degree of protection against explosion	The CV-140 should be kept away from areas contain flammable gases.

5 GENERAL PRECAUTIONS

Observe the following precautions when handling this unit. Also adhere to other cautions found in this manual.

CAUTION
- Never press the switches on the CV-140 front panel and keyboard with a pointed or hard object. Damage to the switches can occur.
- Do not touch the electrical contacts inside the CV-140 connector.
- Do not apply excessive force during connection to prevent malfunction.

6 PREPARATION

WARNING
- Review this section before each use. If the equipment is not properly prepared before each use, equipment damage, patient and operator injury or fire can occur.
- When non-medical electrical ancillary equipment is used, connect its power cable via an isolation transformer prior to connecting the signal cables. Failure to do this can cause electric shock, burns and fire may result.

CAUTION
- Turn off all power switches before connecting all equipment. Failure to do this can result in equipment damage.
- Use appropriate cables for correct operation.

Prepare the CV-140 and all compatible ancillary equipment before each use. Review the instruction manuals for all ancillary equipment.

6.1 Installation of Equipment

CAUTION
- Do not place any equipment on the top of the CV-140, equipment damage can result.
- The CV-140 vents should be clear of ancillary equipment. Blockage can cause overheating and equipment damage.
- Place the CV-140 on a stable level surface, using the foot holder (MD-512).
- Confirm applicable load of the installation site if not using a mobile workstation.

6.1.1 Installation on Mobile Workstation (WM-30)

NOTE
- There is a videoscope cable holder on the WM-30, so the accessory videoscope cable holder (MD-511) is not used.

(1) Place the mobile workstation (WM-30) on a level surface. Lock the caster brakes.
(2) Install the shelf of the mobile workstation (WM-30) as described in the mobile workstation (WM-30) instruction manual.
(3) To install the CV-140 on the top of the light source, adhere the foot holder (MD-512) securely in the specified locations on the light source, according to the foot holder instruction manual.
(4) Position the CV-140 in the foot holders on the light source.

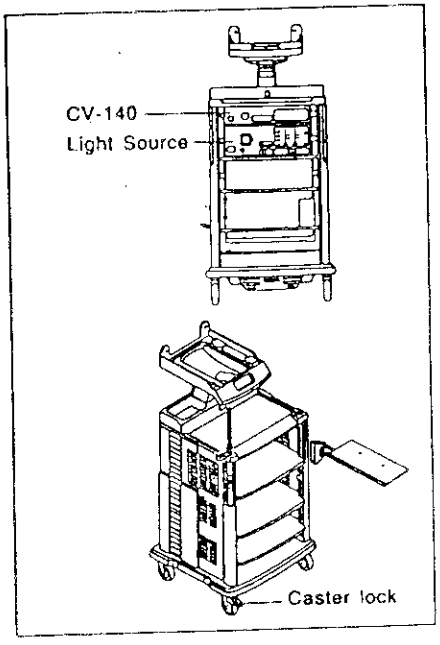


Fig. 6-1-1

6.1.2 Installation in Another Location

(1) When installing the CV-140 in another location, adhere the foot holder (MD-512) as required according to Section 6.1.1.
(2) Attach the accessory videoscope cable holder (MD-511) to CV-140 as shown in Fig. 6-1-2.

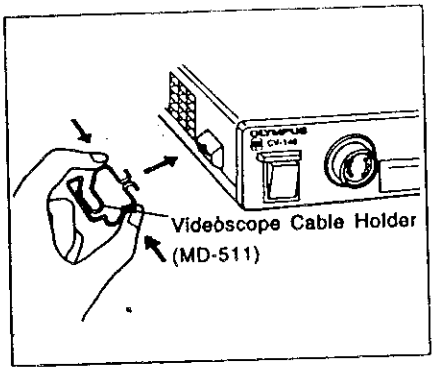


Fig. 6-1-2

(3) Attach the white cap (MH-154) according to the white cap set insruction manual.

6.2 Connection to Light Source (e.g. CLV-U20, CLV-U40)

6.2.1 When using the CLV-U20

(1) Connect "LIGHT SOURCE" terminal of the CV-140 to the "CV-100/200" terminal on the rear panel of the light source by using the light source cable (MD-434).
(2) Connect "LIGHT CONTROL" terminal of the CV-140 to the "AUX" terminal on the front panel of the light source by using the light control cable (MH-993).

NOTE • When connecting the light control cable (MH-993) to the CLV-U20, orient the connector as shown in Fig. 6-2-1 before plugging it in.

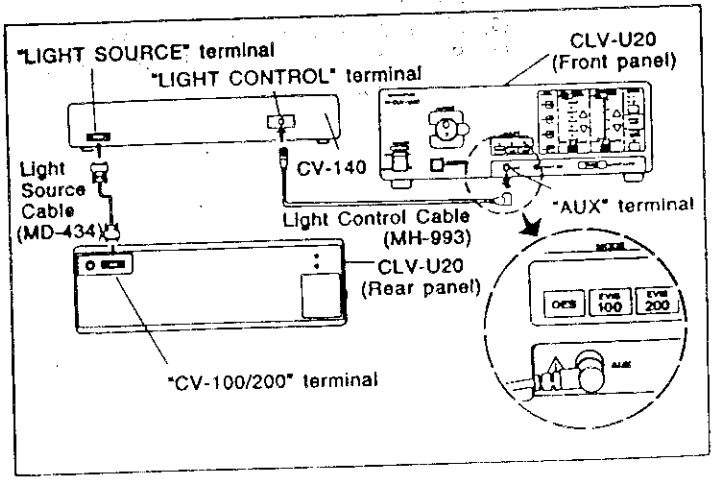


Fig. 6-2-1

6.2.2 When using the CLV-U40

(1) Connect the "LIGHT SOURCE" terminal of the CV-140 to the "CV-100/200" terminal on the rear panel of the light source by using the light source cable (MD-434).
(2) Next, connect the "LIGHT CONTROL" terminals of the CV-140 and CLV-U40 using the light control cable (MH-966).
One end of the cable is labeled "MH-966". Connect this end to the "LIGHT CONTROL" terminal on the rear-panel of the CLV-U40. Connect the other end of the light control cable to the "LIGHT CONTROL" terminal on the CV-140.

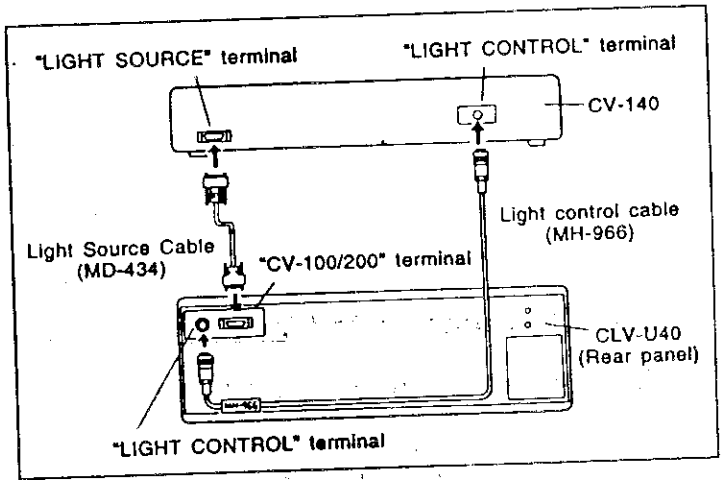


Fig. 6-2-2

6.3 Connection to Monitor (e.g. OEV 141, OEV 201, OEV 142, OEV 202)

6.3.1 When using the OEV 141 or OEV 201

(1) Connect the monitor cable (MD-685) to the "MONITOR" terminal of the CV-140.
(2) Connect the monitor remote cable (MH-994) to the "MONITOR REMOTE" terminal of the CV-140.
(3) Make the connection to the OEV 141 or OEV 201 as shown in the Fig. 6-3-1.
(4) Set change switch as shown in Fig. 6-3-1 ①, ② and ③ in accordance with the OEV instruction manual.

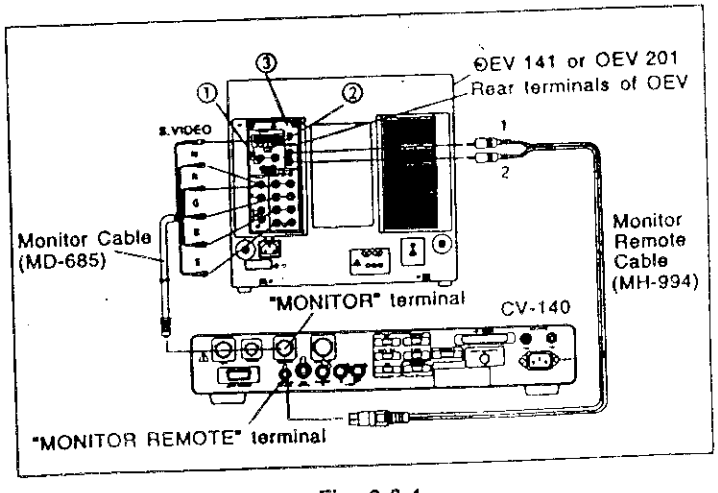


Fig. 6-3-1

6.3.2 When using the OEV 142 or OEV 202

(1) Connect the monitor cable (MD-685) to the "MONITOR" terminal of the CV-140.
(2) Connect the "MONITOR REMOTE" terminal on the rear-panel of the CV-140 and the OEV 142 or OEV 202 using the Monitor Remote Cable (MAJ-227). The connector labeled "MAJ-27" must be connected to the MONITOR REMOTE terminal on the CV-140.
(3) Connect the other end of the Monitor Remote Cable (MAJ-227) to the OEV 142 or OEV 202 as shown in Fig. 6-3-2.

NOTE

- The R/G/B/S connectors of the monitor cable (MD-685) connect to the RGB/COMPONENT A terminals of the OEV. If those connectors connect to the RGB/COMPONENT B terminals of the OEV, the function of monitor remote control does not work. (Refer to Section 8.11.)
- When the Monitor Remote Cable (MAJ-227) is connected to the OEV 142 or OEV 202, the following front-panel switches do not work; UNDER SCAN, DEGAUSS and SPLIT. For more information, refer to the OEV 142 or OEV 202 instruction manual.

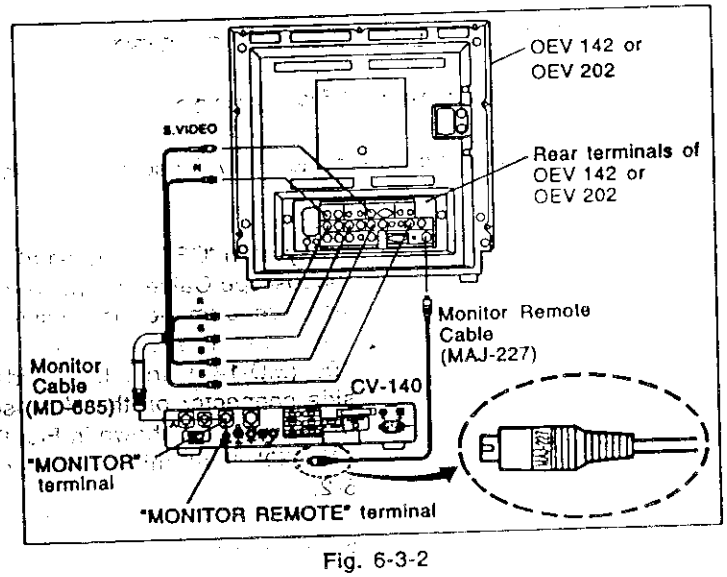


Fig. 6-3-2

6.4 Connection to Keyboard

CAUTION

- Use the keyboard in a place away from possible spilling of liquid, and always cover it with a protective cover. Spills may cause equipment damage.

(1) Connect the keyboard cable (MH-867) to "KEYBOARD" terminal of the CV-140.
(2) Cover the keyboard with the keyboard cover (MAJ-29).

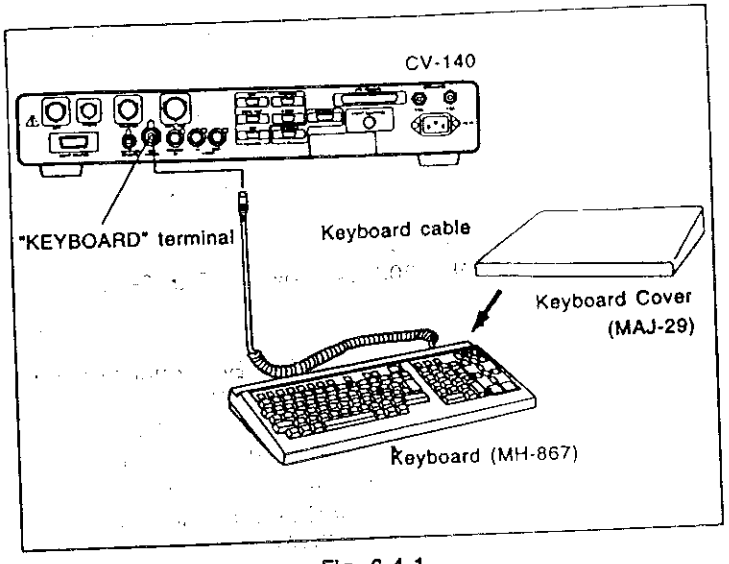


Fig. 6-4-1

6.5 Connection of Endoscope

6.5.1 Connection of Videoscope

Connect the CV-140 to the videoscope by using Videoscope Cable 100 (MD-148).

CAUTION
- Always turn "OFF" the CV-140 power switch before connecting or disconnecting Videoscope Cable 100 (MD-148). Damage to the electrical circuit and loss of videoscope image may result.
- When disconnecting the videoscope, always disconnect Videoscope Cable 100 (MD-148) first. If no videoscope is connected, hang the female-pin side connector on the Videoscope Cable Holder (MD-511) on the side of the CV-140, as shown in Fig. 6-5-1. If you are using the Mobile Workstation (WM-30), hand this connector on the Holder (MH-149) as shown in Fig. 6-5-2.
- Do not apply excessive force to the Videoscope Cable 100 (MD-148). Equipment damage may result.

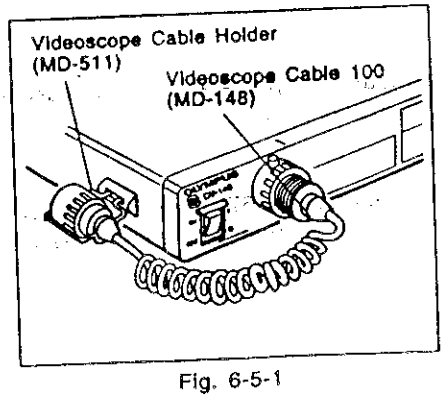


Fig. 6-5-1

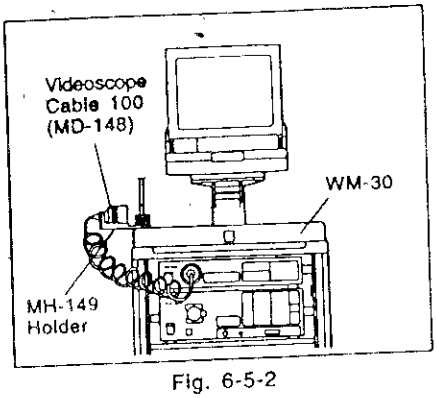


Fig. 6-5-2

1. Connection of the Videoscope Cable 100 (MD-148)
   (1) Connection
   ① There are yellow index marks on the tip of the videoscope cable connector (male-pin side) and on the fastening ring. Rotate the fastening ring until the two yellow marks are aligned.
   ② Match up the yellow index mark on the Videoscope Cable 100 (MD-148) with the yellow index of the videoscope cable connector socket of the CV-140, then insert connector until it stops.
   ③ Turn the fastening ring clockwise until a click is heard.

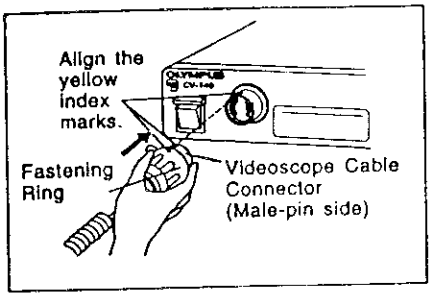


Fig. 6-5-3

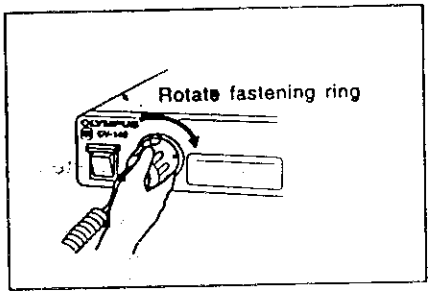


Fig. 6-5-4

(2) Disconnection
   ① While pressing theVideoscope Cable 100 (MD-148) lock release button, rotate the fastening ring counterclockwise until it stops, and pull the connector straight out.

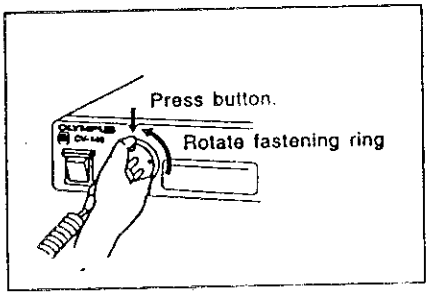


Fig. 6-5-5

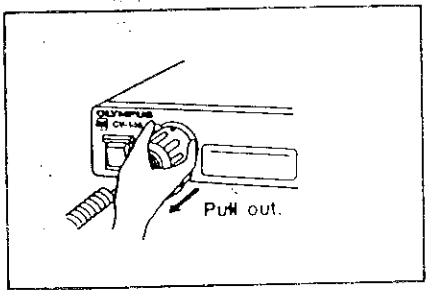


Fig. 6-5-6

2. Connection of the Videoscope Cable 100 (MD-148) to the videoscope
   (1) Refer to the videoscope instruction manual for directions on connecting the Videoscope Cable 100 (MD-148) to the videoscope.

6.5.2 Connection of Fiberscope

Connect the CV-140 to the fiberscope by using OES video converter.

CAUTION ▪ Always turn "OFF" the CV-140 power switch before connecting or disconnecting OES video converter. Damage to the electrical circuit and loss of fiberscope image may result.

1. Connection of the OES video converter to the CV-140
   (1) Connection
      ① There are yellow index marks on the tip of the OES video converter connector (male-pin side) and on the fastening ring. Rotate the fastening ring until the two yellow marks are aligned.
      ② Match up the yellow index mark on the OES video converter with the yellow index of the videoscope cable connector socket of the CV-140, then insert connector until it stops.
      ③ Turn the fastening ring clockwise until it stops.

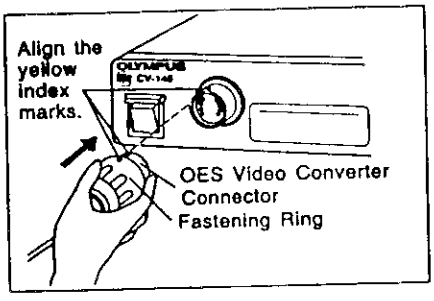


Fig. 6-5-7

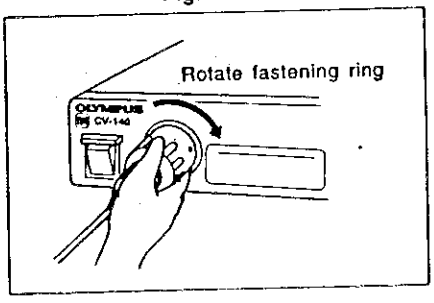


Fig. 6-5-8

   (2) Disconnection
      ① Turn the OES video converter fastening ring counterclockwise until it stops, then rotate and pull it straight out.

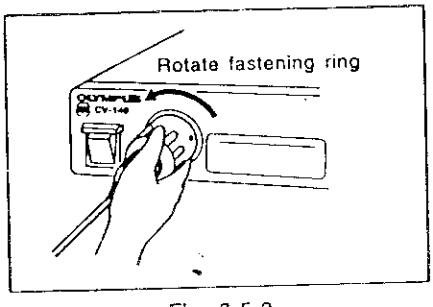


Fig. 6-5-9

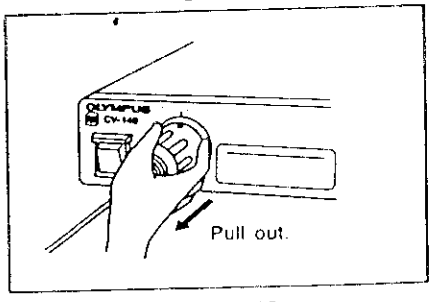


Fig. 6-5-10

2. Connection of the OES video converter to an OES fiberscope
   (1) Refer to the OES video converter instruction manual for directions on connecting the OES video converter to the OES fiberscope.

6.6 Connection to Photographic Device (e.g. SCV-2, etc.)

(1) Connect the SCV cable (MD-445) to the "PHOTO" terminal of the CV-140.
(2) Connect the SCV remote cable (MH-996 for the SCV-2) to the "SCV REMOTE" terminal of the CV-140.
(3) Make the connection on the photographic device following the directions in the SCV-2 instruction manual.

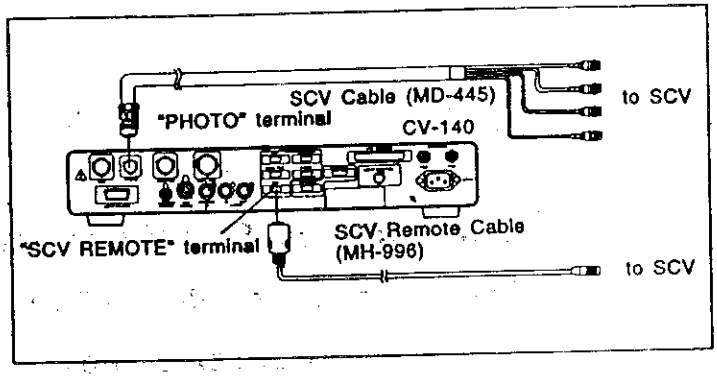


Fig. 6-6-1

6.7 Connection to Video Tape Recorder

CAUTION • If the wrong VTR remote cable is used, not only may the equipment not operate normally, but damage to the equipmet may result.

Connect the CV-140 to the VTR by using the VTR remote cable. Refer to the chart below to select the VTR remote cable.

	VTR remote cable (MH-989) [RS232C + Y/C]	VTR remote cable (MH-991) [square connector + BNC]	VTR remote cable (MH-992) [pin connector + Y/C]	VTR remote cable (MH-990) [square connector + Y/C]
VO-7600	—	x	—	—
VO-9600	—	x	—	—
SVO-9500MD	x (Note 1)	x (Note 2)	x (Note 3)	—
BR-S811	—	—	—	x
BR-S611	—	—	—	x

Note 1: An SVBK-120 RS232C interface board is necessasry. For details, see the SVO-9500MD instruction manual.
Note 2: An SVBK-100 33-pin interface board is necessasry. For details, see the SVO-9500MD instruction manual.
Note 3: When using VTR remote cable MH-992, remote control is restricted to the [Record] and [Pause] functions.

(1) Connect the VTR remote cable to the "VTR REMOTE" terminal of the CV-140.
(2) Make the VTR connection as directed in the instruction manual for the VTR remote cable.

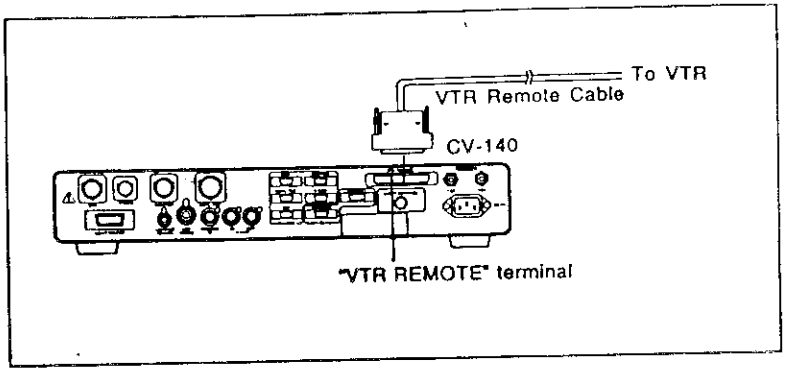


Fig. 6-7-1

6.8 Connection to Still Video Recorder

6.8.1 Connection to the SR-300 (Olympus) or the MVR-5300 (Sony)

(1) Connect the SVR CABLE (MD-647) to the "SVR" terminal of the CV-140.
(2) Connect the REMOTE CABLE (MH-995) to the "SVR REMOTE" terminal of the CV-140.
(3) Make the SR-300 and MVR-5300 connection as shown in Fig. 6-8-1.
(4) Select S-VIDEO or VIDEO as the SVR input, according to the SVR instruction manual.

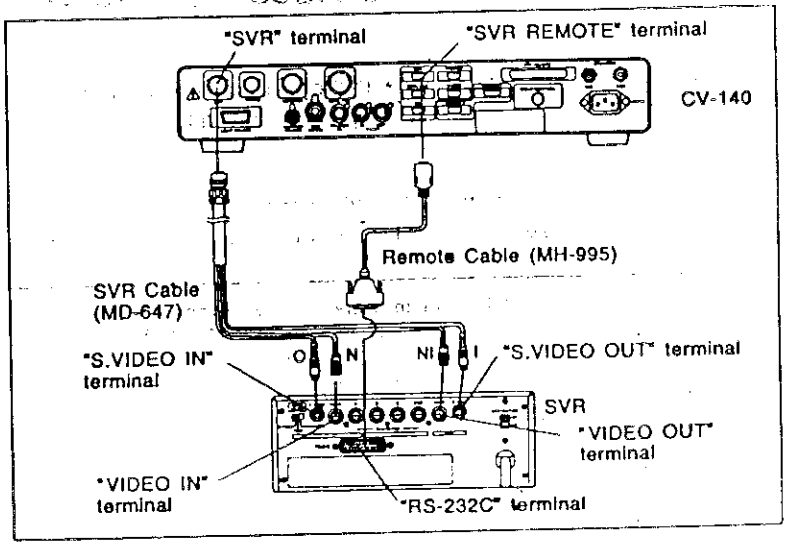


Fig. 6-8-1

6.8.2 Connection to the NVR-5600 (Sony)

(1) Connect the SVR CABLE (MD-647) to the "SVR" terminal of the CV-140.
(2) Connect the REMOTE CABLE (MH-995) to the "SVR REMOTE" terminal of the CV-140.
(3) Make the NVR-5600 connection as shown in Fig. 6-8-2.

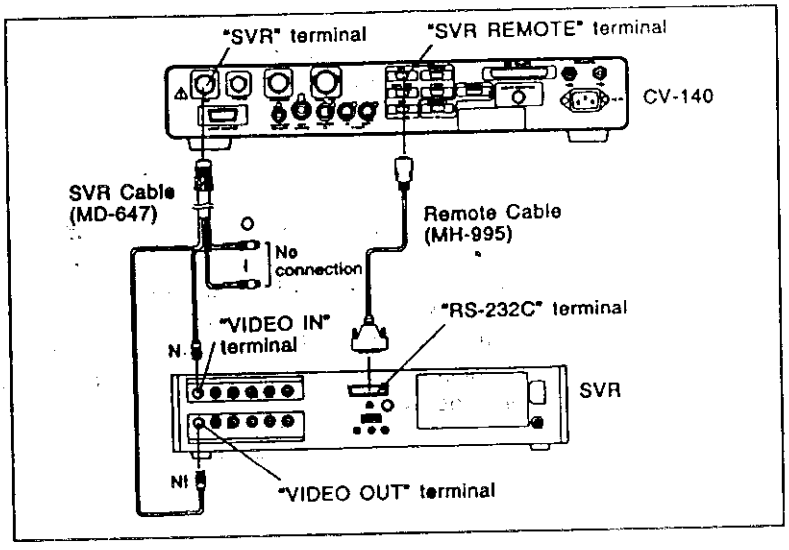


Fig. 6-8-2

6.9 Connection to Video Printer

(1) Connect the SCV cable (MD-445) to the "PHOTO" terminal of the CV-140.
(2) Connect the connector at one end of the BNC cable (MB-677) to the "PRINTER IN" terminal of the CV-140.
(3) Connect the remote cable (MH-995) to the "PRINTER REMOTE" terminal of the CV-140.
(4) Make the video printer connection as shown in Fig. 6-9-1.
(5) Set the switches on the rear of the video printer as directed in the video printer instruction manual.

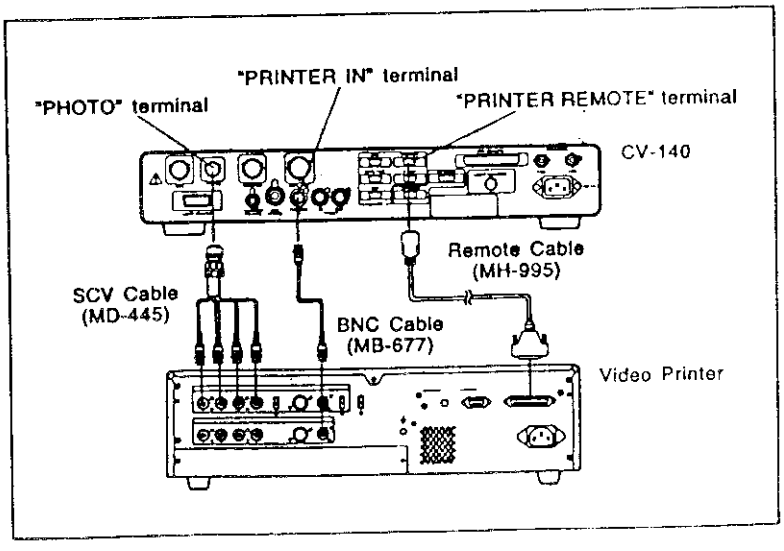


Fig. 6-9-1

6.10 Connection to Other Ancillary Equipment

The "OPTION-1" and "OPTION-2" terminals are spare connectors for other ancillary equipment.

6.11 Connection to an AC Mains Power Supply

WARNING
- **Do not allow the power cord to become wet. A wet power cord may cause electric shocks.**
- **Do not bend, pull or twist the power cord. Electric shock, equipment damage or fire can result.**

6.11.1 When the Mobile Workstation (WM-30) is used

(1) Connect the power cord to the inlet of the CV-140 and the WM-30 power supply socket.
(2) See the WM-30 instruction manual for directions on connecting the power cords of ancillary equipment and WM-30.

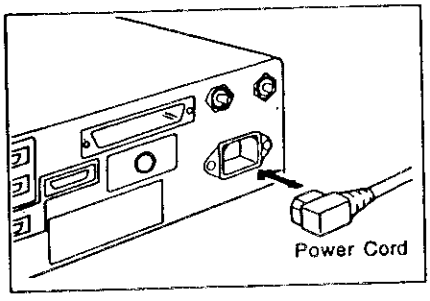


Fig. 6-11-1

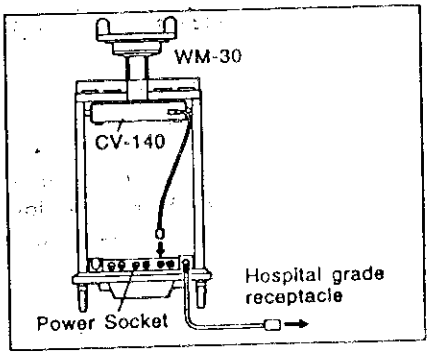


Fig. 6-11-2

6.11.2 When the Mobile Workstation (WM-30) is not used

DANGER • Use only a grounded hospital grade receptacle when connecting the CV-140. Failure to do so, may cause electric shock and fire.

WARNING • Make sure the hospital grade receptacle and isolation transformer have adequate electrical capacities. Failure to do so, may cause fire or power fluctuation.

(1) Connect the power cord to the power inlet of the CV-140, and a hospital grade receptacle.
(2) Follow the directions below when connecting ancillary equipment and use an isolation transformer. (Refer to Fig. 6-10-3 and the power supply connection lines shown in Section 11.)
— Ancillary equipment that can be connected directly to a hospital grade receptacle.
Light source (e.g. CLV-U20, CLV-U40, etc.)
Monitor (OEV) (e.g. OEV 141, OEV 201, OEV 142, OEV 202)
Photographic equipment (e.g. SCV-2, etc.)
Video printer (OEP)
— Ancillary equipment that should be connected through an isolation transformer.
VTR (e.g. VO-7600, VO-9600, SVO-9500MD, BR-S611, BR-S811, etc.)
Video printer other than OEP (e.g. UP-1800, UP-1850, UP-5200MD, UP-5250MD, UP-2900MD, UP-2950MD, etc.)
Monitor other than OEV
SVR (e.g. SR-300, MVR-5300, MVR-5600)

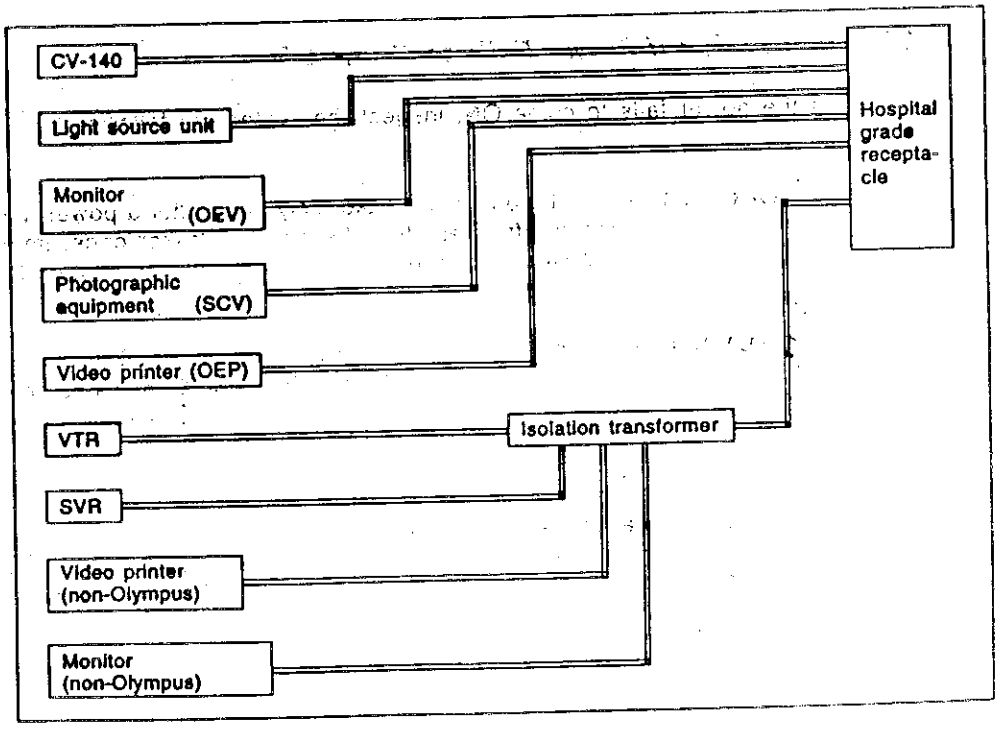


Fig. 6-10-3

7 INSPECTION

This chapter describes only the inspection of basic functions. If other functions are to be used, refer to Section 8 OPERATION.

WARNING • Inspect all equipment before use. If any damage is found, do not use the equipment. If necessary, refer to Section 10.1. Using damaged equipment can result in reduced system performance, electric shock, burns or fire.

7.1 Power Supply

7.1.1 Inspection with Power ON

When the power switch is turned "ON", check the following indications that power is actually being supplied to the equipment.

(1) The green power switch lamp is lit and the indicators on the front panel are illuminated. (Fig. 7-1-1)

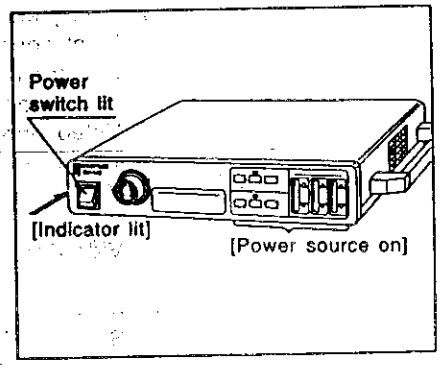


Fig. 7-1-1

7.1.2 Inspection if Power Fails to Come ON

If the power fails to come ON, inspect the system as follows.

WARNING • Reset the circuit breaker only once after a power failure. If power does not return after resetting the circuit breaker once, immediately turn OFF the CV-140, disconnect the power cord, then contact Olympus. This condition can result in electric shock or fire.

CAUTION • When the circuit breaker trips, do not reset the circuit breaker immediately. Turn OFF the CV-140 and then wait 15 seconds before resetting the circuit breaker to prevent circuit breaker damage.

(1) Confirm that the power cord is connected securely into a hospital grade receptacle and the AC inlet of the CV-140.
(2) If the circuit breaker on the rear panel has tripped, the button will have popped up. Reset the circuit breaker according to the following procedure:

① Turn "OFF" the CV-140, disconnect the power cord, and wait is seconds depress the circuit breaker button until it stops with a click.

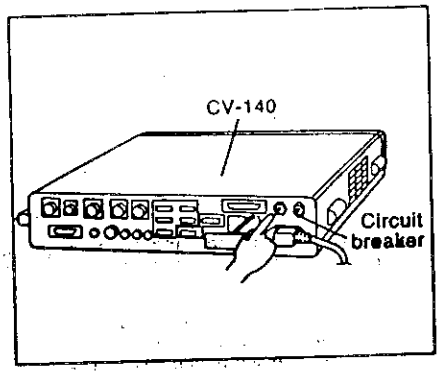


Fig. 7-1-2

② After depressing the button, connect the power cord, turn "ON" the CV-140, and confirm that the power returns.

7.2 Inspection of Illumination

(1) Confirm the light is emitted from the distal end of the endoscope. Refer to the instruction manual of light source.

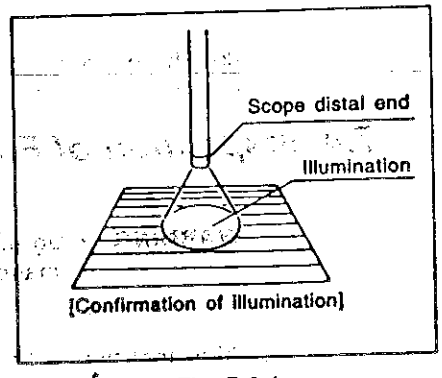


Fig. 7-2-1

7.3 Inspection of the Image on the Monitor

When the power switch on the front panel is turned "ON", the start up image appears on the monitor. After a few seconds, the endoscopic image appears on the monitor. Confirm the following:

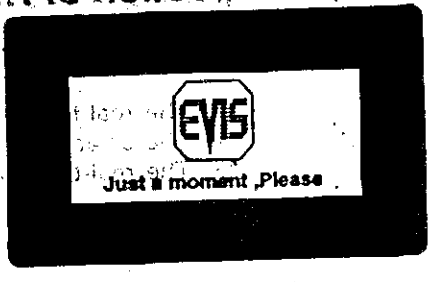


Fig. 7-3-1 Start up image

(1) The image appears on the monitor as illustrated in Fig. 7-3-2.

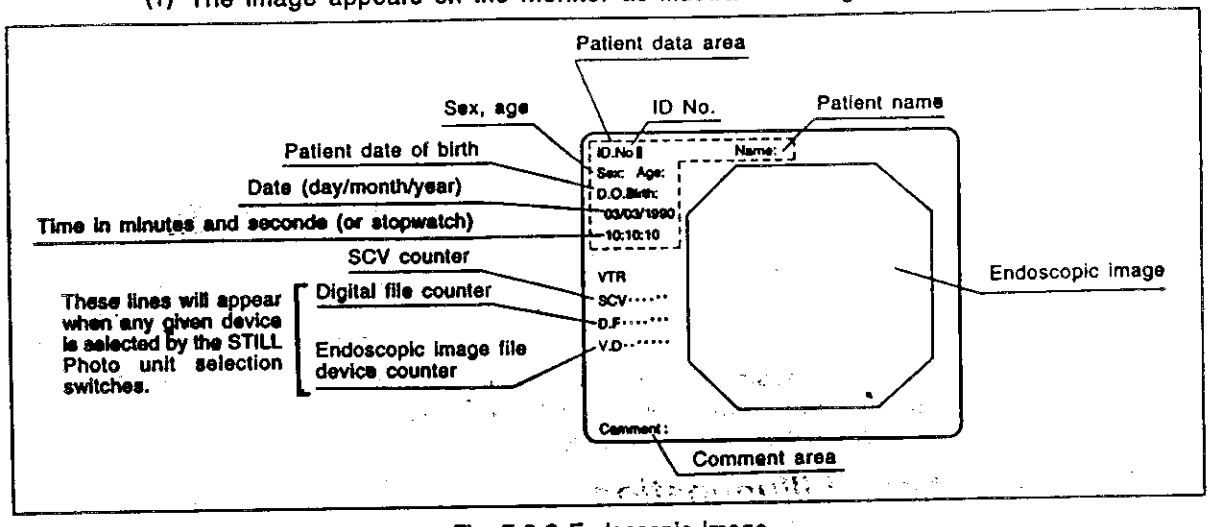


Fig. 7-3-2 Endoscopic Image

(2) The endoscopic image is normal when observing an object such as your hand.
(3) The date and time are correct.

7.4 Inspection of Freeze Function

WARNING • Do not use this equipment if the freeze function has failed. If a real-time image cannot be obtained, patient injury may result.

Confirm that the real-time image is frozen with a beep sound when the "FREEZE" key on the keyboard is pressed. Also confirm that the real-time image re-appears when the "FREEZE" key on the keyboard is pressed once again.

7.5 Inspection of Release Function

When the "RELEASE" key on the keyboard is pressed, cofirm the following.

(1) The real-time image is frozen with a beep sound.
(2) The selected recording device is activated.
(3) The real-time image re-appears.

7.6 Inspection of Reset Switch

(1) When the "RESET" switch on the front panel is pressed, confirm that indicators of the IMAGE SOURCE, IRIS, ENH, and COLOR on the front panel blink for about one second and then reset to the default settings as shown in Fig. 7-6-1.

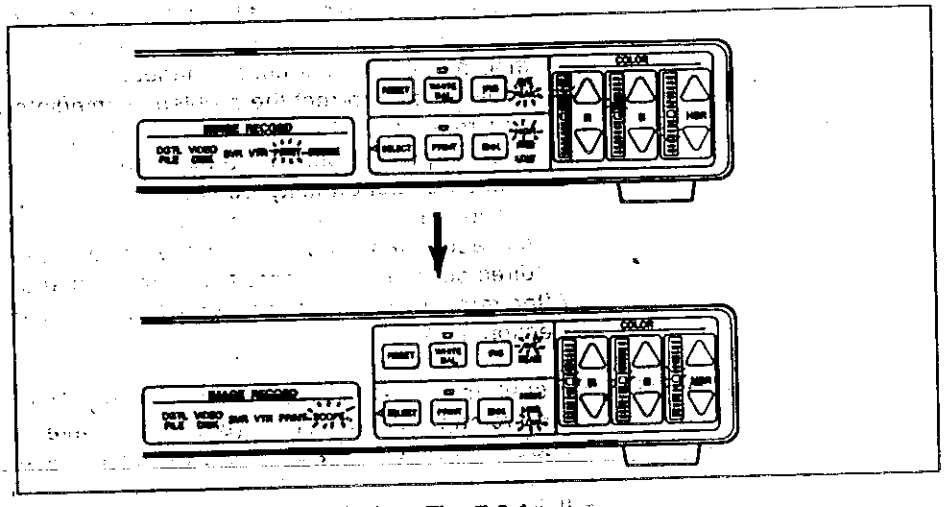


Fig. 7-6-1

8 OPERATION

DANGER

- If any abnormalities are found while using on the patient, take action according to the following procedure.
  — If the endoscopic image disappears or the image freezes and cannot be restored:
  Press the CV-140 "RESET" switch or temporarily turn "OFF" the CV-140 power switch, then turn it back "ON". Also, turn "OFF" the power to ancillary equipment used in conjunction with this and then "ON" as directed in their respective instruction manuals.
  If this fails to correct the problem, immediately stop using the equipment, and remove the endoscope from the patient slowly as directed in the endoscope instruction manual. Do not feed air or water.
  — If another abnormality occurs
  If another abnormality occurs or is suspected, immediately stop using the equipment and remove the endoscope from the patient slowly as directed in the endoscope instruction manual. Do not feed air or water.
  After removal of the endoscope from the patient, proceed according to Section 10.1.

WARNING

- Install the video system center away from devices which generate electromagnetic radiation (e.g. microwave, short wave, MRI, or radio equipment). Electromagnetic radiation can cause interference on the monitor display.
- It is recommended to use only Olympus high frequency electrosurgical equipment with the video system center. Non-Olympus equipment can cause interference on the monitor display or a loss of the endoscopic image.

8.1 Power ON

8.1.1 CV-140 Power ON

(1) Confirm that the videoscope or OES video converter is connected to the videoscope cable connector socket on the front panel.
Turn ON the CV-140 power switch.

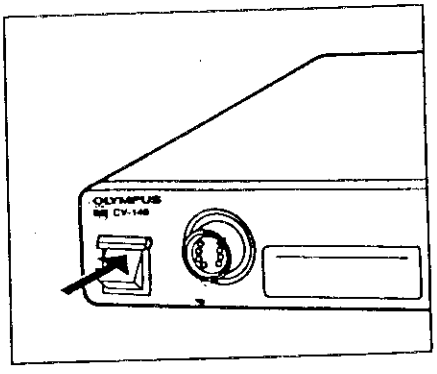
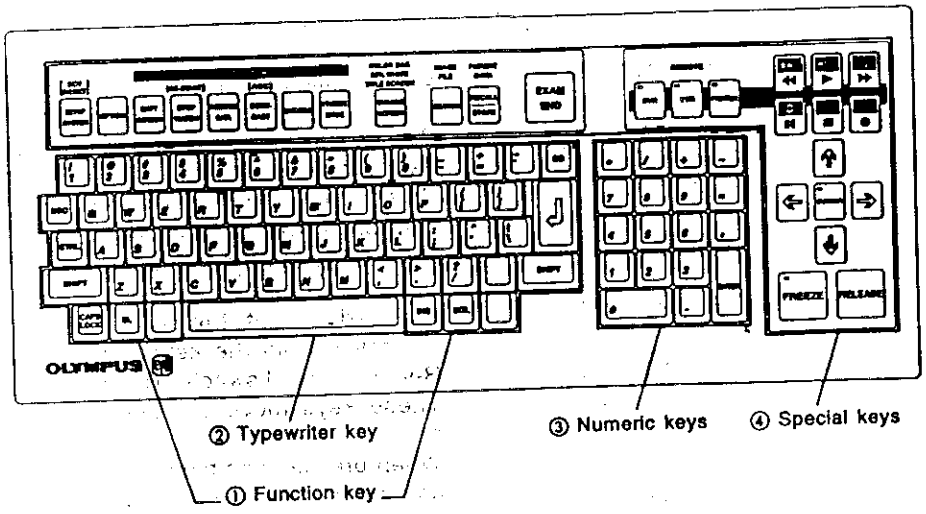


Fig. 8-1-1

8.2 Keyboard Operation



① Function keys
- "ESC" Pressed to cancel operations and return to previous menu.
- "CTRL" Not used.
- "SHIFT" Used in combination with a typewriter key or a special key.
- "CAPS LOCK" Switches alphabetic characters between capital input mode and lower case input mode.
- "EL" Not used.
- "INS" Switches between character insertion mode and character overwrite mode.
- "DEL" Deletes the character at the cursor position.
- " ↵ " Same as "ENTER" key.
- "BS" Deletes the character one space to the left of the cursor position.

② Typewriter keys
- Arranged like a standard typewriter keyboard. Use these for text entry.

③ Numeric keys
- Use these keys as a calculator keypad.

④ How to use the special keys
- "SETUP SYSTEM" Pressed to display the system setting screen.
- /"SCV RESET" Pressed combination with "SHIFT" key to reset the SCV counter. (Inoperative when the SCV-2 is used.)
- "OPTION" Not used.
- "SHIFT SCREEN" Displays the narrow endoscope image in the center of the monitor.
- "STOPWATCH" Stopwatch key.
- /"RE-START" While the stopwatch is operating, the elapsed time can be measured by pressing combination with "SHIFT" key.
- "REMOVE DATA" Deletes all characters on the screen image.
- "CONTRAST" Changes the contrast.
- /"AGC" When pressed combination with "SHIFT" key, switches the AGC ON and OFF.

— "CHROMA"	Adjusts color saturation.
— "FREEZE MODE"	Switches between field freeze and frame freeze.
— "CHANGE SCREEN"	Changes the image into the color bar, 50% white or title screen.
— "SEARCH"	Searches for image data in image filing system.
— "RECALL/STORE"	Enters patient data or selects previously entered patient data in advance of examination.
— "EXAM END"	Pressed to enter the registration or recall of patient data mode.
— "SVR"	Pressed to set the still video recorder to be remotely controlled from the keyboard.
— "VTR"	Pressed to set the video tape recorder to be remotely controlled from the keyboard.
— "PRINTER"	Pressed to set the video printer to be remotely controlled from the keyboard.
— "REMOTE CONTROL"	Remote control switch. (Refer to Sections 8.28 to 8.30.)
— "↑", "↓", "←", "→"	These keys move the cursor in the direction of the arrow. When pressed combination with "SHIFT" key, an arrow character of an arrow is displayed on the endoscopic image.
— "CURSOR"	Delete the cursor.
— "FREEZE"	Freeze switch.
— "RELEASE"	Release switch.

8.3 User Presets

The following items are able to select for User Preset. Up to twenty user preset conditions can be registered.

NOTE • The default settings are shown in the Fig. 8-3-7.

Table 8-3-1 Select each setting value

Items	Setting Value	Note
Sub Screen (Narrow)	ON OFF	Refer to Section 8.21.
Sub Screen (Full)	ON OFF	Refer to Section 8.21.
Freeze Mode	Field Frame	Refer to Section 8.18.
Scope switch 1	Freeze F.Mode Release Iris	Four scope switches can be set to any function.
Scope switch 2	Enhance Contrast AGC VTR	
Scope switch 3	Print P.Back Shift S. Stop W.	
Scope switch 4	Rmv.D. Ext. Img. Option	

— Explanation of scope switch setting value.

[Freeze] : Same as the "FREEZE" key on the keyboard. (Refer to Section 8.18.)

[F.Mode] : Same as the "FREEZE MODE" key on the keyboard. (Refer to Section 8.18.)

[Release] : Same as the "RELEASE" key on the keyboard. (Refer to Section 8.19.)

[Iris] : Same as the "IRIS" switch on the front panel. (Refer to Section 8.14.)

[Enhance] : Same as the "ENH." switch on the front panel. (Refer to Section 8.15.)

[Contrast] : Same as the "CONTRAST" key on the keyboard. (Refer to Section 8.16.)

[AGC] : Same as the "AGC" key on the keyboard. (Refer to Section 8.17.)

[VTR] : Same as the "VTR" key on the keyboard. (Refer to Section 8.28.)

[Print] : Same as the "PRINT" switch on the front panel. (Refer to Section 8.30.)

[P.Back] : Same as the "[redacted]" key on the keyboard. (Refer to Section 8.30.)

[Shift S.] : Same as the "SHIFT SCREEN" key on the keyboard. (Refer to Section 8.23.)

[Stop W.] : Same as the "STOPWATCH" key on the keyboard. (Refer to Section 8.25.)

[Rmv.D.] : Same as the "REMOVE DATA" key on the keyboard. (Refer to Section 8.20.)

[Ext.Img.] : Switch for external image and internal image selection. (Refer to Section 8.22.)

[Option] : Same as the "OPTION" key on the keyboard.

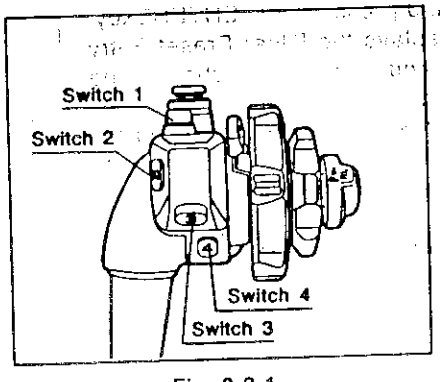


Fig. 8-3-1

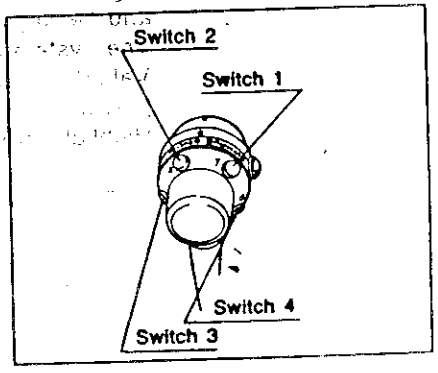


Fig. 8-3-2

— When the user changes the display to show the endoscopic image, the settings of the four scope switches are displayed in the lower left corner of the monitor for approximately ten seconds, as shown in Fig. 8-3-3.

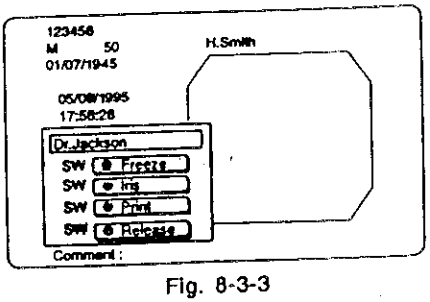


Fig. 8-3-3

8.3.1 User Preset Data Settings

(1) Press the "SETUP SYSTEM" key on the keyboard. The system displays the [System Setup] menu. (Fig. 8-3-5)

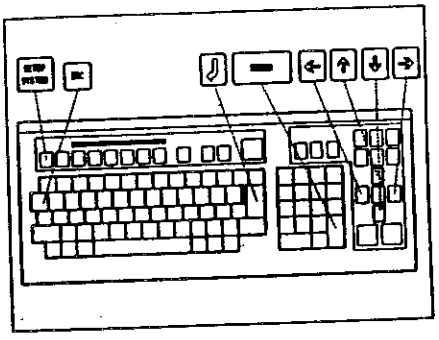


Fig. 8-3-4

(2) Highlight the [User Preset-Entry] by using "↑" and "↓" keys, and press "♪" or "ENTER" key. The system displays the [User Preset-Entry Name] menu. (Fig. 8-3-6)

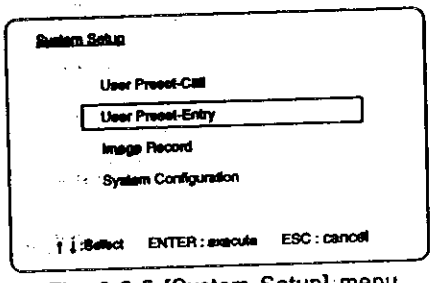


Fig. 8-3-5 [System Setup] menu

(3) [User Preset-Entry Name] menu (Fig. 8-3-6).
- Highlight [(no data)] by using "↑" and "↓" keys and press "♪" or "ENTER" key. The system displays the [User Preset-Entry Value] menu, and is ready to enter the new setup data.
- Highlight previous setting data by using "↑" and "↓" keys and press "♪" or "ENTER" key. The system displays the [User Preset-Entry Value] menu, and is ready to change the previous setting data.
- Highlight previous setting data by using "↑" and "↓" keys and press the "DEL" key to delete the previous setting data.

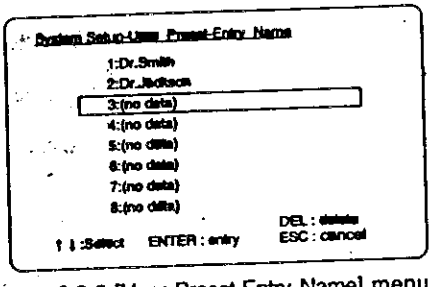


Fig. 8-3-6 [User Preset-Entry Name] menu

(4) [User Preset-Entry Value] menu. (Fig. 8-3-7)
① Type the user name (up to twenty characters) and press "♪" or "ENTER" key.
② Move the cursor at the preset option field.

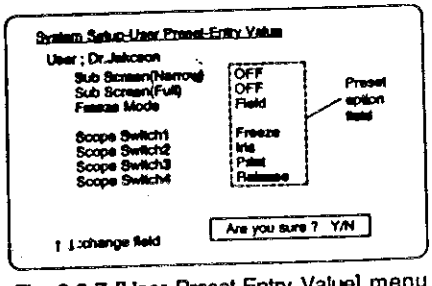


Fig. 8-3-7 [User Preset-Entry Value] menu

NOTE • Without entering a user name, the cursor does not move.

(5) Move the cursor at the [preset option field] to be set by using "↑" and "↓" keys.
(6) Set the following items by referring to Table 8-3-1.
— [Sub Screen (Narrow)] and [Sub Screen (Full)]
Select [OFF] or [ON] by using "←" and "→" keys.
— [Freeze Mode]
Display Field or Frame to set by "←" and "→" keys.
— [Scope switch 1 to 4]
Select one function as shown in Fig. 8-3-8 by using "←" and "→" keys. Setting can be repeated to the scope switch 1 to 4. For example, all switches (1 to 4) can be set as [Freeze].

[Freeze], [F.Mode], [Release],
[Iris], [Enhance], [Contrast],
[AGC], [VTR], [Print], [P.Back],
[Shift S.], [Stop W.], [Rmv.D.],
[Ext.Img.], [Option]

Fig. 8-3-8

(7) When all settings are completed, press "♪" or "ENTER" key. It will display [Are you sure? (Y/N)]. Confirm the setup data and press "Y" yes or "N" no. If "N" is pressed, the [User Preset-Entry Value] menu continues. If "Y" is pressed, the endoscopic image returns to the screen.
(8) Repeat steps (1) through (7) setting for every user who wishes to be registered. Up to 20 user preset is possible.

8.4 Selection of Recording Equipment

The following recording equipment is available to be activated by pressing the "RELEASE" key remotely.

Table 8-4-1

Recording equipment	Setting value
SCV (EVIS MONITOR PHOTO UNIT)	[ON] [OFF]
SVR (STILL VIDEO RECORDER)	[ON] [OFF]
V.D. (VIDEO DISK)	[ON] [OFF] (Not used)
D.F. (DIGITAL FILE)	[ON] [OFF] (Not used)

Also select a value for [SCV counter] (which is only used with Olympus SCV and SCV-1 units) and [V.D. counter] (which is only used with Olympus endoscopic software).

Table 8-4-2

Items	Setting Value
SCV counter	[1 to 99]
V.D. counter	[1 to 99999] (Not used)

NOTE • The default settings are shown in Fig. 8-4-3.

8.4.1 Image Recording Settings

(1) Press the "SETUP SYSTEM" key on the keyboard. The [System Setup] menu is displayed. (Fig. 8-4-2)

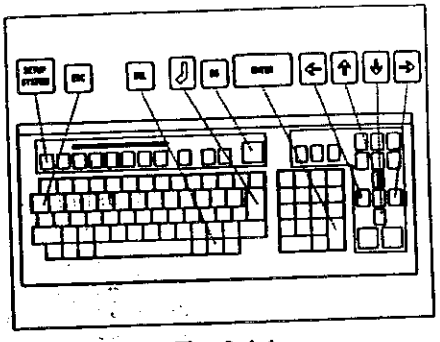


Fig. 8-4-1

(2) Highlight [Image Record] using the "↑" and "↓" keys, and press "♪" or the "ENTER" key. The system displays the [Image Record] menu. (Fig. 8-4-3)

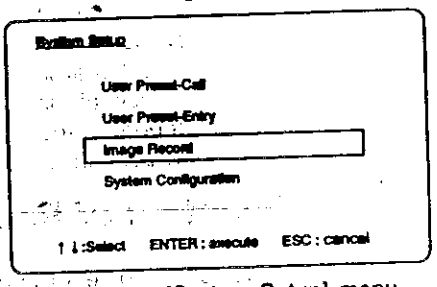


Fig. 8-4-2 [System Setup] menu

(3) Move the cursor to the [Preset option field] to be set using the "↑" and "↓" keys.

(4) Set the following items by referring to Tables 8-4-1 and 8-4-2.
   ① [SCV] and [SVR]
   Select [OFF] or [ON] using the "←" and "→" keys.
   ② [SCV Counter]
   Enter a number from 1 to 99 using numeric keys.

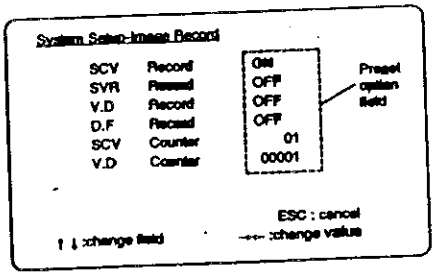


Fig. 8-4-3 [Image Record] menu

NOTE • [V.D Record], [D.F Record] and [V.D Counter] are not used.

(5) When all settings are completed, press "♪" or the "ENTER" key. The display will read [Are you sure? (Y/N)]. If "N" is pressed, the [Image Record] menu remains on screen. If "Y" is pressed, the endoscopic image returns to the screen.

8.5 Settings for Ancillary Equipment

Setting the data and making other settings for ancillary equipment are described in Table 8-5-1.

NOTE
- The default settings at shipment are displayed in Fig. 8-5-3.
- When the SCV-2 is used, set the release time to 2 seconds or more. There is danger that the photograph will be blurred.
- The [monitor remote] function cannot be used with any monitors other than the OEV.

- The image quality settings, from lowest to highest, are:
  VIDEO → S-VIDEO → RGB
- The internal clock will drift slightly with prolonged use of the instrument. Correct it periodically.

Table 8-5-1 Table of CV-140 Settings

Item		Setting Value
Clock	Type (Select the data display type in the patient data area.)	[MM/DD/YYYY] [MM-DD-YYYY] [MM. DD. YYYY] [MM DD YYYY]
	Date	Input value
	Time	Input value
Release Time (Refer to Section 8.19.)	SCV	1 to 9 sec
	V.D. (Not used)	2 to 9 sec
	D.F. (Not used)	2 to 9 sec
Monitor Setup	Type (Refer to Section 8.11.)	[OEV] [OPTION1] [OPTION2]
	Scope (Refer to Section 8.11.)	[RGB] [S-Video] [Video] [Manu.]
	VTR (Refer to Section 8.11.)	[S-Video] [Video] [Manu.]
	SVR (Refer to Section 8.11.)	[S-Video] [Video] [Manu.]
Printer Setup (Refer to Section 8.30.)	Type	[OEP1] [OEP2] [5200] [5250] [1800] [1850] [2900] [2950]
	Mode	[1] [2] [4] [8] [9] [16] [6]
	QTY.	1 to 9
	Mon.	[Auto] [Manu.]
VTR Setup (Refer to Section 8.28.)	Type	[232C] [33P] [45P] [FOOT SW]
SVR Setup (Refer to Section 8.29)	Type	[5600] [5300] [SR300]
	Mode	[25] [50]

8.5.1 System Configuration Settings

(1) Press the "SETUP SYSTEM" key on the keyboard. The system displays the [System Setup] menu. (Fig. 8-5-2)

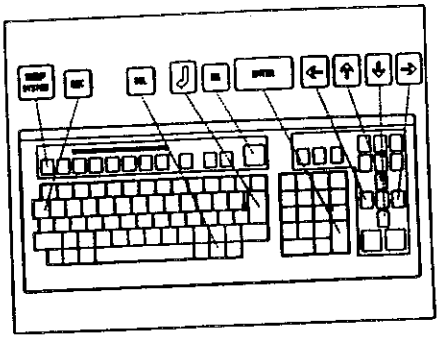


Fig. 8-5-1

(2) Highlight the [System Configuration] by using "↑" and "↓" keys, and press "♪" or "ENTER" key. The system displays the [System Configuration] menu. (Fig. 8-5-3)

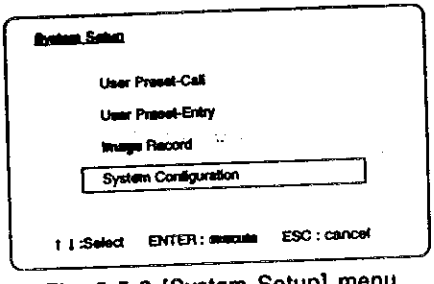


Fig. 8-5-2 [System Setup] menu

(3) Move the cursor at the [preset option field] to be set by using "↑" or "↓" key.

(4) Set below mentioned items by referring to Table 8-5-1.

① [Clock]

— [Type]
Select one of the functions shown in Fig. 8-5-4 using the "←" and "→" keys.

— [Date]
Enter the [day], [month] and [year] data by using numeric keys. Over write is available.

— [Time]
Enter the [hour], [minute] and [second] data by using numeric keys. Over write is available.

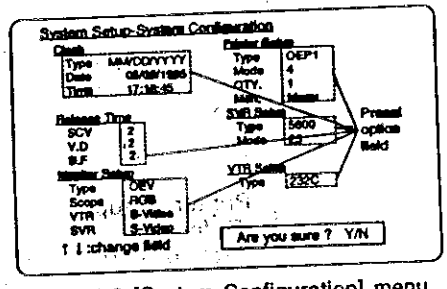


Fig. 8-5-3 [System Configuration] menu

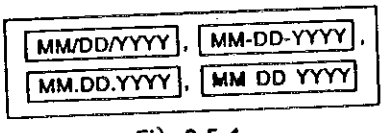


Fig. 8-5-4

② [Release Time]

— [SCV]
Select the release time from 1 to 9 sec by using "←" and "→" keys.

NOTE • [V.D.] and [D.F.] are not used.

③ [Monitor Setup]

— [Type]
Select one of the functions shown in Fig. 8-5-5 using the "←" and "→" keys.

— [Scope]
Select one of the functions shown in Fig. 8-5-6 using the "←" and "→" keys. (Refer to Section 8.11.)

— [VTR]
Select one of the functions shown in Fig. 8-5-7 using the "←" and "→" keys.

④ [Printer Setup]

— [Type]
Select one of the functions shown in Fig. 8-5-8 using the "←" and "→" keys.

— [Mode]
If [OEP1] is selected, select one of the functions shown in Fig. 8-5-9 using the "←" and "→" keys.
If [OEP2] is selected, select one of the functions shown in Fig. 8-5-10 using the "←" and "→" keys.
When [5200] or [5250] is selected in [Type], select one of the functions shown in Fig. 8-5-11 using the "←" and "→" keys.
When [1800], [1850] or [2900] is selected in [Type], select one of the functions shown in Fig. 8-5-12 using the "←" and "→" keys.
When [2950] is selected in [Type], select one of the functions shown in Fig. 8-5-13 using the "←" and "→" keys.

— [QTY]
Select the number of printing from 1 to 9 using the "←" and "→" keys.

— [Mon.]
Select [Auto] or [Manu.] using the "←" and "→" keys.

⑤ [SVR Setup]

— [Type]
Select one of the functions shown in Fig. 8-5-14 using the "←" and "→" keys.

⑥ [VTR Setup]

— [Type]
Select one of the functions shown in Fig. 8-5-15 using the "←" and "→" keys.

[OEV], [OPTION1], [OPTION2]
Fig. 8-5-5

[RGB], [S-Video], [Video], [Manu.]
Fig. 8-5-6

[S-Video], [Video], [Manu.]
Fig. 8-5-7

[OEP1], [OEP2], [5200], [5250], [1800], [1850], [2900], [2950]
Fig. 8-5-8

[1], [2], [4], [8], [16]
Fig. 8-5-9

[1], [2], [4], [8], [16], [6]
Fig. 8-5-10

[1], [4], [9]
Fig. 8-5-11

[1], [4], [16]
Fig. 8-5-12

[1], [2], [4], [16]
Fig. 8-5-13

[5600], [5300], [SR300]
Fig. 8-5-14

[232C], [33P], [45P], [FOOT SW]
Fig. 8-5-15

(5) When all settings are made, press "↵" or the "ENTER" key. The monitor will display "Are you sure? (Y/N)". Confirm the set up data, and press "Y" (yes) or "N" (no). If "N" is pressed, the [System Configuration] menu remains on screen. If "Y" is pressed, the endoscopic image returns to the screen. Immediately start the clock.

8.6 Selection of User Preset Functions

(1) Press the "SETUP SYSTEM" key on the keyboard. The system displays the [System Setup] menu. (Fig. 8-6-2)

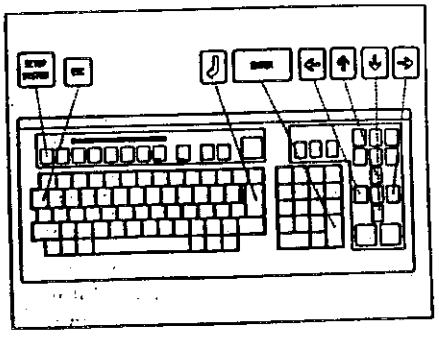


Fig. 8-6-1

(2) Highlight the [User Preset-Call] by using "↑" and "↓" keys, and press "♪" or "ENTER" key. The system displays the [User Preset-Call] menu. (Fig. 8-6-3)

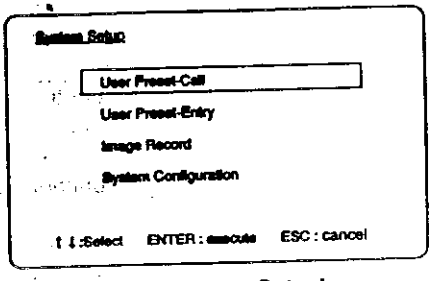


Fig. 8-6-2 [System Setup] menu

(3) Highlight the user name to be selected by using "↑" and "↓" keys, and press "♪" or "ENTER" key. All functions are set to the individual preset user conditions, then the endoscopic image will re-appear.

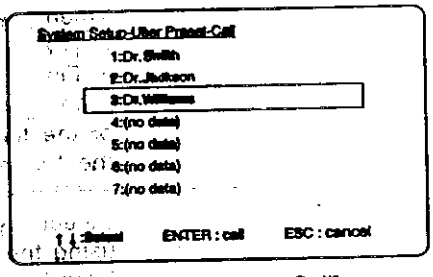


Fig. 8-6-3 [User Preset-Call] menu

8.7 Patient Data Registered in Advance

Patient data can be entered in advance. The data can be called up prior to the examination and can be displayed on the monitor.

The data listed below can be set for up to 40 patients.

- ID. No.
- Name
- Sex
- Age
- D.O. Birth

(1) Press the "RECALL/STORE" key on the keyboard. The system displays the [Patient Data] menu. (Fig. 8-7-2)

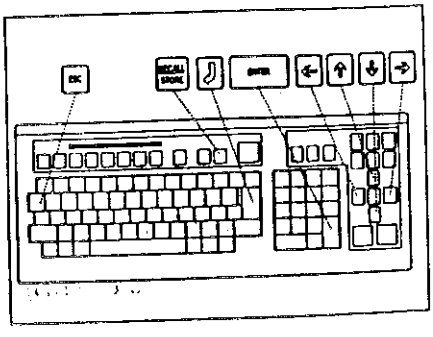


Fig. 8-7-1

(2) Highlight the [Entry Data] by using "↑" and "↓" keys, and press "↵" or "ENTER" key. The system displays the [Patient Data-Entry Name] menu. (Fig. 8-7-3)

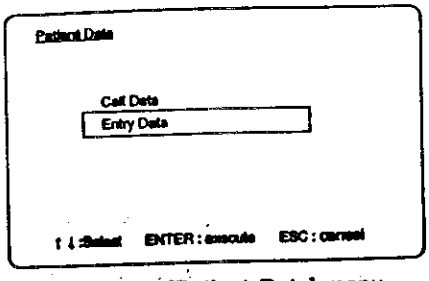


Fig. 8-7-2 [Patient Data] menu

(3) [Patient Data-Entry Name] menu (Fig. 8-7-3)

① Highlight [(no data)] by using "↑" and "↓" keys and press "↵" or "ENTER" key. The system displays the [Patient Data-Entry Value] menu, (Fig. 8-7-4) and is ready to enter new setup data.

② Highlight previous setting data by using "↑" and "↓" keys and press "↵" or "ENTER" key. The system displays the [Patient Data-Entry Value] menu, (Fig. 8-7-4) and is ready to change the previous setting data.

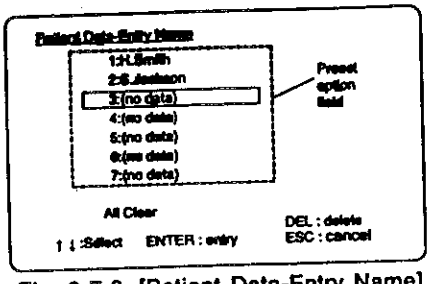


Fig. 8-7-3 [Patient Data-Entry Name] menu

③ Highlight previous setting data by using "↑" and "↓" keys and press the "DEL" key to delete the previous setting data.

④ Highlight [All Clear] by using "↑" and "↓" keys and press "↵" or "ENTER" key to delete all previous setting data.

(4) [Patient Data-Entry Value] menu (Fig. 8-7-4)

① Move the cursor at the [Preset Option Field] to be set by using "←" and "→" keys.

② Enter the individual items as follows. If [D.O. Birth] is entered, the [Age] will be automatically calculated.

— ID. No.: Up to 15 characters can be entered.

— Name : Up to 20 characters can be entered.

— Sex : Input as 1 character.

— Age : Up to 3 characters can be entered.

— D.O. Birth : Input as 8 characters.

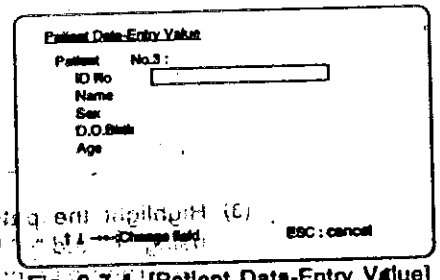


Fig. 8-7-4 [Patient Data-Entry Value] menu

③ When the input data need to be changed, move the cursor by using the "↑", "↓", "←" and "→" keys to the item then press the "BS" or "DEL" key and re-enter the new data.

(5) When all settings are completed, press "↵" or "ENTER" key. The patient data will be registered and the [Patient Data-Entry Name] menu will appear.
Repeat steps from (3) to (5) to enter the other patient data. (Up to 40 patient data is available stored.)

(6) Completion of all patient registration, press the "ESC" key two times, immediately return to the endoscopic image.

8.8 Recalling Registered Patient Data

NOTE • Incorrect setting of the internal clock in Section 8.5.1 may cause incorrect data [Age] on the monitor.

The registered patient data described in Section 8.7 can be displayed on the monitor.

(1) Press the "RECALL/STORE" key on the keyboard. The system displays the [Patient Data] menu. (Fig. 8-8-2)

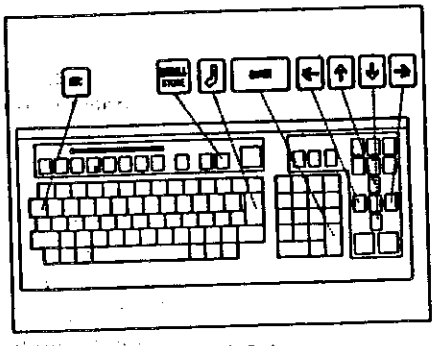


Fig. 8-8-1

(2) Highlight the [Call Data] by using "↑" and "↓" keys, and press "↵" or "ENTER" key. The system displays the [Patient Data-Call] menu. (Fig. 8-8-3)

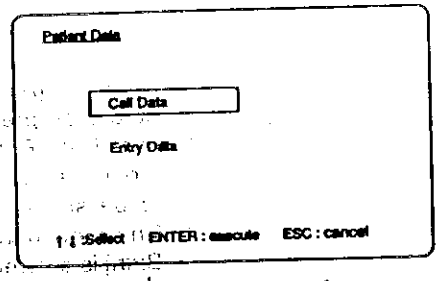


Fig. 8-8-2 [Patient Data] menu

(3) Highlight the patient name to be selected by using "↑" and "↓" keys, and press the "ENTER" key. Then patient data will superimpose on the endoscopic image.

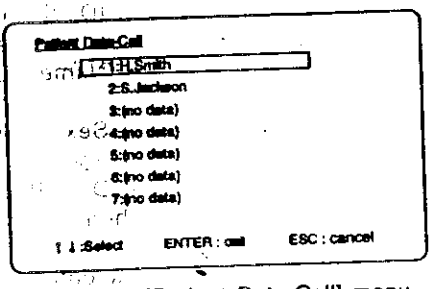


Fig. 8-8-3 [Patient Data-Call] menu

8.9 Patient Data Entry Prior to Examination

Patient data can be entered into the patient data area in the endoscopic image, as follows.

- ID. No.
- Name
- Sex
- Age
- D.O. Birth

(1) Confirm the cursor is blinking at [ID.No] in the endoscopic image.
(2) Move the cursor by using "↑" and "↓" keys.
(3) Enter the individual items as follows. If [D.O. Birth] is entered [Age] will be automatically calculated.
   — ID. No : Up to 15 characters can be entered.
   — Name : Up to 20 characters can be entered.
   — Sex : Input as 1 character.
   — Age : Up to 3 characters can be entered.
   — D.O. Birth : Input as 8 characters.
   — Comment : Up to 37 characters can be entered.
(4) When the input data need to be changed, move the cursor by using "↑", "↓", "←" and "→" keys to the item then press the "BS " or "DEL" key and re-enter the new data.
(5) When patient data need to be cleared, press the "EXAM END" key on the keyboard.
   When the data below is entered, the patient data will appear on the monitor as in Fig. 8-9-3.
   — ID. NO : 123456
   — Name : H. Smith
   — Sex : M
   — Age : 50
   — D.O. Birth : 01/07/1945

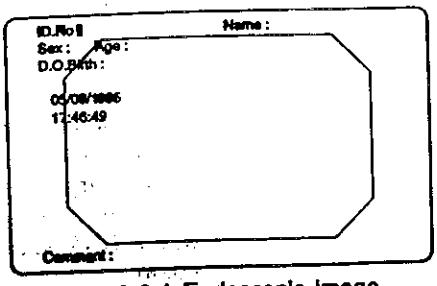


Fig. 8-9-1 Endoscopic Image

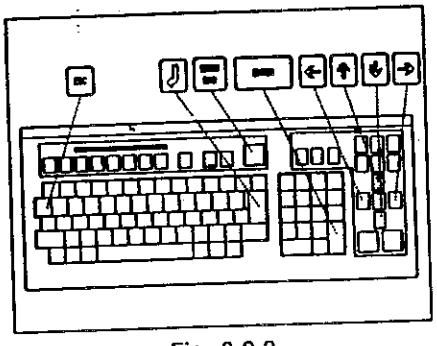


Fig. 8-9-2

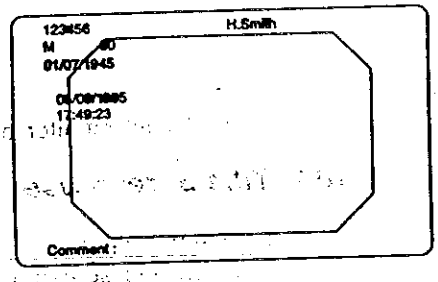


Fig. 8-9-3

8.10 Monitor Adjustment and Title Screen Use

The monitor can be adjusted by using either [Color bar] or [50% white] image on the monitor. The title screen can be used to take pictures such as patient data via the SCV.

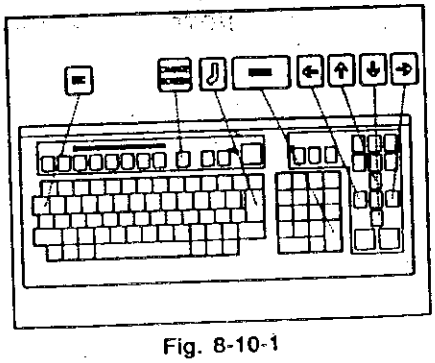


Fig. 8-10-1

8.10.1 Monitor Adjustment

(1) Confirm the endoscopic image is displayed on the monitor. Press the "CHANGE SCREEN" key on the keyboard.
[Color bar] image (Fig. 8-10-2) is displayed.
[50% white] image (Fig. 8-10-3) will be displayed, when "CHANGE SCREEN" key is pressed once again.
The endoscopic image is available by pressing "ESC" key.

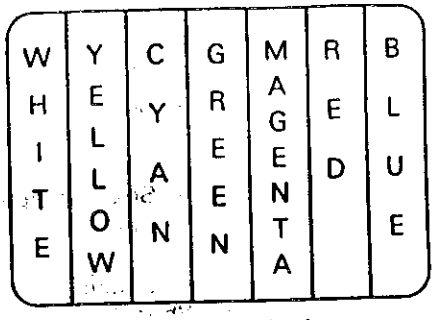


Fig. 8-10-2 Color bar

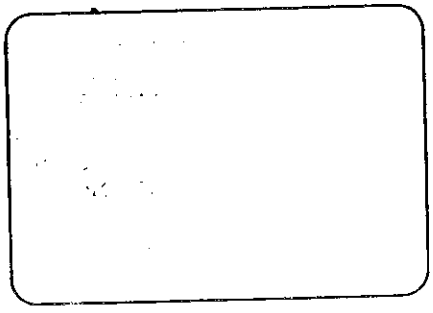


Fig. 8-10-3 50% white

(2) Adjust monitor according to monitor instruction manual.

8.10.2 Title Screen Use

1. Title screen 1
When title screen 1 is chosen, the patient data appears on the monitor in a magnified form. This is useful for identification on the SCV film. Shoot the title screen 1 as the first frame of the SCV film.

NOTE • Rewriting the data is not possible from title screen 1.
Refer to Section 8.8 or 8.9 for rewriting the data.

(1) Confirm [50% white] image displayed on the monitor. Press the "CHANGE SCREEN" key on the keyboard once. Then, title screen 1 is displayed. Patient data is enlarged as shown in Fig. 8-10-4, enter the new data.

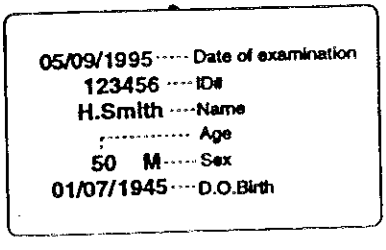


Fig. 8-10-4 Title screen 1

(2) The endoscopic image is shown when the "ESC" key pressed.

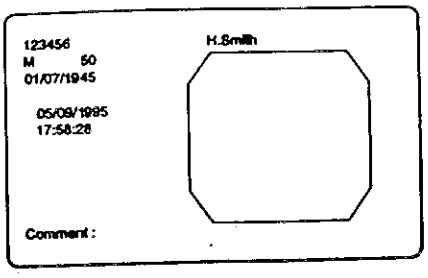


Fig. 8-10-5 Endoscopic image

2. Title screen 2
Any desired data can be entered and enlarged.

(1) Confirm that Title screen 1 is displayed. Press the "CHANGE SCREEN" key on the keyboard once. Title screen 2 (Fig. 8-10-6) is displayed.
(2) Enter data using typewriter or numeric keys. Use the "↑", "↓", "←" and "→" keys to move the cursor to any desired location. Up to 10 lines can be entered.

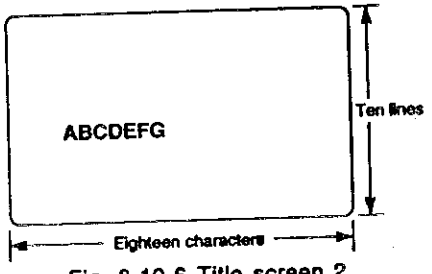


Fig. 8-10-6 Title screen 2

(3) The endoscopic image is available by pressing either the "ESC" or "CHANGE SCREEN" key.

8.11 Remote Monitor Control From the Keyboard

This enables remote selection of image (RGB, S-Video, Video) displayed by the monitor from the selected device (Scope, VTR, SVR) remotely.

NOTE • This function cannot be used with any monitors other than the OEV.

(1) See Section 8-5-1, (4) [Monitor Setup], the following settings are needed.

Setting Value of [Monitor Setup]		Type of monitor and image signal on the monitor
Type	OEV	OEV 141, OEV 201
	OPTION1	OEV 142, OEV 202
	OPTION2 (Not used)	
Scope	RGB	RGB
	S-Video	Y/C
	Video	composite
	Manu.	Possible to selec RGB, Y/C, composite by the input switches on the monitor. (Refer to monitor instruction manual.)
VTR	S-Video	Y/C
	Video	composite
	Manu.	Possible to select RGB, Y/C, composite by the input switches on the monitor. (Refer to monitor instruction manual.)
SVR	S-Video	Y/C
	Video	composite
	Manu.	Possible to select RGB, Y/C, composite by the input switches on the monitor. (Refer to monitor instruction manual.)

8.12 White Balance

If accurate color reproduction is needed, the endoscope's white balance can be automatically adjusted as follows by pressing the "WHITE BAL." switch.

WARNING • Before use wipe the white cap using 70% ethyl or isopropyl alcohol.

(1) Insert the distal end of the endoscope into the MH-154 white cap as shown in Fig. 8-12-1. Maintain an appropriate position to avoid washout.

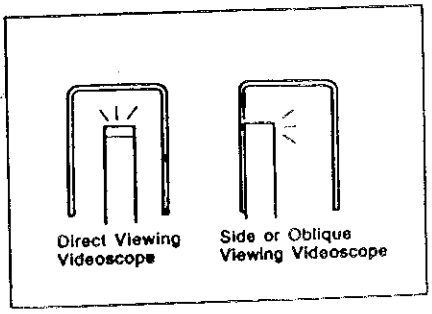


Fig. 8-12-1

(2) Press the "WHITE BAL." switch on the front panel for about one second. The LED above the switch will blink while the adjustment is taking place. When the adjustment has been completed, the LED remains on. If the white balance cannot be completed, the image color and/or brightness may be inadequate, or the white cap may be dirty.
(3) After a while, the LED will go out.

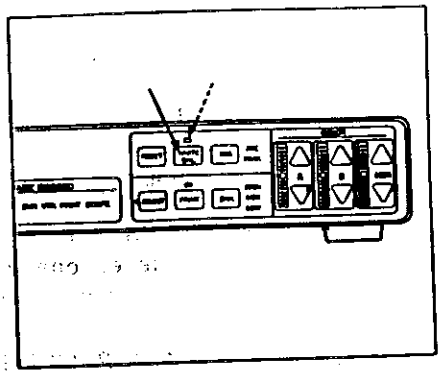


Fig. 8-12-2

NOTE
- White balance should be adjusted for each endoscopic prior to use.
- Avoid external getting light into the white cap.

8.13 Color Adjustment

The tone of the endoscopic image can be adjusted by "COLOR" switches (R, B, HSR, CHROMA) on the front panel. The three LED indicate the adjustment level.

NOTE
- Always adjust the color tone after the completion of the white balance adjustment. Otherwise incorrect reproduction may be caused.
- It is recommended that the system be used with the color adjustment controls in the middle of their adjustment range.

1. Red tone adjustment
   To adjust the red tone of the endoscopic image, press the [COLOR R] "△ (UP)" or "▽ (DOWN)" switch.
   (1) Press the "△" or "▽" switch once moves the level one step; if the switch is kept depressing, the level moves continuously.
2. Blue tone adjustment
   To adjust the blue tone of the endoscopic image, press the [COLOR B] "△ (UP)" or "▽ (DOWN)" switch.
   (1) Press the "△" or "▽" switch once moves the level one step; if the switch is kept depressing, the level moves continuously.
3. Deep red tone adjustment
   To adjust the deep red tone of the endoscopic image, press the [COLOR HSR] "△ (UP)" or "▽ (DOWN)" switch.
   (1) Press the "△" or "▽" switch once moves the level one step; if the switch is kept depressing, the level moves continuously.

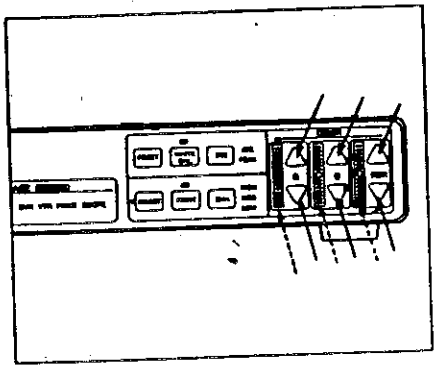


Fig. 8-13-1

4. The saturation adjustment
   (1) Press the "CHROMA" key on the keyboard, the [COLOR HSR] indicator on the front panel changes into the chroma level bar.
   (2) To adjust the color saturation of the endoscopic image, press the [COLOR HSR] "△ (UP)" or "▽ (DOWN)" switch.
      ① Press the "△" or "▽" switch once moves the level one step; if the switch is kept depressing, the level moves continuously.
   (3) Press the "CHROMA" key once more return to the deep red adjustment.

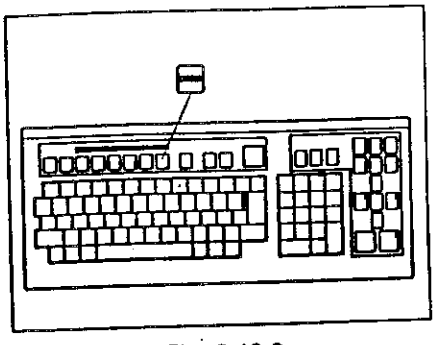


Fig. 8-13-2

8.14 Iris

Two settings [AVE.] or [PEAK] are available for the "IRIS" switch. In normal endoscopic observation, the [AVE.] setting is used. [PEAK] setting is useful for observing washed-out areas that initially appear white.

NOTE • When using the OES video converter, according to the fiberscope model, use of the PEAK setting will be necessary. Refer to the OES video converter instruction manual for details.

(1) Press the "IRIS" switch on the front panel, change the setting [AVE.] into [PEAK] and vice versa.

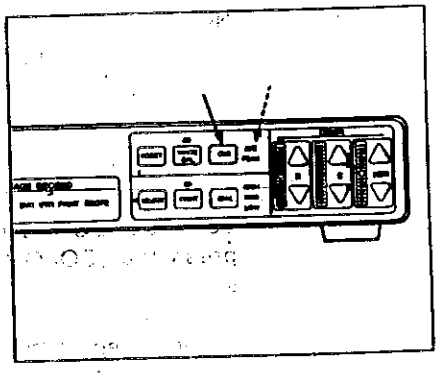


Fig. 8-14-1

NOTE • The "IRIS" switch may be controlled from the endoscope, if necessary refer to Section 8.3.

8.15 Enhancement

This function is used to enhance the boundaries of the endoscopic image.
Three settings are available; [LOW], [MED.], and [HIGH] as indicated by LED.
— LOW : Soft border
— MED. : Accents border
— HIGH : Enhances border

NOTE • When the enhancement level is [HIGH], noise may also enhance.

(1) Press the "ENH." switch on the front panel, enhancement level changes in the order [MED.], [HIGH], [LOW].

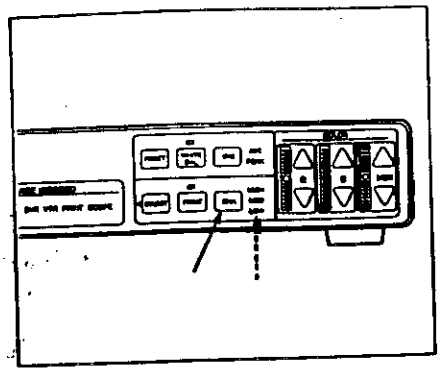


Fig. 8-15-1

NOTE • The "ENH." switch may be controlled from the endoscope, if necessary refer to Section 8.3.

8.16 Contrast

The contrast of the image can be switched by selecting the mode, as follows.
— Mode 1: Used for normal observation.
— Mode 2: Makes the darker parts darker and the brighter parts brighter.
— Mode 3: Makes the darker parts brighter and the brighter parts darker.
— Mode 4: Cancel γ-correlation for external image processing device.

(1) Every time the "CONTRAST" key on the keyboard is pressed, the contrast mode is switched in the order [Mode 2], [Mode 3], [Mode 4], [Mode 1]. The selected mode is displayed on the left down side of the monitor for about ten seconds.

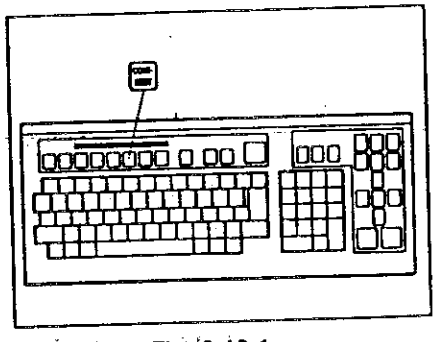


Fig. 8-16-1

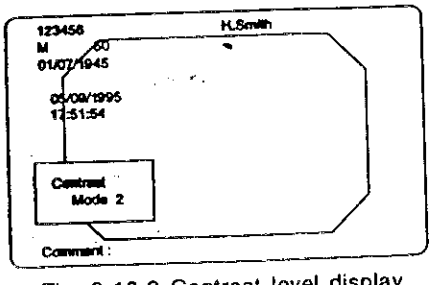


Fig. 8-16-2 Contrast level display

NOTE • The "CONTRAST" switch may be controlled from the endoscope, if necessary refer to Section 8.3.

8.17 Automatic Gain Control (AGC)

When the distal end of the endoscope is far from the subject, the signal from the image is amplified to a level, which is defined [VIDEO] index of light source.

NOTE
- If the light source cable is not connected, the AGC does not work. Always make sure the cable is connected.
- Observing the far subject at [AGC ON], the noise of the image may increase.
- When using the OES video converter, the AGC may need to be turned OFF, depending on the fiberscope being used. Refer to the OES video converter instruction manual for details.

(1) Every time the "CONTRAST" key on the keyboard is pressed combination with the "SHIFT" key, it will change the setting [AGC ON] into [AGC OFF] and vice versa. The selected [AGC ON/OFF] status is displayed on the left down side of the monitor for about ten seconds.

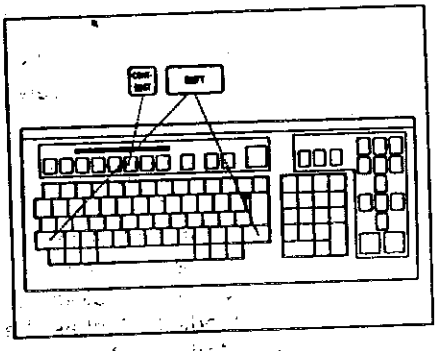


Fig. 8-17-1

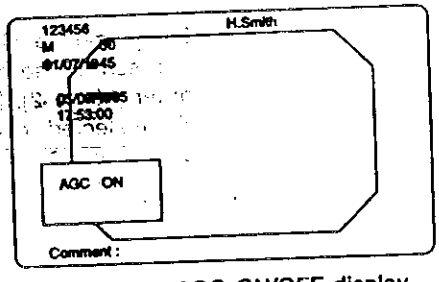


Fig. 8-17-2 AGC ON/OFF display

NOTE
- The "AGC" ON/OFF switch may be controlled from the endoscope, if necessary refer to Section 8.3.

8.18 Freeze

The endoscopic image can be frozen by the "FREEZE" switch. Two mode available "Field Freeze" or "Frame Freeze":
— Frame Freeze : Freeze the image with the high resolution when the object is less moving.
— Field Freeze : Freeze the image with less being blurred.

DANGER
- If the image should freeze and cannot be restored:
  - Press the "RESET" switch on the front panel or temporarily turn OFF the CV-140 power switch, then turn it back ON. Also, turn the power to ancillary equipment used in conjunction with this unit OFF and then ON as directed in their respective instruction manuals.
  - If this fails to correct the problem, immediately stop using the equipment, and remove the endoscope from the patient slowly as directed in the endoscope instruction manual. Do not feed air or water.

(1) Press the "FREEZE MODE" key on the keyboard, change the setting [Field Freeze] into [Frame Freeze] vice versa. The selected freeze mode is displayed on the left down side of the monitor for about ten seconds.

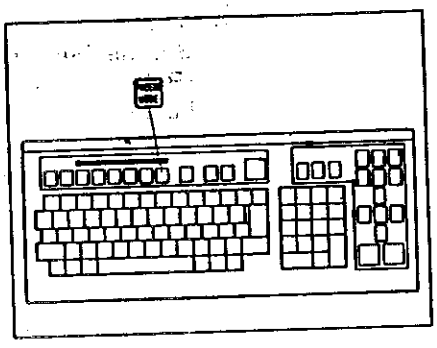


Fig. 8-18-1

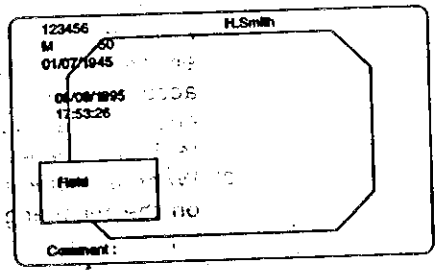


Fig. 8-18-2

NOTE
- "FREEZE MODE" key may be controlled from the endoscope, if necessary refer to Section 8.3.
- [FREEZE MODE] is selected according to the Section 8.3.

(2) The frozen endoscopic image is obtained by pressing the "FREEZE" key on the keyboard. When pushed once again, the moving image appears.

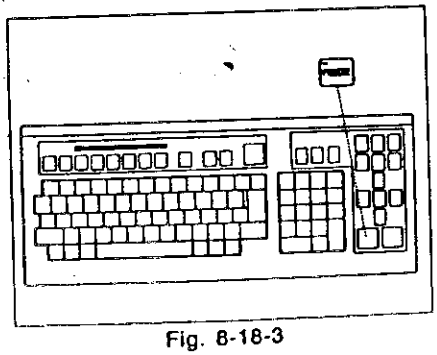


Fig. 8-18-3

NOTE
- Freeze the image with as little movement of object as possible.
- The "FREEZE" switch may be controlled from the endoscope, if necessary refer to Section 8.3.

8.19 Release

Remote operation of the recording device is available, when the remote cable is connected. For more detail refer to the recording device instruction manual.

NOTE • If using the foot switch with the light source, the release does not work unless a light source cable (MD-434) is connected.

1. Initial Set Up
   (1) Set the [Release time] according to Section 8.5.1, (4) Release time. (Release time means the period during which the image freezes when the release button is pressed.)

Table 8-19-1

Setting Value of [Release Time]	
SCV	1 ~ 9 S

2. In real-time image mode
   (1) Press the "RELEASE" key on the keyboard, the endoscopic image is frozen for the time set according to Section 8.5.1. The release time ends with a sound; after the sound, return to real-time image.
   (2) When a photograph is taken, the frame number on the recording device will increase by one.

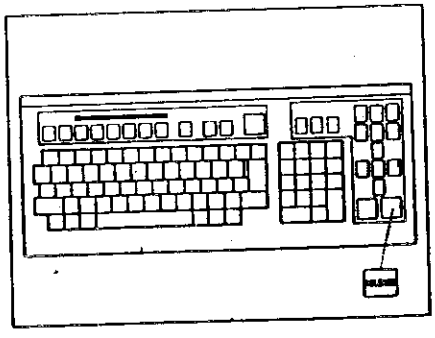


Fig. 8-19-1

3. In Freeze image mode
   (1) Press the "RELEASE" switch, the endoscopic image is kept for the time set according to the Section 8.5.1 with a beep sound; after the sound, return to real-time image.
   (2) To take a photograph, and recording device frame number count up.

NOTE • The "RELEASE" switch may be controlled from the endoscope, if necessary refer to Section 8.3.
• The "RELEASE" switch may be controlled from the foot switch of the light source, if necessary refer to the light source instruction manual.

8.20 Remove Data

(1) Pressing the "REMOVE DATA" key clears all data from the screen. (Fig. 8-20-2)

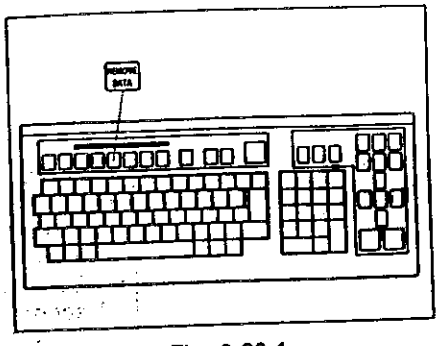


Fig. 8-20-1

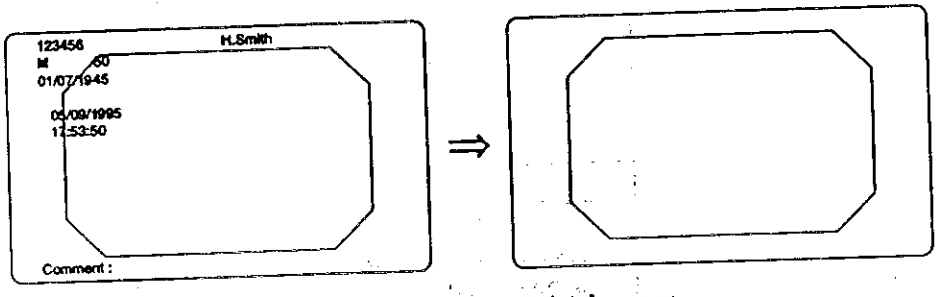


Fig. 8-20-2 [Character Delete] screen

NOTE • The "REMOVE DATA" switch may be controlled from the endoscope, if necessary refer to Section 8.3.

8.21 Sub Screen

When the "FREEZE" switch is pressed, a small size real-time image can be seen on the monitor.

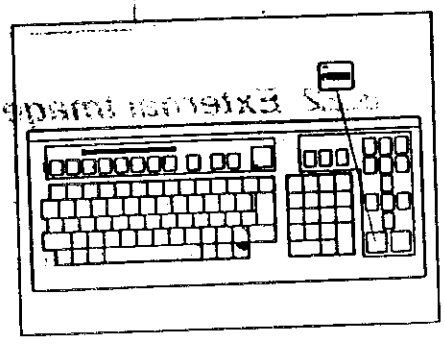


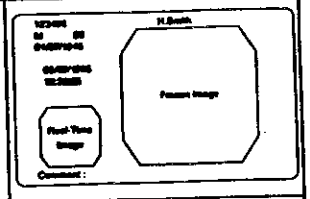
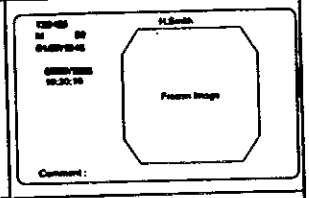
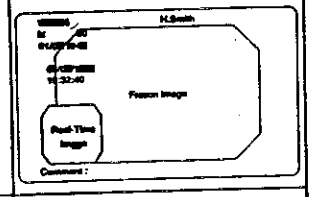
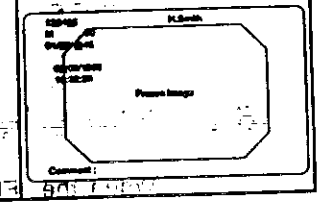
Fig. 8-21-1

WARNING • Long term freezing cause unexpected accidents. It is recommended to use the sub screen function with the "FREEZE" switch.

NOTE • The sub screen cannot be activated during release time.

(1) Set the sub screen ON/OFF according to Section 8.3.1, (6) Sub Screen.

Table 8-21-1

	Setting value of [Sub screen]	Display on the monitor
Narrow endoscopic image (EVIS-100 series scope EVIS-130 series scope Some EVIS-140 series scope (Narrow) OES VIDE CONVERTER	ON	
	OFF	
Full endoscopic image Some EVIS-140 series scope (Full)	ON	
	OFF	

8.22 External Image

(1) Press the "SELECT" switch on the front panel to change the monitor image from the scope to external devices (PRINTER, VTR, SVR, V.D. and D.F.) in the following order.

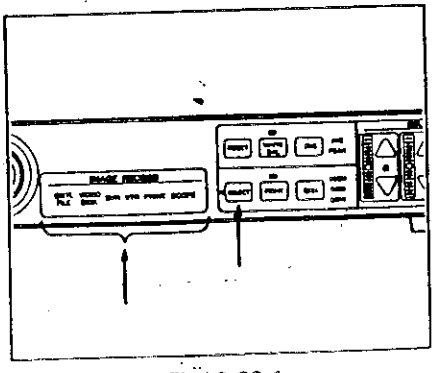


Fig. 8-22-1

Table 8-22-1

Setting Value (LED Illuminate)	Monitor image
SCOPE	Endoscopic image
PRINTER	The image signal from "PRINTER IN" terminal
VTR	The image signal from "VTR REMOTE" terminal
SVR	The image signal from "SVR" terminal
VIDEO DISK	The image signal from "V.DISK IN" terminal
DGTL FILE	The image signal from "DGTL.FILE" terminal

(2) Pressed "EXT IN" switch in the endoscope (refer to Section 8.3) to change the monitor image from the scope to an external device and vice versa.

Table 8-22-2

Setting Value (LED Illuminate)	Monitor image
SCOPE	Endoscopic image
VIDEO DISK	The image signal from "V.DISK IN" terminal

8.23 Screen Center Mode

When an narrow endoscopic image is observed, the image position can be moved at the center of the monitor by pressing the "SHIFT SCREEN" key on the keyboard.

NOTE
- When this mode is used, no patient ID data are on the image.
- When a Full endoscopic image is used, this function is not available.
- The "SHIFT SCREEN" switch may be controlled from the endoscope, if necessary refer to Section 8.3.

(1) Press the "SHIFT SCREEN" key on the keyboard, change the setting [normal endoscope] into [screen center image] and vice versa.

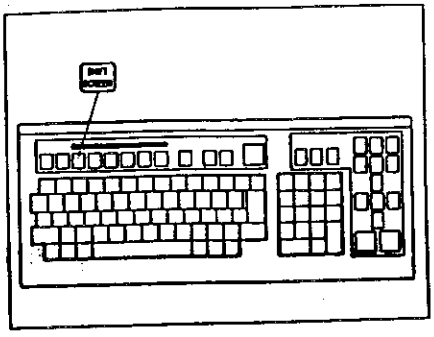


Fig. 8-23-1

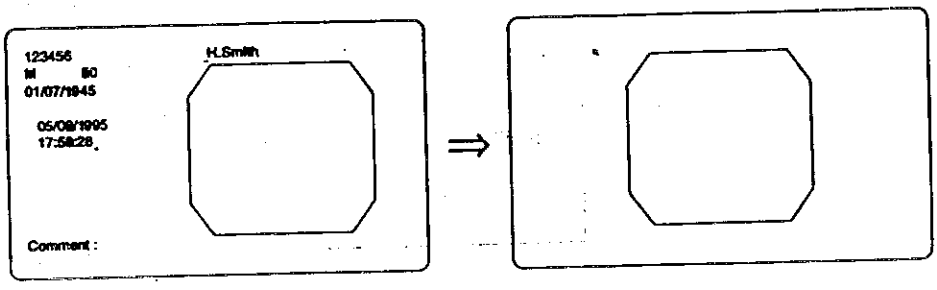


Fig. 8-23-2 [Character center] screen

8.24 Reset Switch

Press to "RESET" switch to set back the [IRIS], [ENH.], [COLOR] and [IMAGE SOURCE] setting at the default setting.

(1) Keep depressing the "RESET" switch for about one second.
(2) Blink the LED of [IRIS], [ENH], [COLOR R] and [IMAGE SOURCE] at the default setting for about one second, then reset completed.

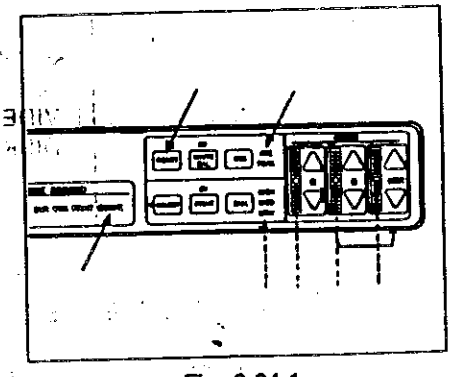


Fig. 8-24-1

8.25 Stopwatch

Time can be measured with the stopwatch utilizing the internal clock.

(1) Press the "STOPWATCH" key on the keyboard.
(2) The stopwatch time appears on the monitor where the date normally appears, and counting starts.
(3) Press the "STOPWATCH" key again, counting stops.
(4) Press the "STOPWATCH" and "SHIFT" keys simultaneously to restart counting, or press the "STOPWATCH" key to display the data.

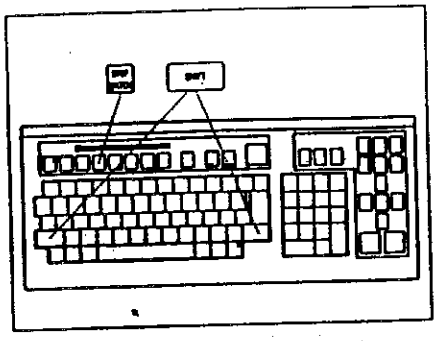


Fig. 8-25-1

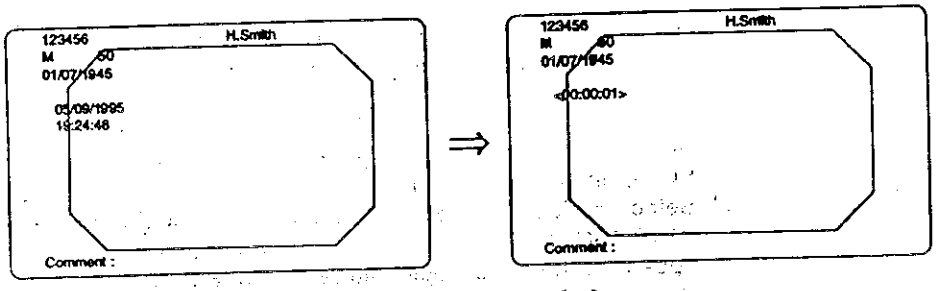


Fig. 8-25-2 [Stopwatch Display] screen

NOTE • The "STOPWATCH" switch may be controlled from the endoscope, if necessary refer to Section 8.3.

8.26 Arrow Pointer

An arrow pointer can be displayed in the endoscopic image to point to a specific part of the image.

NOTE • No data can be entered while the arrow pointer is displayed.

(1) Press the "SHIFT" key and any one of the "↑", "↓", "←" and "→" keys on the keyboard at the same time. The pressed arrow pointer will appear instead of the cursor in the endoscopic image. Do the same operation again in order to change the direction of the arrow pointer.
(2) Move the arrow pointer in the screen by pressing the "↑", "↓", "←" and "→" keys.

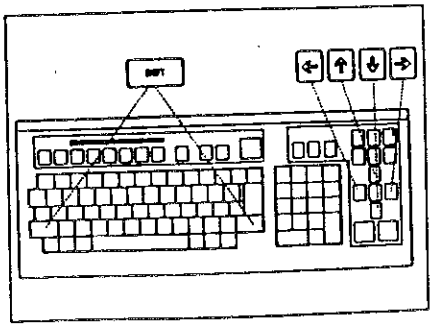


Fig. 8-26-1

(3) When the "SHIFT" key and the "↑", "↓", "←" and "→" keys whose direction is the same as that of the currently displayed arrow pointer together, the arrow pointer will be replaced by the cursor.

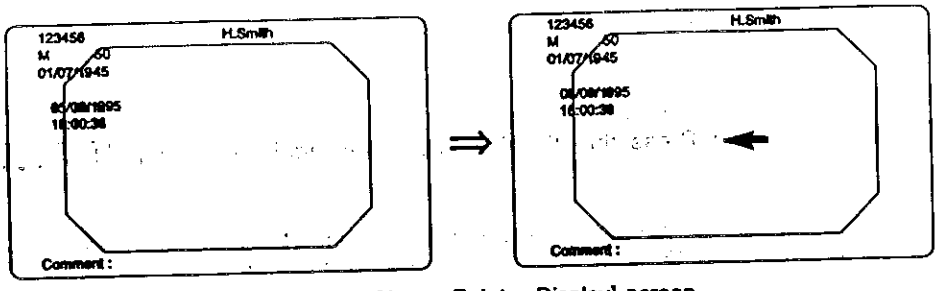


Fig. 8-26-2 [Arrow Pointer Display] screen

8.27 Photography with Automatic Monitor Photo Unit SCV-2

NOTE • It is recommended to freeze the image prior to taking a photograph, to avoid the image being blurred.

(1) Setup the system correctly according to the SCV-2 instruction manual.
(2) Select the [SCV ON] according to Section 8.4.1, (4) ① [SCV]. The number of SCV frames will appear in the endoscopic image as Fig. 8-27-2.
(3) Press the "RELEASE" switch to take a photograph. The SCV counter will increase as in Fig. 8-27-2.

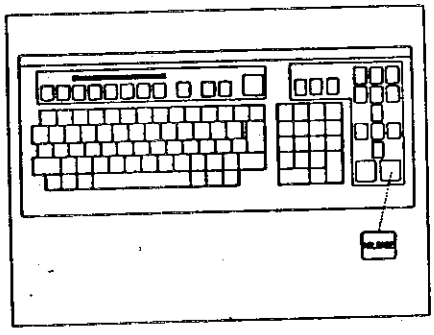


Fig. 8-27-1

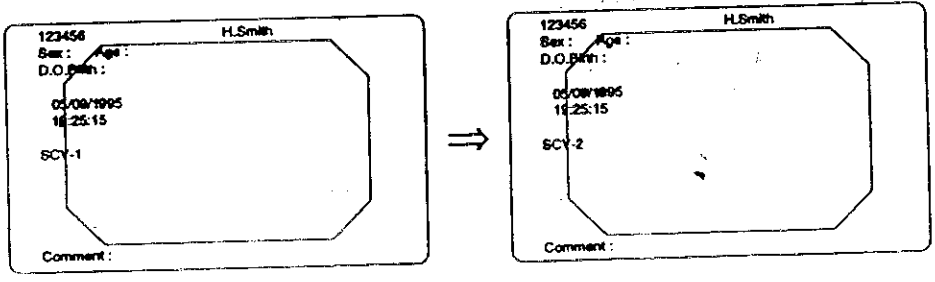


Fig. 8-27-2 [One Release] screen

8.28 VTR Recording and Playback

1. Initial Set Up
   (1) See Section 8.5.1, (4) ⑥ [VTR Setup]. The following settings are needed.

Table 8-28-1

Setting Value of [VTR setup] *Choose the correct VTR REMOTE CABLE.			Using VTR REMOTE CABLE
VTR Setup	Type	232C 33P 45P Foot Switch	VTR REMOTE CABLE (MH-989) VTR REMOTE CABLE (MH-991) VTR REMOTE CABLE (MH-990) VTR REMOTE CABLE (MH-992)

   (2) When using VTR remote cable (MH-989), set RS-232C setting of VTR as mentioned below according to VTR instruction manual.
   — Baud rate : 9600 bps
   (3) When using VTR remote cable (MH-992), set the VTR footswitch operation mode to "Low level trigger mode" according to VTR instruction manual

2. Operation from the endoscope switches (If the scope switch selects the VTR)
   (1) Select the "REMOTE VTR" key on the keyboard. The LED in the "VTR" key will illuminate.
   (2) Recording starts when the VTR switch on the endoscope (refer to Section 8.3) is pressed (VTR appears on the monitor while recording is in progress).
   (3) When the VTR switch on the endoscope is pressed again, recording stops.

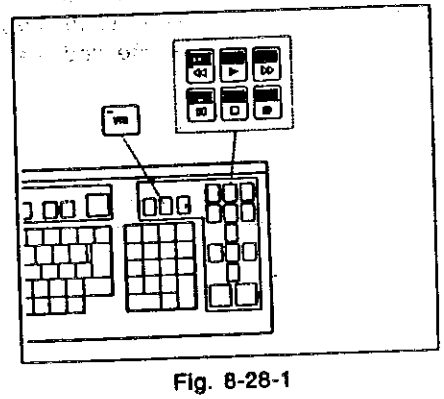


Fig. 8-28-1

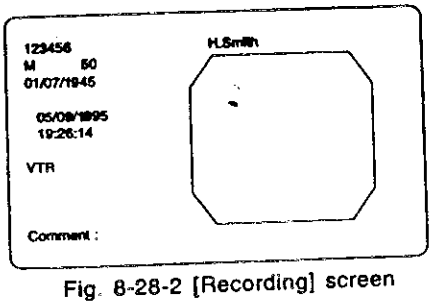


Fig. 8-28-2 [Recording] screen

NOTE • Playback cannot be controlled from the endoscope switches.

3. Operation from the Keyboard

NOTE • Using VTR remote cable (MH-992) remote control are restricted to [Record] and [Pause] only.

(1) Press the "REMOTE VTR" key on the keyboard. The LED in the "VTR" key will illuminate, and "REMOTE" keys ("●", "▷", "□", "▯▯", "▷▷", "◁◁") can be activated.
(2) Use the "●", "▷", "□", "▯▯", "▷▷", and "◁◁" keys on the keyboard to operate the system as follows.
— Record : Press the "●" key (VTR appears on the monitor while recording is in progress).
— Playback : Press the "▷" key.

NOTE • Select the [VTR] as [IMAGE SOURCE] using the "SELECT" switch on the front panel.

— Stop : Press the "□" key.
— Pause : Press the "▯▯" key.
— Fast forward : While stopped, press the "▷▷" key.
— Rewind : While stopped, press the "◁◁" key.
— Fast forward playback : During playback, press the "▷▷" key.
— Rewind playback : During playback, press the "◁◁" key.

8.29 SVR Recording and Playback

NOTE
- Using SR-300, the image data on the disk is protected for over-re-recording. Search on empty frame area on the disk, erase the data on the disk, or replace with a new disk.
- Using MVR-5300, the image data on the disk is protected for over-re-recording. So to be careful before recording not to lose the important saved data.

1. Initial Set Up
   (1) See Section 8.5.1, (4) ⑤ [SVR Setup], the following settings are needed.

Table 8-29-1

Setting Value of [SVR setup] *Choose the adequate following that using function and equipment.			Using function and equipment
SVR Setup	Type	5600 5300 SR300	MVR 5600 (SONY) MVR 5300 (SONY) SR300 (Olympus)
	Mode	25 50	Recording to [SVR] with frame image. Recording to [SVR] with field image.

(2) Set RS-232C setting of SVR as below mentioned according to the SVR instruction manual.
—Baud rate: 1200 bps

2. Recording
   (1) Select the [SVR ON] according to Section 8.4.1, (4), ① [SVR]. The number of SVR frames will appear in the endoscopic image as Fig. 8-29-2.

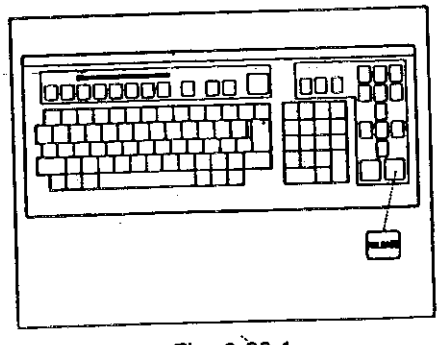


Fig. 8-29-1

(2) When the "RELEASE" switch is pressed, one frame is recorded in the SVR. The SVR counter will increase as in Fig. 8-29-2.

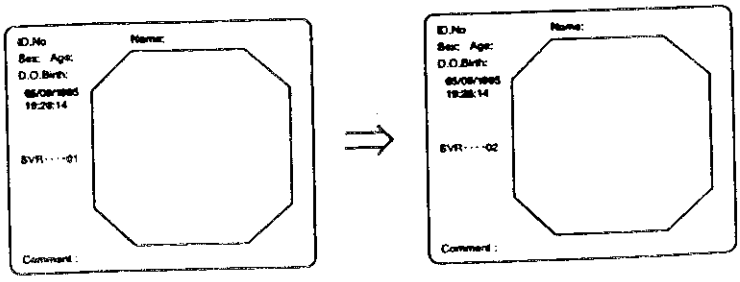


Fig. 8-29-2 [One Release] screen

3. Playback

NOTE • When the "RELEASE" switch is pressed, SVR automatically is selected the [RECORD] mode. Reset the [RECORD] mode before playback according to SVR instruction manual.

(1) Select the SVR as the [IMAGE SOURCE] using the "SELECT" switch on the front panel.
(2) Press the "REMOTE SVR" key on the keyboard, the LED in the SVR key will illuminate, and "REMOTE" keys ("□", "◁◁", "▷", "▷▷") can be activated.
(3) Press "□" key on the keyboard to reset [RECORD] mode in case of the SVR is under [RECORD] mode.
(4) Operate using the "◁◁", "▷" and "▷▷" keys on the keyboard.
    ① Press the "▷" key. The SVR playback image will appear.
    ② When the "▷▷" key is pressed, the next frame appears. When "◁◁" key is pressed, the previous frame appears.

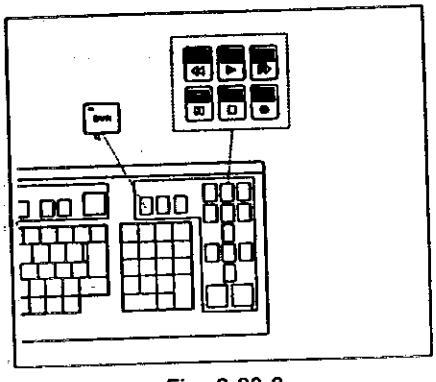
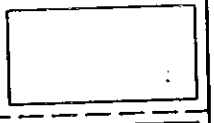
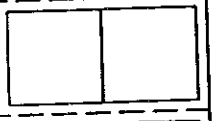
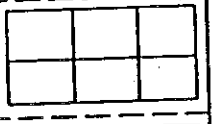
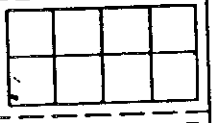
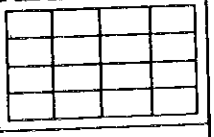


Fig. 8-29-3

8.30 Photography and Display by the Video Printer

1. Initial Set Up
   (1) See Section 8.5.1, (4) ④ [Printer Setup].

Table 8-30-1

Setting Value of [printer setup]			Using function and equipment
Printer setup	Type	OEP1	OEP (Olympus)
		OEP2	OEP (Olympus) + Memory board
		5200	UP-5200MD (SONY)
		5250	UP-5250MD (SONY)
		1800	UP-1800 (SONY)
		1850	UP-1850 (SONY)
		2900	UP-2900MD (SONY)
		2950	UP-2950MD (SONY)
	Mode	1	Full-Size image 
		2	Two reduced image (Only available with OEP1, OEP2 or 2950.) 
		4	Four reduced image
		6 (Not used)	Six reduced image (Only available with OEP2.) 
		8	Eight reduced image (Only available with OEP1 or OEP2.) 
		9	Nine reduced image (Only available with 5200 or 5250.)
		16	Sixteen reduced image (Only available with printers other than 5200 or 5250.) 
	QTY	1 to 9	Number of image to print.
	Mon	Auto	When pressing the "PRINT" switch, the stored image in the printer is displayed.
		Manu	Stored image in the printer is not displayed.

(2) Set RS-232C setting of video printer as follows according to the video printer's instruction manual.
— Baud rate: 4800 bps

2. Operation from the front panel and endoscope.
(1) When the "PRINT" switch on the front panel is pressed once, one image is stored in the printer and CVP counter will increase as in Fig. 8-30-2 while storage is in progress, the LED indicator above the "PRINT" switch on the front panel is illuminated.

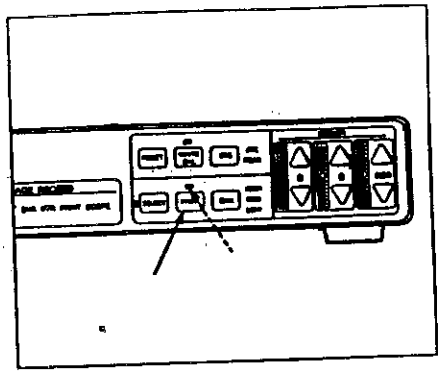


Fig. 8-30-1

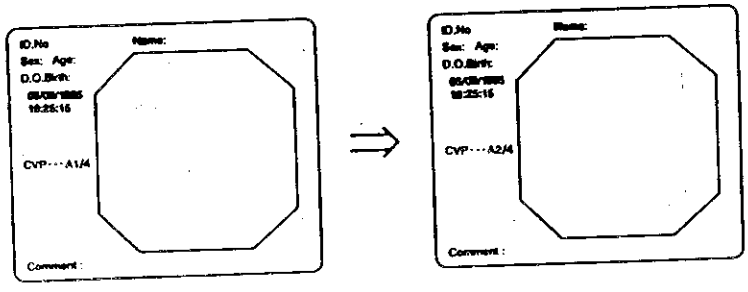


Fig. 8-30-2

NOTE
- If the [Printer setup, MON] setting is [Auto], the image stored in the printer memory can be seen on the monitor for about two seconds to confirm the print image.
- The "PRINT" switch may be controlled from the endoscope, if necessary. Refer to Section 8.3.

(2) Press the "PRINTER BACK" switch on the endoscope (refer to Section 8.3) to activate the image frame that has been stored in the printer. Press the "PRINT" switch to store a new image and to delete the previous one.
(3) Printing starts automatically after the number of images has been input to the printer. While printing is in progress, the LED above the "PRINT" switch on the front panel is illuminated.

NOTE
- The number of frames is restricted on each printer. Refer to printer's instruction manual.

3. Operation from the keyboard
(1) Press the "REMOTE PRINTER" key on the keyboard. The LED above the "PRINTER" key illuminates, and the function above the "REMOTE" keys ("C", "◇", "◇", "*←", "→" and "▭") can be activated.

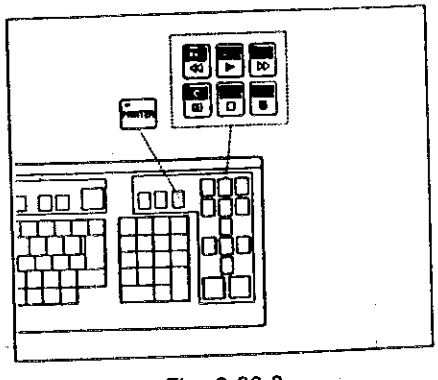


Fig. 8-30-3

(2) Operate the "REMOTE" keys as follows:

— C (CLEAR) : Press this key to clear the images stored in the printer memory.

— (MEMORY PAGE) : Press to select the memory page.

— (SOURCE/MEMORY) : Press to select the signal to be output to the monitor. The memory image and source image are toggled each time this button is pressed.

— (PRINTER BACK) : Press this button to move the cursor back to the former position, such as when you are storing multiple reduced images. Each time you press the PRINTER BACK button, the cursor moves back one space.

— (CAPTURE) : Press to make a print.

— (PRINT) : The print is made.

NOTE • Printing starts automatically after the set number of images have been input to the printer without pressing " (PRINT)" key.

8.31 Procedure when Examination is completed

(1) When another patient is to be examined:

① Press the "EXAM END" key on the keyboard. The patient data will be cleared from the image.

② Turn OFF the power switches to the CV-140 and ancillary equipment.

③ Disconnect the endoscope from the CV-140 according to the endoscope and OES Video Converter instruction manual.

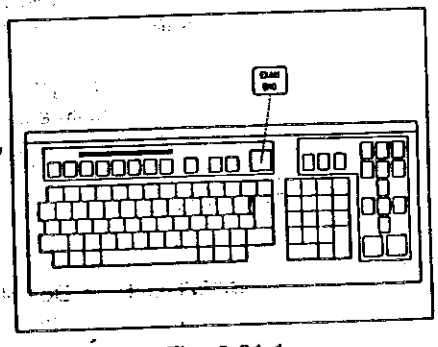


Fig. 8-31-1

NOTE • When connecting and disconnecting the endoscope, always turn the CV-140 power OFF. Otherwise damage to the circuitry inside the videoscope or the OES Video Converter may result.

9 CARE AND STORAGE

9.1 Care

If the equipment is soiled, perform the following cleaning procedure immediately after use. The equipment should be routinely cleaned.

WARNING
- Do not wipe the power switch with anything other than dry gauze. Otherwise, the switches can be damaged, creating risk of electrical shock.
- After wiping with a gauze moistened in liquid, dry the CV-140 thoroughly before using it again. If it is used while still wet, there is a risk of electrical shock.

CAUTION
- Do not clean the output connector, other connectors and inlets. Cleaning them involves the risk of deformation and corrosion of contacts, causing damage to the CV-140.
- Do not autoclave or gas sterilize the equipment. There will damage the CV-140.
- To prevent scratches, do not use hard or abrasive wiping material.

(1) Turn the CV-140 power switch OFF and disconnect the power cord.
(2) To remove dust, dirt, and other non-patient debris, wipe using a soft, lint-free cloth moistened with 70% ethyl or isopropyl alcohol.
(3) Should the equipment become soiled with blood or other potentially infectious materials, first wipe off all gross debris using detergent and then decontaminate the equipment using a surface disinfectant. Follow the manufacturer's recommendations for surface disinfection.
(4) Make sure that the equipment is completely dry before use.

9.2 Storage

CAUTION
- Do not store in a location exposed to direct sunlight, X rays, radioactivity or strong electromagentic radiation (near microwave medical treatment equipment, short wave medical treatment equipment, MRI equipment or radio). Damage to the CV-140 may result.

(1) For storage, turn the power switch OFF and disconnect the power cord.
(2) Place the CV-140 on a stable surface in the horizontal position.
(3) Put the vinyl dust cover on.
(4) Store the equipment at room temperature in a clean, dry, well ventilated environment.

10 TROUBLESHOOTING AND SERVICE

10.1 Troubleshooting

DANGER • If you suspect a malfunction, do not use the CV-140 on a patient. Patient injury may result.

If there is suspicion that something might be wrong with this unit, confirm that the power cords to all of the ancillary equipment are correctly connected.
If the malfunction continues after troubleshooting, contact Olympus.

Symptom	Items to check	Action
Power is not supplied to the CV-140.	– The CV-140 is not connected to a hopital grade receptacle. – The circuit breaker has tripped. – Electricity is not being supplied to the hospital grade receptacle.	Connect. Reset the circuit breaker. Restore the hospital grade receptacle to its normal condition.
The endoscopic image does not appear on the observation monitor.	– The switches on the rear of the monitor are not set correctly. – The monitor output setting is incorrect. – [Color bar] image, [50% white] or [Title Screen] image fails to appear. – The System Setting screen appears. – The endoscope is not connected. – The monitor cable is not connected. – The videoscope cable is not connected. – The monitor brightness setting is inappropriate.	Set the switches correctly. Select SCOPE as the monitor output setting. Press the "CHANGE SCREEN" key on the keyboard to call the narrow endoscopic image. Press the "SETUP SYSEM" key on the keyboard to call the narrow endoscopic image. Connect the endoscope. Connect the monitor cable. Connect the videoscope cable. Set an appropriate brightness.
The endoscopic image is too dark.	– The iris mode selection is inappropriate. – The AGC is OFF. – The light source cable is not connected. – There is a problem in the light source unit. /The lamp is not installed correctly. /The lamp is old. /The lamp has not been ignited. /The light level adjustment is not on "AUTOMATIC". /The filter setting is inappropriate. – The monitor brightness setting is inappropriate. – The monitor contrast setting is inappropriate.	Set the appropriate mode. Turn the AGC ON. Connect the light source cable. Install the lamp correctly. Replace the lamp with a new one. Ignite the lamp. Set to "AUTOMATIC" mode. Set an appropriate setting. Set an appropriate brightness. Set an appropriate contrast.

Symptom	Items to check	Action
The endoscopic image is too light.	– The iris mode selection is inappropriate. – The light source is not on "AUTOMATIC". – The monitor brightness setting is inappropriate. – The monitor contrast setting is inappropriate. – The monitor end terminal is inappropriate.	Set an appropriate mode. Set to "AUTOMATIC" mode. Set an appropriate brightness. Set an appropriate contrast. Set an appropriate end terminal.
The color of endoscopic image is unusual.	– The tone setting is inappropriate. – The white balance setting is inappropriate. – The monitor cable RGB cable connection is inappropriate. – There is a problem in the observation monitor. /PHASE setting is inappropriate. /CHROMA setting is inappropriate. /The color temperatrue setting is inappropriate.	Set an appropriate tone. Perform the white balance procedure. Connect the monitor cable correctly. Set an appropriate PHASE setting. Set an appropriate CHROMA setting. Set an appropriate color temperature.
The endoscopic image remains stationary.	– The "FREEZE" switch is still set.	Press the "FREEZE" switch to restore the moving image.
The image is drifting.	– The monitor cable SYNC cable connection is incorrect.	Connect the monitor cable correctly.
The image is vibrating.	– Something near the monitor is generating a strong magnetic field.	Remove the monitor from the source of the strong magnetic field.
Characters do not appear on the screen.	– [Color bar] image or [50% white] is being displayed. – The system is in [OFF the patient ID] mode. – The system is in [Screen center] mode.	Press the "CHANGE SCREEN" key on the keyboard to call the endoscopic image. Press the "REMOVE DATA" key on the keyboard to restore the characters. Press the "SHIFT SCREEN" key on the keyboard to restore the characters.
Patient data cannot be entered.	– The keyboard is not connected securely.	Connect the keyboard securely.
The Release destination cannot be selected.	– The ancillary equipment settings are inappropriate.	Set the ancillary equipment correctly in accordance with its instruction manual.
Photographs cannot be taken.	– The Release destination has not been selected. – There is no battery in the camera or winder. – There is no film in the camera, or the roll is finished. – The ancillary equipment settings are inappropriate.	Select an appropriate Release destination. Install a new battery. Load new film. Set the ancillary equipment correctly in accordance with its instruction manual.

Symptom	Items to check	Action
The photographic exposure is incorrect.	– The film is old. – The film type is inappropriate.	Use fresh film. Use the correct film in accordance with the ancillary equipment instruction manual.
The photographs are off-color.	– The white balance setting is inappropriate. – The SCV cable RGB cable connection is inappropriate. – The film is old. – The film type is inappropriate.	Set an appropriate white balance. Connect the SCV cable correctly. Use fresh film. Use the correct film in accordance with the ancillary equipment instruction manual.
Recording and playback with the VTR cannot be done.	– The VTR remote cable is not connected. – The monitor output setting is inappropriate. – The monitor remote setting is inappropriate. – The observation monitor brightness setting is inappropriate.	Connect the VTR remote cable correctly. Select [VTR] as the monitor output setting. Set correctly. Set an appropriate brightness.
The endoscope control section switches are inoperative.	– The endoscope and videoscope cable 100 are not connected.	Connect the endoscope and videoscope cable 100.
The automatic light level adjustment is inoperative.	– The light source unit light level adjustment is on "MANUAL".	Set to "AUTOMATIC" mode.
The automatic light level response is slow.	– A cable is connected to the light source unit rigid endoscope camera connector.	Disconnect the cable.
The time of day is wrong.	– The time of day setting is incorrect.	Set the time correctly.

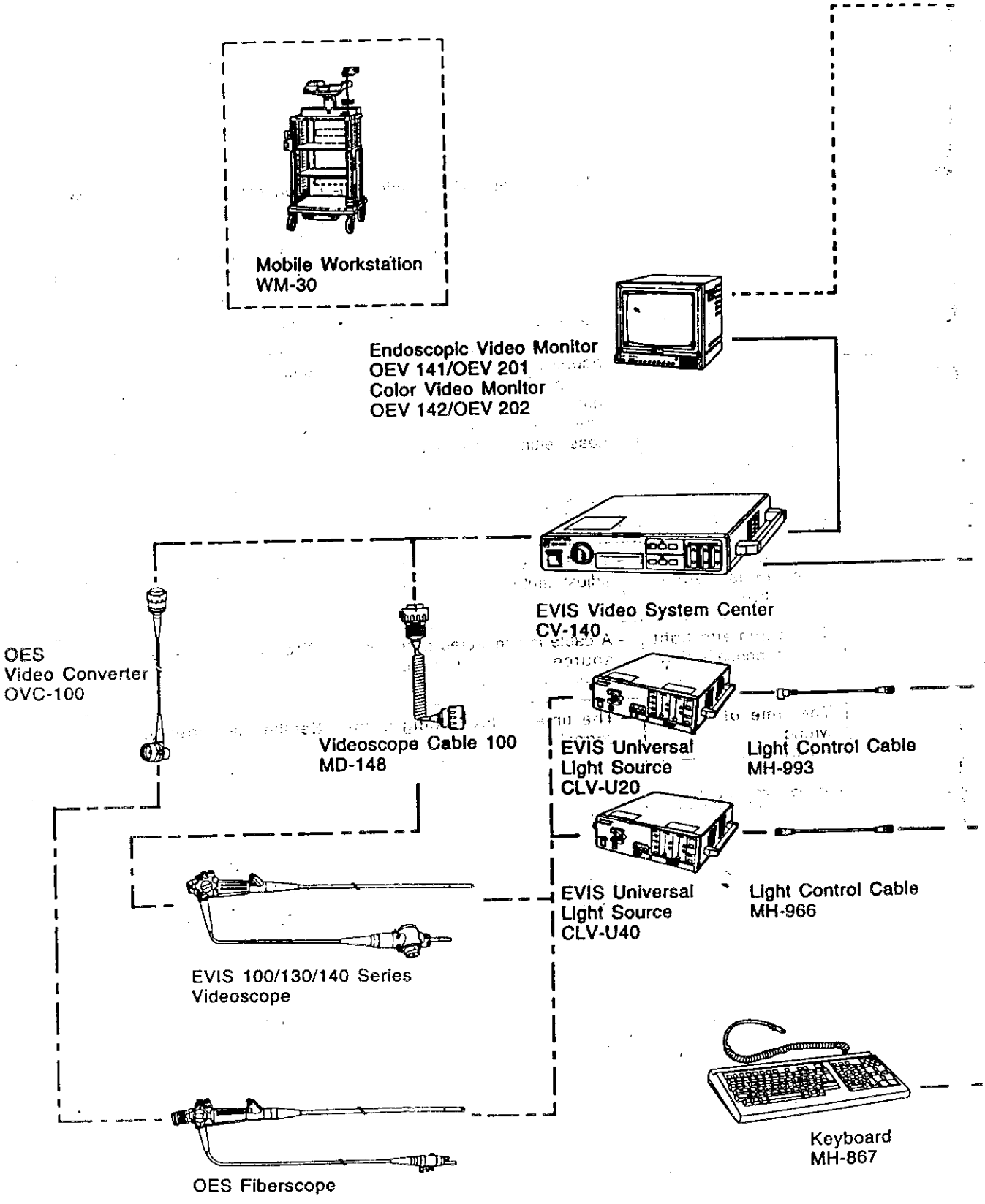
10.2 Service

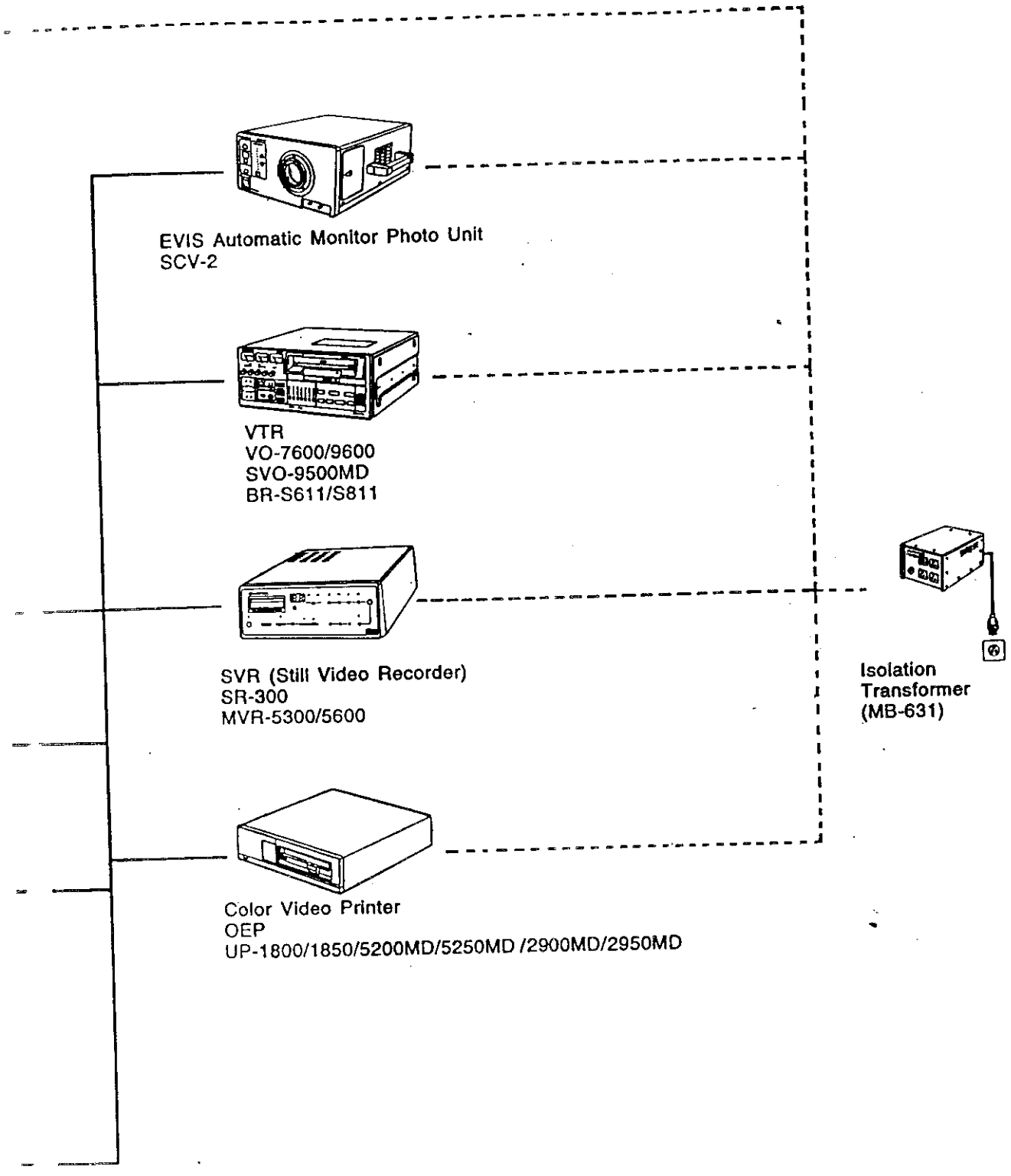
NOTE

- Accessories to this CV-140 (Keyboard Cover, Videoscope Cable 100, Videoscope Cable Holder, Light Source Cable, Monitor Cable, Light Control Cable, Power Cord, White Cap Set, Water Container, Foot Holder, Vinyl Dust Cover, Instruction Manual) cannot be repaired. If they are damaged, contact Olympus to purchase a new one.

When returning the CV-140 for repair, include a description of the CV-140 malfunction or damage and the name and telephone number of the individual at your location who is most familiar with the CV-140 problem. Include a repair purchase order.

11 SYSTEM CHART




EVIS Automatic Monitor Photo Unit
SCV-2
VTR
VO-7600/9600
SVO-9500MD
BR-S611/S811
SVR (Still Video Recorder)
SR-300
MVR-5300/5600
Isolation
Transformer
(MB-631)
Color Video Printer
OEP
UP-1800/1850/5200MD/5250MD /2900MD/2950MD

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