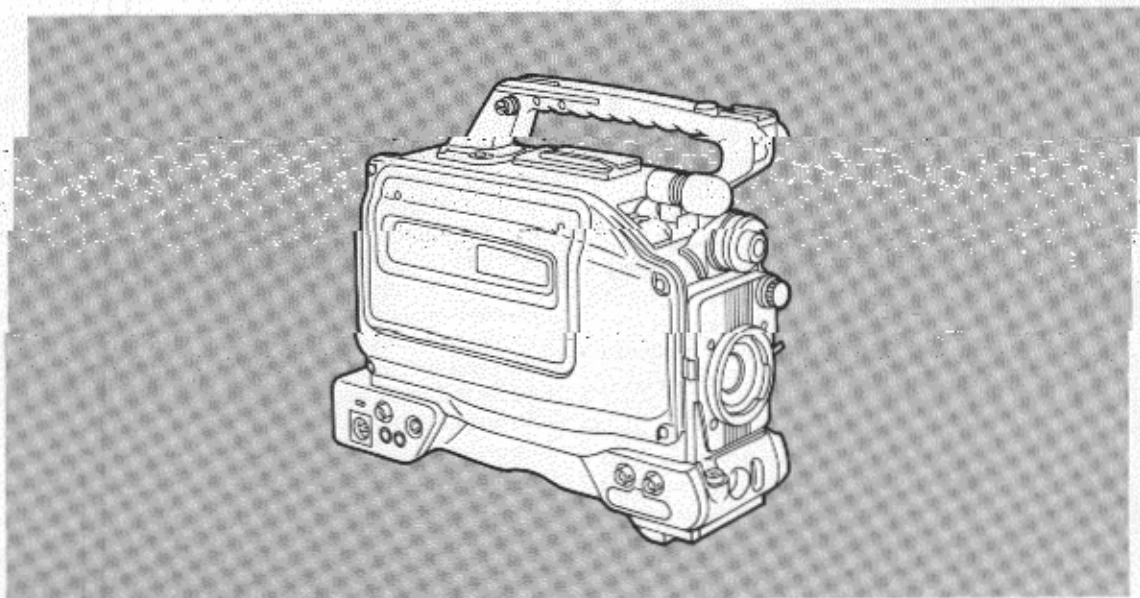# Operating Instructions

Panasonic S VHS
Professional/Industrial Video

Model AG-DP800HP

Hi-Fi Camera/VTR

Before attempting to connect, operate or adjust this product, please read these instructions completely.

VQT6057

Precautions for Use

1. **Vibration**
   Avoid using this product in any location where it will be subjected to a great deal of vibration.

2. **Ambient operating temperature**
   This product is designed to operate across a temperature range of 32°F to 104°F (0°C to +40°C). Adequate care should be taken when the product has been operated outside this range since it may develop differences in interchangeability or it may not function properly, and its active service life will be shortened.

3. **Rain, humidity and dust**
   Minimize operation in the rain or when the humidity level is high since condensation will form inside the product, thereby causing failures. Take care when using the product in very dusty locations since dust will find its way inside the product which, in particular, will cause a deterioration in its characteristics.

4. **Sunlight**
   Do not point the lens in the camera section at the sun with the iris open. Neither should the viewfinder's eyepiece be pointed at the sun. Failure to heed this warning may cause malfunctioning inside the product.

5. **Handling**
   Do not drop the product or subject it to impact. Failure to heed this warning will cause malfunctioning. Also, do not poke objects inside the product while the cassette cover is in the raised position.

6. **Strong electrical and magnetic fields**
   Bear in mind that using this product in an extremely strong electrical or magnetic field may result in interference with the picture on the screen or with the sound.

7. **Video tapes**
   VHS or S-VHS tapes can be used.
   Use tapes up to 160 minutes in length. No guarantees can be given in the event that a 180-minute tape is used.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (service) instructions in the literature accompanying the appliance.

FCC NOTE:
This device complies with Part 15 of the FCC Rules. To assure continued compliance follow the attached installation instructions and do not make any unauthorized modifications.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CAUTION:
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

WARNING:
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

⬚ is the safety information.

2

Features

Camera recorder with compact size, light weight and low power consumption

Camera with high picture quality
- Smear is slashed thanks to the adoption of a 1/2-inch, 380,000-pixel FIT CCD.
- A stable, high picture quality is assured over a prolonged period of time thanks to digital processes.
- This is a high-sensitivity product with a standard sensitivity of 2000 lux at f/8 (minimum illuminance of 2 lux).
- The electronic shutter comes with a synchro shutter function.

VTR with high picture quality handling full-size S-VHS cassettes
- The VTR has a built-in time code reader/generator.
- With its Dolby Noise Reduction System*, this VTR can record and play back normal sound (2 channels) and Hi-Fi audio (2 channels) at a high quality.

Other features
- The camera AGC and audio AGC circuits make shooting possible in an emergency without having to perform any settings.
- Single-step backlight compensation, setting for different scene files and other useful functions are provided.
- Many functions can be easily established by on-screen menu settings.
- A 26-pin connector makes easy work of connecting a back-up VTR.
- Phantom power (+48 V) can be supplied to the external mic jack.

*Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
*"DOLBY" and the double-D symbol □□ are trademarks of Dolby Laboratories Licensing Corporation.
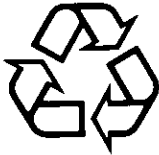
ATTENTION:
The product you have purchased is powered by a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Replace battery with part No. CR2032 only. Use of another battery may present a risk of fire or explosion.
Caution—Battery may explode if mistreated. Do not recharge, disassemble or dispose of in fire.
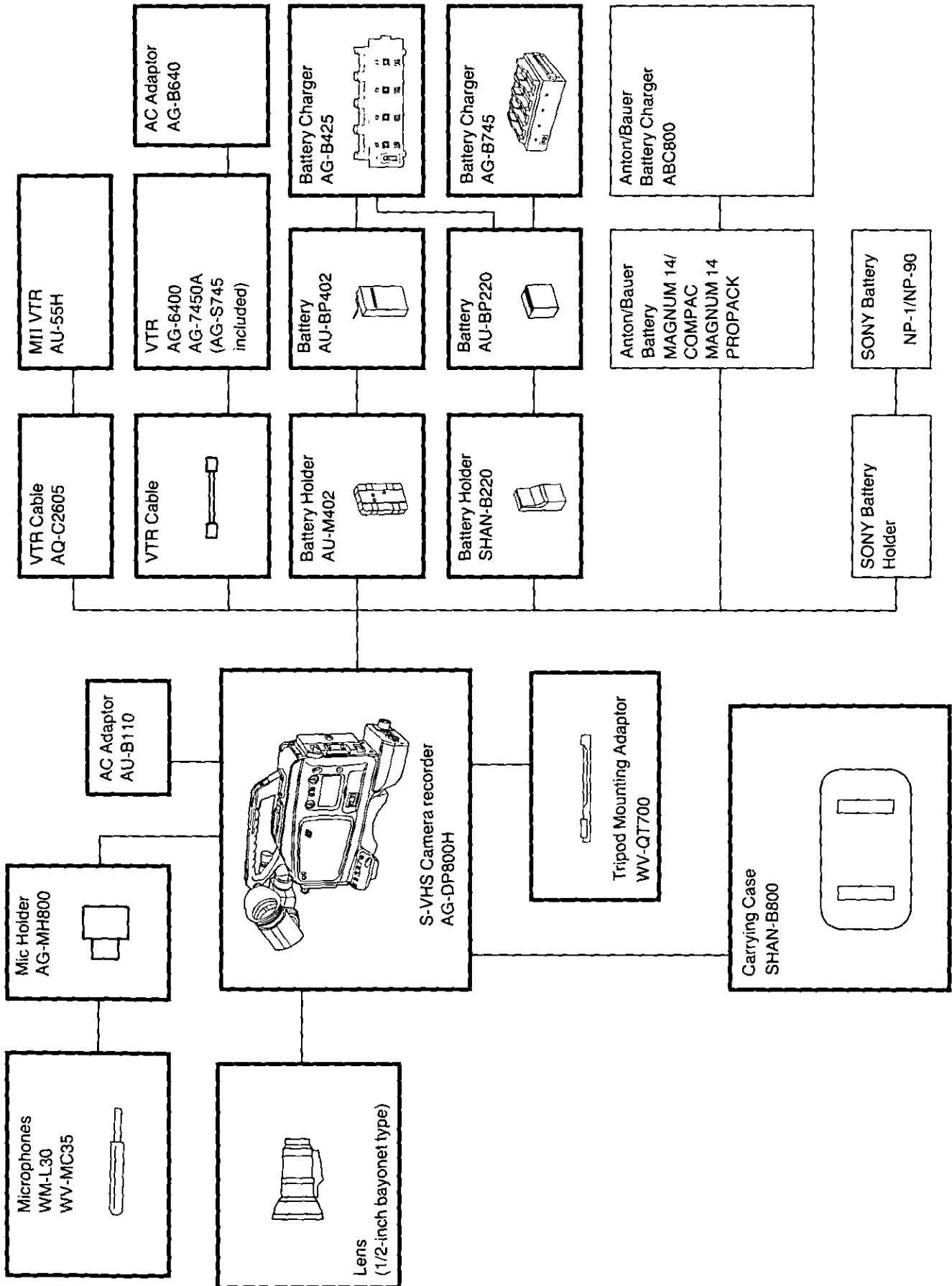
3

Table of Contents

System Chart

AC Adaptor
AG-B640

Battery Charger
AG-B425

Battery Charger
AG-B745

Anton/Bauer
Battery Charger
ABC800

MII VTR
AU-55H

VTR
AG-6400
AG-7450A
(AG-S745
included)

Battery
AU-BP402

Battery
AU-BP220

Anton/Bauer
Battery
MAGNUM 14/
COMPAC
MAGNUM 14
PROPACK

SONY Battery
NP-1/NP-90

VTR Cable
AQ-C2605

VTR Cable

Battery Holder
AU-M402

Battery Holder
SHAN-B220

SONY Battery
Holder

AC Adaptor
AU-B110

S-VHS Camera recorder
AG-DP800H

Tripod Mounting Adaptor
WV-QT700

Carrying Case
SHAN-B800

Mic Holder
AG-MH800

Microphones
WM-L30
WV-MC35

Lens
(1/2-inch bayonet type)

Controls and their Functions

1 AUDIO AGC Switch

1 GAIN Selector Switch

When the camera screen is dark, change the position of this switch to increase the gain and make the screen brighter.

0 dB: The switch is normally kept at this position.

HIGH: The gain of the camera video amplifier is increased to the value (9 dB, 18 dB, 24 dB or super high gain) which has been preset using the on-screen menu. (Increasing the gain results in an increase in noise.)

AGC (Camera AGC function): The gain is automatically adjusted to the appropriate value between 0 dB and 18 dB depending on the brightness of the screen.
(If the lens iris is in the manual setting, it will be forcibly set to auto.)
The gain is set to 0 dB when the light is adequate, and it is increased automaticaly when the lens iris is close to being kept open all the time and yet the amount of light is insufficient.
*The camera AGC will not function properly when a lens without an automatic aperture function is used.

2 AWB Memory Selector Switch

A or B: When the front panel AUTO W/B BAL switch is set to AWB, the white balance is adjusted automatically, and the adjustment value is automatically stored in the A or B memory.

PRE: The white balance is preset to the color temperature of 3200K (the illuminance temperature of a halogen lamp). At this position, the front panel AUTO W/B BAL switch does not function when it is set to AWB.

3 OUTPUT Selector Switch

This selects either the video signals being shot by the camera or the color bar signals.

CAM: The video signals shot by the camera are output.

BAR: The color bar signals are output.

8

4 **SHUTTER Switch**

This sets the electronic shutter ON or OFF.

OFF: The electronic shutter is not activated.

ON: The electronic shutter is activated. The shutter speed is set using the SET + or SET − switch.

S/S: The synchro scan shutter mode is established.
The shutter speed can be changed almost continuously from about 1/60 to 1/200 by operating the SET + and SET − switches.

5 **POWER Switch**

ON: The entire camera recorder is operated.

SAVE: The recorder is set to the power save status.
The VTR START (REC start) operation can be performed but it takes some moments for the recording to commence. The power save mode is restored when the VTR START (REC stop) button is pressed.

OFF: Power to the camera recorder is switched off.

6 **MODE CHECK Button**

This enables the settings of the camera switches to be checked on the viewfinder.

7 **BREAKER Button (Bottom panel)**

If trouble should cause an excessively high current to flow inside the camera recorder, the circuit breaker is tripped to cut off the power automatically and protect the unit. Push this button in after inspecting inside the product and taking corrective action. The power is restored if no trouble has occurred.

8 **Earphone jack**

The sound can be monitored by connecting an earphone to this jack. When connected, no sound is heard through the speaker.

9 **Audio Input Connectors**

External microphones or line input signals are connected to these connectors.

10 **26P VTR Connector**

This is for a back-up VTR. The AG-7400 VTR or similar model can be connected.
●Do not connect the Remote Control Unit (RCU).

11 **Speaker**

The sound can be monitored through this speaker.
●The sound from the speaker is automatically cut off when an earphone is connected to the earphone jack.
●The MONITOR switch is used to select the channel whose sound is to be monitored.

12 **Audio Monitor Level Control**

This is used to adjust the volume of the sound which is being monitored.

9

Controls and their Functions (Continued)
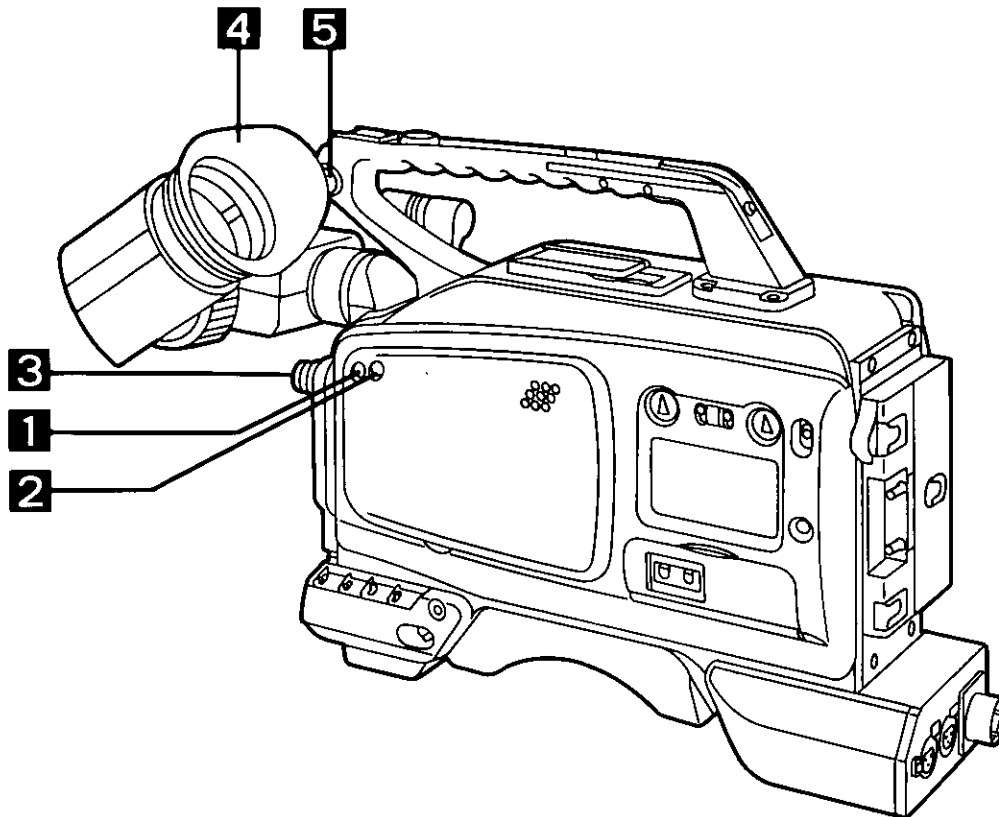
1 **Scene File Selector Button**

This enables scene files to be selectd. For details, refer to the next page.

2 **Super Iris Button**

Press this button to toggle between the normal mode and super iris mode.

Normal mode: Normal shooting takes place in this mode.
Super iris mode: Used for backlight shooting.
Note: This function operates when the lens is in the automatic iris adjustment mode.

3 **Filter Selector Control**

Set this control as shown below according to the light sources illuminating the subject.
Control No. and color temperature of filter

Control No.	Color temp.	Shooting condition
1	3200 K	Sunrise, sunset, subjects illuminated by incandescent bulbs
2	5600 K+ 1/8 ND	Outdoors under a clear sky
3	5600 K	Outdoors on a cloudy/rainy day

4 **Viewfinder**

5 **Shoulder Strap Mount**

This is used to attach the shoulder strap provided with the product.

10
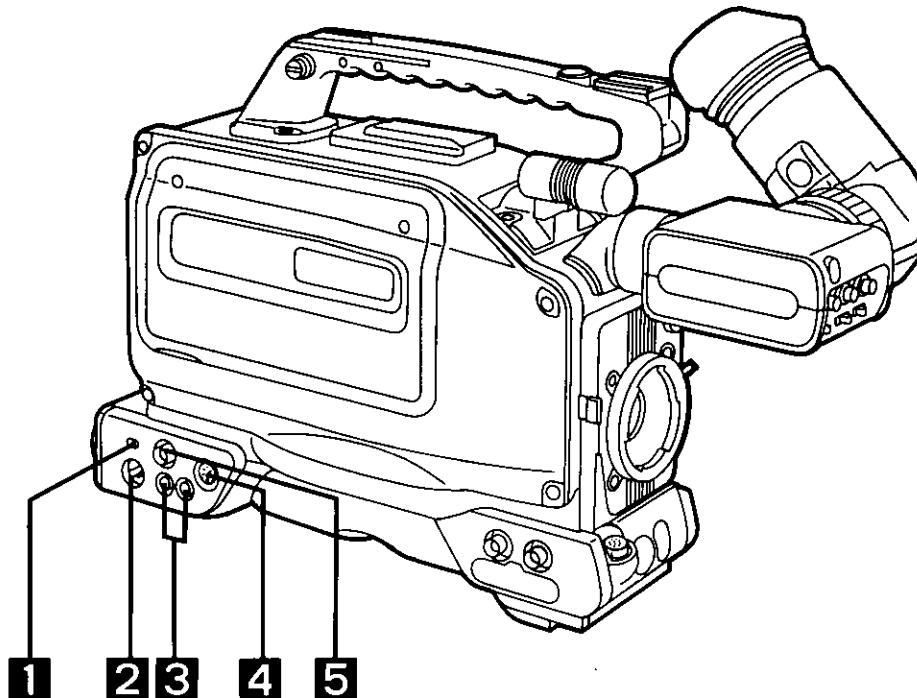
1 **Power Selector Switch**

This selects the power supply to be used.

BATT/EXT DC: Set to this position when supplying power from the external DC input socket or battery.

VTR: Set to this position when supplying power from the 26P VTR connector.

2 **External DC Input Socket**

The AC adaptor is connected to this external power input socket, and when it is connected, power is automatically supplied from the external source.

3 **AUDIO OUT Connectors (Phono jacks)**

4 **VTR VIDEO OUT Connector (Y/C)**

5 **VTR VIDEO OUT Connector (BNC)**

When the video signals which are output from the VTR VIDEO OUT connector (YC or BNC) are viewed on an underscanning TV monitor, parts along the left edge of the picture will have no color. This is not, however, indicative of malfunctioning.

Scene file selection

When the scene file selector button is pressed, the settings change in the sequence given below:

┌→NORMAL→FILE A→FILE B→FLUO.LAMP→SPARKLING→SPECIAL┐

NORMAL: For the standard picture quality

FILE A: For file A with the picture quality set by the user

FILE B: For file B with the picture quality set by the user

FLUO.LAMP: For improved color reproduction under fluorescent lighting

SPARKLING: For darkening the color and making the picture sharper.

SPECIAL: The colors are made lighter and soft images are produced.

11

Controls and their Functions (Continued)
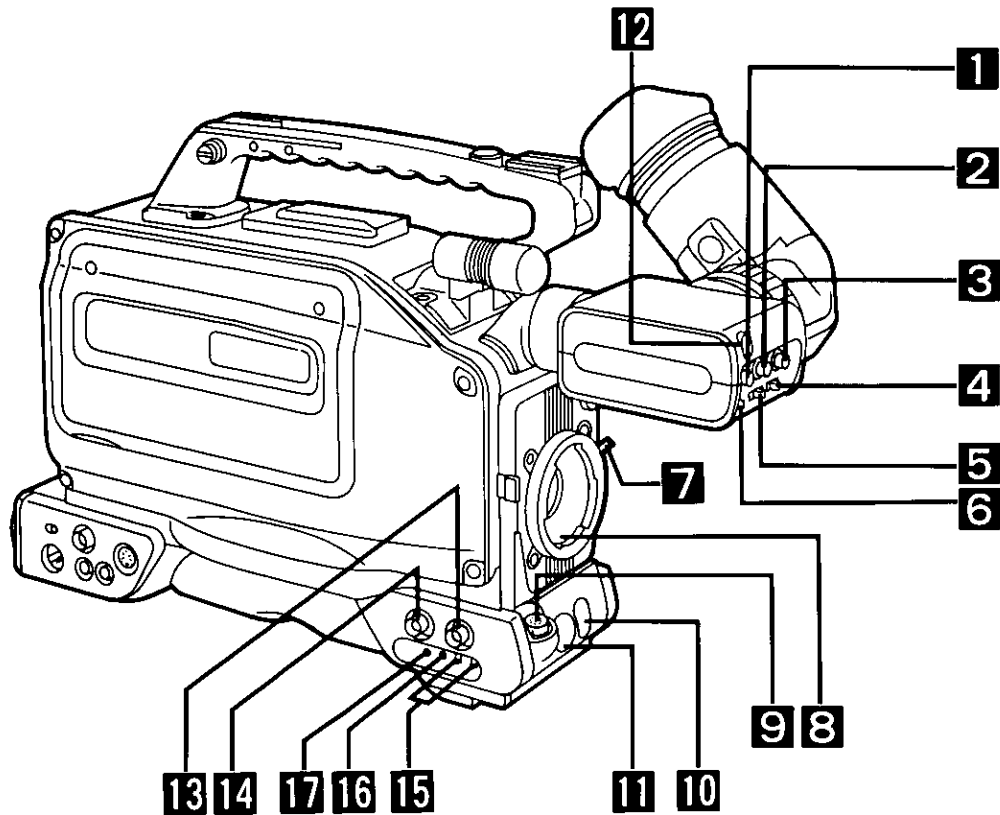
1   **PEAKING Control**

Turning this control intensifies the outlines of the images in the viewfinder for easier focusing. However, this has no effect on the camera's output signals.

2   **CONTRAST Control**

This adjusts the contrast of the image in the viewfinder. However, it has no effect on the camera's output signals.

3   **BRIGHT Control**

This adjusts the brightness of the image in the viewfinder. Turning it clockwise makes the image brighter. However, it has no effect on the camera's output signals.

4   **TALLY ON/OFF Switch**

ON: The tally lamp on the front of the viewfinder lights.
OFF: The tally lamp on the front of the viewfinder does not light.

5   **ZEBRA ON/OFF Switch**

ON: A zebra pattern is displayed in the viewfinder.
OFF: No zebra pattern is displayed.

6   **CHARACTER ON/OFF Switch**

This turns the character which are displayed in the viewfinder ON or OFF.
ON: Characters are displayed in the viewfinder.
OFF: No characters are displayed in the viewfinder.

7	**Lens Clamp Lever**		After attaching the lens to the lens mount, tighten this lever to hold the lens in place.
8	**Lens Mount (Bayonet type)**		The lens is attached to this mount.
9	**LENS Connector (12-pin)**		The connecting cable of the lens is connected to this connector. For a detailed description of the lens to be used, refer to the Operating Instructions accompanying the lens.
10	**AUTO W/B (WHITE/BLACK) BAL Switch**	**AWB:**	The white balance is adjusted automatically. Setting the AWB Selector switch at the side to A or B and then operating the AUTO W/B BAL switch enters the adjusted value into memory A or B. Bear in mind that this operation will not be performed when the selector switch has been set to PRE.
		ABB:	The black balance is adjusted automatically. The value to which it has been adjusted is entered in an exclusive memory. When it is released, the switch automatically returns to its center position.
11	**VTR START/STOP Button**		This is for starting or stopping the recording.
12	**TALLY Lamp**		This lights while the image being shot by the camera is being recorded by the VTR. It lights and flashes in tandem with the TALLY lamp inside the viewfinder.
13	**CAMERA GENLOCK IN Connector (BNC)**		To apply genlock to the camera recorder from an external unit, connect the unit to this connector.
14	**CAMERA VIDEO OUT Connector (BNC)**		The camera's encoder (composite signal) output is sent to this connector.
15	**SC Rough Adjustment Switches**		These roughly adjust the subcarrier phase in the genlock mode.
16	**SC Fine Control**		This finely adjusts the subcarrier phase in the genlock mode.
17	**Horizontal Sync Phase Control**		This adjusts the horizontal sync phase in the genlock mode.

Controls and their Functions (Continued)
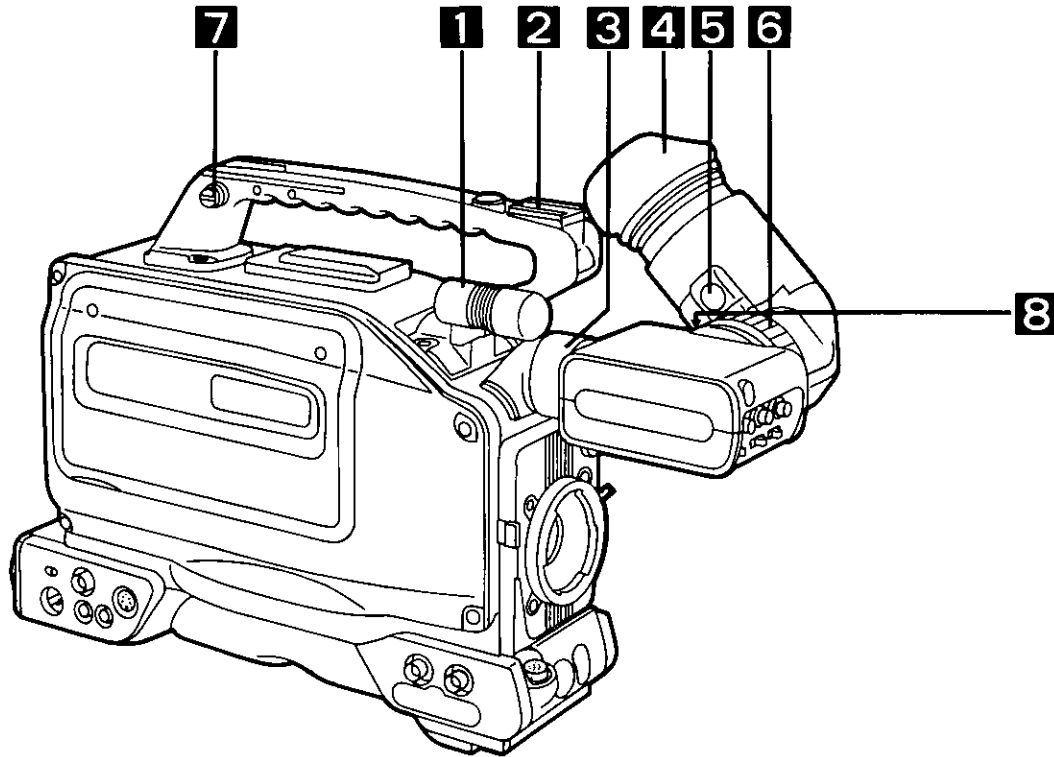
1 **Microphone**

This is a compact, unidirectional type of microphone. However, by replacing it with the optional holder, a highly directional microphone can be attached instead.

2 **Accessory Hole**

This is for mounting video lights or other accessories.

3 **Viewfinder Clamp Ring**

This is used to attach and detach the viewfinder. By loosening the clamp ring, the viewfinder can be rotated by 90° so that it is pointing upward.

4 **Eye Cup (Eyepiece)**

5 **Eye Cup Removal Lever**

This is used to remove the eye cup. Move the lever in the direction shown by the arrow and then simply slide the eye cup to remove it.

6 **Viewfinder Stopper**

This is used to adjust the viewfinder's position. Loosen the stopper and move the viewfinder to the left or right to adjust its position. After the position has been adjusted, tighten the stopper to hold the viewfinder in place.

7 **Shoulder Strap Mount**

This is used to attach the shoulder strap provided with the product.

8 **Diopter Adjustment Control**

This is adjusted to the eyesight of the operator so that he or she can clearly see the images on the viewfinder screen.

9 **Eyepiece front/back adjustment ring**

At the unlock position, the eyepiece can be moved further toward the front or back. After moving the eyepiece to the desired position, lock the ring to secure it there.

14
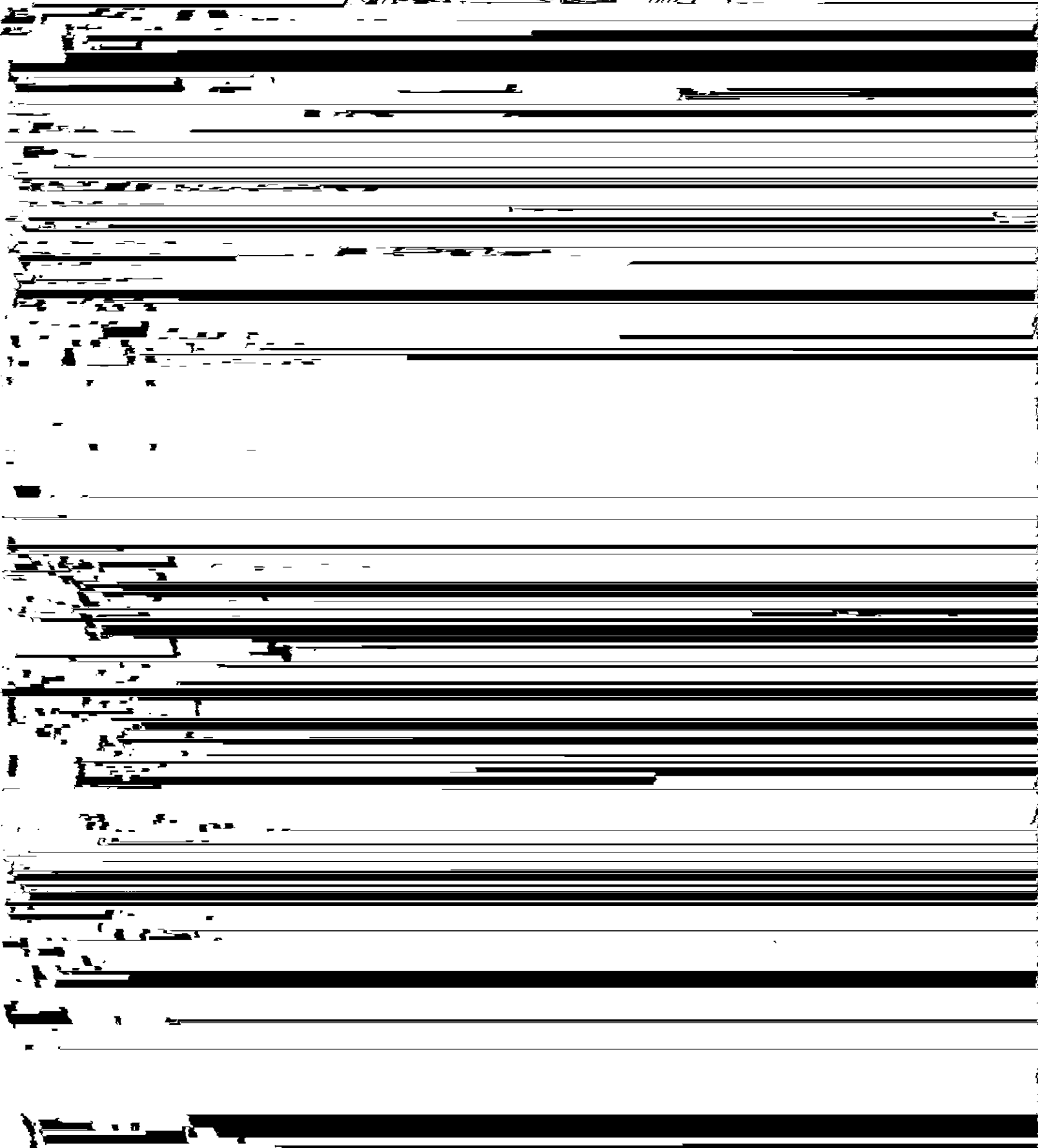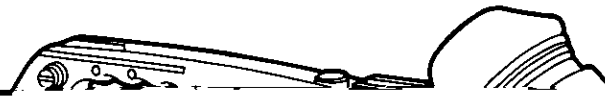
Controls and their Functions (Continued)
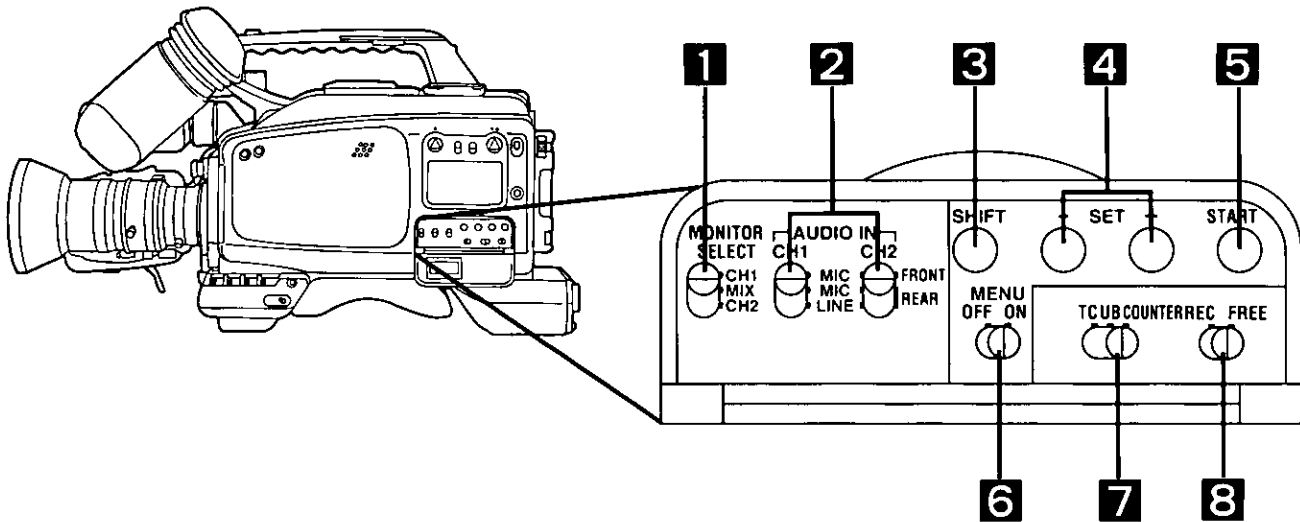
1   MONITOR Switch

This is for selecting the speaker or earphone sound.
CH1: The CH1 sound can be monitored.
MIX: The CH1 and CH2 mixed sound can be monitored.
CH2: The CH2 sound can be monitored.

2   AUDIO IN Selector Switches

These switches select the CH1 and CH2 audio inputs.
FRONT MIC: For recording the audio signals from the microphone built into the camera.
REAR MIC: For connecting an external microphone to the audio input connector (XLR 3P) on the rear panel and recording its audio signals.
REAR LINE: For connecting line signals to the audio input connector (XLR 3P) on the rear panel and recording them.

3   SHIFT Button

This is used for time code generator and menu item settings.

4   SET −, SET + Buttons

These are used for changing the time code generator, menu, electronic shutter speed or synchro scan shutter speed settings and for adjusting the VTR tracking.

5 **START Button**

Press this button to indicate the time code generator setting on the display. The button is used to make the time code generator and menu item settings.

6 **MENU ON/OFF Selector Switch**

OFF: The switch is normally kept at this position when the camera recorder is being operated.

ON: For displaying or changing a menu item.

7 **TC/UB/COUNTER Selector Switch**

TC: For setting or displaying the time code data.

UB: For setting or displaying the user bit data.

COUNTER: For indicating the reel counter on the display.

8 **REC/FREE Selector Switch**

REC: For counting the time code only in the VTR's recording mode; REGEN operation is performed when LTC is ON (set using the menu item).

FREE: For counting the time code in the same way as for the time regardless of the VTR mode.

Controls and their Functions (Continued)
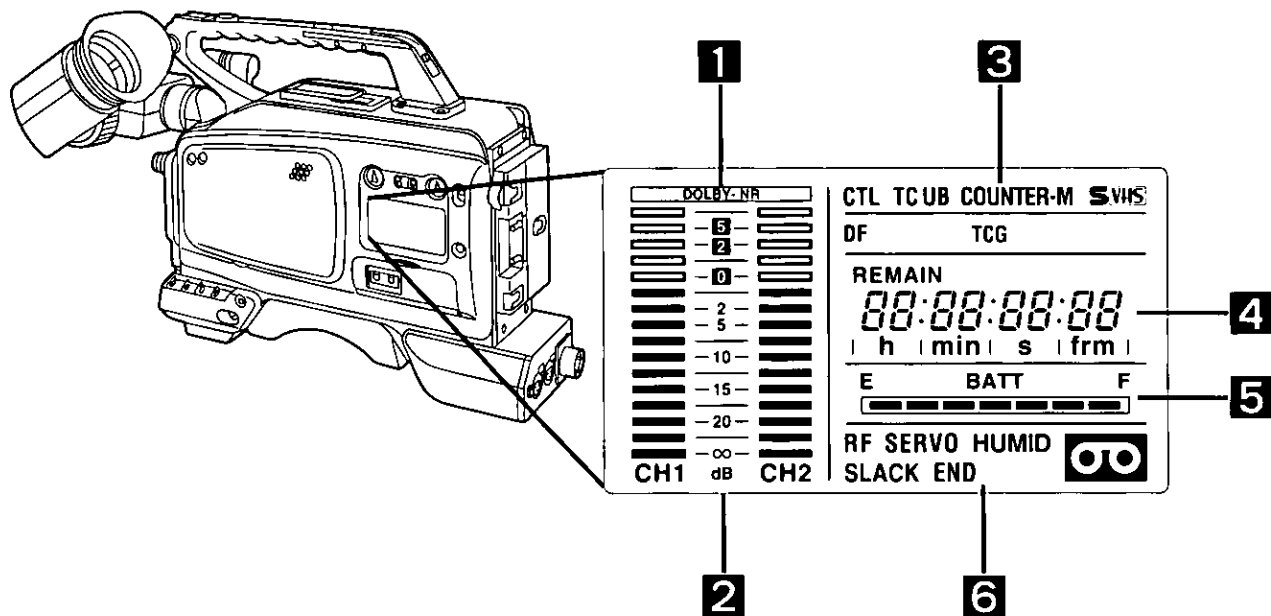
Display

1   **DOLBY-NR display**   Lights when the DOLBY NR menu item has been set to ON.

2   **Audio level meter**   Indicates the CH1 and CH2 audio levels.

3   **Mode displays**

TC:	Lights when the counter is in the TC (time code) mode.
UB:	Lights when the counter is in the UB (user bit) mode.
DF:	Lights when the time code is in the DF (drop frame) mode.
COUNTER:	Lights when the counter is in the reel count mode.
TCG:	Lights when the counter is in the TCG (time code generator) mode.
—M:	Lights in the counter memory mode (0000 stop mode).
CTL:	The counter memory mode is set using the menu item.
S VHS:	Lights in the S-VHS mode.
⊙⊙:	This denotes that a cassette tape has been loaded.

4 Counter

This indicates the time code and user bit data in units of hours, minutes, seconds and frames. It serves as a 4-digit counter in the reel count mode.

REMAIN

$$88\!:\!88\!:\!88\!:\!88$$

| h | | min | s | frm |

5 Remaining battery level display

This indicates the remaining battery level.

The battery is set using the menu item. For further details, refer to "How to set the menu items" (page 52).

Different kinds of batteries and their operating times are shown in the table below. (The operating times shown apply when the unit is used in the continuous recording mode.)

Bear in mind that the actual operating time will vary greatly depending on what shooting methods are used, whether old or new batteries are used and on other such conditions.

Battery			Operating time (during continuous recording)
Model number	Manufacturer	Capacity	
TRIMPAK 14 DIGITAL	Anton/Bauer	40 WH	90 minutes
DIGITAL HD MAG 14	Anton/Bauer	60 WH	160 minutes
AU-BP402	Panasonic	4 AH	140 minutes
AU-BP220	Panasonic	2.2 AH	70 minutes
NP-1B	SONY	2.3 AH	70 minutes

6 Warning displays

RF: Flashing denotes that the video heads are clogged.
SERVO: Flashing denotes that the servo system is not locked.
HUMID: Flashing denotes that condensation has formed on the cylinder.
SLACK: Flashing denotes tape slack or some other problem in the tape transport system.
END: Flashing denotes that the tape has come to its end.

Viewfinder display

LED displays

○ ○ ○
AUDIO TALLY STBY

```
┌─────────┐
│         │
│         │
│         │
│         │
└─────────┘
 GAIN  BATT  VTR
  ○    ○    ○
```

AUDIO (yellow): Not used by this system.

TALLY (red): Lights during recording; flashes during tape approach.

STBY (green): Lights in the power save mode.

GAIN (yellow): Lights when the camera gain is increased or the camera AGC mode is established.

BATT (yellow): Flashes when the battery has run down.

VTR (yellow): Lights or flashes when trouble has developed in the VTR.
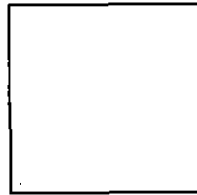
Character displays (normal displays)

Audio CH1 level meter

Super iris display (appears in the super iris mode)

Audio CH2 level meter

Lens f-number display

```
┌─────────────────────────────┐
│ ·····+++ Super Iris  F2.8  ─┤
│ ·····+++            12.5V─┤
│                             │
│ ►PAUSE    TCG 00:00:00─┤    │
│    02-21-94   17:35:10      │
└─────────────────────────────┘
```

Battery voltage display

VTR status display

Counter display

Date display
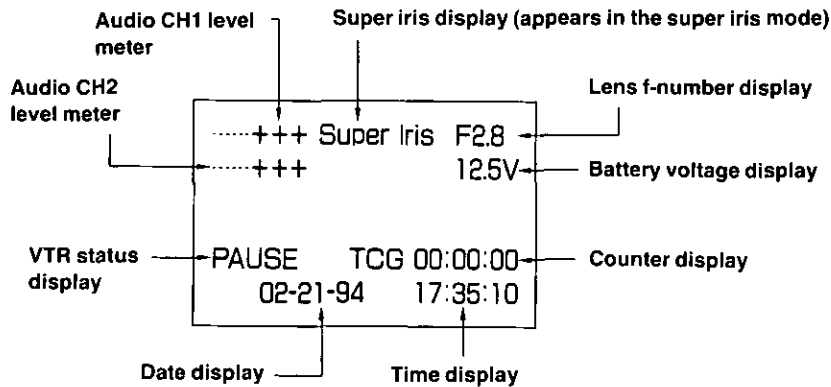
Time display

•These display appear when the CHARACTER switch on the front of the viewfinder is at the ON position.
•Each of the display can be turned OFF using the menu settings.

Character displays (displays when changes have occurred)

```
······+++  Super Iris        F2.8
······+++  Camera warning    12.5V
           display
┌─────────────────┐
│ Filter display  │
├─────────────────────────┐
│ AWB/ABB operation display │
├──────────────────────┘
│ AWB memory display │
├───────────────────────────────┐
│ Electronic shutter speed display │
├───────────────────┘
│ Scene file display │
├────────────────────┐
│ VTR warning display │
└─────────────────────┘
  PAUSE         TCG 00:00:00
     02-21-94        17:35:10
```

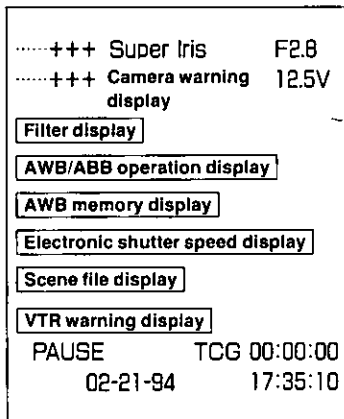●Camera warning display
A warning message appears when AWB or ABB has not been set properly.

●Filter display
The filter number and name are displayed for about 3 seconds when the CC filter setting is selected.

●AWB/ABB operation display
"ACTIVE" appears while the AWB or ABB operation is in progress. "OK" appears upon completion of the operation.

●AWB memory display
This indicates the AWB channel A and B memory statuses and switch status. The displays appear for about 3 seconds when the AWB switch setting is selected.

●Electronic shutter speed display
This indicates the electronic shutter speed. When the electronic shutter has been selected or the shutter speed has been changed, the display appears for about 3 seconds.
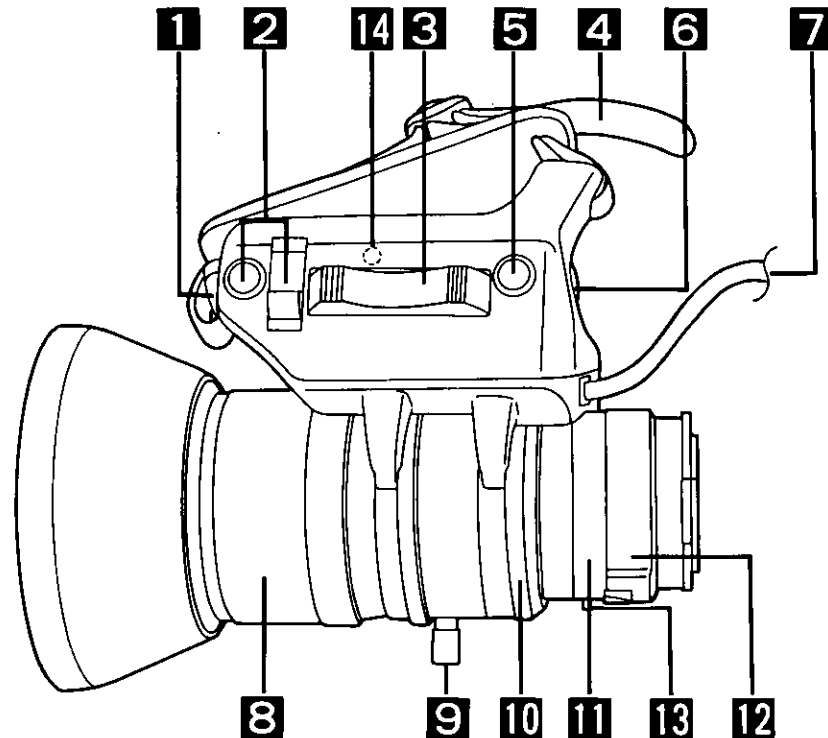
●Scene file display
This indicates the name of the present scene file for about 3 seconds when the scene file selector button is pressed.

●VTR warning display
This appears when trouble has occurred in the VTR.

21

14× Power Zoom Lens

1 Automatic Iris Control

This enables the automatic iris speed to be adjusted.

The control can be found inside when the rubber cap is removed. The speed is increased by turning the control clockwise but bear in mind that turning it too far will cause hunting (the operation does not stop).

Be absolutely sure to adjust the control when replacing the lens or when attaching the lens for the first time.

2 Lens Iris Selector Switch [IRIS]

A: The iris is adjusted automatically.
M: For adjusting the iris manually.
   Note: When the camera's AGC function has been activated, the iris is adjusted automatically even if this switch is set at the [M] position.

3 Power Zoom Control Switch

The zoom can be controlled electrically by setting the power/manual zoom selector switch to SERVO and by pressing this control switch. The zoom speed changes according to how firmly the switch is pressed.

4 Hand Strap

Adjust the strap to fit the size of your hand.

5 Return Switch [RET/REC CHECK]

This switch is used to check recordings. When it is pressed during recording pause, the recording check function is activated to play back the section which has been recorded and then establish the recording pause mode.

6 **VTR Start/Stop Switch**

This easily accessible switch is for handily starting and stopping the VTR recording. When it is pressed once, recording commences; when pressed again, recording stops. When this lens is mounted on the camera recorder, the VTR can be controlled by either this switch or the VTR start/stop switch on the camera.

7 **Lens Cable (12-pin)**

This cable is connected to the lens connector.

8 **Focus Ring**

Turn this ring to bring the subject into focus.

9 **Zoom Ring**

The size of the picture can be adjusted by setting the power/manual zoom selector switch to MANU and then turning this ring.

10 **Iris Ring**

The iris is adjusted by setting the lens iris selector switch to M and then turning this ring.
Be absolutely sure to adjust this ring when replacing the lens or when attaching the lens for the first time.

11 **Flange Back Control Ring**

The flange back adjustment is performed by loosening the flange back clamp knob and then turning this ring.

12 **Macro Ring**

Close-up shooting is achieved by setting the lens all the way to the wide position and then rotating this ring.

13 **Flange back clamp knob**

Use this knob for clamping purposes after the flange back has been adjusted.

14 **Power/Manual Zoom Selector Switch**

When this is set to SERVO, the zoom can be adjusted using the power zoom control switch; when set to MANU, it can be adjusted using the zoom ring.

Attachment of Peripheral Units

Attaching the lens

1 Align the lens with the lens mount on the camera recorder, insert the lens into the mount, and secure it in place using the lens clamp lever.

Lens clamp lever
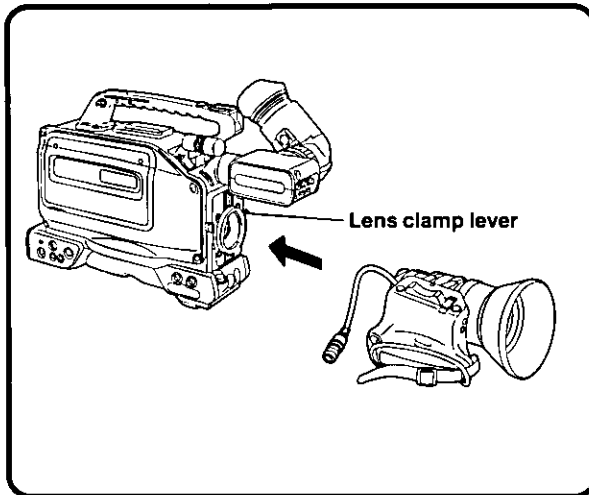
2 Connect the cable to the LENS connector, and secure it in place using the cable clamp.

Cable clamp

LENS connector
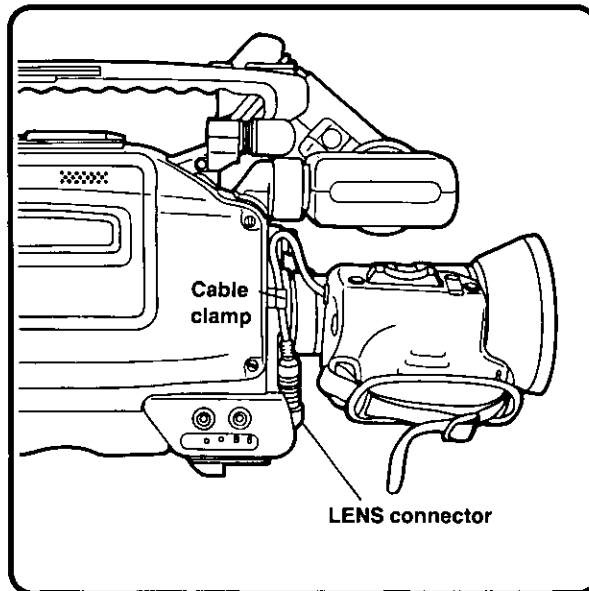
NOTE

- For details on the handling of the lens, refer to the Operating Instructions accompanying the lens.
  - When the lens has been detached from the camera recorder, attach the lens cap to protect the unit.

Attaching the viewfinder

1 Align the positions of the marks (red) on the viewfinder and camera recorder, and insert the viewfinder.

Marks (red)
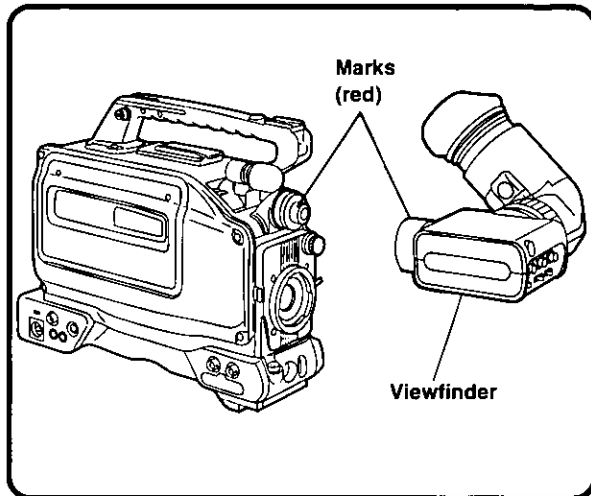
Viewfinder

2 Turn the viewfinder clamp ring to clamp the viewfinder in place.

Viewfinder clamp ring
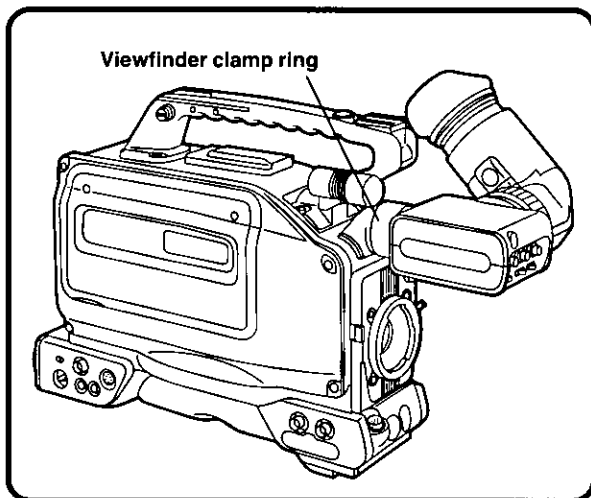
By loosening the clamp ring, the viewfinder can be rotated by 90°.

Attachment of Peripheral Units (Continued)

Attaching the microphone holder

1 Remove the microphone of the main unit.
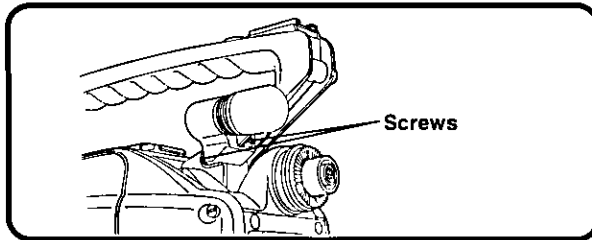
To remove the microphone, first remove the two screws and then remove the connector.

Screws

Connector
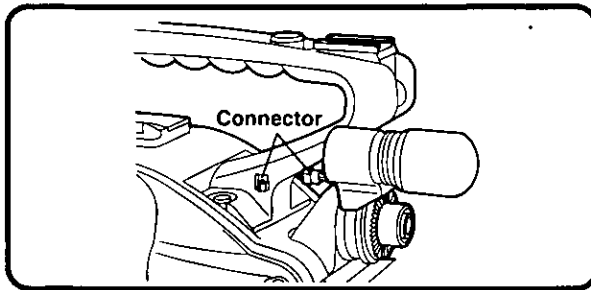
2 Attach the microphone holder.
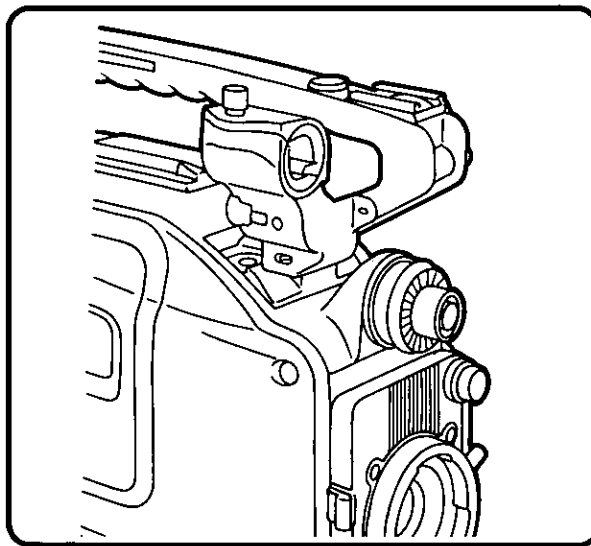
Attach the holder by following the procedure for removing the microphone in reverse.

Replacing the Backup (Lithium) Battery

The unit is shipped from the manufacturing plant with the back-up battery already installed. There is no need to install this battery immediately after purchasing the unit. Skip this section and move on to the next procedures which are for initializing the memory and setting the date and time.

Battery holder
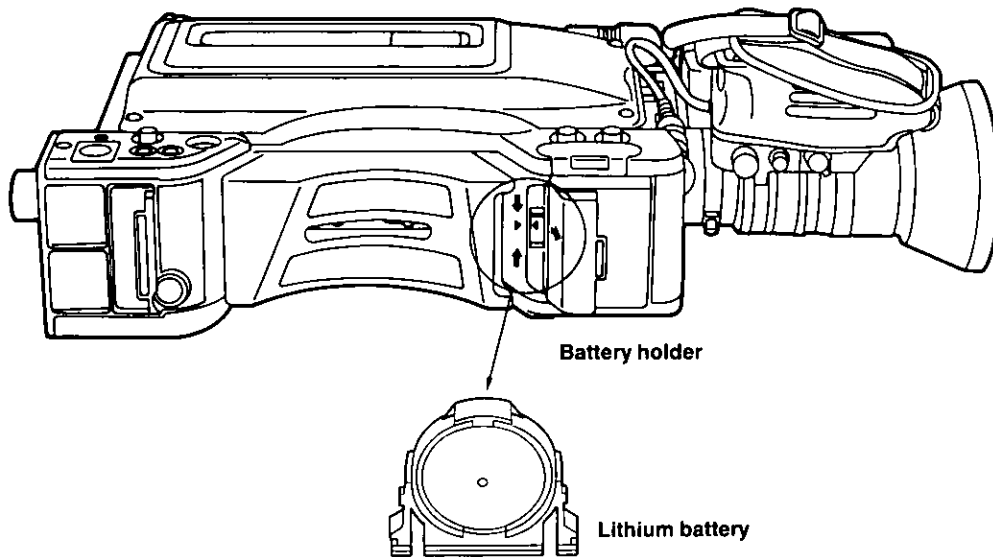
Lithium battery

1 **Remove the battery holder from the main unit.**

2 **Insert the lithium battery into the battery holder.**
(Make sure the "+" and "−" polarities are aligned properly.)

**3** **With the triangular marks on the main unit and on the battery holder facing each other, fit the battery holder back into the main unit.**

NOTE

The service life of this battery is approximately one year. When it has mostly discharged, the "BACK UP BATT EMPTY" display will appear in the viewfinder for several seconds when the power switch is set to ON.
Replace with a new lithium battery (Panasonic CR2032).

Initializing the Memory and Setting the Date and Time

When the back-up battery has been replaced, initialize the memory and set the date and time before proceeding with any other operation.
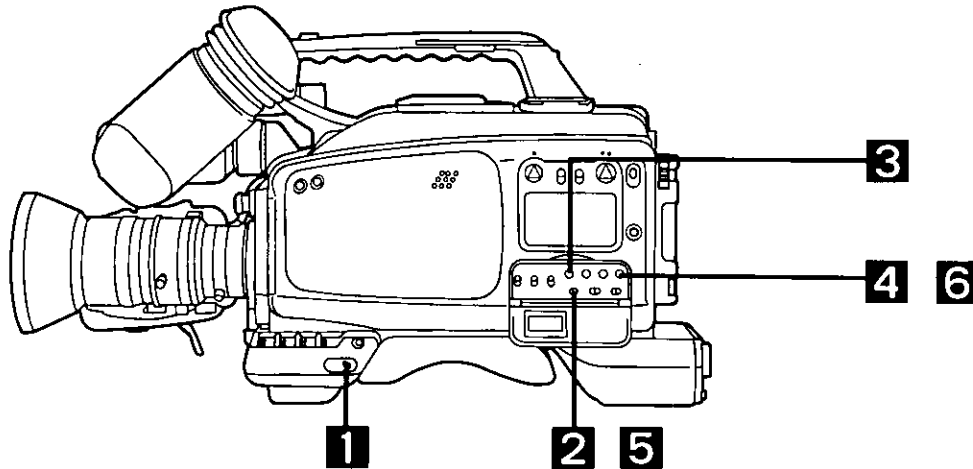
1 Set the POWER switch to ON.

2 When the MENU ON/OFF selector switch is set to ON, the setting screen (MENU) appears in the viewfinder.

```
        MAIN MENU                              - DIAGNOSIS -
   01  EVF DISPLAY                        01  ERROR LOG DATA
   02  CAMERA SETTING                     02  CYLINDER        1800h
   03  VTR OPERATION                    · 03  CAMERA  Ver  (1.0)1.1
   04  TIME/DATE                          04  SERVO  Ver  A(1.1)
   05  TIME CODE            →             05  SYSCON  Ver B(1.2)
   06  AUDIO
   07  BATTERY                          →06  MEMORY  INIT.?
 →08  DIAGNOSIS
   09  MENU INITIALIZATION              * *PREVIOUS  MENU
 - - - END OF DATA - - -               - - - END  OF  DATA - - -
```

3 While monitoring the viewfinder display, press the SHIFT button until the arrow at the far left is aligned with "DIAGNOSIS".

4 When the START button is pressed, the self-diagnosis (DIAGNOSIS) screen appears.

5 Press the SHIFT button until the arrow at the far left is aligned with "MEMORY INIT.?".

6 Press the START button.

"INIT.?" now changes to "INITIALIZED".
The memory initialization is now completed. The next step is to set the date and time. (See next page.)
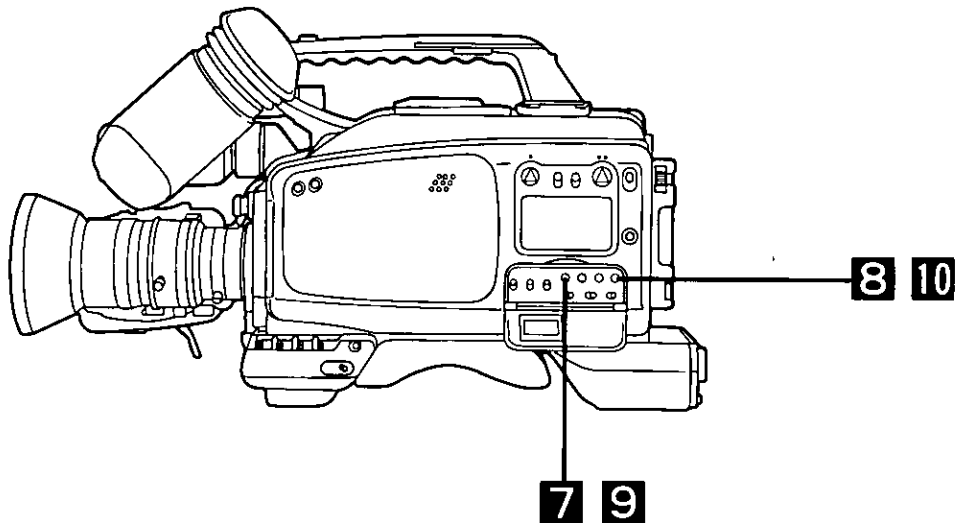
7   **Press the SHIFT button until the arrow at the far left is aligned with "PREVIOUS MENU".**

```
      - DIAGNOSIS -
     01  ERROR LOG DATA
     02  CYLINDER        1800h
     03  CAMERA Ver   (1.0)1.1
     04  SERVO   Ver A(1.1)
     05  SYSCON Ver B(1.2)          →

     06  MEMORY INIT.?

   →*.*PREVIOUS MENU
   - - - END OF DATA - - -
```

```
        MAIN MENU
     01  EVF DISPLAY
     02  CAMERA SETTING
     03  VTR OPERATION
   →04  TIME/DATE
     05  TIME CODE
     06  AUDIO
     07  BATTERY
     08  DIAGNOSIS
     09  MENU INITIALIZATION
   - - - END OF DATA - - -
```

8   **When the START button is pressed, the MAIN MENU appears.**

9   **Press the SHIFT button until the arrow at the far left is aligned with "TIME/DATE".**

10   **When the START button is pressed, the calender and clock setting screen appears.**

```
      - TIME/DATE -
   →01  YEAR          94
     02  MONTH         07
     03  DAY           06
     04  HOUR          16
     05  MINUTE        55


    •TIME/DATE SET
   * *PREVIOUS MENU
   - - - END OF DATA - - -
```

Initializing the memory and setting the date and time (Continued)
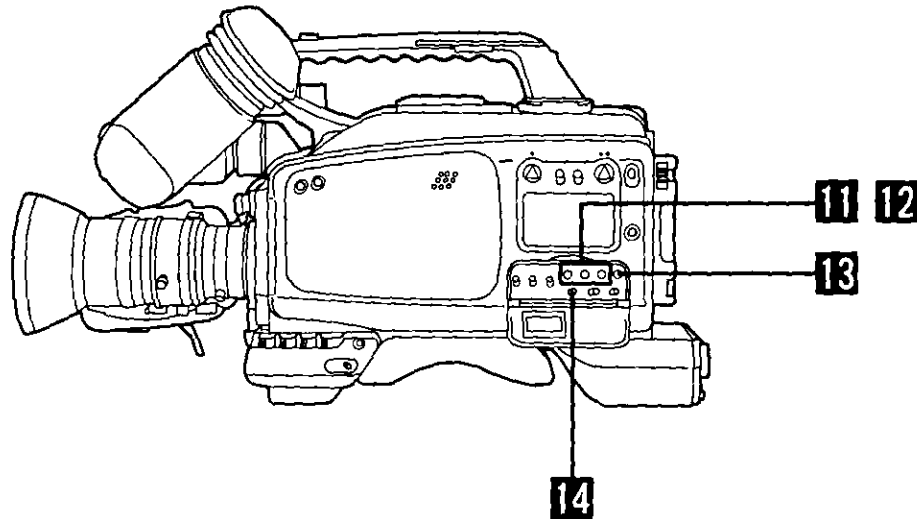
11 Set the date and time using the SHIFT, SET + and SET − buttons.

12 Press the SHIFT button until the arrow at the far left is aligned with "TIME/DATE SET".

```
- TIME/DATE -
01  YEAR            94
02  MONTH           07
03  DAY             06
04  HOUR            16
05  MINUTE          55


→  ▪TIME/DATE SET
   * *PREVIOUS MENU
   - - -END OF DATA- - -
```

13 When the START button is pressed, the data is entered, and the screen display changes to the MAIN MENU.

14 Finally, set the MENU ON/OFF selector switch to OFF.

Using The AU-BP402 Battery Pack

Before using the battery, charge it using the AG-B425 battery charger. It takes about an hour to charge the battery. For further details, refer to the Operating Instructions of the AG-B425 battery charger.

1 ### Remove the Anton/Bauer battery holder.

Disconnect   Anton/Bauer battery holder

Disconnect
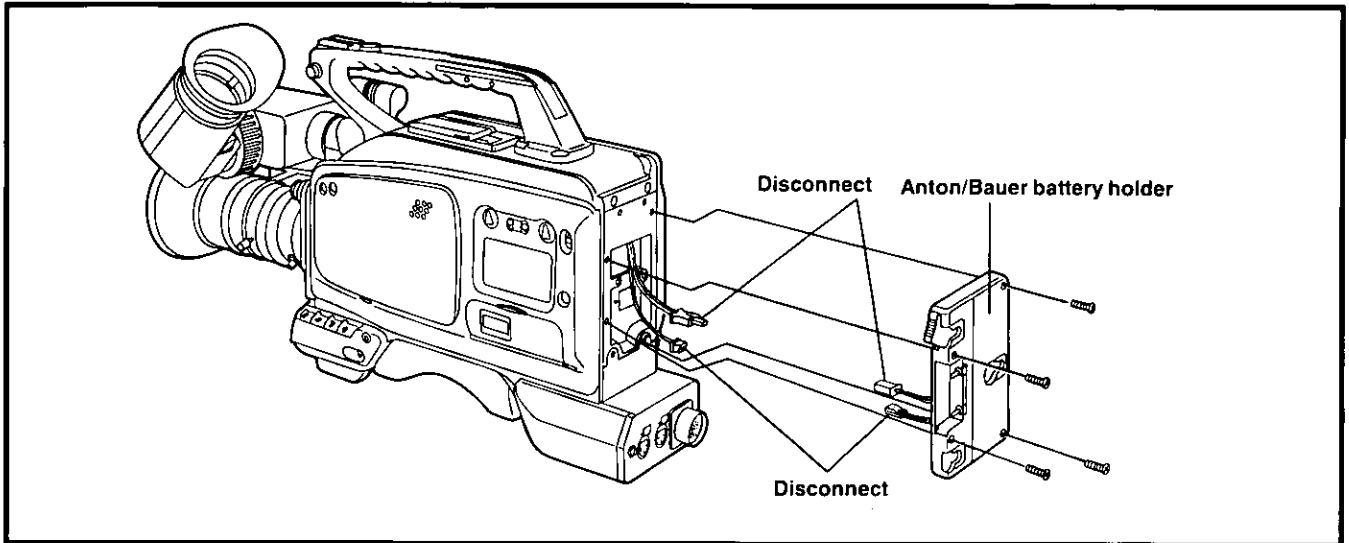
2 ### Connect the cable from the camera recorder to the cable of the AU-M402 battery case.

AU-M402 battery case

Connect these.

31
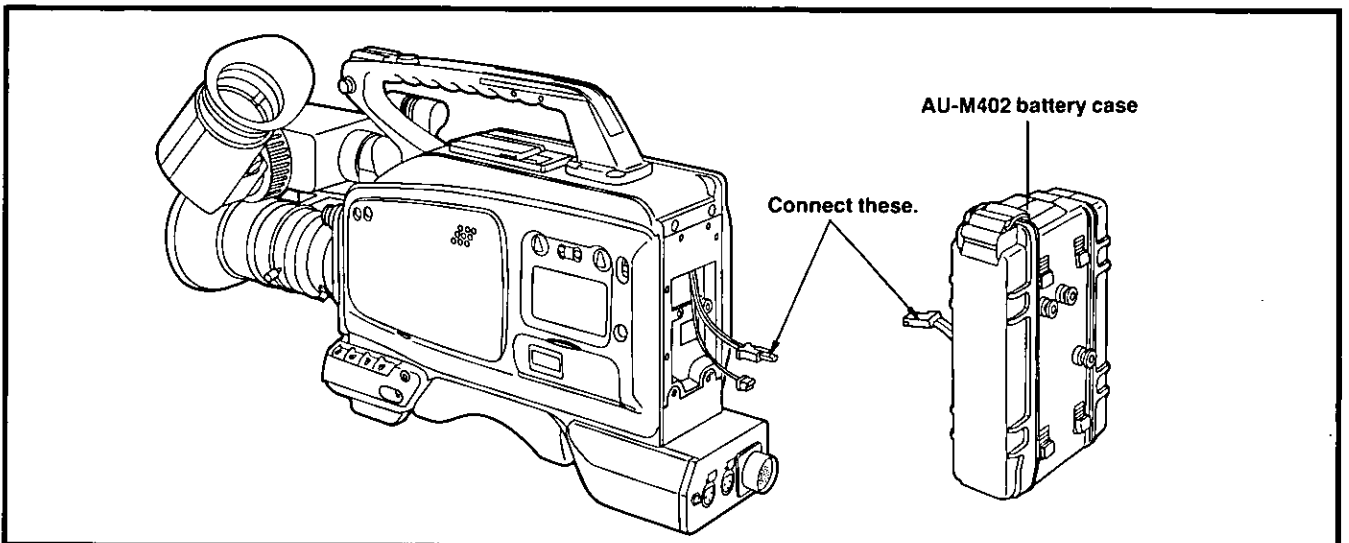
Using the AU-BP402 Battery Pack (Continued)

3 Use a screwdriver to mount the AU-M402 on the camera recorder.

The holes for tightening the screws are visible when the lid is opened and the rubber caps are pulled away. Mount the battery case onto the camera recorder by tightening the screws with a screwdriver. Tighten up the screws as far as they will go.

Screws   Rubber caps

●Do not pull the rubber caps too forcefully.
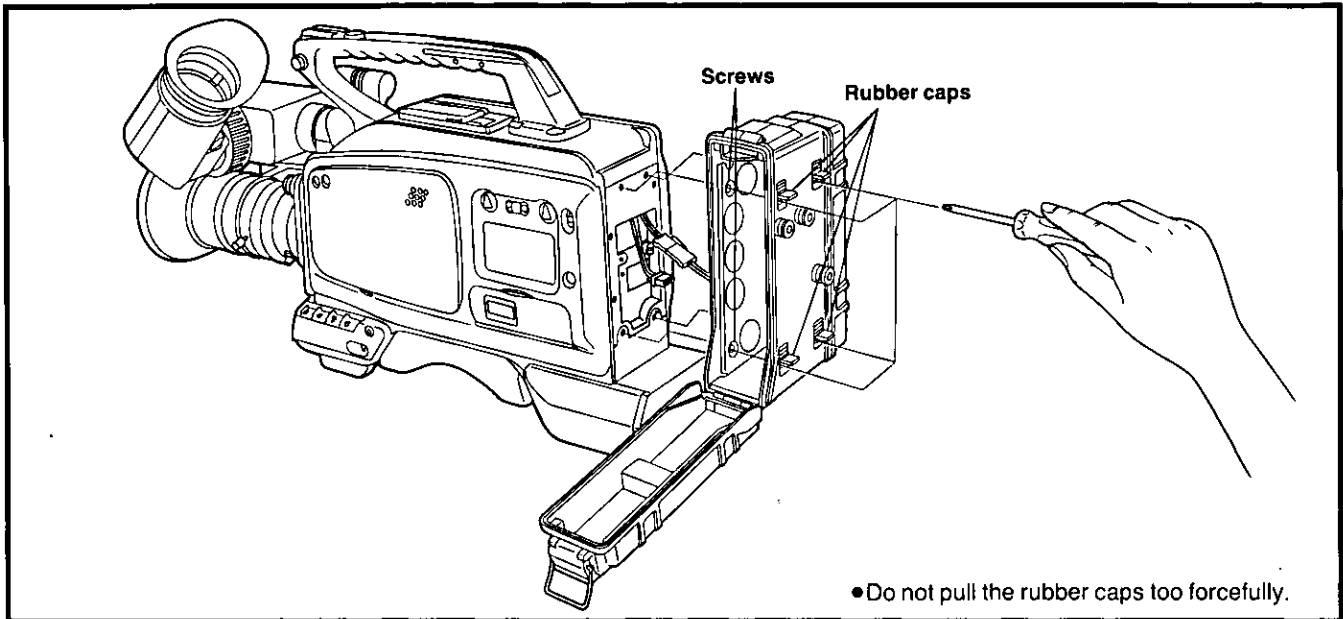
4 Connect the battery pack's plug to the connector inside the battery case, and insert the battery pack into the case.

AU-BP402 battery pack

Label surface
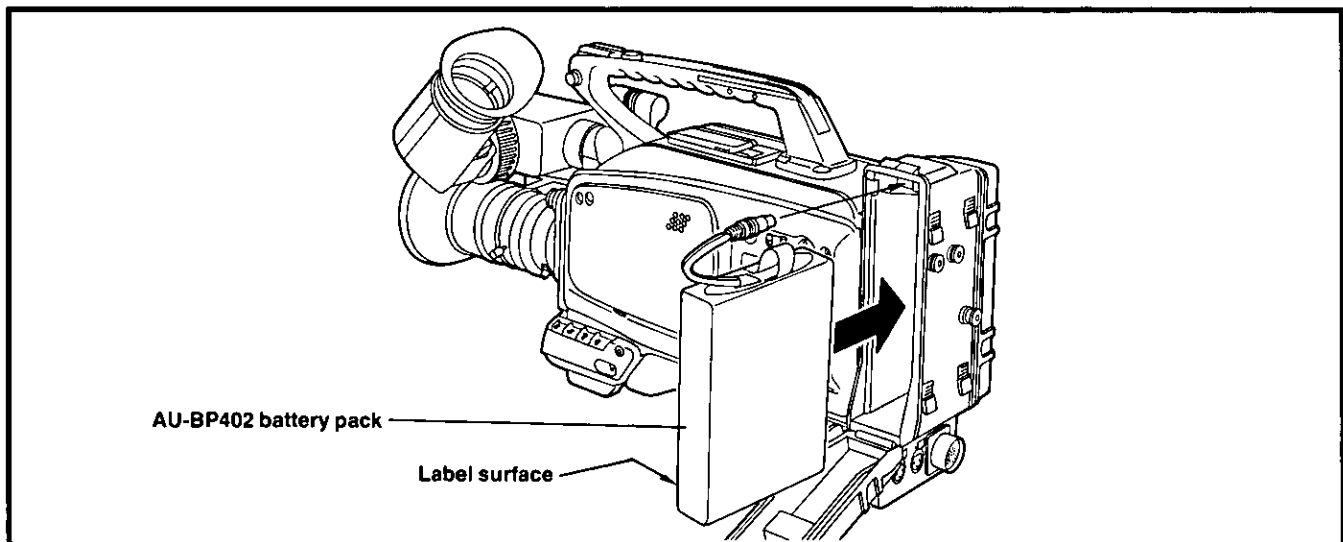
| NOTE |

Make absolutely sure that the camera recorder's power is off before attempting to connect or disconnect the plug.

5 Set menu item 7 "BATTERY" (battery selection) to "Ni-Cd 12 V".

For further details, refer to "How to set the menu items" (page 52).

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Using AC Power (With AU-B110 AC Adaptor)

1 Connect the camera recorder's external DC input socket to the DC OUT connector on the AU-B110 AC adaptor.

AU-B110 AC adaptor
(optional accessory)

External DC input socket
(EXT. DC IN)
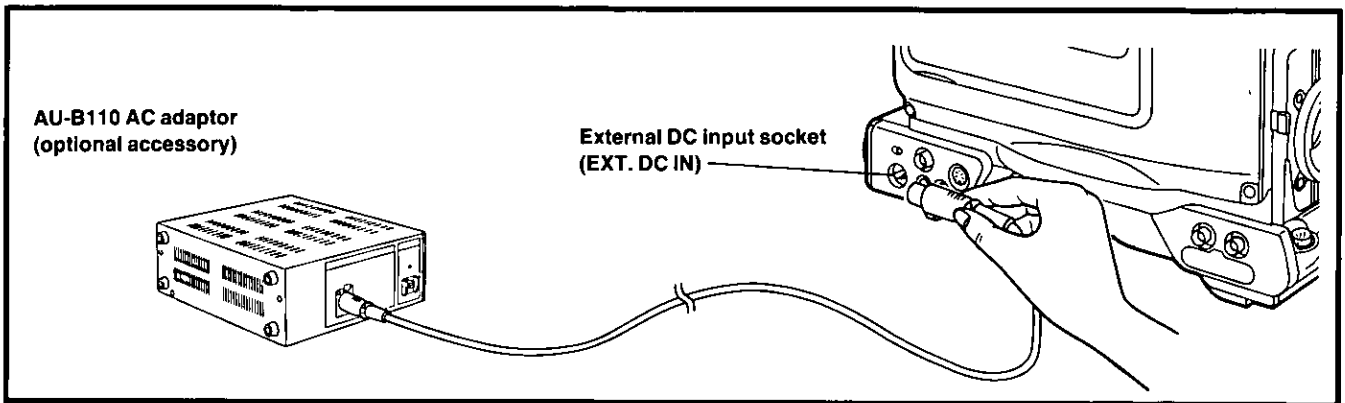
2 Turn on the AC adaptor's power.

3 Set the camera recorder's power switch to ON.

Check the pin signals of the external DC input socket when an external power supply other than the AU-B110 AC adaptor is to be used.

POWER   OFF SAVE ON
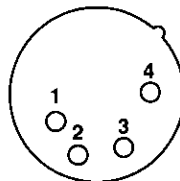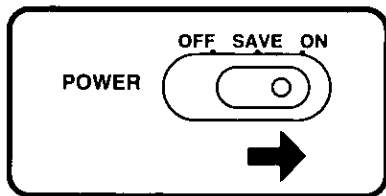
Pin No.	Signal
1	GND
2, 3	——
4	H12 V

NOTES

● When both the battery pack and AC adaptor have been connected, the power from the AC adaptor has priority in terms of which power is supplied to the camera recorder.
● When the AC adaptor is used, the low battery level warning may appear depending on the battery selection menu setting. In a case like this, it is recommended that "Ni-Cd 12 V" be set on the menu as the battery selected.
● When using the AC adaptor, be absolutely sure to turn the unit's POWER switch to ON only after turning on the AC adaptor's power. If this sequence is reversed, the AC adaptor's output voltage will rise slowly with the result that the unit may not operate properly.

Using the Anton/Bauer Battery Pack

Charging the pack

Before using the battery pack, charge it using the battery charger made by Anton/Bauer. For the charging time and other details, refer to the Operating Instructions of the battery charger used.

1 Attach the Anton/Bauer battery pack.

Insert the pack in the direction shown by the arrow, and then slide it into place.

Lighting power output connector

Anton/Bauer battery pack

The battery holder made by Anton/Bauer comes with a lighting power output connector and a lighting control switch, which makes it easy to attach a light.
For details on the lighting systems, contact Anton/Bauer.

Lighting control switch
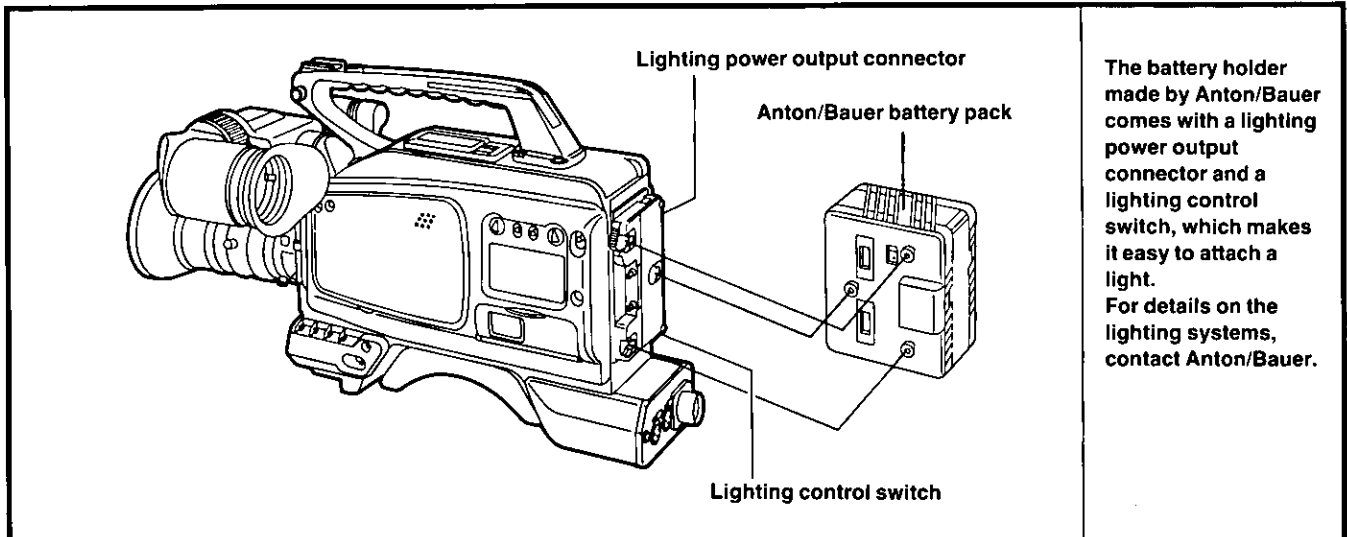
2 Set menu item 7 "BATTERY" (battery selection) to the battery which is going to be used.

For further details, refer to "How to set the menu items" (page 52).

REFERENCE

How to remove the battery pack

Pull the disengaging lever on the battery holder all the way down and, while keeping the lever down, slide the battery pack in the direction shown by the arrow.

Disengaging lever
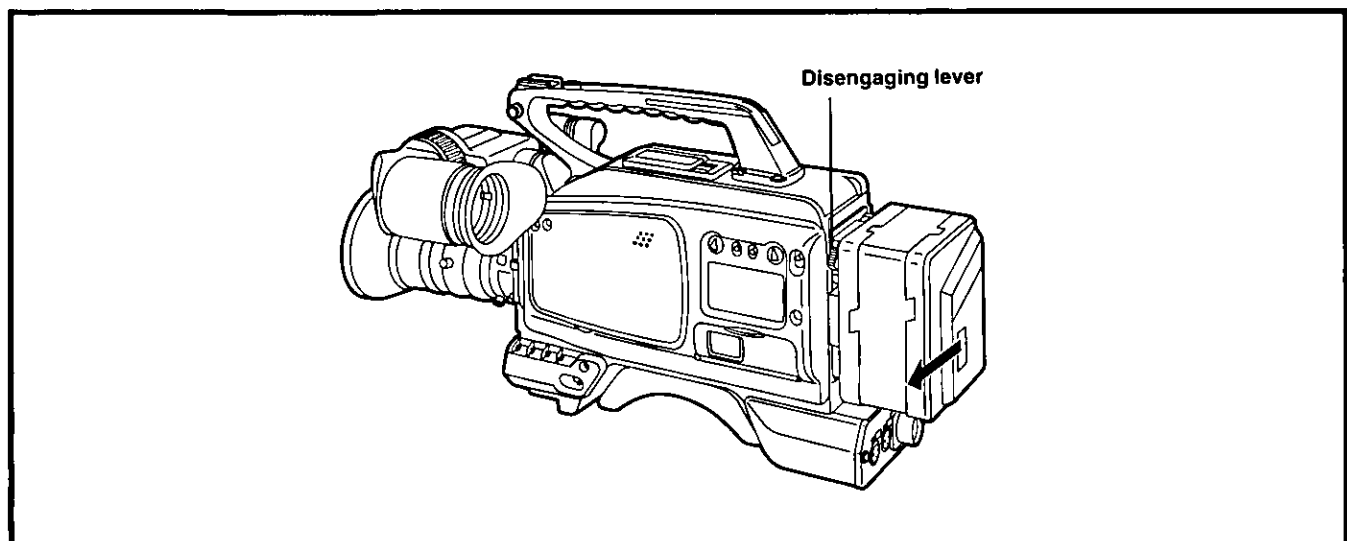
Using Sony's NP-1 battery

Before proceeding to use this battery, charge it using the Sony battery charger which is specially designed for it. Refer to the operating instructions accompanying the battery charger used for details on the charging time, etc.

1 Remove the battery holder made by Anton/Bauer.

Remove.   Battery holder
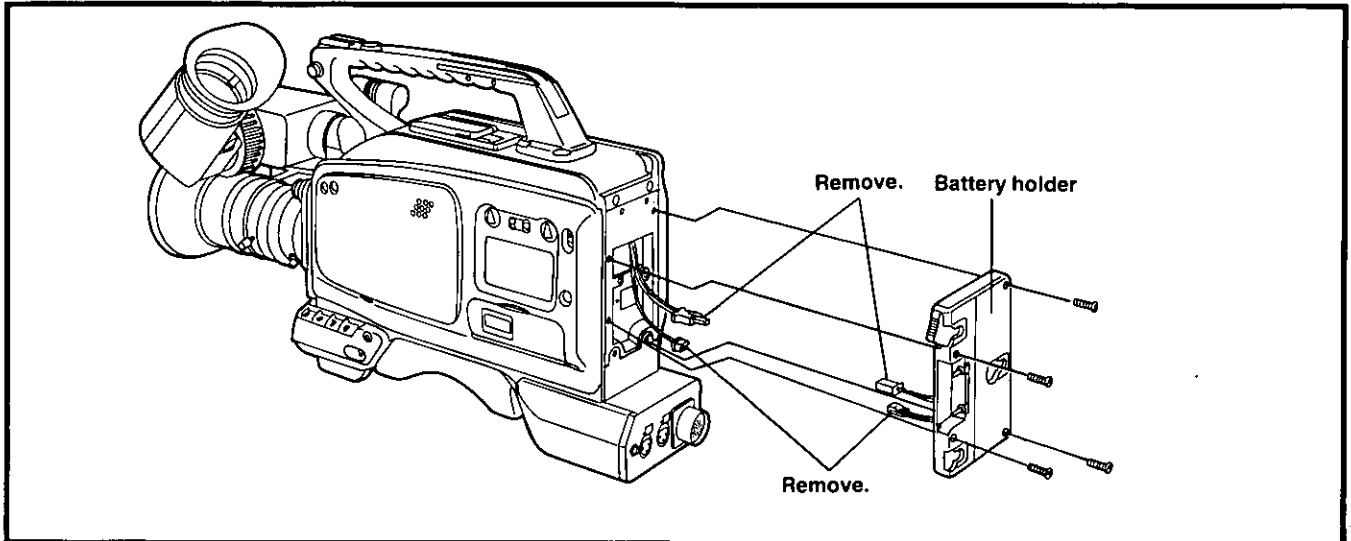
Remove.

2 Mount the screws for the accessory battery installation terminal (NP-1).

Do not connect.

Connect.

Battery installation terminal
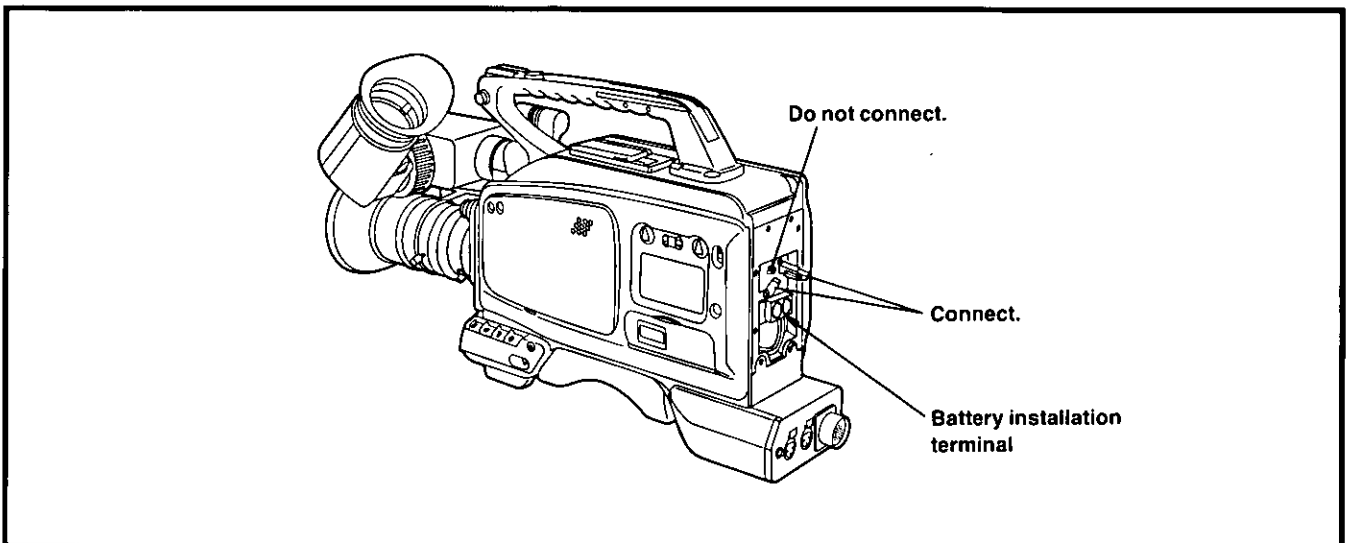
Using Sony's NP-1 battery (Continued)

3 Install the battery holder made by Sony.
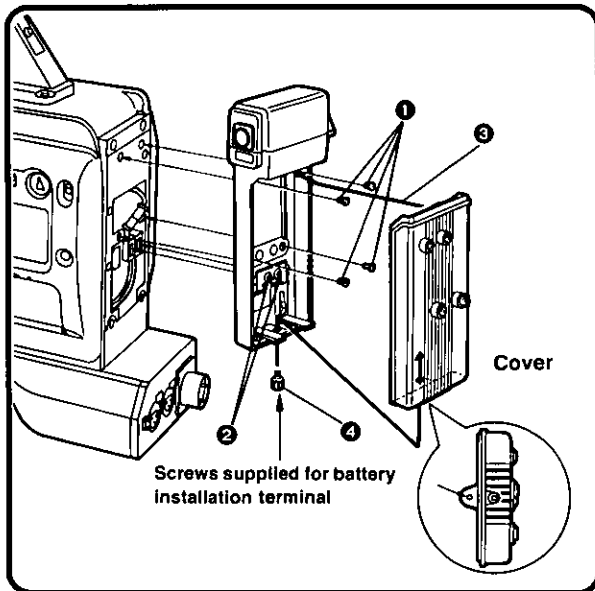
As shown in the figure on the left, first install the battery case whose cover has been removed, and then install the removed cover.

❶ Tighten the installation screws.
❷ Tighten the power supply contact screws.
❸ Insert the top of the removed cover in the direction indicated by the arrow.
❹ Align the holes at the bottom (metal part) of the cover with the holes at the bottom of the case, and attach to the battery installation terminal using the accessory screws.

Cover

Screws supplied for battery installation terminal

When supplying power from the 26P VTR connector

1 Connect the unit ot the back-up VTR with the VTR cable.

VTR Cable
To back-up VTR
26P VTR connector
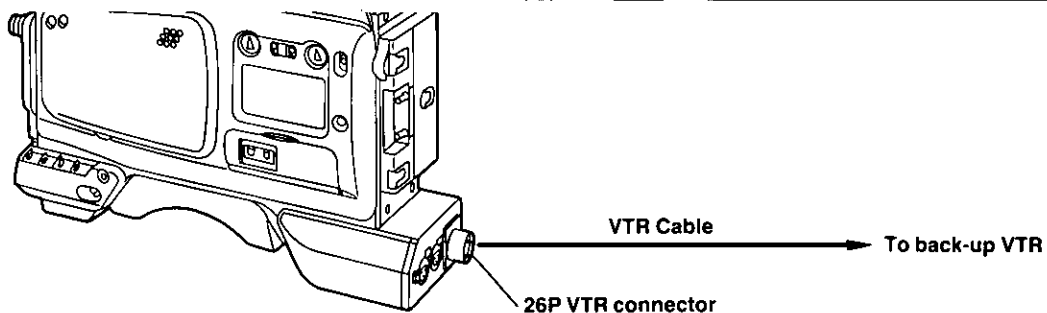
2 Set the power selector switch to VTR. (See page 11.)

NOTES

● When the power selector switch is set to VTR, power is supplied from the VTR cable. The power will not be selected automatically by connecting the power from the AC adaptor to the EXT DC IN connector.
● When supplying power from the back-up VTR through the VTR cable, bear in mind that the supply voltage may drop. (This unit has an undercutting voltage of 10.5 V.)

Black Balance & White Balance Adjustments

Black Balance Adjustment

■ Check to make sure that the lens cable is connected to the LENS connector. (This adjustment is effective only when the lens cable is connected to the LENS connector.)
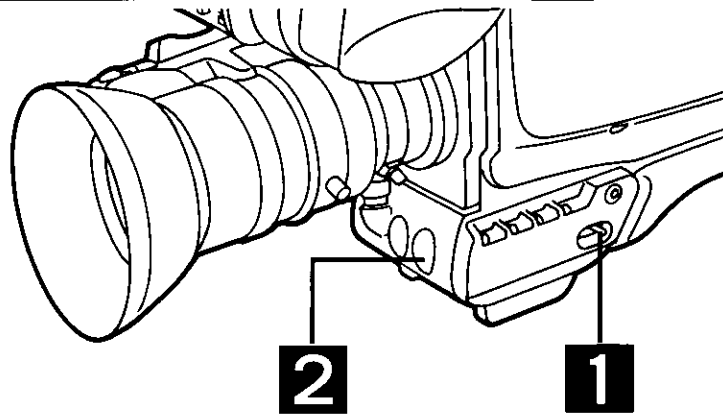
1   Set the POWER switch to the ON position.

2   Press the AUTO W/B BAL switch to the ABB position.

AUTO W/B BAL

•AWB

•ABB

ABB ACTIVE
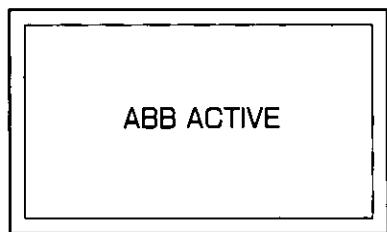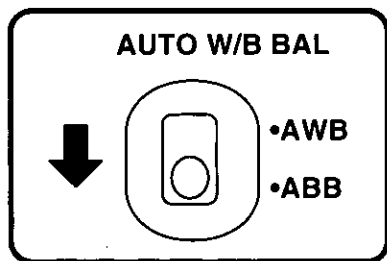
The black balance adjustment is completed in about 20 seconds, and the adjustment value is automatically stored in the memory.

A display similar to the one shown on the left appears on the viewfinder screen while the adjustment is in progress.
● Upon completion of the black balance adjustment, the display changes to "ABB: OK".
● The "ABB: NG" display appears if it was not possible to adjust the black balance.

NOTES

● The camera is automatically shielded from the light while the black balance is being adjusted.
● When the iris is being adjusted manually, return the iris (but only with a lens which is recommended by Panasonic) to a place near its original position after having adjusted the black balance. Start shooting only after the iris has been set to the appropriate value.
● When the AUTO W/B BAL switch is pressed to the ABB position, the gain selection circuit is switched automatically, and flickering appears several times on the screen inside the viewfinder. This is normal and not indicative of a failure.

REFERENCE

● The black balance needs to be adjusted in the following cases only:
  When the camera recorder is to be used for the first time
  When the difference in the temperature has changed greatly
● In the interest of maintaining a high picture quality, it is recommended that the AUTO W/B BAL switch be set to the ABB position immediately before shooting important or memorable scenes.

37

Black Balance & White Balance Adjustments (Continued)

White Balance Adjustment
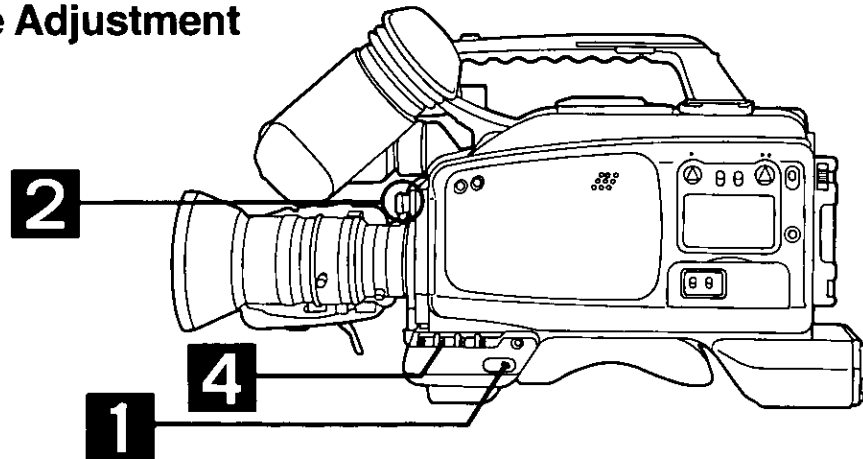
1 Set the POWER switch to the ON position.

2 Use the filter selector control to select the color temperature according to the lighting conditions.

3 When the lens iris is to be operated manually, set it to the suitable value.

Bear in mind that it may not be possible to adjust the white balance if the iris is not set properly. If the lens comes with an automatic iris adjustment mechanism, set the automatic/manual iris selector switch on the lens to the automatic position.

4 Set the AWB selector switch to A or B.
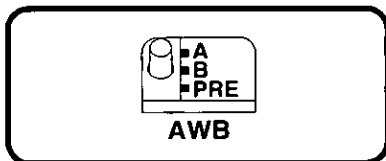
5 Place a white sheet of paper or handkerchief where the conditions are the same as for the light source illuminating the subject, zoom in and shoot the white on the screen.

A white object (sheet, cloth or wall, etc.) near the subject can be used instead but bear in mind that the object appearing to be white may not be perfectly white.

38
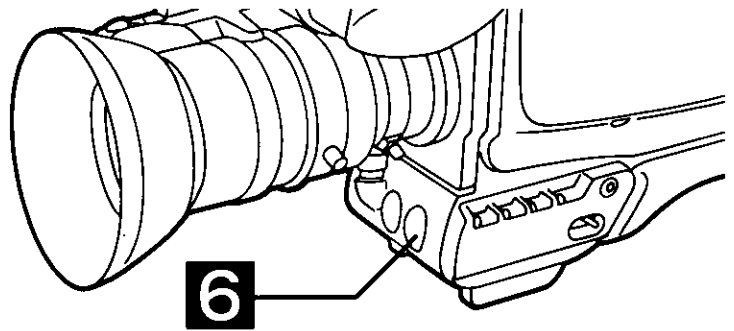
6 Shoot a white object so that it is virtually at the center of the screen and occupies an area equivalent to at least one-fourth of the height and width of the screen, and set the AUTO W/B BAL switch to AWB.

AUTO W/B BAL

•AWB
•ABB

AWB : ACTIVE
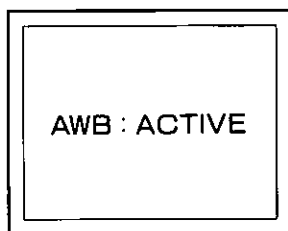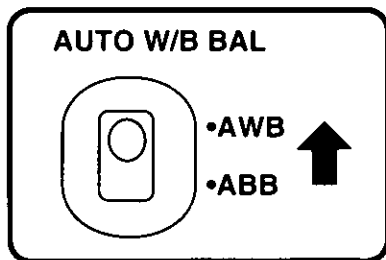
The white balance adjustment is completed in about a second. The adjustment value is stored in memory A or B.

The display shown on the left appears on the viewfinder screen while the adjustment is in progress.
●Upon completion of the white balance adjustment, the display changes to "AWB: OK".
●The "AWB: NG" display appears if it was not possible to adjust the white balance.

NOTES

●Since hunting may occur when a zoom lens equipped with an automatic iris adjustment mechanism is used, adjust the iris gain control provided on the lens.
For further details, refer to the Operating Instructions of the lens.
●The white balance cannot be adjusted if the AWB selector switch is set to PRE.
The switch has been adjusted in such a way that the white balance is achieved at 3200 K. When the filter selector control is set to "1", the proper white balance at 3200 K is achieved. All that now needs to be done is adjust the black balance.
●Since the lightest part of what appears on the screen is taken to be "white" for the adjustment of the white balance, do not allow any object lighter than the white object shot in step 6 above to appear on the screen. Incorrect operation may otherwise result.
●Do not adjust the auto white balance (AWB) with the gain turned higher than is necessary.
Doing so will cause the iris to virtually close during AWB, resulting in unstable operation.

REFERENCE

●In the interest of maintaining a high picture quality, it is recommended that the AUTO W/B BAL switch be set to the AWB position immediately before shooting important or memorable scenes.
●It is recommended that the auto white balance be adjusted when the gain or shutter speed has been changed.

Normal Recording
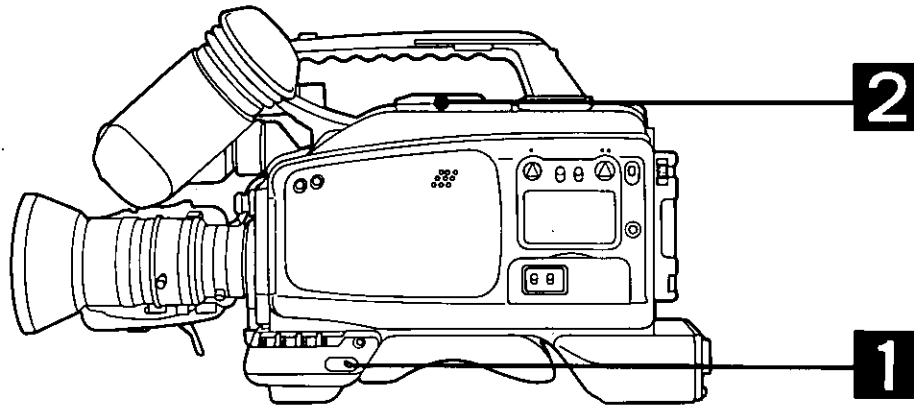
1   Set the POWER switch to the ON position.

2   Press the EJECT button to open the cassette compartment.

3   Insert the cassette tape.

●Before inserting the tape, make sure that the accidental erasure prevention tab on the cassette has not been broken out.
●Do not use a 180-minute tape.

4   Set the camera's switches as follows.

Select the filter according to the light source.

Adjust the white/black balance.

Set the GAIN switch to "0".

Set the CAM/BAR switch to CAM.
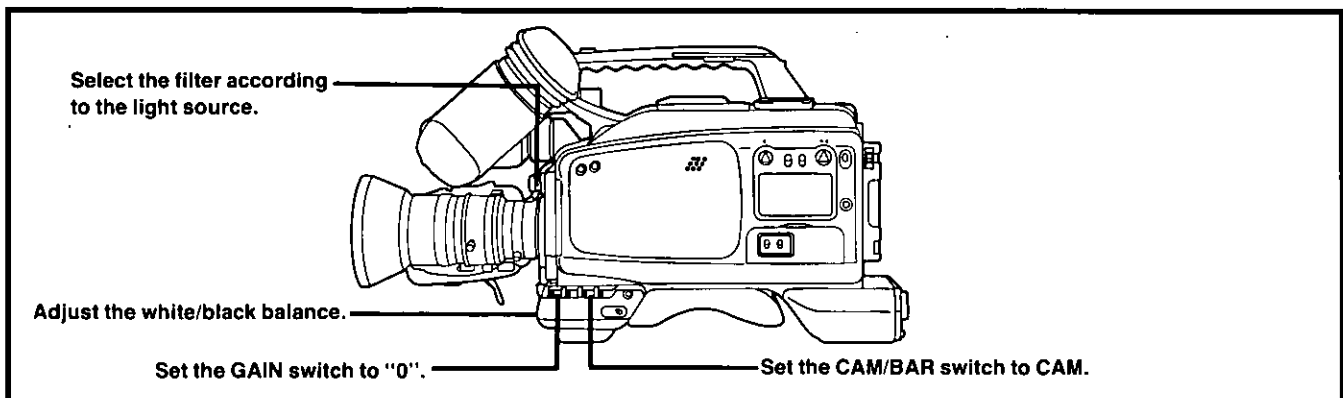
5   Point the camera at the subject, and adjust the focus and zoom.

40

6   Press the VTR START/STOP button to start the recording.

The REC tally lamp inside the viewfinder keeps on flashing until the recording mode is established. Once recording commences, it stops flashing and remains lighted.

7   Press the VTR START/STOP button to suspend the recording.

When the recording is suspended as shown in the figure below, the tape is rewound by about 30 frames and the rec pause mode is established. When the recording is resumed, recording commences where the previous recording will be slightly overlapped.

```
                              ┌────────────────────────┐
                              │ The VTR START/STOP button │
                              │ is pressed.             │
                              └────────────┬───────────┘
                                           │
              Approx. 30 frames      │   Approx. 10 frames
                            │
   REC/PLAY ───────────────────────────────────────►

              Auto roll-back
              processing time
              (approx. 6 sec.)

   STBY (REC/PAUSE) ───────►

   ┌────────────────────────┐
   │ The VTR START/STOP button │
   │ is pressed.             │
   └────────────────────────┘

              Approach time                REC/PLAY
              (approx. 1 sec.)                        ───► Tape run
                                        ─┤ ├── Approx. 5 frames
```
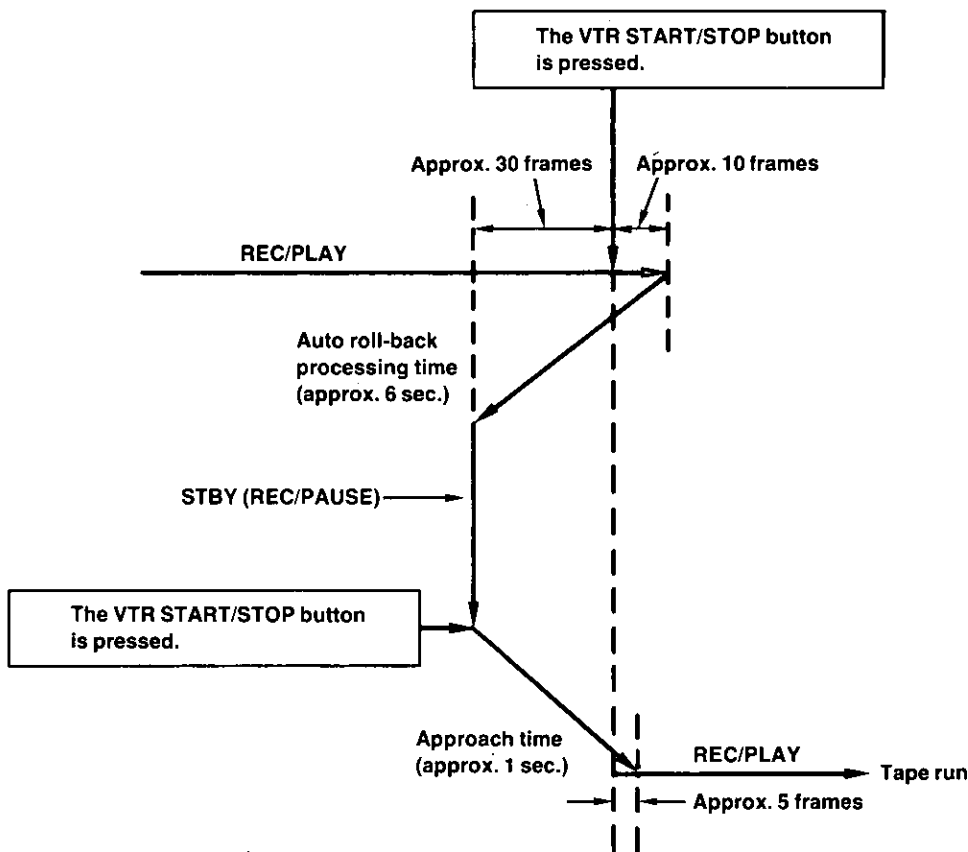
NOTE

This unit does not have a function which ensures that the REC/PAUSE mode will be released after a certain period of time has elapsed. This means that when it is kept in the REC/PAUSE mode for an extremely long period of time, the tape may be adversely affected. As a general rule, take steps to change the operating mode every hour or so.

Simple Editing

Simple editing function

This refers to the pre-edited shooting function with which the recording of each cut is started from the pause (still picture) mode to ensure continuity.
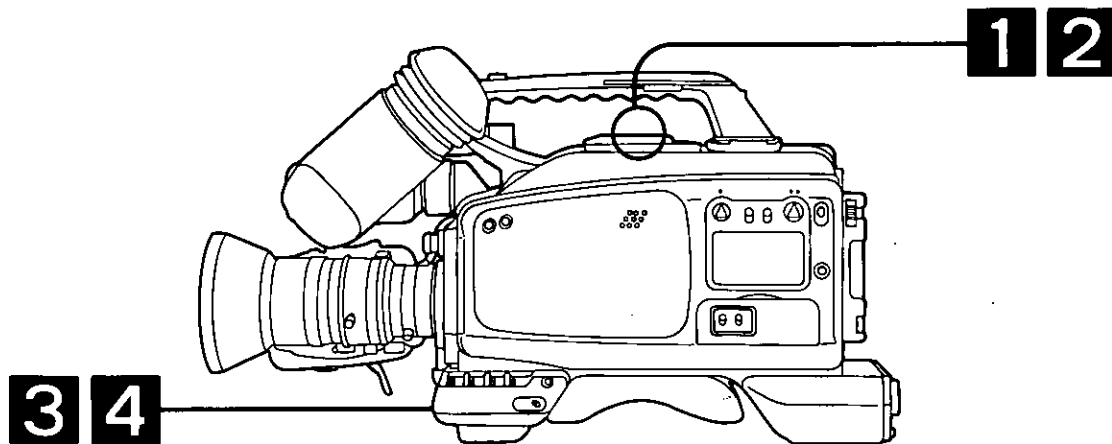
Operation

1 Press the PLAY button.

The playback picture mode is established.

2 Press the PLAY button again where the new cut is to be joined onto the existing recording.

The still picture mode is established.

3 Press the VTR START/STOP button.

The rec pause mode is established.

4 To start the recording, press the VTR START/STOP button again.

Recording now starts.

NOTE

If the VTR is kept in the still picture mode for about 5 minutes, it is automatically placed in the stop mode. Bear in mind that smooth continuity between cuts cannot be guaranteed when recording is started from the stop mode.

Audio Recording
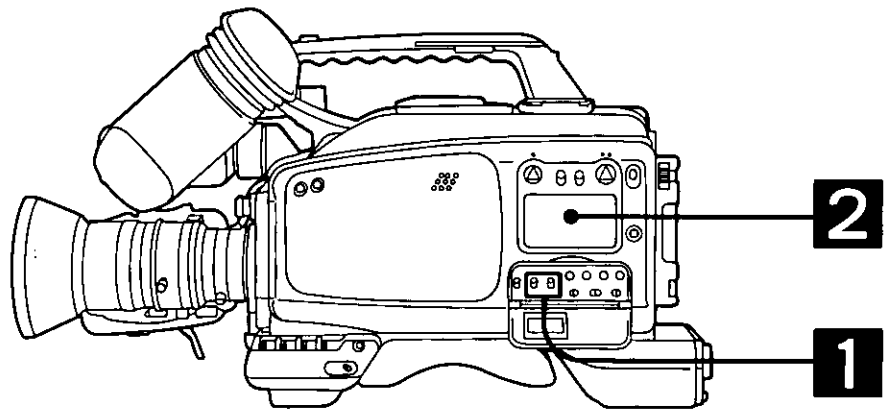
1 Select the desired input signals using the audio input selector switches.

┌AUDIO IN┐
CH1　　CH2
MIC
MIC　　FRONT
LINE　　REAR
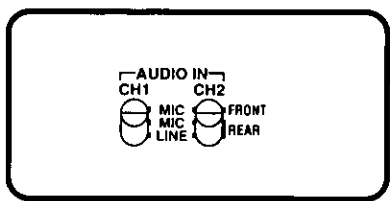
The same sound is input for normal audio and Hi-Fi audio.

When the built-in microphone is used	➡	FRONT MIC
When an external microphone is used	➡	REAR MIC
When line audio signals are input	➡	REAR LINE

2 Turn the audio level controls clockwise or counterclockwise and adjust them so that the audio signal levels indicated on the display's level meter are brought to the standard positions.

AGC
LIMIT
OFF

HI-FI
NORM

AUDIO SELECT
CH1——AUDIO LEVEL——CH2

DOLBY-NR

- 5 -
- 2 -
- 0 -
- 2 -
- 5 -
- 10 -
- 15 -
- 20 -
- ∞ -
CH1　dB　CH2
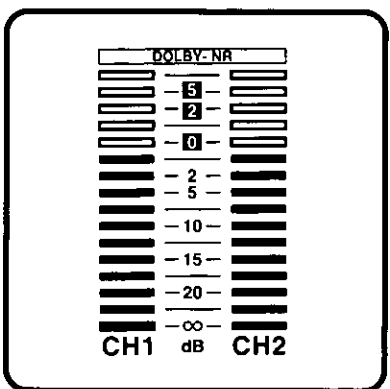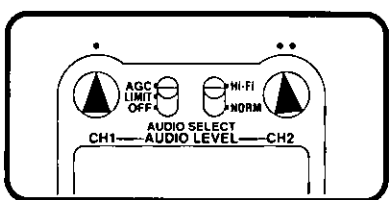
■ The audio signal levels can be adjusted when the AUDIO AGC switch is OFF. If this switch is ON, the signals will be automatically adjusted to more or less the appropriate levels regardless of the audio level control settings.
■ Howling may occur if the volume of the audio monitor speaker is turned up high. If this occurs, turn the audio monitor level control and lower the volume to a level at which howling does not occur.
  ●When the AUDIO AGC switch is at LIMIT, the limiter will be automatically activated when the input level of the signals is excessively high. Therefore, first adjust the level with the switch at OFF and then return the switch to LIMIT just in case excessively high input signals are supplied.

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Power Save Mode

1

2 **3**
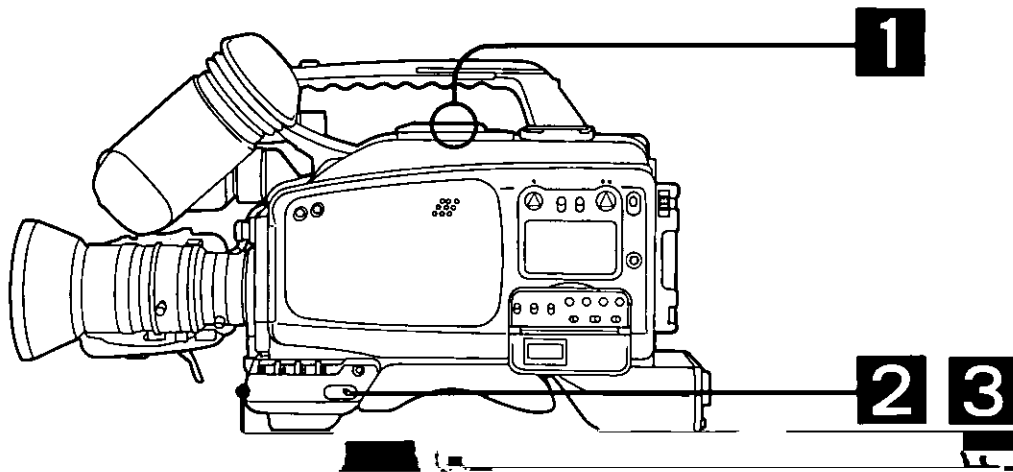
1 Set the VTR to the stop, eject or rec pause mode.

STOP
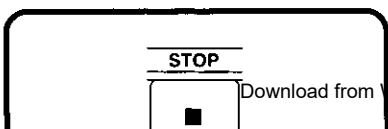
Rec Review

When the camera's RET button is pressed with the VTR in the rec pause mode (which is established after the tape has finished automatically reversing), the rec review operation is performed, enabling what has already been recorded to be checked.

```
                         ┌──────────────────────────────────┐
                         │   Press the camera's RET button.  │
                         └──────────────────────────────────┘
                                         │
                                         │     REC/PLAY end point
                    3 sec.               ↓
              │◄──────────────►│
                                    Automatic
              │ Tape reversal  │    tape
                               │    rewinding
                          ↓

                         PLAY

                              Automatic rewinding
```
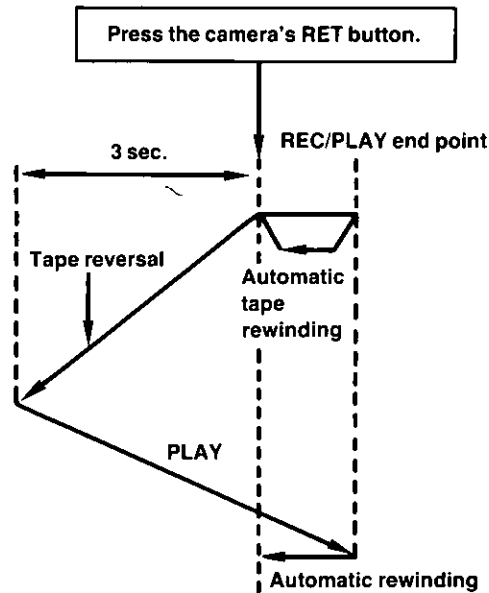
The playback pictures are shown in the viewfinder while the tape is playing back in the rec review mode.

<When the area near the rec review start point has not been recorded>
The playback pictures of the unrecorded part of the tape are shown in the viewfinder.

| NOTE |

The rec review operation is not repeated even when the rec RET button remains depressed.

Playback

1 Set the POWER switch to the ON position.

POWER OFF SAVE ON
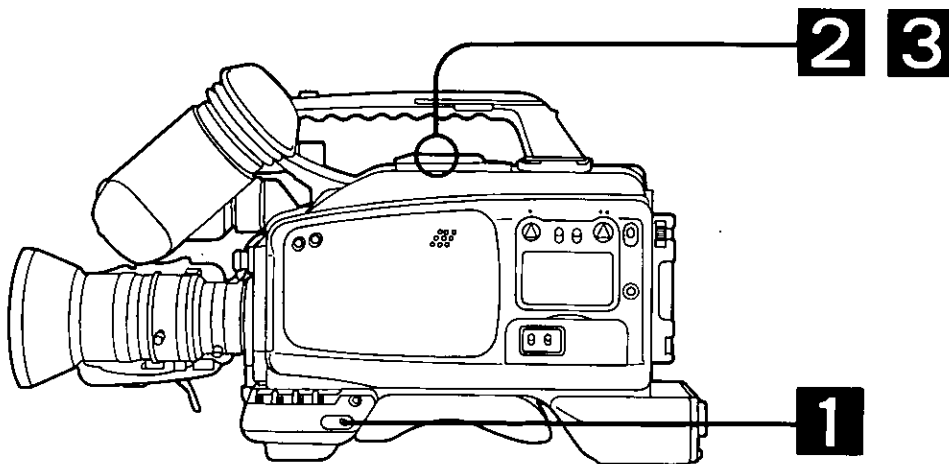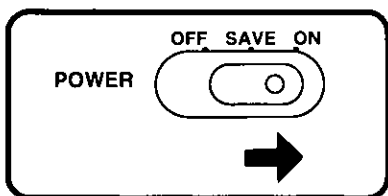
The tape is automatically loaded onto the cylinder, the REC, PLAY and PAUSE lamps come on, and the camera recorder is set to the recording pause mode.

2 Press the STOP button.
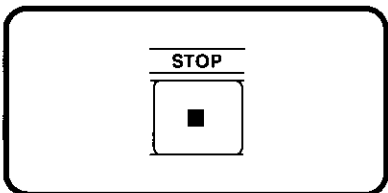
STOP

During rec/play, the VTR will not be set to the stop mode even when the STOP button is pressed. Press the VTR START/STOP button first to suspend the recording and then press the STOP button.

3 Press the PLAY button.
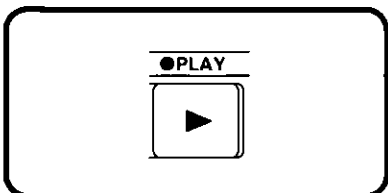
●PLAY

Noise will appear for an instant on the playback picture when the mode is transferred from STOP to PLAY. This is normal and not indicative of malfunctioning.

4 The playback pictures appear on the viewfinder and on a TV monitor which has been connected to the camera recorder.
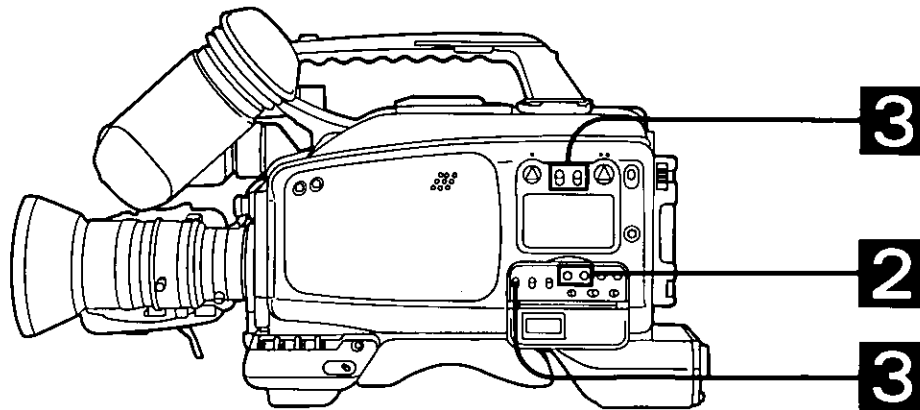
1 Automatic S-VHS/VHS identification and playback

This camera recorder's playback circuitry is designed to identify the cassette's recording system automatically.

Recording system	S-VHS display
S-VHS	On
VHS	Off

2 Tracking

- SET +
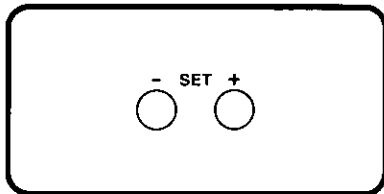
If noise should appear during playback, adjust the SET + and SET − buttons until the picture is restored to normal.

- It may not be possible to eliminate the noise adequately on a tape which was recorded on another VTR.
- The tracking adjustment remains effective until the tape is ejected. (When the tape is ejected, the tracking value which was set before the camera recorder was shipped from the manufacturing plant is restored.)
- The tracking value which was set before the camera recorder was shipped from the manufacturing plant can be restored by pressing the SET + and SET − buttons simultaneously.

3 AUDIO SELECT switch

AGC
LIMIT
OFF
Hi-Fi
NORM
AUDIO SELECT

MONITOR
SELECT
CH1
MIX
CH2
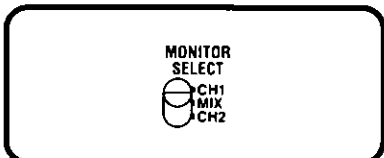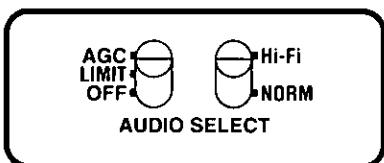
This switch can be used to select normal audio or Hi-Fi audio for the audio output signals.
The sound heard through the monitor speaker can be set to CH1, MIX or CH2 by the audio monitor selector switch.

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Playback (Continued)

4 Cue and Review Playback

1 **When the FF button is kept depressed during tape play, the tape is cued at approximately 5 times the normal tape speed.**

```
●FF⊕
 ►►
```
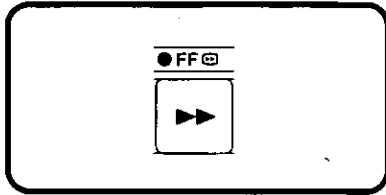
●The tape is played back at 1× normal speed during still picture playback.

2 **When the REW button is kept depressed during tape play, the tape is reviewed at approximately 5 times the normal tape speed.**

```
●REW⊕
 ◄◄
```
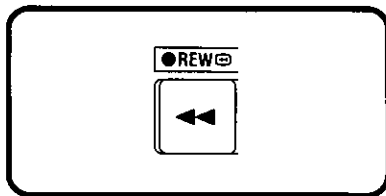
●The tape is played back at 1× normal speed in the reverse direction during still picture playback.
●The noise as shown in Fig. 1 or Fig. 2 appears during cue or review playback.
●The image may appear as shown in Fig. 3 or its top part may appear distorted: this is normal and not indicative of a failure.

Noise appearing during cue   Noise appearing during review
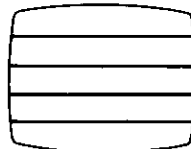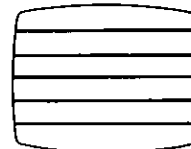
Fig. 1   Fig. 2   Fig. 3

●If the image slips vertically up or down the screen, adjust the TV's horizontal hold.
●Alternatively, the colors may keeping disappearing and re-appearing: this is normal and not indicative of a failure.

5 Still picture playback

```
●PLAY
 ►
```

A still picture appears when the PLAY button is pressed during playback.
The unit will return to playback when the PLAY button is pressed again during still picture playback.
●Noise may appear on the screen during still picture playback: this is normal and not indicative of a failure.
●Still picture playback cannot be continued for more than 5 minutes. The unit will be placed automatically in the STOP mode after 5 minutes of still picture mode in order to protect the tape and VTR.

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Monitoring

Connect the units as shown in the figure below to monitor the picture and sound.
●E-E images can be monitored during recording.

AUDIO IN
CH1/CH2

BNC or S-video terminal cable

Audio cable
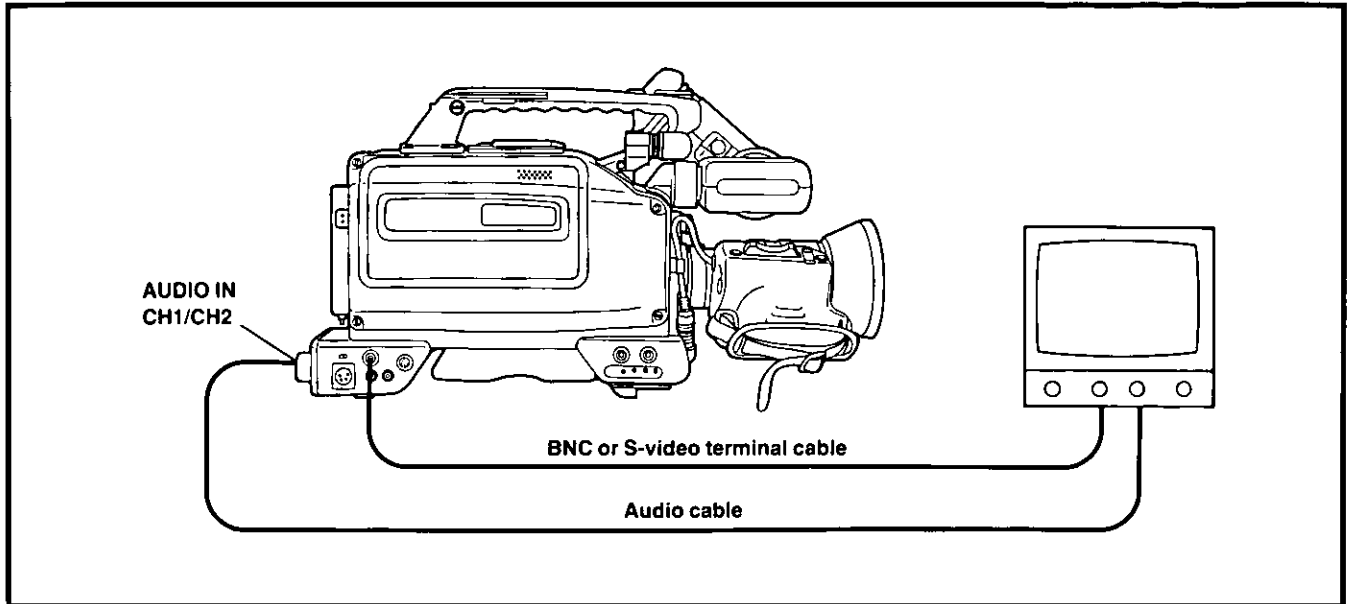
The sound can also be monitored through the built-in speaker.

NOTE

Use the VIDEO OUT connector on the camera to monitor the camera's E-E images during playback.

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Time Code Generator Settings
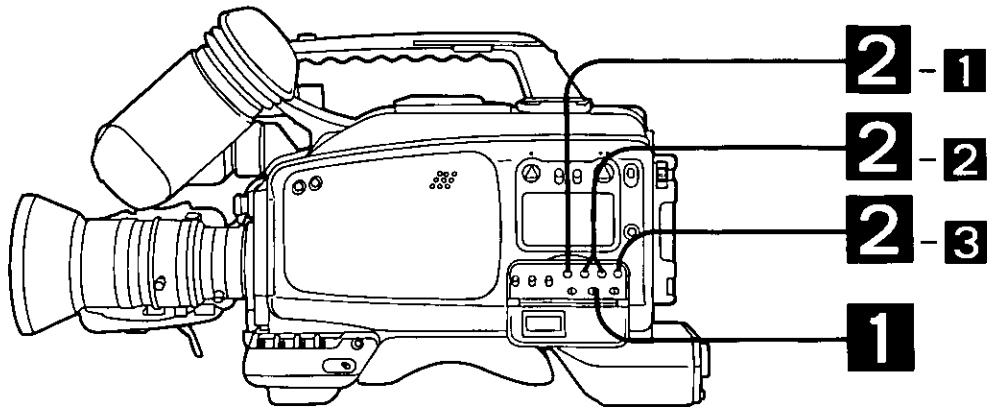
1 Set the TC/UB/COUNTER selector switch to TC or UB.
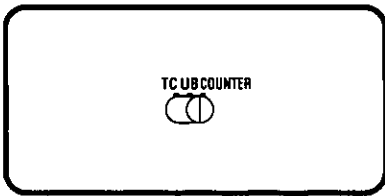
● When the switch is set to TC, the time code data will be set.
● When the switch is set to UB, the user bit data will be set.

TC UB COUNTER

2 Set the data.

1 Press the SHIFT button.

SHIFT
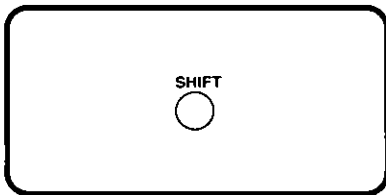
2 To change the flashing number, press the SET + or SET − button.
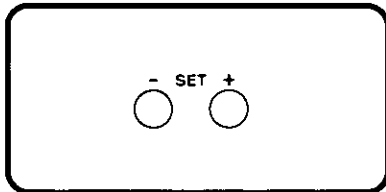
If the RESET button is pressed at this stage, the data is cleared to zero and the setting mode is released.

− SET +

3 After the data has been set, press the START button.
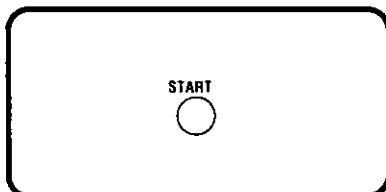
The data will not be set if the TC/UB/COUNTER selector switch is now set to a different position without the START button having first been pressed.

START

50

●The drop frame or non-drop frame mode can be selected for the time code by the menu item. For further details, refer to "How to set the menu items" (page 52).

●**REC RUN and FREE RUN positions of REC/FREE selector switch**

REC RUN: The time code is counted only when the VTR is in the recording mode. The count commences at the same time as the recording starts, and it stops at the same time as the recording ends. The time code is continuous for automatic editing (pre-edit shooting) if LTC is ON (refer to the section on the menu items).

FREE RUN: The time code is counted continuously all the time regardless of the VTR's operation mode. When the generator is synchronized with a standard clock (refer to the section on the menu items), the recording time can be recorded onto the tape.

●**Drop frame (DF) and non-drop frame (NDF) modes**

Drop frame: In order to compensate for the discrepancy occurring between the color synchronization and actual time over a long time duration, two frames (00 and 01) are skipped from the start of each full minute except at the 0-, 10-, 20-, 30-, 40- and 50-minute mark.

$$00\!:\!00\!:\!59\!:\!29 \Rightarrow 00\!:\!01\!:\!00\!:\!02$$

Non-drop frame: The time code is counted up with the time code signals left untouched.

$$00\!:\!00\!:\!59\!:\!29 \Rightarrow 00\!:\!01\!:\!00\!:\!00$$

How to Set the Menu Items
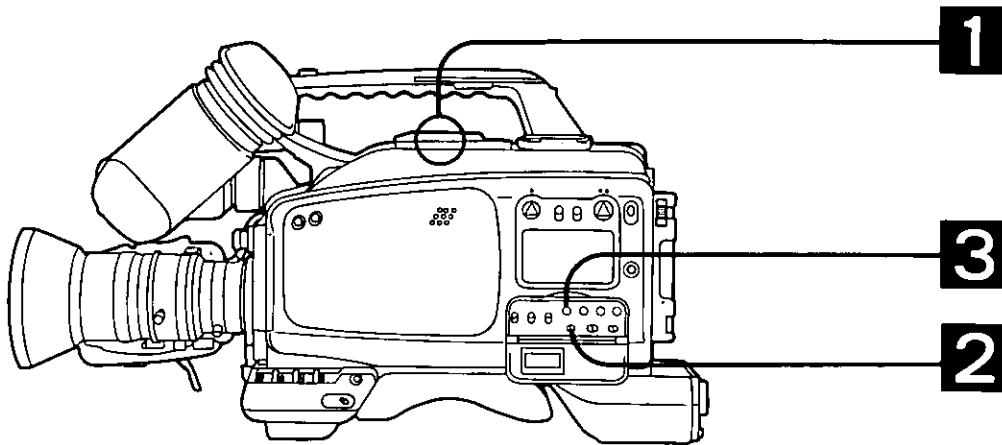
1 Set the camera recorder to the eject, rec pause or stop mode.

2 Set the MENU ON/OFF selector switch to ON.
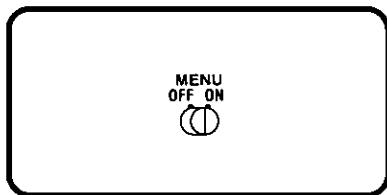
MENU
OFF ON

The main menu screen appears on the viewfinder.

Viewfinder

```
         -MAIN MENU-

 →01  EVF DISPLAY
  02  CAMERA SETTING
  03  VTR OPERATION
  04  TIME/DATE
  05  TIME CODE
  06  AUDIO
  07  BATTERY
  08  DIAGNOSIS
  09. MENU INITIALIZATION

 ···· END OF DATA ····
```

3 Press the SHIFT button to select the desired menu item.

SHIFT
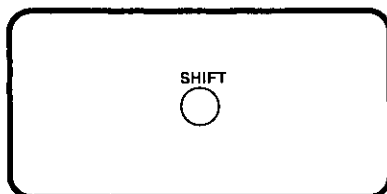
The cursor on the left of the main menu moves down the menu.

Viewfinder

```
         -MAIN MENU-

  01  EVF DISPLAY
 →02  CAMERA SETTING
  03  VTR OPERATION
  04  TIME/DATE
  05  TIME CODE
  06  AUDIO
  07  BATTERY
  08  DIAGNOSIS
  09  MENU INITIALIZATION

 ···· END OF DATA ····
```

4 Press the START button.
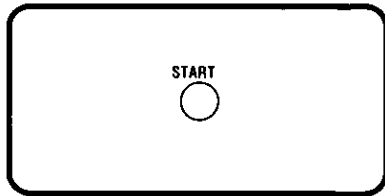
The main menu screen is replaced by the sub menu screen.

Viewfinder

```
        -EVF DISPLAY-

 →01 LEVEL METER          ON
   02 F NUMBER            ON
   03 BATTERY VOLTAGE     ON
   04 VTR STATUS          OFF
   05 TIME DATA           BAR
   06 SAFETY ZONE         ON

   ····END OF DATA····
```

5 Press the SHIFT button to select a sub menu item.
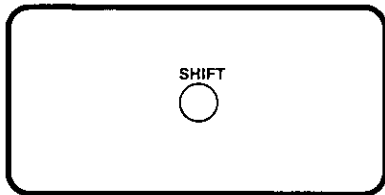
The cursor on the left of the sub menu moves down the menu.

Viewfinder

```
        -EVF DISPLAY-

 →01 LEVEL METER          ON
   02 F NUMBER            ON
   03 BATTERY VOLTAGE     ON
   04 VTR STATUS          OFF
   05 TIME DATA           BAR
   06 SAFETY ZONE         ON

   ····END OF DATA····
```

6 Press the SET + or SET − button to change the data setting.
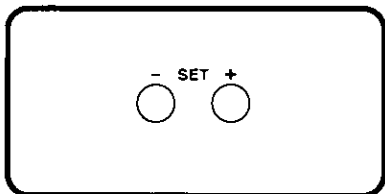
The setting of the sub menu item with the cursor is changed.

Viewfinder

```
        -EVF DISPLAY-

   01 LEVEL METER         ON
 →02 F NUMBER             OFF
   03 BATTERY VOLTAGE     ON
   04 VTR STATUS          OFF
   05 TIME DATA           BAR
   06 SAFETY ZONE         ON

   ····END OF DATA····
```

How to Set the Menu Items (Continued)
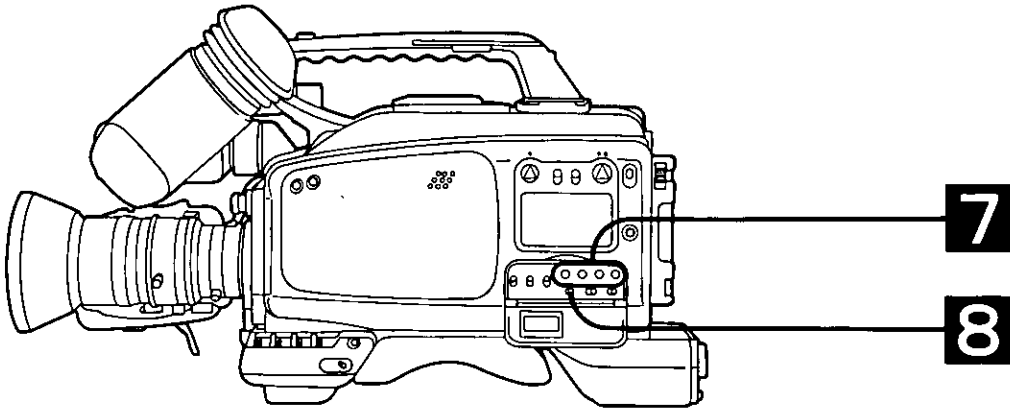
7 To return to the main menu and perform settings on another menu item, press the SHIFT button to move the cursor (arrow) to the previous menu, and press the START button.

8 To exit from the menu settings, set the MENU ON/OFF selector switch to OFF.


```
      MENU
    OFF  ON
     ⊂ID⊃
```
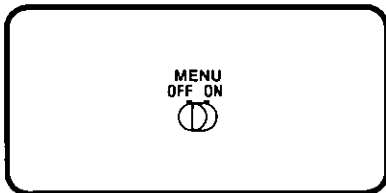
NOTE

When the camera's START/STOP button is pressed at any time while menu settings are performed, the menu setting process is suspended and recording is commenced. (In this case, scenes may be recorded without the menu settings having been performed properly.)

Menu Items

MAIN MENU

Viewfinder main menu item	Functions
EVF DISPLAY	EVF display ON/OFF setting
CAMERA SETTING	Camera settings
VTR OPERATION	VTR operation-related setting
TIME/DATE	Date/time settings
TIME CODE	Time code-related settings
AUDIO	Audio control items
BATTERY	Battery selection
DIAGNOSIS	Self-diagnosis items and initialization after replacement of back-up battery
MENU INITIALIZATION	Return to factory default menu settings

Display on EVF or at LINE OUT connector of VTR

```
          - MAIN MENU -

    →01  EVF DISPLAY
     02  CAMERA SETTING
     03  VTR OPERATION
     04  TIME/DATE
     05  TIME CODE
     06  AUDIO
     07  BATTERY
     08  DIAGNOSIS
     09  MENU INITIALIZATION

     - - - -END OF DATA- - - -
```

Menu Items (Continued)

EVF DISPLAY Menu

Underlining denotes the mode set as the default.

Viewfinder sub menu item	Mode set	Functions
LEVEL METER	ON OFF	Sets audio level meter display on EVF ON or OFF. ON: Display is ON. OFF: Display is OFF.
F NUMBER	ON OFF	Sets f (iris f) number display on EVF ON or OFF. ON: Display is ON. OFF: Display is OFF.
BATTERY VOLTAGE	ON OFF	Sets battery voltage display on EVF ON or OFF. ON: Display is ON. OFF: Display is OFF.
VTR STATUS	ON OFF	Sets VTR status display on EVF ON or OFF. ON: Display is ON. OFF: Display is OFF.
TIME DATE	ON BAR OFF	Sets date and time display on EVF ON or OFF. ON: Display appears all the time. BAR: Display is ON only with OFF color bar signals. OFF: Display is OFF.
SAFETY ZONE	ON OFF	Sets safety zone display on EVF ON or OFF ON: Display is ON. OFF: Display is OFF.

Example of display on EVF or at LINE OUT connector of VTR

```
            - EVF DISPLAY -

     01  LEVEL  METER            ON
     02  F  NUMBER               ON
   →03  BATTERY  VOLTAGE         ON
     04  VTR  STATUS            OFF
     05  TIME/DATE              BAR
     06  SAFETY  ZONE            ON

     **  PREVIOUS  MENU

     - - - - END  OF  DATA - - - -
```

NOTE

Even when the mode is set to ON on the EVF DISPLAY menu, no characters will appear if the CHARACTER ON/OFF switch on the front panel of the viewfinder has been set to the OFF position.

CAMERA SETTING Menu

Underlining denotes the mode set as the default.

Viewfinder sub menu item	Mode set	Functions
GAIN	9 dB 18 dB 24 dB SUPER HIGH	Sets gain value when GAIN selector (toggle) switch at front of camera recorder has been set to HIGH.
ALC SENSE	CENTER NORMAL	Selects ALC (auto lens iris control) light level metering system. CENTER: Screen center priority light level metering. NORMAL: Uniform light level metering over virtually the entire screen.
PEDESTAL SET	No display UP DOWN PRESET	Adjusts pedestal. (Refer to the procedure for the PEDESTAL SET operation on the next page.) No display: No change in pedestal. UP: Raises pedestal level. DOWN: Lowers pedestal level. PRESET: Returns the pedestal level to its default setting.
VERTICAL FINE	OFF ON	OFF: Normal mode ON: The resolution in the perpendicular direction is improved but lag and moire increased.
SCENE FILE A SET		Sets scene file A (*1).
SCENE FILE B SET		Sets scene file B (*1).
SET UP	0% 7.5%	Sets the SET UP.

(*1) There are 7 scene files but only files A and B are available for the user to set.

Example of display on EVF or at LINE OUT connector of VTR

```
        - CAMERA SETTING -

   01 GAIN                9dB
   02 ALC SENSE         CENTER
  →03 PEDESTAL SET          UP
   04 VERTICAL FINE        OFF
   05 SCENE FILE A SET
   06 SCENE FILE B SET
   07 SET UP              7.5%
   ** PREVIOUS MENU

   - - - - END OF DATA - - - -
```

Menu Items (Continued)

PEDESTAL SET operation method

SET (+, −) button
START button
SHIFT button
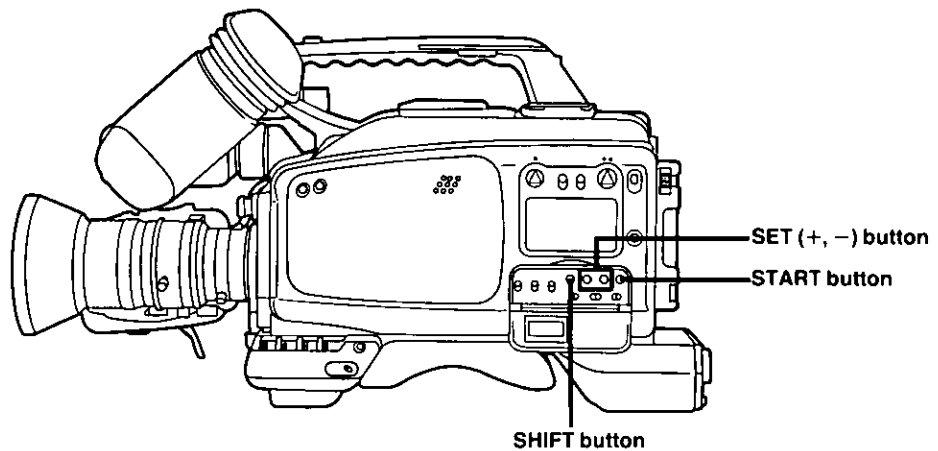
1 Align the arrow with the "03 PEDESTAL SET" position.

2 Press the SET + or SET − button to align the position.
- While the SET + button is kept depressed, the UP display appears and the pedestal level is increased.
- While the SET − button is kept depressed, the DOWN display appears and the pedestal level is reduced.
- When the SET + and SET − buttons are pressed together, the PRESET display appears, and the pedestal level is returned to its default setting.

Scene file settings

```
        MAIN MENU
   01  EVF DISPLAY
 →02  CAMERA SETTING
   03  VTR OPERATION
   04  TIME/DATE
   05  TIME CODE
   06  AUDIO
   07  BATTERY
   08  DIAGNOSIS
   09  MENU INITIALIZATION
   ---END OF DATA---
```

→

```
     - CAMERA SETTING -
   01  GAIN           9dB
   02  ALC SENSE   CENTER
   03  PEDESTAL        UP
   04  VERTICAL FINE  OFF
 →05  SCENE FILE A SET
   06  SCENE FILE B SET
   07  SET UP        7.5%

   **PREVIOUS MENU
   ---END OF DATA---
```
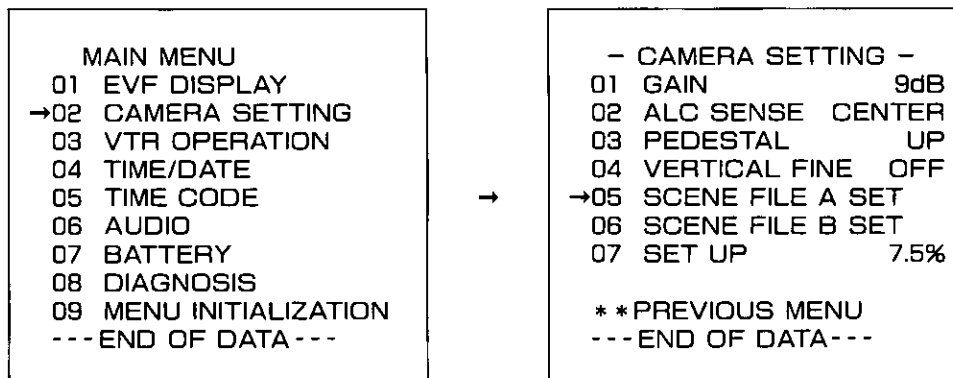
1 Press the SHIFT button on the MAIN MENU screen, and press the START button when the arrow at the far left is aligned with "02 CAMERA SETTING". The CAMERA SETTING screen now appears.

2 Press the SHIFT button in the same way, and press the START button when the arrow is aligned with "05 SCENE FILE A SET" or "06 SCENE FILE B SET". Page 1 of the scene file setting screen now appears.
- Before proceeding with the scene file settings, use the SCENE FILE switch to set SCENE FILE A or B.
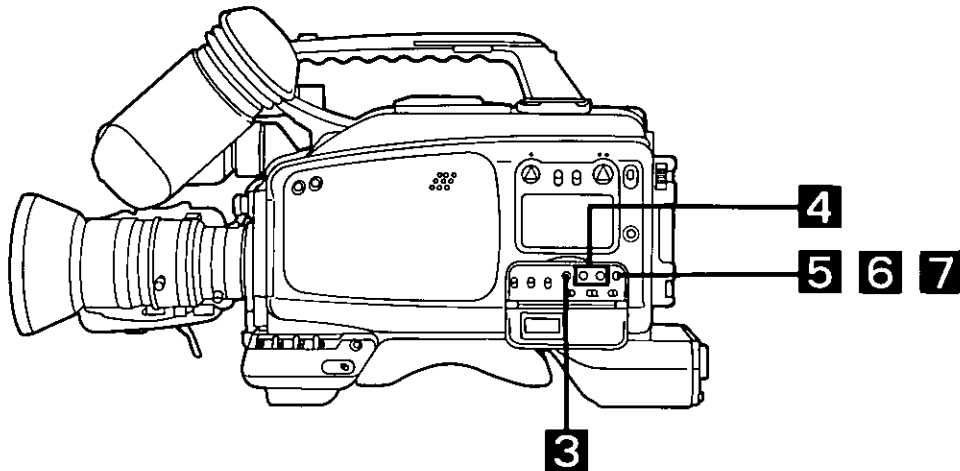
3 Press the SHIFT button to align the arrow on the far left with the item to be set.

```
   - SCENE FILE A -PAGE 1
 01  H DTL              10
 02  H DTL FREQ          1
 03  V DTL               0
→04  LEVEL DEP I        31
 05  DARK DTL           ON
 06  CORING             10
 07  CHROMA DTL         16

   * *PREVIOUS MENU
      PAGE 2:PUSH START
```

→

```
   - SCENE FILE B -  PAGE 2
 08  C GAIN 1         -128
 09  C GAIN 2            0
 10  C PHASE 1        +127
 11  C PHASE 2         +10



 →  ▪DATA SAVE
    * *PREVIOUS MENU
       PAGE 1:PUSH START
```
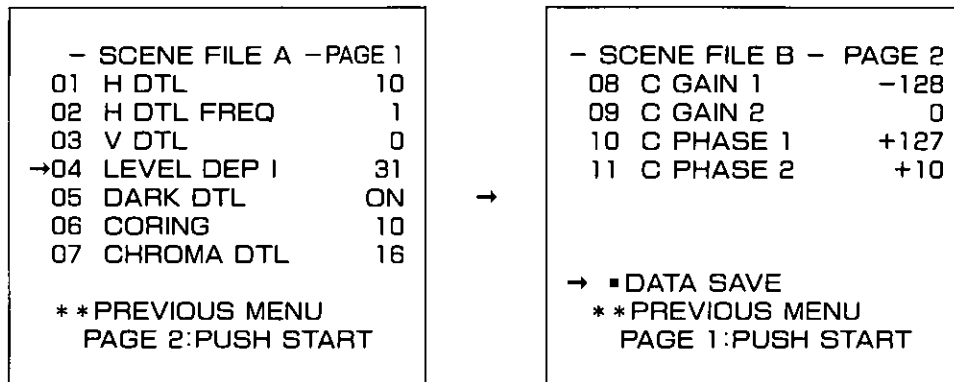
4 Press the SET + or SET − button to change the data to be set.
● Pressing the SET + button increases the data setting.
● Pressing the SET − button decreases the data setting.
● Keeping either button depressed enables the data to be changed continuously.

5 When the START button is pressed, page 2 of the scene file setting screen appears.
The data settings can be changed in the same way as for page 1.
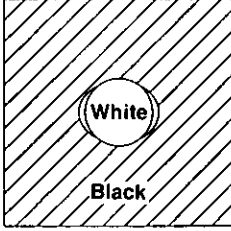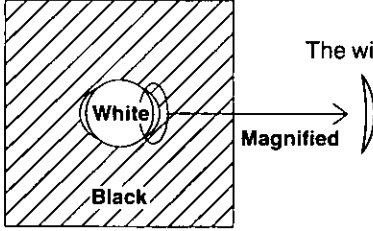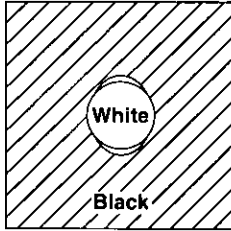
6 Data back-up
● Align the arrow with DATA SAVE, and press the START button.
● When this step is not performed, the data settings are valid only while the power is supplied. Once the power has been turned off, the settings will be lost and the past data will be restored.

7 When the START button is pressed, page 1 of the scene file setting screen appears.

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Menu Items (Continued)

Scene File Menu

Viewfinder sub menu item	Mode set	Functions
H DTL	Variable range: 0 to 31	Enhances the detail (horizontal). The detail (horizontal) is enhanced when the value is raised.
H DTL FREQ	Variable range: 1 to 4	Varies width of detail enhanced (horizontal). The width becomes less when the value is raised. Magnified
V DTL	Variable range: 0 to 31	Enhances the detail (vertical). The detail (vertical) is enhanced when the value is raised.
LEVEL DEP	Variable range: 0 to 31	These enhance or reduce the detail in the dark areas. Whether the detail is to be enhanced or reduced is determined by a combination of the LEVEL DEP value and DARK DTL ON/OFF status. The detail enhancement (with DARK DTL at ON) or reduction (with DARK DTL at OFF) effect is magnified in proportion as the LEVEL DEP value is raised. If the detail in the dark areas is enhanced too much, the images will be clearly defined even in the dark areas but noise will be pronounced.
DARK DTL	ON OFF	When the detail enhancement is reduced, the noise in the dark areas is reduced but when the enhancement is reduced too much, the critical components of the images will be lost. The standard setting is a setting at which the noise is reduced to a small extent.

Scene File Menu

Viewfinder sub menu item	Mode set	Functions
CORING	Variable range: 0 to 31	When the value is raised, the detail enhancement in the detailed areas is limited and the noise is minimized. However, if it is raised too much, the critical detail components will be lost and the images will become flat.
CHROMA DTL	Variable range: 0 to 15	This is also known as high-chroma aperture. It enhances the detail of intensely colored parts of the image, such as rose petals. It has the effect of making the petals more distinct but bear in mind that the images will appear unnatural when it is set too high.
C GAIN 1	Variable range: −128~+127	These are used for color correction adjustments. ●C Gain 1: This increases or reduces the color in the R-Y axis direction. ●C Gain 2: This increases or reduces the color in the B-Y axis direction. ●C Phase 1: This changes the color phase parallel to the R-Y axis.
C GAIN 2	Variable range: −128~+127	●C Phase 2: This changes the color phase parallel to the B-Y axis. Figs. 1 to 8 on the following pages show the changes in the color bars on a vectorscope when each of the parameters has been varied. These figures show examples of adjustment options in terms of color bars whereas in actual fact the color correction applies only to the camera images, and the color bar signals remain unchanged.
C PAHSE 1	Variable range: −128~+127	
C PHASE 2	Variable range: −128~+127	
DATA SAVE		This is selected in order to save the selected settings in the camera's EEPROM. ●When this operation is performed, the data settings are backed up. ●When this operation is not performed, the settings which have been selected are valid for camera recorder operation while the unit's power is supplied but they will be lost once its power is turned off.

Menu Items (Continued)

Scene File Menu

● C Gain 1 (changes in color bars[Note] on vectorscope)
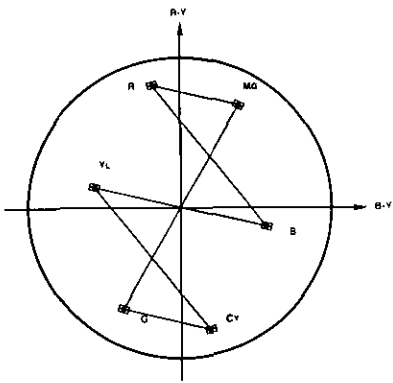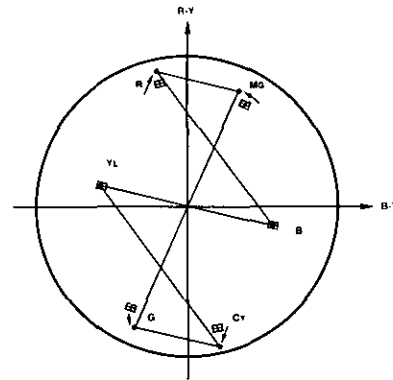
| Fig. 1 | Colour level is increased or reduced in R-Y axis direction. | Fig. 2 |

● C Gain 2 (changes in color bars[Note] on vectorscope)
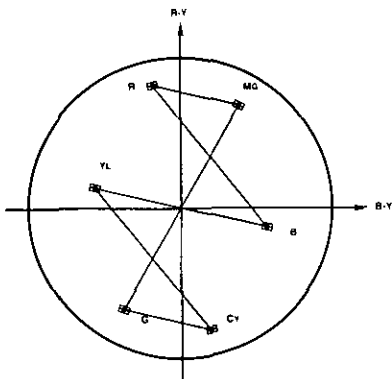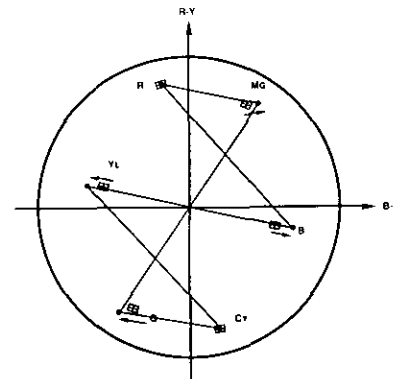
| Fig. 3 | Colour level is increased or reduced in B-Y axis direction. | Fig. 4 |

NOTE

Color bars are used in the figures to make the description easier to understand. However, the actual color bars are generated by a fixed generator so that the bars do not change at all. The only change is in the images shot by the camera.

Scene File Menu

●C Phase 1 (changes in color bars[Note] on vectorscope)
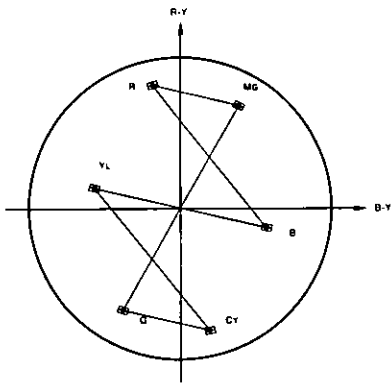
Fig. 5
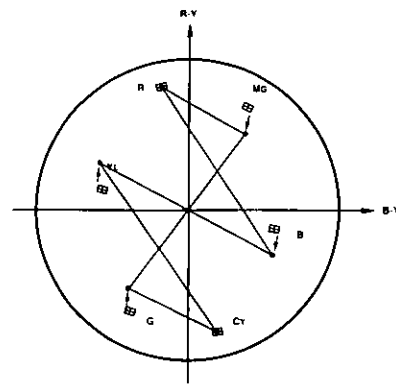
Phase changes in R-Y axis direction.

Fig. 6

●C Phase 2 (changes in color bars[Note] on vectorscope)
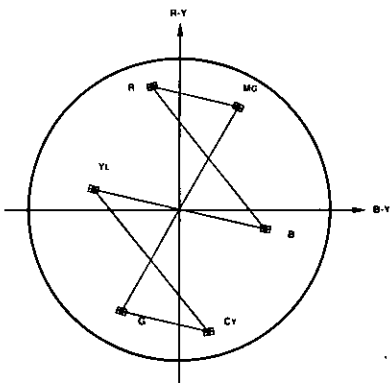
Fig. 7
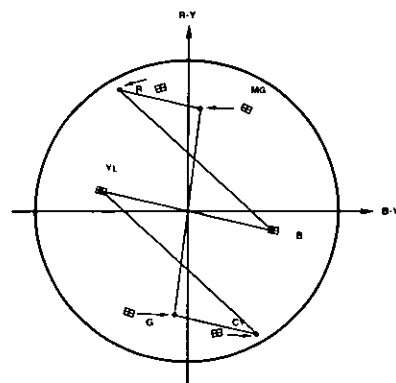
Phase changes in B-Y axis direction.

Fig. 8

NOTE

Color bars are used in the figures to make the description easier to understand. However, the actual color bars are generated by a fixed generator so that the bars do not change at all. The only change is in the images shot by the camera.

Menu Items (Continued)

VTR OPERATION Menu

Underlining denotes the mode set as the default.

Viewfinder sub menu item	Mode set	Functions
BACK SPACE (pre-edit shooting)	ON OFF	Selects whether auto editing is to be performed. ON: Auto editing is performed. OFF: Auto editing is not performed.
CUE-UP (program search)	ON OFF	Selects whether auto cue-up is to be performed. ON: Auto cue-up is performed. OFF: Auto cue-up is not performed.
HUMID OPE (recording condensation)	DISABLE ENABLE	Selects the VTR operation when condensation has formed. DISABLE: When condensation has formed, all operations except Power switch ON/OFF and tape ejection are prohibited to protect the VTR and its tape. ENABLE: Even when condensation has formed, operations are accepted as usual.
S-VHS REC	AUTO VHS	AUTO: Tape format is automatically identified, and recording is performed in Super VHS mode when S-VHS tape is employed. VHS: Recording is forcibly performed in VHS mode.
26P CONTROL	OFF BOTH ON	OFF: No 26P VTR control. (Camera recorder only) BOTH: This unit and the 26P VTR are controlled at the same time (tally LED displays REC mode of camera recorder). ON: Only the 26P VTR is controlled (tally LED displays REC mode of 26P VTR). To place camera recorder in REC or REC/PAUSE mode, press START/STOP button while holding down the START button (see page 17).
5P REMOTE	ON OFF	Sets 5P remote control ON or OFF. ON: 5P remote control possible. OFF: 5P remote control not possible. **Note:** "5P REMOTE" refers to signals which will be used at some future point in time.
BACK TALLY	ON OFF	Selects whether back tally indicator (LED) is to light. ON: Indicator lights. OFF: Indicator does not light.
REC START	ALL NORMAL	ALL: Accepts recording regardless of the VTR mode. NORMAL: The operation of the VTR START/STOP button is accepted only when the VTR is in the stop (power save), rec pause or still mode.

NOTE

"HUMID OPE ENABLE" is an extremely risky mode to set in that in this mode VTR operation is continued even if the condensation sensor detects the formation of condensation inside the unit. Since in such a state the tape may wind itself around some of the parts inside the VTR, this mode should be used only when recording is worth the risk. (The manufacturer will not be held liable for any damage which may result from operation in this mode.)

VTR OPERATION Menu

Cue-up operation

Once the tape has been loaded, the cue-up operation search the end point of a previous recorded portion. It causes the tape to travel in the reverse direction at 1× normal tape speed while checking whether CTL pulses are present (whether the tape has been recorded). If CTL pulses are found, that point is determined to be the end point of the previous recording, and if AUTO BACK SPACE is ON, the tape is automatically reversed (auto back operation) and placed in the REC/PAUSE mode. This means that if CTL pulses have been found as soon as the tape is made to travel in the reverse direction at 1× normal tape speed, that point will be determined to be the end point of the previous recording. The maximum time during which the tape is allowed to travel in the reverse direction at 1× normal tape speed is 5 seconds. If no CTL pulse have been found after 5 seconds, the search operation is suspended, and the REC/PAUSE mode is established. Therefore, when more accurate search is required, the unit should be operated using the simple editing function (see p. 42).

NOTE

When a new tape has been loaded into the unit, first proceed with short fast forwarding. This operation will create a blank of about 15 to 20 seconds in length at the start of the tape. To avoid creating this blank, it is recommended that, using the simple editing function (see page 42), the tape be run for a short time in the reverse direction and then recording be performed.

Menu Items (Continued)

Example of display on EVF or at LINE OUT connector of VTR

```
          - VTR OPERATION -
     01  BACK SPACE              ON
     02  CUE-UP                 OFF
   →03  HUMID OPE              OFF
     04  S-VHS REC             AUTO
     05  26P CONTROL            OFF
     06  5P REMOTE              OFF
     07  BACK TALLY              ON
     08  REC START           NORMAL

     **  PREVIOUS MENU

     - - - - END OF DATA - - - -
```

TIME/DATE Menu

Viewfinder sub menu item	Mode set	Functions
YEAR	Setting: 00–99	Sets the "year" of the date.
MONTH	Setting: 01–12	Sets the "month" of the date.
DAY	Setting: 01–31	Sets the "day" of the date.
HOUR	Setting: 00–24	Sets the "hours" of the time. (24-hour system)
MINUTE	Setting: 00–59	Sets the "minutes" of the time.

Example of display on EVF or at LINE OUT connector of VTR

```
          - TIME DATE -
     01  YEAR DATE               93
     02  MONTH                   06
   →03  DAY                     08
     04  HOUR                    16
     05  MINUTE                  55

     ■  TIME/DATE SET
     **  PREVIOUS MENU

     - - - - END OF DATA - - - -
```

1 Setting method

1 Press the SHIFT button to align the arrow with the menu item to be set.

2 Change the data using the SET + and SET − buttons.
Keeping either button depressed changes the data continuously.

3 **To set the clock:**
1) Press the SHIFT button to align the arrow with TIME/DATE SET.
2) Press the START button. The clock is now set and the menu screen returns to the MAIN MENU.

4 **When the clock is not to be set:**
Select PREVIOUS MENU to return to the MAIN MENU or set the MENU ON/OFF switch to OFF to release the menu setting mode.

TIME CODE Menu

Underlining denotes the mode set as the default.

Viewfinder sub menu item	Mode set	Functions
VITC POSITION (1)	11H 12H 13H 14H 15H <u>16H</u> 17H 18H 19H	Sets line in which VITC signal is to be inserted. 11H: VITC signal is inserted in line 11. 12H: VITC signal is inserted in line 12. 13H: VITC signal is inserted in line 13. 14H: VITC signal is inserted in line 14. 15H: VITC signal is inserted in line 15. 16H: VITC signal is inserted in line 16. 17H: VITC signal is inserted in line 17. 18H: VITC signal is inserted in line 18. 19H: VITC signal is inserted in line 19.
VITC POSITION (2)	11H 12H 13H 14H 15H 16H 17H <u>18H</u> 19H	Sets line in which VITC signal is to be inserted. 11H: VITC signal is inserted in line 11. 12H: VITC signal is inserted in line 12. 13H: VITC signal is inserted in line 13. 14H: VITC signal is inserted in line 14. 15H: VITC signal is inserted in line 15. 16H: VITC signal is inserted in line 16. 17H: VITC signal is inserted in line 17. 18H: VITC signal is inserted in line 18. 19H: VITC signal is inserted in line 19. *The same line as that set for VITC POSITION (1) cannot be selected.
LTC REC	ON <u>OFF</u>	Sets whether LTC signal is to be recorded on audio linear track (CH2). ON: LTC signal is recorded. OFF: LTC signal is not recorded. When LTC REC is set ON and REC/FREE selector switch is set to REC, REGEN operation is performed by time code generator.
TC MODE	<u>USER</u> REAL	Sets time code (time data) when FREE RUN/REC RUN selector switch at front of camera recorder is set to FREE RUN. USER: Free-run operation is performed on basis of user setting. REAL: Real-time; free-run operation is performed on basis of time which was set on TIME DATE menu.
UB MODE	<u>USER</u> REAL SCENE	Selects UB operation method. USER: User setting (fixed) REAL: Real-time; UB real-time operation is performed on basis of time which was set on TIME DATE menu. SCENE: Present UB value is automatically incremented for each cut.
DF/NDF	<u>DF</u> NDF	Sets DF or NDF mode for time code. DF: Drop frame mode NDF: Non-drop frame mode

Menu Items (Continued)

Example of display on EVF or at LINE OUT connector of VTR

```
              -  T I ME  CODE  -

   0 1  V I TC  POS I T I ON ( 1 )        1 6
   0 2  V I TC  POS I T I ON ( 2 )        1 8
 →0 3  LTC  REC                         OFF
   0 4  TC  MODE                        USER
   0 5  UB  MODE                        USER
   0 6  DF／NDF                           DF

   ＊＊  PREV I OUS  MENU

   -  -  -  - END  OF  DATA -  -  -  - -
```

AUDIO Menu

Viewfinder sub menu item	Mode set	Functions
FRONT MIC (Front mic level)	−40 dB −50 dB −60 dB	Selects camera's mic input level.
REAR MIC CH1 (Rear mic CH1 level)	−40 dB −50 dB −60 dB	Selects mic input level from AUDIO CH1 input connector in jack section.
REAR MIC CH2 (Rear mic CH2 level)	−40 dB −50 dB −60 dB	Selects mic input level from AUDIO CH2 input connector in jack section.
LINE CH1/CH2	+4 dB 0 dB −6 dB	Selects LINE input level from AUDIO CH1/CH2 input connectors in jack section.
PHANTOM CH1 (Phantom CH1 power)	ON OFF	Selects whether phantom mic (CH1) is to be used. ON: Phantom mic (+48 V) is used. OFF: Normal mic is used.
PHANTOM CH2 (Phantom CH2 power)	ON OFF	Selects whether phantom mic (CH2) is to be used. ON: Phantom mic (+48 V) is used. OFF: Normal mic is used.
HI-FI REC	ON OFF	Selects whether Hi-Fi audio is to be recorded. ON: Hi-Fi audio is recorded. OFF: Hi-Fi audio is not recorded.
DOLBY NR	ON OFF	Sets Dolby NR ON or OFF. ON: Dolby NR is turned ON. OFF: Dolby NR is turned OFF.
STEREO/MONO	STEREO MONO	Selects the input sound mode from AUDIO CH1/CH2 input connectors in jack section. STEREO: Stereo sound is selected. MONO: Monaural sound is selected.*

Example of display on EVF or at LINE OUT connector of VTR

```
        - AUDIO -

   01  FRONT MIC           -50dB
   02  REAR MIC CH1        -50dB
   03  REAR MIC CH2        -50dB
   04  LINE CH1/CH2          0dB
→ 05  PHANTOM CH1           OFF
   06  PHANTOM CH2           OFF
   07  HI-FI REC             ON
   08  DOLBY NR              OFF
   09  STEREO/MONO        STEREO
   **  PREVIOUS MENU
   - - - - END OF DATA - - - -
```

*When LTC REC (page 67) is set to ON, only CH1 can be used as the normal audio channel.
If MONO is now selected on this menu, the sound from two microphones (or lines) can be mixed and recorded.
(However, Hi-Fi audio will also be mixed.)

Menu Item Setting (Continued)

BATTERY Menu
Ni-Cd 12 V is the mode set as the default.

Viewfinder sub menu item	Mode set	Functions	Battery name (product name) (see Notes)
SELECT	Ni-Cd 12 V	Selected when AC adapter or Ni-Cd battery (12 V) is used.	AU-BP402 AU-BP220 NP-1, NP-90
	Ni-Cd 13.2 V	Selected when Ni-Cd battery (13.2 V) is used.	Magnum 13
	Ni-Cd 14.4 V	Selected when Ni-Cd battery (14.4 V) is used.	Magnum 14
	DIGITAL	Selected when digital nickel-cadmium battery (13.2 V or 14.4 V) is used.	Magnum 13 digital Magnum 14 digital

NOTE

- The AU-BP402 and AU-BP220 batteries are made by Matsushita Electric Industrial Co., Ltd.
- The NP-1 and NP-90 batteries are made by Sony Corp.
- The Magnum series of batteries is made by Anton Bauer.

Example of display on EVF or at LINE OUT connector of VTR

```
        - BATTERY -

 →01  SELECT      Ni-Cd  12V




  **  PREVIOUS  MENU

  - - - - END  OF  DATA - - - -
```

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```
┌──────────────────────────────────────────────────┐
│                                                    │
│                                                    │
│                                                    │
└──────────────────────────────────────────────────┘
```

DIAGNOSIS Menu

Viewfinder sub menu item	Mode set	Functions
ERROR LOG DATA		Displays the last VTR error which occurred.
CYLINDER	000–9900h	Displays number of hours during which cylinder has rotated. The level is displayed every 10 hours. (The value below ten is discarded.)
CAMERA Ver		Displays version of camera microcomputer. Example: Ver A <1.1>
SERVO Ver		Displays version of servo microcomputer. (Example: Same as that for camera microcomputer)
SYSCON Ver		Displays version of syscon microcomputer. (Example: Same as that for camera microcomputer)
MEMORY INIT.?		Memory initialization after back-up battery has been replaced. This operation must be performed after the back-up battery has been replaced.

Menu Item Setting (Continued)

DIAGNOSIS Menu (Continued)

Operation method and example of display on EVF or at LINE OUT connector of VTR

```
        -DIAGNOSIS-

→01  ERROR  LOG  DATA
 02  CYLINDER           1800h
 03  CAMERA  Ver         <1.0>
 04  SERVO   Ver        A<1.1>
 05  SYSCON  Ver        B<1.2>

 06  MEMORY  INIT.?
     **  PREVIOUS  MENU

  - - - - END  OF  DATA - - - -
```

```
       -ERROR  LOG  DATA-

  SLACK-REEL  NG




     **  PREVIOUS  MENU

  - - - - END  OF  DATA - - - -
```

NO ERROR:
When no error has occurred
SLACK-REEL NG:
When the reel has locked
SLACK-CYLINDER NG:
When the cylinder has locked
SLACK-LOADING NG:
When the loading motor has locked

The ERROR LOG DATA details can be checked on the sub-sub screen.

Operation method:

1 **To display the sub-sub screen:**
Use the SHIFT button to align the arrow with "01 ERROR LOG DATA," and press the START button.

2 **To return to the sub screen display:**
Use the SHIFT button to align the arrow with "**PREVIOUS MENU," and press the START button.

To initialize the memory after the back-up battery has been replaced

1 Press the SHIFT button to align the arrow with "06 MEMORY INIT.?"

2 Press the START button.
When initialization is completed, "06 INITIALIZED" appears.

NOTE

The memory will not be initialized properly if the menu is exited or operation is returned to the MAIN MENU before "06 INITIALIZED" has appeared.

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Connector Signals

Audio input connector (XLR-3P)
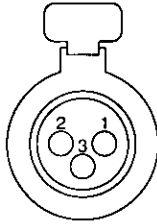
Pin No.	Signal
1	GND
2	HOT
3	COLD

External DC input connector (XLR-4P)
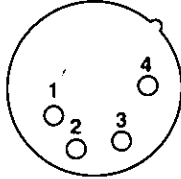
Pin No.	Signal
1	GND
2, 3	
4	+12 V

26P VTR connector
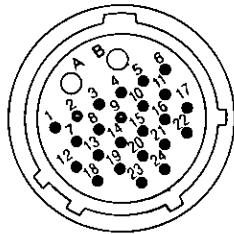
Pin No.	Signal	Pin No.	Signal
1	COMPOSITE VIDEO	11	CAMERA MIC GND
2	COMPOSITE VIDEO GND	12	VTR START/STOP
3	Y GND	15	REC TALLY/WARNING
4	Y	16	5P DATA
5	R-Y	21	5P CLOCK
6	R-Y GND	23	CTL PULSE
7	B-Y	24	5P +5 V
8	B-Y GND	A	+12 V
9	CAMERA MIC (H)	B	GND
10	CAMERA MIC (C)		

Note:
When connecting the 26 pin VTR connector and the AU-55H,
set SW2 (component input level select switch) on the JACK
board of the AU-55H to the "S" side.

Handling the Phantom Mic

This camera recorder is designed to enable a phantom mic to be used as the unit's microphone (CH1/CH2). It can be selected on menu item "AUDIO" in the viewfinder. For further details, refer to "How to set the menu items" (page 69).
[The phantom power supply is set to +48 V. Before shipment from the manufacturing plant, the camera recorder was set for using the regular microphone (phantom power OFF).]

Before Calling the Service Engineer

Proceed with the inspections and adjustments described below. If the symptom persists, consult with your dealer.

Symptom	Inspection/adjustment	Reference page
No power.	Does the battery still have a sufficient charge?	——
Low battery warning appears.	●Does the battery still have a sufficient charge? ●Has the correct battery setting been selected on the menu? When using the AC adaptor, select "Ni-Cd 12 V" as the menu setting for the battery.	—— 70
●When the power is turned on: "BACK UP BATT EMPTY" display appears. ●The real time is not accurate.	The back-up battery may have reached the end of its active service life (approx. 1 year). Consult with your dealer and replace with a new battery.	27
No operation when function buttons are pressed.	Does an error display appear in the viewfinder?	21
No tape fast forwarding or rewinding.	Has the tape finished fast forwarding or rewinding?	15

Condensation

Condensation may form on this camera recorder's cylinder when the unit is moved from a cold place into warm surroundings or when it is used in very humid conditions.
Causing the tape to travel when condensation has formed will damage the cylinder and tape.

Bear in mind the following points:
● Before inserting the cassette, set the CAM/VTR (or POWER) switch to ON or POWER SAVE, and check that none of the warning lamps are flashing and that HUMID has not lighted on the display.
● Where possible, avoid using the camera recorder in any location where condensation is liable to form.
● Remove the cassette tape when moving the camera recorder.
● If the HUMID display flashes while the cassette tape is still loaded, take the following action:
  1. Set the CAM/VTR (or POWER) switch to the ON or POWER SAVE position.
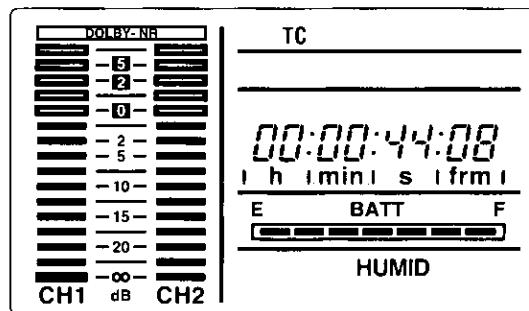 2. Press the EJECT button to remove the cassette.

Without taking further action, wait until the HUMID display goes off.
Once this display goes off, insert the cassette tape, allow it to run and check that nothing untoward happens.
When the HUMID OPE menu item on the OPERATION menu is set to ENABLE, the VTR can be forcibly operated even when the condensation sensor has detected the formation of condensation.
However, this is an extremely risky setting which should never be used unless shooting is absolutely imperative.
The manufacturer will not be held liable for any damage which may result from operation in the HUMID OPE ENABLE.

```
┌──────────────────────────┬────────────────────────┐
│     DOLBY-NR             │    TC                  │
│  ═══  -5-  ═══          │  ────────────────────   │
│  ═══  -2-  ═══          │  ────────────────────   │
│  ═══  -0-  ═══          │  00:00:44:08            │
│       - 2 -             │  I h Imin I s Ifrm I     │
│       - 5 -             │                          │
│       -10-             │  E      BATT        F    │
│       -15-             │  [═══════════════]       │
│       -20-             │                          │
│       -∞-              │      HUMID               │
│  CH1  dB  CH2          │                          │
└──────────────────────────┴────────────────────────┘
```

Maintenance

● This camera recorder contains precision-engineered mechanisms which are designed to do full justice to the unit's high performance. In order for the unit to give years of service, care should be taken to maintain it properly.
Lubrication, the replacement of parts and the adjustment and servicing of the electrical parts require sophisticated technology and equipment. Consult with your dealer before proceeding with any of these activities.
● Failure to remove dust and dirt which have accumulated inside, supply lubricating oil, replace worn parts (heads, etc.) or otherwise maintain and inspect the unit will not only make it impossible to obtain a good picture and satisfactory recordings but will also adversely affect the unit's service life. For this reason, inspection and maintenance work should be performed in good time.

Head cleaning
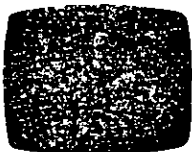
If the symptom shown left should occur, it means that the video heads are dirty. Use the cleaning tape (NV-TCLA), which is available as an optional accessory, to clean the video heads. If the symptom persists, consult with your dealer.

NOTE

Remember that repeated head cleaning will shorten the service life of the heads.

Specifications

Power Supply:	DC 12 V (10.5 to 17 V)
Power Consumption:	23 W (Recording mode; 20 W)

Operating Ambient Temperature:	32°F to 104°F (0°C to 40°C)
Operating Ambient Humidity:	35 to 80%
Dimensions (W×H×D):	4⅞"×11¹¹/₁₆"×14⅛" (123×296×357 mm)
Weight:	9.9 lbs (4.5 kg) (incl. viewfinder)/14.74 lbs (6.7 kg) (incl. battery, viewfinder, lens, 120-minute tape)

CAMERA

Image Sensor:	1.2-inch frame interline transfer (FIT) CCD
Pixels:	380,000
System:	RGB 3-panel system
Horizontal Drive Frequency:	13.5 MHz
Sensitivity:	3200 K, 2000 lux, f/8.0
Minimum Illumination:	1.5 lux (with f/1.4, +30 dB)
S/N Ratio:	60 dB
Horizontal Resolution:	750 lines
Sampling Frequency:	13.5 MHz/27 MHz
Shutter Speeds:	1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/8000
Synchro scan shutter:	1/61.95 to 1/253.78
Gain Selection:	0, +9, +18, +24 dB/+30 dB (super high gain)
Camera AGC:	Auto iris and automatic, continuous gain control from 0 to +18 dB
CC/ND Filters:	3200 K, 5600 K, 5600 K+ ⅛ ND
Lens Mount:	Bayonet mount for ½-inch lenses
Color Separation Optical System:	Prism system (f/1.4)
Registration Error:	Less than 0.03% (over entire range, excluding lens distortion)
Scene Files:	Normal, A/B, sparkling, fluorescent light, special (internal files A/B can be set by user)
Backlight Compensation Mode:	Super iris function featured
Vertical High Resolution Mode:	Vertical fine function featured

VIEWFINDER

Display Tube:	1.5-inch, high-resolution monochrome tube
Horizontal Resolution:	More than 550 lines (at center)
External Controls:	BRIGHT, CONTRAST, PEAKING controls; TALLY ON/OFF, ZEBRA ON/OFF, CHARACTER ON/OFF switches

VTR

Recording System:	4 rotary heads, helical scanning system (S-VHS format)
Tape Speed:	33.35 mm/sec
Tapes Used:	S-VHS or VHS tapes
Recording Time:	120 minutes (with NV-T120)
FF/REW Time:	Less than 9 minutes (with NV-T120)

Video System

Television Standard: EIA standard (525 lines, 60 fields)
                              NTSC color signal
Modulation System: Luminance signal; FM azimuth recording
                              Color signal; converted subcarrier phase shift recording
Outputs: LINE (BNC); 1.0 Vp-p 75Ω
                              S-VHS (4P); Y: 1.0 Vp-p 75Ω
                                           C: 0.286 Vp-p 75Ω
Horizontal Resolution: S-VHS; More than 400 lines
                              VHS; More than 240 lines
S/N Ratio: S-VHS; 47 dB
                              VHS; 46 dB

Audio System

Inputs: MIC/LINE (XLR balanced); −60/−50/−40/−6/0/+4 dBs 3 kΩ (0 dBs=0.775 V)
Outputs: LINE (PHONO unbalanced); −8 dBv low impedance (0 dBv=1 V)
                              EARPHONE; −60 to −20 dBv 8Ω (0 dBv=1 V)
Number of Tracks: Normal; 2 tracks
                              Hi-Fi; 2 tracks

Normal Sound
S/N Ratio: Better than 48 dB (Dolby NR ON, A curve, S-VHS tape)
Frequency Response: 50 Hz to 12 kHz
Crosstalk: More than 40 dB

Hi-Fi Audio
Dynamic Range: More than 80 dB
Frequency Response: 20 Hz to 20 kHz
Crosstalk: More than 55 dB

I/O CONNECTOR (OTHERS)

CAMERA OUT (BNC):   Composite signal, 1.0 Vp-p 75Ω
GENLOCK IN (BNC):   Black burst signal, 1.0 Vp-p 75Ω
VTR (26P):   VIDEO OUT; composite signal, 1.0 Vp-p 75Ω
                              AUDIO OUT; −20 dBv low impedance, unbalanced output (0 dBv=1 V)
                              START/STOP OUT; START=5 V, STOP=0 V, output impedance; 1 kΩ
                              TALLY IN; REC=5 V, PAUSE=2.5 V, high impedance input
LENS: 12 pins
EXT DC IN (XLR 4P):   DC 10.5 to 17 V

ACCESSORIES

1.5-inch viewfinder
Shoulder strap
Battery mounting terminal (for NP-1)

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

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Panasonic

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