# Operating Instructions

## Panasonic®

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

# CONTENTS

# PREFACE

The Video Imager WE-160 is designed for viewing the document or the object to the audience on the video monitor. Rotating camera allows lighted object in and around the WE-160 to be easily shot for viewing or recording.

Optional backlight unit WE-163 allows for viewing of transparent film or 35 mm color slides.
Also equips external video/audio input connectors for the variety of the video source.

# FEATURES

- High resolution and high quality picture by use of digital processing IC's and 682 horizontal pixels CCD image sensor.

    Horizontal Resolution : 430 lines
    Signal-to-Noise Ratio : 46 dB
    Minimum Scene Illumination : 0.3 footcandle (3 lux) at F1.4

- 10 times power zoom lens with close-up lens.
- Equips composite or S-Video, stereo A/V switcher
- Gen-Lock capability for Multi-camera systems.

# PRECAUTION

- Do not attempt to disassemble the appliance to prevent electric shock, do not remove screws or covers.
  There are no user-serviceable parts inside. Refer servicing to qualified service personnel.
- Handle the appliance with care.
  Do not abuse the appliance. Avoid striking or shaking it.
  It could be damaged by improper handling or storage.
- Do not expose the appliance to water or moisture, or try to operate it in wet areas.
  Do take immediate action if ever the appliance do become wet. Turn power off and refer servicing to qualified service personal. Moisture can damage the appliance and also create the danger of electric shock.
- Do not use strong or abrasive detergents when cleaning the appliance body.

  Do use a dry cloth to clean the appliance when dirty.
  In case the dirt is hard to remove, use mild detergent and wipe gently.
- Do not operate the appliance beyond its temperature, humidity or power source ratings.
  Do not use the appliance in an extreme environment where high temperature or high humidity exist.
  Use the appliance under conditions where temperatures are with in 14°F - 104°F ( −10°C - 40°C) and humidity is below 90%. The input power source for this appliance is 120V AC 60 Hz.
- Never face the camera toward the sun.
  Whether the camera is in use or not, never face it toward the sun. Do use caution when operating the camera in the vicinity of spot lights or other bright light and light reflecting object.
- Do not oil the mechanical moving parts of this appliance. It could be damaged by improper action above.

# IMPORTANT NOTICE

When carrying this appliance, be sure to hold the stage of the unit as shown.
Do not hold the arms or the lighting case as shown.
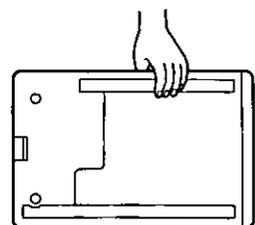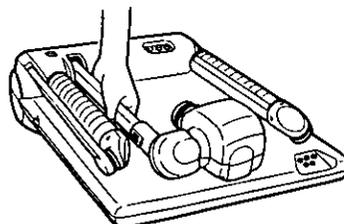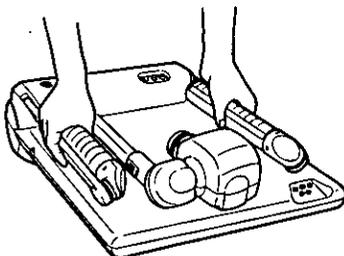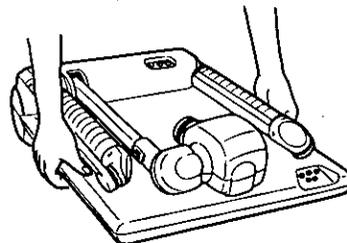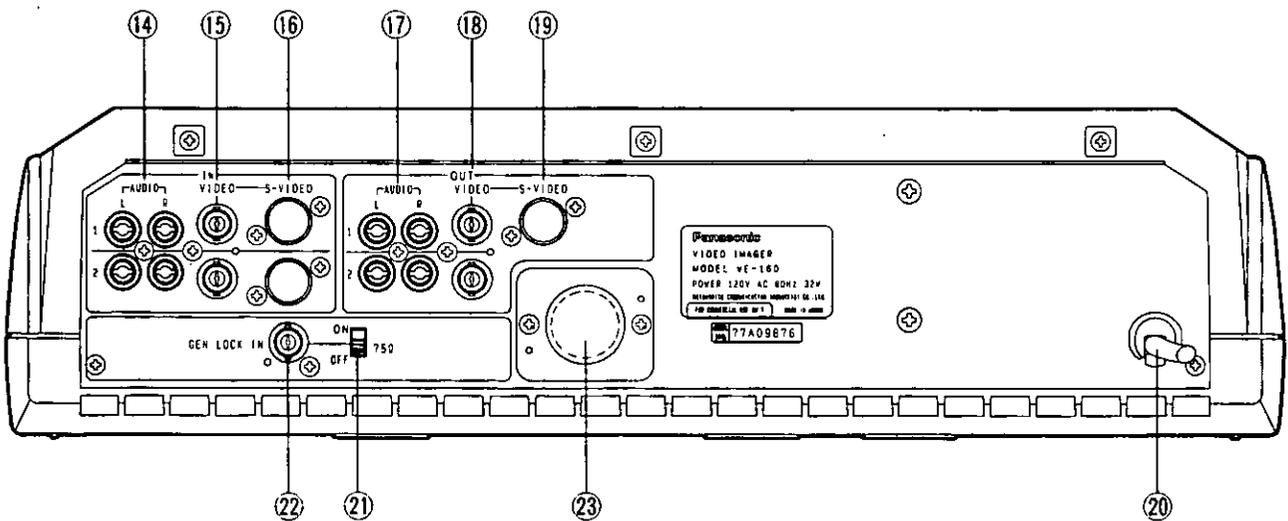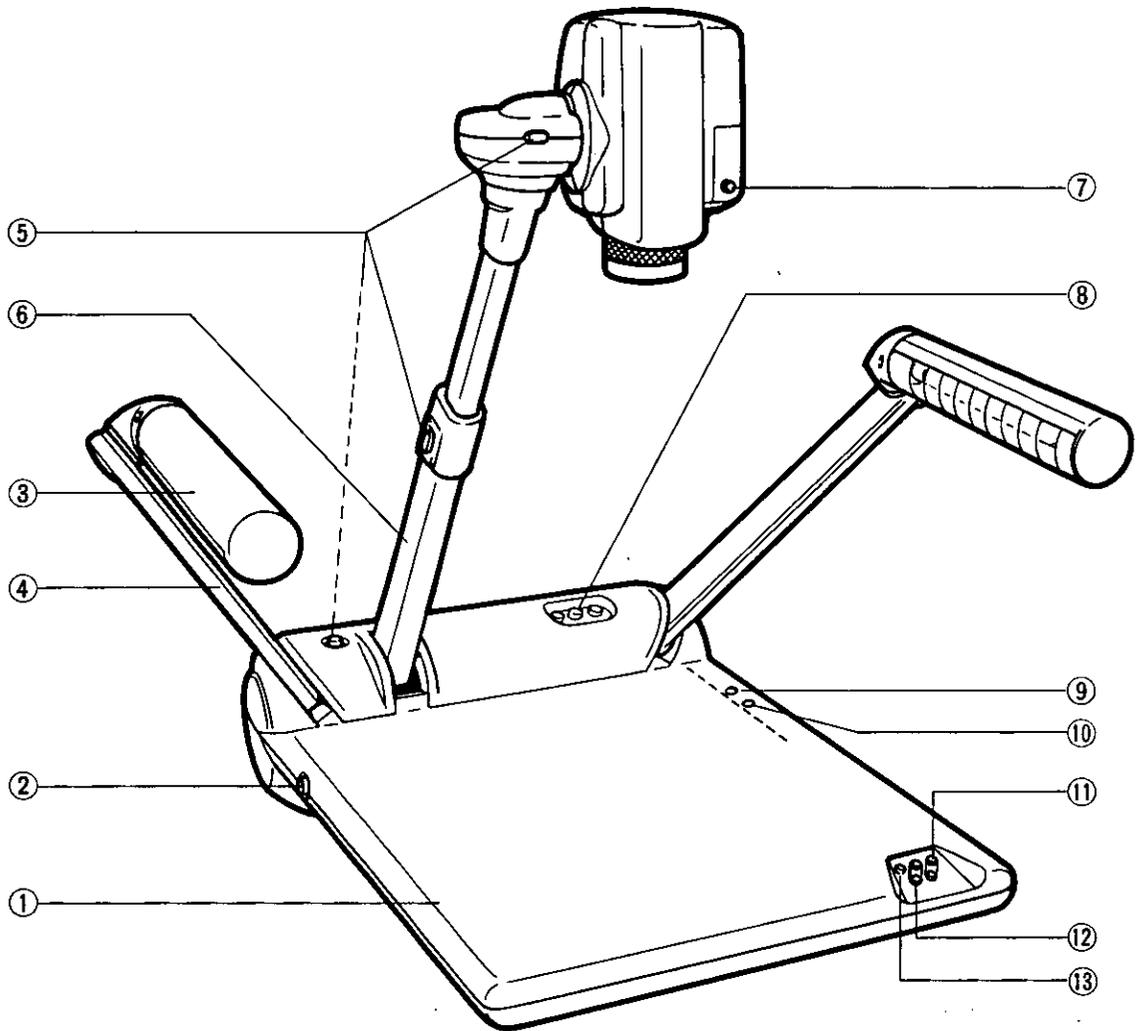
1. **Stage**
   Place the document or the object on here.

2. **Power ON/OFF Switch (POWER, ON/OFF)**

3. **Lighting case**
   Two fluorescent lamps on both sides light up when the Light Selection Switch (10) is turned on.

4. **Lighting Arm**

5. **Lock Release button**

6. **Camera Arm**

7. **Auto White Balance Control Button (AWC)**
   This button is used to set the White Balance of the camera. Press the button shooting the white object by the camera.

8. **Input Selection Switch (INPUT SELECT, VIDEO IMAGER, A/V 1, A/V 2)**
   This switch is used to select the audio/Video signal from three source signals.
   When VIDEO IMAGER button is selected, the camera signal of the WE-160 is provided to the video output connector (18, 19).
   When either A/V 1 or A/V 2 button is selected, the external audio/video signal is provided to the audio output jack (17) and the video output connectors (18, 19).

9. **Backlight Connector (BACKLIGHT)**
   The power for the optional Backlight Unit WE-163 is supplied form this connector.

10. **Light Selection Switch (LIGHT SELECT, ARM, BACKLIGHT)**
    This switch is used to select Arm Light or Backlight.

11. **Focus Adjusting Switch (FOCUS, FAR, NEAR)**
    This switch is used to adjust the focus of the camera.
    Press FAR or NEAR to adjust the focus of video.

12. **Zoom Adjusting Switch (ZOOM, IN, OUT)**
    This switch is used to adjust the angle of view of the camera.
    Press IN or OUT to adjust the angle of view of video.

13. **Power Indicator (POWER)**
    The power is turned on, this indicator lights up.

14. **Audio Input Jack (AUDIO IN 1, 2)**
    The audio signal supplied to this jack is provided both Audio Output Jack (17) via Input Selection Switch (8) A/V 1 or A/V 2.

15. **Composite Video Input Connector (VIDEO IN 1, 2)**
    This connector accepts the 1.0 Vp-p / 75 ohms composite video signal. The video signal supplied to this connector is provided both Composite Video Output Connector (18) via Input Selection Switch (8) A/V 1 or A/V 2.

16. **S-Video Input Connector (S-VIDEO IN 1, 2)**
    This connector accepts the S-Video signal. The S-Video signal supplied to this connector is provided the S-Video Output Connector (19) via Input Selection Switch (8) A/V 1 or A/V 2.

17. **Audio Output Jack (AUDIO OUT 1, 2)**
    The audio signal selected by the Input Selection Switch (8) is provided to both jacks.

18. **Composite Video Output Connector (VIDEO OUT 1, 2)**
    The Video Selected by the Input Selection Switch (8) is provided to both connectors.

19. **S-Video Output Connector (S-VIDEO)**
    The S-Video signal selected by the Input Selection Switch (8) is provided at this Connector.

20. **Power Cord.**

21. **Gen-Lock Termination Switch (75 ohms, ON/OFF)**
    When looping through the gen-lock video input signal, set this switch to the OFF position and other cases, set this to the ON position.

22. **Gen-Lock Input Connector (GEN LOCK IN)**
    The color video signal of the camera is automatically synchronized to the gen-lock signal (composite or black burst) which is supplied to this connector. The gen-lock signal is used for system reference.

23. **Lens Remote Control Connector**
    Remove two screws and take the cover away. The lens remote control connector (DIN type) appears.
    Pin allocation is shown below.

    1. GROUND
    2. FOCUS/FAR
    3. FOCUS/NEAR
    4. ZOOM/IN
    5. ZOOM/OUT
    6. POWER
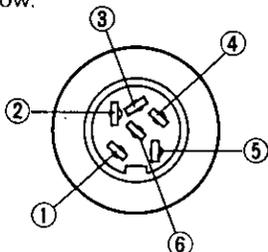
**Note:**
1. This connector can be used to remotely control the WE-160 in a custom designed system application. A connection between pin 6 and pin 2 or pin 3 will control the camera focus.
   A connection between pin 6 and pin 4 or pin 5 will control the zoom.
2. Prepare the plug purchased locally and fix it to compare with above pin allocation.
3. Connect plug and receptacle.

# SETTING UP OF THE UNIT

■ **To shoot document on the stage**

1. Press the lock release button (Camera Arm) and raise up the camera arm until it locks.
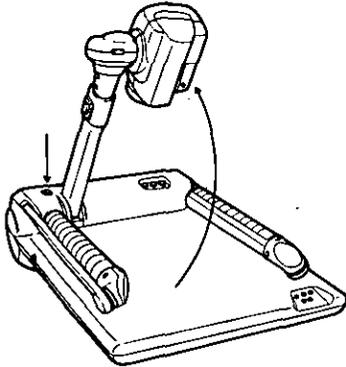
2. Pull out the camera arm to extend.
3. Turn the camera facing to the stage until locked.
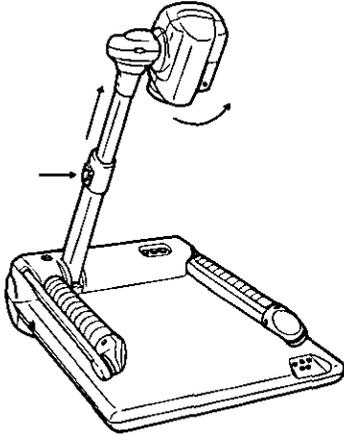
4. Raise up the lighting arms.
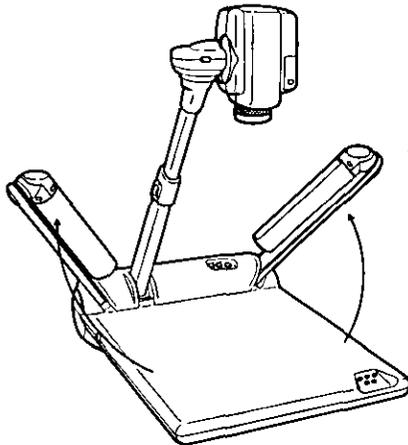
5. Turn the lighting cases to forward and lift up them until facing to the stage parallel.

6. Rotate the lighting cases inside to light the stage.
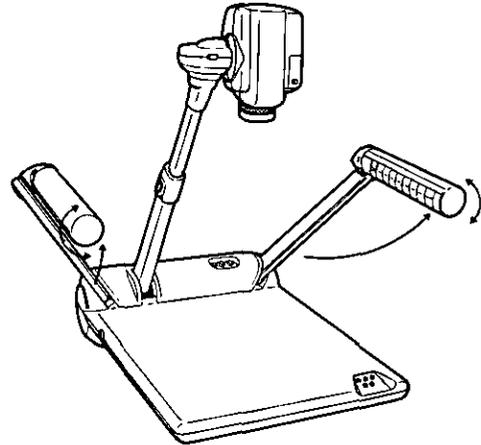
7. Turn the Power ON/OFF Switch (2) on located left side of the stage. The power indicator (13) lights up.
8. Press the VIDEO IMAGER button on the Input Selection Switch (8).
9. Select ARM position of the Light Selection Switch (10) located right side of the stage. The arm lights are turned on.
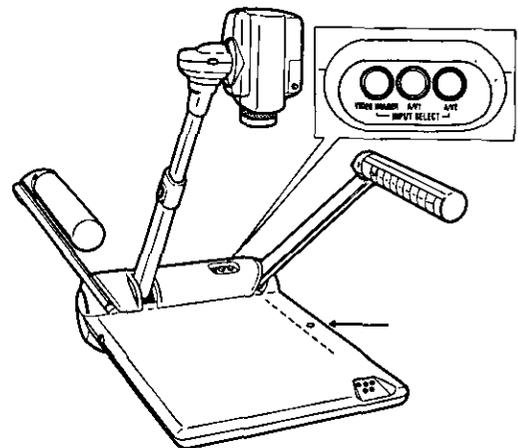
10. Place the white paper on the stage and press the Auto White Balance Control button (AWC) on the camera by observing the video monitor.
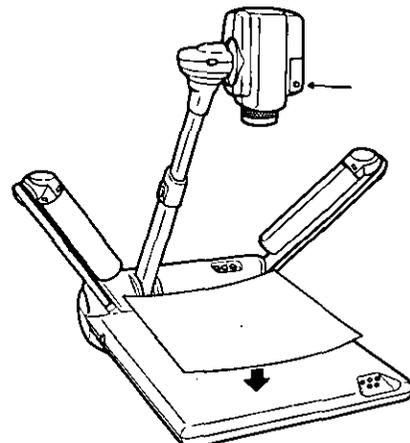
11. Place the document or the object on the stage.
12. Keep pressing the ZOOM IN Switch on the stage until the object is enlarged by observing the video monitor.
13. Press the FOCUS NEAR or FAR Switch to adjust the focus by observing video monitor.
14. Press the ZOOM OUT Switch to adjust position desired by observing Video monitor.

   **Notes:**
   (1) In case that it is hard to adjust the focus by Pressing Focus Adjusting Switch (11), adjust the focus ring of lens manualy.
   (2) It is viewed interference fringes on the screen by some of printed matter.



■ **To shoot lighted object around the WE-160**

1. Press the lock release button (Camera Arm) and raise up the camera arm until it locks.
2. Pull out the camera arm to extend.
3. Turn the camera until facing to the back.
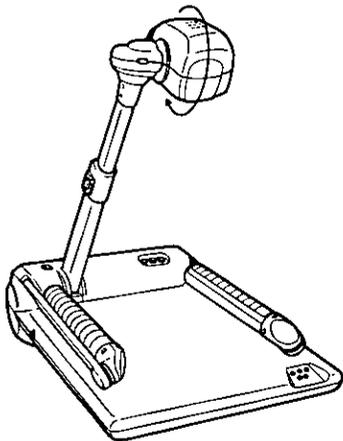


4. Press the lock release button (Camera) and rotate camera at a level until locks.



5. Remove the close-up lens on the camera.
6. Similarly follow the instructions above-mentioned.

■ **To shoot transparent film**

1. Press the lock release button (Camera Arm) and raise up the camera arm until it locks.
2. Pull out the camera arm to extend.
3. Turn the camera facing to the stage until locked.
4. Raise up the lighting arm.
5. Place the optional Backlight Unit WE-163 on the stage.



6. Connect the power connector of the backlight unit WE-163 to the Backlight Connector (9) located right side on the stage of the Video Imager WE-160.
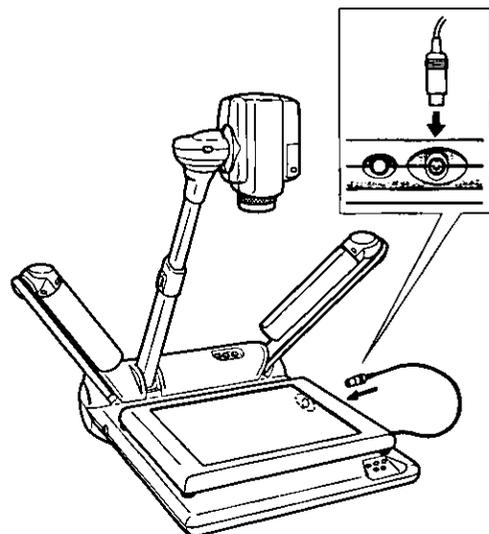


7. Push the Power ON/OFF Switch (2) on located left side of the stage. The power indicator (13) lights up.
8. Select BACKLIGHT position of the Light Selection Switch (10) located right side of the stage.
9. Turn the Power ON/OFF Switch on of the backlight unit. Backlight is lighted.
10. Similarly follow the instructions above-mentioned.

   **Note:**
   When remove or move the transparent film from the backlight unit, it becomes dark viewing in a moment on the screen.

# CONNECTION

The following diagram shown the example of the connection of the optional product.

AUDIO VIDEO
IN    IN

AUDIO  S-VIDEO AUDIO S-VIDEO
OUT    OUT     IN     IN

VTR
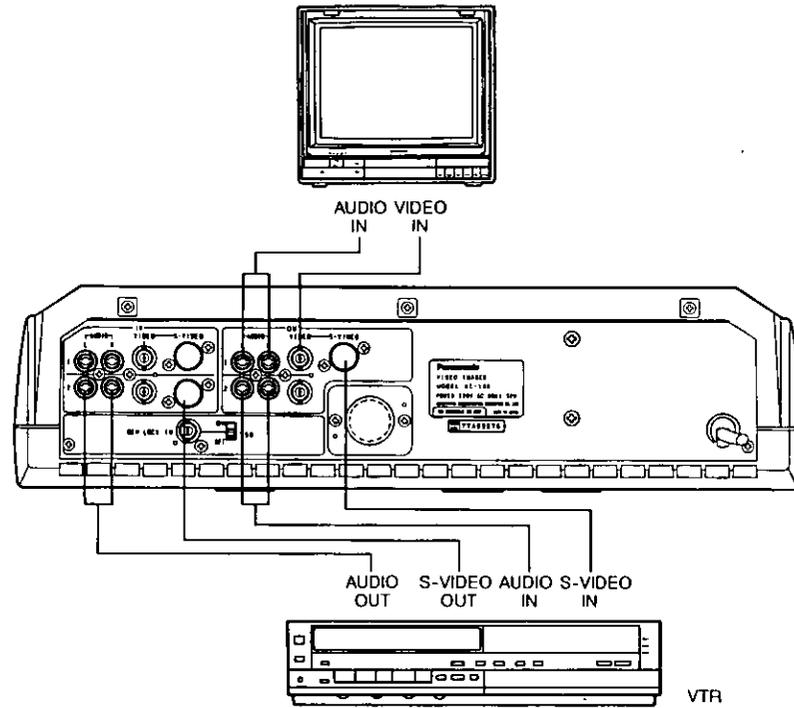
# STORAGE THE UNIT

1. Turn the Power ON/OFF Switch off, power indicator is turned off.
2. Turn the lighting cases, and fold back them along with the lighting arms.

3. Press down the Lighting arms until stops on the stage.
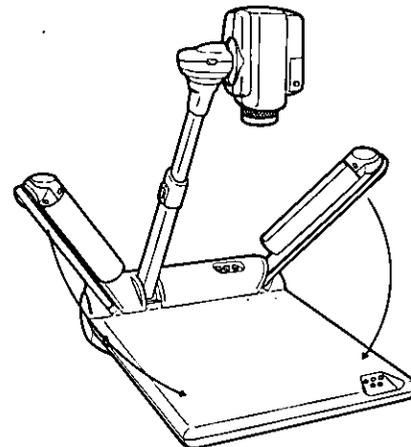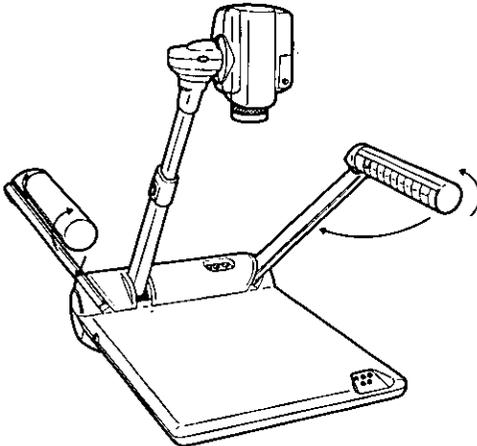
4. Rotate the camera along with the camera arm.

- 6 -
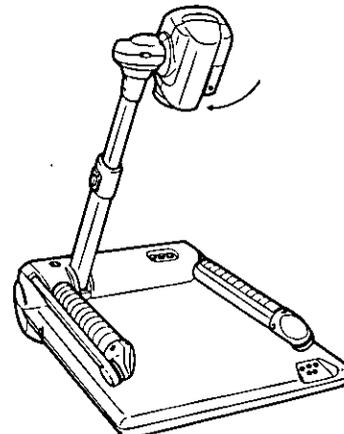
5. Push in the extension arm until it stops by pressing lock release button (extend camera arm).
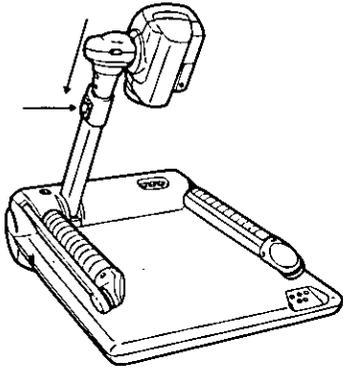


6. Lift up camera arm slighty and press the lock release button (camera arm), then press down the camera arm until it locks.
   To continue lowering the arm, lift it upward slighty. Press the lock release button and press down the arm until it stops.
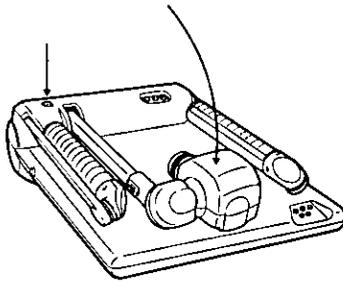


# REPLACEMENT OF THE FLUORESCENT LAMP

1. Loosen a screw fixing the light cover by holding lighting case and remove the cover.
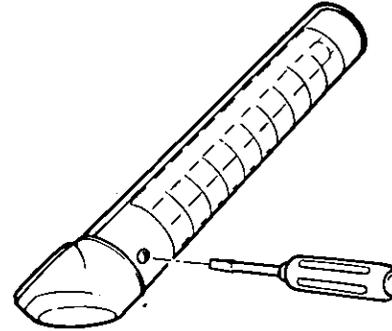


2. Rotate the ·fluorescent Lamp around half way by holding lighting case and remove it.
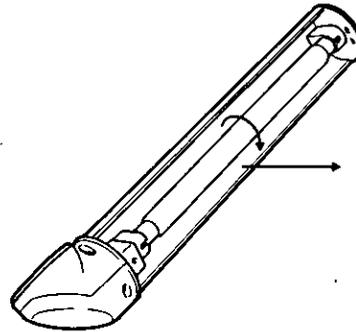


3. Replace the· lamp with new one, fix the light cover fastening the screw.
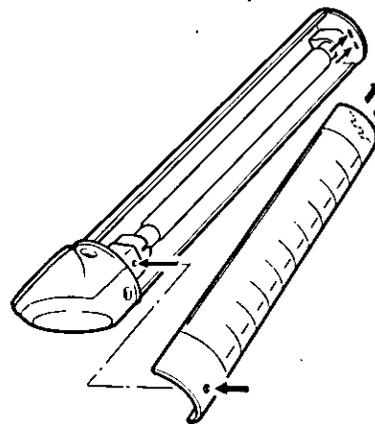


Note :
   Use 6W fluorescent lamps.

# SETUP PROCEDURE

This camera has two type of user setup procedures using on-screen character display. One is a Direct Mode and the other is Setup Menu Mode.
Loosen a screw fixing the switch cover on the camera and remove that cover.
Setting switch unit appears.

Loosen screw.

SET. UP

(GAIN)

(WHT)

(AGC)

(AWC)
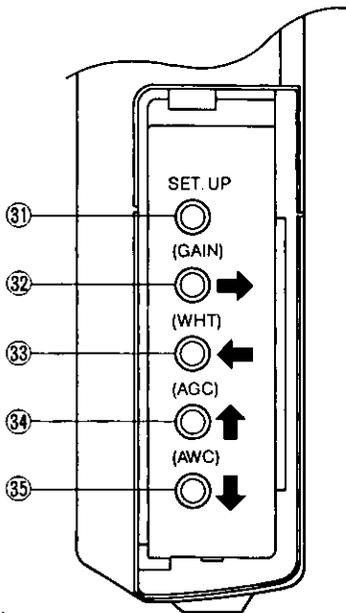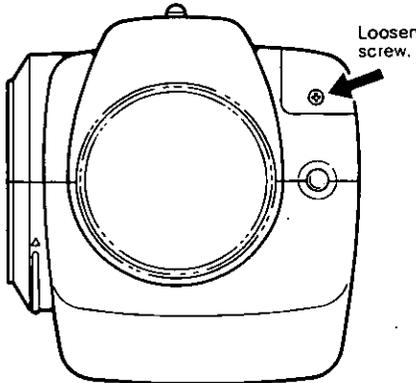
31. **Setup Mode Button (SET UP)**
The camera enters to the user setup-mode by pressing this button.

32. **Gain Selection Button (GAIN)**
This button is used to select the gain of the video amplifier as follows. (See page 9 for Direct Mode and page 10 for Setup Menu.)
OFF :
The gain of the video amplifier is set to the fixed value.
LOW :
The video gain increases approximately +6 dB.
MID :
The video gain increases approximately +9 dB.
HI :
The video gain increases approximately +12 dB.

33. **White Balance Mode Selection Button (WHT)**
This button is used to select the white balance mode as follows. (See page 9 for Direct Mode and page 10 for Setup Menu.)
ATW :
The Auto Tracing White Balance Control (ATW) mode is selected. The white balance is automatically and continuously set by detecting the characteristic/color temperature of · light source through the lens and controlling the gain of red and blue signal even if the characteristic/color temperature varies.
MANU :
Manual white balance control mode is selected. The white balance can be adjusted with the Red (R) and Blue (B) Gain Control under the Setup mode.
AWC :
Auto White Balance Control (AWC) mode is selected. Pressing the Auto White Balance Control Button (AWC) (35), the white balance can be set automatically while aiming the camera at a white object such as white paper or white wall etc.

34. **AGC Selection Button (AGC)**
This button is used to select the gain of video amplifier as follows. (See page 9 for Direct Mode and page 10 for Setup Menu.)
OFF :
The automatic gain control (AGC) is disabled and the gain of video amplifier is set to the fixed value.
LOW :
The video gain increases approximately +6 dB.
MID :
The video gain increases approximately +9 dB.
HI :
The video gain increases approximately +12 dB.

35. **Auto White Balance Control Button (AWC)**
The white balance can be set by pressing this button. (See page 9 for Direct Mode and page 10 Setup Menu.)

# 1. DIRECT MODE

Four kind of functions (AGC, GAIN, WHT, and AWC) can be operated by simply pressing these buttons. The Direct Mode has a priority to the Setup Menu Mode in setting up the functions. The Direct Mode overrides the value of the Setup Menu Mode.

## 1-1. Auto Gain Control (AGC)

The current status of the AGC is displayed on the video monitor for 2 seconds by pressing the AGC Selection Button (34). The status changes by pressing this button.

```
┌→ AGC OFF → AGC LOW → AGC MID → AGC HI ┐
└──────────────────────────────────────┘
```

```
┌──────────────────┐
│                  │
│       AGC OFF    │
│                  │
│                  │
│                  │
│                  │
└──────────────────┘
```
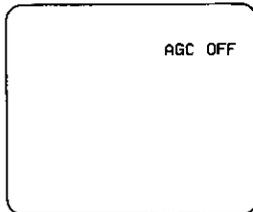
Fig. 1

**Note :**

When one of the AGC LOW/AGC MID/AGC HI is selected, the status of the GAIN should be off.

## 1-2. Gain Up (GAIN)

The current status of the GAIN UP is displayed on the video monitor for 2 seconds by pressing the Gain Selection Button (32). The status changes by pressing this button.

```
┌→ GAIN OFF → GAIN LOW → GAIN MID → GAIN HI ┐
└───────────────────────────────────────────┘
```

```
┌──────────────────┐
│                  │
│       GAIN OFF   │
│                  │
│                  │
│                  │
│                  │
└──────────────────┘
```
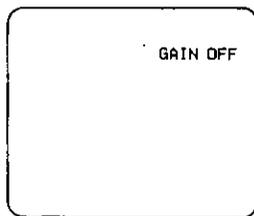
Fig. 2

**Notes :**

1. When one of the GAIN LOW/GAIN MID/GAIN HI is selected, the status of the AGC should be off.
2. The Gain Up Operation is disabled under ELC ON mode. See page 20 for ELC mode operation.

## 1-3. White Balance (WHT)

The current status of the WHT is displayed on the video monitor for 2 seconds by pressing the White Balance Mode Selection Button (33). The status changes by pressing this button.

```
┌→ AWC (PUSH SW) → ATW → MANU ┐
└─────────────────────────────┘
```

```
┌──────────────────┐
│                  │
│            ATW   │
│                  │
│                  │
│                  │
│                  │
└──────────────────┘
```
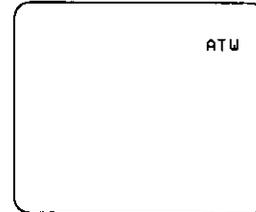
Fig. 3

**Notes :**

1. When the MANU is selected, the White Balance can be made in the Setup Menu Mode. See page 18 for White Balance Setting.
2. When the AWC (PUSH SW) is selected, press the AWC Button to setup the white balance. When the white balance is completed, AWC (PUSH SW) changes to AWC.

## 1-4. Auto White Balance Control (AWC)

The setting up of the white balance will be completed by pressing this button. If the white balance can not be completed, "AWC" blinks for 3 seconds and disappears.

```
┌──────────────────┐
│                  │
│            AWC   │── Blinking
│                  │
│                  │
│                  │
└──────────────────┘
```
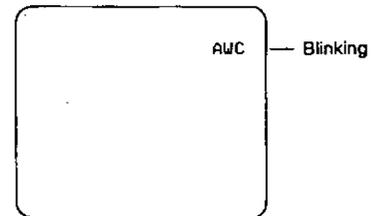
Fig. 4

**Note :**

If the camera has been set at ATW or MANU mode, ATW or MANU character will be displayed for 2 seconds when the AWC Button (35) is pressed.
If some other button is selected during this 2 seconds, the camera proceed to the new function.

## 1-5. Setup Mode (SET UP)

When the Setup Mode Button (31) (SET UP) is pressed for more than one second, the Setup Menu is displayed on the video monitor and the camera enters to the Setup Menu Mode.

```
** SET UP **

SYNC          EXT (VBS)
SHUTTER       OFF
CAMERA ID     OFF
ELC           OFF
AGC           ON
WHITE BAL     AWC
              (PUSH SW)      (AWC blinking)
END
```
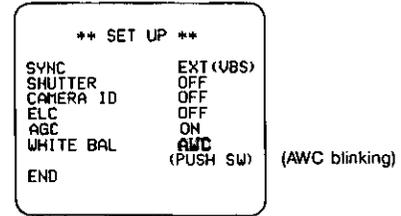
Fig. 5

## 2. SETUP MENU

This camera utilizes various user setup menu using on-screen character display.
This setup menu is structured as a tree-type menu as shown in Fig. 6.
This menu is described in the following section 4. "SETUP MENU DESCRIPTION" in detail.
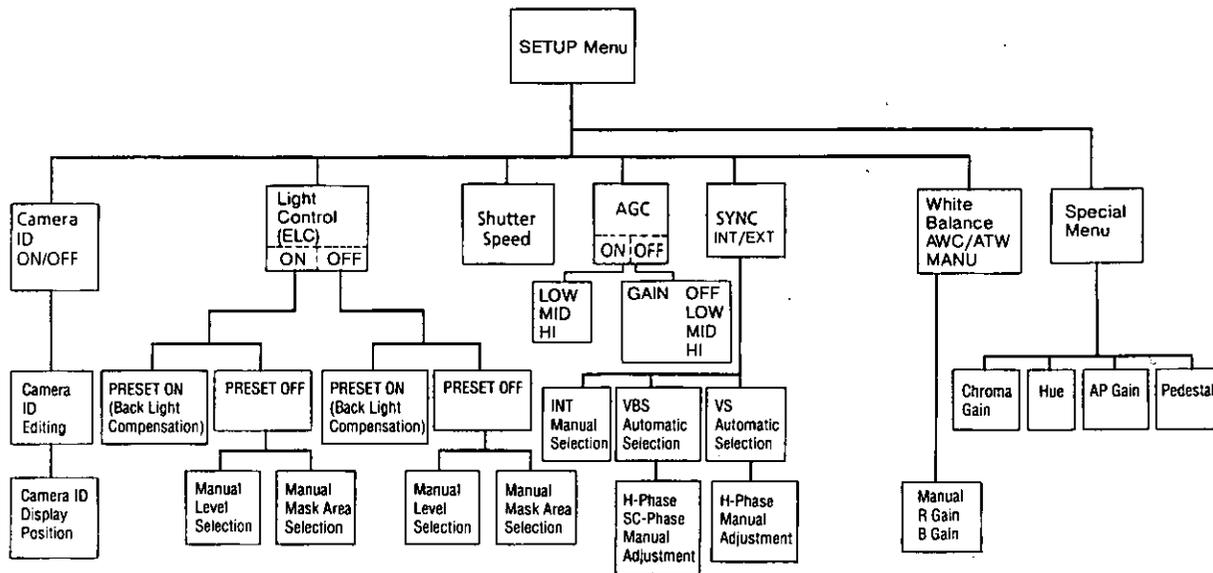


Fig. 6

All setup operations are performed by the following buttons on the camera unit :
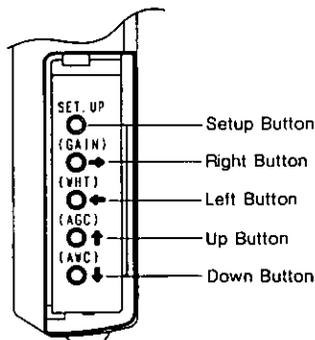


Fig. 7

Up Button (AGC) :
    The cursor moves upwards.
Down Button (AWC) :
    The cursor moves downwards.
Right Button (GAIN) :
    The cursor moves right. The mode is selected by this button. The adjustment of certain levels can be made by this button.
Left Button (WHT) :
    The cursor moves left. The mode is selected by this button. The adjustment of certain levels can be made by this button.
Setup Mode Button (SET UP) :
    The mode is set by this button. The menu is changed by this button.

## 3. SETUP ORDER

When the camera setup is required, proceed it according to the following steps.

(1) Display the "SETUP" menu. (See page 11 for description and page 13 for procedure.)

(2) Camera Identification setting. (See page 11 for description and page 14 for procedure.)

(3) Electronic Light Control setting. (See page 13 for description and page 15 for procedure.)

(4) Shutter speed setting. (See page 12 for description and page 16·for procedure.)

(5) Gain Control setting. (See page 12 for description and page 16 for procedure.)

(6) Synchronization setting. (See page 12 for description and page 16 for procedure.)

(7) White Balance setting. (See page 13 for description and page 18 for procedure.)

(8) Backlight Compensation setting. (See page 11 for description and page 19 for procedure.)

(9) Special Menu setting. (See page 13 for description and page 22 for procedure.)

## 4. SETUP MENU DESCRIPTION

### 4-1. Camera Identification (CAMERA ID)

Up to 16 of alphabetic/numerical characters for camera identification characters can be displayed on the bottom line of the picture.
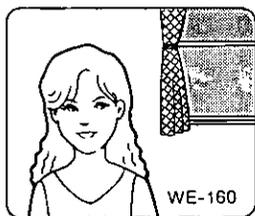


Fig. 8

The ID display ON or OFF can be chosen by the primary setup menu and the editing of displayed characters is made available in the secondly submenu.
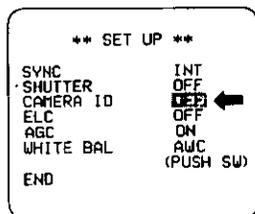


Fig. 9

**Note :**

Refer to the SETUP OPERATION section for detailed procedure.

### 4-2. Backlight Compensation (BACKLIGHT COMP)

With conventional cameras, strong background lighting such as a spotlight, interferes with the clarity of important scene objects, making them appear dark. This camera is equipped with a backlight compensation mode to overcome this problem.

As shown in the Fig. 6 SETUP MENU TREE, the factory setup mode of backlight compensation (PRESET ON) and field (manual) masking area and video output level setup (PRESET OFF) (MANUAL SET) modes are available.

● **Factory Setup Mode (PRESET ON)**

In normal use the important object in a scene is placed in the center of the monitor's screen. In the factory setup mode, more photometric weight is given to the center of the screen (where the important object is located ) than is given to the edge of the picture ( where a bright backlight would most likely be located). In this mode, even though the backlight may vary, the object at the center of the screen can still be clearly seen.

Notes :
● The masking area and the video output level are factory setup in this mode.
● Refer to the SETUP OPERATION section for detailed procedure.

＜Convensional Camera＞



＜WE-160 Preset ON＞
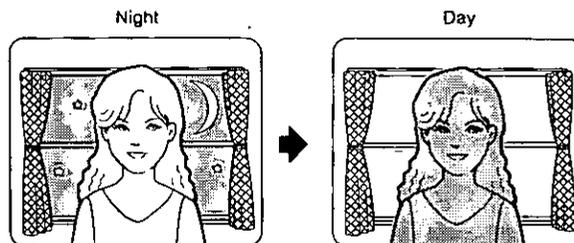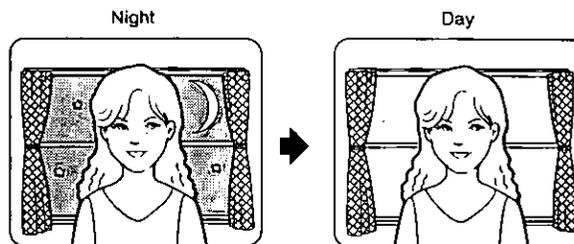


Fig. 10

● **Field Setup Mode (PRESET OFF)**

This mode is effective in conditions where the important · object in the scene is not located in the center of the picture and when a bright light source is located near the center of the screen. A conventional camera cannot cope with these situations.

Night                    Day
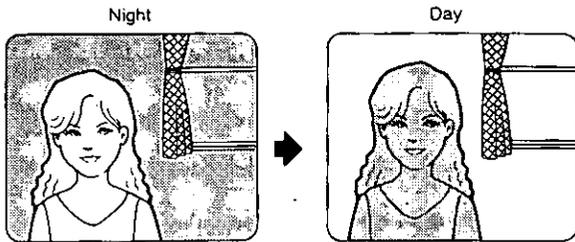


Fig. 11

However, by using the WE-160 in the preset "OFF" mode, it is possible to compensate for difficult lighting conditions. In this mode, the picture is divided into 25 zones for mask areas. It is possible to mask (or tell the camera to ignore) any bright light sources in those mask areas that might interfere with picture clarity.

For example, a strong spotlight in the background might cause the lens iris to close down so much that all other objects in the scene appear dark. With backlight compensation, it is possible to mask out the spotlight and increase the rest of the scene's brightness as shown below.
In addition to the field mask area setup, the overall video output level can be adjusted by using the level adjustment (LEVEL) in the preset "OFF" mode.

<WE-160 Masked>

Night and Day
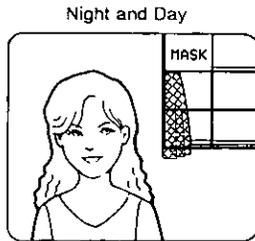


Fig. 12

Notes :
● The result of field setup of the mask area and level adjustment is fed back (effected) to the exposure time control of the CCD image sensor at the ELC mode.
● Refer to the SETUP OPERATION section for detailed procedure.

### 4-3. Shutter Speed (SHUTTER)
The electronic shutter speed can be select among the 1/60 second (OFF) and 1/100 - 1/10000 second.

**Note :**
Refer to the SETUP OPERATION section for detailed procedure.



Fig. 13

OFF → 1/100 → 1/250 → 1/500 →
→ 1/1000 → 1/2000 → 1/4000 → 1/10000 →
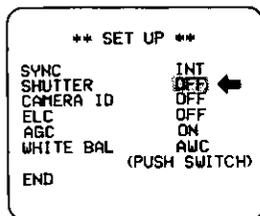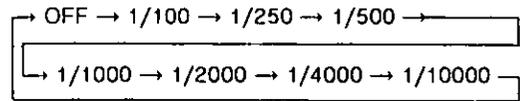
### 4-4. Gain Control (AGC)
The gain control can be selected between the automatic gain control (AGC ON) and manual gain control (AGC OFF) by this menu.

**Note :**
Refer to the SETUP OPERATION section for detailed procedure.
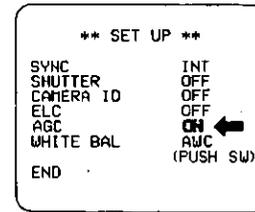


Fig. 14

### 4-5. Synchronization (SYNC)
The camera sync can be chosen between the internal sync (INT) and the external sync mode by this menu. This camera accepts a composite color video signal (VBS) or composite B/W (black and white) video signal (VS) for the Gen-lock input signal to be supplied to Gen-lock Input Connector (22). The sync mode selection in this case is performed automatically.
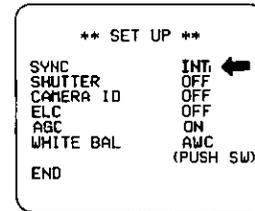


Fig. 15

**Important Notice :**
The priority of sync mode is as follows.
1. Color Composite Video Signal (VBS)
2. B/W Composite Video Sync Signal (VS)
3. Internal Sync (INT)

**Note :**
The sync mode selection among above modes is made according to priority. Refer to the SETUP OPERATION section for detailed procedure.

## 4-6. White Balance (WHITE BAL)

A color characteristic of illumination is called color temperature and it is measured in units of Kelvin (°K). The higher color temperature are considered bluish while the lower color temperatures are more reddish. A camera shooting a scene with high color temperature illumination produces a bluish picture. Likewise, it will produce a reddish picture with lower color temperature illumination. Therefore, in order for the camera to reproduce a scene accurately, it needs to be white balanced before shooting.
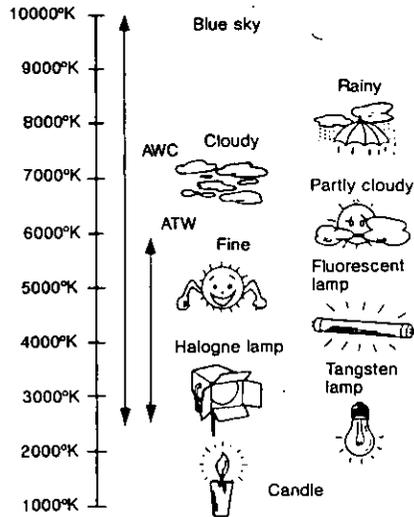


Fig. 16

The white balance control mode can be chosen among the auto-tracing white balance (ATW), the manual white balance control (MANU) and one-touch automatic white balance control (AWC) mode by this menu.
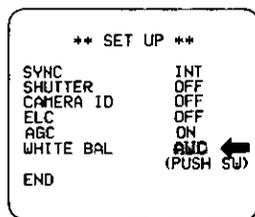


Fig. 17

## 4-6-1. Auto-Tracing White Balance Mode (ATW)

In the ATW mode the color temperature of the illuminant is continuously monitored and the white balance of the camera is automatically set.

The ATW mode has a range of operation from approximately 2600°K - 6000°K. Beyond this range, use the Automatic White Balance (AWC) mode.

The ATW mode might not produce optimum color rendition in the following conditions.

1. When the scene consists mostly of strongly colored objects or illumination such as a blue sky or during sunset.

2. When the scene is dimly lit.
   In these cases, use the AWC mode.

## 4-6-2. Automatic White Balance Control Mode (AWC)

In this mode, accurate white balance may be obtained within a range of operation from approximately 2300°K - 10000°K.

**Note :**

Refer to the SETUP OPERATION section for detailed procedure.

## 4-6-3. Manual White Balance Control Mode (MANU)

In this mode, the white balance can be obtained manually by adjusting R-Gain and B-Gain on-screen menu.

## 4-7. Special Menu (SPECIAL)

The chroma level, chroma phase (HUE), aperture level and pedestal level of this camera can be adjusted by using this special menu.

**Note :**

Refer to the SETUP OPERATION section for detailed procedure.
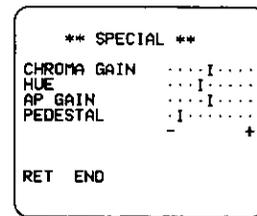


Fig. 18

## 4-8. Electronic Light Control (ELC)

In the ELC mode, a continuosuly variable electronic shutter is employed to automatically control the exposure times in the CCD image sensor, according to the incoming light level.

**Note :**

Select ELC ON position, the lens iris is opened and it can not be controlled by ALC mode.
Select ELC OFF position, the lens iris is controlled by ALC mode.

## 5. SETUP OPERATION

Before entering the Setup menu, remember the ALL RESET operation in order to escape from the confusion of setting up the each item to the factory setup condition as follows.

(1) Confirm that the normal camera picture is displayed and no setup menu is displayed.

(2) While pressing both the Left Button (WHT) and Right Button (GAIN) together, press the Setup Mode Button (SET UP) for a while in order to reset all adjustments and selections to the factory setup condition.
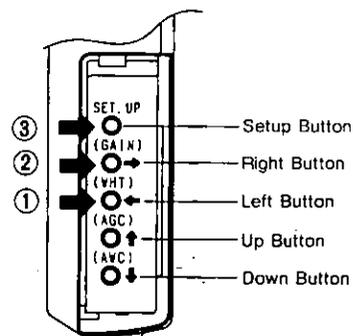


Fig. 19

**Note :**

> While the ALL RESET mode is being processed, picture may be disturbed. This phenomenon is normal and indicating the sign of the all reset mode.

## 5-1. Entering Setup Menu

- By pressing the Setup Mode Button (SET UP) for more than 1 second, the "SET UP" menu is displayed on the monitor screen as shown in Fig. 20.

```
    ** SET UP **

SYNC          INT
SHUTTER       OFF
CAMERA ID     OFF
ELC           OFF
AGC           ON
WHITE BAL     AWC   ⬅
              (PUSH SW)
END
```
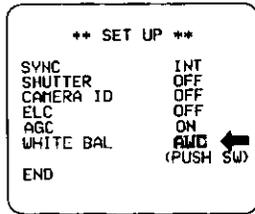
Fig. 20

- By observing this menu, you can check the current conditions.
  Refer to the following sections for details of each item.
- After confirming current conditions and further resetting of each item is not required, move the cursor to the "END" position on the left bottom line and press the Setup Mode Button (SET UP) to return to the normal camera picture mode.

**Notes :**

1. Whenever completing the setup menu, move the cursor to the "END" position and press the Setup Mode Button (SET UP) and confirm that the "SETUP MENU" disappears from the screen in order to ensure the latest data to be stored in the memory. In addition, do not connect or disconnect the Gen-lock input signal during setting the "SETUP MENU" as this could cause a reset of set data.
2. When no key is pressed for 5 minutes while any of SETUP MENU is being displayed, the SETUP MENU is automatically ended and returns to the normal picture.

```
    ** SET UP **

SYNC          INT
SHUTTER       OFF
CAMERA ID     OFF
ELC           OFF
AGC           ON
WHITE BAL     AWC
              (PUSH SW)
END   ⬅
```
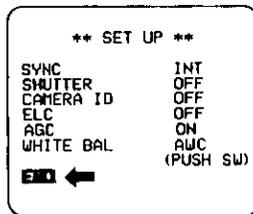
Fig. 21

- When the Special Menu is needed to be adjusted, move the cursor to the "END" position and press both the Left Button (WHT) and Right Button (GAIN) together for approximately 2 seconds to display the Special Menu. (Refer to the 7. SPECIAL MENU on page 22.)

**Important Notice :**

> When the cursor is moved to the next position (next item) after changing the data (ex. ON → OFF), the latest data is written on the memory (Electronic Erasable Programmable Read Only Memory (EEPROM)) and it remains until the further data write is made even if the camera power is switched off.

## 5-2. Camera Identification (CAMERA ID) Setting

- Move the cursor to the "CAMERA ID" mode position, and select either "ON" (Camera Identification character is displayed) or "OFF" mode by using either the Left Button (WHT) or Right Button (GAIN).

```
    ** SET UP **

SYNC          INT
SHUTTER       OFF
CAMERA ID     OFF   ⬅
ELC           OFF
AGC           ON
WHITE BAL     AWC
              (PUSH SW)
END
```
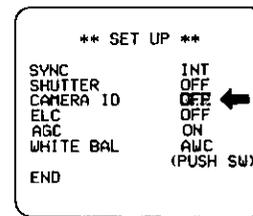
Fig. 22

- Move the cursor to the next item to write the new data into the memory.
- When the camera identification character needs editing, perform the following steps by using the submenu of Camera Identification.
- Move the cursor to the "CAMERA ID" mode position and press the Setup Mode Button (SET UP) to display the Character Editing menu as shown in Fig. 23.

Character Cursor

```
ABCDEFGHIJKLM
NOPQRSTUVWXYZ      ── Character Area
0123456789
()..'":;&#!?=
+-*/x$ÄÖÜÆÃÄ

← →   SPACE
POSI RET END RESET  ── Command

Editing Cursor ──  ■ ·············  ── Editing Area
```
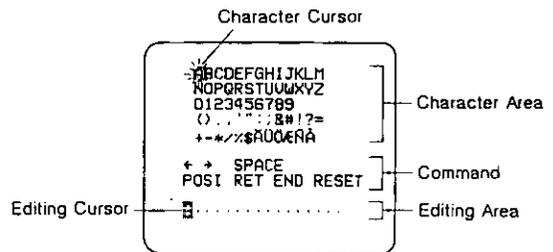
Fig. 23

- The character cursor on the letter "A" and the editing cursor on the left end of the editing area starts blinking.
- Move the character cursor to the desired letter by using the Up Button (AGC), Down Button (AWC), Left Button (WHT) and Right Button (GAIN) and press the Setup Mode Button (SET UP). The selected letter is written on the editing cursor. (The blinking Editing Cursor moves to right automatically at this moment.)
- Repeat this procedure until the character editing has been completed.

```
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
 123456789
()..'":;&#!?=
+-*/x$AOOÆRÅ

← →   SPACE
POSI RET END RESET

   WE-160 ·······
```

Fig. 24

- When the position of the editing cursor is to be shifted on the editing area, move the character cursor to the "←" or "→" and press the Setup Mode Button (SET UP). This function is used to move the editing position or correct an individual character.

```
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
 123456789
()..'":;&#!?=
+-*/x$AOOÆRÅ

← ▓   SPACE
POSI RET END RESET

   WE-160 ·······
```

Fig. 25

- When a blank space is needed, move the character cursor to the "SPACE" position and press the Setup Mode Button (SET UP). The blank space is inserted into the cursor position on the editing area.

```
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
 123456789
()..'":;&#!?=
+-*/x$AOOÆRÅ

← →   SPACE  ⬅
POSI RET END RESET

   WE-160 ·······
```
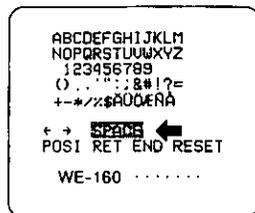
Fig. 26.

- When the all characters in the editing area are to be erased, move the character cursor to the "RESET" position and press the Setup Mode Button (SET UP).

```
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
 123456789
()..'":;&#!?=
+-*/x$AOOÆRÅ

← →   SPACE
POSI RET END RESET ⬅

   WE-160 ·······
```
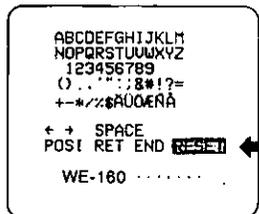
Fig. 27

- After completing the editing of the Camera Identification characters, the display position of the Camera Identification character on the monitor screen can be set as follows.
- Move the character cursor to the "POSI" position and press the Setup Mode Button (SET UP) to display the ID position menu as shown Fig. 28 and the characters of the camera ID starts blinking to identify the positioning menu for you.

```
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
 123456789
()..'":;&#!?=
+-*/x$AOOÆRÅ

⬅ ← →   SPACE
   POSI RET END RESET

   WE-160 ·······
```
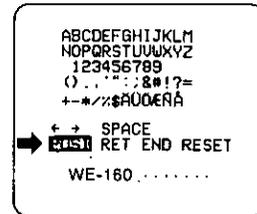
Fig. 28

- The display position of the camera ID on the monitor screen can be changed anywhere on the entire screen by using the Up Button (AGC), Down Button (AWC), Left Button (WHT) and Right Button (GAIN).

  Notes :
  1. The position moving of the camera ID stops at the edges of the monitor screen.
  2. The camera ID moves faster when any of the Up Button (AGC), Down Button (AWC), Left Button (WHT) and Right Button (GAIN) is kept pressed for more than 0.5 seconds.

- After completing the positioning of the camera ID, press the Setup Mode Button (SET UP) to return to the Character Editing menu as shown in Fig. 23.
- To return to the normal camera picture mode, move the character cursor to the "END" position and press the Setup Mode Button (SET UP).
- To return to the Setup menu for setting other items, move the character cursor to the "RET" position and press the Setup Mode Button (SET UP).

### 5-3. Light Control Setting (ELC)
- Display the Setup menu as shown in Fig. 20.
- Move the cursor to the "ELC" mode position and select either the "ON" or "OFF" mode by using the Left Button (WHT) or Right Button (GAIN).

```
      ** SET UP **

SYNC          INT
SHUTTER       OFF
CAMERA ID     OFF
ELC           OFF ⬅
AGC           ON
WHITE BAL     AWC
              (PUSH SW)
END
```

Fig. 29

-15-
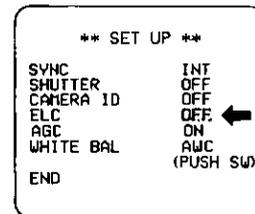
**Caution :**

The backlight compensation setting allocated under this menu is described in the section 6 and this setting should be done after installing the camera to the site and observing the actual site picture.

## 5-4. Shutter Speed Setting (SHUTTER)

- Display the Setup menu as shown in Fig. 20.
- Move the cursor to the SHUTTER mode position and select the electronic shutter speed by pressing the Left Button (WHT) and the Right Button (GAIN).

```
        ** SET UP **

SYNC            INT
SHUTTER         OFF  ⬅
CAMERA ID       OFF
ELC             OFF
AGC             ON
WHITE BAL       AWC
               (PUSH SW)
END
```
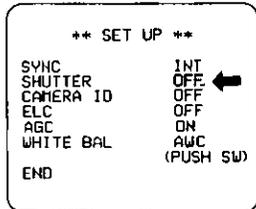
Fig. 30

The following electronic shutter speed is available.

OFF (1/60) → 1/100 → 1/250 → 1/500 → ·
1/1000 → 1/2000 → 1/4000 → 1/10000 →

## 5-5. Gain Control Setting (AGC ON/OFF)

- Display the Setup menu as shown in Fig. 20.
- Move the cursor to the AGC mode position and select either ON or OFF mode by using the Left Button (WHT) and Right Button (GAIN).
- When the ON mode is selected and the Setup Mode Button (SET UP) is pressed, the "HI" is displayed as shown in Fig. 31.

```
        AGC ON
AGC MAX         HI




RET END
```
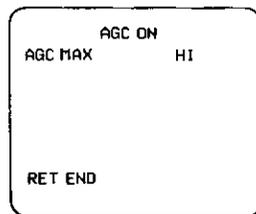
Fig. 31

- Press the Left Button (WHT) or the Right Button (GAIN) to select the AGC level. The level changes as follows.

→ HI → LOW → MID →

**Notes :**

LOW is approximately +6 dB
MID is approximately +9 dB
HI is approximately +12 dB

- If you want to return to the normal picture mode, move the cursor to the END position. Then press the Setup Mode Button (SET UP). However, if you want to set up of the AGC OFF mode, proceed the following procedures.
- Move the cursor to RET position and press the Setup Mode Button (SET UP) to display the Setup Menu.
- AGC ON is blinking in the Setup Menu. Change the ON to OFF by pressing the Left Button (WHT) or the Right Button (GAIN). Then press the Setup Mode Button (SET UP) to display AGC OFF menu as shown in Fig. 32.

```
        AGC OFF

GAIN            OFF




RET END
```
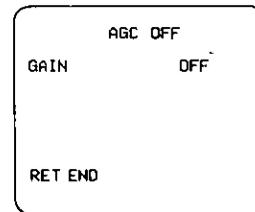
Fig. 32

- Press the Left Button (WHT) or the Right Button (GAIN) to select the Gain. The Gain changes as follows.

→ OFF → LOW → MID → HI →

## 5-6. Synchronization Setting (SYNC)

- Display the Setup menu as shown in Fig. 20.
- Move the cursor to the SYNC mode position.

```
        ** SET UP **

SYNC            INT  ⬅
SHUTTER         OFF
CAMERA ID       OFF
ELC             OFF
AGC             ON
WHITE BAL       AWC
               (PUSH SW)
END
```
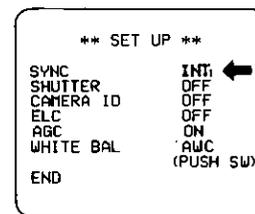
Fig. 33

**Important Notice :**

1. The priority of sync mode is as follows.
   1. Color Composite Video Signal (VBS)
   2. B/W Composite Video Sync Signal (VS)
   3. Internal Sync (INT)
2. When the internal sync mode is to be used, select the INT position and no gen-lock input signal should be supplied to the Gen-lock Input Connector (22) on the rear panel.
3. When the VBS or VS gen-lock mode is to be used, and supply the gen-lock input signal to the Gen-lock Input Connector (22) on the rear panel.

4. The VBS gen-lock mode has a submenu of the horizontal and subcarrier phase adjustments as shown in the following section 5-6-1.
When the cable length of video output signal or gen-lock input signal is changed, the horizontal and subcarrier phase must be readjusted.

5. The VS gen-lock mode has a submenu of the horizontal phase adjustment as shown in the following section 5-6-2. When the cable length of video output signal or gen-lock input signal is changed, the horizontal phase must be readjusted.

### 5-6-1. VBS Gen-lock Mode (EXT(VBS))

● Connect the coaxial cable of the blackburst or composite color video signal to the Gen-lock Input Connector (22) and confirm that the "INT" position has been changed into the "EXT(VBS)" indication.
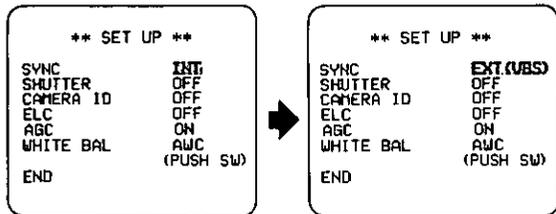
Fig. 34

**CAUTION :**

The gen-lock input signal should be met with the EIA RS-170A specification and should not contain jitter such as VTR playback signal as it could cause a synchronization error.

● After confirming that the cursor is on the "EXT(VBS)" position, press the Setup Mode Button (SET UP) and following phase adjustment menu is then displayed on the monitor.
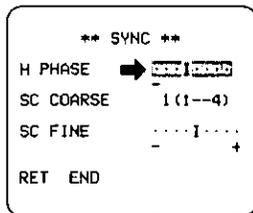
Fig. 35

● Move the cursor to the "H PHASE" mode position. The cursor "I" starts blinking.
● Connect the camera video output signal and the gen-lock input signal to a dual-trace oscilloscope.
● Set the oscilloscope to the horizontal rate and expand the horizontal sync portion on the oscilloscope.
● Adjust the horizontal phase by using the Left Button (WHT) or Right Button (GAIN). The cursor "I" moves left or right. The adjustable range is 0 - 2.5 μsec.
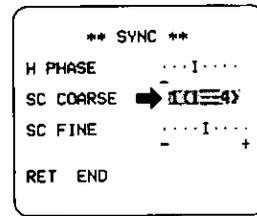
Fig. 36

● Move the cursor to the "SC COARSE" mode position for subcarrier phase adjustment. The cursor starts blinking.
● Press the Left Button (WHT) or Right Button (GAIN) so that the color of the Effect Output video signal (Program Output video signal) of the Special Effects Generator (SEG) becomes the closest color of the original objects. (The SC coarse adjustment can be made for every 90 degrees (4 steps) by using the Left Button (WHT) or Right Button (GAIN).)

**Note :**

After the fourth step, it returns to the first step.

  1 (1 - - 4) :  0 degree

  2 (1 - - 4) :  90 degrees

  3 (1 - - 4) :  180 degrees

  4 (1 - - 4) :  270 degrees

● Move the cursor to the "SC FINE" mode position. The cursor starts blinking.
● Press the Left Button (WHT) or Right Button (GAIN) so that the color of the Effect Output video signal (Program Output video signal) of the Special Effects Generator (SEG) becomes the closest color of the orignal objects. (The fine adjustment can be made for up to 90 degrees by using the Left Button (WHT) or Right Button (GAIN).)
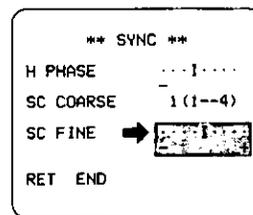
Fig. 37

**Notes :**
1. When the cursor "I" reaches to the end of "+" position, the cursor "I" jumps to the "−" position. At the same time, the step number of the SC COARSE mode increases one step to make enable a continuous adjustment. The reverse operation takes place when the cursor "I" reaches to the end of "−" position.
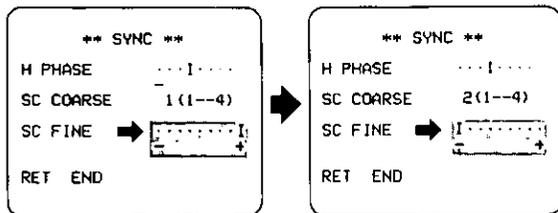
Fig. 38

2. When the Left Button (WHT) or Right Button (GAIN) is kept pressed for more than one second, the cursor "I" moves quickly.
3. For more accurate adjustment, supply both the original camera video output signal and the Effect Output video signal (Program Output video signal) of the Special Effects Generator (SEG) to the vectorscope and compare the chroma phase for both signals.
4. When both the Left Button (WHT) and the Right Button (GAIN) are pressed simultaneously, the cursor "I" is reset to the factory setup position.

### 5-6-2. VS Gen-lock Mode (EXT(VS))

- Connect the coaxial cable of the composite sync or composite black-and-white video signal to the Gen-lock Input Connector (22) and confirm that the "INT" position has been changed into the "EXT(VS)" indication.
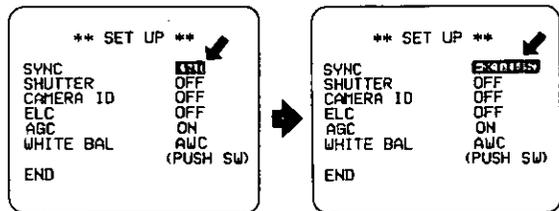


Fig. 39

**CAUTION :**
The gen-lock input signal should be met with the EIA RS-170 specification and should not contain jitter such as VTR playback signal as it could cause a synchronization error.

- After confirming that the cursor is on the "EXT(VS)" position, press the Setup Mode Button (SET UP) and following phase adjustment menu is then displayed on the monitor.
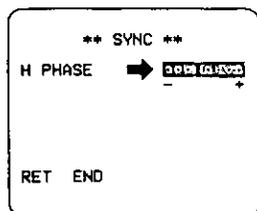


Fig. 40

- Connect the camera video output signal and the gen-lock input signal to a dual-trace oscilloscope.
- Set the oscilloscope to the horizontal rate and expand the horizontal sync portion on the oscilloscope.
- Adjust the horizontal phase by using the Left Button (WHT) or Right Button (GAIN). The cursor "I" moves left or right. The adjustable range is 0 - 2.5 $\mu$sec.

### 5-7. White Balance Setting (WHITE BAL)

#### 5-7-1. Auto-Tracing White Balance Mode (ATW)
- Display the Setup menu as shown in Fig. 20.
- Move the cursor to the "WHITE BAL" mode by pressing the Left Button (WHT) and the Right Button (GAIN).
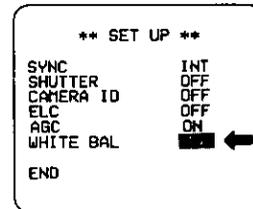


Fig. 41

No more setting up or adjustment is required.

#### 5-7-2. Automatic White Balance Control Mode (AWC)
- Move the cursor to the "WHITE BAL" mode position and select the "AWC" mode by pressing the Left Button (WHT) or Right Button (GAIN). "(PUSH SW)" is now displayed.
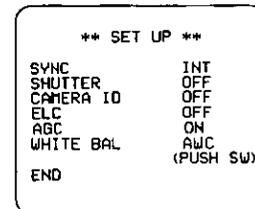


Fig. 42

- Press the Setup Mode Button (SET UP) to setup the white balance. The "(PUSH SW)" display starts blinking to indicate that the white balance is being set.
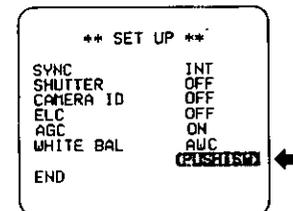


Fig. 43

- When the white balance setting is completed, the blinking "(PUSH SW)" stops.

### 5-7-3. Manual White Balance Mode (MANU)

● Move the cursor to the "WHITE BAL" mode position and select the "MANU" mode by pressing the Left Button (WHT) or Right Button (GAIN). "MANU" is now displayed.

```
┌─────────────────────────┐
│      ** SET UP **        │
│                          │
│  SYNC          INT       │
│  SHUTTER       OFF       │
│  CAMERA ID     OFF       │
│  ELC           OFF       │
│  AGC           ON        │
│  WHITE BAL  ➡ MANU       │
│              (PUSH SW)   │
│  END                     │
│                          │
└─────────────────────────┘
```
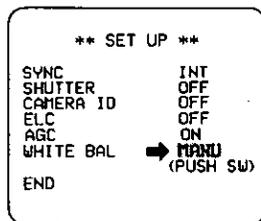
Fig. 44

● Press the Setup Button (SET UP) to display the following gain adjustment menu on the screen.

```
┌─────────────────────────┐
│     ** WHITE BAL **      │
│                          │
│  R-GAIN      ···· I····  │
│              -         + │
│                          │
│  B-GAIN      ···· I····  │
│              -         + │
│                          │
│  RET END                 │
│                          │
└─────────────────────────┘
```
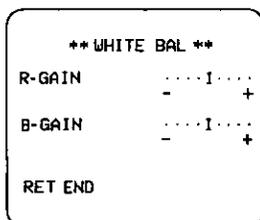
Fig. 45

● The cursor on the "R-GAIN" position is blinking.
● Keep pressing the Left Button (WHT) or the Right Button (GAIN) to obtain an optimum Red gain. The cursor "I" moves to right or left.
● Move the cursor to the "B-GAIN" position.
● Keep pressing the Left Button (WHT) or the Right Button (GAIN) to obtain an optimum Blue gain. The cursor "I" moves to right or left.

## 6. BACKLIGHT COMPENSATION (BACKLIGHT COMP)

### 6-1. ELC OFF Mode

● Confirm that the ELC mode is selected as follows.
● Display the Setup menu as shown in Fig. 20.
● Move the cursor to the "ELC" mode position and select the "OFF" mode by using the Left Button (WHT) or Right Button (GAIN).

```
┌─────────────────────────┐
│      ** SET UP **        │
│                          │
│  SYNC          INT       │
│  SHUTTER       OFF       │
│  CAMERA ID     OFF       │
│  ELC           OFF ⬅     │
│  AGC           ON        │
│  WHITE BAL     AWC       │
│              (PUSH SW)   │
│  END                     │
│                          │
└─────────────────────────┘
```
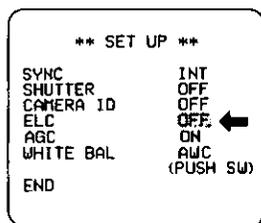
Fig. 46

● Press the Setup Mode Button (SET UP) to proceed to the Backlight compensation menu as shown in Fig. 47.

```
┌─────────────────────────┐
│     ** ELC OFF **        │
│     BACKLIGHT COMP       │
│                          │
│  PRESET      ➡ OFF       │
│                          │
│  MANUAL SET              │
│                          │
│  LEVEL        ···I·····  │
│              -         + │
│  RET  END                │
│                          │
└─────────────────────────┘
```
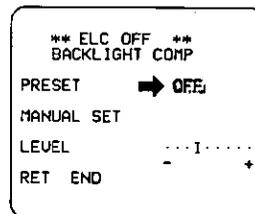
Fig. 47

### 6-1-1. ELC OFF Mode with Preset Mode (PRESET ON)

● Move the cursor to the "PRESET" mode position and select the "ON" mode by using the Left Button (WHT) or Right Button (GAIN). The preset mode menu is displayed on the monitor screen as shown in Fig. 48.

```
┌─────────────────────────┐
│     ** ELC OFF **        │
│     BACKLIGHT COMP       │
│                          │
│  PRESET      ➡ ON        │
│                          │
│                          │
│  RET  END                │
│                          │
└─────────────────────────┘
```
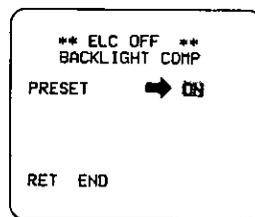
Fig. 48

● Move the cursor to "RET" position by using the Up Button (AGC) or Down Button (AWC) and press the Setup Mode Button (SET UP) to return to the Setup menu.

Note :
Move the cursor to the "END" position and press the Setup Mode Button (SET UP) to return to the normal camera picture mode.

### 6-1-2. ELC OFF Mode with Field Setup Mode (PRESET OFF)

● Move the cursor to the "PRESET" mode position and select the "OFF" mode by using the Left Button (WHT) and Right Button (GAIN).
● The field setup menu is displayed on the monitor screen as shown in Fig. 49.

```
┌─────────────────────────┐
│     ** ELC OFF **        │
│     BACKLIGHT COMP       │
│                          │
│  PRESET        OFF ⬅     │
│                          │
│  MANUAL SET              │
│                          │
│  LEVEL        ···I·····  │
│              -         + │
│  RET  END                │
│                          │
└─────────────────────────┘
```
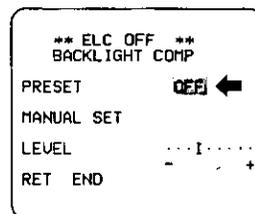
Fig. 49

- Move the cursor to the "MANUAL SET" mode position and press the Setup Mode Button (SET UP). The 25 Mask Areas appears on the monitor screen as shown in Fig. 50. The left top area starts blinking as a cursor.
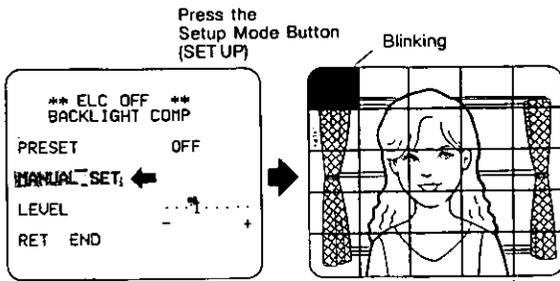


Fig. 50

- To mask this area, press the Setup Mode Button (SET UP). The word "MASK" appears in this area as shown in Fig. 51.
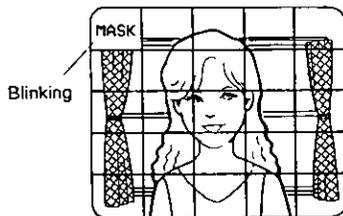


Fig. 51

- To mask other areas, move the cursor to the desired area by using the Up Button (AGC), Down Button (AWC), Left Button (WHT) or Right Button (GAIN). The previous masked area then stops blinking and turns to white as shown in Fig. 52.
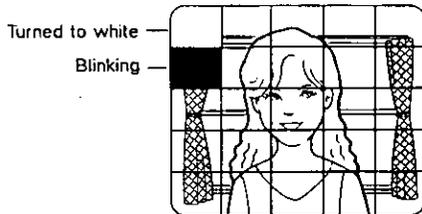


Fig. 52

- When the cursor is moved to the area where has already been masked before, the word "MASK" appears.
- Press the Setup Mode Button (SET UP) when this masking is to be canceled.
- After masking is completed, press the Setup Mode Button (SET UP) for more than 2 seconds and the 25 Mask Areas on the monitor screen disappears and the field setup menu shown in Fig. 49 is then displayed.

- When the video output level (picture contrast) is to be changed, move the cursor to the "LEVEL" mode position and press the Left Button (WHT) and Right Button (GAIN). The cursor "I" moves right or left to change the video output level.
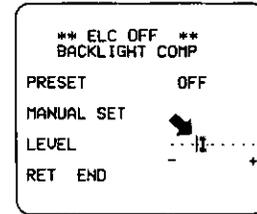


Fig. 53

- Move the cursor to "RET" position by using the Up Button (AGC) or Down Button (AWC) and press the Setup Mode Button (SET UP) to return to the Setup menu.

Note :
Move the cursor to the "END" position and press the Setup Mode Button (SET UP) to return to the normal camera picture mode.

### 6-2. ELC ON Mode
- Confirm that the ELC mode is selected as follows.
- Display the Setup menu as shown in Fig. 20.
- Move the cursor to the "ELC" mode position and select the "ON" mode by using the Left Button (WHT) or Right Button (GAIN).
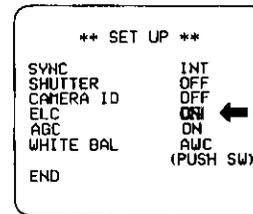


Fig. 54

Note :
The Gain Up operation under the Direct Mode is disabled when ELC is ON mode.
- Press the Setup Mode Button (SET UP) to proceed to the Backlight compensation menu as shown in Fig. 55.
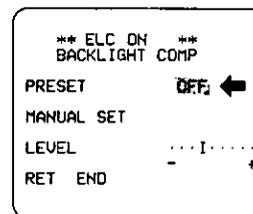


Fig. 55

### 6-2-1. ELC ON Mode with Preset Mode (PRESET ON)

● Move the cursor to the "PRESET" mode position and select the "ON" mode by using the Left Button (WHT) or Right Button (GAIN). The preset mode menu is displayed on the monitor screen as shown in Fig. 56.



```
  ** ELC ON   **
  BACKLIGHT COMP

PRESET        ON ←

RET  END
```
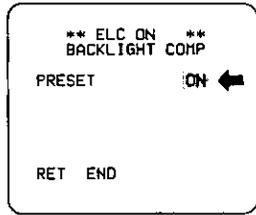
Fig. 56

● Move the cursor to "RET" position by using the Up Button (AGC) or Down Button (AWC) and press the Setup Mode Button (SET UP) to return to the Setup menu.

**Note :**

Move the cursor to the "END" position and press the Setup Mode Button (SET UP) to return to the normal camera picture mode.

### 6-2-2. ELC ON Mode with Field Setup Mode (PRESET OFF)

● Move the cursor to the "PRESET" mode position and select the "OFF" mode by using the Left Button (WHT) and Right Button (GAIN).

● The field setup menu is displayed on the monitor screen as shown in Fig. 57.



```
  ** ELC ON   **
  BACKLIGHT COMP

PRESET        OFF ←

MANUAL SET

LEVEL        ···I·····
                -      +
RET  END
```
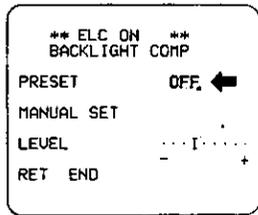
Fig. 57

● Move the cursor to the "MANUAL SET" mode position and press the Setup Mode Button (SET UP). The 25 Mask Areas appears on the monitor screen as shown in Fig. 58. The left top area starts blinking as a cursor.



Press the
Setup Mode Button         Blinking
(SET UP)
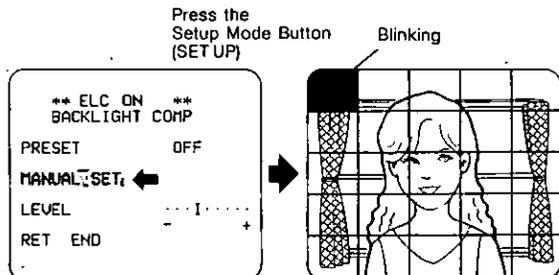
Fig. 58

● To mask this area, press the Setup Mode Button (SET UP). The word "MASK" appears in this area as shown in Fig. 59.
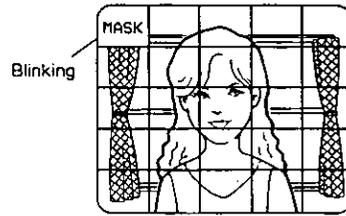


Blinking

Fig. 59

● To mask other areas, move the cursor to the desired area by using the Up Button (AGC), Down Button (AWC), Left Button (WHT) or Right Button (GAIN). The previous masked area then stops blinking and turns to white as shown in Fig. 60.



Turned to white ——
Blinking ——
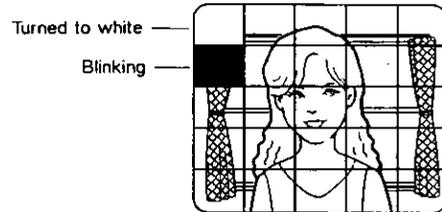
Fig. 60

● When the cursor is moved to the area where has already been masked before, the word "MASK" appears.
● Press the Setup Mode Button (SET UP) when this masking is to be canceled.
● After masking is completed, press the Setup Mode Button (SET UP) for more than 2 seconds and the 25 Mask Areas on the monitor screen disappears and the field setup menu shown in Fig. 57 is then displayed.
● When the video output level (picture contrast) is to be changed, move the cursor to the "LEVEL" mode position and press the Left Button (WHT) and Right Button (GAIN) to adjust the exposure time of the CCD image sensor. The cursor "I" moves right (long) or left (short) corresponding to the video output level (exposure time).



```
  ** ELC ON   **
  BACKLIGHT COMP

PRESET        OFF

MANUAL SET

LEVEL        ··I······
                -      +
RET  END
```
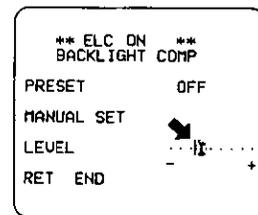
Fig. 61

- Move the cursor to "RET" position by using the Up Button (AGC) or Down Button (AWC) and press the Setup Mode Button (SET UP) to return to the Setup menu.

**Note :**

Move the cursor to the "END" position and press the Setup Mode Button (SET UP) to return to the normal camera picture mode.

When a manual iris lens is used with the ELC mode, set the lens iris fully opened in the low lighting condition or adjust the lens iris manually in the normal room lighting condition.

**Remark :**

When the ELC mode is selected, the shutter speed selection is not available.

## 7. SPECIAL MENU

This menu allows for the customer to adjust and set the video signal of the camera to meet the customer's requirement.

- Display the Setup menu as shown in Fig. 20.
- Move the cursor to the "END" position and press both the Left Button (WHT) and the Right Button (GAIN) simultaneously for approximately 2 seconds. (The Left Button (WHT) should be pressed first.) The special menu is displayed as shown below

```
       ** SPECIAL **

    CHROMA GAIN     · · · · I · · · ·
    HUE             · · · · I · · · · ·
    AP GAIN         · · · · I · · · ·
    PEDESTAL        · I · · · · · · ·
                    -           +

    RET  END
```
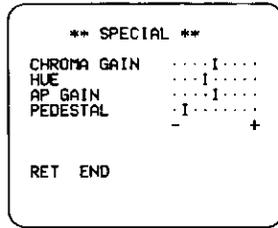
Fig. 62

### 7-1. Chroma Level Setting (CHROMA GAIN)

- Move the cursor to the "CHROMA GAIN" mode position. The cursor "I" starts blinking.

```
       ** SPECIAL **

    CHROMA GAIN     · · · · I · · · · ◀
    HUE             · · · I · · · · ·
    AP GAIN         · · · · I · · · ·
    PEDESTAL        · I · · · · · · ·
                    -           +

    RET  END ·
```
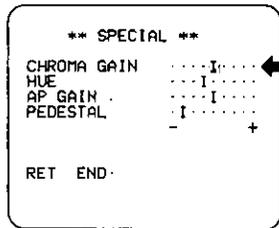
Fig. 63

- While observing the vectorscope or color video monitor, adjust the chroma level by using the Left Button (WHT) and the Right Button (GAIN). The cursor "I" moves right or left.

### 7-2. Chroma Phase (Hue) Setting (HUE)

- Move the cursor to the "HUE" mode position. The cursor "I" starts blinking.

```
       ** SPECIAL **

    CHROMA GAIN     · · · · I · · · ·
    HUE             · · · I · · · · · ◀
    AP GAIN         · · · · I · · · ·
    PEDESTAL        · I · · · · · · ·
                    -           +

    RET  END
```
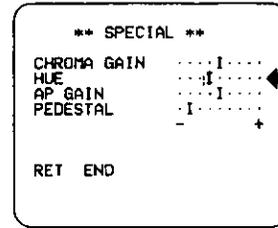
Fig. 64

- While observing the vectorscope or color video monitor, adjust the chroma phase (hue) by using the Left Button (WHT) and the Right Button (GAIN). The cursor "I" moves right or left.

### 7-3. Aperture Level Setting (AP GAIN)

- Move the cursor to the "AP GAIN" mode position. The cursor "I" starts blinking.
- While observing the color video monitor, adjust the aperture level by using the Left Button (WHT) and the Right Button (GAIN). The cursor "I" moves left (soft) or right (sharp).

### 7-4. Pedestal Level Setting (PEDESTAL)

- Move the cursor to the "PEDESTAL" mode position. The cursor "I" starts blinking.
- While observing the waveform monitor/oscilloscope or color video monitor, adjust the pedestal level (black level) by using the Left Button (WHT) and the Right Button (GAIN). The cursor "I" moves left (low, dark) or right (high, bright).

**Notes :**

■ **How to reset to factory setup**

Any of the above setting plus the ELC level control and phase adjustments can be reset to the factory setup by placing the cursor over the desired mode and then simultaneously pressing both the Left Button (WHT) and the Right Button (GAIN) for more than 2 seconds.

# PREVENTION OF BLOOMING
# AND SMEAR

When the camera is aimed towards spotlights or other bright lights or light reflecting objects, smear or blooming may appear. Therefore the camera should be operated carefully in the vicinity of extremely bright objects to avoid smear or blooming.

If the camera is aimed at the sun or very bright light, such as laser beam, for a long period of time, the CCD image sensor may be burned in and blemishes (white or black dots) appears on the picture.



Smear

Bright object
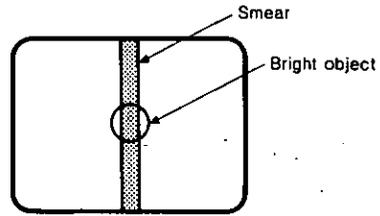
# SPECIFICATIONS

## ■ Camera Unit

| | |
|---|---|
| Pick-up Device : | 682 (H) × 492 (V) pixels, 1/2" Interline Transfer CCD |
| Scanning Area : | 6.4 (H) × 4.8 (V) mm (Equivalent to scanning area of 1/2" pick-up tube) |
| Synchronization : | Internal / VBS / VS switchable automatically |
| Scanning : | 525 Lines / 60 Fields / 30 Frames |
| Scanning System : | 2 : 1 Interlace |
| Horizontal : | 15.734 KHz |
| Vertical : | 59.94 Hz |
| Video Output : | 1.0 Vp-p NTSC composite, 75 ohms |
| S-Video Output : | Y : 1.0 V p-p, 75 ohms |
| | C : 0.286 V p-p (Burst Level), 75 ohms |
| Horizontal Resolution : | 430 lines (at center) |
| Signal to Noise Ratio : | 46 dB |
| Minimum Illumination : | 0.3 footcandle (3 lux) at F1.4 (AGC ON) |
| AGC Control : | OFF / LOW / MID / HI selectable |
| Gain Control : | LOW / MID / HI selectable |
| White Balance : | AWC / ATW / MANU selectable |
| Electronic Light Control : | Equivalent to continuous Variable shutter speed between 1/60 sec. and 1/15,700 sec. |
| Electronic Shutter Speed : | Selectable 1/60 (OFF), 1/100, 1/250, 1/500, 1/1,000, 1/2,000, 1/4,000, 1/10,000 |
| Character Generator : | Up to 16 character display |

## ■ Lens Unit

| | |
|---|---|
| Focal Length : | 8 mm - 80 mm, 10 times. |
| Maximum Relative Aperture : | F1.4 (wide), F1.7 (tele) |
| Iris Range : | F1.4 - F22 |
| Zoom : | Electronic power |
| Focus : | Electronic power or manual |

## ■ Main Unit

| | |
|---|---|
| Video Input : | 1.0 Vp-p composite, 75 ohms / BNC connect, X2 |
| S-Video Input : | Y : 1.0 Vp-p, 75 ohms, ×2 |
| (S-Video connector) | C : 0.286 Vp-p (Burst Level), 75 ohms, ×2 |
| | (Direct out via Input Selection Switch) |
| Audio Input : | Direct out via Input Selection Switch, X2 |
| Video Output : | 1.0 Vp-p composite, 75 ohms / BNC connector, X2 |
| S-Video Output : | Y : 1.0 Vp-p, 75 ohms, ×1 |
| (S-Video connector) | C : 0.286 Vp-p (Burst Level), 75 ohms, ×1 |
| Audio Output : | Direct output via Input Selection Switch, X2 |
| Fluorescent lamp : | F6T5/CW (6W) |
| Ambient operating Temperature : | 14°F - 104°F (−10°C - +40°C) |
| Power Source : | 120V AC, 60 Hz |
| Power Consumption : | Approx. 32W |
| Dimension : | 28-3/16" (W) × 25-9/16" (H) × 22"(D) |
| | 716 (W) × 650 (H) × 559 (D) mm |
| Weight : | 18.7 lbs. (8.5 kg) |

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

# Panasonic
**Broadcast & Television Systems Company**