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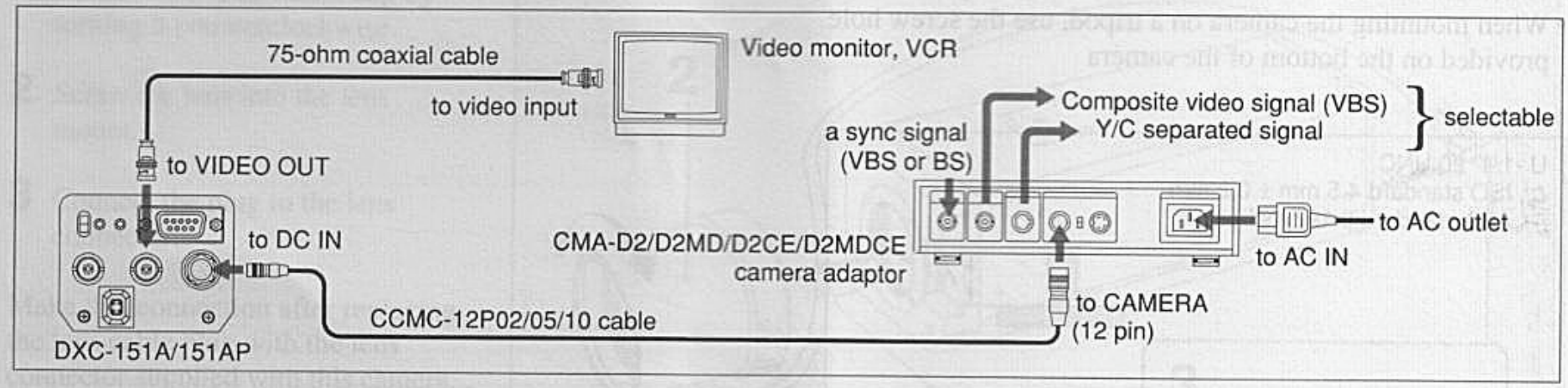
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# Connections

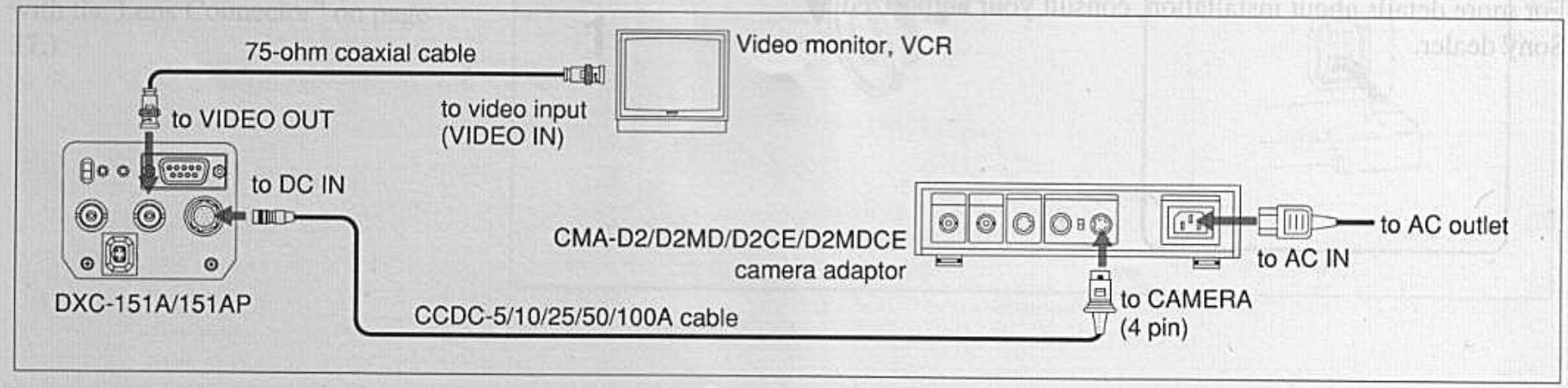
For the DXC-151A camera, supply the power from the CMA-D2/D2MD camera adaptor.
For the DXC-151AP camera, supply the power from the CMA-D2CE/D2MDCE camera adaptor.

## Connecting One Camera Using the VIDEO OUT Connector

Connecting the camera using the power supply and external sync signal connections.

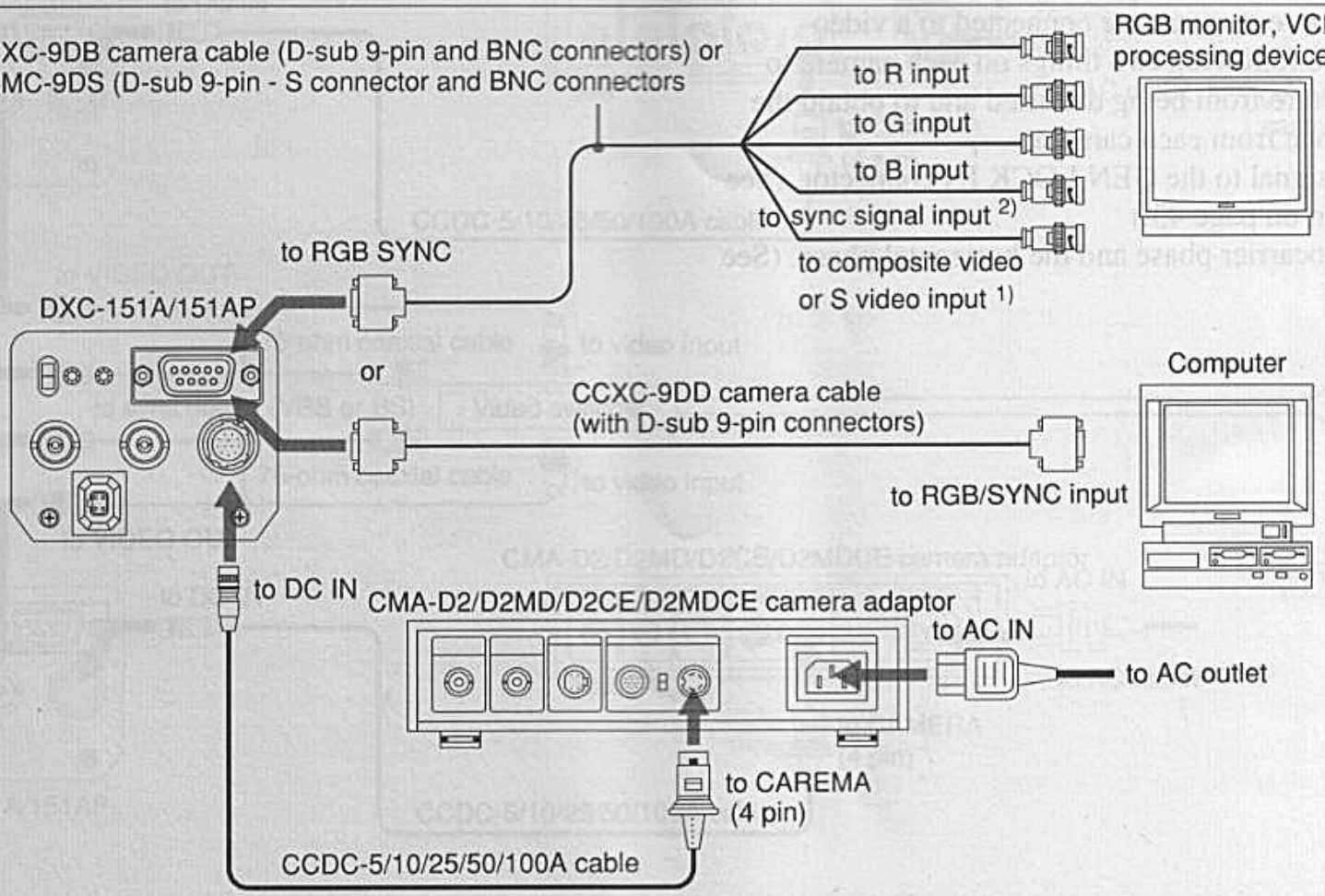



Connecting the camera using the power supply connection only.



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## Connecting One Camera Using the RGB SYNC Connector




1) To select either the composite video signal or Y/C separated signals, change the setting of the Y/C-VBS switch located on the internal board. (See "Internal Switch Settings" on page 36.)

2) When using a monitor not equipped with a sync signal input connector, the camera can output the sync signal with the G signal. Change the setting of the SW2 switch located on the internal board. (See "Internal Switch Settings" on page 36.)

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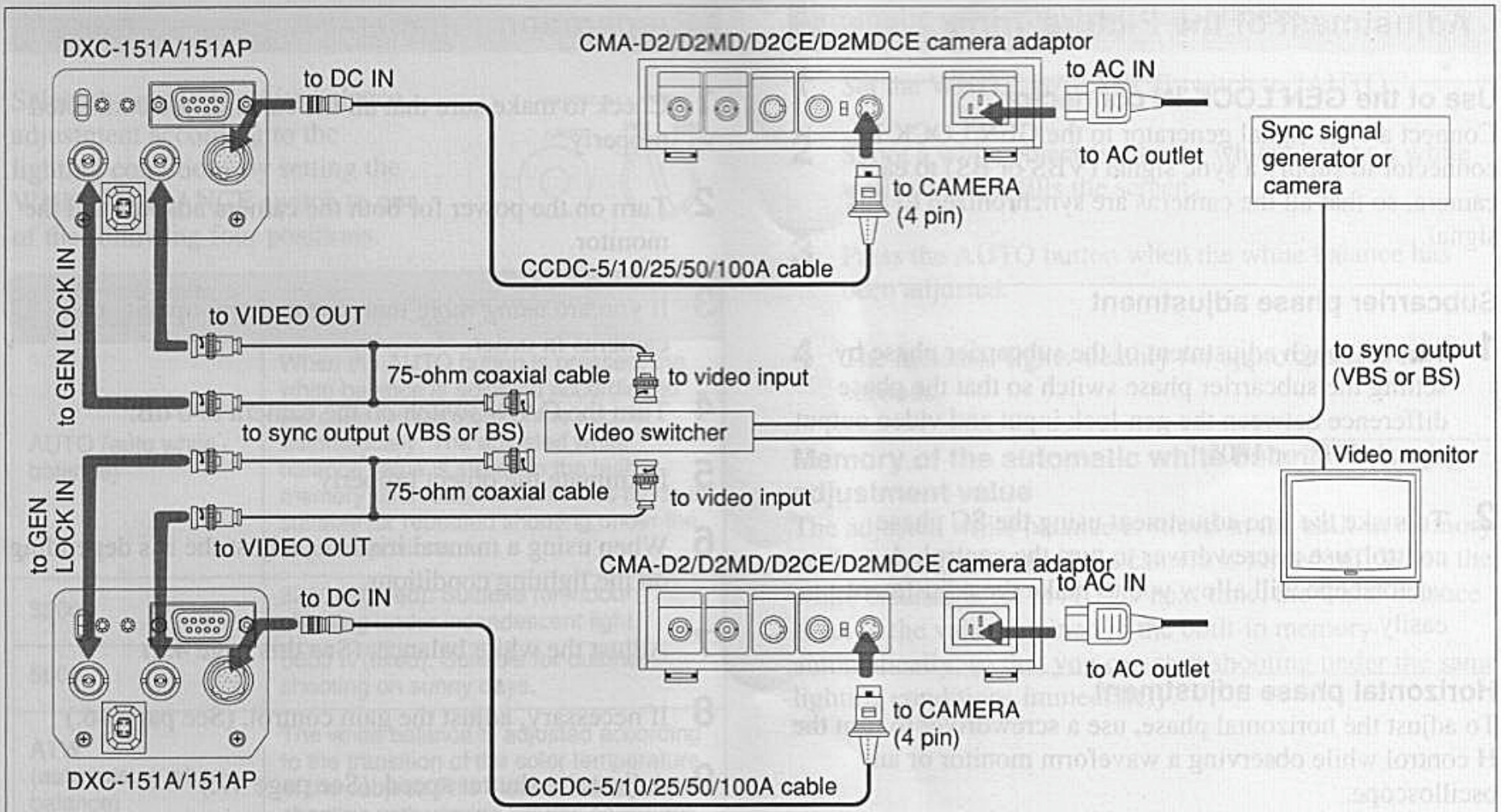


## When Using Two or More Cameras

When two or more cameras are connected to a video switcher, do the following two things on each camera to prevent the picture from being distorted and to obtain the same picture tone from each camera.

- Input a sync signal to the GEN LOCK IN connector. (See the illustration on page 43.)
- Adjust the subcarrier phase and the horizontal phase. (See page 44.)

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With the camera connected to the CMA-D2/D2MD/D2CE/D2MDCE camera adaptor via a CCMC cable, you can use the VIDEO OUT connector (or the S-connector) and the GEN LOCK IN connector.

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## Adjustment of the Picture Tone

### Use of the GEN LOCK IN connector

Connect a sync signal generator to the GEN LOCK IN connector to supply a sync signal (VBS or BS) to each camera, so that all the cameras are synchronized to this signal.

### Subcarrier phase adjustment

1 Make a rough adjustment of the subcarrier phase by setting the subcarrier phase switch so that the phase difference between the gen-lock input and video output signals is 0° or 180°.

2 To make the fine adjustment using the SC phase control, use a screwdriver to turn the control. A vectorscope will allow you to make the adjustment easily.

### Horizontal phase adjustment

To adjust the horizontal phase, use a screwdriver to turn the H control while observing a waveform monitor or an oscilloscope.



# Operation

## Preparation

1 Check to make sure that all the cameras are connected properly.

2 Turn on the power for both the camera adaptor and the monitor.

3 If you are using more than one camera, operate the cameras in order.

4 Turn the GAIN switch on the camera to 0 dB.

5 Illuminate the object properly.

6 When using a manual iris lens, adjust the iris depending on the lighting conditions.

7 Adjust the white balance. (See this page 45.)

8 If necessary, adjust the gain control. (See page 46.)

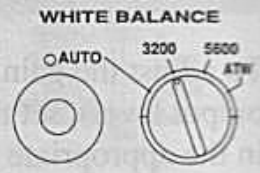
9 Adjust the shutter speed. (See page 47.)

10 Start recording.

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## White Balance Adjustment

Select the mode of white balance adjustment according to the lighting conditions by setting the WHITE BALANCE switch to one of the following four positions.




| Mode/Switch position | Color temperature |
|---|---|
| AUTO (auto white balance) | When the AUTO button is pressed, the white balance is adjusted according to the color temperature of the subject automatically. The adjusted white balance value is stored in the built-in memory until readjustment. This mode is suitable for repeated shooting under the same conditions. |
| 3200 | 3200 K (fixed): Suitable for indoor shooting under incandescent light. |
| 5600 | 5600 K (fixed): Suitable for outdoor shooting on sunny days. |
| ATW (auto tracing white balance) | The white balance is adjusted according to the transition of the color temperature of the subject. This mode is suitable for shooting with varying lighting conditions. |

### Automatic white balance adjustment

1. Set the WHITE BALANCE switch to "AUTO."
2. Shoot a white object (such as a white cloth or a white wall) so that it fills the screen.
3. Press the AUTO button when the white balance has been adjusted.
4. The indicator lights steadily for approximately two seconds.

### Memory of the automatic white balance adjustment value

The adjusted white balance is stored in the built-in memory and it is retained even if the camera is turned off. When the white balance is set to AUTO next time, the white balance is set to the value retained in the built-in memory automatically, so that you can start shooting under the same lighting conditions immediately.

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### When the white balance cannot be adjusted automatically

When the white balance cannot be adjusted, adjust the white balance again as follows, depending on the type of lens you are using.

| Lens type | Lighting condition | Indicator | Corrective measures |
|---|---|---|---|
| Auto iris lens | too dark | flashes | If the lighting is insufficient, increase the lighting and press the AUTO button again. Also, adjust the level or the ALC on the lens as required. |
| Manual iris lens | too dark | flashes | If the lighting is insufficient, open the iris or increase the lighting and press the AUTO button again. |
| Manual iris lens | too bright | lights steadily | If the lighting is excessive, the colours on the display will not appear as they should indicating that white balance adjustment cannot be made properly. In this case stop down the lens and press the AUTO button again. |

## Adjusting the Gain Control (Video Output Level)

To adjust the gain control (video output level), set the GAIN switch in the appropriate position.




| GAIN switch position | Video output level |
|---|---|
| AGC (automatic gain control) | The video output level is automatically adjusted according to the lighting condition. Set the switch in this position when the lighting conditions are subject to change, as in conditions outdoors. |
| 0 dB | Generally, set the switch in this position. |
| 6 dB | The video output level is raised by 6 dB or 12 dB depending on the position of the switch. When the lighting is insufficient and the picture observed on the monitor is too dim, set the switch in one of these positions. |
| 12 dB | |

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## Selecting the Shutter Speed

To select the desired shutter speed, set the SHUTTER switch in the corresponding position.




**Note**

Using an auto-iris lens while in CCD IRIS mode may sometimes produce a picture of less than optimum quality. If this is the case, set the SHUTTER switch to a fixed shutter speed (ranging from OFF to 1/10000 sec).
When using this unit in CCD IRIS mode under fluorescent light, etc., a slow color change may occur. To avoid this, set the SHUTTER switch to FL or OFF and use the auto-iris lens.
When using the CCD IRIS SPOT mode with the GAIN switch set to AGC, the effect is not sufficient. To assure sufficient effect, set the GAIN switch to 0 dB.

| Switch position | Operating condition, shutter speed |
|---|---|
| OFF | The electronic shutter speed function does not operate. |
| FL (flickerless) | This setting is provided to prevent the picture from flickering on a 50 Hz power supply. |
| 1/250 | 1/250 sec |
| 1/1000 | 1/1000 sec |
| 1/2000 | 1/2000 sec |
| 1/4000 | 1/4000 sec |
| 1/10000 | 1/10000 sec |
| BACK (backlight) | Use this setting when the subject is brightly illuminated from the back. |
| STD (standard) | Generally, set the switch in this position. |
| SPOT (spotlight) | Use this setting when the subject is brightly illuminated from the front. |

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## Adjusting the Flange Focal Length

When using a zoom lens with this camera, it may be necessary to adjust the flange focal length (the distance between the lens mounting plane and the image plane). A properly adjusted flange focal length ensures that the subject is in focus whether the zoom is in the wide-angle position or telephoto position. Once the flange focal length has been adjusted, readjustment is not necessary as long as the same lens is mounted on the camera.

### How to adjust

1 When a manual iris lens is used, open the iris fully. When an auto iris lens is used, adjust the lighting until the iris is fully open.

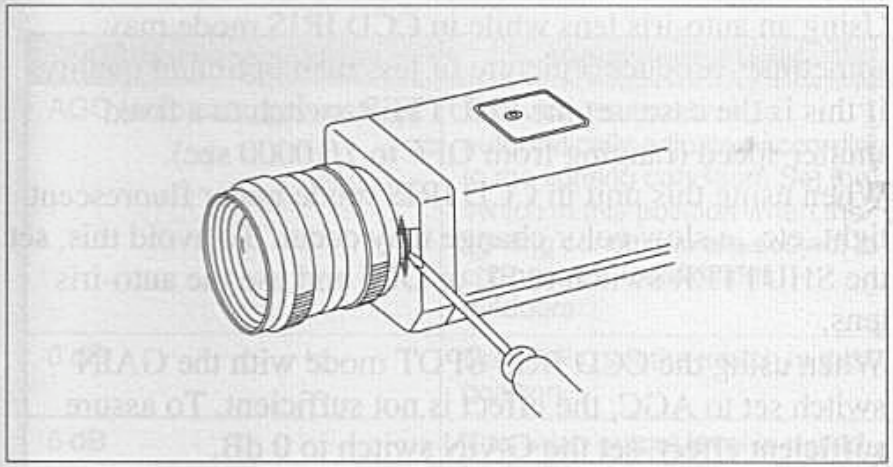
2 Point the camera at a subject approximately 3 meters (10 feet) away.

3 Set the zoom in the telephoto position.

4 Turn the focus ring to focus on the subject while observing the monitor screen.

5 Set the zoom in the wide-angle position.

6 Turn the flange focal length adjustment ring until the same subject is in focus. Do not turn the focus ring.



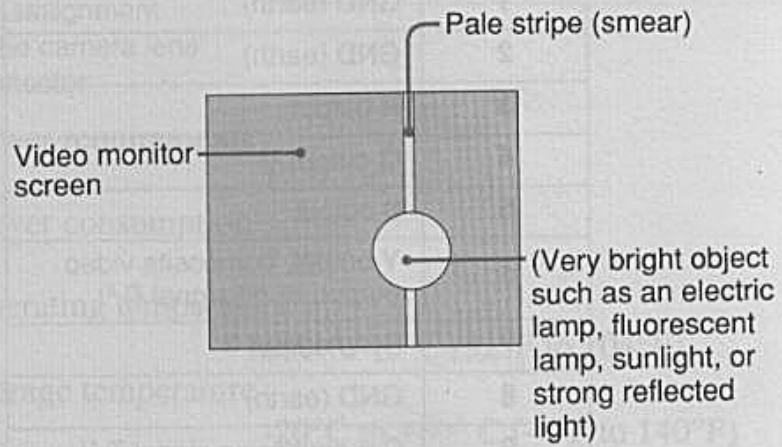
7 Repeat steps 3 to 6 until the subject is in focus both when the zoom is in the telephoto position and when it is in the wide-angle position.

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# Special Characteristics of the CCD Camera

The following conditions that may be observed during the use of a CCD video camera are not associated with any fault of the camera.

**Smearing**
The picture may be smeared when a very bright object is shot.




**Patterned noise**
This may appear over the entire monitor screen when the camera is operated at a high temperature.

**Jagged picture**
When thin stripes, straight lines, or the like are shot, the image monitored on the screen may appear jagged.

# Specifications

**Pickup device**

| | |
|---|---|
| Pickup device | Interline-transfer 2/3-inch CCD |
| Color filter | Primary color filter |
| Picture elements | 380,000<br>DXC-151A: 768 × 493 (horizontal × vertical)<br>DXC-151AP: 756 × 581 (horizontal × vertical) |
| Sensing area | Equivalent to a 2/3-inch pickup tube |

**Optical system and miscellaneous**

| | |
|---|---|
| Lens mount | C mount |
| Signal system | For the DXC-151A:<br>EIA standards, NTSC color system<br>For the DXC-151AP:<br>CCIR standards, PAL color system |
| Scanning system | DXC-151A: 525 lines 2:1 interface, 30 frames/sec.<br>DXC-151AP: 625 lines 2:1 interface, 25 frames/sec. |
| Synchronization | Internal/external (switched automatically) |
| External synchronizing signal | VBS or BS signal<br>(Sync level 0.3 Vp-p)<br>(Burst level 0.3 Vp-p) |

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# Specifications

Horizontal resolution
460 TV lines

Minimum illumination
13 lux F1.4 (GAIN: +12 dB, SHUTTER: OFF)

Sensitivity 2000 lux, over F5.6 (GAIN 0 dB)

Video output RGB: 0.7Vp-p, 75 ohms
VIDEO OUT: 1Vp-p, 75 ohms, sync negative
Y: 1Vp-p, 75 ohms
C: C level is in accordance with VBS.

Video S/N ratio DXC-151A: 48dB or over (GAIN: 0 dB)
DXC-151AP: 46dB or over (GAIN: 0 dB)

Electronic shutter 10 modes
OFF, FL, 1/250, 1/1000, 1/2000, 1/4000, 1/10000 sec, CCD IRIS mode (Standard mode, Backlight mode, Spotlight mode)

White balance 4 modes
AUTO, 3200, 5600, ATW

Gain control 4 modes
AGC, 0 dB, 6 dB, 12 dB

Input and output connectors



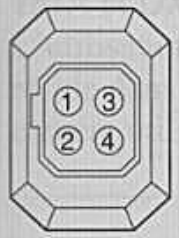

GEN LOCK IN: BNC type
DC IN: 12-pin connector
VIDEO OUT: BNC type
RGB SYNC: D-sub 9-pin connector

| Pin No. | Signal |
|---|---|
| 1 | GND (earth) |
| 2 | GND (earth) |
| 3 | R output |
| 4 | G output 1) |
| 5 | B output |
| 6 | Y output, composite video output, or no signal 2) 4) |
| 7 | Sync output 3) |
| 8 | GND (earth) |
| 9 | C output or no signal 2) 4) |

1) Change the setting of the internal switch to add the sync signal.
2) Change the setting of the internal switch between Y output and composite video output.
3) Change the setting of the internal switch to change the level of the sync signal.
4) Change the setting of the internal switch to either 12-pin or D-sub 9-pin.

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Lens: 4-pin connector




Pin assignment of the camera lens connector

| Pin No. | Signal |
|---|---|
| 1 | Power (+8.5, 40 mA) |
| 2 | Not used |
| 3 | Video output signal for lens |
| 4 | GND (earth) |

Power requirements
12 V DC

Power consumption
7 W

Operating temperature
0°C to 40°C (32°F to 104°F)

Storage temperature
-20°C to +60° C (-4°F to 140°F)

Operating humidity 20% to 80% (no condensation allowed)

Storage humidity 20% to 90% (no condensation allowed)

Shock resistance Less than 686 m/s² (70 G)

Dimensions 65 × 50 × 170 (w/h/d)
(2 5/8 × 2 × 6 3/4 inches)
excluding projecting parts

Mass Approx. 520 g (1 lb. 2 oz.)

Accessories supplied
Lens mount cap (1)
Lens connector (1)

**Accessories not supplied**

Camera adaptor for the DXC-151A:
For non-medical use CMA-D2
For medical use CMA-D2MD

Camera adaptor for the DXC-151AP:
For non-medical use CMA-D2CE
For medical use CMA-D2MDCE

12-pin cable:
CCDC-10 (10 m)
CCDC-25 (25 m)
CCDC-50 (50 m)
CCDC-100A (100 m)
CCMC-12P02 (2 m)
CCMC-12P05 (5 m)
CCMC-12P10 (10 m)

D-sub 9-pin, D-sub 9-pin cable:
CCXC-9DD

D-sub 9-pin, BNC × 5 cable:
CCXC-9DB

D-sub 9-pin, BNC × 4, and S connector cable:
CCMC-9DS

Design and specifications are subject to change without notice.

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