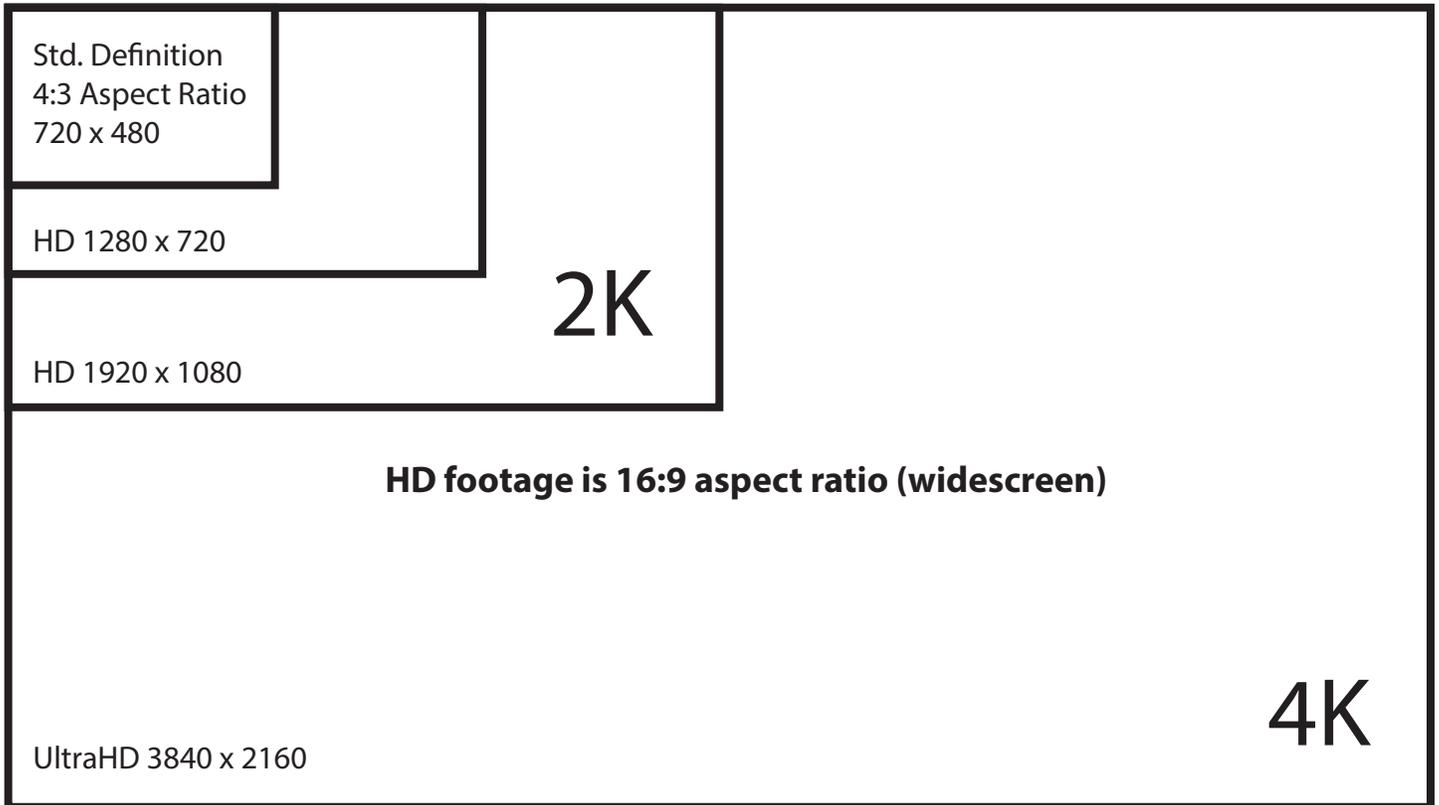


High Definition Overview

HD Frame Sizes in Pixels



Note: As image size increases with more pixels, the data size of the video files increase as well as the rendering times when processing effects in your editing projects.

Progressive vs. Interlaced

There are two ways to record and display the digital video images:

Progressive- (all image lines at once) generally clearer images for motion shots (i.e. 720P)

Interlaced - (lines in alternating groups) better for transmission of video for broadcast (i.e. 1080i)

FOR YOUR PROJECTS, YOU WILL USE 720P, 30FPS (Frames per second)

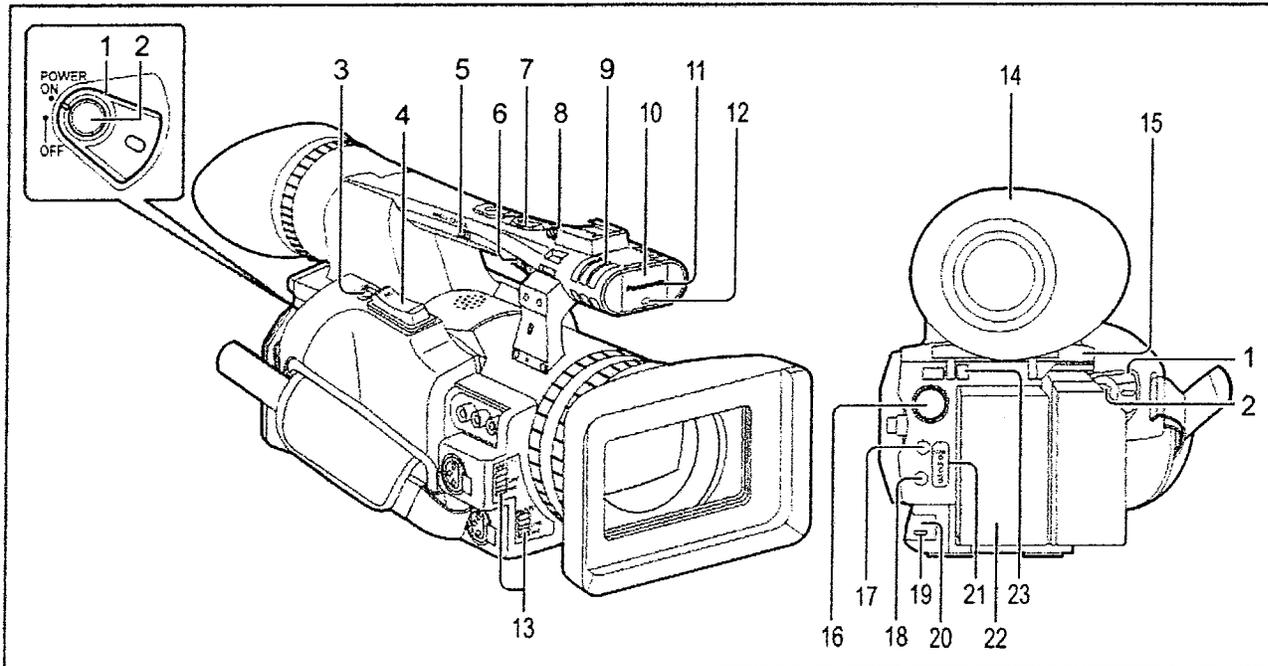
Note: As image size increases with more pixels, the data size of the video files increase as well as the rendering times when processing effects in your editing projects.

An important part of a successful project is having an understanding of all aspects of the production (shooting) and post-production (editing) workflow. How to go from the camera to the computer, and then outputting to the final broadcast format.

Our Workflow: Shooting with the Panasonic HMC150 camera, ingesting with Prelude, editing with Premiere Pro CC and finally outputting to Vimeo (using the H.264 Vimeo 720 29.97 setting).

Panasonic AG-HMC150P HD Camera

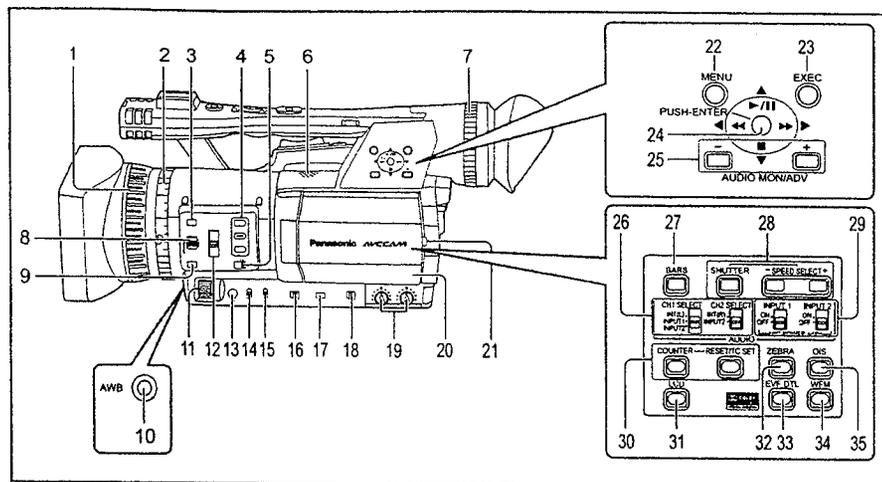
Right side and rear side



- 1 POWER switch (Page 22)
- 2 START/STOP button (Page 30)
- 3 REC CHECK button (Page 31)
- 4 Zoom button (Page 34)
- 5 HANDLE ZOOM switch (Page 34)
- 6 REC selector switch (Page 41)
- 7 Handle zoom button (Page 34)
- 8 Handle START/STOP button (Page 41)
- 9 Built-in stereo microphone (Page 48)
- 10 White balance sensor (Page 40)
- 11 Remote control sensor (Front) (Page 22)
- 12 Tally lamp (Front) (Page 23)
- 13 INPUT 1/2 (audio input) switches (Page 48)
- 14 Viewfinder (Page 24)
- 15 SD Memory Card slot cover (Page 30)
- 16 SCENE FILE dial (Page 50)
- 17 STAND BY button (Page 23)
- 18 Mode button (Pages 30 and 59)
- 19 Tally lamp (Rear) (Page 23)
- 20 Remote control sensor (Rear) (Page 22)
- 21 Mode lamp (Pages 30 and 59)
- 22 Battery compartment (Page 20)
- 23 Battery release button (Page 20)

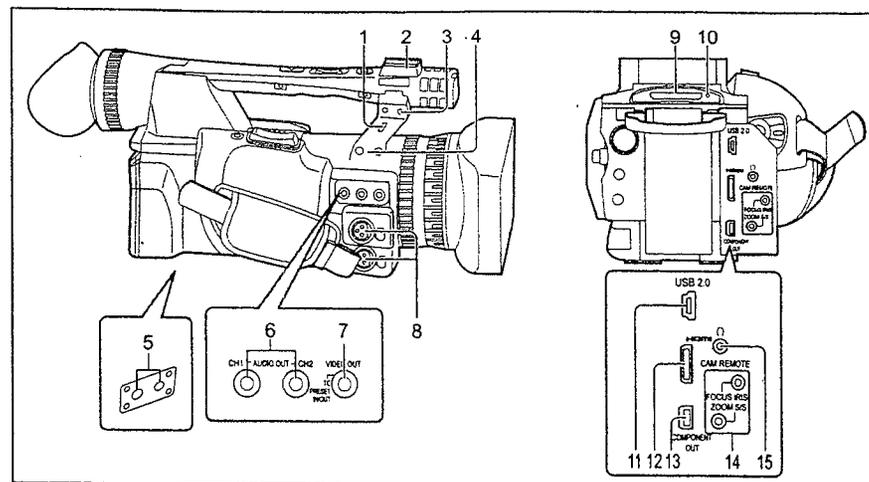
Description of parts (continued)

Left side



- | | |
|--|--|
| <p>1 Focus ring (Page 36)</p> <p>2 Zoom ring (Page 34)
If you don't need the zoom ring pin, fit it into the provided pin holder (next page 4) so that you don't lose it.</p> <p>3 FOCUS ASSIST button (Page 37)</p> <p>4 USER buttons (Pages 43 and 88)</p> <p>5 ZOOM switch (Page 34)</p> <p>6 Built-in speaker (Page 70)</p> <p>7 Diopter adjustment dial (Page 24)</p> <p>8 FOCUS switch (Page 36)</p> <p>9 PUSH AUTO button (Page 36)</p> <p>10 AWB button (Page 38)</p> <p>11 IRIS dial (Page 37)</p> <p>12 ND FILTER switch (Page 38)</p> <p>13 IRIS button (Page 37)</p> <p>14 GAIN switch (Page 38)</p> <p>15 WHITE BAL switch (Page 38)</p> <p>16 RING (FOCUS/IRIS) selector switch (Page 36)</p> <p>17 DISP/MODE CHK button (Page 42)</p> <p>18 AUTO/MANUAL switch (Pages 30 and 36)</p> | <p>19 AUDIO control knobs (CH1, CH2) (Page 49)</p> <p>20 LCD monitor (Page 25)</p> <p>21 OPEN button (Page 25)</p> <p>22 MENU button (Page 82)</p> <p>23 EXEC button (Page 66)</p> <p>24 Operation lever (Page 82)</p> <p>25 AUDIO MON/ADV buttons (Pages 44, 70)</p> <p>26 CH1, CH2 SELECT switches (Page 48)</p> <p>27 BARS button (Page 43)</p> <p>28 SHUTTER, SPEED SELECT+/- buttons (Page 46)</p> <p>29 INPUT 1/2 switches (MIC POWER +48 V) (Page 48)</p> <p>30 COUNTER - RESET/TC SET buttons (Page 55)</p> <p>31 LCD button (Page 27)</p> <p>32 ZEBRA button (Page 41)</p> <p>33 EVF DTL button (Page 25)</p> <p>34 WFM button (Page 44)</p> <p>35 OIS button (Page 43)</p> |
|--|--|

Terminals and mounting parts



- | | |
|---|---|
| <p>1 Security lock hole
The security cable can be attached here. For details on the connection, refer to the instructions supplied to the cable. The security lock and security cable are provided as anti-theft devices. Nevertheless, the manufacturer will assume no liability for any damage which may be sustained in the event of theft.</p> <p>2 Light shoe</p> <p>3 Microphone shoe (Page 71)</p> <p>4 Pin holder (for zoom ring pin) (previous page 2)</p> <p>5 Tripod hole (Page 11)</p> <p>6 AUDIO OUT CH1/CH2 terminals (Pages 72 and 73)</p> <p>7 VIDEO OUT terminal (Pages 72 and 73)</p> <p>8 INPUT 1/2 terminals (XLR 3 pin) (Page 71)</p> <p>9 SD Memory Card slot (Page 30)</p> <p>10 SD Memory Card access lamp (Page 31)</p> <p>11 USB terminal (Mini-B) (Pages 72 and 75)</p> <p>12 HDMI OUT terminal (Page 73)</p> <p>13 COMPONENT OUT terminal (Page 73)</p> | <p>14 CAM REMOTE jack*
FOCUS/IRIS (3.5 mm mini jack)
You can connect a remote control unit (optional) to control the FOCUS and IRIS (aperture).
ZOOM S/S (2.5 mm super mini jack)
You can connect a remote control unit to control zoom and start/stop of recording.</p> <p>15 Headphone jack (3.5 mm stereo mini jack) (Page 71)</p> |
|---|---|

* Do not connect any equipment except the remote controller to the remote control jack. Connecting any equipment other than the remote control may cause the image brightness to change and/or the images to appear out of focus.

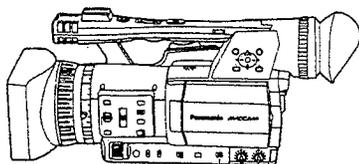
Description of parts

Shooting in manual mode

Set the unit to manual mode when manually adjusting the focus, iris, gain and white balance.

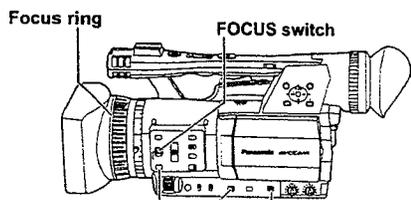
Switching to manual mode

Move the AUTO/MANUAL switch to the MANUAL position to select the manual mode. (A) will disappear from the viewfinder or the LCD monitor.)



AUTO/MANUAL switch

Manual focusing



PUSH AUTO button AUTO/MANUAL switch

RING (FOCUS/IRIS) selector switch

1 Use the AUTO/MANUAL switch to set to manual mode.

2 Use the FOCUS switch to choose how to control focusing.

A (AUTO):

Auto focus mode

M (MANUAL):

Manual focus mode

Turn the focus ring by hand.

∞ :

The camera first focuses on infinity, then it switches to manual focus.

The FOCUS switch automatically moves back to M (MANUAL) after you move it to ∞.

3 The function allocated to the focus ring can be changed with the RING (FOCUS/IRIS) switch.

FOCUS:

Adjust the focus.

IRIS:

Adjust the iris (aperture) setting.

Temporarily switching to auto focus

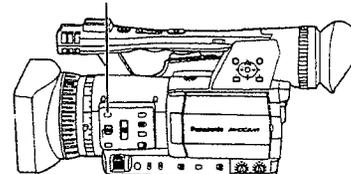
Even if you have switched FOCUS to M (MANUAL) the camera will focus automatically while you press down PUSH AUTO.

- Auto focus may not work properly if there is flickering. Select a shutter speed suited to the ambient light. (Page 46)
- If the auto focus mode is set with any format except 60i and 60P, controlling the focus will take slightly longer than in the normal focus mode.
- If you have set ON for the AF item on the setting menu AUTO SW screen, auto focusing will occur regardless of the position of the FOCUS switch when the auto mode has been established. (Page 90)
- During macro shooting "AF" or "MF" will be displayed in a frame on the screen.

Using focus assist

Pressing the FOCUS ASSIST button enlarges the center of the screen or displays a frequency distribution graph in the top right of the screen, enabling the focus to be aligned more easily, and therefore particularly useful when using manual focus. The screen display that appears after pressing the FOCUS ASSIST button can be changed with the FOCUS ASSIST setting in the settings menu SW MODE screen. (Page 89)

FOCUS ASSIST button



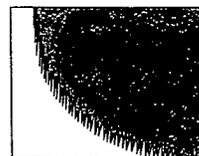
EXPANDED:

The central part of the screen will be enlarged by a factor of about 4 in the vertical direction and by a factor of about 6 in the horizontal direction. "EXPANDED" is displayed on the screen during the expanded display.

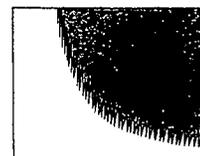
- The center of the angle of view is shifted slightly from the center of the LCD monitor.

GRAPH:

Frequency distribution graph will be displayed in the top right of the viewfinder or the LCD monitor. Adjust the lens focus ring so that the graph area expands toward right as shown below.



Focus not aligned



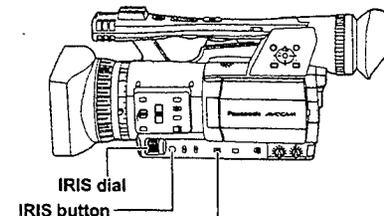
White area moves to the right as focus is aligned

BOTH:

Display both enlargement and graph at the same time.

- This function cannot be used while the digital zoom function is in use.
- Press the FOCUS ASSIST button again to return to the original screen.
- The graph cannot be displayed in both the viewfinder and the LCD monitor at the same time. To display the graph in the viewfinder, please close the LCD monitor.

Iris adjustments



IRIS dial

IRIS button

RING (FOCUS/IRIS) switch

1 Use the AUTO/MANUAL switch to set to manual mode. (Page 36)

2 Press the IRIS button to switch how to adjust the aperture of lens.

AUTO IRIS: Adjust the iris automatically.

MANUAL IRIS: Adjust the iris manually.

3 Turn the IRIS dial to adjust the aperture of lens when in the manual iris mode.

- In the auto iris mode, the lens iris can be corrected using this dial.

• Set the direction of the IRIS DIAL and aperture control in the setup menus, SW MODE screen, IRIS DIAL. (Page 88)

• If you have set ON under A.IRIS item on the setting menu AUTO SW screen, auto iris will be forcibly selected when auto mode has been established. (Page 90)

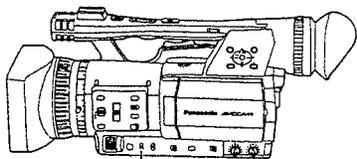
• The lens aperture can be adjusted in the focus ring by setting the RING (FOCUS/IRIS) switch to IRIS. However, as this will make it impossible to adjust the focus in the focus ring, please set the focus control method to A (AUTO) with the FOCUS switch. (Page 36)

When this camera's lens aperture is open, the F-value will be F1.6 when the lens zoom is set to maximum wide-angle (W), and F3.0 when set to maximum telescopic (T).

While the lens aperture is open, the iris displays on the viewfinder or LCD monitor will show OPEN when the lens zoom is set to maximum wide-angle (W), and F3.0 or OPEN when set to maximum telescopic (T).

Adjusting the gain

When the display is dark, increase the gain to brighten the display.



GAIN switch

1 Use the **AUTO/MANUAL** switch to set to manual mode. (Page 36)

2 Switch the gain with the **GAIN** switch.
L:

Set here under normal conditions. (0 dB)

M:
Increase the gain of the image amplifier.
(The default value is 6 dB.)

H:
Increase the gain of the image amplifier.
(The default value is 12 dB.)

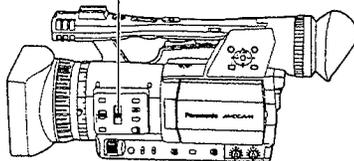
- You can change the M and H gain values using the MID GAIN and HIGH GAIN items on the setting menu SW MODE screen. (Page 88)
- If the AGC item on the settings menu AUTO SW screen is set to anything other than OFF, the gain setting will be set to automatic during automatic mode, regardless of the position of the GAIN switch. (Page 90)
- When a slow shutter speed (1/15) has been set, the gain is fixed at 0 dB regardless of the GAIN switch setting. (Page 46)

Light intensity adjustments

Use the ND FILTER switch to change the ND Filter used (filter to change light intensity).

- OFF:** ND filter is not used.
1/4: Cuts light intensity by up to about 1/4.
1/16: Cuts light intensity by up to about 1/16.
1/64: Cuts light intensity by up to about 1/64.

ND FILTER switch

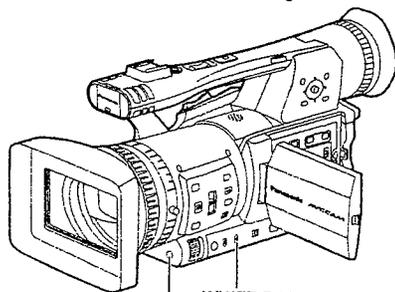


Adjusting the white balance

In order to reproduce the white accurately, adjust the ratio between the three RGB primary colors. If the white balance is not adjusted properly, not only will the white be reproduced poorly but the color tones of the entire screen will also be downgraded. When you are shooting in manual mode, readjust the white balance whenever lighting conditions change.

You can save adjustments and reselect them by setting the **WHITE BAL** switch to A or B. You can also use the preset values.

Use the settings to suit the shooting conditions.



WHITE BAL switch
AWB button

White balance adjustments

1 Use the **AUTO/MANUAL** switch to set to manual mode. (Page 36)

2 Set the shutter speed. (Page 46)

3 Place a white pattern in a location with the same lighting conditions and light source as the subject, then zoom in and fill the whole screen with white.

Something white (a white cloth or wall) near the subject can be used instead.

- Do not include bright spotlights in your shot.

4 Set the **WHITE BAL** switch to A or B (whichever one you want to save the adjustment in).

5 Press the **AWB** button.

- Adjustment takes a few seconds.
(The following messages appear on the screen.)

Message during adjustment

AWB Ach ACTIVE

Message after adjustment

AWB Ach OK

- An error message appears on the screen when white balance adjustment is not possible.

Message when adjustment cannot be done

AWB Ach NG

- White balance cannot be adjusted if the ATW (Auto Tracking White) function is working.
- If you have set ON under ATW on the setting menu AUTO SW screen, ATW will be selected when auto mode has been established regardless of the **WHITE BAL** switch position. (Page 90)
- Make the necessary adjustments if one of the following error messages appears, then try adjusting the white balance again.

Error messages	Adjustments
LOW LIGHT	Increase light or increase the gain.
LEVEL OVER	Reduce light or decrease the gain.

- If the messages repeatedly appear even after trying a number of times, consult your dealer.

Using presets

Use this feature when you have no time to make white balance adjustments.

1 Use the **AUTO/MANUAL** switch to set to manual mode. (Page 36)

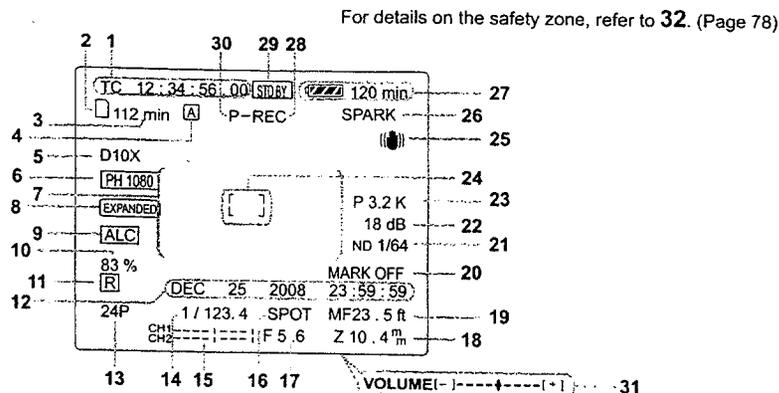
2 Set the **WHITE BAL** switch to **PRST**.

- The current white balance value appears.
- White balance values 3200 K and 5600 K are preset in the **PRST** position. Guide to the preset values
P3.2K (3200 K): halogen light
P5.6K (5600 K): outdoors

3 Press the **AWB** button.
White balance switches between 3200 K and 5600 K.

Screen displays

Regular displays



1 Time code display

Each time you press the COUNTER button, the display switches over to the following data (or no indication).

COUNTER:

Counter value

CLIP:

CLIP counter value for respective clip

Displayed when REC COUNTER item on settings menu DISPLAY SETUP screen is set to CLIP.

- During playback, the time code display is automatically set to CLIP, and the time code is counted from a value of 0:00:00 for each clip.

TC:

Time code value.

When the time code value could not be read correctly from the SD Memory Card, [TC*] is displayed.

UB:

User information

When user information could not be read correctly from the SD Memory Card, [UB*] is displayed.

2 Media information display

Displays basic information about inserted SD Memory Card.

- : Recording possible
- : Card is write-protected
- : Recording not possible

: Card is full

- Recording may be possible in some cases even when this icon is displayed.
- Depending on the memory size and type of the SD Memory Card used, the icon may not be displayed even when the card's memory becomes full during shooting, and the shooting is stopped.

: Playback-only

SD Memory Cards already containing 1,000 or more clips may be used for playback only.

: Accessing card

: No card inserted

3 Media capacity display

Displays remaining capacity for recording frame rate set in the REC FORMAT item on the settings menu RECORDING SETUP screen. Not displayed during PB mode.

- Time displayed is a guideline only.

4 AUTO/MANUAL switch operation display

This display appears when AUTO/MANUAL switch is switched to AUTO.

5 Digital zoom ratio display

Displays digital zoom ratio.

- D 2X: 2 x zoom
- D 5X: 5 x zoom
- D 10X: 10 x zoom

6 Recording format display (Page 91)

7 Information display

Following information is displayed depending on the situation.

- Performance of the auto white balance or the auto black balance
- Warning (Page 79)
- The ND filter recommended under the prevailing shooting conditions is displayed.
- The AWB error message (LOW LIGHT / LEVEL OVER) is displayed. (Page 39)
- The functions allocated to the USER buttons are displayed while you hold down the DISP/ MODE CHK button.

8 EXPANDED display

Displayed during the expanded display.

9 Microphone level automatic control display

Appears when in the setup menus, RECORDING SETUP screen, MIC ALC, you have selected "ON".

10 Marker luminance display

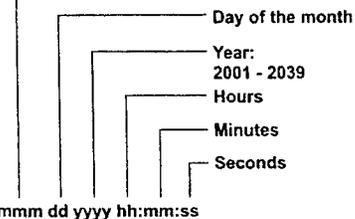
When markers are displayed, the brightness level around the center of the screen is indicated as 0% to 99%. "99%|" appears if the percentage is over 99.

11 Timestamp display (Page 45)

12 Date and time display

Month:

JAN (January), FEB (February), MAR (March), APR (April), MAY (May), JUN (June), JUL (July), AUG (August), SEP (September), OCT (October), NOV (November), DEC (December)



13 Frame rate display

Displays recording frame rate. Not displayed when set to 1080/60i.

14 Shutter speed display

The shutter speed is displayed here.

15 Audio level meter display (Page 49)

16 Auto iris control display

- STD: Standard auto-iris control
- SPOT: Auto iris control for spotlight
- BACK: Auto iris control for backlight compensation

17 Iris display

Displays F value.

18 Zoom position display

The zoom position is displayed with Z00 (maximum wide-angle) - Z99 (maximum zoom). The unit can be switched to mm in the ZOOM & FOCUS item of the setting menu DISPLAY SETUP screen.

19 Focus control information display

Displays the focus control information with 99 - 00. In the auto focus mode, AF appears. In the manual focus mode, MF appears. When the display is set to macro control, the black and white of AF or MF are displayed in reverse.

95 (Focal distance: infinity)

00 (Focal distance: approx. 5 cm)

Depending on the zoom position, the macro range may not be enabled.

Also, depending on the zoom position, the lower limit value of macro range may be different. The units can be switched between feet and m in the ZOOM & FOCUS item of the setting menu DISPLAY SETUP screen.

20 Index/shot mark recording display (INDEX/ SHOT MARK)

Displayed when a USER button to which the INDEX function or SHOT MARK function has previously been allocated is pressed during recording. INVALID will be displayed if an index or shot mark cannot be attached.

21 ND filter display

ND filter selected is displayed.

22 Gain display

Displays the gain value of the image amplifier configured. (During the auto mode, AGC is displayed.)

23 AWB information display

Displays the information of white balance.

- ATW: When ATW is set
- P3.2K/P5.6K: In the case of preset
- Ach/Bch: In the case of A/B
- LOCK: When ATW is locked

(Continued on the next page)

Screen displays (continued)

24 Marker display

During shooting, pressing the ZEBRA button once or twice will display the marker.

25 Optical Image Stabilizer (OIS) display

Displayed when Optical Image Stabilizer is ON.

26 Scene filename display (Page 50)

27 Remaining battery capacity display

When using Panasonic-manufactured batteries compatible with this product, the remaining battery capacity is displayed in minutes. Time remaining will be displayed after a brief pause.

- The battery display will change



as battery capacity decreases. The battery display will be displayed in red when less than 3 minutes are remaining, and the battery display will flash when the battery is empty.

- Remaining battery capacity may not be displayed correctly when using in high or low temperatures, or when the battery has not been used for a long period of time. To ensure that remaining battery capacity is displayed correctly, use the battery completely from a fully-charged state, and charge the battery again. (Remaining battery capacity may still not be displayed correctly if the battery has been used for long periods in high or low temperatures, or if the battery has been recharged a large number of times.)
- The remaining battery capacity display is a guideline and may change according to usage conditions.
- The remaining battery capacity display will momentarily disappear when switching between modes, when conducting REC CHECK operations or when changing the LCD brightness since the capacity is recalculated at these times.
- Not displayed when using AC adapter.

28 Operation status display

- REC:** Recording
PAUSE: Recording standby
CHK: Rec check
> : Playback
⏸ : Playback paused
INDEX [] : Playback paused at INDEX position
⏪ > (< ⏩) : Frame-by-frame playback (Frame-by-frame reverse playback)
⏮ (< <) : Skip (reverse skip)

- ⏭ (< <) :** Fast forward/fast playback (Rewind/fast reverse playback)
⏮ (< <) : Paused in final scene (paused in initial scene)

Self-portrait recording display

- No display: Cannot record (no card, etc.)
○ : Recording in progress, during transition to the recording pause mode
⏸ : Recording paused (recording standby)
! : Warning display

29 Standby mode display

Displayed when camera is set to standby mode

30 Recording function display

Displayed when the PREREC MODE item on the settings menu RECORDING SETUP screen is set to ON.

- P- will be displayed on the screen.

31 Monitor audio level meter

When you press the AUDIO MON/ADV button, the sound volume output from the built-in speaker and headphone jack is displayed.

32 Safety zone

The range of the zone is indicated by the SAFETY ZONE item (Page 94) on the DISPLAY SETUP screen.

- 4:3** This indicates the position which is cropped to 4:3.
- 
- 90%** This indicates the range (90%) in which signals can be displayed by an ordinary homeuse TV set.
- 

Will not be displayed in LCD monitor or viewfinder when the FOCUS ASSIST item on the settings menu SW MODE screen is set to EXPANDED.

Main warning displays

The main warning displays appearing on the LCD monitor or viewfinder are listed below. If a warning display is not listed, check carefully the message displayed.

■ C

CANNOT BE USED DUE TO INCOMPATIBLE DATA.

No use is possible because the standard for the data is different.

CANNOT DELETE.

Clip cannot be deleted.

CANNOT DELETE WITH THIS BUTTON

Clip cannot be deleted.

CANNOT PLAY.

No playback is possible.

CANNOT PLAY WITH THIS BUTTON

No playback is possible.

CANNOT RECORD PH MODE AND HA MODE INTO THIS CARD.

This card cannot be recorded to in PH mode or HA mode.

CANNOT RECORD. THE NUMBER OF CLIPS HAS EXCEEDED THE MAXIMUM LIMIT.

The maximum number of clips has been reached and no further clips can be recorded.

CANNOT SET THE NUMBER OF INDEXES HAS EXCEEDED THE MAXIMUM LIMIT.

No further indexes can be set because the number of indexes will exceed the maximum limit.

CANNOT SET PRE-REC, CARD CAPACITY TOO LOW.

PRE-REC cannot be set as the remaining card capacity is low.

CARD DOOR OPENED.

The card door is open.

CARD ERROR. PLEASE REFORMAT.

Formatting has failed. The card needs to be reformatted.

CARD FULL.

The card is full.

■ D

CHECK CARD.

Please check the card.

CHECK USB CABLE.

Please connect the camera-recorder to a PC.

CONTROL DATA ERROR HAS BEEN DETECTED.

An error has been detected in the control information.

■ I

DISCONNECT USB CABLE.

When switching from one mode to another, disconnect the USB connection cable.

■ N

INCOMPATIBLE CARD. PLEASE CHECK CARD.

Recording may not be successful with this card. Please check the card.

■ N

NO CARD

No card is inserted.

NOW ACCESSING.

PLEASE DO NOT REMOVE CARD. Card is currently being accessed. Please do not remove the card.

■ R

REC STOPPED. NOW WRITING.

Video recording has been stopped. Data is now being written to the card.

REPAIR CLIP?

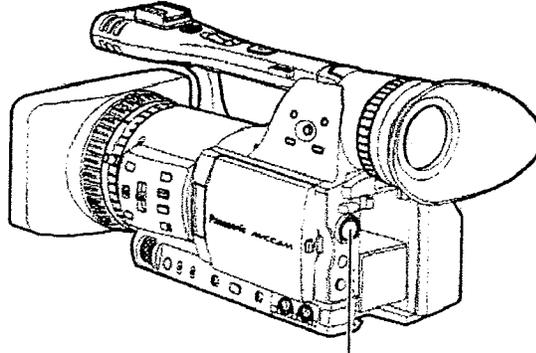
Do you wish to repair clips now?

(Continued on the next page)

Using scene files

The settings according to the variety of shooting circumstances are stored in each position of SCENE FILE dial.

When shooting, you can retrieve the necessary file instantly using SCENE FILE dial.



SCENE FILE dial

When the camera-recorder is shipped from the factory, the following files are stored.

F1: SCENE

File suitable for normal shooting.

F2: SCENE FLUO.

File suitable for shooting under fluorescent lights, ie. indoors.

F3: SCENE SPARK

File suitable for shooting with fuller variations of resolution, coloring and contrast.

F4: SCENE B-STR

File for broadening the contrast of dark parts, such as when shooting sunsets.

F5: SCENE CINE V

File suitable for shooting movie-like scenes where the contrast is to be emphasized.

(The recording format remains unchanged even when the scene file is changed. It must be set using the REC FORMAT item on the RECORDING SETUP screen. (Page 91))

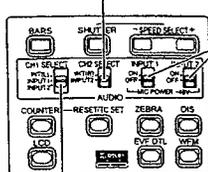
F6: SCENE CINE D

File suitable for shooting movie-like scenes where the dynamic range is to be emphasized. (The recording format remains unchanged even when the scene file is changed. It must be set using the REC FORMAT item on the RECORDING SETUP screen. (Page 91))

Switching Audio Input

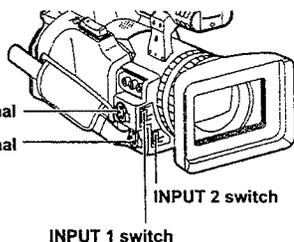
During shooting, you can record up to two channels of sound. You can also switch the input sound to be recorded on each of the channels to the built-in microphones, external microphones or audio equipment connected to camera.

CH2 SELECT switch



INPUT 1/2 (MIC POWER +48V) switches

CH1 SELECT switch



INPUT 1 terminal

INPUT 2 terminal

INPUT 2 switch

INPUT 1 switch

Using the built-in microphone

- 1 Switch the CH1 SELECT switch to INT (L).
 - Audio from the built-in microphone Lch is recorded to audio channel 1.
- 2 Switch the CH2 SELECT switch to INT (R).
 - Audio from the built-in microphone Rch is recorded to audio channel 2.

Using an external microphone and audio equipment

- 1 Connect an external microphone or audio equipment to the INPUT 1/2 (XLR 3-pin) terminals. (Page 71)
- 2 Use the INPUT 1/2 switches to switch the audio input.

LINE: (audio equipment is connected)
Input level is 0 dBu.

MIC: (an external microphone is connected)
Input level is -50 dBu.
You can change the input level to -60 dBu in the setup menus, RECORDING SETUP screen MIC GAIN1 and MIC GAIN2. (Page 91) Be aware that sensitivity will be higher if you choose -60 dBu so you will record more noise.
- 3 When using the phantom microphone (which requires +48V power supply), set the INPUT 1/2 (MIC POWER +48V) switches to ON.

ON: (When using the phantom microphone)
+48V power supply to INPUT 1/2 terminals.

OFF: (When a phantom microphone is not connected)
No power supply for INPUT 1/2 terminals.

 - The battery will discharge faster if you use a phantom microphone.
 - Set to OFF if you connect equipment not compatible with +48V. You can damage such equipment if you leave the setting at ON.
 - When using the AG-MC200G (optional), set the MIC GAIN item to -50 dBu.

- 4 Use the CH1 SELECT switch to select the input signal to be recorded to audio channel 1.

INT (L):

Audio from the built-in microphone Lch is recorded to audio channel 1.

INPUT 1:

Audio from a device connected to INPUT 1 terminal is recorded to channel 1.

INPUT 2:

Audio from a device connected to INPUT 2 terminal is recorded to channel 1.

- 5 Use the CH2 SELECT switch to select the input signal to be recorded to audio channel 2.

INT (R):

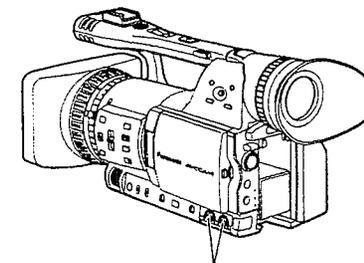
Audio from the built-in microphone Rch is recorded to audio channel 2.

INPUT 2:

Audio from a device connected to INPUT 2 terminal is recorded to channel 2.

- When inputting the microphone signal to channels' 1 and 2, connect the microphone to INPUT 2 and switch both CH1 SELECT and CH2 SELECT to INPUT 2.

Adjusting the recording level

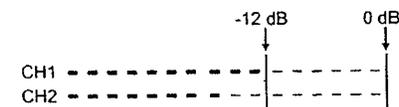


AUDIO control knobs

Use the AUDIO control knobs to adjust the recording level of the built-in microphone or of audio signals input through the INPUT 1/2 (XLR 3-pin) terminals.

To adjust the volume of the sound for monitoring. (Page 44)

To adjust the recording level of the audio signals, turn the AUDIO control knobs while referring to the audio level meter at the bottom left of the viewfinder and LCD monitor, regardless of the MIC ALC option setting (Page 91) on the RECORDING SETUP screen of the setting menu.



- Check the recording volume level prior to shooting.
- The recording level of this camera is set approximately 8 dB higher than Panasonic broadcasting camera recorders (AJ series products).

Camera Exercises

Choose two subjects/ subjects (or a person and an subject).
Place them in a unique environment, a moderate distance apart.
The goal is to make your subjects “read” (i.e. be visible and stand out from the surroundings).
Each shot should convey more information than the previous.

Identify your shots (either by slating or marking them visually/ verbally)

FRAMING

Rule of Thirds:

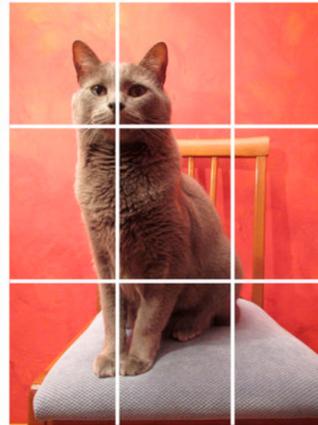
--Try composing key details along lines in the below grid for a more dynamic image:



Landscape mode



Portrait mode



Subject placed according to rule of thirds



--Try eccentric framing by placing subjects in one of the 9 boxes, or on the frame edges, etc.

SIZE

Shoot both subjects in:

1. Wide/ Long/ Master Shot (usually full bodies in context)
2. Full Shot (FS – usually full bodies)
3. Medium Shot (MS – usually torsos on up)
4. Medium Close-Up (usually head and shoulders)
5. Close-Up (CU – usually head shots), favoring one of the subjects; you may have to change your angle of view to keep both subjects in the frame.

Shoot each subject in:

- 6 - 7. CU
- 8 - 9. Extreme Close-Up (ECU – usually facial details)

ANGLE

Shoot both subjects in MS from a:

10. OVERHEAD (bird's eye-view)
11. HIGH (usually above eye-level; looking down)
12. LEVEL (eye-level)
13. One subject's POINT OF VIEW (POV), most effective using a moving handheld camera

14. OVER THE SHOULDER of one subject “looking” at the other (we should see part of the head and shoulder of the first subject)
15. DUTCH angle (usually at level but skewed or diagonal framing)



16. LOW (usually below eye-level, looking up)

MOVEMENT

--Try not to cross the **180-degree** line when shooting between two subjects. Use a cut-away shot to transition.

Fixed camera (tripod or handheld):

17. From a FS, ZOOM IN on one subject, as far as the lens will go, and then ZOOM OUT to initial position --Remember to PRE-FOCUS (zoom in, focus, then zoom out to start) on the target subject--
18. In MS or CU, RACK FOCUS by shifting focus from foreground to background subject, and vice versa
19. Start somewhere between your two subjects (not necessarily at mid-point), PAN (camera pivots from a stationary point) from one subject to the other – left to right, then R to L
20. From a MS, TILT (camera pivots from stationary point) up and down on one or both subjects
21. From OVERHEAD, SPIN the camera over both subjects

Moving camera:

22. Repeat shot #17 by manually TRACKING in to and out of the same subject
23. Repeat shot #19 by manually TRACKING laterally from one subject to another – left to right, then R to L
24. Repeat shot #17 and 19 by using a SLIDER (camera on track) for TRACKING in and out, left and right
25. Repeat shot #17 and 19 by using a DOLLY (camera on wheels) for TRACKING in and out, left and right
26. In a Wide shot, use a SLIDER to PEDESTAL up and down on the subjects
27. Start from a MS from either the left or right of subject and use a DOLLY to shoot an ARC around (not necessarily full circle) the subjects
28. From OVERHEAD, use a SLIDER to shoot an ARC over the subjects below (e.g. SLIDER is on a table and swivels out above subjects on the floor)

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29. Shoot a DOLLY COUNTER ZOOM (dolly backward/ forward while zooming in/ out), and then reverse
 30. Combine another two or more of the size, angles, movements you've tried above