The JVC Camcorder

JVC GY-HM100U Edition

Community Television Network

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Introduction

The JVC Camcorder class is designed to provide you with an understanding of field production, as well as provide you with the operational skills necessary to participate in a production on location as opposed to in a studio. We will cover the camcorder, other portable equipment and how they relate to each other. Even if you only plan to use a camcorder, it's important you have some idea of what other equipment is available and how that relates to your production.

This training will be primarily of an operational nature with a quick sojourn into technique. You will not emerge from this class an expert crew person, but you will know the care quality of CTN's equipment; Therefore having a foundation for the skills necessary to operate and communicate as a member of a production crew. The best way for you to polish the techniques learned would be to work on and volunteer for as many productions as you can.

Field Production Step-By-Step

Here is a list of the basic steps involved in producing a program utilizing the CTN equipment:

1) Plan your (pre) production. Decide on the who, what, where, why, when and how.
2) Fill out and submit a CTN Production Proposal Form.
3) Decide when you want to begin your production work.
4) Fill out and submit a CTN Equipment Reservation Form.
5) Call CTN the next day (at the earliest) to see if your reservation was approved.
6) If necessary, arrange for crew. Get a list of certified volunteers from CTN.
7) Scout the location where you will be doing your production.
8) On the day of your reservation, arrive at CTN on time. During the equipment check-out:
    9) Check that you're getting everything you asked for.
    10) Set up and test any equipment you have not used before.
    11) Ask questions about the equipment or your production.
    12) Confirm the day and time you are expected to return the equipment.
13) Arrive at your production location early and get set up.
14) Rehearse everything that can be rehearsed.
15) Record your production.
16) When you're done with recording, teardown the set and equipment.
17) Return the equipment to CTN on time. During check-in:
    18) You are required to set up the equipment.
    19) Notify staff of any equipment malfunctions, is broken or is missing pieces.
    20) Notify staff of any problems you had during your production.
21) If more production work is necessary, go back to step 4.
22) If necessary, make arrangements to edit your production.
23) When your production work is done, submit your finished program for playback.
24) Begin planning your next production.

Lights

Where you are doing your production work will dictate whether or not you need to use additional lighting. You will often find using one light, in addition to what already exists at the production location, can greatly enhance the look of your program. This is why scouting a location before hand is so important.

Equipment

The light kits come with three lights, associated cables and stands. There is also diffusion material and gels available upon request.

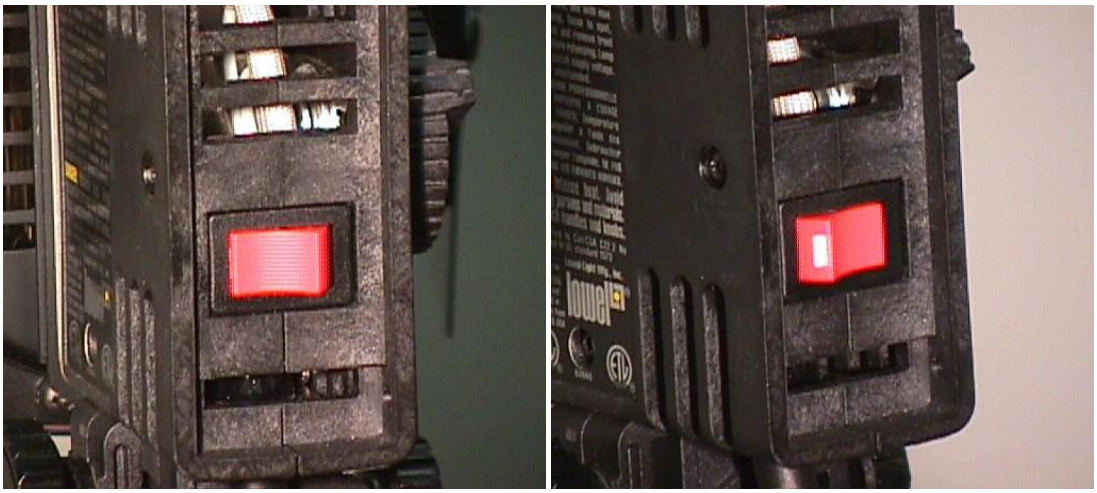
- Light Kit.

Lights

The three spot lights, in the kit, are identical and come with extension cables and stands. Each light has barn doors which control the area over which the light covers.

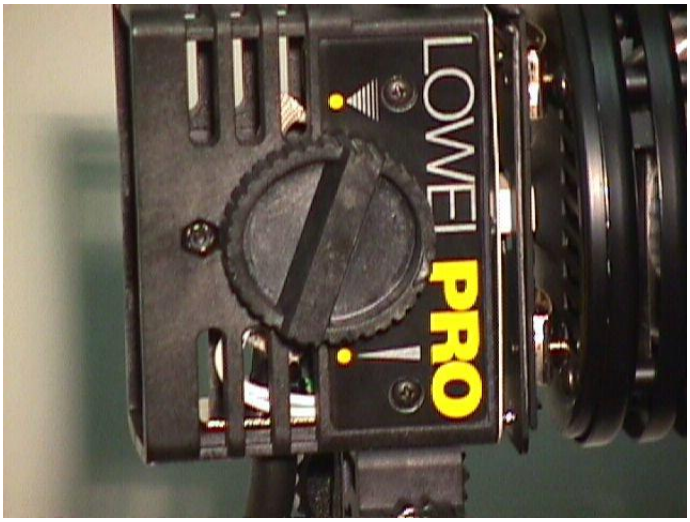
- Spot light.

The lights have a red power switch located on the back. When the switch is in the on position, you can see a white mark along its edge. Make sure the light is off before plugging it in to an outlet!



- Spot light, power switch off & power switch on.

The spot lights also have a focus control located on the right side of the unit. In the "spot" position, the light is more intense, has a sharper edge, and a narrower spill.



- Spot light focus control dial.

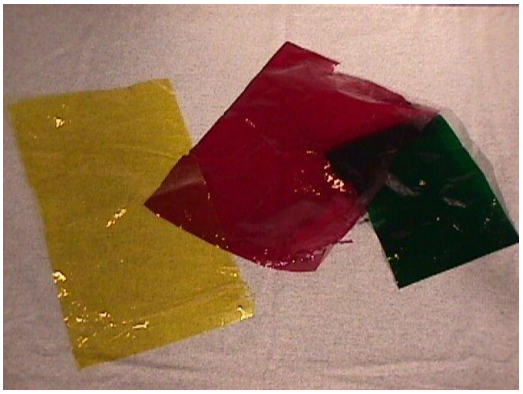
Stands

The stands will allow you to position lights from 2ft. to 8ft. off the ground, however, extreme care must be taken to be sure the light and stand do not fall over.

- Lights on stands.

Diffusion/Gels

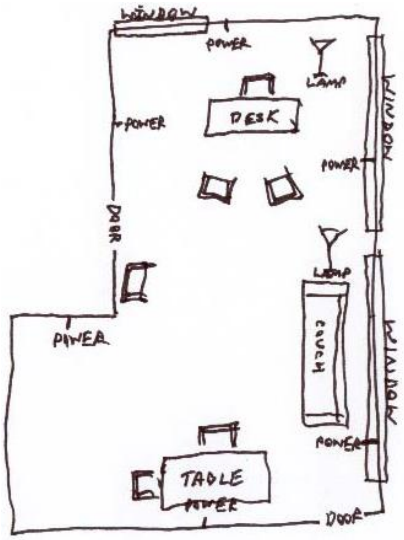
Diffusion material may be used to reduce or soften the intensity of a light. Sheets of diffusion material can be clipped to the barn doors with clothespins or binder clips. Gels can also be used to alter the color of a light and create lighting effects. They too, may be clipped to the barn doors.



- Spot light with diffusion, Gels.

Lighting Set-Up

First, figure out how many lights you need and where you will need them. Mapping out your location so you know where existing windows, lights, and outlets are can help.



- Location sketch.

1) Set up the light stands in the positions you need.

2) Make sure the stands are stable and will not fall over easily. If the stand will need to be set up in a high position, wait until you put the light on the stand before raising the stand up to the necessary height.

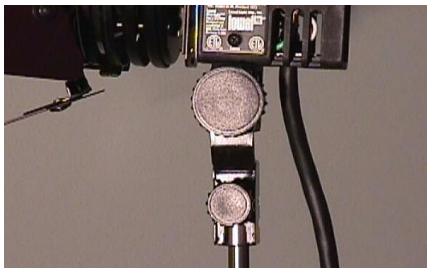
3) Then attach the lights to the stands.

4) Plug the lights in. Be careful in choosing appropriate electrical outlets to power the lights, to be safe no more than two lights should be plugged in to one circuit.

5) Turn on one light.

6) Adjust the focus control to make the light as small a spot as it can be. This will allow you to be sure the light is aimed at the area you want it to light.

7) Then adjust the light until it is pointing in the direction you need. The heads of the lighting instruments may be panned left or right and tilted up or down.



- Pan (lower) and tilt (upper) locks.

8) Re-adjust the intensity of light using the focus control. Turn the focus control to flood the light, to cover the area needed.

9) If necessary, adjust the barn doors to control the area of the light spill.

10) Turn the light off and repeat steps 5-9 for the other lights.

11) After adjusting all of the lights, turn them all on and check for shadows, dark areas or other distractions and make additional lighting adjustments as necessary.

12) When you are satisfied with your lighting, turn off all of the lights until you are ready to begin taping.

Note: Always wear gloves when making adjustments to a light that is on or was just turned off, as the instruments can be very hot.

Tripod

Always, always, always, (get the point) use a tripod whenever, wherever possible. There is just no substitute for a well framed, rock steady picture. It's one of the bare minimum standards the audience has come to expect. Sometimes it won't seem as convenient as just "hand holding" the camera, but the Pros will tell you "use a tripod any time you can." It's very distracting to the viewer when the camera is constantly bouncing around, so... use a tripod!

Equipment

Actually, there are three main parts to the tripod: the tripod itself, a camera mounting plate (not optional), and the dolly (optional).

- Tripod, bag, dolly.

Tripod

The tripod is a three-legged stand, which provides great stability for the camera.

- Tripod.

Mounting Plate

The mounting plate can be detached from the tripod, while remaining attached to the camera.

- Mounting plate.

Dolly

The dolly is an optional accessory used with the tripod, which supplies wheels allowing the tripod to become somewhat mobile and maneuverable.

- Dolly.

Tripod Set-Up

If you are not using a dolly, skip number 1, 2, 4, and 16.

1) Set the dolly in position.
2) Set the wheels up so the dolly will not move.

- Wheel control flipped up, wheels up, feet down.

3) Unlock the tripod legs and extend them to the height you want for the camera.

- Tripod leg with both locks locked, then with both locks unlocked.

4) Attach the tripod to the dolly.

- Tripod leg seated in dolly.

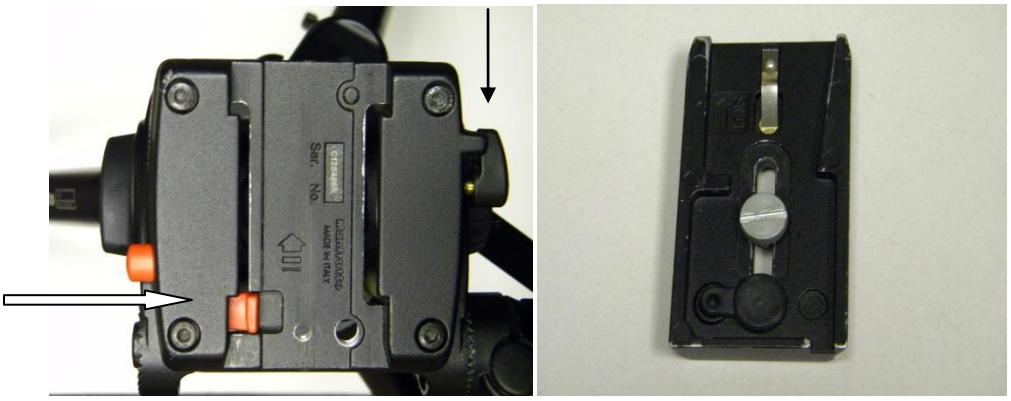
5) Level the tripod by using the level and adjusting the leg heights.

- Tripod level.

6) Check that the legs, the pan lever lock, the tilt wheel lock and the pedestal crank are locked.

- Tripod pan and tilt locks, pedestal crank and lock.
- Pan and tilt also have friction knobs

7) Remove the mounting plate from the tripod.



- Tripod mounting plate.

8) Attach the mounting plate to the camera. Make sure you properly aligned the mounting hole on the camera with the screw on the mounting plate.

9) Test the mounting plate to make sure you've securely attached the camera before proceeding with anything else.

10) Double check the pan and tilt locks on the tripod to be sure they are locked.

11) Slide one edge of the mounting plate over the red safety tab and into the edges of the plate shoe.

12) Align the plate and secure it with the mounting plate lock.

13) Visually check to be sure the plate is correctly seated in the shoe.

14) If necessary, loosen the pedestal lock and adjust the camera height.

15) Loosen the pan and tilt locks so you can freely pan and tilt the camera.

Note: Never leave your camera without first tightening the tilt lock.

16) Set the dolly wheels down so you can move when ready.

- Wheel control flipped down, wheels down, feet up.

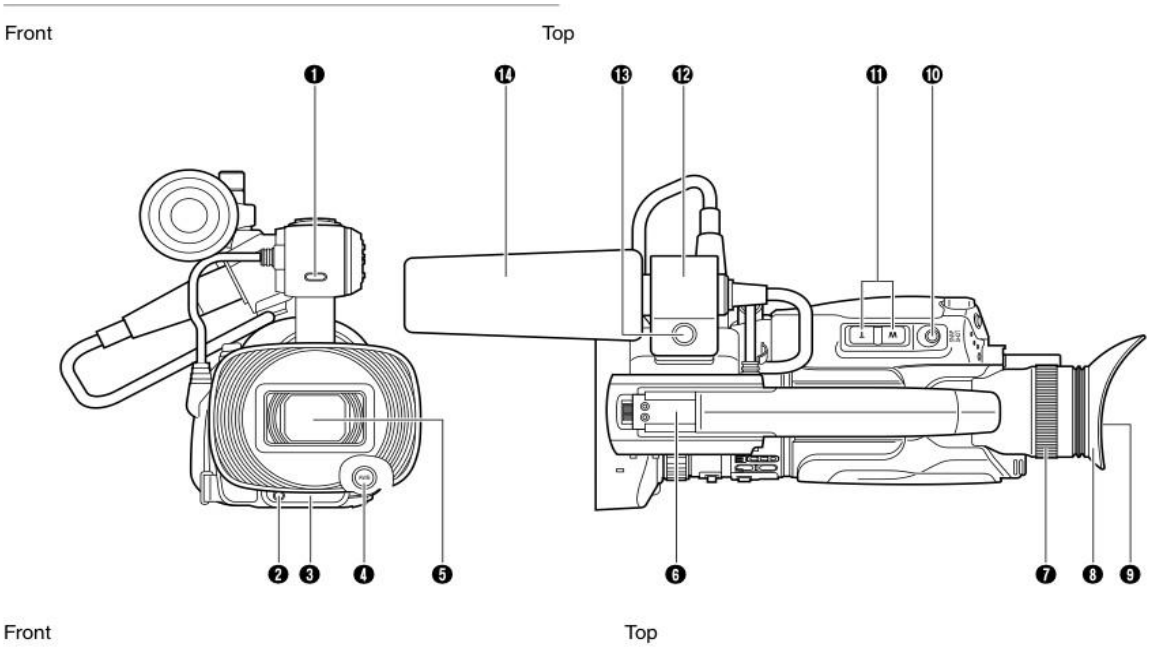
Camera

The camera is the heart of most field productions.

Equipment

The camera kit comes with a camcorder and a variety of accessories.

- Camcorder kit.



Front View

1. Tally Lamp. When this is set to on the tally lamp lights up in the recording mode

3. Remote camera sensor. Used with the camera remote

4. Auto White Balance Button. Used **f**or adjusting the white balance

5. Lens/Lens Cover. When the camcorder is not in use, close the lens cover to protect the lens

Top View

6. Shoe. For mounting separately sold accessories

7. Eyepiece Focus Lever. A lever for adjusting visibility. Found on the underside of the eyepiece

8. Eyepiece.

9. Viewfinder. You can monitor video images on the camcorder using the viewfinder.

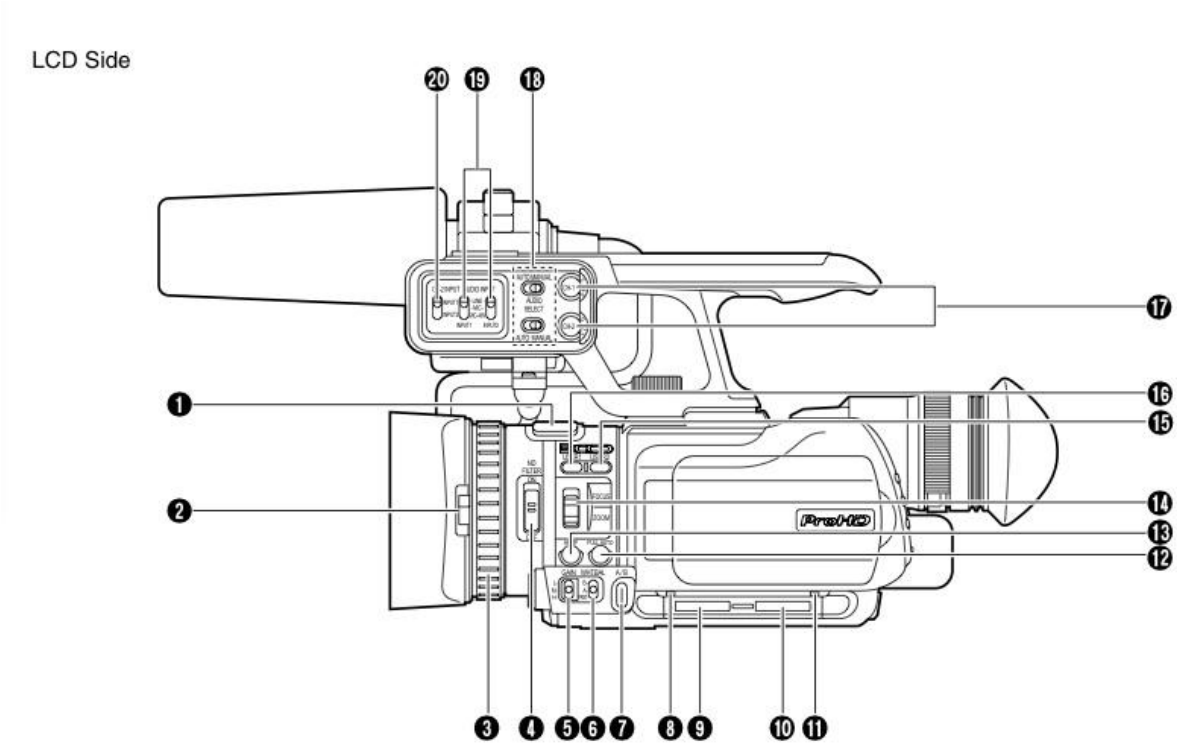
10. Snapshot Button. Used for starting the recording of still images

11. Zoom Lever. Used for zooming to the Tele (T) or wide (W) end of the lens

12. Microphone Holder. Used for mounting an external microphone

13. Knob. Used for locking the microphone into place

14. External Microphone



LCD Side View

1. Built – In Microphone

2. Lens Cover Switch. Use the lens cover switch to open or close the lens cover

3. Manual Ring.

4. ND Filter Switch. Reduces the amount of incident light to 1/10

5. Gain Switch. For selecting one of the three light sensitivity levels

6. White Balance Selection Switch. For selecting one of the three types of white balance

7. Card Slot A/B Selection Button. Used to select between Card Slot A or Card Slot B

8/11. Card Slot A/B Access Lamp. When an SD card is inserted the access lamp of the selected slot lights up

9/10. Card Slot A/B. Slots for SD cards. Open the door to insert SD card

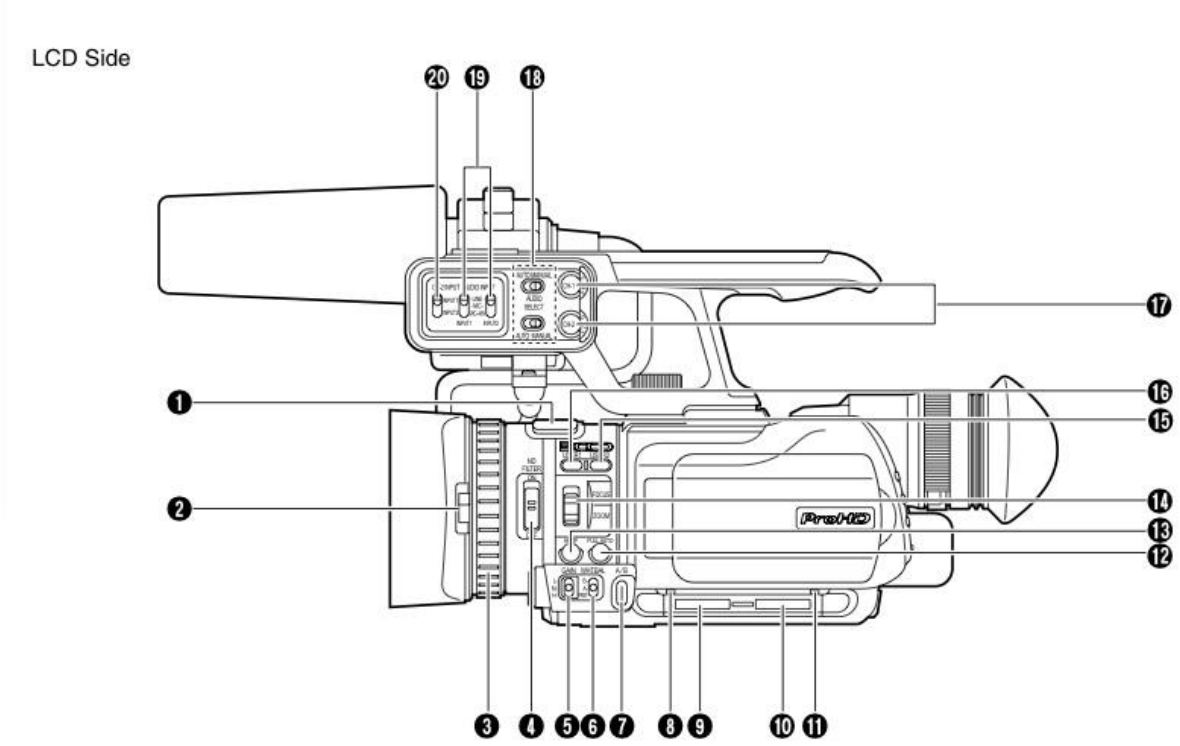
12. Full Auto Selection Button. For setting the shooting mode to the Full Auto or Manual Mode

Full Auto Mode: Exposure, aperture, shutter speed, and white balance are adjusted automatically.

Manual Mode: Exposure, aperture, shutter speed, and white balance are still adjusted automatically until each setting is changed manually.

13. {AF/MF} Focusing Mode Selection Button. Used to set the focusing mode to auto or manual

14. Focus/Zoom ring Switch. Used to set the manual ring to focus or zoom adjustment



15/16. User 1/User 2 Button. Used to set special features for each user.

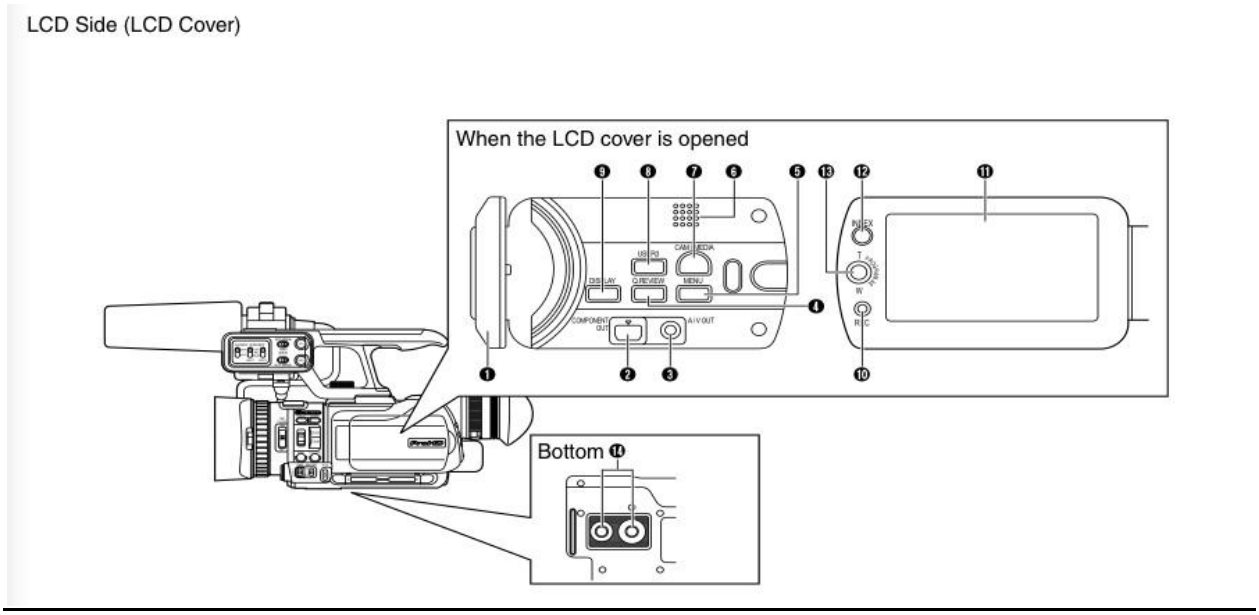
17. CH-1/CH-2 Audio Level Adjustment Knobs. Used to set the audio recording level. CH-1 knob is for audio Channel 1, and CH-2 knob is for audio Channel 2.

18. CH-1/CH-2 Audio Select Switches. Used to choose between auto and manual audio level adjustment. Top switch is for CH-1, and bottom switch is for CH-2.

19. Input 1/Input 2 Audio Source Selection Switches. Used to select the signal input type for audio Channels 1 & 2. Left switch is for Channel 1; Right switch is for Channel 2. Choose from the following settings depending on the type of equipment connected to each Input jack:

- **Line:** Use when connecting an audio device (mixer, DVD player, etc.) or other equipment to the Input channel
- **Mic:** Use when connecting a microphone to the Input channel
- **Mic + 48V:** Use when connecting the supplied microphone to the Input channel. Also use when connecting a microphone that requires a +48 V power supply (phantom Microphone).

20. CH-2 Input Switch. Used to specify which audio input (Input 1 or Input 2) gets output through CH-2 (the Right audio channel). The audio from Input 1 ALWAYS gets output through CH-1 (the Left audio channel). This switch determines if it also gets output through CH2.



LCD Side View (LCD Cover)

Beneath the LCD Cover (On the camcorder):

1. LCD Cover. Open the LCD Cover to view the video as it is being shot, and to change menu settings.

3. A/V Out Terminal. Use to connect camcorder to a television or analog audio capture device.

4. Q. Review Button. Use to quickly review the last 5 seconds of the video you just shot.

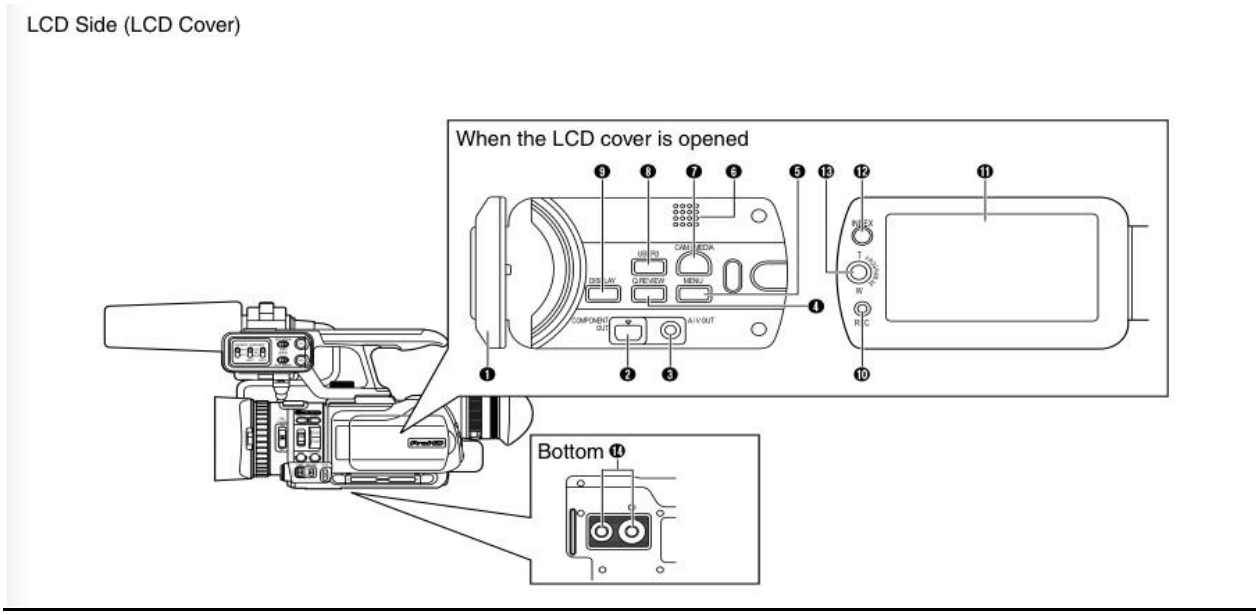
5. Menu Button. Use to display the menu screen on the LCD panel.

6. Speaker. Use to listen to the recorded audio while reviewing previously shot footage.

7. Cam/Media Button. Use to switch the camcorder from shooting mode to playback mode.

8. User 3 Button. Button that activates a user-specified function. This button needs to be set properly prior to use.

9. Display Button. Use to adjust the amount of information that is displayed on the LCD panel.



On the LCD Cover:

10. REC Button. Press to start recording.

12. INDEX Button.

In shooting mode: Press once to display the remaining space on the memory card. Press a second time to display remaining battery power. Press again to display the camera output.

In playback mode: Press to display playback index or date search modes.

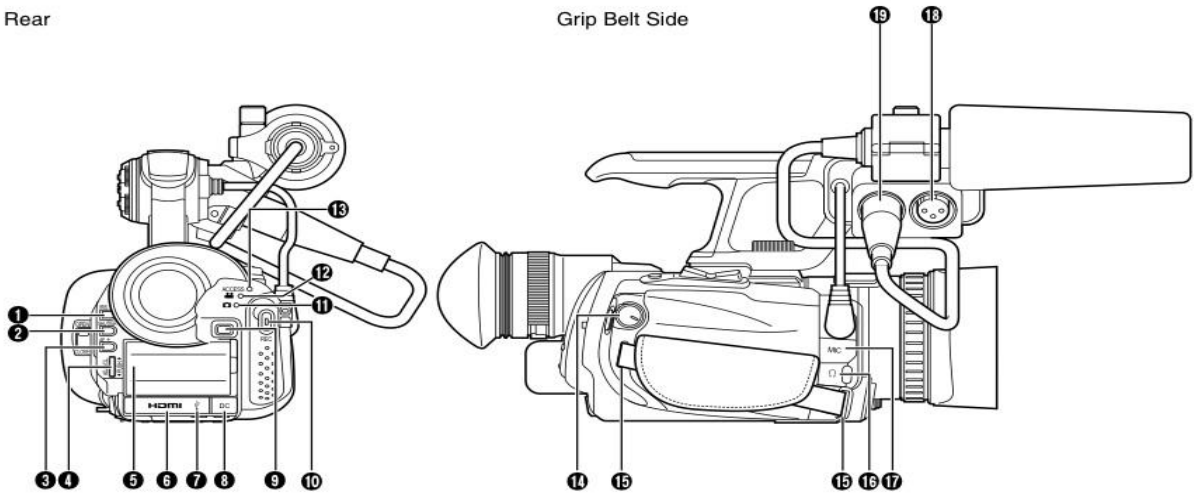
13. Joystick.

In shooting mode: Use to zoom in or out. Also used to choose a Program AE setting.

In playback mode: Used for playback file selection and playback control. When the menu screen is displayed, the joystick is used to choose menu settings.

Bottom:

14. Tripod Mounting Holes. Attach the tripod's mounting bracket to these holes. The non-threaded hole is for the rotation-prevention pin that appears on the front end of the mounting bracket. The threaded hole is for attaching the mounting bracket to the camera.



Rear:

1. Iris Button. Use to set the aperture (iris) manually.

2. Shutter Button. Use to set the shutter speed manually.

3. AE ± Button. Use to set the exposure manually.

4. Adjustment/Volume Knob.

ADJ: Use to set the aperture (iris), shutter speed, and exposure, after pressing the appropriate button above it.

VOL: Use to adjust volume coming out of the headphones or built-in speaker.

5. Battery Mount.

6. HDMI Jack. Connect an HDMI cable here to view on a TV or Monitor.

7. USB Jack. Use to connect the camcorder to a computer to transfer files from the SD card to the computer.

8. DC Input Jack. Connect the power adapter to the camcorder here, when not using battery power.

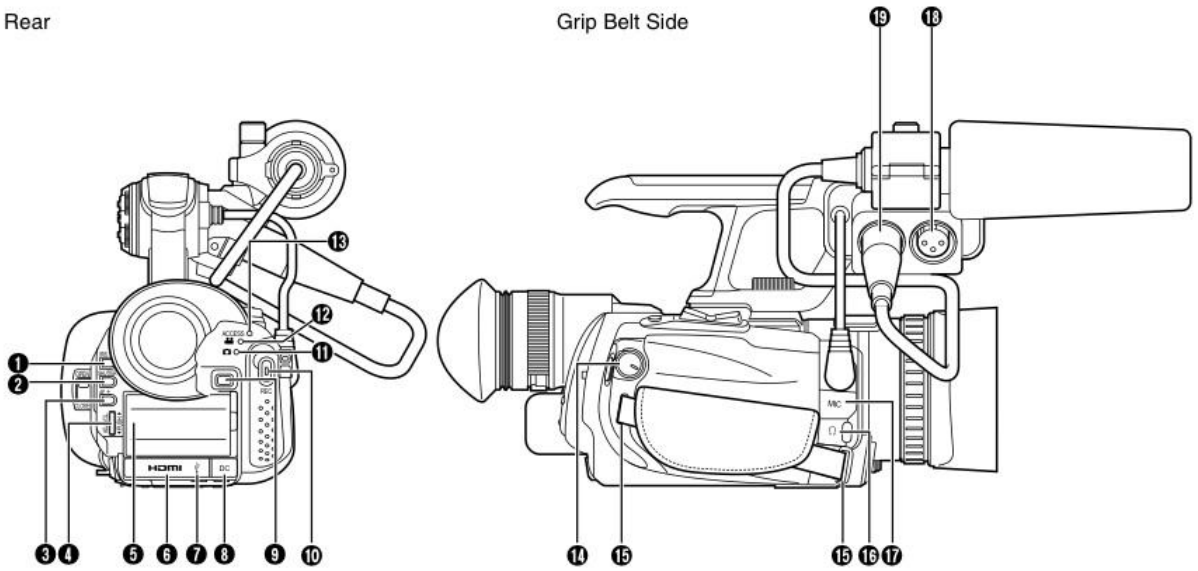
9. Battery Release Button. Push this button when you need to remove the battery.

10. REC Button. Push to start or stop recording.

11. Still Picture Indicating Lamp. Lights up when in still picture shooting or still picture playback modes.

12. Video Indicating Lamp. Lights up when in video shooting or video playback modes.

13. Charging/Access Lamp. Lights up or blinks during recording or playback. Blinks while battery is charging (and goes out when charging is complete).



Grip Belt Side:

14. Power Switch. Turns the camcorder on or off, and switches between video mode and still picture mode.

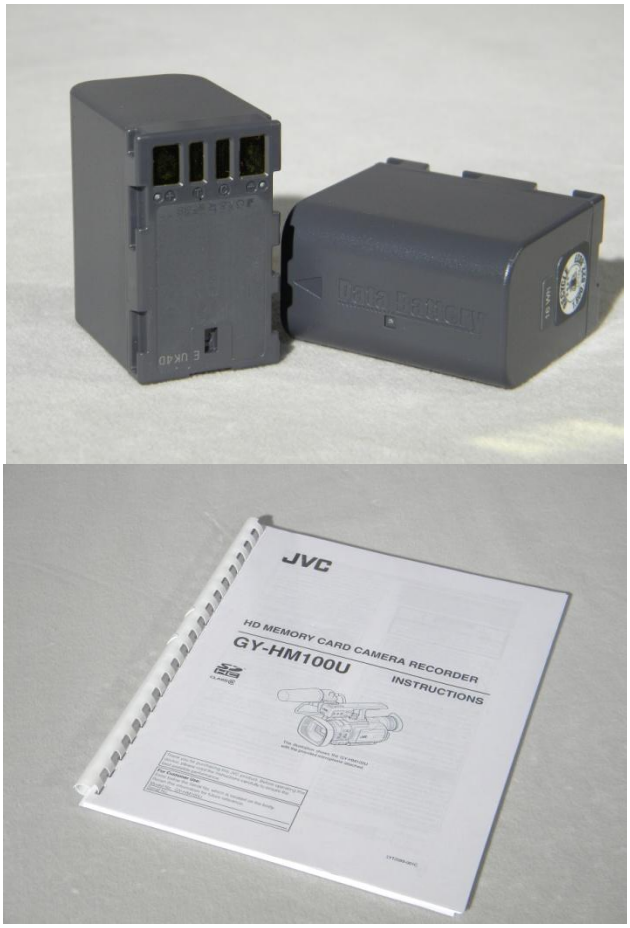
16. Headphone Jack. Connect headphones to this jack to monitor the incoming audio during recording, and to monitor the recorded audio during playback.

17. Microphone Jack. Connect a microphone to this jack if you are not using the included microphone or the built-in microphone.

18. Input 1 Jack. Connect an XLR-equipped microphone cable to this jack. This signal automatically goes to the CH-1 (Left) audio channel. You can also make this signal go to the CH-2 (Right) audio channel by setting the CH-2 Input switch to Input 1.

19. Input 2 Jack. Connect an XLR-equipped microphone cable to this jack. You must set the CH-2 Input switch to Input 2 for this signal to be used at all.

Accessories



- Camcorder batteries & Camcorder manual.

Manual – a copy of the JVC GY-HM100U camcorder manual.

Battery Packs - Provide the DC power when AC (wall outlet) power is not available. The batteries are rechargeable. Charging Time Approx, 3hrs 40 Minutes

Continuous Recording Time Approx, 2hrs 10minutes

- AC adapter and DC input cable.

Power Adapter & DC Coupler - supply power from a wall outlet to the camcorder. In addition, the Power Adapter serves the dual purpose of charging a battery pack.

- Video cable & Headphones.

Video / USB Cable – used to connect the camcorder to a VCR, television, computer (downloading files from SD Card) or other monitor and/or audio equipment.

Headphones – are used to monitor the audio as you record and also during playback.

- Omni microphone, mic cable, and white balance card.

Omni Microphone & Mic Cable – used when the camera's built-in microphone would produce unacceptable or less than desirable audio results, particularly in commentary type or interview situations.

White Balance Card – used to calibrate the camera for correct and consistent color, under those conditions.

Camera Set -Up

1) Mount the camcorder to the tripod as described earlier. (pg. 8-13)
2) Attach a battery to the camcorder or attach the AC Adapter to the camcorder's DC terminal and connect the power cord and plug it into the nearest outlet.
3) Turn the camcorder on.
4) Open the SD card slot door.
5) Insert a SD card (A/B).
6) Close the SD card slot door.
7) Open the lens cap.
8) Adjust the viewfinder or LCD screen so you can comfortably see your camera shots.
9) Point the camcorder at the subject.
10) Check the image and, if necessary, adjust focus, white balance, iris, shutter, gain.
11) Put on the headphones and check the audio.
12) If necessary, practice your camera shots.

13) When ready, press the REC button to begin recording.

14) Cue the talent to begin.

15) When the talent finishes, press the REC button to stop recording.

Audio

Equipment

There is an omni hand-held microphone provided with the camcorder kit, but there may be times when neither the omni nor the camera mic are sufficient for your production needs.

Microphones

There are 4 other types of microphones available for use:

- Cardioid Mics & Shotgun Mics.

- Cardioid Mic & Lavalier Mic.

Cardioid - useful for recording interviews and musical instruments. Generally, these mics are set up "on camera."

Shotgun - useful anytime you wish the mic to be "off camera." These mics require one AA battery. Be sure to remove the battery when done with your work.

Lavalier (Lav) - good for news or talk show type productions. When used with the camcorder, lavaliers require batteries. They have on/off switches. Be sure to turn off the mic when you are not using it and remove the battery when done with your production work.

Microphone Stands

Mic Stands are used to position mics on or off the set.

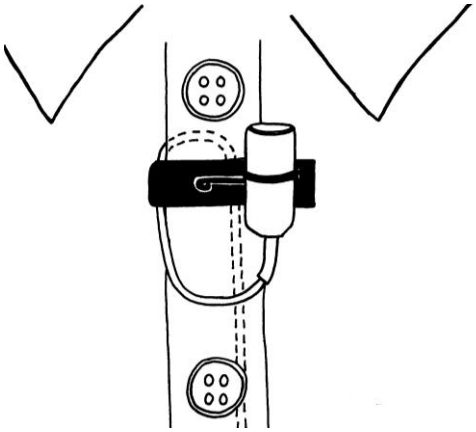
• Tabletop Stand, Floor Stand

Tabletop stands – can be used to position mics "on camera" on a table or desk.

Floor stands - can also be used to position mics "on camera".

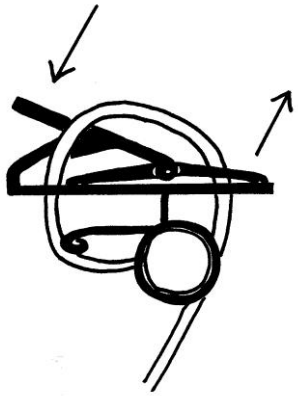
When using Lavaliers, the mics will be clipped to each person appearing on the program and there are several tips for attaching these mics to people:

- **Clip 'em.** Make sure the clip is fastened to the clothing well enough to avoid moving or falling off during the production. When clipping a mic on a lapel or suit coat, place the mic on the side toward which the talent will be speaking most of the time.



• Hiding the Lavalier wire.

- **Hide the wire.** When clipping lavs on button-down shirts and blouses, jerseys, sweaters, and T-shirts, ask the talent to run the mic wire up underneath the clothing. The mic should emerge from between the 2nd and 3rd buttons on a shirt or blouse or from the collar on other types of tops. Also, hide the wire behind the talent's tie or sports coat.



• Looping the wire, top view

- **Loop the wire.** This helps to keep the wire hidden, even when the talent moves around a lot in his chair. Simply press the clip open, pull the wire into the clip, and pull the wire taut (see illustration).
- **Most Important.** Be sure that the microphone is pointing towards the talent's mouth, not tilting away from it. Also, a lavalier usually sounds best when placed about a fist's length below the talent's chin.

Connections

Microphones are connected to the camcorder or mixer with microphone cables.

• Microphone Cable.

Microphone Cable - connects the audio signal from a microphone to a recording device. On each end of a mic cable, there is a 3-pin XLR connector (plug or jack). XLR connectors are "keyed" connectors, which means that they fit together in only one way. Examine the connectors carefully and then plug them together. If they do not lock together at first, do not force the connection. Pull the connectors apart, reexamine the pin configuration, and try again.

Audio Mixer

The Shure Audio Mixer is composed of four (4) input channels and a MASTER output channel.

- Shure audio mixer, front.

Input Channels

Each input channel has the channel number below the level controls.

LO CUT – reduces low frequency sounds (wind noise) when set to IN.

Input Level Control Dial – controls the volume level for each input.

INPUT 1/OSC 1 – switches input 1 to a tone signal.

LIMITER – cuts distortion of all mixer inputs during loud programs when set to IN.

MASTER Level Control Dial - controls the level of the signals being sent through the output connections.

OL (red) light – lights up when the signal is too "hot", a good indication that you need to lower the level for that channel or the MASTER level.

BATT CHECK – temporarily changes the VU meter to a battery meter. Batteries are good if the meter reading is above 0 VU.

VU Meter – indicates the audio level of all mixer inputs. Use this meter as a guide for adjusting Input Level Control Dials and the MASTER Level Control Dial. Ideally for voices the needle should on average reach between –5 and -3.

Power Switch – turns the mixer on or off.

PHONES – adjusts the volume for headphones connected to the mixer.

Headphone Input – this is where you connect headphones to the mixer.

- Shure audio mixer, back.

VU RANGE – should be set to +8.

SIMPLEX – provides "phantom" power for microphones that require it. Should be set to OFF when using microphones which are self-powered.

GROUND, 2 & 3 (red knobs) – not used.

LINE / MIC (output) – this switches the audio from the OUTPUT between a line signal and a mic signal. If the output is going into a camcorder's mic input, set this to MIC. If it is going into a vcr's (or other recorder) audio input, set to LINE.

OUTPUT – this is where you connect the output of the mixer to the camera or other recording device.

LINE / MIC (inputs) – this switches the audio going into the INPUTs between a line signal and a mic signal. If the input is coming from a microphone, set this to MIC. If it is coming from another audio device, set to LINE.

INPUT(S) - this is where you connect the inputs (mics, etc.) to the mixer.

MIX BUS – not used.

Audio Set-Up

1) Position the mics where they will be used.
2) If necessary, insert batteries into the mics.
3) Connect each mic to a mic cable.
4) Set-up the mixer near the camera and plug into the nearest outlet.
5) Connect each mic cable to an input on the mixer. When doing this, you should always try to hook up the mics in order from left to right when facing the set. In other words, the left most mic on the set gets hooked to input #1, the next mic to input #2, and so on. This will make it easier for the person operating the mixer to look at the set and match up input channels with people.
6) Check that the input switches on the mixer are set correctly (mic / line).
7) Connect the output from the mixer to the camera.
8) Check that the output switch is set correctly (mic / line).
9) Turn the mixer on.
10) Turn the microphones on.
11) Turn the camera on, if it's not already on.
12) Connect the headphones to the camera and put them on.
13) Turn the MASTER Level Control Dial up to 5.
14) Turn up the Input Level Control Dial for one of the mics.
15) Ask someone to speak into the mic and adjust the Input Level Control Dial to get a good recording level.
16) If you need to turn up the Input Level Control Dial past 8, turn up the MASTER Level Control Dial.
17) Make a note of the setting for the Input Level Control Dial and turn it down to 0.
18) Go back to step 14 and repeat for each mic.
19) If someone else will be operating the mixer, review the mic/mixer setup with them.