

## SONY HXR-NX70U HD CAMCORDER STUDY GUIDE

### PURPOSE

This Study Guide was created to help students prepare for the **SONY HXR-NX70U HD Camcorder Certification Exam**, which is necessary to reserve and use the SONY HXR-NX70U HD Camcorder, specifically for classroom purposes. This Study Guide, in combination with the camera's **Operating Guide** provides all essential information on the proper handling and use of the SONY HXR-NX70U HD Camcorder, including an explanation of contents, procedures to demonstrate, and required features and techniques to know.

### REQUIRED INFORMATION FOR CERTIFICATION

1. Recite the "Safety Principles" (or "Golden Rules") of the Media Lab.
2. Identify all items included in the SONY HXR-NX70U Camcorder package.
3. Demonstrate safe handling of the camera and tripod.
4. Demonstrate proper set up and knowledge of the camera's basic functions.
5. Proper "striking" of camcorder equipment package.

### THE "GOLDEN RULES" OF THE UHM MEDIA LAB (REQUIRED INFORMATION)

1. **Never force anything!** If something you are attempting to do requires any amount of excessive force, STOP and review your methods.
2. **Never over tighten!** This may cause the stripping of threads. The use of excessive force can damage the equipment.
3. **Never leave the camcorder equipment unattended!** Camcorder and other video equipment are prime targets for theft.
4. **Never leave the camcorder equipment exposed to any heat source!** (e.g., in the trunk of a vehicle). Excessive heat will cause camcorder parts to melt.
5. **Never use equipment in "risky" situations/environments!** (e.g., any type of airborne devices or locations including airplanes, helicopters, skateboards, motorcycles, rollerblades, etc., night time shoots in low lit and/or unsafe areas, and "remote" areas which require transport of equipment over rough terrain.)
6. **Never touch or attempt to clean the lens!** There is a high probability of scratching and permanently damaging the lens without the proper cleaning materials. Only use an approved cleaning cloth.
7. **Never aim the viewfinder or the LCD screen directly at a strong light source!** This will cause permanent damage to the viewfinder/LCD screen. (e.g., the sun, very bright light, or its reflection from an object.)
8. **Never submerge the camera or spray it with water!** Although the body of this camera is rain proof, it is not waterproof and cannot be submerged or sprayed.

## WHAT'S IN THE CAMCORDER PACKAGE?

### Identify all the items in the Camcorder Package



**NOTE:** Optional equipment include: Wide Angle Conversion Lens, Telephoto Conversion Lens, Circular Polarizing Filter

## Identify all Detachable parts of the SONY HXR-NX70U Camcorder Unit

1. Shotgun Microphone (condenser type)
2. XLR Adapter/Camera Handle
3. Lens Hood
4. Lens protection filter
5. Viewfinder Eyecup
6. Tripod Wedge Plate adapter



## Demonstrate how to remove and attach the XLR adaptor

1. Pull the Active Interface Shoe (a) backward and pull it up to detach it
2. Unscrew (b) and slide the XLR Adaptor off the accessory shoe
3. Put the cover (c) over the Active Interface Shoe on top of the camera
4. Reverse the procedure to reattach the XLR Adaptor



## Identify the parts of the camcorder unit which are not dust & rainproof

The Shotgun Mic and the XLR Adapter/Camera Handle (detachable parts #1 & 2)

Remove these items in wet conditions whenever an XLR microphone is not needed. The camera's internal microphones will work for general background sound.

## Explain what dust & rainproof means for this camera

The camera body is sealed against light rain and dust. It will not withstand submersion or spraying with pressurized water from a hose or shower. Avoid opening the battery compartment, the SD card slot cover, or the cover for the XLR Interface shoe around ocean waters or when environmental conditions are wet or dusty. The XLR Adapter handle and shotgun mic are **not** rainproof/dustproof.

*See page 6 of the Operating Guide.*

## Demonstrate how to attach/detach the lens hood, open and close the shutter of the lens hood, and remove and put on the lens filter.

Tilt the camera up, being careful not to point it into the sun or a light. Push the Lens Hood Release button and rotate the lens hood to take it off. Unscrew the filter and put it back on. Re-attach the lens hood by aligning marks on the lens and lens hood and rotating it back on. Slide the Lens Hood Shutter lever to open and close the shutter.

*See page 15 of the Operating Guide.*





### C. Demonstrate how to mount the camcorder on the tripod.

Before mounting the camcorder to the tripod, make sure that the tilt lock (2) and pan lock (3) are locked and all leg extensions are secured so that the tripod does not move or collapse when mounting the camcorder. After mounting the camcorder to the tripod, be sure to loosen the pan lock (3) in order to avoid accidentally knocking the tripod over.



### D. Demonstrate this basic safety procedure.

Always double check tripod stability prior to mounting the camcorder.

**IMPORTANT NOTE:** To avoid potential accidents with tipping the tripod over, never leave the camcorder unattended, especially when tripod head (tilt lock) is in an unlocked position. **ALWAYS BE AWARE OF THE STATUS OF THE TRIPOD!** To avoid damage to the tripod head, never force a pan or tilt when the tripod head is in a locked position. This will cause permanent damage to the tripod head!

## POWERING THE CAMERA

### Attach a battery and turn on the camera

Open the LCD screen and then open the battery cover. Insert the battery by sliding it (d) into the grooves of the battery compartment. Close the battery cover and lock it into place. See pages 16, 17, & 20 of the Operating Guide.

Turn on the camcorder and point out the remaining battery level indicator on the LCD screen. See page 124 of the Operating Guide.



### Turn off the camera and remove the battery

Open the battery compartment door and rotate the battery release lever (e). Slide the battery out, then close and lock the compartment door. See page 18 of the Operating Guide.

### Explain the safest method for connecting the AC Adapter to the camera

To avoid pulling over the camera, start by working from the wall to the camera. Plug an extension cord into the wall. Plug a power strip into the extension cord, making sure the power strip is turned off. Plug the AC power adapter cord into the power strip. Plug the AC power adapter into the "DC IN" plug on the camera. Turn on the power strip. The camera can now be turned on.



See page 16 of the Operating Guide.

### Explain the situations in which a battery or AC power is best used.

Batteries should be used for mobility such as when the camera is handheld or used for short periods of time before setting up again. AC power can be used for extended setups when camera is to be set up in one place for an extended period of time.

## SD MEMORY CARD INSTALLATION

### Demonstrate how to insert and eject an SD memory card with this camcorder

**NOTE:** ALWAYS TURN OFF THE CAMCORDER WHEN INSERTING OR REMOVING A MEMORY CARD. Also, when the ACCESS indicator light is flashing, do not disconnect power, turn off camcorder, or remove memory cards. See page 26 of the Operating Guide.

Open the memory card access slot in the back of the camera and insert an SD memory card. Push and release to eject it as well as insert it. See page 27, 28, & 29 of the Operating Guide.

**IMPORTANT:** You will be recording to SD memory cards rather than the camcorder's internal memory. Use a memory card with a class rating of **4** or higher for recording speed.

**NOTE:** The camera has internal memory that can be used for recording, but any recordings on this memory must be deleted before returning the camera to the Media Lab. **The lab will not be responsible for any recordings left in the camera when it is checked in!**



## PREPARING TO SHOOT VIDEO

### Demonstrate how to setup the camera to shoot video.

Turn the camera on (**f**) by pushing down the green button and pivoting the power switch up. Push the button on the back of the camera labeled "MODE" (**g**). The icon of the film frame represents video mode and the icon of the camera represents photo mode. Set it to video mode.

See page 31-32 of the Operating Guide



### Demonstrate how to switch between manual control and fully automatic.

Slide the switch (**h**) on the back of the camcorder up and down to choose between **AUTO** (fully Automatic) or **MAN** (Manual) settings for the camera. Set it to **MAN** to set any of the important functions of the camera for complete control.

**NOTE:** In the manual mode, you may set some functions manually and set others to automatic. This combination of settings can be very useful by allowing the exposure to be adjusted automatically with the Iris and Shutter Speed settings while the White Balance and Gain are set manually for more professional results.

See page 49-51 of the Operating Guide

## MENU SETTINGS FOR VIDEO RECORDING MODE

## Demonstrate how to access and navigate the camera's menu system

The camcorder features an LCD touch-sensitive screen for users to review, select and change camcorder settings. Use the LCD touch screen to navigate through the options by touching the word "MENU", the "X", "OK", the icons, images, or orange colored words on the LCD screen. You can also scroll through the menus and settings by touching the up and down arrows or dragging your finger across the screen.



**NOTE: Touch the screen gently.** Keep your fingers and hands clean for better response from the touch screen and to avoid scratching the screen. Only use a clean microfiber cloth to clean the LCD screen.

## Demonstrate how to select the SD memory card for recording.

Use the touch screen to select the memory card for recording:

Touch [MENU] ⇒ [Rec/Media SET] ⇒ [Media Select]  
⇒ [Memory Card] ⇒ [OK] ⇒ [OK]

See page 26 of the Operating Guide.



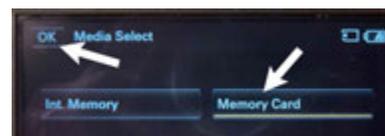
## Demonstrate how to "Format" the memory card.

(If you have already used the card in a SONY HXR-NX70U camera you don't have to redo it to continue shooting but formatting will erase the entire card.)

Touch (MENU) ⇒ [Rec/Media SET] ⇒ [Format]  
⇒ [Memory Card] ⇒ [OK]

See page 58 of the Operating Guide

**NOTE:** Formatting the memory card deletes all files on the memory card.



## Demonstrate how to set the recording quality settings

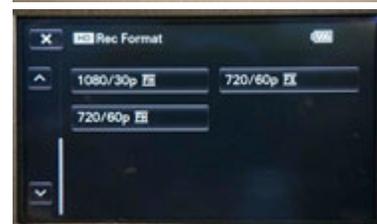
Use the touch screen to set **HD** recording settings. NOTE: The choices have been updated and are not in the operating guide. (Ask your instructor for the recommended settings for your class.)

Touch [MENU] ⇒ [Rec/Media SET] ⇒ [HD/STD Setting] ⇒ [HD Quality]  
⇒ [OK] ⇒ [OK]

Touch [MENU] ⇒ [Rec/Media SET] ⇒ [REC Format] ⇒ [(select one)]  
⇒ [OK]

Touch [MENU] ⇒ [Camera Audio] ⇒ [HD Audio Format] ⇒  
[Dolby Digital] ⇒ [OK]

See page 56-57, 86 of the Operating Guide



NOTE: Higher video and audio quality settings will reduce the recording time per gigabit of memory. Lower quality increases the recording time. See page 109 of the Operating Guide

## LCD SCREEN INDICATORS

### Identify and explain each of the LCD Screen indicators

Cycle through the LCD screen Display settings to view the record settings (HD | 60i | FH | min |). If this full information screen is not displayed for more than 3 seconds, you have to turn the Display Setting to "On".

Touch (MENU) ⇒ [Setup] ⇒ [Display Setting]  
⇒ [On] ⇒ [OK]

1. MENU button
2. Recording status
3. Remaining time for the battery
4. Battery power icon – amount left
5. Time Code
6. High Def (HD) or Standard Def (STD) recording mode
7. Frame Rate
8. Recording quality
9. Recording time remaining in memory
10. Icon for memory selected for recording (SD card shown here or internal memory)
11. My Button – Gain selected
12. My Button – Shutter Speed selected
13. My Button – EV selected but not applicable when all settings are manual
14. GPS status
15. Smile Shutter status
16. Playback button (switches camera into video playback mode)
17. Manual Focus icon (distance is briefly shown in manual mode and then disappears)
18. Iris setting
19. Gain setting
20. Shutter speed setting
21. White Balance Setting
22. Icon for HD audio setting (there is no icon for the Dolby Digital setting)
23. Audio recording levels



See page 124-125 of the Operating Guide

Push the Display button to cycle through the settings. Set it to display the partial information screen. It also allows the record and zoom buttons to be displayed.

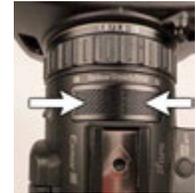
24. Zoom out button
25. Zoom in button
26. Record start button

See page 94 of the Operating Guide



## SETTING UP AUDIO

Note: This camera comes with built-in stereo microphones on the camera body that are useful for ambient and background sounds. **Identify the built-in mics.** These will be the camera mics when the XLR Adapter is not used. For professional results, XLR mics are needed.



### Set up the microphones.

Plug the shotgun into Input 2 (i). Connect the hand mic to an XLR cable and plug that into Input 1 (j). Plug in the headphones (back of the camera, above the power switch).

### Set the audio switches on the camera handle.

1. First set the "REC CH SELECT" switch (r) down to "CH1".
2. Then set the switch position for CH1 (l) to the middle (MIC) for the hand mic and for CH2 (n) set it down (MIC+48) for the lavalier mic.
3. "ATT" is normally set at 0dB (k,m) unless the sound is very loud.
4. Set the audio level dial switches (s,u) to MAN for manual control with the dial.
5. Set the LOW CUT INPUT switches (p,q) to "ON" for windy conditions and "OFF" for other times.



See page 53-55 of the Operating Guide

### Know the following terminology for audio:

**SHOTGUN MIC:** A condenser mic which requires electrical power to work and has a narrow pickup pattern which picks up sound best from the front.

**HAND MIC:** A dynamic mic with a cone-shaped pickup pattern and picks up sound a bit better from the front than from the sides.

**LAVALIER MIC:** A condenser mic with an omnidirectional pickup pattern (picks up sound evenly from any direction).

**LINE LEVEL:** A setting on the camera to match the strong electrical audio signal from a device such as audio amplifier or DVD player.

**MIC LEVEL:** A setting on the camera to match the weak electrical audio signal generated by a microphone.

**DYNAMIC MIC:** A microphone that generates its own weak electrical audio signal such as a hand mic.

**CONDENSER MIC:** A microphone that needs electrical power to work. (The shotgun mic and the lavalier mic are examples of condenser mics).

**ATTENUATE:** To reduce the signal strength or level by a large degree. The **ATT** switch position reduces the audio signal strength when the sound is excessively loud and distorted. However, it is not enough to compensate for a **line level** signal.

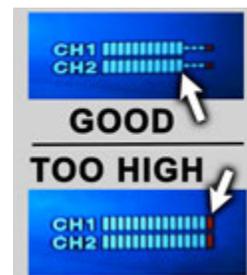
**PHANTOM POWER:** Electrical power (+48v) provided to the microphone from the camera through the audio cable.

**NOTE:** Supplying phantom power to dynamic microphones may damage some microphones. Thus, it is important to determine whether or not the mic needs phantom power. Before connecting a mic, set the +48V switch to OFF and then connect your mic. If your audio display and headset do not reveal an audio signal with the audio thumbwheel turned up, turn the +48V to ON. Don't forget to turn the phantom power OFF for mics not needing phantom power.

## Setting the audio recording levels

After setting the switches, turn the camera on and use the thumbwheels (r,t) on the handle to adjust the recording levels for the audio. Speak into the microphones and set the recording levels to peak around  $\frac{3}{4}$  of the audio level indicator. Adjust the audio separately for Ch1 and Ch2.

If the audio recording levels light up the red mark at the end constantly, the recording level is set too high. If the recording levels don't go beyond 50 percent on the indicator, the level is set too low.



## Adjust the headset volume in the menu

Touch [MENU] ⇒ [Rec/Media SET] ⇒ [Volume] ⇒ [(adjust louder or softer)] ⇒ [OK]

NOTE: Changing the volume adjusts the headset for your ear. The recording levels must always be set according to the audio level indicators (#22 & 23 on the LCD screen). You must use the headset to confirm that the audio is clear and without extraneous noise or interference.

## ADJUSTING FOCUS AND FOCAL LENGTH (ZOOMING)

### Demonstrate how to focus the viewfinder for your eye

Close the LCD screen to turn on the viewfinder.

Locate the lever under the viewfinder.

Move the lever back and forth until icons in the viewfinder are sharp and in focus.

### Demonstrate how to switch between automatic and manual focus and 2 ways to focus the lens. Explain what indicators are displayed in the viewfinder.

Use the "FOCUS" button to switch between auto and manual  
The icon of the hand with an "F" in it (#17 in the LCD screen) indicates manual focus mode

1. Set the "FOCUS" to manual, set the ZOOM/FOCUS/IRIS switch to "FOCUS" and rotate the manual control ring
2. Touch [MENU] ⇒ [Camera Audio] ⇒ [Focus] ⇒ [Manual] ⇒ [OK].

On the LCD screen, touch an object on the screen. The camera will put a double lined box on the object touched and focus on it. This feature can be canceled by touching a finger-pointing icon with an "X" in it.

*See page 43-44 of the Operating Guide*



### Demonstrate 3 ways to "zoom" the lens (without the remote control)

1. Use the power zoom lever on the handgrip
2. Set the ZOOM/FOCUS/IRIS switch to "ZOOM" and rotate the manual control ring
3. Open the LCD screen and touch the "W" or "T" on the screen to zoom out or in.

*See page 42 of the Operating Guide*

### Demonstrate the standard procedure for focusing and composing your shot

Zoom in on your subject, focus, zoom out for your framing, and adjust your composition.

## WHITE BALANCE SETTINGS

### Identify and explain the WHITE BALANCE selections

Touch [MENU] ⇒ [Camera Audio] ⇒ [White Balance]

**WB/AUTO (w)** : The White Balance is continuously adjusted automatically

**Outdoor (x)** : Setting for outdoor light with the sun shining

**Indoor (y)** : Setting for indoor lighting under tungsten halogen light (stage lights)

**One Push (z)** : Allows the White Balance to be set manually for the lighting conditions



### Demonstrate how to set the WHITE BALANCE manually

Touch [MENU] ⇒ [Camera Audio] ⇒ [White Balance] ⇒ [One Push (square over 2 triangles icon)] ⇒ [SET] ⇒ [OK]

Set the White Balance in this order:

1. Shoot a white card or object where your subject will be. Focus on the card and fill most of the screen.
2. Press the One Touch icon on the screen
3. Press SET to manually adjust the white balance for the light.
4. Press OK to save the white balance setting.

See page 51 of the Operating Guide



## EXPOSURE SETTINGS

### Name and explain 3 things that affect the exposure of the image with this camera.

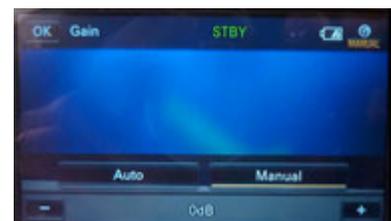
1. **IRIS/Aperture**: Changes the size of the opening in the lens to admit more or less light.
2. **Shutter Speed**: Changes the amount of time the light is recorded for each frame. More time allows more light and greater exposure.
3. **Gain**: Changes the sensitivity of the camera's light sensor. The higher the sensitivity the less light is needed to record an image. *The big draw back to increasing gain is the increase in video noise or grain. Avoid using gain to maintain high quality in the video.*

NOTE: **A Neutral Density Filter or Polarizing Filter will change the exposure of a camera.** The amount of light passing to the sensor is changed by placing a dark filter in the light path. A neutral density filter does not affect the color of the image. *The SONY NX70U does not have any internal neutral density filters.* When the exposure is beyond the range of the IRIS/APERTURE adjustment, you can attach neutral density filters to the front of the lens or else you must increase the shutter speed to reduce the exposure level of the scene.

### SET THE EXPOSURE MANUALLY

#### Set the GAIN to 0db

Touch [MENU] ⇒ [Camera Audio] ⇒ [Gain] ⇒ [Manual] (adjust to 0dB) ⇒ [OK]. This sets the gain for the least amount of video noise. Look for the setting at the bottom of the LCD screen. *Increase gain as the last alternative to increasing exposure.*



## Set the Shutter Speed to 60

Touch [MENU] ⇒ [Camera Audio] ⇒ [Shutter Speed] ⇒ [Manual] (adjust to 60) ⇒ [OK]. This sets the shutter speed to the standard setting of 1/60 of a second. Look for the setting at the bottom of the LCD screen. *When shooting under bright lighting conditions, such as outdoors, this may be set to automatic. For normal video, it should not drop below 30 (1/30 of a second).*



## Switch to manual IRIS control

Push the “IRIS” button on the camera and set the “ZOOM/FOCUS/IRIS” switch to IRIS. Use the manual control ring to adjust the IRIS for the lighting conditions. Look for the setting at the bottom-left of the screen. Set the correct exposure using the lens ring. *This may be set to automatic for normal lighting conditions indoors and outside.*



## Switch the Shutter Speed to automatic and the AE Shift setting to “On”

Touch [MENU] ⇒ [Camera Audio] ⇒ [AE Shift] ⇒ [On] (adjust + to brighten the automatic exposure and – to darken) ⇒ [OK]. This only works when one or more of the exposure controls are set to automatic and causes the exposure to be brighter or darker than the normal automatic exposure. *This is an alternate method of adjusting the exposure setting in the automatic mode. It is useful in conditions like snow or a spotlight on a dark stage where there is too much white or black in the picture.*

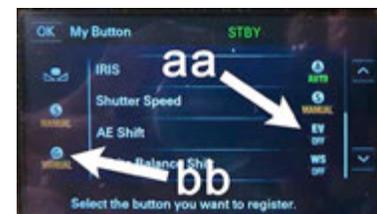


See page 49-51 of the Operating Guide

## ADDITIONAL FEATURES

### Demonstrate how to customize and use the “My Buttons” on the LCD screen

Touch [MENU] ⇒ [Camera Audio] ⇒ [My Button] ⇒ [(choose a function you want as a “My Button”)] In this case, AE Shift (aa) ⇒ [(choose one of the 3 positions to assign the function)] In this case, the 3<sup>rd</sup> button (bb) ⇒ [OK]



My Buttons provide quick access to frequently used adjustments such as White Balance, Gain, and “EV” (AE Shift – Automatic Exposure Shift). The buttons appear on the left side of the LCD screen when you cycle through the Display mode.

See page 48 of the Operating Guide

### **Access and explain the "Zebra" feature.**

Touch [MENU] ⇒ [Camera Audio] ⇒ [Zebra] ⇒ [ON] ⇒ [(adjust to 70)] ⇒ [OK]

Indicates when the video brightness is at 70% with diagonal stripes in the video. This zebra affect is not recorded. It is useful to set the level for the exposure of a Caucasian face which should be exposed just below 70% brightness.

*See page 87 of the Operating Guide*

### **Access and explain the "HISTOGRAM" feature.**

Push the **HISTOGRAM** button to bring up the histogram display. Push it again to reveal a line that indicates a 70% brightness level and again to remove it. It displays the distribution of tones within an image and is useful for adjusting the correct exposure for the video. The histogram is not recorded in the video.

*See page 47 of the Operating Guide*

### **Access and explain the SteadyShot feature**

SteadyShot is a feature that stabilizes the image to compensate for camera shake. It is especially useful when zoomed in for a closeup of a subject.

Touch [MENU] ⇒ [Camera Audio] ⇒ [SteadyShot] ⇒ [(Standard/Active/Off)] ⇒ [OK]

Standard mode takes away some of the jitter of an unsteady camera.

Active mode is a more powerful SteadyShot effect but allows the shot to drift at times.

Off mode turns off the SteadyShot feature and is best with the camera on a stable tripod.

*See page 83 of the Operating Guide*

### **Demonstrate and explain the NIGHTSHOT feature**

Switch the camera to the Auto mode. Press the "NIGHTSHOT" button on the right side of the camera. This greatly increases the sensitivity of the camera in dim light but only shows a monochromatic picture (greenish color).

*See page 45-46, 84 of the Operating Guide*

## **RECORDING**

### **Demonstrate how to record a series of scenes**

1. Make sure your electrical power or battery is attached.
2. Turn on the camcorder.
3. Open the lens hood shutter.
4. Flip open your LCD screen or use the viewfinder.
5. You have two camera modes to choose from for recording. For our purposes, you will first use the Manual mode.
6. First, set the white balance.
7. Second, focus and frame (compose) a scene.
8. Third, set the correct exposure.
9. Then, press the record button to begin recording. Record for about 10 - 15 seconds. Press the record button again to pause recording.
10. Focus, frame, expose, and record 2 more scenes each 5-10 seconds.
11. Switch the camera to AUTO and shoot another scene, letting the camera focus, expose, and white balance automatically.
12. Demonstrate 2 ways to start and stop recording.
  - a. Button at the back of the handgrip of the camera
  - b. Red dot on the LCD screen

## PLAYBACK AND DELETE

Demonstrate how to playback and delete what you have recorded



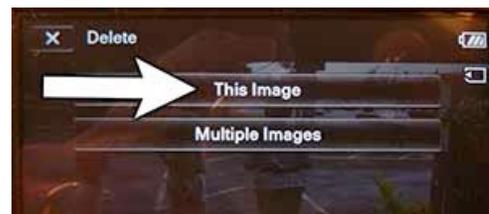
Put the camera into video playback mode. Scroll the time line (cc) near the bottom of the screen to select the video clips by date. Touch the clips above the date (dd) to bring up a grid of the clips.

Touch an individual clip to play the video. While the video clip is playing, touch the screen to bring up playback controls. The playback controls will appear at the bottom of the screen. Touch the screen when you want to use the controls. Demonstrate controls for "Pause", "Play", "Reverse", "Forward", "Stop".



To delete a clip or clips, bring up the playback controls and touch the trashcan (ee) on the left side of the screen.

Touch "This Image".



The clip that you have chosen to delete will show in the background of the "Delete / Execute?" screen. Touch [OK] to delete the clip you were playing.

Play another clip to delete and select "Multiple Images". The screen will show a grid of images with a box in the upper left of each clip. Touching a clip puts a red check mark in the box. You can choose as many clips as you want to delete. If you change your mind, touching the clip again removes the red check mark.



Select all the clips. Touch "OK" and the "Execute?" screen will appear. Touching "OK" again then deletes all the clips you have chosen.

See page 34-36 & 59 of the Operating Guide

## STRIKING / PACKING UP THE CAMERA EQUIPMENT

### Demonstrate how to "STRIKE" the Camera equipment

- Turn off the camera and remove the memory card(s). Return it to the Media Lab Assistant (or put it away if it is yours.)
- Disconnect the camera power cable.
- Disconnect the headphones, hand mic, and XLR cable (**DO NOT!!! stretch the headphone cable coils**)
- Remove the camera from the tripod.
- Pack all items neatly in their proper location in the camera bag.
- All XLR audio and AC cables must be properly coiled ("over/under").
- Tripod legs should be retracted and locked.
- Head lock should be locked.
- Pan handle rotated down and tightened down into position along tripod legs.
- **Pan and tilt locks should be unlocked** (this prevents possible damage to pan and tilt locks while transporting).

### Recommendations for fast and efficient shooting with high quality results.

Use Ch1 audio for interviews and adjust manually. Set Ch2 audio setting (for the shotgun) to AUTO to pick up BG sound. Set Gain to 0db or no more than 9db. Set White Balance manually whenever possible. Set Shutter Speed to 60 or AUTO. Set Iris to AUTO. Set Focus to AUTO and use the Spot Focus feature or switch to manual when needed. Use the AE Shift to adjust the auto exposure according to the scene.