

Topic no. 70
Film Camera
Demonstration

Camera operators need to know their camera so well that they don't need to "think" about it technically. That knowledge allows them to spend their time shooting creatively in a way that effectively communicates.

A range of models

Video cameras today come in a wide variety of shapes and sizes that suit all kinds of different situations. They range from units that fit in a pocket to cameras that are so heavy that they can take a couple of people to lift them (Figure 6.1). Historically there were consumer, industrial, and professional cameras. Many of those monikers have merged, with small, previously thought of as "consumer" cameras now being used in the professional workplace. Traditionally, for a multi-camera production, high-cost cameras were used that required camera control units.

Today's multi-camera systems allow many types of cameras to be used in professional situations, including low-cost cameras. The right camera depends on how the end production is going to be used. What was considered a professional quality camera 10 years ago has been dwarfed by the quality of small, low-cost high-definition pocket-sized cameras available today. Television and film competitions are being won by directors who are using cameras that cost less than \$1,000. That was unheard of in the 1990s. So now, no one can blame the lack of quality on his or her camera gear because almost anyone can afford the equipment. For all of the cool technological advancements, keep in mind that the important thing is to know how to visually communicate.

Most productions are created with a camera that is a stand-alone unit; they are known as single-camera productions. Single-camera productions are generally edited together during postproduction. The second major type of production is a multi-camera production, where two or more cameras are used with a switcher selecting the image to be shown to the viewer.



Figure:: Video cameras come in all different shapes and sizes. (Photos courtesy of Grass Valley/Thomson, Sony, JVC, and Panasonic.)

Single cameras generally have a built-in recorder. These recorders may use a videotape, DVD, flash card, and/or a hard drive (Figure 6.2). Note that some of the latest cameras have both tape or flash card and a hard drive, allowing two recording options in one camera. Cameras may also be combined (by wire or wirelessly) with other recorders such as a tape deck or a portable hard drive. Some of the studio cameras or remote production (outside broadcast) cameras are available without recorders because they are designed specifically for multi-camera use.

Camera craft

Most video cameras are easy to operate at the basic level. Designers have gone to a lot of trouble to make controls simple to use. The consumer-oriented cameras have been so automated that all one needs to do to get a decent image is to point them at the subject and press the record button. When shooting for fun, that's fine. So why make camerawork any more complicated?

It really depends on whether the director plans to use the camera as a creative tool. The weakness of automatic controls is that the camera is only designed to make technical judgments. Many times these technical decisions are some- thing of a compromise. The camera cannot make artistic choices of any kind. Auto-circuitry can help the camera operator avoid poor-quality video images, but it cannot be relied on to produce attractive and meaningful pictures. Communicating visually will always depend on how you use the camera and the choices you make.

Obviously, good production is much more than just getting the shot. It begins with the way the camera is handled and controlled. It is not just a matter of getting a sharp image, but of selecting which parts of the scene are to be sharp and which are to be presented in soft focus. It involves carefully selecting the best angle and arranging the framing and composition for maximum impact, as well as deciding what is to be included in the shot and what is to be left out. It is the art of adjusting the image tones by careful exposure. Automatic camera circuitry can help, particularly when shooting under difficult conditions and save the camera operator from having to worry about technicalities. However, automatic circuitry cannot create meaningful images. Consider the following camera elements (Figures 6.3 and 6.4).

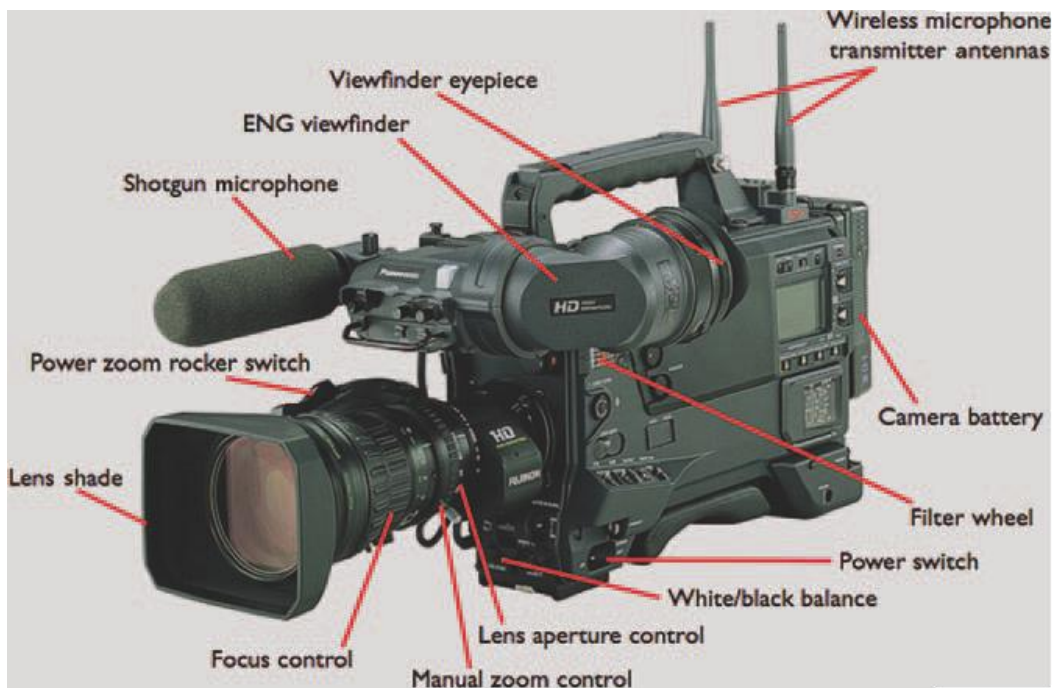


FIGURE 6.3: Video camera designs vary, but these are some of the common parts found in a video camera. (Photo courtesy of Panasonic.)

This type of viewfinder is generally called an electronic news gathering (ENG) or electronic field production (EFP) viewfinder. It is a small monitor designed to be placed next to the camera operator's eye

The power switch turns the camera on/off.

The manual zoom control lens ring allows the camera operator to zoom in and out manually.

The power zoom rocker switch, located on the side of the lens, allows the camera operator to electronically zoom the lens. The speed of the zoom may vary, depending on the switch pressure.

The focus control ring on a lens allows the camera operator to turn the ring manually to obtain the optimal focus.

The lens aperture control ring allows the camera operator to adjust the lens iris manually to control exposure.

The white and black balance controls the circuitry in the camera that uses white or black to balance the color settings of the camera.

The filter wheel includes a number of filters that can be used to correct the color in daylight, tungsten, and fluorescent lighting situations.

Clip-on camera batteries allow the camera operator to carry multiple batteries.

Although at this point it is not common, some cameras are equipped with a built-in wireless microphone and antennas.

On-camera shotgun microphones are useful for picking up natural sound but often pick up camera and operator noises.

Lens shades protect the lens elements from picking up light distortions from the sun or a bright light.

STATIONARY/STUDIO CAMERA ELEMENTS

- The *camera cable* is a two-way cable that carries the video to a distant camera control unit (CCU) and allows the video operator to adjust the camera from a remote site (such as studio control or a remote truck).

- The *viewfinder* (VF) monitors the camera's picture. This allows the camera operator to focus, zoom, and frame the image.
- The *quick-release mount* is attached to the camera and fits into a corresponding recessed plate attached to the tripod/pan head. This allows the camera operator to quickly remove or attach the camera to the camera mount.
- The tripod *head* (panning head) enables the camera to tilt and pan smoothly.
- Variable friction controls (drag) steady these movements. The head can also be locked off in a fixed position. Tilt balance adjustments position the camera horizontally to assist in balancing the camera on the mount.
- One or two *tripod arms* (or panning bars/handles) attached to the pan head allow the operator to accurately pan, tilt, and control the camera.

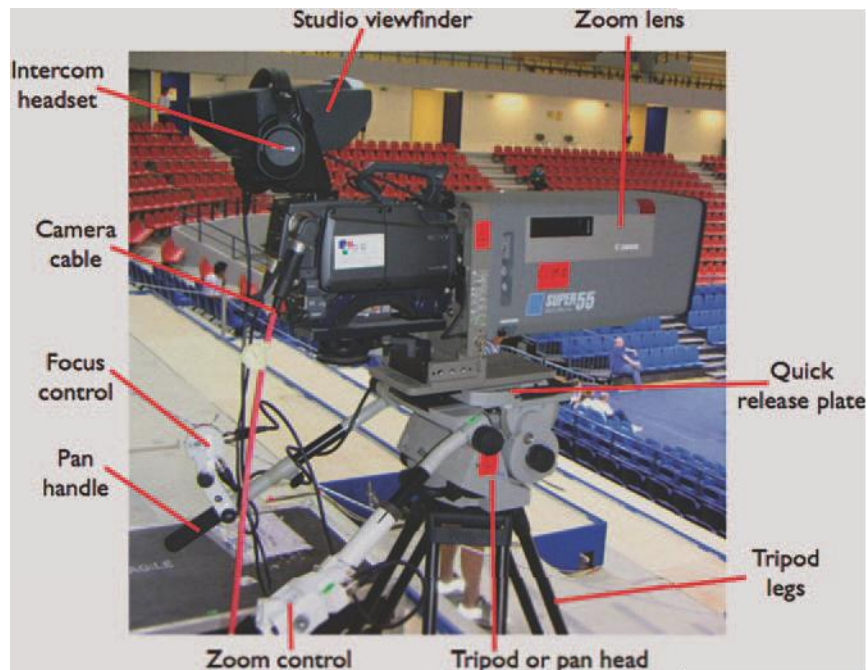


FIGURE 6.4

The television camera body is attached to a pan head. The zoom lens is then attached to the camera body and the pan head. This type of system is generally used in studio or remote production settings where the camera is stationary.

- The *tripod, or camera mount* can take various forms such as a tripod, pedestal, or jib.
- The *zoom control* (Servo zoom), *focus control*, and remote controls allow the camera operator to zoom and focus the lens from behind the camera.