

## Topic 89

### Studio Camera

#### Studio Cameras

The studio television camera is the beginning of the video signal. It is here that visible light is transformed or transduced into electrical energy. The video signal remains in the form of electrical energy, either analog or digital, for most of the remaining process until a picture monitor (TV set) converts the electrical signal back into visible light. The principle parts of the studio camera are; the camera head (including lens, imaging device, and viewfinder), the camera mount, and the studio pedestal.

#### The Camera

**Lens:** The external optics is designed to collect and focus the light onto the face of the imaging device. The lens contains focusing, focal length, and aperture controls. The first two controls are made by the camera operator at the camera head, and the aperture control is typically made by the video engineer at the CCU. Studio cameras at KTSC-TV have servo controls for zoom, and manual controls for focus. The servo zoom control, which provides smooth and variable speed zooms with a little practice, is located on the right pan handle while the focus control is located

on the left pan handle. NOTE: On a properly maintained camera and lens, focus should be set with the lens set to maximum focal length. Once set, the lens will maintain accurate focus throughout the zoom range as long as the distance between subject and lens does not change.

**Imaging Devices:** The internal optics, including the beam splitter, are housed in the camera body. KTSC-TV's Hitachi Z-One B cameras employ CCD (Charge-Coupled Device) imaging devices and are immune to the problem of image retention and burn-in.

**View Finder:** The monochrome (black and white) monitor on top of the camera head is your window on the world. And while it provides no information about the colors being reproduced, it is an accurate display for the purpose of framing, focus and composition. The angle of the VF is adjustable to provide optimum viewing regardless of the height of the camera or the height of the operator. The VF has contrast and brightness controls and should be adjusted for your particular situation. These controls do not in any way affect the video output of the camera.

### **The Camera Mount**

The camera is attached to a head which is in turn attached to the camera support-- in our case a tripod and dolly combination. Types of professional camera heads include cam heads and fluid heads. Both allow for smooth pans and tilts. However,

the smoothness of these movements is determined in part by the operator's proficiency and muscular coordination. Hours of practice are necessary before one can be fully proficient with camera moves worthy of "on-air" service. Please be aware of the location and use of the pan and tilt locks and tension adjustments. Never try to operate the camera head with the locks engaged, or with the tension adjustments tightened. Whenever the operator is at the camera, both the pan and tilt adjustments should be unlocked and loose enough so that the camera movements can be executed smoothly and quickly according to the director's wishes. Before the operator leaves the camera, even for a moment, the pan and tilt should be locked securely. Please follow these directions carefully!

## **Movement**

1. Primary: movement of the subject(s) in front of the camera
2. Secondary: movement of the camera
3. pan: horizontal movement of the camera head
4. tilt: vertical movement of the camera head
5. pedestal: raising or lowering of the camera head
6. truck: pedestal movement left or right (in relation to the subject)
7. dolly: pedestal movement forward or back (in relation to the subject)
8. arc: pedestal movement around a subject, retaining a fixed distance from the subject

9. Tertiary: movement caused by a sequence of camera shots or transitions, e.g. cuts, dissolves, fades, wipes, etc.

## **Camera Operation**

**Before the Shoot:** Check out your headset, make sure that the intercom is working and that the Director or TD knows that you are on camera.

Unlock the camera head and adjust the pan, and tilt drag (aka tension). Never use the drag controls to lock down the camera!

If you don't have a cable puller assigned to your camera, make sure that you have enough cable to reach your positions and that it is coiled neatly out of the way.

Check with the video engineer to uncap the camera. Focus and set your viewfinder adjustments.

Practice zooming and setting focus--get a feel for the mechanical or servo controls.

If you have a shot sheet, rehearse your shots and moves. Check to see that your TelePrompter (if you have one) is working. Always lock your camera and physically cap the lens before leaving it.

## **During the Shoot**

Unlock the camera head and make sure that the adjustments are correct. The camera should never be operated with the pan and tilts locks engaged!

Preset the focus once you're in position. Unless you're on air, always set your focus with the lens in its maximum focal length position.

Make sure that your wheels are set for planned dolly or trucking moves. If you have a difficult move, have the FD or a floor assistant help you.

Be aware of other objects, people, activities around you--e.g. other cameras, mic booms, monitors (don't stand between it and the talent), FD (don't run into him/her), props, light stands, etc. Keep your eyes on the viewfinder and be looking for your next shot--help the director but try not to "out-direct" him/her.

Be aware of your tally light. Anticipate and get to your next shot quickly.

Mark critical camera positions on the studio floor with tape.

Use your talk back mic only in emergencies. Listen to the directions given to other cameras as well as your own. Use the external switch to view the "on-air" camera and try to match shots when appropriate.

## **After the Shoot**

Wait for the "wrap" signal to lock down your camera. Cap the lens

Move your camera to its storage location and coil the cable neatly on the wall hangers in a figure-eight wrap. Assist with other studio wrap procedures.