

a lower color temperature, and bluish color light has a higher color temperature.

When speaking of light we often refer to the primary and complementary colors of light. The three primary colors of light are red, green, and blue (RGB). The corresponding complementary colors are cyan, magenta, and yellow. All light sources are made up of varying combinations of the three primary colors. Equal amounts of red, green, and blue light give us what is called white light. Our perception of the color of an object is based on the varying amounts of the primary colors of light that the object reflects. Our brain can process this so quickly that no matter what color temperature of light we are in, an object will always appear the same color. With film or video we must help the process in some way. With video we perform what is called white balance on the camera. By white balancing the camera under the light source we are filming with, we are telling the camera what color white is for that color temperature of light.

When using film, we choose a film stock that is color balanced for shooting under a specific light source. The two main types of light sources for professional cinematography are daylight and tungsten light. Daylight has a color temperature of approximately 5600 degrees Kelvin, written as 5600°K, and is bluish in color. Daylight is actually a combination of sunlight and skylight, while tungsten light refers to professional motion picture lighting fixtures used to create artificial light. Tungsten light has a color temperature of approximately 3200°K and has a reddish-orange color. All film stocks have a particular color balance, and when we refer to any certain film stock, we say that it is either daylight balanced or tungsten balanced.

When filming in a particular light source, it is usually common to use a film stock that is color balanced for filming in that type of light. Daylight-balanced film can be shot in daylight without making any corrections or adjustments to the camera or light source to correct the color temperature. Tungsten-balanced film can be shot in tungsten light without making any corrections or adjustments to the camera or light source to correct the color temperature. You may use either film in the opposite type of light, but you must make adjustments to the light source by placing a filter on the camera or light source to correct for the difference in color temperature. The specific filters used on cameras are discussed later in this chapter in the section on filters.

THE CAMERA

All motion picture cameras are made up of many different components. Each camera manufacturer has its own specific design for the various

parts, and these parts are usually not interchangeable from one make of camera to another. A basic motion picture camera may be made up of the following components: gate, shutter, inching knob, viewing system, lens, magazine, and motor. There are many more specific components that are used on all motion picture cameras that you will learn about as you work as a Camera Assistant. For now I will discuss only these basic parts.

Gate

The *gate* may be described as the opening in the camera that allows light passing through the lens to strike the film. It may also be referred to as the *aperture*. We sometimes refer to the entire area within the camera where the film is exposed as the gate. As the film moves through the gate, it moves by a process known as intermittent movement.

Intermittent Movement

To the human eye, it appears that the film is constantly moving as it travels through the camera. Actually, as the film moves through the camera, each frame is held in place in the gate for a fraction of a second before it moves on and is replaced by another frame. While the film is held in the gate for this fraction of a second, it is exposed to light. The process of holding one frame of film in the gate and then moving it so the next frame is brought into position is called *intermittent movement*. This process of starting and stopping the film happens at the rate of 24 frames per second, which we learned earlier is called sync speed.

As the film travels through the camera, it will often pass through one or more sprocket wheels or rollers in the magazine, the camera, or both. These rollers or sprocket wheels help move the film into and out of the gate area. To relieve some of the tension on the film between its continuous movement as it passes through the rollers and the intermittent movement in the gate area, you will thread the film with a loop before it enters the gate and another loop after it exits the gate. This loop is nothing more than a slack length of film between the rollers or sprocket wheels and the gate, which acts as a buffer between the intermittent movement and the continuous movement of the film. The constant starting and stopping of the film, so that each frame may be exposed, puts a great amount of strain on the entire roll of film, which could cause the film to break. As the film starts and stops, the loops absorb the strain of the starting and stopping, instead of the entire roll