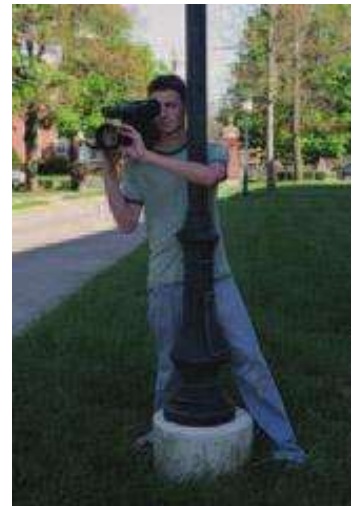
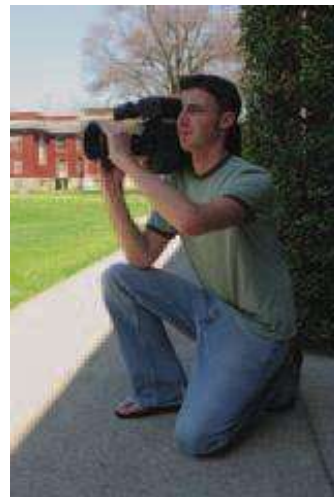


Handling the camera

Pictures that are shaky, bounce around, or lean over to one side are a pain to watch. So it is worth that extra care to make sure that camera shots are steady and carefully controlled. There may be times when the audience's attention is so riveted to exciting action on the screen that they are unconcerned if the picture does weave from side to side or move about. But don't rely on it! Particularly when there is little movement in the shot, an unsteady picture can be distracting and irritating to watch. As a general rule, the camera should be held perfectly still, mounted to a camera support, unless the camera operator is deliberately panning it (turning it to one side) or tilting it (pointing it up or down) for a good reason. So what stops us from holding the camera steady? There are a number of difficulties. Even "lightweight" cameras still grow heavier with time. Muscles tire. Body movements (breathing, heartbeat) can cause camera movement. Wind can buffet the camera. The camera operator may be shooting from an unsteady position, such as a moving car or a rocking boat. On top of all that, if a telephoto lens is being used, any sort of camera shake will be considerably exaggerated. To overcome or reduce this problem and provide a stable base for the camera, several methods of camera support have been developed.





Keeping the handheld camera steady takes practice. Here are some techniques to handhold a camera:

- Rest your back against a wall.
- Bracing the legs apart provides a better foundation for the camera.
- Kneel, with an elbow resting on one leg.
- Rest your body against a post.
- Lean the camera against something solid.
- Lean your side against a wall.
- Sit down, with your elbows on your knees.
- Rest your elbows on a low wall, fence, railings, car, or some other stationary object.
- Rest your elbows on the ground.

Supporting the camera

There are three basic ways to support a camera:

Use the camera operator's body. With practice, cameras can be *handheld* successfully. Depending on the camera's design, a handheld camera may be steadied against the camera operator's head or shoulder while he or she looks through the viewfinder eyepiece.

Use some type of body support. A number of body supports are available for cameras of different sizes. They add a mechanical support of some type to give the camera added stability.

Attach it to a camera mount. The camera can be attached to a camera mount of some type (monopod, tripod) with a screw socket in its base.

A quick-release plate may be fastened to the bottom of the camera, allowing it to be removed in a moment.

Handheld cameras

When the decision is made to have the operator hold the camera by hand, it is usually because the camera has to be mobile, able to change positions quickly.

This method is most commonly used by news crews, for documentaries, at sports events, or for shooting music videos. In all of these situations, the camera generally needs to move around to follow the action.

Some of the more lightweight consumer and lower-end professional cameras can be held in one hand. It is not large enough to be shoulder mounted.

A camera operator can maintain steadiness fairly easily for short periods of time. However, over longer periods, even lightweight cameras can become difficult to hold steady.

Larger cameras are designed to be shoulder mounted. The body of the camera rests on the camera operator's right shoulder. The operator places his or her right hand through a support loop on the side of the lens. This way, the operator's fingers are free to control the zoom rocker (servo zoom) switch while the thumb presses the record/pause switch. The camera operator's left hand adjusts the manual zoom ring, the focusing ring, and the lens aperture.

The secret to good camera control with a hand-held camera is to adopt a comfortable, well-balanced position, with legs apart and slightly bent and elbows tucked in on the sides. Grip the camera firmly but not too tightly or your muscles will tire and cause camera shake.

Enhance steadiness by resting your elbows against your body or something really secure.

This may be a wall, a fence, or perhaps a nearby car.



The shoulder-mounted handheld camera is steadied by the right hand, positioned through the strap on the zoom lens. That same right hand also operates the record button and the zoom rocker (servo zoom) switch.

The comfort and success of handholding a camera depends largely on the camera operator's stamina and how long he or she will be using the camera. Standing with upraised arms supporting a shoulder-mounted camera can be very tiring, so several body braces and shoulder harnesses are available that help the camera operator to keep the camera steady when shooting for long periods.

The monopod

The monopod is an easily carried, lightweight mounting. It consists of a collapsible metal tube of adjustable length that's crews to the camera base. This extendable tube can be set to any convenient length. Braced against a knee, foot, or leg, the monopod can provide a firm support for the camera yet allow the operator to move it around rapidly for a new viewpoint. Its main disadvantage is that it is easy to accidentally lean the camera sideways and get sloping horizons. And, of course, the monopod is not self-supporting.

The pan head (panning head or tripod head)

If the camera were mounted straight onto any mount it would be rigid, unable to move around to follow the action. Instead, it is better to use a tripod head. Not only does this enable the camera operator to swivel the camera from side to side (*pan*), and tilt it up and down, but the freedom of movement (friction, drag) can be adjusted as well. The tripod head can also lock in either or both directions.

Although a camera can be controlled by holding it, it is usually much easier to control the pans, tilts, zooms, and focus by using the tripod arms (also known as a pan bar or panning handles) attached to the head.

Whenever the camera is tilted or panned, the camera operator needs to feel a certain amount of resistance to control it properly. If there is too little resistance, the camera operator is likely to overshoot the camera move at the end of a pan or tilt. It will also be difficult to follow the action accurately. On the other hand, if the camera operator needs to exert too much effort, panning will be bumpy and erratic. So the friction (drag) for both pan and tilt is generally adjustable. Tripod heads for video cameras usually use either friction or fluid to dampen movements. The cheaper, simpler friction head has disadvantages, as pressure is gradually exerted to start a pan, the head

may suddenly move with a jerk. And at the end of a slow pan, it can stick unexpectedly. With a fluid head though, all movements should be steady and controlled. *Locking* controls are part of the tripod head. These controls prevent the head from panning or tilting. Whenever the camera is left unattended, it should be locked off. Otherwise, the camera may suddenly tilt and not only jolt its delicate mechanism but even tip the tripod over. Locking controls are useful when the camera needs to be very steady (such as when shooting with a long tele- photo lens).

ii. Using a tripod

A tripod offers a compact, convenient method of holding a camera steady, provided it is used properly. It has three legs of independently adjustable length that are spread apart to provide a stable base for the camera. However, tripods are certainly not foolproof. In fact, precautions need to be taken in order to avoid possible disaster, so here are some useful tips:

Don't leave the camera on its tripod unattended, particularly if people or animals are likely to knock against or trip over it. Take special care whenever the ground is slippery, sloping, or soft.

To prevent the feet from slipping, tripods normally have either rubber pads for smooth ground or spikes (screw-out or retractable) for rough surfaces. (Be sure, though, not to use spikes when they are likely to damage the floor surface.)

If the ground is uneven, such as on rocks or a staircase, the tripod legs can be adjusted to different lengths so that the camera itself remains level when panned around. Otherwise horizontals will tilt as the camera pans.

Many tripods are fitted with bubble levels to help level the camera.

- Tripods fitted with a camera tend to be top heavy, so always make sure that the tripod's legs are fully spread and that it is resting on a firm surface.

- There are several techniques for improving a tripod's stability. The simplest is to add a central weight, such as a sandbag, hung by rope or chain beneath the tripod's center. The legs can be tied to spikes in the ground. Or use a folding device known as a "spreader" to provide a portable base.

The rolling tripod/tripod dolly

One practical disadvantage of the tripod is that the camera operator cannot move it around while shooting. However, tripods can use a tripod dolly, a set of wheels that fit directly on the tripod, or a wheeled base (called a camera dolly) to become a rolling tripod. Although it sounds obvious, before moving a rolling dolly, remember to check that there is no cable or obstruction in the

camera's path. It sometimes helps to give a slight push to align the casters in the appropriate direction before the dolly begins. Otherwise the video image may bump a little as the tripod starts to move. Although widely used in smaller studios, the rolling tripod dolly does not lend itself to subtle camerawork. Camera moves tend to be approximate. Camera height is adjusted resetting the heights of the tripod legs. So height changes while shooting are not practical unless a jib is attached to the dolly.

iii. The pedestal

For many years, the *pedestal* (or *ped* as it is widely known) has been the all-purpose camera mounting used in TV studios throughout the world. It can support even the heaviest studio cameras, yet it still allows a range of maneuvers on smooth, level surfaces. Basically, the pedestal consists of a three-wheeled base, supporting a central column of adjustable height. A concentric steering wheel is used to push and steer the mounting around and to alter the camera's height. Thanks to a compensatory pneumatic, spring, or counter-balance mechanism within the column, its height can be adjusted easily and smoothly, even while on shot. There may be occasions when a second operator's assistance is needed to help push the pedestal and to look after the camera cable.

iv. Jib arms

In the golden days of filmed musicals, large *camera cranes* came into their own: bird's-eye shots of the action, swooping down to a group, sweeping along at floor level, shots of dancing feet climbing to follow the action as dancers ascended staircases—in the right hands, such camerawork is very impressive.

Some television production companies still use small camera cranes (jibs), but they need skilled handling and occupy a lot of floor space compared with a pedestal. If you want a wide variation in camera heights, a much less costly and more convenient mounting is the *jib* (or jib arm).

The long jib arm (*boom*) is counterbalanced on a central column. This column is generally supported on a tripod or camera pedestal. The video camera is fixed into a cradle at the far end of the jib, remotely controlled by the camera operator who stands beside the mounting, watching an attached picture monitor. There is a wide range of jib designs, from the lightweight mountings used with smaller cameras with a maximum camera height of 10 feet to heavy-duty jibs that will reach up to 40 feet.

The jib has a variety of operational advantages. It can reach over obstructions that would bring a rolling tripod or pedestal to a halt. It can take level shots of action that occur high above the floor while other mounts working on the floor level can only shoot the subject from a low angle. However, as the jib is swung, the camera *always moves in an arc*, whether it is being raised, lowered, or turned sideways. It cannot travel parallel with subjects moving across the action area. Whether an operator can turn **and raise**/lower the jib while on shot and keep the moving subjects in focus and in a well-composed picture will depend on the operator's skills—and a bit of luck.

Specialty camera mounts

Several devices are available that can help camera operators cope with those awkward occasions when the camera needs to be secured in unusual places.

Typical equipment that can prove handy for smaller production units includes the following:

- *Camera clamps.* Metal brackets or clamps of various designs, which allow the camera to be fastened to a wall, fence, rail, door, or other structure.
- *Car rig (or car mount).* A car mounts that attaches to the car, inside or outside of the car, in order to capture images that would otherwise be difficult to obtain. Some mounts use suction cups to fit onto the car, others fit over the side door, and some sit in a beanbag type mount as shown in Figure.

The *Steadicam*, *Glidecam*, and *Fig Rig* are just some of the special camera stabilizers that take the shake and shudder out of wide camera movements. These systems allow the camera operator to take smooth traveling shots while panning, tilting, walking, running, climbing, and so forth. An LCD color screen (treated to reduce reflections) allows the operator to monitor the shots.

The main theme you will find running through this book is that *it's the result that matters, not how you get it*. The camera needs to be firmly supported. The audience does not know or care whether the camera operator is using a tri- pod or resting the camera against a handy post.

A moving shot can be taken from a car, the back of a motorcycle, a hospital trolley, a wheelchair, or even roller skates or skis. It is the result that counts, although some methods are a lot safer and more convenient than others.

v. Handling care

It's easy to endanger video equipment, especially when shooting on location. Although some units are rugged and almost foolproof, others are easily damaged. A moment's oversight can put the equipment out of action altogether—a camera momentarily rested on the ground, a spilt

drink, the jolts, and vibration of a traveling vehicle. It takes just a moment to protect the camera with a water-proof cover (rain hood) against wind-blown dust and grit, sea-spray, or rain. Extreme cold, heat, or moisture can create problems too. A car's trunk can become an oven in the hot sun. High humidity can wreak havoc with videotape recorders.

Moving from a cold exterior to warm surroundings is liable to result in condensation (dew) in VCRs and can cause tape or machine damage. Condensation can also cause major problems with lens element misting, and care must be taken to protect internal elements if the lens is not sealed. The newer memory card cameras are not as susceptible to tape types of problems. Wrapping the equipment (even in a plastic bag) may help fight the condensation.