

### Falls, Hernias, and Sparks

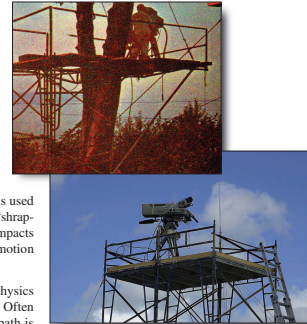


**Figure C.1** Stairs are stairs, whether in your house, or hung on the side of a truck. People fall out of trucks with stairs installed or not. Truck compounds require deliberate actions as mistakes in, and near trucks can result in injury.

Remote trucks and facilities are not usually posh or soft environments. Because of space and weight restraints most things around, in, or attached to trucks are as utilitarian as possible. This results in many hard, blunt edges that often do not forgive carelessness. Besides non-yielding surfaces, physics is never suspended on a remote, as gravity is always at work. Often cameras and other pieces and parts are mounted in high places, and heavy items not handled well can hurt backs, produce hernias, break feet when that appendage is used to break an objects fall, or simply result in "shrapnel" type wounds when a heavy object impacts the ground and Newton's Third law of motion takes effect scattering debris.

It is not only the mechanical aspects of physics that pose hazards, but the electrical also. Often voltages are such that more than a bad hair day ensues when a path is found for electron flow through living tissue. Humans and electricity don't mix when there is ample electric power. Power at its simplest definition is voltage times the current flowing. A flashlight batteries voltage is low enough that it does not "shock" when you get across its terminals. If you short the terminals of that battery with a wire, the wire gets hot and the battery runs out of current in short order as the battery has little power.

A car battery is a different story. Touch both it's terminals, and again the 12V is not high enough to shock (in fact most people don't feel any sensation until the voltage is above 30V). But if you see someone about to short the car batteries two terminals with something that conducts current, say a screwdriver, run! A car battery has lots of power, often 8,000 to 10,000 watts. A healthy car battery can provide 600 or more amperes of current. That amount of current flowing generates lots of heat, which will instantly melt and splatter what was a screwdriver blade and shaft into flying molten metal.



**Figure C.2** Scaffolding is often needed to give the camera a good perch above the action. Besides not being a place for someone with acrophobia, it also is not recommended for the careless. Wind can also be a factor in high and exposed places, plus platforms can make excellent lighting rods.



**Figure C.3** Today's camera lens often weights more than the camera head itself. Lifting heavy objects produce lots of injuries. When lifting anything heavy, use the legs, as shown here, and not the back.

As we move up the voltage scale, to wall socket levels, 120V in U.S., or truck potential levels, 208V, the voltage potential is such that your muscles violent contract, bad if you have grabbed, or gripped a "hot" wire. Natural selection has helped to ensure that people who work around these voltages for any length of time always have their knuckles towards powered lines so that any accidental contact does not result in clamping down on the exposed power source. At these voltages the amount of current that flows through the body is determined by a number of things, basically centered on how well the person is grounded, and by the person themselves. We all have different body resistances that change as we perspire, along with other physiological factors. Darwin's laws have also dictated that a smart "electrician" always has one hand in their pocket. With two hands across a power source you can complete a circuit that allows current flow through the chest cavity, which could be catastrophic.

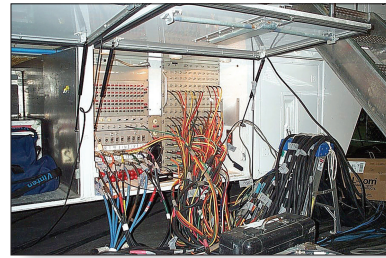
As we move further ahead, high voltage, like that found in monitors with CRTs usually don't have enough power (very high voltage with very little current available) to cause much lasting damage except for the busted knuckles you might get as your hand recoils and smacks into the wall or other object. But as we saw in Appendix B, the high voltage found on power poles, and high tension transmission towers not only have the voltage potential to seek out carelessness, but the power, that is the available current, to quickly disintegrate any interlopers transgress. The current can be so high that microwave masts can melt, or pneumatic seals retaining air pressure in the mast can vaporize collapsing the mast. The problem with the mast acting as a "fuse" is that it usually doesn't "blow", and crash back down into the truck, until carnage to crew and equipment is great.

The remote production site is not an office setting, it usually is much closer to an industrial situation, where increased diligence is required to stay out of harms way.

One major truck vendor sets the following safety checklist, before all else, including getting that great shot:

- #1 Safety of the Spectators (Audience)
- #2 Safety of the Participants (Athletes, Performers, etc)
- #3 Safety of the Crew & Talent (You, Me & the Announcers)
- #4 Safety of the Gear & Mobile Unit

They instruct that before you setup any piece of gear, or run any cable, or hook up any wires, review # 1-4 in your mind. Ask, what can go wrong. The life you save may be yours. ■



**Figure C.4** A remote truck usually only becomes a production facility by interconnection with the outside world. Most "signal" cables, such video, audio, etc, do not have voltages present that make them hazardous. But many camera triax systems have high voltage on the center conductor that is designed not to be present when the camera is disconnected. But these systems can fail resulting in a contributing ingredient for a potential disaster. In the section on truck power, we talked about ground loops and other potential problems (no pun intended) concerning external connector panels.