

Safety Guidelines for Pneumatic Devices

Every year haunted attractions employ more and more pneumatics as part of their shows. As these use devices and their controls increases, so does the chance of mishaps. Fortunately, correctly implemented pneumatic devices are very safe when compared to electric motors. Below are some guidelines that will make your haunt a safe place to visit.

- **Use the right voltage!** Most pneumatic devices are powered by air and controlled with an electronic control valve. If you plan to use your device outdoors, in a wet environment or even underwater, make sure you use 12 or 24 Volts. If you use 110 volts you are just inviting electrocution. Always keep the control valve dry; the cylinder, device, flow-controls and tubing can be submerged. Don't defeat the purpose of a 12 volt system by taking your power off an indoor 12 VDC transformer connected to a 120VAC extension cord. If you must run 110 lines make sure you protect everyone with a properly installed Ground Fault Interrupter.
- **Always seek the assistance of a qualified electrician.**
- **Know how amps (or watts) and voltages work.** Don't overload the line. Except for air-cannons most control valves will pull very few amps, but if you add a large light or two you can overload the circuit. Keep all cords out of walkways. Repair all shorts or defective parts immediately. If you do discover faulty equipment, take it off line, label it and isolate it immediately. Unplugging a device is just not enough; ten minutes after you leave, someone will come across the device, decide that device doesn't work because it is unplugged and immediately plug it back in.
- **Add a "Panic Button" and show your staff how to use it.**
- **Isolate controls and power.** Tampering can cause injury to the device or to people. Let your staff know what is off-limits and keep the unqualified out. If you have chronic problems with meddling, secure the area with lock and key, but make sure everyone has access to a panic button.
- **Don't over power your pneumatic devices.** You only need enough air pressure to activate your device. You don't need a cylinder force of 300 lbs. to

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move a 20 lb. prop. Use hinges, springs or bungee cords to add a "break-away" feature to your devices.

- **Don't use non-rated parts, such as home-made cylinders or door closers.** A friend of mine decided to switch to manufactured parts after he shot the insides of screen door cylinder across the room. True pneumatic components will have a rating up to a certain p.s.i.. The component with the smallest rating is the maximum pressure the entire system will take.
- **Use pressure relief valves on tanks and reservoirs that don't have an auto-drain system.**
- **If you use PVC pipe for long runs of air, make sure it is "Schedule 80" and is rated for the p.s.i. you intend to use.** Use of PVC pipe for compressed air may violate building codes in your area, so check it out.
- **Repair air leaks immediately, regardless of where they fall in your system.**
- **Use a safety cable on every prop or device that hangs overhead.** I once worked for a company that made a large meteor for a dark ride in Korea. The movement and weight of the prop eventually broke the bar it was attached to. The result was serious injury to several people and a multi-million dollar lawsuit. A good safety cable would have directed the meteor out of the ride-envelope.
- **Wear safety glasses when working with pneumatic cylinders.** There's always an occasion when the cylinder rod suddenly activates; this is a surprising way to loose an eye.
- **Air blowers are a great way to get a scare, but avoid the temptation to blow air into someone's eyes or face.** Dirt can travel at ninety miles per hour when shot out of an air nozzle. Never blow air at the exposed skin. Compressed air can be blown at shoes because this is a heavily protected area of the body, but make sure the air doesn't pick up debris from the floor. Only use enough pressure to work the gag and always use an experienced, mature operator. Imagine firing an automatic air blower at a person--they bend down to peer into the air hole and then are blasted again, in the eye. Don't automate air blowers.
- **Protect your equipment and your patrons with a good safety envelope.** This area is the walkway and the reach of the tallest person who

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will ever go through your haunt. Close areas can be protected with chicken wire or netting. Devices that invade the safety envelope should be padded or have a break-away feature. Local laws might prohibit you from touching patrons; do your homework.

Pneumatic devices are a great way to go for haunted attractions. Following these guidelines and the laws of your area will help ensure the safety of your patrons and protect you against lawsuits. **Check out the many pneumatic devices available from Special Effect Supply.**

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