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# Pushbutton Control Panel

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## GENERAL DESCRIPTION

Motorized rigging equipment, including hoists, lifts, curtain tracks, etc. may be controlled by simple pushbutton controls, or by more sophisticated, programmable controls. Pushbutton controls provide direct control over individual devices and may, at times, be furnished with additional displays providing position data or indication of various fault conditions.

## OPERATION

The first step in operating a motorized hoist or other motorized device is to become familiar with its status and exact method of operation. Check the load and look for places where the load could foul during its travel. Check the limit switches and other travel limiting devices to be sure they are operating. Check to see that motor disconnects are turned on.

Become familiar with standard safety devices such as line contactors and Emergency Stop switches, plus any optional devices, such as phase loss or phase reversal relays, slack line relays, etc.

There is an amber LED on the panel labeled “SERVICE.” The LED will illuminate one year after system start up as a reminder to have a safety inspection performed on the hoist and its associated rigging. An authorized service representative will be able to reset the “SERVICE” timer light during inspection.

Read and learn any specific instructions for control features which are unique to your system. Be sure that you understand all control functions on the main control panel and on any remote panels before actually operating the system.

Standard J.R. Clancy control panels contain an EMERGENCY STOP button. This is a red, latching, mushroom head operator which is pushed to stop motion in an emergency. If the equipment is doing something you did not expect, press the E-stop button! The emergency stop circuit is wired separate from all other control functions and will affect all rigging equipment connected to that system. If you have to press an Emergency Stop button, carefully examine the system to understand why things did not work the way you expected before releasing the button. To release a latching E-Stop button, turn the mushroom head operator one-quarter turn clockwise and allow the button to pop out. Releasing the emergency stop switch will not re-start equipment. It will permit equipment to function again in the normal manner.

Turn on the panel key switch. The key will be retained until the lock is turned off.

A standard control panel uses momentary pushbuttons in a “deadman” control scheme. To run a hoist up, you must push and hold the UP button. The hoist will move up until you release the button, or until the hoist strikes the up limit switch. Use the DOWN button to initiate and maintain travel in the down direction. J.R. Clancy uses blue buttons for “UP” (sky), and green buttons for “DOWN” (grass) on standard control panels.

When the pushbutton controlling a fixed-speed hoist is released, the hoist will stop right away, but the load may travel a small additional distance. The distance traveled will depend upon the condition of the brake, the size of the load and whether the load is being raised or lowered. If you are attempting to stop at a certain point, find out the stopping distance by making trial runs and then plan ahead.

A hoist may be equipped with a drive, either for variable-speed operation or for “soft-start” and “soft-stop” operation. The rate of acceleration and deceleration are programmed in the drive at the time of startup. The deceleration time for the ramped stop means that the hoist will slow to a stop when the pushbutton is released; therefore you must anticipate the stopping distance required. Plan accordingly. The brake will automatically apply when the hoist has slowed to a stop.

Variable speed hoists will have a speed adjusting potentiometer or digital input device. The faster the hoist is traveling, the greater the stopping distance will be. Think ahead!

Some hoists may be equipped with a potentiometer, encoder, or other device that sends a position signal to the control system. A display in the control panel may simply show the position of the load, or the data may be processed and used as part of a more sophisticated control.

The control panel may also have pilot lights to indicate various fault conditions and/or status information and pushbuttons for intermediate stopping positions. If the controls have intermediate position buttons, pushing and holding an intermediate position button will drive the hoist directly to that intermediate position.

Limit switches and other safety devices should be set at installation and then tested occasionally, but never changed to suit temporary needs. More sophisticated control systems incorporate soft limits, which may be re-adjusted by authorized users to suit changing conditions.

## CAUTION

- **Crash Hazard.**
- **Equipment crashing can cause damage and potential injury.**
- **Watch the piece while it is moving. Use a spotter if the operator can't see the piece. The spotter and operator must be in constant communication.**

## GENERAL PRECAUTIONS

Be aware of what is going on around you. “THINK”!!

There must always be a floor or “safety” person present on stage when sets are operated in order to:

- Keep people out from under moving equipment.
- Look for potential problems, such as lines or curtains which might foul a batten.
- Make sure that proper operational and safety procedures are followed.
- Check to make sure the set is not loaded beyond the design capacity of the hoist system.
- NEVER operate a hoisted set when anyone is standing under it.
- During set-up, operate only one set at a time. Identify any potential interferences or other problems.