

# Q-02

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## ELECTRICIAN TRAINING

### TRAINER'S GUIDE

**Duty Q: Cranes and Hoists**  
**Q-02: PM/Troubleshoot Hoists**

Issued 01/01/99

## Instructions To The Trainer

1. The Learner will contact you when ready to practice troubleshooting and performing preventive maintenance on hoists.
2. Be prepared to demonstrate the steps for this task.
3. Ask the Learner to contact the Evaluator when ready for the Skill Check.



## Skill Objective

Given a work request, troubleshoot and perform preventive maintenance on a hoist.

### Task Standards

1. The brake pad must display no less than  $\frac{2}{3}$  of the original thickness (9mm).
2. The brake seal must not leak.
3. The air gap must be set within  $\frac{1}{32}$  to  $\frac{1}{8}$  inch.
4. The collector mechanical components must be aligned with the power bar.
5. The control panel(s) connections must be snug, and the wiring and terminals must show no signs of damage.
6. The up/down limit switches must operate within manufacturer's specifications.
7. Bridge, trolley, hoist controllers must show no sign of wear.
8. Bridge, trolley, hoist controllers must operate within manufacturer's specifications.
9. Weight limit switches must operate within manufacturer's specifications.
10. All safe practices must be demonstrated.

## What The Learner Will Need

This section contains the safety information, tools, and resources you will need before performing a PM/Troubleshoot on a hoist.



- Follow all Caterpillar facility safety standards when performing this task.
- Harness must be worn when working on the scissor lift/JLG.
- The hoist must be locked and tagged after the power on checks has been completed during the PM check. An electrical hazard exists inside the electrical cabinet and at the power connection.



- scissors lift/JLG
- flashlight
- Electricians hand tools
- ruler
- feeler gauge
- lock and tag
- Digital Volt Meter (DVM)/Fluke
- gear adjuster (located inside the rotary limit switch)
- 1/2 x 2 3/4 inch bolt



- none required



## Practice Set-Up

The Learner may perform the following practice to help prepare for the Skill Check. Set up the practice for the Learner. Assist the Learner during the practice, if necessary; answer any questions concerning the task; and be prepared to demonstrate the task to the Learner. Make sure the Learner follows safe work practices while practicing the task.

### Practice

You will designate a hoist for performing a PM. During the practice the Learner will:

- Perform an operational check on the bridge, trolley, and hoist controls.
- Inspect the bridge and hoist control panels.
- Check the gear limit switches.
- Inspect the brakes.
- Check the collectors.

The Learner will inspect the hoist and its components to ensure that they are serviceable. The Learner is required to follow all the recommended safe practices.

### Practice Objective

The major components will be inspected for serviceably, showing no signs of wear, cracks, or breakage. The minimum thickness of the brake pads must be  $\frac{2}{3}$  of the original thickness (9mm). The air gap must be within  $\frac{1}{32}$  to  $\frac{1}{8}$  inch. The brake seal must not leak. The up and down limit switches must be operate as specified. The collector mechanical components must be in good condition and align with the power bar. The control panels connections must be snug, and wiring and terminals must show no signs of damage. The weight limit switch must show no sign of wear and operate as specified. All safe practices must be demonstrated.

## Next Step

Allow the Learner to continue practicing and developing skills needed to demonstrate the task. The Learner should ask the Evaluator to schedule a Skill Check when ready to demonstrate the task unaided and meet all the task standards and safe work practices.