

## E-02: Troubleshoot/Repair Lighting System

### SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.
- An electrical hazard exists when working in panels with electricity ranging from 120 VAC to 480 VAC.
- Follow all Caterpillar safety procedures when operating the man lift to reach the contactors.

### EQUIPMENT

- digital volt-ohmmeter (DVM)
- basic Electrician hand tools

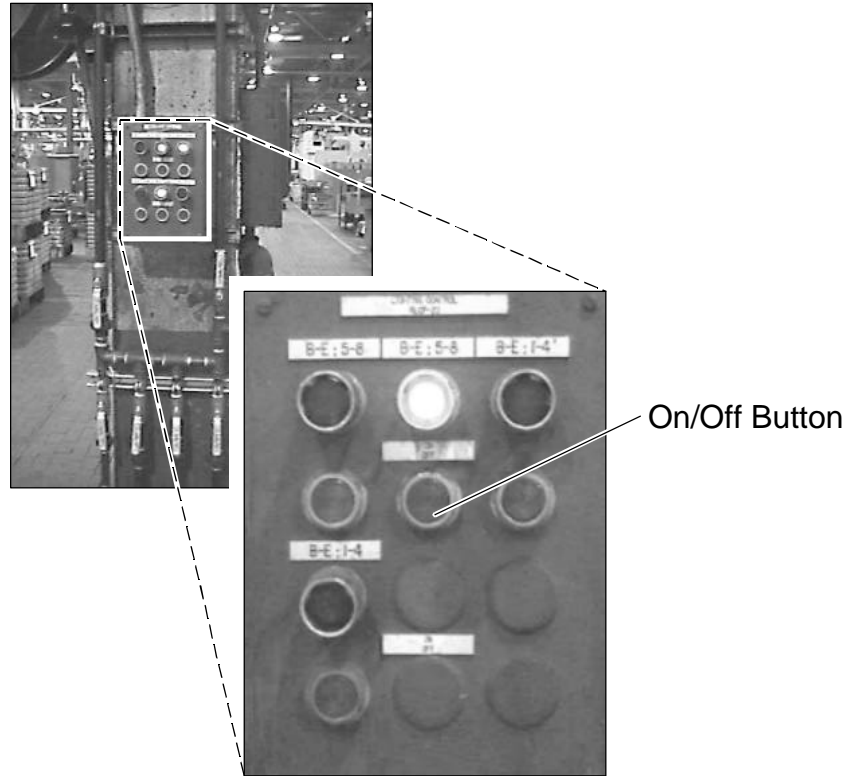
### RESOURCES

- electrical prints
- plant floor lighting layout

## Troubleshoot/Repair Lighting System

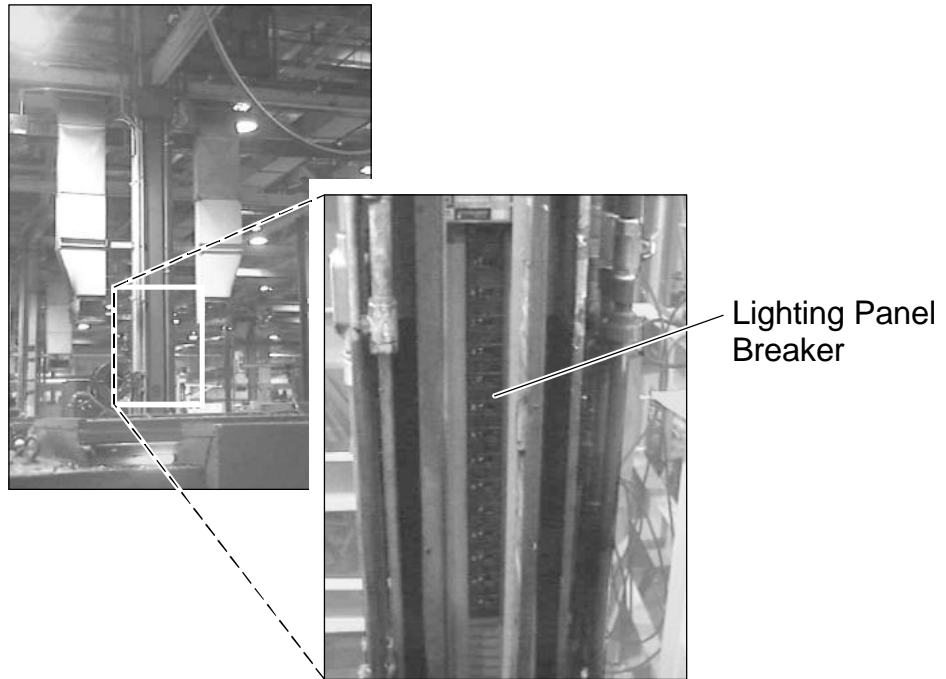
1. Identify the symptoms of the lighting system problem.
  - Follow the procedures documented in the task Repair/Replace Lighting Device if a single light is not illuminated.
  - Proceed to step 2 if a bay or single string of lights in a bay fail to turn on.
2. Identify the affected bay and string of lights.
  - Use Plant Floor Lighting Layout to identify the control panel location.

3. Check the control panel operation and power supply.
- Press the On button for the specific string of lights.



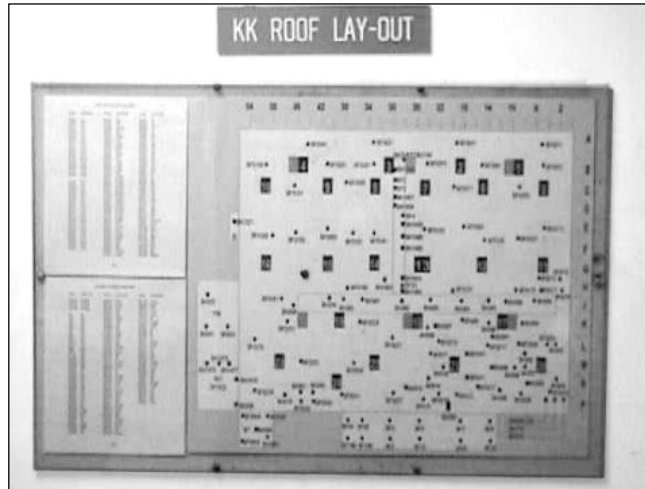
- Allow 5 to 10 minutes for the string of lights to begin illuminating and 20 minutes for full illumination.
- Take voltage readings at the On button to confirm control voltage.

4. Check the lighting panel breaker.



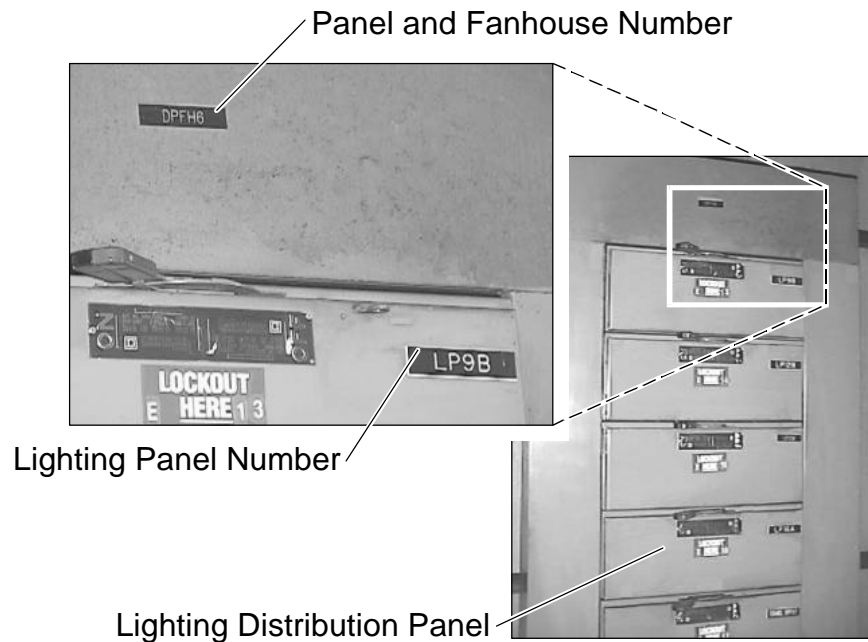
- Open the breaker door to the lighting panel.
- Obtain the breaker chart for the lighting panel and identify the breaker for the string of lights that is not illuminated.
- Check for tripped breakers.
- Reset any tripped breaker.
- Remove the lighting panel cover.
- Confirm that voltage is going to the breaker.

5. Obtain a wiring diagram for the building to locate the Power Distribution Panel (Lighting).
  - Check the Roof Lay-Out Diagram to locate the Fanhouse.



Roof Lay-Out Diagram

6. Check the Power Distribution Panel on the roof.
  - Verify the expected voltage to the panel.



Distribution Panel

- Verify the expected voltage to the panel.
- Verify voltage from the Power Distribution Panel.

7. Check the contactors.

Caution: Follow all safety requirements when operating man lifts to reach the contactors.

Caution: Perform lockout/tagout on any overhead cranes in operation around contactors.

Contactors

Lighting Panel Breaker



- Follow the procedures in the task Troubleshoot Starter to test the contactor.
8. Repair or replace the contactor, if necessary.
- Follow the procedures in the task Troubleshoot Starter to repair/replace the contactor.