
Student receives burns while operating a key-type lighting Switch

A student recently received burns to his fingers when turning on a key-operated light switch that controlled some lighting at a local high school, even when using the proper key at the time. The switch, shown in the figure below, is designed to be turned on by inserting a proper key into the switch and toggling it, had shorted to ground resulting in an arc flame that caused the burns. Similar incidents have occurred in Ontario and Canada.

A key-operated switch, unlike the normal wall-type lighting switch, requires insertion of a metal key to toggle the switch on and off. Objects (typically metal) other than the proper key are often used in attempt to toggle the switch. The figure below shows how easily a metal paper clip could make contact with the phase conductor, or have part of the material broken or dislodged, creating a potentially hazardous scenario.

Recommendations:

1. Staff and students should be cautioned about the potential dangers of attempting to tamper with these switches.
2. Have a qualified electrician inspect existing key type switches for evidence of tampering and repair or replace as necessary.
3. Develop and implement a best practice / safe work procedure when using these types of switches.
4. Consider installing locking covers over these types of switches to prevent tampering.
5. Consider replacing the existing type of key type switches with other types. For example, the low voltage control type switch would provide isolation between the line voltage and the user.
6. Confine the use of this type of switch to areas that are not open to the public.

This incident has prompted Electrical Safety Authority with the following action;

Request CSA to review the standard on key switches.

Notify all School Boards of the incident.

Caution: ONLY use the Approved Key When Operating the Key Switch

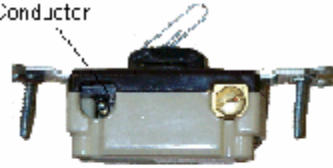


Key Operated Switch
Front View



Approved Key

Metal Object Making
Contact With
Phase Conductor



Improper Use of the
Key Operated Switch
Side View