

# Articulating Boom Equipment and Overhead Powerline Safety



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Operating articulating booms near or under overhead powerlines creates electrical safety hazards to the operators, workers on the job site and members of the public in the vicinity of the equipment.

## What are the electrical hazards?

### **DIRECT CONTACT**

Raising the articulating boom into overhead powerlines will energize the truck and ground around the truck up to 10 m (33ft) away.

### **INDIRECT CONTACT**

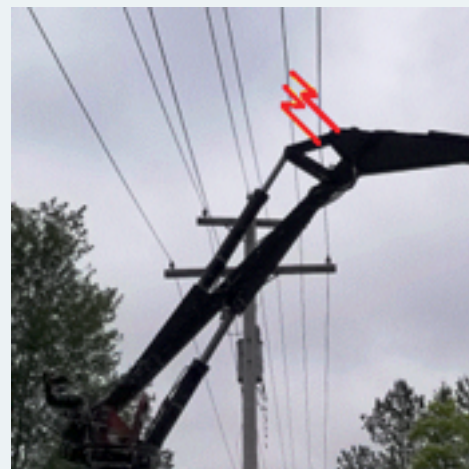
Raising the articulating boom in close proximity to overhead powerlines could cause electricity to jump or “arc” to the articulating boom, energizing the truck and ground around it.

### **DOWNED POWERLINES**

Lowering the articulating boom onto overhead powerlines can break the wires or pole(s) falling onto the truck or the ground and becoming energized.

### **BRINGING ELECTRICITY TO GROUND LEVEL**

Members of the public or workers in contact with the energized truck or standing near the truck are at risk of electric shock and exploding tires.



# How to mitigate risk and reduce overhead powerline contacts

## LOOK UP AND LOOK OUT

Locate all overhead wires.

## KNOW THE SAFE LIMITS OF APPROACH

Section 188(2) of Ont. Reg. 213/91 Construction Projects requires all objects; including the articulating boom and load to be kept back a minimum distance of 3 m (10 ft) from the energized overhead powerlines.

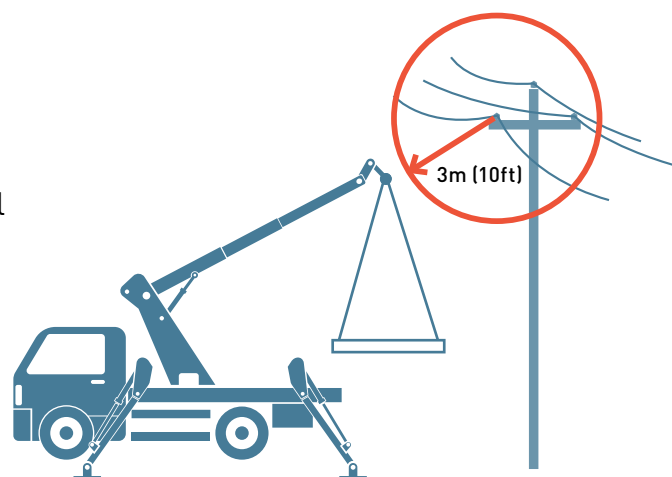
## LIMITS OF APPROACH

Powerline Voltage	Minimum Distance
750 or more volts, but no more than 150,000 volts	3 metres
more than 150,000 volts, but no more than 250,000 volts	4.5 metres
more than 250,000 volts	6 metres

*Ont. Reg. 213/91 Construction Projects*

## USE A DEDICATED COMPETENT SIGNALLER

Section 188(8) of Ont. Reg. 213/91 Construction Projects requires the use of a dedicated competent signaller with a full view of the operator, truck and a clear view of the overhead powerlines if loading or unloading materials will be under or around overhead powerlines. This is because it is possible for a part of the truck or its load to approach the minimum distance (see Limits of Approach chart). The signaller should be 10 metres (30 feet) away from the truck in case contact is made with the powerlines. His or her job is to warn the operator if the equipment is encroaching on the safe limits of approach.



## OPERATING ARTICULATING BOOM EQUIPMENT

It is good practice to operate the articulating boom away from overhead powerlines. Please refer to Limits of Approach table for safe distances from overhead powerlines.

## LOWER THE ARTICULATING BOOM BEFORE MOVING THE TRUCK

Ensure the articulating boom is lowered before moving the truck will help prevent contact with an overhead powerline.

# When Contact with an Overhead Powerline Occurs

If the articulating boom or the load contacts the overhead powerlines and/or if powerlines fall on the truck or on the ground:

1

Always assume the powerlines are still energized (live).

2

Be aware of Step Potential. Step Potential occurs when a person is standing on the ground and electricity enters one foot and exits the other.

3

Be aware of Touch Potential. Touch Potential occurs when a person is standing on the ground and is in contact with an energized object such as a truck, electricity will enter the body through the hand and exits the feet.

Serious injury or electrocution from step or touch potential may occur to the operator or other workers around the truck.

# Operating the controls of the articulating boom on the side of the truck while standing on the ground in the vicinity of overhead powerlines

Operating the articulating boom in the vicinity of overhead powerlines while in contact with the truck and standing on the ground is not recommended unless steps have been taken to mitigate the risk of contact. Contact with the truck and ground at the same time exposes the operator to touch potential hazards which typically may result in electrocution.

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## What to do when an overhead powerline contact occurs and the operator is controlling the articulating boom while on the truck

- Remain on the truck to stay safe from step and touch potential hazards.
- Call 911 and the electric utility and tell them that your equipment has contacted the overhead powerlines.
  - ➔ Inform everyone to stay back 10 m (33 ft-length of a school bus) including first responders.
- Wait for the electric utility to arrive and inform you and those around you when it is safe to exit.
- **ONLY** exit the truck if it is on fire.
  - ➔ **Never touch the ground and the truck at the same time**
    - Jump away from the truck and land with both feet together without stumbling as you land.
  - ➔ **Take short shuffle steps keeping both feet as close as possible together**
    - Do not allow the heel of one foot to move past the toe of the other. Continue until you are a minimum of 10 m (33 ft) away from the truck.

## What to do when an overhead powerline contact occurs and the operator is standing on the ground using a handheld wireless remote control

- Remain in your spot with both feet together or shuffle away from the truck to a minimum distance of 10m (33ft) to avoid step potential hazards.
- Call 911 and the electric utility and tell them that your equipment has contacted the overhead powerlines.
- Tell everyone to stay back 10m (33ft or the length of a school bus) including first responders.
- Wait for electric utility to arrive and inform you and those around you when it is safe.