

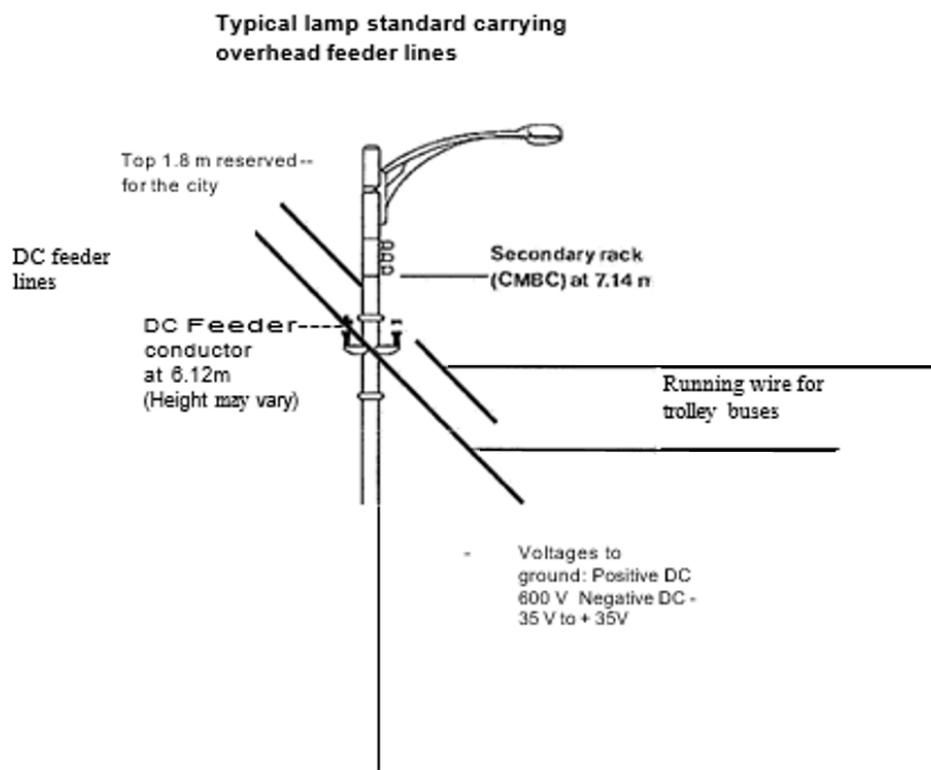
Instructions to Employers When Planning Work in Proximity to the Energized 600 VDC Trolley Overhead System



Introduction

Electric trolley buses are restricted to major routes where there are electrical catenaries or overhead to support trolley bus operation. Most routes operate in the City of Vancouver with several routes extending to UBC and one into Burnaby. There are 262 trolley buses in total and electricity is supplied from 22 Rectifier Stations and a network of 315 km of overhead wires energized to 600 volts of direct current (VDC).

Overhead feeder lines for trolley buses are mounted on power poles or lamp standards in the City of Vancouver and the City of Burnaby. They are located on city streets, often over sidewalks and close to buildings and other structures. The diagram shows a typical lamp standard and the location of the direct current (DC) feeder conductor arm. *Feeder lines* extend between adjacent lamp standards. These energize the *Running wires* above the trolley buses which allow them to operate.



Working on and maintaining the trolley overhead system requires licensed trades personnel with specialized skills and training to work safely and proficiently on energized trolley overhead systems. Employees of the CMBC Trolley Overhead Department follow a set of rules in a safety manual that contains instructions to manage the safety risks relevant to trolley overhead maintenance work hazards.

Potential Safety Risk

The electrical hazard quantified in a Coast Mountain Bus Company (CMBC) safety risk assessment is deemed sufficient to cause serious injury or death to persons who make contact to the energized trolley overhead lines. Even when a section of the system has been isolated, due to the nature of the electrical system, it may continue to have some hazardous residual energy on it. For these reasons only qualified CMBC tradespersons with proper training are permitted to contact and work on the system.

When Performing Work Near Lines is Necessary:

Employers shall instruct their workers about the hazards associated with overhead trolley wires. Employers can reduce the likelihood of inadvertent contact with the trolley overhead power system by following these instructions:

At All Times

- Ensure job planning includes the use of proper equipment, materials, and workers trained in the proper control of electrical hazards present on the trolley overhead lines.
 - Only qualified personnel (journeyman electricians, power line technicians and arborists) with proper training, tools/equipment and authorization from their employer are permitted to work close to overhead trolley lines, and they shall maintain a restricted approach boundary of not less than 0.3 meter (1 foot) while performing work (ex. traffic lights, streetlights, tree pruning, etc.).
 - All other workers shall maintain a minimum approach distance of 1 meter (3.3 feet).
 - When operating vehicles or equipment pose a risk of compromising the minimum safe distance of 3 meters from the trolley overhead power system infrastructure, the employer shall be responsible for providing an Independent Qualified Safety Watcher (IQSW)¹ (an accredited arm's length party, satisfactory to TransLink in its sole discretion, knowledgeable of the electrical hazards of CMBC's trolley overhead power distribution system). The IQSW will have an unobstructed view of the trolley overhead system and always maintain clear communications with the operator during this activity.
 - Work performed near a section of the energized trolley overhead lines sometimes requires the use of electrical guarding equipment or isolation of that section. Only CMBC's personnel are permitted to apply insulated cover up guards to the lines.
- Comply with WorkSafe Occupational Health and Safety Regulation (OHS) Regulation Part 19: Electrical Safety, and CMBC's trolley overhead Hazard Advice document.

¹An IQSW is deemed "qualified" when, at a minimum, the worker has completed training in WorkSafeBC OSH Regulation Section 19.12 subsection (3), has demonstrated sufficient understanding of the trolley overhead electrical hazards to his or her employer and has been authorized by the employer to perform this duty as an IQSW.

In the Event of Contact with Overhead Trolley Lines

- Contact CMBC Transit Communication (TCOMM) immediately at 778.593.5536 and report the overhead trolley line contact.
- Wait for CMBC Trolley Overhead Line Crew to arrive and implement corrective actions.
- Contact WorkSafeBC Call Centre at 604.276.3100 to report if this is an incident that causes an injury.

In the Event of Contact with Overhead Trolley Lines Causing a Downed Wire

- Call 911 if an emergency exists (electrical hazard, injury, fire, etc.).
- If emergency action is required to correct a condition that causes immediate threat to workers, only allow qualified and properly trained workers shall provide assistance.
- Shuffle 10 meters away keeping feet close together, from point of contact on the ground. If in a machine, stay put and do not touch anything until told it's safe to do so. If evacuating the machine becomes necessary, carefully hop out of the machine, keeping both feet together, and then shuffle 10m away.
- Secure a minimum perimeter of 10 meters around the hazard using cones, tapes, warning lights, traffic control or other means.
- Contact WorkSafeBC Call Centre at 604.276.3100 to report if this is an incident that causes an injury.
- Contact CMBC Transit Communication (TCOMM) immediately at 778.593.5536 and report the overhead trolley line contact.
- Wait for CMBC Trolley Overhead Line Crew to arrive and implement corrective actions.

Employer Responsibilities

Employers are expected to conduct a proper risk assessment to anticipate the risks and hazards of work close to energized overhead trolley lines and provide the necessary training, supervision and equipment (personal protective equipment, barriers, etc.) to keep their workers safe.

Should you require assistance in planning your work safely, please email TOHReview@translink.ca and/or call CMBC's Network Manager of Overhead Power Distribution at 604.561.9363. We will be happy to assist you.