Tire Servicing Safety – Know The Laws of Your Province

Every year, dozens of Canadian workers suffer serious and even fatal injuries while performing work on the tires, rims, and wheels of vehicles. It's not hard to understand why. Tires are like bombs waiting to go off with a 20-inch tire inflated to 100 psi containing up to 40,000 pounds of explosive force. The risk is especially great when tire explosions involve multi-component wheel assemblies resulting in the sudden and violent release of tire lock rings, rims, flanges, and other flying parts. That's why OHS laws require employers to take special precautions to protect workers who perform tire servicing operations.

However, the rules differ across Canada. BC, Newfoundland, and Yukon have the strictest and most complete requirements, including specific safeguards mandated for different kinds of wheel assemblies. At the other end of the spectrum are New Brunswick, Ontario, Québec, and the Federal jurisdiction where the regulations are general and the details are left to government guidelines. Québec simply says that tire servicing should be carried out according to "trade practice," a term that the regulations don't define.

Here's a quick summary of the OHS requirements in all jurisdictions making it easy for you to know the rules that apply no matter where in Canada you operate. Go to the OHS Insider website for a complete Tire Servicing Compliance Game

Plan.

FEDERAL

Employer must give employees written instructions for maintaining or repairing the wheels of motorized materials handling equipment equipped with split rim wheels, including instructions on training, inspection, installation, guarding, compatibility of parts used, and repairs relating to the assembling and disassembling of split rim wheels and keep a copy of those instructions at the workplace in which the motorized materials handling equipment is kept for as long as the equipment is in use (*COHS Regs*, Sec. 14.22).

ALBERTA

1. Employer must ensure that a competent worker services, inspects, disassembles, and reassembles a tire or tire and wheel assembly in accordance with the manufacturer's specifications;
2. Employer must ensure that the manufacturer's service manuals for tires and wheels serviced by the employer are readily available to workers;
3. Employer must ensure that a competent worker inflates a tire mounted on a split rim or locking ring wheel only if: (a) the wheel assembly is in a tire cage or is similarly restrained, and (b) flying parts from split rim or locking ring failure or tire rupture can be contained;
4. Employer must ensure that a worker uses a clamp on type of connector to inflate split rim and locking ring wheels;
5. If a clamp on type of connector is used to inflate a tire, the employer must ensure that the worker: (a) uses an in line pressure gauge and positive pressure control, and (b) inflates the tire from a safe position out of

the immediate danger area; and

6. A person must not inflate a tire with a clamp on type of connector unless the person is in a safe position and out of the immediate danger area (*OHS Code*, Sec. 193).

BRITISH COLUMBIA

British Columbia Fire Code Mandates

1. Portable fire extinguishers be provided and installed in accordance with the BC Fire Code.
2. Fire extinguishers must be installed in all buildings except dwelling units.
3. Fire extinguishers must be installed per NFPA 10.
4. Fire extinguishers must be located so that the maximum travel distance shall not exceed 75 ft.
5. The intention of the portable extinguishers is to assist in evacuation. As such, in the context of The Fire Code, the portions of the building that form the evacuation route from the dwelling units are the public corridors that lead to the exits. Therefore, the public corridors are the only portion of the building on typical residential floors that need to be provided with portable fire extinguishers and the 75 ft travel distance to the nearest fire extinguisher can be measured from the residential suite entry door.

Employers in British Columbia have specific responsibilities regarding fire extinguishers, which are part of workplace safety requirements under the Occupational Health and Safety Regulation (OHSR). **Section 23.10** pertains to Fire Extinguishers and **Section 2.1** of Part 2 – Building and Occupant Fire Safety.

Fire Extinguishers

1. Non-freezing fire extinguishers, other firefighting equipment, and firefighting personnel must be provided as

required by subsections (2), (3), and (4) and Table 23-1.

2. The minimum requirements for a twin agent unit are:

(a) 1 100 litres (250 imp gal) pre-mixed ATC foam solution at 6%,
(b) 680 kg (1 500 lbs) potassium bicarbonate dry chemical system,
(c) 30 m (100 ft) discharge hose, and
(d) two firefighting personnel.

3. The minimum requirements for a continuous foam unit are:

(a) 475 litres (100 imp gal) ATC foam concentrate,
(b) 680 kg (1,500 lbs) potassium bicarbonate dry chemical system,
(c) 1 900 litres (400 imp gal) per minute centrifugal certified fire pump with one 65 mm (2.5 in) discharge port, two 38 mm (1.5 in) discharge ports, and one 125 mm (5 in) suction port, and
(d) two firefighting personnel.

4. Firefighting equipment must meet the requirements of NFPA 10, Portable Fire Extinguishers, 1990 Edition. Section **23.10**

For more information, see:

- Portable Extinguishers Section 2.1.5.
- Selection and Installation Section 2.1.5.1.

Further details on the Occupational Health and Safety Regulation can be found at boaBC.org and BClaws.gov.bc.ca.

MANITOBA

Employer must ensure that:

1. A competent person services, inspects, disassembles, and reassembles a tire or tire and wheel assembly of powered mobile equipment in accordance with the specifications

of both the tire manufacturer and the manufacturer of the powered mobile equipment, and that the manufacturer's service manuals for the tires and wheels are readily available to the competent person;
2. A competent person: (a) uses a clamp-on type of connector to inflate split-rim and locking ring wheels; and (b) only inflates a tire mounted on a split-rim or locking ring wheel if: (i) the wheel assembly is in a tire cage or is similarly restrained, and (ii) potential flying parts from split-rim or locking ring failure or tire rupture are contained; and
3. Where a clamp-on type of connector is used to inflate a tire, the person doing so: (a) uses: (i) an in-line pressure gauge, and (ii) positive pressure control; and (b) inflates the tire from a safe position that's not within the tire's potential trajectory (*WSH Reg*, Sec. 22.23).

NEW BRUNSWICK

Employer must ensure that:

1. When a tire for powered mobile equipment is installed and inflated on a rim, a safety cage or other restraining device is used for the tire and the rim, and other appropriate precautionary measures are followed to protect employees from the hazard of the tire exploding (*OHS Gen Reg*, Sec. 229(1.1); and
2. When a tire for a vehicle is installed and inflated on a rim, a safety cage or other restraining device is used for the tire and the rim, and other appropriate precautionary measures are followed to protect employees from the hazard of the tire exploding (*OHS Gen Reg*, Sec. 230.3(1)).

NEWFOUNDLAND & LABRADOR

1. Employer must establish and implement safe work procedures for servicing mobile equipment, tires, rims, and wheels, including: (a) inspecting tire, rim, and wheel components, (b) mounting a tire to the rim and wheel, and inflating a tire, (c) installing and removing tire assemblies from mobile equipment, and (d) demounting tires from the rim and wheel assemblies;
2. Employer must ensure that tire limits are not exceeded;
3. A worker assigned to work on tires, rims, and wheels must be trained in and follow the safe work procedures established under subsection (1);
4. A tire must be deflated before demounting, and deflation must be done in an area where ignition sources are controlled or removed;
5. A tire, rim, and wheel part must be cleaned and inspected for damage before mounting, and a cracked, broken, bent, or otherwise damaged part must be replaced;
6. A tire must be inflated using a remote chuck with a sufficient length of hose and an inline, hand operated valve with a gauge so the worker is outside the likely trajectory should wheel components separate during inflation;
7. A tire mounted on a multipiece rim wheel must be placed in a cage or other restraining device when it’s being inflated;
8. Where a bead expander is used to seat the beads of a tire, it must be removed before the tire is inflated to more than 34.5 kPa (5 psi); 8. Welding or heating on an assembled rim or wheel part isn’t permitted, except that limited heating to facilitate removal of a wheel from a hub is acceptable after the tire has been deflated by removing the valve core;
9. A tire on a multipiece rim wheel must be deflated to atmospheric pressure by removing the valve core or by

other effective means before demounting, and in the case of a dual wheel arrangement, both tires must be deflated to atmospheric pressure before a wheel nut is loosened;
10. Multipiece rim and wheel components may not be interchanged except as permitted by rim/wheel charts from the appropriate rim/wheel manufacturer; and
11. A multipiece rim wheel which has been used at less than 80% of the recommended inflation pressure for that application must be deflated, disassembled, and inspected before reinflation (*OHS Regs*, Secs. 278 + 279).

NOVA SCOTIA

1. Where a split rim or retainer ring type tire is being mounted on a rim and is in the process of being inflated, employer must provide and employee must use: (a) a safety cage or restraining device; (b) a clip-on chuck with an adequate length of hose; and (c) an in-line hand-operated valve with a gauge; and
2. Where a split rim or retainer ring type tire is assembled, employer must ensure that the components are assembled in accordance with the manufacturer's specifications, including a multi-piece rim matching chart (*Occ Safety Gen Regs*, Sec. 92).

ONTARIO

1. Safety chains, cages, or other protection against blown-off side or lock rings must be used when inflating a tire mounted on a rim (*OHS Ind. Ests. Reg*, Sec. 77); and
2. Safety chains, cages, or other protection against blown-off side or lock rings must be used when inflating a tire mounted on a rim and if a cage is used, the tire must be inflated by remote means (*OHS Reg. for Const. Projects,* Sec. 110).

PRINCE EDWARD ISLAND

General:

1. Heavy duty tire and rim assemblies must be maintained so that all fastenings are correctly positioned (*OHS Act General Regs*, Sec. 31.2); and
2. Tires that have been removed from trucks or heavy construction equipment must not be inflated on lock ring type rims without using some restraining device to contain flying parts should a blowout occur *Regs*, Sec. 31.4);

Powered Mobile Equipment:

1. Worker must ensure that the tire pressure doesn't exceed the manufacturer's rated capacity when initially inflating it;
2. Worker must initially inflate a tire mounted on a split-rim or locking ring wheel only after the wheel assembly has been placed in a tire cage or otherwise restrained to contain flying parts in the event of split-rim or locking ring failure or tire rupture;
3. Employer must ensure that a clamp-on type connector is used to inflate split-rim and locking ring wheels; and
4. Where a clamp-on type connector is used to inflate a tire: (a) Employer must ensure that the worker uses an in-line pressure gauge and positive pressure control and inflates the tire from a safe position out of the immediate danger area; and (b) Worker must inflate the tire from the safe position (*OHS Act General Regs*, Sec. 33.17).

QUÉBEC

1. Definitions: (a) This section applies to vehicles mounted on wheels under pressure whose weight, to which the rated load is added, is 4,500 kg or more; and (b) A

wheel is composed of a one-piece or multi-piece rim assembled with a compatible tire;
2. Work on a wheel under pressure, including handling and inspection, must be carried out according to “trade practice;” and
3. The inflating of tires must be done according to “trade practice,” in particular by using a holding device that prevents the projection of wheel components, such as a cage, support, chain, bar assembly or, in the absence of such device, any other means that ensures workers’ safety (*OHS Reg*, Sec. 337).

SASKATCHEWAN

1. Employer must provide a worker who’s required to mount a tire whose maximum inflation pressure isn’t clearly indicated on the tire wall written instructions specifying the maximum inflation pressures for the various sizes and types of tires normally encountered and ensure that the worker follows those instructions;
2. Employer must ensure that a tire and rim assembly on which the tire is to be mounted are designed and constructed to be compatible with each other;
3. If a worker is required to mount a tire on a split rim assembly or locking ring assembly, employer must: (a) provide the worker: (i) a clamp-on type air hose, in-line pressure gauge and positive pressure control; and (ii) a suitable cage or other restraining device to contain flying parts in the event of a split-rim assembly or locking ring assembly failure or tire rupture; and (b) ensure that the worker inflates the tire from a safe position out of the immediate danger area; and
4. Worker who’s mounting a tire must: (a) before starting, place the tire on a split rim assembly or locking ring assembly in a cage or restraining device; (b) not

inflate the tire in excess of the maximum pressure indicated on the tire wall or listed for the size and type of tire in the written instructions provided under subsection (1); (c) use a clamp-on type air hose, an in-line pressure gauge and positive pressure control; and (d) inflate the tire from a safe position out of the immediate danger area (*OHS Regs*, Sec. 9-17).

NORTHWEST TERRITORIES & NUNAVUT

1. Employer must provide a worker who's required or permitted to mount a tire whose maximum inflation pressure isn't clearly indicated on the tire wall written instructions specifying the maximum inflation pressures for the various sizes and types of tires normally encountered and ensure that the worker follows those instructions;
2. Employer must ensure that a tire and rim assembly on which a tire is to be mounted are designed and constructed to be compatible with each other;
3. If a worker is required or permitted to mount a tire on a split rim assembly or locking ring assembly, employer must: (a) provide the worker: (i) a clamp-on type air hose, in-line pressure gauge, and positive pressure control; and (ii) a suitable cage or other restraining device to contain flying parts in the event of a split-rim assembly or locking ring assembly failure or tire rupture; and (b) ensure that the worker inflates the tire from a safe position out of the immediate danger area; and
4. Worker who's mounting a tire must: (a) before starting, place the tire on a split rim assembly or locking ring assembly in a cage or restraining device; (b) not inflate the tire in excess of the maximum pressure indicated on the tire wall or listed for the size and type of tire in the written instructions provided under

subsection (1); (c) use a clamp-on type air hose, an in-line pressure gauge and positive pressure control; and (d) inflate the tire from a safe position out of the immediate danger area (*OHS Regs*, Sec. 134).

YUKON

1. Safe work procedures must be established and implemented for servicing vehicle and mobile equipment tires, rims and wheels, including procedures for: (a) inspecting tire, rim and wheel components, (b) mounting a tire to the rim and wheel, and inflating a tire, (c) installing and removing tire assemblies from mobile equipment, and (d) dismounting tires from the rim and wheel assemblies;
2. Workers assigned to work on tires, rims and wheels must be trained in and follow the above safe work procedures;
3. A tire must be deflated before dismounting and deflation must be done in an area where ignition sources are controlled or removed;
4. Each tire, rim, and wheel part must be cleaned and inspected for damage before mounting, and cracked, broken, bent, or otherwise damaged parts must be replaced;
5. An internal inspection of a tire must be conducted before mounting it on a wheel or rim;
6. A tire must be inflated using a remote chuck with a sufficient length of hose and an inline, hand operated valve with a gauge so the worker is outside the likely trajectory should wheel components separate during inflation;
7. Where a bead expander is used to seat the beads of a tire, it must be removed before the tire is inflated to more than 34.5 kPa (5 psi);
8. A tire must be inflated to the pressure, and within the range, specified by the tire or equipment manufacturer for the particular application;

9. A tire mounted on a multi-piece rim wheel must be placed in a cage or other restraining device when it’s being inflated;
10. Limited welding or heating on assembled rim or wheel parts may only be permitted to facilitate removal of a wheel from a hub after the tire has been completely deflated by removing the valve core;
11. A tire on a multi-piece rim wheel must be deflated to atmospheric pressure by removing the valve core or by other effective means before dismounting, and in the case of a dual wheel arrangement, both tires must be deflated to atmospheric pressure before loosening any wheel nuts;
12. Multi-piece rim and wheel components may only be interchanged as permitted by rim/wheel charts from the appropriate rim/wheel manufacturer; and
13. Tires that were mounted on multi-piece rim wheels and used at less than 80% of the recommended inflation pressure for that application must be deflated, disassembled, and inspected before reinstallation (*WSC Regs*, Secs. 6.43 + 6.44).