Bulletin 66-1-2
Itinerant midways, Carnivals, Fairs and Festivals
Rules 66-000, 66-200, 66-400 and 66-404

Issued May 2025
Supersedes Bulletin 66-1-1

Scope

1) Amusement Devices
2) GFCI protection
    a) Cord connected electrical equipment
    b) Receptacles
3) Amusement Devices and overhead powerlines
4) Protection of electrical equipment
5) In-Situ grounding for temporary generators

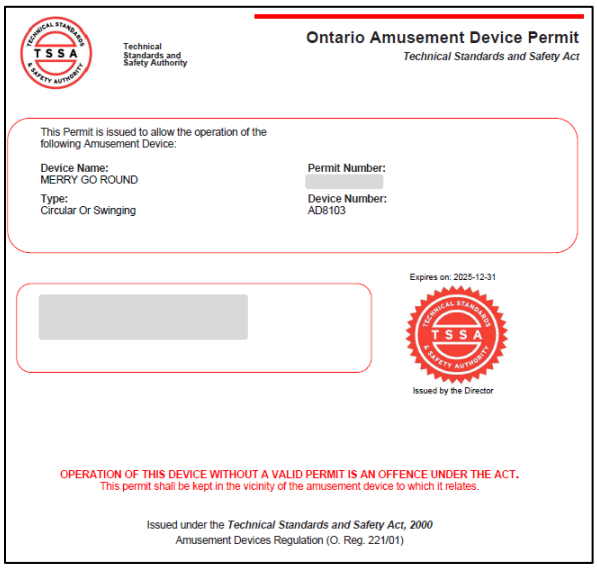
1) Amusement Devices

The Technical Standards and Safety Authority (TSSA) is responsible for regulating Amusement Devices (AD) under the TSSA Act. O. Reg. 221/01 Amusement Devices *applies to the design, construction, installation, use, maintenance, repair, service and operation of amusement devices*. As part of their mandate to promote and enforce public safety, they inspect amusement devices found at carnivals, fairs, amusement parks and other venues, to ensure compliance with the applicable safety legislation. Once an amusement device is accepted by the TSSA, an “AD” number will be assigned to the device which is unique to the AD and will not change (See Photo B1).

Photo B1-Examples of TSSA Amusement Device (AD) Numbers

The TSSA under their authority, issues an **AD permit** for the operation of each ride (See photo B2) annually. In addition, an **AD (Operator) business license** is also issued by the TSSA to operate the AD's annually (See Photo B3).

Photo B2- Example of TSSA **AD Permit**


Technical Standards and Safety Authority

Ontario Amusement Device Permit

Technical Standards and Safety Act

This Permit is issued to allow the operation of the following Amusement Device:

Device Name: MERRY GO ROUND

Permit Number:

Type: Circular Or Swinging

Device Number: AD8103

Expires on: 2025-12-31

Issued by the Director

OPERATION OF THIS DEVICE WITHOUT A VALID PERMIT IS AN OFFENCE UNDER THE ACT.
This permit shall be kept in the vicinity of the amusement device to which it relates.

Issued under the *Technical Standards and Safety Act, 2000*
Amusement Devices Regulation (O. Reg. 221/01)

Photo B3- Example of TSSA **AD Business License**


Technical Standards and Safety Authority

Ontario Amusement Device Licence

Technical Standards and Safety Act

This Licence is issued to carry on the business of:
AD Business Licence

Permission to Operate:
AD Amusement Rides
AD Inflatables

License Number:

Expires on 2025-12-31

This Registration Is Not Transferable.

Issued by the Director

OPERATION OF THIS BUSINESS WITHOUT A VALID LICENCE IS AN OFFENCE UNDER THE ACT.
This licence, or a copy of the licence, shall be displayed in a conspicuous place at the business premises set out on the licence.

Issued under the *Technical Standards and Safety Act, 2000*
Amusement Devices Regulation (O. Reg. 221/01)

Direction

In absence of an affixed approval label, an AD with an active **AD permit** issued by the TSSA as the designated authority of O.Reg. 221/01 "Amusement Devices" will be accepted by ESA as being approved and safe to be connected to a source of

electricity under the Ontario Electrical Safety Code (OESC) and the O. Reg. 438/07 "Product Safety". No further approval by a certification body or field evaluation will be required by ESA.
ESA will inspect the electrical installation(s) and connections up to the disconnecting means of the AD.
ESA will issue a defect when they notice an apparent safety issue with the AD and notify the TSSA. ESA will not permit the energization of the AD if there is a significant issue.

2) GFCI protection

a) Cord Connected Electrical Equipment

To protect members of the public and workers from electrical shock hazards when electrical equipment is used outdoors or in damp locations, cords shall be of hard-usage type and in good repair and be protected by a Class A ground fault circuit interrupter (GFCI) when connected to a receptacle having a CSA configuration 5-15R or 5-20R as per Rule 66-400 3) c) iv) (See Photo B4). Electrical equipment placed under a temporary structure such as a tent is still considered as a damp location and will require GFCI protection.

Photo B4- Example of cord connected GFCI

Question 1:
Does this rule now include a cord plugged into a 5-15R or 5-20R receptacle on a **portable** generator on a midway to power a standalone piece of equipment?

Answer 1:
Yes.
GFCI protection of the Class A type applies to all plug in connections to a receptacle of CSA configuration 5-15R or 5-20R itinerant midways, carnivals, fairs and festivals.

b) Receptacles

Rule 66-404 requires receptacles having a CSA configuration 5-15R or 5-20R intended to supply loads outdoors or in damp locations be protected by a Class A GFCI.

Question 2:
Do the GFCI receptacle requirements in accordance with Rule 66-404 apply to receptacles as part of the amusement device?

Answer 2:
No.

Rationale 2:
Amusement devices fall under the TSSA's approval requirements including all electrical up to the rides disconnect switch (demarcation point). GFCI requirements will only apply when installing branch circuits that are not part of the ride.
Note: As per Rule 66-400 3) c) iv), cords plugging into a 5-15R or 5-20R receptacle shall be protected by a GFCI of the Class A type.

Question 2:
Do the GFCI receptacle requirements in accordance with Rule 66-404 apply to existing outdoor installations such as parks or fairgrounds used for carnivals where the receptacles may not be of the GFCI type?

Answer 2:
No. However as per direction in OESC Bulletin 26-29-* when replacing a non GFCI outdoor, Rule 26-704 requires receptacles having CSA configuration 5-15R or 5-20R installed outdoors and within 2.5 m of finished grade be protected with a ground fault circuit interrupter of the Class A type and provided with weather proof in-use cover and marked "Extra Duty" in accordance with Rule 26-708 .
Note: As per Rule 66-400 3) c) iv), cords plugging into a 5-15R or 5-20R receptacle shall be protected by a GFCI of the Class A type.

3) Amusement Devices and overhead powerlines

The installation of a structure such as an AD may pose electrical shock hazards to the public or installers during and after the installation. Their typical setup and take down schedules can be short and involve installers working long hours, after sundown or in poor weather conditions, further increasing the probability of a contact. Additionally, direct contact with the AD or equipment such as cranes or other high reach equipment does not have to occur for a member of the public or a worker to receive an electrical shock; a flashover (arc) may occur if the AD or equipment is erected in close proximity to the overhead powerline.

Direction:
When an AD is set up under or near overhead power lines including lines owned by the supply authority, ESA will issue a defect to the carnival to have the AD relocated.

4) Protection of electrical equipment

Rule 66-102 requires all electrical equipment be protected in accordance with Rule 2-200. Provisions shall be made for the safety of persons and property and for protection of electrical from mechanical or other damage to which it's liable to be exposed.

Rule 66-400 2) states cords, cables, conduits and other electrical equipment shall be protected from physical damage. Questions have been asked what are the acceptable methods to protect cords and cables used to supply rides and other electrical equipment and does it also apply to locations where public cannot access (aka back of house).

ESA will accept any matting heavy enough for the area. If in vehicular area, it would be required to protect damage from vehicles, if pedestrian only, heavy enough to protect from crushing or cutting from people walking on it (rubber mats, heavy carpet mats, wooden ramps/boxes etc) (see Photo B5). This will apply to all locations including where the public cannot access. If damage can occur due to people walking or driving on the cables, then protection is required.

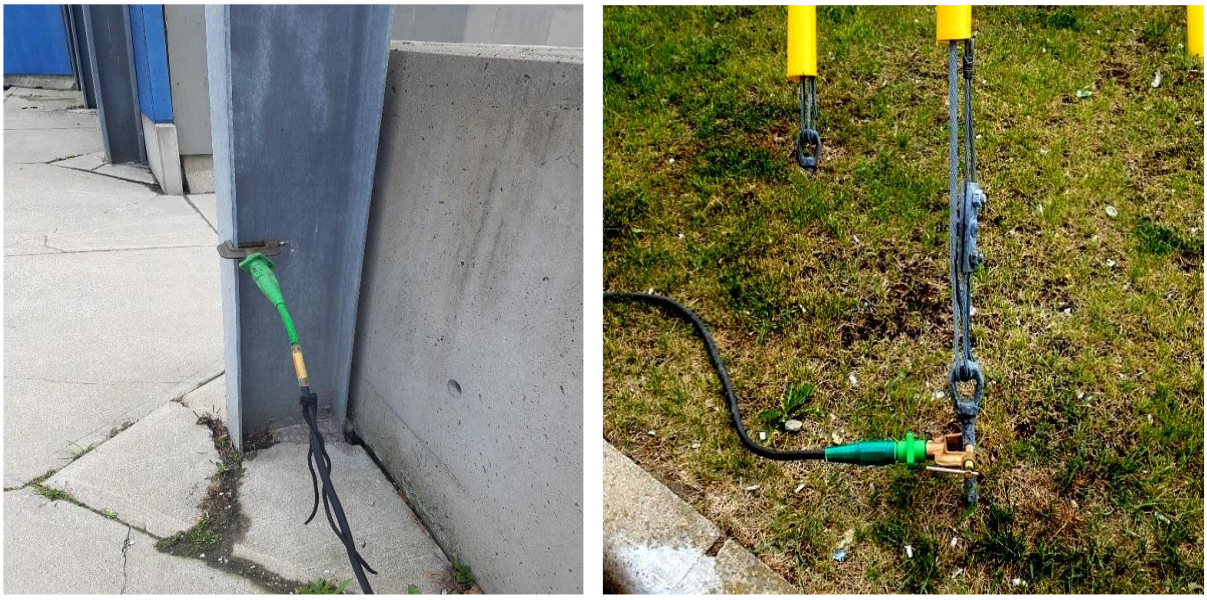
Photo B5- Example of acceptable mats for pedestrian traffic based on the location

5) In-Situ grounding for temporary generators

This is intended to provide clarification on the requirements in the OESC regarding the use of grounding electrodes when installing temporary generators for the entertainment industry.

Grounding electrodes are covered by OESC Rule 10-102 and shall consist of either a manufactured, field-assembled or in-situ grounding electrode forming part of an existing infrastructure. An in-situ grounding electrode is not considered electrical equipment, therefore the electrode does not need to meet the requirement of Rule 2-024 for the approval of electrical equipment. In-situ grounding electrodes shall provide, at 600 mm or more below finished grade and a surface area exposure to earth equivalent to that of a similar manufactured grounding electrode. In-situ grounding method examples are shown in Photo B6 (Both have surface areas greater than required).

Photo B6- Example of acceptable in-situ grounding



In-situ grounding electrodes shall provide a surface area equivalent to that provided by a manufactured electrode as per CSA C22.2 No. 41. A plate electrode shall be not less than 6.4 mm (0.25 in) in thickness if of iron or steel and have a total surface area of not less than 0.186 m^2 (2 ft^2) and have a means of connection to the grounding conductor. Based on Rule 10-116 requirements, the grounding conductor shall be protected from damage either mechanically or by location.

In-situ grounding electrodes may extend from the earth for some distance (e.g., steel beams in direct contact with the structural steel of a concrete foundation). To assure a permanent grounding connection, it is intended that the grounding conductor connection be made such that there are no insulating joints or sections between the connection and the point at which the electrode contacts the earth.

Based on the direction in OESC Bulletin 10-17-*, A metallic water pipe, conductively in contact with the earth, is recognized as an in-situ grounding electrode. A metallic water pipe system located at least 600 mm below finished grade and extending 3 m has traditionally been recognized as an acceptable in-situ grounding electrode.

There are no prescriptive OESC requirements for where the grounding conductor should be attached to a metallic water pipe. If a grounding conductor is connected to the consumer side of the water-meter and there are insulating joints or sections (e.g. plastic water meter), a bonding jumper shall be installed so that the system is electrically continuous between the point of attachment and the point at which the electrode makes contact with the earth.

Some municipalities have requirements that do not allow the municipal water system to be used as an in-situ grounding electrode. In these circumstances, an alternative means for grounding in accordance with Rule 10-102 shall be used. Furthermore, a provision

for electrically isolating the municipal water system from the building water system (e.g., an insulating section at the point of entrance of the water service to the building) shall be in place before bonding the building metallic water pipe system in accordance with Rule 10-700 a).

Acceptable method of grounding using a hydrant as an in-situ ground electrode with a hydrant adaptor or grounding clamp is shown in photo B7.

Photo B7- Example of hydrant grounding

The installer is required to obtain approval from municipal owners and the local Fire Department to attach to the hydrant. OESC Rule 10-116 requires a grounding conductor to be electrically continuous and it shall be protected from damage either mechanically or by location. The hydrant barrel is usually molded in cast or ductile iron. Some iron wet-barrel hydrants have an epoxy coating on the inner surface to prevent corrosion. Other wet-barrel hydrants are molded in bronze. The hydrant bonnet is usually made from the same material as the barrel. Proof of grounding continuity shall be required.

Rule 66-200 1) requires the service and electrical distribution to be grounded in accordance with Section 10. When a mobile generator is used as a source of electrical power, notwithstanding Rule 10-118, the use of single pin connectors, plug in or locking type connectors shall be permitted (see photos B8 and B9).

In accordance with Rule 66-200 3), grounding of a mobile generator shall

- be dedicated to the mobile generator;
- run directly to the generator in the shortest route practicable;
- have no more than two sets of mated, single pin or in line connectors (excluding the connections at the grounding electrodes and the mobile generator);

- not be more than 50 m in length; and
- not be less than No. 4 AWG.

Photo B8: Ground clamp

Photo B9: Cam lock connector