



Designation: ~~F770–21a~~ F770 – 22

# Standard Practice for Ownership, Operation, Maintenance, and Inspection of Amusement Rides and Devices<sup>1</sup>

This standard is issued under the fixed designation F770; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This practice provides guidelines for operations, maintenance, and inspection procedures for amusement rides and devices to be performed by the owner/operator.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.3 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

**F1193 Practice for Quality, Manufacture, and Construction of Amusement Rides and Devices**

## 3. Terminology

3.1 *Definitions:*

3.1.1 *owner/operator, n*—person or organization that is responsible for the ~~maintenance-operation, maintenance, and operation-inspection~~ of an amusement ride or device.

3.1.1.1 *Discussion—*

This definition applies only when the full term (*owner/operator*) is used. The term is distinct from *operator* or *owner* when used separately.

## 4. Significance and Use

4.1 The purpose of this practice is to delineate information and to establish procedures for the operation, maintenance, inspection, and training for amusement rides and devices.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee F24 on Amusement Rides and Devices and is the direct responsibility of Subcommittee F24.40 on Operations/Operation.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

## 5. Owner/Operator's Responsibility

5.1 The owner/operator shall develop a program with necessary tasks to operate and maintain the amusement ride or device. The program shall include but not be limited to:

- 5.1.1 An operations program as outlined in Section 6;
- 5.1.2 A maintenance program as outlined in Section 7;
- 5.1.3 An inspection program as outlined in Section 8, and
- 5.1.4 A training program as outlined in Section 9.

## 6. Operations Program Requirements

6.1 *Operating Document*—The owner/operator shall prepare an Operating Document for each amusement ride or device based on the recommended instructions and specifications provided by the manufacturer. This Operating Document shall be made available to each amusement ride or device operator and attendant. The Operating Document shall include but not be limited to:

6.1.1 Specific amusement ride or device operation policies and procedures with pertinent information from the manufacturer's instructions, including, but not limited to:

- 6.1.1.1 Description of the amusement ride or device operation;
- 6.1.1.2 Specific duties of each assigned operator(s) and attendant(s) position(s) of the amusement ride or device;
- 6.1.1.3 General safety procedures;
- 6.1.1.4 Instructions on specific procedures to follow in the event of unusual conditions or an interruption of operation, including an Evacuation Plan outlined in 6.2, and
- 6.1.1.5 Additional instructions from the owner/operator.

6.2 *Evacuation Plan*—The owner/operator shall have and maintain an evacuation plan for each amusement ride or device.

6.2.1 The owner/operator shall consider:

- 6.2.1.1 Standard load/unload area evacuation as the preferred protocol;
- 6.2.1.2 Amusement ride or device manufacturer's recommendations;
- 6.2.1.3 Conditions of the environment that could impact an evacuation;
- 6.2.1.4 Personnel responsible for performing an evacuation;
- 6.2.1.5 Notification and cooperation with the outside agencies and entities intended to participate in an evacuation;
- 6.2.1.6 Identification and location of equipment to support an evacuation;
- 6.2.1.7 Equipment that may be required to communicate with riders during an evacuation process;
- 6.2.1.8 Access and egress requirements for personnel and equipment to evacuate the amusement ride or device;
- 6.2.1.9 Actions required prior to evacuation to prevent inadvertent motion of the amusement ride or device, vehicle(s), carrier(s) and surrounding equipment in the evacuation pathway;
- 6.2.1.10 Order or sequence of evacuation to evacuate riders efficiently and safely;

6.2.1.11 An appropriate means of egress for evacuees;

6.2.1.12 Removal of riders unable to assist in their own evacuation because of disability, medical condition or other reasons, and

6.2.1.13 Procedures for arranging medical assistance as required during an evacuation.

6.2.2 The owner/operator shall provide and document training on the evacuation plan.

6.2.3 The owner/operator shall periodically review the evacuation plan and make adjustments as needed.

6.3 *Denying Entry*—The owner/operator of an amusement ride or device may deny entry to the amusement ride or device to any person, if in the opinion of the owner/operator the entry may cause above normal exposure to risk of discomfort or injury to the person who desires to enter, or if in the opinion of the owner/operator the entry may jeopardize the safety of other patrons or employees.

6.3.1 Amusement ride or device operators should be given guidelines on the special considerations concerning patron size, and the special considerations applicable to physically disabled and mentally impaired patrons, related to the particular amusement ride or device.

6.4 *Patron Communication*—Signs or other media presented by the owner/operator for instructions, restrictions, and warnings for riding shall be prominently placed at all patron entrances and other appropriate locations as deemed necessary by the owner/operator. Information presented shall be concise and bold in design.

6.4.1 Instructions, restrictions, and warnings may include height requirements, health restrictions, and other duties and obligations of the riders such as, but not limited to, those listed in Section 11.

6.4.2 Entrances to machinery rooms or restricted areas, or both, should be posted when necessary to warn unauthorized persons not to enter.

## 7. Maintenance Program Requirements

7.1 *Required Program*—The owner/operator of an amusement ride or device shall read and become familiar with the contents of the manufacturer's maintenance instructions and specifications when received. Based on the manufacturer's recommendations, the owner/operator shall implement a program of maintenance, testing, and inspection providing for the duties and responsibilities necessary in the care of each amusement ride or device.

7.1.1 This program of maintenance shall include a checklist to be made available to each person performing the regularly scheduled maintenance on each amusement ride or device. The checklist shall include but not be limited to:

7.1.1.1 Preventive maintenance assignments to be performed;

7.1.1.2 Inspections to be performed;

7.1.1.3 Special safety instructions, where applicable; and

7.1.1.4 Any additional recommendations of the owner/operator.

7.2 *Water Quality*—The owner/operator shall maintain appropriate water quality within an amusement ride or device where individuals can reasonably be expected to ingest or contact water volume sufficient to pose a substantial health risk.

7.3 *Replacement Parts*—Replacement parts for amusement rides and devices shall be:

7.3.1 Procured from the original manufacturer of the amusement ride or device, using the appropriate manufacturer-supplied identifying nomenclature; or

7.3.2 Procured or produced using appropriate original manufacturing drawings or specifications, or both, if available; or

7.3.3 Procured or produced using specifications derived from sufficient analysis to ensure parts of equivalent functions and quality, to those provided by the original manufacturer and in accordance with Practice F1193.

7.3.4 Manufactured in conformance with Practice F1193.

7.4 *Non-Destructive Testing*—The owner/operator shall be responsible for implementing a program of testing based on the recommendations of the section on Non-Destructive Testing Requirements of Practice F1193.

7.5 *Welding*—When welding on an amusement ride or device is required, welding shall be performed per Practice F1193, manufacturing section.

## 8. Inspection Program Requirements

8.1 *Pre-opening Inspection*—The owner/operator of amusement rides or devices shall have an inspection program consistent with the inspections outlined in this practice and Practice F1193.

8.1.1 Prior to carrying riders, the owner/operator shall conduct or cause to be conducted a daily documented and signed preopening inspection, based on provided instructions, to verify the proper operation of the amusement ride or device. The inspection program shall include, but not be limited to, the following:

8.1.1.1 Inspection of all rider-carrying devices, including restraint devices and latches;

8.1.1.2 Visual inspection of entrances, exits, stairways, and ramps;

8.1.1.3 Visual inspection of loading and unloading areas;

8.1.1.4 Functional test of all communication equipment necessary for the operation of the amusement ride or device;

8.1.1.5 Inspection or test of all automatic and manual safety devices;

8.1.1.6 Inspection or test of the brakes, including service brakes, emergency brakes, parking brakes, and back stops;

8.1.1.7 Visual inspection of all fencing, guarding, and barricades;

8.1.1.8 Visual inspection of the amusement ride or device structure; and

8.1.1.9 Visual inspection of signs and other visual communication.

8.2 *Pre-opening Test Cycle*—Prior to carrying riders, the amusement ride or device shall be operated for a minimum of one complete operating cycle.

8.3 *Unscheduled Cessation*—An amusement ride or device, or the specifically affected element, shall be appropriately inspected and operated, without riders, for a minimum of one complete operating cycle to determine that it is functioning properly following an unscheduled cessation of operation caused by:

8.3.1 Malfunction or significant adjustment, or

8.3.2 Mechanical, electrical, or operational modification, or

8.3.3 Environmental conditions that affected the operation, or any combination of the three.

8.4 *Inspection Documents*—Inspection documents deemed appropriate by the owner/operator to be maintained in the amusement ride or device file shall be filed in accordance with the procedures outlined in this practice and Practice F1193.

8.5 *Notification of Manufacturer*—The owner/operator of an amusement ride or device shall promptly notify the manufacturer of