



Designation: F770 – 17

# 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 (ε) 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 and health 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. Significance and Use

3.1 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.

## 4. Owner/Operator's Responsibility

4.1 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:

- 4.1.1 An operations program as outlined in Section 5;
- 4.1.2 A maintenance program as outlined in Section 6;

- 4.1.3 An inspection program as outlined in Section 7, and
- 4.1.4 A training program as outlined in Section 8.

## 5. Operations Program Requirements

5.1 *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:

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

- 5.1.1.1 Description of the amusement ride or device operation;
- 5.1.1.2 Specific duties of each assigned operator(s) and attendant(s) position(s) of the amusement ride or device;
- 5.1.1.3 General safety procedures;
- 5.1.1.4 Instructions on specific procedures to follow in the event of unusual conditions or an interruption of operation, including an Evacuation Plan outlined in 5.2, and
- 5.1.1.5 Additional instructions from the owner/operator.

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

5.2.1 The owner/operator shall consider:

- 5.2.1.1 Standard load/unload area evacuation as the preferred protocol;
- 5.2.1.2 Amusement ride or device manufacturer's recommendations;
- 5.2.1.3 Conditions of the environment that could impact an evacuation;
- 5.2.1.4 Personnel responsible for performing an evacuation;
- 5.2.1.5 Notification and cooperation with the outside agencies and entities intended to participate in an evacuation;
- 5.2.1.6 Identification and location of equipment to support an evacuation;
- 5.2.1.7 Equipment that may be required to communicate with riders during an evacuation process;
- 5.2.1.8 Access and egress requirements for personnel and equipment to evacuate the amusement ride or device;

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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.

5.2.1.9 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;

5.2.1.10 Order or sequence of evacuation to evacuate riders efficiently and safely;

5.2.1.11 An appropriate means of egress for evacuees;

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

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

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

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

5.3 *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.

5.3.1 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.

5.4 *Signage*—Signs or other media presented by the owner/operator for instructions for riding shall be prominently placed at all patron entrances and other appropriate locations as deemed necessary by the owner/operator. Signs shall be bold in design and concise.

5.4.1 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 9.

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

## 6. Maintenance Program Requirements

6.1 *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, each 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.

6.1.1 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:

6.1.1.1 Preventive maintenance assignments to be performed;

6.1.1.2 Inspections to be performed;

6.1.1.3 Special safety instructions, where applicable; and

6.1.1.4 Any additional recommendations of the owner/operator.

6.2 *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.

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

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

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

6.3.3 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.

6.3.4 Manufactured in conformance with Practice F1193.

6.4 *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. Inspection Program Requirements

7.1 *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.

7.1.1 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:

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

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

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

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

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

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

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

7.1.1.8 Visual inspection of signs and other visual communication.

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

7.3 *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:

- 7.3.1 Malfunction or significant adjustment, or
- 7.3.2 Mechanical, electrical, or operational modification, or
- 7.3.3 Environmental conditions that affected the operation, or any combination of the three.

7.4 *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.

7.5 *Notification of Manufacturer*—The owner/operator of an amusement ride or device shall promptly notify the manufacturer of an incident, failure, or malfunction which, in the owner/operator’s judgment, affects the continued proper operation of the amusement ride or device and is information of which the manufacturer should be aware.

## 8. Training Program Requirements

8.1 *Training*—The owner/operator shall have documented training programs for operators, attendants and maintenance personnel who are assigned duties on each amusement ride or device.

8.2 The training programs shall include, but not be limited to, instructions on:

- 8.2.1 Amusement ride or device operating procedures;
- 8.2.2 Specific duties of the assigned position(s);
- 8.2.3 General safety procedures;
- 8.2.4 Specific procedures to follow in the event of unusual conditions or an interruption of operation;
- 8.2.5 Evacuation plan;
- 8.2.6 Inspection and preventative maintenance procedures for maintenance personnel, and
- 8.2.7 Additional instructions or training under the supervision of a trainer deemed necessary by the owner/operator.

8.3 The owner/operator shall provide training under the supervision of a trainer for each operator, attendant and maintenance personnel of an amusement ride or device. The training program shall include:

- 8.3.1 Demonstration by the trainer of the assigned duties of the operation or maintenance personnel, and
- 8.3.2 Demonstration by the trainee under the supervision of the trainer of the assigned duties.

## 9. Patron Responsibility

9.1 There are inherent risks in the participation in or on any amusement ride, device, or attraction. Patrons of an amusement ride, device, or attraction, by participation, accept the risks inherent in such participation of which the ordinary prudent person is or should be aware. Patrons have a duty to exercise good judgment and act in a responsible manner while using the amusement ride, device, or attraction and to obey all oral or written warnings, or both, prior to or during participation, or both.

9.2 Patrons have a duty to not participate in or on any amusement ride, device, or attraction when under the influence of drugs or alcohol.

9.3 Patrons have a duty to properly use all ride or device safety equipment provided.

## 10. Classification of Injuries and Illnesses

### 10.1 *Recording Recommendations:*

10.1.1 The administration of emergency health care service and treatment should be recorded as deemed appropriate by the owner/operator of amusement rides and devices to include the documentation of all first-aid treatment, including minor injuries and illnesses, in a first-aid log. Injuries and illnesses other than minor should be reported on a first-aid incident report in accordance with 10.1.2.

10.1.2 *First-Aid Incident Report*—A first-aid incident report should be completed for injuries or illnesses that result in hospital admission or where medical treatment is given, recommended, or may be required at a future date. All injuries or illnesses reported and other than those classified as minor, can be presumed to be in this category.

10.1.3 *Recorded Information*—Information recorded in the first-aid incident report should include, but not be limited to, the following, where applicable:

- 10.1.3.1 Date the incident occurred.
- 10.1.3.2 Name, address, and telephone number of the person to receive emergency health care service or treatment.
- 10.1.3.3 Age of the person to receive emergency health care service or treatment.
- 10.1.3.4 Manufacturer’s name of the amusement ride or device where or on which the incident occurred.
- 10.1.3.5 Description of the injury or illness. Physical description of the injury or illness. Description of the events causing and related to the incident.
- 10.1.3.6 Description of the first-aid service or treatment administered, including medications given.
- 10.1.3.7 Incident classification in accordance with 10.2.
- 10.1.3.8 Additional information deemed necessary by the owner/operator.

10.2 *Classification of First-Aid Incidents*—When recording an applicable first-aid-related incident, the owner/operator of an amusement ride or device should classify the injury or illness in accordance with each of the following categories based on the available reported or observed reliable information, or both:

10.2.1 *Amusement Ride and Device Incidents Classified in Accordance with Injury Qualification and Degree of Injury*—Injury, illness, serious injury/illness, and minor injury/illness should be determined by the owner/operator to best describe the incident circumstances.

10.2.2 *Amusement Ride and Device Incidents Classified in Accordance with Facility Implication:*

10.2.2.1 *Facility-Related Incidents*—Injuries or illnesses that occur on facility premises shall be additionally classified as “Facility Related.”

10.2.2.2 *Not-Facility Related Incidents*—Injuries or illnesses that occur off facility premises shall be additionally classified as “Not Facility Related.”

### 10.2.3 Amusement Ride and Device Incidents Classified in Accordance with Facility Location:

10.2.3.1 *Amusement Ride and Device on Ride Incident*—Injuries or illnesses that actually occur to a person while riding during the operation of the amusement ride or device, including during the start-up or shut down procedures, shall be additionally classified as an amusement ride and device “On Ride Incident.”

10.2.3.2 *Loading and Unloading Incidents*—Injuries or illnesses that actually occur to a person while he is within the area designated for loading and unloading of an amusement ride or device that was under the direct control of an amusement ride and device operator or attendant shall be additionally classified as a “Loading and Unloading Incident.”

10.2.3.3 *Queue Line Incident*—Injuries or illnesses that actually occur to a person while in a queue line for an amusement ride or device shall be additionally classified as a “Queue Line Incident.”

10.2.3.4 *Other Incidents*—Injuries or illnesses that occur to a person in a location other than as described in 10.2.3.1, 10.2.3.2, or 10.2.3.3 shall be classified as other than the preceding classifications and should be categorized in accordance with other predetermined descriptions that may be established by the owner/operator.

10.3 *Manufacturer Notification*—The owner/operator of an amusement ride or device shall notify the appropriate manufacturer(s) of an incident that resulted in a serious injury within seven days of the occurrence of the incident

## 11. Information Transferred with Used Amusement Rides and Devices

### 11.1 Seller’s Requirements:

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11.1.1 The seller of a used amusement ride or device shall make available to the new owner a copy of existing manufacturer’s documentation, including but not limited to, the current operational and maintenance manuals, service bulletins, schematics, drawings, component identification information, and purchased equipment manuals in the seller’s possession.

11.1.2 The seller of a used amusement ride or device shall provide therewith written notice of major modifications the seller has made or caused to be made along with the manufacturer’s or other supporting documentation.

### 11.2 Purchaser’s Requirements:

11.2.1 Prior to the operation of a used amusement ride or device, a purchaser of that used amusement ride or device shall:

11.2.1.1 Notify the original manufacturer or known successor, if available, of the change in ownership of the amusement ride or device.

11.2.1.2 Request from the original manufacturer or known successor, if available, information related to the ownership, operation, maintenance and inspection of the amusement ride or device, including but not limited to, current operational and maintenance manuals, service bulletins, schematics, drawings, component identification information, and purchased equipment manuals or other information in accordance with Practice F1193.

11.2.1.3 Obtain, review, and become familiar with the above documents. Upon receipt of the information, incorporate the above materials in accordance with the requirements described in Sections 4 and 6.

## 12. Keywords

12.1 amusement ride; attendant; device; inspection; maintenance; operating procedures; operations; operator; training