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Standard Guide for Testing Performance of Amusement Rides and Devices¹

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1. Scope

1.1 This guide covers the basic tests which shall be conducted on amusement rides and devices during prototype development, installation or erection, following major modifications, and during normal operation to determine that the performance of a given ride or device meets the manufacturer's specified design criteria.

NOTE 1—The following standards developed by Committee F-24 contain information relative to this guide: Specification F 698, Practices E 1212, F 1193, and F 770, Terminology E 1316, and Definitions F 747.

1.2 *This standard does not purport to address all of the safety problems, 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.*

2. Referenced Documents

2.1 ASTM Standards:

E 543 Practice for Evaluating Agencies that Perform Non-destructive Testing²

E 1212 Practice for Establishment and Maintenance of Quality Control Systems for Nondestructive Testing Agencies²

E 1316 Terminology for Nondestructive Examinations²

F 698 Specification for Physical Information to be Provided for Amusement Rides and Devices³

F 747 Terminology Relating to Amusement Rides and Devices³

F 770 Practice for Operation Procedures for Amusement Rides and Devices³

F 853 Practice for Maintenance Procedures for Amusement Rides and Devices³

F 1193 Practice for an Amusement Ride and Device Manufacturer Quality Assurance Program³

2.2 ASNT Document:⁴

Recommended Practice SNT-TC-1A Personnel Qualification and Certification in Nondestructive Testing

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *installation or erection*—the actual act of on-site construction or the physical setting up and making ready for use of a ride or device.

3.1.2 *major modification*—any change in either the structural or operational characteristics of the ride or device which will alter its performance from that specified in the manufacturer's design criteria.

3.1.3 *prototype*—final operational assembly of a newly developed ride or device.

4. Significance and Use

4.1 The purpose of this guide is to establish pertinent test data on a given ride or device which shall be used as the basis for the evaluation of the ride or device's performance, including developmental testing, installation testing, and operational testing.

4.2 This guide is intended for the use of manufacturers, owners/operators, and those persons or agencies involved in the installation and operational testing of amusement rides and devices.

5. Developmental Testing by the Manufacturer

5.1 Where applicable as determined by the manufacturer/designer, the following test procedures shall be developed and performed on a prototype amusement ride or device in order that the manufacturer/designer may determine the appropriateness for use, of not only the parts, but the entire system of a newly designed ride or device.

5.1.1 Procedures to Verify Maximum Safe Design Loads:

5.1.1.1 Procedures to verify such design characteristics as relevant deflections, loads, and forces that are placed on both the equipment and the passengers during operation of the ride or device,

5.1.1.2 A procedure to determine operational limits and restart criteria due to environmental conditions,

5.1.1.3 Procedures to allow the manufacturer to determine such factors as component variability and certification requirements of components, and

5.1.1.4 Any other procedures necessary to demonstrate a

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² *Annual Book of ASTM Standards*, Vol 03.03.

³ *Annual Book of ASTM Standards*, Vol 15.07.

⁴ Available from American Society for Nondestructive Testing, 4153 Arlingate Plaza, Caller No. 28518, Columbus, OH 43228.