



Designation: **F2007–12 F2007 – 18**

Standard Practice for Design, Manufacture, and Operation of Concession Go- Karts and Facilities¹

This standard is issued under the fixed designation F2007; 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 applies to the design, manufacture, and operation of concession go-karts and their associated operating facilities where public or member use is offered with a use fee. This practice defines classifications for the various vehicles offered for public use to replicate motor sports competitive activities.

1.2 This standard does not apply to vehicles or facilities specifically offered for racing (race karts) or used for general purpose by private owners (fun karts) other than owners of concession go-kart facilities.

1.3 *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.*

1.4 *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:*²

F770 Practice for Ownership, Operation, Maintenance, and Inspection of Amusement Rides and Devices

F1159 Practice for Design of Amusement Rides and Devices that are Outside the Purview of Other F24 Design Standards

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

F2291 Practice for Design of Amusement Rides and Devices

2.2 *SAE Standard:*³

J1241–1978 Fuel and Lubricant Tanks for Motorcycles

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *concession go-kart, n*—an amusement ride or device, which meets all of the following specifications: the device is a single vehicle, unattached to other vehicles or a common frame system, which is powered without connection to a common energy source, which is driver controlled with respect to acceleration, speed, braking, and steering, which operates within the containment system of a defined track, and which simulates competitive motor sports, which is used by members of the general public for a fee. A concession go-kart has a maximum capacity of two persons and no cargo capacity.

3.1.1.1 *Discussion*—

This definition specifically excludes similar go-kart devices that are intended for use as competitive (racing) karts or similar go-kart devices intended for ownership and use by private owners. This definition specifically excludes devices, such as electronically or

¹ This practice is under the jurisdiction of ASTM Committee F24 on Amusement Rides and Devices and is the direct responsibility of Subcommittee F24.60 on Special Rides/Attractions.

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² 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.

³ Available from Society of Automotive Engineers (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001.

rail guided amusement rides and bumper cars or other similar amusement motor sports devices that operate under circumstances where there is no defined direction of travel.

3.1.2 *concession go-kart attendant, n*—the person or persons whose duties may include but are not limited to the instruction, dispatch, and limitation of ride duration of persons driving concession go-karts.

3.1.3 *containment system, n*—a device installed on the concession go-kart track, which defines the boundaries of the track, and whose primary purpose is to contain the vehicles within the defined boundary.

3.1.4 *driver, n*—the person who manipulates and controls the direction of travel, braking, and speed of a concession go-kart.

3.1.5 *fun kart, n*—a motorized vehicle with four wheels, sold commercially as consumer goods and intended for private personal recreational use by the consumers for off-road use on suitable terrain, as recommended by the manufacturer.

3.1.6 *owner, n*—the person, persons, partnership, company, group, or corporate entity, or agent of a person, who owns, controls, or has the duty to direct or control the operation of a concession go-kart track.

3.1.7 *passenger, n*—the person who is transported aboard a concession go-kart as a passenger without having control of the direction of travel, braking, and speed of the go-kart.

3.1.8 *pit, n*—a defined station for the purpose of loading and unloading driver and passenger during the initiation and conclusion of the ride cycle.

3.1.9 *race kart, n*—go-karts designed for the sole purpose of racing on tracks, streets, or other areas of competition, and not to be used by the general public in an amusement facility setting.

3.1.10 *track, n*—a defined path for the operation of concession go-karts that is hard surfaced and fitted with a containment system to define the path of travel.

4. Significance and Use

4.1 This practice is intended to delineate information for the design, manufacture, and operation of concession go-karts and related track facilities, that are designed and manufactured after the publication of this practice.

5. Concession Go-Kart Design and Manufacture

5.1 Concession go-karts shall be designed, constructed, or operated in such a manner that the wheels from one go-kart cannot engage or override the wheels of another go-kart operating under normal conditions.

5.2 Concession go-kart manufacturers shall provide specifications, and maintenance and repair instructions to the original purchaser in accordance with Practice **F1193** and shall include, but not be limited to, the following topics:

- 5.2.1 Brake adjustments and service;
- 5.2.2 Steering linkage adjustment and service;
- 5.2.3 Wheel alignment adjustment and service;
- 5.2.4 Tire inflation pressures;
- 5.2.5 Tire wear limits;
- 5.2.6 Wheel nut torque values;
- 5.2.7 Grade of all fasteners;
- 5.2.8 Torque value or tightening instruction on all fasteners;
- 5.2.9 Chassis lubrication points including recommended lubricants;
- 5.2.10 Drive system specifications and service instructions;
- 5.2.11 Frame inspection procedures;
- 5.2.12 Seat belt adjustment, installation, and inspection procedures;
- 5.2.13 Capacity by weight;
- 5.2.14 Maximum operating speeds;
- 5.2.15 Service and adjustment procedures for all components of the go-kart;
- 5.2.16 A phone number or fax number to be used by the track owner or concession go-kart attendant to secure maintenance or operating assistance from the manufacturer; and,
- 5.2.17 Daily, weekly, monthly, or other periodic minimum service and component checklists.

5.3 Concession go-kart fuel tanks, filler necks, and caps shall be designed and manufactured to meet or exceed the testing requirements of Section 3.2 of SAE J1241–1978.

5.3.1 Fuel tank, filler neck, and cap field testing procedures shall be specified by the concession go-kart manufacturer.

5.4 Concession go-kart fuel tanks shall be installed in such a manner to minimize the potential for rupture or damage in the event of collision with another go-kart, obstacle, or rollover.

5.5 Manufacturer shall clearly mark throttle and brake locations of concession go-karts in a visible position on the body or chassis of the go-kart, or by coloring the throttle green and the brake control red.

5.6 Manufacturer shall specify the maximum operating speed for concession go-karts.

5.6.1 Speed limitation devices shall be incorporated in concession go-karts, that is, throttle stops, pedal stops, governors, gearing, throttle linkage adjustors, etc., to limit speeds.

5.7 Manufacturer shall specify any driver and passenger requirements, which may include height, passenger placement, or any other appropriate requirements.

5.8 Concession go-karts shall be equipped with occupant compartment padding consistent with Section 6 of Practice F1159.

5.9 Concession go-karts shall have protective covers ~~or component placement~~ for moving ~~or heated~~ components of the engine and drive train system, to inhibit driver or passenger engine, drive, and brake system to inhibit hair, loose clothing, or other entanglement hazards from inadvertent contact with these components while driver and passenger are seated in the intended position for operation and while properly restrained.

5.10 Concession go-karts shall have occupant seating and restraint system(s) consistent with Section 6 of Practice F1159. Restraint systems shall be designed and manufactured to meet or exceed the following specifications:

5.10.1 Restraint systems shall be designed using intended driver or passenger physical characteristics based on anthropometric data such as Dreyfuss Human Scales 4/5/6, 7/8/9, and Center For Disease Control Growth Charts.

5.10.2 When restraints are provided by means of seat belts, installation of the belts shall be such that they are designed and fabricated in accordance with subsection 6.2.1 of Practice F2291.

5.10.3 Lap belts shall be installed so they engage the driver or passenger at an angle with respect to a horizontal plane at 40 to 70° (see Fig. 1). The preferred belt angle is 60° or more with respect to a horizontal plane.

5.10.3.1 When the driver or passenger are properly seated and restrained the lap belts shall not be deflected by any component of the go-kart including but not limited to the frame, seat and chassis.

5.10.4 When restraints are provided by means of seat belts made up of lap and upper torso belt(s), the upper torso belt(s) shall be installed to pass over the shoulder between the driver's or passenger's shoulder joint and neck.

5.10.4.1 The upper torso belt, when properly adjusted, shall not slide off the shoulder or engage the neck of any driver or passenger during go-kart operations.

5.10.4.2 When the upper torso belt is a single element crossing the driver's or passenger's chest, the belt shall cross the sternum.

5.10.5 Restraint belts shall be a minimum of 1 3/4 in. (44 mm) in width.

5.10.6 Inertia activated retractors, when used, shall be installed and maintained according to the manufacturer's specifications.

5.11 Concession go-karts shall have a roll over protection system that supports the combined driver or passenger weight capacity, or both, as specified by the manufacturer, and the weight of the go-kart.

5.12 Manufacturer shall provide recommendations for the use, adjustment, and maintenance of restraint, protective, or other safety devices provided with or for their concession go-karts.

5.12.1 The go-kart manufacturer shall provide instructions for the proper method of restraint system installation and adjustment, and restraint system inspection criteria including but not limited to limits on fraying and wear.

5.12.1.1 Replacement restraint system components shall meet or exceed the go-kart manufacturer's original specifications.

5.12.1.2 When an upper torso belt assembly is used which is coupled to a lap belt, the manufacturer shall provide instructions for the proper adjustment of the upper belt(s) so that the lap belt component shall not raise off of the driver's or passenger's upper thighs and into the abdomen.

5.13 The concession go-kart braking system shall have sufficient braking capacity to override the power of the engine while at a standstill.

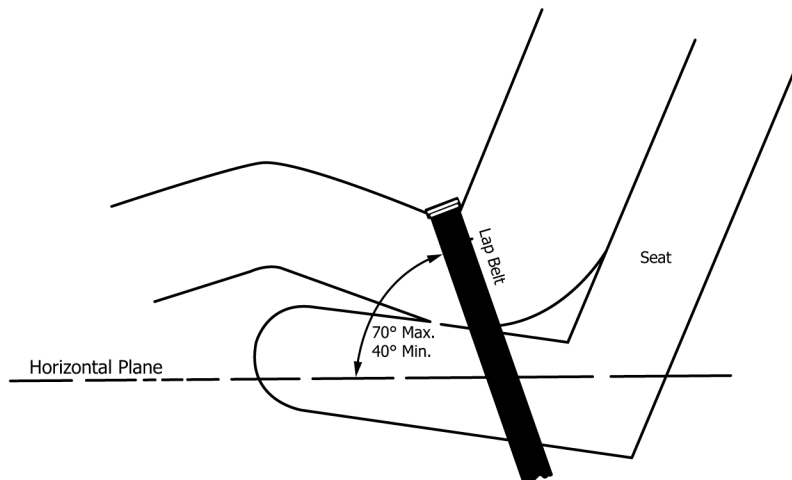


FIG. 1 Proper Lap Belt Mounting Angle