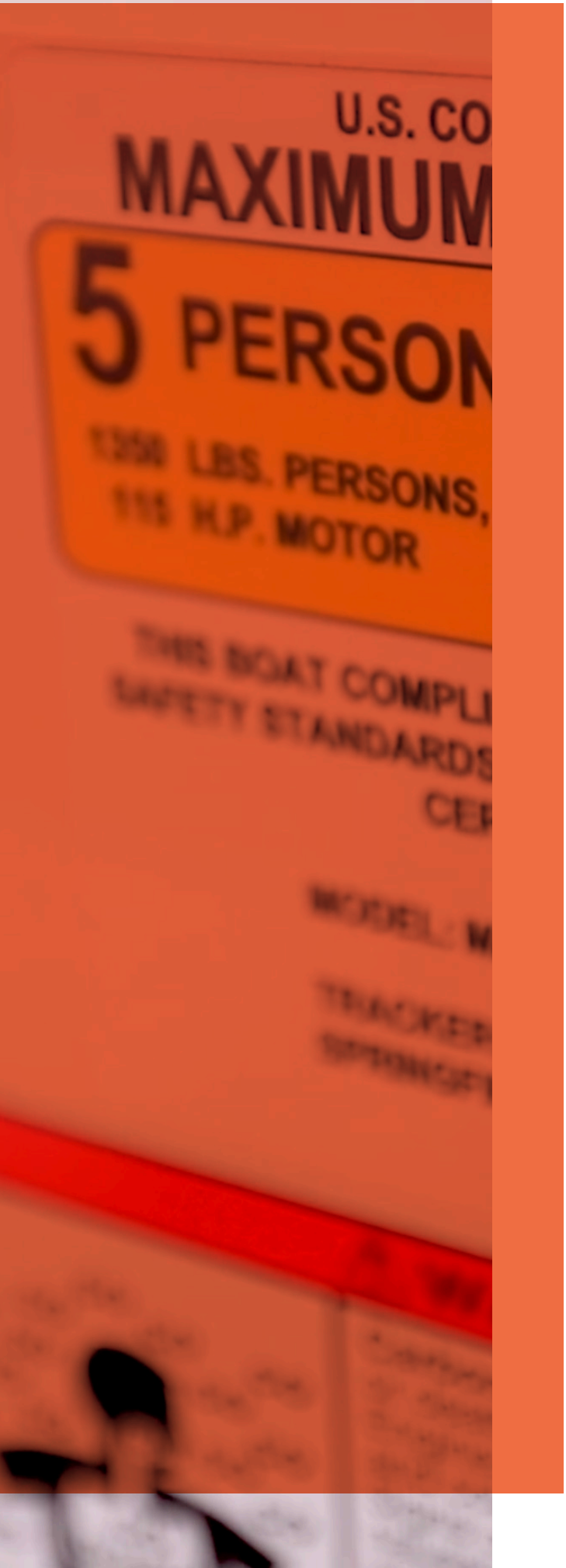


BOAT BUILDER'S HANDBOOK

2021 Edition

START-IN-GEAR PROTECTION

33 CFR 183 SUBPART L

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INTRODUCTION

'Start-In-Gear Protection' clearly means that a boat should not start-in-gear. A better title for this chapter would be 'Start-In-Gear Prevention'. If a boat were to start with the engine in gear the operator and passengers could be knocked down or be thrown overboard and likely injured as the boat suddenly lurches forward or backward.

1. APPLICABILITY

> Per 183.701 Start-In-Gear protection applies to outboard powered engines and starting controls – and to the boat manufacturers or boat dealers installing the engines and controls.

Boat builders must ensure that installed outboard engines and engine control systems have start-in-gear protection. The engine or control system must have a device that prevents the engine from starting when the engine is in gear. Typically, an electrical neutral safety switch is incorporated into the engine controls. The boat manufacturer does not need devise a device, but must ensure that the engine neutral safety switch is installed and functioning properly.

> Per 183.710 Start-In-Gear protection must be installed for any outboard engine capable of developing a static thrust of 115 pounds or more.

A static thrust of 115 pounds equates to about 3 horsepower.

This requirement applies to any engine operating speed – and applies to any propeller or jet drive system.

This requirement does apply to long shaft mud motors. Being able to raise the propeller end out of the water does not negate the requirement for start-in-gear prevention.

This CFR chapter only applies to outboard powered boats. While the CFR does not apply to inboards/sterndrives/diesels/PWCs, almost all such boats are equipped with start-in-gear protection. ABYC standard P-28 ('Electric/Electronic Control Systems for Propulsion and Steering') requires start-in-gear protection in "all boats" with electric/electronic systems for steering, forward/reverse thrust, speed, trim controls. ABYC exempts boats that have a throttle limiting device that keeps thrust to less than 115 pounds at the time of starting.

Start-in-gear protection has been the industry standard for some time; most start-in-gear systems cut the electrical current to the ignition when the gear is engaged.

2. DEFINITIONS

Local Starting. This means operating a mechanical or electrical starting device that is built into the outboard engine.

Starting control. This means the engine throttle, shift, and starting control mechanisms is located at a position remote from the outboard engine.

Static thrust. This is the forward or backward thrust developed by an outboard engine and associated propulsion unit while stationary.

3. START-ON-GEAR OPTIONS

If an outboard engine is designed for local starting, it must have the start-in-gear device built in.

If an outboard engine is designed of remote starting the start-in-gear protection may be obtained by either a built-in device or via remote starting controls that contain the device.

If a remote start outboard engine does not have a built-in device, the engine must have affixed a tag or label stating: "Starting controls installed with this motor must comply with USCG requirements for start-in-gear protection in 33 CFR Part 183, Subpart L."

Starting controls must have affixed a tag or label stating: "This control (will or will not) provide start-in-gear protection meeting USCG requirements of 33 CFR Part 183, Subpart L."

Boat manufacturers (and boat dealers) must match engines and starting controls that provide proper start-in-gear protection.

Appendix 1. 33 CFR Subpart L - Start-in-Gear Protection

183.701 APPLICABILITY.

This subpart applies to outboard motors and starting controls, and to manufacturers, distributors or dealers installing such equipment.

183.705 DEFINITIONS.

For the purposes of this subpart:

(a) Outboard motor means a self-contained propulsion system of any horsepower rating designed to be installed on, and removable from the transom of a boat.

(b) Static thrust means the forward or backward thrust developed by an outboard motor and associated propulsion unit while stationary.

(c) Starting control means the motor throttle, shift and starting control mechanisms located at a position remote from the outboard motor.

(d) Local starting means operating a mechanical or electrical starting device built into the outboard motor.

(e) Distributor means any person engaged in the sale and distribution of boats or associated equipment for the purpose of resale.

(f) Dealer means any person who is engaged in the sale and distribution of boats or associated equipment to purchasers who the seller in good faith believes to be purchasing any such boat or associated equipment for purposes other than resale.

183.710 START-IN-GEAR PROTECTION REQUIRED.

(a) Any outboard motor which is capable of developing a static thrust of 115 pounds or more at any motor operating speed with any propeller or jet attachment recommended for or shipped with the motor by the manufacturer, must be equipped with a device to prevent the motor being started when controls are set so as to attain that thrust level, as follows:

(1) Outboard motors designed for local starting must have a built-in start-in-gear protection device.

(2) Outboard motors designed for remote starting must have either a built-in start-in-gear protection device or be installed with remote starting controls containing this device. An outboard motor designed for remote starting that does not have a built-in start-in-gear protection device must, at the time of sale, have a tag or label attached at the location of the control connection, containing the following information: "Starting controls installed with this motor must comply with USCG requirements for start-in-gear protection in 33 CFR Part 183, Subpart L." The letters and numbers on the tag or label must be at least 1/8 inch high.

(b) Starting controls must have a tag or label with the following information to indicate whether or not

they have been equipped with a start-in-gear protection device: "This control will (or will not) provide start-in-gear protection meeting USCG requirements of 33 CFR Part 183, Subpart L." The letters and numbers on the tag or label must be at least 1/8 inch high.

(c) Any manufacturer, distributor or dealer installing an outboard motor displaying the label described in paragraph (a)(2) of this section must properly match it with a compatible starting control that contains a start-in-gear protection device.

183.715 EXCEPTION.

Outboard motors designed to be equipped for remote starting, but which also have a provision for local starting in emergencies, need not comply with § 183.710 for their local starting system. However, the following information must be displayed on the motor: "Warning - Ensure shift control is in neutral before starting motor". This information must be clearly visible to a person using the emergency starting device.