

VESSEL PROPULSION & ENGINE DRIVE CLASSIFICATION



This guide provides step-by-step instructions for accurately determining and recording the propulsion and engine drive types for a given vessel. Consistent recording of this information helps boating safety professionals analyze vessel configurations and assess their potential impact on boater safety and boating incident investigations.

Propulsion and engine drive are recorded separately on the Certificate of Number, but both are essential to describe how a vessel moves through the water:

- **Propulsion Type:** Describes the means by which thrust is provided.
- **Engine Drive Type:** Describes how the propulsion is mechanically connected to the vessel.

The following federal regulations govern the contents of the Certificate of Number:

- **33 CFR § 174.3:** Definitions
- **33 CFR § 174.17:** Contents of the Application for Certificate of Number
- **33 CFR § 174.19:** Contents of the Certificate of Number

The five authorized propulsion and four authorized engine drive types are shown in boldfaced text and, where applicable, their official definitions are shown in *italics*. “Other” descriptions and illustrations are not part of the official propulsion and engine drive definitions and are provided only to help clarify their application.

PROPULSION

Propulsion describes how a vessel is moved through the water and includes the following five types: Air Thrust, Manual, Propeller, Sail, and Water Jet. Please note that auxiliary-powered sailboats (i.e., sailboats with engines) should be classified in accordance with the type of propulsion provided by the engine.

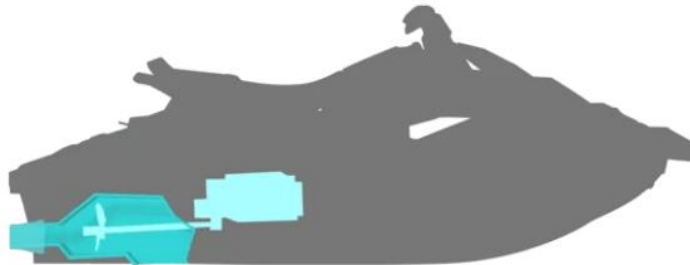
PROPELLER

A form of mechanical propulsion. A bladed apparatus is used to provide the rotational thrust that pushes against the water to move the vessel forward.



WATER JET

A form of mechanical propulsion. Thrust is created when water is taken into a pump unit located on the bottom of the vessel and discharged through a nozzle at a high pressure to move the vessel forward. Most Personal Watercraft (PWC) use water jet propulsion.



AIR THRUST

A mechanical form of propulsion where a large, bladed propeller pushes against air to move the vessel over water. The propeller is typically mounted on the aft deck and resembles an aircraft propeller or industrial fan. This type of propulsion is most commonly used on airboats.



SAIL

A non-mechanical form of propulsion where wind pushes against sails to move the vessel.
Note: This applies to sail-only vessels. Vessels that also have some form of mechanical propulsion (referred to as Auxiliary Sailboats) should be classified based on the engine's propulsion type.



MANUAL

A form of non-mechanical propulsion. A vessel propelled solely by human effort, such as paddles, poles, or oars.



OTHER

Propulsion does not fit any of the descriptions of the above types.



ENGINE DRIVE

Engine drive more specifically describes the mechanism used to propel a vessel through the water and includes the following four types: Inboard, Outboard, Pod Drive, and Stern Drive.

OUTBOARD

An engine with propeller or water jet integrally attached, which is usually mounted at the stern of a vessel.

Outboard engines are self-contained and hang directly off the transom of a vessel.



STERN DRIVE

An engine, powering a propeller through a series of shafts and gears, mounted in front of the transom of a vessel and attached through the transom to a drive unit that is similar to the lower unit of an outboard; and may also be known as an inboard-outdrive or an inboard-outboard.

A sterndrive is essentially a hybrid of an outboard and inboard. The engine itself is located inside the hull of the vessel, but the drive unit and propeller protrude through the transom.



INBOARD

An engine mounted inside the confines of a vessel which powers a drive shaft that turns a water jet impeller or that runs through the bottom of the hull and is attached to a propeller at the other end.

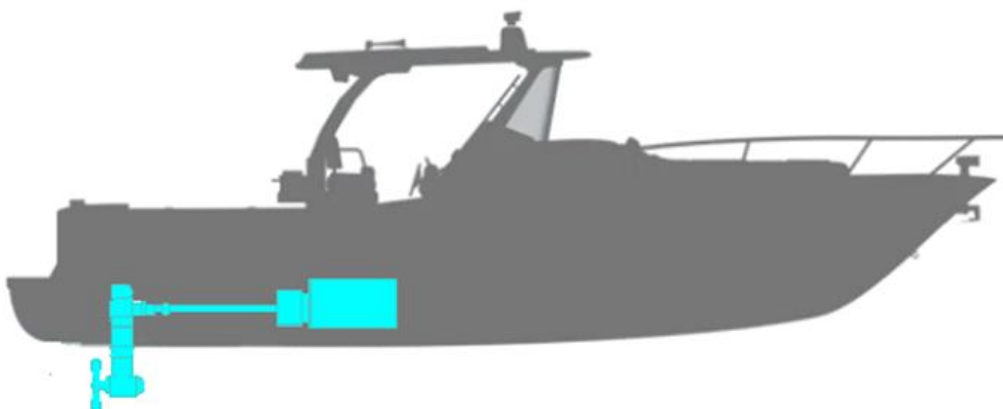
Inboards, as the name implies, are located inside the hull of the vessel. The drive shaft protrudes out of the bottom of the vessel on an angle to move the vessel through the water.



POD DRIVE

An engine mounted in front of the transom of a vessel and attached through the bottom of the hull to a steerable propulsion unit.

Pod drive engines are rare and have a drive unit that protrudes directly beneath the hull of the vessel, where the unit can be rotated to change the vessel's heading.



OTHER

Drive type does not fit any of the descriptions of the above types. "Other" should also be assigned to all vessels with a propulsion classification of sail, air thrust, manual, or other.

Key Terms



Bow – the forward most, or front, part of a vessel.

Hull - the shell, or outer casing, and internal structure below the main deck which provide both the flotation envelope and structural integrity of the vessel in its normal operations. In the case of a submersible vessel, the term includes all structural members of the pressure envelope. (46 CFR § 67.3)

Stern - the rearmost, or back, part of a vessel.

Transom - the flat, vertical surface at the rear of the vessel, providing support for the engine and other equipment.

Vessel - includes every description of watercraft or other contrivance used, or capable of being used, as a means of transportation on water. (33 CFR § 174.3) Also referred to as boat or watercraft.