

# BASIC OUTBOARD STANDARD

## Course Description

This is one of the entry level courses in the series of Sail Canada courses on powerboat operation. It develops the student's ability to take command of and operate a small powerboat with an outboard engine, by day, in light to moderate conditions. Basic boating skills are developed with a focus on operation of the vessel as skipper, and if applicable, as crew. The theory component of this standard is primarily covered in the PCOC syllabus with addition of some theory knowledge relevant to the practical sessions and is evaluated by achieving at least 70% on the Basic Outboard exam.

Terminology used in describing the boat and on water activities is taught and used throughout the course. Practical topics include simple maneuvering skills as well as departure from and return to dock. Required and recommended safety equipment is discussed as is the handling of emergencies that might be encountered while operating the vessel during the day. The basic rules for avoiding collision with other vessels are explained, and this information is applied during the practical sessions.

It is envisioned that the course will be taught in not less than 12 hours, of which at least 6 hours should be devoted to practical sessions on water.

## Objective

To be able to operate safely in familiar waters as skipper of a craft up to 6 metres and powered by an outboard engine under 55 kW (75 hp).

## Prerequisites

None.

## Ashore Knowledge

### Section I: Types of Boats

The candidate must be able to:

1. Describe the difference between:
  - a) Displacement hull and planing hull,

### Section II: Parts of the Boat and Terminology

The candidate must be able to:

2. Identify and describe the following parts of a boat:

Bow	Beam	Rudder
Breast lines	Fenders	Spring lines
Chine	Hatch	Ventilation System
Cleats	Gunwale	Deck
Hull	Keel	Transom
Freeboard	Engine well	Cabin
Bow line	Stern line	Fairlead
VHF Radio	Exhaust Outlet	Gear Shift Level
Skeg	Anti-cavitation Plate	
3. Define the following terms:

Aft	Making way	Ahead
Draft	No way	Astern
Port	Underway	Leeway
Starboard	Forward	Wash
Wake		

### **Section III: The Engine and the Propulsion Unit**

The candidate must be able to:

4. Identify the following parts used in the operation of an outboard, inboard/outboard, or inboard engine:
  - a) Common engine parts -

Engine cover	Gear shift lever	Choke
Starter	Throttle	Propeller
Exhaust outlet	Fuel line connectors	Fuel line
Fuel level gauge	Fuel tank	Cooling water intake
  - b) Outboard and inboard/outboard engine parts -

Tilt/trim buttons	Drive unit	Transom mount bolts
Anti-ventilation plate		
5. Name and describe the use of the following:
  - a) Fuel system: fuel tank, fuel line,
  - b) Ignition system: spark plugs, distributor, ignition wires and coil,
  - c) Cooling system: water pump, cooling water intake valve and discharge, thermostat control;
6. Describe the importance of selecting the correct propeller and the significance of pitch and diameter;
7. Describe how to check and maintain the following:

Spark plugs	Fuel tanks	Power controls and linkages
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8. Describe probable causes and troubleshooting for the following situations:
  - a) Engine will not start or is difficult to start,
  - b) Engine overheats,
  - c) Engine seems to be running well but then slows down and knocks,
  - d) Engine spits, coughs or slows,
  - e) Engine stops suddenly,
  - f) Engine is running well but boat is not moving well,
  - g) Excessive vibration;
9. List and describe the required steps to winterize an outboard
10. Describe the operational differences between 2-stroke and 4-stroke engines

### **Section IV: Safety**

The candidate must be able to:

11. List from memory:
  - a) Transport Canada (TC) required items for the an outboard less then 6m in length (*Safe Boating Guide*),
  - b) The rules for care of PFDs and life jackets,
  - c) The recommended method of testing for buoyancy in a PFD,
12. Describe the importance of the Transport Canada information plate attached to the hull of power boats;
13. Define what hypothermia is, including:
  - a) The signs and symptoms and the major areas of heat loss to the body,
  - b) Steps for prevention,
  - c) Treatment for mild and severe hypothermia,
  - d) The actions to be taken by one or more individuals in cold water to increase survival time;
14. Define what cold shock is, including:
  - a) The signs and symptoms,
  - b) Steps for prevention,
15. Define what Cold Incapacitation is, including:
  - a) The signs and symptoms,
  - b) Practical implications on self-recovery in the event of capsized;

14. Define what carbon monoxide poisoning is, including:
  - a) The signs and symptoms,
  - b) Steps for prevention,
  - c) Treatment for;
15. Describe the purpose for and use of an Engine Cutoff Switch;
16. Describe:
  - a) The common sources of fire and/or explosion on a powerboat and methods of prevention,
17. Describe as stated in the *Safe Boating Guide*:
  - a) Safe refueling procedures,
  - b) The use of each of the different types of flares, their proper storage, and the method and safety precautions in using them;
18. Explain the main responsibilities of the skipper and crew:  
Skipper
  - a) Safety of crew and boat,
  - b) Briefing on location and operation of lifesaving and other safety equipment prior to getting underway,
  - c) Assigning duties,
  - d) Instruction in the safe use of the boat's equipment while underway,
  - e) Obligations on observing an accident or vessel in distress,
  - f) Actions to demonstrate respect for other boaters and other's property;  
Crew
  - a) Obey skipper,
  - b) Assist skipper;
19. Describe:
  - a) The reasons for keeping gear and equipment stowed in assigned places on a vessel and the principles for proper stowage of extra gear and equipment,
  - b) The frequency of maintenance of a recreational boat and its equipment so that it is capable of functioning at all times,
  - c) The minimum items recommended for a waterproof emergency kit,
  - d) Use and maintenance of a marine head and holding tank system.

### ***Section V: Seamanship***

The candidate must be able to:

20. Describe one use of each for the following knots and hitches:
  - a) Figure Eight,
  - b) Reef Knot,
  - c) Double Sheet Bend,
  - d) Bowline,
  - e) Clove Hitch,
  - f) Round Turn & Two Half Hitches;
21. Describe the use of the following:

Boat hook	Painter	Shackles
Grapnel	Swivel	Towing Bridle;
22. Describe the danger of a lee shore;
23. Describe:
  - a) The features of a secure anchorage,
  - b) The holding characteristics of commonly used anchors,
  - c) Suitable rode makeup and handling,
  - d) Scope requirements when anchoring for lunch, overnight and in rough weather;
24. List some precautions that should be taken in preparation for heavy weather;
25. Describe the action to be taken in the following situations:
  - a) Springing a leak,
  - b) Steering fails,
  - c) Dragging anchor,
  - d) Collision with another boat,
  - e) Capsizing your boat,
  - f) Running aground,
  - g) Fouling the propeller,
  - h) Engine failure.
  - i) Engine failure.

- e) Fire,

### **Section VI: Weather**

The candidate must be able to:

26. List three sources of marine weather information;
27. Describe local weather hazards, the warning expected, and the identification of both the warning and the hazard. Provide suitable action to be taken to reduce or avoid their effects;
28. Interpret the marine weather forecast applicable to the area of operation and apply that information:
  - a) Determine whether it is safe to go boating,
  - b) Decide how forecast changes in the weather may influence the day's planned activities,
  - c) Identify the wind speeds associated with:

Light winds	Moderate winds	Strong winds
Strong wind warning	Gale warning	Storm warning

### **Section VII: Navigation**

The candidate must be able to:

29. Describe the importance of having a compass on board and list the precautions needed to ensure that the compass receives no undue magnetic influences;
30. Understand the use of a Canadian Hydrographic chart of the local area as follows:

#### **Describe:**

- a) A chart,
- b) Aids to Navigation,

#### **Read:**

- a) Depth of water,
  - b) Distance scale,
  - c) Buoys and their significance,
  - d) Types of bottom (sand, rock, mud and clay),
  - e) Under water/surface hazards: kelp, cable, rock, shoals, cribs, wrecks, currents,
  - f) Light symbols,
  - g) Beacons;
31. State the principles of operating a small boat around large ships;

### **Section VIII: Boating Regulations and Rules of the Road**

The candidate must be able to:

32. Describe the types of boating accidents which need to be reported and which authority is responsible;
33. Demonstrate knowledge of the Collisions Regulations:
  - a) Describe the application of and how to comply with rules 5 to 10,
  - b) Apply Collision Regulations Rules 13 to 21 by means of diagrams;
34. State the name, colour and angle of visibility of lights required by:
  - a) A vessel under power, under sail, under or giving a tow, and at anchor,
  - b) An unpowered vessel less than 6 meters;
35. List six internationally recognized distress signals as stated in the *Safe Boating Guide*;
36. Identify and describe the following:

Pleasure craft	Power driven vessel
Sailing vessel	Recommended gross load capacity
Compliance notice / Capacity plate	Recommended safe limit of engine power
37. Demonstrate knowledge of regulations applying to boaters:
  - a) Identify the required publications for operating a 6m pleasure vessel in familiar waters,
  - b) Describe the process and guidelines for licensing a vessel and how a license number must be marked on a vessel;
  - c) Identify the principal acts or legislation that a pleasure craft operator should be knowledgeable about, and the areas covered by each including:

<i>Canada Shipping Act (2001)</i>	<i>Small Vessel Regulations</i>	<i>Contraventions Act</i>
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*Vessel Operation Restriction Regulations  
Canada  
Collision Regulations  
Competency of Operators of Pleasure Craft Regulations;*

*The Criminal Code of*

38. Identify:

- a) Four considerations in determining the safe speed to operate a vessel,
- b) The actions and precautions to be taken in reduced visibility,
- c) Your responsibilities when operating in a commercial traffic lane,
- d) The proper courtesies for operating in restricted passages and in harbours,

39. Describe the installation, use, capabilities and limitations of a radar reflector.

***Section IX: Complementary Water Sport Guidelines***

The candidate must be able to:

40. Describe the correct techniques for the following:

- a) Driving while towing a water skier,
- b) Returning a towline to a fallen skier,
- c) Picking up a fallen skier,
- d) Observing the skier,
- e) Water and dock starts;

41. Describe the following water ski hand signals:

- a) Speed up or down,
- b) Speed OK,
- c) Head back,
- d) Turn,
- e) Stop,
- f) "I'm OK" after a fall;

42. Identify the diving signal flags and appropriate vessel operation when in sight of such flags.

***Afloat Skills***

***Section I: Preliminaries***

The candidate must be able to:

1. Demonstrate (on shore) the correct method of putting on a personal flotation device (PFD) while in the water;
2. Demonstrate the correct method of boarding a boat from a dock or a beach and storing equipment brought on board;
3. Demonstrate the correct method for starting an outboard engine while observing proper safety practices;
4. Demonstrate an alternate starting system for an outboard engine.

***Section II: Manoeuvring Under Power***

The candidate must be able to:

5. Manoeuvre an outboard powered boat from and to a side dock correctly under the following wind and current conditions:
  - a) Wind/current parallel to dock,
  - b) Wind/current away from dock,
  - c) Wind/current towards the dock;
6. Bring the boat to a mooring buoy and successfully retrieve the mooring lines;
7. Manoeuvre a boat under varying sea and wind conditions with the wind from the following points: Ahead, Astern, Abeam, Quarter;
8. Set anchor in water more than 3 meters deep so as not to drag when tested under power of half-throttle astern;
9. Weigh anchor and get boat ready and underway;
10. Demonstrate skipper's actions/commands from the time a member of the crew falls overboard without warning, until the crew is safely recovered. Consider the crew overboard wearing a PFD and able to assist them self. Include the following minimum actions:
  - a) Sound alarm,

- b) Deploy marker and buoyant object(s),
  - c) Appoint and maintain a lookout;
11. Demonstrate the basic principles of handling a boat under adverse weather conditions such as zigzagging while heading broadside to the waves and while heading into the waves.

### ***Section III: Making Fast and Snugging Down***

The candidate must be able to:

12. Secure the boat for a prolonged period of time preventing excessive motion and correctly placing fenders while broadside to a dock, in a slip with pilings and with flexible stern moorings;
13. Demonstrate a landing on a beach and bring the boat ashore;
14. Tie each of the following knots, bends and hitches within 30 seconds:
- a) Figure eight,
  - b) Reef knot,
  - c) Double sheet bend,
  - d) Bowline,
  - d) Clove hitch,
  - e) Round turn & two half hitches,
  - f) Belay a line to a cleat.

### ***Outcomes and Evaluation***

Candidates are expected to demonstrate the ability to safely operate the watercraft in daytime in moderate conditions as both skipper and crew. These capabilities will be evaluated as part of the practical sessions. Candidate theory knowledge will be evaluated by completion of the Basic Outboard theory exam. For certification a 70% mark on this written exam is required. On successful completion of the practical sessions and the theory exam students will be awarded the Sail Canada Basic Outboard Standard. On award of this certification, candidates may apply for a Pleasure Craft Operator Card without requirement for completing any additional examination.

### ***Additional Notes***

This course covers a variety of practical skill and theoretical knowledge. Students who have completed previous training (such as Sail Canada Introduction to Boating) or who have previous boating experience will find that experience beneficial to their experience in this course. Practical sessions are typically offered on small powerboats (up to 6 metres). The course is typically conducted with one or more students and the instructor on board.

### ***Physical Requirements for Candidates***

These training sessions will require short periods of moderate upper body exertion, and a moderate level of arm strength. Participants will have the opportunity to experience sun, wind, spray, rain, and temperatures consistent with the time of year they take part in this activity. When underway the vessel may exhibit irregular motion due to wind and waves and temperatures may be cooler than on land. Participants will be expected to learn and demonstrate skills and perform tasks while the vessel is at the dock, at anchor, and when the vessel is underway. Vessels will be underway for varying periods of time (up to 6 hours), during daylight, in light to moderate wind and sea conditions. These sessions are suitable for most fitness levels and will provide a good body core workout.

### ***Resource Material***

Sail Canada Basic Powerboating Skills by Donna Neff  
Sail Canada PCOC Manual