

# BASIC POWERBOAT STANDARD

## Standard Description

This is one of the entry level Standards in the series of Sail Canada Standards on powerboat operation. It develops the student's ability to take command of and operate (with assistance of competent crew) a powerboat, by day, in light to moderate conditions. Basic boating skills are developed with a focus on operation of the vessel as both crew and skipper.

Terminology used in describing the boat and on water activities is taught and used throughout a course leading to the Standard. 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 underway. The basic rules for avoiding collision with other vessels are explained and this information is applied during the practical sessions. The meaning of weather forecasts is clarified and the impact of weather on vessel operation, crew behavior, and on water activities is discussed. The curriculum includes an elementary introduction to the Canadian navigation system and to the basic use of charts and tide and current tables.

The program may be offered in either a day cruising or liveaboard format. It is envisioned that the day cruising format will be taught in not less than 17 hours of which at least 9 hours should be devoted to practical sessions on water. In a liveaboard format the course may be offered over a period of two days or more. A challenge of the standard may be accomplished in a minimum of 4 hours afloat plus completion of the written examination.

## Objective

To be able to operate safely in local waters as skipper of craft over 6 metres and powered by an engine over **55 kW (75 hp)**.

## Prerequisites

None.

PCOC Recommended

## Ashore Knowledge

### Section I: Types of Boats

The candidate must be able to:

1. Describe the difference between:
  - a) Displacement hull and planning hull,
  - b) Outboard, inboard/outboard, and inboard engines.

### 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
Breastlines	Fenders	Spring lines
Chine	Hatch	Ventilation System
Cleats	Gunwale	Deck
Hull	Keel	Transom
Head	Freeboard	Engine well
Stanchions	Bow line	Skeg
Lifelines	VHF Radio	Stern line
Cabin	Companion Way	

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	Fluid measuring sticks
Cooling water intake		
  - b) Outboard and inboard/outboard engine parts -
 

Tilt/trim buttons	Drive unit	Transom mount bolts
Antiventilation plate		
  - c) Inboard/outboard and inboard engine parts -
 

Engine bed	Propeller shaft	Cooling water intake
Seacock		
  - d) Inboard engine parts -
 

Rudder post	Cutlass bearing	
Rudder	Stuffing box	Flange coupling
5. Name and describe the use of the following:
  - a) Fuel system: fuel tank, fuel line, fuel filter,
  - 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:
 

Sea water strainer	Propeller shaft	Steering components
Spark plugs	Fluid levels	Alternator belt
Water pump belt	Electric starter and battery	Fuel tanks
Power controls and linkages		
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 knocks excessively,
  - f) Engine stops suddenly,
  - g) Engine is running well but boat is not moving well,
  - h) Excessive vibration;
9. List and describe the required steps to winterize an outboard, inboard/outboard, and inboard engine.

**Section IV: Safety**

The candidate must be able to:

10. List from memory:
  - a) Transport Canada (TC) required items for the candidate's boat (6 to 9m OR 9 to 12m) (*Safe Boating Guide*),
  - b) The rules for care of PFDs and life jackets,
  - c) The recommended method of testing for buoyancy in a PFD,
11. Describe the importance of the Transport Canada information plate attached to the hull of power boats;
12. 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;
13. Define what cold shock is including:
  - a) The signs and symptoms,
  - b) Steps for prevention,
  - c) Treatment for;

14. Define what carbon monoxide poisoning is including:
  - a) The signs and symptoms,
  - b) Steps for prevention,
  - c) Treatment for;
15. Describe the purpose of a safety harness in rough weather conditions and dangers of improper attachment to boat;
16. Describe:
  - a) The common sources of fire and/or explosion on a powerboat and methods of prevention,
  - b) The danger involved and the precautions to take when recharging batteries;
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. List the main responsibilities of the skipper and crew as listed below:

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
Grapple	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) Fire,
  - f) Capsizing your boat,
  - g) Running aground,
  - h) Fouling the propeller,
  - i) Engine failure.

### **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;
32. Use the Tide and Current Tables to find:
  - a) Times and heights of tides at reference ports,
  - b) Direction and rate of current at reference stations.

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

The candidate must be able to:

33. Describe the types of boating accidents which need to be reported and which authority is responsible;
34. Apply Collision Regulations Rules 13 to 21 by means of diagrams;
35. 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;
36. List six internationally recognized distress signals as stated in the *Safe Boating Guide*;
37. 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
38. Demonstrate knowledge of regulations applying to boaters:
  - a) Identify the minimum required publications for operating a 10 meter pleasure vessel in unfamiliar 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 / 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>
<i>Vessel Operation Restriction Regulations</i>	<i>The Criminal Code of Canada</i>	<i>Collision Regulations</i>
<i>Competency of Operators of Pleasure Craft Regulations;</i>		
39. 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,
40. Describe the installation, use, capabilities and limitations of a radar reflector.

**Section IX: Complementary Water Sport Guidelines**

The candidate must be able to:

41. 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;
42. 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;
43. Identify the diving signal flags and appropriate vessel operation when in sight of such flags.

### **Section X: Trailering a Boat**

The candidate must be able to:

44. List the main criteria for selecting a trailer;
45. Describe the importance of load distribution between the trailer and the vehicle's hitch;
46. Explain the fundamental skills needed to back a trailer attached to a vehicle;
47. List the main steps required when launching and retrieving a boat with a trailer;
48. Describe how and why to pack the wheel bearings on a trailer.

## **Afloat Skills**

### **Section XI: Preliminaries**

The candidate must be able to:

1. File a boating plan;
2. Demonstrate (on shore) the correct method of putting on a personal flotation device (PFD) while in the water;
3. **Carry out a crew briefing and check of the equipment required by Canadian regulations;**
4. Demonstrate the correct use of a heaving line;
5. Carry out a check of the vessel's gear and equipment in accordance with CYA Cruising Boat Checklist and demonstrate use and care of onboard equipment;
6. Coil a line and secure (sea coil);
7. Properly stow lines and fenders;
8. Demonstrate how to belay to a cleat (round turn, figure eight finish with a half hitch).

### **Section XII: Manoeuvring Under Power**

The candidate must be able to:

9. Plan and execute an undocking using correct commands and lines with varying wind and current conditions;
10. Manoeuvre 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;
11. Bring the boat to a mooring buoy and successfully retrieve the lines;
12. Manoeuvre a boat under varying sea and wind conditions with the wind from the following points:  
Ahead, Astern, Abeam, Quarter;
13. Come to a full stop with bow one half boat lengths away from a buoy using reverse. [The objective of this manoeuvre is to learn how much distance is required to bring a vessel to a full stop. Vessel is to be kept on a straight course while the manoeuvre is being carried out];
14. Manoeuvre a vessel under power to a position alongside and parallel to a dock, portside to and starboard side to, not more than two feet off without the aid of lines, without the stern passing a given mark at any time during the manoeuvre;
15. Anchor the boat in water more than 3 metres deep, so as not to drag the anchor when tested under engine power at moderate throttle astern;
16. Raise anchor with boat ready and get under way;
17. 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 him/herself.  
Include the following minimum actions:
  - a) Sound alarm,
  - b) Deploy marker and buoyant object(s),

- c) Appoint and maintain a look out,
  - d) Williamson or Anderson method of return,
  - e) Describe at least two methods of getting a person out of the water and back aboard.
18. 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;
19. Apply Rules 5 through 18 of the Collision Regulations as applied to a vessel under power.

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

The candidate must be able to:

20. Secure a vessel to a dock *using appropriate dock lines* to prevent excessive movement and set out fenders correctly;
21. Tie each of the following knots, bends and hitches within 30 seconds:
- a) Figure Eight,
  - b) Reef Knot,
  - c) Double Sheet Bend,
  - d) Bowline,
  - e) Clove Hitch,
  - f) Round Turn & Two Half Hitches.

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

Candidates are expected to demonstrate the ability to safely operate the vessel 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 using a closed book written exam. For certification a 70% mark on this written exam is required.

### ***Additional Notes***

This course covers an extensive suite of practical skill and theoretical knowledge. Students who have completed previous training (such as Sail Canada Basic Outboard or Sail Canada Introduction to Boating) or who have previous powerboat experience will find that experience beneficial to their experience in this course. Practical sessions are typically offered on powerboats in the 6-10 metre range. The course is typically conducted with 3 or 4 students and the instructor on board. Some schools or clubs may offer this standard on larger vessels and may offer training times in excess of 17 hours.

### ***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. In a day cruise format, vessels will be underway for varying periods of time (up to 8 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.

Participants taking courses in “live aboard cruise and learn” formats may also be subject to conditions normally associated with the Intermediate Powerboat standard.

### ***Resource Material***

Sail Canada Basic Powerboating Skills by Donna Neff  
PCOC Manual