Effective Date: September 06, 2024

INTERMEDIATE POWERBOAT STANDARD

Standard Description

This live-aboard Standard follows the Basic Powerboat Standard in the Sail Canada Powerboat and Cruising training system. Students will participate in operation of the vessel as crew and as skipper while making daytime passages. The ability to act as skipper and crew in operation of a power vessel by day in unfamiliar waters will be developed, while building the skills and experience needed for live-aboard cruises and bareboat charter.

Students will have the opportunity to practice and develop skills maneuvering the vessel under power for mooring pickup, and accomplishing various anchoring strategies and enhanced docking and dock departure techniques and procedures. Opportunities to practice the navigation skills taught in in a course leading to the Basic Coastal Navigation Standard including pilotage and passage planning, non-electronic position determination methods, and basic use of satellite positioning systems will help to strengthen this knowledge and skillset. Practical knowledge of the use and management of vessel systems will be taught through use of these systems on board while cruising. Candidates should be provided an opportunity to develop manoeuvring skills on dual engine vessels.

A course leading to this Standard builds on the skills developed in courses leading to the Sail Canada Basic Powerboat Standard and Basic Coastal Navigation Standard. Candidates are expected to be able to competently demonstrate the skills developed in those courses.

It is envisioned that the program will be taught in a minimum four days in a live-aboard format. A challenge of the standard may be accomplished through a 24 hour live-aboard skill evaluation and completion of the Intermediate Power examination.

Objective

To be able to operate safely as both skipper and crew of a powerboat between 9 to 15 metres with inboard engine(s) by day in moderate wind and sea conditions. The Standard emphasizes on-the-water skills at a level acceptable for extended cruises in coastal and inland waters and for bareboat chartering

PREREQUISITES

Requirements prior to taking the standard:

- Sail Canada Basic Powerboat Standard,
- ROC(M): VHF with DSC endorsement,
- Pleasure Craft Operator's Card,
- Sail Canada Basic Coastal Navigation Standard or Coastal Navigation Standard.

Recommended prior to taking the standard:

- Recognized standard first aid and CPR certificate,
- Sail Canada Intermediate Coastal Navigation Standard.

Note: To maximize the likelihood of successfully completing the Intermediate Powerboat Standard, a student should:

a) Have experience as skipper of at least ten day cruises (or equivalent),
b) Be able to consistently use the knowledge and demonstrate the skills learned in the Basic Powerboat Standard and the Basic Coastal Navigation Standard.

Ashore Knowledge

Section I: Planning

The candidate must be able to:

1. State the fuel tank capacity and range of the candidate's boat and list what factors could affect the range of the boat under power;
2. State the water capacity of the selected boat and the minimum and typical daily water requirements of a person and methods of conserving water;
3. State the causes, prevention and cures for seasickness as well as the impact seasickness has on the effectiveness of the crew;
4. List the appropriate personal clothing and safety gear for cruising and describe how its choice is related to safety and comfort;
5. Discuss menu planning and relate it to suitability for the day's activities;

6. Describe provisioning requirements and the factors to consider in stocking the vessel;
7. List the minimum contents of a first aid kit for a one week cruise in coastal or inland waters;
8. Know the spare engine parts one might deem prudent for a one-week cruise in coastal or inland waters;
9. Know the minimum set of tools required for a one week cruise in local waters;
10. Describe the general procedures to be followed and the documents required for entering a country after leaving another country, and the current procedures for marine travel between Canada and the USA.

Section II: Living Afloat & Boat Systems

The candidate must be able to:

11. Discuss galley procedures in order to minimize the danger of fire, scalding or other galley accidents;
12. Describe the common cooking systems (stoves and fuels) with respect to safe procedures for the operation of appliances, including safety checks, igniting appliances and system shut down, convenience, speed of cooking and costs;
13. Discuss the common types of cabin heaters with respect to safety, convenience and cost;
14. Describe the principle elements of the 120V and 12V vessel systems, their use, and considerations for proper battery management;
15. Describe refrigeration system types and state two ways to conserve power when a vessel is equipped with an electric refrigeration system;
16. Describe water distribution systems with multiple tanks and various styles of pumps;
17. Describe the proper operating procedures for the head and holding tank, list the precautions necessary to prevent malfunction and identify issues relating to holding tank capacity;
18. Identify boating environmental issues, with particular reference to responsible disposal of waste and management of pollutants;
19. Describe the safe operation of an anchor windlass including appropriate vessel handling while using this equipment.

Section III: The Inboard Engine

The candidate must be able to:

20. Identify the following parts used in the normal operation of an inboard engine:

Engine cover	Fuel line	Fuel level gauge
Gear shift lever	Fuel tank	Choke
Starter	Engine bed	Throttle
Propeller shaft	Rudder post	Rudder
Exhaust	Stuffing box	Flange coupling
Cutlass bearing	Skeg	

21. Name and describe the use of the following systems/components of gasoline and diesel powered inboard engines:
    a) Fuel system: fuel tank, fuel line, fuel filter, fuel-water separator**,** carburetor, fuel pump, injectors,
    b) Ignition system: spark plugs, distributor, ignition wires and coil,
    c) Cooling system: water pump, cooling water intake valve and discharge, thermostat control,
    d) Lubrication: oil fill, dipstick, oil filter,
    e) Propulsion: Shaft, transmission, stiffing box;
22. Describe the importance of selecting the correct propeller and the significance of pitch and diameter;
23. Describe how to check and maintain the following:

Carburetor	Stuffing box
Sea water strainer	Propeller shaft
Steering components	Spark plugs
Fluid levels	Alternator belt
Water pump belt	Electric starter and battery
Power controls and linkages	Fuel tanks

24. 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,
i) Engine cooling water fails to flow;

25. List and describe the required steps to winterize both inboard diesel and gasoline engines.

Section IV: Weather

The candidate must be able to:

26. Describe the effect of local heating and cooling of land and water as related to wind and cloud formation;
27. Identify conditions likely to lead to the formation of fog;
28. Describe the effects of wind against current.

Section V: Seamanship

The candidate must be able to:

29. Describe the complete actions to be taken in the following situations:
    a) Springing a leak,
    b) Steering fails,
    c) Grounding,
    d) Fouling the propeller,
    e) Dragging anchor,
    f) Collision with another vessel,
    g) Fire,
    h) Propane leak,
    i) Engine failure in an anchorage or busy channel;
    j) Engine cooling water fails to flow
30. Describe in detail two methods of getting a crew overboard back aboard;
31. Describe three methods of recovering fouled anchors;
32. Describe options for stowing and securing a dinghy when snugging down for the night;
33. Describe handling considerations (including stowage, launching/retrieving and towing) and differences between an inflatable dinghy, a rigid inflatable boat (RIB) and a rigid dinghy;
34. Describe precautions for safe handling of an outboard motor for the tender and actions to take in the event of accidental submersion;
35. Describe the methods of rafting at anchor or when docked and the dangers involved;
36. State the factors to be considered before allowing anyone to go swimming while the boat is at anchor;
37. Describe the information required and the procedures to be followed when tying a boat to a fixed dock in local tidal conditions;
38. Describe how to secure the boat with an anchor on the bow or stern and the opposite end made fast to a dock or shore;
39. Describe a seamanlike method of preparing a boat in order that it may be left at the dock or on a mooring for a period of a week or more without crew;
40. Describe the responsibilities of skipper and crew for the following courtesies, customs and legal obligations:
    a) Permission to board,
    b) Permission and entitlement to come alongside,
    c) Courtesy in crossing adjacent boats when rafted,
    d) Rights of first boat at an anchorage,
    e) Keeping clear of sailboats racing,
    f) Flag etiquette:
        (i) National Flag,
        (ii) Courtesy flag,
        (iii) Burgee / house flag,
    g) Offering assistance to other yachts in trouble,
    h) Operating in restricted passages and in harbours,
    i) Alcohol consumption;
41. Describe the characteristics, limitations and uses of the following rope:
    a) Polypropylene,
    b) Dacron,
    c) Nylon,
    d) High modulus fibres.

Section VII: Navigation & Passage Planning

The candidate must be able to:

42. Convert directions between true, magnetic and compass, using the compass rose on a current chart;
43. Determine speed, time and distance when two are known;
44. Determine estimated time of arrival (ETA) and revised ETA;
45. Identify sources of navigation information and use this information in route planning.

Afloat Skills

Section VIII: Preliminaries

The candidate must be able to:

1. File a boating plan;
2. Obtain and interpret the Marine forecast;
3. Check stowage and condition of all mandated and recommended equipment aboard the vessel;
4. Perform routine daily and weekly maintenance procedures on engine;
5. Demonstrate the correct starting procedure for an inboard engine while observing commonly accepted safety practices;
6. With specific reference to the vessels engine(s);
   a) Identify and describe the function of the following engine systems:
      (i) Ignition and Electrical,
      (ii) Fuel,
      (iii) Propulsion,
      (iv) Cooling,
      (v) Lubrication;
   b) Describe the basic engine troubleshooting procedures to follow when:
      (i) The engine cooling water fails to flow,
      (ii) The engine fails to turn over sufficiently when starting,
      (iii) The engine overheats;
   c) Describe the dangers of excessive engine cranking;
7. With specific reference to the candidate's boat, identify and describe the functions of all through-hulls, sea cocks, bilge pumps and related plumbing components;
8. Check out that all systems on boat are in working order: power plant, galley, head, electronics, hull, deck hardware etc.

Section IX: Under Way

The candidate must be able to:

9. Depart and arrive at a side dock with use of a spring line to simulate limited manoeuvring room;
10. Manoeuvre an inboard boat from and to a side dock using correct techniques, under one or more of the following wind and current conditions:
    a) The wind and/or current moving parallel to the dock,
    b) The wind and/or current moving toward the dock,
    c) The wind and/or current moving away from the dock;
11. Dock with stern or bow to dock or shore using a bow or stern anchor;
12. Bring the boat to a mooring buoy and successfully secure the boat;
13. Manoeuvre the boat under power in minimum space;
14. Manoeuvre a boat at various speeds under varying sea and wind conditions with the wind from the following points: Ahead, Astern, Abeam, Quarter;
15. Anchor the boat in water over 3 metres deep so that the anchor will not drag when the boat is driven in reverse for one minute;
16. Weigh anchor and get the boat underway using commonly accepted practices;
17. Demonstrate suitable methods and precautions while towing a dinghy;
18. Demonstrate the correct actions as skipper to return to a crew overboard within three minutes. These actions include the proper manoeuvring of the boat and the correct command of crew members. Describe how available equipment might be used to bring the person on board.
19. Demonstrate the stopping ability of an inboard boat by bringing the boat to a full stop from normal operating speed using reverse to stop within a half boat length of a marker while maintaining a straight course;
20. Apply Rules 1 through 19, 40 and 45 of the *Collision Regulations*;
21. Prepare a suitable hot meal aboard the vessel while in harbour, demonstrating suitable choice of food and drink and economy of resources;
22. Secure the boat to a dock so as to prevent excessive movement and set out fenders correctly, demonstrating how to secure a vessel for the night using appropriate dock lines.

Section X: Navigation

The candidate must be able to:

23. Read a chart and identify corresponding landmarks and aids to navigation;
24. Demonstrate how to take soundings using electronic and manual methods;
25. Determine the depth above or below chart datum and apply;

26. Lay off a course and determine compass heading and Estimated Time of Arrival (ETA) (assuming no current or leeway);
27. Plot and determine your position using deduced reckoning (DR) methodology;
28. Plot a fix using bearings taken on objects visible at the same time;
29. Pilot a vessel into an unfamiliar harbour or anchorage by day using charts and publications and application of pilotage and passage planning techniques.

Section XI: Seamanship

The candidate must be able to:

30. Throw a heaving line to a target a distance of ten meters away, coming within two meters in three times out of five attempts;
31. Demonstrate use of the VHF marine radio, including specific operation aboard the candidate's vessel;
32. Tie a rolling hitch;
33. Act as skipper and as responsible crew on a live-aboard cruise of at least 48 hours.

Endorsements

Marlinspike Seamanship

1. Whip a line;
2. Make an eye splice in laid line;
3. Tie an alpine butterfly hitch and demonstrate its use in providing 2:1 leverage in order to secure items on a vessel.

Outcomes and Evaluation

Candidates command capability and vessel handling skills will be coached and evaluated throughout the training session. In addition to successful completion of the practical course candidates will be required to complete a closed book written exam that covers theoretical knowledge relevant to this standard. In order to complete certification a mark of 70% is required on the examination. On successful completion of the practical sessions, the theory exam and prerequisites, students will be awarded the Sail Canada Intermediate Powerboat Standard.

Additional Notes

This standard offers candidates the opportunity to develop daytime passage making, vessel management and powerboat skills in a relaxed practical environment.

Physical Requirements for Candidates

Courses leading to this Standard are offered as live-aboard training programs. 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 to 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, primarily during daylight hours in light to strong wind and sea conditions. These training sessions will require short periods of moderate upper body exertion, as well as a moderate level of arm strength and core body fitness for handling lines and operating equipment. A good sense of balance and some agility will also be an asset. The successful candidate will show the ability to steer a straight course, respond early and appropriately to hazards, and stay present moment by moment when at the helm. Some balance and agility will also be an asset.

Resource Materials

Sail Canada *Intermediate Power Student Notes*