

## SPARK Start Boating Manual Addendum

The CYA Spark Start Boating Manual together with this accompanying addendum have been approved by Transport Canada strictly on the basis that they meet the minimum requirements of basic boating safety knowledge set out in Transport Canada's Boating Safety Course and test Syllabus (TP145932E)



## Addendum to the CYA SPARK START Boating Manual

This document is provided as an addendum to the CYA SPARK Start Boating Manual. The information content in this addendum reflects changes to regulations since the text was originally written, among which are changes to the Canada Shipping Act 2001, and the Small Vessel Regulations. The addendum also presents and clarifies the information needed to address the 256 knowledge statements that now reflect the content / knowledge definition to be presented to students in order to prepare them to write the Transport Canada exams for the issuance of the Pleasure Craft Operator Card.

References in the original document should be read as referring to current legislation and service providers. Specific legislation and service provider changes are as follows:

- Canada Shipping Act  
replaced by Canada Shipping Act 2001
- Boating Restriction Regulations  
replaced by Vessel Operation Restriction Regulations
- Canada Customs services  
now provided by Services Canada

Where there is a conflict between the 2008 version of the published text and this document, the information in this document should be taken as correct.

### Common Causes of On Water Incidents or Fatalities

When operating a pleasure craft, the key risk to those in the vessel is death by drowning. According to the Red Cross, in 2002, recreational boating was the primary activity leading to drowning (29% of victims, or 159 of 458). Risk factors reported for recreational boating drowning included environmental factors such as cold water, currents, strong winds, rough water as well as high risk behaviors such as making an abrupt turn and standing up in the boat. Alcohol consumption, poor swimming ability and failure to wear a flotation device were also significant contributing factors. Statistics appear to show that wearing a flotation device (PFD or lifejacket) significantly improves chances of survival when one is forced to enter water. Only 15% of those who drowned were correctly wearing some sort of flotation device.

In Canada, for much of the year, water is dangerously cold. Prolonged exposure to cold, even just a little cooler than the body, will lead to hypothermia. A severely hypothermic individual in the water will be unable to continue swimming, to grasp a line or climb a ladder, or to keep their mouth and nasal passages clear in order to continue breathing.

On entering cold water, a person experiences rapid release of adrenalin, elevated heart rate and involuntary rapid breathing. It is impossible to hold one's breath for more than a few seconds, and the head must be kept above water in order to survive this initial physiological reaction. Even strong swimmers that survive this initial cold shock may suffer swimming failure within the first 30 minutes, and in heavy seas, will lose the ability to face away from the waves and keep mouth and nasal passages clear. Clearly there are benefits to wearing a PFD or lifejackets.

Many individuals that were immersed in cold water suffer decline and failure after rescue due to aftershock. It should be of importance to all pleasure craft users to develop habits that reduce the likelihood of entering the water through capsizing, collision, sinking, grounding, swamping or simply falling overboard. Use of alcohol or illicit drugs while operating a vessel is not only illegal but also unwise as it will increase the likelihood of an event of this type.

### Terminology

The term "freeboard" means the minimum vertical distance at the side of the vessel between the gunwale (the top edge of the side of a boat) and the design waterline (for a pleasure craft, the waterline at the recommended maximum gross load capacity).

The term "manual propelling device" means a set of oars, a paddle or any other apparatus that can be used manually by a person to propel a vessel.

The term "operate" means the actions to control the speed and course of a pleasure craft.



The term “restricted visibility” means any condition in which visibility is restricted by fog, mist, falling snow, heavy rainstorms, sandstorms or any other similar causes. In restricted visibility conditions vessel operators are required to reduce speed to that deemed safe, to take actions to make the vessel more visible, and to focus additional attention on detecting other nearby vessels.

The term “vessel not under command” means a vessel which through some exceptional circumstance is unable to maneuver as required by the Collision Regulations and is therefore unable to keep out of the way of another vessel.

### **Vessel Operation Restriction Regulations**

The Vessel Operation Restriction Regulations limit the vessel types and vessel usage in a number of areas in Canada and regulate the buoyage and enforcement officers that defines restrictions. Operators are responsible for being familiar with the waterways in which they operate and any regulations that may apply.

These regulations limit vessel speeds to a maximum of 10 kilometres per hour within 30 metres of shore in the provinces of Ontario, Manitoba, Alberta and Saskatchewan; in the rivers and lakes in British Columbia and in the rivers and some of the lakes in Nova Scotia. Other restrictions may prohibit the operation of power driven vessels, limit the types of water sport activities (such as towing skiers or wakeboards), restrict anchoring or define keep out areas.

These regulations also limit the power and vessel types that may be operated by those under 16 years of age as shown in the following table.

<b>Age</b>	<b>Horsepower Restrictions</b>
Under 12 years of age with no direct supervision	May operate boat with up to 10 hp (7.5 kw)
Ages 12 to 16 with no direct supervision	May operate boat with up to 40 hp (30 kw)
Under 16 years of age, regardless of supervision	May not operate a Personal Water Craft
16 year of age or older	No horsepower restrictions

### **Requirement to Carry Proof of Competency**

Key objectives of the Competency of Operators of Pleasure Craft Regulations are to increase boaters knowledge of safe practices while operating a pleasure craft, to generate an understanding of the risks inherent in the such operation, and to help operators understand the applicable regulations.

Subject to the Competency of Operators of Pleasure Craft Regulations, any person operating a pleasure craft fitted with a motor for recreational purposes in Canadian waters, other than the waters of the Northwest Territories and Nunavut must carry with them proof of competency. The regulations do not apply to the operation of seaplanes. Proof of competency may be in the form of a Pleasure Craft Operator Card (the original must be carried on board) or a Boating Safety Course Completion Card or other written proof that the person successfully completed a boating safety course in Canada before April 1, 1999. A number of additional certificates of competency, training certificates, and other equivalencies are accepted as proof of competency when operating a pleasure craft. Refer to the Office of Boating Safety website or contact the Boating Safety Info Line (1-800-267-6687) to obtain a list of accepted equivalencies. A person who is not a resident of Canada who does not hold such proof of competency will be deemed competent to operate a pleasure craft if the person has been issued a certificate or other similar document by the person’s state or country of residence attesting that the person has acquired the boating safety knowledge required by the state or country.

Individuals operating a vessel under the supervision of an instructor as part of an accredited course and individuals that are not a resident of Canada and whose pleasure craft is in Canada for less than 45 consecutive days are exempted from this requirement.

A person who makes a pleasure craft available for rent must include, in a rental boat safety checklist, a statement that they have given to the persons who will operate the pleasure craft information pertaining to the operation of the pleasure craft, the principal boating safety rules; and the geographic features and hazards to navigation in the area in



which the pleasure craft will be operated. This check list must be signed by the person who makes the pleasure craft available for rent and by the person who will operate the pleasure craft and must be kept available on the rented vessel.

### **Noise and Mufflers**

The Small Vessel Regulations stipulate that all vessels must be equipped with mufflers, and that any muffler cut-off or by-pass be visibly disconnected in such a way that re-connection cannot be easily accomplished during vessel operation. Exemptions to this rule are offered for some vessels including those with underwater exhaust, those engaged in competition and those operated more than 5 miles from shore.

### **Vessel Licence and Registration**

Proof of vessel licence or vessel registration must be carried on board when the vessel is being operated. Vessel registration is available to pleasure craft of all sizes. Vessel licencing services are provided through Services Canada. Once a licencing application has been submitted, the vessel may be operated for up to 90 days so long as an acknowledged copy of the application is carried on board. On issue, the licence assigns the vessel a unique alphanumeric identifier which is displayed on both sides of the bow in letters 7.5 cm. high, in a visible colour contrasting with the colour of the hull. The information on the vessel licence must be up to date. After ownership transfer, the new owner must immediately apply for a vessel licence. When vessel owners move or change their name, they must notify the ministry within 90 days. Pleasure craft licences are valid for a period of 10 years beginning on the day on which they are issued, the day on which they are transferred, the day on which they are renewed or the day on which the owner informs the Minister of a change in name or address.

### **Hull Identification Number (HIN) or Hull Serial Number**

The HIN uniquely identifies a vessel and is used by police in identification and recovery of stolen vessels. The Identification number is composed of a three-digit Manufacturer's Identification Code, a five character Manufacturer's Hull Serial Number; and four figures giving the date of manufacture. Regulations and vessel construction standards require that an identification number be permanently affixed to the vessel somewhere aft and on the outboard starboard side of the transom (the actual location will vary with vessel characteristics). A duplicate number is required to be affixed in an unexposed location on the interior of the boat or beneath a fitting or item of hardware.

### **Enforcement Officers**

Designated enforcement officers include the RCMP, provincial local and harbour police, as well as any individual authorized by the minister and issued proof of such authorization. An enforcement officer may inspect a pleasure craft or any of its machinery or equipment for the purpose of ensuring compliance with provisions of the Shipping Act and related acts and regulations.

### **Minimum Safety Equipment Requirements for Pleasure Craft**

The Small Vessel Regulations, specify the minimum equipment carriage requirements by vessel length, vessel type and intended vessel use. The following table and accompanying text are based on the current version of the regulations that specify the carriage requirements for Pleasure Craft. The requirement to carry radar reflectors included in the Canadian regulations for the prevention of Collision at Sea are also noted in the table. egulations

The following table and accompanying text are based on this October 2010 version of the regulations. Exceptions and explanations are included in the numbered items on the page following the table, and in listed exceptions on the two following pages.

Pleasure Craft vessel type identifiers shown in row 1 of the following table are as follows:

- 1 : Human Powered Craft
- 2 : Sail and Power not more than 6 metres
- 3 : Sail and Power over 6 metres and not more than 9 metres
- 4 : Sail and Power over 9 metres and not more than 12 metres
- 5 : Sail and Power over 12 metres and less than 24 metres
- 6 : Sail and Power 24 metres or more



	Vessel Type identifiers	1	2	3	4	5	6
1	PFD or Lifejacket for each (note 2)	•	•	•	•	•	•
2	One Re-boarding Device (note 3)	•	•	•	•	•	•
3	Buoyant Heaving Line - 15 m	•	•		•	•	
4	Lifebuoy with 15 m buoyant line			•	•		
5	Lifebuoy with 30 m buoyant line						•
6	Lifebuoy with either 15 m buoyant line or self igniting light					•	
7	2 SOLAS (762mm) Lifebuoys one with 30 m buoyant line, one with self igniting light						•
8	Lifting Harness with Rigging						•
9	One Bailer (note 7)	•		•			
10	Manual Bilge Pump (note 7)	•			•		
11	Bilge pumping arrangements	•			•	•	•
12	One Watertight Flashlight (Note 9)	•	•	•	•	•	•
13	3 Flares Rocket, Star, Hand (note 6)						
14	6 Flares Rocket, Star, Hand (note 6, 9)	•		•			
15	12 Flares Rocket, Star, Hand, Smoke (note 6, 8)				•	•	•
16	Sound Signal Device	•	•	•	•		
17	Sound Signal Appliance as per COLREGs					•	•
18	Navigation Lights if operating at night or in restricted visibility	•	•	•			
19	Navigation Lights as per COLREGs				•	•	•
20	One Magnetic Compass (note 4)	•	•	•	•		
21	One Magnetic Compass (Nav Safety Regs)					•	•
22	One Radar Reflector as per COLREGs (note 5)		•	•	•	•	•
23	5BC Fire Extinguisher if inboard motor or fixed fuel tank or fuel burning appliance		•				
24	5BC Fire Extinguisher if vessel power-driven			•			
25	5BC Fire Extinguisher if fuel burning appliance			•			
26	10BC Fire Extinguisher if vessel power-driven				•		
27	10BC Fire Extinguisher if fuel burning appliance				•		
28	10BC Fire Extinguisher at entry to each machinery space, accommodation cabin, fuel burning appliance space					•	•
29	Powered fire pump, outside machinery space, able to direct water everywhere						•
30	Axe (required number shown)					1	2
31	Buckets minimum size 10 litres (required number shown)					2	4
32	Manual Propelling Device		•	•			
33	Anchor with 15 m rode				•		
34	Anchor with 30 m rode						
35	Anchor with 50 m rode					•	•

Notes on required equipment as determined by vessel type and length

1. In the table, subject to the notes below, presence of a dot indicates the item is required. Adjacent merged rows for a specified vessel type with one dot shown, indicates that any one of the items is required.
2. An approved and properly sized lifejacket or PFD (item 1) is required for each person on board. Foreign nationals may use their own nationally approved flotation device or life jacket. Inflatable PFDs must be worn at all times when in an open boat or when on deck (for vessels with cabins). Inflatable PFDs are not approved for anyone under 16 years of age, anyone weighing less than 80 pounds (36.3 kg), for use on personal watercraft or while engaged in white water paddling activities.
3. The re-boarding device (item 2) is only required if the vertical height that must be climbed to re-board the vessel is more than 0.5 metres. A propulsion unit cannot be part of any re-boarding arrangement.
4. The Magnetic compass (item 20) is not required if the boat is less than 8 metres and operated within sight of navigation marks.
5. For vessels under 20 metres, a radar reflector (item 22) is not required if the small size of the vessel or its operation away from radar navigation makes having a reflector impracticable, or if the boat operates in limited traffic and environmental conditions where the reflector is not essential to the vessel safety.
6. Flares are not required for a vessel operating on a river, canal or lake that can never be more than 1 nautical mile from shore, or, for a vessel with no sleeping quarters that is engaged in or preparing for an official competition.



- 7 A bailer or manual bilge pump is not required for a boat that cannot hold enough water to make it capsize or a boat that has sealed and not readily accessible water tight compartments.
8. No more than 6 smoke flares may be carried.
9. For Human Powered Pleasure Craft, watertight flashlight and flares are not required for vessels not more than 6 metres in length.

#### **Carriage Requirement Exceptions for Human Powered Pleasure Craft**

For *paddleboats, watercycles, and sealed-hull, sit-on-top kayaks*, if everyone on board is wearing an appropriate size life jacket or PFD, safety equipment requirements are reduced to a sound signalling device, and if the vessel is operated after sunset and before sunrise or in restricted visibility, a watertight flashlight.

For *racing canoes or racing kayaks* engaged in formal training, in an official competition or preparing for an official competition governed by safety guidelines and procedures established by a governing body, the safety equipment requirements are waived, so long as the racing canoes or racing kayaks are accompanied by a safety craft carrying an appropriate PFD or lifejacket for each of the maximum number of persons on board a single racing canoe or racing kayak. If the canoe or kayak is not attended by a safety craft, then safety equipment requirements are reduced to an appropriate size life jacket or PFD for each person on board, a sound signalling device, and if the vessel is operated after sunset and before sunrise or in restricted visibility, a watertight flashlight.

A *rowing shell* engaged in competing at a provincially, nationally or internationally sanctioned regatta or competition or training at the venue at which the competition is taking place is not required to carry the equipment specified for human powered craft. For a rowing shell engaged in activities governed by safety guidelines and procedures established by the governing body, the safety equipment requirements are waived, so long as the rowing shell is accompanied by a safety craft carrying an appropriate PFD or lifejacket for each of the maximum number of persons on board a single rowing shell. If the rowing shell is not attended by a safety craft, then equipment requirements are reduced to an appropriate size life jacket or PFD for each person on board, a sound signalling device, and if the vessel is operated after sunset and before sunrise or in restricted visibility, a watertight flashlight.

#### **Carriage Requirement Exceptions for Pleasure Craft other than Human Powered Craft**

For *personal watercraft*, if everyone on board is wearing an appropriate size life jacket or PFD, safety equipment requirements are reduced to:

- a sound signalling device;
- a watertight flashlight or 3 flares other than smoke signals;
- a magnetic compass if operated outside of sight of seamarks;
- navigations lights as per the Collision Regulations if the vessel is operated after sunset and before sunrise or in restricted visibility.

For *sailboards or kiteboards*, if the operator is wearing an appropriate size life jacket or PFD, safety equipment requirements are reduced to:

- a sound signalling device;
- a watertight flashlight if the vessel is operated after sunset and before sunrise or in restricted visibility.

For *Sailboards or kiteboards* engaged in official competition, equipment requirements are waived when an appropriate size life jacket or PFD is worn.

#### **Requirement to provide aid to persons at sea**

The Canada Shipping Act 2001 requires that the master of a vessel in Canadian waters and every qualified person who is the master of a vessel in any waters shall render assistance to every person who is found at sea and in danger of being lost. In rendering such assistance you are not required to put your vessel or crew in grave danger.

Under the criminal code of Canada if you are involved in an accident you are required to stop and render assistance.

#### **Operating in Narrow Channels**

A vessel proceeding along the course of a narrow channel or fairway shall keep as near to the outer limit of the channel or fairway which lies on her starboard side as is safe and practicable. A vessel of less than 20 metres in length or a sailing vessel shall not impede the passage of a vessel which can safely navigate only within a narrow channel or fairway. Do not impede the progress of large vessels in narrow channels and whenever possible avoid anchoring

**Recognition of navigation lights**

In addition to the masthead light, port and starboard sidelights, the stern light and allround lights, the following lights may also be seen on vessels.

“Towing light” means a yellow light on the stern of a towing vessel (usually above the stern light) that covers the same arc as the stern light.

“Flashing light” means a light flashing at a rate of 50 to 70 flashes per minute. An all round yellow flashing light would be shown on a hovercraft - an air cushion vehicle operating in non-displacement mode.

“Blue flashing light” means a blue allround light flashing at regular intervals at a frequency of 50 to 70 flashes per minute. This light is shown on vessels on official business, such as police boats, Coast Guard vessels, or Coast Guard auxiliary vessels participating in search and rescue.

“Special flashing light” means a yellow light flashing at regular intervals at a frequency of 50 to 70 flashes per minute, placed far forward on or near the vessel centre line and showing a light in an arc of 180° to 225° from right ahead to abeam and not more than 22.5 degrees abaft the beam on either side of the vessel. This light would be exhibited by a vessel being pushed ahead in the great lakes. Tugs pushing in this type scenario have extremely limited visibility and vessel operators should approach such a vessel with caution.

**Use of Sound Signals**

Sound signals may be used to signal distress or to communicate your intentions when manoeuvring within sight of other vessels and must be used in periods of reduced visibility to alert nearby vessels to your presence. Using a whistle, horn or other signalling device, a long (prolonged) signal is 4-6 seconds in duration, a short is 1 second in duration.

Continuous sounding with any fog-signaling apparatus is a signal of distress. If it is necessary to attract the attention of another vessel any vessel may make light or sound signals that cannot be mistaken for any signal identified in the tables below..

The following three tables describe signals as defined in the collision regulations.

<b>Signals in Reduced Visibility</b>		
<b>Vessel Type</b>	<b>Signal</b>	<b>Repeat Period</b>
Power, Underway, Making Way	1 long	not exceeding 2 minutes
Power, Underway, Not Making Way	2 long	not exceeding 2 minutes
Not Under Command, Sail, Restricted in Ability to Maneuver, Constrained by Draft, Fishing, Towing or Pushing	1 long 2 short	not exceeding 2 minutes
Last vessel of Manned Tow	1 long 3 short	not exceeding 2 minutes
At Anchor	rapidly ring bell 5 seconds	not exceeding 1 minute
At Anchor > 100 m	rapidly ring bell 5 seconds, gong 5 seconds	not exceeding 1 minute
Aground	same as at anchor (above), surround with 3 short bell	not exceeding 1 minute
Aground	1 short 1 long 1 short	not exceeding 2 minutes
Pilot vessel	4 short	not exceeding 2 minutes
Option for vessels less than 20 metres	some efficient sound signal	not exceeding 2 minutes

<b>Manoeuvring Signals - International</b>	
<b>Vessel Action</b>	<b>Signal</b>
I am altering course to starboard	1 short
I am altering course to port	2 short
I am operating astern propulsion	3 short
I intend to overtake you on your starboard side	2 long 1 short
I intend to overtake you on your port side	2 long 2 short
Agreement in response to overtaking signal	1 long 1 short 1 long 1 short
Disagreement in response to overtaking signal or failure to understand other vessel intentions	5 or more short
Nearing a bend or obstruction the obscures visibility	1 long
Response to signal heard when nearing a bend or	1 long





obstruction the obscures visibility	
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<b>Manoeuvring Signals - Great Lakes Canadian Modifications</b>	
<b>Vessel Action</b>	<b>Signal</b>
I intend to leave you on my port side	1 short
Response in agreement to this signal (I intend to leave you on my port side)	1 short
I intend to leave you on my starboard side	2 short
Response in agreement to this signal (I intend to leave you on my starboard side)	2 short
Disagreement in response to indicated intentions	5 or more short

### **Knowledge of the navigation area**

Charts, Chart 1 (the chart symbol dictionary) and publications such as the List of Lights Buoys and Fog Signals, Sailing Directions, and tide tables (in areas subject to tides) are required to help a vessel operator understand the characteristics and hazards of the area the vessel is operated in. The operator should ensure that all charts and publications used are current or have been updated with changes promulgated through Notices to Mariners. The largest scale charts available should be used for navigation purposes. Large scale charts cover small areas and provide large amounts of detail. Use of these charts ensures that known local hazards and navigation aids are adequately represented. Tide and Current tables are published annually for Canadian maritime coasts and provide information on tidal heights and currents. Current atlases are also available for some parts of Canada (St Lawrence, Bay of Fundy, Strait of Juan de Fuca) where complex combinations of currents cannot be adequately represented by current tables. Ice conditions may also impact vessel operation in parts of Canada and may be reported on the Notices to Shipping marine broadcasts. Vessel operators must take local navigational conditions such as tidal heights, currents, sea state, winds and ice conditions into account in order to safely operate their vessel. Charts and related navigation publications are produced by the Canadian Hydrographic Service and sold by authorized chart dealers throughout the country.

### **Requirement to equip vessels with a magnetic compass**

Pleasure craft are required to be fitted with a magnetic compass. Exemptions are offered for craft 8 metres or less that are operated within sight of navigation marks. Vessels over 12 metres are required to have a compass that meets the requirements set out in the Navigation Safety Regulations. These regulations stipulate that as a minimum, the compass should be a properly adjusted steering compass. The steering compass is a key navigation safety tool used to measure and control the direction of travel of a vessel.

A ships compass or hand bearing compass may be used to measure the bearing or direction of approaching vessels in order to determine whether a risk of collision exists. When the bearing of the an approaching vessel does not change (or in the case of an approaching large ship does not appreciably change) it should be assumed that the vessels are on a collision course. At night, when only the navigation lights of an approaching vessel are visible the comparison of compass bearings taken over time may be the only method available to evaluate the risk of collision. The International Regulations for the Prevention of Collisions at Sea stipulate the actions to be taken in this type of situation. The compass may also be used to measure the direction of landmarks, navigation marks or hazards, and bearings taken on these objects may be used to determine the vessel position. Those using a magnetic compass should be aware of the existence of compass error, the difference in direction between geographic north (as shown on a chart) and compass north (as taken from a vessel steering compass). Compass error is caused by the local magnetic character of the earth (variation) and the individual magnetic character of a vessel (deviation). It is recommended that those responsible for vessel navigation take additional training to better understand these issues.

### **Prohibitions against Dumping or Discharging Waste**

Federal regulations (and in some cases overlapping provincial regulations) prohibit the discharge of waste of various kinds from vessels. Discharge of oily or toxic wastes for a vessel bilge and discharge of black water (sewage) from vessel heads (toilets) are of particular concern.

Accumulation of oil, diesel, gasoline, oily substances or coolant in a vessel bilge are sometimes unavoidable occurrences. Do not pump these overboard. They will harm the environment and may damage your pump. Regulations state that no ship shall discharge and no person shall discharge or permit the discharge of an oil or oily mixture. These substances must be cleaned up in the vessel and disposed of ashore. A number of products are available that when placed in the bilge will absorb spilled oil or fuel. These come in the form of cloths, sausages and





other shapes and can be left in the bilge as a preventative measure. Once contaminated with fuel or oil, these absorptive products will need to be replaced.

The Regulations for prevention of Pollution from Ships and for Dangerous Chemicals define allowable discharge areas and devices to be used aboard vessels. In simple terms, discharge of black water is prohibited in fresh water areas in Canada (including the St Lawrence west of Pt au Pere) as well as near shore in salt water environments (within 12 miles of shore). Vessels are required to be fitted with one or more holding tanks (a tank that is used solely for the collection and storage of sewage or sewage sludge) which must be pumped out into shore based treatment facilities as required.

The operator of a vessel has a legal responsibility to clean up illegally discharged pollutants. Discharges of waste or oily products, or the probability of such a discharge are to be reported immediately to a Pollution Prevention officer, as designated by the Minister of Transport Canada.

### **Vessel Operation**

Under the Criminal Code of Canada it is illegal to operate a vessel when impaired due to consumption of alcohol, drugs or a combination of these, or when the concentration of alcohol in the person's blood exceeds eighty milligrams of alcohol in one hundred milliliters of blood. Additional provincial regulations may impose further restrictions on the consumption of alcohol while operating a vessel. In many provinces it is illegal for those involved in the operation of a vessel to consume alcohol when underway.

It should be noted that the regulations covering the operation of motorized vehicles are common to cars, planes and boats. Conviction of an offence while boating, having already been convicted of an offence while driving would count as a second offence, subject to more severe penalties including time in prison.

A vessel operator must comply with the demand of an enforcement officer. Failure to do so is considered an offence under the act. The powers of an enforcement officer include the right to:

- Ask for identification;
- Ask for proof of competency;
- Ask any pertinent questions;
- Board the vessel..

Conviction of operation of a vessel while impaired may include prohibition against operation of a motorized vehicle for a period of time (3 or 5 years depending on prior convictions). Operation of a motorized vehicle when prohibited from such operation may lead a sentence of imprisonment for a period of up to 5 years.

### **VHF Radio Usage**

The VHF radio is a key piece of safety equipment on a vessel. Using the VHF radio, an operator may listen for weather reports, weather warnings, and information updates concerning the navigation system. The radio may be used to contact marinas, to contact the Coast Guard, to contact near-by vessels, to call for assistance, or to participate in the response to Distress calls broadcast by vessels requiring assistance. With the exception of distress situations, a Restricted Operators Certificate (Maritime) or ROC(M) is required in order to use a marine VHF radio. The licence is good for life and is awarded on successful completion of an exam with written and oral sections. Training on radio usage, administration of the exam for award of the ROC(M), and issuance of temporarily licences is available through an number of organizations in Canada including many CYA recognized schools and instructors.

VHF station licences for fixed position VHF transmitters on vessels may also be obtained from Industry Canada. These are not required for Canadian pleasure craft operating in Canadian waters but should be carried when a Canadian vessel fitted with VHF radio(s) is operating outside of Canadian territorial waters.

New VHF radios are usually equipped with a Digital Selective Calling (DSC) feature that supports digital calling on VHF Channel 70 (channel 70 is no longer available for other uses). DSC is a part the Global Maritime Distress and Safety System (GMDSS). To make a DSC call a radio to another boat or to a shore station that has DSC capability a radio must be assigned a 9-digit Maritime Mobile Service Identity (MMSI) number. Your owner's manual will tell you more about this feature and how to load an MMSI into a DSC capable radio. MMSI numbers are assigned, free of charge, by Industry Canada. One important feature of a VHF DSC radio is that it can send a Distress Alert which will tell the Coast Guard and other DSC equipped boaters in your area that you require immediate assistance. Many DSC radios include GPS capability or can be connected to a GPS receiver so a distress transmission can automatically include a GPS generated vessel position.



## Pleasure Craft Courtesy Check

Transport Canada works with the Canadian Coast Guard Auxiliary and other boating safety organizations to offer free courtesy checks for pleasure craft. A trained boating safety volunteer will check your vessel for safety equipment and other requirements, identify problems and be available to discuss general boating safety issues. There are no penalties involved in the program so it is an opportunity to have your safety equipment verified, to learn more about boating safety and to get ready to head out on the water.

## Flotation Devices - PFDs, Lifejackets, Survival Suits

The Small Vessel Regulations require that there be on board every vessel a Canadian approved flotation device (PFD or life jacket) of appropriate size for each person on board the vessel. There are 2 exceptions to the sizing requirement. The flotation device need not be of appropriate size for persons with a chest size in excess of 140 cm, and children weighing less than 9 kg (20 lbs.)

Lifejackets and PFDs are designed to keep an individual afloat but offer differing capabilities, advantages and disadvantages. Lifejackets provide much better capability to turn a swimmer face up in the water and provide some head and neck support. For extended periods in the water in heavy seas, lifejackets provide better support and protection than PFDs. A lifejacket can keep an unconscious victims mouth and nose above water. Lifejackets are often cumbersome and uncomfortable when worn aboard a vessel, and are as a result seldom worn continuously and thus often are not available when an individual enters the water unexpectedly. PFDs designed to be more comfortable than lifejackets typically have less flotation, provide less head and neck support neck support, and have limited capabilities to turn an individual in the water from the face down position to the face up position. PFDs are more comfortable and less cumbersome than lifejackets and boaters may be more willing to wear them continuously.

SOLAS approved and Canadian approved standard *lifejackets* have similar capabilities and when worn properly are designed to turn an unconscious person from face down to face up in the water, allowing them to breathe. Commercial vessels are required to carry lifejackets of these types. The SOLAS approved lifejacket is built to turn you face up within 5 seconds and comes in two sizes - less than 32 kg (70 lbs) or 32 kg (70 lbs) and over. Canadian standard lifejacket sizes are for persons less than 40 kg (90 lbs) or 40 kg (90 lbs) and over. These lifejackets are keyhole style, must be orange, yellow or red, and have a whistle attached. They are designed to be worn loose in the water in order to provide turning capability.

Canadian small vessel lifejackets are available in three sizes in keyhole or vest jacket styles. They are designed to turn an unconscious person from face down to face up in the water but may not do so every time. These lifejackets must be orange, yellow or red, and are designed to be worn loose in the water in order to provide turning capability.

A Canadian approved *PFD* is designed to keep you afloat in the water. PFDs are designed for use in recreational boating and are generally smaller, less bulky and more comfortable than lifejackets. They have less flotation than lifejackets, and have limited turning capacity, but are available in a variety of colours and styles, including vest and pouch types. An *inflatable PFD* is a type of personal flotation device that either automatically inflates when immersed in water, or is inflated by the wearer using either an oral or manual inflation device. Most inflatable PFDs use a carbon dioxide cartridge to inflate. Inflatable PFDs, are less restrictive than other flotation devices built with inherent buoyancy (built from things that naturally float). These PFDs are constructed with a backup capability allowing a user to blow up the flotation pockets using mouth and lungs.

Approved inflatable PFDs can be worn if you are 16 years or older and weigh more than 36 kilograms. Inflatable PFDs are not suitable for use on personal watercraft or while engaged in white water paddling activities.

When Choosing a PFD, consider the activities where you intend to use the PFD. There are PFDs specially designed for various activities including pleasure boating, fishing, water skiing, tubing, kayaking, canoeing and rafting. Be sure to choose a PFD that meets your particular needs. PFDs are available in many bright colours. The Canadian Coast Guard strongly recommends bright colours for better visibility. Sizing is based on chest measurements for adults and weight for children -- read the label for details. Try the lifejacket or PFD on. It should fit snugly, with all the buckles, zippers and snaps done up, but still allow room to breathe and move around freely. Your PFD is too big if you can pull it over your ears, and too small if you cannot fasten all buckles and straps. More information on lifejacket types and capabilities is available at the following transport Canada website:

[http://www.tc.gc.ca/eng/marinesafety/debs-obs-equipment-lifejackets-few\\_words-1179.htm#LJ03](http://www.tc.gc.ca/eng/marinesafety/debs-obs-equipment-lifejackets-few_words-1179.htm#LJ03)

As noted in the text, damage to a lifejackets or PFD voids the approval required to consider the specific flotation device part of the required vessel safety equipment. In order to be considered as part of a pleasure craft safety



carriage requirements, the damaged flotation device must be replaced. Damaged flotation devices may no longer serve as effective lifesaving devices and should be discarded.

Survival suits are designed to protect a swimmer from cold water temperature, to reduce the impact of cold shock, and to extend the time period before an individual in water suffers the effects of swimming failure due to falling body temperature (hypothermia). These suits often include flotation and as such represent another approved form of flotation device.

### **Buoyant Heaving Lines**

A key piece of lifesaving equipment, the buoyant heaving line can be used to connect a swimmer in the water to a boat when the swimmer is still a few feet away from the vessel. A buoyant heaving line is a floating line (usually polypropylene) with some sort of weight on one end. The device is designed to be thrown towards a person near a vessel, or towed behind a vessel near a swimmer. The line is designed to float so it stays on the surface, allowing a swimmer to approach and take hold of it. This device may come in a number of packages such as a throw bag, a frisbee, or may simply be an ordered coiled line with a floating weight on the end. The line should be constructed of a single piece of rope, be of appropriate length for your vessel, be dedicated to its use as a piece of the vessel safety equipment, and be in good condition. You should be able to attach the bitter end of the heaving line to some strong point on your vessel and the attachment point and line should be strong enough to support a swimmer being dragged slowly through the water or pulling themselves toward the vessel. The heaving line should be readily accessible in an emergency. Polypropylene line decays when subjected to sunlight for extended periods of time. If your buoyant heaving line is fraying, is brittle, or is easily tangled such that it does not extend, it is time to replace it. You should practice throwing your heaving line to ensure you understand how to position it close to a desired target.

### **Lifebuoy**

A lifebuoy is a life saving device designed to be thrown to a person in the water, to provide buoyancy and to prevent drowning. Lifebuoy may be attached to a buoyant line so that once a person in the water reaches the lifebuoy they may be pulled towards a rescue vessel. A swimmer must be able to grasp and hold on to a lifebuoy, or lie part of their body on a lifebuoy to gain advantage from the lifebuoy flotation. Some lifebuoy are fitted with a light to aid in rescue at night. These lights may be a seawater-activated light, or may be stowed inverted and illuminate when turned upright. Lifebuoy may be attached by some line to man overboard poles - poles that float upright and are equipped with a flag. These poles help define the position of the lifer for a nearby swimmer, and mark swimmer location for a vessel attempting to return to the swimmer. Lifebuoy are often stored in easily accessible quick release holders at the stern of the vessel or near the steering station. The end of the heaving line attached to the lifebuoy is often also attached to the boat and may need to be detached from the boat in order to leave the lifebuoy floating free in the water near the swimmer. In Canada, two lifebuoy sizes are available - the 610 mm diameter small vessel lifebuoy, (24 inch diameter) and the 762 mm diameter SOLAS lifebuoy (30 inch diameter). The larger of these is SOLAS approved and is the size required for Canadian pleasure craft over 24 metres in length. The smaller size small vessel lifebuoy (610mm) is approved by Transport Canada. The floating line attached to a lifebuoy, usually polypropylene, is subject to the same maintenance considerations as a buoyant heaving line. Inspect the lifebuoy holder to ensure ease of extraction of the lifebuoy, and to ensure that heavy winds or extreme heel will not unexpectedly launch the lifebuoy. Over extended periods of time, lifebuoy decay in ultra violet light. These devices are hard and are not suitable for use as fenders. Inspect the lifebuoy annually to ensure that is still a satisfactory life saving appliance. Horseshoe lifebuoy and liferings of sizes other than those specified are not acceptable alternatives to meet the requirements specified in the Small Vessel Regulations.



## Re-Boarding Device

This device helps a swimmer to re-board a vessel and is required by the Small Vessel Regulations. A ladder, either portable or fixed in place such as a transom or swim platform ladder meets this requirement. If the ladder is one that is normally secured in a position out of the water (for instance mounted on the vessel transom), make sure that a swimmer in the water can lower the ladder. The vessel propulsion unit should not be used for re-boarding and is not acceptable to meet this requirement. The vessel operator should ensure that the engine is turned off when a ladder located near the propulsion unit is to be used. Ladders (especially those located on an exterior hull surface) should be examined periodically to ensure that all required parts are still present. Crew should be briefed on the location and used of portable ladders, and they should be stored in an easily accessible location. Ladders with only one step below surface may be difficult to use. If possible, longer ladders with more underwater steps would be preferable. Caution should be taken when attempting to re-board a vessel in heavy weather as the vertical motion of the hull and ladder may be dangerous to nearby swimmers.

## Manual Propelling Device

A manual propelling device is intended to allow the operator to propel and maneuver a vessel when the primary form of propulsion (wind or engine) is not functional. Alternatives may include oars, paddles or anything a person may operate by hand such as a rudder in a small sailboat or a paddlewheel in a paddleboat. In larger vessels (heavier with more freeboard) a paddle or oars may be ineffectual due to height above water, vessel weight or the effect that wind and waves have on the exposed portions of the vessel. For these craft the ability to anchor the vessel to prevent it drifting into danger is often the only viable alternative. Check that the paddles or other devices intended to meet this requirement are long enough to reach into the water. For oars and paddles, check that the grip, shaft and blade are not cracked or broken and are in good condition. Paddles and oars that are made of wood will occasionally require refinishing. Check oars and vessel to ensure that the rowlock parts on the oar and boat are in good condition. Check that the sleeve that keep the oar positioned in the rowlock and prevents the oar from sliding into the water (allowing the rower to let go of the oar while it is in the rowlock) is in place. Repair or replace oars and paddles that you find deficient.

## Anchors and Anchoring

Choose an appropriate anchor for the bottom type. Check a chart of the location to determine bottom type and features. Weedy bottoms need heavier anchors that will work their way through the weeds to provide adequate holding. Bottoms with poor holding characteristics, or adverse weather or sea state conditions may also require heavier anchors, chain or increased scope to hold a vessel in place. The anchor rode may be any combination of chain, cable or rope. When combining one or more of these items in an anchor rode, check the attachment to the anchor, the point where rode components are joined, and the point where the anchor rode attaches to the vessel each time you use the anchor. Take a boating course to learn about other strategies to improve anchor holding power and ease anchor retrieval.

## Bailer, Manual Bilge Pump and Bilge Pumping Arrangements

A manual bilge pump and the attached hose must be large enough to reach the bilge and discharge water over the side of the boat. The manual bilge pump may be fixed in position or portable. A bailer must be made of plastic or metal, hold at least 750 ml and have an opening of at least 10 square inches. A plastic bailer may be made from a 4 litre plastic bottle with a handle by securing the lid and cutting the bottom off at an angle towards the handle, forming a scoop. Before leaving dock you should check that the bailer or pump is in the vessel and operational. Check that the bilge pump is working by pumping a bit of water with it. In smaller open boats, you may want to prevent the bailer from being lost overboard by attaching the bailer to the vessel with a piece of string long enough to allow you to bail boat if needed. Where the pump is fixed in the vessel, check the bilge to ensure that there are no objects that might plug the water intake. The water intake should be fitted with a strainer to ensure that debris are not sucked into the pump, damaging or blocking the apparatus. Pump spare parts or replacement parts are often available for fixed position pumps. You should include spares in your tool kit. For pumps fitted in position that eject water through the hull, check that the hoses are well secured (with doubled hose clamps) to the through hull fitting. The hose should be installed with an anti-siphon loop preventing water from flowing back into the vessel. In case of failure of the through hull fitting, attach a soft wood plug near the fitting that could be used to plug it and prevent or slow water inflow.

*Bilge pumping arrangements* refer to the installation of automatic bilge pumps and related piping and through hull fittings. Many of the same maintenance and installation considerations exist as for manual fixed position fitted pumps. Automatic pumps require power. They may be submersible or mounted on an interior bulkhead. Often these pumps are fitted with a float switch that activates them when water rises in the vessel bilge. Check the operation of



the pump switch at the vessel power panel as well as the float switch to ensure proper pump operation. Some pumps are directly wired to the vessel battery system with inline fuses so that they will continue to pump with vessel power turned off. Ensure that spare fuses as well as spare hoses, pump parts and appropriate tools are available in order to effect repairs if needed.

Monitor the vessel bilges for water buildup. Should you notice repetitive activation of an automatic pump, or repetitive periodic buildup of water in the bilges, look for the cause and verify that the repetitive pumping is not indication of an emergency requiring immediate action or a less urgent situation that requires attention.

### **Fire Extinguishers**

Fire extinguishers required to be carried by the Small Vessel Regulations must bear a mark indicating that they have been certified by a product certification body; or are of a type that is approved by the United States Coast Guard. Types of fire extinguishers are identified using a numeric and character code. The number identifies the extinguisher size (10 is bigger than 5). The characters identify the type of fire the extinguisher is designed to put out. The common fire classes are:

- A: materials that burn such as wood, cloth, paper;
- B: liquids that burn; and
- C: Electrical equipment.

A 10BC extinguisher would be a larger extinguisher designed to put out liquid fuel and electrical fires. The requirements in the Small Vessel Regulations are a minimum. An extinguisher classed as ABC will meet the requirement for a BC extinguisher. Fire extinguishing propellant designed to put out type B and C fires is usually either CO<sub>2</sub> or Dry chemical. Water may be used to fight type A fires but is inappropriate for types B and C. Check the pressure gauge on CO<sub>2</sub> extinguishers to ensure appropriate pressure - usually in the green area on the pressure gauge - and have them serviced as per manufacturer instructions. Dry chemical extinguishers should be inverted and shaken every 1 to 2 months to prevent caking. Independent of the propellant type and extinguisher size, the extinguisher will only produce propellant for 10 - 20 seconds. Be sure to brief the crew on where the extinguishers are located and on how to use them. Fires can get rapidly out of control. To successfully extinguish a fire immediate action is required. Get as close as possible to the fire and direct propellant at the base of the flame. If unsuccessful in extinguishing the fire, you should prepare to abandon ship. Caution should be taken in fiberglass vessels. Once ignited, fiberglass is very flammable and when burning produces a toxic gas.

For larger vessels the required locations for extinguishers are specified in the Small Vessel Regulations. On smaller vessels, locate extinguishers where they can be rapidly reached if needed.

### **Axes**

Axes required on vessels 12 metres or larger are intended to be used to provide rapid access to components of the vessel that are burning. On vessels the axe head is often painted to prevent deterioration through rusting. Locate them in easily and rapidly accessible locations where you believe you will not need to travel through a fire to get to them.

### **Buckets**

Fire buckets required on vessels 12 metres or larger are intended to be used to assist in fighting fires. Buckets are carried on many vessels as a quick means of getting some water for washing or drinking. Fire buckets specified under the Small Vessel Regulations must have a capacity of 10 L or more, be made of metal with a round bottom and a hole in the centre, be painted red and be fitted with a lanyard of sufficient length to reach the water from the location in which it is stored. The fire bucket is intended to allow you to get water from the surrounding ocean or lake for purposes of extinguishing a fire or for the purposes of cooling flammable objects that are near a fire. If using water for extinguishing a fire, be cautious the fire is not electrical or fuel burning. Using water to extinguish an electrical fire leads to the risk of electrocution. Burning fuels are often spread but not suppressed through the application of water. Make sure that the buckets are in good working order (will hold water). Locate them in easily and rapidly accessible locations where you believe you will not need to travel through a fire to get to them and near access to water overboard.

### **Watertight Flashlight**

Check the flashlight is operational - that batteries have power, and the bulb is working. Carry a spare bulb and batteries in the tool box. The flashlight needs to continue to operate in a wet environment - try putting it under water and testing operation to ensure the light is watertight. The flashlight may be the key capability you need in order to signal for help. Continuous flashes or an SOS signal (3 short 3 long 3 short) may be used to signal distress. For non-





powered vessels less than 7 metres in length, the watertight flashlight may be used to meet the requirement for display of an all-round white light between sunset and sunrise and during periods of restricted visibility.

## Flares

Flares must be approved by Transport Canada. Approved flares of varying quality are available. SOLAS flares typically provide better performance (burn longer, higher) than other types.

Transport Canada changed terminology describing flares in 2010. Four types of flares (“pyrotechnic distress signals”) have been approved; a rocket parachute flare, a multi-star flare, a hand flare, and a buoyant or hand smoke signal. These were types A, B, C and D respectively. Type A, B, C and D flares approved prior to April 2010 will be valid until reaching their expiry dates. Fire the rocket parachute and the multi-star flare types upwind, away from the vessel on a 60 degree angle in heavy winds. In light winds, fire these flares downwind. Always fire handheld flares downwind and away from the vessel. Deploy smoke flares overboard on the downwind side of the vessel, or if handheld smoke, deploy on the downwind side of the vessel. Face away from flares when igniting them in case they misfire and explode. Multi-star flares require two stars to be projected within 15 seconds. Some type B flares are single stars, requiring that 2 of these flares be fired as one valid distress signal. You will need twice as many of these flares as you would if the flare was a multi-star. Flares must be kept dry to continue to perform. Store them upright in a watertight container. Flares only meet the requirements for four years after manufacture. To determine how to dispose of outdated flares, ask the manufacturer, your local marine store, or contact your local fire department. Outdated flares may continue to function for a number of years following the 4 years where they meet the requirements of the Small Vessel Regulations. You might choose to keep them as backups in case of emergencies.

Flares should only be used in distress situations where there is a life threatening peril. In this type of situation, flares are used to attract attention. Do not set them all off at once. Handheld flares are, for instance, not visible for long distances and should be used when other vessels are close by to attract attention or at night to attract attention and show your location.

## Sound Signaling Devices and Sound Signaling Appliances

Sound signals may be used to signal distress or to communicate your intentions when manoeuvring within sight of other vessels and must be used in periods of reduced visibility to alert nearby vessels of your presence. Vessels less than 12 m are required to carry a device to make a sound signal. This may be a fixed appliance or a portable device such as a pealess whistle, a compressed gas horn, an electric horn or any other device that may be used to make an efficient sound signal. The International Regulations for Prevention of Collisions at Sea (COLREGs) require that vessels 12 m or more in length be fitted with a whistle and that vessels over 20 metres be additionally fitted with a bell. The frequency and audibility characteristics of whistles and bells are defined by the COLREGs. Signaling devices should be tested before departure. Should your vessel be fitted with a powered device for signaling, ensure that you have a backup signaling device that will work independent of the availability of power.

## Radar and Radar Reflectors

Radar sets transmit a pulse that is reflected by metal vessel components. The reflected energy is captured by the transmitting vessel and the relative location of the object is displayed on a screen located on the transmitting vessel. Fiberglass boats often have very few metal components that will provide a visible return to a radar transmitter. The Canadian Collision regulations stipulate that all vessels less than 20 metres in length, and all vessels constructed primarily of non-metallic materials (that do not reflect radar) must carry a radar reflector. Exemptions offered for vessels small enough that such a device is impractical, for vessels that operate away from radar navigation and for vessels operating in daylight in limited traffic and environmental conditions that made radar not essential to safety.

Passive and active radar reflectors are available. Passive reflectors simply reflect the beam transmitted by the sending radar set. Passive radar reflectors may be obscured by the sails of a sailboat, particularly when the sails are wet. Tests have shown that size is a key criteria to effectiveness for passive reflectors. Passive radar reflectors should be as large as possible and hoisted as high as is practicable. The image to the right shows an example of an inexpensive passive radar reflector designed to be hoisted in the “catch water position” - with one of the open areas between the plates facing up. Radar reflectors should be hoisted in periods of reduced visibility and at night to make a vessel more visible. Vessels that often operate after dark or in reduced visibility should consider permanently mounting a radar reflector.





Active radar reflectors attempt to transmit a matching pulse back to the sending set using one of a number of strategies. In all cases these reflectors require a power source and as such may be subject to failure.

The effectiveness of a radar reflector depends on the environment as well as the radar operator. Water in the environment such as heavy rain or water blown off the surface by heavy wind will severely impede radar transmission and reception. Radar sets need to be adjusted appropriately and the screen needs to be watched by crew.

## **GPS**

GPS refers to the Global Positioning System. This system is composed of land stations, a series of satellites and GPS receivers that use the satellites to determine position. The United States originally lofted and maintains a constellation of GPS satellites that are controlled and managed by a ground station. GPS receivers available as standalone units or integrated with other devices such as marine radios or electronic navigation systems use information from the satellites to determine a position. Position is expressed in terms of Latitude and Longitude. Costs of GPS units have decreased substantially over the past few years to the point where they should be affordable to most boat operators. In conjunction with charts, these receivers provide a straight forward way of determining vessel position and locating nearby navigation aids, destinations and hazards. GPS units may be integrated with or connected to VHF radios and in this instance Distress signals including vessel position may be generated and transmitted at the touch of a button. Many GPS receivers also support other capabilities that simplify vessel navigation and support safe vessel operation. Additional capabilities may include provision of basic navigation information (such as course over ground and speed over ground), integration with chart plotters and electronic navigation systems, and integration with radar. The accuracy of GPS receivers is typically within 10 meters, however in some circumstances GPS reported position may be 200 metres or more away from actual vessel position.

## **Sail Plans**

Sail plans (flat plans / trip plans) may be filed with the coast guard or left with another party. The objective of these plans is to have search and rescue initiated when the vessel is overdue. On arrival at a destination, either the primary or an alternate, the organization or individuals with which the plan was filed must be notified of safe arrival. This notification is key to prevent unnecessary initiation of searches for vessels that are safe and secure in a protected anchorage or port.

## **Tide and Current tables**

Tide and current tables, are published annually by the Canadian Hydrographic Service. The tide tables allow the mariner to determine predicted times and tidal water heights throughout the tidal cycles at coastal locations throughout Canada. In conjunction with charts, these times and heights may be used to determine water depths in marine tidal environments. Current tables, published as part of the tide and current tables provide the ability to determine direction and rate of current flows as well as the times of slack water. Information on how to use the tide and current tables may be gained by reading directions published with the tables, or may be learned by attending a course focusing on coastal navigation. In some locations, current atlases are published graphically showing the direction of flow and current speed hourly throughout the ebb and flow of the tidal cycle.

The vessel operator should use the information available from these sources to confirm adequate depth over hazards and clearance under obstacles such as bridges and power lines. Currents in conjunction with depth changes and strong winds may adversely affect sea state making vessel operation challenging or dangerous. Vessels experiencing strong currents will need to modify courses steered and speed over ground may significantly differ from vessel speed through the water, resulting at potentially significant changes in arrival times at passes and harbour entrances.

## **Planning For Emergencies**

Before departing on any coastal passage, the prudent vessel operator will take some time to identify alternate destinations that would be available in case of changes in the expected weather or other unexpected emergencies. The planning process should include identification of potential places of refuge using a small scale chart. Detail examination of the characteristics of the identified potential places to take shelter should be made using sailing directions, and large scale charts. Items to be verified would include adequate depths and height clearances, bottom types, available navigation aids or features that might assist in entry or safe arrival, and the wind and wave directions for which the location would provide shelter. Services available ashore may also be of consideration.






### Compliance Notices

Every vessel capable of being fitted with a motor shall have affixed to it a compliance notice issued by Transport Canada, in the form of a capacity plate or a conformity label. Information in a compliance notice for a vessel includes limits for the total gross load and maximum number of passengers in good weather. The number of people that can be carried safely depends on the equipment carried and the wind and weather conditions. Vessel loads should be lightened in deteriorating weather to improve manoeuvrability and increase freeboard. Sample compliance notices are shown below.

Sample Compliance Notice  
Pleasure Craft of more than 6 metres

<b>CANADIAN COMPLIANCE NOTICE AVIS DE CONFORMITÉ CANADIEN</b>	
SAFEBOAT COMPANY INC. (MIC)	
CITY, PROVINCE, COUNTRY	
MODEL / MODÈLE: <b>RUNABOUT 555X</b>	
<p>THE MANUFACTURER DECLARES THAT THIS VESSEL COMPLIES WITH THE PLEASURE CRAFT CONSTRUCTION REQUIREMENTS OF THE SMALL VESSEL REGULATIONS, AS THEY READ ON THE DAY ON WHICH THE CONSTRUCTION OF THE VESSEL WAS STARTED OR ON THE DAY ON WHICH IT THE VESSEL WAS IMPORTED.</p> <p>LE FABRICANT ATTESTE QUE CE BÂTIMENT EST CONFORME AUX EXIGENCES DE CONSTRUCTION DES EMBARCATIONS DE PLAISANCE DU RÉGLEMENT SUR LES PETITS BÂTIMENTS, EN VIGUEUR À LA DATE DU DÉBUT DE SA CONSTRUCTION OU À LA DATE DE SON IMPORTATION.</p>	

Sample Compliance Notice  
Outboard powered vessel of not more than 6 metres

<b>CANADIAN COMPLIANCE NOTICE AVIS DE CONFORMITÉ CANADIEN</b>		
<b>MAXIMUM RECOMMENDED SAFE LIMITS LIMITES MAXIMALES DE SÉCURITÉ RECOMMANDÉES</b>		
	<b>4</b>	<b>300 kg 660 lbs/lb</b>
	+	
+		<b>578 kg 1273 lbs/lb</b>
	<b>37 kW 50 HP</b>	<b>228 kg 502 lbs/lb</b>
<p>THE MAXIMUM RECOMMENDED SAFE LIMITS MIGHT HAVE TO BE REDUCED IN ADVERSE SEA AND WEATHER CONDITIONS. LES LIMITES MAXIMALES DE SÉCURITÉ RECOMMANDÉES PEUVENT DEVOIR ÊTRE RÉDUITES DANS LES CONDITIONS DE MER ET DES CONDITIONS MÉTÉOROLOGIQUES DIFFICILES.</p>		
SAFEBOAT COMPANY INC. (MIC)		
CITY, PROVINCE, COUNTRY		
MODEL / MODÈLE: <b>RUNABOUT 555X</b>		
<p>THE MANUFACTURER DECLARES THAT THIS PRODUCT COMPLIES WITH THE CONSTRUCTION REQUIREMENTS OF THE SMALL VESSEL REGULATIONS AS THEY READ ON THE DAY ON WHICH THE CONSTRUCTION OF THE VESSEL WAS STARTED OR ON THE DAY ON WHICH THE VESSEL WAS IMPORTED.</p> <p>LE FABRICANT ATTESTE QUE CE PRODUIT EST CONFORME AUX EXIGENCES DE CONSTRUCTION DU RÉGLEMENT SUR LES PETITS BÂTIMENTS EN VIGUEUR À LA DATE DU DÉBUT DE SA CONSTRUCTION OU DE SON IMPORTATION.</p>		



### Sample Compliance Notice Inboard or stern-drive powered vessel, not more than 6 metres

<b>CANADIAN COMPLIANCE NOTICE</b> <b>AVIS DE CONFORMITÉ CANADIEN</b>	
<b>MAXIMUM RECOMMENDED SAFE LIMITS</b> <b>LIMITES DE SÉCURITÉ MAXIMALES</b> <b>RECOMMANDÉES</b>	
	<b>450 kg</b> <b>991 lbs</b>
<b>6</b>	
 + 	<b>525 kg</b> <b>1156 lbs</b>
<small>THE RECOMMENDED SAFE LIMITS MAY HAVE TO BE REDUCED IN ADVERSE SEA AND WEATHER CONDITIONS.</small>	
<small>LES LIMITES MAXIMALES DE SÉCURITÉ RECOMMANDÉES PEUVENT DEVOIR ÊTRE RÉDUITES DANS LES CONDITIONS DE MER ET LES CONDITIONS MÉTÉOROLOGIQUES DIFFICILES.</small>	
<b>SAFEBOAT COMPANY INC. (MIC)</b>	
<b>CITY, PROVINCE, COUNTRY</b>	
<b>MODEL / MODÈLE:      RUNABOUT 555X</b>	
<small>THE MANUFACTURER DECLARES THAT THIS PRODUCT COMPLIES WITH THE CONSTRUCTION REQUIREMENTS OF THE SMALL VESSEL REGULATIONS AS THEY READ ON THE DAY ON WHICH THE CONSTRUCTION OF THE VESSEL WAS STARTED OR ON THE DAY ON WHICH THE VESSEL WAS IMPORTED.</small>	
<small>LE FABRICANT ATTESTE QUE CE PRODUIT EST CONFORME AUX EXIGENCES DE CONSTRUCTION DU RÉGLEMENT SUR LES PETITS BÂTIMENTS EN VIGUEUR À LA DATE DU DÉBUT DE SA CONSTRUCTION OU DE SON IMPORTATION.</small>	

### Homeland Security Update

The US Department of Homeland Security continuously monitors threats to the US, and based on this information establishes rules defining the procedures to be followed and documents required for crossing US borders. As the perceived threat level changes, the requirements for entry are modified and eased or additionally restricted. Prior to departing for the US from Canadian Territory the vessel operator should check and understand the prevailing requirements for US entry. These may vary depending on the nationality of crew.

### Stand On and Give Way Vessels - Vessel Precedence Hierarchy

When vessels are approaching one another and a course change is required to avoid collision then a precedence sequence established in the Collision Regulations defines the stand on and give way vessel. It is the responsibility of both to avoid collision. The stand on vessel responsibility is to maintain course and speed. Should the stand on vessel come to believe that the give way vessel is not altering course soon enough then the stand on vessel should take action to avoid collision. Actions taken by the stand on and give way vessels should be large enough to be obvious and noticeable and may include both course and speed changes. When comparing 2 vessels in the following list, higher in the list is stand on, lower in the list is give way.

- Being overtaken
- Not under command
- Restricted in ability to manoeuvre
- Constrained by draft
- Fishing with nets or trawls that restrict manoeuvrability
- Sailing
- Power (including float planes on and just above water)
- WIG (Wing in Ground)
- Overtaking

If any doubt exists on a specific vessel status, assume you should give way.

### Dealing with Shipping Channels and Large Vessels

Channels and routes are designated for use by larger ships and vessels. These shipping channels, defined by traffic separation zones should if possible be avoided by smaller vessels. Sailing vessels and vessels less than 20 m in length should where possible navigate inshore of shipping channels. If you need to cross these channels, do so at right angles to the channel. When travelling near or in a shipping channel keep a sharp lookout. A large vessel operating at normal cruising speed may take only 15 minutes to travel from the horizon to your location. The visibility from the bridge of a large vessel is limited and is often obstructed by the bow of the vessel. These large vessels may have limited manoeuvrability. Small craft may be difficult to see from the bridge of a large vessel. Use extreme caution when operating in or near shipping lanes. Operating in groups may increase the visibility of small



vessels. Remember that these large vessels cannot manoeuvre quickly (either course or speed) so smaller craft may need to keep out of the way of large ships.

### **Ferries, Tugs and Tows**

Ferries often operate continuously and while docked may use propulsion to keep them in position. The water to the stern of the ferry will be disturbed and is best avoided. Short haul ferries continuously travel back and forth with frequent dockings and departures. Where possible avoid ferry docks and keep especially vigilant when passing these areas. In some harbours, local rules and regulations require that vessels are required to keep out of the way of ferries. Some ferries operate using a cable strung between docks. Propulsion is achieved by pulling themselves from shore to shore along the cable. These ferries do not have the options of changing course to avoid traffic.

Tugs with tows are to be avoided. They have limited manoeuvrability and it is extremely hazardous to pass between a tug and its tow as the hawser or cable used to connect the two vessels may be unavoidable. Tugs with tows show special day shapes - a diamond shape is hoisted on the vessel. At night the tug will show multiple masthead lights and a towing light. The tow will exhibit sidelights, a stern light and may also show lights illuminating the decks of the towed vessel. If you suspect you are heading for a tug and tow combination, take action to avoid them - slow down or change course.

### **Fishing Vessels**

Fishing vessels have limited manoeuvrability when engaged in fishing. When approaching these vessels use extreme caution and take early action to keep away from them. At night, vessels engaged in fishing or trawling show lights to aid in their identification. These lights are identified in the following table:

Vessel Lights	Meaning
allround Green over allround White	Vessel Trawling, not making way
allround Green over allround White plus sidelights and stern light	Vessel Trawling, making way
allround Red over allround White	Vessel Fishing, not making way
allround Red over allround White plus sidelights and stern light	Vessel Fishing, making way

Fishing vessels may show additional lights indicating that they are working with nets. These lights may be searchlights illuminating their working area, or may indicate specific conditions aboard the working vessel. Samples of additional lights are shown below.

Vessel Lights	Meaning
white over white lights in a vertical line	Trawler shooting nets
white over red lights in a vertical line	Trawler hauling nets
red over red lights in a vertical line	Trawler with nets that have come fast on an obstruction

### **Sharing the water**

When operating a power boat stay away from swimmers. Motor and or propeller strikes will cause serious injuries. Divers and swimmers may not hear sailboats approaching and may attempt to come to the surface while under the vessel with serious consequences. Divers and swimmers may also be just below the surface and invisible to the operator, but inside the draft of the vessel. When passing near kayaks, canoes or other easily swamped or capsized vessels, a responsible operator should slow down to reduce wake for these operators. The same courtesy should be offered to smaller vessels under tow and to vessels temporarily stopped.

### **Respect the environment**

Regulations prohibit discharge or dumping of fuel, oil, antifreeze, and other toxic substances such as cleaners into the waters. These prohibitions not only apply when in the water but also when ashore. When preparing for spring



launch contain and clean up these materials as well as sanding and scraping dust from vessel repair or preparing vessel bottoms for painting. Be aware that some waters in Canada are contaminated with invasive species. When transporting a vessel from one lake to another, clean the bottom and bilges to prevent spreading unwanted marine life.

### Canadian Buoyage System

A **bifurcation buoy** (also called a junction buoy) marks a join or split in a channel. When a channel splits, one side may be the preferred side, the other the secondary or alternate side. An example might be in a river where channel depth is maintained through dredging only on one side of an island. The dredged side would be marked as the preferred channel. These buoys take the same shapes as port and lateral buoys with some additional colour added. A starboard bifurcation buoy looks like a starboard lateral buoy with a green stripe painted across the centre of it. Treat the starboard bifurcation buoy like a starboard lateral buoy for the preferred channel (honour its shape and predominate colour) and like a port lateral buoy for the alternate channel. A port bifurcation buoy looks like a port lateral buoy with a green stripe painted across the centre of it. Treat the port bifurcation buoy like a port lateral buoy for the preferred channel (honour its shape and predominate colour) and like a starboard lateral buoy for the alternate channel.



**Bifurcation daybeacons** also may be placed as navigation aids. Both port and starboard bifurcation daybeacons are diamond shaped with a red border. A shape inside the border identifies the type of bifurcation daybeacon - red triangle for a starboard bifurcation daybeacon, green square for a port bifurcation daybeacon. These beacons are commonly located on land on a post or even painted on a rocky shoreline.



An **anchorage buoy** marks the outer limits of designated anchorage areas. Consult the chart for water depth. The buoy is yellow in colour with an anchor symbol shown on the side of the buoy.



A **mooring buoy** is used for mooring or securing vessels. Be aware that when you see one, a vessel may be secured to it. It is white in colour with an orange top.



An **Isolated Danger** buoy marks a danger of limited extent. Navigable waters are all around. The buoy has a topmark composed of two spheres, one above the other. Buoy colouration is black, red and black horizontal stripes. Take the buoy to port, like a fairway buoy to avoid oncoming traffic.

### Preventing Emergencies - Dealing with the Environment

In conditions of restricted or reduced visibility an operator should:

- Slow Down to a safe speed;
- Post an additional lookout - watch and listen for other traffic;
- Make appropriate sound signals;
- Keep careful track of their position;
- Be ready for immediate manoeuvre if needed.

Monitor weather radio or VHF channel 16 listening for weather updates. Weather changes occur frequently. Often there is enough time to head for shelter. Observe the cloud formations as indications of impending weather changes. If you cannot reach shelter, prepare your vessel for the changing weather environment. Severe squalls may include thunder, lightening and strong winds. Winds in some squalls may exceed 50 knots in unexpected or varying directions. A squall will approach rapidly, and may look like a black wall on the water. Secure hatches and required equipment and take loose gear below. Identify and locate hazards, and determine a safe direction of travel. Don't life



jackets and protective clothing and gear. Send non-essential crew below. If sailing, lower and secure sails. Rapid wave build-up may occur. Head into the waves at an angle, or run with the waves for best boat control.

After heavy rains and during spring runoff, the water level at the edges of streams, rivers and creeks rises and may wash debris of varying sizes into rivers and lakes where vessel operation occurs. In these conditions be aware of the possibility of debris in the water and keep careful lookout for it. Operate at reduced speeds. Monitor notices to shipping for broadcasts that may report the position of objects reported by other boaters.

### **Vessel Loading and weight distribution**

Improper loading of vessels can have a dangerous impact on the safety and manoeuvrability of vessels. The vessel load should be evenly distributed across the vessel so that freeboard is equal on both sides of the vessel. Failure to properly distribute weight may lead to a vessel swamping. Do not overload a vessel - pay attention to the compliance plate information covering gross load and the maximum number of persons the boat is designed for. If rough weather or waves are expected reduce the load. The vessel should be loaded so that the bow is trimmed up - more weight in the stern than in the bow. Loads are safest when placed near the centre of the vessel - both fore and aft as well as port and starboard. This type of placement will allow the vessel to react properly to waves with the bow and or sides of the vessel lifting as waves pass under the boat.

### **Dealing with Emergencies**

Dealing with emergencies effectively requires forethought and planning. Role play or think through how to react to potential problems. Work through the decisions and actions to take to deal with specific emergencies before they happen. Plan how to effectively deal with challenges that may arise, and consider how the emergencies might be prevented.

### **Grounding**

Planned grounding, such as pulling a small outboard up on a beach to stop for a picnic is one way to conveniently stop the boat for a short period of time. Raise the engine to ensure that the lower unit and propeller are not damaged and paddle into shore. If the boat is to be left unattended either tie the boat to an object on shore or set the anchor to ensure that when you return the boat will where it was left. Awareness of expected tidal height changes may prevent a long drag down a beach to get the boat afloat at a receding waterline.

Unplanned groundings may be less pleasant. Check that the crew are all safe. In some groundings, the vessel stops abruptly while the crew continue to travel. Injuries or crew in the water might be the result. Evaluate whether the boat has been damaged. In small open boats, damage or lack thereof may be obvious. Check for water ingress - is the water level rising in the bilge. If so, is the water from overboard or the result of an internal system leak. Check for visible damage inside the vessel - to the hull or to places where items attach to the hull such the keel bolts in a sailboat. If you are taking on water, start pumping and take action to reduce or stop inflow. If you cannot manage the leak, issue a distress call. Should the vessel seem solid, or if leaks are manageable, then deal with the problem of getting the vessel off the bottom. This may be as simple as waiting for the next high tide, or may involve lightening the vessel or heeling the vessel to reduce draft thus allowing the vessel to re-float. Once afloat you may choose to continue on your trip, or return to a nearby port to further investigate potential damage.

### **Fire**

Fire aboard can be a frightening situation. Immediate action to control and extinguish the fire is required. Use available equipment (buckets, extinguishers, axes) to extinguish the flames. If successful, monitor the situation for up to 24 hours to ensure that the fire does not come back to life. If unsuccessful, issue a distress call and prepare to abandon ship.

### **Dealing with Distress Calls**

Distress calls are issued when one or more persons or a vessel are in grave and imminent danger with the likelihood that if no assistance is provided there will be a fatality. Vessel operators are required under the Canada Shipping Act 2001 and the Criminal Code to provide assistance to those in distress so long as doing so does not put the assisting vessel and crew in peril. In most cases, the Coast Guard will co-ordinate response to the situation. Check your position and if close to the distress vessel inform the Coast Guard by radio and offer to assist. A rescue coordination centre will get involved and will guide your activity. If the Coast Guard is unavailable determine whether you are able to provide assistance and contact the vessel in distress to co-ordinate your efforts with them. You may also re-broadcast their distress call in case other vessels nearby you did not receive the original distress message.





## **Cold-Water Shock**

This condition occurs when a person enters cold water. Symptoms are elevated heart rate and involuntary rapid shallow breathing. The severity of the effects of cold shock is directly proportional to the water temperature peaking between 10-15°C. Wherever possible, entry into water below 15°C should be avoided. When immersed in water this cold you could also experience muscle spasms or a rise in your heart rate and blood pressure. Worse yet, you could choke on water or suffer a heart attack or a stroke. Cold water can paralyze your muscles instantly. Trying to get a hold of a flotation device while in the water, will be nearly impossible. Even strong swimmers can succumb to the effects of cold water shock. Death from cold shock will occur within 3-5 minutes. Wearing a PFD will help the individual to survive until the cold shock dissipates. Other responses to cold, such as shivering and the rapid loss of ability to control fingers or grip objects should be expected. If the swimmer is left in the cold water, drowning due to swimming failure is a strong likelihood. Death from swimming failure usually occurs in under 30 minutes. You must get the swimmer out of the water and get them into a warm environment. Monitor them for continued symptoms of shock. If symptoms persist or are expected immediate medical attention is appropriate.

## **Carbon Monoxide Poisoning**

Carbon monoxide (CO) is a colourless odourless poisonous gas generated as a by-product of combustion. You can't see it, smell it or taste it but it can kill you. Sources of CO on a vessel might include gas and diesel engines or generators, fuel burning stoves and heaters, and charcoal barbecues. When not properly ventilated gases emitted by these devices can build up to toxic levels. Early symptoms include headaches, nausea, dizziness and fatigue and are sometimes confused with the flu. Other symptoms may include shortness of breath on exertion, chest pain, impaired judgement, vomiting, abdominal pain, seizure and memory and walking problems. There is no cure for biological damage experienced through carbon monoxide poisoning however the existence of noticeable symptoms warrant prompt medical attention.

Early recognition and escape from the environment, or rapid ventilation of the environment are key activities if you suspect carbon monoxide build-up. Always be aware of the use of devices that generate carbon monoxide and properly maintain them to ensure they properly exhaust combustion by-products. Make sure that engine compartments are well ventilated. Fuel burning stoves should only be used in well ventilated environments. Ensure that by-products of combustion generated by engines and heaters are captured and directed outboard. Consider installing a carbon monoxide detector designed for use in marine environments that will identify build-up of this gas. Users of houseboats should exercise particular caution and ensure adequate ventilation sources exist when using a heater, stove, motor or other source of Carbon Monoxide. Swimmers should take care not to loiter near an engine exhaust while in the water - for safety, stop all combustion sources while swimming.

## **Heat Stroke, Heat Exhaustion and Seasickness**

Heat stroke is a form of hyperthermia, an abnormally elevated body temperature. Heat cramps and heat exhaustion are two less severe forms of hyperthermia. The body generates heat as a result of metabolism, and is usually able to dissipate the heat by either radiation of heat through the skin or by evaporation of sweat. Hyperthermia occurs when the body is unable to dissipate heat as fast as it is accumulated.

**Heat exhaustion** can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids. Those most prone to heat exhaustion are elderly people, people with high blood pressure, and people working or exercising in a hot environment.

Warning signs of heat exhaustion include heavy sweating, paleness, muscle cramps, tiredness, weakness, dizziness, headache, nausea or vomiting, and fainting. The skin may be cool and moist. The victim's pulse rate will be fast and weak, and breathing will be fast and shallow. Heat exhaustion treatment involves cooling the victim by reducing heat generation and increasing the rate of heat loss. Treatment measures include cool non-alcoholic beverages, rest, cool shower, bath, or sponge bath, an air-conditioned environment and lightweight clothing.

**Heat stroke** is a true medical emergency that can be fatal if not properly and promptly treated. In extreme heat, high humidity, or vigorous exertion under the sun, the body may be unable to dissipate the heat and the body temperature rises, sometimes up to 106°F (41.1°C) or higher. Dehydration is another cause of heat stroke. A dehydrated person may not be able to sweat fast enough to dissipate heat. Those most susceptible to heat strokes include infants, the elderly, athletes, and outdoor workers physically exerting themselves under the sun.

Symptoms of heat stroke can sometimes mimic those of heart attack.

A person may experience symptoms of heat exhaustion (nausea, vomiting, fatigue, weakness, headache, muscle cramps and aches, and dizziness) before progressing to heat stroke. Some individuals can develop symptoms of heat stroke suddenly and rapidly without warning. Common symptoms and signs of heat stroke include:



- high body temperature;
- the absence of sweating, with hot red or flushed dry skin;
- rapid pulse, difficulty breathing;
- strange behavior or hallucinations;
- confusion, agitation, disorientation;
- coma.

Victims of heat stroke must receive immediate treatment to avoid permanent organ damage. First and foremost, cool the victim. Get the victim to a shady area, remove clothing, apply cool or tepid water to the skin, fan the victim to promote sweating and evaporation, and place ice packs under armpits and at the groin. Monitor body temperature with a thermometer and continue cooling efforts until the body temperature drops to 101-102°F (38.3-38.8°C). Notify emergency services (911) immediately. If their arrival is delayed, they can give you further instructions for treatment of the victim.

The most important measures to prevent heat strokes are to avoid becoming dehydrated and to avoid vigorous physical activities in hot and humid weather. If you have to perform physical activities in hot weather, drink plenty of fluids (such as water and sports drinks), but avoid alcohol, caffeine, and tea which may lead to dehydration. Your body will need replenishment of electrolytes (such as sodium) as well as fluids if you sweat excessively or perform vigorous activity in the sunlight for prolonged periods. Take frequent breaks to hydrate yourself. Wear hats and light-colored, lightweight, loose clothes.

**Seasickness** occurs when your body is being passively transported by a vehicle. This can create a “sensory conflict” of information to the brain, which responds by sending distress signals to the rest of the body, particularly the stomach. These sensory conflicts typically happen in turbulence such as heavy waves at sea, when there is unexpected motion in different directions or because of differences between perceived motion and actual motion.

Seasickness symptoms include nausea, chills, cold sweats, shivering, inattention, confusion and vomiting. Continued seasickness may lead to concern for dehydration as liquid is expelled from the body and cannot be replaced. Those suffering this condition have been known to try to get off a vessel that is miles off shore, so sufferers may need continued attention to prevent this type of event..

Various types of medication are available that work to combat seasickness. Many of these have side effects such as drowsiness so they should be tested ashore before being used while on the water. Other approaches to reducing motion sickness include wrist bands, and eating foods containing ginger. Medication is best taken before onset of the problems associated with seasickness. Providing sufferers activities that require them to look at objects off of the vessel, keeping them from doing close detail work and keeping them out of enclosed spaces such as the vessel cabin is often beneficial. Over time the symptoms should abate as the body adjusts to the motion experienced.

### **Operator Fatigue**

Operator fatigue is often a key factor in accidents both on land and on water. Fatigued operators often make bad decisions, fail to recognize important parts of specific situations and make errors they would not make when well rested. The combination of sun, wind and water often leads to unexpected fatigue. Know your limitations. Given the choice, when experiencing fatigue, stay ashore. If on the water, exhibit additional caution, slow down, check your work an extra time, rethink and discuss decisions where possible.

### **Ignition Protection**

Every boat that has a gasoline engine or uses propane devices must have ignition-protected electrical devices. These parts are designed and manufactured so that, under normal conditions, they will not ignite gasoline or propane fumes or vapour. This protection prevents sparks from escaping during use. Only use electrical components that are clearly labeled as ignition protected.

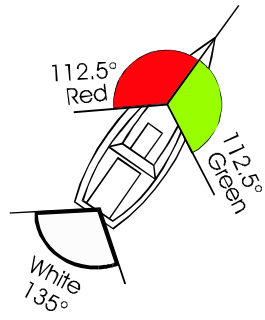
Many older boats, and even some new ones, have been fitted with converted car or truck engines. If you are not sure that your engine has ignition-protected parts in it, have it serviced by a certified marine technician. They can tell you if a replacement part (or related work done to the engine) has put the engine’s ignition protection, and you, at risk.



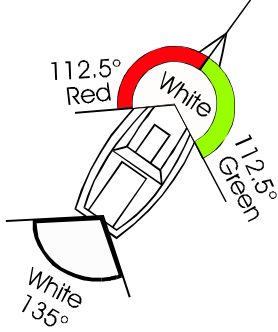


### Common Light Configurations for small Pleasure Craft

Vessel Under Sail



Vessel Under Power



Vessel at Anchor

