

## SAFE BOATING CHECKLIST

Boating safety and the safety of your passengers is YOUR responsibility.

- Observe the instructions on all safety labels. They are there to ensure that you have a safe and enjoyable outing.
- Drug or alcohol consumption affects your skills and your judgment during the driving. It is highly recommended not to operate a boat under the influence of drugs or alcohol. Allow only qualified drivers to operate your boat.
- At least one passenger should be able to operate the boat in case the operator is unexpectedly unable to do so.
- Don't overload the boat. Troubled water reduces the load capacity. A weight capacity plate is not an excuse for failure to use common sense or rational judgment.
- Always use the lanyard stopswitch when operating the boat and ensure that all passengers are familiar with its use.
- Regularly inspect the boat, hull, engine, safety equipment, and all other boating gear and keep them in safe operating condition.
- Be sure you have the minimum required safety equipment and any additional gear needed for your cruise.
- Check that all lifesaving equipment, including fire extinguisher, is in safe operating condition and is easily accessible. Show all passengers where this equipment is, and make sure they know how to use it.
- Be very careful while fueling. Know the capacity of the fuel tank. Avoid fueling at night except under well-lit conditions. Gasoline spills are unnoticeable in the dark. Extinguish all open flames when fueling.
- Each time you fill up, be sure the engine compartment is free of gasoline fumes, and inspect fuel lines for leaks and hose deterioration.
- Keep enough fuel on board for the planned trip. Allow for changes due to adverse weather or other delays. Use one-third (1/3) of the fuel to reach your destination, one-third (1/3) to return, and keep one-third (1/3) in reserve.
- Keep an eye on the weather. Check local weather broadcasts before departure. Be alert to changing conditions.
- Always keep accurate up-to-date charts of the boating area on board. Before getting underway, check water conditions in the planned boating area.
- Before departure, file a Float Plan with a responsible person ashore.
- Always operate your boat with consideration, courtesy and common sense.

**YOU** are responsible for your own safety, as well as the safety of your passengers and your fellow boaters. You should fully understand and become familiar with the operating procedures and safety precautions in this manual and the other information in the Owner's Packet before you launch the boat. Before leaving on a cruise, whether for an hour or several days, go through the Safety Checklist on page 2-1. Always operate your boat with consideration, courtesy, and common sense.

## HAZARD STATEMENTS

As you read your Owner's Manual, please note the hazard warnings which alert you to safety precautions related to unsafe conditions or operating procedures. We have included these warnings because we are concerned about your safety and the safety of your passengers.



The safety alert symbol is recognized around the world. In this manual, it means read this information carefully! Be sure you understand the consequences of a hazard and how to avoid them. *Failure to follow the recommendations in a hazard communication statement may result in property damage, personal injury or death.*

People often refer to a hazard statement as a warning in a general sense. This manual uses three kinds of "warnings" in a grey-scale format depending on the likely effect of a hazard (minor injury, severe injury, death).

### CAUTION

The safety symbol and this signal word indicate a potentially hazardous situation which, if not avoided, MAY result in minor or moderate personal injury or moderate property damage. It may also be used to alert against unsafe practices.

### WARNING

The safety symbol and this signal word indicate a potentially hazardous situation which, if not avoided, COULD result in severe injury, death or substantial property damage.

### DANGER

The safety symbol and this signal word indicate an imminently hazardous situation, which, if not avoided, WILL result in severe personal injury or death. This signal word is to be limited to the most extreme situations.

*The warnings in this manual do not and cannot address every conceivable situation. Always use common sense! If a procedure, method, tool, or part is not specifically recommended, you must satisfy yourself that it is safe for you and others and that your boat will not be damaged or made unsafe as a result of your decision.*

## ADVISORY STATEMENTS

Advisory statements alert you to conditions that affect equipment operation, maintenance, and servicing practices.

An **IMPORTANT** statement indicates a procedure intended to prevent damage to equipment or associated components.

A **Note** statement is a general advisory statement relating to equipment operation and maintenance procedures.

## SAFETY EQUIPMENT

As the owner of the boat, you are responsible for assuring that all required safety equipment is aboard. You should also consider supplying additional equipment as needed for your safety and that of your passengers. Learn to recognize the degree of precaution and understanding the explanation of the safety prior to reading this manual. These precautions are not all-inclusive. Always use common sense in the operation of your boat.

### Required Safety Equipment

While most required safety equipment has been provided on your boat, it is your responsibility to properly equip your boat. Check with your dealer or with boating authorities to determine equipment needed.

### Personal Flotation Devices (PFDs)

Federal regulations require that you have at least one Coast Guard approved personal flotation device (PFD) for each person in a recreational boat. You may not use your boat unless all PFDs are in serviceable condition, readily accessible, legibly marked with the Coast Guard approval number, and of an appropriate size (the minimum and maximum weight range combined with the chest size marked on the PFD, are common methods used to size PFDs) for each person on board. Personal flotation devices must be fit individually to the people wearing them.

A PFD provides buoyancy to help keep your head above the water and to help you remain in a satisfactory position while in the water. Body weight and age should be considered when selecting a PFD. The

buoyancy provided by the PFD should support your weight in water. It is your responsibility to ensure that you have the proper number and types of PFD on board and that your passengers are told to wear them all the time and know how to use them.

### Personal Flotation Device Pointers

The purpose of a PFD is to help save your life. If you want it to support you when you are in the water, it needs to fit, float, and be in good condition.

- Try the PFD on and adjust it until it fits comfortably in and out of the water. Mark your PFD if you are the only wearer.
- To make sure the PFD works, wear it in the water. This will show you how it works and give you confidence when you use it.
- Teach children how to put a PFD on and allow them to try it in the water. That way, they know what the PFD is for and how it works. They will feel more comfortable with it if they suddenly find themselves in the water.
- If the PFD is wet, allow it to dry thoroughly before storing it. Do not dry it in front of a radiator or heater. Store it in a well-ventilated area.
- Keep PFDs away from sharp objects which can tear the fabric or puncture the flotation pads.
- For their own safety and the safety of others, all non-swimmers, poor swimmers, and small children should wear PFDs at all times, whether the boat is stationary or moving.
- Check the PFD frequently to make sure that it is not torn, that flotation pads have no leaks, and that all seams and joints are securely sewn.
- If a PFD contains kapok, the kapok fibers may become waterlogged and lose their buoyancy after the vinyl inserts are punctured. If the kapok becomes hard or if it is soaked with water, replace it. It may not work when you need it.

### Hypothermia

Hypothermia, the loss of body heat to the water, is a significant cause of deaths in boating accidents. After an individual has succumbed to hypothermia, he or she will lose consciousness and then drown.

PFDs may increase survival time because of the insulation they provide. Naturally, the warmer the water, the less insulation one will require. When operating in cold water (below 40°F) consideration should be given to using a coat or jacket-style PFD, as it covers more of the body than a vest-style PFD.

Some points to remember about hypothermia protection:

1. While afloat in the water, do not attempt to swim unless it is to reach a nearby craft, fellow survivor or a floating object on which you may lean or climb. Unnecessary swimming increases the rate of body heat loss. Keep your head out of the water. This will greatly lessen heat loss and increase your survival time.
2. Keep a positive attitude about your survival and rescue. This will improve your chances of extending your survival time until rescue. Your will to live does make a difference!
3. If there is more than one person in the water, huddling is recommended while waiting to be rescued. This action tends to reduce the rate of heat loss and thus increase the survival time.
4. Always wear your PFD. It won't help you fight off the effects of hypothermia if you don't have it on when you go into the water.

### Fire Extinguishers

As the owner of the boat, you are responsible for supplying a fire extinguisher.

Hand-held portable fire extinguishers should be mounted in readily accessible locations away from the engine compartment. All persons aboard should know the location and proper operation of the fire extinguisher(s).



**Fire!** In case of fire, do not open engine compartment. Turn off engine. Discharge repetitively small amounts of the extinguishing compound on the fire until the fire dies. Do not discharge the entire contents of the fire extinguisher at the same time, or you may run out of extinguishing compound.

**Note:** Don't test fire extinguishers by squirting small amounts of the extinguishing compound. The extinguisher might not work when you really need it!

### Sound Signaling Devices

**Note:** No single signaling device is appropriate for all purposes. Consider keeping various types of equipment on board.

Boat operators are required to carry a hand, mouth or power operated horn or whistle. It must produce a blast of two-second duration and be audible at a distance of at least one-half (1/2) mile.

Following are standard whistle signals:

- |                       |                           |
|-----------------------|---------------------------|
| • One Prolonged Blast | Warning signal            |
| • One Short Blast     | Pass on my port side      |
| • Two Short Blasts    | Pass on my starboard side |
| • Three Short Blasts  | Engine in reverse         |
| • Five or More Blasts | Danger signal             |

### Navigation Lights

Navigation lights are intended to keep other vessels informed of your presence and course. If you are out on the water between sunset and sunrise, you are required to display appropriate navigation lights.

The Pilot Rules prohibit the display of any light not required by law which would in any way interfere with the prescribed navigation lights. At night, extraneous lights may confuse the pilots of other vessels, and may interfere with your own night vision.

### ADDITIONAL RECOMMENDED EQUIPMENT

It is recommended that you acquire additional equipment for safe and enjoyable cruising. This list, which is not all-inclusive, includes items you should consider acquiring.

#### BASIC GEAR:

- |   |                                    |               |
|---|------------------------------------|---------------|
| Flashlight                                  | Mooring lines                      | Compass       |
| Oar or paddle                               | Distress signals                   | First aid kit |
| Dock fenders                                | VHF radio                          | EPIRB         |
| Boat hook                                   | Extra warm clothing                | Charts        |
| Suntan lotion                               | Tow line                           |               |
| Second anchor and line                      | Dewatering device (pump or bailer) |               |
| Emergency supply of drinking water and food |                                    |               |

#### TOOLS:

- |                   |                 |                    |
|-------------------|-----------------|--------------------|
| Spark plug wrench | Hammer          | Screwdrivers       |
| Jackknife         | Pliers          | Electrician's tape |
| Adjustable wrench | Lubricating oil | Prop wrench        |
| Duct tape         |                 |                    |

#### SPARE PARTS:

- |                       |                 |             |
|-----------------------|-----------------|-------------|
| Extra bulbs           | Spare propeller | Extra fuses |
| Extra drain plug      | Spark plugs     | Spare wire  |
| Extra prop nut/washer |                 |             |



**Carbon Monoxide!** Carbon monoxide can be harmful or fatal if inhaled. Keep exhaust outlets clear of blockage. Provide adequate ventilation. Open canvas enclosures to ensure adequate ventilation. Avoid operating the boat for extended periods of time at idle speed, and be sensitive to weather conditions that may prevent CO from dissipating into the air when the canvas is completely enclosed. Do not tow skier or people in a tube at idle speed with a short rope. Make sure you have the length of required rope so that the person does not inhale the CO emissions.

### CARBON MONOXIDE AND BOATING

Burning a material containing carbon produces carbon monoxide (CO), an odorless and colorless gas. Because CO weighs approximately the same as air, it may spread throughout an enclosed space unnoticed because you cannot see it or smell it. Any device used to burn carbon based materials on a boat may be a source of CO. Common sources of carbon monoxide include internal combustion engines.

Carbon monoxide reacts with the blood to reduce the ability of the blood to carry oxygen. The reduced oxygen supply to body tissues results in the death of the tissue. Prolonged exposure may cause brain damage or death. In high concentrations, CO may be fatal within minutes. The effects of CO in lower concentrations are cumulative and may be just as lethal over long periods of time.

Symptoms of CO poisoning include: itchy and watering eyes, flushed appearance, throbbing temples, inability to think coherently, ringing in the ears, tightness across the chest, headaches, drowsiness, nausea, dizziness, fatigue, vomiting, collapse, and convulsions. **Carbon monoxide poisoning is often confused with seasickness.** If any of these symptoms is evident, begin treatment immediately. Prompt action may make the difference between life and death.

- Evacuate the area and move the victim to fresh air.
- Administer oxygen if available and get medical help.
- Open all canvas enclosures to ventilate the area.
- Investigate the source of CO and take immediate corrective action. Be especially aware of sources adjacent to the boat.

## Carbon Monoxide Accumulation

Following are examples of possible situations where carbon monoxide may accumulate within your boat while docked, anchored or underway. Become familiar with these examples and their precautions to prevent DANGEROUS accidents.

### ⚠ WARNING

**Exhaust Fumes!** Generator or hull exhaust from other boats while either docked or anchored can emit poisonous carbon monoxide gas and cause excessive accumulation within cabin and cockpit areas. See Figure 2-6. Be alert for generator exhaust from other boats alongside.

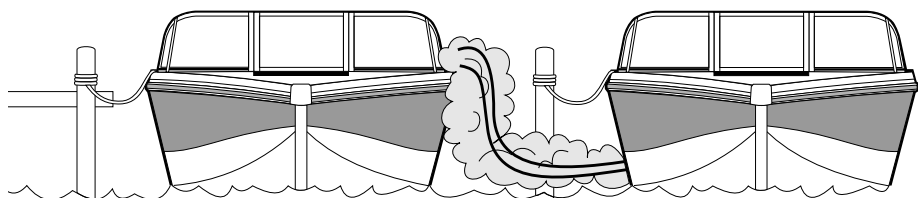


FIGURE 2-6 VESSEL ALONGSIDE

### ⚠ WARNING

**Backdrafting!** Under certain conditions, moving air currents can direct poisonous carbon monoxide fumes into boat (Figure 2-7). These fumes can accumulate to dangerous levels without proper airflow. Provide adequate ventilation, redistribute the load or bring boat out of high bow angle.

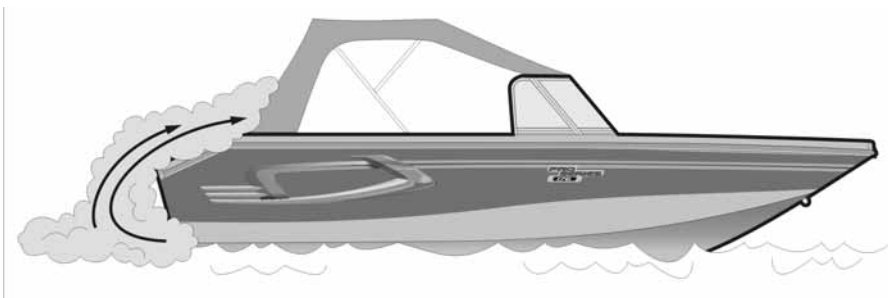


FIGURE 2-7 WHILE UNDERWAY (BACKDRAFTING)

While underway, CO concentrations may increase by backdrafting or causing “the station wagon effect.” Backdrafting is caused by factors such as relative wind direction, speed or the bow being too high. To prevent this, open canvas whenever possible to provide positive airflow through the hull.

### ⚠ WARNING

Engine exhaust from your boat when operating at slow speed or idle may cause excessive CO concentration that may be harmful to people being towed too closely to the boat or who are situated on the swim platform (Figure 2-9). Do not tow people at slow speed and do not allow anyone near the back of the boat or the swim platform while running at slow speed or idle.

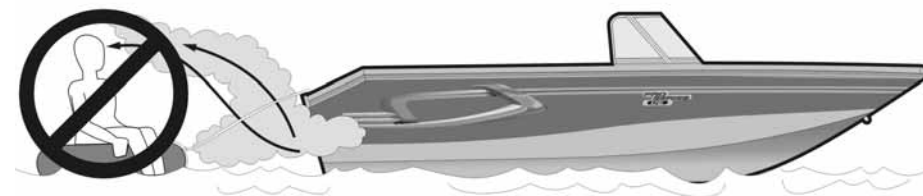


FIGURE 2-8 SLOW SPEED TOWING



FIGURE 2-9 Boat swim platform

## ⚠ WARNING

**Exhaust Fumes!** Hull exhaust from your boat can cause excessive accumulation of poisonous carbon monoxide gas within cockpit area when using protective weather coverings while underway (Figure 2-7) or while stationary. Provide adequate ventilation when the canvas top, side curtains, and/or back curtains are in their closed protective positions.

## ⚠ WARNING

**Exhaust Fumes!** Hull exhaust outlets near a pier, dock, seawall, or outlets blocked by any other means can cause excessive accumulation of poisonous carbon monoxide gas within cockpit area (Figure 2-10).

Boat houses, seawalls, and other boats in close proximity or confined areas may contribute to increased CO levels. *Operators must be aware that operation, mooring, and anchoring in an area with other boats puts them in jeopardy of CO accumulation from other sources. Similarly, a boat operator must be aware of how exhaust from his boat will affect others.* Operation of the engines while moored may cause CO accumulation in your boat and those around you.

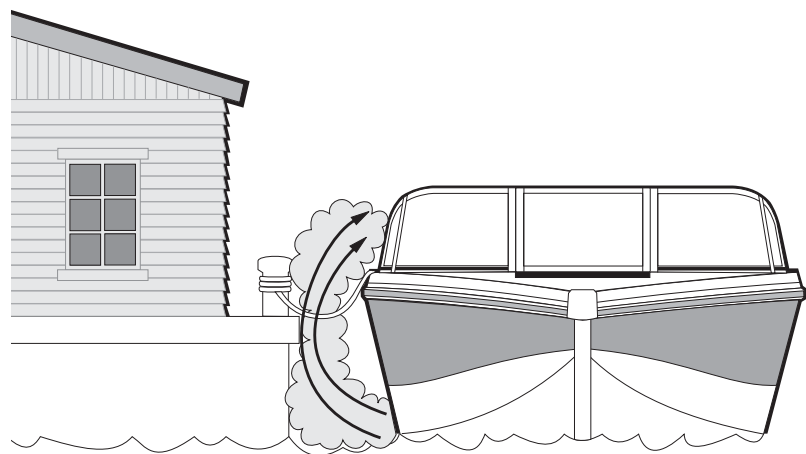


FIGURE 2-10 CONFINED AREAS

Installing rear canvas while underway increases the chance of CO accumulation in your boat. Be sure to provide adequate ventilation.

## ⚠ WARNING

**Exhaust Fumes!** Engine exhaust from your boat when operating at slow speed or stopped in the water can cause excessive accumulation of poisonous carbon monoxide within cockpit area. Tail wind can increase accumulation. Provide adequate ventilation or slightly increase speed if possible.

If the windshield has vents, open them before getting underway to increase positive air flow and decrease the chances of CO accumulation.

Even with the best boat design and construction, CO may still accumulate in enclosed areas under certain conditions. Continually observe passengers for symptoms of CO poisoning. It is suggested that you install rear canvas while the boat is stationary and the engine is turned off. In certain cases, installing rear canvas may decrease the "back draft" effect of CO emissions.

### CO Detector

It is strongly recommended that you have a marine-grade approved CO detector installed in boats with canvas enclosures. Monitors are available from your dealer. Monitors should be professionally installed and calibrated.

**Note:** A CO detector is not a gasoline fuel vapor detector. Gasoline fuel vapor detectors do not monitor the buildup of carbon monoxide in an enclosed area.

### LANYARD STOPSWITCH

This safety device automatically stops the engine if the lanyard is attached to the operator and the operator falls from the control station. Refer to the

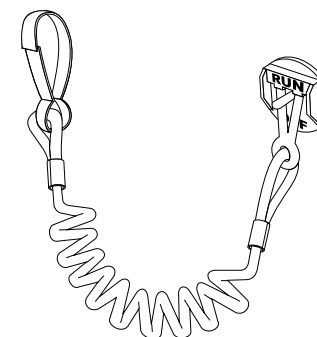


FIGURE 2-11 TYPICAL IGNITION INTERRUPTER (STOPSWITCH) WITH LANYARD

engine manual for detailed information about using this switch.

The stopswitch (Figure 2-11) incorporates a shutoff switch, switch clip and lanyard. The clip must always be securely attached to the operator at all times. If the engine shuts down because this switch was activated, the

### **⚠ WARNING**

Keep lanyard stop switch free from obstructions that could interfere with its operation. Do not modify or remove lanyard stopswitch or bypass its safety features. The proper use of the lanyard stopswitch can prevent a runaway boat situation which can cause severe personal injury or death.

clip may have to be reinstalled and the interrupter switch has to be set to run (or upper) position before the engine can be started.

## **SAFE BOATING PRACTICES**

**YOU** are responsible for your own safety, the safety of your

### **⚠ WARNING**

Operating under the influence endangers your life, the life of your passengers and that of other boaters. Every province and territory and state imposes their own law and regulations on the consumption of alcohol or how to transport it aboard a boat. It is your responsibility to check with the authorities of the region.

passengers, and the safety of fellow boaters.

### **Drugs and Alcohol**

Do not use drugs or drink alcohol while operating a boat. As when driving a car, driving a boat requires sober, attentive care. Operating a boat while intoxicated or under the influence of drugs is not only dangerous, but also illegal. These laws are vigorously enforced. The use of drugs and alcohol, singly or in combination, decreases reaction time, impedes judgment, impairs vision, and inhibits your ability to safely operate a boat.

### **Safe Operation**

Safe operation means that you do not misuse your boat nor do you allow your passengers to do so. Safe operation means using good judgment at all times. It includes, without limitation, the following actions:

- Load the boat within the limits listed on the capacity plate. Balance loads bow to stern and port to starboard.
- Maintain boat speed at or below the local legal limit. Avoid excessive speed or speeds not appropriate for operating conditions.
- Do not use the boat in weather or sea conditions beyond the skill or experience of the operator or the comfortable capability of the boat or passengers.
- Be sure at least one other passenger is familiar with the operation and safety aspects of the boat in case of an emergency.
- Make sure that passengers and gear do not obstruct the operator's view or ability to move.
- Do not exceed the maximum engine power rating stated on the certification plate attached to the boat.
- Observe all safety signs and warnings both inside the boat and in the immediate boating area.

### **Passenger Safety**

Everyone aboard should wear rubber-soled shoes which resist slipping on wet surfaces before getting underway. Show all passengers where emergency and safety equipment are stowed, and explain how to use them. While underway, passengers should remain seated inside the

### **⚠ DANGER**

**Personal Injury!** Do not allow anyone near a propeller, even when the engine is off. Propeller blades can be sharp and can continue to turn even after the engine is shut off. Do not allow anyone near the propeller when the throttle is in the neutral position. Contact with propeller will result in serious injury or death.

deck rails. Don't allow passengers to drag their feet or hands in the water. Always use handholds and other safety hardware to prevent falls.

### **Propeller**

#### **First Aid**

As a boat operator, you should be familiar with basic first aid procedures that may be needed while you are far from help. Fish hook accidents or minor cuts and abrasions may be the most serious mishaps on board a boat, but you should also learn the proper procedures and be ready to deal with truly serious problems such as excessive bleeding, hypothermia, and burns. First aid literature and courses are available through most Red Cross chapters.

### **Operation By Minors**

Minors should always be supervised by an adult whenever operating a boat. Some regions also have laws regarding the minimum age and licensing requirements of minors. Be sure to contact the local boating authorities for information.

### Rules of the Road

As a responsible boater, you will comply with the “Rules of the Road,” the marine traffic laws. Navigating a boat is much the same as driving an automobile. Operating either one responsibly means complying with a set of rules intended to prevent accidents. Just as you assume other car drivers know what they are doing, other boaters assume you know what you are doing.

### Safe Boating Courses

It is highly recommended that you enroll in a boating safety course to obtain your nautical driver’s card. These lessons are conceived to teach you to operate your boat safely. Your dealer can advise concerning boating safety courses held in your area. You may also contact the Canadian Power Squadron at 1-888-277-2628, or the Boat/U.S. Foundation at 1-888-336-2628 for more information. It is your responsibility to gain knowledge and experience in skills such as:

## **⚠ DANGER**

**Personal Injury!** Your boat is not designed for and should not be used for pulling parasails, kites, gliders, or any device which can become airborne. Use boat only for appropriate water sports.

- Navigation
- Seamanship and boathandling
- Rules of the Road, international-inland
- Weather prediction
- Safety at sea
- Survival in bad weather
- Respect for others on the water
- First aid
- Radio communication
- Distress signals
- Pollution controls

### WATER SPORTS

Water skiing, wakeboarding, kneeboarding, or riding a towed, inflatable apparatus are some of the more popular water sports. Taking part in

any water sport requires increased safety awareness by the participant and the boat operator. If you have never pulled someone behind your boat before, it is a good idea to spend some hours as an observer, working with and learning from an experienced driver. It is also important to be aware of the skill and experience of the person being pulled. Always have a second person on board to observe the person in the water so the driver can concentrate on operating the boat.

Everyone participating in a water sport should observe these guidelines:

1. It is highly recommended that the person who takes part in any water sport know how to swim well.
2. Always wear a personal flotation device (PFD). Wearing a properly designed PFD helps a stunned and unconscious person stay afloat.
3. Be considerate to others with whom you share the water.
4. Always participate in water sports in safe areas. Stay away from other boats, beaches, restricted areas, swimmers, and heavily traveled waterways.
5. Have a second person aboard to observe the person being pulled and inform the driver about that individual’s hand signals (Figure 2-14). The driver must give full attention to operating the boat and the waters ahead.
6. Give immediate attention to an individual who has fallen. He or she is vulnerable in the water alone and may not be seen by other boaters. Be careful not to swamp the boat while taking a person on board.
7. Approach a person from the lee side (the opposite direction of the wind). Stop the motor before coming close to the person.
8. Do not drive the boat directly behind a water sport enthusiast that is being towed by an other boat. At 25 miles per hour, the boat will overtake a fallen individual who has 200 feet in front in about 5 seconds.
9. Do not allow anyone near the propeller(s), even when the engine is off. Propeller blades may be sharp and may continue to turn even after the engine is off. The using of a back ladder is highly recommended. In certain regions, means of unboarding use is mandatory. It is your responsibility to confirm this with the authorities in the region.
10. Do not tow people at slow speed and do not allow people near or around the rear of the boat even when the boat is running at slow speed or idle.
11. Stay at least 150 feet away from areas marked by a diver-down float (Figure 2-12).



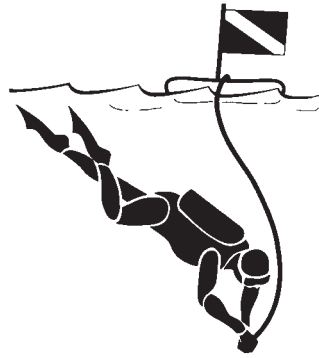


FIGURE 2-12 DIVER-DOWN FLOAT



FIGURE 2-13 SWIM AREA BUOY

12. Turn off the engine and anchor before swimming.
13. Swim only in areas designated as safe for swimming. These are usually marked with a swim area buoy (Figure 2-13). Do not swim alone or at night.
14. Do not practice water sports between sunset and sunrise. It is illegal in most areas.

**⚠ DANGER**

**Rotating propellers!** A rotating propeller may cut or sever, causing serious injury or death. Switch engine off before skiers enter the water and before taking skiers aboard. Do not leave engine running in neutral. Accidentally engaging shift can seriously injure skier.

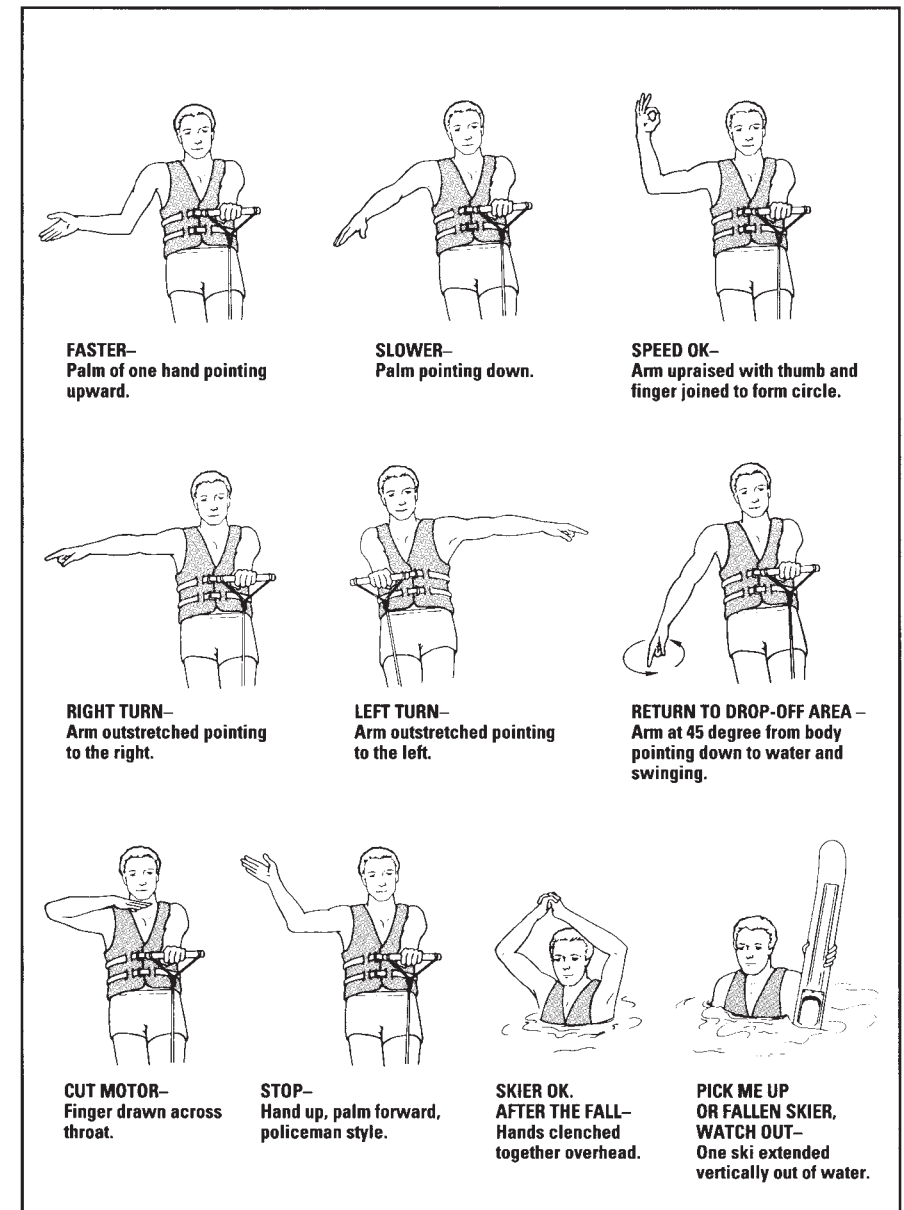


FIGURE 2-14 WATER SPORT SIGNALS

For more information about water skiing, please contact the American Water Ski Association, 799 Overlook Drive, Winter Haven, FL 33884 (1-800-533-2972). In Canada, contact Water Ski Canada, 2197 Riverside Drive, Ottawa, Ontario (1-613-526-0685).

## CHARACTERISTICS OF ETHANOL-BLENDED FUEL

Your boat is equipped with a gasoline fuel system. **Please take time to read and understand all the fuel related information and warnings regarding gasoline and your boat in the engine owner's manual.**

Caution should be taken that you select fuels having the octane rating recommended for the engine, as indicated in the engine owner's manual, for proper operation.

### **WARNING**

#### GASOLINE RECOMMENDATIONS

Minimum octane rating of 87 (R+M)/2

The use of improper gasoline or additives can damage your fuel system and is considered misuse of the system. Damages caused by improper gasoline or additives WILL NOT be covered under the warranty.

#### **Ethanol – Blended fuels**

Ethanol is an oxygenated hydrocarbon compound that has a high octane rating and therefore is useful in increasing the octane level of unleaded gasoline.

The fuel-system components of your Mercury engine(s) have been tested to perform with the maximum level of ethanol-blended gasoline (10% ethanol) currently allowed by the EPA in the United States.

Special precautions should be considered with the use of fuel containing ethanol in your system. Fuels with ethanol may attack some fuel-system components, such as tanks and lines, if they are not made from acceptable ethanol-compatible materials. This may lead to operational problems or safety issues such as clogged filters, leaks or engine damage.

Your boat was manufactured, and shipped from the factory, with ethanol-compatible materials. Before introducing gasoline with ethanol into your fuel tank, ask your dealer whether any components have been added or replaced that are not or may not be ethanol-compatible.

#### **Filling the Tank**

It is best to maintain a full tank of fuel when the engine is not in use. This will reduce air flow in and out of the tank due to changes in temperature as well as limiting exposure of the ethanol in the fuel to humidity and condensation.

#### **Phase Separation**

Humidity and condensation create water in your fuel tank which may adversely affect the ethanol-blended fuel. A condition called phase separation may occur if water is drawn into the fuel beyond the saturation point. The presence of water in the fuel beyond the saturation level will cause most of the ethanol in the fuel to separate from the bulk fuel and drop to the bottom of the tank, significantly reducing the level of ethanol in the fuel mixture in the upper level (phase). If the lower level (phase), consisting of water and ethanol, is deep enough to reach the fuel inlet, it could be pumped directly to the engine(s) and cause significant problems. Engine problems may also result from the reduced ethanol/fuel mixture left in the upper phase of the tank.

#### **Additives**

There is no practical additive known that can prevent or correct phase separation. The only solution is to keep water from accumulating in the tank.

If phase separation does occur, your only option is to drain the fuel, clean and dry the tank completely and refill with a fresh, dry load of fuel.

#### **Fuel Filters**

Mercury already provides the appropriate level of filtration to protect the engine from debris. The addition of another in-line filter to the system will create a possible flow restriction that may starve the engine(s) of fuel.

As a precaution, it is advisable to carry extra on-engine filters in case filter plugging from debris in the fuel tank becomes a problem during boating.

#### **Maintenance**

Periodically inspect for the presence of water in the fuel tank. If any is found, all water must be removed and the tank completely dried before refilling the tank with any fuel containing ethanol.

#### **Storage**

Long periods of storage and/or non-use, common to boats, create unique problems. When preparing to store a boat for extended periods of two or more months, it is best to completely remove all fuel from the tank. If it is not possible to remove the fuel, maintaining a full tank of fuel with a fuel stabilizer added to provide fuel stability and corrosion protection is recommended.

## OWNER'S LOGS AND RECORDS

At the end of this chapter are several forms which you should find very helpful.

The **Float Plan** provides a record of your destination, departure and return times, boat description, passenger list, and other information about the trip you have planned. At the bottom of the form is space for listing emergency telephone numbers in case your return is delayed past the expected time. It also has space for indicating information about the person filing this report. Leave the completed form ashore with a responsible person. We recommend you make several copies of this form each boating season to assure an ample supply.

The **Fuel Log** is a handy way to record information covering engine hours, fuel consumption, miles traveled, as well as RPM (revolutions per minutes), average mph (miles per hour), and gph (gallons per hour).

The **Service/Maintenance Log** provides a record of maintenance work completed, the date of completion, and the engine hour reading. This log also helps you identify the frequency of routine maintenance work, such as engine oil changes. If you should decide to sell your boat, it demonstrates to prospective buyers that you have done a good job of taking care of it.

As a precaution, it is recommended that you copy the float plan and fill it out before going boating. Leave the completed copy with a reliable person who may be depended upon to notify the Coast Guard, or other rescue organization, should you not return as scheduled.

## FLOAT PLAN

Name \_\_\_\_\_ Telephone \_\_\_\_\_

Description of Boat: \_\_\_\_\_ Type \_\_\_\_\_ Color \_\_\_\_\_ Trim \_\_\_\_\_

Registration Number \_\_\_\_\_

Length \_\_\_\_\_ Name \_\_\_\_\_ Make \_\_\_\_\_

Hull Identification Number \_\_\_\_\_

Other Info. \_\_\_\_\_

Persons Aboard: **Name** **Age** **Address** **Telephone**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Engine Type: \_\_\_\_\_ HP \_\_\_\_\_

No. of Engines: \_\_\_\_\_ Fuel Capacity: \_\_\_\_\_

Survival Equipment:

PFDs \_\_\_\_\_ Flares \_\_\_\_\_ Mirror \_\_\_\_\_

Smoke Signals \_\_\_\_\_ Flashlight \_\_\_\_\_ Food \_\_\_\_\_

Paddles \_\_\_\_\_ Water \_\_\_\_\_ Anchor \_\_\_\_\_

Raft or Dinghy \_\_\_\_\_ EPIRB \_\_\_\_\_ Sea Anchor \_\_\_\_\_

Navigation Equipment

Compass \_\_\_\_\_ Loran \_\_\_\_\_ GPS \_\_\_\_\_ Radar \_\_\_\_\_

Radio: Yes \_\_\_\_\_ No \_\_\_\_\_ Type \_\_\_\_\_ Freq \_\_\_\_\_

Phone: Yes \_\_\_\_\_ No \_\_\_\_\_ Phone No. \_\_\_\_\_

Destination \_\_\_\_\_ Est. Time of Arrival \_\_\_\_\_

Expect to Return By \_\_\_\_\_

Auto Type \_\_\_\_\_ License No. \_\_\_\_\_

Where \_\_\_\_\_

If not returned by \_\_\_\_\_ call the Coast Guard, or \_\_\_\_\_  
(Local Marine Authority)

Coast Guard Telephone Number: \_\_\_\_\_

Local Marine Authority Telephone Number: \_\_\_\_\_

