

SKIPPER'S CHECKLIST

Go through this checklist before starting your trip.

- Will the weather be favorable? Did you get a current weather report?
- Is there a suitable operator? Is operator impaired from drug or alcohol use?
- If the boat has been out of the water, have hull drain plugs been installed?
- Are the hull and propeller free of damage, excessive dirt, and marine growth?
- Are electrical system and navigation lights working?
- Is battery fully charged? Are connections clean and tight?
- Have you checked engine compartment for fuel odors?
- Have you checked engine(s) for leaks or signs of deterioration? Are fluid levels OK?
- Have you checked fuel system for odors, leaks, and deterioration?
- Does the steering system work smoothly? Are all components tight?
- Is the bilge pump OK? Have you pumped all water possible out of the bilge?
- Is all required safety equipment on board? Does it work? Is there one PFD for each passenger? Is safety equipment easily accessible?
- Do passengers and crew know what to do in an emergency? Do they know how to use safety equipment?
- Does the horn work?
- Is the lanyard safety switch working?
- Is other needed equipment on board, such as mooring lines, anchor and line, tool kit, first aid kit, etc.?
- Do you have enough fuel for your trip? Fuel tanks should be filled to slightly less than capacity. Allow space for fuel expansion.
- Do you have navigation charts and equipment on board? Are you familiar with the area where you will be boating?
- Have you filed a float plan with a responsible party ashore?
- Do you have an emergency supply of food and water?
- Are all required documents on board?
- Are all passengers properly seated?
- Is the boat overloaded or overpowered (compared with capacity plate)?
- Are there any persons or debris near the propeller?
- Are the pedestal seats lowered from the fishing positions and stored so as not to interfere with visibility?

- Are all articles of clothing, fishing tackle, etc. stored and situated so that they will not be blown out of the boat or strike a passenger?
- Is the trolling motor folded up and resting securely on its mounting bracket and fastened with the strap or latching mechanism supplied with the trolling motor?

After the boat is in the water and secured to the dock, go through the Skipper's Checklist before starting your cruise.

FUELING



Fire and Explosion Hazard! Do not smoke. Extinguish all open flames. Stop engines. Do not use electrical switches and other devices that could cause a spark or flame. Close all openings. Turn off all cellular phones and pagers. Make sure that all passengers are off the boat while refueling

To avoid a gasoline overflow discharge or an explosion during the first refueling, make sure to fill the first gallon / liters at a reduced flow.

Because gasoline fumes are heavier than air, they migrate to the lowest part of the boat. Fumes may accumulate in the bilge and, if conditions are right, in the cockpit. These areas must be thoroughly ventilated before starting an engine.

Note: If 1/2 pint of gasoline explodes, it has the same power as 15 sticks of dynamite.

Although alcohol/ethanol boosts the octane level of gasoline, it also attacks the rubber fuel distribution lines and even the metal fuel system components. Alcohol/ethanol permeates most fuel hoses and other components such as fuel pump, gaskets, and seals, and may also contribute to fuel system contamination.

The fuel hoses are alcohol-resistant as are the materials used by the engine manufacturers. If only fuel containing alcohol is available, or the presence of alcohol/ethanol is unknown, you must perform more frequent inspections for leaks and abnormalities. Any sign of leakage or deterioration requires immediate attention. Refer to the engine manufacturer's recommendations on fuel type and octane ratings. (See section 2.18)

Since gasoline expands as it warms, do not overfill or top off your tank to capacity allow a 2% for expansion. This will also prevent gasoline spills.

Avoid breathing gasoline fumes. Make sure you're getting plenty of fresh air.

NEVER let children fuel or refuel.

If a fire should ignite at the fill pipe NEVER, EVER remove the nozzle. Back away immediately and notify the attendant to turn the dispensers off. When the nozzle remains in the fill pipe and the dispensers are turned off, the fire practically goes out on its own, causing minimal damage.

When filling a gasoline can or container, use only an approved container. Always place the can on the ground and keep the pump nozzle in contact with the container. Containers should never be filled inside the boat.

When filling a portable container, manually control the nozzle valve throughout the process to minimize spilling or splattering. Fill the container no more than 95% full. Place the cap tightly on the container after filling.

If gasoline spills on the container, make sure it has evaporated before you place the container in your boat.

When transporting gasoline make sure it can't tip or slide and NEVER leave it in direct sunlight or in the trunk of a car. Only store gasoline in approved containers.

For watercraft fueling and for your safety, be sure the fueling facility is fully compliant with the latest edition of the NFPA 30A Code for Motor Fuel Dispensing. Specifically, NFPA mandates the following:

- Use only automatic closing type nozzles without hold-open latches.
- Never refuel at night...except under well-lit conditions.
- All passengers must be off the boat while refueling
- Attendants must be within 15 feet of dispensing controls during the fueling process.
- Boat owner should do the refueling if possible
- Boat owner should be aware of the approximate amount of fuel needed – it is important to note that the person refueling is liable for the fuel spilled into the water – fines could be imposed.

Before fueling

- Safely secure the boat to the dock.
- All passengers must be off the boat while refueling
- Stop all engines, motors, fans, bilge blowers and other auxiliaries
- Shut off all electricity and heat sources and put out open flames.
- Check all bilges for fuel vapors
- Extinguish all smoking materials
- Close access fittings and openings that could allow fuel vapors to enter enclosed spaces of vessel
- Close all compartment lids to prevent accumulation of fuel vapors.
- Make sure that a fire extinguisher is readily available.

IMPORTANT: Follow engine manufacturer's recommendations for types of fuel and oil. Use of improper products may damage the engine and void the warranty.

During fueling

- Remove the gasoline fill cover.
- Insert the fuel supply nozzle, keeping it in contact with the fuel fill plate to guard against static-produced sparks.
- When using a portable gasoline tank, remove the gasoline tank cover, insert the fuel supply nozzle, putting it in contact with the fill opening before the flow of fuel is begun, and maintain this contact continuously until the fuel flow has stopped. There is a serious hazard posed by static discharge unless this practice is observed.
- DO NOT turn the nozzle upside down during any refueling event in boats or other motor vehicles – the automatic shut-off sensor in the nozzle may not be in contact with the rising fuel in the fill pipe and may result in spills, causing a hazardous condition.
- Stand away from the fuel tank vent and gasoline fill during fueling. Fuel may splash back, irritate eyes, and/or create a fire hazard.
- Avoid spilling gasoline. It may harm the environment. Wipe up any excess fuel immediately.

- Avoid overfilling
- Nozzle must be attended at all times
- No smoking
- After pumping approximately 10 gallons of fuel into the fuel tank, inspect the engine and fuel tank area for any signs of leakage. If no leaks or other problems are detected, resume fueling.
- Allow space at the top of the tank for thermal expansion.
- If fuel cannot be pumped in at a reasonable rate, check for fuel vent blockage or a kink in the line.

Note: You may not be able to fill the tank to 100% of its dry-rated capacity. The boat's floating attitude, which affects the position of the fuel tank and its vent, may limit the amount of fuel the tank will hold. If fuel flows out the tank vent, stop fueling immediately. The tank is as full as possible under current conditions.

After fueling

WARNING

Overloading and improper distribution of weight are significant causes of accidents. Do not exceed maximum load stated on capacity plate. For safety, carry a lighter load in rough waters. Distribute the load evenly. Keep the load low.

- Secure the gasoline fill cover. Use rags to wipe up any fuel spilled and dispose of them properly on shore.
- Open the fuel compartment lid. Check for fuel odors and visible fuel leakage. If you note any indication of odor or leakage, investigate the cause and correct the problem before starting the engine. Do not operate any electrical switch until the problem is corrected. A spark from an electrical device could set off an explosion!
- Ventilate until odors are removed

For a free DVD on Do's and Dont's at the gasoline pump, call 1-800-422-2525.

⚠ WARNING

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LOADING PASSENGERS AND GEAR

Affixed to most boats is a capacity rating plate showing the boat's maximum load capacity under normal conditions. This plate shows the maximum weight capacity for persons and for gear. Do not overload your boat. Overloading may cause the boat to become difficult to control and could be the cause of an accident.

Note: The operator is responsible for using sound judgment when loading the boat. Turbulent waters and adverse weather conditions reduce the maximum load capacity. Carrying the maximum load stated on the capacity plate in such conditions may be dangerous.

When you are loading gear, have someone on the dock pass gear aboard instead of stepping into and out of the boat. Secure all gear firmly so it doesn't shift or interfere with boat operation. When boarding, passengers should step into the boat one at a time, not jump. Passengers not helping load gear should be seated during loading to maintain an even trim. Position passengers and gear so that the load is balanced (Figure 7-1). Do not occupy the platform while the engine is engaged.

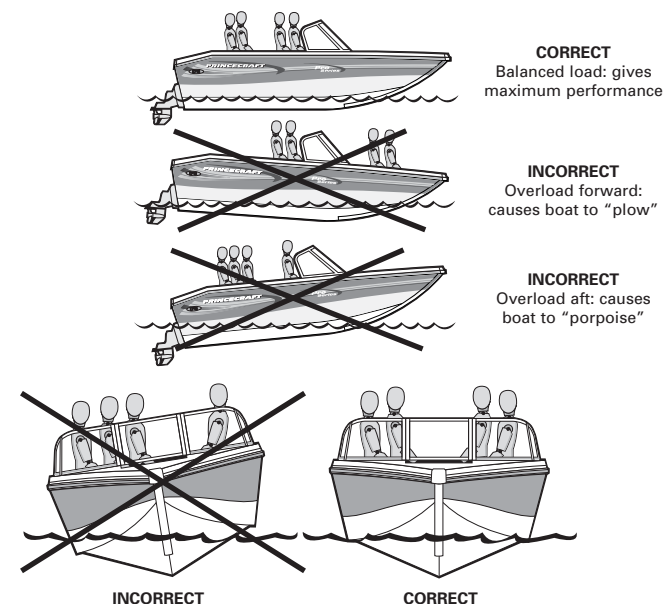


FIGURE 7-1 LOADING PASSENGERS

STARTING PROCEDURES

Note: The engine manual included with your Owner's Packet has detailed starting instructions. The following information is merely a guide and does not explain all starting procedures in detail.

Preliminary Checks

1. If the boat is not secured to the dock, do so before starting the engine. Keep it secure until the engine is running and warmed up.

⚠ WARNING

Fire or Explosion Hazard! Gasoline vapors are explosive. Check fuel tank compartment for fumes or gasoline leaks before starting engine. Do not start engine if gasoline or fumes are present.

2. If the fuel system has a manual fuel valve, open it.
3. Run the bilge pump until the flow of water stops.
4. On sterndrive models, run bilge blower for at least four minutes before starting the engine.

5. Make sure the throttle is in the neutral position and the engine is lowered into the water.
6. Make sure passengers seated in the bow area do not obstruct the operator's vision.

Starting Engine

1. Check the engine oil tank for proper level.
2. Pump the fuel primer bulb on the fuel line, if so equipped.
3. Turn the key to start the engine. Engine will not turn over if throttle is not in the neutral position.

IMPORTANT: Do not operate starter continuously for more than a few seconds without pausing. Starter will overheat and may become damaged. Allow at least two minutes between starting attempts so starter has time to cool.

WARNING

Carbon Monoxide Hazard! A cold engine produces more carbon monoxide than a warm engine. Provide adequate ventilation in the cockpit to prevent excessive exposure and reduce the possibility of carbon monoxide accumulation. Open all canvas and side vents to increase air movement.

4. After engine has warmed up, check water temperature gauge (if so equipped) to ensure engine temperature stays within proper ranges. If temperature reading is abnormally high, stop engine immediately and inspect for cause of high reading.
5. Turn the steering wheel full to port and starboard while observing the engine movement to check operation of the steering system.
6. With boat moored to the dock and engine idling, check for proper operation of the shifting motion by moving throttle forward, back, and then to neutral. *Leave the engine in gear for only a second or two.*
7. Before leaving the dock, be sure that the lanyard switch is working properly and is attached to the boat operator.

MANEUVERING

WARNING

Boat steering is not self-centering. Engine and propeller torque, wave and current action, and boat speed affect steering. Pay constant attention to steering for safe operation.

When you have finished all pre-departure checks, you are ready to leave the dock. Cast off the lines. Idle speeds work best when maneuvering. Take wind, tide, current, and other forces into account as you maneuver away from the dock. Check for other boats in the area.

IMPORTANT: Falls from moving boats are a major cause of fatal recreational boating accidents. Do not allow passengers to ride on the bow with feet hanging over the side or to ride while sitting on the stern, gunwales, or seat backs. The Coast Guard considers these acts to be negligent or grossly negligent operation and such acts are prohibited by law.

Leaving the Dock

Shift the engine into forward or reverse depending on whether you want to move the bow or the stern away from the dock first. Run the engine at a slow speed as you move away from the dock. If you move the bow out first, watch that the stern of the boat does not swing into the dock or a piling.

Note: If you are new to boating, practice maneuvering. Once away from the dock, practice docking using an imaginary dock. Practice stopping and reversing direction.

Stopping

Practice stopping maneuvers and learn early on how the boat reacts. If the boat is moving forward, pull the throttle back to NEUTRAL and let it coast. Depending on speed, the distance the boat will coast until it comes to a complete stop varies. Through experience, you will be able to measure that distance more accurately.

There will be times when you must stop more quickly, but boats don't have a brake pedal. Back down on the throttle and shift into NEUTRAL. The boat will begin to slow down. When the engine is idling, shift into REVERSE and gradually increase engine speed. The boat will stop in at shorter distance.

Note: In reverse, a boat does not steer nearly as well as it does when going forward. Don't expect to accomplish tight turning maneuvers when backing up.

Note: If your boat is not equipped with a helm station, see Engine Owner's Manual for information on tiller steering.

Steering

Boats steer by the stern. (The feeling is much as steering when you are backing up an automobile.) This means that when the boat is moving forward, the stern swings in the direction opposite to the turn. For example, when you turn the helm wheel to port, the stern swings to starboard. This is especially important to keep in mind when docking, operating in close quarters to other boats, or when approaching a swimmer or downed skier in the water.

Once you have spent enough time practicing maneuvers and have a feel for how the boat handles, you are ready to run in open waters.

HIGH PERFORMANCE BOATS

Your boat may be capable of being operated at very high speeds. It has been equipped and rigged for safe operation, but safe operation requires:

- Driver awareness of how the boat will perform under all operating conditions.
- Driver skill in anticipating and reacting to often rapidly changing boat control conditions.

⚠ WARNING

Some models are capable of speeds in excess of 45 MPH. Consult your dealer for full performance capabilities of your boat. High performance boats should not be operated by inexperienced persons until complete instruction is accomplished under the supervision of a qualified instructor.

For the safety of boat occupants, and to prevent damage to the boat, the number of passengers, speed, and manner of boat operation must be adjusted to suit weather conditions. The boat operator is responsible for any acts of negligence or carelessness.

The boat operator is responsible for the safety of all boat occupants, and nearby boaters. Passengers should be advised of the possibility of being thrown to the deck or overboard if they are not properly seated while the boat is operated at high speeds. Do not occupy fishing platforms above a 5 mile-per-hour speed. Do not operate at high speeds near other boats, pilings, underwater obstructions, people in the water, shorelines, seawalls, or any other obstacles.

When first learning to drive a high performance boat, try to pick a day and time when the waterway is relatively clear of traffic. Driving a high performance boat requires concentration, coordination, and an awareness of everything going on around the boat. You will feel more comfortable learning to operate your boat without a lot of other boats in the same area.

⚠ WARNING

Poor Visibility! While accelerating, bow rises and obstructs forward vision. Before accelerating, be sure path is clear.

⚠ WARNING

Always look behind you and to both sides of the boat before accelerating to plane. Tell your passengers of your intentions to allow them to make adjustment to their balance or positions.

ACCELERATION

Before bringing the boat « on-plane », check the entire area to make sure you have a clear, safe path. As you throttle up and accelerate, the boat's trim angle changes, causing the bow to ride high (Figure 7-2). This trim angle is sometimes referred to as the «hump». As the boat continues to accelerate, the boat levels out to its planing attitude. A few seconds at full throttle should get the boat over the hump and into its planing attitude, where you can then throttle down to cruising speed. This also improves fuel efficiency.

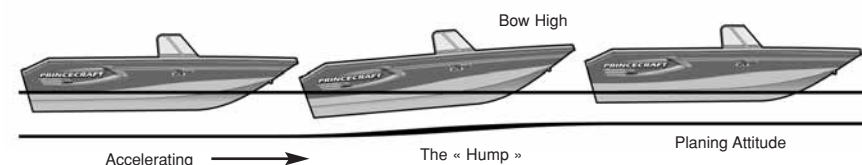


FIGURE 7-2 PLANING

You are responsible for any damage or injury caused by your boat's wake. Observe no wake speed zone warnings. Operate your boat with regard for the safety of other boats and people in your boating area.

Note: Visibility, handling, and performance are reduced while accelerating. It's a good idea to get "over the hump" as soon as possible.

POWER TRIM OPERATION

The power trim feature on your boat allows you to raise or lower the outboard and sterndrive engines to affect the boat's running angle while underway. While your boat is on-plane, the best performance is obtained when the boat is running at a 3° to 5° angle to the water, with the bow slightly out of the water.

Note: The following information is general. The term engine will refer to outboard and sterndrive engines. Refer to the instructions in the engine manual for more detailed information about the power trim controls.

1. The standard trim control switch is on the control lever handle.
2. The switch controls the position of the engine. Proper trim is very important in boating. Before you accelerate, the engine should be completely down (Figure 7-3 [A]).
3. If the bow is too high, the boat tends to "porpoise" (Figure 7-3 (B)) and the bow will bounce up and down on the water. The outboard is trimmed too far up (out). Trim down (in) to correct. The boat is trimmed correctly when it is just short of porpoising. If you are an inexperienced driver or are having difficulty correcting a porpoising condition, reduce your speed until the boat levels off.
4. In the case of low or heavy bow attitude, the boat tends to "plow" (Figure 7-3 (C)). The outboard is trimmed too far down (in). Trim the outboard up (out) to correct this situation.
5. A good practice is to get underway with the outboard trimmed all the way in. After the boat is on-plane, trim the outboard up slightly to obtain the proper bow attitude and engine speed.
6. The engine should never be trimmed up to a point where the propeller cavitates (or slips). A rapid increase in engine RPMs is evidence of cavitation. If this occurs accidentally while running at full throttle, immediately trim the engine down and reduce the throttle until the slipping stops. If necessary, consult your dealer concerning this problem.



FIGURE 7-3 A

Boat Properly Trimmed



FIGURE 7-3 B

Boat Too High - Trim Outboard "Down"



FIGURE 7-3 C

Boat Too Low - Trim Outboard "Up"

TRIMMING THE BOAT OUTDRIVE

If the prop slips at lower planing speeds, the outboard may be trimmed too far up. Immediately trim the outboard down until the prop "grabs" again to restore efficiency.

7. Trimming the outboard up lifts the boat higher in the water. It will travel faster because less hull is in the water.

WARNING

Loss of Steering Control! Improper trim adjustment can result in loss of steering and can cause a serious accident.

STEERING FORCES

As the motor's propeller turns, it causes a twisting force on the motor about its steering axis. This twisting force, or torque, is felt as a force trying to twist the steering wheel out of the driver's hand. At high speed, the driver must apply a correcting force on the steering wheel when the motor is trimmed up to hold the motor's steering forces. The direction and amount of force on the wheel are affected by the height of the motor, the amount of propeller in water, the propeller type, and the direction of propeller rotation.

Turning the boat at high speed is always very touchy. Before attempting a high speed turn, a common safe practice is to trim DOWN slightly. Avoid full trim DOWN position on moderate or high speed turns.

If your boat is equipped with power steering or with an hydraulic system, the steering forces are partially controlled by the power steering or the hydraulic system. You will feel minimal outside steering forces while the power steering system is working properly. If your boat is also equipped with a No-Feedback system you will feel minimal steering forces only when changing direction. If the power steering, the hydraulic system or the No-Feedback system is not functioning, operate at reduced speed until it can be repaired.

ANCHORING

Note: This section includes general information about anchoring. It does not address all possible anchoring situations. It is recommended that you attend a safe boating course to learn more about anchoring.

Anchors are available in different shapes, sizes, and weights to fit different boats, uses, and conditions. The boat's size and weight govern the weight of the anchor and the diameter of the anchor line. Your dealer can tell you which anchor will work best. You need an anchor line at least 6 to 7 times longer than the depth of water anchored in (Figure 7-4). The line should be attached to a chain and the chain to the anchor.

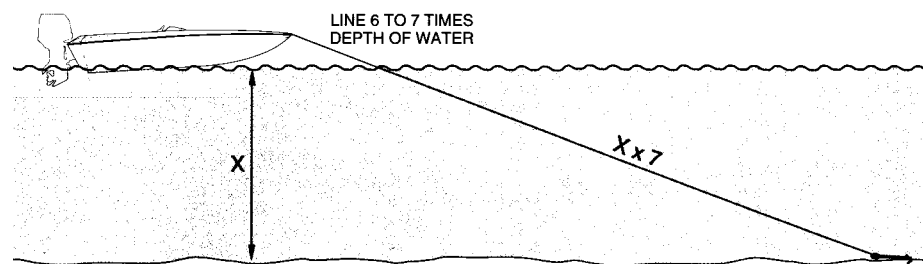


FIGURE 7-4 WEIGHING ANCHOR

For example, if you anchor in water 20 feet (6 m) deep, use an anchor line 120 to 140 feet (36 to 43 m) long (minimum).

If you are anchoring overnight or for extended periods, use two or more anchors set at 45° to each other. If you don't use two anchors, make certain there is enough space for the boat to swing in a full circle to prevent damage in case of shifting winds.

Note: Keep the anchor secure while underway to prevent damage or injury in case the boat's attitude should shift suddenly. Additionally, inspect the anchor and anchor line prior to use, and replace if damaged or worn.

Dropping Anchor

1. Have a crew member carefully lower the anchor. Keep slight tension on the anchor line while lowering and maintain the tension after reaching the bottom.
2. Maneuver the boat slowly backwards until the length of the anchor line is 6 or 7 times the depth of the water.

IMPORTANT: Secure anchor line only to bow eye or bow cleat. Never tie anchor line to a rail, rail fitting, or other hardware not designed to support this stress. Never anchor using only a stern cleat. Waves could swamp your boat under windy conditions.

3. Fasten the anchor line around the bow eye or deck cleat. Anchor flukes should dig in and catch. Watch for anchor drag by checking shoreline landmarks at the time the anchor is dropped and one-half hour later. If the boat has drifted away from these reference marks, the anchor is dragging and must be reset.

Pulling In the Anchor

The engine should be running when you pull in anchor.

1. Slowly maneuver the boat forward to reduce tension on the line and make retrieval of the anchor line easier.
2. Pull in anchor line until the line is vertical. Pull firmly to lift the anchor's shank and free the flukes from the bottom.

If the anchor becomes stuck, attach the vertical line to the mooring cleat. Wave action on the bow may lift flukes from the bottom and free the anchor. If the anchor is still stuck, feed out a few feet of line and attach it to the bow cleat. Maneuver the boat slowly around the anchor, keeping the line firm. Determine the angle that will work to pull the anchor free.

RETURNING TO SHORE

Docking

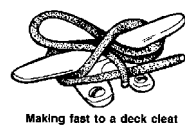
Always approach the dock slowly. If possible, come in against the wind or current, whichever is stronger. Approach the dock at a 30-45° angle. As the boat nears the dock, slowly swing parallel to it. Tie the bow line first then the stern.

Note: If wind or current is moving toward the dock, move parallel to the dock further out. Let the wind or current push you in.

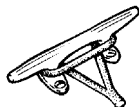
Use extreme caution if wind or current is from the stern. Back in toward the dock slowly at a slight angle with engine in slow reverse. Gently swing parallel. Tie the stern first, then the bow. If the wind is changeable, place fenders over the side between the boat and the dock.

Mooring

After you have positioned the boat next to the dock, secure it with mooring lines to keep it in position. Mooring lines must be long enough to secure the boat in any docking situation. For example, the length of the lines for a 16-foot runabout should be at least 15 feet (4.5 m). An eye splice at the end of each line works well with bow or stern cleats (Figure 7-5). If tides are a consideration, be sure to leave slack in the lines to make up for the rise and fall of the water while the boat is docked.



Making fast to a deck cleat



An eye splice into the end of the line provides a convenient method of making it fast to an open cleat.



The clove hitch is used for making a line fast temporarily to a pile or bollard.



Making fast to a dock bit

FIGURE 7-5 MOORING LINE TIES

The mooring lines you use most often are the bow line, the stern line, and spring lines as shown on Figure 7-6. Each line has a specific purpose. The bow line and the stern line secure the boat's bow and stern. The two spring lines keep the boat from moving forward or backward when you are moored alongside a dock.

If you are mooring for a short time, bow and stern lines may be the only lines you need. If you are mooring for a longer time, the currents are swift, or the weather looks bad, you should use spring lines. The stern spring line leads from the boat's stern cleat forward to the piling or cleat on the dock. The bow spring line leads from the bow cleat aft to the dock.

If you are mooring in a slip, bow and stern lines, port and starboard, will keep the boat in position.

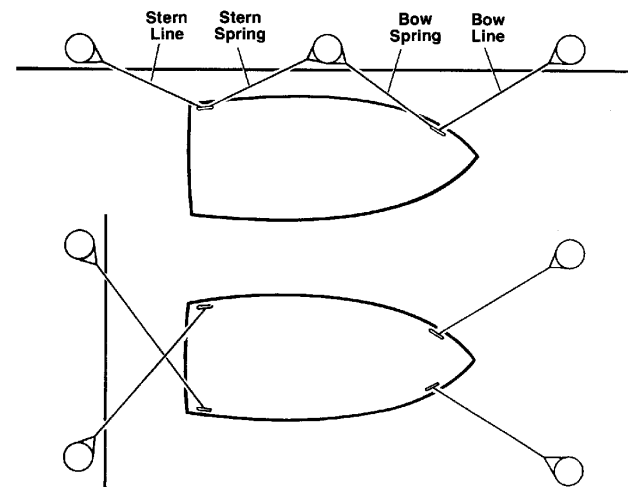


FIGURE 7-6 MOORING LINES

Note: Manila rope, the standard for many years, is not as strong as some ropes made of synthetic materials. For mooring, its ability to stretch is an advantage, but it tends to shrink whenever it gets wet. Nylon rope is strong and elastic. Because of its elasticity, it works well for mooring lines and anchor lines. Rope made of high tensile strength polyester fibers such as Dacron™ is just about as strong as nylon rope, but it does not stretch. Kevlar rope is strong and does not stretch, but it is quite expensive. Polypropylene rope tends to deteriorate rapidly when it is exposed to sunlight. Because it floats, it is well-suited for use as a tow rope for water skiing. Use for other nautical purposes is not recommended.

NAVIGATION LIGHTS

Cruising at night can be very pleasurable, but it can also be dangerous. Be especially careful of shallow waters and watch for submerged debris, rocks, and other obstacles in the water. Navigation lights are intended only to prevent collision, not to improve night vision. You may choose to use a spotlight, which is available from your dealer or local marine store, to aid in night mooring.

Note: It is illegal to use a spotlight as a headlight. Use it only temporarily to check the position of your boat and the surrounding area.

Some boats may be equipped with navigation lights which may either be temporary or stationary and may have different configurations. Your boat may be equipped with one white (stern), one red (port) and one green (starboard) light. To use the light, line up the two-prong plug in the pole with the receptacle in the base. Plug the light in, and lock it

into place with a lever/slide lock. Other light models may include weather pack connectors which need to be plugged in together. When not in use, stow the light inside the boat for safe-keeping. The stern light may be a removable pole light.

Check lights for proper operation before heading out at night. Make sure that the stern (white) light is horizontal and vertical to the water; the light should emit in an arc of 360 degrees so that it is seen by other boaters around you. You should also learn to identify the running light combinations for other boats. We recommend that you participate in a boating safety course to learn further about navigation lights and safe boating practices.

A three-position switch at the helm controls the anchor lights and the navigation lights. You may use it to turn on just the stern (white) light when anchored or moored or to turn on all navigation lights while underway.

HAZARDOUS CONDITIONS

Fog

When warm air is above cooler water, its temperature drops. As the air cools, it loses its ability to hold moisture and fog will develop when the air temperature drops to the dew-point temperature. Dew-point temperature depends on the amount of humidity in the air. You should be aware that fog can form quickly as the air temperature drops, especially if the air is calm and humid. Remember the following guidelines:

- Turn on running lights.
- As fog sets in, take bearings and mark your position on the chart while continuing to log course and speed.
- Prompt all persons aboard to put on their PFDs (personal flotation device).
- If your boat has depth-finding equipment, take soundings to find the depth and match them to the depths shown on your charts.
- Station a person forward on the boat as a lookout.
- Reduce speed. From time to time, stop engine and listen for fog signals.
- Sound the proper horn or fog bell at proper intervals to warn other boaters.
- If there is any doubt with regard to maintaining boat movement, anchor. Listen for other fog signals while continuing to sound the proper fog horn or bell for a boat at anchor.

Storms

Storms sometimes appear without much advance notice. Although information from meteorological observation and reporting stations is available, we all know that weather forecasts aren't always accurate. Many marinas fly weather signals. You should learn to recognize these signals and monitor local weather forecasts before leaving port.

While underway, keep a watch on the horizon for signs of an approaching storm. If there are signs of bad weather, turn the radio on. Dial in a local weather station and monitor the forecast. Use the VHF radio (if provided) to check the weather channels. Everyone aboard should wear a PFD. The best precaution is to return to a safe port if there is time.

If you cannot get back to port, there is no substitute for knowing what to do. Close and secure all portals and hatches. Reduce speed as the seas build. Stow all loose gear below deck and tie down any gear required to remain on deck. Change course to one perpendicular to the storm's path; you may be able to avoid it.

Note: Coping with a storm while underway can challenge the best of operators. The information presented in a safe boating course will be very valuable in this situation.

Running Aground

Operating in shallow water may present a number of hazards. Sand bars in narrow inlets are constantly shifting, making it difficult to mark them with buoys. Sometimes waves form into breakers when they pass over sand bars. In coastal areas, tides may change water levels by as much as 30 feet. Check with local marinas or Coast Guard stations for tide tables and current charts.

WARNING

Do not use the cleats on the boat to tow another boat or to be towed as these cleats are not designed to support that type of stress. The bow or stern eye ring should be used when towing or being towed. Use the proper rope and reduce your speed to reduce the stress on the rope.

If the boat runs aground, first check persons aboard for injury, then check for damage to the boat. If the lower unit of the engine strikes an underwater hazard, check for damage on the boat and lower unit of the engine. If the engine vibrates excessively after striking an

underwater obstruction, it may indicate a damaged propeller or damage to the lower unit of the engine. If the vibration is noticeable, return to port slowly to prevent further damage from an out-of-balance condition. Watch the temperature gauge to make sure you do not overheat the engine.

If the boat is not taking on any water, it may be possible to rock the boat by shifting the weight of the passengers and gear and by raising the outboard unit while reversing the engine.

If you ground the boat on a sand bar, shut down the engine and seek help from another boater or radio for help. See your dealer as soon as possible, as sand ingested in the engine cooling system may cause major engine damage. If you need to be towed, we recommend using a commercial towing service.

Warning Markers

It is a good idea to find out about hazardous areas and how they are marked by asking local authorities.

- Boaters must also recognize the flag designs which indicate that scuba divers are present and keep well clear of the area.
- Watch for swimmers. Swimming areas may not be marked, so always remain alert.
- Distress flags indicate a fellow boater is in need of assistance.
- Navigation markers serve as a means of identifying navigable routes and indicate water hazards. Boaters should become familiar with navigation markers and stay within marked boundaries and clear of hazards.

REACTING TO EMERGENCIES

Note: In any emergency, the first thing all passengers must do is to wear their PFDs.

Flooding

If the boat starts taking on water, start the bilge pump immediately. Open all compartments and look for the cause of the flooding. Check through all hoses and through hull fittings. If flooding occurs as a result of collision or grounding damage, call for assistance and head for shore if possible.

Capsizing

If the boat capsizes, and others were on board, find them and guide them to the safety of the hull. Even if the boat is floating upside-down, stay with it. Rescuers can spot a boat hull much easier than a human head sticking out of the water. *Do not try to swim ashore; it may be further than it looks.*

Man Overboard

Think through and follow these procedures if someone in the boat falls overboard.

- Remember, every second counts, you must act fast.
- Move throttle to idle position immediately and yell “MAN OVERBOARD.”
- If the person is in view, immediately throw a floating throwable PFD or a buoy or a floating line which should be attached to the boat.
- If the person is too far away from the boat, keep the person in the water in sight at all times. Make one passenger responsible for watching the person. Do not go into the water to help the victim. One person in the water is trouble enough, and a panicky person in the water may present a drowning hazard to rescuers.
- Circle around quickly, approaching into the wind and waves. When the person is alongside, turn off your engine and throw the person overboard a line attached to the boat or extend a paddle or boat hook within his/her reach. Help the person to get back into the boat safely and attend to their status. If necessary, return to shore for the proper care and attention.

Collision

If a serious collision occurs, you should first check the condition of all passengers aboard, then inspect the boat to determine the extent of damage. If the boat or passengers are not in danger, prepare to assist the other boats. If you need help and the boat has a ship-to-shore radio, first contact the Coast Guard or other rescue authorities immediately.

If the bow of the other boat penetrated the boat’s hull, prepare to block the opening once the boats are separated. Shore up the hole with a spare PFD or bunk cushion. While blocking the hole, trim the weight of the boat (where the hole is located) so that it is out of the water during repairs.

Be sure to report the accident to the proper authorities.

Fire

IMPORTANT: All persons aboard should know the location and proper operation of the fire extinguishers.

Most fires are caused by electrical problems or careless fueling practices. A fire is a serious emergency. You must work quickly to implement safety procedures. If a fire occurs, immediately stop the engine. If it is small, try to put it out with a fire extinguisher. If the fire is in the engine compartment, turn off the bilge blower. Do not open the engine compartment. This feeds oxygen to the fire and may cause it to flare up. Try to put the fire out using a fire extinguisher, shooting through the fire port located on the front of the compartment.

If the fire gets out of control, execute a distress signal and call for help if equipped with a ship-to-shore radio. All persons aboard should jump overboard and swim a safe distance away from the flames.

Guidelines for fire prevention:

- Use only marine certified cooking and heating systems.
- Open flames demand constant attention.
- Keep flammable materials in approved containers in a vented locker sealed from the interior of the boat.
- Ensure ventilation systems are unobstructed.
- Remove mooring covers before starting engine.
- Check the bilge for fuel leaks.
- Extinguish smoking materials carefully.
- Use special care with flame or high temperatures around urethane foam.
- Check cleaning products for flammability.
- Ventilate when cleaning or painting.
- Disconnect electrical system from its power source before performing maintenance.
- Replace breaker or fuse with one of the same amperage.
- Electrical appliances must be within rated amperage of boat circuits. Observe the boat carefully while the electrical system is being energized.
- Allow only a qualified marine technician to service the electrical system. Consult your dealer.

Medical Emergency

Accidents while boating can happen. Be prepared to handle these emergencies when they occur. Keeping a first aid kit and dry blankets on board can assist during these situations. It is also a good idea to contact the local Red Cross for information and training on first aid and CPR.

Propulsion Failure

Before you call for help regarding an outboard failure, it is a good idea to eliminate the possibility of simple problems. Turn off the engine contact and check to see that (1) there is fuel in the tank; (2) the engine cooling intakes on the outboard are not clogged; (3) props are clean and free of weeds, netting, etc.; (4) no hoses are leaking; (5) there is oil in the engine; (6) the lanyard stop switch is connected.

Once you have checked out the possibilities listed above and ascertained that they are not the problem, call for help giving your position and a detailed description of your boat.

Control Failure

In the unlikely event of a throttle/shift failure, shut down the engine immediately. Carefully check the control connections in the engine to see if they are secure. If not, try to locate the attaching hardware and reassemble. If that is not possible, try to use whatever is available such as paper clips, hair clips, tape, etc., to secure the connections. If a temporary repair is made, return to port at the slowest steerable speed and be prepared to take emergency action should the temporary repair fail also. Have your dealer make repairs before using the boat again.

Steering Failure

If a problem with the steering occurs, shut down the engine immediately. Check the connections to the engine. Some boats have a push/pull cable while others have hydraulic steering. With cable connections, check the attaching hardware and tighten it if necessary. If you have hydraulic steering, have your dealer check the fluid level of the reservoir. If the steering is not operating properly, do not operate the boat; call for assistance.

OPERATION AND MAINTENANCE OF THE STEERING SYSTEM

CAUTION: It is possible to overtrim the engine and increase the steering torque to the point that the steering wheel cannot be turned. Even though the torque is not felt at the wheel, this may give the impression that the steering is “locked”. This condition can occur more when jack plates are used to raise the engine on the transom, and can only be overcome by reducing the boat speed or engine trim out position. Until you are completely familiar with the boat and the effects of power trim, make all adjustments of trim with extreme caution.

1. After a few hours of operation and at frequent intervals thereafter, check all fasteners and the complete steering system for security and integrity

DANGER

Loosening or loss of one or more fasteners may cause steering system failure, resulting in loss of steering control. This could cause personal injury or property damage.

2. Keep all moving parts free from build-up of salt and other material. This will affect their operation and create steering problems. Pay particular attention to the hinge tube of outboard motors. Periodically remove the cable, clean hinge tube thoroughly and lubricate both the hinge tube and telescopic end of the cable with waterproof grease.
3. Periodically inspect all visible parts for corrosion. Any parts affected by corrosion must be replaced. When replacing hardware, self-locking hardware must be used.
4. Inspect steering cable periodically for cracks or other damage. If any is found the cable must be replaced.

Note: If steering gets harder (stiffer) to operate, the cable must be replaced.

DANGER

Do not cover cracks with tape or other sealants; this will create a hazard in which the cable can fail suddenly without warning.

Proper care and maintenance preserve the value of your investment. This chapter explains how to keep your boat looking new as the years go by.

WARNING

Fire Hazard! Spontaneous combustion can ignite rags moistened with acetone, cleaning fluids, fuel, or other solvents. Never store wet rags on board. Dispose of them properly on shore.

Use cleaning agents sparingly. Never discharge cleaning solutions into the waterways. Do not use products containing phosphates, chlorine, solvents, or non-biodegradable or petroleum-based products.

Your new boat is designed to provide you with years of enjoyment and satisfaction. In order to maintain the sharp, new appearance of your boat, we recommend the use of a high quality marine surface-care product. Washing and waxing a new boat is simple, and it will make ongoing maintenance much easier.

ALUMINUM SURFACES

Salt Water Information

Princecraft's aluminum boat hulls are made of high quality 5052-H36 marine aluminum, recommended for salt-water use by the Aluminum Association. However, care must be taken in both salt water and fresh water to avoid creating galvanic corrosion. Do not install brass, bronze, or copper fittings in direct contact with the aluminum. (See Galvanic Series of Metals in section 4). A thorough fresh water bath after every use is recommended by Princecraft and will prolong the life of your boat.

Cleaning

The natural aluminum portions of most aluminum boats may be treated with a clear protective coating to reduce natural oxidation. Rinse occasionally with clear water or mild detergent to keep those portions of the boat clean. On painted aluminum surfaces, use water and mild detergent for cleaning and protect the surface with a liquid cleaner or wax. Do not use harsh chemicals or abrasives.

Remove stains or light corrosion with a good metal polish. Buff with a fine rubbing compound only if necessary. Remove algae, scum, or