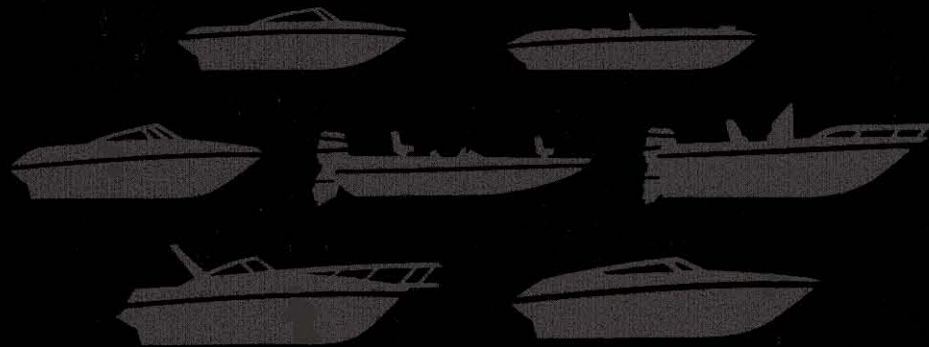




OWNER'S

MANUAL



FOUR WINNS

# I. OWNERS MANUAL

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## II. GENERAL INTRODUCTION

Congratulations! You are now the proud owner of a new Four Winns boat. You are a member of a special class of people; namely, owners of a premier quality Four Winns boat. Because of you, Four Winns is the third largest boat producing company in the world.

Today, Four Winns employs over 1,300 people in five manufacturing facilities located in Texas and Michigan. Our goal is to make people happy. Good enough is not good enough anymore therefore, Four Winns is developing new ideas to improve the standards of excellence in the boating industry.

This manual has been assembled to meet your needs as a boat owner. On the following pages you will find important information concerning safety, trailering, launching, operation, care, and our warranty. We encourage you to read the entire manual before operating your new Four Winns boat. Keep this manual in your boat for future reference.

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### REGISTRATION

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Federal law requires registration of all motor-boats and that boats must exhibit registration numbers. The U.S. Coast Guard or appropriate state agency have authority regarding boating. Your Four Winns dealer should be able to supply all your registration information.

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### INSURANCE

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As a Four Winns boat owner, you are legally responsible for all damages or injuries incurred during boating activities. Protect yourself and your investment with adequate insurance. Your Four Winns boat is an investment you do not want to lose.

## III. SAFETY

The safety of you, your passengers and bystanders is an important priority when boating. Your Four Winns boat has been constructed to meet U. S. Coast Guard and National Marine Manufacturers Association (N.M.M.A.) requirements. However, it is still the responsibility of the boat owner to operate his boat in a safe manner (see illustration).

Plan your trips carefully. Tell someone where you are going and when you expect to get there. If you change your boating plans, contact this person to prevent false alarms.



NMMA Certificate

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### PASSENGER SAFETY

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You are responsible for the safety of your passengers as well as for their behavior while aboard. Make sure:

1. Each passenger is properly instructed in Personal Flotation Device (PFD) use and keeps one within reach in case of emergency. Children and non-swimmers should wear a PFD at all times when underway.
2. Passengers do not sit on gunwales, open decks, elevated pedestal seats or on seat backs when the boat is underway. This could cause them to be thrown overboard during a sudden maneuver.
3. At least one other person knows how to operate the boat in case of an emergency.



## SAFETY: DRINKING AND DRIVING

Please keep in mind that along with the fun of boating comes responsibility. As the owner or operator of a pleasure boat, you are obligated (morally and legally) to use good judgement while underway in providing for the safety and well-being of your passengers and other boaters around you.

Without question, the most common and flagrant violation of good judgement by mariners involves the use of alcohol or drugs. Each year, about half of all accidents involving fatalities are the result of alcohol or drugs.

Laws enacted in 1984 make it a federal offense to operate a boat while intoxicated, subjecting the operator to a \$1,000 fine. Criminal penalties can go as high as \$5,000, and may include the termination of operating privileges for up to one year.

Alcohol or drugs have an inhibiting effect on the judgement and reaction time of helmsmen who are already subjected to the physical stresses of operating in the unique environment of open water. You are urged to heed the advice of experts and statisticians...the best of which is, that if you operate a boat, do not drink or use drugs. NEVER ALLOW AN OBVIOUSLY INTOXICATED PERSON TO TAKE THE HELM.

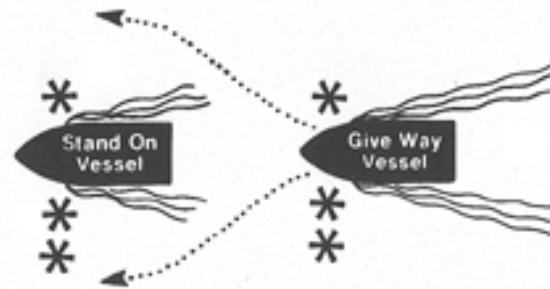
Have fun in your Four Winns boat but also, have the good sense to always be mentally alert and physically capable of operating in a safe manner.

## SAFETY: RULES OF THE ROAD

The rules summarized here were established by the Inland Navigational Rules Act of 1980, and do not necessarily apply when operating a boat on the high seas.

### A. Warning Signals

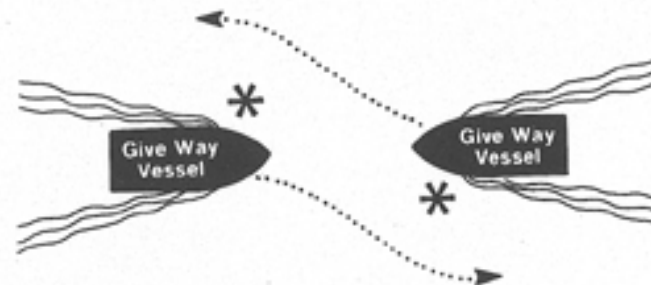
1. One short horn blast: Changing course to starboard.
2. Two short horn blasts: Changing course to port.
3. Three short horn blasts: Operating astern.
4. Five or more short horn blasts: Doubt about previous signal, or danger.



Overtaking Maneuvers

### B. Overtaking Maneuvers (diagrammatic illustrations).

1. Give-way vessel announces intention to overtake stand-on vessel to port or starboard with appropriate horn signal.
2. Give-way vessel waits for same signal or doubt response from stand-on vessel.
3. Give-way vessel completes agreed upon maneuver, or repeats original signal if doubt signal was sounded by stand-on vessel.



Head-On Maneuvers

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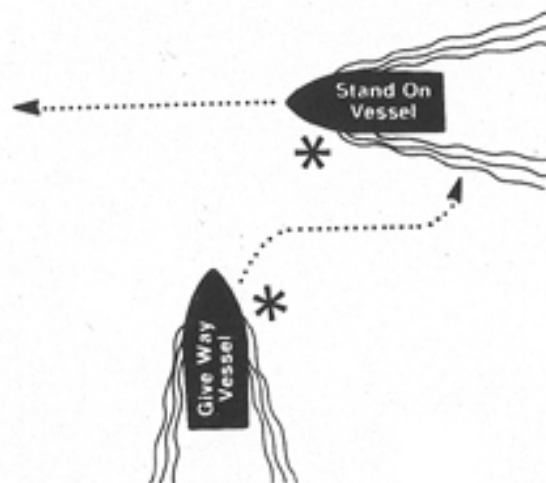
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**C. Head On Maneuvers in a narrow channel**  
(diagrammatic illustration):

1. When closing on the same course in a narrow channel, both vessels must give way.
2. Either vessel sounds one short horn blast and maneuvers to starboard.
3. Responding vessel also maneuvers to starboard after one short horn blast reply.



**Crossing Maneuvers**

**D. Crossing Maneuvers**

1. The vessel which has the other vessel on its starboard (right) side is the give-way vessel and must maneuver to starboard, if necessary, after sounding one short blast on its horn.
2. The stand-on vessel acknowledges the give-way vessel on its port (left) side with a single short blast response and maintains course.

**SAFETY: ACCESSORY EQUIPMENT**

U. S. Coast Guard regulations require certain accessory equipment on all boats. This equipment varies according to

class of boat: Class A—16 feet in length and under; Class I—16 feet to 26 feet; Class II—over 26 feet. Other law enforcement agencies—state, county, and municipal—have similar equipment jurisdiction. Some local laws require additional equipment. It is important to obtain copies of your state and local laws. Also, contact your Four Winns dealer for his suggestions on equipment or other needs.

**EQUIPMENT REQUIRED BY U. S. COAST GUARD**

**A. Fire Extinguishers**

All Class A and Class I motorboats must carry at least one U. S. Coast Guard approved portable fire extinguisher. Coast Guard approval is indicated on the label.

The extinguisher can be any of the following:

1. 2-pound dry chemical
2. 4-pound carbon dioxide
3. 1 1/4-gallon foam extinguisher

The Coast Guard does not currently require a fire extinguisher on Class A outboard motorboats of open construction and without built-in fuel tanks, but it is required in some states. Check state and local regulations in your area.

**B. Personal Flotation Devices (PFD's)**

U. S. Coast Guard requirements concerning PFD's for all boats are listed below:

1. Boats less than sixteen feet (16') in length and all canoes and kayaks: One (1) Type I, II, III, or IV PFD for each person on board.
2. Boats sixteen feet (16') or over in length: One (1) Type I, II, or III (wearable) for each person on board and one (1) Type IV (throwable) in each boat.

The different types of PFD's are described below.

1. Type I PFD is an approved device designed to turn an unconscious person in the water from a face downward position to a vertical or slightly backward position, and to have more than 20 pounds of buoyancy. It is recommended for offshore cruising and is acceptable for all sizes of boats.



2. Type II PFD is an approved device designed to turn an unconscious person in the water from a face downward position to a vertical or slightly backward position and to have at least 15.5 pounds of buoyancy. It is recommended for closer, inshore cruising and is acceptable for all sizes of boats.



Type I PFD



Type II PFD

3. Type III PFD is an approved device designed to keep a conscious person in a vertical or slightly backward position and to have at least 15.5 pounds of buoyancy. While it has the same buoyancy as Type II, the Type III has a lesser turning ability to allow for a comfortable design for water activities such as water skiing. It is recommended for water sports, impoundments, and close inshore operation and is acceptable for all sizes of boats.



Type III PFD



Type IV PFD

4. Type IV PFD is an approved device designed to be thrown to a person in the water and not worn. It is designed to have at least 16.5 pounds of buoyancy. It is acceptable for boats less than 16 feet, and as a throwable device for canoes and kayaks 16 feet and over in length.

#### C. Sound Signalling Device

Class I motorboats are required to carry a hand, mouth, or power operated horn or whistle, and they are recommended for Class A Boats. The device should be used to promote safe passing, as a warning to other vessels in fog or confined areas, or as a signal to operators of locks or drawbridges.

#### D. Navigational Lights

Boats operating between sunset and sunrise are required to display appropriate navigational lights. It is up to you to make sure they are turned on when required. Navigational lights are intended to keep other vessels informed of your presence and course (see illustration).



Navigational Lights

#### E. Sight Signalling Device

Boats 16 feet in length and longer operating on coastal waters and the Great Lakes are required to carry approved sight signalling devices (for example, pyrotechnics, such as flares for use at night and international orange flags for daytime distress signalling). Check with the U. S. Coast Guard or your Four Winns dealer for specific requirements in your area.

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## RECOMMENDED EQUIPMENT

Below is a list of recommended equipment that you should keep on board your Four Winns boat:

1. Basic tool kit.
2. Binoculars or telescope.
3. Blankets and dry clothing.
4. Compass.
5. Extra line.
6. First Aid kit.
7. Floatable keychain.
8. Food and water provisions (for extended cruising).
9. Foul weather gear.
10. Hand-held signal light.
11. Manual bailing system.
12. Maps and charts.
13. Oar or paddle.
14. Non-slip deck shoes.
15. 2-way shortwave radio.

Other suggested equipment to keep on board are listed below:

1. Assorted screws, bolts, nuts, and washers.
2. Electrical tape.
3. Friction tape.
4. Fuses.
5. Hose clamps.
6. Lubricating oil.
7. Propeller nut and washers.
8. Spare propeller.
9. Waterproof matches.

## SAFETY: WATER SPORTS

### Water Skiing

You are responsible for the safety and conduct of a water skier, just as you are for passengers in your boat. The following guides will do much to reduce the hazards while water skiing:

1. Water ski only in safe areas, away from other boats and swimmers, out of channels, and in areas free of under-water obstructions.

2. Do not allow anyone who cannot swim to water ski.
3. Be sure that the skier is wearing a proper U.S.C.G.A. flotation device. A properly designed ski vest is intended to keep a stunned or unconscious person afloat.
4. Always carry a second person on board to observe the skier, so that full attention may be given to the operation of the boat and the waters ahead.
5. Approach a skier in the water from the starboard side, and be certain to stop your motor before coming in close proximity to the skier.
6. Give immediate attention to a fallen skier.
7. Be courteous and make sure your wake is not causing problems for fishermen and other boatmen.

**WARNING:** Switch off engine before taking skiers aboard from the water. Do not leave engine running in neutral; if the shifter is accidentally engaged, the skier could be seriously injured by the propeller.



Faster—Palm of one hand pointing upward.



Slower—Palm pointing down.



Speed OK—Arm upraised with thumb and finger joined to form circle.



Right Turn—Arm outstretched pointing to the right.





Left Turn—Arm outstretched pointing to the left.



Return to Drop-off Area—Arm at 45 degree from body pointing down to water and swinging.



Cut Motor—Finger drawn across throat.



Stop—Hand up, palm forward, Policeman style.



Skier OK. After the Fall —Hands clenched together overhead.



Pick Me Up or Fallen Skier, Watch Out—One ski extended vertically out of water.

## Fishing

Fishing can be exciting, but you must remember that you are a skipper first and a fisherman second when it comes to responsibilities. Below is a list to guide you concerning safety while fishing:

1. Observe right-of-way when feasible and keep clear of congested waterways. Other fishermen's lines can become wrapped around your propeller shaft and damage the engine.
2. **NEVER LEAVE THE HELM UNATTENDED WHEN BOAT IS UNDERWAY!**
3. Stow any fishing gear you are not using to prevent breakage or tripping.
4. Never anchor in a channel or tie up to a navigational aid. Both are illegal.

## Swimming and Diving

Before going over the side for swimming or scuba diving, do the following:

1. Anchor the boat to prevent drifting. Swimmers may not be able to catch a drifting boat.
2. Remove engine keys (if children remain on board) to prevent accidental starting.
3. Display red-and-white diving flags on the boat or on a buoy in the area of the diving activity.
4. Make sure everyone understands proper re-boarding procedures.

## SAFETY: HAZARDOUS CONDITIONS

### WEATHER

Boating for pleasure can become a chore when the weather turns hazardous. The best advice for boatmen in bad weather is **STAY HOME!** Check the weather forecast on your local radio station before leaving home; continuous weather information is also provided in most areas by the National Oceanic and Atmospheric Administration at 162 MHz (FM). In addition, storm signals are displayed at Coast Guard stations, yacht clubs and some launching facilities. Storm signals do not necessarily mean rain or snow; they are used

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to indicate high winds and that possibly hazardous wave conditions are expected, so do not be misled by a clear sky. It is also a good idea to bring a portable radio along with you to periodically check the weather forecasts.

### IN A STORM

If you are forced to operate your boat under stormy conditions, a few common sense precautions should be followed:

1. Wear PFD's.
2. Secure loose gear.
3. Reduce speed.
4. Seat your crew where they can help and where their weight will best keep the boat stable. In small boats, it is advisable for passengers to keep weight distribution as low in the boat as possible.
5. Head for the nearest and most accessible place of refuge. If this requires running into wind and waves, cross wave tops at an angle, and slow down to avoid taking waves over the bow. If wind and waves are coming from astern, adjust power to prevent the boat from plowing into the wave ahead and to keep waves behind from breaking over the stern.
6. If you lose power and must ride out the storm, tilt the outboard or stern drive up to reduce drag, and rig a sea anchor off the bow to keep the boat headed into the waves. Sea anchors are commercially available and especially recommended in open water. A bucket, or even a plastic ice chest, can serve as an emergency sea anchor.
7. Avoid boating if electrical storms are predicted.



**RED FLAG**  
Small craft  
(winds to  
33 knots)



**2 RED  
FLAGS**  
Gate (up to  
47 Knots)



**SQUARE  
RED FLAG  
BLACK  
BOX**  
(Storm)



**2 SQUARE  
RED  
FLAGS  
BLACK  
BOX**  
(Hurricane)

Storm Signals

### AT NIGHT

Nighttime operation is not necessarily hazardous, but it does present you with a number of problems. Vision is restricted and could be completely obscured in bad weather or fog. Floating debris and fixed obstructions or even large waves can be hard to spot. Your night vision can be ruined by sudden exposure to a bright light.

If you operate at night, remember:

1. Your navigational lights must be working to warn other boats of your presence and course. Observe the meeting and passing rules. If the bow light of another boat shows red, you must yield; if the bow light shows green only, you have right-of-way, but use common sense and keep clear. Slow down even if you have the right-of-way.
2. Onshore lights can be helpful, but not always. Glare can destroy night vision, and these lights can sometimes make lighted and reflective navigational lights and the lights of other boats difficult to pick out.
3. High speed operation must be avoided at night. The consequences of any collision are more severe at high speeds.
4. Keep a sharp lookout. Have a crew member assist you in watching for other boats, possible hazards, and navigational features.
5. Protect your night vision. Avoid staring at bright lights ashore and on your boat.

### IN FOG

Again, it is best to avoid operating in such weather, especially if your boat is not equipped with radar or other electronic navigational aids. A compass and navigational chart will give you an idea of the direction you are heading, but provide no information on your boat's speed or distance from shore.

If you are in fog, you are required, while under way, to emit a five-second blast from your horn or whistle once per minute. You must also listen for the fog signals from other vessels and from navigational aids. In situations like these, all hands must act as lookouts to prevent collisions. Again, keep your speed low.



## IN COLD WEATHER

Cold weather is often accompanied by cold water and high winds, and all of them can be unpleasant. Avoid bulky clothing, which may inhibit your movement; instead, wear several layers of lighter clothing and include a vest-type PFD among the layers for good insulation and protection against falling overboard. Avoid operating in cold weather unless your boat has a cabin, storm canvas or similar protection against the wind and icy spray. The wind and spray could cause frostbite or hypothermia (extreme loss of body temperature). Freezing spray can also cause problems with your boat-jammed control cables, frozen windshield wipers, etc.

**WARNING:** Falls overboard are twice as dangerous in cold water. PFD's should be worn at all times, and anyone who falls overboard should be retrieved as fast as possible to prevent hypothermia.

## IN SHALLOW WATER

Operating in water too shallow for your boat presents a number of hazards, chiefly to the propulsion system and hull. "Shallow water" generally means water too shallow for the boat, but it can also apply to deep water which contains stump fields, sand bars, or other unmarked underwater obstructions. Striking any of these at high speed could, cause serious injuries to you or your passengers. Outboards are built to kick upward in these situations which could cause an engine overspeed problem if the ignition is not shut off quickly. If you strike anything, at any speed, you run the risk of rupturing the hull, damaging the propeller, propeller shaft, struts, or rudder. Even if you do not strike the bottom or an obstruction, you run the risk of clogging your engine's cooling water intakes with sand, aquatic weeds or debris.

If you are unfamiliar with the water, obtain a chart or ask local boatmen about depth conditions. Go slowly, and keep a bow lookout when operating in shoal waters.

## SAFETY: ACCIDENTS

If you are involved in a boating accident on the navigable waters of the United States, you are required by law to stop and give whatever assistance you can without seriously endangering your boat or your passengers. You must also give your name and address, and the identification of your vessel, to any person injured and to the owner of any property damaged.

A written accident report must be submitted within 48 hours to state authorities where the boat is registered, or where the accident occurred, if there is loss of life or personal injury causing incapacitation or property damage in excess of \$200.00.

If you observe another boat in distress, assume it is a true emergency. Proceed to the scene and render assistance.

**NOTE:** The Federal Boat Safety Act of 1971 requires boat operators involved in accidents to offer aid to others in the accident and in emergencies. This law's "Good Samaritan" clause also absolves you from civil liability in the event that your assistance causes injury or property damage.

## MAN OVERBOARD

Follow these procedures if someone in your boat falls overboard:

1. Turn the steering wheel to move the propeller away from the person.
2. Circle around quickly, approaching into the wind and waves. Turn off the engine when the person is alongside, and throw him a cushion ring buoy with a line attached or extend a paddle or boat hook within his reach. Do not hit him with a ring buoy.
3. Assist the person back aboard.
4. Do not dive over the side after an unconscious person or non-swimmer unless you are trained in lifesaving techniques. A panicky victim can drown his would-be rescuer. If the victim has sunk out of sight, probe gently beneath the surface with a paddle or boat hook. Do not risk restarting the engine until you have drifted clear of the victim's suspected location.

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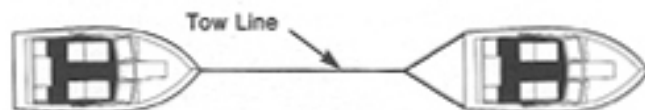
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## COLLISIONS

If you are involved in a collision with another boat, or with any fixed object (pier, sandbar, reef, bridge, etc.) your first job is to check out your boat thoroughly. Inspect below decks for leakage and attempt to plug any holes you find. Check steering cables for possible jamming; raise outboard motor or stern drive unit and inspect for possible propeller or lower unit damage. After proceeding carefully to port, have the boat removed from the water, so that you can make a thorough inspection for damage.

## TOWING AND BEING TOWED

If wind and waves are high, it may not be easy to extend the tow line from one boat to another without risking a collision. In these cases, use a light throwing line with some sort of weight on one end and with the heavier towing line secured to it. Another idea is to use a fishing rod. Attach a heavy sinker to the end of the line and wrap the sinker in cloth to prevent damage. Cast the sinker over the other boat and reel in until the occupants of the other boat get hold of the sinker. Cut the fishing line off at the reel and splice the towing line to it. Then instruct the occupants of the other boat to haul the towing line aboard.



Tow Line and Being Towed

## DISTRESS SIGNALS: DAY AND NIGHT

Below is a list of daytime-type distress signals:

1. Simultaneously raising and lowering arms (easiest visible).
2. Fluorescent orange panel or flag.
3. Orange smoke flare.
4. Mirror (preferably signaling type).
5. Dye markers.
6. SOS on horn, whistle, or bell.

Below is a list of nighttime-type distress signals:

1. Flares (common railroad type is least effective).
2. Rockets
3. Emergency strobe light.
4. Flashlight or lantern.

Conserve your distress signals. Do not use them until you sight another boat or hear and see aircraft.

## FIRE AND EXPLOSION

Most boat fires involve flammable liquids, such as gasoline. Use your Coast Guard-approved dry chemical or carbon dioxide type extinguisher. Read the directions for use on the extinguisher and memorize them, so you will be prepared to use it quickly if the need arises.

The biggest decision involved in a boat fire is deciding whether to abandon ship or stay aboard and attempt to extinguish the flame. It's an easy decision if all that is involved is a galley stove, a trash container, smoldering upholstery, or an electrical fire. If, however, the fire involves the fuel system, the danger of explosion is increased. If it is necessary to abandon ship, make sure all passengers wear a PFD (if there is time) or take one with them before going over the side.

A gasoline vapor explosion may or may not be followed immediately by fire, but the danger is there. If you do abandon ship, keep well clear of the burning boat and advise all others to do the same. Keep in mind that burning fuel can spread out over the surface of the water nearby.

## CAPSIZING

If your boat capsizes and floats in an upside-down position, stay with it. You and your passengers may be able to right the boat. If the boat is level but inverted, attach lines to one gunwale, pass them over the keel and use them to pull the boat over from the other side. If this does not work, hold onto whatever you can. The boat hull is much easier for rescuers to spot than a human head sticking out of the water. Do not attempt to swim ashore—it may be further than it looks.



## SWAMPING OR FLOODING

A swamped or flooded boat could become unstable and capsize. If the flooding is caused by a hole in the hull, attempt to plug the hole with anything handy such as rags, clothing, canvas, etc. Bailing, with buckets or any available containers, is important. If the flooding is caused by wave action through the outboard motor well, attempt to turn the boat into the waves. Also, shift weight forward.

## CB RADIO

If your boat is equipped with a marine radio, use proper "May-day" calling procedure on channel 16. If you have a CB radio, ask anyone who answers to notify the Coast Guard or other rescue service.

## FIRST AID

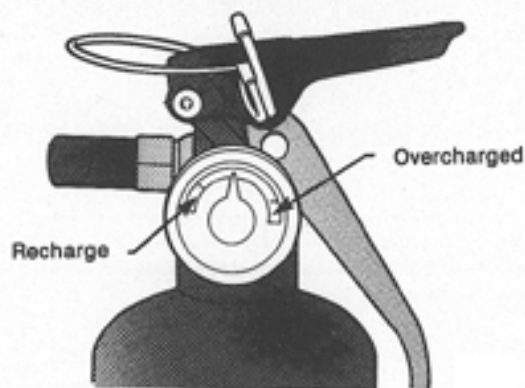
You should be familiar with elementary first aid to deal with problems that may occur while you are far from help. Fish hook accidents and minor cuts and abrasions are the most common on board a boat, but you should learn the proper procedures and be ready to deal with the truly serious problems that could arise such as drowning, severe bleeding, hypothermia, and burns.

**REMEMBER:** There is a way of handling nearly every emergency—if you do not panic in those first crucial seconds. If you have learned your boating lessons and safety procedures well, you will have the confidence and the ability to cope with an emergency, should one arise.

## FIRE PROTECTION

If your boat has a galley, make sure the stove is operated and maintained according to the manufacturer's instructions. Keep a Coast Guard approved fire extinguisher within reach for emergencies (see illustration).

**WARNING:** Never use gasoline-type camp stove aboard a boat. Any spills could drain unnoticed into the bilges and create the danger of a vapor explosion.



Fire Extinguisher

Also, charcoal grills can be very dangerous aboard a boat. They can tip over and spill hot coals or flaming starter fluid if the boat is hit by a sudden wave. On inboard and stern drive boats, a charcoal grill placed aft, near fuel tank vents could cause a vapor explosion.

## SAFETY: EDUCATION

Boating becomes more fun as you learn more about it. A good place to start is at one of the many free boating education classes offered throughout the country. U. S. Coast Guard Auxiliary flotillas offer several different courses, usually during the off-season. The most popular course is the "Boating Skills & Seamanship Course," and information on where and when it is offered can be obtained by calling 1-800-336-BOAT.

The United States Power Squadron also offers free courses, ranging from basic seamanship to celestial navigation. For information, contact your local Power Squadron, or write:

U.S.P.S.  
P.O. Box 30423  
Raleigh, NC 27622

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Red Cross chapters also offer powerboating and canoeing classes. Contact:

Director of Water Safety  
American National Red Cross  
17th & D Sts. N.W.  
Washington, DC 20006

In some states, the state boating agency not only conducts its own boating education classes, but can supply information on others as well.

Another good source of information is the U. S. Coast Guard's home study book called "The Skipper's Course". It is good and easy to read. This book may be purchased through:

Superintendent of Documents  
U. S. Government Printing Office  
Washington, DC 20402  
Stock # 050-012-00159-6

### CHARTS AND MAPS

U. S. nautical charts are sold throughout the country at Government Printing Office stores and through designated agents. To find out which charts you need and where you can buy them, write for a chart catalog:

National Oceanic and Atmospheric Administration  
National Ocean Survey  
Rockville, MD 20852

In addition, many federal agencies publish recreational maps, including the U. S. Army Corps of Engineers, the Forest Service, the National Park Service, and the Tennessee Valley Authority.

You can get the key addresses of all state boating agencies in a free copy of "A Boater's Guide" by writing to:

National Marine Manufacturers Association  
401 N. Michigan Avenue  
Chicago, IL 60611

## IV. TRAILERING

The information contained in this section describes procedures used by many trailer boaters. Always follow the specific information provided by the manufacturer of your trailer. He is the expert.

The trailer should be a proper "match" for your boat's weight and hull design. Too little trailer capacity will be unsafe on the highway and could cause abnormal tire wear or sudden failure of critical trailer components. Too high a capacity trailer sprung for high loads can damage light boats.

### LOAD CARRYING CAPACITY

Check the certification label attached by the manufacturer on the left forward side of your trailer. It will show the maximum load-carrying capacity of the trailer. The label is required to show the Gross Vehicle Weight Rating (GVWR), which is the load-carrying capacity plus the weight of the trailer itself (see illustration). Be sure that the total weight of your boat, engine, gear, and trailer do not exceed the GVWR.

**CAUTION:** *Improper trailer set-up can cause hull damage, and, in some cases, could void your boat warranty. Rear boat supports should be as directly under the transom as possible to prevent a "hook" from being formed in the hull bottom.*

Bunk supports should run parallel to the keel and support the hull, extending beyond the transom. If bow and center supports are used, they should not exert any great pressure on the hull where flexing may take place.

Outside bunk supports provide stability for the boat, and keep it from leaning to one side. The inside bunks are the main weight bearing members. Keeping tie-downs tightly fastened prevents bouncing against supports.





MFD. BY FOUR WINNS TRAILER DIVISION

MAX. LOAD  
CARRYING  
CAPACITY  
2270

GVWR: 2770  
GAWR: 2770 WITH F78-14 STB TIRES  
14X6.00 RIMS, AT 35 PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

42KBAAN19J1011866 TYPE- Boat Trailer

MODEL  
D02200

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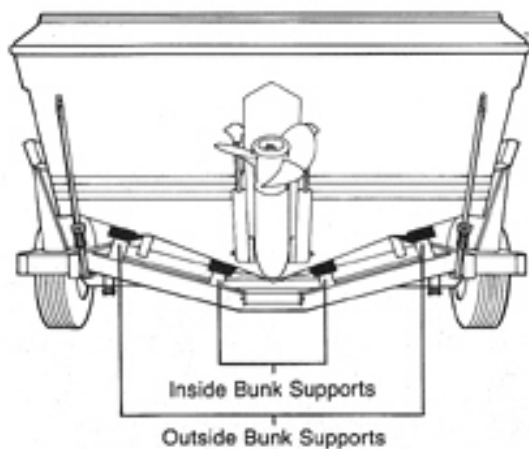
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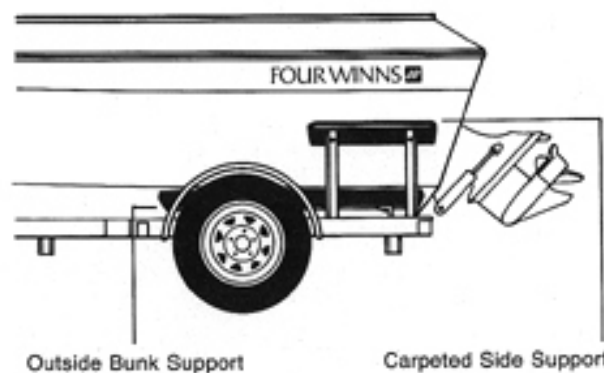
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Bunk Supports



Side Supports



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**CAUTION:** Make sure that the boat is securely fastened to prevent movement between boat and trailer. Do not overload your trailer by putting camping gear or other heavy equipment in the boat.

Consult your dealer for state trailer regulations concerning brakes, lighting, and other optional equipment which could make trailering your boat easier and safer.

**NOTE:** Before towing your boat; close and secure all hatches, doors, and portlights; store equipment securely; take down and carefully secure all canvas. Tops, side curtains, and aft curtains can be damaged while towing in the raised position.

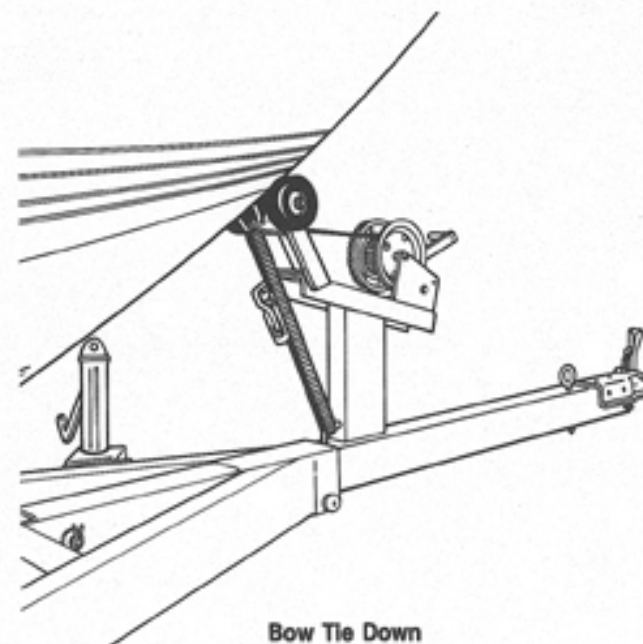
## TIE-DOWNS

Insuring that your boat is held securely in place on the trailer's hull supports, especially when underway, is extremely important. If it is not firmly and properly secured, your boat can be damaged as it bounces against the hull supports or it may slide or fall off the trailer while being towed. Regardless of your trailer's make or model, there are two key areas to consider:

1. **Bow Tie-downs:** A bow stop to hold the front of your boat in place is located on the winch stand. It should be positioned so that the winch line pulls straight and is parallel to the trailer frame (see illustration). A separate tie-down should then be attached to hold the boat **DOWNWARD AND FORWARD**. This may be accomplished by a line from the boat's bow eye to an attachment point on the trailer frame or winch stand. Be certain the line does not pass over any edge that will chafe it, or that it is not rigged so that it can slide back on the tongue and fail to hold the boat forward against the bow stop.

**NOTE:** Do not rely on the winch rope alone to hold the bow of the boat against the bow stop.

2. **Rear Tie-downs:** As noted previously, it is very important to be sure that the transom of your boat is resting fully and securely on the supports provided at the rear

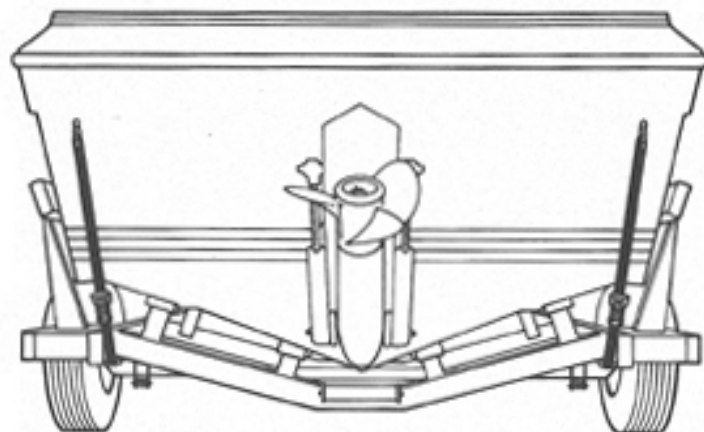


Bow Tie Down

end of the trailer, and that it remains in place when parked or underway (see illustration). Special rear tie-downs are available for this purpose. Check often to be sure the rear tie-downs are securely locked in place and that they are tight enough to prevent any movement of the boat. Check by rocking the boat on the trailer. If it does not remain firmly in place on the supports, tie-downs should be tightened or re-rigged.

**NOTE:** Your Four Winns dealer should be able to supply all your trailering needs.





Rear Tie Down

## TRAILERING CHECKLIST

Below is a checklist to follow when trailering your Four Winns boat:

1. Purchase a trailer with the proper capacity rating.
2. Consult your state laws as to brake requirements, and check brakes for proper operation prior to departure on each trip.

3. Check tires for proper inflation. Under-inflated tires heat up rapidly and tire damage is likely to occur.
4. Wheel bearings should be checked at least every 90 days and before storing for the winter months.
5. While traveling, check the wheel hubs every time you stop for gas or refreshments. If the hub feels abnormally hot, the bearing should be inspected before continuing your trip.
6. Your boat should be fastened to the trailer by a line from the bow eye to the winch line PLUS a safety chain or straps to the winch stand or trailer tongue. The stern of your boat should be tied down to the trailer from the stern eyes.
7. Check to be sure the taillights and turning signals work prior to towing.
8. Your trailer should support your new boat in as many areas as possible and be adjusted so the load is well divided among the supporting roller or bunks. Occasional lubrication of the rollers aids in launching and retrieving your boat.
9. Too much or too little tongue weight will cause difficult steering and tow vehicle sway. A rough rule of thumb is 5% to 10% of boat and trailer weight on the tongue.
10. Close and secure all cabin windows and doors. Store equipment so that it cannot slide or fall.
11. **IMPORTANT:** Convertible tops are not designed to stay on boats at highway speeds. Before towing, take down the convertible top, side curtains, and back cover.
12. Check springs and under carriage for loose parts.
13. Carry a spare tire for both your trailer and your towing vehicle along with sufficient tools to change them.
14. On extended trips, carry spare wheel bearings, seals, and races.
15. Before backing your trailer into water, disconnect the light plug from the towing vehicle. This will greatly reduce the likelihood of blowing out your trailer lights when they become submerged.
16. When rounding turns on highways or streets, do not cut corners. Also, go slow over railroad tracks.
17. Outboard motors should be tied in place so they will not tilt or turn due to road shock. Do not rely on the boat's steering system for this purpose. Continuous road shocks may fatigue the boat steering system.

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**NOTE:** If you are returning the boat to its trailer, it is a good idea to remove the transom drain plug as soon as the hull is clear of the water to drain any water that may have accumulated during your trip. **DO NOT FORGET TO REPLACE THE DRAIN PLUG BEFORE USING YOUR BOAT!**

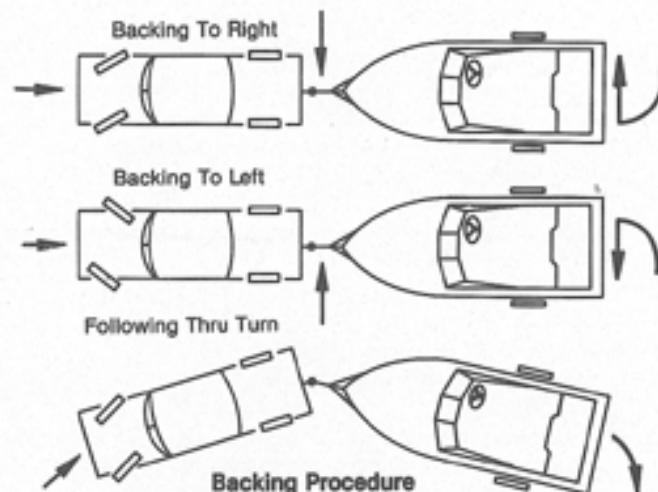
## BACKING UP TRAILERS

Before attempting to back-up your trailer, practice in an empty parking lot. Also, watching the "other guy" at a loading ramp can give you additional insights into proper technique for backing up your trailer.

**CAUTION:** When backing, be sure to have a lookout since your visibility may be severely blocked. Also, make certain the rudder will clear obstacles.

Here is a simple procedure to help you back-up your trailer:

1. Turn the front wheels of the car in the opposite direction you want the trailer to go.
2. Once the turn is started, follow the trailer as you normally would backing the car.
3. Equip your vehicle with a right hand mirror—a real benefit when passing and parking.



## V. LAUNCHING GUIDELINES

### FUELING

During fueling, it is very important to take precautions to avoid spillage or accumulation of gasoline vapors. Gasoline vapors are heavier than air and will sink into the lower cavities in your boat such as the bilge.

**WARNING: GASOLINE VAPORS ARE HIGHLY EXPLOSIVE!**

### WARNING



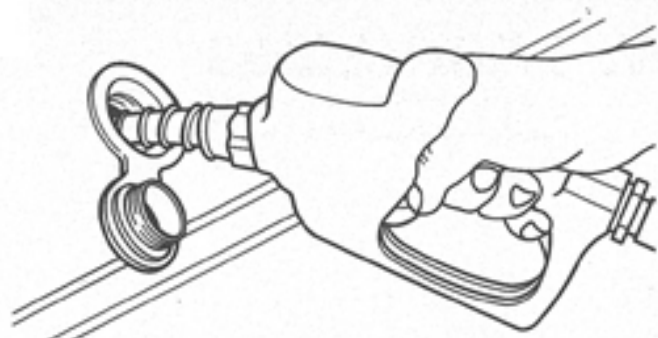
**LEAKING FUEL IS A FIRE AND EXPLOSION HAZARD. INSPECT SYSTEM REGULARLY. EXAMINE FUEL TANKS FOR LEAKS OR CORROSION AT LEAST ANNUALLY.**

Below is a list of instructions concerning fueling:

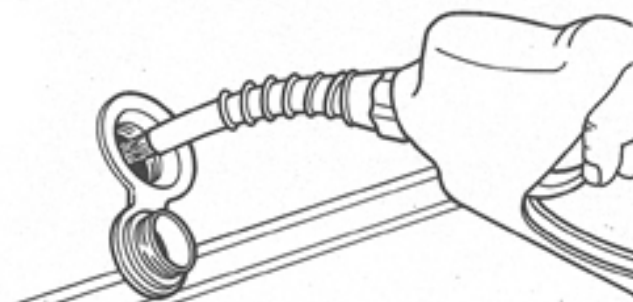
1. Close all doors, hatches, windows, and other compartments.
2. Extinguish cigarettes, pipes, stoves, and other flame producing items.
3. Make sure all power is off, and do not operate electrical switches.
4. Remove fuel fill cap. Insert hose nozzle and make sure nozzle is in contact with or grounded against fill opening. This will reduce the risk of static spark (see illustration).
5. Add fuel. Do not fill to capacity; this will allow for expansion.

**NOTE:** Each time you fill up, inspect all fuel lines for leaks and hose deterioration (see illustration).





Grounding the fuel hose—Proper



Not grounding the fuel hose—Improper

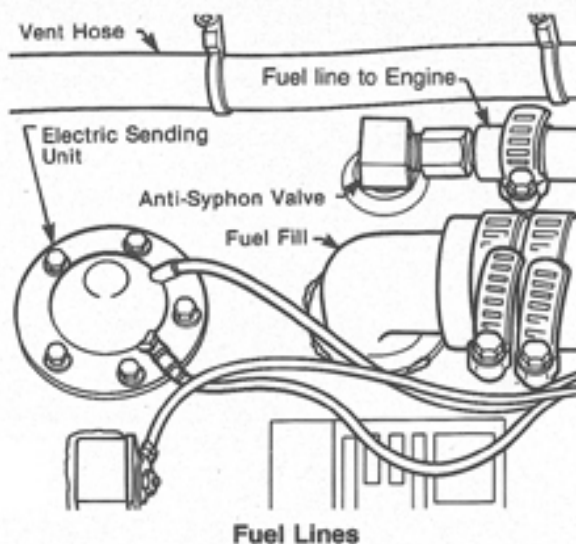
After fueling, you should:

1. Close fill and wipe up spillage.
2. Open all windows, hatches, doors, and compartments.
3. Operate bilge blower for a minimum of 5 minutes. If you can still smell fumes, continue operating the blower. Check gas fill, hoses, bilge, and lower engine compartments for leaks or gas accumulation if odors persist.

Avoid fueling at night except under well-lighted conditions. Also, know your Four Winns boat's fuel capacity and cruising distance.

## PORTABLE TANKS

For portable gas tanks in outboards, remove the tank prior to filling. Mix outboard motor oil with fuel according to engine manufacturer's specifications.



Outboard tanks have a built-in expansion chamber since the neck extends into the tank body which allows for over-filling. These tanks are marked (ABYC Std) with a safe fill level. If spillage does occur, wipe up spillage and make sure cap and vent are secure before loading into the boat. Attach to fuel lines and check for leaks.

If your gas tank leaks; remove it from the boat and have it replaced. **NEVER ATTEMPT TO REPAIR A LEAKING FUEL TANK!**

## LAUNCHING

Launching a boat can be an eye-opening experience to the beginning boater. As a suggestion, set aside some time to watch other boaters' attempts at backing trailers and launching their boats. Below are some helpful steps to aid you in launching your Four Winns boat:

1. Check the condition of the ramp. Ramps usually consist of cement, but some are made of asphalt or sand and gravel. Asphalt can be very slippery when wet. Also, check the water depth at the end of the ramp. This will help you determine the distance to back up your trailer.

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- The next step is backing the trailer to the ramp. Have someone assist you and use your mirrors as an aid. When you want the trailer to go right; move the steering wheel right and vice versa for left. Back the trailer to the edge of the ramp and stop. Park the vehicle, engage the parking brake, and place chocks under the front wheels to keep your vehicle from sliding.

**NOTE:** Additional information on backing trailers has been included in the trailering section of your owner's manual.

- Prepare for launching by attaching a line to the bow eye fitting. Also, detach the tie-down straps and tilt the outdrive or outboard unit into the "up" position.
- To launch, remove wheel chocks, release parking brake, and back the trailer into the water to a point where the boat will clear bottom. Park the vehicle, engage the brake, and reset the chocks.
- Unlock the winch line from the boat; crank and lock it in place. Push the boat into the water and have your assistant guide the boat with the bow line.
- Remove wheel chocks, disengage the parking brake, and park your vehicle and trailer.

To reload, repeat the procedure in reverse. Remember to clean any sand or dirt that has accumulated on the bunks of your trailer. This will reduce the amount of maintenance on your boat's hull in the future.

**NOTE:** Refer to launching record on page 39.

## LOADING

Each Four Winns boat has a maximum load capacity which is stated on the NMMA tag (see illustration). The U. S. Coast Guard determines the load capacity limits.

The performance of your Four Winns boat is dependent on load weight and distribution. When loading, step or climb into a boat. **NEVER JUMP INTO A BOAT!** Passengers should board one at a time and should distribute themselves to maintain trim (see illustration). Remember to distribute weight from starboard to port, and also from forward to aft.

**MAXIMUM CAPACITIES**

**10 PERSONS OR 1800 LBS.**

2615 POUNDS, PERSONS, GEAR

THIS BOAT COMPLIES WITH U.S. COAST GUARD SAFETY STANDARDS IN EFFECT ON THE DATE OF CERTIFICATION

MANUFACTURER FOUR-WINNS CADILLAC MI

MODEL 235 SUNDOWNER

DESIGN COMPLIANCE WITH SIA REQUIREMENTS BELOW IS VERIFIED. MFG. RESPONSIBLE FOR PRODUCTION CONTROL.

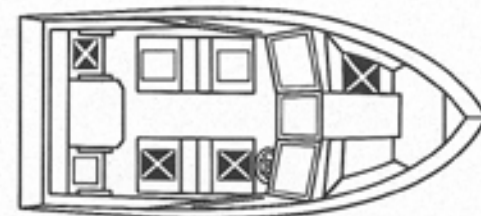
LOAD CAPACITY \* COMPARTMENT VENTILATION STEERING, FUEL AND ELECTRICAL SYSTEMS INTERNATIONAL LIGHTS \*

NATIONAL MARINE MANUFACTURERS ASSN.

### NMMA Maximum Load Capacity Tag

Below is a list of extra precautions:

- Do not allow your passengers to ride with their feet dangling over the side.
- Avoid excess weight in the bow or aft; this will cause the boat to "plow".
- Do not ride upon teak and bow rails.
- In adverse weather, reduce the load capacity. The NMMA capacity ratings are based upon normal boating conditions.
- The outdrive unit should not be used as a boarding ramp. Make sure engine is off when swimmers, divers, and skiers are boarding.



Proper Weight Distribution





Improper Weight Distribution

## STARTING

Before starting your boat, you should read your engine manual and pay close attention to the break-in period. Engine performance is dependent upon following guidelines. At this point you can prepare for starting the engine. Below is a checklist to follow:

1. Boat should be secured to the dock, because boat could shift unexpectedly. Also, leave adequate space between other boats and you.
2. Equipment and personal items should be stored or in a secure place.
3. Engine drain plugs are installed and closed.
4. Check oil and coolant levels.
5. Inspect the engine compartment for water or fuel leaks.
6. Check V-belts for proper tension (consult your engine manual for directions).
7. Operate bilge pump if applicable.
8. Operate bilge blower for a minimum of five minutes to expel gasoline fumes.
9. Lower outdrive unit into down position.
10. Set shift control lever into neutral position.

## STARTING PROCEDURES

Engine starting procedures will vary depending upon the engine controls and accessories in your boat (See your engine manual for specific directions). The following procedures are the basic steps used in starting engines. Your

boat dealer should give you detailed instructions about the operation of the controls installed on your particular boat. If for some reason the engine fails to start after following the procedures below, contact your dealer:

**NOTE:** If your boat has not been used for a period of time, you should prime the fuel system prior to starting.

1. Place the control shift lever into the neutral position. All engine controls have neutral start safety switch that will prohibit the starter motor from engaging when the shift lever is in a gear position.
2. Advance the engine throttle control lever to approximately 1/4 to 1/2 throttle position.
3. Turn the key switch to the start position. The engine should start. Do not allow the engine to reach high RPM's until it attains normal operating temperatures.

**IMPORTANT:** If the engine fails to start within 30 seconds, release the starter switch and wait 60 seconds allowing the starter to cool. Repeat the above procedures. If, after four (4) repeat operations the engine still will not start, investigate and determine cause for engine not starting. **STARTING MOTOR DAMAGE MAY RESULT IF STARTING OPERATION IS CONTINUED.**

4. Warm the engine up for five to ten minutes or until all the systems reach operating temperatures. Operate the engine between 800 and 1500 RPM's during warm-up. Check all gauges at this time for any sign of engine malfunctions.

**IMPORTANT:** DO NOT INCREASE ENGINE SPEED UNTIL OIL PRESSURE GAUGE INDICATES NORMAL. Shut engine down if oil pressure does not register ten (10) seconds after starting engine.

After the engine reaches normal operating temperatures, return the throttle lever to the idle position.

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## OPERATING SPEED

The safe operating speed of your Four Winns boat will be dependent upon the engine and boat size, weather and water conditions, and the experience of the boater.

On the other hand, the maneuvering speed of your boat will be the maximum speed you can make sudden shifts and turns without losing control of your boat. Practice maneuvering around docks heading into waves, and turning at slow speeds to give you experience at handling your boat.

**NOTE:** Beware of swimmers, divers, submerged obstacles, and other boats while operating your boat. Also, obey the boating laws of your given area.

## ANCHORING

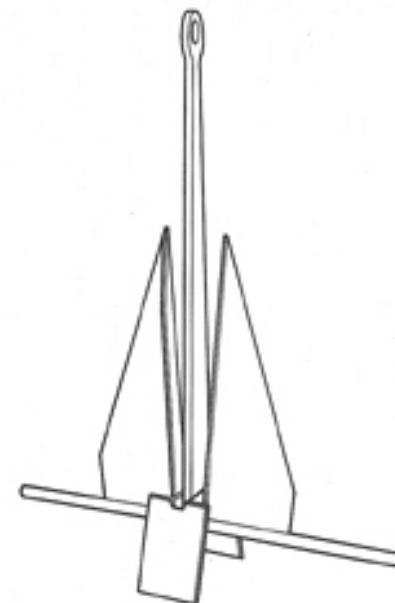
An anchor is essential to have on your Four Winns boat. Anchor and anchor line will be determined by the size and weight of your boat. Consult your Four Winns dealer for his recommendations.

Below are some suggestions for you when anchoring:

1. Keep anchor and line secure or in storage when not in use.
2. Make sure anchor line is secured to an appropriate fixture such as bow eye, cleat, or other solid fixture.
3. Before dropping anchor, unravel anchor line and make sure line does not wrap around your feet or other objects.
4. For extended or overnight boating, use two anchors. Allow for sufficient room to prevent damage from rough water or wind shifts. Your boat should be able to swing into a complete circle.

## DOCKING

If you keep your Four Winns boat docked for extended periods of time, make sure bumpers or fenders are properly



Anchor

placed to prevent damage to the hull. Allowance should be made for waves and tide fluctuations. A cockpit cover will protect the interior of your boat from rain and dust.

## PULLING AWAY FROM THE DOCK

With a smaller boat, the easiest way to get away from the dock is to push off with your hands or a short pole. Otherwise, operate your boat at slow speeds and proceed with caution. The stern drive operates from the stern. By turning the steering wheel right, the stern will move to the left. Turn the wheel left, the stern will swing right. To the inexperienced driver, this will be a surprising, new experience.

If you want to back up your boat, turn the wheel right and the stern will swing right. **REMEMBER: OPERATE AT SLOW SPEEDS TO AVOID ACCIDENTS.**



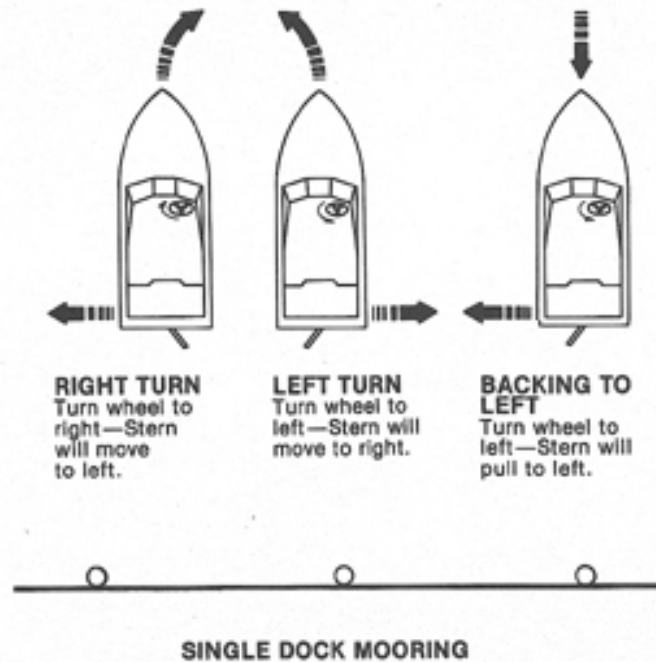
## DOCKING PROCEDURES

Once away from the dock, practice docking procedures to gain experience and confidence. Procedures are listed below:

1. Practice docking in open water using an imaginary dock.
2. Practice stopping. There are three steps listed below to help you:
  - a. Reduce boat speed while approaching the dock.
  - b. Shift boat into neutral. At this point the boat should almost be drifting.
  - c. Shift boat into reverse. This will stop the boat.

**REMEMBER: DO NOT SHIFT INTO REVERSE AT HIGH SPEEDS. BOAT MAY SHIFT SUDDENLY CAUSING YOU TO LOSE YOUR BALANCE. ALSO, THIS MAY DAMAGE YOUR ENGINE.**

3. In close quarters or congested areas, all maneuvering should be at slow speeds. Proceed with caution.



## VI. BOAT OPERATION AND PERFORMANCE

### TRIM

#### TRIM ANGLE

Trim angle of an outboard or stern drive is how far in or out from the transom surface the lower unit is tilted. The trim angle of the lower unit has a distinct effect on the planing angle of the boat which, in turn, significantly alters top speed and handling (see illustrations).

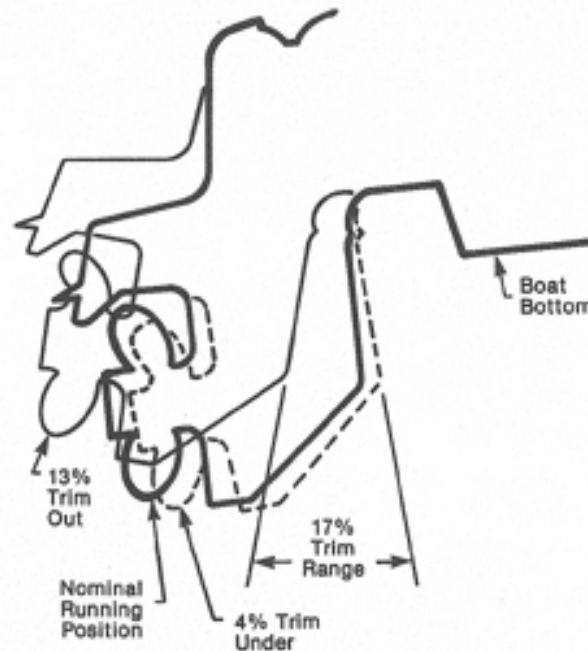


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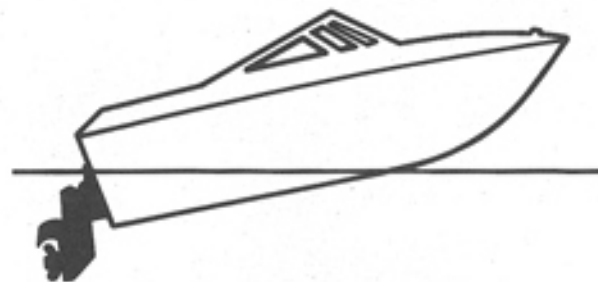
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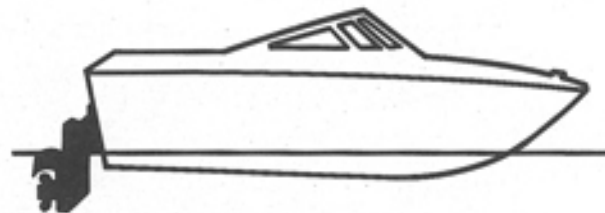
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Boat Properly Trimmed



Bow Too High—Trim Bow "Down"



Bow Too Low—Trim Bow "Up"

However, with your engine trimmed "in", getting on plane should be easier with some V-bottom hulls. The ride in choppy water, on plane, or at part throttle should be smoother. When your boat is trimmed "in" too far, top speed drops, fuel economy decreases, the boat may oversteer in one direction or the other, called "bow steering", and steering torque will increase. Occasionally, extreme trim "under" can cause a boat to list badly to the left (with right-hand prop).

If trimmed "out" too far, the propeller may lose its hold on the water; the V-bottom may start to "walk" from right to left to right, etc; steering torque will increase in the opposite direction to that when trimmed "in", and getting on plane may be difficult or labored. Porpoising of the boat may also occur.

It is not considered wise to operate on plane when trimmed beyond the maximum "trim" position, as the engine or drive unit no longer receives side support from the clamp brackets or gimbal ring. Severe damage could occur if the lower gear housing should strike a submerged object.

Here is a useful Power Trim hint: When a boat runs aground, it generally is best NOT to try to power out in forward. Rather, with the engine or drive trimmed "out" sufficiently (do not dig into the bottom) but allowing the propeller a fair bite, operate carefully in reverse. This works better because while in the trimmed-out position and in reverse, there is some upward thrust that will help lift the stern of the boat and force the prop wash under the boat. Operating in forward tends to push the stern down harder against the bottom.

## POWER TRIM

Trimming can be controlled far more conveniently by Power Trim. Power Trim permits control of the angle of the drive unit relative to the transom at the touch of a button. While on plane, the angle of the boat bottom to the water has much to do with maximum top speed, fuel economy, handling, and choppy water ride.

Boat bottoms have the least drag at an angle of from three to five degrees with the water. If they run flatter than three degrees, as most light planing boats tend to do, or steeper than five degrees, as stern-heavy boats just barely on plane may do, efficiency suffers.

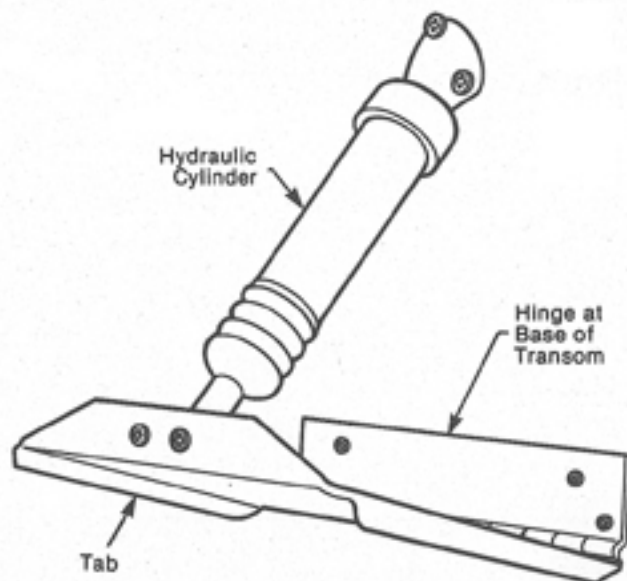


Here is where Power Trim can pay back dollars in fuel savings or give added thrills and safety with a faster, better handling boat. Power Trim will push a stern-heavy boat on plane that otherwise might not make it.

## TRIM PLANES

Trim planes are flat, movable surfaces that extend aft from the boat bottom, one on each side of center. Each surface is individually adjustable up or down and, on the more sophisticated installations, by a remote control switch.

Trim planes offer another method of trimming your boat in addition to Power Trim. When a boat's running attitude exceeds five degrees, it is beginning to run increasingly less efficient. Therefore, stern-heavy boats, that need to run at a slow plane (20-25 MPH), will be greatly aided by trim planes both in the efficiency and comfort departments.



Typical Trim Plane

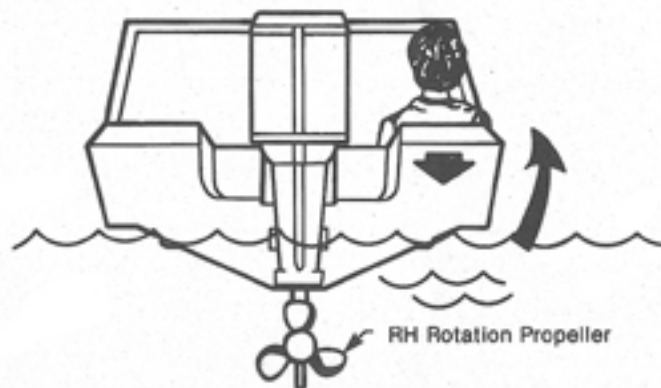
## TILT ANGLE AND STEERING TORQUE

When the prop is run fully submerged and the prop shaft approximately horizontal (parallel to the surface of the water, there should be little (if any) steering load. This statement applies primarily to outboards. Stern drives can have added complications because of their tilted steering axis.

However, with the engine (RH rotation prop) trimmed in or under, because of the prop shaft tilt (see illustration), the downward moving blade on the right side of the prop shaft has effectively more pitch, while the opposite is true of the upward swinging blade on the left side. This right/left imbalance pulls the engine to the right and makes the boat want to go into a right hand turn. Naturally, the driver must resist this force, if the boat is to continue in a straight line.

The entire situation reverses when the engine is trimmed out well past horizontal. Now the engine is pulled to the left, and the boats want to go into a left hand turn.

To help counteract this steering imbalance, most outboards and stern drives are equipped with adjustable trim tabs. Since the tab must be set in one selected position, the driver must choose the engine tilt position that he desires balanced.



Tilt Angle and Steering Torque

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## WEIGHT DISTRIBUTION AND BOAT PERFORMANCE

Weight distribution is extremely important; it affects a boat's running angle or attitude. For best top speed, all movable weight—fuel, battery, anchor, passengers—should be as far aft as possible, to allow the bow to come up to a more efficient angle (three to five degrees). The negative side of this approach stems from the problem that as weight is moved aft, some boats will begin an unacceptable porpoise. Secondly, as weight is moved aft, getting on plane becomes more difficult. Finally, the ride in choppy water becomes more uncomfortable as the weight goes aft. With these factors in mind, each boater should seek out the weight locations that best suits his needs.

Weight and passenger loading placed well forward increases the "wetted area" of the boat bottom and, in some cases, virtually destroys the good performance and handling characteristics of the boat. Operation in this configuration can produce an extremely wet ride, from wind-blown spray, and could even be unsafe in certain weather conditions or where bow steering may occur.

Weight distribution is not confined strictly to fore and aft locations, but also applies to lateral weight distribution. Uneven weight concentration to port or starboard of the longitudinal centerline can produce a severe listing attitude that can adversely affect the boat's performance, handling ability and riding comfort. In extreme rough water conditions, the safety of the boat and passengers may be in jeopardy.

## ELEVATION AND CLIMATE: PERFORMANCE

Elevation has a very noticeable effect on the wide-open throttle power of an engine. Since air (containing oxygen) gets thinner as elevation increases, the engine begins to starve for air, like a supercharger in reverse. The "rule of thumb" is a three percent loss in power for every 1,000 feet above sea level. Humidity, barometric pressure, and temper-

ature do have a noticeable effect on the density of air. Weather conditions also have an effect on power output of internal combustion engines. While the published horsepower ratings refer to the power that the engine will produce at its rated RPM under a specific combination of weather conditions, heat and humidity thin the air and reduce the available horsepower. This phenomenon can become particularly annoying when an engine is propped out on a cool, dry day in spring. Later, on a hot, sultry day in August, the engine does not have its old zip.

Although some performance can be regained by dropping to a lower-pitch propeller, the basic problem still exists. The propeller is too large in diameter for the reduced power output. Experienced MerCruiser or OMC Cobra dealers can determine how much diameter to remove from a lower-pitch propeller for specific high elevation locations. In some cases, a gear-ratio change to more reduction is possible and very beneficial. However, the gear ratio change should be qualified and would probably be a good idea for someone who almost always boats at high elevations such as "Lake Tahoe". A changeover is expensive, and you should consult your Four Winns dealer for his recommendations.

## VII. ENGINE SYSTEM: COMPONENTS

### PANEL SWITCHES

1. **Ignition Switch:** Operates power supply to engine.
2. **Horn:** Operates horn with either a push-button type or toggle switch.
3. **Navigational Lights:** Three-position light switch. Up position controls the navigational lights, which include the bow light (combination red and green) and the stern light. Center position is off. Down position operates the stern light only.





Panel Switches

4. **Blower:** Two-way toggle switch which operates the bilge blower.
5. **Pump:** Two-way toggle switch which operates the bilge pump.
6. **Acc or Aux:** Accessory switch.

## GAUGES

1. **Oil Pressure Gauge:** The engine oil pressure gauge indicates the oil pressure of the engine at all operating speeds. Oil pressure should be approximately 12-25 psi (pounds per square inch) at idle speeds. At normal cruising speeds the oil pressure should be 45-65 psi depending upon oil grade and oil operating temperature. Check your engine manual for specifics on your engine.
2. **Volt Meter Gauge:** The volt meter allows you to determine if the alternator output is keeping up with the boat's power needs. Volt gauge readings should not drop below 10.5 volts when starting the engine and should not rise above 14.7 volts. Reading of higher or lower would indicate a battery or charging system malfunction which should be corrected.

3. **Tachometer:** The function of a tachometer is to indicate engine RPM (Revolutions Per Minute). The engine can be operated between idle and full throttle without damage but should not be allowed to over-rev. Operating the engine beyond recommended RPM limits can cause severe damage to the engine.
4. **Fuel Gauge:** Indicates the amount of fuel in your tank.
5. **Speedometer:** Measures boat speed in MPH (Miles Per Hour). Speed will be affected by boat and engine size, number of people, and weight of gear and accessories.
6. **Power Trim:** Indicates the angle of the drive unit relative to the transom. The angle of the boat bottom to the water affects maximum top speed, fuel economy, and handling.
7. **Water Temperature Gauge:** The water temperature gauge indicates the temperature of the coolant in the fresh water system. The gauge operates only when the ignition switch is in the "run" position. If the indicator suddenly rises to the hot or red area of the gauge, the engine should be stopped, and the cause of overheating determined and corrected.

## SHIFTER CONTROLS

The shifter control unit is mounted at the helm station of your boat. Single lever controls integrate the throttle and gear shift into a single hand lever. Dual controls occur on larger boats that are equipped with two engines.

Included in your owner's packet is an OMC shifter manual which gives detailed information concerning operation and assembly of your shifter controls.

When shifting from forward to reverse, or reverse to forward, pause at neutral and allow the engine to return to idle (500 to 600 RPM) to avoid damage to the mechanism. Except in an emergency, **AVOID SHIFTING INTO REVERSE WHEN THE BOAT HAS SIGNIFICANT FORWARD SPEED.**

For trouble-free operation, keep the shifter control unit clean and free of corrosion; check for loose mounting screws or bolts, and tighten if necessary. Check control cables for cracks or abrasions and kinked or bent cable; replace damaged cables.

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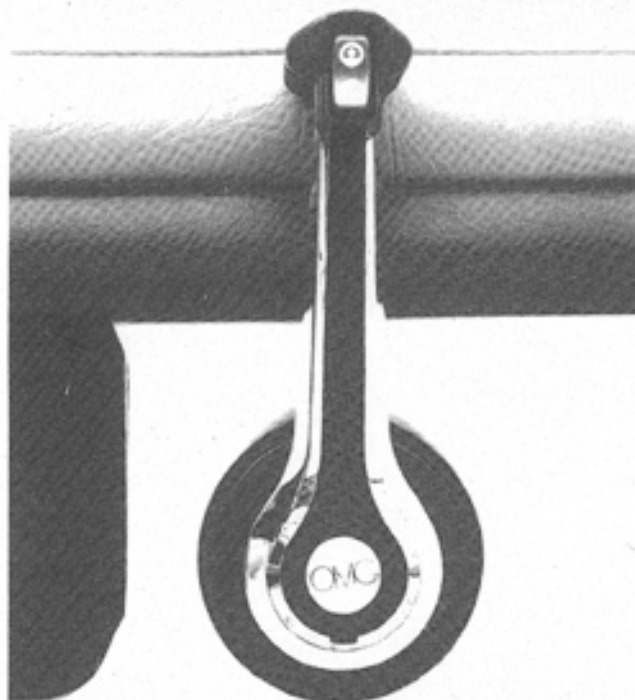
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Shifter Controls

Check cable ends and connection fittings for corrosion, loose brackets, and loose, worn or damaged fittings. Replace worn or corroded parts (See your Four Winns dealer for replacement parts). Cable ends, fittings, and shifter control unit may be sprayed with a moisture-displacing lubricant.

**WARNING: THE THROTTLE ON THE SHIFTER CONTROL DOES NOT RETURN TO IDLE SUCH AS A CAR DOES WHEN LEFT UNATTENDED. Make sure you can reach the shifter lever quickly in an emergency.**

**NOTE:** If the shifter control system jams at any time, TURN OFF THE IGNITION SWITCH IMMEDIATELY. Stiff, jerky or hard-operating control levers are an indication of trouble in

the control system. DO NOT FORCE OR CONTINUE TO USE A MALFUNCTIONING CONTROL SYSTEM — you could cause further damage. See your Four Winns dealer as soon as possible.

## STEERING SYSTEM

It is important that you get the "feel" of your Four Winns boat's steering system. Turn the steering wheel from full left to full right, and make sure the motor steering arm is turning accordingly. The system should operate freely and smoothly. The cable end and its fittings should be kept clear of fuel line, control cables, electrical wiring or onboard gear when the motor or stern drive unit is moved through its full steering cycle in both running and full tilt positions.

The moving metal parts of the steering system should be cleaned and lubricated with a good grade of marine grease to insure smooth operation. With regard to the ram and steering tilt tube, Four Winns recommends lubrication:

1. Every sixty (60) days for freshwater,
2. Every Thirty (30) days in saltwater, and
3. Before placing in storage, if for thirty (30) days or more.

All fittings and cables should be inspected for corrosion or damage and replaced if necessary. Also, the steering wheel should be inspected for looseness and tightened, if necessary. Replace the steering wheel if there are any cracks around hub or base of spokes.

Steering or propeller torque is always present in any drive system. In some systems, it is more noticeable than in others. Most Four Winns boats are equipped with power steering and this has minimized the effects from torque. If you encounter movement in the steering wheel when released; check with your dealer. The power steering assembly may need adjusting.

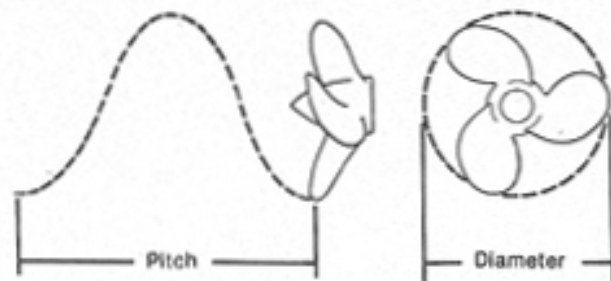
**REMEMBER:** The steering system should be inspected by a qualified mechanic at regular service intervals from a safety standpoint.



## PROPELLERS

Nothing is more important to the proper performance of your Four Winns boat than the condition of the propeller. Even minor damage (often invisible to the naked eye) can adversely affect the boat's performance. Common symptoms of a damaged propeller are a sudden drop in RPM's, vibration, or sudden loss of speed.

A propeller is measured by two dimensions: 1) the diameter; and, 2) the pitch. The diameter is determined by measuring the distance from the center of the propeller to the tip of one blade and multiplying that figure by two. Pitch is expressed in the number of inches a propeller will advance in a solid medium in one revolution (see illustration).



Propeller Measurements

An accurate tachometer is important in choosing the best propeller for your boat. When operating your boat at full throttle under normal load conditions, the engine RPM is the controlling factor in determining the correct propeller blade pitch. To obtain peak performance, the engine RPM at full throttle should be in the full throttle operating range specified by the engine manufacturer. If engine RPM is below that range, install a propeller of reduced pitch to increase engine RPM. If engine RPM is above the recommended range, install a propeller of increased pitch. Check with your Four Winns dealer for his recommendations.

## PROPELLER BLADES

A single-blade propeller would be the most efficient—if the vibration could be tolerated. In order to get an acceptable level of balance with much less vibration, a two-bladed propeller, practically speaking, is the most efficient. A three-bladed propeller is a little less efficient, and a four-bladed propeller is even less efficient. Vibration level decreases as the number of propeller blades are added.

Most propellers are made with three blades as a compromise for vibration, convenient size, efficiency and cost. The efficiency difference between a two- and three-bladed propeller is considered less significant than the vibrational difference. Nearly all racing propellers are presently three-bladed.

## DAMAGED PROPELLERS

Even slight propeller damage can mean the loss of one MPH. Greater damage can mean considerably more speed loss. Worse yet, damage usually is not done to each blade uniformly and, therefore, sets up imbalance vibrations that can cause fatigue damage to other parts of the engine or outdrive.

Up to a point, dealers can have a propeller restored to like-new condition; however, extreme damage can be more expensive to repair than the cost of a replacement. Remember to carry a spare propeller.

## Aluminum Propellers

Aluminum is by far the most popular propeller material used today for outboards and stern drives. It is relatively low in cost, has good strength, good corrosion resistance and is easily repaired.

## Stainless Steel

For the ultimate in top speed, stainless steel propellers will increase top speed by two to four MPH. However, they will do so at the sacrifice of some of the pulling power for water skiing and heavy loads. Stainless steel propellers should only be used when additional speed is desired. Under normal usage, aluminum propellers will give you the best overall performance. Keep in mind that if hitting a submerged object,

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aluminum will bend easier than stainless, absorbing most of the shock, and helps protect the stern drive. On the other hand, stainless steel may not bend and transmit the shock into the outdrive which could cause internal damage. For additional information, contact your Four Winns dealer.

## PROPELLER/BOAT MATCHUP

### Water Skiing

To take advantage of as much of the engine's horsepower as possible for pulling up water skiers, a propeller with a lower pitch should be selected. With higher initial engine RPM, more thrust is developed to pop skiers out of the water and get the boat on plane faster. Each two inch drop in pitch provides about 10% more thrust.

It is important that the operator watch the tachometer to make sure that the engine RPM does not continuously exceed the maximum recommended full-throttle RPM without a skier. Propping the engine above the maximum recommended RPM Limit is called "under-propping" and can cause engine damage.

### Cruising

Since cruising does not require top acceleration, a little added fuel economy, less engine wear, and a lower sound level when using the proper propeller. You will get better overall performance by propping the engine to operate within the recommended maximum RPM band at Wide Open Throttle (W.O.T.) and then throttling back to 3000-3500 RPM's.

One reason for getting better fuel economy is that propellers tend to have a slight increase in efficiency as the pitch is increased within a given prop line.

### Sport Boating

When a compromise between W.O.T. speed and acceleration is needed, propping out in the upper half of the recommended RPM range with a light load is suggested.

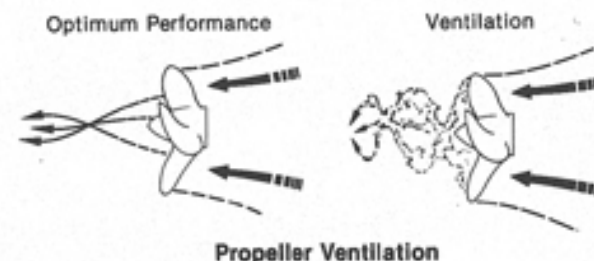
This should be the best prop, unless planing off with a heavy load is unsatisfactory (in which case dropping to the next lower pitch should solve the problem). However, it is important to watch top RPM.

### Cavitation

Cavitation is caused by formation of air bubbles along the surface of the propeller. Cavitation is usually the result of using a damaged propeller, outboard motor mounted too high, tilted out too far, or some hull projection in front of the engine. The result is often called a "burn". Damaged propellers should be reconditioned or replaced.

### Ventilation

Ventilation is sometimes called cavitation. Ventilation is the formation of a void around the propeller, usually on entering or leaving a sharp turn (see illustration). Without water to turn in, the propeller runs free, and forward motion of the boat comes almost to a halt until the propeller finds water to turn in again. When this condition occurs, throttle back immediately. If the condition persists when you resume speed, you may have to adjust engine trim or your load.



**CAUTION: CAVITATION OR VENTILATION CAN CAUSE DAMAGE TO YOUR ENGINE.**

### Engine Overspeed

This can occur when a propeller of too low pitch is used or engine is set at wrong tilt angle or height on transom. Overspeeding can cause damage to the engine in the form of broken connecting rods, crank shafts, and valve train components (in four-cycle engines). Broken parts can be thrown



from the engine at high velocity and cause injury or damage. A tachometer should be used to monitor engine speed and to avoid "over-revving." If you are using a low-pitch propeller for better load carrying or water skiing performance, be careful when operating under light load conditions to avoid overspeeding the engine.

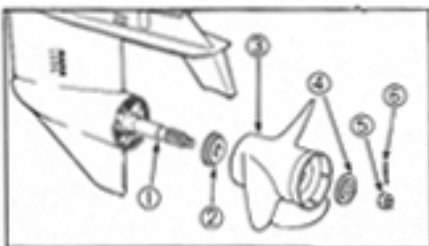
## INSPECTION AND MAINTENANCE

At least once a year, more often if you use your boat extensively; remove the propeller from your outboard or inboard and inspect the shaft seal for possible damage (see illustration). Clean and lubricate the shaft according to engine manufacturer instructions. Replace the propeller using a new cotter pin or tab lock washer. Follow manufacturer's instructions for care and maintenance of the gear case. Also, check your shaft alignment periodically (refer to engine manual for recommendations).

**WARNING: USE ONLY PARTS RECOMMENDED BY THE ENGINE MANUFACTURER. Incorrect parts can be dangerous, in some cases, and could void your engine warranty. Fuel system parts used on marine stern drive engines have been designed to prevent external sparks which could ignite flammable fumes. DO NOT SUBSTITUTE AUTOMOTIVE EQUIVALENT.**

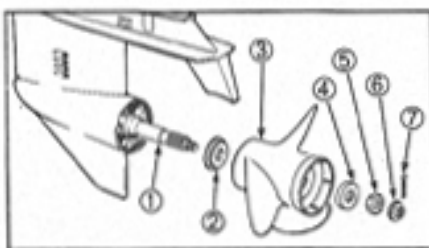
### Propeller Attaching Components – 2.3 & 3.0 Litre Models

- ① Propeller Shaft
- ② Thrust Bushing
- ③ Propeller
- ④ Spacer
- ⑤ Propeller Nut
- ⑥ Cotter Pin



### Propeller Attaching Components – 4.3, 5.0, 5.7 & 7.5 Litre Models

- ① Propeller Shaft
- ② Thrust Bushing
- ③ Propeller
- ④ Spacer
- ⑤ Propeller Nut
- ⑥ Keeper
- ⑦ Cotter Pin



## VIII. CONSTRUCTION AND CARE: EXTERIOR

### CONSTRUCTION

Your Four Winns boat is constructed for strength, durability, and energy efficiency. Light hulls that are rough mean more speed per horsepower, and that means less fuel and longer hull life. The cutaway (see illustration, page 30) shows how our special combination of hand-layed woven roving and mat fit together. It makes Four Winns hull 20% stronger in flexural strength than regular mat construction. Ordinary, chopped glass hulls do not have the ability to distribute stress over a large area as do continuous strands of woven roving. Moreover, our hand lay-up design gives a lighter hull. It's easier for a smaller car to tow on the road. Less energy is required to push the boat. So you save three ways: lower initial cost, less fuel consumption and long hull life.

Also, in all Four Winns boats there is wood reinforcement under the fittings to prevent them from pulling out. The wood floor and stringers are completely encased in fiberglass for strength and permanence. Rigid cell, urethane foam fills all spaces between stringers and floors fusing the hull bottom and sides to the stringers and flooring. This, combined with the hand-layed woven roving and mat hulls, gives you a Four Winns boat built to last.

The overall design of your Four Winns boat is safety oriented and is NMMA certified. This means we voluntarily submit our boats to an inspection by the National Marine Manufacturers Association (NMMA). Also, you can be assured that the lighting, ventilation, fuel system, steering, flotation, load capacity, and horsepower rating meet or exceed within the rigid U.S. Coast Guard requirements.

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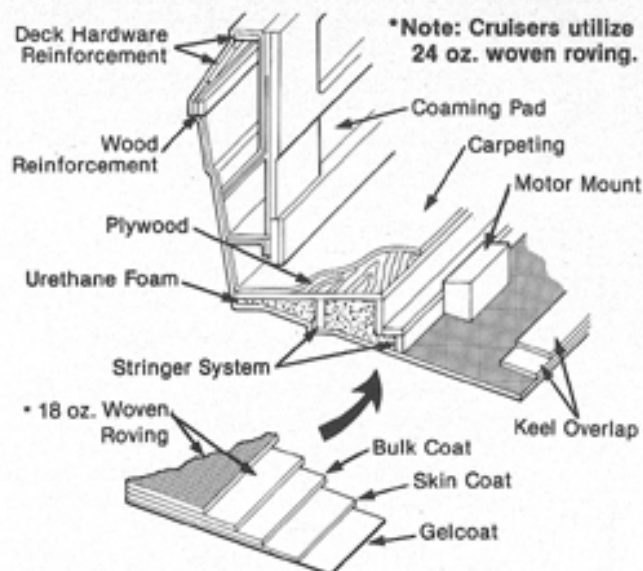
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Boat Cut-a-Way for 160 Freedom Through 215 Sundowner

## FIBERGLASS

The fiberglass hull and deck of your Four Winns boat consist of a molded shell and exterior gelcoat. The gelcoat is the outer smooth surface, often colored, and protects the fiberglass shell of your boat. It is approximately 20 mils thick (20/1000 inch). The molded shell varies in thickness from 120 to 150 mils. Your Four Winns boat is highly resistant to weathering, water pollution, and minor scrapes which occur during normal use. However, in the event of stains, loss of color and gloss, or cracks; some maintenance will be required.

## CARE

### Keeping Gel Coat Looking Like New

Your Four Winns boat is subject to weathering processes and eventually, the outer gel coat will appear faded or dull. How much wear and tear from weathering depends upon how you treat and maintain your boat. If you allow the gel coat to deteriorate, then you will have a higher expense of repairing the exterior surface. It is more economical in the long run to maintain your Four Winns boat on a periodic basis.

Weathering occurs from direct sunlight, water, chemicals, and dust. Some of the terms below describe the changes that can occur to the gel coat surface:

1. Chalk is the top surface being broken down into an extremely fine powder. When this happens, the color whitens. The chalk that has developed is strictly on the surface.
2. Fade means that the color has uniformly changed. This happens when the actual pigments have changed color especially from excessive chalk, or when the gel coat has either been stained or bleached by something.
3. Yellowing is when the part has actually started to pick up a yellow cast or streaking occurs. Uniform yellowing may be a result of application or mix. Streaking usually deals with a stain or contact with another surface.
4. Gloss refers to the shine of the surface and can change from sanding action, chalk, or residues.

## Procedures To Maintain Gel Coat Finishes

The following are some general instructions, which will help you maintain your Four Winns boat's sleek appearance.

1. Wash monthly or more frequently, depending upon use. Wash with a mild dishwashing soap but avoid strong alkaline cleaners and abrasives.
2. Wax your boat twice a year.

For boats that have weathered and have chalked:

1. Wash.
2. Wax. If this does not work, then use a fine rubbing compound. However, this may not work. You may be forced to use 400 or 600 wet or dry sandpaper, followed by fine rubbing compound and wax.

When using fine rubbing compounds, make sure you follow directions. Some tips are listed below.

1. Read directions.
2. Avoid using in direct sunlight. This dries out the compound.



- Use clean pads to apply compound. Apply the rubbing compound to a small area, remove excess, and apply pressure. If using a power buffer, use a low RPM buffer (1200 to 2000 RPM). Keep your pad wet and do not allow it to dry out. Follow up with waxing.

When using waxes, make sure you consult your Four Winns dealer for his recommendations. Use only waxes designed for fiberglass. Some helpful hints are listed below.

- Read directions.
- Do not use in direct sunlight.
- Use clean cloths.
- Apply a thin coat of wax so that a residue cannot build up and yellow.
- Work a small area at a time such as three feet by three feet.

**NOTE:** If a power buffer is used, use a low RPM buffer with light pressure. Keep it moving at all times to prevent heat build up.

## STAINS

Your Four Winns boat will pick up stains from normal boating activity. Stains are a result of dust, road tar, plant sap, rust from metal fittings, and other materials which come into contact with your boat's exterior.

Surface stains may be removed by dishwashing soap, mild cleansers, or some household detergents. Chlorine and ammonia products are not to be used. These products can cause serious damage to the color of the gel coat. Commercial car washes use strong cleaners and should be avoided. Check with your Four Winns dealer for his recommendations.

Listed below is a step-by-step procedure to clean and remove stains from your boat:

- Wash area with dishwashing soap.
- Begin with a small area such as three feet by three feet and apply a mild cleanser.
- Rinse with clean water.
- Buff with fine rubbing compound.
- Wax.

If the stain is not removed by the dishwashing soap or mild cleanser, then the next procedure is to use either denatured or rubbing alcohol. Common rubbing alcohol is excellent for removing stains. If this does not work, consult your Four Winns dealer for professional help. **DO NOT USE ACETONE, KEYTONE, OR OTHER SOLVENTS TO REMOVE STAINS. THESE CHEMICALS ARE FLAMMABLE AND MAY ALSO DAMAGE THE GEL COAT.**

## SCRATCHES AND GOUGES

Scratches also occur during normal use. Below is a step-by-step procedure for repairing scratches:

- Clean area with soap and water.
- Apply a fine rubbing compound.
- Wax.

If this does not work, clean the area and sand lightly with 400 to 600 wet or dry sandpaper and follow this with rubbing compound.

For severe gouges, scrapes, and cracks in the gel coat, you should consult your Four Winns dealer for professional help. It is not recommended that boat owners make these types of repairs.

## SPECIAL CARE FOR BOATS THAT ARE MOORED

If permanently moored in saltwater or fresh water, your boat will collect growth and grass on the hull bottom. We suggest that you prevent this by:

- Periodic haul-out and cleaning (30 to 45 days). Use soap and water and plenty of elbow grease.
- Paint hull with a good grade of anti-fouling paint.

## UNDERWATER CORROSION

Electrolysis or corrosion occurs in saltwater conditions from the interaction of the saltwater and the direct current of the battery. As a result, the chrome and brass in your boat becomes corroded.

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To prevent corrosion in your Four Winns boat:

1. Keep a clean, dry bilge.
2. Check your ground wire on the zinc anode. Clean the contact surfaces.
3. Replace the zinc anode if deteriorated beyond effectiveness (usually 50% loss).
4. Do not use a copper based bottom paint, because it can cause electrolysis on some metal parts.

## IX. CONSTRUCTION AND CARE: INTERIOR

### BILGE

Your bilge accumulates oil and greasy dirt over a period of time and should be cleaned out. Usually, ordinary soap and water does not remove the accumulation, and something stronger is necessary. Consult your Four Winns dealer for his recommendations.

### HOSES

Fuel lines, vent hoses, and drain hoses should be checked frequently for leaks. If this is occurring around the fitting, then tightening of the hose clamps may be all that is necessary. However, if the leak continues, replace the hose immediately to prevent a build-up of fluids or gases. Surface cracking on the hose indicate wear, and replacement is recommended. Use fuel system parts certified for marine use only. Do not substitute automotive parts in marine application.

### WINDOWS AND WINDSHIELDS

The windows and windshields on your Four Winns boat are made of tempered safety glass and are similar to the win-

dows in your car. The glass will scratch however, and abrasive cleaners should not be used to clean your windows. Soap and water or automotive glass cleaners may be used.

Cabin windows and deck hatches are made of plexiglass or similar synthetic material and can scratch easily. To clean, wash gently with mild soap and rinse thoroughly with clean water. To dry, use a soft chamois cloth.

If a leak occurs, follow the procedure below:

1. Clean the area around the leak thoroughly, to create a good, bonding surface.
2. Wipe the surface, and make sure it is dry. This may take up to 24 hours, depending upon conditions.
3. Apply a water-resistant, silicone sealant. Follow the directions on the package.
4. Check your work by applying water with a hose.

### ELECTRICAL

Your Four Winns boat is equipped with a standard 12 volt battery. The battery comes with a non-metallic box to help contain spills and prevent corrosion.

Check your battery terminals frequently for corrosion. Clean terminals with a baking soda and water solution and a wire brush. Also, check the fluid levels in the cells. Usually, a level approximately 1/4 to 1/2 inch above the plates is sufficient. If needed, fill with distilled water. However, some batteries are sealed, and this process is not necessary. Also, read directions when applicable.

If you operate your Four Winns boat sparingly, you may want to charge your battery occasionally. To recharge, remove the battery from the boat and remove the battery caps (when applicable). Recharge the battery according to the directions enclosed with your battery charger.

**NOTE:** Four Winns does not recommend starting your engine with jumper cables under any circumstances. Risk of spark at the battery post igniting gasoline fumes is too great.



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## VINYL

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The vinyl used by Four Winns is able to withstand scuffing, cracking, peeling, hard use, and soiling. In general, most household soil can be easily cleaned with warm soapy water and several clear rinses. Moderate scrubbing with a medium bristle brush will help to loosen the soiling agent from the depressions of embossed surface. Certain commercially available products clean routine household spills from vinyl very effectively. **Check the label on the product to see if it is recommended.** Full strength rubbing alcohol or bleach diluted with water may be tried if the above suggestions do not work. Certain household cleaners could cause damage or discoloration of the vinyl product and should be avoided.

Certain stains may become permanent if they are not removed immediately. Several stains and suggestions for removal (subject to manufacturer's instructions for stain removal) are discussed below.

### Ballpoint Ink

Ink spots usually stain plastic products permanently, but much of the stain may be removed by immediate wiping with rubbing alcohol.

### Oil Base Paint

Turpentine will remove fresh paint. Dried paint must be sparingly moistened with a semi-solid stripper so that the softened paint can be gently scraped away.

**CAUTION: PAINT STRIPPER WILL PROBABLY REMOVE THE PRINTED PATTERNS ON PLASTIC SURFACES.**

### Latex Paint

Fresh paint can be wiped off with a damp cloth. Follow the instructions for dried oil paint if the latex has dried.

### Surface Mildew

Wash with a bleach solution of one tablespoon of bleach to one quart of water, then rinse several times with clear water.

### Tar and Asphalt

Remove immediately. Lengthy contact will cause a permanent stain. Using a cloth dampened with kerosene or mineral spirits, rub gently from outside edge of stain to the center. This will prevent the stain from spreading. Rinse with soap and water.

### Chewing Gum, Car Grease, and Shoe Polish

Scrape off as much as possible (chewing gum will come off more easily if rubbed with ice cube) and go over lightly with mineral spirits to remove the remainder. No time should be wasted in removing shoe polish, because it contains dye which can cause permanent staining. Rinse thoroughly.

**NOTE: POWDERED ABRASIVES, STEEL WOOL, AND INDUSTRIAL STRENGTH CLEANERS ARE NOT RECOMMENDED.** They will cause dulling of glossy surfaces. Dry cleaning fluids and lacquer solvents are not recommended because they will attack the vinyl and remove or destroy the printed patterns on the surface.

Wax should only be used on the vinyl if the manufacturer of the product recommends it. Many waxes contain dyes, and dyes will stain.

**REMEMBER:** Always follow manufacturer's directions prior to using any product on your boat.

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## CARPETING

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Your Four Winns boat is equipped with a top-quality, all-weather indoor/outdoor carpet. It is essentially waterproof and fade resistant.

To clean, scrub with soap and water, and rinse thoroughly. Occasional vacuuming will remove imbedded dirt and grit.

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If you spill gasoline or any other solvent on the carpet, WASH IMMEDIATELY to reduce possible damage to the carpet fibers and rubber backing. Also, gasoline fumes are highly volatile and could cause an explosion.

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## HARDWARE

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Most of the metal hardware on your boat consists of aluminium, chrome, brass, and stainless steel and should be cleaned on a periodic basis. Soap and water is usually sufficient, but metal cleaners are available on the market. Your Four Winns dealer may be able to supply a recommended product.

After a good cleaning, a coat of metal polish or paste wax will improve luster of the hardware. In fresh water conditions, metal fittings, railings, and hardware should be sprayed annually with a rust inhibitor such as WD-40 or other fine oil, and every two or three months in saltwater conditions. Check with your Four Winns dealer for his advice.

Your hardware has designated uses and as a reminder, cleats are for mooring lines and not for towing skiers. Also, periodically check screws, bolts, and fittings for tightness, and replace broken or damaged hardware.

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## TEAK

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Teak has a high natural oil content and is highly rot resistant. Weathering of teak results in the wood whitening in appearance due to the loss of this natural oil.

To maintain teak, apply teak or linseed oil twice a year in freshwater conditions, and four to six times a year in saltwater areas. Teak oil can be normally purchased at your Four Winns dealer. Varnishing teak is not recommended by Four Winns.

# X. TROUBLE SHOOTING

If your boat performance is not what you are expecting, try this trouble shooting guide:

1. Improper outboard tilt angle or transom height.
2. Incorrect propeller selection.
3. Improper load distribution.
4. Water under cockpit floor.

The following sections concerning trouble shooting are broken into four sections; Boat handling, steering, engine performance, and gauges.

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## BOAT HANDLING

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- A. Poor speed—light load.**
  1. Incorrect propeller selection.
  2. Load too far forward.
  3. Engine malfunction.
  4. Motor trim too far in.
  5. Marine growth on hull or lower unit.
- B. Poor speed—heavy load.**
  1. Under powered.
  2. Engine malfunction.
  3. Incorrect propeller selection.
  4. Motor trim too far out.
  5. Marine growth on hull or lower unit.
- C. Slow to plane—heavy load.**
  1. Motor trim too far out.
  2. Incorrect propeller selection.
  3. Too much load in stern.
  4. Water under cockpit floor.



**D. Speed loss.**

1. Water under cockpit floor.
2. Marine growth on hull or lower unit.
3. Weeds on propeller.
4. Damaged propeller.

**E. Hard ride in rough water.**

1. Too much load in stern.
2. Motor trim too far out.
3. Poor speed management.

**F. Runs wet in rough water.**

1. Load too far forward.
2. Motor trim too far in.
3. Overloaded.

**G. Lists on straight when heavily loaded.**

1. Load not evenly distributed.
2. Motor trim too far in.
3. Water under cockpit floor.

**H. Lists or rolls on straight when lightly loaded.**

1. Loose steering.
2. Water under cockpit floor.
3. Motor trim too far in.
4. Load too far forward.

**I. Nose heavy—catches on waves and in turns.**

1. Motor trim too far out.
2. Too much load in stern.
3. Hull has a hook.

**J. Porpoises on straight run.**

1. Motor trim too far out.
2. Too much load in stern.
3. Hull has a rocker.

**K. Banks too much in turns.**

1. Overloaded, improper weight distribution.
2. Load too far forward.
3. Motor trim too far in.
4. Overpowered.
5. Hull has a hook.

**L. Excessive Cavitation.**

1. Incorrect propeller selection.
2. Motor too high on transom.
3. Motor trim too far out.
4. Overpowered.
5. Load too far forward.
6. Water under cockpit floor.
7. Thru-hull fittings disturb water flow.
8. Weeds on propeller.

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## STEERING

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**A. Steering stiff or unusually hard operating jerky or erratic.**

1. Corrosive deposits at cable output end, either inside cable sleeve or inside motor tilt tube.
2. Crushed or kinked cable conduit.
3. Bent cable ram at output end.
4. Friction device at helm overtightened.
5. Internal corrosion or damage to cable.
6. Engine and boat not trimmed out properly.
7. Engine trim tab loose, damaged or incorrectly set.
8. Transom bracket improperly mounted, bent or distorted (boat mounted systems only).
9. Bent or distorted engine link may be interfering with engine (motor mounted systems only).

**B. Steering sloppy and has excessive free steering wheel movement.**

1. Cable transom bracket loose or cable end fittings loose or badly worn.
2. Steering wheel loose on helm.
3. Worn or loose fasteners in helm unit or drive unit.
4. Worn push-pull cable.

**C. Steering system will not turn.**

1. Corrosive buildup at output end of cable.

**WARNING:** If the system does not free easily, replace the steering cable.

2. System badly damaged at the helm or cable output end.

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## ENGINE PERFORMANCE

- A. Shift and throttle control becomes stiff or unusually hard operating, jerky and erratic.**
1. Control cable(s) are crushed, kinked or bent too sharply.
  2. Cable(s) are corroded at ends or are clogged internally with dirt and grime.
  3. Engine shift or throttle linkage not working properly.
  4. Remote control mechanism is defective, faulty or has been damaged internally.
  5. Foreign objects interfering with throttle or shift mechanism at either control head or engine.
- B. Throttle and shift does not respond properly to control hand lever.**
1. Cable ends and connection fittings not properly secured at the engine or control head.
  2. Wear in the control mechanism or excessive backlash caused by too many bends in the push-pull cable(s) conduit.
  3. Control system not properly adjusted.
  4. Throttle and shift linkage on engine malfunctioning.
- WARNING:** Consult your Four Winns dealer about repair or replacement of steering system components. Improperly installed components could cause loss of steering, loss of boat control, and an accident or breakdown.
- C. Engine starter does not engage when lever is in neutral position.**
1. Neutral start switch not properly adjusted.
  2. Neutral start switch malfunctioning or stuck.
  3. Dead battery, loose or corroded battery terminals.
  4. Faulty ignition switch.
  5. Loose ground or positive wires.

- D. Engine starter engages when remote control hand lever is in forward or reverse.**
1. Neutral start switch not properly adjusted.
  2. Neutral start switch malfunctioning or stuck in "closed" position.
  3. Faulty wiring.
- E. Engine will not start: starter engages.**
1. Lack of fuel.
  2. Clogged anti-syphon valve or fuel tank pick-up.
  3. Clogged fuel filter.
  4. Plugged fuel line or defective pump.
  5. Carburetor float valve stuck.
  6. Damp spark plugs, wires, or distributor cap.
  7. Loose spark plug or coil wires.
  8. Water in fuel supply.
- F. Engine runs erratically.**
1. Automatic choke out of adjustment.
  2. Water and/or dirt in fuel filter.
  3. Fuel pump malfunction.
  4. Fuel tank vent and line plugged.
- G. Engine vibrates**
1. Damaged propeller or weeds on propeller or gear-case.
  2. Carburetor out of adjustment.
  3. Spark plug(s) damaged or dirty.
  4. Loose or damaged spark plug wires.
  5. Incorrect firing order.
  6. Engine out of time.
- H. Engine runs but boat makes little or no progress.**
1. Fouled or damaged propeller.
  2. Excessive marine growth on bottom of hull.

**NOTE:** Consult your MerCruiser or OMC engine manual for specifications and help on trouble shooting and repairs of your engine. Also, consult your Four Winns dealer for additional help or information on your boat.

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## GAUGES

Before replacing an instrument on your panel, check the following:

1. Make sure all electrical connections are tight and free of any corrosion.
2. Check to see that terminal has not pulled off wire, causing loss of continuity.
3. Check to see that each instrument and sending unit is properly grounded.
4. On tachometer, check selector switch for proper setting for your engine. If arrow is in between the proper setting, erratic reading will occur. Proper settings for MerCruiser and OMC Cobra inboard engines are listed below (see illustration).
  - a. Outboards: One
  - b. Four Cylinders Engine: Two
  - c. Six Cylinder Engines: Three
  - d. Eight Cylinder Engines: Four

**NOTE:** Be sure arrow head is at indicator mark and not screwdriver slot (see illustration).

5. Ground the sender wire to get full scale deflection.



Position #1 is for  
12-pole alternator outboard engines.

## XI. WINTERIZING

To prepare for winter or off season, here is a list of suggestions to keep your boat in top condition.

1. Clean the boat and apply a thin coat of rust inhibitor on the metal hardware and on your steering and control cables.
2. Drain the fluid from your engine block and mainfolds. Frozen water will expand and crack your engine. Consult your engine manual for location of drain plugs.
3. Fuel tanks should be drained.
4. Remove battery and store in safe, dry place. Check fluid levels and charge occasionally.
5. Remove interior cushions and jumpseats and store in cool, dry place. Otherwise, place cushions on end to allow for sufficient ventilation.
6. Store boat in a garage or other facility if available. If not, cover the boat with a mooring cover after the interior has been allowed to dry out. The canvas will breathe and allow for sufficient ventilation of the interiors. Moisture and poor air circulation are the main reasons for rot and mildew. This can occur at any time of the year.
7. If your boat is to be stored on a trailer, you should:
  - a. Block the trailer wheels so the tires are off the ground. This reduces tire deterioration.
  - b. Loosen tiedown straps to reduce stress on the hull.

**NOTE:** This is also a good time to repack wheel bearings and touch up trailer paint.

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## XII. GLOSSARY: NAUTICAL TERMS

**Abeam:** Either side of the boat.

**Aft:** To the rear or near the stern.

**Beam:** The width of the hull.

**Bilge:** The lowest portion inside a boat (in a fiberglass boat, generally the underdeck and lower portion of the engine compartment).

**Bow:** The forward portion of the boat.

**Bulkhead:** Vertical partition in a boat.

**Chine:** The intersection of the sides and bottom of a V-bottom boat.

**Chock:** Deck fitting, used as guides for mooring or anchor lines.

**Cleat:** Deck fitting with arms or horns on which lines may be fastened.

**Deck:** Upper structure which covers the hull.

**Draft:** Vertical distance from the waterline of the boat to the lowest point of the boat.

**Fathom:** A measurement of 6 feet generally used to measure water depth.

**Freeboard:** Vertical distance from deck to waterline.

**Gunwale (or gunnel):** Where hull and deck meet.

**Hatch:** A covered opening in the deck.

**Head:** Toilet or toilet room.

**Headroom:** Vertical distance between the deck and cabin or canopy top.

**Helm:** Steering wheel.

**Hull:** The basic part of a boat; a watertight vessel that provides buoyancy to float the weight of the craft and its load.

**Keel:** The lowest external portion of the boat.

**Knot:** Nautical miles per hour, a nautical mile is 6,076 feet; land mile is 5,280 feet.

**Lee:** Opposite from which the wind blows.

**Mayday:** International spoken distress signal for radio.

**Port:** To the left side of the boat.

**Portlight:** A hinged window in the boat's cabin.

**Scupper:** An opening in a deck or cockpit permitting water to drain overboard.

**Sheer:** Curve or sweep of the deck as viewed from the side.

**Stanchion:** A fixed, upright post used for support (of rails).

**Starboard:** To the right side of the boat.

**Stern:** To the rear of the boat.

**Sterndrive:** Inboard/outboard unit.

**Stringer:** Longitudinal members fastened inside the hull for additional structural strength.

**Transom:** The vertical part of the stern.

**Wake:** Track or path a boat leaves behind while in motion.

**Windward:** The direction from which the wind is blowing.



# Launching Record

Dealer \_\_\_\_\_

Owner \_\_\_\_\_

**Operation before Launching** Check if OK

- 1. Propeller .....
- 2. Shaft turns free .....
- 3. Thru-hull fittings .....
- 4. Drain plug tight .....
- 5. Bottom clean and paint .....
- 6. Hull sides clean and finish .....
- 7. Bright work clean and finish .....
- 8. Decks clean and finish .....
- 9. Interior finish .....
- 10. Upholstery clean .....
- 11. Bilge cleaned .....

**With Boat in Water**

- 12. No water leaks at stern drive .....
- 13. No water leaks at thru hull fittings .....
- 14. Hose tested for windshield leaks .....
- 15. Make sure negative terminal of battery is wired to ground stud on propulsion engine .....
- 16. All electrical equipment operated ok including:  
horn  running lights  bilge pump   
bilge blower  w/wiper
- 17. With fuel tanks full, no fuel leaks at fill pipe, overflow vent, or at any fuel line connections . . .

**Operation Before Starting Engine** Check if OK

(See Engine Operator's Manual)

- 18. Distributor lubricated .....
- 19. Distributor points adjusted .....
- 20. Ignition wires in correct firing order .....
- 21. Spark plugs and coil .....
- 22. Alternator, regulator, starting motor wired correctly, connections tight .....
- 23. Throttle control and cable travel .....
- 24. Shift control and cable travel .....
- 25. Crankcase oil level at FULL mark .....
- 26. Power Steering Pump .....

**Starting Engines**

- 27. Oil pressure .....
- 28. No fuel leaks in fuel lines, at fittings, at fuel filter, fuel pump, carburetor .....
- 29. No engine water leaks .....
- 30. No engine oil leaks .....
- 31. Ignition timing checked with timing light, with idling speed at 500 RPM .....
- 32. Valve tappets adjusted .....
- 33. Idling speed set at 500 to 700 RPM .....
- 34. Reverse gear shifts thru all positions and is in proper adjustment .....

**Water Test Boat**

Check if OK

- 35. Boat performance .....
- 36. Engine performance .....
- 37. Instruments register properly .....
- 38. Top RPM wide-open throttle for one minute after warm-up .....

**Final Check**

- 39. All accessory equipment operated ok .....
- 40. All loose equipment on boat .....
- 41. All boat, engine, accessory literature ready for new owner .....

**Inspection Completed**

BY: \_\_\_\_\_

DATE: \_\_\_\_\_

LOCATION: \_\_\_\_\_

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## Service Information

OWNER _____	VERTICAL CLEARANCE _____
HOME PORT _____	ESTIMATED WEIGHT _____
BOAT NAME _____	BATTERY VOLTAGE _____
REGISTRATION NUMBER _____ STATE _____	TRAILER MAKE _____ MODEL _____
HULL NUMBER _____	SERIAL NUMBER _____ GWW _____
WARRANTY REGISTRATION DATE _____	INSURANCE COMPANY _____
ENGINE MAKE AND MODEL _____ H.P. _____	POLICY NUMBER _____
ENGINE SERIAL NUMBER _____	PHONE NUMBER _____
DRIVE SERIAL NUMBER _____	HULL COLOR _____ DECK COLOR _____
PROPELLER SIZE _____ DIA. _____	INTERIOR COLOR _____
PROPELLER PITCH _____ PART # _____	
PART NUMBER _____	
FUEL CAPACITY _____	
KEY NUMBER, IGNITION _____ DOOR _____	
RADIO CALL LETTERS _____	
SELLING DEALER _____	
CITY AND STATE _____	
LENGTH _____	
BEAM _____	
DRAFT _____	



# Service Guide

*REFER TO ENGINE OPERATOR'S MANUAL FOR DETAILS	After 1st 20 Hrs. of Operation	Every 50 Hours of Operation	Every 100 Hours of Operation	Once Each Year
Change Engine Oil	•	•		•
Replace Oil Filter	•	•		•
Clean Alternator External Screen*			•	•
Clean Flame Arrester	•		•	•
Clean Crankcase Ventilating System	•		•	•
Check Water Pump & Alternator Belts for Tension	•	•		•
Change Water Separating Fuel Filter	•			•
Replace Carburetor Fuel Inlet Filter	•	•		•
Check Condition of Spark Plugs	•			•
Check Battery Electrolyte Level				•
Check All Electrical Connections for Tightness	•	•		•
Check Cooling System Hoses & Connections for Leaks	•			•
Tighten Engine Mount Fasteners	•			•
Lubricate Throttle & Shift Linkage Pivot Points				•
Check for Loose, Damaged or Missing Parts	•		•	•
Inspect Propeller for Possible Damage		•		•
Inspect Zinc Anodes, Replace When Necessary	•			•
Check Fuel Pump Sight Glass for Leaking Diaphragm		•		•
Check Exhaust System for Leaks	•		•	•
Inspect the Fresh Water Pump & System	•		•	•

Upon reaching the specified engine break-in period, an inspection should be performed by the selling dealer at local rates and paid for by the owner. After the normal break-in check-up, your Four Winns should be taken to the selling dealer every 6 months or 100 hours of operation — or at least once a year for lube change, tune up, etc. The inspection and service schedule above is based on average operating conditions. Under severe operating conditions, intervals should be shortened.

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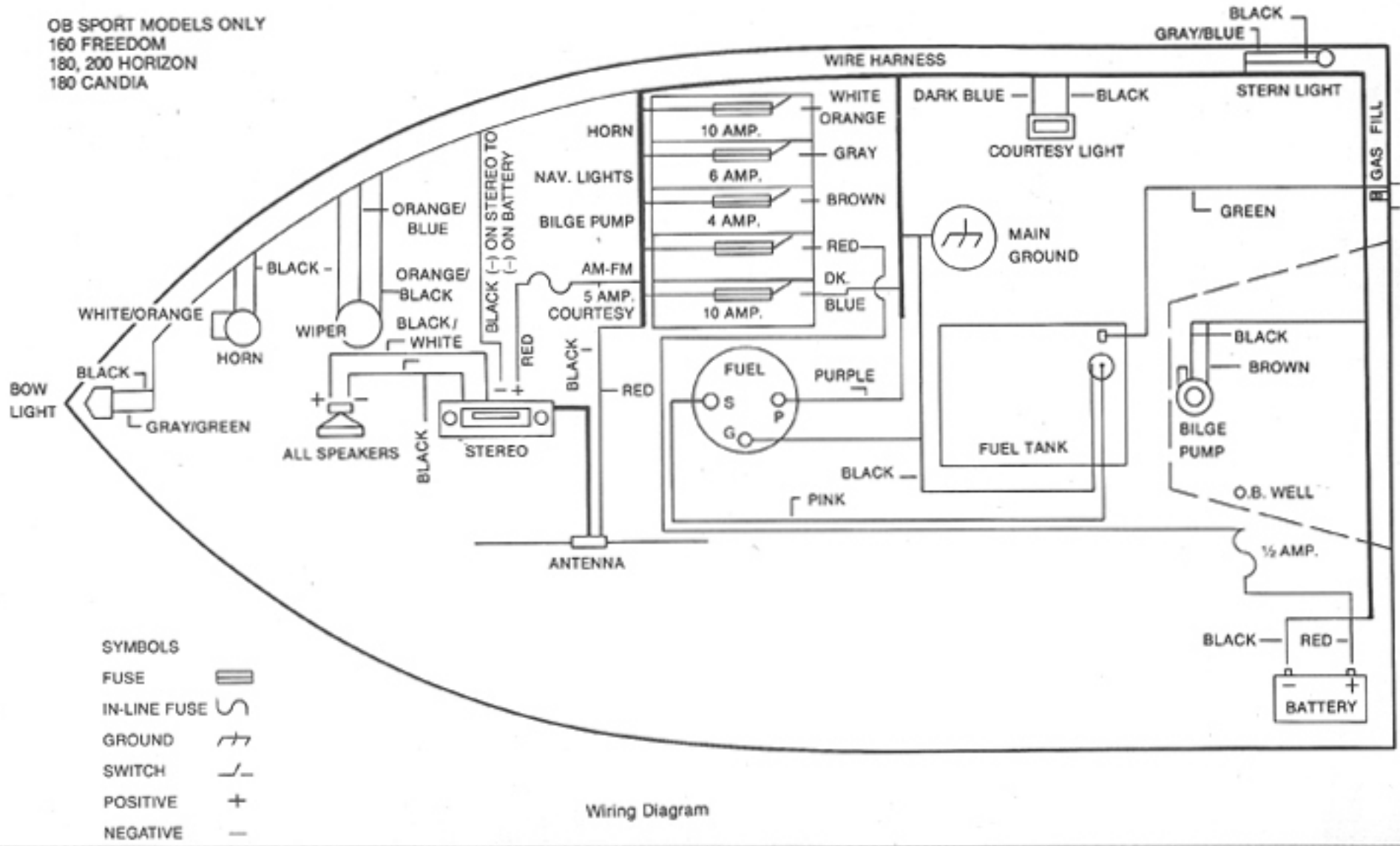








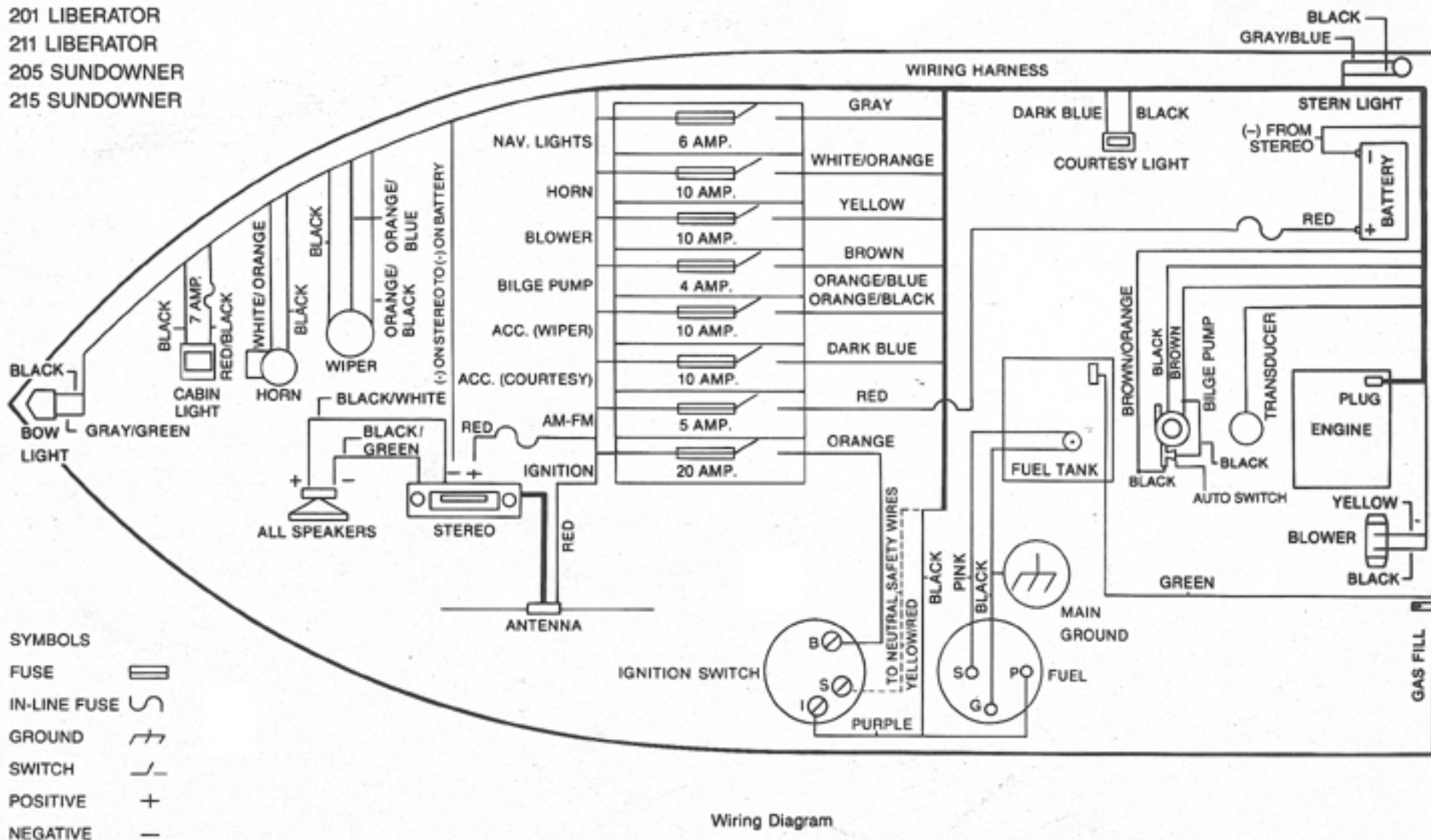
OB SPORT MODELS ONLY  
 160 FREEDOM  
 180, 200 HORIZON  
 180 CANDIA



Wiring Diagram



201 LIBERATOR  
 211 LIBERATOR  
 205 SUNDOWNER  
 215 SUNDOWNER



Wiring Diagram





FOUR WINNS