
# Vista™

## Owner's Manual

248 Vista

268 Vista

# PREFACE

This manual will acquaint you with the use and maintenance of your new Four Winns® boat. This manual also provides special information critical to the safety of the passengers, and longevity of the equipment. The information on the following page lists the conventions used to increase the visibility of these important messages. Also included in your owner's packet is the "Boating Basics, A Guide to Responsible Boating". This publication covers all the boating basics and should be read along with your Four Winns® Owner's Manual before operating your boat. Review this information in detail.

Four Winns® continually strives to improve its products. Unit specifications, including standard and optional equipment are constantly being modified. Equipment availability is also subject to change. The most current and accurate information available at the time of publication is included in this manual. Some variation in equipment, description, location, and details can result.

The information in this manual focuses upon the equipment designed and manufactured by Four Winns® on specific models. When appropriate, please utilize the information pertinent to your specific boat model.

Equipment such as engines, and other accessories are manufactured by others. The information provided in this manual is intended to be used in conjunction with the information provided by the manufacturer of this equipment. All information available at the time of manufacture has been included with your owner's packet.

**Read this entire manual carefully before operating your new boat**. Many instructions may require direct performance of the activity to fully understand the correct method. If you choose to read this manual at home, remember to take it to the boat with you.

Your Four Winns® dealer knows your boat best and is interested in your complete satisfaction. Return to him for service or other assistance. If you find it necessary to contact Four Winns® directly, please refer to the address information listed below. Be sure to include the boat model, serial number, your daytime telephone number, and specifics of the information desired.

This manual has been specifically developed for the 248 and 268 Vista models. Please record the serial number below.

**Serial Number**

_____

This manual should be considered part of the boat. Should you sell the boat, pass this manual on to the new owner. Take special care of this manual. Certain information in this manual may not be available in a replacement manual.

Thank you for joining the Four Winns® family. We appreciate your purchase and welcome the opportunity to demonstrate our commitment to you.

**Four Winns® Customer Service Department**
**925 Frisbie Street**
**Cadillac, Michigan 49601**
**231-775-1343**
**231-779-2345 (FAX)**
**E-Mail Address: boating@fourwinns.com**

# SAFETY WARNINGS

This manual contains instructions critical to the safety of those aboard or the longevity of the equipment. **Pay close attention to all safety warnings.** The following safety warnings and instructions are used throughout the manual and at selected locations on your boat.

**DANGER**

This safety symbol and this signal word indicate an imminently hazardous situation, which if not avoided, WILL result in death or serious injury.

**WARNING**

This safety symbol and this signal word indicate a potentially hazardous situation which, if not avoided, CAN result in severe injury or death.

**CAUTION**

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

**NOTICE**

This is used to notify people of installation, operation, or maintenance information which is important but not hazard-related.

**YOU are responsible for your own safety, as well as the safety of your passengers and fellow boaters. You should fully understand and become familiar with the operating procedures and safety precautions in this manual and any other information in the Owner's Packet before you launch the boat.** Always operate your boat with consideration, courtesy, and common sense.

The warnings in this manual do not and can not address every conceivable situation. Always use common sense!

The following pages illustrate the locations of various warning labels, capacity label and other stickers on your Four Winns® boat.

| | 248 VISTA SPECIFICATIONS* | 268 VISTA SPECIFICATIONS* |
|---|---|---|
| LOA (W/ SWIM PLATFORM) | 26' 2" / 7.98 M | 28' 2" / 8.59 M |
| LOA (W/OUT SWIM PLATFORM) | 23' 10" / 7.25 M | 25' 8" / 7.63 M |
| BEAM | 8' 6" / 2.55 M | 8' 6" / 2.55 M |
| BRIDGE CLEARANCE W/OUT ARCH | 6' 9" / 2.06 M | 7.0" / 2.13 M |
| BRIDGE CLEARANCE W/ ARCH | N/A | 8' 10" / 2.69 M |
| DEAD RISE | $17^0$ | $17^0$ |
| DRAFT - DRIVES DOWN | 36" / 91CM | 39" / 99CM |
| FUEL CAPACITY | 70 GAL / 265 L | 85 GAL / 321 L |
| POTABLE WATER CAPACITY | 20 GAL / 75 L | 21 GAL/ 79 L |
| HOLDING TANK - WASTE | 16 GAL / 60 L | 21 GAL/ 79 L |
| WEIGHT | 5,620 TO 5,850 LBS<br>2,550 TO 2,650 KG | 6,240 TO 6,470 LBS<br>2,830 TO 2,930 KG |

***Specification measurements are approximations and subject to variance.**

## NMMA YACHT TAG AND OTHER WARNING LABEL LOCATIONS

The NMMA Certification label and various warning label stickers are placed at different locations on each model for your safety. Additional warnings for fuel leakage, blower operation, and other important information will be imprinted or located on the dash. Many of these stickers and labels are not required by the U.S. Coast Guard but are important to ensure the safe operation of your Four Winns® boat. In addition, the Hull Identification Number plate is permanently attached below the deck-hull joint on the starboard aft corner.

**NOTICE**

**Not all of the warning label stickers are depicted in the following pages. Some of these stickers will be found on appliances i.e. microwave, TV/VCR, generator, shore power cord. Be sure to read and follow all manufacturer's literature and warning label(s) relating to their product(s).**

A. Boarding Ladder Label
B. Gate Access Warning label
C. Hull Identification Tag
D. ACC Fuse Block Label
E. Main Fuse Block Label
F. Helm Warning Boarding Ladder
G. NMMA Certification Label
H. Microwave Caution Label
I. Check List Warning Label
J. Label Emergency Stop Switch

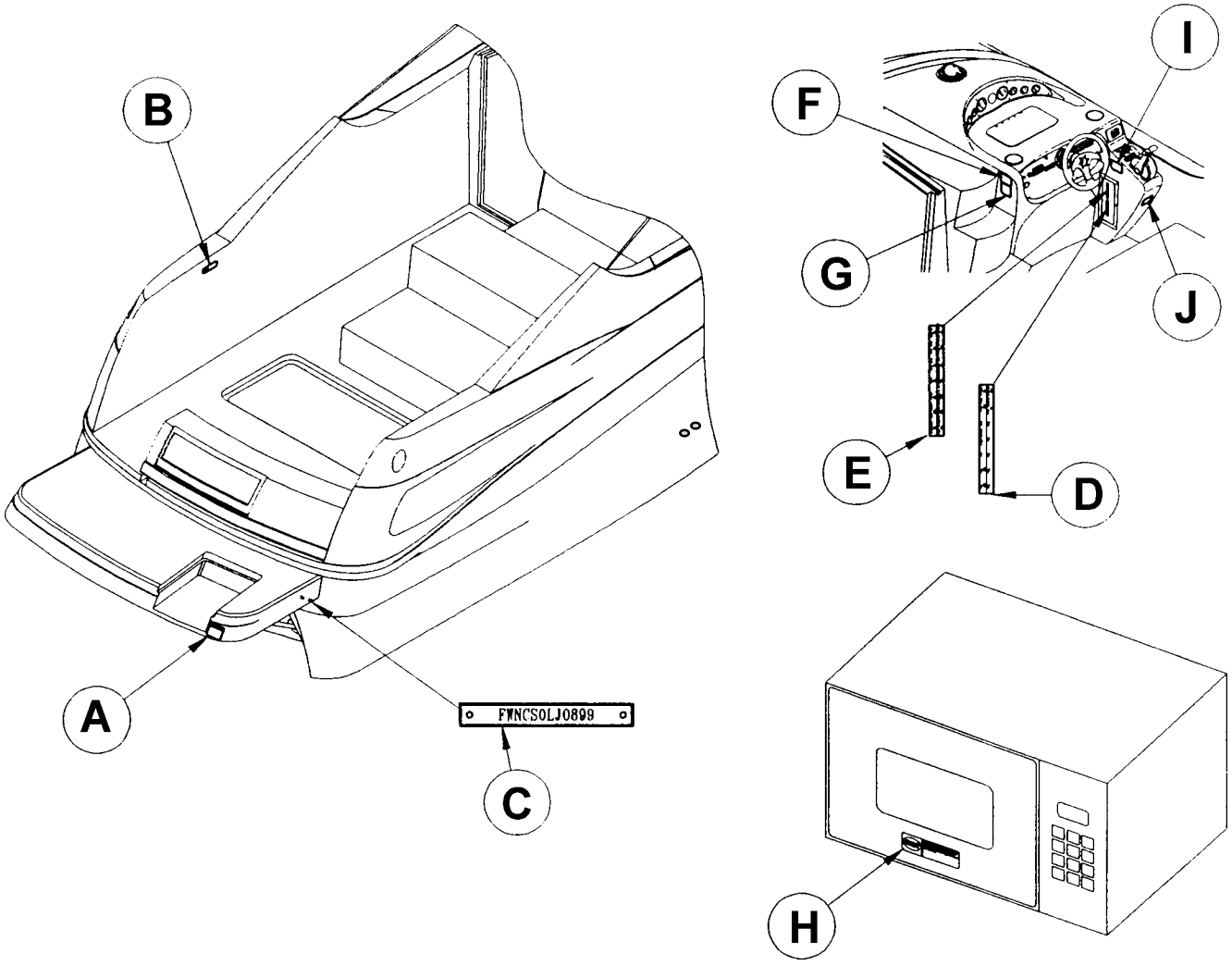
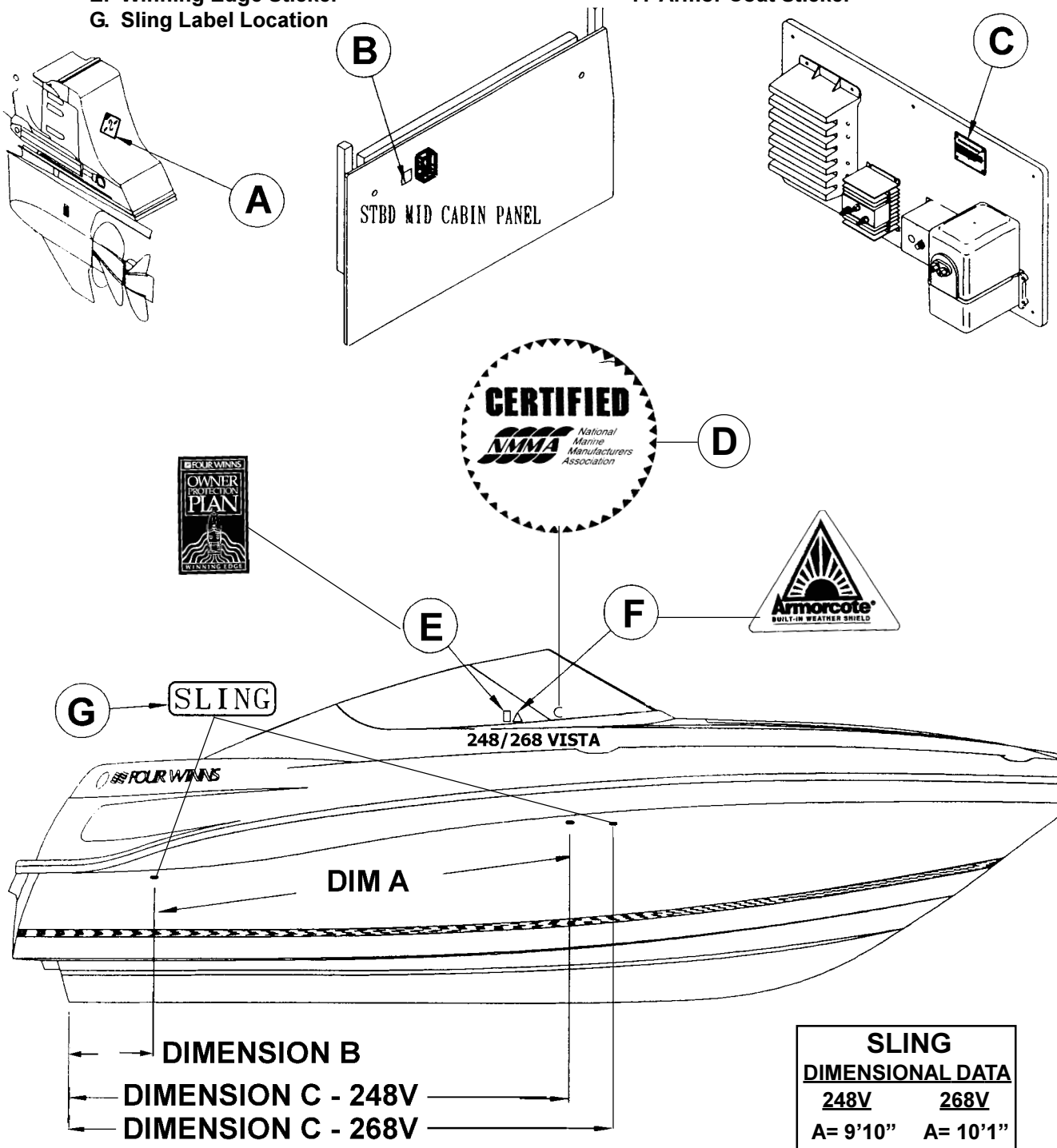



**Figure 1: 248/268V WARNING LABEL LOCATIONS**

**Figure 2: 248/268V ADDITIONAL LABEL/STICKER LOCATIONS**

**A. 2-Year Owner's Stern Drive Protection Label**
**B. Carbon Monoxide Warning Label**
**C. Oil Discharge Plate**
**D. NMMA Certification Sticker**
**E. Winning Edge Sticker**
**F. Armor Coat Sticker**
**G. Sling Label Location**




| SLING DIMENSIONAL DATA | |
|---|---|
| 248V | 268V |
| A= 9'10" | A= 10'1" |
| B=2'0" | B= 2'6" |
| C=11'9" | C= 12'6" |

**CAUTION**

Ensure slings are in proper location as indicated by the sling label location. **Failure to do so may result in permanent hull structure damage and will invalidate the hull structure warranty.**

## CAPACITY PLATE & EQUIPMENT AND PROCEDURES CHECKLIST LABEL

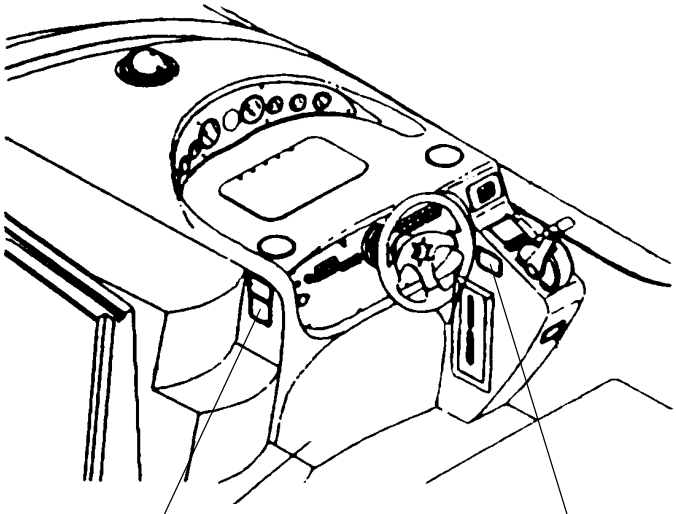


**Figure 3: 248/268V HELM STATION**

MAXIMUM CAPACITIES

**10 PERSONS OR 1500 LBS.**

2600 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: 268 VISTA 9

DESIGN COMPLIANCE WITH NMMA REQUIREMENTS BELOW IS VERIFIED. MFGR. RESPONSIBLE FOR PRODUCTION CONTROL

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

NATIONAL MARINE MANUFACTURERS ASSN.

**NMMA CERTIFICATION LABEL**

**WARNING**

**BEFORE STARTING ENGINE:**

**EQUIPMENT**

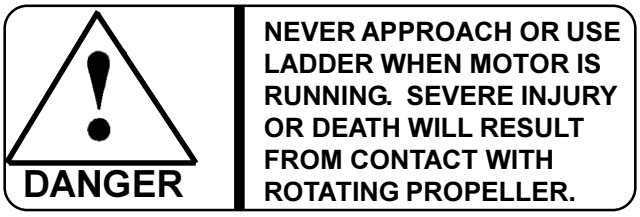
DRAIN PLUG - SECURED?
MOVEABLE SEATS - SECURED?
LIFE JACKET - ONE FOR EACH PERSON?
OTHER EMERGENCY GEAR - ON BOARD?

**PROCEDURES**

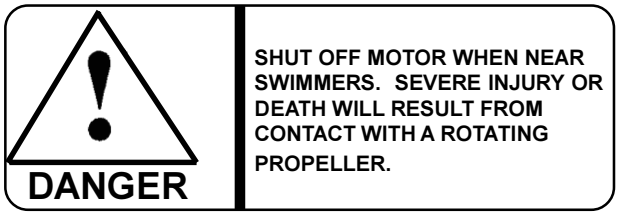
EMERGENCY STOP SWITCH - TETHER HOOKED UP?
EVERYBODY - SEATED IN BOAT? **NEVER** ON SEAT BACKS, RAISED SEATS, OR EDGES OF BOAT!
OPERATOR'S VISION - UNOBSTRUCTED?
WEATHER CONDITIONS - SAFE TO GO OUT?
PASSENGERS - AWARE OF **EMERGENCY** PROCEDURES?

**EQUIPMENT AND PROCEDURES CHECKLIST LABEL**

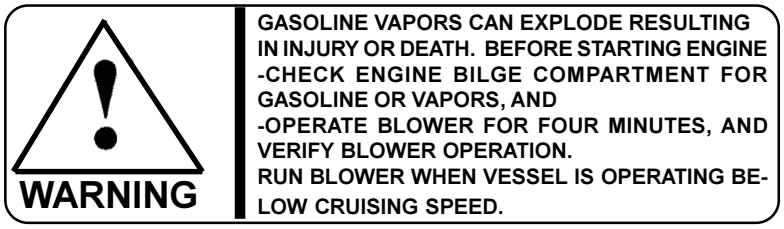
## WARNING LABELS DESCRIPTIONS



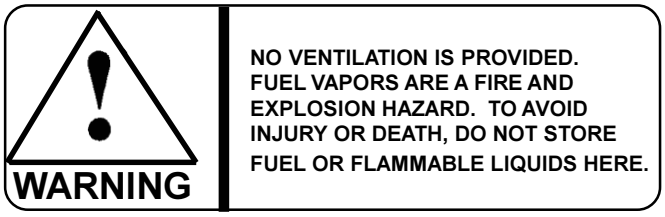

LADDER WARNING LABEL



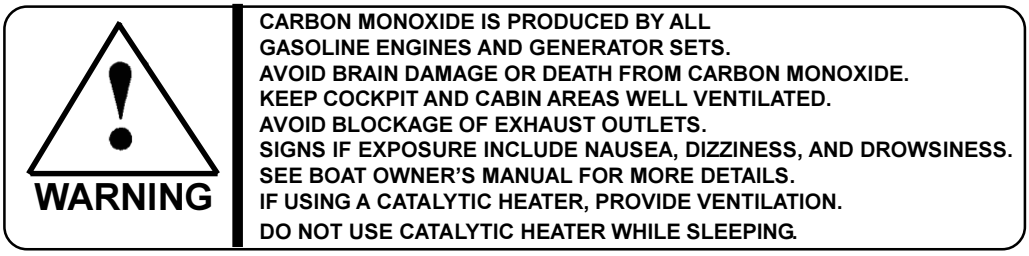

HELM BOARDING LADDER WARNING LABEL



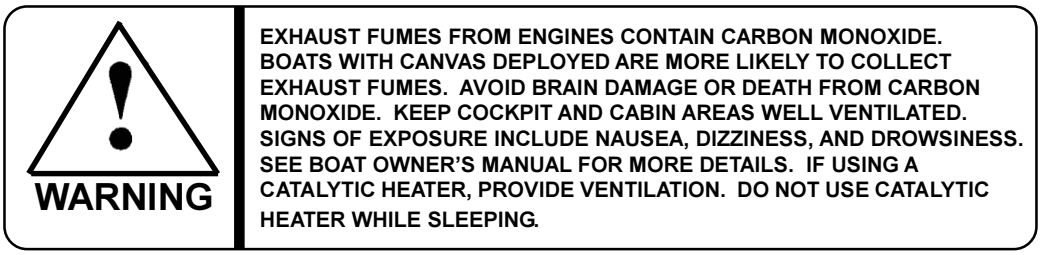

POWERED VENTILATION FOR GAS ENGINES




NO VENTILATION WARNING LABEL




CARBON MONOXIDE WARNING LABEL




CARBON MONOXIDE CANVAS WARNING LABEL

## WARNING LABELS DESCRIPTIONS

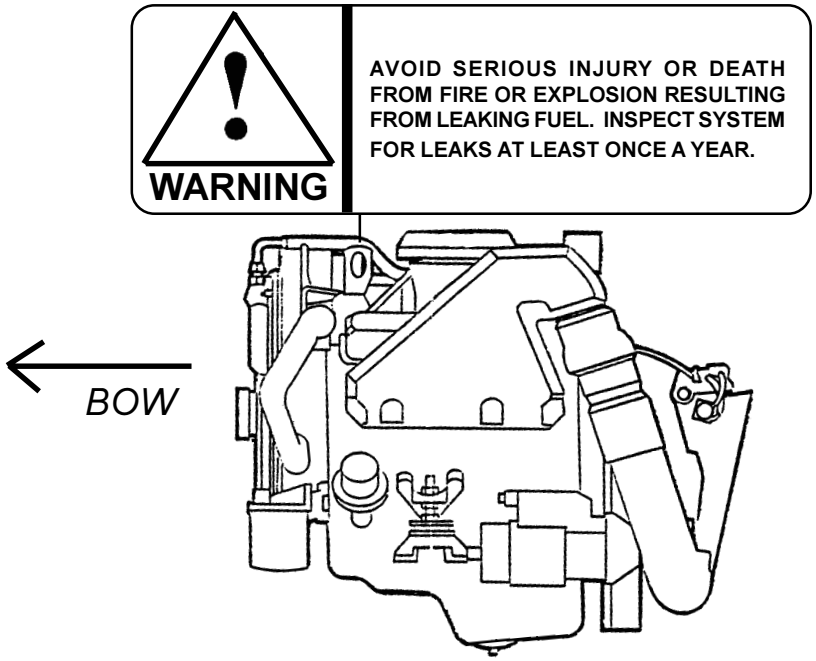
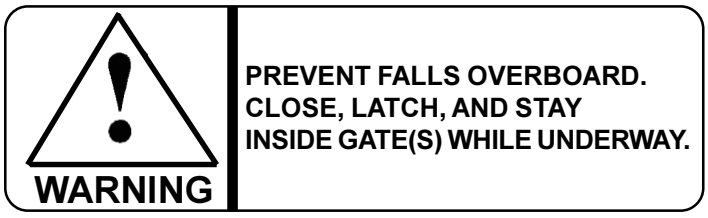
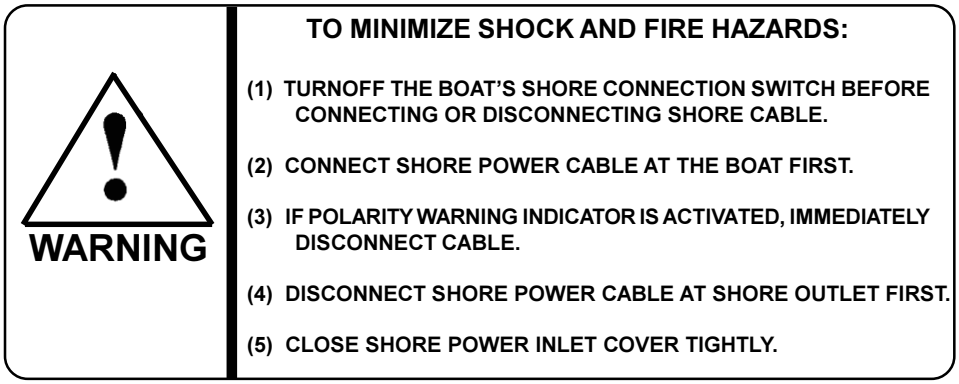


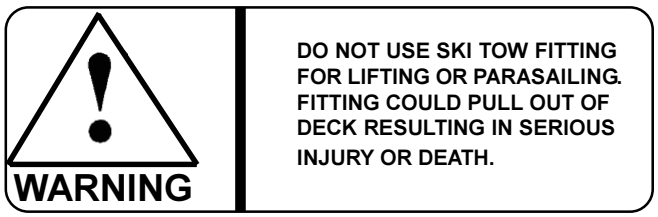

**Figure 4: LEAKING FUEL WARNING LABEL LOCATION**




**TRANSOM DOOR WARNING LABEL**




**SHORE POWER WARNING**




**SKI TOW WARNING LABEL**

## WARNING LABELS

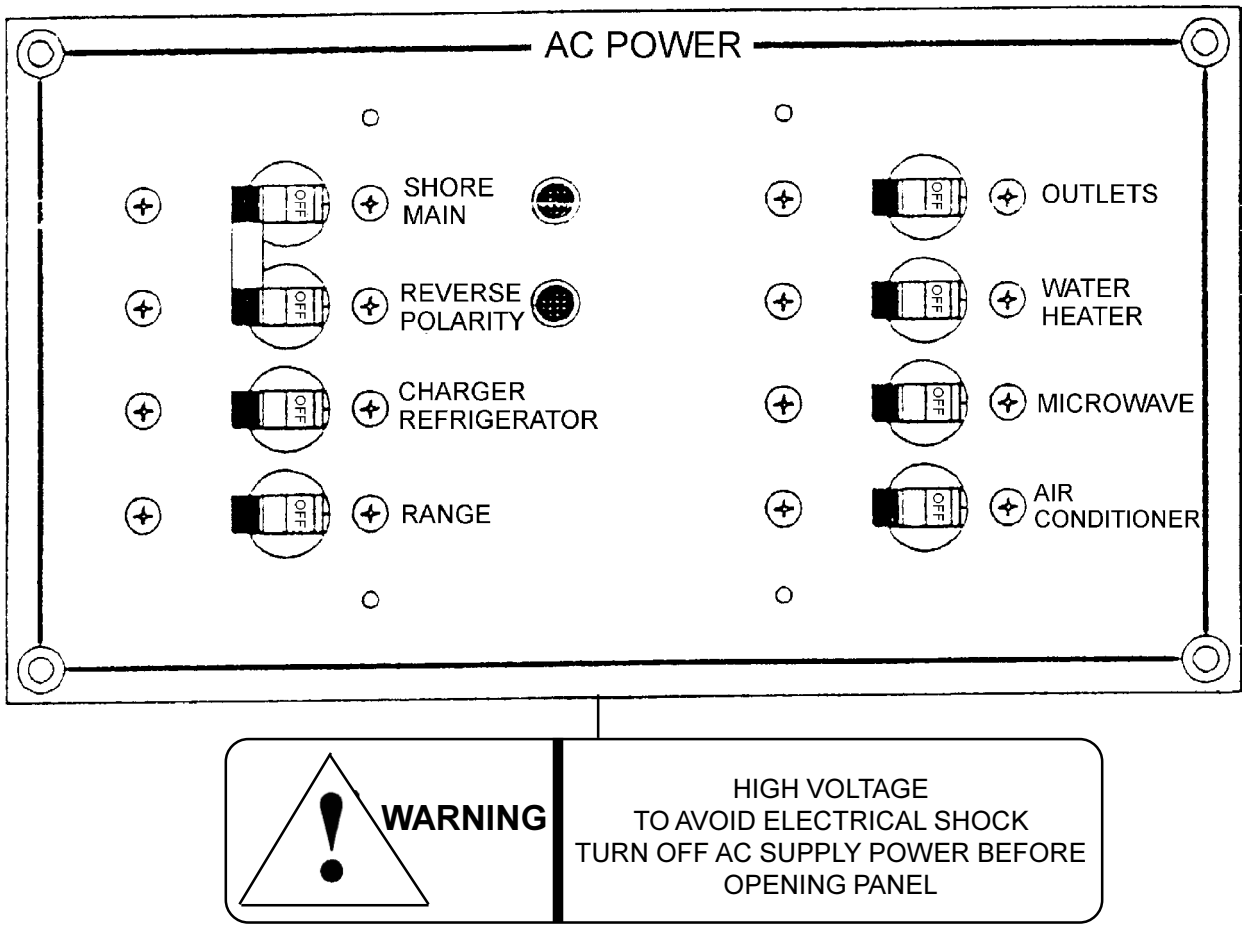



**FIGURE 5: HIGH VOLTAGE WARNING LABEL**

**DISCHARGE OF OIL PROHIBITED**

**THE FEDERAL WATER POLLUTION CONTROL ACT PROHIBITS THE DISCHARGE OF OIL OR OILY WASTE INTO OR UPON THE NAVIGABLE WATERS OF THE UNITED STATES, OR THE WATERS OF THE CONTIGUOUS ZONE, OR WHICH MAY EFFECT NATURAL RESOURCES BELONGING TO, APPERTAINING TO, OR UNDER THE EXCLUSIVE MANAGEMENT AUTHORITY OF THE UNITED STATES, IF SUCH DISCHARGE CAUSES A FILM OR DISCOLORATION OF THE SURFACE OF THE WATER OR CAUSES A SLUDGE OR EMULSION BENEATH THE SURFACE OF THE WATER. VIOLATORS ARE SUBJECT TO SUBSTANTIAL CIVIL PENALTIES AND/OR CRIMINAL SANCTIONS INCLUDING FINES AND IMPRISONMENT.**

**Figure 6: OIL DISCHARGE PLATE**

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# OPERATION

## A - 1 GENERAL

Before starting the boat, become familiar with all of the various systems and related operations. Be sure all necessary safety equipment is on-board. Know the "Rules of the Road". Have an experienced pilot brief you on the general operation of your new boat. Perform a "Pre-Cruise Systems Check". This manual is a part of your boat's equipment. Always keep it on board.

## A - 2 COMPONENT SYSTEMS

Before you can really enjoy your boat, a thorough understanding of its systems and their operation is essential. This manual and the associated manufacturers information are included in the owner's packet. This information is provided to enhance your knowledge of the boat. Read this information carefully.

After becoming familiar with the boat and its systems, reread this manual. Maintenance and service tips are included to help keep the boat in like-new condition.

## A - 3 SAFETY EQUIPMENT

Besides the equipment installed on the boat by Four Winns, Inc., certain other equipment is required for passenger safety. A brochure listing the Federal equipment requirements is included in the owner's packet or is available through your local U.S. Coast Guard Station. Remember that these laws are for your protection and are minimum requirements. Check your local and state regulations, also.

Items like a sea anchor, working anchor, extra dock lines, flare pistol, a line permanently secured to your ring buoy, etc. could at some time save your passengers lives, or save your boat from damage.

The Coast Guard Auxiliary offers a "Courtesy Examination." This inspection will confirm the boat is equipped with all of the necessary safety equipment.

## A - 4 PASSENGER SAFETY

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. All non-swimmers and children 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.

## A - 5 "RULES OF THE ROAD"

As in driving an automobile, there are a few rules that must be known if safe boating operation is to be maintained. The Coast Guard, Coast Guard Auxiliary, Department of Natural Resources or your local boat club sponsor courses in boat handling, including "rules of the road". Such courses are strongly recommended. Books on this subject are also available from local libraries.

## A - 6 LIGHTNING

When boating, it is important to be aware of the weather around you. When the weather changes for the worse, DO NOT jeopardize your safety by trying to "ride out the storm". If possible, return to safe harbor and dock your vessel immediately.

If caught in a storm, seek shelter inside the cabin and wait for the storm to pass. With open bow models, suntops and campers will provide some protection, but should not be relied on if you are able to return to shore. Exercise care when high winds are present!

**WARNING**

DO NOT swim or dangle legs or arms into the water during a lightning storm. Stay out of the water!

Lightning will seek a ground when it strikes. Avoid contact with metal parts such as bow rails, control handle, or windshield.

## A - 7 DRUGS AND ALCOHOL

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.

A common and flagrant violation of good judgement and the law by mariners involves the use of alcohol or drugs. Each year, about half of all accidents involving fatalities involve the use of alcohol or drugs.

It is a federal offense to operate a boat while intoxicated. Criminal penalties may include the termination of operating privileges for up to one year. Many states have passed similar laws.

Alcohol or drugs have an inhibiting effect on the judgement and reaction time of the boat operator and his/her passengers. Heed the advice of experts and statisticians...DO NOT drink or use drugs when operating a boat. NEVER allow an obviously intoxicated person to take the helm.

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

## A - 8 PRE-CRUISE SYSTEM CHECK

Before leaving the dock, the following items should be checked:

### A. Before Starting The Engine

1. Check the weather forecast. Determine if the cruise planned can be made safely.
2. Be sure all necessary safety equipment is on board and operative. This includes items such as the running lights, horn, spotlight, life saving devices, etc.
3. Check the bilge water level and bilge pump operation. Check the engine and drive fluid levels. Look for other signs of potential problems. Check for the scent of fuel fumes.
4. Activate the Bilge Blower. Check the blower output.

**WARNING**

Gasoline vapors can explode resulting in injury or death. Before starting the engine, check engine compartment bilge for gasoline or vapors. Operate blower for four minutes, and verify blower operation. ALWAYS run the blower when the vessel is operating below cruising speed.

5. Ensure an adequate amount of fuel is on board.
6. Be sure you have sufficient water and other provisions on board for the cruise planned.
7. Leave a written message listing details of the planned cruise with a close friend ashore.

### B. After Starting The Engine

1. Visibly check the engine to be sure there are no apparent water or oil leaks.
2. Check the gauges. Make sure the oil pressure, water temperature, voltmeter, etc. are reading normally.
3. Have a safe cruise and enjoy yourself.

## A - 9 ENGINE OPERATIONAL PROCEDURES

### A. Before Starting

1. Check the engine compartment for water, gas, and/or oil leaks of any kind. Keep the bilge in a clean condition to prevent blower and bilge pump damage, and fire hazards.
2. Check the fluid levels of the engine oil and power steering system daily. Fill oil or steering fluid as required by the indications on the dip sticks. Refer to the Table 1: “SAE Viscosity Chart” and your engine manual included in the owner’s packet. DO NOT USE MULTIGRADE OIL. Power steering and power

trim use automatic transmission fluid. Check the fluid levels in the vertical drive units or transmission as often as practical.

| IF THE LOWEST ANTICIPATED TEMPERATURE IS* | THE FOLLOWING SAE VISCOSITY OILS ARE RECOMMENDED |
|---|---|
| 32° F (0° C) and above | SAE 30 |
| 0° F (-18° C) to 32° F (0° C) | SAE 20W-20 |
| Below 0° F (-18° C) | SAE 10W |
| *Temperature range you expect to operate.<br>**Note: Use only single viscosity oils**. | |

***Table 1: SAE Viscosity Chart***

3. Start and operate the bilge blower system for at least four (4) minutes before start-up.

4. Lower the vertical outdrive units (on applicable models) making sure the water intakes are under the water.

**B. Cold Engine Start (Carbureted Engines)**

1. The engine may require priming prior to starting. To prime the engine, proceed as follows:

   a. Place ignition switch in the OFF position.

   b. Disengage shift mechanism.

   c. Move control handle to the full throttle position; this operates accelerator pump and primes the engine.

   d. Repeat priming, if necessary.

   e. Return the control handle to fast idle position.

2. Turn key switch to START position and hold until engine starts. DO NOT hold in START position for more than ten seconds. In colder weather, more priming may be necessary. However, too much priming may flood engine.

**If engine floods:**

- Disengage shift. Move handle to full throttle position.
- Turn key switch to the START position.
- Immediately move the control handle to the idle position when the engine starts.

**NOTICE**

Failure to move the control handle to the idle position immediately when engine starts will allow engine to "over-rev" and engine damage could result. "Over-revving" engine after off-season storage could also damage the water pump impeller. **When starting engine for the first time after off-season storage, always idle engine for one minute to allow the water pump to prime.**

3. As soon as engine starts:

   a. Release key to the ON or RUN position.

   b. Move control handle to the fast idle position to warm up engine. DO NOT exceed 1000 RPM.

**NOTICE**

Cold engine starting procedures are different for EFI engines. Priming is not necessary. Refer to the engine owner's manual for additional information.

**C. Warm Engine Starting**

1. Move control handle to the neutral detent position.

2. Turn key switch to START position and hold until engine starts, but DO NOT hold in start position for more than ten seconds. If engine does not start, let go momentarily, then try again.

3. As soon as engine starts, release key to the ON or RUN position.

**NOTICE**

NEVER turn key to START position when engine is running.

**NOTICE**

Warm engine starting procedures are different for EFI engines. Refer to the engine owner's manual for additional information.

### D. Shifting and Control Speed

**NOTICE**
If your boat is equipped with a non-OMC remote control system, ask your dealer how to properly operate it.

1. Move control handle to the neutral detent (idle) position. This will engage neutral start switch and allow engine to start.

**CAUTION**
DO NOT shift into FORWARD or REVERSE unless engine is running. Damage to the shift system could result from trying to shift without the engine running. Carefully check function of all control and engine systems before leaving the dock.

2. To go FORWARD - actuate the neutral lock mechanism and briskly move the shift handle forward. Throttle movement will begin after forward gear engagement.

3. To go in REVERSE - actuate the neutral lock mechanism and briskly move the shift handle rearward. Throttle movement will begin after reverse gear engagement.

**WARNING**
DO NOT shift from forward to reverse when the boat is planing.

**NOTICE**
DO NOT shift if engine speed is above 800 RPM.

4. To go from FORWARD to REVERSE, or REVERSE to FORWARD; always pause at NEUTRAL and allow engine speed to return to idle.

5. After shifting is completed, continue to move the control handle slowly in the desired direction to increase speed.

**WARNING**
Any time the boat is operated, be aware of changes in shift system operation. A sudden increase in shift effort at the remote control handle, or other abnormal operation, indicates a possible problem in the shift system. If this occurs, the following precautions must be taken:

- With engine running and boat securely tied to the dock, shift drive into forward and reverse to ensure there is gear engagement.
- When docking the boat, all docking maneuvers must be performed at slow speed. Pay special attention to other boaters. Passengers should be informed of potential problems and precautions taken.

If you suspect there is a problem, see your Volvo Penta dealer as soon as possible for proper diagnosis and required service or adjustment. Continued operation could result in damage to the shift mechanism and loss of control.

### E. Stopping Engine

1. Move control handle to the NEUTRAL position.

2. Turn ignition key to the OFF position.

**NOTICE**
DO NOT stop engine at speeds above idle or “speed up” engine while turning off ignition. Engine damage could result.

## A - 10 GROUNDING AND TOWING

**WARNING**
If the boat should become disabled, or if assisting another craft that is disabled, great care must be taken. The stress applied to a boat during towing may become excessive. Excessive stress can damage the structure of the boat and create a safety hazard for those aboard.

Four Winns® boats are not designed nor intended to be used as a towing vessel. The mooring cleats on Four Winns® boats are not designed or intended to be used for towing purposes. These cleats are specifically designed as mooring cleats for securing the boat to a dock, pier, etc. DO NOT use these fittings for towing or attempting to free a grounded vessel.

Freeing a grounded vessel or towing a boat that is disabled requires specialized equipment and knowledge. Line failure and structural damage caused by improper towing have resulted in fatal injuries. Because of this, Four Winns strongly suggests that these activities be left to those who have the equipment and knowledge such as the U.S. Coast Guard, to safely accomplish the towing task.

**CAUTION**

Running aground can cause serious damage to a boat and associated underwater gear. If the boat should become grounded, distribute personal flotation devices and inspect the boat for possible damage. Thoroughly inspect the bilge area for signs of leakage. An experienced service facility should check the hull and underwater gear at the first opportunity. DO NOT continue to use the boat if the condition of the hull or underwater equipment is questionable.

If towing or being towed is absolutely necessary, use the strongest lines available, and attach them to the bow eyes or stern eyes only. Have all passengers slip on life jackets and take a seat in the cabin or other protected area.

**WARNING**

Lines can snap or other hardware can be loosened or broken while towing. Under certain conditions, this can cause severe injury or fatality.

## A - 11 BOATING EDUCATION

### A. Boating Courses

Boating education classes are offered throughout the country. The United States Coast Guard Auxiliary offers free courses on different topics usually during the off-season. The most popular course is the "Boating Skills & Seamanship Course," and information 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.

The Red Cross offers power boating and canoeing classes. Contact: Director of Water Safety, American National Red Cross, 17th & D Streets N.W., Washington, DC 20006.

The Canadian Power and Sail Squadron offers seamanship courses. Information can be obtained by calling 1-800-268-3579 (Canada only).

### B. Boating Manuals or Literature

A good source of information is the U.S. Coast Guard's home study book called "The Skipper's Course". This book may be purchased through: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, Stock # 050-012-00159-6.

Another good source of boating information is Chapman's "Piloting, Seamanship and Small Boat Handling". Also, check the local library or bookstore for additional information on boating.

### C. Charts and Maps

U.S. nautical charts are sold throughout the country at Governmental Printing Office stores and other agents. A chart catalog is available by writing to: National Oceanic and Atmospheric Administration, National Ocean Survey, Rockville, MD 20852.

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

Addresses of all state boating agencies are listed in "A Boater's Guide". For a free copy, write to: National Marine Manufacturers Association, 401 N. Michigan Avenue, Chicago, IL 60611.

# SAFETY EQUIPMENT

## B - 1 GENERAL

As the owner/operator of the boat, you are responsible for assuring that all required safety equipment is aboard. You should also consider supplying additional equipment as needed for your safety and that of your passengers. Check state and local regulations and call the U.S. Coast Guard Boating Safety Hotline at 1-800-368-5647 for information about required safety for information about required safety equipment.

### A. Required Safety Equipment

Most of the safety equipment required by federal regulations is provided as standard equipment. Personal Floatation Devices (life jackets) must fit the person wearing it. If local regulations require additional equipment, it must be approved by the U.S. Coast Guard (USCG). Minimum requirements include the following:

- Personal Floatation Devices
- Visual Distress Signal
- Bell or Whistle
- Fire Extinguisher
- Navigation Lights

### B. Personal Floatation Devices (PFD's)

Federal regulations require that you have at least one Coast Guard approved personal floatation device (PFD) for each person in a recreational boat. You should not use your boat unless all PDFs are in serviceable condition, readily accessible, legibly marked with the Coast Guard approval number, of an appropriate size (within the weight range and chest size marked on the PDF) for each person aboard.

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

The size of the PFD should be appropriate for the wearer. Body weight or chest size are common methods used to size PFDs. It is your responsibility to ensure that you have the proper number and types of PFD's on board and that your passengers know where and how to use them.

### C. PFD Types

Five types of PFDs have been approved by the U.S. Coast Guard. The PFDs are described as follows:

**PFD Type 1, Wearable** (Figure B1) has the greatest required buoyancy. Its design allows for turning most unconscious persons in the water from face down position to a vertical or slightly backward, face-up position. It can greatly increase the chances of survival. Type 1 is most effective for all waters, especially offshore when rescue may be delayed. It is also the most effective in rough waters.

***Figure B1: Type I, Wearable***

**PFD Type II, Wearable** (Figure B2) turns its wearer in the same way as Type I, but not as effectively. The Type II does not turn as many persons under the same conditions as a Type I. You may prefer to use this PFD where there is a probability of quick rescue such as in areas where other people are commonly involved in water activities.

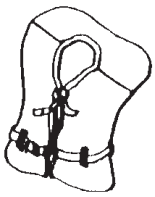


***Figure B2: Type II, Wearable***

**PFD Type III, Wearable** (Figure B3) allows the wearer to place themselves in a vertical or slightly backward position. It does not turn the wearer. It maintains the wearer in a vertical or slightly backward position and has no tendency to turn the wearer face down. It has the same buoyancy as a Type II PFD and may be appropriate in areas where other people are commonly involved in water activities.

***Figure B3: Type III, Wearable***

**PFD Type IV, Throwable** (Figure B4) is required in addition to the PFDs previously discussed. The most common Type IV PFD is a buoyant cushion or ring buoy. It is designed to be thrown to a person in the water, grasped and held by the user until he or she is rescued. A Type IV PFD should always be in serviceable condition and immediately available for use. Grasping this PFD may be difficult if the rescue is delayed or if the user is overcome by hypothermia (loss of body heat).

***Figure B4: Type IV, Throwable***

**PFD Type V, Wearable** (Figure B5) when inflated, it provides buoyancy equivalent to Type I, II, or III PFDs. When it is deflated, however, it may not support some people.

***Figure B5: Type V, Wearable***

**D. PFD Pointers**

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

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

**E. Emergency Stop Switch**

This safety device automatically stops the engine if the lanyard is attached to the operator and the operator falls from his work station. Refer to the engine manual for detailed information about using this switch.

The emergency stop switch (Figure B6) incorporates a shutoff switch, switch clip, lanyard, and lanyard clip. The lanyard clip must be securely attached to the operator's PFD, clothing, arm, or leg. Be sure to attach the lanyard to a place where it is free of obstructions and to something that will move with the operator if he or she leaves the helm station. If the engine shuts down because this switch was activated, the clip may have to be reinstalled on the interrupter switch before the engine can be started.

**WARNING**

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

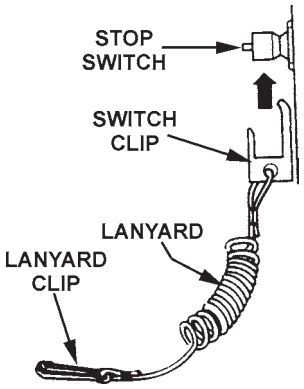



***Figure B6: Emergency Stop Switch***

### F. Fire Extinguisher

As the owner/operator of the boat, you are responsible for supplying a fire extinguisher approved by the U.S. Coast Guard.

**NOTICE**

As the owner/operator of the boat, you are responsible for assuring that all required safety equipment is aboard and meets the boating regulations as prescribed by both federal and local authorities in your area.

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

**WARNING**

**Fire!**

In case of fire do not open the engine compartment. Shut down engine(s), generator(s), and blower(s). Discharge entire contents of fixed fire suppression system. If using portable CO2 fire extinguisher continuously discharge entire contents. On European models, discharge contents through fire port.

**NOTICE**

Using a portable fire extinguisher with an access/fire port in the engine compartment is preferred to opening the engine compartment to fight the fire. However, using a portable extinguisher in this way provides less protection against fire than a fixed suppression system.

**NOTICE**

Do not test fire extinguishers by squirting small amounts of the extinguishing compound. The fire extinguisher might not work when you really need it.

The 248 and 268 Vista are considered to be Class 1 powerboats (16 to less than 26 feet). Since they have a closed living space they are required to carry one (1) B-1 type hand portable fire extinguisher even if the boat is equipped with a fixed fire extinguishing system in the engine compartment.

### G. Fire Extinguisher System

A self-contained, Halon fire extinguisher system is an available option. The equipment utilized has been so chosen, and located, to provide sufficient volume and coverage of the entire engine compartment. While the Halon system ensures excellent overall bilge fire protection, **it does not eliminate the U.S.C.G. requirement for hand-held fire extinguishers.** If equipped, refer to the manufacturer's literature included in the owner's packet.

### H. Visual Distress Signal Devices

Visual distress signal devices approved by the U.S. Coast Guard are required on all recreational boats operating on coastal waters and to boats owned in the United States when they are operating on the high seas. Coastal waters include territorial seas and those waters directly connected to the Great Lakes and the territorial seas up to a point where the waters are less

than two miles (3.2km) wide. Visual distress signal equipment may be of the pyrotechnic or non-pyrotechnic type. Regulations prohibit display of visual distress signals on the water under any circumstances except when assistance is required to prevent immediate or potential danger to persons on board a vessel.

The equipment must be approved by the U.S. Coast Guard, be in serviceable condition, and be stowed in a readily accessible location. Equipment having a date for serviceable life must be within the specified usage date shown. Careful selection and proper stowage of visual distress equipment is very important if young children are aboard.

| DAY USE ONLY | NIGHT USE ONLY | DAY AND NIGHT USE |
|---|---|---|
| Three orange smoke signals (one hand held and two floating) or one orange flag with black square and disk. | One S-O-S electric distress light. | Three flares of the hand held, meteor or parachute type. |

***Distress Signal Table***

The minimum visual distress signals required in coastal waters for a Class 1 powerboat is the following:

> One orange flag with black square-and disc (daytime); and an S-O-S electric light (nighttime); or three orange smoke signals, hand held or floating (daytime); or three red flares of hand held, meteor, or parachute type (daytime/nighttime).

**NOTICE**

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

### I. Sound Signaling Devices

Class 1 powerboats (16 to less than 26 feet) are required to carry a hand, mouth or power operated horn or whistle. It must produce a blast of two-second duration and audible at a distance of at least one-half (1/2) mile. The 248 and 268 Vistas are equipped with a single trumpet horn. This single trumpet horn meets this requirement. See Figure B7.

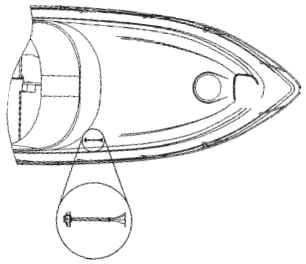


***Figure B7: Single Trumpet Horn***

The following are standard whistle signals:

- One Prolonged Blast — Warning Signal
- One Short Blast — Pass on my Port Side
- Two Short Blasts — Pass on my Starboard Side
- Three Short Blasts — Engines in Reverse
- Five or More Blasts — Danger Signal

### J. Navigation Lights

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

### K. Additional Recommended Equipment

Four Winns® recommends that you acquire additional equipment for safe, enjoyable cruising. This list, which is not all inclusive, includes items you should consider acquiring.

**Basic Gear**

| | | |
|---|---|---|
| Flashlight | Spare batteries | Tow line |
| Oar, paddle | Mooring lines | Compass |
| Dock fenders | Distress signals | First aid kit |
| Boat hook | VHF radio | EPIRB* |
| Sunscreen | Extra warm clothing | Charts |
| Second anchor & line | | |
| Dewatering device (pump or bailer) | | |

Emergency supply of drinking water and food.
*Emergency Position Indicating Radio Beacon

**Tools**

| | | |
|---|---|---|
| Spark plug wrench | Hammer | Screwdriver |
| Jackknife | Pliers | Electrical tape |
| Adjustable wrench | Lubricating oil | Prop wrench |
| Duct tape | | |

**Spare Parts**

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

**Gear For Extended Cruises**

Foul weather gear  Parallel rulers  Dividers
Loran or Global Positioning System navigation equipment

## B - 2 CARBON MONOXIDE

**DANGER**

**Carbon Monoxide!**

Carbon monoxide (CO) can be harmful or fatal if inhaled. Brain damage or death can occur if exposed to carbon monoxide. Keep exhaust outlets clear of blockage. Provide adequate ventilation. Open hatches, doors, windows and vents to insure adequate ventilation. Close engine compartment doors and hatches when engine or generator is running. Avoid operating the boat for extended periods of time at idle speed, and be sensitive to weather conditions that may prevent CO from dissipating into the air. (See Preface for actual warning label regarding carbon monoxide.)

Carbon monoxide accumulation is affected by vessel geometry; hatch, window and door openings; ventilation openings; proximity to other structures; wind direction; vessel speed; and a multitude of other variables. The technical information included in this section is to inform the boat owner of possible cause and effects of carbon monoxide. This information has been reprinted with permission from the American Boat and Yacht Council's (ABYC) technical information report: "Educational Information About Carbon Monoxide". This information pertains to all boats manufactured by Four Winns®.

**NOTICE**

The boat owner should be aware that other factors may contribute to carbon monoxide accumulation. The most common ones are listed in this section. If a person is exhibiting carbon monoxide-type symptoms (Refer to B-2E Symptoms), be sure to take the necessary precautions as prescribed later in this section.

**NOTICE**

Boats fueled by diesel have limited carbon monoxide present in the exhaust in comparison to gasoline engine exhaust. However, the boat owner should still be aware of the causes and effects of carbon monoxide which may occur in different boating situations.

### A. Properties and Characteristics of Carbon Monoxide

1. Carbon Monoxide is a colorless, odorless and tasteless gas. It is commonly referred to as CO.

2. Its weight is about the same as air so it cannot be expected to rise or fall like some other gases, but will distribute itself throughout the space.

**NOTICE**

DO NOT rely on the use of smell or sight of other gases to detect CO, because it diffuses in the air much more rapidly than easily detectable (visible and odorous) gases.

### B. What Makes Carbon Monoxide

Any time a material containing carbon burns such as gasoline, natural gas, oil, propane, coal, or wood, CO is produced.

Common sources of carbon monoxide are:

1. Internal combustion engines.

2. Open flame devices such as:

   a. Cooking ranges
   b. Central heating plants
   c. Space heaters
   d. Water heaters
   e. Fireplaces
   f. Charcoal grills

### C. How a Person is Affected by Carbon Monoxide

Carbon monoxide is absorbed by the lungs and reacts with blood hemoglobin to form carboxyhemoglobin, which reduces the oxygen carrying capacity of the blood. The result is a lack of oxygen for the tissues with the subsequent tissue death and, **if prolonged, death of the individual.**

### D. Effects of Carbon Monoxide

Carbon monoxide in high concentrations can be fatal in a matter of minutes. Lower concentrations must not be ignored because the effects of exposure to CO are cumulative and can be just as lethal.

Certain health related problems and age will increase the effects of CO. People who smoke or are exposed to high concentrations of cigarette smoke, consume alcohol or have lung disorders or heart problems, are particularly susceptible to an increase in the effects from CO. However, all occupants' health should be considered. Physical exertion accelerates the rate at which the blood absorbs CO.

**E. Symptoms**

One or more of the following symptoms can signal the adverse effect of CO accumulation:

1. Watering and itchy eyes
2. Flushed appearance
3. Throbbing temples
4. Inattentiveness
5. Inability to think coherently
6. Ringing in the ears
7. Tightness across the chest
8. Headache
9. Drowsiness
10. Incoherence
11. Nausea
12. Dizziness
13. Fatigue
14. Vomiting
15. Collapse
16. Convulsions

**NOTICE**

The order of the above list is generally the sequence of appearance of symptoms. However, the order of appearance may change for different people.

**NOTICE**

**The symptoms of Carbon monoxide poisoning may easily be mistaken for seasickness.**

**F. Treatment (Evacuate, Ventilate, Investigate, Take Corrective Action)**

1. Move the person to fresh air.

2. Administer oxygen if available.

3. Contact Medical help.

4. If the victim is not breathing, perform artificial respiration per approved CPR procedures until medical help arrives and takes over.

**NOTICE**

Prompt action can make the difference between life and death.

5. Ventilate area.

6. Investigate source of CO and take corrective action.

**G. Inspection**

Look and listen for leaks in the exhaust systems of both the generator and propulsion engine(s). Look for discoloration around joints in the system (water leaks, carbon, stains, etc.).

1. Make sure all exhaust clamps are in place and secured.

2. Make sure ventilation systems work and are not obstructed or restricted.

3. Make sure gaps around the engine room plumbing and cableways and exhaust system doors, hatches, and access panels are minimized to reduce the opportunity for CO to enter the accommodation space(s).

**H. Operation**

Cold Start vs. Warm Start: CO production is greater while the combustion chamber surfaces and gas passages are cold versus when they are warm. A boat operator should:

1. Pay attention to ventilating the boat.

2. Orient the boat so it will allow the maximum dissipation of CO.

3. Minimize the time spent on getting underway.

**DANGER**

The following are examples of possible situations where carbon monoxide can accumulate within your boat while docked, anchored, or underway. Become familiar with these examples and their precautions to prevent **dangerous** accidents or death.

## I. Boathouses, Sea Walls and Other Boats

A boat operator should be aware that dangerous concentrations of CO can accumulate when a boat, generator or other engine operated device is operated while the boat is moored in a confined area such as:

1. Boathouses,

2. Proximity to sea walls, or

3. Proximity to other boats.

Orient the boat for maximum dissipation of the exhaust or DO NOT run the boat or boat equipment for extended periods under these conditions. See Figure B8.

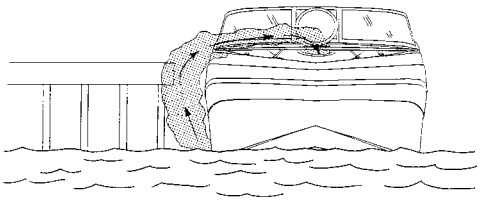


***Figure B8: The effect of sea walls and other confined spaces.***

A boat operator should be aware that carbon monoxide is emitted from any boat's exhaust. The operation, mooring, and anchoring in an area containing other boats may be in an atmosphere containing CO not of the operator's making. An operator likewise needs to be aware of the effect of his actions on other boats. Of prime concern is the operation of an auxiliary generator with boats moored along side each other. Be aware of the effect your exhaust may have on other vessels and be aware that the operation of other vessel's equipment may affect the carbon monoxide concentration on your vessel. See Figure B9.

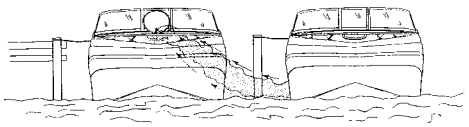


***Figure B9: The effect of boats moored along side.***

## J. Backdrafting (Station Wagon Effect)

Backdrafting or the "station wagon effect" is caused by air movement over or around a boat creating a low pressure area of suction area around the stern which can increase CO level on the boat. Backdrafting can be affected by relative wind direction , boat speed, and boat trim angle. See Figure B10 Backdrafting - Airflows Over Boat and Behind Transom".

Under certain speed and operating conditions the low pressure area may form in other regions and permit carbon monoxide to enter the hull through openings that are not on the back of the vessel. Boat factors which may affect CO concentration:

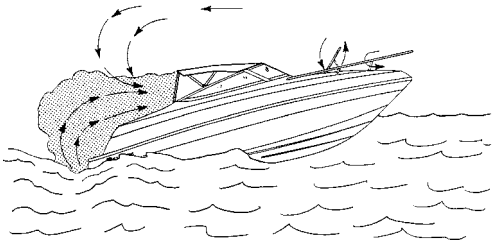


***Figure B10: Backdrafting - Air flows over boat and behind transom.***

1. Inefficient trim angle. See Figure B11.

2. Excessive or unequally distributed weight.

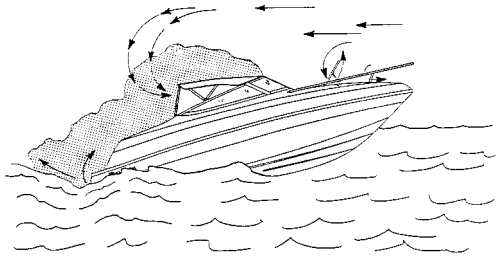


***Figure B11: Inefficient trim angles.***

3. Canvas Configurations - Under various conditions, adding or removing canvas may raise or lower CO levels. See Figures B10, B11 & B13.

**DANGER**

**Exhaust Fumes!**

Hull exhaust from your boat can cause excessive accumulation of poisonous carbon monoxide gas within cockpit areas when using protective weather coverings (while underway or while stationary). Provide adequate ventilation when the canvas top, side curtains and/or back (aft) curtains are in their closed protective positions. (See Preface for actual warning label regarding carbon monoxide and weathering cover/canvas.)

4. Opening and closing ports, hatches, doors, and windows may raise or lower CO levels on board a boat. See Figures B12 and B13.

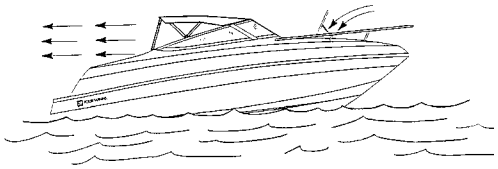


***Figure B12: Desired air flow through the boat.***

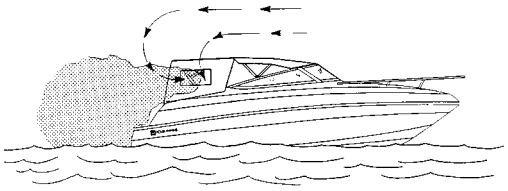


***Figure B13: The effect of canvas configurations.***

**K. Cabin Appliances**

Boats having fuel burning appliances in accommodation areas should be provided with adequate ventilation and maintained to function properly.

**L. Air Conditioning**

It may be possible for carbon monoxide to be brought into the air conditioned space by the air conditioner. If installed, please refer to the air conditioner manufacturer's literature for additional information.

**M. Ventilation of Accommodation Spaces**

Accommodation spaces need to be ventilated to introduce fresh air into the spaces. Ventilation method; e.g. windows, hatches, doors, and blowers; used to accomplish this may, under certain conditions, bring hazardous levels of CO into the accommodation spaces. Care should be taken to be aware of all prevailing conditions when using these ventilating methods.

**N. Altitude and Sea Conditions**

Changes in altitude greater than 5,000 feet contribute to inefficient engine performance and may require adjustments to the ignition systems, fuel systems, or changing the propeller's size.

1. Failure to make adjustments to ignition systems, fuel systems, and propeller size may cause an increase in CO production.

2. Heavy sea conditions tend to load engines resulting in reduced performance and thereby increasing their CO production.

**O. Portable Generator Sets**

Gasoline powered portable generators are available in the marine market place and are not an option available through Four Winns®. Portable generators will produce CO. These sets discharge their exhaust products in locations which can lead to an increase in the accumulation of carbon monoxide in the accommodation space. This equipment is not recommended for use on Four Winns® boats.

**P. Maintenance - Engine Performance**

Efficient engine performance is vital to minimizing CO production. The following items are those considered to have the greatest effect on increased CO production:

1. Fuel Systems - Fuel that is contaminated, stale or incorrect octane number.

2. Carburetors/Injectors

   a. Dirty or clogged flame arrester.

   b. Malfunctioning automatic choke plate or faulty adjustment of manual choke plate.

   c. Worn float needle valve and seat.

d. High float level.

e. Incorrect idle mixture adjustment.

f. Dirty or worn injectors.

3. Ignition System

a. Fouled or worn spark plugs.

b. Worn points or incorrect gap on points.

c. Shorted or opened circuit high tension spark plug cables.

d. Incorrect ignition timing.

4. General

a. Worn piston rings and valves.

b. Engine temperature - Cold running engines increase CO production. Engine cooling water system design and selection of thermostat(s) are primary considerations affecting engine operating temperature. Generally, an engine produces less CO if it operates at a relatively high temperature within manufacturer's specifications.

c. Exhaust Back-Pressure - Certain alterations to the exhaust system may increase engine exhaust back pressure and CO production.

d. Restricted engine room or compartment ventilation.

**Q. Maintenance - External Conditions**

External conditions that contribute to inefficient engine performance are:

1. Fouled hull bottom.

2. Damaged and fouled running gear (propeller and trim tabs).

3. Incorrect selection of propeller size.

**R. CO Detection System**

Four Winns® has included two CO detectors as a standard feature. One of the CO detectors is located in the forward berth and the other is located in the aft cabin.

**WARNING**

CO monitors should be professionally installed and calibrated. Failure to do so may result in the improper function of the CO detector.

**NOTICE**

For information on CO Detection Systems, see American Boat and Yacht Council (ABYC Manual) Section A-24, "Carbon Monoxide Detectors".

Even with the best of boat design and construction plus utmost care in inspection, operation, and maintenance, hazardous levels of CO may still be present in accommodation spaces under certain conditions. Continuing observation of passengers for symptoms of CO intoxication can be supplemented by an alarm type CO detection device in the accommodation space.

**NOTICE**

A CO detector is not a gas/fuel vapor detector. Gas/fuel vapor detectors do not monitor the buildup of carbon monoxide in an enclosed area. For further information on the design, construction, and testing of boats in consideration of carbon monoxide, see ABYC TH-23.

**NOTICE**

Detection devices should meet the requirements of ABYC A-24 "Carbon Monoxide Detection Systems on Boats".

## B - 3 SAFE BOATING PRACTICES

**NOTICE**

**YOU** are responsible for your own safety, the safety of your passengers, and the safety of fellow boaters.

### A. Drugs and Alcohol

**WARNING**

**Alcohol consumption and boating do not mix! Operating under the influence endangers the lives of your passengers and other boaters. Federal laws prohibit operating a boat under the influence of alcohol or drugs.**

Do not use drugs or drink alcohol while operating a boat. Like driving a car, driving a boat requires sober, attentive care. Operating a boat while intoxicated or under the influence of drugs is not only dangerous, but it is also a Federal offense carrying a significant penalty. These laws are vigorously enforced. The use of drugs and alcohol, singly or in combination, decreases reaction time, impedes judgement, impairs vision, and inhibits your ability to operate a boat.

### B. Safe Operation

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

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

### C. Passenger Safety

Before getting underway, show all passengers where emergency and safety equipment is stowed, and explain how to use it. Everyone aboard should wear rubber-soled shoes which resist slipping on wet surfaces. While underway, passengers should remain seated inside the deck rails and gates. Do not allow passengers to drag their feet or hands in the water. Always use handholds and other safety hardware to prevent falls. All nonswimmers, poor swimmers and small children should wear PFD's at all times.

### D. Propeller

**WARNING**

**Personal Injury!**

Do not allow anyone near a propeller, even when the engine is off. Propeller blades can be sharp and continue to turn even after the engine is shut off. Do not allow anyone near the propeller when the throttle is in neutral position. Accidently engaging the shift can result in a serious injury or death. (See actual ladder warning labels and helm boarding ladder warning label below.)

**DANGER**

Never approach or use ladder when motor is running. Severe injury or death will result from contact with rotating propeller.

**Ladder Warning Label**

**DANGER**

Shut off motor when near swimmers. Severe injury or death will result from contact with rotating propeller.

**Helm Boarding Ladder Warning Label**

**WARNING**

When pulling skiers do not turn on the engine until you are at least a boat length away. When approaching a downed skier, turn off the engine at least one boat length away before reaching the skier in the water.

### E. First Aid

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

### F. Operation By Minors

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

### G. "Rules of the Road"

As a responsible boater, you must comply with the "Rules of the Road," the marine traffic laws enforced by the U.S. Coast Guard. Navigating a boat is much the same as driving an automobile. Operating either one responsibly means complying with a set of rules intended to prevent accidents. Just as you assume other car drivers know what they are doing, other boaters assume you know what you are doing. Information regarding navigational rules and the "Rules of the Road" are discussed in further detail in C-1 & C-2 of the next section.

### H. Voluntary Inspections

State boating officials in many states or the U.S. Coast Guard Auxiliaries offer courtesy inspections to check out your craft. They will check for compliance with safety standards and required safety equipment. You may voluntarily consent to one of these inspections, and you are allowed to make corrections without prosecution. Check with the appropriate state agency or the Coast Guard Auxiliary for details.

### I. Safe Boating Courses

The local U.S. Coast Guard Auxiliary and the U.S. Power Squadrons offer comprehensive safe boating classes several times a year. You may contact the Boat/U.S. Foundation at 1-800-336-BOAT (2628) or, in Virginia, 1-800-245-BOAT (2628) for a course scheduled in your area. Also contact the U.S. Coast Guard Auxiliary or Power Squadron Flotilla for the time and place of their next scheduled class.

## B - 4 WATER SPORTS

**WARNING**

**Personal Injury!**

Four Winns® boats are not designed for and should not be used for pulling parasails, kites, gliders or any device which can become airborne. Use boat only for appropriate water sports. (See Preface for actual warning label.)

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

### A. Water Sport Guidelines

Everyone participating in a water sport should observe these guidelines:

1. Allow only capable swimmers to take part in any water sport.

2. Always wear a personal floatation device (PFD) approved by the U.S. Coast Guard. Wearing a properly designed PFD helps a stunned or unconscious person stay afloat.

3. Be considerate of others you share the water with.

4. Give immediate attention to a person who has fallen. He or she is vulnerable in the water alone and may not be seen by other boaters.

5. Approach a person in the water from the lee side (opposite the direction of the wind). **Turn off the motor at least a boat length from the person.**

6. Turn engine off and anchor before swimming.

7. Always participate in water sports in safe areas. Stay away from other boats, beaches, restricted areas, swimmers and heavily traveled waterways.

8. Swim only in areas designated as safe for swimming. These are usually marked with a swim area buoy (see Figure B14). Do not swim alone or at night.

***Figure B14: Swim Area Buoy***

**WARNING**

**Rotating Propeller!**

Rotating propeller can cut or sever causing serious injury or death. Shut engine off and remove ignition key when anyone is swimming nearby. (See Section B-3D.)

9. Do not allow anyone near the propeller(s), even when the engine is off. Propeller blades are sharp and can continue to turn even after the engine is off. Stay at least 150 feet away from areas marked by diver down float. See Figure B15.

***Figure B15: Diver Down Float***

10. Do not drive the boat directly behind a water skier. At 25 miles per hour, the boat will overtake a fallen skier who was 200 feet in front in about 5 seconds.

# BASIC SEAMANSHIP

## C - 1 GENERAL

Basic rules of seamanship, general information about navigational aids, and sources for additional reading and boater education are presented in this portion of your owner's manual.

### A. Boating Regulations

The U.S. Coast Guard is the authority of the waterways. State boating regulations are enforced by local authorities. Your boat is subject to the marine traffic laws known as "Rules of the Road," which are enforced by the U.S. Coast Guard. You are subject to marine traffic laws and "Rules of the Road" for both federal and state waterways; you must stop if signaled to do so by enforcement officers, and permit them to board if asked. The "Rules of the Road" can be obtained from the local U.S. Coast Guard Unit or the United States Coast Guard Headquarters by calling (202) 512-1800 or faxing your request to (202) 512-2250, and asking for the publication titled "Navigational Rules, International-Inland.

Many pamphlets prepared by the Coast Guard are available. They explain signal lights, buoys, safety, international and inland regulations and other information which goes beyond the scope of this manual. "Aids to Navigation" (U.S. Coast Guard pamphlet #123) explains the significance of various lights and buoys. Because of proposed alterations to buoys and markers, contact the U.S. Coast Guard to stay informed of changes. Other pamphlets, including the "Boating Safety Training Manual" and "Federal Requirements For Recreational Boats," are also available from the U.S. Coast Guard Headquarters.

**NOTICE**

The spoken word **"MAYDAY"** is the international signal for distress. **"MAYDAY"** should **NEVER** be used unless there is grave or imminent danger, and you are in need of immediate assistance.

### B. Rules of Seamanship

#### 1. Right-of-way

In general, boats with less maneuverability have right-of-way over a more agile craft. You must stay out of the way of the following vessels:

| | |
|---|---|
| A vessel not under command or aground. | These vessels have no maneuverability. |
| A vessel restricted in its maneuverability. | These vessel are performing work which limits their maneuverability such as surveying, dredging, laying pipe or cable, servicing navigational markers among others. |
| A vessel engaged in fishing. | These include boats fishing with lines, trawl or nets; but not trolling lines. |
| Sailboats | Sailboats have the right-of-way over power boats; however, if a sailboat is using a propeller to move forward, it is considered a power boat even if its sails are up. |

#### 2. Meeting Head-On

When two boats meet head-on neither boat has right-of-way. Both boats should decrease speed and pass; port to port. However, if both boats are on the left side of a channel, each vessel should sound two short horn blasts and pass to starboard to starboard. See Figure C1.

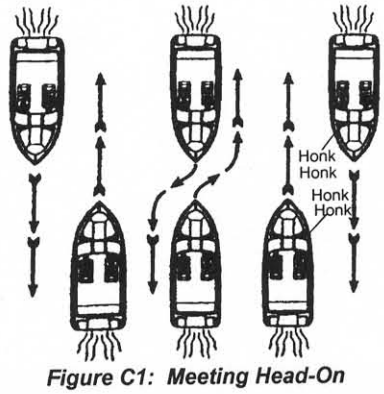



*Figure C1: Meeting Head-On*

### 3. Crossing Situations

In a crossing situation, the boat on the right from the 12-4 o'clock position has the right-of-way. It must hold course and speed. The boat without the right-of-way must keep clear and pass to the stern. See Figure C2.

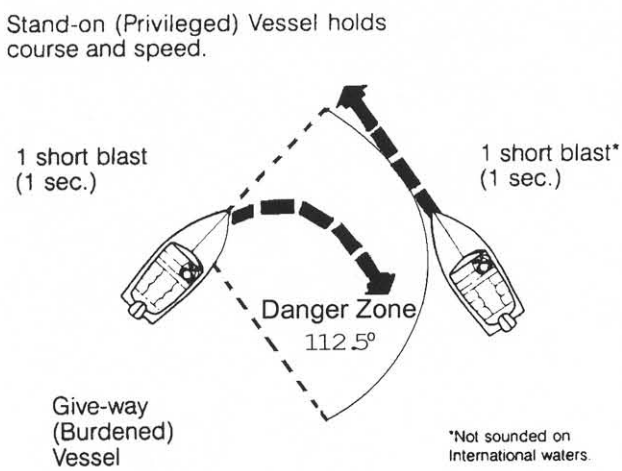



*Figure C2: Crossing Situation*

### 4. Overtaking

The boat overtaking the one ahead must yield the right-of-way to the boat being passed. The overtaking boat must make necessary adjustments to keep out of its path. The boat being passed should hold its course and speed. See Figure C3.

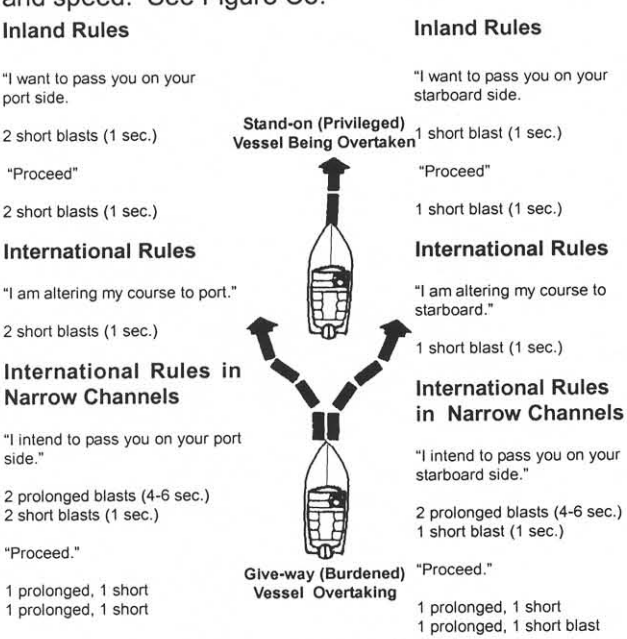



*Figure C3: Overtaking*

### 5. The General Prudential Rule

The general prudential rule regarding right-of-way is that if a collision appears unavoidable, neither boat has right-of-way. As prescribed in the "Rules of the Road", both boats must act to avoid collision.

### 6. Night Running

Boats operating between sunset and sunrise (hours vary by state), or in conditions of reduced visibility, must use navigational lights. Nighttime operation, especially during bad weather or fog, can be dangerous. All "Rules of the Road" apply at night, but it is best to slow down and stay clear of all boats regardless of who has right-of-way.

To see more easily at night, avoid bright lights when possible. Also, it is helpful to have a passenger keep watch for other boats, water hazards, and navigational aids.

To determine the size, speed and direction of other vessels at night, you should use running lights. A green light indicates the starboard side, and the red light indicates the port side. Generally, if you see a green light, you have the right-of-way; if you see a red light, give way to the other vessel. See Figure C4.

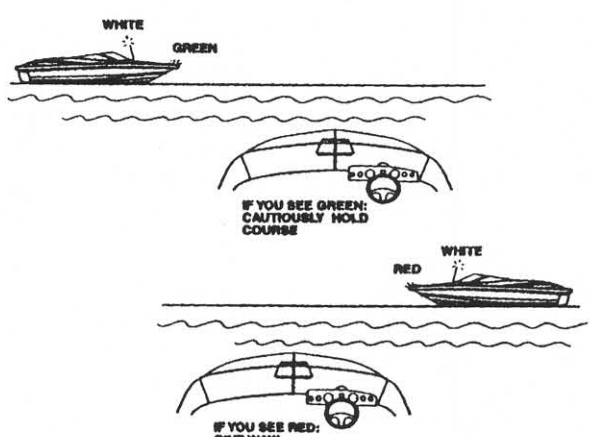



*Figure C4: Night Running*

### 7. Whistle Signal

Out on the water, whistle signals are commonly used. Although using a whistle signal is not necessary every time a boat is nearby, operators must signal their intentions when necessary to avoid potentially confusing or

hazardous situations. Use whistle blasts early enough to be noticed and understood by other boaters.

It is customary for the privileged boat to signal first and the yielding boat to return the same signal to acknowledge she understands and will comply. Use the danger signal (five or more short and rapid blasts) if intent is not clear. A short blast is one or two seconds long. A long blast is 4 to 6 seconds long. The Navigational Aids Chart at the end of this section lists the meanings of the various whistle signals.

## C - 2 NAVIGATIONAL AIDS

Aids to navigation (ATONS) help you to travel safely on the water. They help you get from one place to another and are most helpful if you have a nautical chart. A navigational aids chart is at the end of this section.

**⚠ WARNING**

NEVER tie your vessel to an ATON. It is illegal because it blocks the ATON from view of other boaters. Decreased visibility can contribute to a serious accident which may result in property damage, personal injury, or death.

There are two ATON systems. The system used on federal waters is known as the International Association of Lighthouse Authorities System B (IALA-B). The Coast Guard maintains this system. The second system is the Uniform State Waterway Marking System (USWMS). This system is maintained by state authorities.

### A. International Association of Lighthouse Authorities System B (IALA-B)

IALA-B uses four types of ATONS. This section discusses the two most common markers: lateral markers and safe water markers. Other federal markers include special markers and isolated danger markers. The Navigational Aids Chart at the end of this section shows these aids.

### B. Lateral Markers

Lateral markers indicate the sides of navigable channels. They consist of lighted can or nun buoys and daymarks. Each has a number and is either red or green. The numbers on the green markers are odd. Red markers have even numbers.

Buoys are red or green floating ATONS. If lighted, they have either red or green lights. Unlighted green buoys, called cans, look like cylinders. Unlighted red nun buoys have a cone shaped top with their points cut off. Do not pass too close to a buoy. You may foul the propeller in its chain.

**NOTICE**

Buoys are anchored floating objects and may not always be in exactly the same position.

Daymarks are red or green boards with numbers. They are on posts or groups of pilings tied together and called dolphins. Daymarks and their supports are daybeacons. Daybeacons may or may not have lights. If a red or green daybeacon has a light, it is the same color as the marker-red or green. Red daymarks are triangular and have even numbers. Green daymarks are square and have odd numbers.

Red, Right, Returning is a basic rule to assist you in using lateral markers. When you are returning from seaward , keep red markers on the starboard (right) side when you pass them. Keep green markers to the port side.

Returning from seaward is very clear if you have been on the ocean. You are returning to port. By agreement, going upstream on a navigational river is returning from seaward. The outlet ends of the Great Lakes are also the seaward ends. Traveling from a large body of water to a smaller one is considered returning from seaward.

### C. Safe Water Markers

Safe water markers have vertical red and white stripes and mark the center of navigable channels and fairways. Safe water markers included both lighted and unlighted buoys and daymarks. If a marker is lighted, the light is white and flashes the letter "A" is Morse Code.

Preferred Channel markers have horizontal red and green bands. If lighted, the color of the light is the same as the top of the band. They show the preferred channel for you to use at a junction point. Be sure to notice the color of the top of the band, and treat it as any other marker you would of that color. If the band is red and you are returning from seaward, keep the marker to the right.

Most lights on markers flash on and off. Others such as lights on aids with no lateral significance are fixed.

They stay on all night. ATON lights flash in regular patterns. For example, they may flash every three seconds, or in groups such as two flashes and a pause. There are a number of flashing patterns, which help you identify the light at night. To identify a light, note its color and pattern or timing of flashes, and compare it to your chart to find its location.

### D. The Uniform State Waterway Marking System

This section discusses three kinds of markers in this system: Regulatory, Informational, and Lateral.

Regulatory markers in this system are either signs or buoys. Signs are square with orange borders. Regulatory buoys are white and shaped like cylinders. They have horizontal orange bands near their tops and just above the water's surface. An orange circle on a marker means a controlled area. A message such as "No Wake, Idle Speed, No Skiing, or 5 M.P.H." may appear on a marker. An orange diamond means danger. If a diamond has an orange cross inside it, do not enter the area. The reason you should stay out, such as "Swim Area" may be printed in black on the marker.

Informational Markers are white signs with orange borders. They give information such as direction, distance, and location.

Lateral markers in the USWMS system are either numbered red or black buoys. Black buoys may have green reflectors or lights. They are the equivalent of green buoys in the IALA-B system. Red buoys may have red reflectors or lights. They are the same as red buoys in the IALA-B system. Red or black buoys are usually found in pairs - pass between them.

### E. A Special Sign

In Florida, you may see a special sign: "Caution, Manatee Area". When you see this sign, slow down to idle speed. Manatees, an endangered species, are passive, large, slow-moving mammals. Many Manatees are seriously injured or killed each year by boat propellers.

### F. Noise

Always be aware of local laws on noise limits. Noise means engine noise, radio noise or even yelling by people on your boat. Good seamanship demands that you operate your boat quietly so as not to infringe on the rights of others. Do not use thru-hull exhaust unless you are well offshore.

## C - 3 RECOMMENDED READING

We recommend that you read the boating literature published by your state boating agency and the U.S. Coast Guard. Other suggested reading includes the following:

Damford, Don. Anchoring. (ISBN 0-915160-64-1). Seven Seas.

United States Coast Guard Auxiliary. Boating Skills and Seamanship. LC74-164688.(illus.). (ISBN 0-930028-00-7). U.S. Coast Guard.

Bottomley, Tom. Boatman's Handbook, (illus.). 316 p. (ISBN 0-688-03925-1, Hearst Marine Book). Morrow.

Whiting, John and Bottomley, Tom. Chapman's Log and Owner's Manual. 192 p.(ISBN 0-686-96737-2). Hearst Marine Book.

Chapman, Charles F. and Maloney, E.S. Chapman's Piloting, Seamanship and Small Boat Handling. (illus.). 62 p. (ISBN 0-87851-814-2, Pub. by Hearst Bks.); deluxe ed. (ISBN 0-87851-815-0). Morrow.

National Fire Protection Association. Fire Protection Standard for Pleasure and Commercial Motor Craft. (ISBN 0-317-07388-5, NFPA 302). National Fire Protection Association.

Brotherton, Miner. Twelve- Volt Bible. (ISBN 0-915160-81-1). Seven Seas.

## C - 4 CONTACTS

There are many good boating publications that have information about your area and what other boats are doing, such as clubs and other activities. Education programs are sponsored by publications and organizations such as the U.S. Power Squadron, U.S. Coast Guard Auxiliary and the American Red Cross. See your dealer about special courses available in the area. For detailed information contact:

American Red Cross
Local address (see local telephone directory)

Boat U.S. Foundation for Boating Safety Hotline
1-800-336-BOAT
1-800-245-BOAT (in Virginia)

U.S. Coast Guard Info Line
1-800-368-5647

NMMA Sources of Waterways Information - National Marine Manufacturers Association has five (5) booklets which list sources for safety, cruising, and local waterway information. Each covers a different region of the U.S. (North Central, South Central, Northeastern, Southeastern and Western). For single copies, write Sources of Waterways information, NMMA, 401 N. Michigan Avenue, Chicago, Illinois 60611. Ask for the booklet for your region.

Skippers Course
GPO Superintendent of Documents
Washington, DC 20012
202-512-1800
202-512-2250 (fax)

United States Coast Guard Auxiliary
Local Flotilla or contact appropriate Coast Guard District Headquarters

United States Coast Guard Headquarters
2100 2nd St., SW
Washington, D.C. 20593-0001
202-267-1060

United States Power Squadron
P.O. Box 30423
Raleigh, NC 27617

## C - 5 OWNER'S LOGS AND RECORDS

At the end of this owner's manual are several forms which you will find very helpful.

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

The **Fuel Log** is a handy way to record information covering engine hours, fuel consumption, miles traveled, as well as RPM (revolutions per minute), average M.P.H. (miles per hour) and GPH (gallons per hour).

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

The **Service Information Sheet** allows you to record all the pertinent information regarding your Four Winns® boat. This sheet will be extremely helpful when ordering additional/optional parts for your boat or when having service work done.

## C - 6 NAVIGATIONAL AIDS CHART

The illustrated Navigational Aids Charts contain information concerning whistle signals, storm warnings, bridge signals, and buoy descriptions. See Figure C5 and Figure C6 on the following page.

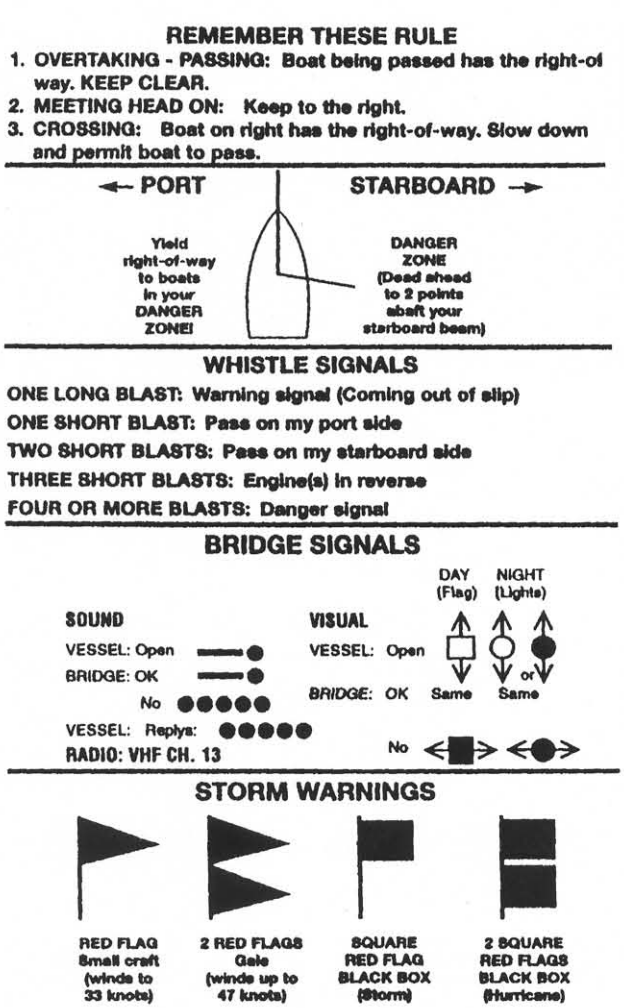



*Figure C5: Navigational Aids Chart*

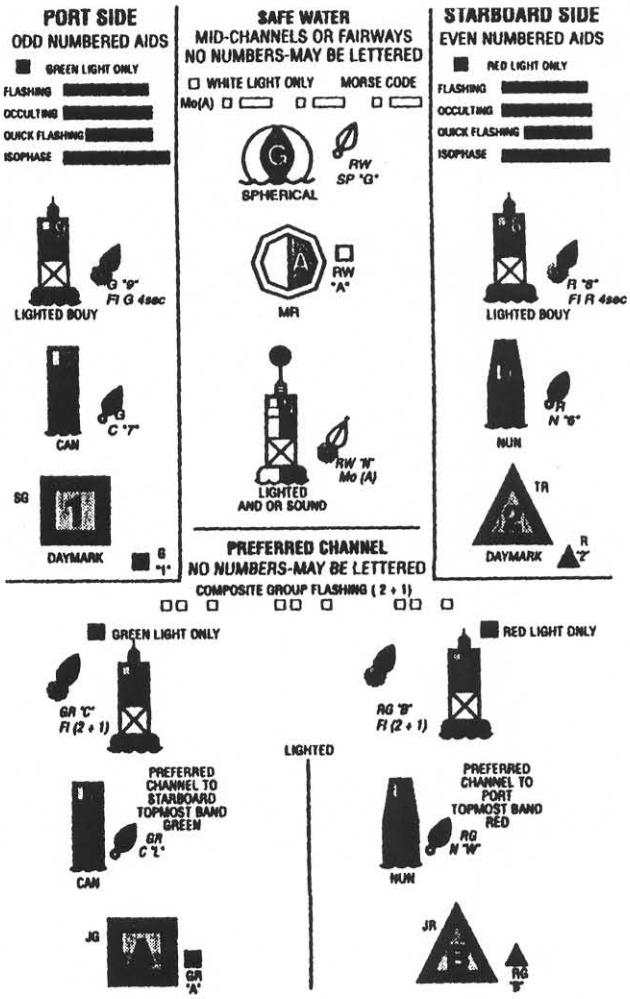



*Figure C6: Lateral Aids as Seen Entering From Seaward*

# WARRANTY AND SERVICE

## D - 1 FOUR WINNS® WARRANTY POLICY

The Four Winns® Winning Edge™ Owner Protection Plan, provides the new Four Winns® purchaser with one of the most comprehensive corporate commitments in the marine industry today. The Four Winns® Owner Protection Plan, defines the warranty coverage on all units manufactured by Four Winns®. It thoroughly describes the warranty policies and those procedures to be followed to obtain warranty coverage. Review the Four Winns® Owner Protection Plan and limited warranty statements carefully.

All engines utilized in the Four Winns® product are warranted by the engine manufacturer. Your Four Winns® dealer is authorized to repair your engines and will work closely with the manufacturer to resolve any problems you have.

## D - 2 HULL STRUCTURE WARRANTY

Each unit manufactured by Four Winns® is encompassed by a separate warranty providing specific coverage on the hull structure. The Four Winns® Owner Protection Plan thoroughly describes this coverage.

## D - 3 WARRANTY REGISTRATION

A Four Winns® Warranty Registration Card is attached to the Four Winns® Owner Protection Plan statement. Your Four Winns® Dealer is responsible for completing and mailing the warranty card at the time of purchase. This is the sole basis for establishing proof of ownership of the boat and corresponding warranty validation. Registration of the boat and engines with the manufacturer is required by the Federal Boat Safety Act of 1971.

Other equipment manufacturers also require that their products be registered with the respective companies. The warranty registration card is provided in the owner's information packet.

## D - 4 TRANSFER OF WARRANTY

Four Winns® confidence in the product and our warranty commitments can extend after the original purchaser may choose to move on to a new boat. Four Winns® Warranty coverage is transferable to successive owners of the boat. Registration of the second or successive owners is required. The Four Winns® Owner Protection Plan thoroughly describes the action required to transfer warranty coverage.

## D - 5 PRE-OWNED UNIT REGISTRATION

Section D-4 Transfer of Warranty discussed the need to properly register the purchase of a pre-owned boat with Four Winns® to transfer applicable warranty coverage.

Purchasers of all Pre-Owned Four Winns® models are encouraged to register ownership with Four Winns®. To register ownership of a "Pre-Owned Four Winns® boat," provide Four Winns® with your name, address, daytime phone number, purchase date, and hull serial number of the boat purchased.

If you wish to transfer warranty, be sure to include a check to cover the necessary fee. The amount of the transfer fee is $50.00. You can send the check to Four Winns® and we will notify Volvo Penta (the engine manufacturer) of the engine warranty transfer.

The hull serial number plate is permanently affixed to the starboard side of the transom.

Registration of a Pre-Owned Four Winns® boat does not extend or in any way affect or modify the specific terms of the Four Winns® Owner Protection Plan or Limited Warranties.

We provide this service to the purchasers of Pre-Owned Four Winns® boats in the interest of better boating. Four Winns® welcomes every purchaser of a Four Winns® boat, new or used, to our family.

## D - 6 INSURANCE COVERAGE

One of your responsibilities as a new boat owner is to acquire proper insurance protection. Insurance should include comprehensive and general liability coverage appropriate to your financial needs. Please contact your local agent for assistance on insurance coverage.

## D - 7 SERIAL NUMBER RECORD

The manufacturer, model, and serial number of major components are recorded during the assembly of each Four Winns® boat. Two copies of this completed form are included at the end of this section. One copy should be removed and kept by the dealer in his records. This can assist the dealer in processing warranty claims, or obtaining necessary information. The second copy should be kept in this owners manual.

## D - 8 PRE-DELIVERY SERVICE

Four Winns® makes every effort to deliver your boat in "turn key" condition to the dealer. The process of transporting and handling the boat necessitates certain inspections and adjustments prior to delivery to you. Also, various aspects of operation must be checked and adjusted immediately prior to final delivery and use.

The selling Four Winns® dealer must perform this thorough review of the boat and its numerous systems during the commissioning or "dealer pre-delivery service" of the craft.

A Four Winns® Pre-Delivery Inspection Form is part of the Warranty Registration Card. It lists the many items encompassed by the pre-delivery service previously described. The dealer is to check off the items as they are completed, and complete the form as indicated providing specific performance related information appropriately.

Your Four Winns® dealer will sign the Pre-Delivery Inspection Form of the Warranty Registration Card upon completion of the work. You will also be asked to sign the Pre-Delivery Inspection Form upon accepting delivery of the boat. You are to retain the two copies marked "Boat Owner". Your dealer is to retain the copy marked "Dealer copy" for his records. The Manufacturer's copy is to be mailed to the Four Winns® Customer Service Department.

## D - 9 REPLACEMENT PARTS

Four Winns® dealers are equipped with a Four Winns® parts manual that details the components of each model and their appropriate part numbers. Many Four Winns® dealers inventory common replacement components.

In addition, Four Winns® maintains specific records on the components used in the manufacture of each unit and makes a concerted effort to maintain components specifically to fill replacement part needs.

The Four Winns® dealer from whom you purchased your boat is in the best position to meet your needs. If he does not have the needed item, he has the capability, through direct contact with the Four Winns® Customer Service department, to obtain it quickly. Four Winns® will only sell replacement parts to established Four Winns® dealers. If you relocate and cannot find a Four Winns® dealer close to you, contact the Four Winns® Customer Service department for information on the nearest dealer in your area.

## D - 10 WINNGEAR™

Show your colors! Four Winns® offers a complete line of sports clothing designed to complement your new boat. Your Four Winns® dealer has a complete catalog and pricing information.

# ENGINES AND INSTRUMENTATION

## E - 1 GENERAL

**⚠ WARNING**

DO NOT attempt to service any engine without being totally familiar with the safe and proper service procedures. Do not attempt to maintain or adjust an engine while it is running. Certain moving parts are exposed and failing to shut off the engine can result in serious injury or death.

Four Winns® does not manufacture engines or drives. Because of the technical nature of the engine and drive systems, all manufacturers of these items require that warranty and service problems be taken directly to an authorized dealer for resolution. The Four Winns® dealer from whom you purchased your boat will handle all warranty and service matters with the engine manufacturer for you.

In compliance with the Federal Boat Safety Act of 1971 all engine manufacturers require their products to be registered. A registration card is furnished with each new engine. When selling a Four Winns® boat, the dealer, along with the purchaser, should complete the information requested on these cards and return them to the respective engine manufacturers. Engine registration cards are provided with the engine and will usually be found with the boat literature.

Each manufacturer of the various marine power components provides an owner's information manual with their product. This publication is included with this manual. It is important that you read the manual(s) carefully and become completely familiar with proper care and operation of the engine and drive system. Be sure to read the section on winterization. Replacement costs associated with frozen engine blocks, drive systems and other components are quite substantial.

Also review the other sections in this manual, especially Sections I on Fuel Systems, and Section F on Control Systems.

## E - 2 ENGINE EXHAUST

### A. Carbon Monoxide

The carbon monoxide in exhaust fumes can be hazardous. It is important for you and your passengers to be aware of the potential safety hazard created by exhaust fumes. Familiarize yourself with the symptoms of individuals overcome by carbon monoxide, and most importantly, ways you can protect yourself and your guests.

**⚠ WARNING**

DO NOT inhale exhaust fumes! Exhaust contains carbon monoxide which is colorless and odorless. Carbon monoxide is a dangerous gas that is potentially lethal.

Persons overcome by carbon monoxide may exhibit the following symptoms:

a. Watering and itchy eyes
b. Flushed appearance
c. Throbbing temples
d. Inattentiveness
e. Inability to think coherently
f. Ringing in the ears
g. Tightness across the chest
h. Headache
i. Drowsiness
j. Incoherence
k. Nausea
l. Dizziness
m. Fatigue
n. Vomiting
o. Collapse
p. Convulsions

IF YOU THINK EXHAUST FUMES ARE ENTERING YOUR BOAT, DETERMINE THE CAUSE AND HAVE IT CORRECTED IMMEDIATELY!

The following suggestions can help prevent exhaust fumes from entering the boat:

1. DO NOT allow the boat to remain stationary with the engines running for an extended period of time.

2. Use extreme caution while operating the engines in confined areas such as enclosed slips, congested piers, or in any area where the exhaust outlets are facing or near a bulkhead or wall structure of any kind. Operation under such conditions could easily lead to exhaust gasses (carbon monoxide) entering even though you may have all the hatches, windows, doors and portholes closed.

3. Never operate your generator while the boat is moored against any other boat, dock or wall structure that is against or near the exhaust outlet. Again, operation under such conditions could easily lead to exhaust gasses (carbon monoxide) entering your boat or the boat to which you are moored, even though you may have all the hatches, windows, doors, and portholes closed.

4. Under certain conditions, exhaust gases can enter the boat through the sink drains. Each sink drain has a water trap installed to help prevent this. To be effective, the sink drains must have water in them. Normal use of the sinks will provide the water needed for this to occur.

5. Persons sleeping can be easily overcome by carbon monoxide because they are unaware of its presence. Sleeping while the engines or generator are running is not recommended. If persons are sleeping aboard while underway, or while the generator is running, those awake should monitor for carbon monoxide accumulation in the cabin; especially the sleeping areas. Open forward facing windows or deck hatches to provide fresh air ventilation. Keep hatches, windows, and doorways that face aft or towards the exhaust discharge closed.

**⚠ WARNING**

NEVER operate the propulsion engine(s) or generator while everyone on-board is sleeping. Fatal carbon monoxide poisoning can occur.

6. If possible, ventilate your cabin while under way. Open a forward hatch or window to allow air to travel through the cabin. Be very careful of operating the boat with the cabin door or windows that face aft, open. The natural vacuum created during operation may allow exhaust gasses to be drawn into the cabin.

**NOTICE**

Current deck hatches are designed to allow ventilation when locked in a partially open position.

7. Inspect the engine exhaust system frequently for water and exhaust gas leakage, hose deterioration, and loose hose clamps. See Section R General Maintenance for additional information.

8. Have a competent marine engine service technician inspect your exhaust system whenever your boat is in for service, or if you notice a change in the sound of your engines.

For additional information, refer to Section B-2 Carbon Monoxide.

### B. Carbon Monoxide Monitor

A carbon monoxide (CO) monitor(s) will sound an alert should carbon monoxide reach an unsafe level in the cabin of your Vista. The CO Monitors are standard equipment and are located in the aft cabin and forward cabin. Refer to the manufacturer's literature included with the owner's packet.

## E - 3 ENGINE & DRIVE SYSTEM

### A. Engine

Consult the Engine Owner's manual provided with this manual for operation and maintenance information.

### B. Stern Drive

A stern drive propulsion system has a piston engine equipped with special marine components mounted near the transom and coupled to an external outdrive-type transmission unit. Shifting is performed within the outdrive upper gear case. This type of system is depicted in Figure E1.

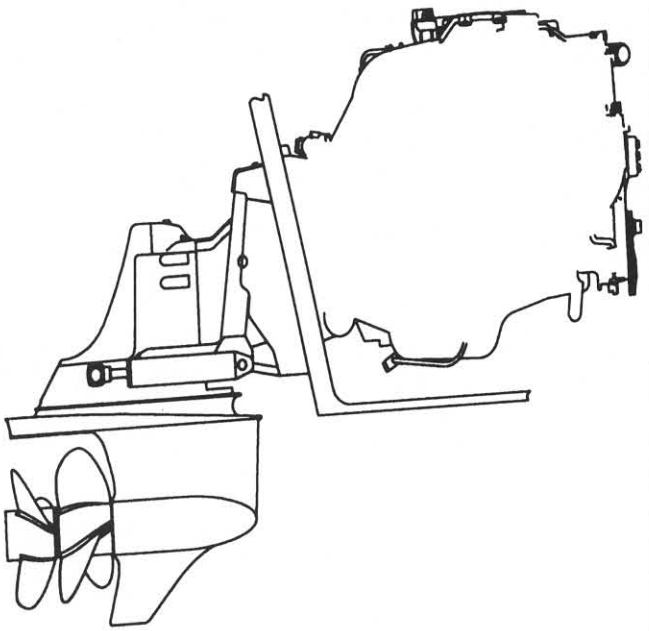


*Figure E1: Stern Drive*

Consult the Engine Owner's manual for additional information on stern drives.

## E - 4 ENGINE FLUSHING

The engine flush out option is offered on all Vista models. The engine flushing kits attach permanently to the engine. A fresh water supply can be connected to the engine with the boat in the water. It is not intended for use with the boat out of the water. This option is useful to flush the engine cooling system of unwanted salt residue.

The flush out kit should only be used with the boat in the water and the engine OFF. See Section R General Maintenance for flushing procedures.

## E - 5 PROPELLERS

Knowledge of the propeller is most easily gained through better understanding of the terminology used to refer to the aspects of propeller size and performance. It should be noted that the 248 and 268 Vistas that are equipped with Duoprops come with stainless steel propellers.

### A. Diameter

Diameter is twice the distance from the center of the prop shaft to the extreme tip of a propeller blade. Increasing or decreasing propeller size will have a direct bearing on the RPM's an engine will develop. This is due to the greater amount of propeller blade surface in contact with the water. See Figure E2.

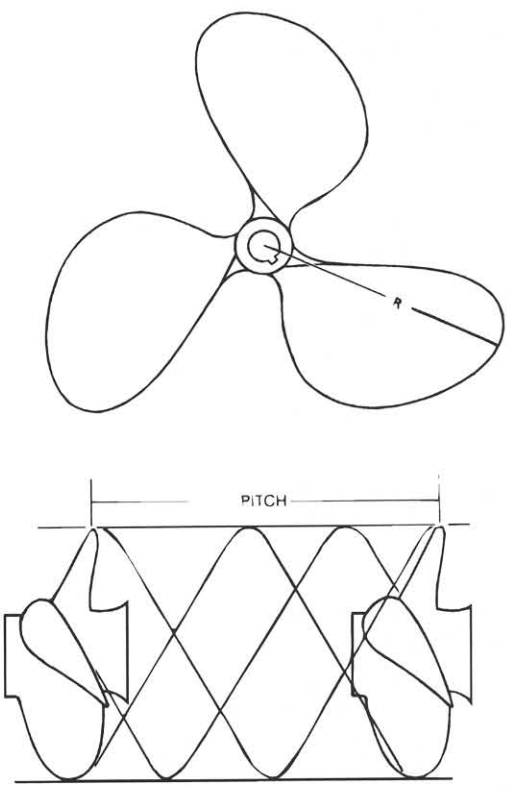



*Figure E2: Propeller Pitch & Diameter*

### B. Pitch

Pitch is a measure of helix angle, or angle of attack, of the rotating blade. Pitch is easily understood if one imagines the propeller rotating through a semisolid such as butter or gelatin. The distance the propeller will travel in one revolution is called "Pitch." Increasing or decreasing pitch will also have a direct bearing on engine RPM's because of the greater bite taken by the blade with each rotation. See Figure E2.

### C. Prop Slip

When traveling through water a propeller is unable to get a complete bite because of the fluidity of water. "Prop Slip" is usually expressed as a percent of the computed theoretical speed. Twenty-five to thirty-five percent prop slip is common for a cruiser-type boat operating at cruising speed.

Changing either diameter or pitch will have an effect on engine speed and prop slip, and in turn, directly effect the performance of a boat. The propellers included with each Four Winns® boat provide the best general performance based on data obtained from on-the-water testing of that model. Variations in load, operating conditions, environment, the individual engine and hull performance may necessitate the purchase and use of another propeller(s).

Under your normal load conditions, the engines should turn within the maximum RPM range when at full throttle. If the engines exceed the recommended RPM, an increase in pitch or diameter is required. If the engine RPM is too low, a decrease in pitch or diameter is required.

An engine that is not developing full power and the load carried in a boat will directly affect performance of the engine. Always be sure the engine is properly tuned and load conditions are those normally experienced, before changing propellers.

For additional information on factors affecting performance, please consult your Four Winns® dealer.

## E - 6 RUNNING ANGLE & POWER TRIM/TILT

Hull planing surfaces have the least amount of drag at a three to five degree angle with the water. This is the preferred running angle when boating. The running angle has a significant impact on top speed and handling. Heavy load or certain water conditions may make it difficult to achieve the optimum running angle. See Figure E3.

The running angle can be controlled through the use of power trim and trim tabs. See Section E-7 Trim Tabs, for information on the use of trim tabs.

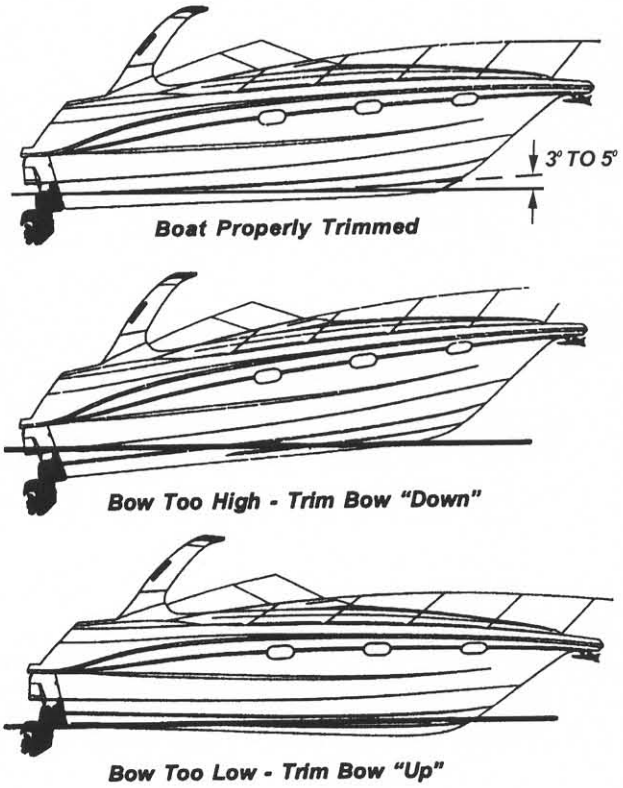



*Figure E3: Running Angle*

### A. Power Trim

Trim angle is how far in or out, the lower unit is positioned in relation to the bottom of the boat. The trim angle of the lower unit has a distinct affect on the running angle of the boat.

The power trim system permits control of the trim angle of the drive unit relative to the boat, at the touch of a button.

It allows the drive unit to be raised (trimmed out) for shallow water operation. Power trim also allows the operator to adjust the drive unit while underway to provide the ideal running angle for a given load and water condition. Additional information can be found in the Engine Owner's manual.

### B. Power Tilt

Power tilt allows the operator to raise and lower the drive unit for trailering, launching, and beaching. Additional information on power tilt can be found in the engine manufacturer's manual included with this manual.

**NOTICE**

DO NOT operate the engine with the stern drive tilted up. Severe damage to the engine drive system can result. Consult the Engine Owner's manual for specific information.

## E - 7 TRIM TABS

Electric/hydraulic trim tabs are standard equipment and help provide maximum control of the hull in all water and load conditions. If used properly, trim tabs can

a. Compensate for wind and load listing (level the boat side to side).

b. Induce faster planing and help achieve optimum running angle (see Section E-6 Running Angle & Power Trim/Tilt)

The proper use of electric/hydraulic trim tabs requires a basic understanding of trim tab operation and some practice in calm water. Be sure to read the manufacturer's literature included in the owner's packet.

The trim tab control uses two (2) momentary-type rocker switches. The trim tab switches control the attitude or position of the boat. The trim tab switches are labeled by position such as "Bow Up" and "Bow Down". They are also labeled for "Port" and "Stbd". When depressed, the label indicates what happens to the bow of the boat.

Before leaving the dock and utilizing the trim tabs, ensure the trim tabs are in the full up position. Depress both lower halves of the trim tab switches and hold (for approximately 10 seconds) until the tabs are full up.

### A. Control Listing

Wind, loading and many other factors can result in the boat tilting or leaning towards one side while running. This is called listing and can be negated using trim tabs.

Pressing the lower port trim tab switch will move the port trim tab upward. This will result in the starboard bow of the boat being allowed to rise.

Pressing the lower starboard trim tab switch will cause the starboard trim tab to move upward and will result in the port bow being allowed to rise.

Depressing the upper port trim tab switch will cause the port trim tab to move downward and will force the starboard bow downward.

Depressing the upper starboard trim tab switch will cause the starboard trim tab to move downward and will force the port bow downward.

Always establish your intended heading and attain desired cruising speed before trying to adjust running attitude (using the trim tabs).

**⚠ WARNING**

Always press the trim tab switches in short 1/2 second bursts. If depressed too long, you can overcompensate, and potentially lose control. DO NOT try to correct the situation by depressing the other upper trim tab switch. Instead, raise the tab slightly by depressing the appropriate lower half of the trim tab switch.

After stabilization of speed and direction, depress the upper half of the appropriate trim tab switch to achieve a level side to side running attitude. Be sure to press the correct trim tab switch to obtain the desired result.

After depressing a trim tab switch, always wait and allow time for the change in trim tab position to take effect. DO NOT continue to depress the trim tab switch while awaiting trim tab reaction. By the time the effect is noted, the trim tab will move too far and thus overcompensate.

### B. Induce Planing & Controlling Trim Angle

Trim tabs can also be used to facilitate faster planing and allow better control of the running angle.

Before accelerating and trying to gain plane, depress both upper trim tab switches. This will cause both trim tabs to move downward and force the bow down when running. This can also be used when running the boat with a heavy load aboard.

**CAUTION**

The use of trim tabs to attain quicker planing should not be used by inexperienced boaters. The combination of extreme inward drive position and extended trim tabs can dangerously affect the boats handling under certain sea conditions.

Moving the trim tabs downward will increase the lift and the boat will achieve plane faster, or stay on plane at a lower engine and boat speed.

After gaining plane and establishing cruising speed, depressing both lower trim tab switches will cause both trim tabs to move upward and will allow the bow to rise. This should be used to adjust the running attitude of the boat to decrease the drag at cruising speed or above, or when running in a following sea.

When running at an engine speed that results in the boat falling off plane or causes the boat to plane inefficiently, lowering both tabs slightly (bow down) will improve the running angle and improve operating efficiency.

Optimum efficiency is obtained when operating at a 3 to 5 degree running angle. Utilizing too much "Bow Down" trim tab can reduce operating efficiency and cause substantial steering and handling difficulties. Be extremely careful when running in a following sea. The effect of trim tabs is amplified under such conditions. Steering and handling difficulties can result from improper trim tab usage, especially in a following sea. If unsure of proper trim tab positioning, raise the trim tabs to the full-up position.

**WARNING**

When running at high engine speeds, be sure the trim tabs are in the full up position. Trim tab action should be only enough to compensate for any listing. Trim tab adjustments at high speeds are extremely critical. Be prepared to slow down should handling difficulties arise.

**CAUTION**

The combination of extreme inward drive position and extended trim tabs will cause a severe bow down running angle. In certain sea conditions, this will limit the operator's control over the boat.

When running in a displacement (very slow speed) mode, better efficiency will be obtained with the trim tabs in the full-up position.

### C. Trim Tab Maintenance

Check the fluid level of the trim tab reservoir often. Always keep the fluid level between the designated marks on the trim tab pump-reservoir. Refer to the manufacturers information for specifications on the type of fluid to be used and other operation and maintenance information.

## E - 8 ENGINE INSTRUMENTATION

The helm station is equipped with a complete set of engine instruments. These instruments allow the pilot to constantly monitor the operational condition of the engine. Close observation of these instruments could save the engine from damage.

The 248 and 268 Vistas have individual VDO gauges in the dash panel as standard instrumentation. See Figure E4.

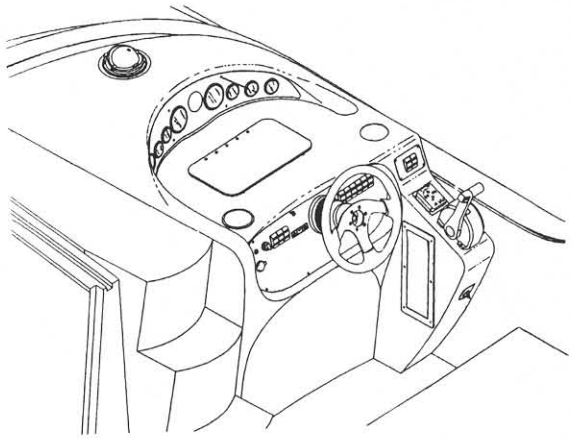


*Figure E4: 248/.268 Helm Station*

### A. Tachometer

The tachometers indicate the speed of the engines in revolutions per minute (rpm) and are preset by Four Winns®. This speed is not the boat speed or necessarily the speed of the propeller. They may not register zero with the Ignition Key in the OFF position.

**NOTICE**
Never exceed the maximum recommended operating RPM of your engines. Maintaining maximum, or close to maximum RPM for extended periods can reduce the life of the engines.

Some engines are equipped with devices that limit engine rpm in accordance with the oil pressure or engine temperature. Refer to the Engine Owner's manual for additional information.

### B. Speedometer

A speedometer comes standard on a 248/268 Vista model. With the optional GPS/Navigational package the ability to monitor your speed is also available. Please refer to the manufacturer's information on how to program the Nav 398 for speed readings. This information is included in the owner's packet when the boat is order with the navigation package. If the navigation package is ordered later the manufacturer's information will be included.

**NOTICE**
Speedometers are not precision instruments. The indications are relative and should never be used for navigational purposes or similar critical situations alone. Use other navigation systems in conjunction with the speedometer.

**NOTICE**
DO NOT rely on the speedometer when trying to achieve a "NO WAKE" condition in a harbor or other enclosed waterway. ALWAYS be cognizant of the size of your waves your boat is making and reduce throttle until you are sure that they will not cause any damage. You are responsible for damage caused by the wake of your boat.

### C. Temperature Gauge

The temperature gauge monitors the cooling system of the engine. A sudden increase in the temperature could be a signal of a blocked cooling passage or a water pump malfunction.

**NOTICE**
Operation of an overheated engine can result in engine seizure. If an unusually high temperature reading occurs, shut the engine off immediately.

### D. Oil Pressure Gauge

The Oil Pressure Gauge indicates the pressure in the engine lubrication system. A drop in oil pressure is a possible indication of oil pump or leakage problems.

**NOTICE**
Operation of an engine with abnormally low oil pressure can lead to engine damage and possible seizure. Have the engine serviced immediately upon a reduced oil pressure indication.

### E. Voltmeter

The voltmeter monitors battery condition and thus alternator performance. See Section H Electrical Systems for additional information on voltmeter operation.

### F. Fuel Gauge

The Fuel Gauge displays the level of fuel that is present in the fuel tank. Refer to Section H Electrical Systems and Section I Fuel System for additional information.

Due to the mechanical nature of the fuel sender, variations in readings during various speeds of operation may occur. This system is merely a relative indication of the available fuel supply and not a calibrated instrument. Relative adjustments can be made by bending the fuel sender float arm.

**NOTICE**
Use only clean, dry fuel of the type and grade recommended by the engine manufacturer. The use of incorrect or contaminated fuel can cause engine malfunction and serious damage. Refer to Section I Fuel System for additional information.

### G. Power Trim Gauge

The trim angle is how far in or out the drive is positioned in relation to the bottom of the boat. The power trim gauge provides a visual indication of the inward-outward (trim angle) position of the outdrive. The trim angle of the drive or outboard engine has a distinct affect on the running angle of the boat. See Sections E-6 and E-7 for additional information regarding running angle.

### H. Depthsounder

The Depthsounder is standard equipment on your 248/268 Vista model. It consists of two main components, the transducer and the HDR 600 unit. The transducer

is mounted to the hull and the HDR 600 is installed in the dash. The transducer and HDR 600 communicate by means of a cable, and are powered by your boat's 12-volt DC battery. The transducer and HDR use the basic principle of sonar to indicate the water's depth. Please read the manufacturer's literature included with the owner's packet for information regarding operation and maintenance.

### 1. Control Functions

The HDR 600 uses a blacklit 7-segment display in conjunction with a 3-button keypad to control all user functions. At initial power up, the unit will begin normal operation and display the digital depth and the units of measure. Figure E5 shows a typical view you might see on-screen at initial power-up.

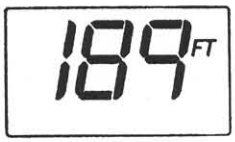



*Figure E5: Depthsounder (HDR 600)*

The HDR600 uses 3 buttons to control the Shallow Alarm, Deep Alarm, Keel Offset and Units of Measure function. While in normal operation, pressing the SET button selects a Function and blinks its corresponding indicator on the display. Once a Function has been selected it may be adjusted by pressing the UP and DOWN arrow buttons to adjust the setting. Further presses of the SET button will sequentially select the other functions for adjustment. All user settings are remembered by the HDR600, even when powered off.

When in the active function, a single press to an arrow button will result in a single incremental adjustment. Pressing and holding an arrow button will sequence through a range of adjustments. If no adjustment is made in 5 seconds, the unit will return to normal operation.

### 2. Shallow Alarm

The SHALLOW ALARM function can be set for depths ranging from 1 to 20 feet and sounds an alarm when the depth is less than the setting. See Figure E6.


*Figure E6: Shallow Alarm*

From normal operation, pressing SET once will display the SHALLOW ALARM setting and blink the "SHALLOW" icon. The UP ARROW will activate the SHALLOW ALARM and also increase the selected value. The DOWN ARROW will reduce the value. Hold the UP ARROW until you reach the desired depth setting. See Figure E7.


*Figure E7: Shallow Alarm Setting Value*

**NOTICE**
The maximum SHALLOW ALARM setting can not meet or exceed the current DEEP ALARM setting.

After your selection is made, the unit will return to normal operation after 5 seconds. The "SHALLOW" icon should now be visible. See Figure E8.


*Figure E8: "SHALLOW" Icon*

If the depth of the water is less than the selected value, the alarm will sound and the "SHALLOW" icon will blink to indicate the alarm. Pressing any button will mute the alarm; pressing SET will mute the alarm and activate the SHALLOW ALARM function for additional adjustment. To permanently turn off, use the DOWN ARROW to return the display to "OFF".

### 3. Deep Alarm

The DEEP ALARM can be set for depths up to 99 feet and sounds an alarm when the depth is greater than the setting.

Press SET until the DEEP ALARM function becomes active. This is indicated by the blinking "DEEP" icon. The UP ARROW will activate the DEEP ALARM and also increase the selected value. The DOWN ARROW will reduce the value. Continue to press and hold the UP ARROW until you reach your desired value. See Figure E9.


*Figure E9: Deep Alarm Setting Value*

**NOTICE**
The minimum DEEP ALARM setting can not meet or go below the current SHALLOW ALARM setting.

After your selection is made, the unit will return to normal operation after 5 seconds. The "DEEP" icon should now be visible. See Figure E10.


*Figure E10: "DEEP" Icon*

If the depth of the water is greater than the selected value, the alarm will sound and the icon will blink to indicate the alarm. Pressing any button will mute the alarm; pressing the SET will mute the alarm and activate the DEEP ALARM function for additional adjustment. To permanently turn off, use the DOWN ARROW to return the display to "OFF".

### 4. Units

The UNITS Control Function selects the UNITS of measure for depth readout and alarm functions. The three settings available are Feet, Meters or Fathoms. See Figure E11.

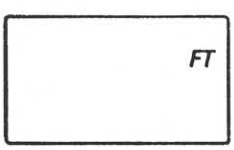



**Figure E11: Units Control Function**

Press SET until the units function is activated on-screen. This is indicated by the blinking UNITS icon. Pressing either arrow will allow you to select from the choices. Continue to press an arrow until the desired readout is selected: FT for feet, M for meters, FA for fathoms. After your selection is made, the unit will return to normal operation after 5 seconds. The selected units icon should now be visible as shown in Figure E12.

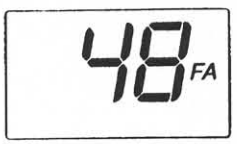



*Figure E12: Selected Units Icon*

### 5. Keel Offset

The Keel Offset function adjusts the digital depth readout to display depth reading from either the waterline or the keel (lowest point) of the boat, instead of from the location of the transducer which is usually somewhere in between. This permits optimum transducer location and depth readouts suited to your needs.

To determine the value to enter into the KEEL OFFSET setting, first decide whether depth from the waterline or depth from the keel is desired. **Measurements will need to be made for the location desired**.

For depth from the keel of the boat, accurately measure the vertical distance between the face of the transducer and the keel of the boat. This measurement will then be entered into the Keel Offset function as a negative (-) number. See Figure E13.


*Figure E13: Negative Keel Offset*

For depth measurements from the waterline, accurately measure the vertical distance from the face of the transducer and the waterline of the boat. This measurement will then be entered into the Keel Offset function as a positive (+) number. See Figure E14.

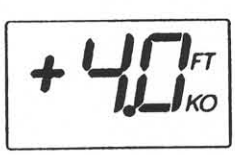



*Figure E14: Positive Keel Offset*

To Enable Keel Offset press SET until the KO icon is displayed on the screen. The default setting of the unit is off which is displayed as zero. From the default setting of 0.0, use the DOWN arrow to enter the negative (-) number to set the unit for depth from the keel. Or, from the default setting of 0.0, use the UP arrow to enter the positive (+) number to set the unit for depth from the waterline.

The available settings are +10 to -10 feet. After your selection is made, the unit will return to normal operation after 5 seconds. The "KO" icon should now be visible as shown in Figure E15.


*Figure E15: Keel Offset Icon*

Figure E16 depicts a scenario where the KEEL OFFSET has been set to -2 feet. The last drawing shows the return to normal operation with the updated depth readout.


*Figure E16: Keel Offset Scenario*

**NOTICE**

DO NOT depend solely upon the depth sounder for water depth. It is important to have navigational charts of the waters in which you are operating.

**⚠ WARNING**

Do not rely on depth sounder to avoid submerged objects. Depth sounders provide a relative indication of water depth only.

## 6. Maintenance of HDR600 Depthsounder

If the unit comes into contact with salt spray, simply wipe the affected surfaces with a cloth dampened in fresh water. **DO NOT USE a chemical glass cleaner on the lens**. Chemicals in the solution may cause cracking in the lens of the unit.

When cleaning the LCD protective lens, use a chamois and nonabrasive, mild cleaner. Do not wipe while dirt or grease is on the lens. Be careful to avoid scratching the lens. Refer to the manufacturer's literature included in the owner's packet for additional information.

## I. Gas Vapor Detector

The Gas Vapor Detector is optional equipment on the 248/268 Vistas. The gauge mounts in the dash. Additional information can be found in Section I-1H in this manual.

## J. Engine Hour Meter

Engine hour meters are optional on all Vista models and provide a numeric record of elapsed engine operating time. This information is important in determining scheduled maintenance intervals, ships log data, cruise information, etc. The hour meters are located in the engine compartment on all engines.

## K. Ignition Switch

The ignition switch has three positions: OFF, RUN, and START. The START position is spring loaded and the key should be held in this position until the engine starts. The key will return to the RUN position once released. Always turn the key to the OFF position when the engine is not running. This will prevent discharging of the batteries. Additional information on ignition switch operation is covered in Section A Operation, of this manual.

## L. Emergency Stop Switch

This safety device automatically stops the engine if the lanyard is attached to the operator and the operator falls from his work station. Refer to the engine manual for detailed information about using this switch.

The emergency stop switch (Figure E17) incorporates a shutoff switch, switch clip, lanyard, and lanyard clip. The lanyard clip must be securely attached to the operator's PFD, clothing, arm, or leg. Be sure to attach the lanyard to a place where it is free of obstructions

and to something that will move with the operator if he or she leaves the helm station. If the engine shuts down because this switch was activated, the clip may have to be reinstalled on the interrupter switch before the engine can be started.

**⚠ WARNING**

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

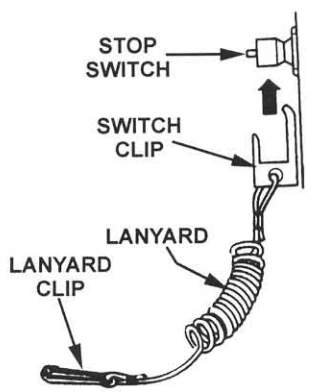



*Figure E17: Emergency Stop Switch*

## M. Alarm System

An engine alarm system is installed on the 248/268 Vista model. This is an audible alarm that is mounted in the helm area; it is actuated by engine water temperature and engine oil pressure senders. The alarm will sound in the event of low engine oil pressure or high engine coolant temperature.

The engine alarm will sound during engine start-up, or whenever the ignition switch is positioned to ON and the engine is not operating. The alarm sounds under these conditions because engine oil pressure is low; the alarm will cease to sound as soon as engine oil pressure rises to the proper level.

**NOTICE**

The engine alarm monitors only engine water temperature and engine oil pressure. Always maintain a close visual watch on the drive(s), transmission(s), engine fluid levels, bilge water level, etc. Refer to the engine manufacturer's literature for additional information.

## N. Navigation Package (Optional)

Also available is an optional navigation package. See Figure E18. The Navigation Package 1 includes the Raytheon VHF-210 radio and Raytheon GPS/Loran-398. Navigation Package 1 is available for both 248 and 268 Vista models. Please consult the manufacturer's literature included in the owner's packet for operation and maintenance of these navigational systems.

**NOTICE**

Four Winns® does not limit you to the specific navigation package mentioned above. There are many navigational systems on the market today. You may desire to use a different system based on your needs, personal preference, and mounting space available.

**NOTICE**

Four Winns® continually strives to improve its products. Unit specifications, including standard and optional equipment are constantly being modified. Equipment availability is also subject to change. The most current and accurate information available at the time of publication is included in this manual. Some variation in equipment, description, location, and details can result.

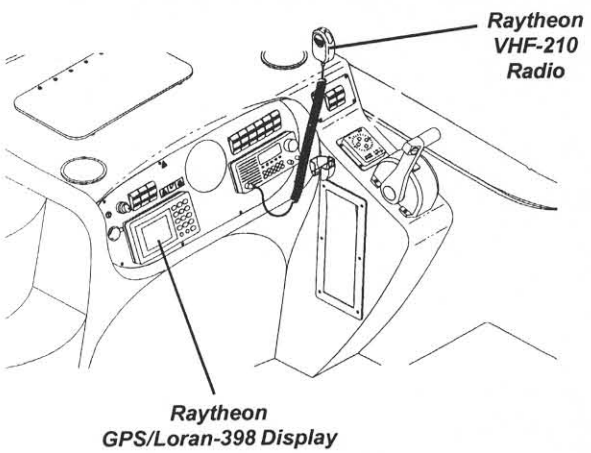



*Figure E18: 248/268V Navigation Package 1*

## O. Instrument Maintenance

Electrical protection for instruments and ignition circuitry is provided by a circuit breaker on the ignition panel. Periodically, spray the ignition switches with a contact cleaner. The ignition switches and all instruments, controls, etc. should be protected from the weather when not in use. Four Winns® offers appropriate weather covers for each model. Excessive exposure can lead to gauge and ignition switch difficulties.

Electronic gauges are affected by static electricity that builds-up on the glass face. Periodic washing of the gauge face with warm water and mild liquid detergent will help eliminate the static electricity problem and improve gauge accuracy.

# CONTROL SYSTEMS

## F - 1 GENERAL

Control systems permit operation of the engine's throttle and shift mechanisms. They consist of three major components; the control, and the throttle and shift cables.

The 248 and 268 Vista models are equipped with a single binnacle lever controls with trim. See Figure F1. One lever controls each engine. Moving the lever forward will shift the drive into forward. Moving it aft will shift the drive into reverse. Moving the lever further will increase engine speed.

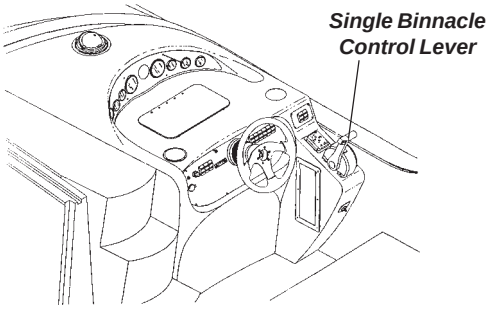



***Figure F1: 248/268 Single Binnacle Control Lever***

**NOTICE**
When shifting, ensure engine speed is below 1000 RPM to avoid damaging the shifting mechanism.

**NOTICE**
Allow the engine to warm up before engaging the shift control. Monitor all instruments while engine is idling during warm-up.

Additional information on controls and their operation is discussed in Section F-2 and the engine manufacturer's information included in the owner's packet.

## F - 2 CONTROL OPERATION

### A. Carbureted Engines

The shift mechanism on the controls can be disengaged to allow for easier starting and engine warm-up. See Figure F2. To disengage:

1. Push and hold the shift disengage button (A) with control handle in NEUTRAL (B), and move handle to either shift detent position (C) or (D).

2. Release button and move handle more to open throttle for starting and warm-up.

**NOTICE**
Pull lever part way back as soon as motor starts. Do not run a cold motor any faster than necessary to keep motor from stalling. Do not exceed 2500 RPM in NEUTRAL.

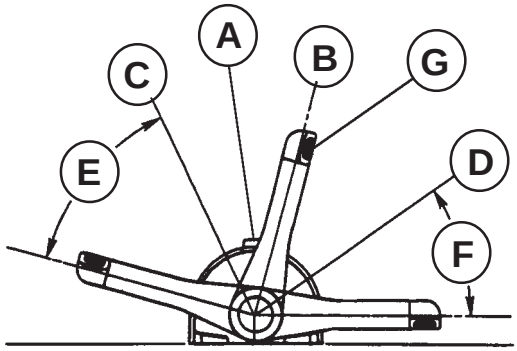



***Figure F2: Control Operation***

The shift mechanism will automatically engage when the control handle is returned to the neutral position.

Handle positions:

4. Shift Disengage Button(s) (A)

5. Neutral Detent (B).

6. Forward Gear (C).

7. Reverse Gear (D)

8. Forward Throttle Range (E).

9. Reverse Throttle Range (F).

10. Trim/Tilt Switch (G). - Push top switch to trim out and tilt up, or push bottom of switch to tilt down and trim in.

### B. Fuel Injected Engines (EFI)

On fuel injected engines, starting the engine is much easier and faster. It is not necessary to use the throttle while in neutral to cold-start the engine. Simply turn the key and allow the engine to warm up.

For additional information, refer to the section on "Starting and Operation" in the engine manufacturer's manual.

## F - 3 NEUTRAL SAFETY SWITCH

Every control system has a neutral safety switch incorporated into it. This device prohibits the engine from being started while the shift lever is in any position other than the neutral position. If the engine will not start, slight movement of the shift lever may be necessary to locate the neutral position and disengage the safety cutout switch. Control or cable adjustments are required to correct this condition should it persist. See your Four Winns® dealer for necessary control and cable adjustments.

## F - 4 CONTROL SYSTEM MAINTENANCE

Periodic inspections of the controls, cables, and all connections should be made. Signs of looseness, rust, corrosion, wear, cable jacket cracks or other deterioration require immediate system servicing. Replace all damaged components.

Generally, periodic lubrication of all moving parts and connections with a light, waterproof grease is in order. Cables can be lubricated by positioning them to their fullest extension and applying light grease to the inner cable near the jacket. Working the cables back and forth will distribute the grease in the inner cable. Reapply the grease if necessary.

Lubrication should be performed as often as necessary to keep the system operating smoothly. Cable manufacturers such as Teleflex®, OMC®, and Morse® often offer special tools to make cable lubrication easier.

Cable and control adjustments may become necessary. Adjustment screws in the control, on the cables and in the linkage are provided.

**WARNING**

DO NOT attempt control adjustments unless you are familiar with servicing control systems service procedures. Control misadjustment can cause loss of control.

Other lubrication, adjustment and maintenance instructions are included in the information provided by the control manufacturer.

# STEERING SYSTEMS

## G - 1 GENERAL

Four Winns® boats are equipped with rotary-type steering systems. Tilt steering wheel and power steering are features which are standard on the Vista models.

### A. Rotary Steering

In the rotary system, a rotary drum assembly is mounted under the dash behind the steering wheel. A one piece cable runs from the drum assembly through the boat into the engine compartment. At the transom, the cable turns and is connected to the drive tiller and the power steering unit.

### B. Tilt Steering

To tilt the steering wheel, depress the release lever with your thumb . See Figure G1. Be sure to hold the top of the wheel to assist in positioning. Refer to the steering manufacturer's literature for additional information.

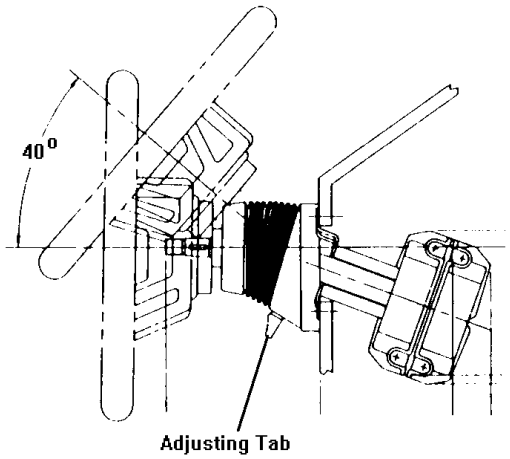



***Figure G1: Tilt Steering***

**WARNING**

The tilt mechanism should not be adjusted when the boat is moving. Sudden boat movement may cause loss of balance resulting in loss of control and/or injury.

**WARNING**

The tilt mechanism is spring loaded. Due to the variation in steering wheel offerings, the wheel may spring up rapidly when depressing the release lever. ALWAYS KEEP ONE HAND ON THE WHEEL DURING TILT ADJUSTMENT OR INJURY MAY OCCUR.

### C. Power Steering

Power steering is standard engine equipment on all Vista models. It is comprised of an engine mounted pump, control valve, hoses, and steering cylinder. Power steering works in conjunction with the helm and steering cable to move the transom mounted tiller arm and vertical drive more easily.

**NOTICE**

DO NOT force the steering wheel to either extreme position. This can place undue strain on the unit and can lead to power steering damage.

Upon commissioning the boat, it is necessary to purge the system of air. This is performed by your Four Winns® dealer during pre-delivery service. Should steering difficulty increase with time, it is possible additional bleeding of the system is required. See your Four Winns® dealer for assistance. This and other adjustments on power steering units are critical and should be performed only by a qualified service technician.

If the power steering becomes inoperative, steering will be harder and more effort will be needed to steer the boat. Check for a broken or loose belt on the power steering pump. Also, low fluid levels in the power steering pump reservoir will cause hard steering. If these items are not the source of the problem, check for equipment or other items lying on or up against the steering cable at the back of the boat. The cable must be free and clear to slide back and forth. Any item blocking free movement of the cable will result in harder steering and possible damage to the steering cable. If unable to locate or correct the problem, have the steering cable inspected and lubricated by your Four Winns® dealer.

**CAUTION**

After the first two hours of running time, check the entire steering system for loose bolts, nuts and fasteners which could adversely affect steering control.

**NOTICE**

Check the fluid level in the reservoir periodically. Low power steering fluid levels may increase steering difficulty.

**NOTICE**

DO NOT interfere with or restrict steering cable movement through the last 90° of bend at the engine. DO NOT use cable retainers, clamps or tie straps. Using one or all of these could restrict the cable movement near the engine. DO NOT tie wiring harnesses or other control cables to the steering cable. Make sure the deck coaming pads and bulkheads allow for steering cable movement in all positions of trim.

When storing equipment in the engine compartment, be sure to avoid contact with the steering cable. Cables may become kinked or damaged and may increase steering effort.

Additional information on steering operation can be found in Section A-9 in this manual and in your Engine Owner's manual.

**CAUTION**

Steering effort can vary significantly with engine acceleration, steering angle, trim angle, and sea condition. Be prepared for additional steering loads at all times.

## G - 2 STEERING SYSTEM MAINTENANCE

A periodic inspection of all steering cables, linkage and helm assemblies should be made. Signs of corrosion, cracking, loosening of fastenings, excessive wear, or deterioration should be immediately corrected. Failure to do so could lead to steering system failure and corresponding loss of control.

The helm and cable assembly should be so adjusted that the steering wheel is centered with the drive in the straight ahead position. There should be an equal number of turns to port and starboard from the straight ahead position. If adjustment becomes necessary, see your Four Winns® dealer.

All cables, helm assemblies, and steering connections should be periodically lubricated with a light, waterproof grease or as indicated in the manufacturer's information provided.

# ELECTRICAL SYSTEMS

## H - 1 GENERAL

All electrical equipment on the Four Winns® Vista models operates on either 12 volts DC or 120 volts (220 volts on 50 Hertz models) AC electrical power. A dual battery system along with dockside power (including battery charger) is standard on the 248/268 Vista. Batteries are located in the engine compartment.

**⚠ WARNING**

DO NOT tamper with any electrical connection, panel or harness, or attempt installation of any electrical equipment unless thoroughly familiar with the systems and experienced in making such installations.

Circuit breakers are installed on the battery switch to protect various system components. The SHIP SYSTEMS breaker supplies power to all DC electrical components except the aft and forward bilge pumps, ignition, and instrumentation. Additional breakers are located in the cabin circuit breaker panel. The circuit breakers and fuses are labeled for amperage and use.

## H - 2 SINGLE ENGINE - DUAL BATTERY SYSTEM

A battery selector switch is installed on the dual battery system. This allows DC power to be used from either one or both batteries. Refer to the schematics in the back of the manual.

### A. Installation

Connect each of the red (positive) battery cables leading from the battery selector switch to the positive (+) terminal on each of the two batteries. Refer to Figures H1 & H2.

**NOTICE**

Be sure the two red (positive) cables are installed on the positive (+) battery terminals.

2. Connect each of the black (negative) battery cables leading to the engine block to the negative (-) battery terminal on each of the two batteries.

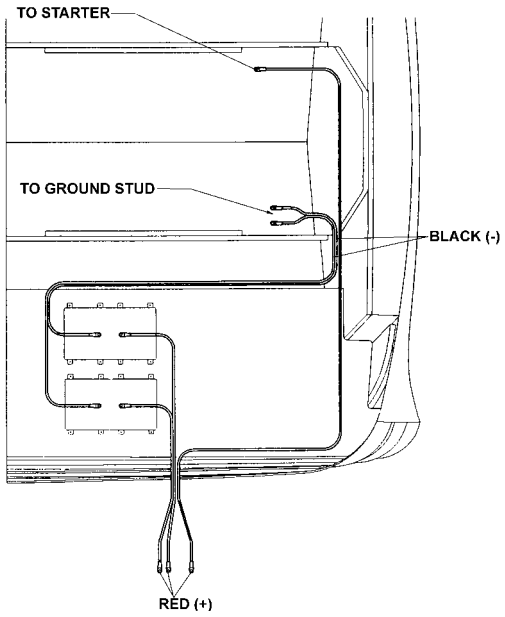



*Figure H1: 248 Vista Dual Battery System*

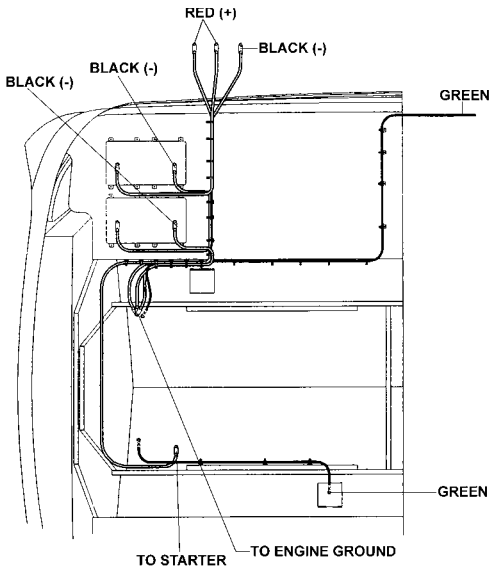



*Figure H2: 268 Vista Dual Battery System*

**WARNING**

When disconnecting the cables from the battery, make sure all switches are off and disconnect the black negative cable(s) first to prevent spark.

**B. Operation**

Power to the engines and all 12 volt electrical equipment is controlled at the battery selector panel. On the 248 and 268 Vista models, separate breakers are provided on the battery selector switch panel to protect the engine, windlass (268 Vista only), forward and aft bilge pump, battery charger, and ship systems.

**1. Battery Selector Switch - 248 Vista**

The battery selector switch positions for the 248 Vista is as follows:

"OFF" - With the battery selector switch in the "OFF" position and the "SHIPS SYSTEMS" circuit breaker in the "off" position, all 12 volt power to the boat is shut off except to the automatic bilge pumps. Always turn the battery selector switch to the "OFF" position when the boat is unattended for an extended period or when removed from the water.

**NOTICE**

Twelve volt power to the cabin panel is supplied by the "SHIPS SYSTEMS" circuit breaker on the battery selector panel. This must be turned on to operate any 12 volt accessories on the cabin panel. The bilge pumps receive power from the ships system battery and remain on at all time regardless of battery selector or ship systems switch position.

**NOTICE**

DO NOT turn the battery selector switch to the "OFF" position while the engine is running. Alternator and wiring damage could result.

1" - Turning the switch to position "1" will use battery #1 to power the engine and 12 volt equipment. Battery #2 will be isolated and remain in reserve. Only battery #1 will be charged by the alternator.

"2" - Turning the switch to position "2" will use battery #2. Battery #1 is isolated and remains in reserve. Only battery #2 will be charged by the alternator.

"ALL" - With the battery selector switch in the "ALL" position, the batteries are connected in parallel. Both batteries will be used by the engine and all 12 volt equipment. Both batteries will be charged by the alternator. However, the batteries will charge at a slower rate compared to setting the switch in the other positions.

The use of one battery at a time is recommended. Position the battery selector switch to either the #1 or #2 position.

Under normal conditions, avoid using the "ALL" position. Use the "ALL" position only when a single battery is not capable of starting the engine.

Four Winns® recommends alternating between batteries during boating. Depending upon boating use, this may increase battery longevity . Use battery #1 for the first day of a cruise and switch to battery #2 on the second day.

Position the battery selector switch to the battery that has sufficient power to start the engine (normally position "1"). After the engine is running, turn the battery selector switch to the battery that has the lowest charge. This will allow the alternator to charge the low battery. Utilizing the battery selector switch in this manner (instead of using the "ALL" position) will supply a greater charge to the battery.

FOR EXAMPLE: If battery #1 is fully charged and battery #2 is in need of a charge, use battery #1 to start the engine. After the engine is running and warmed-up, turn the battery selector switch to the #2 position. This will permit the alternator to charge the low, #2 battery.

**2. Battery Selector Switch - 268 Vista**

The battery selector switch positions for the 268 Vista is as follows:

"OFF" - With the battery selector switches in the "OFF" position and the "SHIPS SYSTEMS" circuit breaker in the "off" position, all 12 volt power to the boat is shut off except to the automatic bilge pumps. Always turn the battery selector switch to the "OFF" position when the boat is unattended for an extended period.

**NOTICE**

Twelve volt power to the cabin panel is supplied by the "SHIPS SYSTEMS" circuit breaker on the battery selector panel. This must be turned on to operate any 12 volt accessories on the cabin panel. The bilge pumps receive power from the ships system battery and remain on at all time regardless of battery selector or ship systems switch position.

**NOTICE**

DO NOT turn the battery selector switch to the "OFF" position while its corresponding engine is running. Alternator and wiring damage could result.

"ON" - Turning the switch to position "ON" will use the engine battery to power the engine and 12 volt engine related equipment. The ships system battery will not be used for any engine related equipment, but will power all other 12V equipment on the boat. The isolator will allow the alternator to fully charge the two batteries, but not allow the operator to drain down the engine start battery. "ON" is the recommended switch position for normal boat operation. This position allows maximum use of 12V equipment on the boat and leaves a full charge in both engine batteries for starting.

"SHIP SYSTEMS" - Turning the switch to position "SHIPS SYSTEMS" will use the ships system battery to power the engine and 12 volt engine related equipment. The isolator will allow the alternator to charge all batteries, but the boat systems (including the engine) will operate off of the ships systems battery.

"PARALLEL" - With the battery selector switch in the "PARALLEL" position, the engine and ships systems batteries are connected in parallel. Both batteries will be used by the engine and all 12 volt equipment. Both batteries will be charged by the alternator through the isolator.

### C. Battery Charger

The battery charger is standard equipment and is located on the port side of the engine compartment. The batteries will be charged by the battery charger when the boat is connected to dockside power.

Additional information on the battery charger can be found in Section H-6B 120 Volt AC Equipment in this manual and refer to the manufacturer's literature included with the owner's packet.

## H - 3 VOLTMETER

On the 248/268 Vista models, one voltmeter is installed in the dash panel to monitor the condition of the engine batteries. When the voltage is checked during engine or battery charger operation, the voltage of the respective battery will be indicated on the respective voltmeter. It is common to have a 14 volt reading when the engines are running. Additional information on voltmeters may be found in the Engine Owner's manual.

## H - 4 12 VOLT ELECTRICAL EQUIPMENT

### A. Helm Equipment

Ignitions are protected by circuit breakers on all Vistas. Equipment on the helm is protected by the helm fuseblock.

**NOTICE**

On the 248 and 268 Vista, a separate SYSTEMS breaker on the battery switch can be used to shut down all DC equipment (except bilge pump) on the cabin panel.

To assist you, we have listed below descriptions of individual switches and their uses:

**CAUTION**

To prevent electrical problems, use only replacement fuses or breakers that are of equal rating to the originals.

Accessories - Accessory equipment that is customer or dealer installed. These circuits are wired to a fuse in the 248/268. For additional information on adding accessories, refer to Section H-4B.

Aft Bilge Pump - The BILGE PUMP switch is used to manually activate the bilge pump in the engine compartment. The bilge pump is used to remove water from the bilge (bottom of the hull) area of the boat by pumping that water overboard. The aft bilge pump is equipped with an automatic bilge switch and will operate whenever bilge water rises to a level that will cause the float to move upward.

This automatic bilge pump is active even if the battery selector switch is in the OFF position or if no battery selector switch is installed. The automatic bilge pump circuitry is connected directly to the batteries. When leav-

ing your boat unattended for an extended period, check the charge on the battery(s) periodically. Also check the water level in the bilge and make sure the float switch is functional.

If the automatic bilge pump must be disabled, disconnect the wiring plug near the bilge pump.

Blower - The BLOWER switch is used to activate the bilge blower. The bilge blower is used to remove any gas vapors that may have accumulated in the bilge or engine areas.

> **WARNING**
>
> Gasoline vapors can explode resulting in injury or death. Before starting the engine, check engine compartment bilge for gasoline or vapors. Operate blower for four minutes, and verify blower operation. ALWAYS run the blower when the vessel is operating below cruising speed.

Cockpit Lights - The CKPT LTS switch is used to activate the cockpit (courtesy) lights.

Horn - To sound the horn, press the HORN switch.

Instrument Lights - On the 248/268, the NAV/ANC LTS switch is used to activate the instrument lights on the dash.

Navigation & Anchor Lights - Moving the NAV/ANC LTS switch towards the NAV position activates the bow lights and the all-around light (or arch light if installed). Move the switch to the ANC position to activate the all-around light or arch light. The center switch position is OFF.

Trim Tabs - The boat is equipped with electric-hydraulic trim tabs, the trim tabs are controlled by the TRIM TAB switches. Refer to Section E-7 Trim Tabs for more information.

Windlass (268 Vista option only) - The WINDLASS switch activates the windlass. Refer to the Section M-11 in this manual and the manufacturer's literature for additional information.

Stbd Wiper - The STBD WIPER switch activates the stbd windshield wiper. The wiper will self park to the stbd.

### B. Installation of Additional 12 Volt Equipment

Accessories may be added to the boat by wiring directly to the cabin panel. Non-factory installed 12 volt accessory equipment can be connected to the "ACC" switch on the dash.

> **CAUTION**
>
> Be sure to provide proper fuse or circuit breaker protection for all 12 volt equipment that is installed. DO NOT overload the accessory circuitry by installing too much additional 12 volt equipment.

### C. Interior Equipment

Cabin equipment will be protected by the 12 volt helm fuseblock on the 248/268 Vista. Cabin equipment information is listed as follows:

CO Monitor - The CO monitors are protected by a fuse at the helm fuseblock.

Cabin Lights - To turn the overhead lights on use the corresponding ON/OFF switch located on the electrical panel.

Forward Bilge Pump - The forward bilge pump can be activated manually by the FWD BILGE switch located on the electrical panel.

Any water from the stringers or from other sources within the cabin will drain into the forward bilge compartment. The pump is equipped with an automatic float switch and will operate whenever bilge water rises to a level that will cause the float to move upward. The water will be pumped overboard.

Pressure Water - A pressure water pump delivers water to the faucets, shower, and transom washdown. The pressure water pump will operate automatically as long as the FRESH WATER switch is ON in the 248/268 Vista.

Turn the FRESH WATER switch OFF when the water tank becomes empty, or when water will not be required for an extended period. The 248/268 has optional tank monitoring systems to check water levels. Refer to Section J-1 and J-2 in this manual for additional information.

Stereo - The stereo has a separate switch on the unit and is protected by a circuit breaker labeled STEREO on the 12 volt cabin panel of the 248/268.

Sump Pump - A sump pump is used to discharge water from the shower and sink drains overboard. It is installed on all Vistas. The sump pump has a float switch which will activate the pump when the water level rises in the sump. This pump is protected by the SUMP fuse located at the helm.

If the boat is equipped with a grey water system, the water from the shower and sinks is pumped into a holding tank instead of overboard.

## H - 5 120 (220) VOLT ELECTRICAL SYSTEM

The boat is equipped with 30 amp, 120 volt, 60 Hertz (or 15 amp, 220 volt, 50 Hertz) AC electrical wiring. When the boat is connected to a shore power outlet, the AC system supplies electrical power to the following items: battery charger, refrigerator, water heater, range, microwave, outlets, and air conditioning. The dockside system uses three-wire, color-coded circuitry. The black or hot wire is the ungrounded current carrying conductor. The white or neutral wire is the grounded current carrying conductor. The green wire, referred to as the "equipment ground," is a grounded conductor, and under normal conditions is not a current carrying wire. The neutral wires are connected together at a buss bar. The equipment grounds are similarly connected together at another buss bar. Each hot wire is connected to, and protected by, a circuit breaker in the distribution box.

The standard dockside system has a main circuit breaker which protects the overall distribution network. The 248/268's MAIN dockside inlet is on the port side of the deck. The MAIN circuit breaker protects both the hot and neutral input leads. This breaker is sensitive. The resulting power surge which occurs when connecting the shore power cord may cause the MAIN breaker to trip. To avoid this power spike, turn off the MAIN breaker before plugging in the shore power cord. Securely connect the power inlet of the boat and the shore power receptacle. Once the shore power is securely connected, turn the MAIN breaker back on. If the connection is broken and later re-secured, the circuit breaker may trip. Connections must be secure for uninterrupted dockside service.

## H - 6 DOCKSIDE OPERATION

**WARNING**

If any abnormalities appear during dockside operation, DISCONNECT the system immediately to prevent electric shock hazards! Have the boat's electrical system and the shoreside receptacles checked as soon as possible.

### A. Shore Power Connections

**WARNING**

To prevent electric shock hazards, use only equipment with approved three wire electrical plug connections. Be sure each item being used has been tested and is free of electrical shorts and ground faults.

Fifty foot, ten gauge, three wire, shore power cords are provided with dockside wiring. The shore power cords on 60 Hertz systems have 30 amp twistlock-type connectors. This connector is approved by National Marine Manufacturers Association and the American Boat and Yacht Council.

Some marinas are not equipped with approved twistlock-type receptacles. An adaptor is available from Four Winns® which converts the twistlock shore plug to a three wire grounded household type plug. Use only an approved adaptor when an adaptor is necessary.

**WARNING**

DO NOT use a two-wire adaptor to connect to a three-wire system. These adapters do not provide adequate grounding.

Shore power connection procedure is as follows:

1. Turn off the boat's main breaker switch before connecting or disconnecting the shore power cable.

2. Connect shore power cable at the boat first, then connect it to dockside shore power outlet.

**NOTICE**

Always connect the cord to the power inlet receptacle of the boat before making connections to the shore power source.

3. Check for reversed polarity. If the reversed polarity light is activated, immediately disconnect the shore power cord. See Section H-6C Reverse Polarity Indicator.

4. To disconnect shore power, turn off the main breaker switch on the AC electrical panel and disconnect the power cord from the shore power dockside receptacle first. Then, disconnect the cord from the boat.

**NOTICE**
Always disconnect the shore power cord from the dockside first before disconnecting from the boat.

### B. 120 Volt AC Equipment

All 12 volt equipment is isolated from the 120 volt AC system (except the refrigerator which is dual voltage). Appropriately labeled circuit breakers protect all AC systems on the boat. The receptacles can be used for 120 volt (220 volts on 50 Hertz models) household appliances. Refer to the following list for information on appliances and other equipment.

Battery Charger - The battery charger is controlled by a circuit breaker on the AC electrical panel in the cabin labeled BATTERY CHARGER.

Refrigerator - The REFRIGERATOR circuit breaker must be on to operate on 120 voltage. If this breaker is off, the refrigerator will automatically operate on the 12 volt system. This can deplete the battery. Excessive drain on the battery may cause irreparable battery damage. The refrigerator will automatically operate on 120 volts when provided. Refer to Section L-1C Galley Equipment in this manual for more information.

Water Heater - The WATER HEATER circuit breaker supplies power to the water heater. Refer to Section J-2C Water Heating Systems in this manual for more information.

**NOTICE**
DO NOT supply electrical power to an empty water heater. Activate the FRESH WATER circuit breaker and switch to start the water pump and prime the system. Be sure there is adequate water in the system before turning on the water heater. Failure to comply will result in immediate damage to the heater element.

Electric Stove - The RANGE circuit breaker must be activated to supply power to the electric stove on all Vistas. Refer to Section L-1A Galley Equipment in this manual for more information.

Microwave - The MICROWAVE breaker must be activated to supply power to the microwave on all Vistas.

Receptacles - The OUTLET circuit breakers supply power to the corresponding receptacles in the AC system.

Air Conditioner - The AIR CONDITIONER circuit breaker supplies power to the air conditioner. Refer to Section L-3 Air Conditioning in this manual for more information.

Most receptacle circuits are capable of handling 15 amperes. Refer to Table III for a list of equipment and the electrical currents usually required to operate these items. For 220 volt, 50 Hertz models, divide all of the current ratings below by 2. Usually, the power requirement is specified on the electrical item. This is only an approximation of the electric current usage normally experienced.

**Table III: Electrical Equipment**

| EQUIPMENT | ELECTRICAL LOADS |
|---|---|
| Air Conditioners | See motor load plate |
| Battery Chargers | Up to 800 watts (7.3 amps) |
| Blankets (Electric) | 50 to 200 watts (2 amps) |
| Coffee Makers | 550 to 700 watts (6.3 amps) |
| Electrical Drills | See motor load plate |
| Fans | 25 to 75 watts (0.7 amps) |
| Fry Pan | 1350 watts (12.3 amps) |
| Heater | 1500 watts (13.7 amps) |
| Lights | Wattage as marked |
| Television | 1500 watts (10.5 amps) |
| Vacuum Cleaners | See motor load plate |

### C. Reverse Polarity Indicator

Improper grounds or reversed polarity at shore power are a source of serious electrical hazard. The reverse polarity light will indicate if a problem exists at the 120 AC electrical system shore connection.

If a problem exists, the Reverse Polarity Indicator Light will come on when the shore power cable is attached to the inlet. **DO NOT** activate the shore power switch in

the cabin when the Reverse Polarity light is on.

**WARNING**

ALWAYS check the Reverse Polarity Indicator Light in the AC distribution panel immediately upon connecting the shore power cord before turning on the AC SHORE POWER circuit breaker. If the light is on, a problem with a reversed electrical connection exists. Disconnect the shore power cord immediately. Notify the marina and have the dock's shore power connection inspected.

Under proper operating conditions, the Reverse Polarity Indicator Light **will not** be on. A green light is provided for the shore power and will be ON when dockside power is being used.

**NOTICE**

Some marina shore power systems may be improperly grounded to retard electrolysis (see Section H-8 Stray Current Corrosion). Before using any 120 volt equipment, make sure the reverse polarity light does not activate when connecting the cord to the inlet.

### D. Ground Fault Current Interrupters (GFCI)

The Ground Fault Current Interrupter (GFCI) is a device which protects against hazardous electrical shock from improper ground. An appliance electrical cord with worn insulation or damp equipment may have stray current which will run through electrical grounds. Stray current as above will result in an electrical shock.

One GFCI receptacle will protect all of the receptacles on the circuit. A GFCI may be used as a receptacle as well as an interrupter.

To test:

Push the black test button and the red reset button should pop out from the inner surface. The receptacle and the circuit are now off.

Push the reset button in until it clicks to reset it. If it does not reset, there is either a short in the circuit or the equipment being used, or a ground fault in the equipment. Unplug all appliances and reset the GFCI. One at a time, plug the equipment back in and turn it on. The item that causes the GFCI to trip is the problem item and should **not** be used.

## H - 7 ELECTRICAL SYSTEM MAINTENANCE

### A. Battery Maintenance

Be sure to keep the batteries charged. Also, keep the batteries clean, especially the terminals and connection lugs. Be sure the batteries are fastened securely while in use.

Check the battery fluid level often, especially when a charger/converter is being used. Replenish a battery indicating a low charge. Determine the reason for the discharge. Lack of battery usage is as detrimental to battery longevity as is overuse. Alternating battery usage is important. Refer to the battery manufacturer's instructions included with your battery.

**DANGER**

Batteries produce hydrogen and oxygen gases when being charged. These explosive gases escape through the vent/fill caps and may form an explosive atmosphere around the battery if the ventilation is poor. This gas may remain around the battery for several hours after charging. Sparks or flames can ignite the gas and cause an explosion.

**WARNING**

**Fire or Explosion Hazard!**

Only qualified personnel should install batteries and perform electrical system maintenance. Do not expose batteries to open flame or sparks. Do not smoke near batteries.

**WARNING**

**Poison!**

Sulfuric acid in batteries can cause severe burns. Avoid contact with skin, eyes, or clothing. Wear goggles, rubber gloves and protective apron when working with batteries. In case of skin contact, flush with water at least 15 minutes. If swallowed, drink large quantities of water or milk. Follow with Milk of Magnesia, beaten egg or vegetable oil. Get medical attention immediately.

**WARNING**

Disconnect the battery before working on electrical or ignition system to prevent electrical shock and accidental ignition.

### B. Electrical Wiring Maintenance

Periodically, inspect all wiring for nicks, chaffing, embrittlement, improper support, etc. Examine the shore power cord closely for insulation cracks and corrosion in the electrical devices. Spraying the receptacles and electrical connections with an electrical connection cleaner will reduce corrosion and improve electrical continuity.

**WARNING**

DO NOT allow corrosion to build up on connections. Shorts or ground faults can result.

The entire 120 (220) volt circuitry, especially the shore power cord, should be seasonally tested for proper continuity by an experienced marine electrician. This will help detect any short, open wire, or ground fault. Also, check the polarity indicator system for proper operation.

**WARNING**

120 (220) volt AC electrical power can be dangerous. DO NOT attempt to service a system unless you are familiar with, and experienced in, performing such service.

## H - 8 STRAY CURRENT CORROSION

### A. General

Electrically induced underwater corrosion occasionally affects boats and their related components. This is referred to as “Stray Current Corrosion” and appears as surface pitting or deterioration. Stray current corrosion is the decomposition of chemical compounds by electric current.

Stray current corrosion can be caused by surrounding boats; an improperly wired battery/charger installation or other boats that are in close proximity which have electrical power leakages. Stern drive units are especially vulnerable to stray current corrosion.

Periodically inspect the engine components to determine if corrosion damage exists. If stray current corrosion damage is found, determine and correct the cause of the stray current to prevent further damage. Consult an experienced marine electrician or contact your Four Winns® dealer for assistance.

The use of some shore power battery chargers, while the boat is in the water and the battery is connected to the system, can cause stray current corrosion. Have an experienced marine electrician review any battery charger installation to ensure a stray current corrosion problem will not develop. An improper battery connection is a common cause of stray current corrosion.

**NOTICE**

Use only a battery charger designed to meet U.S. Coast Guard regulations for external ignition protection.

Corrosion is usually more prevalent in polluted or salt water than in clean water. It is also more likely to occur when dockage is in an area with steel piers, large metal boats, or where shore power is in use.

### B. Galvanic Corrosion

Galvanic corrosion results from a potential electrical difference existing between dissimilar metals immersed in a conductive solution (e.g., salt water). If these metals touch or are otherwise electrically connected, this potential difference produces an electron flow between them. The attack on the more active metal is usually increased and the attack on the less active metal is decreased, as compared to when these metals are not touching.

### C. Corrosion Prevention

Anticorrosion anodes are attached to the bottom of the gimbal housing to prevent corrosion to your stern drive and underwater parts. These anodes will be slowly eroded away by galvanic action and require periodic inspection. Please refer to the section on “Anti-Corrosion Anodes” in your engine manufacturer’s manual for additional information.

# FUEL SYSTEMS

## I - 1 GASOLINE FUEL SYSTEMS

Gasoline fuel systems used in Four Winns® boats are designed to meet or exceed the requirements of the U.S. Coast Guard, the National Marine Manufacturers Association, and the American Boat and Yacht Council in effect at the time of manufacture.

**NOTICE**

Use only clean, dry fuel of the type and grade recommended by the engine manufacturer. The use of incorrect or contaminated fuel can cause engine malfunction and serious damage. Engine damage resulting from the use of a lower octane gasoline is considered misuse of the engine and will void the engine warranty. Refer to the section on Gasoline Requirements in the engine manual for information on octane specifications.

The fuel tank is located forward of the engine. See Figure I1 below. The capacity of the fuel tank is 70 gallons for the 248 and 85 gallons for the 268.

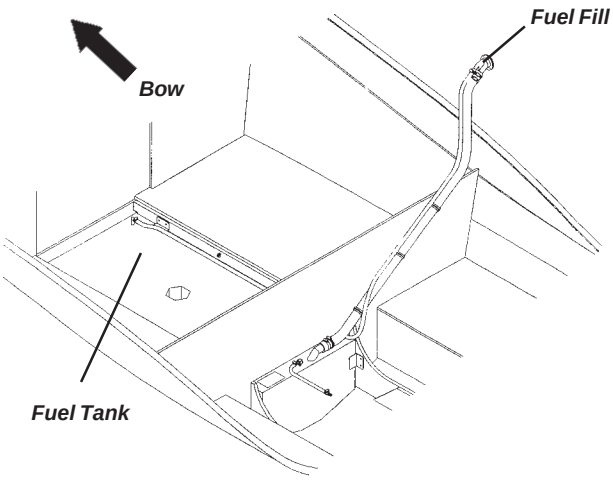



*Figure I1: 248/268V Fuel Tank Location*

### A. System Testing

All gasoline fuel systems have been factory inspected and pressure tested in accordance with regulations in effect at the time of manufacture. Additionally, each fuel tank must pass rigid tests and inspections performed by the fuel tank manufacturer.

Prior to taking delivery, it is important that a full inspection be made of the entire fuel system by the selling dealer. An entry on the Four Winns® Pre-Delivery Inspection Form portion of the Warranty Registration Card will attest to the dealer's performance of this service.

### B. Fuel Fills

The fuel fill deck plate is located on the starboard rear deck and is marked "GAS". Be sure to utilize the proper type and grade fuel. Refer to Section I-3 for information regarding fueling instructions.

**WARNING**

DO NOT confuse FUEL deck fill plate with WATER or WASTE deck plates. Deck fill plates are labeled according to the intended use.

The gasket/o-ring seals on the fuel fill cap assist in sealing when closed. A missing or damaged o-ring can allow water on the surrounding surfaces to run into the tank.

Periodically inspect the cap and the fuel deck plate. The o-ring seal should be inspected for cracks or damage and replaced as necessary. Lubricating with a light, waterproof oil or grease is recommended and can extend the o-ring's longevity.

### C. Fuel Vents

The fuel tank is vented overboard. While the tank is being filled, the air displaced by the fuel escapes through the vent. When the tank is almost full, fuel will be ejected from the fuel vent.

**WARNING**

Spilled fuel is a fire and explosion hazard. DO NOT overfill or overflow the tank, or allow fuel spills into the hull or bilge. If spillage occurs, clean up immediately and dispose of soiled rags/towels in a proper container.

**NOTICE**

When fueling at a marina, DO NOT overfill. Fuel may spill into the water.

After fueling, replace the fill cap, and wash the areas around the fuel fill plate and below the fuel vent. Residual fuel left on the deck and hull sides can be dangerous, and will yellow the fiberglass. It will also damage the tape stripes and logos.

Periodically, inspect the vent for any dirt, wax, etc. Carefully remove any obstruction with a pipe cleaner or similar device. **Be sure not to puncture the screen**. The vents are designed to keep insects and foreign matter from contaminating the fuel and fuel system. The stainless steel cap is not removable.

### D. Anti-Siphon Valves

The fuel withdrawal line is equipped with an anti-siphon valve where the line attaches to the fuel tank. The valve prevents gasoline from siphoning out of the fuel tank should a line rupture. See Figure I2 for anti-siphon location.

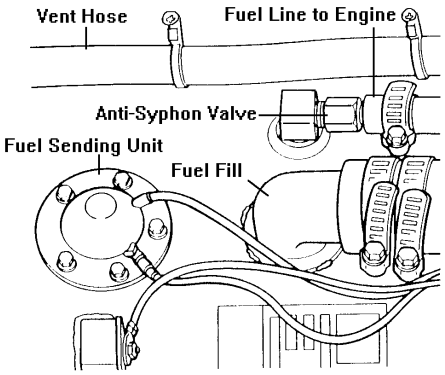



***Figure I2: Fuel Tank Fittings***

**CAUTION**

DO NOT remove the anti-siphon valve(s) from the system. Should the valves become clogged, clean and reinstall or replace.

**CAUTION**

The fuel withdrawal is positioned in the fuel tank to achieve optimum fuel usage, and fuel line routing. At certain speeds and hull trim angles, the fuel supply at the withdrawal can increase or decrease accordingly. Be extremely careful when attempting to operate the boat on a minimum amount of fuel. Though some fuel may be in the tank, the relative trim angle of the boat may cause the fuel to flow away from the withdrawal.

**NOTICE**

On all Vista models, access to the anti-siphon valve and fuel sender is by either an access plate or through the engine compartment.

### E. Fuel Gauge

The fuel gauge indicates the amount of fuel in the fuel tank. See Section E-8F Fuel Gauge for additional information on fuel gauge use.

### F. Fuel Sender

The fuel sender consists of a mechanical arm with float which measures the fuel in the tank. The sender arm adjusts with the amount of fuel in the tank and sends a signal to the fuel gauge. See Figure I3.

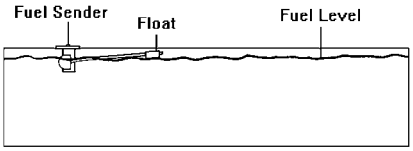



***Figure I3: Fuel Sender Operation***

Due to the mechanical nature of the fuel sender, variations in readings during various speeds of operation may occur. This system is merely a relative indication of the available fuel supply and not a calibrated instrument. Relative adjustments can be made by your Four Winns® dealer by bending the fuel sender float arm.

The gauge readings will also vary with the trim angle of the boat. When sitting at a dock and the boat is nearly level, the fuel gauge will register accurately. Refer to Figure I3. When boating, the trim angle of the boat changes and affects the gauge readings. Under these conditions, the fuel sender will register "full" for the first few hours of running time until the fuel level drops below the 3/4 or 1/2 mark. This is caused by the angle of the fuel in the tank as shown in Figure I4.

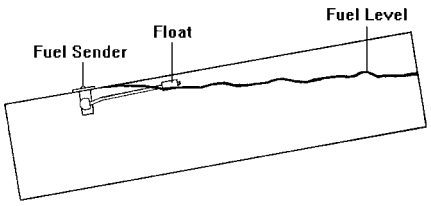



***Figure I4: Effects of Trim Angle***

It is very important to keep track of hours and fuel consumption to obtain an average gallon per hour consumption figure. This will prevent any problems with running out of fuel on the water.

Dealers are equipped with some general figures on consumption which can be used as a guide until specific information on your boat is determined. Because of boating conditions, speed, weight and other factors common to your situation, fuel consumption will vary between your boat and consumption figures developed by Four Winns®.

When the fuel gauge begins to register below the "full" mark, the gauge readings will drop much faster until it reads" empty". When this occurs, the trim angle has affected the sender reading. When the gauge registers "empty", the sender has bottomed out and there may be 3 to 4 gallons of fuel in the tank. See Figure I5.

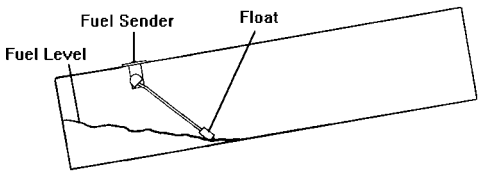



***Figure I5: Trim Angle Effect with Low Fuel***

## G. Fuel Filters

Fuel filters are installed on each engine. Filters should be cleaned or changed frequently to assure an adequate supply of fuel to the engine. Refer to the engine manual for additional information. The engine manual is included in the owner's information packet.

**NOTICE**

OMC canister-type filters should be changed annually.

## H. Gas Vapor Detector

A gas vapor detector is optional on 248/268 Vista model. The gas vapor detector will monitor the engine compartment and notify the operator of an accumulation of gasoline vapors. The operator must take immediate action upon warning to avoid the possibility of an explosion.

The sensing unit is usually mounted towards the rear of the engine compartment. The alarm unit is mounted at the dash.

**WARNING**

Always personally inspect the engine compartment and sniff for fuel vapors before starting the engine. Remember, a gas vapor detector is a mechanical device. DO NOT rely exclusively on its operation.

## I. Use and Maintenance

**WARNING**

DO NOT let the odor of gasoline go unchecked. If the odor of gasoline is noted, DO NOT START ENGINE. If engine is running, SHUT OFF ENGINE, ELECTRICAL AND HEAT GENERATING EQUIPMENT. Investigate and correct the situation immediately! Have all passengers put on personal flotation devices and keep fire extinguishers at hand until the situation is resolved.

**WARNING**

Avoid serious injury or death from fire or explosion resulting from leaking fuel. Inspect system for leaks at least once a year.

If areas are found within the fuel system that appear questionable, have a qualified marine technician inspect the system. A thorough fuel system examination should be made by an experienced marine technician at least once a year.

**WARNING**

To help guard against damage, avoid the storage or handling of gear near the fuel lines, fittings and tanks.

## I - 2 FUEL STANDARDS

Be cautious when using gasoline which contains alcohol.

**CAUTION**

To conform to Federal Air Quality Standards, the petroleum industry reduced the amount of tetraethyl lead in gasoline. Alcohol is being blended with gasoline to help restore the octane rating lost when the lead was removed. While blending alcohol with gasoline increases the octane level of the fuel, it can also create certain safety and performance related problems for boaters.

### A. Problems With Alcohol In Gasoline

Below is a list of problems which may be experienced when using blended gasoline.

1. Premature deterioration of fuel system components may occur. Alcohol will attack rubber fuel hoses, fuel tanks, fuel filters, fuel pumps and rubber gaskets. This deterioration will lead to fuel system leakage.

2. Phase separation of fuel will cause contamination. Water which accumulates in the tank through contamination or condensation will be absorbed by the alcohol. This water-heavy alcohol will settle at the bottom of the tank. This phase separation will lead to fuel tank corrosion. This may also result in a lean mixture to the carburetor and cause engine stalling or possible engine damage.

The use of alcohol additives in gasoline has become more widespread. Regulations on public notification of the existence of additives is currently controlled by the Environmental Protection Agency (EPA). Some states do require that gasoline pumps display information on additives (especially alcohol). If alcohol content is not posted, ask and avoid using fuel containing alcohol if possible.

### B. Recommendations

Assume blended gasoline is being used and follow these recommendations below.

1. Inspect fuel hoses often. A deteriorated hose containing alcohol blended gasoline will normally be soft and swollen. A deteriorating hose containing no fuel will normally be hard and brittle. In both cases the hose should be replaced.

2. Ventilate the engine compartment before starting the engine(s). Operate the engine compartment blower for four (4) minutes. Then, prior to starting the engine(s), check the bilge area for the scent of gasoline fumes; DO NOT start the engines if the odor of gasoline is detected.

3. Frequently inspect the fuel system fittings. Inspect the fuel tank, pump and filter for signs of leaks or corrosion. Visually inspect for deteriorating metal fittings at the fuel hose connections.

4. If areas are found within the fuel system that appear questionable, have a qualified marine technician inspect the system. Have those fuel system components that do not pass inspection replaced. A thorough fuel system examination should be made by an experienced marine technician at least once a year.

## I - 3 FUELING INSTRUCTIONS

1. Avoid fueling at night except in emergencies.

2. When moored at fueling pier:

   a. Do not smoke, strike matches, or throw switches.

   b. Stop all engines, motors, fans, and devices that could produce sparks.

   c. Put out all lights and galley stove.

   d. Position the Battery Selector Switch to OFF.

3. Before starting to fuel:

   a. Ensure that boat is moored securely.

   b. Close all ports, windows, doors and hatches.

   c. Be sure the proper type of grade of fuel as recommended by your engine manual is used.

   d. Determine how much additional fuel is required to avoid overflow.

4. During fueling:

   Keep the fill nozzle in contact with the fuel opening at all times to guard against possible static spark. See Figure I6.

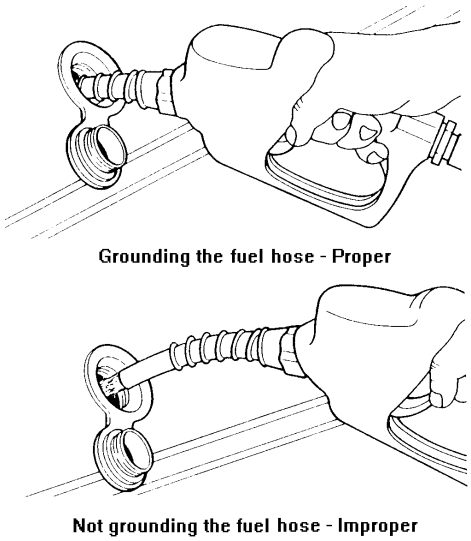



***Figure I6: Grounding Fuel Hose***

**WARNING**

Spilled fuel is a fire and explosion hazard. DO NOT overflow the tank or allow fuel spills into the hull or bilges. Avoid overboard spills. Visually monitor the fuel vent located on either the transom or side of the hull. When the tank is full, fuel will flow from the fuel vent.

5. After fueling:

   a. Replace all fill caps securely.

   b. Wipe up any spilled fuel.

   c. Open all ports, windows, doors and hatches.

   e. Determine that there is no odor of gasoline in the engine compartment or below decks before starting machinery, turning on lights or lighting stove. Operate the bilge blower system for at least four (4) minutes before engine start-up.

   f. Be prepared to cast off moorings as soon as engines are started.

# WATER AND WASTE SYSTEMS

## J - 1 GENERAL

All Four Winns® Vista models are equipped with a fresh water supply system. This system consists of a water supply tank, water distribution lines and a distribution pump. The water fill deck plate for the fresh water system is located on the starboard side of the deck, near the stern, on the 248 Vista. The water fill for the 268 Vista is located on the port side of the deck, near the stern. Always fill the tank slowly.

**CAUTION**

The water deck plate is appropriately labeled. DO NOT fill the system with anything other than water. Should the system become contaminated with fuel or other toxic solution, component replacement may be necessary.

The water tank is equipped with an overboard vent. Maintain a close visual watch on the overboard vent while filling the water tank. Always fill the tank slowly. When the tank is almost full, water will spurt out of the vent.

**NOTICE**

When filling the tank, never seal the hose to the deck plate. The tank will become pressurized and could rupture.

DO NOT overfill the water tank. Tank damage may result. Water capacity and tank location may vary due to other equipment that may be installed on the boat.

The capacity of the fresh water tank for the 248 and 268 is 20 gallons/75 liters. Optional tank level indicators are available and if installed are located in the head. See Figure J1 and J2 for the locations of the fresh water tank and water heater. Access to the fresh water tank and water heater is through the engine compartment lids.

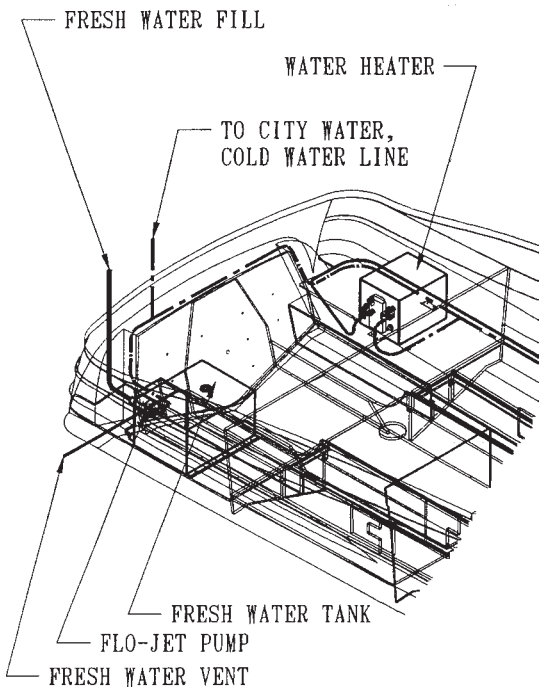



*Figure J1: 248 Vista Water Tank/Water Heater Location*

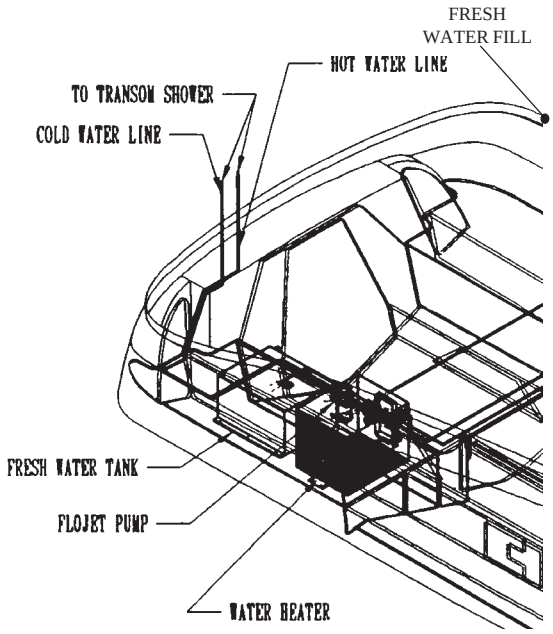



*Figure J2: 268 Vista Water Tank/Water Heater Location*

The materials from which the components of the water system are made may give the water supply a peculiar taste, especially when new. This condition is normal and can be reduced somewhat through the use of a water filter; such as that produced by Ametek® Inc. Also, chemicals such as Sudbury's Aqua-Fresh™ and Pettibone's Aquabon™ are effective. The taste will completely dissipate in time.

**WARNING**

The fresh (potable) water system should be disinfected prior to initial use.

The water system should be disinfected before first use and at the beginning of each season. The following information is a general guide to disinfecting the fresh water system.

1. Flush the boat's water system thoroughly with fresh water. Make sure all nontoxic antifreeze is removed from the system.

2. The water system should be drained completely.

3. To disinfect the water system, use one gallon of water and 1/4 cup of Clorox or Purex household bleach (5% sodium hypochlorite solution). This is recommended for each 15 gallons of tank capacity.

4. Allow to stand for three (3) hours. If time is a factor, greater concentrations of chlorine solution will be needed to disinfect the water system.

5. Drain the system.

6. Flush the system thoroughly with fresh water.

7. Fill the system with fresh water.

To remove excessive chlorine taste or odor which might remain in the system, prepare a solution of one quart vinegar to five gallons water and allow this solution to agitate in the tank for several days during boating. Then drain tank and refill with fresh water.

All drains are equipped with traps, and the water will drain slowly. If the system is not operating properly, have it checked by your authorized Four Winns® dealer.

## J - 2 PRESSURIZED WATER SYSTEM

The water pump is an automatic, on-off, self-priming pump that can service several outlets at once. The pump will build up water pressure and will turn off when it reaches 35 psi. It will generate 20 psi with the faucets open. Refer to Figure J1, J2, and the drawings at the end of this section.

### A. Priming The System

After filling the water tank, open all faucets partially. Then, activate the FRESH WATER switch on the cabin panel to supply the system with water. Let the pump run until water comes out of the galley faucet, head faucet and transom shower.

After all the air has been purged from the system and a steady flow of water is coming from each outlet, turn off the faucets one by one. Begin with the cold water faucets and continue until all faucets are shut off. As the pressure builds, the pump will automatically shut off at 35 psi. Refer to Section H-4 12 Volt Electrical Equipment and the manufacturer's literature included in the owner's packet for additional information.

### B. System Operation

When properly primed and activated, the pressurized water system can be used in the same manner as the water system in a home. An automatic pressure sensor in the water pump keeps the system pressurized. Simply turn on the faucet and water will be delivered. If the system has been recently filled, or has not been used for an extended period of time, air bubbles may accumulate at the pump. If this should happen, re-priming may be necessary.

To obtain the most consistent mixture of hot and cold water, turn the cold water on full, then mix in hot water until the desired temperature is obtained. If water pump cycling occurs, some minor variations in water temperature can be expected.

Whenever the boat will be left unattended for an extended period, the water pump switch should be turned to the OFF position. This switch should also be turned OFF whenever the water tank is to remain empty for an extended period of time.

### C. Water Heating Systems

The water heater used on 248/268 Vista model has a 6 gallon capacity. The water heater is installed on the port side of the engine compartment on the 248 and on the starboard side for the 268. Refer to Figure J1, J2, and to the drawings at the end of this section.

**NOTICE**
Water heater location may vary due to the installation of optional equipment.

The water heater utilizes 120 volt (220 volt on 50 Hertz models) power. The water heater breaker switch is located on the cabin 120 Volt AC panel.

**NOTICE**
DO NOT supply 120 volt power to an empty water heater. Damage to the heater will result immediately. The water system must be filled and primed before attempting to use the water heater.

A water heater that incorporates a heat exchanger is standard on the 248 and 268. The heat exchanger allows the engine coolant to heat a portion of the fresh water supply while the engines are operating. This option will provide hot water at times when 120 volt power is not available. Additional information on heat exchangers is covered in the engine and hot water heater manufacturers' manuals. Please refer to Section H on Electrical Systems for additional information.

**DANGER**
**Exhaust Fumes!**
Provide adequate ventilation at all times when running the engine to warm the water. Hull exhaust from your boat can cause excessive accumulation of poisonous carbon monoxide gas within cockpit/cabin areas (while underway or while stationary). Engine must be off to avoid potential carbon monoxide buildup.

### D. Using The Shower

Turn on the faucets to desired temperature, move the lever (diverter) on the shower head, and the shower becomes operational. The shower hose is connected to the shower spout and connects to the faucet receptacle, underneath the sink.

When using the shower, draw the shower curtain before using the shower. Damage to the finish can result if surrounding walls and flooring are allowed to become excessively wet. Thoroughly dry these areas after showering.

**CAUTION**
The water temperature can vary during shower use as the pressure pump cycles on and off. For greatest consistency, turn the cold water on full, then mix in hot water until the desired temperature is obtained.

A shower sump pump is incorporated into the drain system of the shower. The shower drains into the sump pump located forward of the aft cabin. The water will then be pumped into a black/gray water holding tank. The capacity of the black/gray water holding tank for the 248 is 16 gallons (60 liters). The 268 has a 21 gallon (79 liter) capacity. If a gray water system is installed, the water will be pumped into the gray water holding tank. See Section J-3 below.

The sump pump includes an automatic bilge switch and is protected by a circuit breaker at the cabin panel. The sump pump will automatically start as soon as the water in the sump reaches a level that will cause the float on the switch to rise.

After showering, let the water flow for a period of time to flush the pump of soap residue. Check the sump for excess residue. When rinsed out, the pump will automatically shut off.

If water flow from the shower head appears to be restricted, it may be due to sediment accumulating at the shower head. If necessary, remove the head and clean the discharge holes with a fine wire.

Periodically check the sump pump screen for clogs to prevent drainage problems from occurring in the shower drain. Refer to the manufacturer's literature included in the owner's packet.

## J - 3 GRAY WATER SYSTEM - OPTIONAL

The gray water system is optional on 248/268 Vista models. The water from the galley sink, head sink and shower will drain into a sump and is pumped into a 16 gallon (60 liters) holding tank. The waste level indicator is located in the head compartment. A pumpout fitting labeled

WASTE but designated for gray water is provided on the starboard side of the deck, at the stern of the boat. The gray water fitting is directly in front of the standard waste (black/gray water) fitting. The gray water tank is located directly opposite the black/gray water tank, under the aft cabin, on the port side.

**NOTICE**

Certain geographical areas have restrictions on grey water being pumped or drained overboard. Be sure to check all local, state and federal laws in the boating area.

## J - 4 SHORE WATER CONNECTION

Shore water connection is standard on all Vista models. This feature allows the direct connection of a city or shoreside water supply to the boat's water system to provide a constant supply of fresh water without the need to constantly refill the water supply tank. This minimizes pressure pump operation thus extending the life span of the pump.

Dockside shore water pressure can vary dramatically. Excess pressure could damage the boat's water system so the shore connection also regulates the water pressure to a maximum of 35 psi.

To use shore water, connect a hose from the shore water faucet to the shore water fitting on the boat. The shore water fitting (female inlet) is located on the starboard side of the transom above the swim platform. Turn on the shore water. The water system of the boat will then be pressurized by city water if the system was previously primed.

The water pump should be turned off when using city water. City water pressure varies from area to area. If the pump is ON and water pressure drops below 35 p.s.i., the pump will activate to maintain pressure at 35 p.s.i. It will draw water out of tank and bypass city water.

If the pump is OFF, the pump will not function and the water in the storage tank of the boat will not be utilized.

**NOTICE**

Always remember to disconnect the shore water supply hose before leaving the dock.

**NOTICE**

Always turn off the shore water whenever the boat is left unattended. If a major water leak did occur and went undetected, the boat could fill with water and sink.

**NOTICE**

DO NOT alter or repair the pressurized water system or shore water connection without having proper knowledge of the system. Damage to the water system can occur.

See Section J-1 for general water system information and instructions on filling the water tank. The water tank will not be filled while connected to shore water.

## J - 5 TRANSOM SHOWER

The transom shower is standard on the Four Winns® 268 Vista and optional on the 248 Vista model. The shower unit is usually located on the starboard side of the transom near the boarding ladder grab rail. Refer to Figures J1 & J2 and to the drawings at the end of this section.

The water supply system can be used for showering or washing down the transom. As long as there is water pressure, the shower faucet will operate.

Fresh water tank capacity is limited. Connect the boat to shore water before using large amounts of water as required when washing down the boat.

**DANGER**

**Exhaust Fumes!**

Provide adequate ventilation at all times when running the engine to warm the water. Hull exhaust from your boat can cause excessive accumulation of poisonous carbon monoxide gas within cockpit/cabin areas (while underway or while stationary). Engine must be off to avoid potential carbon monoxide buildup.

## J - 6 HEADS

The various antipollution laws presently in effect have necessitated the use and availability of a wide variety of heads. The heads that have been factory installed in Four Winns® boats have been chosen to provide rea-

sonable longevity and reliable service, at a realistic cost. Refer to the drawings at the end of this section. Also, refer to the manufacturers literature included in the owner's packet.

### A. Porcelain Head - Standard

The 248/268 Vista comes with a porcelain head and a black/gray water holding tank. The capacities of the standard black/gray water holding is 16 gallons (60 liters) or 21 gallons (79 liters) respectively. The toilet is a left hand, manually-operated toilet and is surprisingly easy to operate. The head obtains sea water from a pick-up for rinsing the bowl. The pick-up and strainer are located below the mid cabin floor on the 248/268 Vista models. Tank level indicators are also optional and are located in the head if so ordered. Please refer to the following toilet operation instructions, the manufacturer's literature in the owner's packet, and Figures J3 - J5.

To operate toilet:

1. Move the wet/dry selector to the WET bowl position (left) and pump handle up and down a few times to add some water to the bowl prior to use.

2. After using, flush again by pumping the handle up and down (in WET bowl position) until bowl is thoroughly rinsed and evacuated.

3. Then move the wet/dry bowl selector to the DRY bowl position (right) and continue pump ing until only about one cup of water remains in the bottom of the bowl.

4. Leave the wet/dry bowl selector in the dry bowl position when not in use.

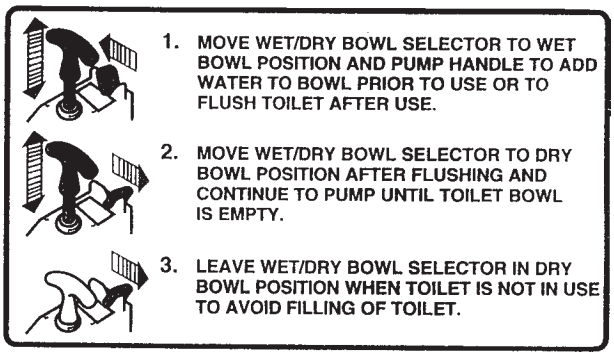



***Figure J3: Wet/Dry Toilet Operations Label***

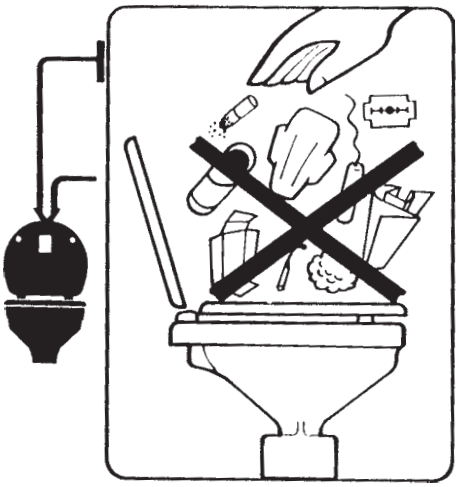


***Figure J4: Do Not Place These Items in Toilet Label***

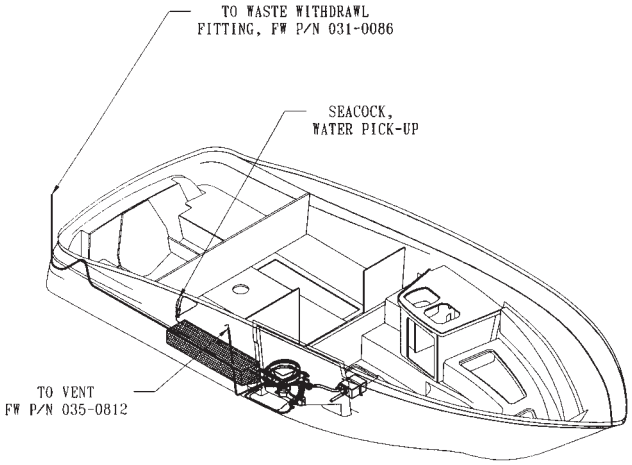



***Figure J5: 248V Porcelain Toilet W/ Holding Tank***

### B. Optional VacuFlush Sanitation System

The 248/268 Vista has an optional VacuFlush sanitation system available. The system eliminates the unpleasant sulfide odors which plague saltwater systems. Flush water is no longer drawn through the through-hull fittings, seacock, and vented loop. It also extends the life of the system components by eliminating salt water and impurities from accumulating in the system over time.

The VacuFlush toilet operates in a different way from other marine toilets. VacuFlush systems use a small amount of water (a little more than a pint) per flush in addition to a simple vacuum. The toilet is connected to the fresh water system. Fresh water is the key to an odor free bathroom compartment. VacuFlush toilets are equipped with an intergrade vacuum breaker which prevents the possible contamination of the potable/fresh water supply. See Figures J6 & J7. Also, refer to the manufacturers literature included in the owner's packet.

To operate:

1. To add water to the toilet before using, raise flush lever until desired water level is reached. Generally, more water is required only when flushing solids. See Figure J6.

2. To flush toilet, press flush lever sharply down to the floor until contents clear bowl. A sharp popping noise is normal when the vacuum seal is broken and the flushing action begins. **Be sure to hold lever down for 3 seconds.** If flush lever is accidentally released before waste clears bowl, do not attempt to flush toilet again until vacuum pump stops running. A small amount of water should remain in the bowl after flushing.

3. Do not dispose of sanitary napkins or other non-dissolving items in toilet, such as facial tissue or paper towels. These items can cause plugging of the system. Refer to the Deodorants and Special Tissue section in the manufacturer's manual for more information.

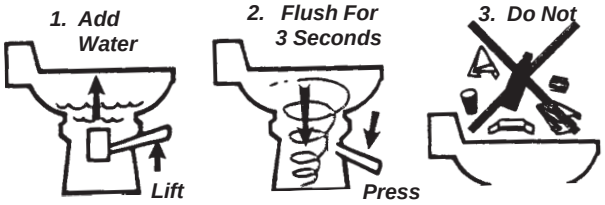



***Figure J6: VacuFlush Operations***

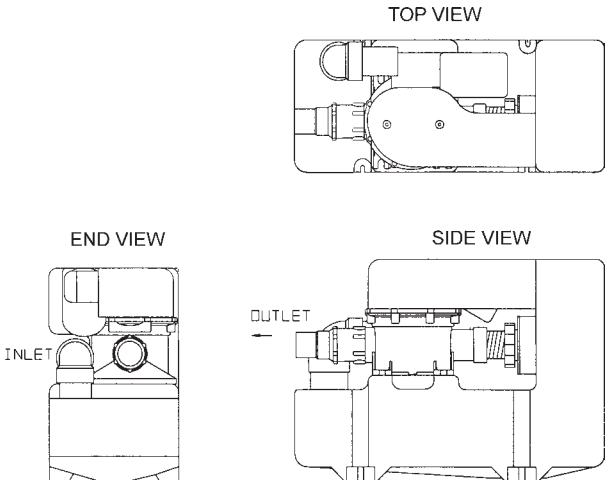



***Figure J7: VacuFlush Vacuum Generator***

### C. Head With Overboard Discharge

This option is available on all Vista models. The head operates the same as the porcelain head system described earlier but an additional line with a "wye" has been installed for overboard discharge. The waste will be pumped into the holding tank from the head. The macerator pump is installed after the "wye". Refer to Figures J4, J7, & J8.

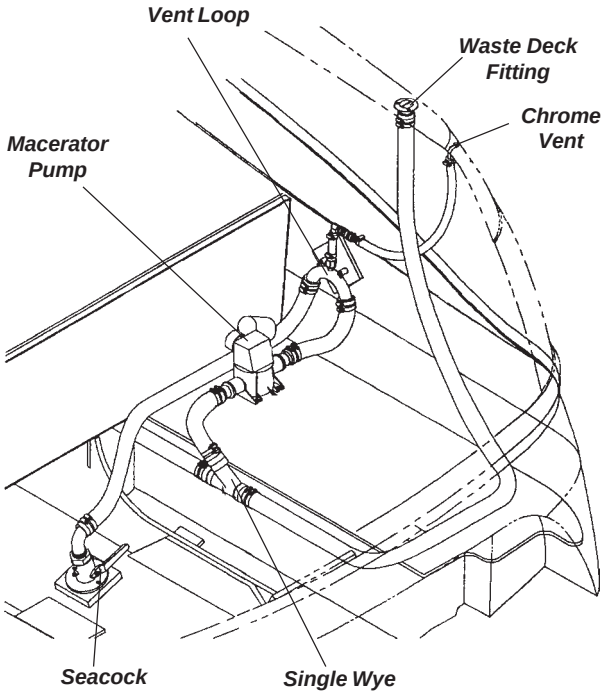



***Figure J8: 268V Overboard Discharge Option***

**NOTICE**

The macerator pump must be used to discharge waste overboard. However, DO NOT use the macerator pump to discharge waste at a pumping station. If the hose is not air tight or connected properly, waste could spurt out or leak around the deck fitting and into the boat.

To operate the overboard discharge system:

1. The discharge valve is located in the engine compartment. To open, turn the valve so that the handle is parallel to the flow of the valve. The waste deck plate cover must be tightened securely for the overboard discharge system to operate.

2. Turn ON the macerator pump switch which is located in the head on the switch panel. Allow the pump to run until the storage tank is empty. The sound of the pump's motor load and speed will change when the tank becomes empty.

3. Turn the switch off.

4. Turn the discharge valve handle to the closed position, and secure it. The thru-hull valve must be closed to prevent water from being forced back into the system.

**NOTICE**

Discharging waste overboard is illegal in most U.S. waters today. Discharge is limited to certain coastal waters, a designated distance offshore. Check with your local boating regulations before proceeding with any discharge activities.

Some local regulations require overboard discharge systems be physically secured in a closed position during use of the boat in waters designated as "no discharge" areas. Check with local boating regulations. Refer to the manufacturer's literature for additional information.

**D. Dockside Pump-Out**

Waste can be removed from the holding tank by taking the boat to a dockside waste pumping station. Most marina fueling facilities provide such services.

To pump out the holding tank:

1. Be sure the head has some water in the bowl.

2. Connect the dockside pump out connection to the WASTE plate located on the deck. Usually the dockside pump out connection will screw into the waste deck plate or has a rubber sleeve that inserts into the plate and must be held in position during the pump out operation.

3. Have the pumping station operator activate the pumping equipment. The waste will be drawn from the holding tank and into the pumping station's disposal tank.

4. Remove the pump out connection from the deck plate. Add at least 5 gallons of clean water to the holding tank through the waste deck fitting using a dockside water hose.

5. Repeat steps 2 & 3 above to pump out the water used in 4 to flush the holding tank.

6. Add waste holding tank treatment chemical to the head bowl. It is available from the dockside pumping station or can be obtained from your dealer. Flush at least twice.

**CAUTION**

Be careful when handling and storing treatment chemicals. Not only are they toxic, but they will also stain and damage surrounding surfaces.

## J - 7 SYSTEM MAINTENANCE

Information supplied with water and waste system components by the equipment manufacturers is included with this manual. Refer to this literature for additional operation and service information.

Be sure the batteries in the boat are properly charged. Operating the pressure pump from a battery with a low charge will result in pump cycling. This could lead to premature pump failure.

**WARNING**

The decomposition of waste produces a colorless, odorless gas, methane, that is lighter than air, combustible, and extremely lethal. Always provide sufficient ventilation when effecting repairs to the waste system and allow no odor from the waste system to go unresolved.

### A. Clean Vents and Screens

Periodically, inspect the water tank vents and thru-hull vent fittings for any dirt, wax, etc. Carefully remove any obstruction with a pipe cleaner or similar device. **Be sure not to puncture the screen**. The stainless steel vent cap is not removable.

**NOTICE**

Failure to keep the water tank vent fittings clean will cause excessive pressure buildup within the tank during filling. This can cause water tank damage.

Periodically remove the filter screens from the faucet discharge spouts and shower head. Remove the accumulation of sediment from the screens. If necessary, clean out the holes using a fine wire. A buildup of debris in the faucet filter screens can create enough restriction to cause the pump to cycle on and off.

Check the in-line water filter/screen for sediment and blockage. It is located between the water tank and the pressure water pump. If obstructed, remove from the water line and either clean or replace the part. The filter unit will twist apart.

Inspect and clean the shower sump every 30 days. Some water will always be in the compartment. Sediment and other debris will buildup and affect the automatic bilge switch and pump operation. Remove the pump's cover and clean the screen. The screen will become blocked and the pump will not operate properly. To clean the compartment, use baking soda and a fine wire brush to remove dirt and other debris. This will also serve to disinfect the area.

### B. Winterizing the Water System

Winter lay-up service procedures should include a thorough draining of the water system. Disconnect all accessible fittings. Blow out all lines. Be sure the hot water heater, fresh and gray water tanks, transom shower, pumps and lines are completely dry. Leave all faucets open. Freezing water can cause severe damage to all water system components.

**NOTICE**

Always winterize the fresh water system prior to winterization of the hull drainage (bilge pump) system.

Draining the system as mentioned can be very tedious and an incomplete job can result in expensive repairs. The use of nontoxic antifreeze (such as R.V. antifreeze) designed for fresh water systems considerably reduces the work necessary and is a more positive means of winterizing the system. Follow the directions included with the antifreeze solution.

To winterize:

1. Turn on the water pump and drain the water tank by opening a faucet (the pump will run faster when it is empty).

**NOTICE**

Be sure the circuit breaker for the water heater in 120 Volt AC panel is in the OFF position. The water heater will be damaged immediately by supplying electrical power to an empty water heater.

**NOTICE**

DO NOT run the water pump without water in the system. Pump damage will result. Be watchful and turn the pump off as soon as the tank becomes empty.

2. Add 15 gallons of R.V. antifreeze to the water tank.

**NOTICE**

The hot water heater will require approximately five gallons of antifreeze before the hot water lines will have antifreeze running through them. The cold water faucet should be turned OFF at some point to test for antifreeze in the hot water line.

3. Turn ON all faucets (both hot and cold) until undiluted antifreeze is seen. Make sure the transom shower, head faucet and galley faucet have antifreeze coming out.

4. Activate the shower sump pump and pour approximately 1 quart of nontoxic antifreeze down the shower drain. The shower sump will discharge some of the antifreeze overboard.

**DANGER**

Use only nontoxic antifreeze solutions such as R.V. antifreeze. DO NOT use ethylene glycol solutions; the type that is used in engine coolant systems. These are toxic.

**NOTICE**

Be sure to wipe up any antifreeze that has been spilled on the fiberglass shower surfaces.

### C. Winterizing the Waste System

To winterize the waste holding tank, flush the tank with soap, water and a deodorizer (e.g., Lysol Liquid™). Empty the tank and pour two (2) gallons (3 gallons if equipped with overboard discharge) of R.V. antifreeze into the bowl and flush.

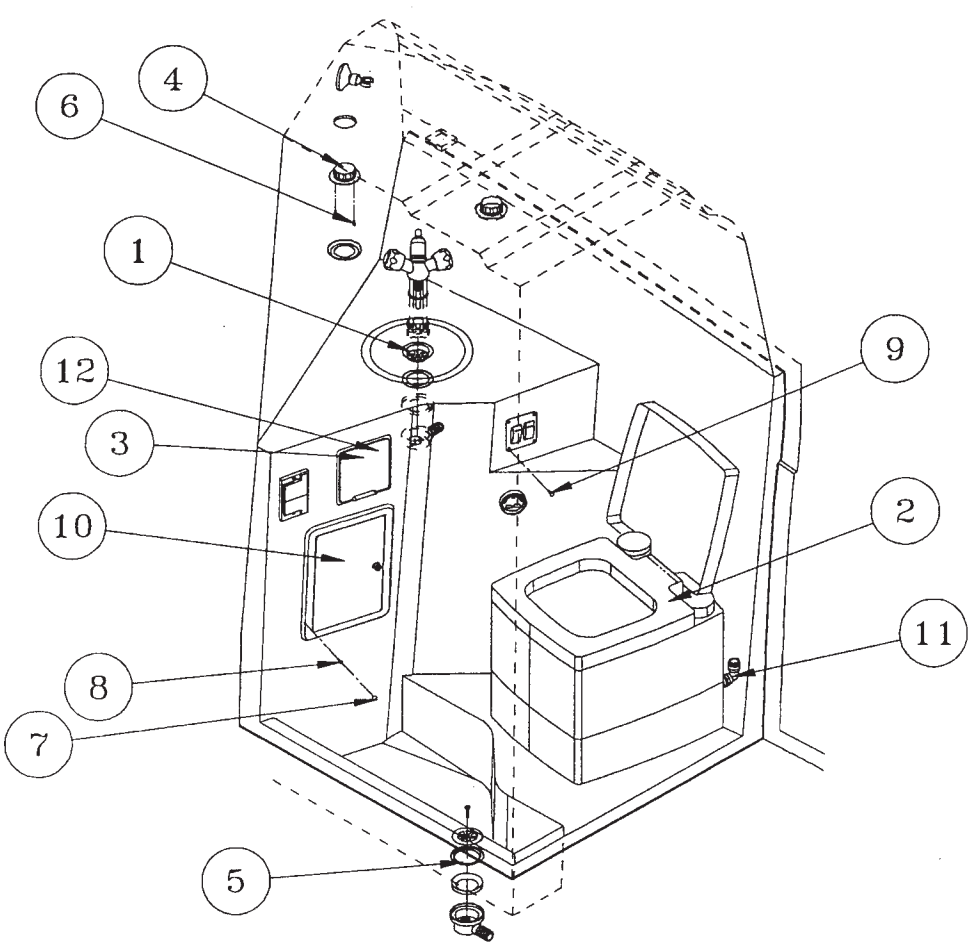
If the boat is equipped with overboard discharge capabilities, follow the normal procedures above. Run the discharge pump only long enough until the antifreeze solution is being pumped overboard.

For additional information, refer to the manufacturer's manuals in the owner's packet.

**NOTICE**

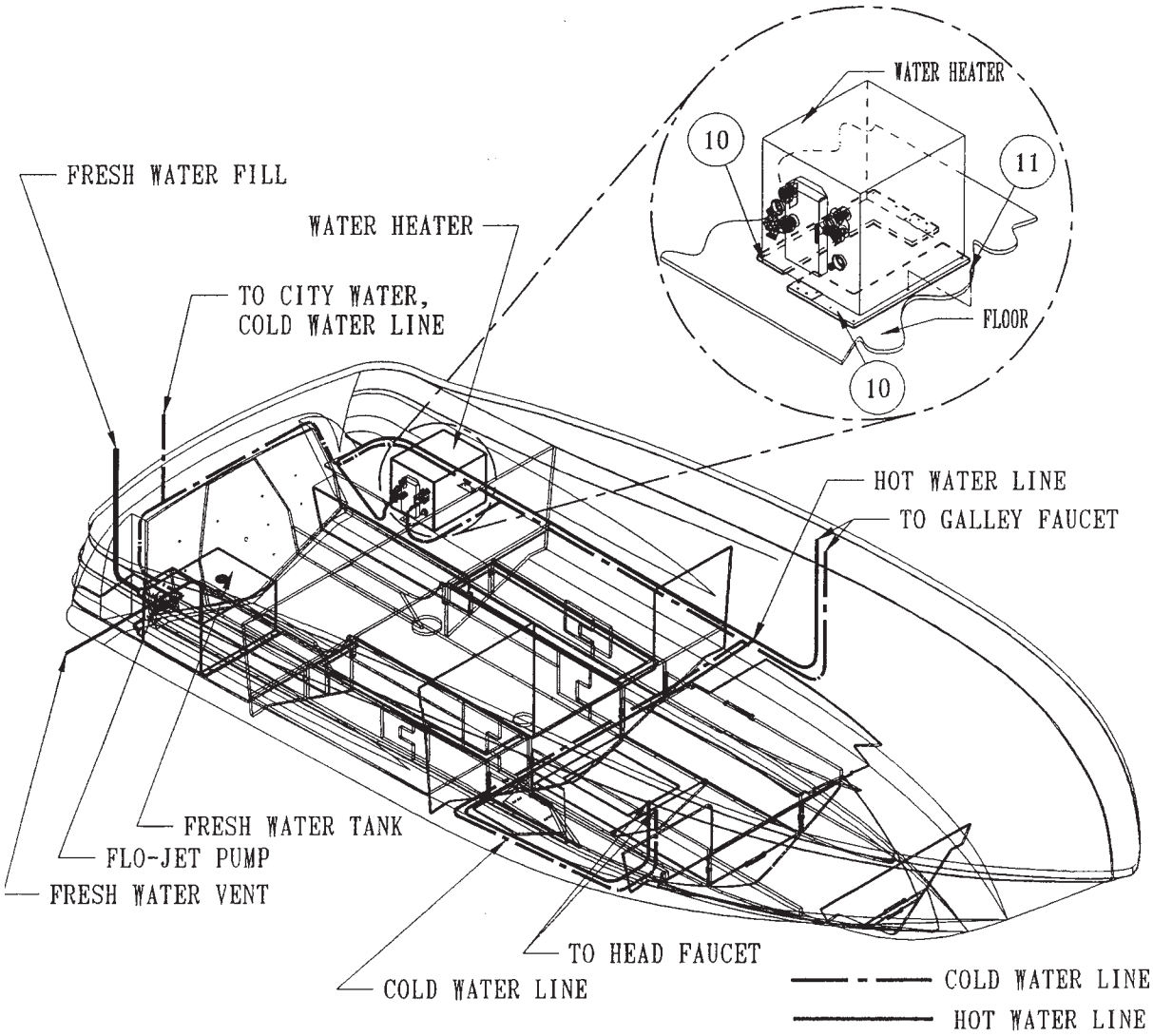
The instructions listed in this section provide a working knowledge to winterize the water and waste systems. However, to prevent possible damage to components in your boat, Four Winns® recommends having the boat winterized by your Four Winns® dealer.

# FIGURE J9: 248V HEAD



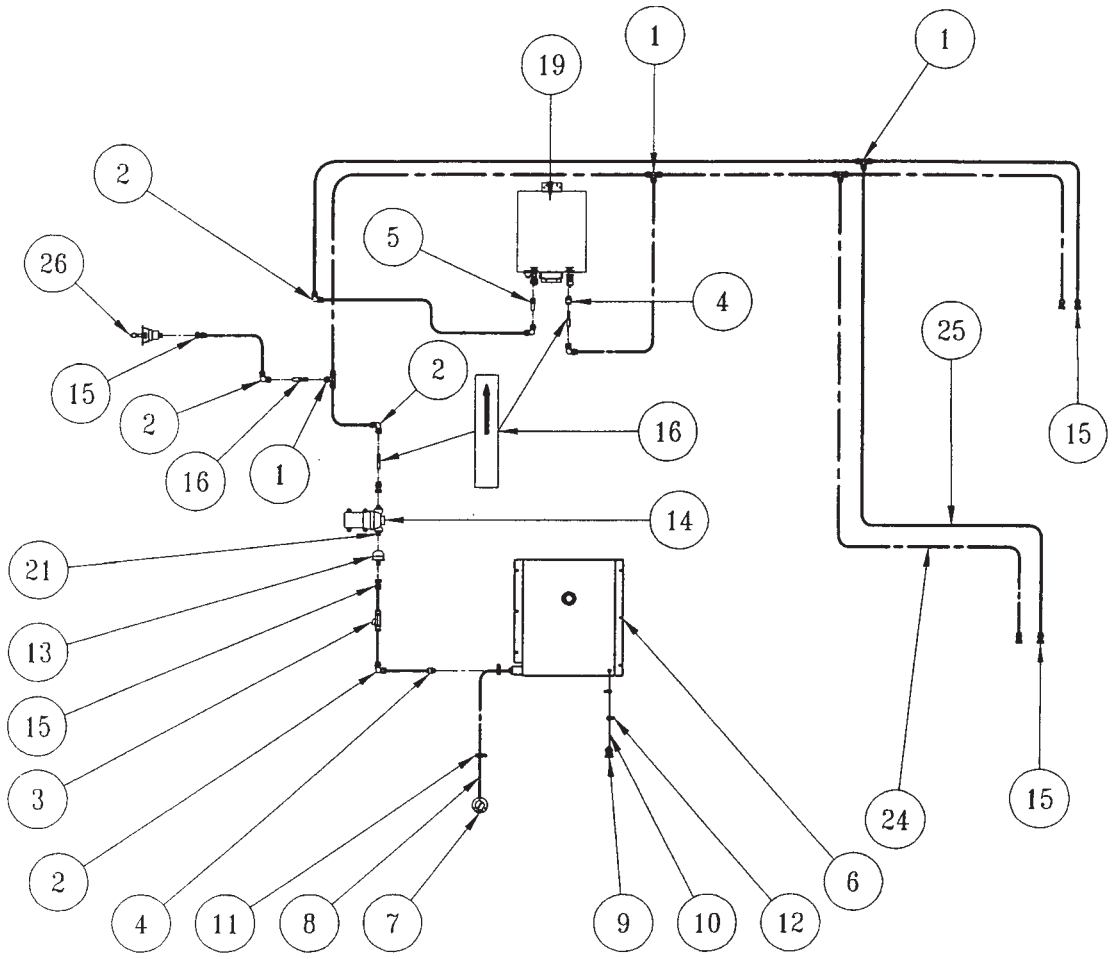

| # | DESCRIPTION | PART # | QTY. | # | DESCRIPTION | PART # | QTY. |
|---|---|---|---|---|---|---|---|
| 1 | DRAIN, SINK #101045-00 | 035-0225 | 1 EA | | | | |
| 2 | PORTA POTTIE,735MSD W/STR.PUMP | 065-0958 | 1 EA | | | | |
| 3 | HOLDER,TOILET PAPER #30803 | 032-0293 | 1 EA | | | | |
| 4 | LIGHT, WHITE 2" FLUSH 10W NOVA | 026-0368-02 | 2 EA | | | | |
| 5 | DRAIN, SHOWER FLOOR #101045-10 | 035-0616 | 1 EA | | | | |
| 6 | SCREW, #6 X 3/4" PFHSMS SS PFA | 080-0011 | 4 EA | | | | |
| 7 | COVER, SCREW PRESS-ON #TC2-100 | 080-1006 | 4 EA | | | | |
| 8 | SCREW, #8 X 3/4" POHSMS SS | 080-0022 | 6 EA | | | | |
| 9 | SCREW, #8 X 1/2" PPH BLACK PPA | 080-0024 | 4 EA | | | | |
| 10 | VANITY ASS'Y, HEAD 248V | 101-50181 | 1 EA | | | | |
| 11 | PUMP OUT, 90 DEGREE #16587 | 065-0959 | 1 EA | | | | |
| 12 | SCREW, #8 X 3/4" POHSMS SS POH | 080-0022 | 2 EA | | | | |

## FIGURE J10: 248 FRESH WATER SYSTEM (1 OF 2)




| # | DESCRIPTION | PART # | QTY. | # | DESCRIPTION | PART # | QTY. |
|---|---|---|---|---|---|---|---|
| | * TUBING HARDWARE * | | | | * WATER HEATER HARDWARE * | | |
| 1 | BLOCK, TIE WRAP, SCREW MOUNT | 032-0584 | 18 EA | 8 | WASHER, FINISH #8 SS | 080-0091 | 8 EA |
| 2 | SCREW, #8 x 3/4" POHSMS SS | 080-0022 | 18 EA | 9 | SCREW, #10 x 1-3/4" POHSMS SS | 080-0036 | 8 EA |
| 3 | TIE, CABLE 15" W/ MOUNTING HOLE | 080-0273 | 18 EA | 10 | SHIM, WATER HEATER | 100-51076 | 2 EA |
| | * DECK FILL HARDWARE * | | | 11 | SCREW, #10 x 1 1/2" POHSMS | 080-0032 | 8 EA |
| 4 | SCREW, #8 x 3/4" POHSMS SS | 080-0022 | 3 EA | | * WATER INLET/REG HARDWARE* | | |
| | * FLO-JET HARDWARE * | | | 12 | SCREW, #10 x 1" POHSMS SS | 080-0035 | 3 EA |
| 5 | SCREW, #10 x 3/4" PTHSMS SS | 080-0033 | 4 EA | | | | |
| | * WATER TANK HARDWARE * | | | | | | |
| 6 | WASHER, 1/4" x 1 1/4" FLATFENDER | 080-0159 | 6 EA | | | | |
| 7 | SCREW, #12 x 1 1/2" PPHSMS SS | 080-0041 | 6 EA | | | | |

# FIGURE J11: 248 FRESH WATER SYSTEM (2 OF 2)

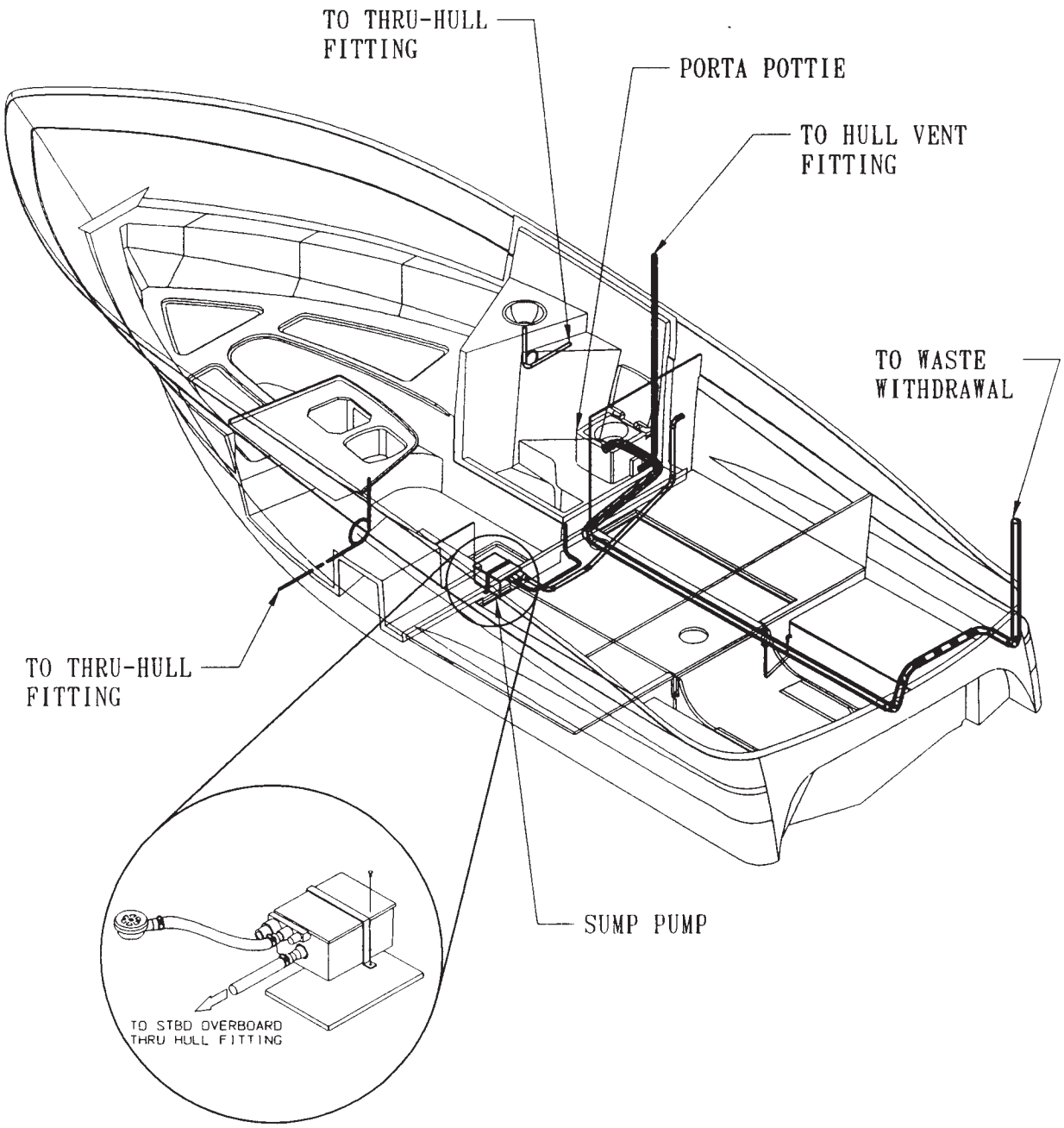



NOTES: 1) ASSURE CHECK VALVES ARE IN CORRECT DIRECTION.
2) * NOT SHOWN

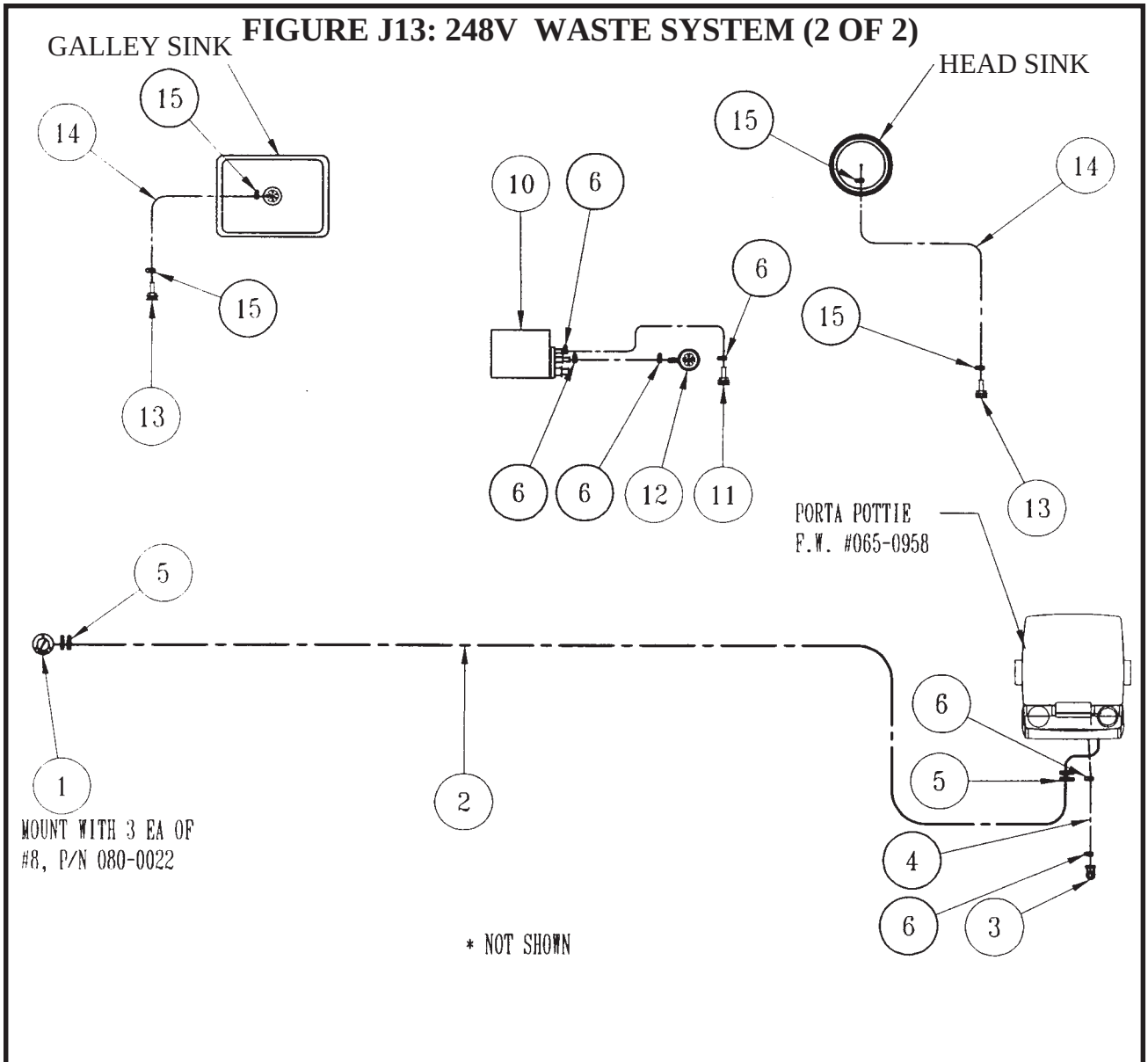
HOT WATER L
COLD WATER

| # | DESCRIPTION | PART # | QTY. | # | DESCRIPTION | PART # | QTY. |
|---|---|---|---|---|---|---|---|
| 1 | TEE, 15mm WS1502B | 035-0928 | 4 EA | 15 | ADAPTER, FEMALE 1/2" BSP x 15mm WS1532B | 035-0933 | 7 EA |
| 2 | ELBOW, 15mm WS1503B | 035-0929 | 6 EA | 16 | CHECK VALVE, 15mm WS1582B | 035-0931 | 3 EA |
| 3 | VALVE, SHUT-OFF 15mm WS1574B | 035-0932 | 1 EA | *17 | COLLET CLIP, 15mm WS1518B | 035-0939 | 36 EA |
| 4 | ADAPTER, MALE 1/2" BSP x 15mm WS1514B | 035-0934 | 3 EA | *18 | COLLET COVER, 15mm WS1590B | 035-0940 | 36 EA |
| 5 | ADAPTER, STEM 1/2" MPT x 15mm WS1524B | 035-0935 | 1 EA | 19 | WATER HEATER, 6 GAL | 065-0040 | 1 EA |
| 6 | TANK, GRAY WATER/ FRESH WATER 20 GAL. | 035-0918 | 1 EA | *20 | COUPLING, MALE 1/2" x 1/2" #QC33 | 035-0078 | 1 EA |
| 7 | DECK FILL, S.S. WATER #66408-1 | 031-0087 | 1 EA | 21 | FITTING, KIT, FLOJET #C 20381-0 | 035-0729 | 1 EA |
| 8 | HOSE, 1 1/2" WATER WHITE #143-1120 | 022-0007 | 5 FT | *22 | HOT WATER HEATER KIT #3856265 | 035-0334 | 1 EA |
| 9 | VENT, CHROME PLATED BRASS #352030 | 035-0812 | 1 EA | *23 | ANTIFREEZE, NON-TOXIC, 55 GAL | 084-0043 | 3 GAL |
| 10 | HOSE, 5/8" WASTE #148-0580 | 022-0013 | 5 FT | 24 | TUBING, BLUE 15mm x 50mm WS7152B | 035-0936 | 36 FT |
| 11 | CLAMP, 1 1/2" FILL HOSE | 021-0032 | 4 EA | 25 | TUBING, RED 15mm x 50mm WS7154B | 035-0937 | 27 FT |
| 12 | CLAMP, 5/8" VENT HOSE | 021-0031 | 2 EA | 26 | FITTING, WATER INLET/REG. #44410-1001 | 035-0027 | 1 EA |
| 13 | FILTER, IN LINE SHURFLO #170-06 | 035-0158 | 1 EA | | | | |
| 14 | PUMP, FLOJET #f4405-143B | 026-0331-02 | 1 EA | | | | |

## FIGURE J12: 248V WASTE SYSTEM (1OF 2)

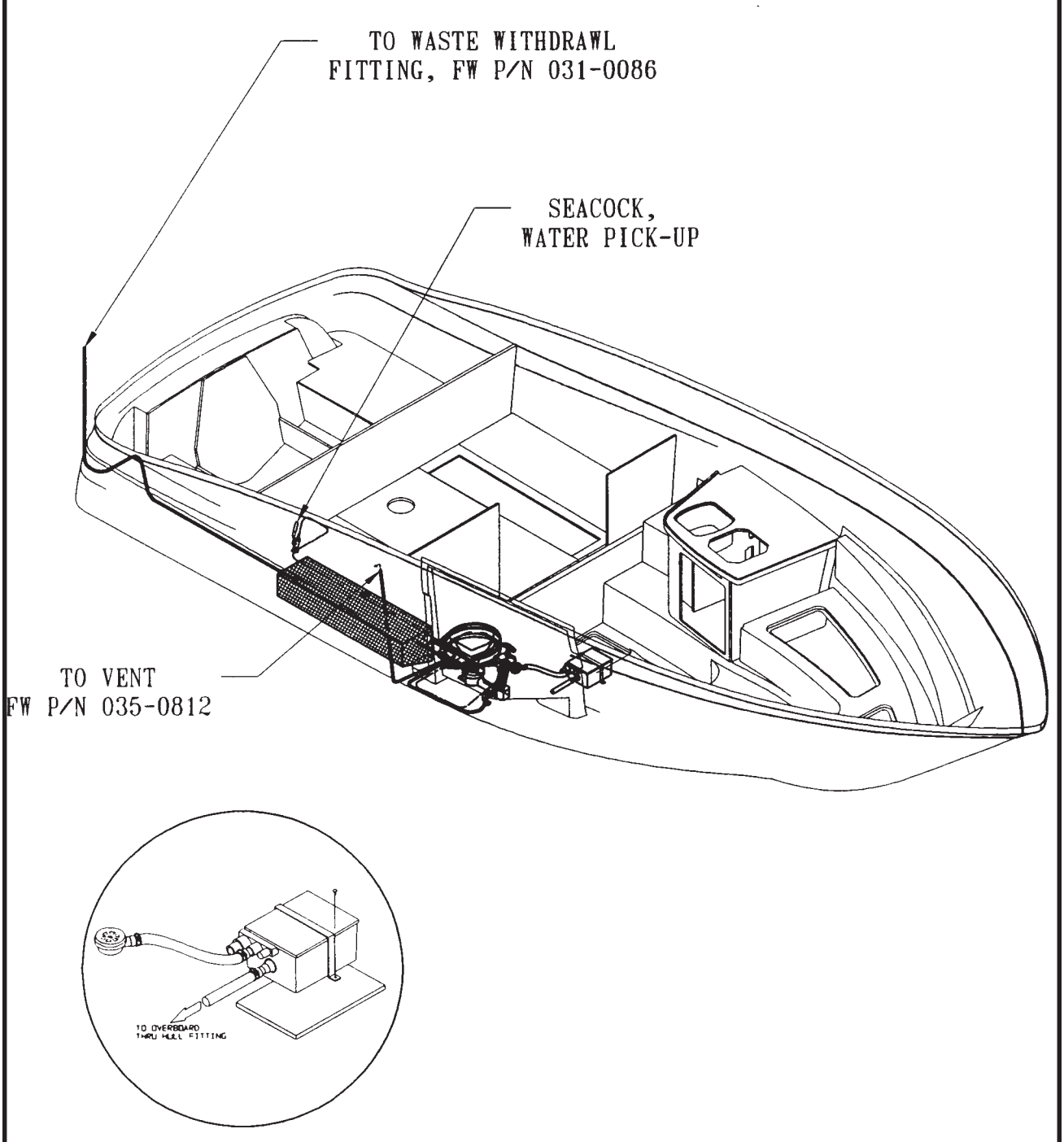


## FIGURE J13: 248V WASTE SYSTEM (2 OF 2)

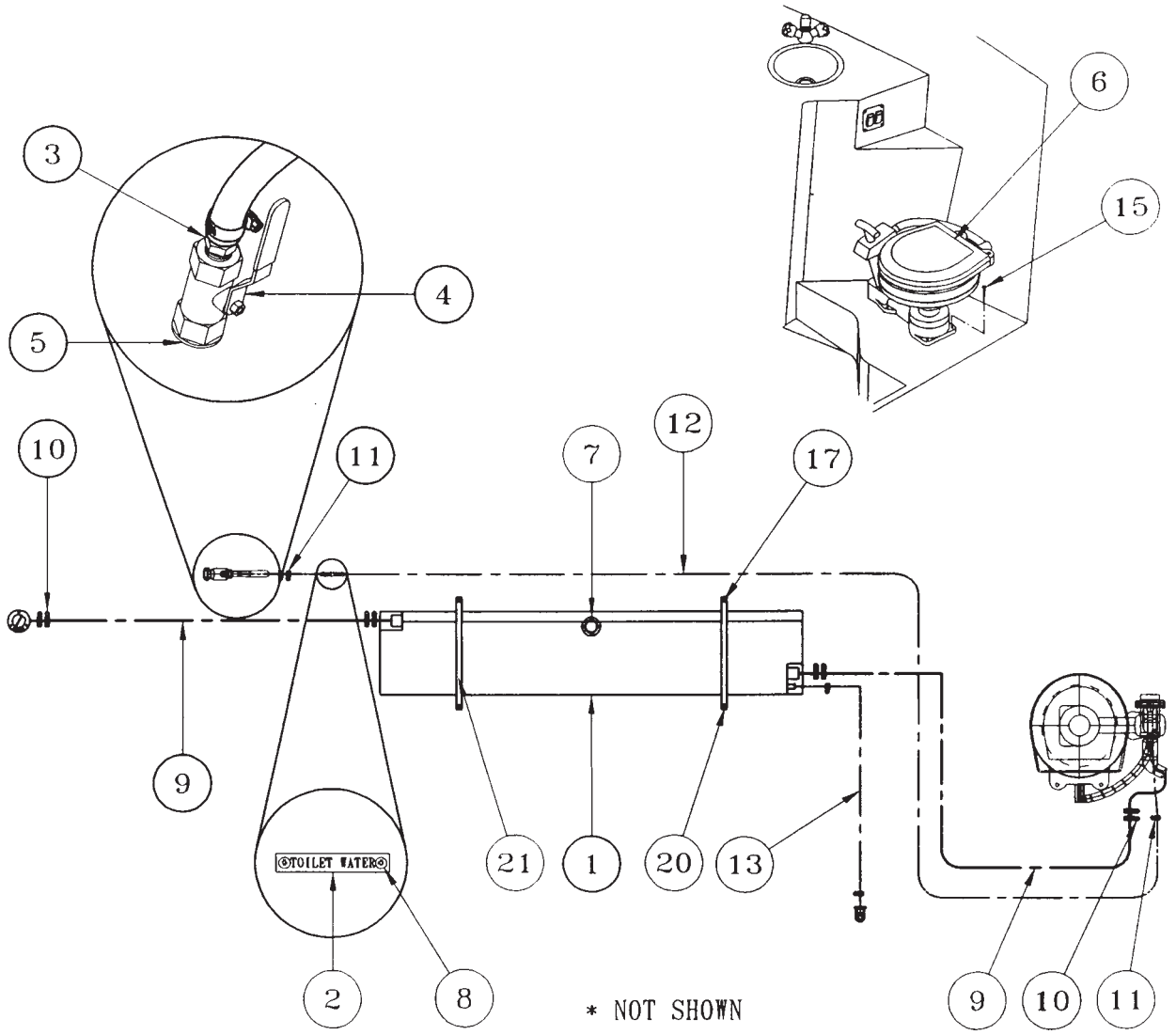



| # | DESCRIPTION | PART # | QTY. | # | DESCRIPTION | PART # | QTY. |
|---|---|---|---|---|---|---|---|
| 1 | DECK FILL, S.S. WASTE #66126-1 | 031-0086 | 1 EA | 15 | CLAMP, 1-1/4" HOSE #67165-52 | 021-0035 | 4 EA |
| 2 | HOSE, 1-1/2" SANITATION WHITE #116 | 022-0055 | 18 FT | | | | |
| 3 | VENT, 90° CHROME ELBOW 352030 | 035-0812 | 1 EA | | | | |
| 4 | HOSE, 5/8" WASTE #148-0580 | 022-0013 | 6 FT | | | | |
| 5 | CLAMP, 1-1/2" #24 FILL HOSE #6 | 021-0032 | 4 EA | | | | |
| 6 | CLAMP, 5/8" #10H VENT HOSE | 021-0031 | 6 EA | | | | |
| *7 | BLOCK, TIE WRAP SCREW MOUNT | 032-0584 | 7 EA | | | | |
| *8 | SCREW, #8 x 3/4" POHSMS SS | 080-0022 | 10 EA | | | | |
| *9 | TIE, CABLE 15"W/MOUNTING HOLE | 080-0273 | 7 EA | | | | |
| 10 | SUMP, SHOWER W/ BRACKETS #4137-1 | 026-0212 | 1 EA | | | | |
| 11 | THRU-HULL, 3/4" PLASTIC (REF. ONLY) | 032-0012 | 1 EA | | | | |
| 12 | DRAIN, SHOWER ( REF. ONLY) | 035-0616 | 1 EA | | | | |
| 13 | THRU-HULL, 1" PLASTIC (REF. ONLY) | 035-0208 | 2 EA | | | | |
| 14 | HOSE, 1" BLACK PVC #149-1000 | 022-0047 | 18 FT | | | | |

## FIGURE J14: 248V PORCELAIN TOILET W/ HOLDING TANK (1 OF 2)

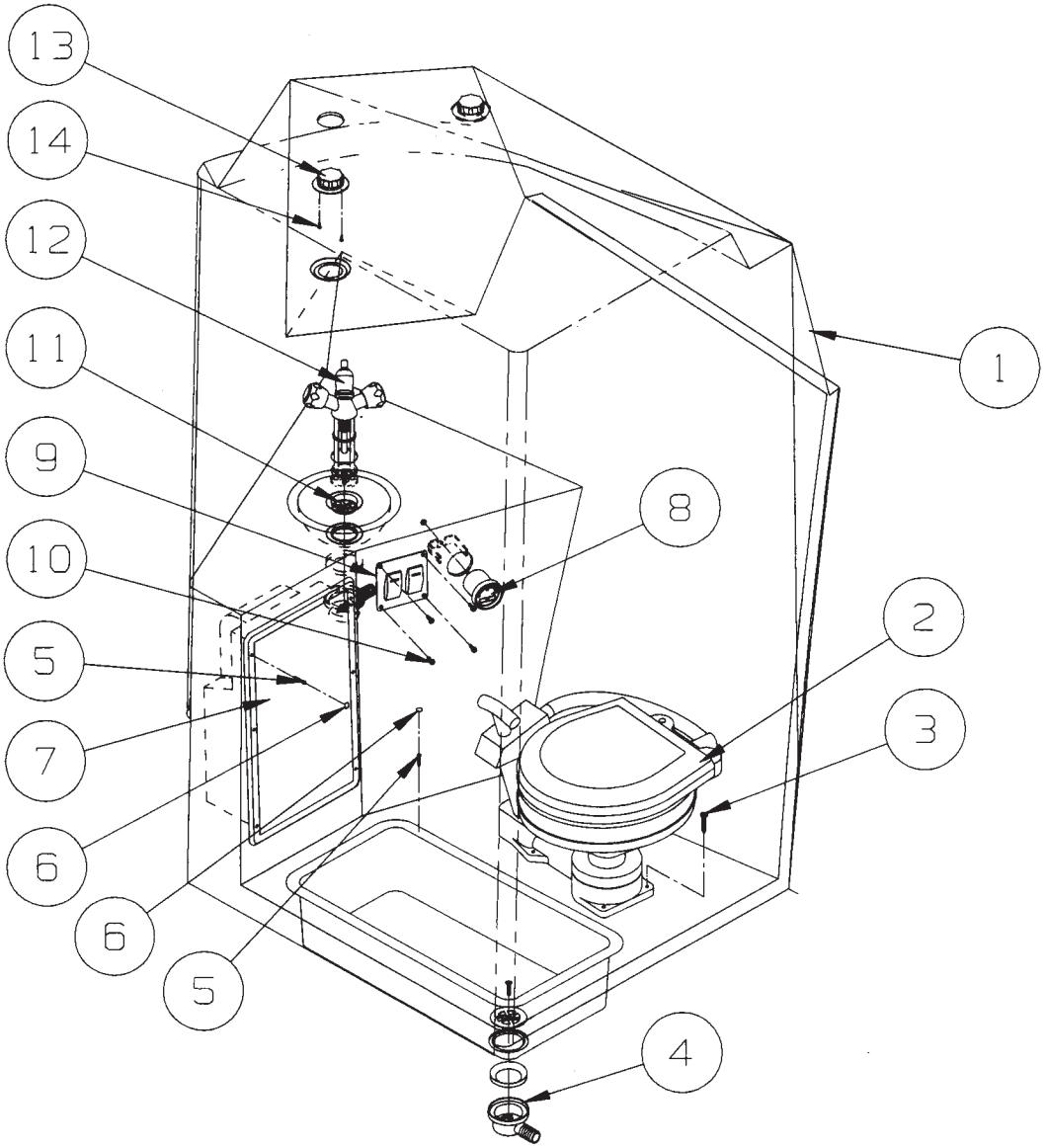


## FIGURE J15: 248V PORCELAIN TOILET W/ HOLDING TANK (2 OF 2)



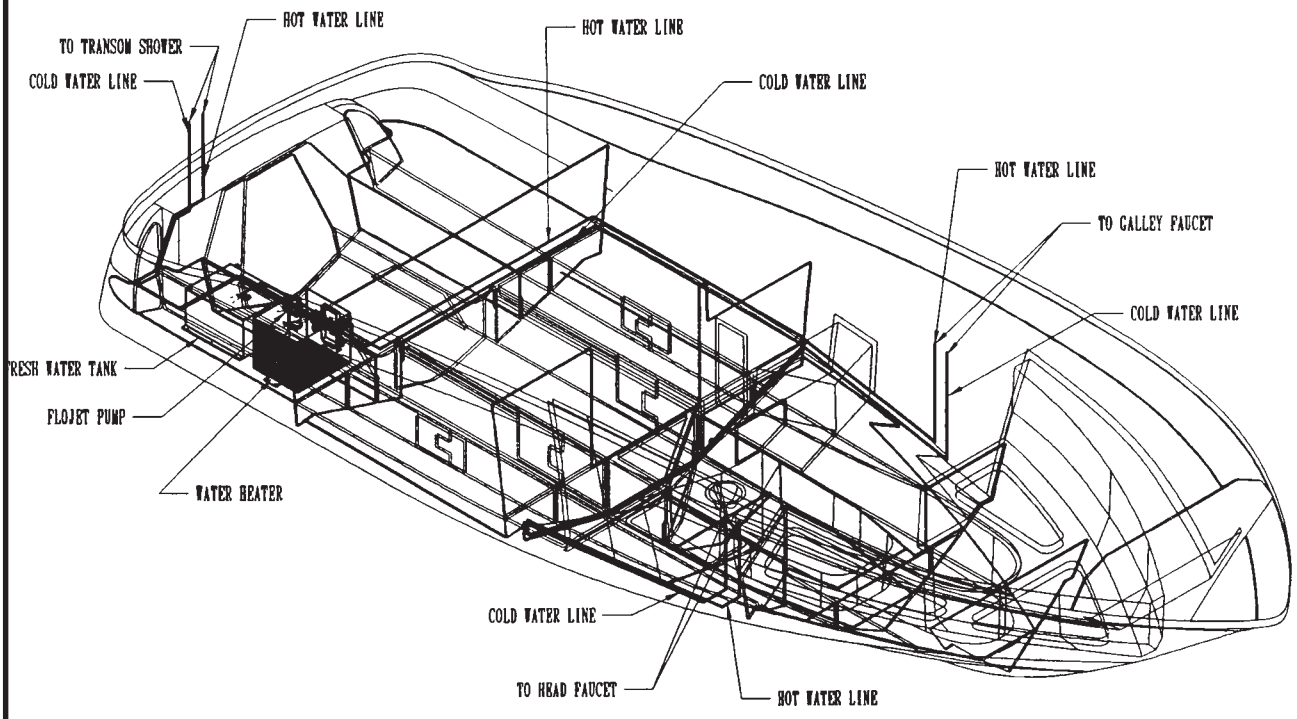

| # | DESCRIPTION | PART # | QTY. | # | DESCRIPTION | PART # | QTY. |
|---|---|---|---|---|---|---|---|
| 1 | TANK, BLACK / GRAY WATER 16 GALLON | 035-0964 | 1 EA | 15 | SCREW, #14 x 1-1/2" PPHSMS SS | 080-0043 | 4 EA |
| 2 | PLATE, ENGRAVED "TOILET WATER" | 056-0155 | 1 EA | *16 | BLOCK, TIE WRAP, SCREW MOUNT | 032-0584 | 10 EA |
| 3 | HOSE BARB, 3/4" MPT x 3/4" HB | 035-0327 | 1 EA | 17 | SCREW, #10 x 1-3/4" POHSMS SS | 080-0036 | 4 EA |
| 4 | VALVE, BALL 3/4" #4726K12 | 035-0118 | 1 EA | *18 | SCREW, #8 x 3/4" POHSMS SS | 080-0022 | 10 EA |
| 5 | THRU HULL, 3/4" BRONZE #322-00 | 035-0552 | 1 EA | *19 | HARNESS ASSEMBLY, 8AWG GREEN 65" | 027-1804 | 1 EA |
| 6 | TOILET, MANUAL LEFT HAND #2909 | 035-0257 | 1 EA | 20 | WASHER, FINISH #8 SS | 080-0091 | 4 EA |
| 7 | PLUG, 1-1/2" MPT | 035-0160 | 1 EA | 21 | INSERT, VINYL RUB RAIL | 033-0171 | 5 FT |
| 8 | SCREW, #6 x 1/2" PPHSMS SS | 080-0010 | 2 EA | | | | |
| 9 | HOSE, 1-1/2" SANITATION WHT116 | 022-0055 | -4 FT | | | | |
| 10 | CLAMP, 1-1/2" #24 FILL HOSE | 021-0032 | 4 EA | | | | |
| 11 | CLAMP, 5/8" FUEL VENT HOSE | 021-0031 | 4 EA | | | | |
| 12 | HOSE, 3/4" WATER #148-0340 | 022-0029 | 16 FT | | | | |
| 13 | HOSE, 5/8" WASTE #148-0580 (REF. ONLY) | 022-0013 | | | | | |
| *14 | TIE, CABLE 15" W/MOUNTING HOLE | 080-0273 | 10 EA | | | | |

## FIGURE J16: 268V HEAD



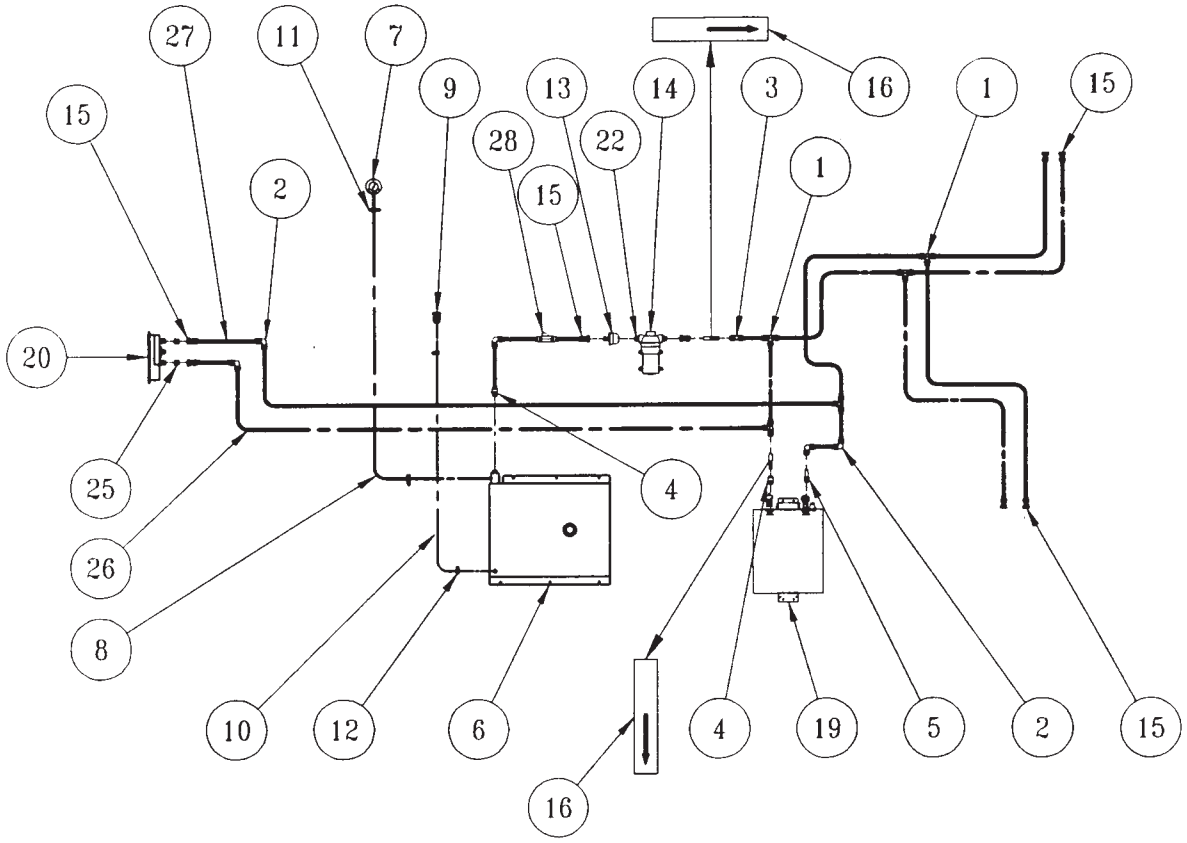

| # | DESCRIPTION | PART # | QTY. | # | DESCRIPTION | PART # | QTY. |
|---|---|---|---|---|---|---|---|
| 1 | TOP,HEAD 268 VISTA | 110-50159 | 1EA | | | | |
| 2 | TOILET,MANUAL LEFT HAND #2909 | 035-0257 | 1EA | | | | |
| 3 | SCREW,#14 X 1 1/2" PPHSMS | 080-0043 | 4EA | | | | |
| 4 | DRAIN,SHOWER FLOOR | 035-0616 | 1EA | | | | |
| 5 | SCREW,#8 X 3/4" POHSMS | 080-0022 | 10EA | | | | |
| 6 | COVER,SCREW PRESS-ON #TC2-100 | 080-1006 | 10EA | | | | |
| 7 | CABINET,VANITY LEFT HAND | 032-1867 | 1EA | | | | |
| 8 | INDICATOR,WASTE LEVEL (OPTION) | 024-0399-02 | 1EA | | | | |
| 9 | PANEL ASS'Y, HEAD, LIGHT/TOILET 248/268 | 025-2457 | 1EA | | | | |
| 10 | SCREW,#6 X 1/2" PPHSMS | 080-0010 | 4EA | | | | |
| 11 | DRAIN,SINK | 035-0225 | 1EA | | | | |
| 12 | FAUCET,PULL-OUT SHOWER SPOUT | 035-0927 | 1EA | | | | |
| 13 | LIGHT,WHITE 2" DOME 10WATT | 026-0368-02 | 2EA | | | | |
| 14 | SCREW,#6 X 3/4" PFHSMS | 080-0011 | 4EA | | | | |

# FIGURE J17: 268 FRESH WATER SYSTEM (1 OF 2)




NOTE: FOR PARTS LIST REFER TO DRAWING 2 OF 2.

## FIGURE J18: 268 FRESH WATER SYSTEM (2 OF 2)

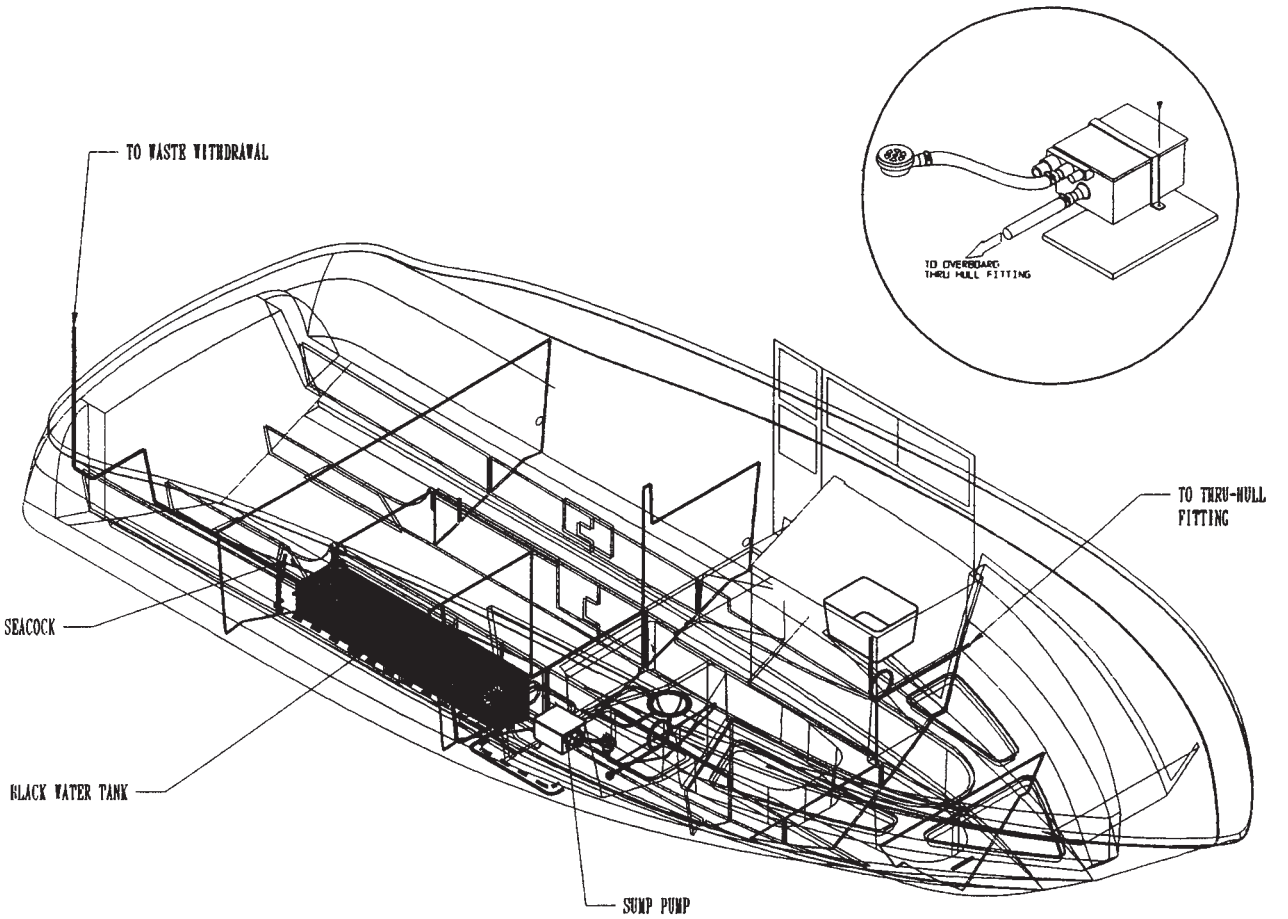



NOTES: 1) ASSURE CHECK VALVES ARE IN CORRECT DIRECTION.
2) * NOT SHOWN

HOT WATER LINE
COLD WATER LINE

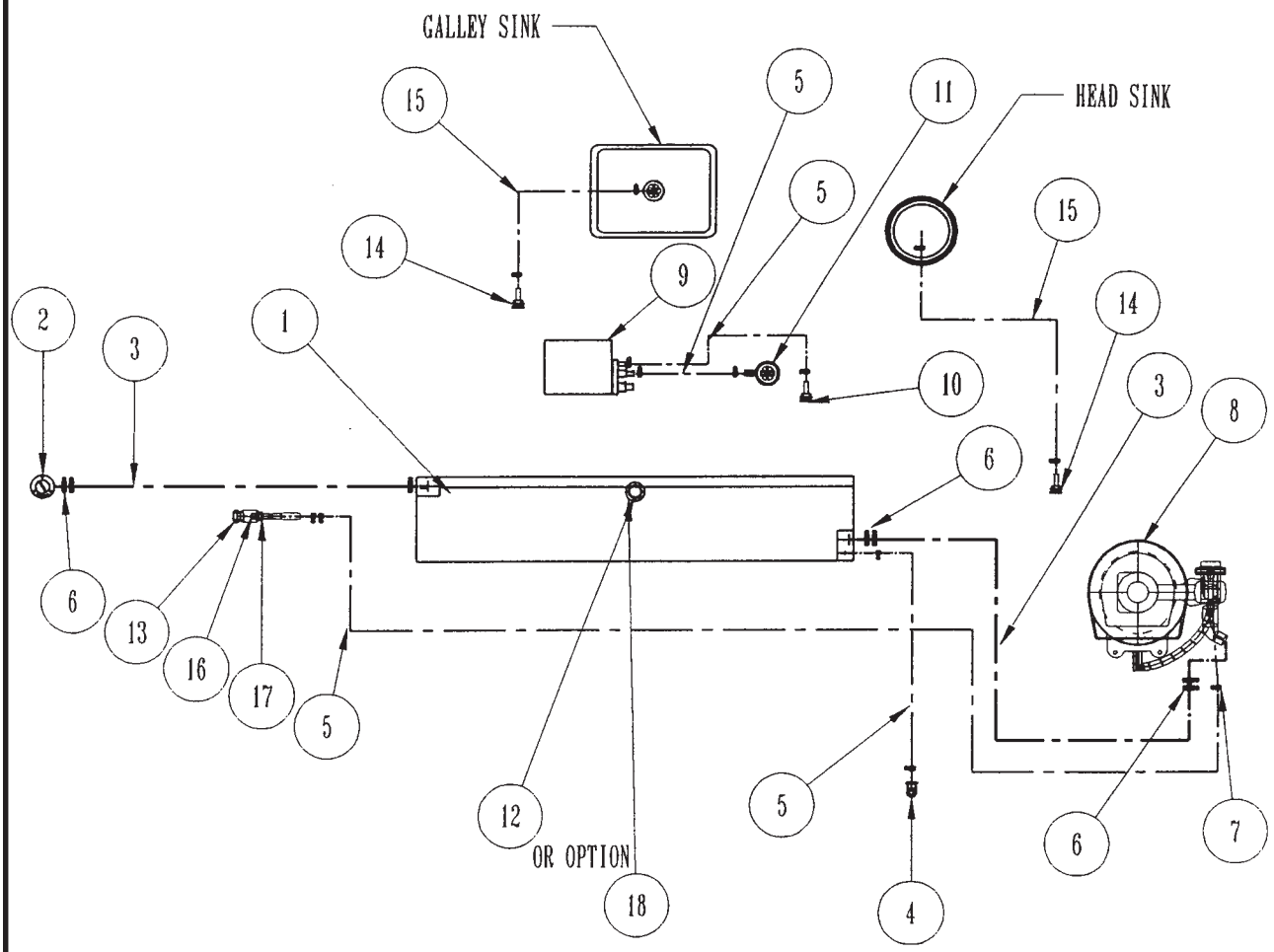
| # | DESCRIPTION | PART # | QTY. | # | DESCRIPTION | PART # | QTY. |
|---|---|---|---|---|---|---|---|
| 1 | TEE, 15mm WS1502B | 035-0928 | 5 EA | 15 | ADAPTER, FEMALE 1/2" BSP x 15mm WS1532B | 035-0933 | 8 EA |
| 2 | ELBOW, 15mm WS1503B | 035-0929 | 5 EA | 16 | CHECK VALVE, 15mm WS1582B | 035-0931 | 2 EA |
| 3 | EQUAL STRAIGHT, 15mm WS1504B | 035-0959 | 1 EA | *17 | COLLET CLIP, 15mm WS1518B | 035-0939 | 37 EA |
| 4 | ADAPTER, MALE 1/2" BSP x 15mm WS1514B | 035-0934 | 3 EA | *18 | COLLET COVER, 15mm WS1590B | 035-0940 | 37 EA |
| 5 | ADAPTER, STEM 1/2" MPT x 15mm WS1524B | 035-0935 | 1 EA | 19 | WATER HEATER, 6 GAL | 065-0040 | 1 EA |
| 6 | TANK, GRAY WATER/ FRESH WATER 20 GAL. | 035-0918 | 1 EA | 20 | SHOWER, TRANSOM COMPLETE HOT/COLD | 035-0777 | 1 EA |
| 7 | DECK FILL, S.S. WATER #66408-1 | 031-0087 | 1 EA | *21 | COUPLING, MALE 1/2" x 1/2" #QC33 | 035-0078 | 1 EA |
| 8 | HOSE, 1 1/2" WATER WHITE #143-1120 | 022-0007 | 5 FT | 22 | FITTING, KIT, FLOJET #C 20381-0 | 035-0729 | 1 EA |
| 9 | VENT, CHROME PLATED BRASS #352030 | 035-0812 | 1 EA | *23 | HOT WATER HEATER KIT #3856265 | 035-0334 | 1 EA |
| 10 | HOSE, 5/8" WASTE #148-0580 | 022-0013 | 5 FT | *24 | ANTIFREEZE, NON-TOXIC, 55 GAL | 084-0043 | 3 GAL |
| 11 | CLAMP, 1 1/2" FILL HOSE | 021-0032 | 2 EA | 25 | ADAPTER, 3/8" BSP x 1/2" NPT | 035-0691 | 2 EA |
| 12 | CLAMP, 5/8" VENT HOSE | 021-0031 | 2 EA | 26 | TUBING, BLUE 15mm x 50mm WS7152B | 035-0936 | 38 FT |
| 13 | FILTER, IN LINE SHURFLO #170-06 | 035-0158 | 1 EA | 27 | TUBING, RED 15mm x 50mm WS7154B | 035-0937 | 37 FT |
| 14 | PUMP, FLOJET #f4405-143B | 026-0331-02 | 1 EA | 28 | VALVE, SHUT-OFF 15mm WS1574B | 035-0932 | 1 EA |

# FIGURE J19: 268V WASTE SYSTEM (1 OF 2)



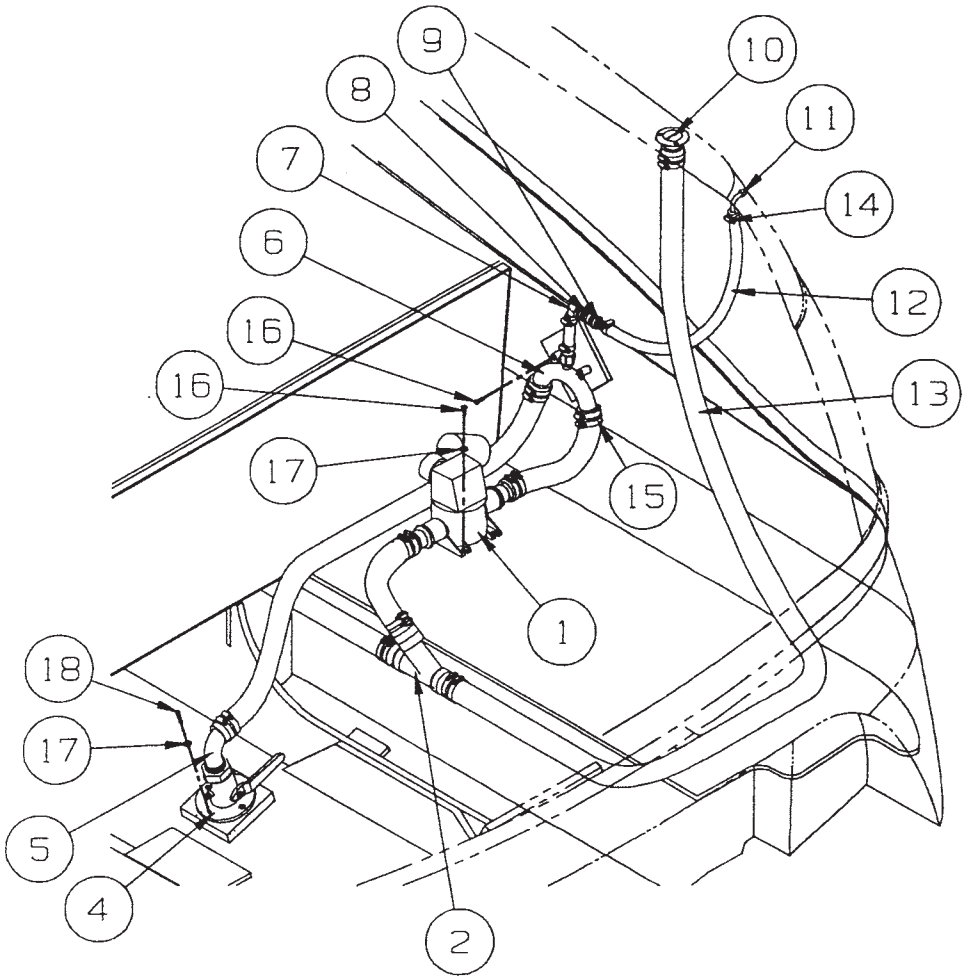

NOTE: FOR PARTS LIST REFER TO DRAWING 2 OF 2.

# FIGURE J20: 268V WASTE SYSTEM (2 OF 2)




| # | DESCRIPTION | PART # | QTY. | # | DESCRIPTION | PART # | QTY. |
|---|---|---|---|---|---|---|---|
| 1 | TANK, FRESH WATER/BLACK | 035-0905 | 1 EA | 15 | HOSE, 1" BLACK PVC #149-1000 | 022-0047 | 20 FT |
| 2 | DECK FILL, S.S. WASTE #66126-1 | 031-0086 | 1 EA | 16 | VALVE, BALL 3/4" | 035-0118 | 1 EA |
| 3 | HOSE, 1 1/2" WATER WHITE #143-1120 | 022-0007 | 32 FT | 17 | HOSE BARB, 3/4 MPT x 3/4 HB (BRASS) | 035-0327 | 1 EA |
| 4 | VENT, CHROME PLATED BRASS #352030 | 035-0812 | 1 EA | 18 | SENDER WASTE LEVEL INDICATOR (OPTION) | 025-2098 | 1 EA |
| 5 | HOSE, 5/8" WASTE #148-0580 | 022-0013 | 12 FT | | | | |
| 6 | CLAMP, 1 1/2" FILL HOSE | 021-0032 | 6 EA | | | | |
| 7 | CLAMP, 5/8" VENT HOSE | 021-0031 | 13 EA | | | | |
| 8 | TIOLET, MANUAL LEFT HAND | 035-0257 | 1 EA | | | | |
| 9 | SUMP, SHOWER W/ BRACKETS #4137-1 | 026-0212-02 | 1 EA | | | | |
| 10 | THRU-HULL, 3/4" PLASTIC (REF. ONLY) | 032-0012 | 1 EA | | | | |
| 11 | DRAIN, SHOWER ( REF. ONLY) | 035-0616 | 1 EA | | | | |
| 12 | PLUG, 1 1/2" MPT | 035-0160 | 1 EA | | | | |
| 13 | THRU HULL, 3/4" BRONZE #322-005 | 035-0552 | 1 EA | | | | |
| 14 | THRU-HULL, 1" PLASTIC (REF. ONLY) | 035-0208 | 2 EA | | | | |

## FIGURE J21: 268V OVERBOARD WASTE DISCHARGE SYSTEM




| # | DESCRIPTION | PART # | QTY. | # | DESCRIPTION | PART # | QTY. |
|---|---|---|---|---|---|---|---|
| 1 | PUMP,T-12 MACERATOR | 065-0081-02 | 1EA | 15 | CLAMP,1-1/2" #24 FILL HOSE | 021-0032 | 18 EA |
| 2 | KIT,SINGLE WYE 1-1/2" | 035-0305 | 1EA | 16 | SCREW,#10 x 1" POHSMS | 080-0035 | 6EA |
| 3 | THRU-HULL,1-1/2" BRONZE (NOT SHOWN) | 035-0204 | 1EA | 17 | WASHER,#8 FINISH | 080-0091 | 8EA |
| 4 | SEACOCK,1-1/2" #805008 PLB | 035-0105 | 1EA | 18 | SCREW,#10 x 1-1/2" POHSMS | 080-0032 | 4EA |
| 5 | ELBOW,1.5"MP x 1.5"HB BRONZE | 035-0199 | 1EA | | PLATE,"HEAD DISCHARGE" (NOT SHOWN) | 056-0183 | 1EA |
| 6 | VENT LOOP,1-1/2" w/ HOSE BARB | 035-0110 | 1EA | | HARNESS ASSEMBLY, 8AWG (NOT SHOWN) | 027-1804 | 1EA |
| 7 | ELBOW,1/2"MP x 5/8"HB | 035-0035 | 1EA | | TEE, 5/8" HOSE BARB (NOT SHOWN) | 035-0166 | 1EA |
| 8 | VALVE,CHECK #Q2501 | 035-0015 | 1EA | | BLOCK, TIE WRAP, SCREW MOUNT (NOT SHOWN) | 032-0584 | 12EA |
| 9 | TAIL PIPE,1/2"MP x 5/8"HB | 035-0034 | 1EA | | SCREW #8 x 3/4' POHSMS SS (NOT SHOWN) | 080-0022 | 12EA |
| 10 | DECK FITTING,SS WASTE | REF 118-50834 | | | TIE, CABLE, 7.9"W/MOUNTING HOLE (NOT SHOWN) | 080-0287 | 12EA |
| 11 | VENT,CHROME PLATED BRASS | 035-0812 | 1EA | | | | |
| 12 | HOSE,5/8" WASTE #148-0580 | 022-0013 | 10FT | | | | |
| 13 | HOSE,1-1/2" SANITATION WHT116 | 022-0055 | 14FT | | | | |
| 14 | CLAMP,5/8" #10H FUEL VENT | 021-0031 | 4EA | | | | |

# VENTILATION AND DRAINAGE SYSTEMS

## K - 1 ENGINE COMPARTMENT VENTILATION

All Four Winns® Vista models are equipped with engine compartment ventilation. This system is designed to meet or exceed the requirements (in effect at the time of manufacture) of the U.S. Coast Guard, the National Marine Manufacturers Association, and the American Boat and Yacht Council.

### A. Gravity Ventilation System

This system includes air intake and exhaust components. The exhaust ducting reaches to the lower bilge area. This provides adequate air movement while underway and during bilge blower operation.

### B. Forced Air Ventilation

All Four Winns® Vista models are equipped with an electric bilge blower. The bilge blower provides the ventilation required prior to starting the engines and while at idle. See Section H Electrical Systems for blower operation instructions.

**WARNING**

Before starting the engine(s) or generator, operate the engine compartment bilge blower for four (4) minutes. Then check the engine compartment for gasoline vapors. ALWAYS operate the bilge blower while the engines are at idle or the generator is in use. Failure to comply could cause explosion and thereby inflict serious injury or death.

**WARNING**

Fumes can come from batteries while charging. A concentration of hydrogen fumes can be explosive under the right conditions.

**NOTICE**

A Gas Vapor Detector is a monitor which will alert the operator of an accumulation of gasoline fumes in the engine compartment. It is optional on the 248/268 Vista and can be installed by your Four Winns® dealer. DO NOT rely solely on detectors or similar equipment. ALWAYS conduct a physical inspection of the engine compartment.

### C. Engine Ventilation System Maintenance

Periodic inspection and cleaning of the ventilation ducts is necessary to ensure adequate air circulation. A buildup of leaves, twigs, or other debris can severely reduce ventilation. Be sure bilge water does not accumulate to a level that would obstruct the ventilation ducts.

Blower operation can be tested by placing a hand over the vents. DO NOT rely on the sound of the blower. Be sure a substantial amount of air is being exhausted by the bilge blower. Check the bilge blower system often, preferably before each cruise.

## K- 2 CABIN VENTILATION

All Vista cabins are equipped with deck hatches for ventilation. The aft cabin window also opens to provide ventilation. The cabin side windows (portlights) on the 248/268 Vista may be opened to provide additional ventilation.

**WARNING**

Failure to properly ventilate the boat while the engines or generator are operating may permit carbon monoxide to accumulate inside of the cabin. Refer to Section E-2 Engine Exhaust and Section B-2 Carbon Monoxide for additional information.

Screens for the forward deck hatches are available for all Four Winns® boats. The screens are removable and must be stored properly when not in use.

**NOTICE**

Be sure deck hatches are secured while underway. Damage to the hatch may result. Store screens in a safe place to prevent damage.

## K - 3 HULL DRAINAGE SYSTEMS

### A. Transom Drain

A transom drain with plug is provided in the engine compartment to allow water drainage. When boat is out of the water, the boat and cradle should be positioned so

any bilge water accumulation during dry storage will flow towards the transom.

**CAUTION**

Be sure the drain plug is securely in place prior to launching the boat. Upon shipment of the boat, the drain plug is usually taped to the steering wheel.

**B. Bilge Pumps**

Bilge pumps are provided in the bottom of the hull to remove miscellaneous water accumulations that might occur during normal boating or weather conditions. The bilge pump is controlled by the Bilge Pump Switch on the helm control panel (see Section H for a detailed description of the bilge pump switches).

The aft bilge pump is equipped with an automatic switch to control pump operation. As the water level rises, the automatic float switch will activate the pump. A separate circuit breaker is provided to supply power directly from the "SHIP SYSTEMS" battery regardless of battery selector switch position.

**NOTICE**

While at rest, any bilge water accumulation may flow forward. Therefore, operate the bilge pumps shortly after getting underway and while the boat is at a substantial running angle. DO NOT allow bilge water to accumulate. Damage to the engine or other components may result.

When leaving the boat unattended for long periods of time or during excessive rain storms, it is a good idea to check on the boat for excessive water accumulation. Be sure the bilge pump and automatic float switch are operating properly. The operating time of the bilge pump will be limited to the battery capacity.

Periodically, clean the bilge pump strainers. DO NOT allow dirt and debris to clog the bilge pump intakes. Check operation of the bilge pump float switch often to ensure movement of the switch is not restricted by debris, portions of the hull, etc.

Wipe up any oil accumulation in the bilge prior to activation of the bilge pumps. Pumping oil overboard will pollute the water, and is subject to fine.

After winterization of the fresh water systems, be sure the bilge area, bilge pumps and associated hoses are thoroughly dry. Damage to the hull, bilge pumps and other equipment could occur if water is allowed to freeze in the bilge. Refer to the manufacturers literature included in the owner's packet for additional information.

**C. Sump**

A sump box is installed immediately forward of the aft cabin below the floor. It is equipped with an automatic bilge switch and will pump water overboard or into the grey water tank. Refer to Section J-2D on using the shower and for additional information on sump pump operation.

**D. Bilge Compartment Drainage**

Certain bulkhead areas of Four Winns® boats are sealed in accordance with U.S. Coast Guard regulations effective at the date of manufacture. Drainage is provided and water can be removed with the bilge pump.

**E. Cockpit Drainage**

The 248/268 incorporates a fiberglass self-bailing cockpit. This feature minimizes water entry to the bilge or engine compartment areas by providing means for water to be drained overboard.

Periodically open all engine hatches and clean the aft bilge compartment. Be sure the drains, tubes and fittings are clean and free of leaves, dirt, or other debris.

# INTERIOR EQUIPMENT

## L - 1 GALLEY EQUIPMENT

**CAUTION**

Care must be exercised while around stoves and other appliances. Keep children away from burners.

### A. Electric Stove

An electric stove is standard on the 248/268 Vista cruiser model. The stove is equipped with a single burner. A circuit breaker is provided in the 120 Volt AC cabin electrical panel. Refer to the Section E and the manufacturer's literature included in the owner's packet. See Figures L1 and L2 for stove and other appliance locations.

### B. Microwave Oven

A microwave oven is optional on the 248/268 Vista. A circuit breaker is provided in the 120 Volt AC cabin electrical panel. Refer to the manufacturer's literature provided in the owner's packet.

**CAUTION**

Do not restrict air flow while microwave is in use, or damage to microwave oven or cabinet may result.

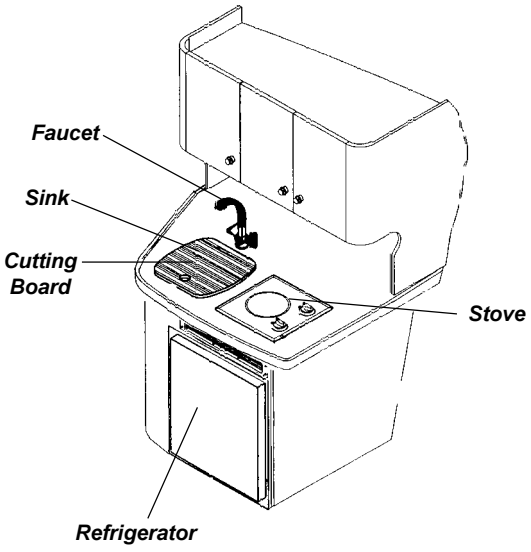



**Figure L1: 248V Galley**

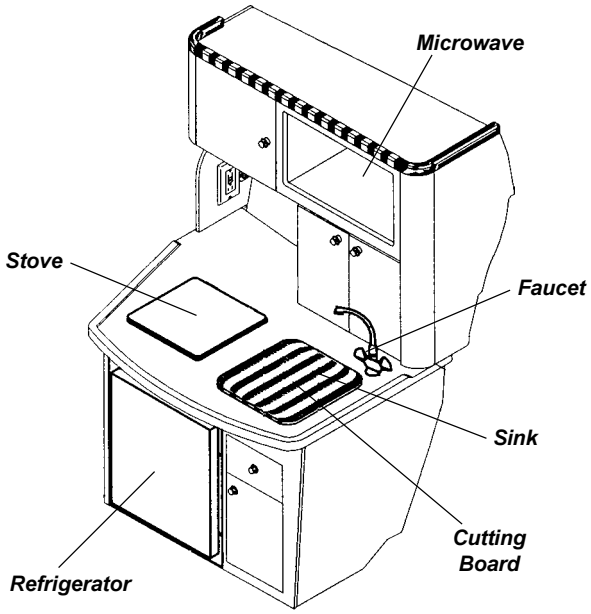



***Figure L2: 268V Galley***

### C. Refrigerator

A refrigerator is standard equipment. The refrigerator is designed to operate efficiently on AC Shore Power (120 volt or 220VAC - international) or battery power (12 volt). The refrigerator will automatically transfer to 12 volt operation when dockside power is not available and the 12 volt refrigerator breaker is on.

The thermostat is a full range thermostat that will maintain the temperature you desire. Turning the control all the way right (clockwise) will give you the coldest position and turning to the left will give you a warmer refrigerator temperature. This control is also an ON/OFF switch when you turn it to the "O" position (hard left). A good setting to start with is # 2. See the manufacturer's information included in the owner's packet for additional information.

Care should be exercised while operating the refrigerator on the 12 volt system. The refrigerator requires a substantial amount of current. Excessive current draw can severely drain a battery through extended use.

A magnetic strip is used inside the seal of the refrigerators. The magnetic strip allows the seal to draw tight to the inside of the refrigerator when the door is closed. Also, make sure retaining latch is in place to secure refrigerator door while underway.

## L - 2 STEREO SYSTEM

Four Winns® offers a single CD stereo as standard equipment. A CD player with 10 disc CD changer is optional. Speakers are installed within the interior cabin and provide excellent sound quality. See Figure L3. For stereo operation, please refer to the manufacturer's manual included in the owner's information packet.

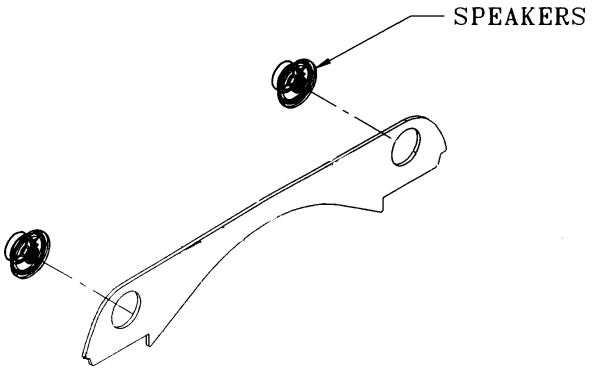



*Figure L3: 248/268V Speaker Location*

## J - 3 AIR CONDITIONING

Air Conditioner/Heater provides either cooling or heating and is optional on the 248 and 268 Vista. The unit operates on 120 volt (220 volt on 50 hertz models) AC power. The output of the air conditioner is 5,000 BTU.

The air conditioning breaker must be turned on to activate the air conditioning unit. Depending upon humidity, the air conditioner will condense 5 to 15 gallons of water a day and this water drains into the sump pump.

The air conditioner is located in the aft cabin, port storage compartment. Air conditioner vents are located throughout the cabin to provide good air circulation. The vents are adjustable to change air flow direction and can be closed. See Figures L4, L5, L6, & L7.

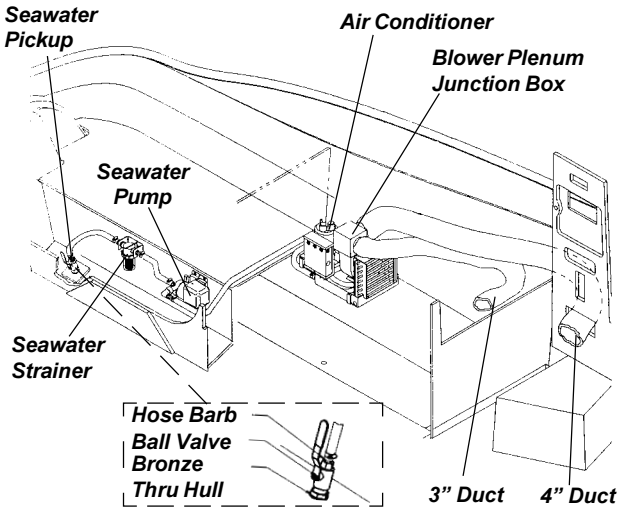



*Figure L4: 248/268 Vista Air Conditioner*

The air conditioning control panel is located in the electronics panel assembly of the 248/268 Vista. See Figure L5. Please read the manufacturer's information on the air conditioner contained in the owner's packet (if applicable).

**NOTICE**

Most air conditioners utilize surface water as the cooling medium. Prior to using the air conditioning, the boat must be in the water and the seacock to the air conditioning water intake must be in the open position. The air conditioning seacock for water intake is located in the engine compartment. Operating air conditioners without proper cooling water will cause damage to the air conditioning system.

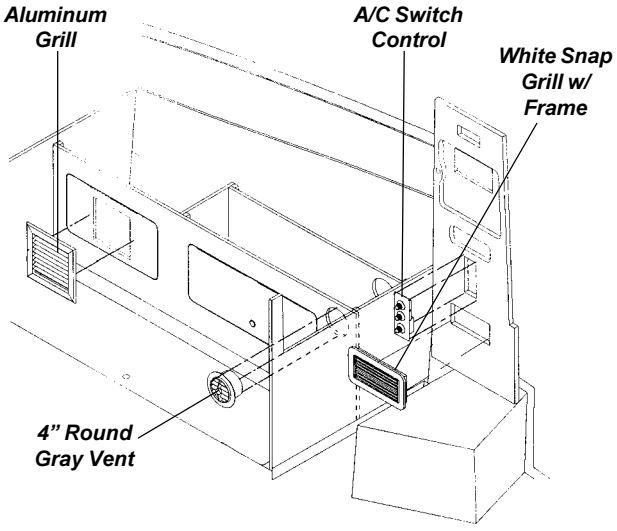



*Figure L5: 248/268V Air Conditioner Control Panel*

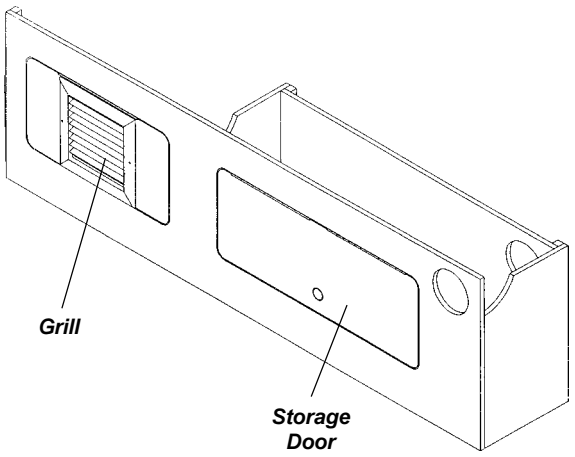


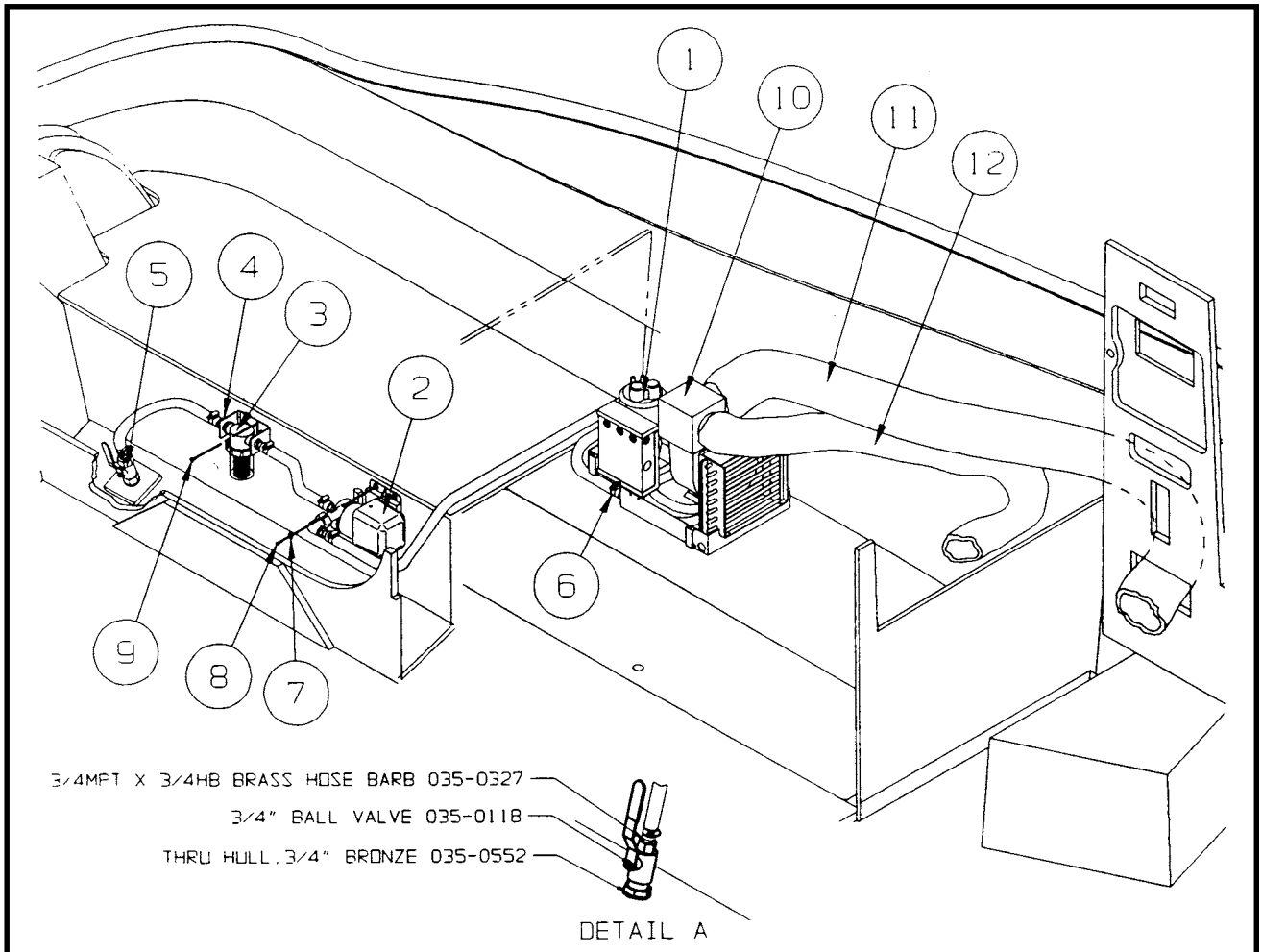

*Figure L6: 248/268V Mid Cabin Storage Assy. w/ A/C*

Air conditioners utilized in Four Winns® boats are equipped with reverse cycle heat. Thus, some heat effect can be derived from the unit. It must be noted that the amount of heat that can be obtained is limited by the temperature of the raw cooling water pumped through the system. When the water temperature drops to 40 degrees Fahrenheit, the output is about 50% of the maximum. At 36 degrees Fahrenheit, the output is very low.

**NOTICE**
During cold conditions, an alternate or supplemental heating system should be used.

Clean the sea water strainer often. Also, clean the return air filter screens, located behind the louvered doors and grills, at least once a month.

To winterize, refer to the manufacturer's literature included in the owner's packet.




| # | DESCRIPTION | PART # | QTY. | # | DESCRIPTION | PART # | QTY. |
|---|---|---|---|---|---|---|---|
| 1 | A/C UNIT, CRUISAIR Z5 | 065-0731 | 1 KIT | | | | |
| 2 | PUMP,SEAWATER PMP250 | - | 1EA | | | | |
| 3 | STRAINER,SEAWATER PLASTIC | - | 1EA | | | | |
| 4 | BRACKET, SEAWATER STRAINER | 029-0345 | 1EA | | | | |
| 5 | PICKUP,SEAWATER | DETAIL A | | | | | |
| 6 | CLAMP,FUEL VENT 5/8" | 021-0031 | 6EA | | | | |
| 7 | WASHER,#8 FINISH | 080-0091 | 4EA | | | | |
| 8 | SCREW,#8 x 1" POHSMS | 080-0019 | 4EA | | | | |
| 9 | SCREW,#10 x 3/4" PTHSMS | 080-0033 | 2EA | | | | |
| 10 | BOX, BLOWER PLENUM JUNCTION | - | 1EA | | | | |
| 11 | DUCT,4"DIA INSULATED | - | - | | | | |
| 12 | DUCT,3"DIA INSULATED | - | - | | | | |
| | | | | | | | |
| | | | | | | | |

***Figure L7: 248/268V Air Conditioning System***

# EXTERIOR EQUIPMENT

## M - 1 RAILS & DECK HARDWARE

Hand and bow rails have been installed to provide security for passengers while outside the cockpit area (i.e. swim platform and bow areas). Limiting passenger movement while underway is recommended. All those on board should be safely seated whenever possible. Additional care must be taken when in rough seas or foul weather. Access to the foredeck should be through the foredeck hatch when running in adverse conditions.

The rail system and hardware fittings have been selected and installed to perform specific functions. Fenders or mooring lines should not be secured to the rails or stanchions. Be certain that a clear lead exists when running dock lines or an anchor line. A line inadvertently threaded around a stanchion or over the rail could cause damage.

The majority of the hardware installed is made of stainless steel. Regardless of the type of hardware used, periodic maintenance is necessary.

Cleaning the hardware with a nonabrasive cleaner will help keep the original shine and beauty. Stainless steel hardware, while quite durable, can become superficially rusted. This can be controlled by cleaning the fittings and applying a coat of wax. Any future rusting can be easily removed by polishing and rewaxing.

**NOTICE**

All fittings must be periodically inspected for loosening, wear, and damage. Problems should be corrected immediately!

The cleats that have been installed are specifically designed and are intended to be used as mooring cleats. Their purpose is for securing the vessel to a dock, pier, mooring, or anchor.

**WARNING**

Four Winns® Boats are not equipped with any hardware designed for towing purposes. The mooring cleats that are installed on the boat are not to be used for towing another vessel or having the boat towed. Refer to Section A Operation for additional precautions regarding grounding and towing.

## M - 2 TRANSOM DOOR

A transom door is provided and allows access from the swim platform to the cockpit. A slide bolt is used to secure the transom door. To prevent a possible man overboard situation, make sure the transom door is secure before each cruise.

**WARNING**

Prevent falls overboard. Close, latch, and stay inside gate(s) while underway.

**DANGER**

To prevent personal injury, swim platform must not be occupied and transom door must be closed while engines are running.

**CAUTION**

To prevent personal injury, DO NOT sit on or lean against the transom door.

## M - 3 COMPANIONWAY DOOR & HATCH ASSEMBLY

The 248/268 Vista models have a combination hinged door (w/screen) and sliding hatch assembly for gaining access to and from the cabin. See Figure M1. A lift pin secures the hatch in different positions. The door may be kept open with the use of a strap. To utilize the screen door, simply separate the two doors. Strap the solid door open and close the screen door. A lock is provided to secure the cabin.

The companionway door and hatch is comprised of plexiglass. Plexiglass will break. Always secure the door and hatch before operating the boat.

**NOTICE**

Four Winns® does not recommended operating the boat with the hatch and/or door in the open position. Rough water or significant wake could cause the hatch or door to slam shut and break.

**NOTICE**

To prevent damage to the companionway's hatch track, the companionway hatch must be opened and closed slowly and carefully during use.

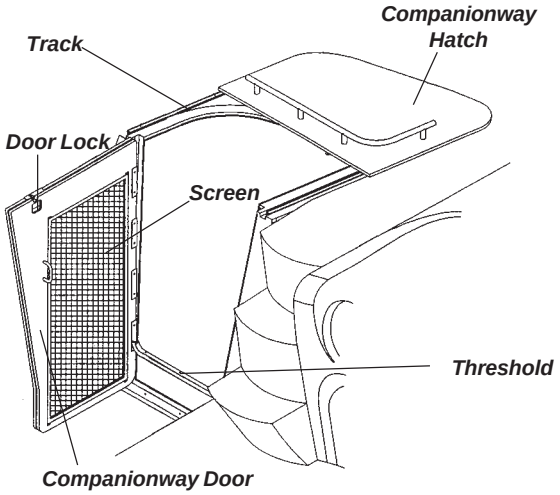



*Figure M1: Companionway Door*

## M - 4 WINDOWS

### A. Windshields and Cabin Windows

The windshield consist of tempered safety glass and cabin port lights consist of plexiglass. The windshield frame is aluminum.

A walk-thru windshield is standard. Steps are provided between the companionway and helm station to allow easy access through the walk-thru windshield opening.

**WARNING**

DO NOT use walk-thru during bad weather or on rough seas. Make sure deck hatches are closed when using walk-thru to prevent injury.

**NOTICE**

Make sure walk-thru is closed and secured when boating. Damage to the windshield will otherwise result.

Windshields of tempered glass can be cleaned with automotive glass cleaners or dish washing soap and water. See the following section for information on the care of plexiglass.

Aluminum can be cleaned with similar products or with nonabrasive cleaners such as Fantastic.

**NOTICE**

Read the label before using any product. DO NOT use abrasive cleaners.

### B. Plexiglass

Plexiglass is used for port holes, companionway assemblies, sliding storage doors, electrical panel doors, cabinets, and some windshields, or cabin windows. Plexiglass will scratch easily and must be handled with care.

To clean, wash gently with dish washing soap and water. Rinse thoroughly with clean water. To dry, use a soft chamois cloth. DO NOT use paper towels. They will scratch the plexiglass.

Plexiglass or plastic polish may also be used. Read the label first before using any cleaning product.

**NOTICE**

DO NOT use harsh chemicals or strong cleaning solutions on plexiglass. The surface can be etched, scratched, disfigured, or clouded.

## M - 5 FOREDECK HATCHES

The foredeck hatches consist of a translucent plexiglass. The hatch is supported by one locking hinge and can be secured in a partially open position for ventilation. See Figure M2. Hatch screens are provided on the Vistas. Follow the cleaning directions for plexiglass described above.

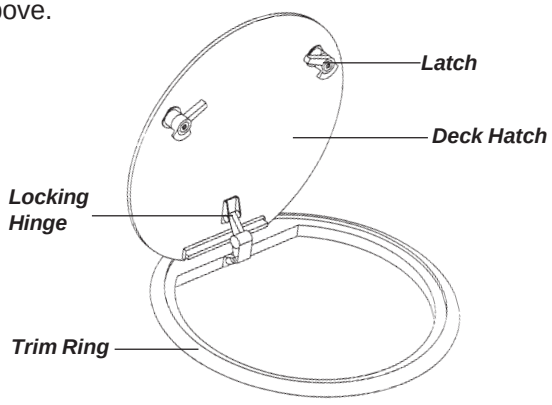



*Figure M2: Forward Deck Hatch*

**NOTICE**

DO NOT close the foredeck hatch with the hatch screen in place. Damage to the screen can result. Be sure deck hatches are secured while underway. Damage to the hatch may result if not secured.

## M - 6 SWIM PLATFORM

Four Winns® provides an integrated fiberglass swim platform on all models. An "add on" swim platform is standard and when installed extends the platform to approximately 28" on the 248 and 30" on the 268. For better footing, a nonskid surface is provided. The ladder and hand rails are located for easy access when boarding. See Figure M3.

**WARNING**

To prevent personal injury, DO NOT use the boarding ladder or swim platform while the engines are operating or the boat is in motion. Engines must be off when using the swim platform or boarding ladder.

**WARNING**

Keep hands and fingers away from ladder supports and hinges to prevent injury.

**NOTICE**

Always secure the ladder before boating. Damage to the ladder may otherwise result.

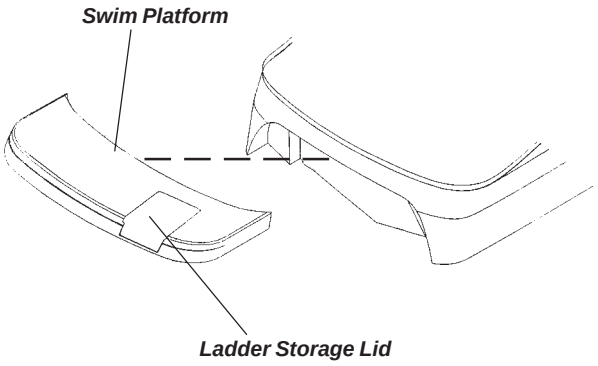



*Figure M3: 248/268V "Add-On" Swim Platform*

## M - 7 COCKPIT STORAGE

Storage compartments are provided throughout the cockpit area. See Figure M4. The doors have latches and roller-type catches for easy opening and closing. Storage space or shelves behind the doors are easily accessible.

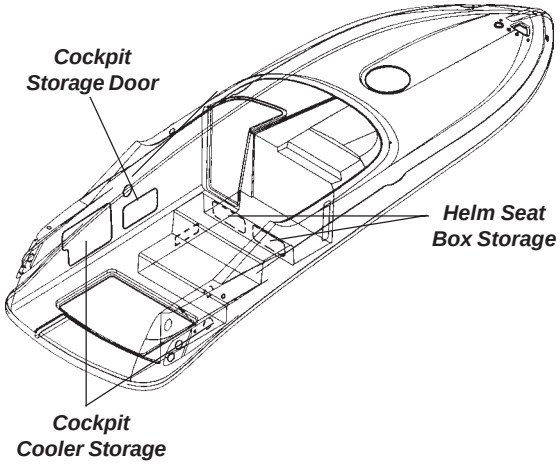



*Figure M4: Cockpit Storage Compartments*

## M - 8 TRANSOM STORAGE LOCKER

The transom storage provides fender storage and dockside power cord storage. The storage lockers are latched closed and have the capability to be locked. To open, lift the handle. The latches are flush mounted to prevent injury or accidental opening. See Figure M5.

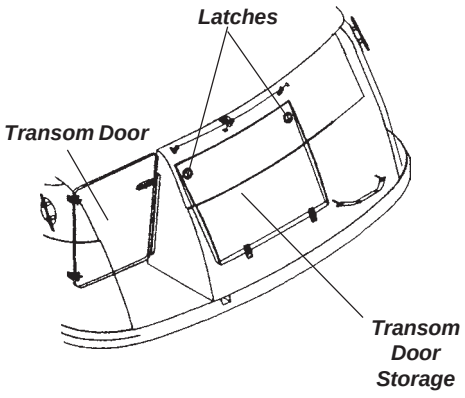



*Figure M5: 248/268V Transom Door Storage Locker*

## M - 9 BOW ROLLER

The bow roller assembly is standard equipment on the 248 and 268 Vista models. It extends beyond the bow. Refer to Figure M6. The 248/268 has an integrated bow roller/anchor chute combination. The function of the bow roller is to allow easier retrieval of the anchor. It also protects the hull/deck from surface abrasions or gouges while either anchored or when retrieving the anchor.

**WARNING**

To prevent a possible man overboard situation, NEVER stand on, or try to utilize the bow platform area in any way while the boat is underway.

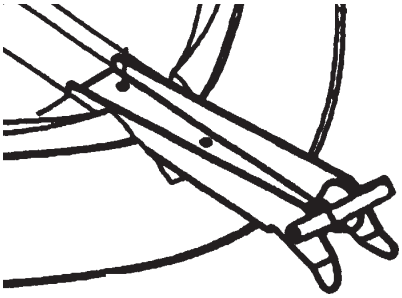


*Figure M6: 248/268V Bow Roller*

## K - 10 ANCHOR LINE STORAGE LOCKER

The anchor line is stored in the anchor line locker. The locker keeps the line secure while underway and keeps the deck clear of unsightly anchor line when docked. Also contained in this anchor line locker is the windlass. Please see Section M-11 below for details regarding the windlass. Also, refer to Figures M7.

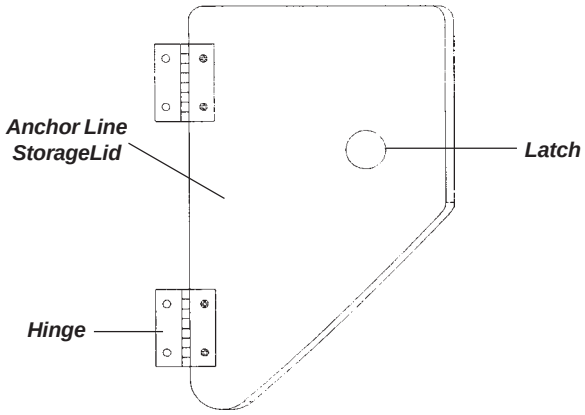



*Figure M7: 248/268V Anchor Line Storage Lid*

## M - 11 WINDLASS

A windlass is an electrically controlled winch mechanism for retrieving the anchor. The mechanical winch portion is mounted on foredeck. The windlass can be controlled by the electrical switches mounted on the deck. The windlass is optional on the 268 only. See Figure M8. Refer to the manufacturer's literature included in the owner's packet.

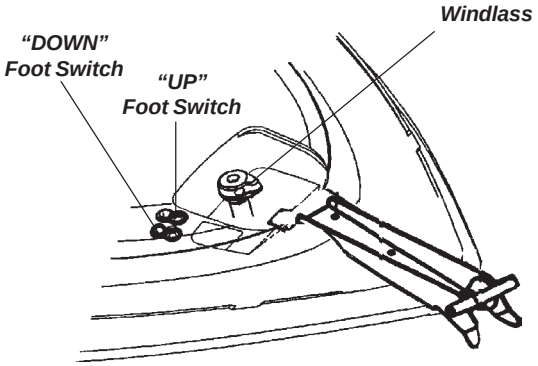



*Figure M8: Windlass*

**WARNING**

To prevent personal injury, keep clear of the windlass at all times.

## M - 12 NAVIGATIONAL EQUIPMENT

### A. Compass

A compass is standard on the Four Winns® 248/268 Vista models. It is a valuable piece of equipment when operating offshore, in unfamiliar waters, or in adverse weather conditions. The safety of those aboard the boat could, at some time, depend upon the compass and your navigational skills.

After all personal equipment is installed, including all electronics (radio, depth sounder, etc.), the compass must be properly calibrated. DO NOT rely on the compass readings until initial adjustment (compensation) has been performed. The boat has a factory installed compass, the manufacturer's instructions are provided in the owner's packet. Most areas have local companies that specialize in compass adjustment. If unsure of the proper compensation techniques, consider having the adjustment done professionally to insure accuracy and confidence in the compass.

**NOTICE**

During use, keep all extraneous metal objects away from the compass. The close proximity of metal objects (e.g., beverage cans) can cause compass deviation.

### B. Depthsounder

The depthsounder is standard equipment on your Vista 248/268 models. It consists of two main components, the transducer and the HDR 600 unit. The transducer is mounted to the hull and the HDR 600 is installed in the dash. The transducer and HDR 600 communicate by means of a cable, and are powered by your boat's 12-volt DC battery. The transducer and HDR 600 use the basic principle of sonar to indicate the water's depth. For information regarding operation and maintenance see Section E-8H and the manufacturer's literature included with the owner's packet

**NOTICE**

DO NOT depend solely upon the depth sounder for water depth. It is important to have navigational charts of the waters in which you are operating.

**WARNING**

Do not rely on depth sounder to avoid submerged objects. Depth sounders provide a relative indication of water depth only.

### C. Ship to Shore VHF Radio

A VHF radio is optional equipment on the 248/268 Vista model. It provides reliable communication between vessels, and from ship to public or private shore stations. It is programmed for two-way communication on all the International, U.S. and Canadian channels plus reception on ten separate weather channels, and the international calling and safety channels (16/9).

The VHF radio, and microphone is mounted on the helm. If equipped, additional information is included in the manufacturer's literature included in the owner's packet.

### D. GPS Navigation Package

A GPS is an electronic system through which a navigator can determine his position regardless of weather. The GPS sensor receives high frequency radio signals generated from satellites to generate coordinate readings on the display. The GPS navigational unit takes this information and uses it to determine the vessel's exact position.

Factory installed GPS system is optional only. It is mounted at the helm. If equipped, refer to the manufacturer's literature included in the owner's packet.

**NOTICE**

This device is only an aid to navigation. Its accuracy can be affected by many factors including equipment failure or defects, environmental conditions, and improper handling or use. It is the user's responsibility to exercise common prudence and navigational judgement, and this device should not be relied upon as a substitute for such prudence and judgement.

### E. Radar Arch

An optional radar arch is available on the 268 Vista only. It is swept forward in design. This presents a sleek, new look while providing an adequate platform necessary for installation of radar equipment. See Figure M9. Four Winns® does not offer radar equipment, however, excellent radar equipment is available from a number of manufacturers.

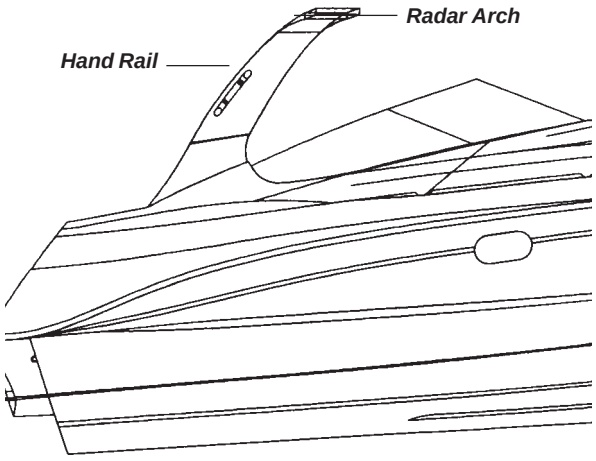



*Figure M9: Radar Arch*

## M - 13 SPOTLIGHT

A properly operating spotlight is essential for safe cruising at night. Four Winns® offers electrically controlled spotlight as optional equipment on the 248/268 Vista. The spotlight is attached to the bow rail and uses an electric motor and a helm switch control to direct the spotlight's beam. See Figure M10. Refer to the spotlight manufacturer's literature included in the owner's packet.

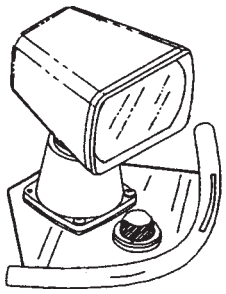


***Figure M10: Spotlight - Bow Rail Mounted***

# UPHOLSTERY

## N - 1 INTERIOR SEATING

### A. Cabin Tables

A cherry dinette is standard on the 248/268 and is conveniently located in the forward cabin. Table bases are "flush" mounted for convenience. Table legs are removable. Rotating the leg while lifting will ease the removal. See Figure N1. The leg may be stored in the v-berth storage compartment.

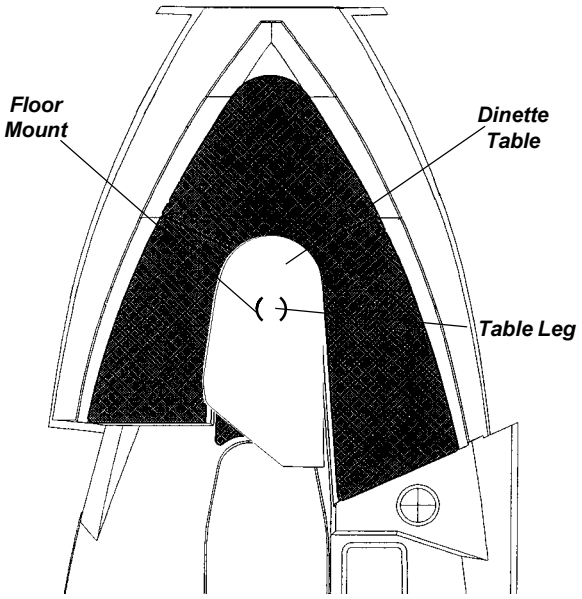



*Figure N1:248/268V Dinette Table*

The forward area can be converted into sleeping quarters with the use of filler cushions and v-berth fill-in table (not to be confused with the cherry dinette table). (Note: The filler cushions are also the backrest cushions). To convert the v-berth area into a sleeping berth follow the steps below:

1. Remove the cherry dinette table from the table leg.

2. Remove the leg from its floor mount. Rotating the leg while lifting will ease the removal.

3. Place the v-berth fill-in table into the recessed portion of the v-berth storage compartments.

4. Remove the backrest cushions and place them on the fill-in table.

Reverse this procedure to return the berth back into a dinette.

Storage for the cherry dinette table or v-berth fill-in table is located in the aft cabin against the bulkhead.

### B. V-berth or Forward Cabin

Four Winns® provides cushions for the v-berth/forward cabin area. These cushions simply drop into place. To gain access to the v-berth storage simply remove the cushions and storage lids. See Figures N2.

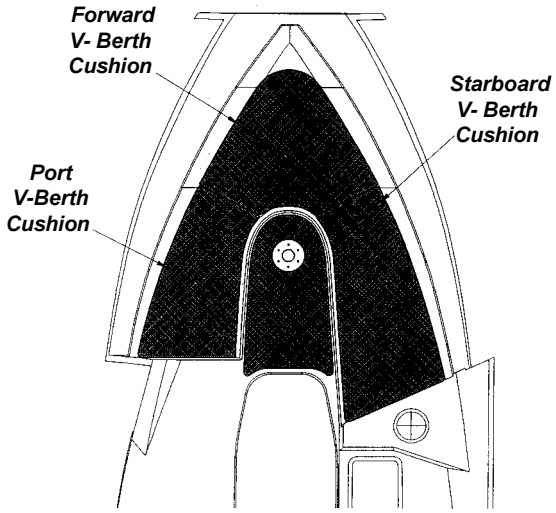



*Figure N2: 248/268V V- Berth Cushions*

### C. Mid Cabin (Aft Cabin) Berth

The mid cabin provides a large berth and includes a window for ventilation. The mid cabin has a storage shelf, plus a hanging storage locker, and privacy curtain. Also, access lids are installed below mid cabin cushions for servicing the fresh water and waste tanks, fuel tank, and other equipment. See Figures N3 and N4.

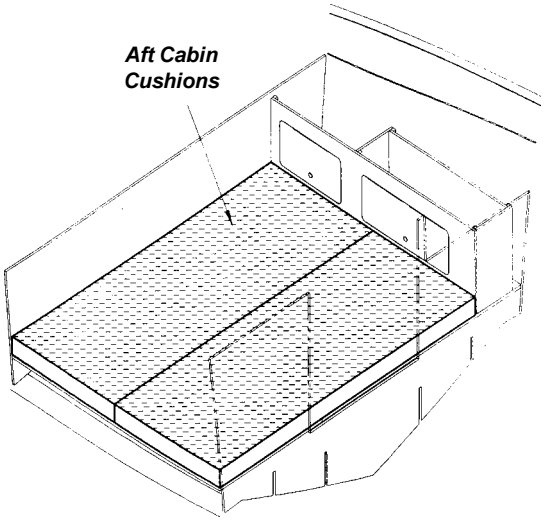



**Figure N3: 268V Mid Cabin Cushions**

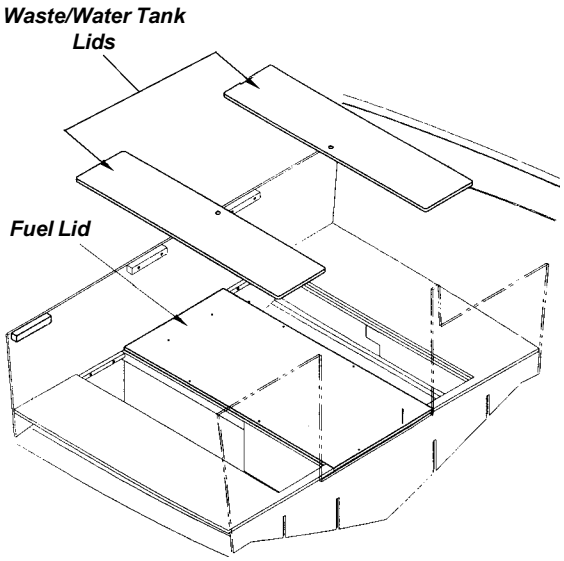



***Figure N4: 268V Mid Cabin Access Lids***

## N - 2 EXTERIOR SEATING

### A. Helm Seat

The helm seat is standard and can seat two or three people comfortably. A manual, slider mechanism is mounted under the driver's seat. This allows the driver of the boat to adjust his portion of the helm seat to meet his or her needs. To adjust, rotate the lever below the pilot's seat upward and slide the seat forward or aft to the desired position. There is approximately six inches of adjustment available. See Figure N5.

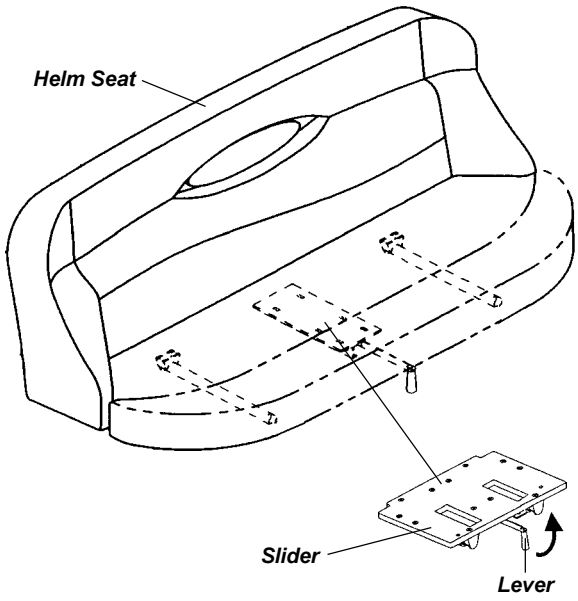



***Figure N5: Helm Seat and Slider Mechanism***

**WARNING**

DO NOT sit on the backrest portion of any cockpit seat. The helmsman could lose control of the boat or passengers could be thrown from the boat. The seat could also be damaged if excessive force is applied.

### B. Stern Seat

The custom U-shape stern seat includes support legs and fiberglass base. The U-shape seating arrangement continues around the back of the boat to create more usable seating area. Refer to Figure N6.

A stern seat fill-in cushion is optional and extends the cushion area for such things as sunbathing, napping or overnight sleeping. The aft fill-in cushion support is folding and is stored underneath the stern seat. Refer to Figure N7.

The aft cockpit stern seat cushion can be removed by lifting up and out. This allows for easier access to the engine. Refer to Figure N8.

**WARNING**

Make sure legs are vertical and locked before using the aft stern seat. Also, ensure the seat brackets are locked in their proper position before use.

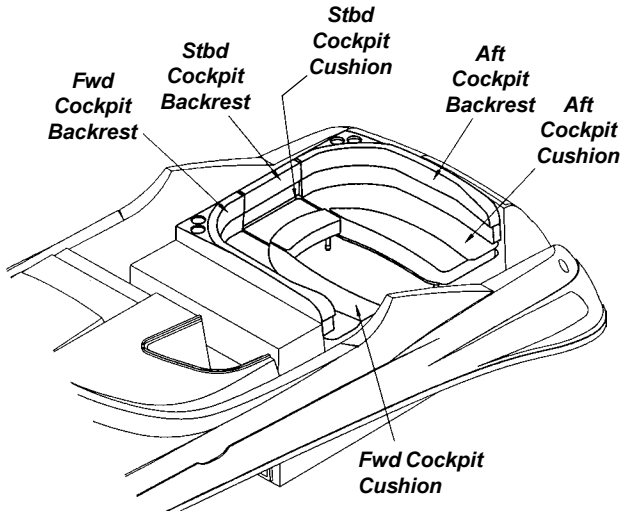



*Figure N6: Stern Seating*

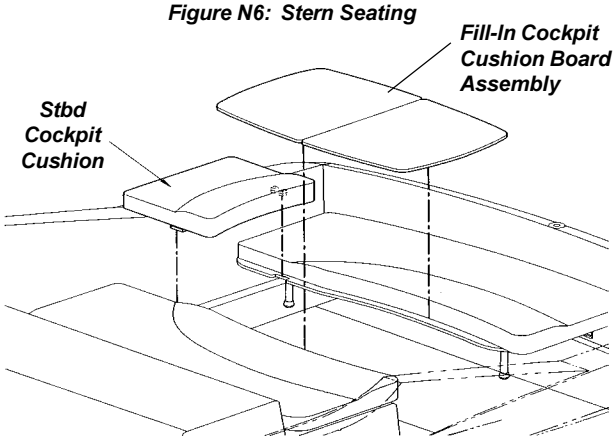



*Figure N7: Stern Seat Fill-In Option*

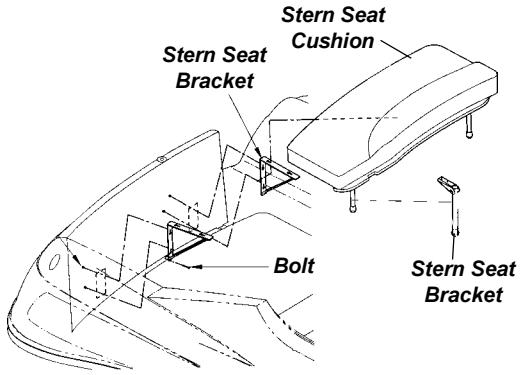



*Figure N8: Stern Seat Assembly*

### C. Aft Cockpit Table

The aft cockpit table is optional on the 248/268 models. Table bases are "flush" mounted for convenience.

To set up the cockpit table:

1. Screw the table leg into the floor mount.
2. Mount the cockpit table onto the table leg.

To remove the cockpit table simply reverse the procedure above.

**NOTICE**

To prevent damage to cockpit table and/or cockpit interior ensure the cockpit table and legs are properly stored.

### D. Deck Sunpads

Sunpads are optional. The 248 Vista receives one sunpad while the 268 Vista receives two. These cushions securely snap in place and provide comfort while sunbathing on the foredeck.

## N - 3 INTERIOR UPHOLSTERY CARE

### A. Cleaning Interior Fabric

The fabric used in the cabin should be treated the same as upholstery in your home. Periodic vacuuming and shampooing will keep the upholstery clean and odor free. Spraying the upholstery with Lysol Spray Disinfectant™ will help retard mildew.

**A recommended "Cleaning Kit" includes:**

- Westley's Clear Magic™
  (for ordering information call 1-800-416-1600 or 800-321-8577)
- Fast & Easy Glass Cleaner™
  (to locate the nearest distributor, call 800-537-8990)
- Tough Duty Cleaner™
  (to locate the nearest distributor, call 800-537-8990)
- Clean, white towels
- Portable/Compact Deep Cleaner Vacuum (Bissell Spot Lifter™ or similar product)

- Air hose (if available)

To remove stains, please refer to the following list for recommended cleaners.

**1. Basic Stains/Ink/Grease/Pencil/Dirt:**

Westley's Clear Magic™

**2. Adhesives/Teak Oil/Gum/Tar:**

Tough Duty Cleaner™

**3. Water Stains:**

a. While fabric is still wet, use a deep cleaner vacuum to go over the wet area. This will remove the stain from the fabric. It is always best to get the stain before it dries.

b. For water stains that have dried, use a deep cleaner vacuum system. Follow the instructions that come with the deep cleaner system. Repeat if necessary.

c. If this does not work we recommend a professional cleaning service. One such service is Service Master®. Please call 1-800-937-3783 for the Service Master® location nearest you.

**4. Tough Stains/Set Water Stains:**

a. Spray Westley's Clear Magic™ on the area, going two (2) inches around the stain or if possible, bring wetness to a break point, such as a bulkhead, etc. Spray water on the same area as directed on the bottle.

b. Let set approximately five (5) minutes.

c. Rub the area with a clean towel, rotating the towel as the stain is removed. As you rub, go a little beyond the wetness with the towel, flaring the edges.

d. Use a deep cleaner type vacuum to remove excess wetness. Allow to dry.

f. Repeat if necessary.

g. If stain still persists, use a professional cleaning service.

**B. Interior Carpets**

Four Winns® Cruisers use a high quality interior grade carpeting. Vacuuming and occasional rug shampooing are recommended for extended life and appearance.

**C. Privacy Curtains**

After a season or more use and exposure, you may wish to remove the curtains. Dry cleaning is recommended. Most draperies can be taken down after removing the screw from the end of the curtain track.This screw may not be accessible on some models. Should this be the case, remove the screws securing the end of the track. The track is flexible and can be lowered to remove the end screws.

## N - 4 EXTERIOR UPHOLSTERY CARE

**A. Cleaning Vinyl**

The vinyl material used on the exterior upholstery can be easily cleaned using mild detergent and water. Be sure to thoroughly rinse the seats after washing to remove all soap film. Periodic spraying of the seats with Lysol Spray Disinfectant™ will help retard mildew.

**NOTICE**

DO NOT apply vinyl protectants such as Armorall™. The manufacturer does not recommend this product because it removes the oils present in vinyl that keeps vinyl soft.

**A recommended "Cleaning Kit" includes:**

- Ivory Dish Washing Liquid™ and water
- Clean, white towels
- Medium-soft brush
- Fantastik Spray Cleaner™
- Denatured Alcohol
- Tough Duty Cleaner™
  (to locate the nearest distributor, call 800-537-8990)
- Ammonia and hydrogen peroxide

To remove stains, follow the guidelines below.

1. **Basic Stains/Grease/Pencil/Dirt:**

   Ivory Soap™ and water or Fantastik Spray Cleaner™ applied with a medium-soft brush.

2. **Tough Stains/Adhesive/Teak Oil/Rust:**

   Tough Duty Cleaner™ ; rinse with soap and water.

**NOTICE**
To prevent possible damage to the vinyl, rinse with soap and water after applying the Tough Duty Cleaner™.

3. **Ink:**

   Denatured alcohol.

4. **Mildew Stains:**

   To kill bacteria creating the mildew, vigorously brush the stained area with a 4-to-1 mixture of water and ammonia; rinse with water.

5. **Tough Mildew Stains:**

   Apply a mixture of one (1) teaspoon ammonia, one-fourth (1/4) cup of hydrogen peroxide, and three-fourths (3/4) cup of distilled water; rinse with water.

**NOTICE**
ALWAYS CLEAN STAINS IMMEDIATELY! DO NOT use 409 Cleaner™ or Armorall™ on vinyl.

**NOTICE**
All cleaning methods must be followed by a thorough rinse with water.

Certain household cleaners, powdered abrasives, steel wool and industrial cleaners can cause damage and discoloration and are not recommended. Dry cleaning fluids and lacquer solvent should not be used as they will remove the printed pattern and gloss. Waxes should be used with caution. May contain dyes or solvents that can permanently damage the protective coating.

Additional cleaning information is provided by the manufacturer and is included with this manual.

Four Winns® offers a variety of optional weather covers for protection of the boat and associated equipment. Continued exposure can damage the upholstery and seating. The seating can become thoroughly saturated with water if not adequately protected. Refer to Section O on Weather Covers for more information.

**NOTICE**
The appearance and longevity of the exterior upholstery will be affected by water saturation. Protect these items appropriately.

## B. Exterior Carpets

The removable exterior grade carpeting may be periodically washed with mild laundry soaps or shampooed, dried and reinstalled. It is 100% UV stabilized Olefin™ Polypropylene fiber with rubber backing. See Figure N9.

**NOTICE**
DO NOT dry carpeting in an automatic dryer.

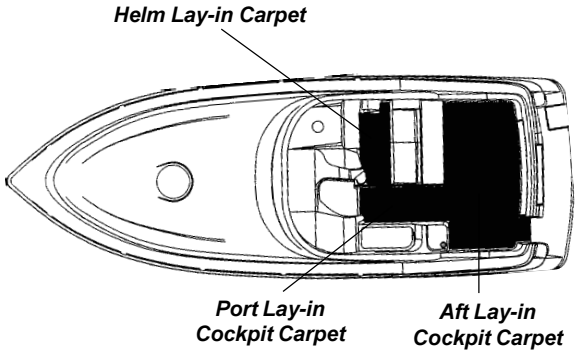



*Figure N9: Lay-in Carpet*

## C. Cleaning and Maintenance

The following information should be useful in helping you keep your carpet looking well maintained.

Carpet made with Olefin™ fiber possesses built-in stain and soil release for easy, less costly maintenance. Regular vacuuming and occasional shampooing help it stay attractive and serviceable.

## D. Stain Removal Testing

Even the most stubborn stains can be removed from Olefin™ fiber following the procedures outlined. A total of thirty-four stains were selected as being representative of spills commonly occurring on carpets. Stains were pressed into the carpet to simulate foot pressure following a spill. Stains were applied to a two-inch square section and allowed to penetrate. Removal was per-

formed after two weeks. Carpets were tested for stain removal by an independent laboratory. Stain removal was effective for all 34 stains. Results are shown in Table 1.

### E. Stain Removal Procedure

Regular maintenance such as vacuuming, hosing or washing should be performed. Most stains and mildew are easily removed from carpet made with Olefin™ fiber using common household cleaners. Refer to Table I. Olefin™ fiber is so resistant to chemical attack that Clorox Bleach™ may be used to clean up any mildew that may result from excessive wetness.

**Code for stain removal procedure (See Table 1):**

"A" Apply hot water and detergent.

"B" Apply volatile dry solvent, work with bone spatula, blot.

"C" Flush by hot water extraction.

**Recommended reagents:**

- Carpet detergent such as Mintex™ (Hydromaster®) or any carpet detergent suitable for hot water extraction.
- Volatile dry solvent such as Carbona™, Energene™, or Picrin™ (Street®).
- Oily type paint remover such as nail polish remover, Energene™ or Pyrotex™ (Street®).
- Neutral lubricant such as Streetex Spray Spotter™ (Street®) or alternate treatment with detergent and Energene™.

## N - 5 REPLACEMENT UPHOLSTERY

Should upholstery become severely soiled, torn, or in some manner damaged, replacement upholstery cushions are available. Larger upholstery items have separate component parts for easier serviceability.

Depending upon the year and model of the boat, most upholstery parts can be obtained through your Four Winns® servicing dealer within a short period of time.

***Table I: Stain Removal***

| STAIN | REMOVAL PROCEDURE |
|---|---|
| Automotive Grease | A |
| Automotive Oil (New or Used) | A |
| Bacon Grease | A |
| Berry Stain | A |
| Blood | A |
| Butter | A |
| Catsup or Mustard | A |
| Chewing Gum | A, B (Repeat) |
| Chlorine Bleach (5%) | A |
| Chocolate (Melted) | A |
| Clay (Red) | A |
| Coffee or Tea | A |
| Cola | A |
| Crayon | A, B, C |
| Egg | A |
| Feces | A |
| French Dressing | A |
| Furniture Polish | A |
| Grape Juice | A |
| Gravy | A |
| Ink (Permanent Black) | A, B, C |
| Ink (Scripto, Ballpoint) | A, B, C |
| Iron Rust | A |
| Lipstick | A, B |
| Mayonnaise | A |
| Milk | A |
| Shaving Cream or Lotion | A |
| Urine | A |
| Vomit | A |
| Wine | A |

# WEATHER COVERS

## O - 1 GENERAL INFORMATION

Weather covers for the cockpit areas are available on all Four Winns® models. Bimini top with camper is standard on Vista 248/268 models. Four Winns® covers are designed and intended to provide protection of the cockpit seating areas.

Four Winns® utilizes 100% acrylic-type material. During the manufacture of the weather covers, the smallest possible needle and highest quality UV stabilized, bonded polyester thread is used in the stitching.

**⚠ WARNING**

Never use any form of open flame cooking device in any area fully enclosed or near weather covers. This material is flammable.

The weather cover is water repellant but not water proof. During a hard rain, you may notice a light mist permeating through a weather cover. This is normal. If the seams leak, they can be sprayed with Scotchguard™ or similar water repellent or a seam sealing compound can be applied. Keep objects from contacting the inside of the cover. Leakage may occur at point of contact.

Weather covers must be installed "snug" to prevent sags. The material relies on swelling to seal itself. If too taut or overly tight, the material will not seal and may tear.

**NOTICE**

Periodically check weather covers for accumulation of water. Damage to the bow assemblies may otherwise result. Make sure cover is snug to avoid puddling of water.

After use, the top canvas should be rolled up into the boot (supplied) and secured.

**NOTICE**

NEVER fold or store a wet weather cover. This can lead to mildew or shrinkage. Roll rather than fold the enclosure curtains. Sharp folds increase the chance of cracking the clear vinyl.

**NOTICE**

DO NOT use the weather covers during outdoor winter storage. The weight of the snow or heavy rain can cause severe damage to the material or top structure. Refer to O-4 Winter Storage in this manual for more information.

Four Winns® is utilizing a different snap for the canvas. The snap socket is notched towards the outer edge of the canvas. To unsnap, just lift on the side by the notch.

**NOTICE**

Remove snaps one at a time to prevent damage. DO NOT rip off or pull the weather cover as a whole; acrylic material will tear at snaps.

**NOTICE**

On all models, couplers are included with the extensions to allow for vertical adjustment. Horizontal adjustments can be made with the buckle located on the nylon strap. Adjustments should be minimal with factory setup and installation.

## O - 2 TRAILERING

High winds encountered during trailering your boat can severely damage most weather covers. If an extended trip at highway speeds is planned, the top and other weather covers should be in the down position or removed entirely. This will prevent damage and loss.

**NOTICE**

DO NOT tow your boat at highway speeds with weather covers in place. High winds encountered during trailering your boat can severely damage most weather covers. Damage to weather covers incurred as a result of trailering your boat is not covered under warranty.

## O - 3 BIMINI CAMPER TOP

The bimini camper top are standard and completely encloses the cockpit area. The bimini camper canvas is one complete piece which affords better protection from leaking as compared to two separate pieces zippered together. It has been designed to be install below the radar arch if applicable. Please note the radar arch is available as an option on the 268 Vista model only.

A window is provided forward of the bimini camper of the top. Side and aft curtains are removable and have window covers which roll up or are removed to expose the screens. The camper will square off and attach to the stern. Installation information is also included in Figures O2-O6 at the end of this section.

The bimini camper top is factory installed, therefore, minimal adjustment is necessary. To utilize the bimini camper top:

1. Remove the canvas boot from the top.

2. Extend the forward connector bow forward and attach the straps to the strap eyes mounted on the windshield. Some adjustment may be necessary.

3. Extend secondary bow aft and attach the straps to the strap eyes mounted on the stern of the deck. Some adjustment may be necessary.

4. Zip in forward clear section and snap to windshield. Starting at the walk-thru windshield may prove to be easiest. Windshield snaps can be adjusted to match snaps in canvas.

5. Slide each end of the clear forward section into their respective slide tracks located along each side of the radar arch. Use of a silicone spray may ease their insertion.

6. Zip in side and aft curtains. Snap canvas to deck beginning at forward edge. Readjust bows if necessary.

7. Attach the aft curtain's shock cords to knobs along the stern as shown in Figure O1. Be sure canvas is centered on stern.

**NOTICE**

Canvas should be snug. If too taut or extremely tight, canvas could tear or pull at seams.

**NOTICE**

The bimini camper has been designed and is intended to remain installed in the boat. Four Winns® does not recommend the bimini camper assembly be removed from the boat unless absolutely necessary.

**NOTICE**

Two people are required if removal or installation becomes necessary. Care must be exercised so the radar arch does not become damaged. Use a protective covering to prevent damage to arch.

**NOTICE**

In the event the canvas requires some maintenance or repair, remove the bimini camper canvas from the bow assembly. Unzip the bow sleeves, unsnap all snaps and straps, and remove the canvas.

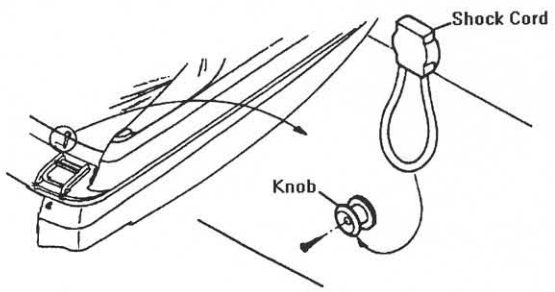



***Figure O1: Shock Cords***

## O - 4 COCKPIT COVER

The 248/268's optional cockpit cover is used to cover the complete cockpit area and is intended as a short term storage cover.

To install:

1. Snap the forward edge of the cockpit cover to the walk-through on the windshield. Windshield snaps will slide to adjust to the canvas.

2. Secure the rear corners.

   a. If the canvas has snaps along the aft edge, secure the corners.

   b. If the canvas has shock cords along the aft edge, attach to knobs as shown in Figure O1.

3. Snap the cockpit cover sides and rear (if applicable) to the deck.

Adjustable poles are provided to adjust the canvas for tautness.

## O - 5 WINTER STORAGE

The boat must be properly protected during winter dry dock storage. A winter storage cover is advisable. Many marine dealers offer shrinkwrap enclosures for outdoor storage. See a Four Winns® dealer for information on the availability of winter storage covers or other alternatives for storage.

When storing outdoors, make sure the supporting framework keeps the weight of the snow and rain from accumulating on the storage cover. Proper ventilation must also be provided or dry rot and mildew will occur. See Section R General Maintenance for additional winter storage information.

## O - 6 MAINTENANCE

Moisture, dirt, chemicals from industrial fallout, heat, ultraviolet rays and in some cases, salt water are factors which affect the longevity of acrylic covers.

1. Moisture can cause shrinkage and mildew. Allow the cover to dry thoroughly before disassembling tops. Keep it clean and well ventilated to prevent mildew. Spraying the weather cover with Lysol Disinfectant™ or similar product will help prevent mildew.

2. Dirt creates a starting point for mildew when moisture is present. Clean the top with a sponge or soft scrub brush and mild detergent when the cover is installed. Make sure cover is snug to help prevent shrinkage.

3. Chemicals cause decay if allowed to accumulate for long periods of time. Keep the cover clean to prevent decay.

4. Heat can cause cracks in vinyl components and stiffening of fabric when enclosed in plastic or polyethylene. DO NOT store the weather cover in polyethylene under direct sunlight or high temperature situations.

5. Ultraviolet degradation may occur under prolonged exposure to direct sunlight. Store the top in the boot when not in use.

6. Salt water can corrode brass, aluminum, or stainless steel fittings and fasteners. Keep fittings clean, lubricated, and waxed to prevent corrosion.

Clear vinyl curtains and windows demand extra care to prevent scratching. DO NOT use cloth or chamois skin. Dirt or grit in the cloth will scratch the vinyl window. Hose clean water onto vinyl to rinse off salt, dirt, or grime.

**NOTICE**

DO NOT use hot water. DO NOT dry in an automatic dryer. DO NOT dry clean or steam press.

Leakage after cleaning may be the result of insufficient rinsing. Re-rinse. If leakage continues, apply a coat of silicone air drying water repellent, such as Scotchguard™. See your Four Winns® dealer for additional information on weather covers.

## O - 7 CARBON MONOXIDE

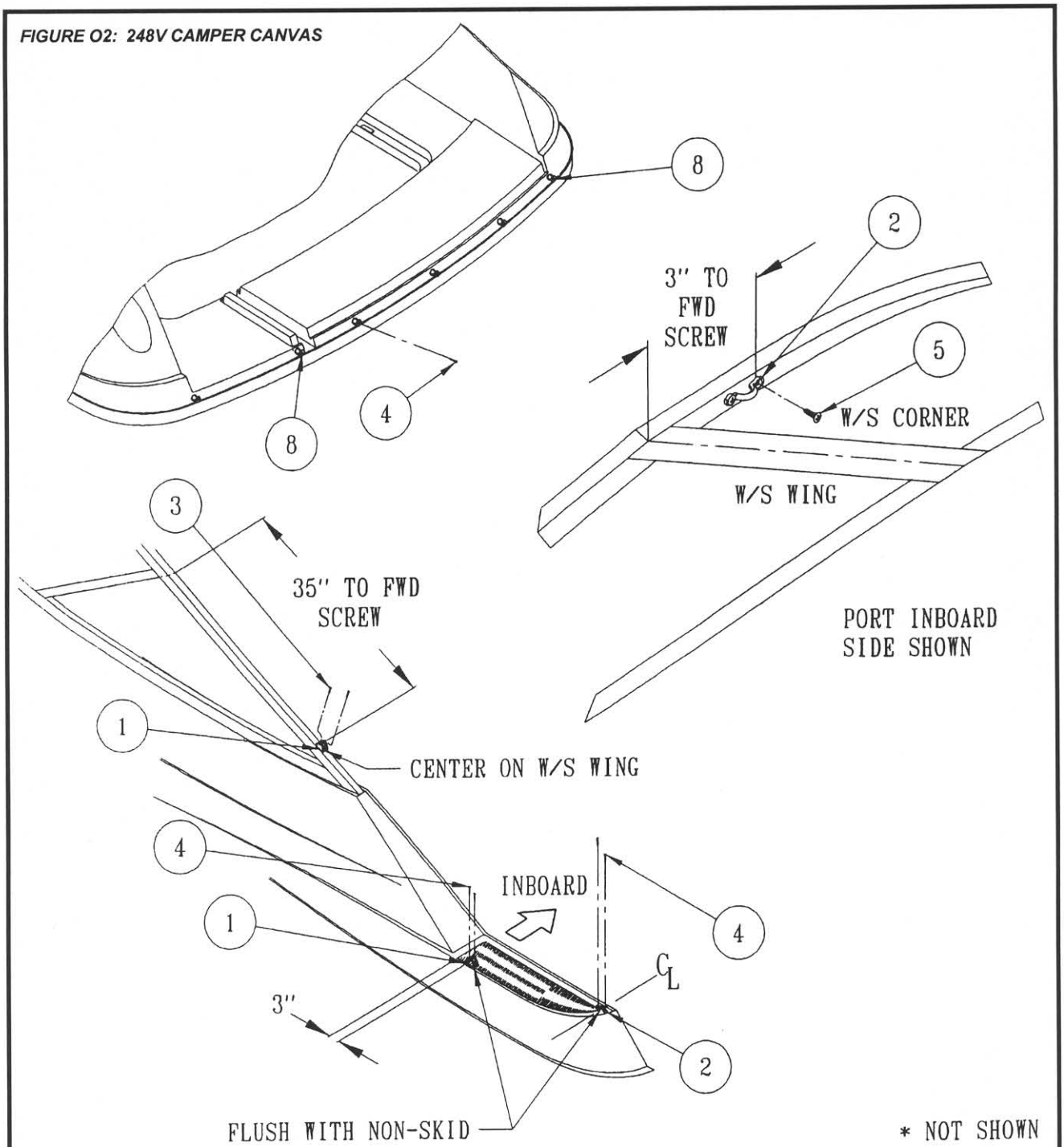
When the boat is underway, a natural vacuum may exist with the right wind and sea conditions to draw the exhaust gases (which includes carbon monoxide) into the boat. When the camper or side curtains are installed, this compounds the possibility of this occurring. Carbon monoxide may also be present when mooring or near sea walls. For more information, refer to Section B-2 Carbon Monoxide in this manual.

The carbon monoxide in exhaust fumes can be hazardous. It is important for you and your passengers to be aware of the potential safety hazard created by exhaust fumes. Familiarize yourself with the symptoms of individuals overcome by carbon monoxide, and most importantly, ways you can protect yourself and your guests.

**⚠ WARNING**

Exhaust fumes from engines contain carbon monoxide. Boats with canvas deployed are more likely to collect exhaust fumes. Avoid brain damage or death from carbon monoxide. Keep cockpit and cabin areas well ventilated. Signs of exposure include nausea, dizziness, and drowsiness. See Section B-2 of the boat owner's manual for more details. If using a catalytic heater, provide ventilation. Do not use catalytic heater while sleeping.

*FIGURE O2: 248V CAMPER CANVAS*




| # | DESCRIPTION | PART # | QTY. | # | DESCRIPTION | PART # | QTY. |
|---|---|---|---|---|---|---|---|
| 1 | HINGE, DECK Z-MOUNT #86150-4W | 071-0254 | 4 EA | *6 | WINDSHIELD CLIP 7/8" | 080-0188 | 25 EA |
| 2 | STRAP EYE, S.S. #2816 | 071-0048 | 4 EA | *7 | STUD, SNAP W/SCREW 3/8" | 080-0132 | 25 EA |
| 3 | SCREW, #8 x 3/4" POHSMS SS | 080-0022 | 4 EA | 8 | KNOB, SHOCK CORD WHITE | 071-0234 | 6 EA |
| 4 | SCREW, #8 x 1" POHSMS SS | 080-0019 | 14 EA | | | | |
| 5 | SCREW, #8 x 1/2" POHSMS SS | 080-0219 | 4 EA | | | | |

*FIGURE O3: 268V CAMPER CANVAS WITH ARCH*

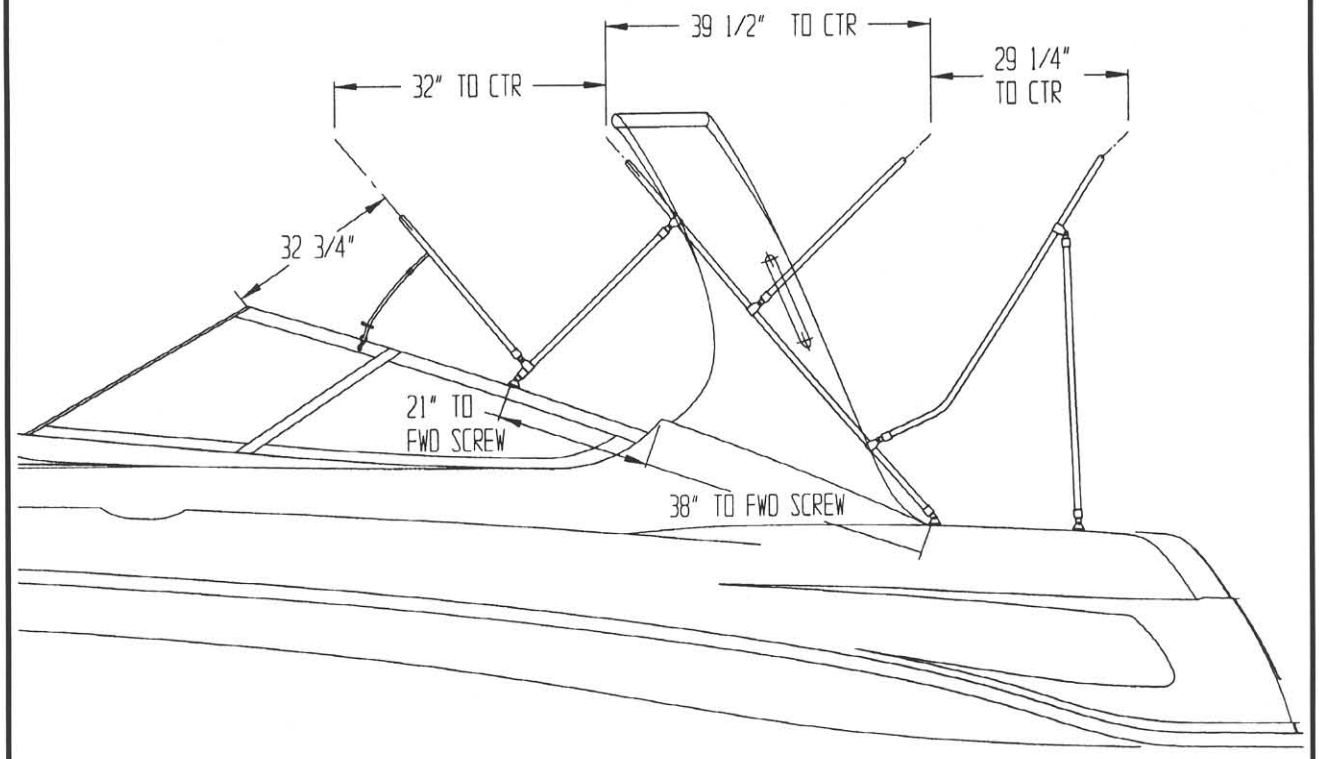
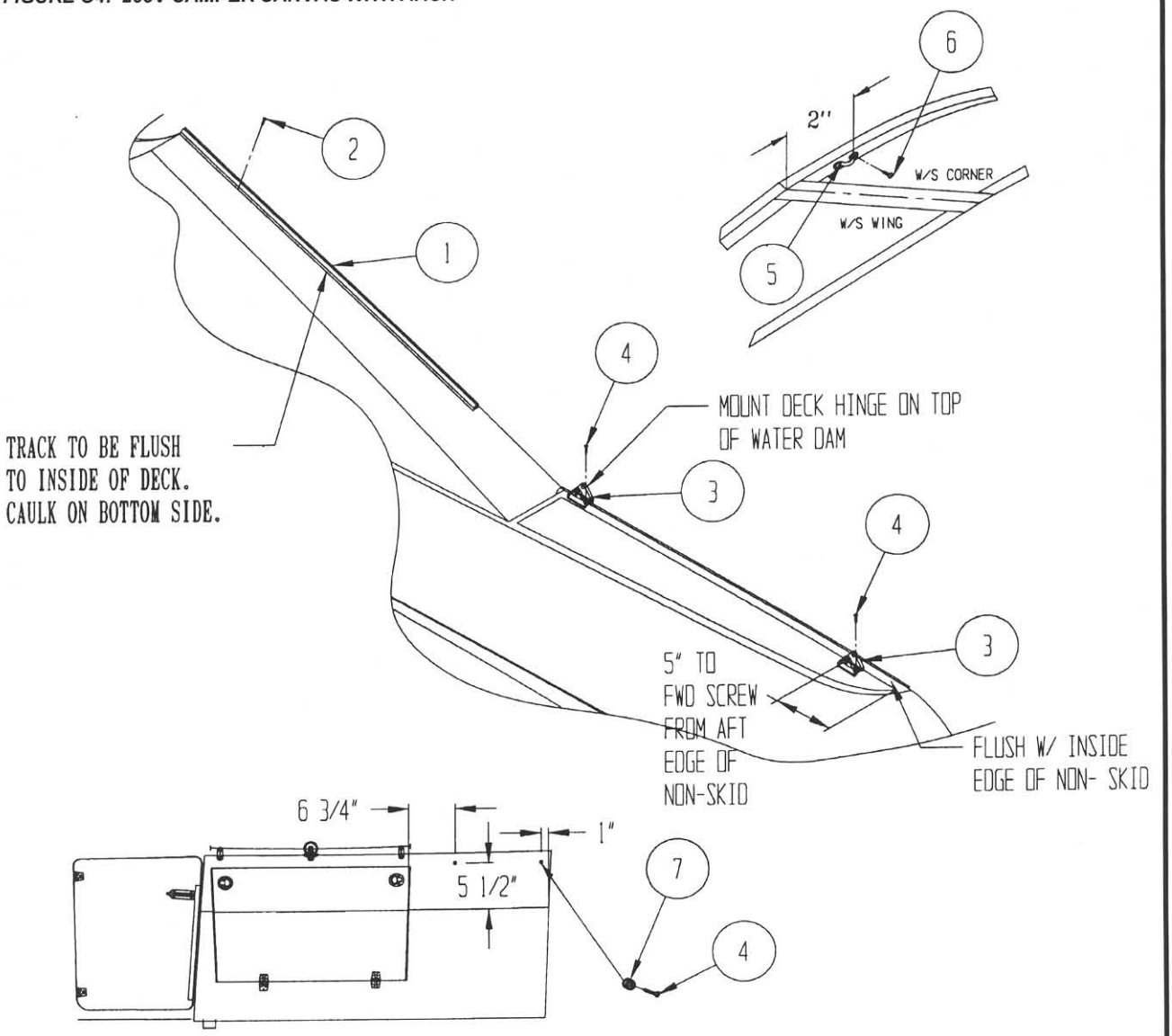
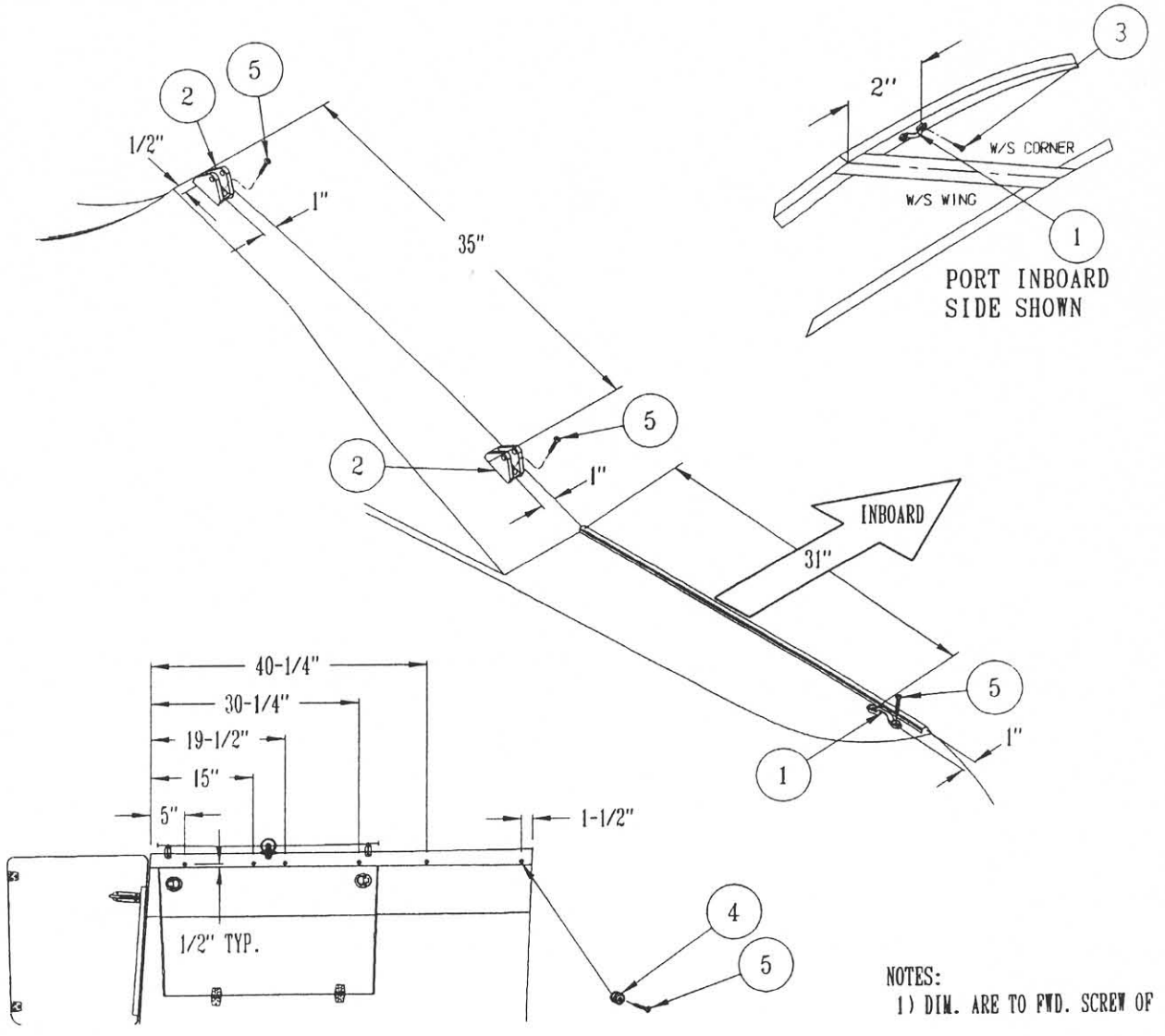


*FIGURE O4: 268V CAMPER CANVAS WITH ARCH*



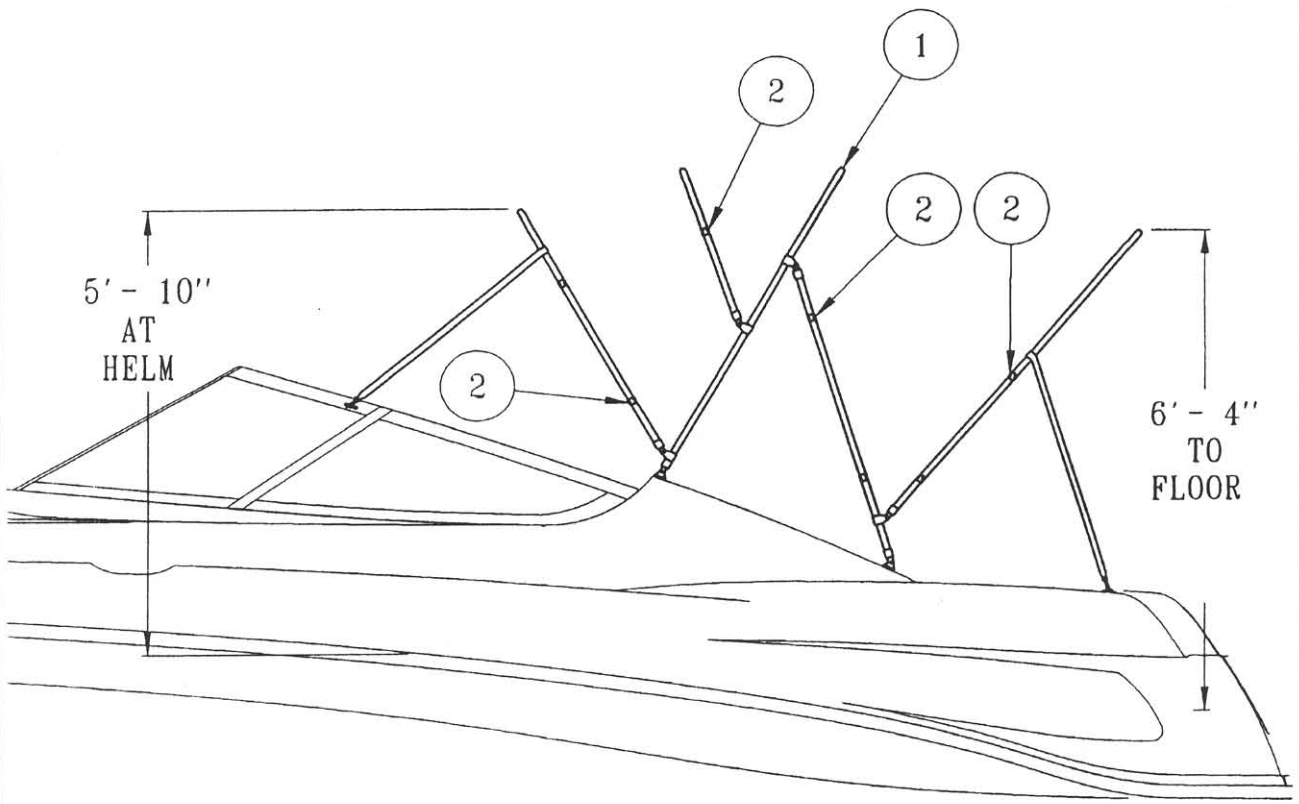

| # | DESCRIPTION | PART # | QTY. | # | DESCRIPTION | PART # | QTY. |
|---|---|---|---|---|---|---|---|
| 1 | EXT. FLEXIBLE AWNING TRACK PVC #57810-6 | 101-50175 | 2 EA | | | | |
| 2 | SCREW, #6 x 3/4" PFHSMS | 080-0011 | 10 EA | | | | |
| 3 | HINGE, DECK Z-MOUNT #86150-4W | 071-0254 | 6 EA | | | | |
| 4 | SCREW, #8 x 1" POHSMS SS | 080-0019 | 10 EA | | | | |
| 5 | STRAP EYE #2816 | 071-0048 | 2 EA | | | | |
| 6 | SCREW, #8 x 3/4 POHSMS | 080-0022 | 8 EA | | | | |
| 7 | KNOB, SHOCK CORD WHITE #SCK | 071-0234 | 2 EA | | | | |

***FIGURE O5: 268V CAMPER CANVAS W/OUT ARCH***




| # | DESCRIPTION | PART # | QTY. | # | DESCRIPTION | PART # | QTY. |
|---|---|---|---|---|---|---|---|
| 1 | STRAP EYE #2816 | 071-0048 | 4 EA | | | | |
| 2 | HINGE, DECK Z-MOUNT #86150-4W | 071-0254 | 4 EA | | | | |
| 3 | SCREW, #8 x 1/2" POHSMS SS POASS8x.50 | 080-0219 | 4 EA | | | | |
| 4 | KNOB, SHOCK CORD WHITE #SCK | 071-0234 | 6 EA | | | | |
| 5 | SCREW, #8 x 1" POHSMS SS POASS8x1 | 080-0019 | 18 EA | | | | |
| *6 | STUD, SNAP, W/SCREW 3/8" BNSS 7059-14 | 080-0132 | 31 EA | | | | |
| *7 | WINDSHIELD CLIP, 7/8" | 080-0188 | 25 EA | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

*FIGURE O6: 268V CAMPER CANVAS W/OUT ARCH*




| # | DESCRIPTION | PART # | QTY. | # | DESCRIPTION | PART # | QTY. |
|---|---|---|---|---|---|---|---|
| 1 | CANVAS, BIMINI ASSEMBLY 268V | 116-50085 | 1 EA | | | | |
| 2 | CLIP, SUN BLOCKER 7/8" WHITE PC78 | 080-0883 | 10 EA | | | | |

# FIBERGLASS AND HULL INFORMATION

## P - 1 HULL DESIGN INFORMATION

Four Winns® boats are designed using the sound engineering and mathematical principles of hydrostatics, hydrodynamics, structure, and strength of materials. The materials utilized provide optimum strength at the lightest possible weight. The exact fiberglass laminate schedule and construction techniques of each part is determined in accordance with the strength and rigidity required.

All Four Winns® include our patented **Stable-Vee™** hull design. Pods on either side of the outdrive extend the running surface beyond the transom. These pods, plus the unique distribution of deadrise from transom to bow, allows Four Winns® to place more hull in the water than deep-vee designs of similar length and beam. This results in better boat handling whether on plane, during turns, or at rest.

## P - 2 FIBERGLASS CONSTRUCTION

The fiberglass components of Four Winns® boats are of the finest quality materials, workmanship and construction techniques available. This ensures the structural integrity to provide years of boating enjoyment with minimal maintenance.

The construction of a Four Winns® hull begins with the application of gel coat to the mold. The gel coat is approximately 25 mils thick. A coat of resin and chopped fiberglass is then sprayed into the hull and carefully hand rolled until it is securely affixed to the gel coat.

A number of fiberglass layers and woven roving are applied to the above laminate. Each layer is hand laid and hand rolled. The keel and chine areas have fiberglass woven roving overlapped in these areas to provide additional strength. Some models, of which the 248/268 Vista is one, utilize encapsulated end-grain balsa core or coremat laminates to achieve additional rigidity. Others utilize additional laminations of woven roving to maintain strength and rigidity.

The hull support stringers are located using special tools, and are fiberglassed into place. This ensures a strong, rigid hull, permanently formed into a solid assembly, free of distortions.

Fiberglass cockpit liners and seat base are constructed similar to the hull. Balsa core or coremat laminations are utilized when necessary.

In addition to a thorough visual inspection of each fiberglass component, samples are measured using special equipment, for fiberglass reinforcement to resin ratio, laminate configuration, weight and thickness. By these procedures Four Winns® ensures proper composition.

## P - 3 EQUIPMENT INSTALLATION

Many boats are used for specific purposes or under conditions which require the addition of special equipment to the hull or deck. Special care must be taken during the installation of any equipment to a fiberglass component. A polysulfide or butyl based sealant should be used to seal installations below the water line. Silicone “marine” seal or similar bedding compound should be used elsewhere.

**NOTICE**

DO NOT install any item onto or through the hull without adequately sealing the hull area penetrated by the installed item or related fasteners. Improper installations could cause leakage or allow water absorption and thus cause serious hull damage.

Always pre-drill fastening holes with a proper size bit. Pre-drilling will help prevent the fiberglass from splintering and thus causing unsightly damage. Also, countersink holes to prevent the gel coat from chipping.

Any equipment which will be subjected to cyclic loading or significant force should be through- bolted to a fiberglass component. A butt block or backing plate should be used to strengthen any area onto which an item will be mounted.

## P - 4 FIBERGLASS CARE & MAINTENANCE

Fiberglass is affected by weathering processes and requires maintenance on a periodic basis to help maintain the beauty and shine. The effects upon the gel coat will be dependent upon boating conditions, storage, type of use, and the care given to the boat during the boating season.

Four Winns® utilizes fade-fighting Armorcoat™ gel coat in the exterior finish. It is specially formulated to resist fading and yellowing, and retain more of its original gloss than better grade gel coats. However, it is still important to maintain the gel coat to protect the finish.

### A. General Maintenance

For fresh water use, the boat should be washed once or twice a month. When using in a salt water environment, considerable more care will be necessary. Be careful when selecting a cleaning agent. Hand dish washing detergents are usually gentle and are recommended for cleaning gel coat. Cleaning products such as Ivory™ or Dawn™ hand dish washing liquid can be safely used. Always read the label before using any product.

**NOTICE**

DO NOT use acetone, paint thinner, solvents, or strong alkaline based detergents, nor cleaners with a "gritty" and abrasive texture. Avoid products which contain sodium phosphate. Common examples of these types of household cleaning agents are: Tide™, Oxydol™, Janitor-in-a-Drum™, Fantastik™, Clorox™, etc. Always read the label before using an agent.

There are several products available which are specifically designed to clean fiberglass exterior finishes. Many companies like Johnson & Johnson®, Turtle Wax®, etc. manufacture cleaning fluids mild enough to clean without stripping the wax.

**NOTICE**

Treading on a soiled fiberglass surface can severely scratch and mar the finish. Keep the fiberglass as clean as possible.

When cleaning nonskid areas, DO NOT attempt to use a wire brush or sandpaper because this will remove the nonskid gel.

Apply wax once a month to maintain gel coat lustre. Read the label before using any product. Make sure product is applicable to fiberglass. Refer to the brochure on gel coat care in your owner's packet. Also, consult a Four Winns® dealer for his recommendations.

**NOTICE**

Do not use carnuba based waxes. This type of wax yellows over time and makes the fiberglass appear yellow.

**CAUTION**

Waxing decks, cockpit floors or other areas on which one walks is not recommended. Waxing will produce a very slippery surface, especially when wet. Wax may also buildup in the nonskid surfaces. Be sure all persons wear deck shoes while aboard the boat. Footing will be improved and feet will be protected from accidental cuts and bruises.

A darkening or discoloration of the nonskid surfaces can sometimes occur as a result of wax buildup. Exposure to the sun and elements can turn the wax darker, or occasionally can cause it to become flaky or powdery. To remove, use fine rubbing compound and a low RPM buffer (1200 to 2000 RPM). Apply light pressure and keep the buffer moving at all times to prevent heat build up. Read the directions before using any equipment.

### B. Weathering Effects on Gel Coat

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.

Chalking is a result of the gel coat's top surface being broken down into an extremely fine powder. When this happens, the color whitens. The chalk is present on the surface only.

Fading is the uniform change in color. This happens when the actual pigments have changed color, especially from excessive chalking, or when the gel coat has either been stained or bleached by something.

Yellowing is gel coat which has a yellow cast and streaking usually deals with a stain or contact with another surface.

Gloss refers to the shine of the surface. This can change from sanding action, chalk, residues, or exposure.

Blistering refers to a condition in which the unprotected gel coat surface below the waterline has absorbed water and formed bubbles. See Section P-5 for additional information.

Follow the instructions below for boats that have weathered and chalked.

1. Wash.

2. Wax. If this does not work, then use a fine rubbing compound. If this does not work use 400 or 600 wet or dry sandpaper, followed by fine rubbing compound and wax.

When using wax or fine rubbing compounds, make sure to read the label and follow the directions. Some helpful tips are listed below.

1. Avoid working in direct sunlight. This dries out the wax or compound, and can stain the surface.

2. Use clean pads or cloths to apply a thin coating of wax or rubbing compound to a small area such as three feet by three feet. Remove any excess, and then rub the area with a buffing pad, or power buffer. Apply pressure only as necessary to restore the surface finish. Applying too much pressure or buffing in one place too long can permanently damage the surface.

3. After applying compound, always follow with waxing.

**NOTICE**

If using a power buffer, use a low RPM buffer with light pressure. Keep the pad wet and the buffer moving at all times to prevent heat build up.

**NOTICE**

To prevent gouges, uneven areas, or other damage from occurring, DO NOT use a power or belt sander when sanding. For best results, block sand the gel coat.

**C. Stains**

Stains can appear anywhere on the exterior of the boat and may be a result of contact with tar, plant sap, leaves, rust from metal fittings, and other materials. Surface stains may be removed with hand dish washing soap, mild cleansers, or some household detergents. DO NOT use chlorine or ammonia products. These products can affect the color of gel coat. Commercial car washes use strong cleaners and should be avoided.

To remove stains, refer to the procedures below.

1. Wash area with hand dish washing soap.

2. Begin with a small area such as three feet by three feet and apply a mild cleanser.

3. Rinse with clean water.

4. Follow with compound and waxing as outlined in procedure above.

If the stain is not removed by the hand dish washing soap or mild cleanser, then the next procedure is to use either denatured or rubbing alcohol. If this does not work, consult your Four Winns® dealer for professional assistance.

**NOTICE**

DO NOT use acetone, ketone, or other solvents to remove stains. These chemicals are flammable and may damage the gel coat.

## P - 5 FIBERGLASS REPAIRS

Fiberglass is one of the most durable, strong, and forgiving construction materials afloat. It is resilient and normal repairs can be made without affecting the strength or structural integrity of the boat.

**WARNING**

Striking docks, other boats, or submerged objects could create a very hazardous situation or severely damage the fiberglass. In the event an object is struck below or near the waterline, proceed directly and cautiously to the nearest service facility and remove the boat from the water. Closely inspect the hull for damage. If the outer fiberglass laminate was penetrated, repairs must be made prior to relaunch.

Occasionally, blisters, crazing, scratches, or damage to the fiberglass can occur. Repairs may be necessary to correct the problem.

**A. Scratches**

Scratches occur during normal use. Below is a step by step procedure to repair scratches.

1. Clean area with soap and water.

2. Apply a fine rubbing compound and buff.

3. Wax.

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

**B. Gouges & Cracks**

Stress cracks and crazing are the appearance of hairline cracks in the gel coat surface. When present, these problems usually occur in the gel coat finish or the outer "skin" coat" fiberglass laminate. The appearance of these cracks does not pose a threat to the structural integrity of the boat. In most cases, they are cosmetic and can be treated.

Cosmetic surface damage can be repaired as follows:

1. Sand the surrounding area with medium or fine grit sandpaper. Clean all marine growth, dirt, antifouling paint, etc. from the immediate area. DO NOT excessively scratch or gouge the surrounding area.

2. Use a hard, pointed tool to open the gel crack. Take care not to damage the surrounding gel coat.

3. Sand the crack or gouge so the edges are smooth and will allow proper "feathering" of the area.

4. Clean the area thoroughly. Make sure the area is dry before proceeding.

**NOTICE**

Be sure the structure and the ambient temperature are above 60 degrees F (15 degrees C) and the relative humidity below 70% immediately before, during, and after the repair.

5. If the nick or gouge is deep and penetrates through the gel coat, fill the area with fiberglass patching paste. Follow the directions on the can when mixing the paste with the catalyst.

6. After the gouge is filled and has dried, sand the patched area. Begin by using medium-fine grade sandpaper. Progressively use finer grade sandpaper until the surface is very smooth. If necessary, add filler and then sand the surface again.

7. Apply two or three light coats of matching fiberglass gel coat to the repaired area. Enough gel coat should be used so that the entire area is covered.

   The gel coat must be catalyzed using up to 2% MEK Peroxide which can be purchased at a supplier handling fiberglass reinforced products. Contact your Four Winns® dealer for assistance.

8. After ample drying time, sand the area using very fine wet/dry sandpaper. If the appearance of the area is still not satisfactory, repeat steps 2 through 4 as necessary.

9. If above the waterline, polish the area using a fiberglass rubbing compound and then wax. If the repaired area is below the waterline, the area should be primed and painted in accordance with the antifouling paint manufacturer's instructions.

Gel coat, like paint, will change colors with time and exposure to sunlight (ultraviolet). For this reason, "matching" gel coat obtained from Four Winns® may not match the gel color of a boat that has been exposed. However, this is the closest match commercially available. A fiberglass technician can tint the gel to be used in the repair to provide a closer color match.

More severe fiberglass damage, especially when structural, requires the expertise of an experienced fiberglass repair technician. See your Four Winns® dealer for assistance.

**NOTICE**
Improper repair techniques can lead to further fiberglass component damage.

### C. Osmotic Blistering

Osmotic blistering or "boat pox" is an unfortunate but not uncommon occurrence in fiberglass boats. Fiberglass is water retardant, not waterproof. When a boat is left in the water for a period of time, the fiberglass will absorb water. It is a natural process that can not be eliminated in production methods or material selection and usage. However, there are ways to control and possibly prevent blisters (see Section P-6). If you do encounter blisters, be assured that the blisters are merely cosmetic. They do not indicate a defect in the boat structure or lamination. Four Winns®, along with most boat manufacturers, regard gel blisters as a standard maintenance item.

The repair procedure for gel coat blisters is similar to the procedures outlined in the previous section on cracks and gouges. There is an exception however, in that the hull must dry out for several days or possibly weeks before repairs can proceed.

To determine if the hull has dried sufficiently, tape one square foot of household plastic wrap securely to the hull bottom. Make sure all edges are sealed and let it stand for twenty-four hours. If condensation has accumulated under the plastic, the hull is still "wet" and must be allowed to dry longer before repairing.

When the repair is completed, an application of an epoxy barrier coat should be considered. This will help prevent the possibility of reoccurrence of blisters. Your Four Winns® dealer or local ship store will have information on barrier coat products.

## P - 6 ANTIFOULING PAINT

Four Winns® recommends antifouling or bottom paint for boats which will be kept in the water for extended periods of time. Antifouling paint reacts with water to retard the growth of algae, barnacles and other marine growth on the hull. In addition to marine growth, it offers protection against excessive water pollution.

Antifouling paint begins reaction upon contact with water. After a season's use or sooner under certain conditions, the antifouling paint may appear to be dissolving. This is due to the paint's chemical emission that in turn retards marine growth. When this occurs, refinishing is in order.

Four Winns® recommends reapplication of the antifouling paint seasonally. The effectiveness of the paint will be drastically reduced if used longer. Though Four Winns® has found the antifouling paints used to provide good marine growth protection in most water, other paints may be more effective in certain water conditions. See a Four Winns® dealer for recommendations on antifouling paint use in your area.

**NOTICE**
During surface preparation, the hull should be sanded only enough to remove any foreign matter, and loose paint. DO NOT sand deeply into the gel coat, fiberglass cosmetic problems could later result. After sanding, the surface should be wiped with a rag treated with a cleaner recommended by the antifouling paint manufacturer. The surface must be clean and slightly rough to ensure paint adhesion.

Prior to application of the antifouling paint, the boat owner may consider coating the hull bottom with an epoxy coating. Four Winns® recommends this procedure as a preventive and effective means of controlling osmotic blistering. Most major antifouling paint manufacturers also supply a line of epoxy undercoatings. Consult your Four Winns® dealer for recommendations on epoxy undercoatings.

## P - 7 HULL SUPPORT

Proper support of the hull while it is out of the water is imperative. Due to the design complexities, Four Winns® does not recommend trailers or storage cradles be homemade. The boat is a valuable piece of equipment. DO NOT risk permanent damage to the hull structure in an attempt to save the cost of an adequate support. Improper support can lead to serious and permanent hull deformation.

**CAUTION**
While lifting the boat, ensure slings are in the proper locations as indicated by the sling location labels . **Failure to do so may result in permanent hull structure damage and will invalidate the hull structure warranty.**

**NOTICE**

When attempting to raise the hull, never allow one end of the boat to rise first, while letting the opposite rest momentarily on the outdrives or underwater gear. Serious damage to these components could result. DO NOT place lifting straps on underwater gear. Be sure the strap is against the hull surface only and are in proper location as indicated by the sling label location.

A trailer, or storage cradle designed for a larger or smaller boat will not provide proper support for the hull. This could lead to hull deformation and thus serious performance deficiencies.

# WOODWORK AND COMPOSITES

## Q - 1 HIGH-PRESSURE LAMINATE CARE

Many interior counter tops, table tops, head door, closet door and drawer fronts consist of a high pressure laminate, “formica” like material. The formica has a “matte texture” finish and can be cleaned with hand dish washing soap and water or other cleaning solutions such as Fantastik™. Always read the label before using any product.

**NOTICE**

DO NOT use abrasive cleaners or solvents on formica. DO NOT use Soft Scrub™ soap or similar cleaning products; they will scratch the surface and remove the shine.

## Q - 2 CHERRY

Four Winns® utilizes cherry trim for Vista model interiors. The wood is prepared with a light stain followed by a polyurethane finish. To clean, a damp cloth will usually suffice. Care should be similar for cherry as it is for fine, household furniture.

## Q - 3 STAR BOARD

Star board is a high density polyethylene (plastic) and is very durable and fade resistant. Star board requires little maintenance, and is being used in place of wood in many areas of the boat. It is currently being used for trim, step pads, hand rails, and seat supports.

To clean star board, use a solvent-free, nonabrasive cleaner such as hand dish washing soap or Fantastic™. Read the label before using any cleaning product.

**NOTICE**

Star board will stain when exposed to certain oils or chemicals. Always wipe up any spills immediately.

## Q - 4 SYNTHETIC CHERRY

A synthetic-type of cherry is used in the dash panels and switch panels. This provides the rich look of cherry without the maintenance. To clean, a damp cloth will usually suffice.

## Q - 5 “ALEXANDER” CABIN GALLEY COUNTERTOP

The 248 and 268 countertops for your cabin galley are made of laminated fiberglass with an exterior skin of “Alexander” grain coat gel. This makes for an extremely strong yet light weight countertop. The grain coat gives the appearance of “granite” and is both temperature and stain resistant. It can be cleaned with hand dish washing soap and water or other cleaning solutions such as Fantastik™. Always read the label before using any product. Please read the notices below.

**NOTICE**

DO NOT use abrasive cleaners or solvents on countertop. DO NOT use Soft Scrub™ soap or similar cleaning products; they will scratch the surface and remove the shine.

**NOTICE**

DO NOT set hot pans or dishes directly on the countertop. The countertop may become burnt and/or discolored. Use of a hot pad will prevent any discoloration from occurring.

**NOTICE**

DO NOT use countertop as a cutting board. The knife will leave gouges/marks in the surface of the countertop. A cutting board that fits over the sink is provided.

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# GENERAL MAINTENANCE

## R - 1 WINTERIZATION

### A. Prior to Lifting for Winter Layup

1. Pump out the head (dockside discharge), and be sure the holding tank is empty. Flush the head holding tank with soap, water and a deodorizer (e.g., Lysol Liquid™). Add more water if necessary. Have the cleaning solution pumped out.

2. Have the fuel tank either 75%-80% full (to allow for expansion) or completely empty. See the Engine Owner's manual for recommendations. Also, check with the dry dock operators for recommendations. If winter storing with a full fuel tank, gasoline winterizer such as OMC 2+4® Fuel Conditioner will reduce varnishing, condensation, etc.

**NOTICE**
If the fuel has been treated with winterizer, run engines for ten minutes to make sure the treated fuel is present in all lines and parts of the engine.

3. Drain water from the fresh water system and the hot water heater.

4. Winterize the engine and drive systems as recommended in the Engine Owner's manual. Portions of this winterization procedure may require that the boat be lifted.

5. Lift the boat only at the designated "sling" labels. See Section P-7 Hull Support in this manual for additional details.

### B. After Lifting

1. Remove the drain plug.

2. Thoroughly wash the fiberglass exterior, especially the hull bottom. Remove as much marine growth as possible.

3. Lower boat onto cradle properly or place boat on trailer. Be sure boat is adequately supported. The boat should be raised slightly under the forward supports or trailer tongue to improve drainage to the transom drain.

4. Be sure all the water is completely drained from the fresh water system. Disconnect all hoses, check valves, etc. and blow all the water from the system using very low air pressure. The use of nontoxic, fresh water system antifreeze is recommended as an alternative to disassembling the water system. Refer to Section J-7 System Maintenance in this manual for information on winterizing the water system.

5. Winterize the head as recommended by the head manufacturer. If the boat is equipped with a holding tank, mix some antifreeze solution and pour it into the head. Transfer some of the antifreeze to the holding tank by flushing the head. Also, refer to Section J-7 System Maintenance for additional information.

6. Drain or winterize the air conditioning and generator system. Follow the appropriate manufacturer's directions. Be sure all water intake filters are drained thoroughly.

7. Ensure that all water is removed from the sump pump, bilge pump and bilge pump lines. Dry the hull bilge, and self-bailing cockpit drain troughs. Water freezing in these areas could cause damage. See Section K-3 Hull Drainage Systems.

8. Remove the batteries and store in a cool place. Clean the batteries using clear, clean water. Be sure the battery has sufficient water and clean terminals. Keep the batteries charged throughout the storage period. DO NOT store the batteries on a concrete floor or other damp or conductive surface.

9. Drain the alcohol out of the stove (if applicable) and store alcohol in a cool, dry place away from heat or spark.

10. Clean the boat interior thoroughly. Vacuum carpets, and dry clean drapes and upholstery jackets as necessary.

11. Scrub the hull bottom and wash exterior fiberglass components, wax lightly.

12. Clean exterior upholstery with hand dish washing soap and water, rinse, and dry thoroughly.

13. Remove all oxidation from exterior hardware and apply a light film of moisture - displacing lubricant.

### C. Prior to Winter Storage

1. Remove as many cushions as possible. Remove storage lids or hatches. Open as many locker doors, as possible. Open the refrigerator door. Leave these areas open to improve ventilation.

2. Spray the weather covers and the boat upholstery with Lysol Spray Disinfectant™. Enclosed areas such as the refrigerator, shower basin, storage locker areas, etc. should also be sprayed with Lysol Disinfectant™.

3. Place small dishes of rodent poison such as D-Con™ in a number of areas around the boat. Be sure dishes are placed near the head and the engines, as rodents will destroy upholstery, water intake and discharge hoses.

4. If the boat will be in outside storage, properly support a storage cover and secure it over the boat. DO NOT secure the cover tightly to the boat. This does not allow adequate ventilation and can lead to dry rot. DO NOT store the boat in a damp storage enclosure. Excessive dampness can cause electrical problems, corrosion, and dry rot.

**⚠ WARNING**

Placing an electric or fuel burning heating unit in the bilge of the boat during cold weather could cause fire or explosion and is not recommended.

5. DO NOT use the bimini top or camper top as a winter storage cover. The life of these covers may be significantly shortened if exposed to harsh weather elements for long periods.

## R - 2 ENGINE FLUSH OUT

The optional engine flush out should be used to clean the engine of unwanted salt, mud, sludge, etc. which may have accumulated in the engine cooling system. Before winterizing the engine, flush out the system for at least five minutes.

**⚠ CAUTION**

Make sure that no section of flush hoses are in contact with moving or hot engine parts or abrasive surfaces such as screw threads, sharp edges, etc., which could damage the hoses. Damage to the hoses could cause leaks and possible flooding of the engine compartment. Periodically check hoses for abrasions.

**NOTICE**

The flush out kit should only be used with the boat in the water and the engine OFF.

To flush out the engine, follow the instructions below.

1. Do not run engine during flushing procedure.

2. Remove cap from coupling and attach swivel connector.

3. Attach water supply hose to swivel connector.

4. Turn water on and allow water to flush the engine and exhaust manifold for five to ten minutes.

5. Turn water off. Disconnect hose; replace and tighten cap securely.

**⚠ CAUTION**

Reinstall cap onto coupler after flushing. Flooding of the engine compartment will occur if the cap is not installed and tightened.

## R - 3 GENERAL MAINTENANCE SCHEDULE

| SERVICE | AT LAUNCH AND FIRST OPERATION* | 25 HOUR CHECK EACH SEASON* | BI-SEASONAL-LY OR EVERY 6 MONTHS OR EVERY 100 HOURS* | SEASONALLY OR EVERY 12 MONTHS OR EVERY 200 HOURS* |
|---|---|---|---|---|
| **Engine and Instrumentation** | **Refer to Section E** | | | |
| Engine Maintenance | **As Recommended by the Manufacturer** | | | |
| Inspect Exhaust System Hoses and Connections | | | | |
| Check Propellers | | | | |
| Check All Thru-Hull Fittings | | | | |
| Test Emergency Shut-Off Switch | | | | |
| Gauge Cleaning | | | | |
| **Controls Systems** | **Refer to Section F** | | | |
| Throttle and Shift Adjustment | | | | |
| Neutral Safety Switch Test | | | | |
| Cable and Control Lubrication | | | | |
| **Steering Systems** | **Refer to Section G** | | | |
| Linkage and Connection Inspection | | | | |
| Stern Drive Torque Tab Adjustment | | | | |
| Power Steering Service | **As Recommended by the Manufacturer** | | | |
| Steering Adjustments | | | | |
| Steering System Lubrication | | | | |
| **Electrical Systems** | **Refer to Section H** | | | |
| Inspect Battery Connections | | | | |
| Check Battery Water | | | | |
| Battery Cable Inspection | | | | |
| 12 Volt Electrical Equipment Operation | | | | |
| 12 Volt Wiring and Connection Inspection | | | | |
| 120 Volt Electrical Equipment Operation | | | | |
| 120 Volt Wiring Inspection | | | | |
| 120 Volt System Continuity Test | | | | |
| Shore Power Cord and Adapter Inspection | | | | |
| Polarity Light Operation | | | | |
| Receptacle and Connection Inspection | | | | |
| Generator Maintenance | **As Recommended by the Manufacturer** | | | |
| Inspect Generator Water Intake and Exhaust | | | | |

*** Or as Required**

| SERVICE | AT LAUNCH AND FIRST OPERATION* | 25 HOUR CHECK EACH SEASON* | BI-SEASONAL-LY OR EVERY 6 MONTHS OR EVERY 100 HOURS* | SEASONALLY OR EVERY 12 MONTHS OR EVERY 200 HOURS* |
|---|---|---|---|---|
| **Fuel System** | **Refer to Section I** | | | |
| Inspect for Leaks | | | | |
| Fuel Sender Inspection | | | | |
| Fuel Filter Inspection | | | | |
| Fuel Tank Inspection | | | | |
| **Water Systems** | **Refer to Section J** | | | |
| Inspect All Water Systems | | | | |
| Fresh, Grey & Holding Tank Inspections | | | | |
| Drain & Flush Fresh Water System | | | | |
| Drain & Flush Waste Water System | | | | |
| Drain & Flush Grey Water System | | | | |
| **Ventilation and Drainage** | **Refer to Section K** | | | |
| Engine & Head Blower Operationn | | | | |
| Blower Vent System Cleaning | | | | |
| Bilge Pump Operation and Cleaning | | | | |
| Check Transom Drain Plug | | | | |
| Deck Hatch & Aft Window Cabin Operation | | | | |
| **Interior Equipment** | **Refer to Section L** | | | |
| Head Maintenance | **As Recommended by the Manufacturer** | | | |
| Thru-Hull Fitting Inspection | | | | |
| Ice Box and Refrigerator Cleaning | | | | |
| Stove Fuel System | | | | |
| Stove Maintenance | **As Recommended by the Manufacturer** | | | |
| Stereo Head Cleaning and Demagnetizing | | | | |
| Cabin Hatch & Aft Cabin Window Operation | | | | |
| **Exterior Equipment** | **Refer to Section M** | | | |
| Clean Spotlight | | | | |
| Check Compass for Magnectic Deviation | | | | |
| Check Trim Tab Fluid Level | | | | |
| Check Trim Tab System for leakage | | | | |
| **Upholstery** | **Refer to Section N** | | | |
| Clean Upholstery | | | | |
| Clean Carpet | | | | |

*** Or as Required**

| SERVICE | AT LAUNCH AND FIRST OPERATION* | 25 HOUR CHECK EACH SEASON* | BI-SEASONAL-LY OR EVERY 6 MONTHS OR EVERY 100 HOURS* | SEASONALLY OR EVERY 12 MONTHS OR EVERY 200 HOURS* |
|---|---|---|---|---|
| Spray Upholstery with Lysol | | | | |
| Check Seat Hinges and Mounting Hardware | | | | |
| **Weather Covers** | **Refer to Section O** | | | |
| Wash Weather Covers | | | | |
| Spray Weather Covers with Lysol | | | | |
| **Fiberglass Components and Hull** | **Refer to Section P** | | | |
| Check All Fastenings (securing rails, seats, etc.) | | | | |
| Clean FiberglassThoroughly | | | | |
| Wax Hull Sides and All Non-Tread Areas | | | | |
| Inspect Fiberglass Areas for Damage | | | | |
| Perform Minor Touch-Up Repairs | | | | |
| Sand Hull and Re-Apply Anti-Fouling Paint | | | | |
| **Woodwork & Composite Maintenance** | **Refer to Section Q** | | | |
| Clean Star Board | **As Needed** | | | |
| Clean Cherry Trim & Tables | | | | |
| **Trailers** | **Refer to Section S** | | | |
| Wax Trailer | | | | |
| Lubricate Trailer Jack | | | | |
| Lubricate Trailer Coupler | | | | |
| Lubricate Trailer Winch | | | | |
| Brake Operation | **Before Every Use** | | | |
| Brake Inspection | | | | |
| Inspect Hubs/Disc Brakes | | | | |
| Inspect Bearings & Seals | | | | |
| Lubricate Bearings | | | | |
| Springs, Hangers & Suspension Parts | | | | |
| Wheel Lug Nut | | | | |
| Wheels | | | | |
| Tire Pressure & Condition | **Before Every Use** | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

*** Or as Required**

# TRAILER INFORMATION

## S - 1 GENERAL TRAILER INFORMATION

The trailer must properly "match" the boat's weight and hull design. Four Winns® trailers are designed specifically for each boat model. Four Winns® trailers meet or exceed the National Marine Manufacturers Association's trailer requirements.

Four Winns® manufactures bunk type trailers. The bunks are located specifically for Four Winns® boats and adequately support all parts of the boat. It is a "drive-on" type trailer which means winching the boat from the water is not necessary.

**NOTICE**

When winching the boat onto the trailer, **be sure the bunks are wet to prevent damage to the boat or trailer.** DO NOT attempt to winch the boat forward when out of the water. Damage to the winch stand/assembly or tongue could occur.

Four Winns® offers both painted and galvanized trailers. The painted trailer is intended to be used in fresh water and the galvanized trailer in salt/brackish water.

**NOTICE**

Four Winns® does not recommend the usage of painted trailers for salt/brackish water conditions, as trailer life may be substantially reduced.

### A. Regulations

Federal law requires that the trailer and tire registration information be compiled and recorded. The Four Winns® boat registration card includes trailer registration information. A trailer tire warranty card included in the owner's packet, is to be filled out and returned to the tire manufacturer.

**NOTICE**

The warranty of the tire is administered by the manufacturer of the tire. The manufacturer of the tires on your trailer is Carlisle Tire®. Please call 1-800-260-7959 regarding any warranty concerns relating to your tires.

Laws covering such items as trailer brakes, lights, safety chains, etc., will vary from state to state. Please contact the motor vehicle department in your state for additional information.

### B. Load Carrying Capacity

The certification label shows the maximum load-carrying capacity and is located on the port forward side of the trailer. The Gross Vehicle Weight Rating (GVWR) is the load-carrying capacity plus the weight of the trailer itself. DO NOT exceed the GVWR rating for the trailer.

**NOTICE**

When using or choosing a tow vehicle with the correct GVWR, you must consider not only the weight of the boat and trailer but also the weight of the fuel, water, equipment, etc. Refer to Table 1 below:

| EQUIPMENT | WEIGHT (AVERAGE) |
|---|---|
| Battery | 50 Lbs. |
| Fuel | 6.5 Lbs./Gal. |
| Water | 8 Lbs./Gal. |
| Accessories | 150 Lbs. (Approximate) |

***Table 1: Average Equipment Weight***

If selecting a trailer from another manufacturer, check the load-carrying capacity. A trailer with a load-carrying capacity that is too low will be unsafe on the highway and could cause sudden failure of critical trailer components or abnormal tire wear. A trailer with too high of a load-carrying capacity that is sprung for heavy loads can damage a lighter boat.

**NOTICE**

DO NOT overload your trailer by placing camping gear or other heavy equipment in the boat. DO NOT exceed the GVWR rating. Damage to the hitch, coupler, or trailer may occur.

Improper weight distribution can place excessive strain on the towing vehicle and trailer. It can also cause the trailer to "fishtail" (sway side to side). Be sure gear and other items are distributed evenly in the boat.

### C. Hitches

The load-carrying capacity of trailer hitches will vary between manufacturers and must equal or exceed the GVWR. Four Winns® trailers use surge disc brake systems and require a fixed hitch. Refer to Section S-2E Surge Disc Brakes for more information.

Before hitching the trailer to the vehicle, make sure the proper size hitch ball is installed to match the coupler. Please refer to the coupler or actuator on the trailer for ball size. Four Winns® requires a 2 5/16" diameter hitch ball on all Vista model trailers. Refer to Section S-3 Operation for additional information on hitches. Also, consult your Four Winns® dealer for his recommendation before purchasing a trailer hitch for your towing vehicle.

**⚠ WARNING**

To help guard against a sudden failure while in use, **do not use a worn hitch ball.** Replace all worn or damaged parts.

## S - 2 TRAILER COMPONENTS

### A. Bunk Supports

All bunk boards are made of pressure treated wood. This wood is rot resistant. All boards are covered with a high quality exterior grade carpet to protect the boat from damage during normal use.

Bunk supports run parallel to the keel and support the hull, extending beyond the transom. See Figure S1.

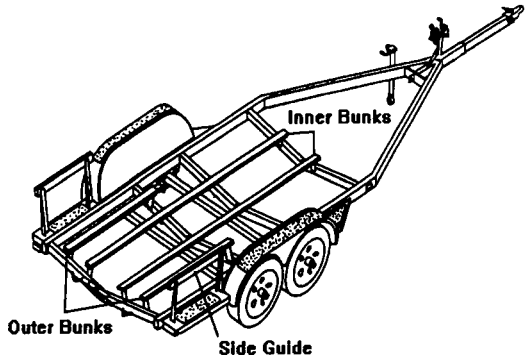


*Figure S1: Trailer Bunks*

Outer bunk supports provide stability for the boat. The inside bunks are the main weight bearing members. Side guide-on supports help to keep the boat straight while driving the boat onto the trailer. Keeping the tie-downs tightly fastened will prevent the boat from bouncing against the bunk supports.

**NOTICE**

Improper trailer setup can cause hull damage.

### B. Tongue

Four Winns® trailers are designed with tongue weights between 5% and 10% of the total weight of the boat, fuel, gear and trailer. If the downward weight on the coupling ball does not fall within this range, coupler failure and towing instability may occur. If using another manufacturer's trailer, have the dealer check the tongue weight before trailering.

**NOTICE**

DO NOT use a bent or damaged tongue or coupler. Replacement parts may be ordered through a Four Winns® dealer.

The trailer tongue is hinged on our painted trailers and removable on our galvanized trailers. This allows for easier storage. The tongue is attached with two clevis pins with locking hair pins to the trailer frame. Refer to Figure S2.

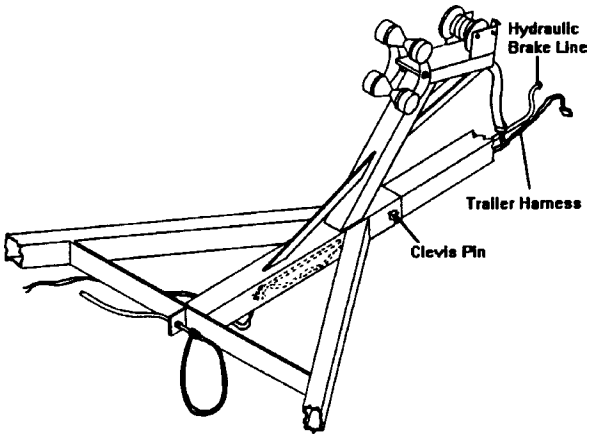


*Figure S2: Trailer Tongue Assembly*

To pivot the tongue on painted trailers for storage:

1. Make sure the trailer jack is supporting the trailer load properly. Refer to Section S-2C on Swivel Jacks for additional information.

2. Unplug the wire harness at the trailer cross member.

3. Disconnect the brake line coupler.

4. Remove the locking hair pins and clevis pins. Please note, the locking hair pins must be rotated away from clevis pin and then removed.

**NOTICE**
The tongue will exert some pressure on the clevis pins. It may be necessary to lift, push or wiggle the tongue to remove the clevis pins.

5. Slide trailer tongue out of receiver until the hinge is exposed. Pivot the tongue towards the trailer as far as it will go.

To reinstall, follow this procedure in reverse order.

1. Pivot the tongue so that it extends straight and is in alignment with the receiver.

**NOTICE**
When extending tongue ensure that the brake line and wire harness are not pinched. Failure to check could result in damage.

2. Slide the trailer tongue into the receiver until the clevis pin holes are aligned.

3. Insert clevis pins with washers and locking hair pins.

**NOTICE**
The tongue will exert some pressure on the clevis pins. It may be necessary to lift, push or wiggle the tongue to insert the clevis pins.

4. Reconnect the brake line coupler.

5. If towing the trailer, remember to plug the 5-wire tongue harness to the trunk connector wire harness of your tow vehicle.

**⚠ CAUTION**
Make sure the trailer tongue is secure before hitching to the towing vehicle.

To remove the tongue on galvanized trailers:

1. Make sure the trailer jack is supporting the trailer load properly. Refer to Section S-2C on Swivel Jacks for additional information.

2. Unplug the wire harness at the trailer cross member.

3. Disconnect the brake line coupler.

4. Remove the ring cotters and clevis pins.

**NOTICE**
The tongue will exert some pressure on the clevis pins. It may be necessary to lift, push or wiggle the tongue to remove the clevis pin.

5. Slide trailer tongue out of receiver and store in a proper place. If the trailer has brakes, store the tongue upright to prevent brake fluid from leaking.

To reinstall, follow this procedure in reverse order.

**⚠ CAUTION**
Make sure the trailer tongue is secure before hitching to the towing vehicle.

### C. Swivel Jack

The jack is designed to lift, lower and support the tongues of the trailers when not connected to the towing vehicle. Before unhitching the trailer, use the following guidelines when setting up the jack.

1. Pull on the lock pin. See Figure S3.

2. Swivel jack to the vertical position.

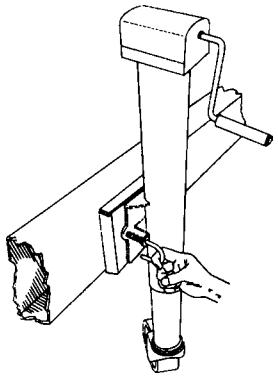

***Figure S3: Swivel Jack***

3. Release the lock pin and make sure the pin fully engages the attached tongue bracket.

> **CAUTION**
> Be sure dirt, sand, ice, etc., does not obstruct the proper seating of the lock pin.

4. When raising or lowering the jack, prevent the caster from rotating while cranking. Make sure the jack is planted on a firm and level surface before unhitching the trailer.

> **WARNING**
> To prevent personal injury or damage to the boat and trailer, observe the following:
>
> - NEVER pull on the lock pin when any trailer weight is on the trailer jack.
> - DO NOT move the trailer when resting on the swivel jack. Use towing vehicle to move the boat and trailer.
> - Keep body and feet clear of trailer tongue when raising or lowering jack.

Always remember to swivel jack to the horizontal position before towing the trailer. Damage to the caster and jack may result.

The swivel jack provided on the Four Winns® trailer can be removed from the trailer to allow for maintenance or repairs. Follow the manufacturer's recommendations provided in the owner's packet.

### D. Coupling Assembly

To unlock the coupler, pull the locking trigger upward with your index finger and lift the locking lever. To lock, push the locking lever down. See Figure S4.

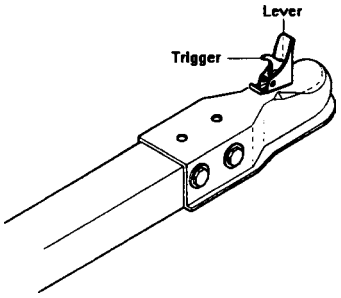


*Figure S4: Coupling Assembly*

This is also applicable to the Surge Disc Brake Actuator and Coupling Assembly.

### E. Surge Disc Brakes

Surge disc brakes are available on 2000 model trailers manufactured by Four Winns®. Surge disc brakes operate automatically when the tow vehicle's brakes are applied. When the tow vehicle slows down or stops, the forward momentum or "surge" of the trailer against the hitch ball applies pressure to a master cylinder in the trailer coupler. The master cylinder supplies hydraulic pressure through the hydraulic system which activates the trailer's disc brakes. See Figures S5 and S6. Please refer to the manufacturer's literature included in your owner's packet for further details regarding operation and maintenance.

The benefits of disc brakes in comparison to drum brakes:

- Fewer moving parts.
- Longer life due to fewer moving parts.
- Friction pads are easily accessible.
- Easy access to caliper for cleaning and maintenance.
- Calipers are self-adjusting allowing smoother braking operation.
- Braking performance less likely to be affected by dirt, water, or rust contamination.
- Fade resistant.

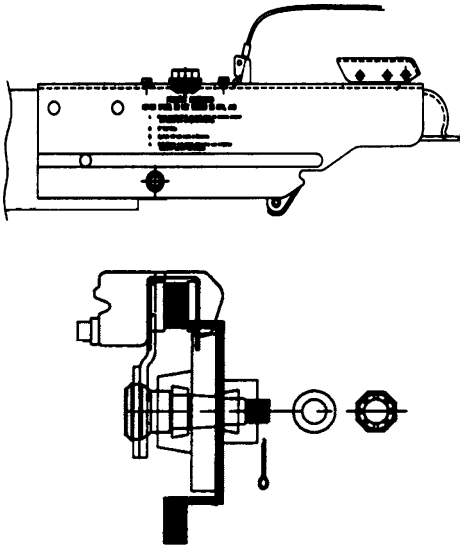

*Figure S5: Brake Actuator & Coupling Assembly and Disc Brake*

For boat models with the Surge Brake Actuator and Coupling Assembly shown in Figure S6, lift the release handle to unlock the coupler. Push down on the release handle/ locking lever to lock the trailer to the ball hitch. The locking pin, provided with the trailer, or a padlock **must be inserted** in the locking lever hole. This ensures the the coupler's locking lever remains in the locked position during towing of the trailer. Refer to Section S-3 Operation for additional information on couplers and hitching to the tow vehicle.

**NOTICE**

Anti-sway devices as used on recreational vehicles (RV's) are not applicable to surge brake systems and should not be used on Four Winns® trailers.

DO NOT use a trailer hitch with moving parts. The brakes could activate when traveling downhill. Always use a fixed hitch.

If the brakes are wet from loading, travel at a slow speed and apply the brakes on your towing vehicle several times to "dry" out the trailer brakes.

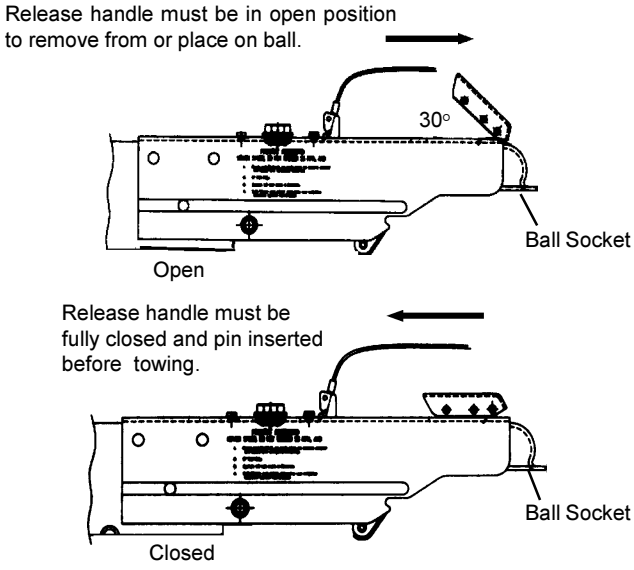


***Figure S6: Surge Brake Actuator & Coupling Assembly***

The 2000 models' trailer brake actuator and coupling assembly comes with a 5-wire plug for connecting to the tow vehicle's trailering harness. Figure S7 depicts the 5-wire plug, the color of the individual wires, and the designated circuit for each wire.


***Figure S7: 5-Wire Plug Harness***

For maintenance and other information, refer to the manufacturer's literature included with in the owner's packet.

### F. Winch

Winch operating instructions are listed below.

To release the winch, place the ratchet in the REVERSE or NEUTRAL position. The winch handle may spin when pulling on the winch line.

**CAUTION**

To prevent personal injury, observe the following:

A spinning winch handle can cause injury. Be sure the area is clear.

DO NOT release the handle when the ratchet is disengaged. Be sure the ratchet is engaged or no load is on the winch before releasing the handle.

**CAUTION**

To prevent personal injury, ALWAYS inspect the winch line and hook before each use. NEVER use line that is worn or frayed. NEVER let anyone stand in or behind a boat while pulling with the winch.

To rewind the winch, ALWAYS engage the ratchet first. Turn the handle in the appropriate direction to rewind the line.

**CAUTION**

A clicking sound will be heard when the winch is properly engaged. If a clicking sound is not heard, DO NOT release the handle. Handle may spin backwards. Lower the load into a safe position before releasing the handle.

Refer to the manufacturer's literature, included in the owner's packet, for more information on winch operation.

## G. Wheels

Trailer wheel rims are available in three types of finishes: white, aluminum and galvanized. The white, powder coat finish is standard. Aluminum rims (Mags) are optional on painted trailers. Galvanized trailers are equipped with matching galvanized rims. Spare tire covers are available as an option and will match the trailer.

The tires installed on Four Winns® trailers meet the trailer load requirements for each model. Before trailering, make sure the tires are inflated according to the manufacturer's recommendation. Tire pressure information is noted on the tire and in the manufacturer's literature included in the owner's packet.

Lug nuts must be checked for proper tightness after the first 50 miles and periodically thereafter. Lug nuts should be torqued to 85 foot pounds on white, galvanized, and aluminum wheels.

Mag wheels include a locking-type nut to help deter theft. This nut requires a special key or socket to remove. The socket will be included with your trailer when mag wheels are ordered. Refer to Figure S8.

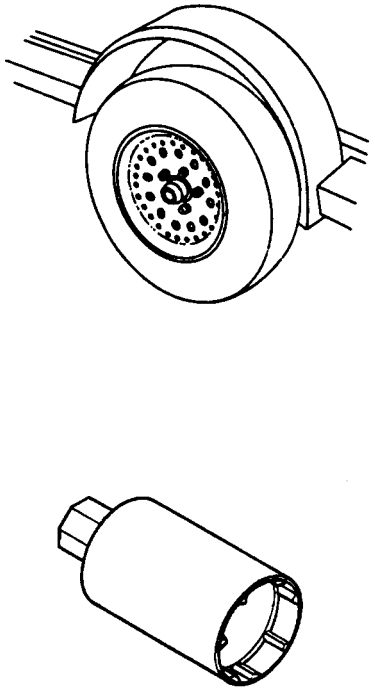

*Figure S8: Mag Wheel & Mag Wheel Key (Socket)*

**NOTICE**

DO NOT use an air wrench or other power equipment to install lug nuts on aluminum (Mag) wheels. Damage to the wheel may result. Lug nuts should be torqued to 85 foot pounds.

Examine the tires frequently for snags, bulges, excessive tread wear, separations or cuts.

Refer to the manufacturer's literature included in the owner's packet for more information.

**NOTICE**

The warranty of the tire is administered by the manufacturer of the tire. The manufacturer of the tires on your trailer is Carlisle Tire®. Please call 1-800-260-7959 regarding any warranty concerns relating to your tires.

## H. Spare Tire Carrier

Spare tires are optional on all Four Winns® trailers. A spare tire carrier is bolted to the trailer frame and is available in painted or galvanized finish. A spare tire carrier and wheel can be ordered from your Four Winns® dealer. Refer to Figure S9.

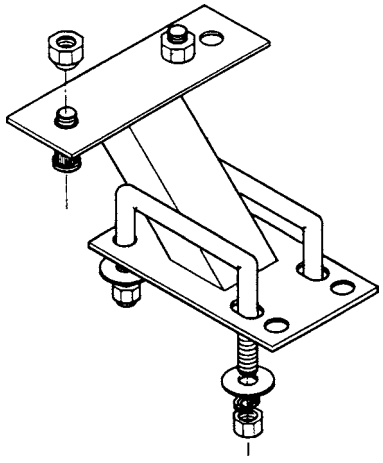

*Figure S9: Spare Tire Carrier*

## I. Lights

Four Winns® trailers are equipped with taillights, brake lights, turning signals, and clearance lights. All lights are sealed to prevent moisture from entering. However, the taillight bulb assembly may be replaced. The bulb is assembled in a sealed housing and can be replaced. Contact your Four Winns® dealer for assistance.

**NOTICE**
Use a heavy duty turning signal flasher on towing vehicles. Check with your local auto parts store or ask your Four Winns® dealer for assistance.

Consult your dealer for state trailer regulations concerning lighting and other optional equipment.

## J. Tie-downs

The boat should be secured to the trailer by tie-downs to prevent damage to the hull. The boat may shift or bounce against the bunks or hull supports if not secured. It may also slide or fall off the trailer while being towed.

There are two types of tie-downs being used:

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. A separate tie-down should then be attached to hold the boat. See Figure S10.

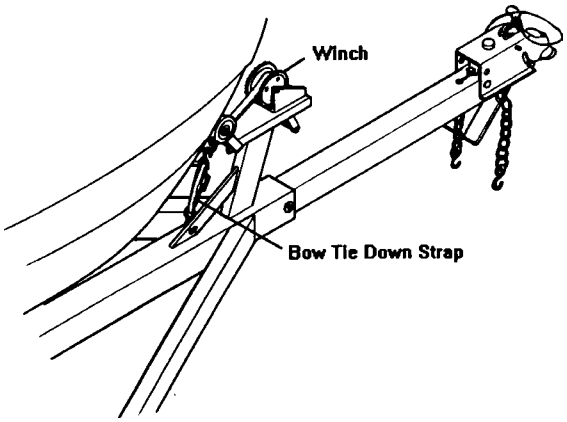


*Figure S10: Bow Tie Down Strap*

**NOTICE**
DO NOT rely on the winch cable (or line) alone to hold the bow of the boat against the bow stop. A bow tie-down is provided with the Four Winns® trailer.

2. Rear Tie-downs: It is very important that the transom is resting securely on the bunk supports at the rear of the trailer. Rear tie-downs are provided to secure the boat to the trailer. Tighten the tie-downs to prevent the boat from moving. See Figure S11.

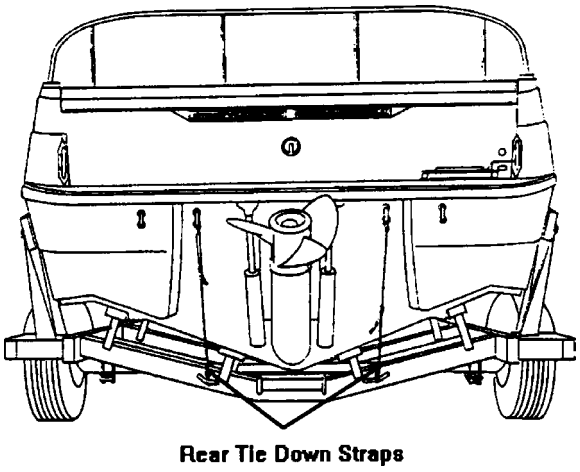


*Figure S11: Rear Tie Down Straps*

The tie-down is a mechanical ratchet device. To allow line out, follow the procedures below:

1. Place two fingers on spring-loaded release, and pull release away from spindle/gear.

2. Open tie-down to a flat, 180° position.

**NOTICE**
Spring-loaded release should click into a notch on the painted handle. Both spring releases should clear the inner gear.

3. Pull line out. The inner spindle/gear should move freely.

To ratchet line or tighten down the strap on the boat:

1. Place two fingers on spring-loaded release, and pull release away from spindle/gear.

2. Bring both handles together. Both handles should ride on the inner gear.

3. Open (to approximately 110°) and close handles to ratchet. Leave in closed position to maintain pressure on line.

## S - 3 OPERATION

### A. Hitching Trailer

Before towing, the trailer must be properly hitched to the tow vehicle.

**WARNING**

To ensure proper engagement of the actuator's coupler to the tow ball, **DO NOT** use a multi-piece ball, an incorrectly sized ball, or a worn/damaged ball. **Four Winns® Vista trailers require a two and five-sixteenth inch (2 5/16") diameter tow ball.**

1. Position actuator ball socket above ball hitch.

2. Lift up on release handle fully (approximately 30° for a trailer with brake actuator and coupler assembly) to allow the ball latch to rotate open. The handle will remain up to indicate that it is not yet attached to the ball. See Figure S6.

3. Lower trailer tongue until ball is seated or rests in ball socket.

4. Close release handle. If it is a trailer with brake actuator and coupler assembly the handle will snap to its closed position when properly seated.

The release handle will close freely with finger pressure when ball is properly seated in socket. **If the handle does not close freely or does not snap to its closed position properly, do not tow trailer. DO NOT** force handle into closed position, otherwise damage could result. Inspect actuator for bent parts or cause of improper operation.

**NOTICE**

Keep the coupler clean and lubricated to prevent damage to the coupler.

5. Make sure the actuator is secure. If unsure, extend the trailer tongue jack to the ground and lift (with the jack) the car and trailer combination approximately 2" to 4". If the ball does not disengage and remains secured, the actuator is latched properly.

**NOTICE**

To prevent back injury, DO NOT PHYSICALLY LIFT the trailer tongue when loaded.

6. The locking pin, provided with the trailer, or a padlock **must be inserted** in the locking lever hole. This ensures the the coupler's locking lever remains in the locked position during towing of the trailer. Use of a padlock will help to deter theft.

7. Connect break-away cable S-hook securely to one of the tow vehicle hitch's safety chain connection points. The cable should hang clear of trailer tongue and be long enough to permit short radius turns without pulling break-away cable forward. **DO NOT** loop the break-away cable around a bracket and loop it back onto itself.

8. Make sure the break-away lever is fully rotated to the rear with the break-away catch pin securely located under the break-away spring. The break-away catch pin will be in the lever's uppermost notch. See Figure S12.

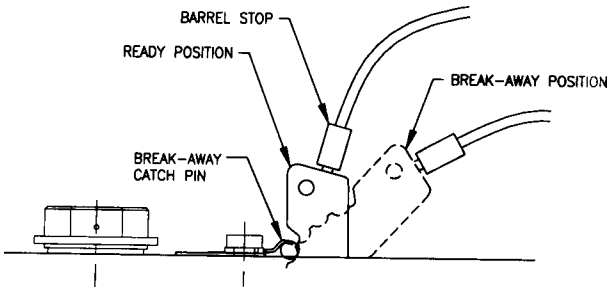


***Figure S12: Break-away Cable***

**CAUTION**

The Break-away system is not designed to operate if the trailer does not separate completely from the tow vehicle, or if the trailer tongue "submarines" and goes beneath the tow vehicle. DO NOT use break-away cable as a parking brake.

9. Safety chains are provided and must be used. Cross the safety chains under the coupling and attach to the towing vehicle's frame or bumper. See Figure S13. Always allow slack for turns. Four Winns® provides securement clips for the safety chain hooks and recommends you use them. Regulations vary from state to state. Please check the local laws in your state.

**WARNING**

The trailer safety chains' length **MUST** be set short enough so the actuator's break-away cable is **NOT** pulled if the coupler separates from the tow vehicle's hitch but remains connected by the safety chains. The break-away system should only be activated after **BOTH** the trailer's coupler and safety chains have failed and allowed the trailer to completely separate from the tow vehicle. Provide just enough slack in the trailer safety chains to allow short radius turns. The chains should not drag on the ground. **Safety chains must be used.**

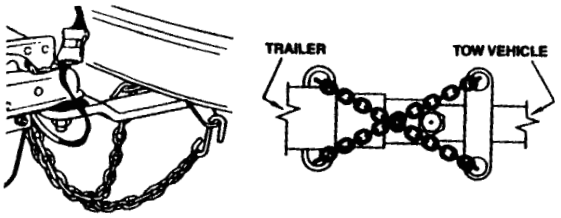


***Figure S13: Crossing the Safety Chains***

**WARNING**

To reduce the risk of Break-away accidents, be sure coupler is seated and safety chains criss-crossed before trailering.

**NOTICE**

Rubber safety chain straps are included on the "S" hooks to prevent chains from bouncing off of the tow vehicle and **must be used.**

10. Retract jack fully and place in trailering or horizontal position.

11. Check for proper tow vehicle-trailer hookup. The tow vehicle and trailer should be level with a positive tongue load. Four Winns® trailers are designed with tongue weights between 5% and 10% of the total weight of the boat, fuel, gear and trailer. The trailer should be close to level. If unsure of tongue load and trailer position, consult your Four Winns® dealer before proceeding.

**WARNING**

Be sure the tow vehicle and trailer are level and have a positive tongue load. This will allow the brake actuators to function properly on trailer models having such braking systems.

Be sure to read the manufacturer's literature, included in the owner's packet, before towing your Four Winns® boat and trailer.

### B. Backing Up With Surge Disc Brakes

Follow the steps listed above for hitching the trailer before backing up.

1. Before backing up a slope or through soft ground, pull the trailer forward slightly to assure the actuator socket is in the fully forward position.

2. Back the trailer up.

**CAUTION**

Avoid sharp turns. This could bend, create extreme stress or fracture either the actuator or trailer tongue.

**NOTICE**

Be sure to check for obstacles or persons behind the trailer before backing up. Also, adjust your mirrors for clear view of the area behind the trailer.

3. If the trailer is to be uncoupled from the tow vehicle after backing, block all trailer wheels and pull forward slightly to take strain off the actuator.

   Uncouple the actuator by lifting the release handle and raise the trailer tongue with the jack.

For most trailering conditions, the brake actuator will allow you to back up normally. However, if the coupler is not wired or if there is a failure the trailer can still be backed up by using the manual brake lockout.

To use your lockout, check that no force is being applied to the actuator. This is achieved by positioning the towing vehicle and the trailer on a flat service, or with the trailer downhill from the tow vehicle. Set the vehicle's parking brake.

Rotate the lockout assembly forward and up. See Figure S14. Then push it rearward, so the pin ends will rest in the notches in the sides of the outer case. The actuator is now "locked out" and will not apply any noticeable pressure to the trailer brakes as you back up. If you can not rotate the assembly forward enough to reach the notch, make sure the actuator's coupler case assembly is pulled fully forward out of the outer case.

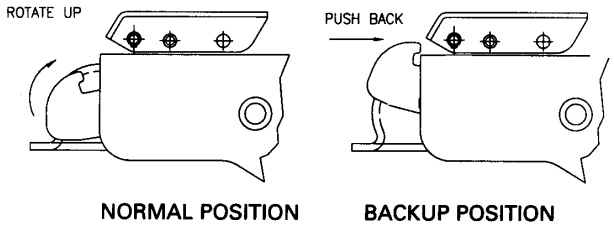


***Figure S14: Brake Lockout Mechanism***

**NOTICE**
Trailer components may be different between models and may change during the model year. Be sure to read all manufacturer's literature supplied with your Four Winns® trailer.

## S - 4 TRAILERING

### A. Checklist

Before trailering, the trailer should be inspected for the following:

1. Check tires for proper inflation. Under-inflated tires heat up rapidly and may blowout or cause uncontrolled swaying. Also, make sure lug nuts are tight.
2. Be sure the coupler is secured to the trailer hitch and safety chains are attached.
3. Be sure trailer taillights and turning signals are operational.
4. Check the brakes for proper operation prior to departure.
5. Check lug nuts for proper tightness.
6. Check tie-downs and make sure boat is secured to the trailer.
7. Check the springs and under carriage for loose parts.
8. Before towing, close and secure all hatches, doors, and windows. Securely store all equipment and canvas. Installed tops, side curtains, and aft curtains can be damaged while towing.
9. Carry a spare tire for both the trailer and towing vehicle. On extended trips, carry spare wheel bearings, seals, and races. Be sure and carry the proper tools to complete the repairs.

**WARNING**
To avoid bearing failure and possible wheel loss, keep wheel bearings properly lubricated. Inspect the wheel bearings periodically and check for damage.

10. Before trailering, inspect the bearings for wear and adequate lubrication. When traveling, check the wheel hubs during stops at gas stations, restaurants or other places. If the hub feels abnormally hot, the bearing should be inspected before continuing the trip.

### B. Tactics

**NOTICE**
Be sure to check the towing vehicle manufacturer's literature for recommendations on towing.

1. Install outside rear view mirrors on both sides of the towing vehicle to improve vision. Check the rear view mirrors at frequent intervals to be sure trailer and boat are riding smoothly.
2. Allow at least one car and trailer length between vehicles for each 10 mph. **DO NOT** tailgate.
3. Use low gear (on manual transmissions) when traveling up steep hills or over sand, gravel, or dirt roads.
4. Use care if shifting to a lower gear while traveling downhill. This could activate the trailer's surge brakes for the duration of the downhill run and cause overheating. Extended overheating could result in complete loss of the trailer brakes.

To help prevent overheating, slow down while approaching the crest of a hill and maintain a slow, controlled downhill speed. Apply brakes in short intervals to allow time between braking for the brakes to cool off.

5. When rounding turns on highways or streets, DO NOT cut corners. Also, travel slowly over railroad tracks.

6. If the trailer begins to "fishtail" when accelerating, reduce speed until it ceases. If the trailer "fishtails" again during acceleration, stop to investigate the cause of the problem. Check for improper trailer load and uneven weight distribution inside the boat. Check the winch line and tie-downs. Also check the tires for proper inflation or damage. If necessary, redistribute the load before continuing.

For additional information on trailering, refer to the "Boating Basics" manual included in the owner's packet.

## S - 5 MAINTENANCE

### A. Care of Exterior Finish

When using the trailer, keep in mind the paint can scratch and become marred during normal use. In most cases, touch-up paint can be ordered. Please contact a Four Winns® dealer for assistance.

Some maintenance is required to maintain the finish and minimize rusting. The trailer should be washed and rinsed with clean water immediately after each use. On galvanized trailers, rinse only with clean water. Depending upon use, waxing is recommended twice a year. Use paste wax designed for enamel paint.

### B. Bunks

The bunks should be replaced if they are cracked, warped, or evidence of dry-rot is found. The replacement boards should be treated lumber of the same length and width.

**CAUTION**

DO NOT burn damaged or broken bunks. Toxic fumes will be released. Dispose of bunks properly.

### C. Swivel Jack

Keep the swivel jack clean of dirt, tar, and mud. Lubricate every six months. The swivel jack's inner ram should be lubricated with SAE 30 weight oil. The top cover may be removed to lubricate the gears with wheel bearing grease.

Replace all worn and damaged parts. ALWAYS use the manufacturer's replacement parts. Replacement parts may be ordered through your Four Winns® dealer.

For more information on maintenance, refer to the manufacturer's literature included in the owner's packet.

### D. Brake Actuator & Coupling Assembly

When storing or parking your trailer, keep the brake actuator and coupling assembly (coupler) off the ground to prevent dirt buildup in the ball socket. Keep the coupler clean of dirt, tar, and mud. Lubricate the coupler with SAE 30 weight oil every six months or as often as necessary. Replace any worn or defective parts. If the coupler is damaged, contact your Four Winns® dealer for replacement parts. DO NOT use a damaged or bent coupler assembly.

For more information on maintenance, refer to the manufacturer's literature included in the owner's packet.

**NOTICE**

The trailer should be set up at a slight angle to allow for water to drain aft in the boat.

### E. Winch

The winch should be kept clean of dirt, ice, paint, etc., and the spur gears should have a film of grease on them at all times. Apply several drops of SAE 30 weight oil to the ratchet pawl mechanism, bushings and pinion shaft threads twice per season.

Replace any worn or damaged parts. For more information on maintenance, refer to the manufacturer's literature included in the owner's packet.

### F. Lights

Inspect wiring for cuts or bare wire which could cause electrical shorts. Repair or replace defective wiring. Replace cracked or damaged lens and always carry spare bulbs. Replacement parts may be ordered through a Four Winns® dealer.

### G. Tie-downs

Replace frayed or damaged tie-downs. Periodically, lubricate the ratchet mechanism with a fine oil or silicone spray. Replacement parts may be ordered through a Four Winns® dealer.

### H. Wheels

Some maintenance is required to maintain the finish and retard rusting of painted rims. The wheels should be cleaned with dishwashing soap and water and rinsed with clean water immediately after each use. Waxing is recommended three to four times each year.

Aluminum wheel rims may be cleaned with dishwashing soap and water. However, cleaning products specifically for aluminum are available and can be used. Cleaners may be obtained from Four Winns® dealers and your local auto parts stores. The Mag wheel manufacturer recommends a product by Priority One® called Pro-Long Aluminum/Chrome Wheel Protectant™. Galvanized rims should be rinsed only with clean water immediately after each use.

**NOTICE**

ALWAYS read the manufacturer's instructions on the label before using any product.

### I. Brakes

Keep the actuator clean of dirt, tar, and mud. The actuator and internal parts should be lubricated at all times with SAE 30 weight oil. The hitch ball may be lubricated with automotive grease or lubricant made for hitch balls.

Periodically inspect the brake system for leaks. Check all hoses for cuts or wear. Replace all defective hoses. The master cylinder should be filled within 1/2 inch from the top of the reservoir.

At the beginning of each year, inspect the brakes for excessive wear, have linings replaced if necessary.

If the brakes need bleeding, consult your Four Winns® dealer for assistance. If unavailable, a brake or auto repair facility can perform the repair.

Refer to the manufacturer's literature included in the owner's packet for additional information on the brake system.

### J. Bearings

Wheel bearings and seals should be inspected at the same time as brakes. Have worn or defective parts replaced. Grease bearings and seals at this time and at the end of the boating season. Bearing Protectors should be greased three to four times a year. A grease fitting is provided.

Four Winns® uses the Accu-Lube™ bearing protection system on its trailers. The Accu-Lube™ design is submersible and provides for grease flow that completely repacks and protects the bearings. This lubrication system disallows water entry, thus extending the life of the bearings, spindle and hub.

Lubricate the bearings as follows:

1. Remove the rubber plug.

2. Insert the grease gun into the grease fitting. Pump grease until old grease comes back out the front.

3. Remove old grease and reinstall rubber plug.

**NOTICE**

Most bearing failures are due to improper maintenance. Be sure to inspect bearings and seals as noted in Section S-6B and refer to the manufacturer's literature included with your trailer.

## S - 6 AXLE INSPECTION & REPAIRS

As a general rule, repairs and maintenance should be performed by qualified servicing personnel. Our axle manufacturer recommends that a certified mechanic should be consulted on the following items:

1. Broken axle
2. Broken spring
3. Worn spring eye bushing parts
4. Sagging springs
5. Welding fatigue
6. Serious leakage of seal
7. Tire wear
8. Loose or worn suspension parts
9. All brake related adjustments, inspections and problems

### A. Removal of Hub

The following instructions pertain only to trailers manufactured by Four Winns®. To remove the hub to inspect the bearings and seals, refer to Figure S15 and the following instructions:

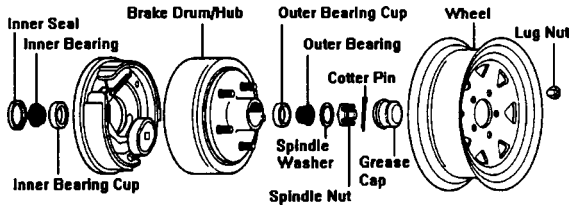


*Figure S15: Axle Components*

1. Remove lug nuts.
2. Remove wheel.
3. Remove grease cap.
4. Remove cotter pin.
5. Unscrew the spindle nut counter clockwise.
6. Remove spindle washer.
7. Remove hub from spindle.

### B. Bearing/Seal Inspection and Replacement

When inspecting bearings or seals:

1. Inspect the grease seal for damage, tears, or cracks. If there is no damage or leakage in not occurring, the seal is in good condition.

   If the seal is torn or cracked, then it should be replaced. The seal can be pried out of the hub with a screw driver. Be sure to replace the seal using the recommended replacement parts. Parts can be obtained from your Four Winns® dealer.

2. When inspecting the bearing, check for corrosion and wear. If any rust or wear exists on the bearing, then remove and replace with the recommended parts listed in the table above.
3. If the bearings are in good condition, repacking the grease should be done at this time. Hand pack each bearing individually using a premium water resistant wheel bearing grease.

### C. Hub Reinstallation

1. To reinstall hub, reverse the procedures listed above.
2. It is important to tighten the spindle nut to approximately 50 ft. lbs. (12" wrench with full hand force). Loosen the nut then finger tighten.
3. Replace the cotter.
4. When reinstalling wheel, the following tightening procedure is recommended by the manufacturer:

   a. Place wheel lug nuts on by hand to start.

   b. Tighten initially to 15 - 20 ft. lbs. (Apply 20 pounds of pressure to wrench 12" long) using cross tightening sequence. Proceed to finish tightening to 85 ft. lbs. (Applying 85 pounds of pressure to wrench 12" long will yield 85 ft. lbs. of torque).

   c. Re-torque after first 50 miles of use.

Refer to Section S-2G for additional information on wheel requirements.

# GLOSSARY

ABAFT - Toward the rear of a boat.

ABEAM - At right angles to the keel of the boat.

ABOARD - On the boat.

ABREAST - Side by side.

ADRIFT - Loose, not on moorings or towline.

AFT - Moving toward the stern, you are going aft.

AGROUND - Stuck fast to the bottom.

AHEAD - In a forward direction.

ALEE - Away from the direction of the wind; opposite of windward.

ALOFT - Above the deck.

AMIDSHIPS - 1. An object or area midway between the bow and stern. 2. An object or area midway between the port side and the starboard side of a vessel.

AMPERE - The standard unit used to measure the draw of an electrical current.

ANCHOR RODE OR ROPE - The line (chain) connecting a vessel to its anchor.

ANCHOR BALL - A black, circular, day signal hoisted to show that a vessel is anchored. Replaced at dusk by the anchor light.

ASTERN - Anywhere behind the boat, a reverse direction, opposite of ahead.

ATHWARTSHIPS - A line, or anything else, running perpendicular to the fore-and-aft center line of a boat.

BATTEN - A strip of wood or metal used to secure tarpaulin(s) in place over a hatch. To batten down means to secure for rough weather.

BEAM - 1. The widest distance across a boat from the outside skin on one side to the outside skin on the other. 2. A transverse structural member that stiffens and supports a portion of the deck.

BEAM WIND - A wind blowing against the side of the vessel, perpendicular to the long axis of the vessel.

BILGE - The lowest interior area of a hull, used to collect water that has entered.

BILGE PUMP - A pump intended for removal of spray, rainwater, and the normal accumulation of water due to seepage and spillage; not intended for damage control.

BINNACLE - The stand or support for a magnetic compass occasionally used to mean helm.

BITT - A heavy and firmly mounted piece of wood or metal used for securing lines.

BLOCK - A wooden or metal case enclosing one or more pulleys and having a hook, eye, or strap by which it may be attached.

BOLLARD - A single post (wood, metal, or concrete) on a dock, pier, or wharf used to secure a vessel's lines.

BONDING - The electrical connection of exposed metallic, non-current carrying components to a common point on the main engine block.

BOW - The front end of the boat.

BOW LINE - A docking line leading from the bow.

BREAKER - A single breaking, plunging or spilling wave.

BREAKER LINE - The outer limit of the surf. However, all breakers may not be in a line. They can occur outside the breaker line.

BRIDGE - The main vessel control station.

BROACH - The turning of a boat parallel to the waves, subjecting it to possible capsizing.

BULKHEADS - The interior walls of a boat.

BULWARK - The side of a vessel when carried above the level of the deck.

BUOY - An anchored float used for marking a position on the water, a hazard, or a shoal.

CAPSIZE - To turn over.

CAPSTAN - A machine that moves a cylindrical device on a shaft for the purpose of hauling up an anchor.

CAST OFF - To let go.

CATAMARAN - A twin-hulled boat, with the hulls being side-by-side.

CHINE - The intersection of a boat's bottom and side. If this intersection is rounded, it is a "soft" chine. If the intersection is squared off, it is a "hard" chine.

CHOCK - 1. A fitting or hole in a railing or deck through which a mooring or anchor line is routed. 2. A wedge used to secure an item in place.

CIRCUIT BREAKER - A device used to interrupt an electrical circuit when current flow exceeds a predetermined level.

CLEAT - A double-ended deck fitting to which lines are secured; usually anvil-shaped.

COAMINGS - Raised lips around cockpits or hatches used to keep water from entering

COCKPIT - An exposed deck area (usually aft) that is substantially lower than the adjacent deck.

COMBER - A wave on the point of breaking. A comber has a thin line of white water on its crest, known as "feathering."

COMPANIONWAY - The steps or ladder leading downward from a deck.

COMPARTMENTS - Rooms divided by bulkheads.

COUNTER - The overhang at the stern of a boat.

CRADLE - A framework, generally made of wood, used to support a boat when it is out of the water.

CREST - The top of a wave, breaker or swell.

CUDDY - A small sheltered cabin in a boat.

CURRENT -1. The movement of water, 2. The flow of electrical charge.

DEAD AHEAD - Directly in front of the boat.

DEAD RECKONING - A plot of courses steered and distances traveled through the water.

DECK - A permanent covering over a compartment, hull or any part thereof.

DINGHY - A small, open boat used for ship to shore transportation.

DISPLACEMENT - The weight of water dislocated by the hull of a vessel.

DISPLACEMENT HULL - A hull that "displaces" a volume of water equal to the weight of the boat. A hull designed to run in the water rather than on top of the water. When a displacement hull moves through the water, it pushes that water out of the way. Water will then flow around the hull and fill the "hole" the boat leaves astern.

DOCUMENTED VESSEL - Documented yachts have been specially registered with the U.S. Coast Guard. All documented yachts must have their name and home (hailing) port marked on some conspicuous place on the hull. Numbering is not required. Advantages include legal authority to fly the yacht ensign, privilege of recording bills of sale, and other instruments of title with federal officials, and preferred status for mortgages. Documentation does not exempt the unit from any State or Federal taxes. All safety and equipment regulations still apply.

DOLPHIN - A group of piles driven close together and bound with wire cables into a single structure.

DRAFT - 1. The depth of a boat from the actual water line to the bottom of the lowest part of the boat (e.g., the propeller tip or rudder). 2. The depth of water necessary to float a boat.

DROGUE - Any device streamed astern to check a vessel's speed, or to keep its stern up to the waves in a following sea.

DYE MARKER - A brightly colored chemical that spreads when released into water; normally used to attract attention.

EBB TIDE - A receding tide.

EVEN KEEL - To be floating evenly without listing to either side.

EXHAUST SYSTEM - The means by which the hot engine (or generator) exhaust gases are moved from the

engine to an outboard port and then released into atmosphere.

EYE SPLICE - A permanent loop spliced in the end of a line.

FAST - Said of an object that is secured to another.

FATHOM - Six feet.

FENDER - A device (usually constructed of rubber or plastic) positioned so as to absorb the impact between vessels or dock.

FETCH - The unobstructed distance that the wind can blow over the water to create waves.

FLARE - 1. Outboard curve of the hull as it comes up the side from the waterline; the reverse of tumble home. 2. A pyrotechnic device used for emergency signaling.

FLAT - A small deck that is built below decks, specifically to support a piece of equipment.

FLEMISH - To coil down a line or rope on deck in a flat, circular, concentric arrangement.

FLOTSAM - Floating wreckage, trash or debris.

FLUKE - The palm of an anchor.

FOAM CREST - The top of the foaming water that speeds toward the beach after a wave has broken, commonly referred to as "white water."

FOLLOWING SEA - A sea (waves) moving in the same direction as a vessel.

FORE-AND-AFT - A line, or anything else, that runs parallel to the longitudinal center line of a boat.

FOREFOOT - The portion of a vessel's keel that curves upward to meet the stem.

FOREPEAK - A compartment in the bow of a boat.

FORWARD - Toward the bow.

FREEBOARD - The minimum vertical distance from the surface of the water to the gunwale.

FREQUENCY - The number of crests passing a fixed point at a given time.

FRONTS - Where opposing warm and cold air masses meet, generally producing a band of wet, stormy weather wherever they meet.

GALLEY - The kitchen area of a boat.

GALVANIC CORROSION - A potential electrical difference exists between dissimilar metals immersed in a conductive solution (e.g., salt water). If these metals touch or are otherwise electrically connected, this potential difference produces an electron flow between them. The attack on the less corrosion resistant metal is usually increased and the attack on the more resistant metal is decreased, as compared to when these metals are not touching.

GANGWAY - The area of a ship's side where people board and disembark.

GASKET - A strip of sealing material, usually rubber, set along the edge of a water or gas tight door, port, cover or hatch.

GELCOAT - The thin outer layer of pigmented plastic covering a fiberglass vessel.

GLAND - The movable part of a stuffing box, which when tightened, compresses the packing.

GROUND - Electrical term meaning the electrical potential of the earth's surface, which is zero.

GROUND SPEED - A vessel's speed made good over the earth's surface along a course or track.

GROUND TACKLE - The anchor, anchor rodes, and other fittings that are used to secure a vessel at anchor or dockside.

GUNWALE - 1. The line where the upper deck and the hull meet. 2. The upper edge of a boat's side.

HALYARD - A line used to hoist a flag or pennant.

HATCHES - Cover on hatchways.

HATCHWAYS - Access ways through decks.

HARDTOP - A permanent cover over the cabin or cockpit.

HAWSER - A heavy rope or cable used for mooring or towing.

HEAD - A toilet or lavatory area.

HEADING - The direction that a vessel is going with reference to true, magnetic, or compass north.

HEADWAY - The forward motion of a vessel through the water.

HEAVE TO - To bring a vessel up in a position where it will maintain little or no headway, usually with the bow into the wind.

HEAVY WEATHER - Stormy weather with high seas and strong winds.

HEEL - To tip to one side.

HELM - The wheel or tiller that manually controls the boat's steering system.

HELMSMAN - The individual steering the vessel.

HIGHS - A center of pressure surrounded by lower pressure on all sides. Caused by a mass of cooler, sinking, drier air. This raises the area ground level air pressure and provides clear skies.

HULL - The main body of a boat.

INBOARD - 1. From either the port or starboard side of a boat toward the fore-and-aft centerline of a boat. 2. The dock side of a moored boat.

INLAND RULES - Nautical "Rules-of-the-Road" that apply in U.S. lakes, rivers, and coastal waters.

INTERNATIONAL RULES - Nautical "Rules-of-the-Road" that are in effect by international agreement to the high seas.

ISOBARS - Lines of equal air pressure that connect all the local points on a weather map. These lines are usually closed and define high or low pressure air masses.

ISOTHERMS - Isotherms are lines that are similar to Isobars except that Isotherms connect all the points that are of equal temperature.

JETSAM - Refuse that sinks when discharged overboard.

KEDGE(S) - One or more anchors set out from a grounded vessel, usually astern, to 1) keep it from being driven further aground and 2) to aid in refloating.

KEEL - 1. The centerline of a boat hull bottom running fore and aft, 2. The backbone of a vessel.

KNOT - 1. A maritime unit of speed equal to one nautical mile per hour (6076 feet). 2. A term for hitches and bends.

LANYARD - A short line made fast to an object to secure it.

LATITUDE - The measure of angular distance in degrees, minutes, and seconds, north or south of the equator.

LAZARETTE - Storage compartment in the deck at the stern.

LEADLINE - A weighted line used to take depth measurements.

LEE - The direction opposite that of the wind.

LEEWARD - Away from the wind.

LIST - A vessel that inclines to port or starboard.

LORAN - Long Range Navigation. An electronic system whereby a navigator can determine position regardless of weather.

LONGITUDINAL - Running lengthwise.

LOWS - A region of low atmospheric pressure. Hurricanes are extremely concentrated low pressure systems.

LUBBER LINE - A mark or line on the compass parallel to the keel indicating forward.

MAST - A spar that is set upright to support lighting, rigging, or sails.

MOORING - An arrangement for securing a boat to a mooring buoy or pier.

NAVIGATION LIGHTS - A set of red and green or white lights which must be shown by all vessels between dusk and dawn.

OVERHEAD - A ceiling or roof of a vessel.

OVERBOARD - Over the side of the boat.

OUTBOARD - 1. From the fore-and-aft centerline of a boat toward both the port and starboard sides. 2. The seaward side of a moored boat. 3. An engine that is mounted externally onto the transom of a boat.

PAINTER - A line to the bow of a small boat used for making fast.

PASSAGEWAY - A corridor or hallway aboard ship.

PENNANT - The line by which a boat is made fast to a mooring buoy; also pendant.

PERSONAL FLOATATION DEVICE (PFD) - A life preserver.

PIER - A loading platform that extends at an angle from the shore.

PILASTER - A rectangular structural support column that is an extension of the port and starboard aft cabin sides and which supports the hardtop and flybridge.

PILING - Support, or protection for wharves, piers, etc.

PITCH - 1. The vertical (up and down) motion of a bow in a seaway, about the athwartships axis. 2. The axial advance of a propeller during one complete revolution.

PITCHPOLING - A boat being thrown end-over-end.

PLANING HULL - At slow speeds, a planing hull will displace water in the same manner as a displacement hull. As speed is increased, the hull provides a lifting effect up onto the surface of the water.

POINT - One of 32 points of the compass that is equal to 11-1/4 degrees.

PORT - 1. Looking forward, the left side of a boat, 2. A harbor, 3. An opening for light or ventilation or passage of material in the side of a boat.

PORT BEAM - The left-center of a boat.

PORT BOW - Facing the bow, the front left side.

PORT QUARTER - Looking forward, a vessel's left rear section.

QUARTER - The sides of a boat aft of amidships.

QUARTERING SEA - Sea coming on a boat's quarter.

RED-RIGHT-RETURNING - A term for helmsmen that buoys and day markers are on the right when returning from seaward.

REEF - A shallow underwater barrier.

REEVE - To pass a line through a block or other opening.

RIDGES - High pressure fingers extending out from a high.

RODE - The anchor line or chain.

RUNNING LIGHTS - Lights required to be shown on boats underway between sundown and sunup.

RUDDER - A vertical plate for steering a boat.

SALON - The main social cabin on a vessel, usually the largest area, occasionally referred to as the deckhouse.

SCREW - A propeller.

SCUPPER - A drain from the edge of a deck that discharges overboard.

SEACOCK - A positive action shut-off valve connected directly to the hull seawater intake and discharge piping.

SERIES - A group of waves which seem to travel together and at about the same speed.

SHACKLE - A "U" shaped connector with a pin or bolt across the open end.

SHAFT - The long, round member that connects the engine or transmission to the propeller.

SHAFT LOG - A fitting at the hull bottom where the shaft connecting an engine to its propeller penetrates the hull. A shaft log permits the shaft to rotate while simultaneously preventing water from entering the hull.

SHEER - The top of the hull's curvature at the deck line from the bow to the stern.

SHEER STRAKE - The upper edge of the hull, immediately below the deck.

SHEET BEND - A knot used to join tow ropes.

SHOAL - An area of shallow water.

SILENCER - A baffled chamber installed in an exhaust system to reduce the noise.

SOLE - Term for deck, cabin or cockpit floor.

SPAR - A general term for booms, masts, yards etc.

SPRING LINE - A pivot line used in docking, undocking, or to prevent the boat from moving forward or astern while made fast to a dock.

STARBOARD - Looking forward, the right side of a boat.

STARBOARD BEAM - The right-center of a boat.

STARBOARD BOW - When facing the bow, the front right side.

STARBOARD QUARTER - When looking forward, the right rear section of the boat.

STEERAGEWAY - The lowest speed at which a vessel can be controlled by the steering wheel.

STEM - The leading edge of a boat's hull.

STERN - The back of a boat.

STRINGER - A fore and aft continuous member used to provide a vessel longitudinal strength.

STRUT - A propeller shaft support that is below the hull.

SUMP - A pit or well into which water is drained.

SUPERSTRUCTURE - Deck houses and other structures extending above the deck.

THWART - A seat or brace running laterally across a boat.

THWARTSHIPS - At right angles to the centerline.

TILLER - A bar or handle for turning a boat's rudder, or motor.

TOPSIDE - To go up to the top deck.

TRANSOM - The stern cross-section of a square sterned boat.

TRANSVERSE - Across the vessel; athwartships.

TRIM - Fore and aft balance of a boat.

TROUGH - 1. The valley that exists between waves. 2. A trough is the opposite of a ridge in that it is an elongated low-pressure area extending out from a low. A trough normally indicates unsettled weather.

TUMBLE HOME - The opposite of flare. The shape of the hull as it moves outboard going down from the gunwale to the waterline or chine.

UNDERWAY - Movement. Usually referring to a vessel proceeding forward.

V-BOTTOM - A hull with the bottom section in the shape of a "V."

V DRIVE - A drive system that has the output of the engine facing forward and coupled to a transmission. The prop shaft is then coupled to the transmission.

WAKE - Moving waves, track or path that a boat leaves behind it when moving across the water.

WATER LINE - The line of the water on the hull when the vessel is afloat.

WATCH - A 4 hour duty period while at sea.

WAVES - Waves are periodic disturbances of the sea's surface, caused by wind, seaquakes, and the gravitational pull of the moon and the sun.

WAVE GRADIENT - A wave's slope or angle from trough to crest with respect to the horizon.

WAVE HEIGHT - From the bottom of a wave's trough to the top of the crest.

WEATHER DECK - A deck with no overhead protection.

WET EXHAUST - This term refers to an exhaust system where the cooling seawater is mixed with the exhaust gases just after the riser. This mixture is then ejected through the drive or ports located in the transom or hull sides.

WHARF - A man-made structure bounding the edge of a dock and built along the shoreline.

WHIPPING - The act of wrapping the end of a piece of rope with small line, tape or plastic to prevent it from fraying.

WINDLASS - A device used to raise and lower the anchor.

WINDWARD - Toward the direction from which the wind is coming.

YAW - 1. To swing off course, as when due to the impact of a following or quartering sea. 2. Any motion about a vertical axis.

# FLOAT PLAN

**Copy this page and fill out before going boating. Leave the completed copy with a reliable person who can be depended upon to notify the Coast Guard, or other rescue organization, should you not return as scheduled. DO NOT file this plan with the Coast Guard.**

**Name** _____ **Telephone** _____

**Description of Boat** _____ **Type** _____ **Color** _____ **Trim** _____

**Registration Number** _____

**Length** _____ **Name** _____ **Make** _____

**Four Winns Hull Identification Number** _____

**Other Information** _____

| Persons Aboard: Name | Age | Address | Telephone |
|---|---|---|---|
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**Engine Type** _____ **HP** _____

**Number of Engines** _____ **Fuel Capacity** _____

**Survival Equipment:**

**PFDs** _____ **Flares** _____ **Mirror** _____

**Smoke Signals** _____ **Flashlight** _____ **Food** _____

**Paddles** _____ **Water** _____ **Anchor** _____

**Raft or Dinghy** _____ **EPIRB** _____ **Sea Anchor** _____

**Navigation Equipment:**

**Compass** _____ **Loran** _____ **GPS** _____ **Radar** _____

**Radio: Yes** _____ **No** _____ **Type** _____ **Frequency** _____

**Phone: Yes** _____ **No** _____ **Phone Number** _____

**Destination** _____ **Estimated Time of Arrival** _____

**Expected to Return By** _____

**AutoType** _____ **License No.** _____ **Where** _____

**If not returned by** _____ **call the Coast Guard, or** _____
**Local Marine Authority**

**Coast Guard Telephone Number:** _____

**Local Marine Authority Telephone Number:** _____

# FUEL LOG

| DATE | HOURS RUN | FUEL (GAL.) | RANGE (MILES) | RPM | MPH | GPH |
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# SERVICE INFORMATION

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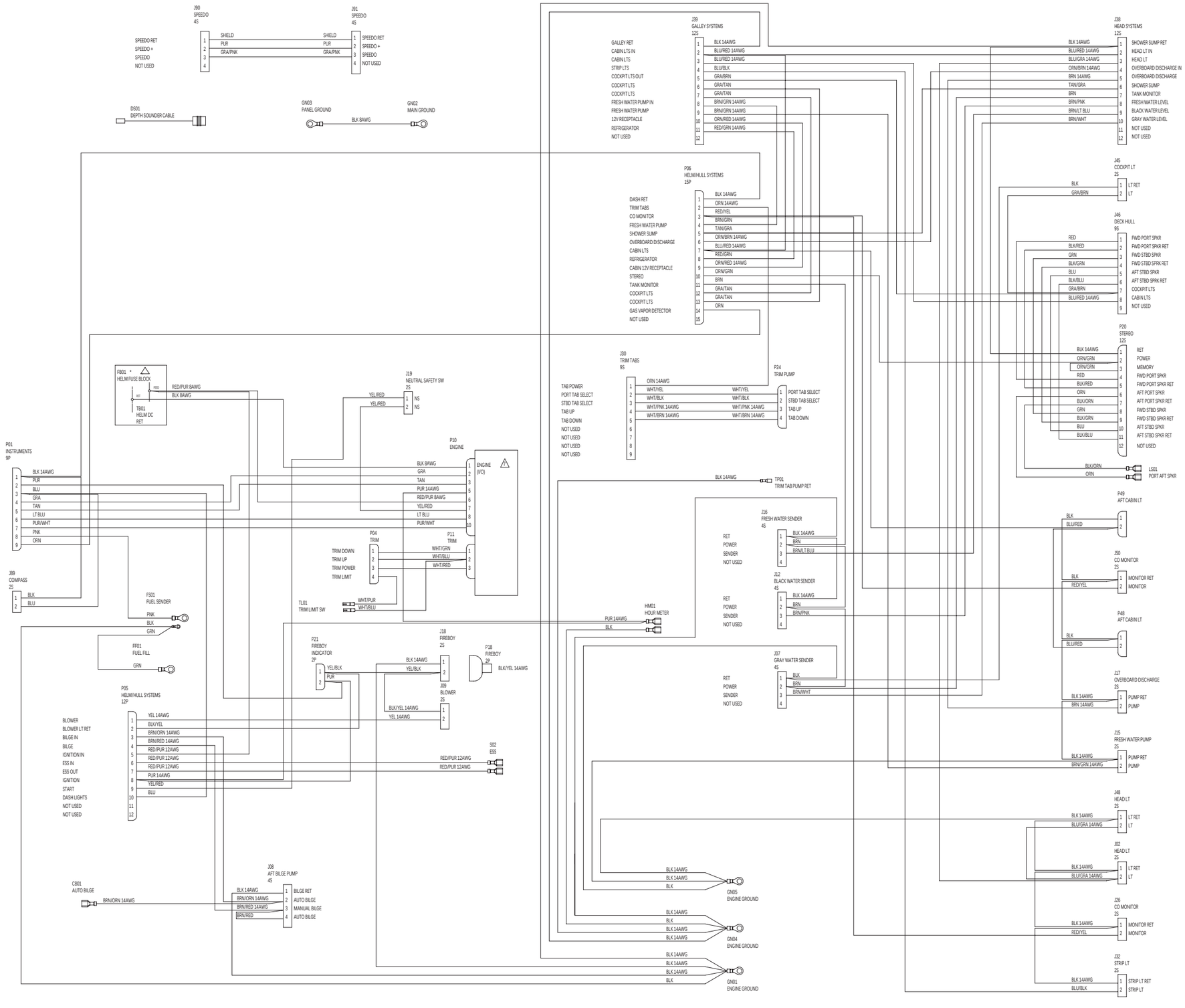
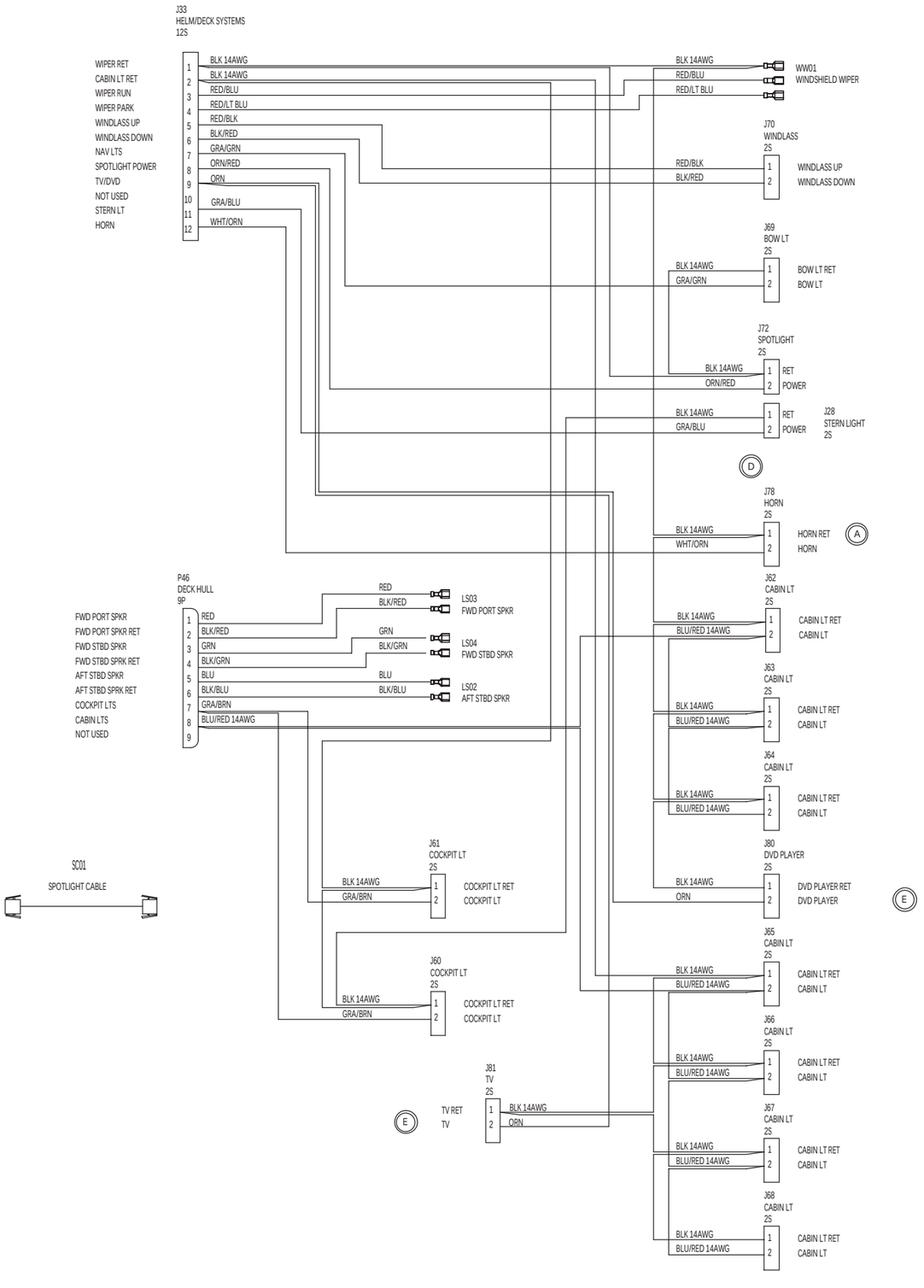
| BOAT MODEL | |
| HULL IDENTIFICATION NUMBER | |
| ENGINE MODEL | |
| ENGINE SERIAL NUMBER(S) | |
| DRIVE MODEL | |
| DRIVE SERIAL NUMBER(S) | |
| PROPELLER DIAMETER | |
| PROPELLER PITCH | |
| PROPELLER PART NUMBER(S) | |
| OIL FILTER NUMBER | |
| BOAT COLOR | |
| COCKPIT UPHOLSTERY COLOR | |
| CABIN UPHOLSTERY COLOR | |
| FUEL CAPACITY | |
| FUEL: ESTIMATED AVG. GALLON/HR USAGE | |
| IGNITION KEY NUMBER(S) | |
| GLOVE BOX KEY NUMBER | |
| COMPANIONWAY KEY NUMBER | |
| TRAILER MODEL | |
| TRAILER COLOR | |
| TRAILER SERIAL NUMBER | |
| TRAILER TIRE SIZE & MANUFACTURER | |
| SELLING DEALER | |
| ADDRESS | |
| CITY & STATE | |
| PHONE NUMBER | |
| MISCELLANEOUS | |
| | |





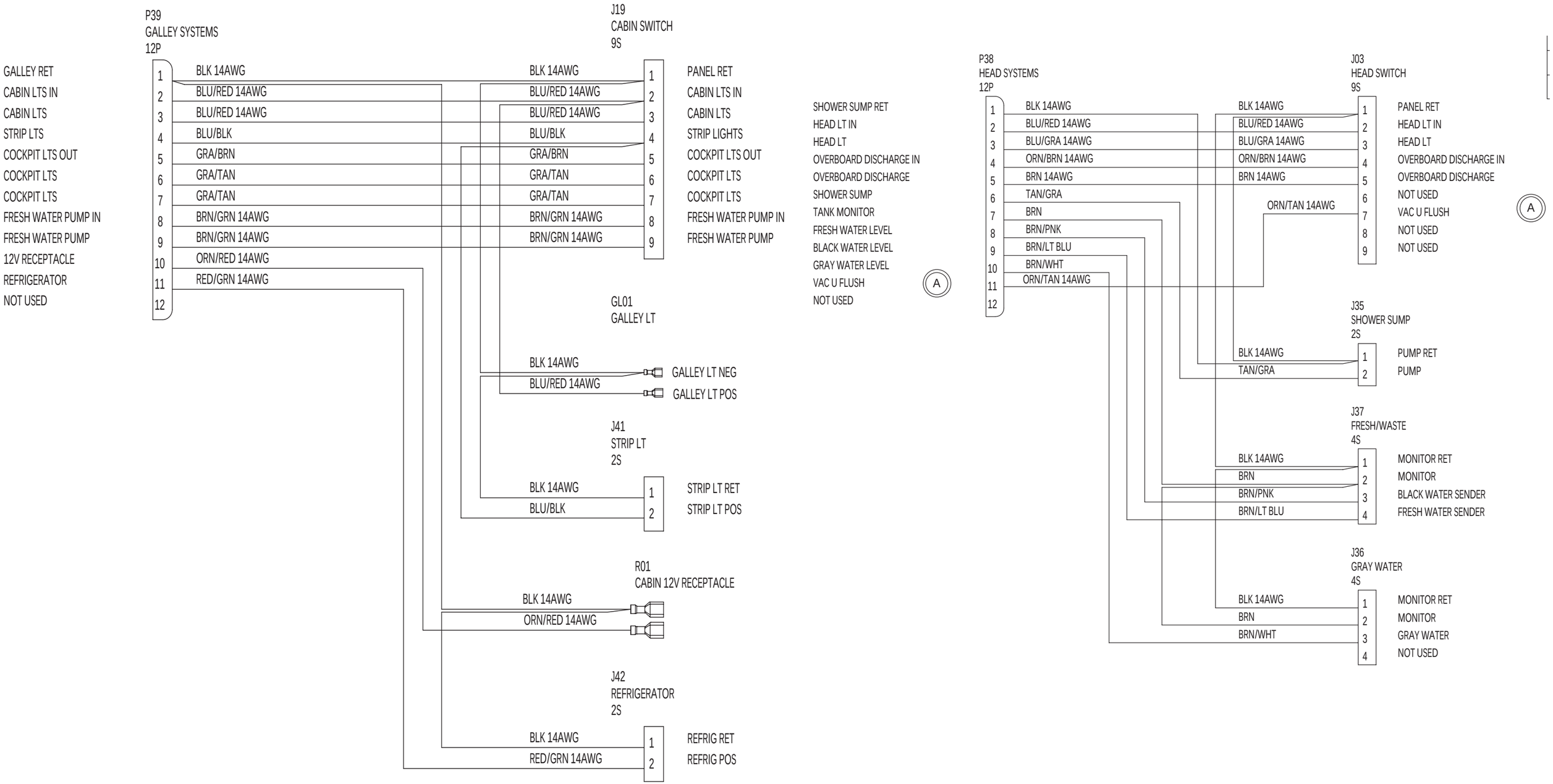

**WIRING DIAGRAM**
**248V AFT HULL WIRING**

Electrical Schematics
Page 1



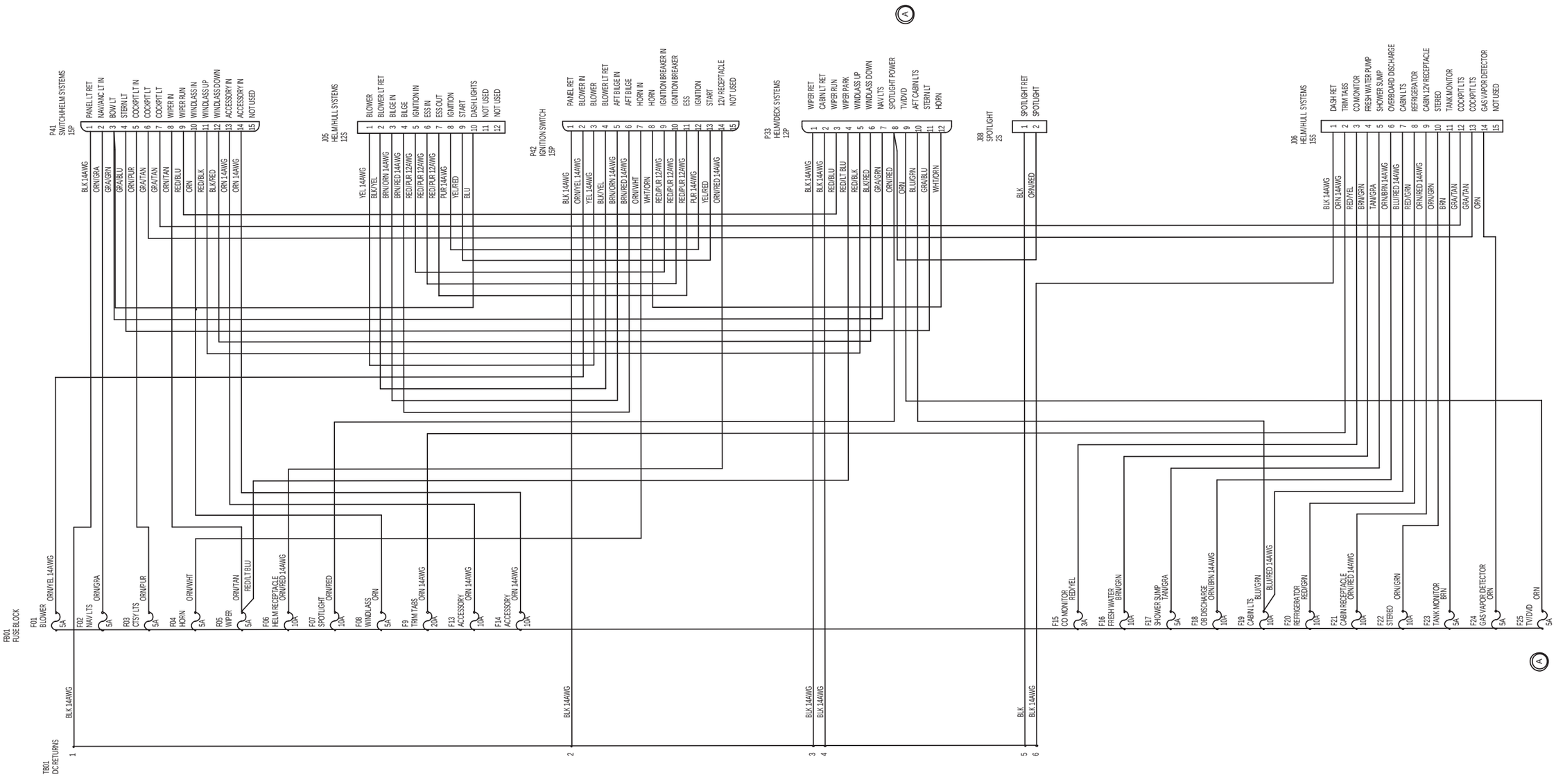



**WIRING DIAGRAM**
**248V DECK WIRING**
Electrical Schematics
Page 2



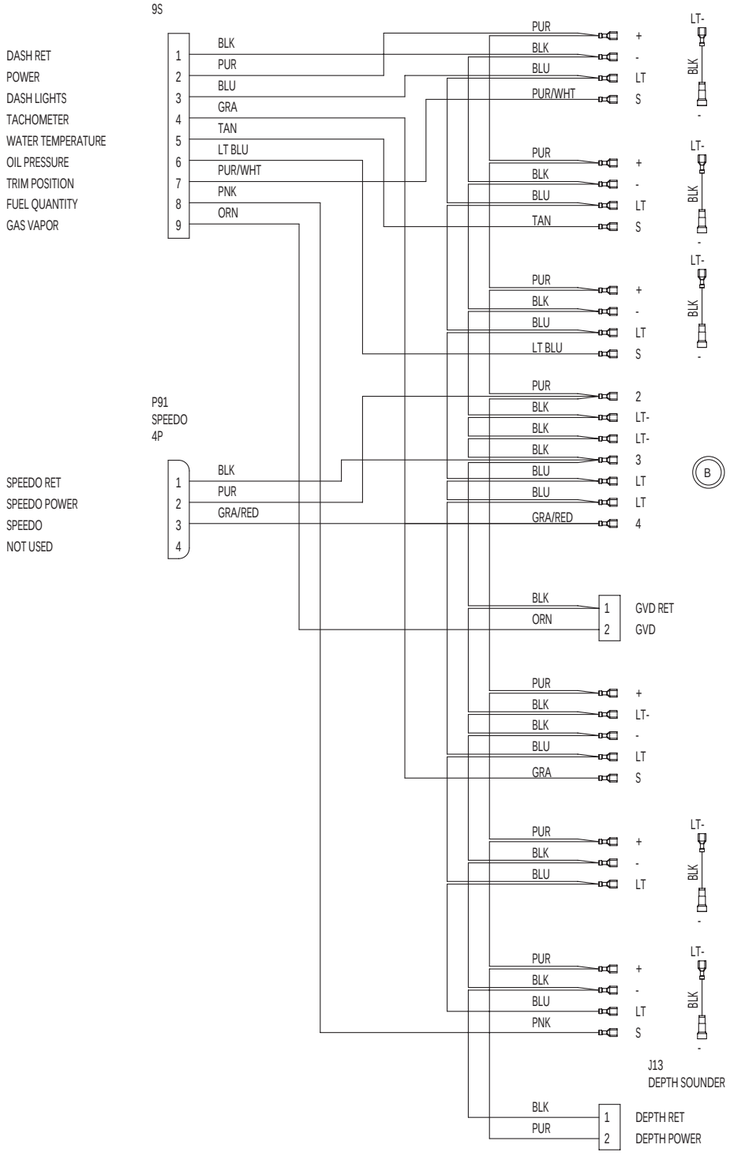


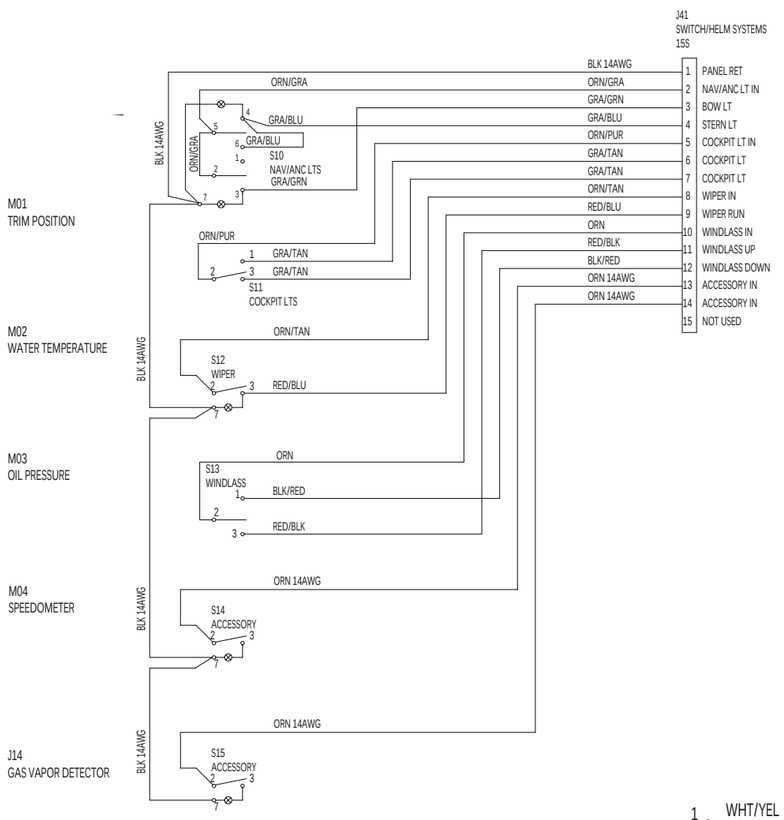

**WIRING DIAGRAM**
**248V CABIN**

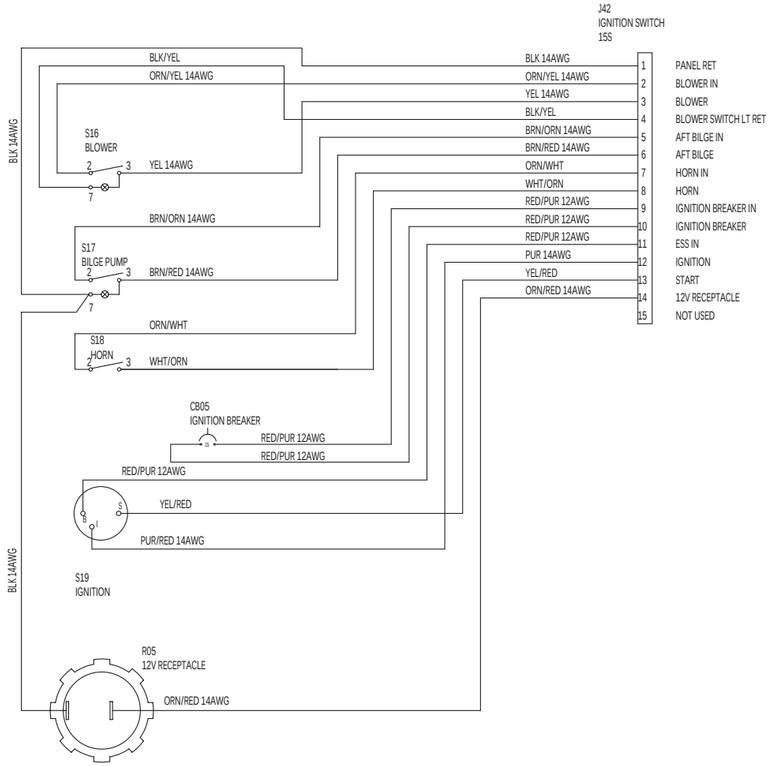


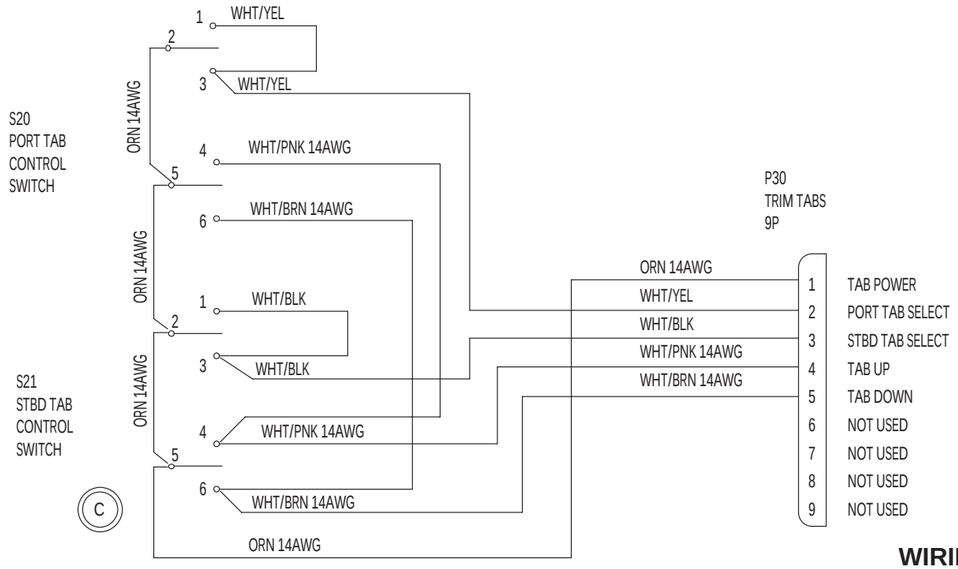



**WIRING DIAGRAM**
**248/268V HELM HARNESS**
Electrical Schematics

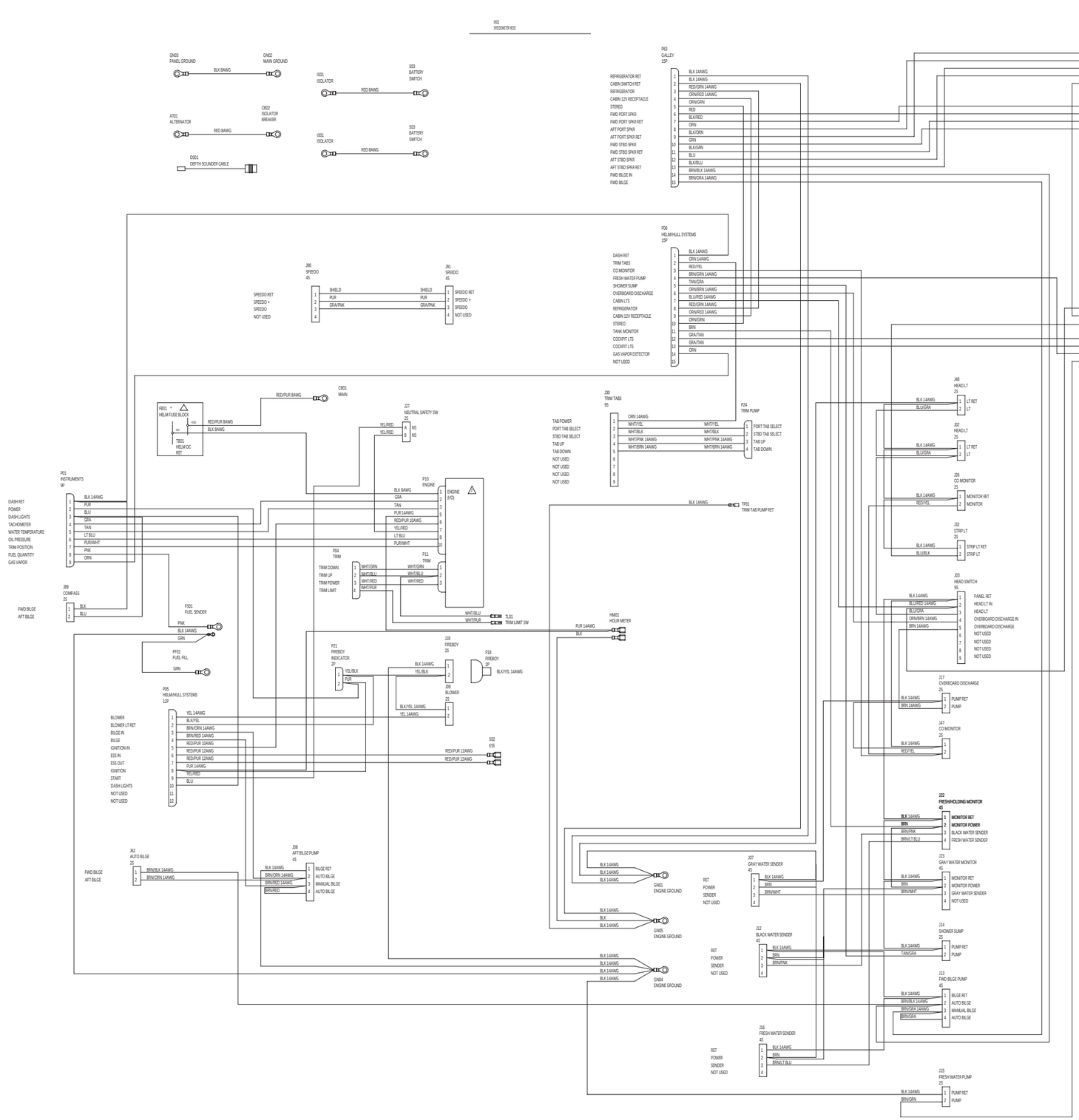


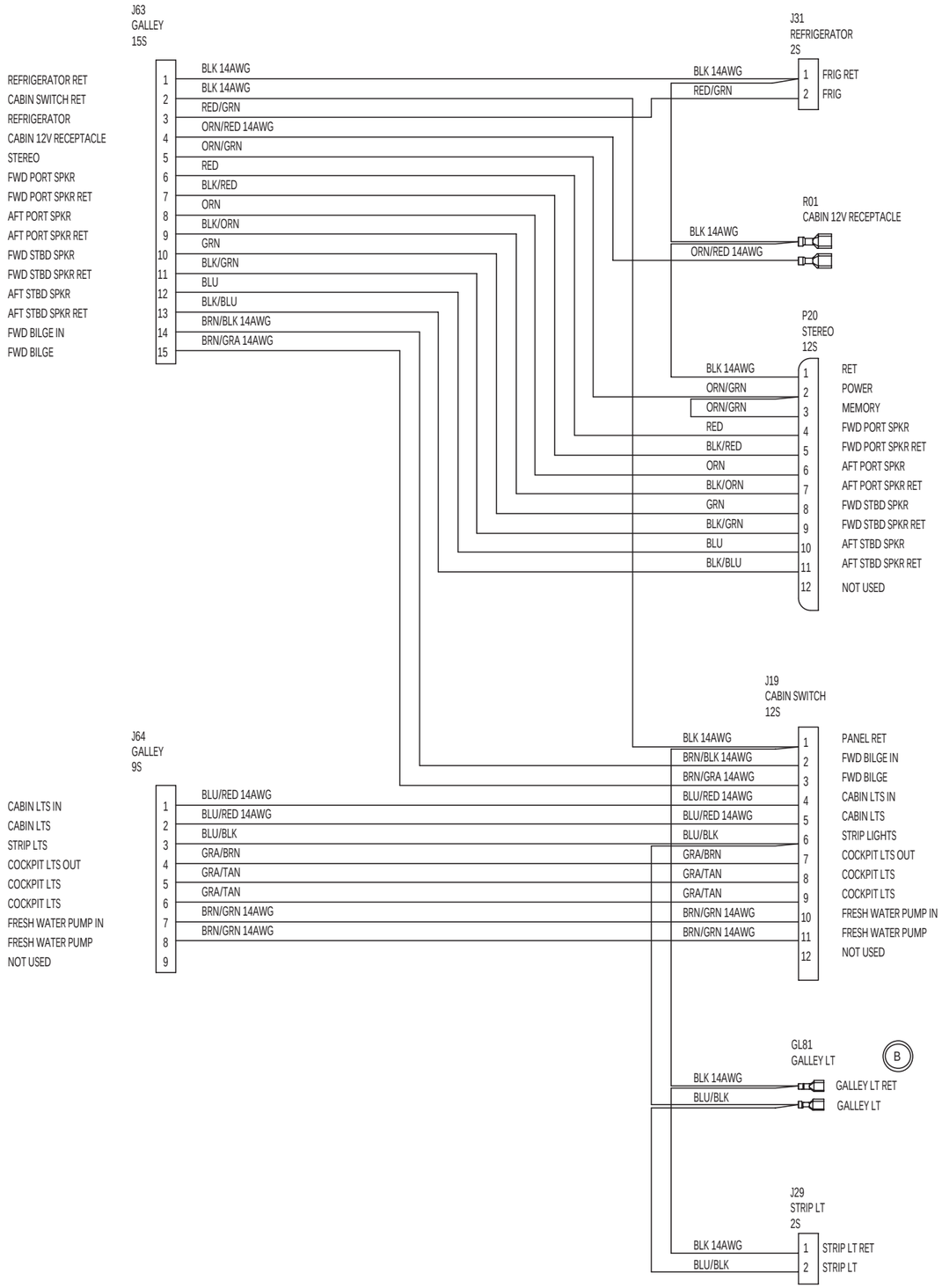




**WIRING DIAGRAM**
**248-268V HELM PANELS**






**WIRING DIAGRAM**
**268V AFT HULL WIRING**
Electrical Schematics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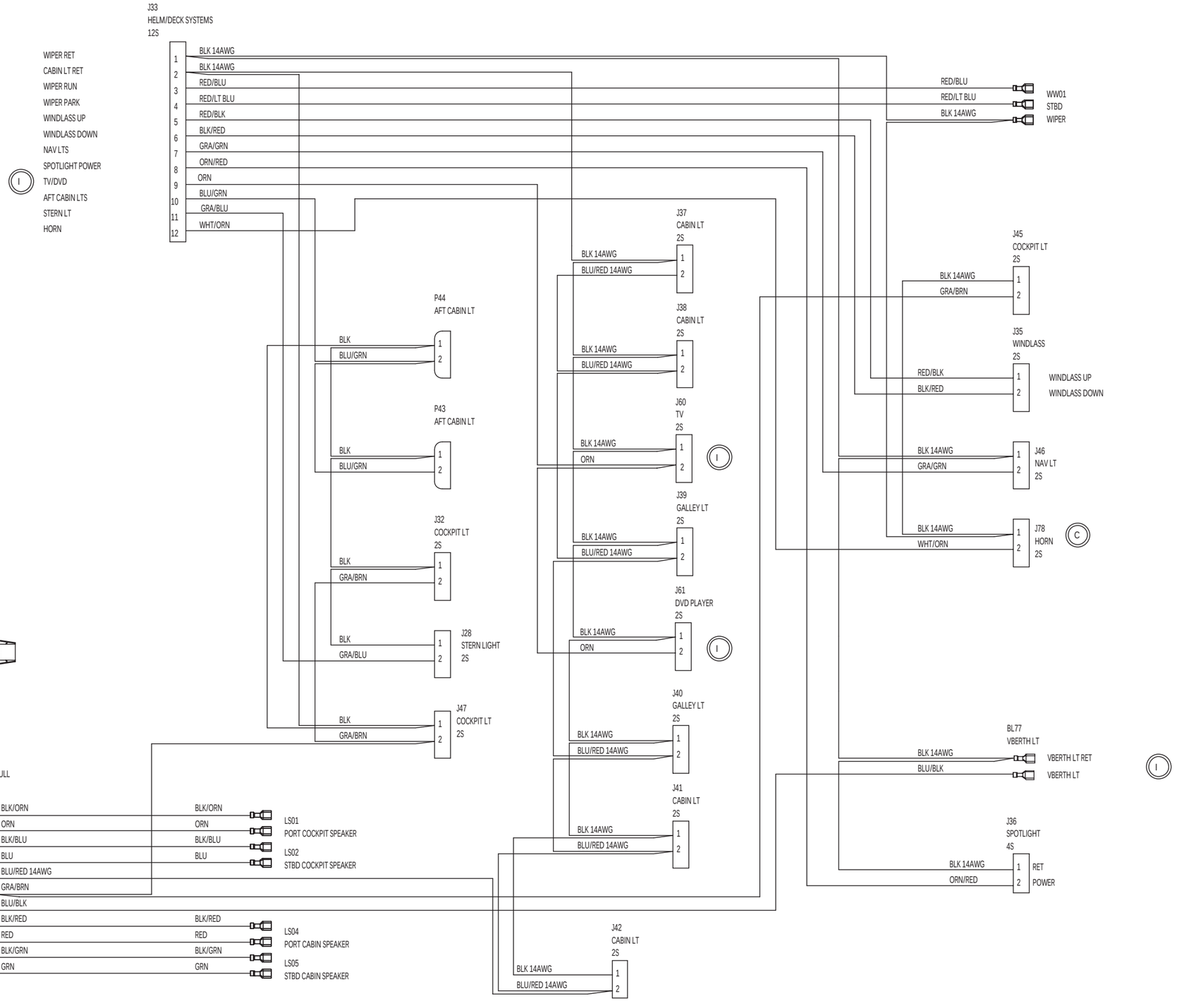




**WIRING DIAGRAM**
**268V DECK WIRING**
Electrical Schematics

FOUR WINNS®

BOATING MADE EASY™

Part # 090-2490

Four Winns L.L.C.