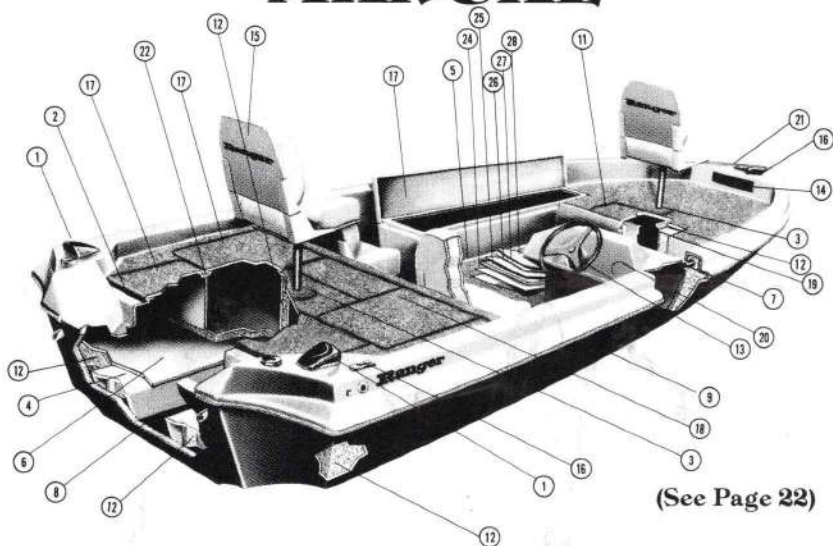


Ranger[®] BOATS

OWNER/OPERATOR MANUAL



Ranger Trail TRAILERS

RULES OF THE ROAD FOR OUTBOARDING



- Keep clear of sailing craft and rowboats. Yield right of way to slower boats.
- Always keep to the right.
- Do not use your motor near swimmers or skin divers.
- Learn the sign language of the various buoys and warning signals. These are your nautical traffic signs, posted for your safety and convenience.

COASTAL WARNING DISPLAY SYSTEM

The United States Weather displays coastal warning signals (RED and BLACK flags by day, RED and WHITE lights by night) whenever winds dangerous to navigation are forecast. Learn these signals and heed them. Ignoring them can be dangerous to you.

	DAY SIGNALS	NIGHT SIGNALS
<p>WARNING: SKIN DIVER IN AREA</p>	<p>SMALL CRAFT WARNING - Winds up to 38 miles an hour (33 knots) and/or sea conditions dangerous to small craft operations forecast for area.</p>	
	<p>GALE WARNING - Winds from 39 to 54 miles an hour (34 to 48 knots) forecast for area.</p>	
	<p>WHOLE GALE WARNING - Winds from 55 to 73 miles an hour (48 to 63 knots) forecast for area.</p>	
	<p>HURRICANE WARNING - Winds 74 miles an hour (64 knots) and above forecast for area.</p>	

BUOYS . . . YOUR WATERWAY SIGNPOSTS

There are three basic types of buoys: NUN (cone shaped), SPAR (spar shaped) and CAN (cylindrical shaped).

Buoys marked with a contrasting band of color indicate that the channel splits. If the buoy is a can with a red band, then the preferred channel is to the starboard side of the buoy. If the buoy is a nun with a green band, then the preferred channel is to the port side of the buoy.

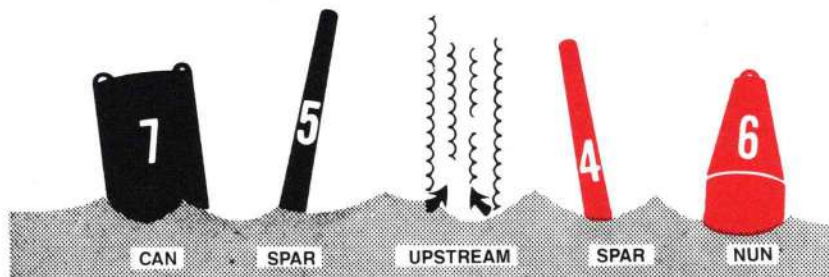
Going upstream, the RIGHT (Starboard) side of the channel is marked with even numbered RED buoys, nuns or spars; the LEFT (Port) side of the channel is marked with odd numbered GREEN buoys, cans or spars. RED and WHITE vertically striped buoys indicate the middle of a channel. Always pass close to these buoys.



PREFERRED CHANNEL



MIDDLE OF CHANNEL
MARKER





A MESSAGE FROM FORREST WOOD . . .

Congratulations! As the owner of a new Ranger boat you have shown that you are a knowledgeable buyer. Ranger has earned the reputation of being a leader in fishing boats and your investment can, with care, retain its value while giving excellent service through the years.

This manual is designed to help you better understand your boat and make basic care and maintenance quite simple. Please review all of the information contained herein and in your engine operating manual before operating your boat. We want to insure that you have good service and years of trouble free operation.

Should you have questions, contact your Ranger dealer or contact us at:

RANGER BOAT COMPANY
P.O. BOX 179
Flippin, AR 72634
(501) 453-2222

Please let me remind you that pleasant boating is safe boating and the very best safety rules are your COMMON SENSE and SOUND JUDGEMENT.

Thank you for becoming a part of the
"Ranger Family"!

Sincerely,

Forrest L. Wood

Forrest L. Wood
Founder

GETTING TO KNOW AND HANDLE YOUR RANGER BOAT . . .

Your Ranger dealer should see that you have selected the proper horsepower engine for the rating range of the boat model you have chosen. The proper engine mounting height has been selected for optimum performance and the correct propeller has been chosen.

Since most boats spend more time on the trailer than in the water, a Ranger Trail trailer can extend the useful life of your new boat. The load **MUST** be evenly distributed on the properly fitting "bunks" or "pads" of the trailer. The boat should not rest on the loading rollers, but should properly cradle on the bunks.

Always park your rig so that the trailer tongue is higher than the rear of the boat, so that any water can drain from the hull when the drain plug is removed. All livewell valves should be placed in the "empty" position to properly drain your livewell plumbing.

A properly fitted boat cover will protect your investment from the damaging effects of the ultraviolet rays of sunlight, as well as from road film, rain and dirt abrasion while trailering. The cover also protects your accessory equipment and fishing tackle from "prying eyes" and helps to guard against pilferage.

Familiarize yourself with the instruments and indicators used with all installed equipment. Factory equipment manuals are included to assist you to properly operate your trolling motor; depth finders; engine tachometer; speedometer; and any additional accessories that you have installed. Naturally this Ranger manual is only complete when you have completely studied your engine operating manual and are familiar with engine operation.

Now you are ready for a ride in your new boat! This will be an exciting, fun experience if you exercise the proper caution and observe all safety rules and regulations.

Before launching your boat . . . stop on the ramp short of the water. Stop your vehicle's engine and set the parking brake. At the rear of the boat, install your transom drain plug (we often store our plug in one of the splash-well drain holes near the top of the transom) and remove the trailering tie-downs, trailering arms, motor supports and/or support brackets. Slowly back the boat and trailer into the water and unhook the winch strap hook. When in the driver's seat, put on and secure your life vest and attach the engine emergency stop switch lanyard to your person. Start engine and back your boat off the trailer. You should experience no problem if the water is adequately deep for proper launching.

While you are easing along within the "No Wake" zone you should trim your engine all the way down to its lowest position (in). Turn the steering right and left to insure that there is no undue slack and inspect the steering system. Look for any loose connections at the engine and beneath the driver's console (see pp. 15-16). Inspection of this crucial linkage system can be visually made at home or at the lake, but should be done at regular intervals. Before applying power and "opening it up", insure that all passengers are properly seated and are wearing an approved Personal Flotation Device (PFD or Lifevest). Check to see that there are no obstructions in your path. We recommend that the front pedestal seat be removed from the front deck base and positioned in the special base provided in the front floor of the boat. This will provide for an unobstructed view while driving. The power pedestal should be pushed down into the lowest position. Should there be no base provided in the floor, the seat should be removed and securely placed in the floor of the boat.

When you have cleared the "No Wake" zone it is time to accelerate and get your new boat "on plane." Abruptly move the throttle lever into the full open position (full forward). The bow of the boat will rise into the air for a moment . . . this is normal operation when a boat is "coming out of the hole" and is no cause for alarm. The bow will quickly come back down into a level running position. When the boat begins to accelerate rapidly, the throttle should be pulled back to obtain a comfortable running speed. Always increase your speed a little at a time until you are running at a speed at which you feel safe and are in complete control . . . NEVER FASTER THAN YOUR EXPERIENCE DICTATES! At this moderate speed you should begin to trim your engine into a higher position (out). Refer to your engine operation manual. Your speed will increase and the bow will lift. The boat will begin to run with the back rear portion of the hull in contact with the water and steering will become easier. Over trimming will result in excessively high RPM (note your tachometer) and the steering can develop "torque" or a "pull" toward the right. Trim back down slightly for best operation. A different trim setting (see your trim indicator) will be required for different throttle settings. You will soon develop an instinctive feel for these settings. Your ear, will become attuned to the sound of the proper engine RPM. Again, over trimming is to be avoided as excessive RPM can cause engine damage and can also cause your prop to "blow out" (lose its grip on the water because it is too near the surface. If the bow of your boat should begin to bob up and down (called "porpoising") you will probably have overtrimmed. Bump the trim button down a little and the motion should stop.

If your boat should continue to “porpoise”, a slight increase in throttle and speed will generally correct the condition. Proper distribution of the load in your boat will make a great difference in its operation. Moving tackle boxes or ice chests rearward or toward the front can greatly effect boat performance and handling.

When beginning a turn with the engine trimmed in the higher positions, the trim switch should be pressed to LOWER the engine further into the water just prior to and during the turning of the steering wheel. Practice and experience will determine just how far down you will need to trim for safely handling a turn at various speeds and water conditions. Just remember to **MAKE SAFETY YOUR GUIDE** when attempting any new or unfamiliar maneuver. Proceed **ONLY AT SPEEDS AT WHICH YOU FEEL SAFE AND IN CONTROL!**

Naturally, it is impossible to describe here all the different situations that you may encounter. Just remember that **COMMON SENSE** is your best safety precaution. Your new boat is built to safely carry you in **NORMAL OPERATION**, but it is up to you to stay alert and to avoid dangerous situations. Safe boating is in the hands of the operator.

Even the pleasant experience of the “first ride in your new boat” must sometime come to an end. Hopefully you have purchased a “drive on” trailer with your boat. The key to simple and effortless loading of your boat is having the trailer in the proper position. This “right” position is determined by the steepness of the ramp. Here, you will have to experiment with the proper depth to have your trailer in. The most common mistake is having the trailer too deep, so a little time spent experimenting with different depth positions can ultimately save you much time and embarrassment. To load at slow speed, position your boat to head directly between the guide bunks or guide rollers and use the thrust of your outboard engine to drive the boat forward until the bow contacts the roller on the bow stand block. Shut down your outboard and fasten the winch strap hook to the bow eye. Tighten the winch strap and lock winch before pulling the boat from the water. Your engine should be trimmed up into a higher position before the trailer is pulled up the ramp to prevent damage to the lower unit or propeller. Pull the rig up the ramp and park well out of the way of other boaters. Stop your vehicle engine and set parking brake. Remove the drain plug, open and drain the livewell system, and stow all loose equipment. We recommend that you install a transom saver, or engine support

brace, between the trailer frame and the lower unit of your engine to prevent damage to your transom while the boat is in transit.

For the most possible boating and fishing enjoyment familiarize yourself completely with your boat and with the instruction manuals for all additional equipment. If you are a novice there are publications on good seamanship recommended to make your boating safe and enjoyable. We also recommend that you enroll and attend any of the excellent safe boating courses offered and conducted by your area Power Squadron or the U.S. Coast Guard Auxiliary.



WARNING: The operator (driver) is responsible for the correct and safe operation of the boat, the equipment aboard and the safety of all occupants aboard. We strongly recommend that the operator read this manual and thoroughly understand the operational instructions for the engine and all related accessories before the boat is used.

BOAT DATA

OWNER _____

Address _____

DEALER _____

Address _____

Phone _____

BOAT – MAKE/MODEL _____

Serial No. _____

Key No. _____

ENGINE – MAKE/MODEL _____

Serial No. _____

DRIVE UNIT SERIAL NO. _____

OTHER: _____

TABLE OF CONTENTS

Getting To Know Your Boat	2
Special Information	7
Your Ranger Dealer's Responsibilities	7
Owner/Operator's Responsibilities	8
Warnings and Cautions	7
Hull Identification Plate	10
U.S. Coast Guard Capacity Information Plate	10
Fuel System	11
Your Livewell Aeration System	12
Steering at Console	15
Your Boat's Finish	17
Maintenance	17
Repair	17
Your Power Pedestals	19
Key Locks, Carpet and Upholstery	21
Cutaway View of Boat	22
Inboard/Outboard (Stern Drive) Models	24
Adding Accessories to Your Boat	25
Complete Wiring Diagrams	27
Wiring Information	31
Rear Storage Compartment	31
Electrical System	32
Fuse Panel Information	32
Bow Panel Information	33
Installation of Trolling Motor Plug	35
Installation of Battery Charger Plug	36
Upright and Level Flotation	38
Federal Requirements for Recreational Boats	39
Tips for Better and Safer Boating	54
Warranty	55

YOUR RANGER TRAIL TRAILER

General Information and Maintenance	40
Your E-Z Lube Hubs	41
Trailer Brakes	42
VR-10 Disc Brake Parts List	45
Before Towing Your Ranger Trail Trailer	48
Towing Your Ranger Trail Trailer	48
Trailer Exploded View	50
Ranger Trail Parts List	52

“SPECIAL INFORMATION”

The following special information is intended to alert you to possible dangers and to information important to the safe operation of your boat and other equipment. Observe them carefully. However, simply being aware of the “WARNING” and “CAUTION” notations in this manual will not eliminate the dangers that they signal if you do not implement the information. These warnings, plus common sense operation will insure you a safe and fun boating or fishing outing.

Please take special notice when you see one of the following signs:



WARNING: Failure to follow the advice of a “warning” may result in bodily injury or death.



CAUTION: Non-compliance with “caution” instructions could result in failure of, or damage to, the product and/or equipment.

ALL information or instructions in this manual could be necessary for proper operation and/or maintenance.

IMPORTANT:

YOUR RANGER DEALER’S RESPONSIBILITIES . . .

Generally, it is the dealer’s responsibility to the customer to make sure that the boat has been equipped as ordered with a properly installed and functioning engine that is within the horsepower rating specified for that model boat. The dealer should see that the engine is outfitted with the proper propeller for that boat model and for the load that the boat is normally expected to carry.

The dealer should help to familiarize the customer with the on-board equipment and explain operation of this equipment; the engine operation; and the proper functioning and operation of the boat itself.

Prior to delivery, the dealer should make certain that the product and equipment is completely operational; the proper propeller is installed; and that all oil, fuel system and lubrications systems are understood. The dealer should explain the operation of all instrumentation equipment, and the boat electrical and livewell systems.

The dealer should check for correct carburetor adjustment, throttle and steering functioning, and instrumentation accuracy. Engine cooling water should be properly circulating.

The dealer should test for maximum engine RPM as specified in the engine manufacturer's specification sheet(s) and/or engine owner's manual . . . for proper operation of all equipment and for proper adjustment of steering effort and direction. All necessary adjustments for maximum efficiency should be made.

OWNER/OPERATOR'S RESPONSIBILITIES. . .

It is the owner/operator's responsibility to perform all safety checks and to ensure that all lubrication and maintenance instructions are complied with for maximum safety and proper operation.

It is also the owner/operator's responsibility to return the unit to the Ranger dealer for a periodic checkup.

The owner/operator is responsible for the correct operation of the boat and for the safety of its occupants. Be sure that all operators read this manual before attempting to operate the boat. Your passengers should be shown the location and use of all emergency equipment and one passenger should be instructed how to handle the boat in case of emergency. U.S. Coast Guard requirements for PFDs (Personal Flotation Devices, or Lifevests) can vary, depending on the type of boat. Be sure to comply with the U.S. Coast Guard regulations that apply to your boat. The owner/operator should, however, make certain that all passengers in the boat are in possession of and are securely wearing, a PFD whenever the boat is in operation. We strongly recommend that an engine emergency stop switch (kill switch) be securely connected to the boat operator any time that the engine is in operation!

Learn the waterway rules of the locality in which you intend to operate your boat. Navigable waterways are controlled by Federal regulations while inland lakes and Canadian waters are controlled by local jurisdictions. Obey all regulations to protect yourself, your passengers, and fellow boating enthusiasts.

Before boating obtain the weather forecast for your area. Familiarize yourself with the weather bureau warning system signal(s) and waterway traffic sign/markings information.

Contact your local U.S. Coast Guard Auxiliary and take advantage of their excellent boating and safety classes and seasonal boat inspections.



WARNING: Operating a boat with an engine of horsepower in excess of that specified on the boat's capacity plate can result in loss of control over the boat's operation and could lead to an accident resulting in injury or death of the boat's occupants.

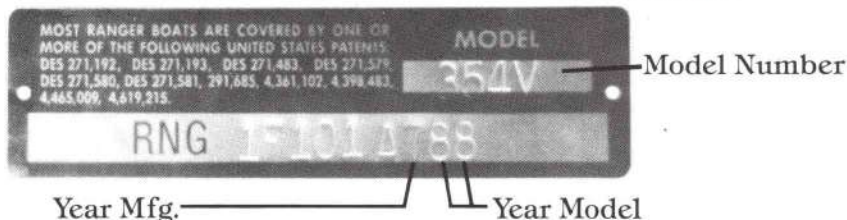


WARNING: Imprudent operation of the boat, with or without the use of PFDs and an approved engine emergency stop switch, can lead to property damage, injury or death of the boat operator or passenger(s), or others, whether within the boat or outside the boat.



WARNING: The boat operator should insure that the lanyard connection to the emergency stop switch is of ample length to insure that the inadvertent activation of the switch is not likely. Accidental triggering of the emergency stop switch could result in loss of engine power at inopportune times, such as while docking or in heavy seas, strong currents or high winds.

HULL IDENTIFICATION PLATE



The hull I.D. Plate is located on the outboard side of the starboard transom, above the water line, and contains the following information:

- (1) Boat patent information
- (2) Model Number – This number should be referred to when ordering parts or making other inquiries.
- (3) Hull Identification Number (Serial Number) – Should also be included in any inquiries or when ordering parts. The U.S.C.G. requires the H.I.N. number be permanently affixed and remain on the starboard transom of the boat. Do not alter this plate in any way.

U.S. COAST GUARD CAPACITY INFORMATION PLATE



Familiarize yourself with your boat's maximum capacities.

KNOW THE RATINGS AND LOAD YOUR BOAT ACCORDINGLY. IT IS A MUST FOR SAFE BOATING.



WARNING: Failure to observe maximum weight and horsepower capacities could create conditions favorable to an accident that could result in injury or death to the occupants.

FUEL SYSTEM

The fuel system consists of a fuel tank equipped with an electric sending unit. The fuel level is displayed on the console mounted gauge when the ignition switch is "on." On models with two tanks, a console mounted switch marked "fuel" is used to switch the gauge from one tank to the other. Push the switch to the left to display the left tank fuel level on the gauge. Push to the right to display the right tank fuel level. The center position is "off." A fuel hose connects the fuel tank to the engine. On models with more than one tank, a switch valve is installed to switch from tank to tank. This valve, located on the panel supporting the driver and passenger seat or near the splashwell, depending on the model, is clearly marked and easily operated.

*Fuel tanks optional on some models.

SAFETY AND MAINTENANCE TIPS

The fuel system in your Ranger requires little or no maintenance. However the periodic inspection outlined below is strongly recommended.

- (1) Check fuel tank(s) for leakage, especially around electric sender and fuel hose connections.
- (2) Check fuel tank hold down brackets, making sure they are secure.
- (3) Check battery hold down or boxes, making sure they are secure.
- (4) Do not store items on, in, or around fuel tanks or batteries. "Good housekeeping" in this compartment is essential to safe boating and a maintenance free fuel and electrical system.
- (5) Check hose connections at the deck fuel fill, fuel tank vent, and (if equipped with more than one tank), the fuel switch valve.
- (6) Should fuel hose replacement become necessary, replacement hose must meet or exceed USCG requirements.



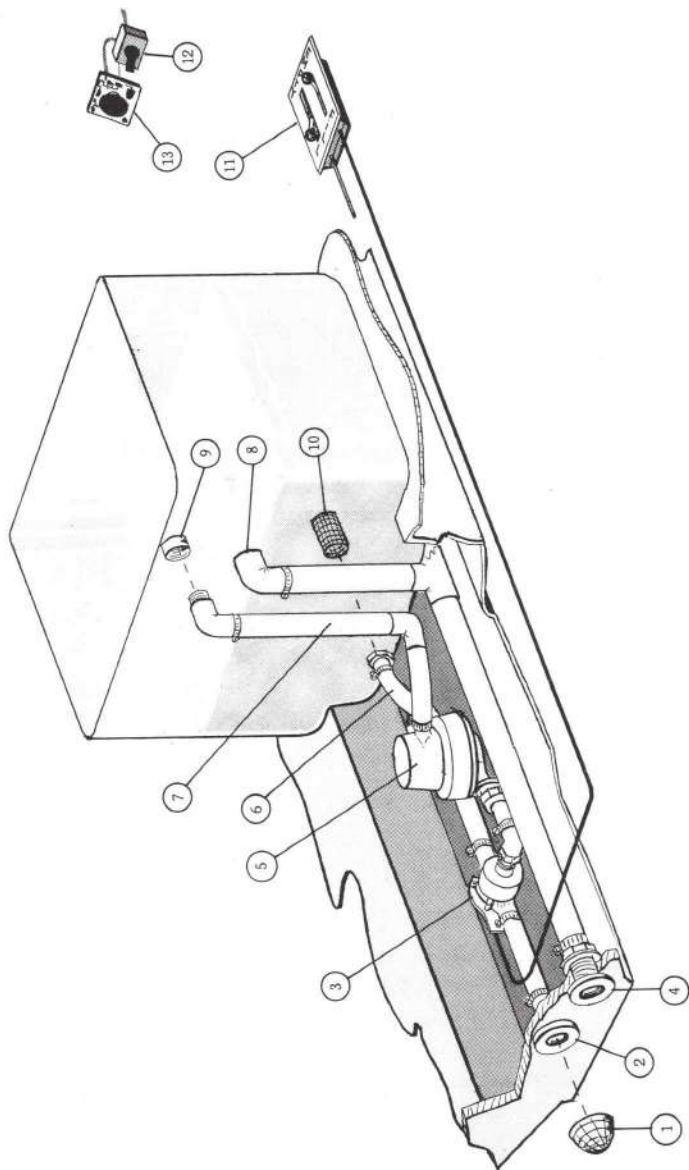
CAUTION: Maintenance or repairs should be performed by your Ranger dealer or other qualified personnel.

Naturally, a leak-free fuel system is a **MUST** for proper engine operation and on-board safety. Always inspect for fuel leaks prior to connecting a battery charger to your engine cranking battery. Rear fuel/battery compartment lid should always be propped open for ventilation when charging any batteries.

“YOUR LIVEWELL AERATION SYSTEM...”

The livewell aerator system in a Ranger boat is designed to supply the water and oxygen necessary to the survival of your catch. This patented system not only allows fresh water to be pumped in through the aerator supply line(s) but also permits recirculation and aeration at any speed of boat operation.

Examine the illustration below to familiarize yourself with the major parts and functions.



1. INTAKE SCREEN — Prevents debris from entering livewell plumbing — turn counter-clockwise and pull to remove for cleaning.
2. THRU-HULL GROMMET #T-68 — Threaded fitting that passes thru transom. Drainline hose attaches to interior end.
3. LIVEWELL CONTROL VALVE — Unique design incorporates a patented "flapper" system that allows water to flow only in the direction you desire. Its two modes of operation are: (a) Fill — allows water to flow into livewell, but not out; (b) Empty — should you decide to empty your livewell, or want to keep it empty until you catch your first fish, valve will let water flow out of livewell, but not in.
4. THRU-HULL GROMMET #T-98 — Threaded fitting that passes thru transom. Overflow hose attaches to interior end.
5. AERATOR PUMP — 12V pump circulates water through aerator system, replenishing oxygen.
6. LIVEWELL DRAIN — Drains water from livewell when valve (#3) is in "empty" position.
7. AERATOR SUPPLY LINE — The line between outlet on pump and uppermost fitting in livewell.
8. OVERFLOW LINE — Larger line between transom and livewell. Maintains water level in livewell. Prevents overfilling.
9. AERATOR SPRAY CAP — Directs aerated water in a downward oxygen-rich spray. Unscrew to clean any debris that should accumulate.
10. LIVEWELL DRAIN SCREEN — Prevents debris, such as crayfish, shad, pork rind, plastic worms, etc., from entering aerator plumbing pump and valve. Should not be removed except for necessary cleaning or maintenance.
11. LIVEWELL CONTROL CABLE — Operates valve (#3) see instructions under #3 above.
12. AERATOR PUMP SWITCH — Located at driver's console. Switches rear livewell pump to off, manual or automatic.
13. LIVEWELL TIMER — Located at driver's console, will operate only when pump switch (#12) is in automatic position. On models with two livewells, this timer is wired to operate both pumps. However, one livewell can be operated in the manual (continuous run) mode, while the other well can be controlled by the timer by switching to the automatic mode. The timer automatically starts and stops the aerator pump at intervals determined by the setting of the timing knob. The livewell timer varies the "off" time from approximately 1 minute in "minimum" (full counter clockwise) position to approximately 15 minutes in the "maximum" (full clockwise) position. No matter which position the timer knob is in, the "on" time of the pump remains approximately 1 minute.

MAINTENANCE TIPS FOR AERATOR SYSTEM

- (1) Remove screens (#1 and #10) only for flushing aerator system.
- (2) Keep screens in place for cleaning and during operation. Replace damaged or broken screens immediately.
- (3) Do not exceed the recommended fuse size on the aerator pumps (a larger fuse WILL NOT make a stronger aerator system!).
- (4) Lubricate pivot on livewell control cable (#12) periodically using light weight machine oil.
- (5) Continual operation of pump (especially dry) will damage pump. Be sure aerator switches (#12) are "off" when storing, etc.

TROUBLESHOOTING

- (1) PROBLEM — Pump runs but will not pump water.
SOLUTION
 - (A) Entrapped air pocket around pump impeller has "air locked" pump. With valve in "fill" position, back boat up slowly to expell entrapped water.
 - (B) Grass, sticks, or other debris have clogged the filters or cavity around the pump impeller, restricting water flow to pump. Clean screens, or remove screens and flush system with garden hose using moderate pressure.
- (2) PROBLEM — Pump will not run (no "hum" is heard).
SOLUTION
 - (A) Make sure switch is in the "Manual" position (in "Automatic" the pump could be working, but in off time).
 - (B) Check master breaker switch in the rear compartment.
 - (C) Check fuse. Replace if necessary.
 - (D) Check wire connector at pump.
 - (E) Replace pump.
- (3) PROBLEM — Livewells will not hold water in "Fill" position.
SOLUTION
 - (A) Flush system to clear debris from livewell valve.
 - (B) Check cable to valve connection for proper adjustment. Remove cable, put water in livewell to see if well will hold water with cable removed. If so, adjust cable to match actuator arm.
 - (C) Remove valve and disassemble. Clean inside of valve with warm soapy water and inspect flappers for nicks, cuts, and abrasions. Replace flappers if necessary.

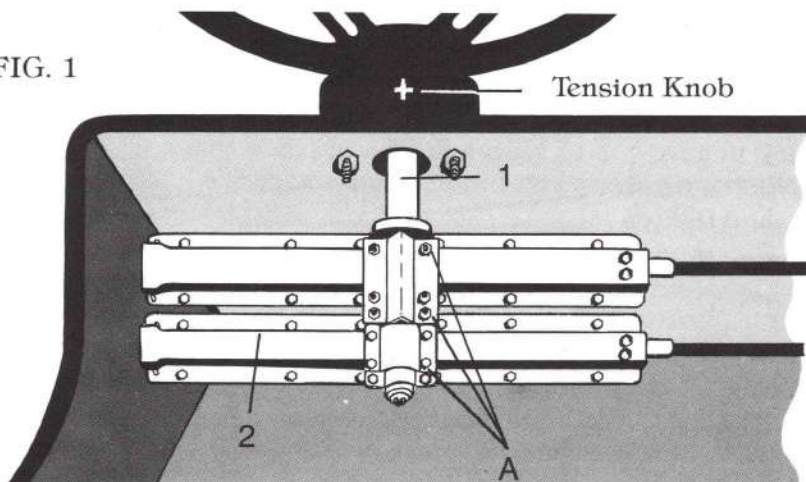
STEERING AT CONSOLE



WARNING: The steering in your boat is one of the most important items and should be checked by the driver every time he goes out in the boat. You should school yourself and make it a habit to check the steering methodically.

Rangers are factory equipped with rack & pinion steering.* There are two basic parts to the system as installed (shown below, Fig. 1).

FIG. 1



*Except 680 Fisherman Models

- (1) Helm Assembly: Bolts through the steering console. The steering wheel attaches to the top end and the steering cable(s) attaches to the bottom end.
- (2) Steering Cable(s): The rack end of the steering cable(s) bolt to the helm. The other end of the cable connects to the engine.

MAINTENANCE: Make sure all nuts (4 on single cable models, 8 on twin cable models) marked "A" in Fig. 1 (above) are tight. If you have doubt and want to tighten them, use a torque wrench and tighten to 50-60 inch pounds.



WARNING: A firm grip on the steering wheel is ALWAYS required. Tighten tension knob (shown in Fig. 1 above) for high speed driving and loosen for easy maneuverability at low speeds.

STEERING CONNECTIONS AT ENGINE

The steering will be connected at the engine by a method similar to the ones shown in Figures 2 & 3 below.

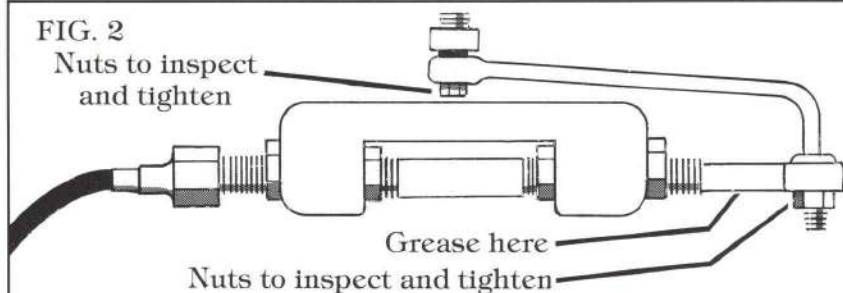
Because Ranger does not supply the “cable to engine” connectors, we will not make specific installation or torque recommendations. However, Figures 2 & 3 below show maintenance and check points that should be regularly inspected.



CAUTION: See your authorized marine dealer for specific information concerning maintenance of engine connections.

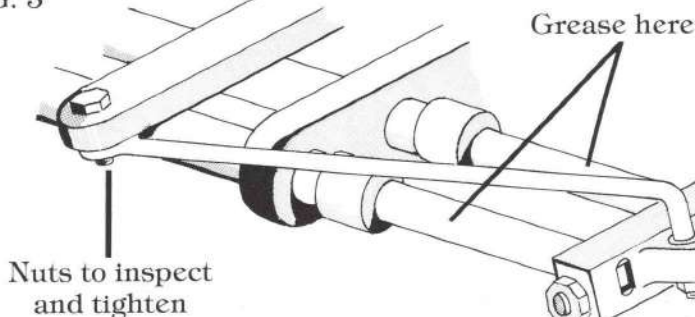
FIG. 2

Nuts to inspect and tighten



CAUTION: See engine owner's manual for proper greasing and maintenance of engine link rod and steering kit.

FIG. 3



YOUR BOAT'S FINISH . . .

MAINTENANCE AND REPAIR

The gel-coat (color) used on your Ranger Boat is of the highest quality available today. To keep it looking new and in good condition these tips will prove helpful.

- (1) A light duty rubbing compound (available at most auto parts stores) is recommended for stains such as mold, water lines on the hull, fine scratches on finish or just to bring back that "look new" shine.
- (2) Automotive wax or polish is good for preserving the shine and building an "armor coat" to prevent scratches and will also help protect hull while in wet storage.
- (3) A boat cover (which is available from our Ranger dealer) is also a wise investment to help prevent damage while the boat is at home or on the road.



CAUTION: Do not use acids or other strong chemicals to clean your boat.

REPAIR

Careful as you may be, you will get that scratch from the dock or beach that will need some attention. Most Ranger dealers are equipped to do fiberglass repair, and large jobs are better left to the experts, however, minor scratches, chips and gouges may be repaired by you.

These instructions are to repair solid color gel-coat only, not poliflake.

- (1) Using masking tape, tape around damaged area slightly larger than actual flaw. Keeping area to be repaired as small as possible.
- (2) Remove any damaged glass or gel-coat. Sand damaged area and all surface inside tape, enough to rough up area and remove shine, using #220 grit dry sand paper.
- (3) Wash area with a solvent such as acetone and allow to dry.



WARNING: These materials are very flammable. Do not smoke or use electric equipment while using them.

- (4) Using Ranger touch-up gel-coat or putty only, thoroughly mix 1% catalyst (MEKP) with desired amount of gel-coat or putty.



CAUTION: Gel-coat will not cure by itself, you must use a catalyst.

- (5) With a putty knife, trowel catalized gel-coat in desired area, leaving it slightly higher than the original surface to allow for shrinkage.
- (6) When patch has dried, remove masking tape and carefully sand back to the original shape using #600 grit WET sand paper.

NOTE: Area may have to be filled more than once due to shrinkage.

NOTE: Due to different dye lots the color may vary somewhat. However, we take all steps to keep our color consistent.



CAUTION: Do not hold buffer in one area long enough to burn gel-coat.

If for some reason you need to spray gel-coat over your patch, you will need to follow these steps:

- (1) Mask around area to be sprayed.
- (2) Sand area with #220 grit dry sand paper removing all shine.
- (3) Clean area with acetone.
- (4) Mix Ranger touch-up gel-coat by thinning with styrene, approximately 2 parts gel-coat to 1 part styrene.

NOTE: If styrene is not available, acetone may be substituted. Add 1% catalyst (MEKP) to gel-coat and stir thoroughly.

NOTE: Protect carpet, seats, and all other exposed areas from overspray by covering these areas.

- (5) Apply one coat, being sure to cover and fill all sand marks and thin spots.
- (6) Flush gun and let gel-coat set approximately 10 minutes.

- (7) Repeat step #4, this time adding wax solution approximately 4 ounces of solution to a quart of gel-coat, then repeat step #5.
- (8) Let set approximately 8 hours or until dry and tack free.
- (9) Wet sand with #600 grit wet sand paper and buff with light buffing compound.



CAUTION: Do not sand metal-flake surfaces. A different procedure is used to repair these finishes. You should contact your Ranger Dealer for more information.

YOUR POWER PEDESTALS . . .

A "power pedestal" is a nitrogen gas filled steel cylinder that is used to raise and lower the fishing seats mounted on the forward and aft casting platforms. This enables you to select the proper seat height for comfort in any fishing situation. Pushing the empty seats all the way down helps to provide an unobstructed viewing area around the boat when underway and the lower seats also offer less wind resistance.

To raise the seat simply lift your weight slightly off the seat while raising the seat actuating lever simultaneously. To lower the seat keep your weight on the seat and lift the lever up.

These pedestals are constructed to the highest standard of workmanship and will give years of trouble-free service. A minimum amount of care will insure proper operation. Periodically apply a light weight oil (like household "3 and 1" oil) to the power unit piston. Take care not to over stress the pedestal by placing excessive strain on the seat and power unit while it is extended into the full up position. Always lower the seat to the full down position when the boat is underway. We recommend that the seat and pedestal be removed from the front casting deck and remounted into the special base mounted in the front of the deck floor when running. Should your boat not have the additional base, the front fishing seat should be removed and securely placed in the floor of the boat.

Your power pedestals are warranted for one full year against defects in materials and workmanship. Should a pedestal fail return the unit to Springfield Marine, Attn: Warranty/Repair, Hwy. 160, P.O. Box 588, NIXA, MO 65714, or call 800-641-3545, in MO call 417-725-2667. Repairs not covered by warranty will be charged at their regular rate.



WARNING: Power unit is under pressure. Do not attempt to disassemble it or tamper with it in any way.

If your power pedestal will not remain in position - either up or down - you may need to make a minor adjustment to the air cylinder that causes the pedestal to be raised up and down.

With your chair removed from the pedestal, use a Phillips #0 screwdriver to move the adjustment screw as shown in the accompanying diagram.

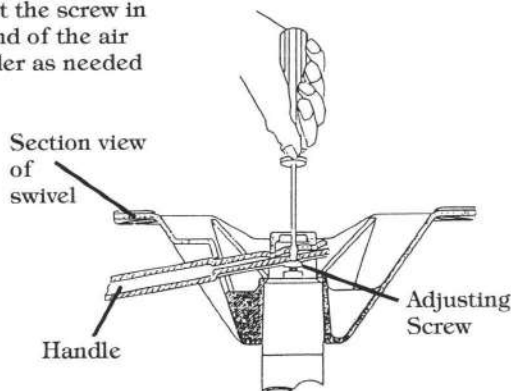
If your seat will not raise up to the proper height, adjust the screw approximately $\frac{1}{4}$ (one-quarter) turn in a clockwise direction and try the pedestal again.

If your seat will not remain in the upright position, move the adjustment screw approximately $\frac{1}{4}$ (one-quarter) turn in a counter-clockwise direction.

NOTE: You may need to fine-tune your pedestal by moving the adjustment screw a bit more in one direction or the other.

ADJUSTING AIR RIDE HANDLE PRIOR TO INSTALLING SEAT

Adjust the screw in the end of the air cylinder as needed



*Non Adjustable pedestals are standard on some models, the same warranty applies.

“KEY LOCKS, CARPET AND UPHOLSTERY. . .”

Your Ranger boat has been equipped with top-quality marine grade key locks to secure your storage areas. Should your boat be subjected to use in or near salt water, care should be taken to flush the locks out thoroughly with fresh water to prevent corrosion.

The carpet in your boat is the finest grade available. Although the special backing is RESISTANT to oil and gasoline, spills should be removed with soap and water to maintain the good looks and extend the carpet life. A carwash is suitable for washing and rinsing your carpet as well as cleaning the fiberglass surfaces.

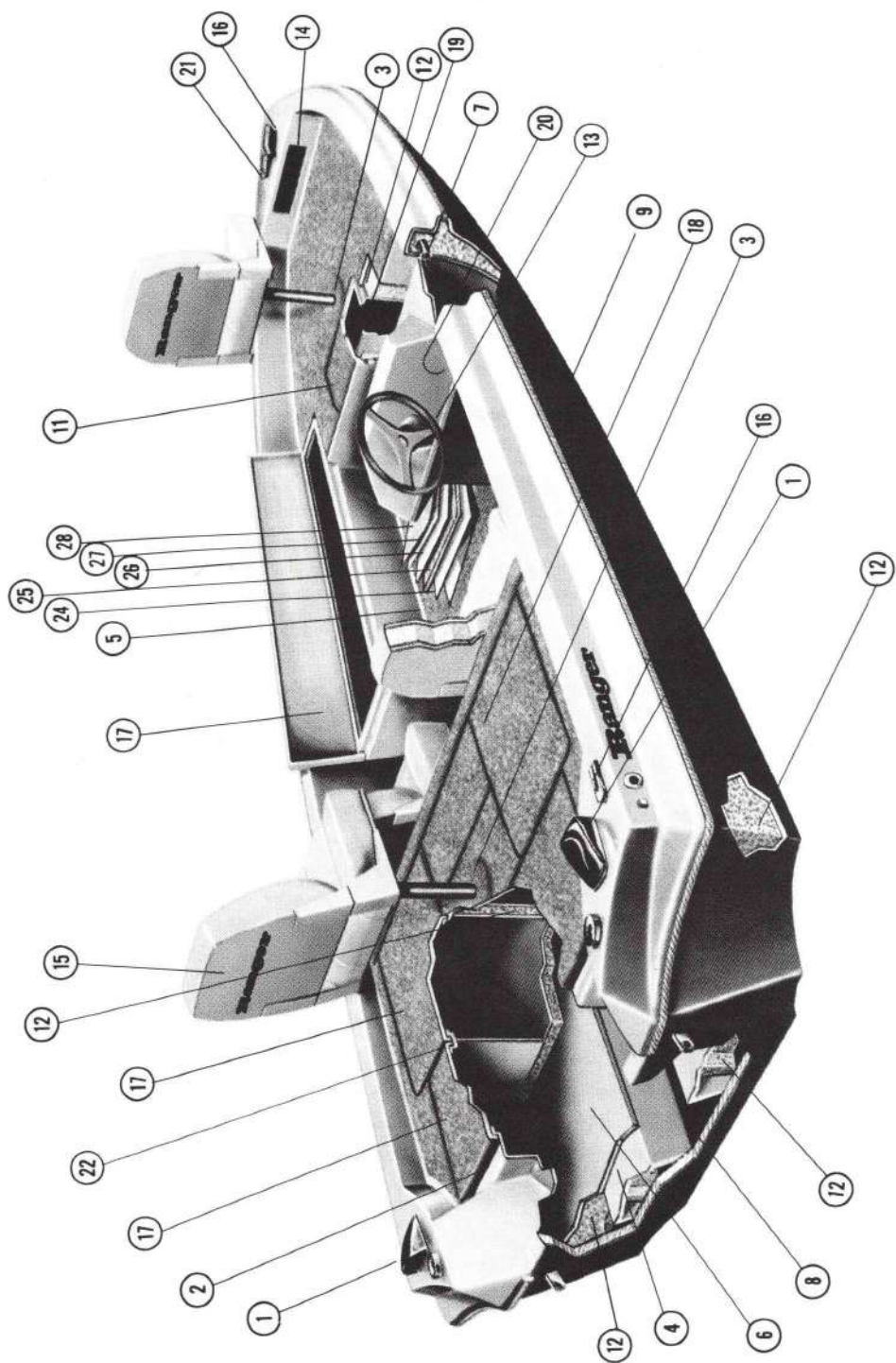


CAUTION: The popular and effective “fish scents” that are commonly sprayed on lures today will cause deterioration of the carpet backing. Use caution to spray these formulas well away from your boat carpet! Any spills should be cleaned up promptly.

Your Ranger upholstery is top-grade marine vinyl. Naturally, the suppleness and color fidelity of the upholstery is best maintained by storing your boat out of direct sunlight. Cleaning and conditioning of your upholstery is best accomplished with an approved, top-quality vinyl cleaner. To loosen stubborn soil or embedded dirt in textured surfaces, use a soft bristle brush, your approved cleanser, followed by wiping with damp sponge. To remove chewing gum, tars, paint, shoe polish or heel marks, use a cloth dampened with kerosene or naphtha. Ball point pen ink may sometimes be removed if rubbed immediately with a rag dampened with water or rubbing alcohol.



CAUTION: Do not use acetone, paint remover or other strong solvents on boat's upholstery.



1. Battery and gas storage compartments are ventilated to outside atmosphere.
2. Wood reinforcement, glass covered, under all hinges, to insure that fasteners stay tight.
3. Pedestal seat base plates are through bolted $\frac{3}{4}$ " plywood encased with fiberglass.
4. Fiberglass stringers with plywood reinforcement completely glassed to hull before floor goes down.
5. All storage compartments are carefully laminated to floor and deck to form leakproof seal.
6. All dry storage, rod storage, gas and battery storage and livewells that do not have a gel-coated surface are double protected with a sealer coat of polyester primer that fills any tiny pin holes that might exist. All dry storage compartments are either carpeted or have gel-coated interior surfaces.
7. Wiring harness is manufactured and colored or coded by Ranger. Wiring is carried through gunwales down each side of the boat through pvc plastic pipe.
8. Unique stress-directed fiberglass thermosetting polymer transom (patented).
9. Ranger gel-coat (or outer surface) is a minimum of 15 mils in thickness. This provides a longer lasting finish.
10. The fiberglass and resin formula used in the construction of a Ranger hull provides the highest degree of strength without adding excess weight.
11. Livewells are plumbed to drain completely and quickly.
12. Flotation is strategically located throughout the boat to provide level flotation in the event the boat is ever swamped. Virtually every cavity that is not a storage box or livewell, is filled with polyurethane foam flotation material. The material when injected into a Ranger boat is in a foam stage similar to shaving cream. As it expands, it becomes rigid, adding considerable strength to the structure plus a flotation material that is second to none.
13. Rack and pinion steering with sport steering wheel gives easy handling control of a Ranger.
14. A forward wiring access for easy hookup of electrical accessories.
15. Upholstery and seats are designed and constructed by Ranger using vinyl fabrics especially developed for the boating industry.
16. Stow-away running light connections front and rear are attached with stainless steel screws.
17. Lids to storage boxes are reinforced with wood encased in fiberglass.
18. Flush mounted key locks are used to secure storage boxes.
19. Livewells have splash guards to keep water from splashing out into the boat.
20. Easily accessible fuse panel.
21. Bow, stern and console areas suitable for mounting accessories such as anchors, trolling motors, instruments, etc., are reinforced with plywood encased in fiberglass.
22. Every dry storage box has a lip with rubber trim seal surrounding the box which helps keep surface water from running in and keeps inside contents dry.
23. Floor drains, front and rear, will allow water to drain to rear of boat where it may be pumped out or drained out.
24. Bottom side of all floors are undercoated with resin to keep water out.
25. Floors are made of $\frac{3}{8}$ " plywood, handcut and fitted to each individual boat, then permanently bonded to stringers.
26. Fiberglass approximately $\frac{1}{8}$ " thick on top side of floor to encase plywood and give sandwich effect.
27. A sealer coat of polyester primer over complete interior, not including gel-coated surfaces, to fill any pin holes that might remain.
28. Carpet used in a Ranger boat exceeds all industry standards for marine carpeting. Its fibers are 100% ultra violet stabilized Olefin and its backing is gas and oil resistant Duraflex.
29. Vinyl rub rail with polyrope insert. Extremely tough for maximum boat protection.

“INBOARD/OUTBOARD (Stern Drive) MODELS”

For proper engine operation, read the Owner's Manual supplied by the engine manufacturer. Any necessary repairs or adjustments must be made by an authorized service center of the engine manufacturer. Wood Manufacturing Co., Inc. is not authorized to make repairs on engines or associated equipment.

OF PARTICULAR IMPORTANCE . . .

1. Ranger Inboard/Outboards are equipped with an electric blower which will remove gas fumes from the engine compartment. The blower is controlled by a switch at the driver's console. Check the blower periodically by turning it on (flip switch at console to “on”) and putting your hand over the blower outlet vent to make sure it is exhausting air. Also check the ventilation hoses that attach to the blower for proper connection.

2. Be sure the engine and outdrive are properly drained during cold weather to prevent freeze damage (consult your engine owner's manual or see your Ranger dealer).



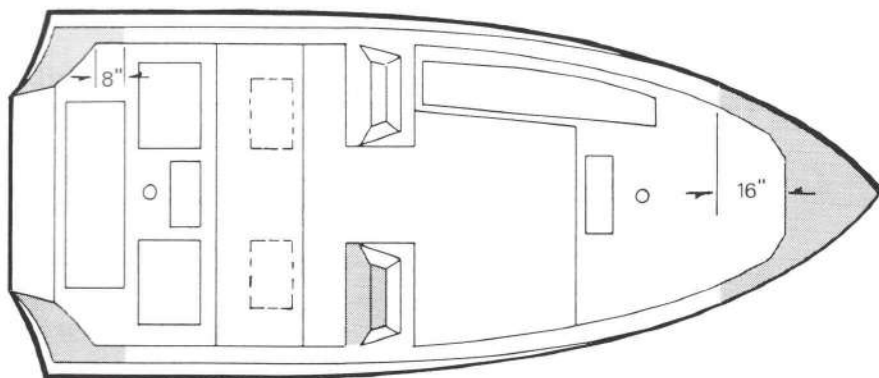
WARNING: Operate blower for at least 5 minutes before starting engine to remove any gas fumes that might have accumulated in the engine compartment.

“ADDING ACCESSORIES TO YOUR BOAT. . .”



Likely your boat has come equipped with the accessories you desire. However, should you choose to install additional ones, use the drawing below as a guide for locating them.

The areas of the gunwale (uppermost level of the deck) shaded in gray have the reinforcement necessary for installing common “add on” items. Carefully locate all accessories so that their safe, easy operation is not hampered.



The bow section of the gunwale is properly reinforced for installing such accessories as trolling motors, electric anchors and depth sounders. We recommend thru-bolting all trolling motors, anchor davits and other heavier accessories. Normally $\frac{1}{4}$ " stainless steel bolts with self locking nuts, washered on the underside with a washer from $\frac{3}{4}$ " to $1\frac{1}{4}$ " outside diameter will do the job. Lightweight depth sounders or similar equipment and hardware can be installed using #8 or #10 stainless steel screws. Always drill a pilot hole through the fiberglass (just smaller than the screw you're going to use) before attempting to install a screw. This lessens the chance of "stripping" the hole or chipping the gel-coat around the hole.

If additional instruments are desired on the console, holes may be drilled using a hole saw of the proper size. The underside of the console face is reinforced for support.

The flat "knee" areas of the rear gunwale (around rear storage vents) are reinforced to accept such accessories as the Ranger custom fit ski ladder, electric anchors, boat reins and other accessories.



CAUTION: Use Marine Sealer around all screws installed into transom or floor of boat. When installing screws below water line, be sure sealer used is recommended for such.

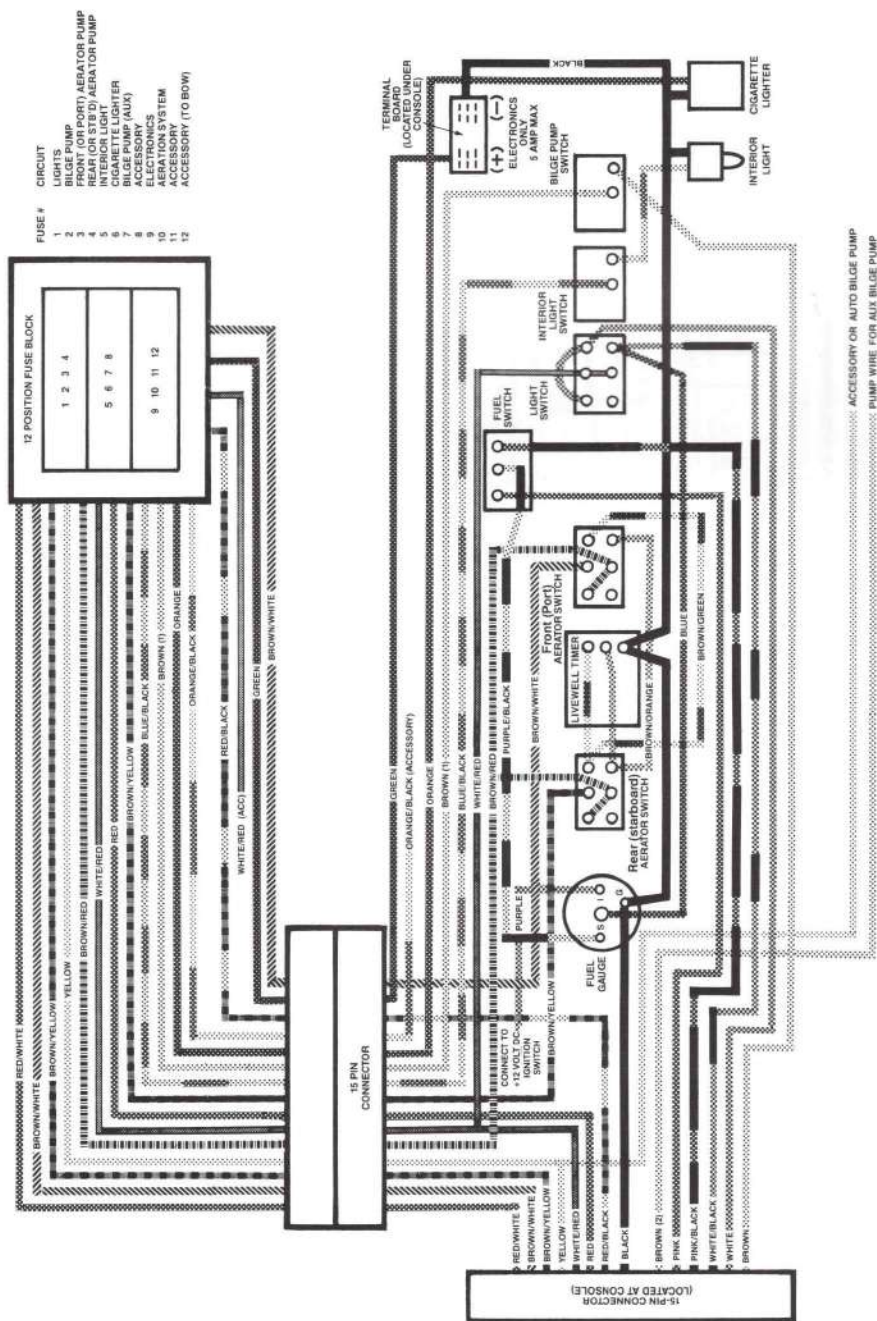
When installing additional electric accessories, always use the proper gauge (size) wire recommended for that item. Insure that the proper size breaker or fuse is used. "Splicing" into another accessory's power supply could overload the circuit and should be avoided.

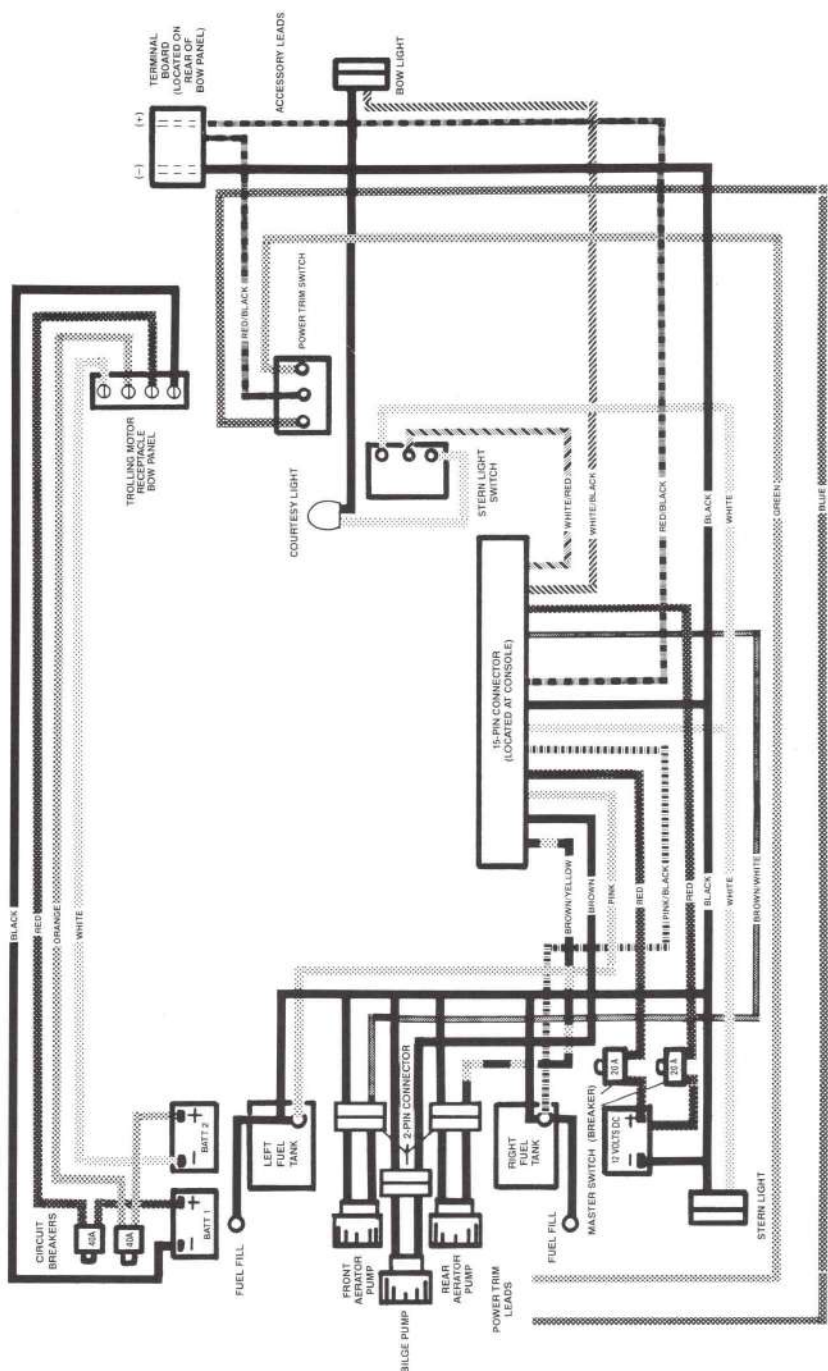


CAUTION: Always disconnect the positive and negative leads from the battery terminals before installing, removing, servicing, or troubleshooting any part of the electrical system.

RANGER BOATS COMMANCHE PACKAGE

CONSOLE WIRING HARNESS



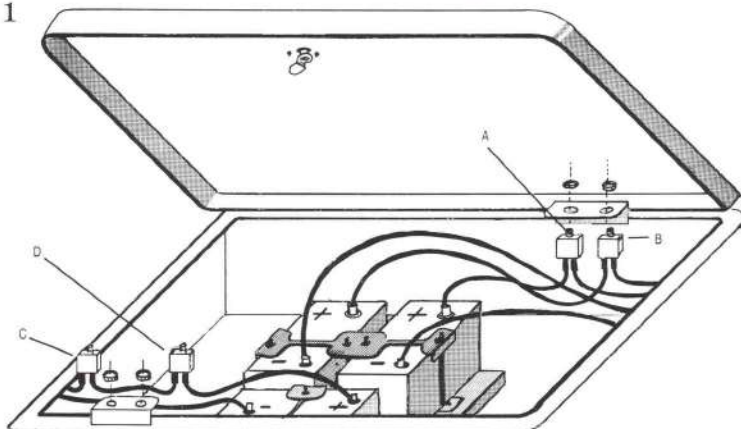


RANGER BOATS
BOW/STERN

COMMACHE PACKAGE
WIRING HARNESS

WIRING INFORMATION REAR STORAGE COMPARTMENT

FIG. 1



24 VOLT SYSTEM SHOWN, 12 VOLT SYSTEM,
OMIT BREAKER "B"

HOOK UP OF TROLLING MOTOR LEADS:

24 VOLT SYSTEM	{	RED to Battery	1(+)	positive	}	12 VOLT SYSTEM
		BLACK to Battery	1(-)	negative		
		ORANGE to Battery	2(+)	positive		
		WHITE to Battery	2(-)	negative		



CAUTION: Hooking up leads to trolling motor in any other manner could result in severe damage to both batteries and panel.

Breakers A, B and C are located inside the covered rear storage (raise lid) see Figure 1 above.

Breakers "A and B" are circuit protection (40 amp 12 volt) for the positive (+) leads in the trolling motor wiring (bow to stern). A problem in the system could result in the breaker(s) being tripped. Should this occur the breaker(s) can be re-set by depressing the button. If this occurs again, disconnect battery leads and trace immediately, or take it to your Ranger Dealer for repair.

Breakers "C" and "D", also in Figure 1 on page 31, are the circuit breakers/switches (20 amp 12 volt) for the accessories. (See wiring diagram on page 28). Should a breaker trip, simply push to reset. This switch should also be in the off position (extended) when trailering or storing the boat. It acts as a master switch and turns off all accessories getting their power from the Ranger fuse panel. Remember, engine circuits will not be affected by these breakers/switches, but could have breakers or fuses of their own. Consult your engine owners manual for electrical particulars.

ELECTRICAL SYSTEM

FUSE PANEL INFORMATION



FIG. 2

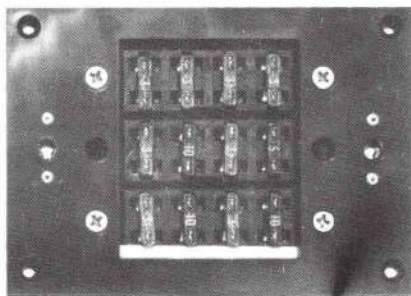


FIG. 3

The recessed fuse panel, located for easy access, features plug-in type ATC fuses, a recent innovation to the automobile industry. By removing the fuse panel cover (Fig. 2 above), the fuses can be easily inspected or replaced.

The panel has a capacity of twelve individual circuits* (Fig. 3 above). The particular accessory(ies) they operate are shown on the decal on the back side of the fuse panel lid.



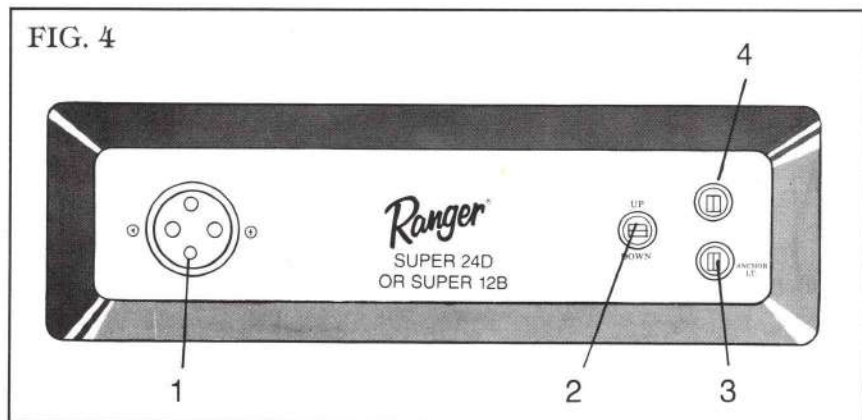
CAUTION: Do not exceed recommended fuse sizes. Always install proper rated fuse when adding accessories to the fuse panel.

*Excepting the 680 series boats which have eight circuits.

ELECTRICAL SYSTEM

BOW PANEL INFORMATION

The purpose of the Super 12 and Super 24 is to provide a minimal voltage drop trolling motor system. Super 24's come standard with 6 gauge leads and Super 12's equipped with 2 gauge. These leads, or wires, run through plastic pipe down the port side of the gunnel from the bow panel to the rear storage compartment in the stern. View figure 4 below to familiarize yourself with the parts and their functions.



- (1) Trolling Motor/Battery Charger Receptacle—"TYPE FOUR" shown and is distinguishable by its four sockets. This system comes with two male plugs, one to be installed on the trolling motor, the other on the battery charger. (See trolling motor and battery charger plug wiring instructions.)
- (2) Engine trim switch – Can be used to trim engine from front deck while fishing. NOT to be used when main engine is running!
- (3) The anchor light switch controls the rear navigation light.
- (4) Accessory switch.



CAUTION: Do not connect main leads to batteries until all other connections have been made.



CAUTION: Hooking up main leads in any other manner could result in severe damage to both batteries and panel.

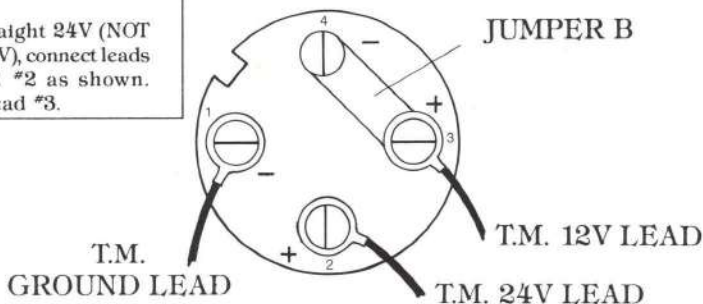
INSTALLATION OF 4 PRONG "TYPE FOUR" MALE PLUG TO TROLLING MOTOR AND BATTERY CHARGER.

The type IV plug is not designed for direct attachment to bare wires. All wires must be terminated with a #10 ring terminal of the appropriate wire gauge size. When assembling plug, insure that two cover screws pass through grooves in plug body.

FIG. 6 TYPE FOUR TROLLING MOTOR PLUG
(Part #10335) 12/24V

NOTE

For straight 24V (NOT 12V/24V), connect leads #1 and #2 as shown. Omit lead #3.



CAUTION: Always disconnect trolling motor plug prior to any direct charging to any battery in the rear storage area.

FIG. 7 TYPE FOUR TROLLING MOTOR PLUG
(Part #10335) 12V

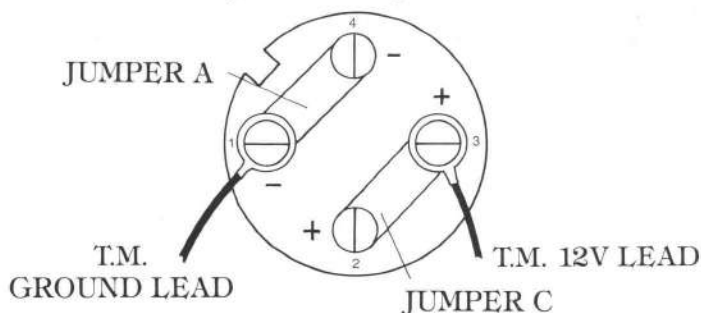


FIG. 8 TYPE FOUR BATTERY CHARGER PLUG
(Part #10336) 12V

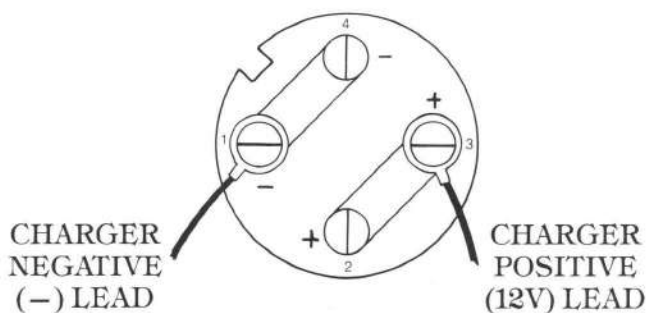
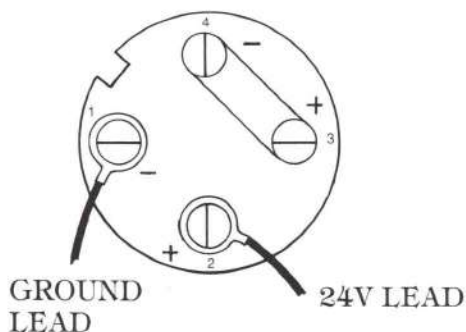


FIG. 9 TYPE FOUR BATTERY CHARGER PLUG
24V



SAFETY AND MAINTENANCE TIPS

- (1) Always disconnect Trolling Motor Plug from panel when not in use. This is for your safety as well as discouraging corrosion between the Trolling Motor Plug and the Trolling Motor Receptacle.
- (2) When adding accessories, make sure you use the Positive and Negative terminal from the same battery. Red and Black are Battery #1; and Orange and White are Battery #2.
- (3) Check Battery Connections periodically to make sure they are corrosion free and TIGHT.
- (4) Alterations of any part of the wiring system should be avoided! Such alterations could cause damage and/or electrical short.
- (5) Inspect wiring connections and terminals periodically for corrosion, etc. Replace as needed. Replacement components should always be of equal or greater rating and quality. We recommend Ranger replacement parts available through your Ranger dealer.
- (6) Always disconnect the positive and negative leads from the battery terminals before installing, removing, servicing, or trouble shooting any part of the electrical system.

UPRIGHT AND LEVEL FLOTATION

A Ranger-built boat is designed with "safety first" in mind. Ranger Boat Company pioneered the "upright and level" principle of insuring that a swamped boat, in normal water conditions, would float **level at the surface** and stay in an **upright position**. This enables the occupants to remain with their craft until rescue or until boat can be emptied. The United States Coast Guard requires that a boat float **level**, however, Ranger's own strict requirements specify that the boat remain **upright** as well.

Hopefully, you will never need this feature. But it is reassuring to know that your Ranger boat, even if completely filled with water, will remain safely at the surface. Ranger achieves this unique buoyancy by insuring that virtually ALL areas inside the deck, sides and gunnels of your boat, that are not required for storage or service entry, are injected with an expanding polyurethane foam material. These cavities are filled to insure that water cannot enter and great attention is given to this operation. The floor drains of your boat are a unique part of the stabilization system of your boat should it fill with water. The floor drains should always be kept open and free from debris so that initial water can run into the center drain compartment of the boat. This compartment runs above the keel line and, when filled with water, supplies the weight necessary to stabilize and prevent the boat from rolling over, much as would a keel.

While your Ranger has more foam flotation than the regulations require, care should be taken when installing additional equipment or accessories not to remove any more of the foam material than is absolutely necessary.

Ranger boat models have been tested and certified for this floating characteristic, while swamped, by Wyle Laboratories, Huntsville, Alabama.

FEDERAL REQUIREMENTS FOR RECREATIONAL BOATS

EQUIPMENT	CLASS A (Under 16' in Length)	CLASS I (16', but under 26')
Whistle or Horn	Must have means of making an efficient sound signal	
Visual Distress	None Required During Daytime	All recreational boats, when used on coastal waters, which includes the Great Lakes, the 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 wide, must be equipped with visual distress signals.
Lights	Proper light displays are required to be shown from sunset to sunrise.	
Fire Extinguishers	One B-1 U.S.C.G. or U.L. approved fire extinguisher unless the construction is such that explosive flammable vapors cannot be trapped, there are no closed compartments, no permanently installed fuel tanks on board.	
PFD'S	Type I, II, III or V for each person aboard.	Type I, II, III or V for each person on board and one Type IV.
Numbering	All undocumented vessels equipped with propulsion machinery must be numbered in the state of principle use.	
Certificate of Number	A valid certificate of number showing the numbers issued to a vessel must be on board whenever the vessel is in use.	
Display of Number	Number must be painted or permanently attached to each side of the forward half of the vessel, and no other number may be displayed thereon.	

NOTE: The above information is not conclusive. The owner/operator should check all current Federal, State, and Local Regulations to insure compliance.

YOUR RANGER TRAIL TRAILER . . .

Congratulations! You have purchased the perfect trailer for your Ranger boat. Since the design of your trailer is the specific set-up of load and bunk configuration for your particular model boat, you can be confident that your hull is properly supported and protected. The custom-matched fiberglass fenders (available on most models) will give years of rust-free service. All metal frames are sand-blasted, then primed and electrostatically painted with acrylic urethane enamel for long lasting, maintenance-free use. The carpet installed on the trailer bunks not only enhances the appearance of the unit, but also acts as a skid-resistant surface. The bunks are constructed of high quality, pressure-treated 2" x 6" lumber and are easily removed by simply unbolting them. Should your carpet become worn or torn, it can be quickly replaced to continue to provide protection to your hull and to enhance the appearance of your rig.

GENERAL INFORMATION AND MAINTENANCE

With a minimum of maintenance and a little care, your Ranger Trail trailer will give you many years of safe, trouble free service. However, as with any piece of fine machinery, some items should be checked and serviced regularly.

- (1) Keep the hubs properly lubricated at all times as described in the hub section of this manual.
- (2) Lubricate jack wheel gears and spline periodically.
- (3) Check all lights before each use of the trailer.
- (4) Check the tires for wear, cuts or other damage before each use and replace as needed. Check tire pressure often. See tire sidewall for maximum pressure and maximum load.
- (5) Check lug nuts for tightness before each use.
- (6) Periodically check the winch strap and winch parts for any wear and replace any worn parts.
- (7) Remember . . . a small expense for preventive maintenance is much less expensive now than a road-side breakdown later!



CAUTION: Trailer tires should be properly inflated and maintained! The load-carrying capacity of your trailer is based on the tire pressure. Inadequate tire pressures can void your tire and trailer warranty and could also lead to an accident damaging to people or equipment!



CAUTION: Lug nuts should be properly tightened before each use.

“E-Z LUBE HUBS . . .”

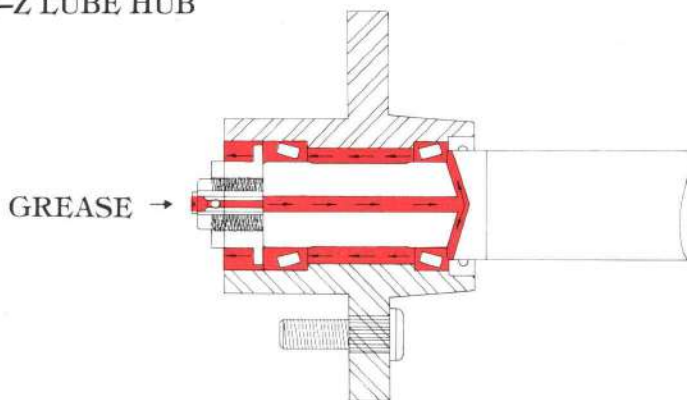
These hubs have a unique method of lubrication which will, if used properly, ensure many miles of carefree trailering. The illustration will show the various parts of the system and how the grease actually fills from the rear bearing and the back of the hub, forward to the outer bearing. Since the E-Z Lube Hub, properly maintained, lubricates the rear bearing first, all air is forced forward out of the hub, making for a more perfect seal.

On trailers rated 2995 lbs, 3400 lbs, and 4200 lbs, the wheel bearings are lubricated via a flush mount Zerk fitting in the end of the spindle. These bearings should be serviced every 20,000 miles or one (1) year.

To do so, jack up the trailer and remove the wheel. Remove the dust cap by lightly tapping with a hammer and screwdriver on the cap edge where it meets the hub. Using a grease gun with a needle attachment (available at most parts stores) place the needle in the Zerk and pump until new grease appears around the outside bearing. Remove excess grease from bearings and cap then reinstall the cap with a gasket sealer around the sealing lip. Drive the dust cap in place with a rubber hammer, reinstall wheel.

On trailers rated 2120 lbs the bearings are lubricated by a standard grease fitting in the end of the spindle. These should be serviced every 3,000 miles or 90 days. Remove the red rubber plug and attach a grease gun to the fitting and pump in new grease until it appears around the outer bearing, clean off excess grease and reinstall the red plug.

E-Z LUBE HUB



TRAILER BRAKES

If your trailer is equipped with brakes follow the safety and maintenance tips listed below for best service.

- (1) Always hook up the brake breakaway cable (Fig. 9, see page 44) securely to the tow vehicle (should the trailer come loose, cable will activate the brakes to help slow runaway trailer).
- (2) Disc brake trailers are equipped with an electric solenoid valve to prevent the disc brakes from being activated while reversing your trailer. Unlike drum brakes, which lose 80% of their braking capability in reverse, disc brakes will operate at full capacity in either direction. It is, therefore, essential that the wire from the solenoid valve be connected to the reverse light wire of the tow vehicle. When the tow vehicle is put in reverse gear, the solenoid will deactivate the brakes and allow you to back up. (Fig. 10, see page 44).

To check proper operation of solenoid valve place tow vehicle gear shift in reverse (with engine shut off and ignition on). Backup lights should turn on and an audible "click" should be heard at the valve. If lights come on and no "click" is heard, check for an electrical wiring or connection problem.



CAUTION: Make sure back up lights DO NOT come on when tow vehicle transmission is in any gear other than reverse.

3. Turn coupler latch knob clockwise to tighten. Hold catch lever down with one hand and turn latch with other hand until it can not be turned any more. Move tow vehicle and trailer a few feet, then retighten.
4. Check cap of master cylinder often for tightness.
5. Follow routine maintenance and inspection for disc brakes as outlined:

The disc brake system is virtually maintenance free. To minimize corrosion, it is highly recommended that the disc brake calipers and rotors be rinsed off with fresh water after trailer has been immersed in salt water.

INSPECTION

To assume continued proper operation of your trailers disc brakes, annual inspection is recommended.

FIG. 9

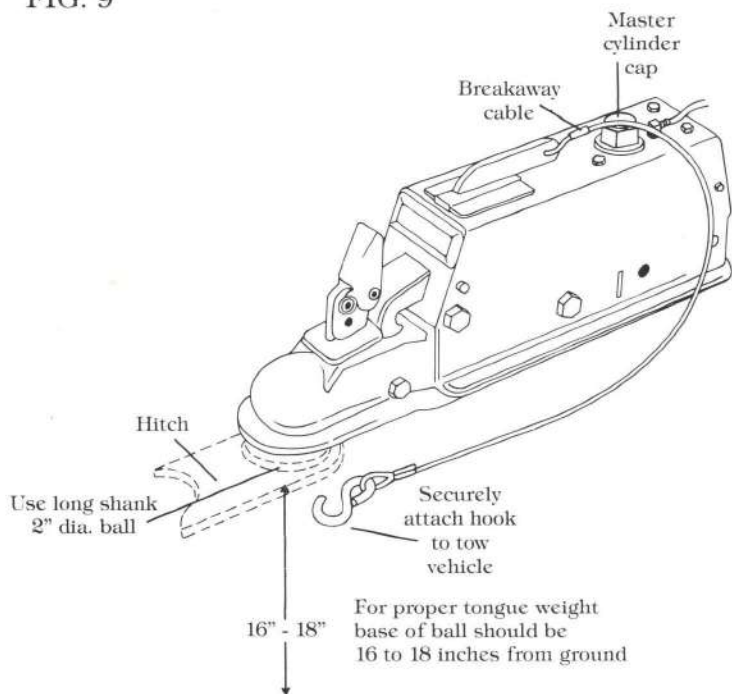
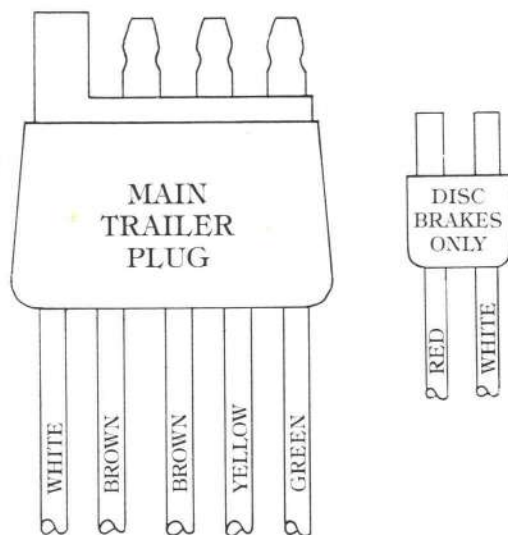


FIG. 10

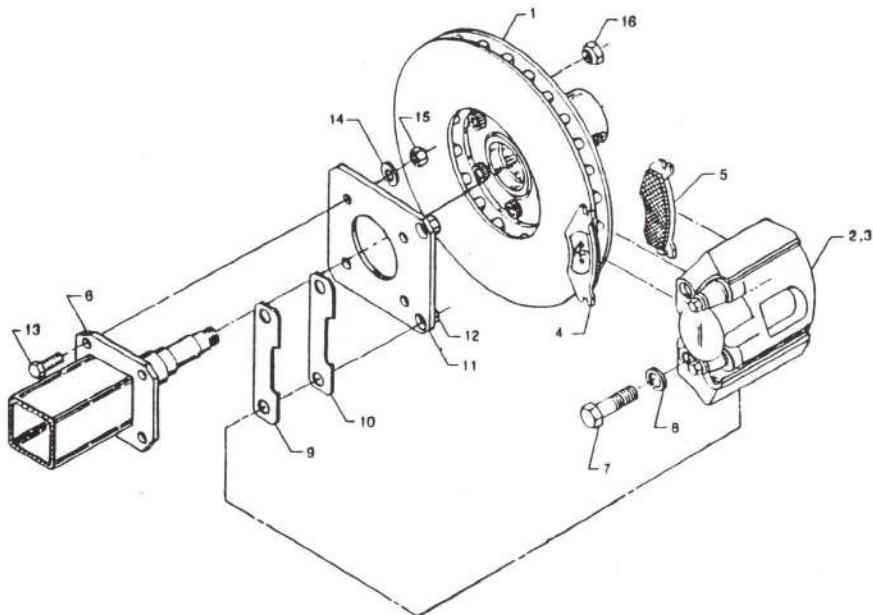
RANGERTRAIL WIRING

WHITE - Ground
 BROWN - Tail & Clearance lights
 YELLOW - Left stop & turn lights
 GREEN - Right stop & turn lights
 RED - To back-up light wire on vehicle
 WHITE - Ground



VR-10 DISC BRAKE PARTS LIST

ITEM NO.	PART NO.	QUANTITY	DESCRIPTION
1	33640	2	VR-10 Hub/Vented Rotor Assembly
2	33590L	1	Brake Caliper Assembly Left Hand (shown)
3	33590R	1	Brake Caliper Assembly Right Hand
4	32248	2	Caliper Brake Pad, Inner
5	32249	2	Caliper Brake Pad, Outer
6		1	Axle with 4-Hole Brake Flange
7	32397	4	9/16" - 18 x 1 3/4" Bolt
8	32413	4	9/16" Lock Washer
9	33530	2	Spacer, Thin
10	33534	4	Spacer, Thick
11	33539	2	Mounting Bracket
12		4	9/16" Nut welded to Mounting Bracket
13	32409	8	7/16" - 20 x 1" Bolt
14	32410	8	7/16" Lock Washer
15	32411	8	7/16" Hex Nut
16	32494	10	1/2" Wheel Nut



PADS

Pads must be replaced when 1/16" inch (0.060") of pad friction material is left.



CAUTION: If not familiar with disc brake pad replacement, have work performed by a qualified individual or service shop.

ROTORS

Rotors should be resurfaced by a qualified brake specialist if extreme galling or wear marks are present.



CAUTION: Rotors must be replaced if distance between brake surfaces becomes less than 0.882" inches (22.4 mm) due to wear or machining.

RUST

Check for extreme rust on mounting bolts, flanges and welds which may weaken the structural integrity of the system. Repair or replace as necessary.

LEAKS

Check for leaks in the brake lines and fittings. Leaks will lead to loss of trailer braking ability. Repair or replace as necessary.

REPLACEMENT PARTS

(See VR-10 Disc Brake parts list on on page 45)

All replacement parts can be purchased from UNIQUE FUNCTIONAL PRODUCTS, 135 Sunshine Lane, San Marcos, CA. 92069.

If you have any questions or problems with the disc brakes, please write or call Unique Functional Product's customer service department, (1-800-854-1905, 1-800-542-6400 — California).



WARNING: The braking mechanism on this trailer is designed as an aid in slowing and stopping the trailer. The braking system on the tow vehicle is the primary slowing and stopping system. You will not be able to stop the tow vehicle and the towed trailer as quickly as you could stop the tow vehicle alone.

BEFORE TOWING YOUR RANGER TRAIL TRAILER. . .

Make sure that your tow vehicle is equipped with a 2 INCH BALL of machined or forged steel! NEVER use a ball smaller than 1.97 inch diameter or larger than 2.0 inch diameter. Naturally, your tow vehicle should be equipped with a properly rated and substantial towing hitch, well braced and firmly connected to your vehicle. Make sure that your vehicle is properly wired for the trailer light connection.

The height of the towing ball above the ground will greatly influence the tongue weight of the trailer. The base of the ball should be between 16" to 18" from the ground (See Figure 9, page 44).

TOWING YOUR RANGER TRAIL TRAILER. . .

Back your tow vehicle into position so that the ball is directly under the trailer hitch ball socket. Stop your vehicle's engine and set parking brake. Make sure that the release handle on the trailer hitch is raised and pulled to the rear. This will show that the ball socket is open and ready to receive the tow ball. Then, by turning the tongue jack handle, lower the hitch until it seats fully on the tow ball. Be sure that the tongue jack wheel is slightly clear of the ground. Close the ball socket latch by pushing downward into the recess. The release handle should close smoothly if the ball has been seated correctly into the socket. If the release handle does not close, DO NOT TOW THE TRAILER. To make sure that the connection is secure, lower the tongue jack until the ram has lifted the trailer hitch and trailer tongue connection 3 or 4 inches. If the ball does not disengage, you may be reasonably sure that the attachment is secure.

Next, fully retract the jack into the full up position and connect the safety chains to the connection points on your tow vehicle hitch.

If your trailer is equipped with brakes, hook up the breakaway cable as shown in the brake owner's manual. Hook up the wiring harness and check that all lights are operating properly. Test your vehicle lights to make sure that the trailer brake signals and turn indicators duplicate your vehicle's functioning. Remove any trailer wheel chock and carefully drive off to adventure with your boat and trailer.



CAUTION: Retract jack fully before towing! Replace coupler and ball if worn . . . do not attempt repair or adjustment.

To unhitch your trailer from the tow vehicle, place the trailer on a level and paved surface and chock both trailer wheels to prevent any movement forward or backward. Unhook the safety chains, wiring harness and, if so equipped, the brake breakaway cable. Then, using the trailer tongue jack, raise the hitch up and clear the ball. In this position the trailer tongue should be left somewhat bow high so that any water will run out through the drain hole in the stern of the boat.

TRAILER DATA

Owner _____

Address _____

Dealer _____

Address _____

Phone _____

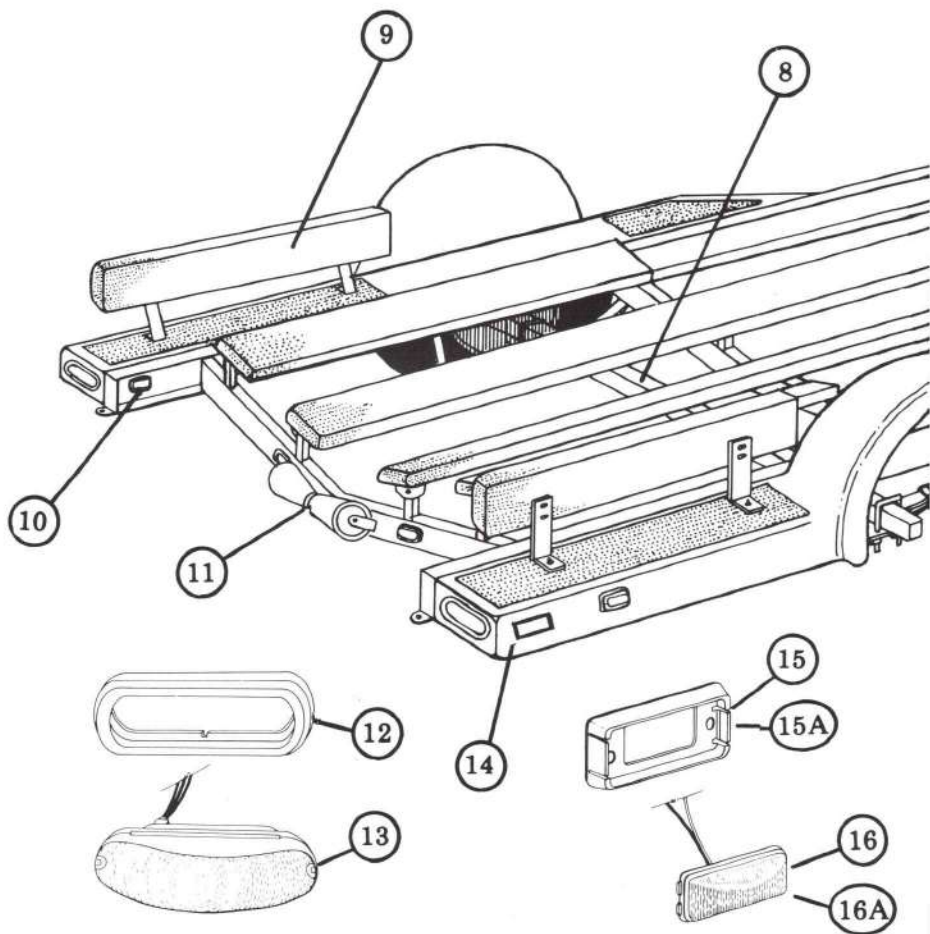
Trailer Model _____

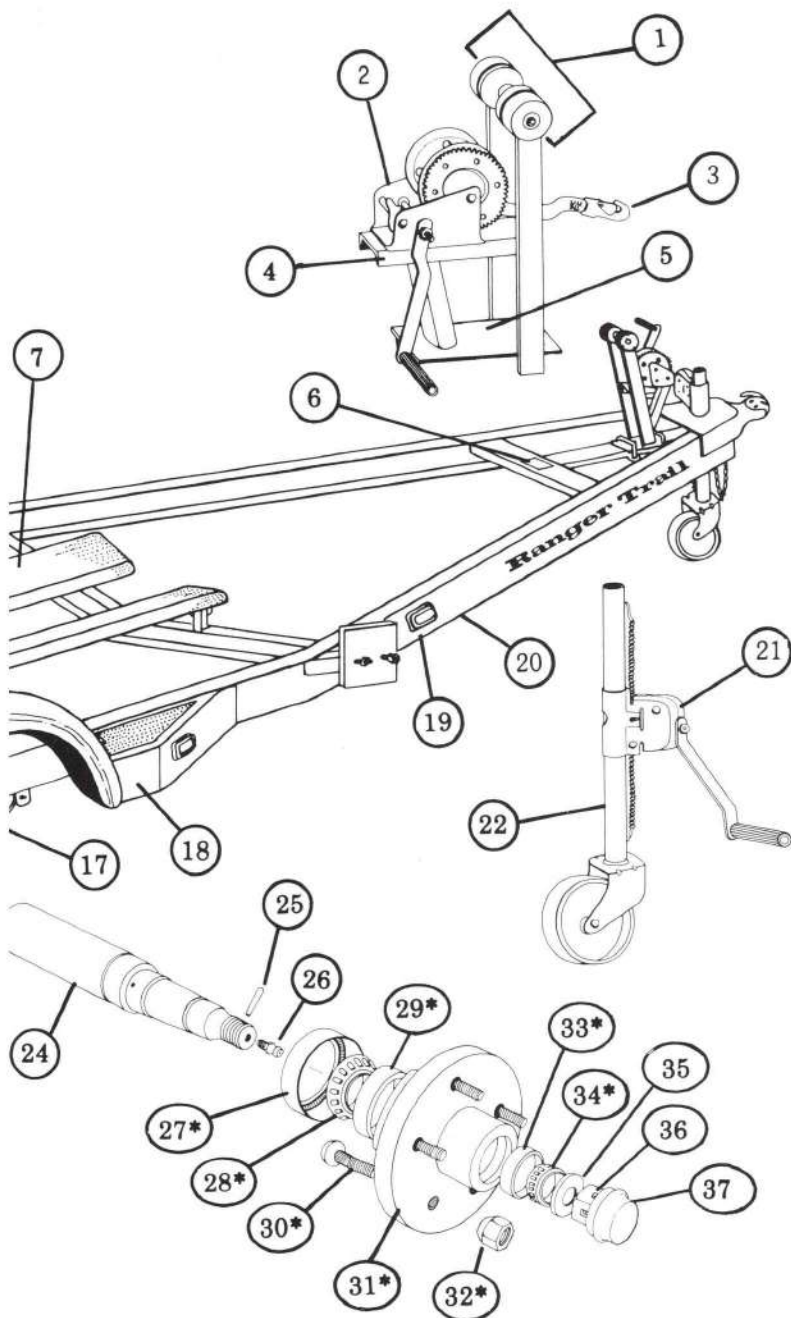
Serial No. _____

License Number _____

Other: _____

RANGER TRAIL PARTS





Hub Assembly (includes Hub Parts Marked "**")

RANGER TRAIL PARTS LIST

ITEM NO.	DESCRIPTION	PART NUMBER
1	BOW ROLLER ASSEMBLY (Specify Model)	
2	WINCH W/HANDLE (2120)	9642032
	WINCH W/HANDLE (3000/4200)	9642039
3	WINCH STRAP W/HOOK	9642018
4	WINCH/BOW STOP STAND ONLY (specify color and model)	
5	U-BOLT ASSEMBLY (specify model)	
6	E-Z LUBE HUB DECAL	7604407
7	CARPETED BUNK (specify model, location on trailer and carpet color)	
8	AXLE W/SPINDLES (specify model and color)	
9	CARPETED BUNK (specify model, location on trailer and carpet color)	
10	LICENSE LIGHT (lamp only)	9639210
11	KEEL ROLLER ASSEMBLY (specify model)	
12	MDL 60 TAIL LIGHT RUBBER SEAL	9639350
13	MDL 60 TAIL LIGHT LAMP ONLY	9639370
14	RED RECTANGULAR REFLECTOR	9639250
15	NON-GRND CHROME MOUNTING BRACKET (for fiberglass)	9639035
15A	SELF-GRND CHROME MOUNTING BRACKET (for metal)	9639030
16	RED MARKER/CLEARANCE LIGHT (lamp only)	9639110
16A	YELLOW MARKER/CLEARANCE LIGHT (lamp only)	9639130
17	SPRING (Mdl 2120/3000/4200-specify color and model)	9633040
	(Rawhide specify color and model)	9633060
18	FENDER (specify model, left/right, color and serial number)	
19	YELLOW RECTANGULAR REFLECTOR	9639270
20	RANGER TRAIL DECAL (specify color)	
21	JACK HOUSING ASSEMBLY (welds to coupler)	9609050
22	JACK TUBE ASSEMBLY	9609150

FOR MODELS 3000/4200 (includes models w/brakes)

23	HUB ASSEMBLY (includes all hub parts w/*)	9606020
24	SPINDLE W/NUT AND WASHER (welds to axle)	9612075
	SPINDLE W/BRAKE FLANGE (for brake trlrs)	9612497
25	DOWELL PIN 3/16" x 1 1/2"	9612195
26	GREASE FITTING	9606103

ITEM NO.	DESCRIPTION	PART NUMBER
27	GREASE SEAL-DOUBLE LIP (NOK #AD2527E - See Note 2)	9624105
28	INNER BEARING (L68149 - See Note 1)	9624017
29	INNER RACE (L68110 - See Note 1)	9624075
30	WHEEL STUD	9648041
31	HUB W/RACES/STUDS (available upon request)	
32	1/2" - 20 LUG NUT	7838110
33	OUTER RACE (L68110 - See Note 1)	9624075
34	OUTER BEARING (L68149 - See Note 1)	9624017
35	SPINDLE WASHER "D" TYPE	7840010
36	SPINDLE NUT	7838900
37	HUB DUST CAP	9606088

FOR MODELS RAWHIDE/2120

23	HUB ASSEMBLY (includes all hub parts w/*)	9606052
24	SPINDLE W/NUT AND WASHER (welds to hub)	9612375
25	DOWELL PIN 3/16" x 1"	9612255
26	GREASE FITTING	9606103
27	GREASE SEAL (125192TB)	9624106
28	INNER BEARING (L44649 - See Note 1)	9624015
29	INNER RACE (L44610 - See Note 1)	9624060
30	WHEEL STUD	9648042
31	HUB W/RACES/STUDS (available upon request)	
32	1/2" - 20 LUG NUT	7838110
33	OUTER RACE (L44610 - See Note 1)	9624060
34	OUTER BEARING (L44649 - See Note 1)	9624015
35	SPINDLE WASHER (available upon request)	
36	SPINDLE NUT (available upon request)	
37	HUB DUST CAP	9606086
38	RUBBER DUST CAP PLUG	9606120

TIRE — Order by Size/Description

WHEEL — Order by Size/Description

CARPET — Order by Model/Color

Note 1 — Use "L" number for cross referencing at local parts store.

Note 2 — Replacement single lip seals are by manufacturer:

Victor #47319/NAPA #47319/National #47317

TIPS FOR BETTER, SAFER BOATING

ALCOHOL and DRUGS — The debilitating effects of alcohol and other drugs reduces reaction time and detracts from judgement. The combined effect of the outdoor environment . . . sun, heat, wind, rough water, and noise can be more fatiguing than one would imagine and, combined with drugs or alcohol, can be very dangerous.

GAME PLAN — Tell a friend, neighbor or another family member where you will be boating and when you plan to return. Be certain that this individual has a good description of your boat and any other identifying information that could be needed to help find you should an emergency arise.

TOOLS and SPARE PARTS — Many people have been stranded by minor breakdowns that they could have repaired themselves. It is a good idea to carry a few tools and common spare parts and to be familiar with simple repairs that you can easily accomplish.

GASOLINE RESERVES — Never push your boating range to the limit of your gas tank capacity . . . one-third of the fuel to go, one-third to come back and one-third in reserve.

GOOD BOATKEEPING — A clean boat is a safer boat. Take care to see that rods, lures, nets, gaffs and other potentially harmful gear are properly stowed so that it cannot blow or move around while the boat is underway. Perform all maintenance and safety checks regularly. Secure all icebox or cooler lids and place any trash or debris safely under cover until the trip is over.

SPEED and SKILL — The fast and powerful boat can require the operator to exercise a high level of skill and attention to driving. Only go as fast as your skill and good judgment dictates is safe. You are in charge of the well being of your passengers and yourself. Be alert for any hazards in the water and operate your boat only in such a manner as would be appropriate for the water conditions. Be a good boating "neighbor" and do not create a hazard or annoyance to others. The best safety equipment is your own good judgment.

Wood Manufacturing Co., Inc.

Ranger® Boats And Ranger Trail® Trailers

Limited Warranty

Wood Manufacturing Company, Inc. ["Wood"] expressly warrants that each of its Ranger® Boats and Ranger Trail® Trailers are free from defects in material and workmanship under normal operating conditions. The duration of this limited warranty is [A] One [1] year from the date of purchase by the original [first] purchaser as to Ranger Boat and Ranger Trail Trailer. [B] Five [5] years from date of purchase by the original [first] purchaser [transferable to subsequent purchasers as to the unexpired portion] as to structural members comprising the hull section of each Ranger Boat. This limited warranty is subject to the following terms and conditions:

Wood's sole obligation and the Buyer's sole and exclusive remedy against Wood for breach of the express warranty shall be for the repair or replacement of defective parts, free of charge, to the Buyer.

To validate this Limited Warranty, the registration card must be completed and returned to Wood within ten days from original purchase. No warranty claim will be considered unless the registration card is in our file.

Under the Limited Warranty, Wood shall have no obligation and the Buyer shall have no remedy against Wood for any other damages including, but not limited to incidental or consequential damages, direct or indirect, for lost profits, lost sales, loss of time, injury to person or property or for any other incidental or consequential loss from any cause or otherwise, and whether or not occasioned by Wood's negligence.

Repairs will be made by Wood at its factory or Wood may authorize a dealer in your area to make the repairs. Transportation to and from Wood's factory shall be at Buyer's expense. Wood shall not be responsible for towing, road service charges or any other transportation.

The warranty for the boat does not apply to the following: [1] engines, outdrives, controls, propellers, or other equipment or accessories carrying their own individual warranties; [2] Gel-Coat cracking, crazing, blistering or fading; [3] installation of engines or accessories which are not authorized by Wood; [4] any Ranger Boat which has been altered, subjected to misuse, negligence, improper trailering, accident or overpowered [according to recommended engine horsepower on capacity information plate]; and [5] windshield breakage.

The warranty for the trailers shall include all original components of the trailer except tires, body paint and those components manufactured by other companies which carry the manufacturer's individual warranty.

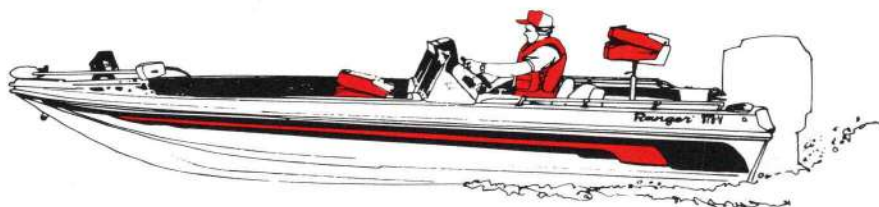
THE EXPRESS WARRANTY DESCRIBED ABOVE SHALL BE EXCLUSIVE AND THERE IS NO OTHER WARRANTY OF LIABILITY, EXPRESS OR IMPLIED ARISING BY LAW OR OTHERWISE AND WHETHER OR NOT OCCASIONED BY SELLER'S NEGLIGENCE. THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. THE ENTIRE CONTRACT IS EMBODIED IN THIS WRITING AND THIS CONTRACT CONSTITUTES THE FINAL EXPRESSION OF THE PARTIES AGREEMENT, AND IT IS A COMPLETE AND EXCLUSIVE STATEMENT OF THE TERMS OF THAT AGREEMENT.

NOTICE: Some states do not allow the exclusion or limitation of incidental or consequential damages and some states do not allow limitation on how long an implied warranty lasts. Therefore, some of the above limitations may not apply to you.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

Ranger®

**“Still Built One
At A Time!”**



WOOD MANUFACTURING CO., INC.

P.O. Box 179, Flippin, AR 72634

Phone 501-453-2222