

OPERATION & MAINTENANCE MANUAL

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The description and specifications contained herein were in effect at the time this manual was approved for printing. Mercury Marine, whose policy is one of continued improvement, reserves the right to discontinue models at any time, to change specifications, designs, methods, or procedures without notice and without incurring obligation.

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GENERAL INFORMATION

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BOATER'S RESPONSIBILITIES

The operator (driver) is responsible for the correct and safe operation of the boat and safety of its occupants and general public. It is strongly recommended that each operator (driver) read and understand this entire manual before operating the outboard.

Be sure at least one additional person on board is instructed in the basics of starting and operating the outboard and boat handling in case the driver is unable to operate the boat.

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BEFORE OPERATING YOUR OUTBOARD

Read this manual carefully. Learn how to operate your outboard properly. If you have any questions, contact your dealer.

Safety and operating information that is practiced along with using good common sense can help prevent personal injury and product damage.

This manual as well as safety labels posted on the outboard use the following safety alerts to draw your attention to special safety instructions that should be followed.

⚠ DANGER

DANGER – Immediate hazards which **WILL** result in severe personal injury or death.

⚠ WARNING

WARNING – Hazards or unsafe practices which **COULD** result in severe personal injury or death.

⚠ CAUTION

CAUTION – Hazards or unsafe practices which could result in minor injury or product or property damage.

GENERAL INFORMATION

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U.S. COAST GUARD CAPACITY

MAXIMUM HORSEPOWER XXX

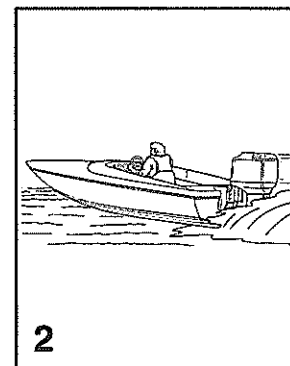
MAXIMUM PERSON

CAPACITY (POUNDS) XXX

MAXIMUM WEIGHT

CAPACITY XXX

1



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BOAT HORSEPOWER CAPACITY

- 1 Do not overpower or overload your boat. Most boats will carry a required capacity plate indicating the maximum acceptable power and load as determined by the manufacturer following certain federal guidelines. If in doubt, contact your dealer or the boat manufacturer.

⚠ WARNING

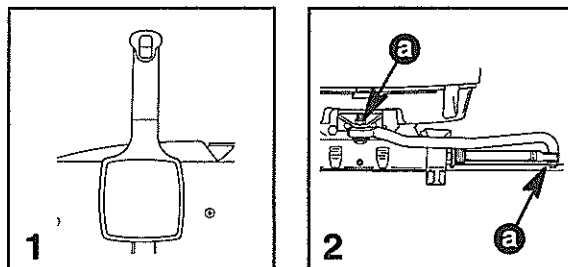
Using an outboard that exceeds the maximum horsepower limit of a boat can: 1. cause loss of boat control 2. place too much weight at the transom altering the designed flotation characteristics of the boat or 3. cause the boat to break apart particularly around the transom area. Overpowering a boat can result in serious injury, death, or boat damage.

HIGH-SPEED AND HIGH-PERFORMANCE BOAT OPERATION

- 2 If your outboard is to be used on a high-speed or high-performance boat with which you are unfamiliar, we recommend that you never operate it at its high speed capability without first requesting an initial orientation and familiarization demonstration ride with your dealer or an operator experienced with your boat/outboard combination. For additional information, obtain a copy of our "Hi-Performance Boat Operation" booklet (Part Number 90-86168) from your dealer, distributor, or Mercury Marine.

GENERAL INFORMATION

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OUTBOARD REMOTE CONTROL MODELS

- 1 The remote control connected to your outboard must be equipped with a "start-in-neutral" only protection device. This prevents the engine from starting when the shift is actuated in any position other than neutral.

⚠ WARNING

Avoid serious injury or death from a sudden unexpected acceleration when starting your engine. The design of this outboard requires that the remote control used with it must have a built in "start-in-neutral" only protection device.

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REMOTE STEERING NOTICE

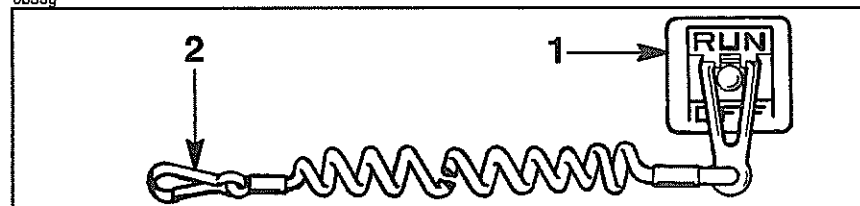
- 2 The steering link rod that connects the steering cable to the engine must be fastened utilizing self-locking nuts (a). These self-locking nuts must never be replaced with common nuts (non locking) as they will work loose and vibrate off, freeing the link rod to disengage.

⚠ WARNING

Disengagement of a steering link rod can result in the boat taking a full, sudden, sharp turn. This potentially violent action can cause occupants to be thrown overboard exposing them to serious injury or death.

GENERAL INFORMATION

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LANYARD STOP SWITCH

- 1 Tiller handle models and some remote controls are equipped with a lanyard stop switch. A lanyard stop switch can also be installed as an accessory. The purpose of this switch is to turn off the engine ignition whenever the operator (when attached to the lanyard) moves far enough away from the operator's position to activate the switch.
- 2 The lanyard is a cord usually between 4 and 5 feet (1220 and 1524 mm) in length when stretched out with an element on one end made to be inserted into the switch and a metal snap on the other end for attaching to the operator. It is coiled to make its at-rest condition as short as possible so as to minimize the likelihood of lanyard entanglement with nearby objects. It is made as long as it is in its stretched condition to minimize the likelihood of accidental activation should the operator choose to move around in an area close to the normal operator's position. If for any reason it is desired to have a shorter functional lanyard, this may be accomplished by using up length in the way the lanyard and clip are attached to the operator (such as wrapping the lanyard around the operator's wrist or leg) or by tying a simple knot in the lanyard.

Read the Safety Warning on the next two pages before electing to install, use, or not to use such a switch.

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GENERAL INFORMATION

LANYARD STOP SWITCH (CONTINUED)

WARNING

The following advantages and disadvantages of a lanyard stop switch should be considered before electing to use, or not to use, such a switch.

ADVANTAGES: The purpose of a lanyard stop switch is to stop the engine ignition whenever the operator (when attached to the lanyard) moves far enough away from the operator's position to activate the switch. This would occur if the operator falls or moves within the boat a sufficient distance from the operator's position. This type of accident is most likely in certain types of boats such as low-sided bass boats, high-performance boats and light, sensitive-handling fishing boats operated by hand-tiller. It is also likely as a result of poor operating practices such as sitting on the back of the seat at planing speeds, standing at planing speeds, operating at high speeds in shallow or obstacle-infested waters, releasing your grip on a steering wheel that is pulling in one direction, drinking and driving, or daring, high-speed boat maneuvers.

DISADVANTAGES: Inadvertent activation of the switch is also a possibility. This could cause any, or all, of the following potentially hazardous situations:

1. Loss of balance and falling forward of unstable boat passengers – a particular concern in bow rider type boats.
2. Loss of power and directional control in heavy seas, strong current or high winds.
3. Loss of control when docking.

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GENERAL INFORMATION

LANYARD STOP SWITCH (CONTINUED)

WARNING

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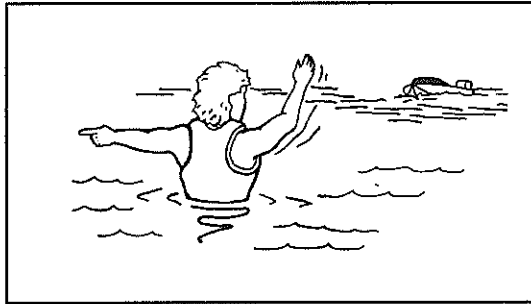
While activation of the lanyard stop switch will result in immediate power shut-down, a boat can continue to coast for some distance depending upon the velocity and degree of any turn at shut-down. However, the boat will not complete a full circle. While the boat is coasting, it can cause injury to anyone in the boat's path as seriously as the boat would when under power.

As we cannot possibly know of and advise the boating public of all conceivable boat/motor types and/or poor operating practices, the final decision of whether to use a lanyard stop switch rests with you, the owner/driver.

We strongly recommend that other occupants be instructed on proper starting and operating procedures should they be required to operate the outboard and boat in an emergency.

GENERAL INFORMATION

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PROTECTING PEOPLE IN THE WATER

While You are Cruising

It is very difficult for a person standing or floating in the water to take quick action to avoid a boat heading in his/her direction even at slow speed.

Always slow down and exercise extreme caution any time you are boating in an area where there might be people in the water.

Whenever a boat is moving (coasting) and the outboard gear shift is in neutral position, there is sufficient force by the water on the propeller to cause the propeller to rotate. This neutral propeller rotation can cause serious injury.

While Boat is Stationary

Shift outboard into neutral and shut off the engine before allowing people to swim or be in the water near your boat.

⚠ WARNING

Stop your engine immediately whenever anyone in the water is near your boat. Serious injury to the person in the water is likely if contacted by a rotating propeller, a moving boat, a moving gear case, or any solid device rigidly attached to a moving boat or gear case.

GENERAL INFORMATION

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SELECTING ACCESSORIES FOR YOUR OUTBOARD

Genuine Mercury Marine Quicksilver Accessories have been specifically designed and tested for your outboard.

Mercury Marine Quicksilver accessories are available from Mercury Marine dealers.

Some accessories not manufactured or sold by Mercury Marine are not designed to be safely used with your outboard or outboard operating system. Acquire and read the installation, operation, and maintenance manuals for all your selected accessories.

⚠ WARNING

Check with your dealer before installation of accessories. The misuse of acceptable accessories or the use of unacceptable accessories can result in serious injury, death, or product failure.

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SAFE BOATING SUGGESTIONS

In order to safely enjoy the waterways, familiarize yourself with local and other governmental boating regulations and restrictions, and consider the following suggestions.

Use flotation devices. Have an approved personal flotation device of suitable size for each person aboard (it is the law) and have it readily accessible.

Do not overload your boat. Most boats are rated and certified for maximum load (weight) capacities (refer to your boat capacity plate). If in doubt, contact your dealer or the boats manufacturer.

Perform safety checks and required maintenance. Follow a regular schedule and ensure that all repairs are properly made.

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GENERAL INFORMATION

SAFE BOATING SUGGESTIONS (CONTINUED)

Know and obey all nautical rules and laws of the waterways. Boat operators should complete a boating safety course. Courses are offered in the U.S.A. by (1) The U.S. Coast Guard Auxiliary, (2) The Power Squadron, (3) The Red Cross and (4) your state boating law enforcement agency. Inquiries may be made to the Boating Hotline, 1-800-368-5647 or the Boat U.S. Foundation information number 1-800-336-BOAT

Make sure everyone in the boat is properly seated. Don't allow anyone to sit or ride on any part of the boat that was not intended for such use. This includes backs of seats, gunwales, transom, bow, decks, raised fishing seats, any rotating fishing seat; anywhere that sudden unexpected acceleration, sudden stopping, unexpected loss of boat control or sudden boat movement could cause a person to be thrown overboard or into the boat.

Never be under the influence of alcohol or drugs while boating (it is the law). They impair your judgment and greatly reduce your ability to react quickly.

Prepare other boat operators. Instruct at least one person on board in the basics of starting and operating the jet outboard and boat handling in case the driver becomes disabled or falls overboard.

Passenger boarding. Stop the engine whenever passengers are boarding, unloading or are near the back (stern) of the boat. Just shifting the outboard into neutral is not sufficient.

Be alert. The operator of the boat is responsible by law to "maintain a proper lookout by sight (and hearing)." The operator must have an unobstructed view particularly to the front. No passengers, load, or fishing seats should block the operators view when operating the boat above idle speed.

Never drive your boat directly behind a water skier in case the skier falls. As an example, your boat traveling at 25 miles per hour (40 km/hr) in 5 seconds will overtake a fallen skier who was 200 feet (61m) in front of you.

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GENERAL INFORMATION

SAFE BOATING SUGGESTIONS (CONTINUED)

Watch fallen skiers. When using your boat for water skiing or similar activities, always keep a fallen or down skier on the operator's side of the boat while returning to attend the skier. The operator should always have the down skier in sight and never back up to the skier or anyone in the water.

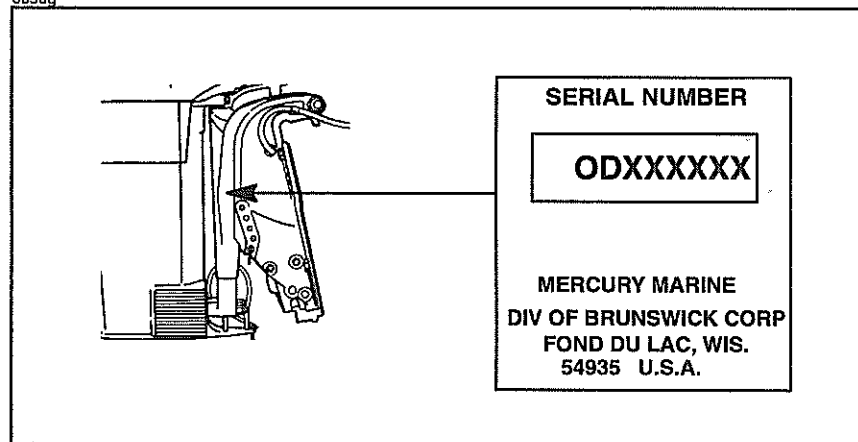
Report accidents. Boat operators are required by law to file a Boating Accident Report with their state boating law enforcement agency when their boat is involved in certain boating accidents. A boating accident must be reported if (1) there is loss of life or probable loss of life, (2) there is personal injury requiring medical treatment beyond first aid, (3) there is damage to boats or other property where the damage value exceeds \$500.00 or (4) there is complete loss of the boat. Seek further assistance from local law enforcement.

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RECORDING SERIAL NUMBER

It is important to record this number for future reference. The serial number is located on the outboard as shown.

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GENERAL INFORMATION

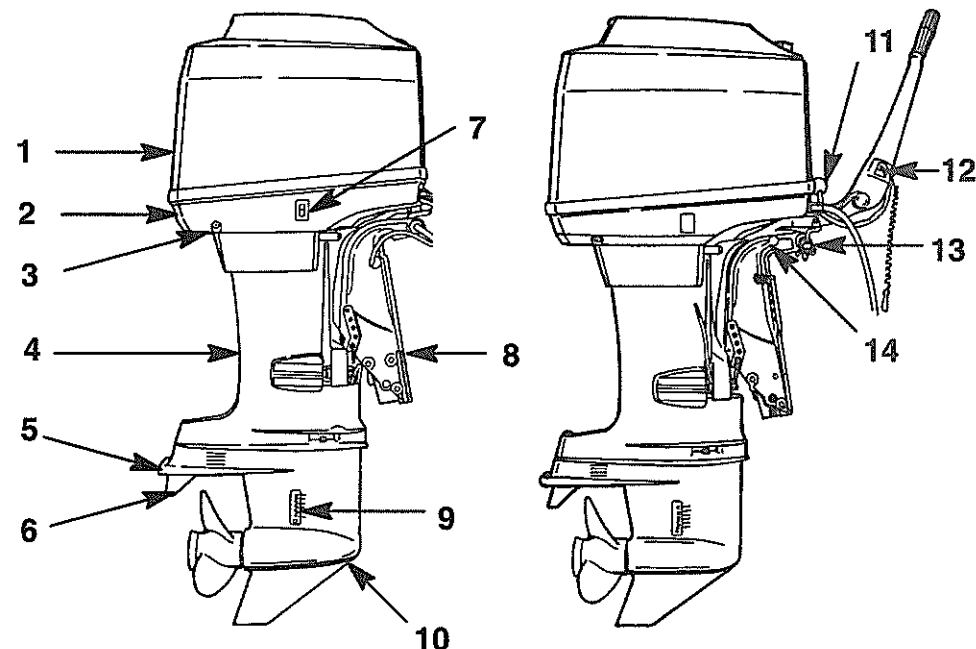
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SPECIFICATIONS

Model	40
Horsepower	40
Kilowatts	29.8
Full Throttle RPM Range	5000-5500 RPM
Idle Speed in Forward Gear	600-700 RPM
Number of Cylinders	4
Piston Displacement	44 cu.in. (721cc)
Cylinder Bore	2.562 in. (65mm)
Piston Stroke	2.125 in. (54mm)
Recommended Spark Plug	NGK BUHW-2
Gear Ratio	2:1
Recommended Gasoline	Refer to Fuel Section
Recommended Oil	Refer to Fuel Section
Gear Case Lubricant Capacity	12.5 fl. oz. (370 ml)
Battery Rating	465 Marine Cranking Amps (MCA) or 350 Cold Cranking Amps (CCA)

GENERAL INFORMATION

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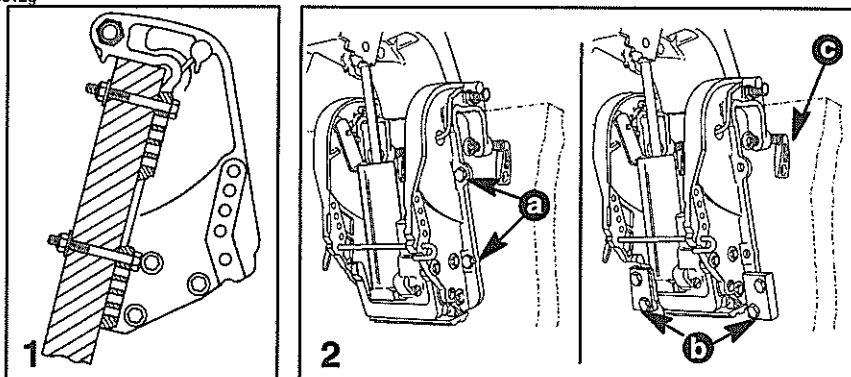
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COMPONENT IDENTIFICATION

- | | |
|--|---|
| 1. Top Cowl | 8. Transom Brackets |
| 2. Bottom Cowl | 9. Cooling Water Intake |
| 3. Water Pump Indicator Hole | 10. Gear Case |
| 4. Drive Shaft Housing | 11. Shift Handle |
| 5. Anti-Ventilation Plate | 12. Lanyard Stop Switch |
| 6. Trim Tab | 13. Steering Friction Adjustment Knob |
| 7. Auxiliary Tilt Switch (Power Trim Models) | 14. Tilt/Lock Lever (Models Without Power Trim) |

INSTALLATION

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INSTALLING OUTBOARD

⚠ WARNING

Before operation, the outboard must be correctly installed with the required mounting hardware as shown. Failure to correctly fasten outboard could result in outboard ejecting off boat transom causing serious injury, death, or property damage.

We strongly recommend that your dealer install your outboard and related accessories to ensure proper installation and good performance. If you install the outboard yourself, follow instructions in the outboard installation manual which is provided with the outboard.

Models Without Transom Bracket Clamp Screws

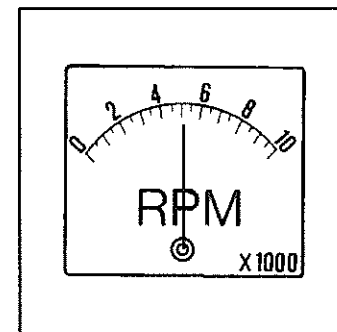
- 1 The outboard must be secured to the transom with the four 1/2 inch diameter mounting bolts and locknuts (provided). Install two bolts thru the upper set of holes and two bolts thru the lower set of holes.

Models With Transom Bracket Clamp Screws

- 2 The outboard must be secured to the transom one of two ways. Secure with four 1/2 inch diameter mounting bolts (a) and locknuts (provided), or with two transom bracket retainers (b) and tightening of the clamp screws (c).

INSTALLATION

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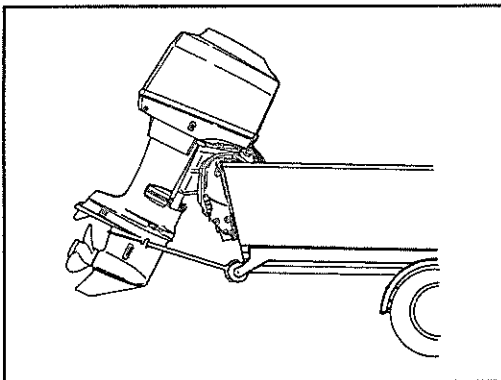
PROPELLER SELECTION

For best all around performance from your outboard/boat combination, select a propeller that allows the engine to operate in the upper half of the recommended full throttle RPM range with the boat normally loaded (refer to Specifications). This RPM range allows for better acceleration while maintaining maximum boat speed.

If changing conditions cause the RPM to drop below the recommended range (such as warmer, more humid weather, operation at higher elevations, increased boat load, or a dirty boat bottom/gear case) a propeller change or cleaning may be required to maintain performance and ensure the outboards durability.

Check full-throttle RPM using an accurate tachometer with the engine trimmed out to a balanced-steering condition (steering effort equal in both directions) without causing the propeller to "break loose."

TRANSPORTING



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TRAILERING BOAT/OUTBOARD

Trailer your boat with the outboard tilted down (vertical operating position).

If additional ground clearance is required, the outboard should be tilted up using an outboard support bar. Additional clearance may be required for railroad crossings, driveways, and trailer bouncing.

IMPORTANT: Do not rely on the power trim/tilt system or tilt support lever to maintain proper ground clearance for trailering. The outboard tilt support lever is not intended to support the outboard for trailering.

Shift the outboard to forward gear. This prevents the propeller from spinning freely.

FUEL & OIL

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GASOLINE RECOMMENDATIONS

United States and Canada

Use a major brand of automotive unleaded gasoline with a minimum posted octane rating of 87. Mid-grade automotive gasolines that contain fuel injector cleaner are preferred for added internal engine cleanliness. Leaded gasoline is not recommended.

International

Use a major brand of automotive unleaded gasoline with a minimum posted RON of 92. Mid-grade automotive gasolines that contain fuel injector cleaner are preferred for added internal engine cleanliness. Leaded gasoline is acceptable in areas where unleaded gasoline is not available. However, exhaust passageway corrosion may occur due to the accumulation of exhausted lead particles.

Alcohol in Gasoline

We do not recommend the use of gasoline which contains alcohol because of the possible adverse effect the alcohol may have on the fuel system. In general, if only gasoline containing alcohol is available, it must not contain more than 10% ethanol or 5% methanol, and the addition of a Quicksilver Water Separating Fuel Filter is recommended.

If gasoline containing alcohol is used or if you suspect the presence of alcohol in your gasoline, increase your inspection of the fuel system, visually checking for fuel leaks or abnormalities.

Gasoline containing alcohol may cause the following problems to your outboard and fuel system:

- Corrosion of metal parts.
- Deterioration of elastomers and plastic parts.
- Wear and damage of internal engine parts.
- Starting and operating difficulties.
- Vapor lock or fuel starvation.

Some of these adverse effects are due to the tendency of gasoline containing alcohol to absorb moisture from the air, resulting in a phase of water and alcohol which separates from the gasoline in the fuel tank.

The adverse effects of alcohol are more severe with methanol and are worse with increasing content of alcohol.

FUEL & OIL

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OIL RECOMMENDATION

Use Quicksilver NMMA Certified TC-W3 or TC-WII 2-Cycle Outboard Oil.

- Quicksilver Certified TC-W3 Outboard Oil is a higher grade oil that provides increased lubrication and extra resistance to carbon buildup when used with good or varying grades of gasoline.
- Quicksilver Certified TC-WII Outboard Oil is an industry-leading oil that provides superior outboard lubrication and resistance to carbon buildup when used with good grades of gasoline.

Periodically consult with your dealer to get the latest gasoline and oil recommendations. If Quicksilver 2-Cycle Outboard Oil is not available, substitute a 2-Cycle outboard manufacturers oil that is NMMA Certified TC-W3 or TC-WII, or another brand of 2-Cycle outboard oil that is NMMA Certified TC-W3 or TC-WII. The use of an inferior 2-Cycle outboard oil can reduce engine durability. Damage from use of inferior oil may not be covered under the limited warranty.

FUEL & OIL

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NEW ENGINE GASOLINE/OIL BREAK-IN MIXTURE

Models With Oil Injection

Use a 50:1 (2%) gasoline/oil mixture in your fuel tank for the first 10 gallons (38 Liters) of fuel during the break-in period (refer to Engine Break-in Procedure in the Operation Section). This mixture combined with oil from the oil injection system will supply the required lubrication. After the 10 gallons of break-in mixture have been used, it is no longer necessary to add oil with the gasoline.

Note : At the end of the break-in period, visually check to see if the oil level in the oil injection tank has dropped. Oil usage indicates the oil injection system is functioning correctly.

Mixing Ratio Chart For New Engine Break-in

RATIO	GASOLINE REQUIREMENTS	OIL REQUIREMENTS
50:1	1 Gallon (3.8 Liters)	2.6 oz. (.079 liters)
50:1	3 Gallons (11.5 Liters)	8 oz. (.236 Liters)
50:1	6 Gallons (23 Liters)	16 oz. (.473 Liters)

Models Without Oil Injection

Use a 25:1 (4%) gasoline/oil mixture for the first 10 gallons of fuel during the break-in period (refer to Engine Break-in Procedure in the Operation Section).

Mixing Ratio Chart For New Engine Break-in

RATIO	GASOLINE REQUIREMENTS	OIL REQUIREMENTS
25:1	1 Gallon (3.8 Liters)	5 oz. (.148 liters)
25:1	3 Gallons (11.5 Liters)	16 oz. (.473 Liters)
25:1	6 Gallons (23 Liters)	32 oz. (.946 Liters)

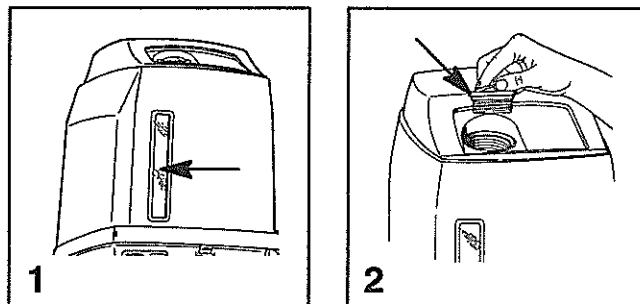
After the break-in fuel mixture is used up, use a 50:1 (2%) gasoline/oil mixture. Follow the table below for mixing ratios.

Mixing Ratio Chart After Engine Break-in

RATIO	GASOLINE REQUIREMENTS	OIL REQUIREMENTS
50:1	1 Gallon (3.8 Liters)	2.6 oz. (.079 liters)
50:1	3 Gallons (11.5 Liters)	8 oz. (.236 Liters)
50:1	6 Gallons (23 Liters)	16 oz. (.473 Liters)

FUEL & OIL

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FILLING OIL INJECTION SYSTEM

- 1 Check oil level using the sight gauge in front of the outboard.
- 2 Remove the fill cap and fill tank with oil. The oil tank capacity is 120 fl. oz. (3.5 liters).

0e8

FILLING FUEL TANK

⚠ WARNING

Avoid serious injury or death from a gasoline fire or explosion. Always stop the engine and DO NOT smoke or allow open flames or sparks in the area while filling fuel tanks.

Fill fuel tanks outdoors away from heat, sparks, and open flames.

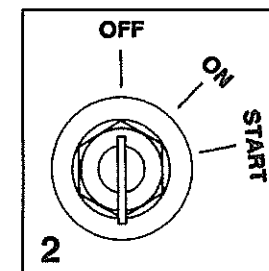
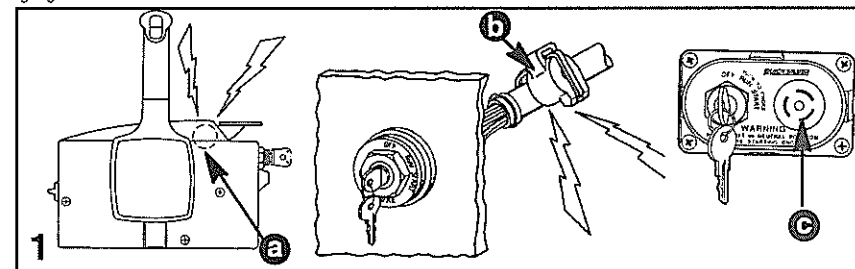
Remove portable fuel tanks from boat to refill them.

Always stop engine before refilling tanks.

Do not overfill the fuel tanks. Fuel will expand in volume as its temperature rises and can leak under pressure.

FEATURES & CONTROLS

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WARNING SYSTEM – ELECTRIC START MODELS

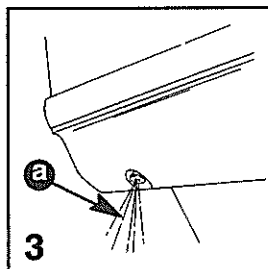
- 1 The outboard warning system incorporates a warning horn inside the boat. The warning horn on remote control operated models may be located (a) inside the remote control or (b) connected to the key switch under the dash. On tiller handle models the warning horn is located on the remote key switch panel (c).

The system is designed for the warning horn to emit either a continuous beep or intermittent short beeps. This will alert the operator and help identify the following listed problems.

- **The warning horn sounds continuously**
The problem is engine overheat. See explanation following.
 - **The warning horn sounds intermittent short beeps.**
The problem is low oil level in the oil injection system. See explanation following.
- 2 When the ignition key is initially turned on, the warning horn will sound (beep, beep) for a moment as a test to tell you the system is working. Failure of this test indicates a problem. Have the outboard checked by your dealer.

FEATURES & CONTROLS

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WARNING SYSTEM – ELECTRIC START MODELS

The Warning Horn Sounds Continuously

Problem – Engine overheat. The warning system is activated when the engine temperature is too hot.

- 3 If the engine overheats, immediately reduce throttle speed to idle. Shift outboard into neutral and check for a steady stream of water (a) coming out of the water pump indicator hole.

If no water is coming out of the water pump indicator hole (a) or flow is intermittent, stop engine and check cooling water intake holes for obstruction. If no obstruction is found, this may indicate a blockage in the cooling system or a water pump problem. Have the outboard checked by your dealer. Operating the engine while overheated will cause engine damage. See the following note.

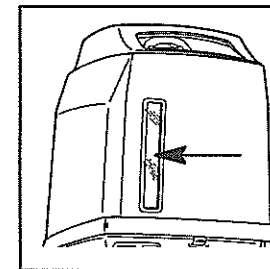
If a steady stream of water is coming out of the water pump indicator hole (a), and the warning horn continues to sound, there still may be insufficient cooling water or an engine problem. Stop engine and have it checked by your dealer. Operating the engine while overheated will cause engine damage. See the following note.

Note : If you are in a stranded situation, stopping the engine and allowing it to cool back down will usually allow some additional low speed (idle) running time before the engine starts to overheat again.

The overheat problem must be corrected before you can resume normal operation.

FEATURES & CONTROLS

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WARNING SYSTEM – ELECTRIC START MODELS

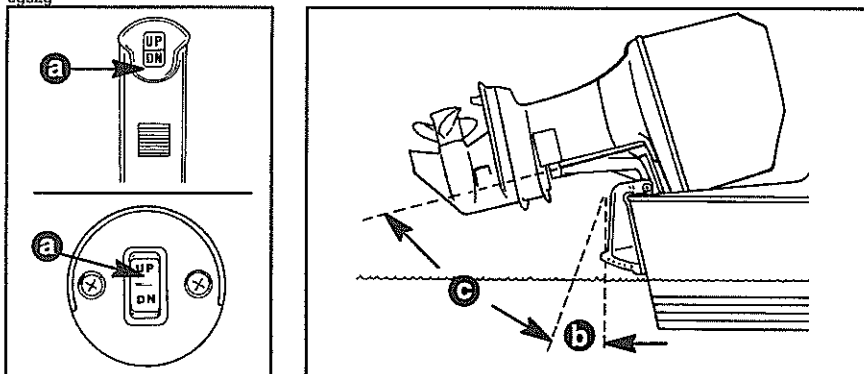
The Warning Horn Sounds Intermittent Short Beeps

Problem – Low oil level in the oil injection system. You still have an oil reserve remaining for 30 minutes of full speed operation. Refer to Fuel Section for refilling instructions.

The engine has to be shut off to reset the warning system.

FEATURES & CONTROLS

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og21

POWER TRIM AND TILT (IF EQUIPPED)

Your outboard has a trim/tilt control called "Power Trim." This enables the operator to easily adjust the position of the outboard by pressing the trim switch (a). Moving the outboard in closer to the boat transom is called trimming "in" or "down." Moving the outboard further away from the boat transom is called trimming "out" or "up." The term "trim" generally refers to the adjustment of the outboard within the first 20° range of travel (b). This is the range used while operating your boat on plane. The term "tilt" is generally used when referring to adjusting the outboard further up out of the water (c). With the engine turned off the outboard can be tilted out of the water. At low idle speed, the outboard can also be tilted up past the trim range to permit, for example, shallow water operation.

Power Trim Operation

With most boats, operating around the middle of the "trim" range will give satisfactory results. However, to take full advantage of the trimming capability there may be times when you choose to trim your outboard all the way in or out. Along with an improvement in some performance aspects comes a greater responsibility for the operator, and this is being aware of some potential control hazards.

(continued on next page)

FEATURES & CONTROLS

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POWER TRIM AND TILT (CONTINUED)

Power Trim Operation (continued)

The most significant control hazard is a pull or "torque" that can be felt on the steering wheel or tiller handle. This steering torque results from the outboard being trimmed so that the propeller shaft is not parallel to the water surface.

⚠ WARNING

Avoid possible serious injury or death. When the outboard is trimmed in or out beyond a neutral steering condition, a pull on the steering wheel or tiller handle in either direction may result. Failure to keep a continuous firm grip on the steering wheel or tiller handle when this condition exists can result in loss of boat control as the outboard can turn freely. The boat can now "spin out" or go into a very tight maximum turn which, if unexpected, can result in occupants being thrown within the boat or out of the boat.

Consider the following lists carefully.

Trimming In or Down Can:

1. Lower the bow.
2. Result in quicker planing off, especially with a heavy load or a stern heavy boat.
3. Generally improve the ride in choppy water.
4. Increase steering torque or pull to the right (with the normal right hand rotation propeller).
5. In excess, lower the bow of some boats to a point at which they begin to plow with their bow in the water while on plane. This can result in an unexpected turn in either direction called "bow steering" or "over steering" if any turn is attempted, or if a significant wave is encountered.

(continued on next page)

FEATURES & CONTROLS

og134_1

POWER TRIM AND TILT (CONTINUED)

Power Trim Operation (continued)

⚠ WARNING

Avoid possible serious injury or death. Adjust outboard to an intermediate trim position as soon as boat is on plane to avoid possible ejection due to boat spin-out. Do not attempt to turn boat when on plane if outboard is trimmed extremely in or down and there is a pull on the steering wheel or tiller handle.

6. In rare circumstances, the owner may decide to limit the trim in. This can be accomplished by using the tilt pin provided with the outboard and inserting it in whatever adjustment hole in the transom brackets is desired.

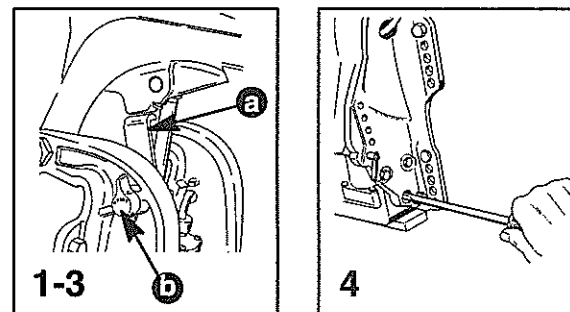
Trimming Out or Up can:

1. Lift the bow higher out of the water.
2. Generally increase top speed.
3. Increase clearance over submerged objects or a shallow bottom.
4. Increase steering torque or pull to the left at a normal installation height (with the normal right hand rotation propeller).
5. In excess, cause boat "porpoising" (bouncing) or propeller ventilation.
6. Cause engine overheating if any cooling water intake holes are above the water line.

(continued on next page)

FEATURES & CONTROLS

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POWER TRIM AND TILT (CONTINUED)

Tilting Operation

To tilt outboard, shut off the engine and press the trim/tilt switch or auxiliary tilt switch to the up position. The outboard will tilt up until the switch is released or it reaches its maximum tilt position.

- 1 Engage tilt support lever (a), by rotating knob (b) to bring the support lever upward.
- 2 Lower outboard to rest on the tilt support lever.
- 3 Disengage the tilt support lever, by raising the outboard off the support lever and rotating the lever down. Lower the outboard.

Manual Tilting

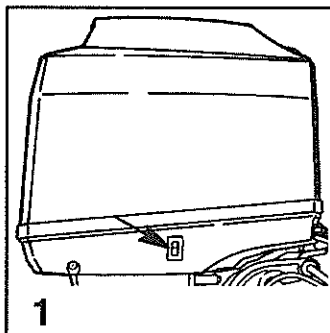
If the outboard cannot be tilted using the power trim/tilt switch, the outboard can be manually tilted.

- 4 Turn out the manual tilt release valve 3 turns (counterclockwise). This allows manual tilting of the outboard. Tilt the outboard to the desired position and tighten the manual tilt release valve.

Note : The manual tilt release valve must be tightened before operating the outboard to prevent the outboard from tilting up during reverse operation.

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POWER TRIM AND TILT (CONTINUED)

Auxiliary Tilt Switch

- 1 This switch can be used to tilt the outboard up or down using the power trim system.

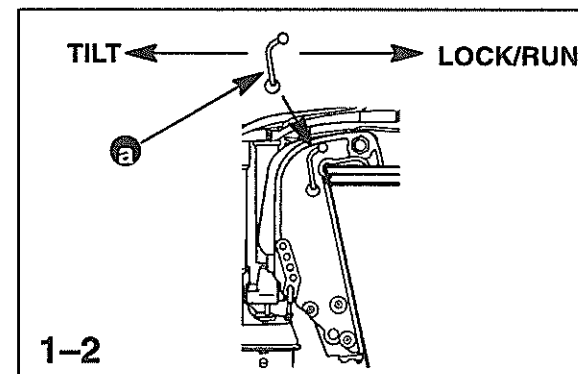
Shallow Water Operation

When operating your boat in shallow water, you can tilt the outboard beyond the maximum trim range to prevent hitting bottom.

1. Reduce engine speed below 2000 RPM.
2. Tilt outboard up. Make sure all the water intake holes stay submerged at all times.
3. Operate the engine at slow speed only. If engine speed exceeds 2000 RPM, the outboard will automatically return down to the maximum trim range.

FEATURES & CONTROLS

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MANUAL TILT SYSTEM

Models without power trim are equipped with a tilt assist system that allows the operator to easily tilt and lock the outboard at any tilt position from full down to full up.

This tilt system is designed to be adjusted when the outboard is idling in neutral or with the engine turned off.

- 1 Before operating, the outboard must be locked in its tilt position by moving the tilt control arm (a) to the LOCK/RUN position.

⚠ WARNING

Before operating, the outboard must be locked in its tilt position by moving the tilt control arm to LOCK/RUN position. Failure to lock the outboard in its tilt position could result in the outboard tilting up out of the water during deceleration or while operating in reverse, resulting in possible loss of boat control. Loss of boat control can result in serious injury, death, or boat damage.

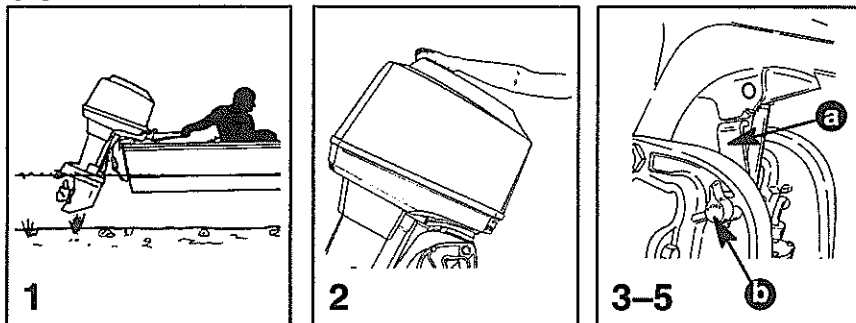
Basic Tilting Operation

- 2 Move tilt control arm (a) to the TILT position. Tilt outboard to desired position and lock in place by moving the tilt control arm back to the LOCK/RUN position.

(continued on next page)

FEATURES & CONTROLS

og88g



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MANUAL TILT SYSTEM (CONTINUED)

- 1 When operating your boat in shallow water, the outboard can be adjusted and locked at a higher tilt angle. Operate your outboard at slow speed while tilted up for shallow water operation. Keep the cooling water intake holes submerged in the water and continue to check for water discharge from the water pump indicator hole.

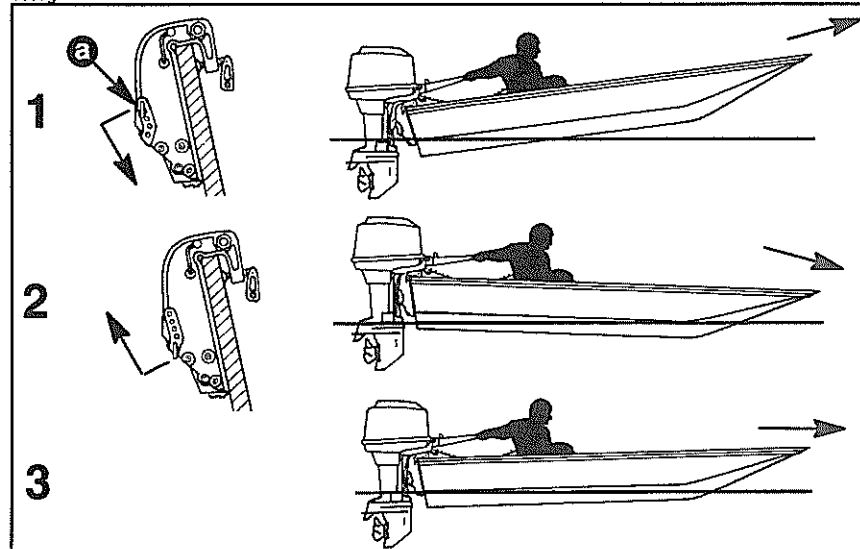
Tilting Outboard To Full Up Position

- 2 Stop the engine. Move the tilt control arm to TILT position. Take hold of the top cowl grip and raise outboard to full tilt up position. Lock the outboard in place by moving the tilt control arm to LOCK/RUN position.
- 3 Engage the tilt support lever (a), by rotating knob (b) to bring the support lever upward.
- 4 Lower outboard to rest on the tilt support lever.
- 5 Disengage the tilt support lever by raising the outboard off the support lever and rotating the lever down. Lower the outboard.
- 6 Move tilt control arm to LOCK/RUN position.

(continued on next page)

FEATURES & CONTROLS

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MANUAL TILT SYSTEM (CONTINUED)

Setting The Operating Angle Of Your Outboard

The vertical operating angle of your outboard is adjusted by changing the position of the tilt pin (a) in the five adjustment holes provided. The outboard should be locked against this tilt pin by setting the tilt control arm to the LOCK/RUN position. Proper adjustment allows the boat to run stable, achieve optimum performance, and minimize steering effort.

Note : Refer to lists on the following Page when adjusting the operating angle of your outboard.

The tilt pin should be adjusted so the outboard is positioned to run perpendicular to the water when the boat is running at full speed. This allows the boat to be driven parallel to the water.

Arrange passengers and load in the boat so the weight is distributed evenly.

- 1 Too Much Angle (Stern Down – Bow Up))
- 2 Not Enough Angle (Stern Up – Bow Down)
- 3 Angle Adjusted Properly (Bow Slightly Up)

(continued on next page)

FEATURES & CONTROLS

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MANUAL TILT SYSTEM (CONTINUED)

Setting The Operating Angle Of Your Outboard (Continued)

Consider the following lists carefully when adjusting the operating angle of your outboard.

Adjusting the outboard close to the boat transom can:

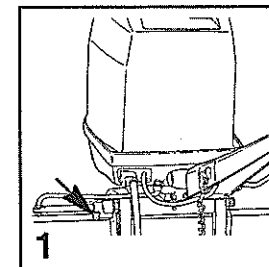
1. Lower the bow.
2. Result in quicker planing off, especially with a heavy load or a stern heavy boat.
3. Generally improve the ride in choppy water.
4. Increase steering torque or pull to the right (with the normal right hand rotation propeller).
5. In excess, lower the bow of some boats to a point at which they begin to plow with their bow in the water while on plane. This can result in an unexpected turn in either direction called "bow steering" or "over-steering" if any turn is attempted or if a significant wave is encountered.

Adjusting the outboard away from the boat transom can:

1. Lift the bow out of the water.
2. Generally increase top speed.
3. Increase clearance over submerged objects or a shallow bottom.
4. Increase steering torque or pull to the left at a normal installation height (with the normal right hand rotation propeller).
5. In excess, cause boat "porpoising" (bouncing) or propeller ventilation.

FEATURES & CONTROLS

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STEERING FRICTION ADJUSTMENT – TILLER HANDLE MODEL

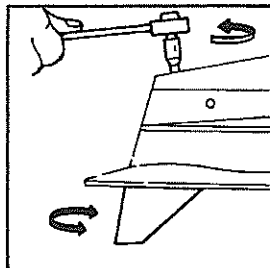
- 1 Steering Friction Adjustment Knob – Adjust this knob to achieve the desired steering friction (drag) on the tiller handle.

⚠ WARNING

Avoid possible serious injury or death from loss of boat control. Maintain sufficient steering friction to prevent the outboard from steering into a full turn if the tiller handle is released.

FEATURES & CONTROLS

og101g



og28

TRIM TAB ADJUSTMENT

Propeller steering torque will cause your boat to pull in one direction. This steering torque is a normal thing that results from your outboard not being trimmed so the propeller shaft is parallel to the water surface. The trim tab can help to compensate for this steering torque in many cases and can be adjusted within limits to reduce any unequal steering effort.

Note : Trim tab adjustment will have little effect reducing steering torque if the outboard is installed with the anti-ventilation plate approximately 2 inches (50mm) or more above the boat bottom.

Models Without Power Trim

Operate your boat at normal cruising speed trimmed to desired position by installing the "tilt pin" in the desired tilt pin hole. Turn your boat left and right and note the direction the boat turns more easily.

If adjustment is necessary, loosen trim tab bolt and make small adjustments at a time. If the boat turns more easily to the left, move the trailing edge of trim tab to the left. If the boat turns more easily to the right move the trailing edge of trim tab to the right. Retighten bolt and retest.

Models With Power Trim

Operate your boat at normal cruising speed, trimmed to desired position. Turn your boat left and right and note the direction the boat turns more easily.

If adjustment is necessary, loosen trim tab bolt and make small adjustments at a time. If the boat turns more easily to the left, move the trailing edge of trim tab to the left. If the boat turns more easily to the right move the trailing edge of trim tab to the right. Retighten bolt and retest.

OPERATION

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PRE-STARTING CHECK LIST

- ☐ Operator knows safe navigation, boating, and operating procedures.
- ☐ An approved personal flotation device of suitable size for each person aboard and readily accessible (it is the law).
- ☐ A ring type life buoy or buoyant cushion designed to be thrown to a person in the water.
- ☐ Know your boats maximum load capacity. Look at the boat capacity plate.
- ☐ Check fuel supply and oil level (oil injection models).
- ☐ Arrange passengers and load in the boat so the weight is distributed evenly and everyone is seated in a proper seat.
- ☐ Tell someone where you are going and when you expect to return.
- ☐ It is illegal to operate a boat while under the influence of alcohol or drugs.
- ☐ Know the waters and area you will be boating; tides, currents, sand bars, rocks, and other hazards.
- ☐ Make inspection checks listed in the Inspection and Maintenance Schedule. Refer to Maintenance Section.

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SPECIAL OPERATING INSTRUCTIONS

Operating in Freezing Temperatures

When using your outboard or having your outboard moored in freezing or near freezing temperature, keep the outboard tilted down at all times so the gear case is submerged. This prevents trapped water in gear case from freezing and causing possible damage to the water pump and other components.

If there is a chance of ice forming on the water, the outboard should be removed and drained completely of water. If ice should form at the water level inside the outboard drive shaft housing, it will block water flow to the engine causing possible damage.

(continued on next page)

OPERATION

SPECIAL OPERATING INSTRUCTIONS (CONTINUED)

Operating In Salt Water or Polluted Water

We recommend that you flush the internal water passages of your outboard with fresh water after each use in salt or polluted water. This will prevent a buildup of deposits from clogging the water passages. Refer to "Flushing The Cooling System" procedure in the Maintenance Section.

If you keep your boat moored in the water, always tilt the outboard so the gear case is completely out of water (except in freezing temperature) when not in use.

Wash down the outboard exterior and flush out the exhaust outlet of the propeller and gear case with fresh water after each use. Each month spray Quicksilver Corrosion Guard on the engine exterior, electrical components and other metal surfaces (do not spray on corrosion control anodes as this will reduce the effectiveness of the anodes).

Operating at High Elevations

Operating your outboard at an elevation higher than 2500 ft. (750 m) above sea level may require a carburetor jet change and/or different pitch propeller. Consult your dealer. This will reduce the normal performance loss experienced as a result of reduced oxygen in the air causing an overly rich fuel mixture.

IMPORTANT: To prevent serious damage to the engine caused by a lean fuel mixture, **DO NOT** operate your outboard (if the jets were changed for high elevation) at a lower elevation unless the jets are changed again to correspond to the new elevation.

OPERATION

ENGINE BREAK-IN PROCEDURE

CAUTION

Severe damage to the engine can result by not complying with the preceding Engine Break-in Procedure.

Models With Oil Injection

Use a 50:1 (2%) gasoline/oil mixture in your fuel tank for the first 10 gallons of fuel during the break-in period. Use of this mixture combined with oil from the oil injection system will supply adequate lubrication during engine break-in.

Models Without Oil Injection

Use a 25:1 (4%) gasoline/oil mixture in your fuel tank for the first 10 gallons of fuel during the break-in period.

All Models

Operate your outboard at varied throttle settings – not to exceed 1/2 throttle (2500-3500 RPM) during the first hour or five gallons of New Engine Gasoline/Oil Break-in Mixture.

During the second hour of operation, or the second five gallons of New Engine Gasoline/Oil Break-in Mixture, operate the outboard at varied throttle settings not to exceed 4500 RPM.

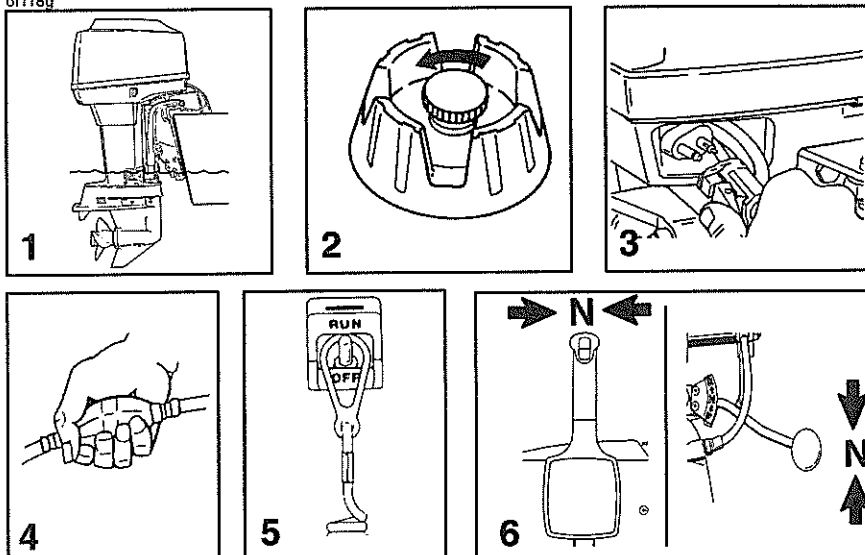
IMPORTANT: **DO NOT** operate the engine at full throttle until the second hour of break-in is completed. This includes full throttle acceleration, pulling water-skiers, or wide open throttle running.

After the first two hours of running, approximately ten gallons of fuel, full throttle operation may be obtained, but not sustained, for the remaining break-in fuel (approximately five gallons).

For the next five hours of operation, full throttle operation may, again, be attained, but strongly not recommended for sustained use (more than 5 minutes of continuous wide open throttle).

OPERATION

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STARTING THE ENGINE – ELECTRIC START MODELS

Before starting, read the Pre-Starting Check List, Special Operating Instructions, and Engine Break-in Procedure on the first three pages in the Operation Section.

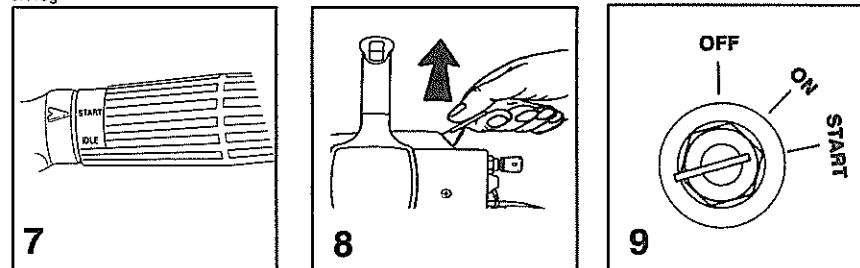
CAUTION

Never start or run your outboard (even momentarily) without water circulating through all the cooling water intake holes in the gear case to prevent damage to the water pump (running dry) or overheating of the engine.

- 1 Lower the outboard to the run position. Make sure all the cooling water intake holes are submerged.
- 2 Open fuel tank vent screw (in filler cap) on manual venting type tanks.
- 3 Connect the fuel line to the outboard.
- 4 Squeeze the fuel line primer bulb several times until it feels firm.
- 5 Set the lanyard stop switch to RUN position. Read the Lanyard Stop Switch safety explanation and Warning on Pages 7 thru 9.
- 6 Shift outboard to neutral (N) position.

OPERATION

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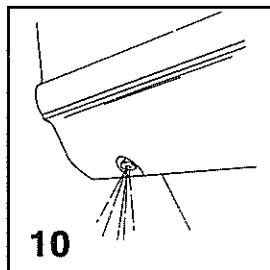
STARTING THE ENGINE – ELECTRIC START MODELS

- 7 Tiller Handle Models – Align the throttle grip pointer with START position.
- 8 Remote Control Models – If engine is cold, lift fast idle lever half-way between full up and full down position. Return lever down after engine is warmed up.
- 9 Turn ignition key to the ON position. If engine is cold, push in on the key and hold in for 6 seconds to prime the engine before cranking. Turn the key to START position and start the engine. If engine fails to start in ten seconds, wait 30 seconds and try again. If engine begins to stall, reprime (push key in) until engine is running smoothly.

Note : Starting Flooded Engine – Lift up the fast idle lever to the full up position. Without activating primer, crank engine for 10 seconds. Wait 30 seconds and repeat until engine starts.

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OPERATION



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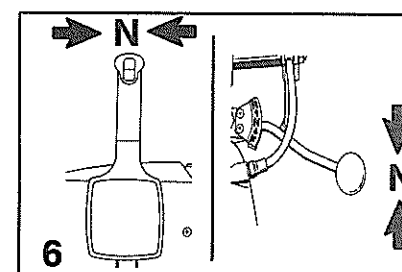
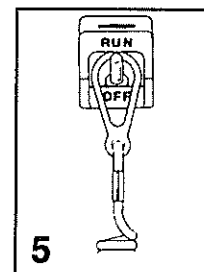
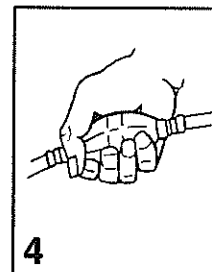
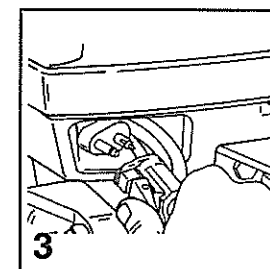
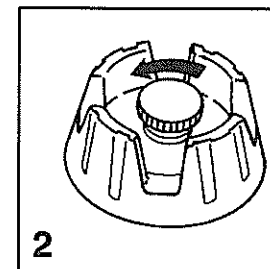
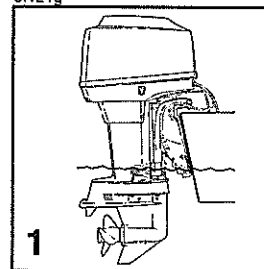
STARTING THE ENGINE – ELECTRIC START MODELS

10 Check for a steady stream of water flowing out of the water pump indicator hole.

IMPORTANT: If no water is coming out of the water pump indicator hole, stop engine and check cooling water intake holes for obstruction. No obstruction may indicate a water pump failure or blockage in the cooling system. These conditions will cause the engine to overheat. Have the outboard checked by your dealer. Operating the engine while overheated will cause engine damage.

OPERATION

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STARTING THE ENGINE – MANUAL START MODELS

Before starting, read the Pre-Starting Check List, Special Operating Instructions, and Engine Break-in Procedure on the first three pages in the Operation Section.

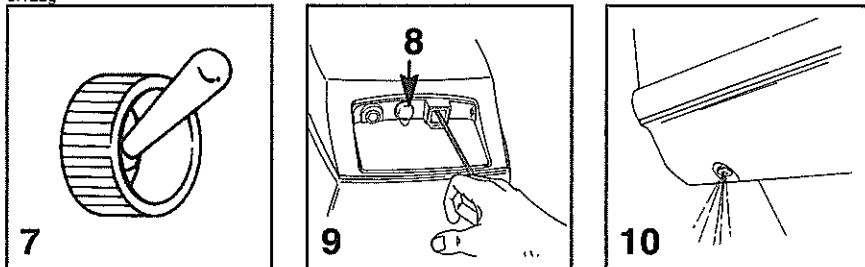
CAUTION

Never start or run your outboard (even momentarily) without water circulating through all the cooling water intake holes in the gear case to prevent damage to the water pump (running dry) or overheating of the engine.

- 1** Lower the outboard to the run position. Make sure all the cooling water intake holes are submerged.
- 2** Open fuel tank vent screw (in filler cap) on manual venting type tanks.
- 3** Connect the fuel line to the outboard.
- 4** Squeeze the fuel line primer bulb several times until it feels firm.
- 5** Set the lanyard stop switch to RUN position. Read the Lanyard Stop Switch safety explanation and Warning on Pages 7 thru 9.
- 6** Shift outboard to neutral (N) position.

OPERATION

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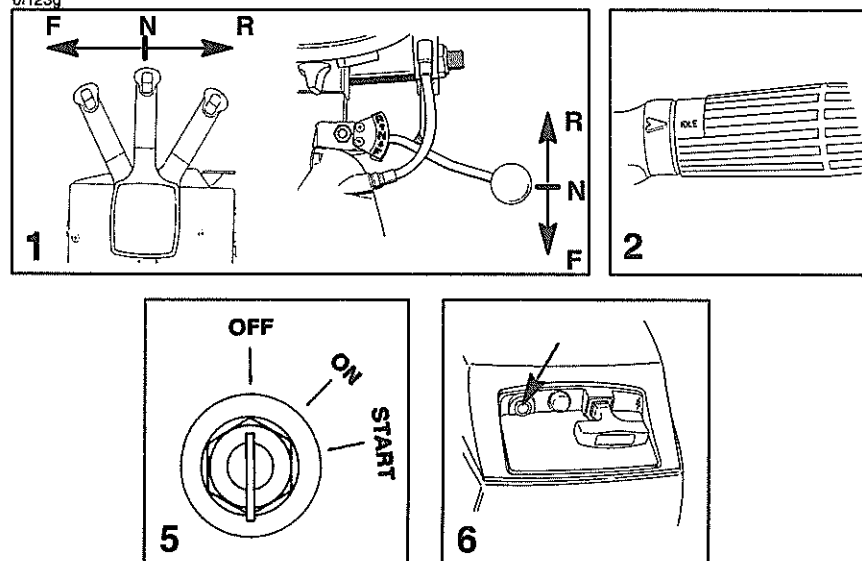
STARTING THE ENGINE – MANUAL START MODELS

- 7 Remote Control Models – Move ON/OFF switch to the ON position.
- 8 If engine is cold, push in the fuel primer bulb rapidly 4 to 6 times.
Note : For initial start of a new engine or first start after a prolonged storage, primer lines may have air in them. In this case push in the primer bulb several times until fluid can be felt and then the normal 4 to 6 rapid primes.
- 9 Pull the starter rope slowly until you feel the starter engage, then pull rapidly to crank the engine. Allow rope to return slowly. Repeat until engine starts. If engine begins to stall, reprime until engine is running smoothly.
- 10 Check for a steady stream of water flowing out of the water pump indicator hole.

IMPORTANT: If no water is coming out of the water pump indicator hole, stop engine and check cooling water intake holes for obstruction. No obstruction may indicate a water pump failure or blockage in the cooling system. These conditions will cause the engine to overheat. Have the outboard checked by your dealer. Operating the engine while overheated will cause engine damage.

OPERATION

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GEAR SHIFTING – ALL MODELS

- 1 Your outboard has three gear shift positions to provide operation: Forward (F), Neutral (out of gear) and Reverse (R).

IMPORTANT: Do not attempt to shift outboard into Reverse gear when the engine is not running. This could cause damage to the gear shift mechanism.

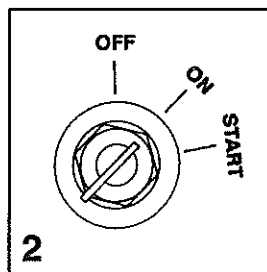
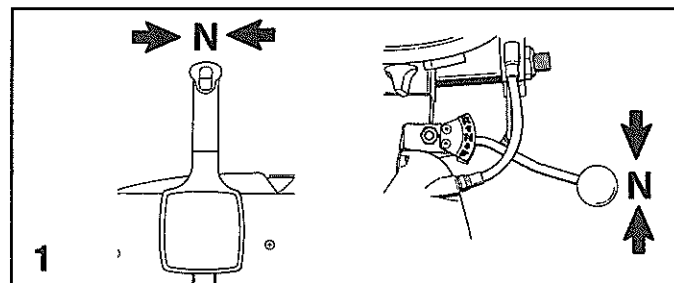
- 2 Tiller handle Models – Reduce throttle speed to IDLE position.
- 3 Always shift outboard into gear with a quick motion.
- 4 After shifting outboard into gear, advance the remote control lever or rotate the throttle grip (tiller handle models) further to increase speed.

STOPPING THE ENGINE – ALL MODELS

- 5 Remote Control Models – Reduce engine speed and shift outboard to neutral position. Turn ignition key to OFF position.
- 6 Tiller Handle Models – Reduce engine speed and shift outboard to neutral position. Push in the engine stop button or move the lanyard stop switch to the OFF position.

OPERATION

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EMERGENCY STARTING – ELECTRIC START MODELS

If the starter system fails, use the spare starter rope (provided) and follow procedure.

- 1 Shift outboard to neutral (N) position.

⚠ WARNING

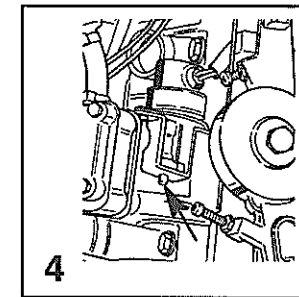
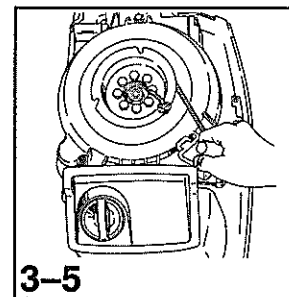
When using emergency starter rope to start engine, the start-in-gear protection provided by the remote control is inoperative. Make sure to set the outboard gear shift into neutral to prevent outboard from starting in gear. Sudden unexpected acceleration could result in serious injury or death.

- 2 Turn the ignition key to ON position.

(continued on next page)

OPERATION

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EMERGENCY STARTING – ELECTRIC START MODELS

⚠ WARNING

To prevent getting an electrical shock, DO NOT touch any ignition component, wiring, or spark plug wire when starting or running the engine.

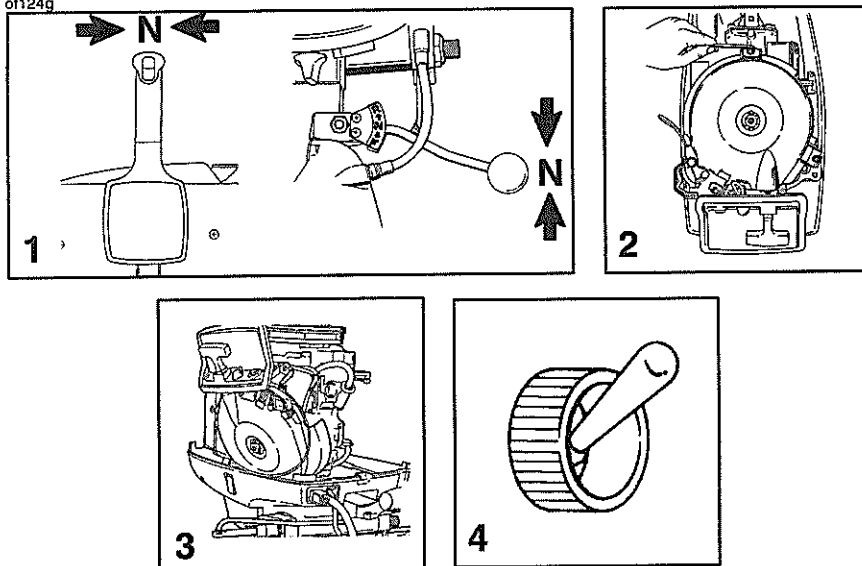
⚠ WARNING

The exposed moving flywheel can cause serious injury. Keep your hands, hair, clothing, tools, and other objects away from engine when starting or running the engine. Do not attempt to reinstall a flywheel cover, rewind starter assembly, or top cowl when engine is running.

- 3 Place the starter rope knot into the flywheel notch and wind the rope clockwise around the flywheel.
- 4 If engine is cold, push in the fuel primer button for 6 seconds.
- 5 Pull the starter rope to start the engine.

OPERATION

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EMERGENCY STARTING – MANUAL START MODELS

If the starter system fails, use the spare starter rope (provided) and follow procedure.

- 1 Shift outboard to neutral (N) position.

⚠ WARNING

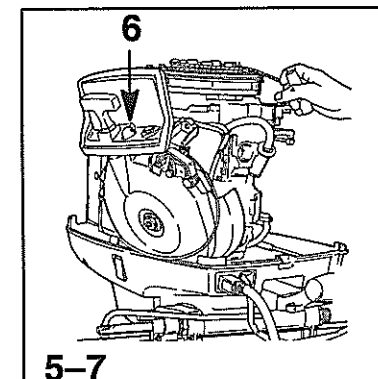
When using emergency starter rope to start engine, the start-in-gear protection provided by the remote control is inoperative. Make sure to set the outboard gear shift into neutral to prevent outboard from starting in gear. Sudden unexpected acceleration could result in serious injury or death.

- 2 Use an Allen wrench and remove the rewind starter assembly.
- 3 Place the rewind starter assembly in the bottom cowl as shown. Make sure the rewind starter will not interfere with the flywheel or any other moving parts.
- 4 Remote Control Models – Move ON/OFF switch to the ON position.

(continued on next page)

OPERATION

of125g



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EMERGENCY STARTING – MANUAL START MODELS

⚠ WARNING

To prevent getting an electrical shock, DO NOT touch any ignition component, wiring, or spark plug wire when starting or running the engine.

⚠ WARNING

The exposed moving flywheel can cause serious injury. Keep your hands, hair, clothing, tools, and other objects away from engine when starting or running the engine. Do not attempt to reinstall a flywheel cover, rewind starter assembly, or top cowl when engine is running.

- 5 Place the starter rope knot into the flywheel notch and wind the rope clockwise around the flywheel.
- 6 If engine is cold, push in the fuel primer button 4 to 6 times.
- 7 Pull the starter rope to start the engine.

MAINTENANCE

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OUTBOARD CARE

To keep your outboard in the best operating condition, it is important that your outboard receive the periodic inspections and maintenance listed in the Inspection and Maintenance Schedule. We urge you to have it maintained properly to ensure the safety of you and your passengers and retain its dependability.

There are some items that you can inspect and maintain yourself. However, to ensure proper maintenance, rely on your authorized outboard dealer to perform the maintenance service for your outboard.

Record maintenance performed in Maintenance Log at the back of this book. Save all maintenance work orders and receipts.

WARNING

Neglected inspection and maintenance service of your outboard or attempting to perform maintenance or repair on your outboard if you are not familiar with the correct service and safety procedures could cause personal injury, death, or product failure.

20 HOUR CHECK

After the first 20 hours of operation, have your dealer perform the inspection checks and maintenance requirements listed in the Inspection and Maintenance Schedule. This is recommended to ensure that your engine is adjusted and operating properly and to ensure your satisfaction. This 20 hour check will be at your expense, based on local rates.

SELECTING REPLACEMENT PARTS FOR YOUR OUTBOARD

We recommend using original Mercury Marine Quicksilver replacement parts.

WARNING

Using a replacement part that is inferior to the original part could result in personal injury, death, or product failure.

MAINTENANCE

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INSPECTION AND MAINTENANCE SCHEDULE

Before Each Use

1. Check that lanyard stop switch stops the engine.
2. Visually inspect the fuel system for deterioration or leaks.
3. Check outboard for tightness on transom.
4. Check steering system for binding or loose components.
5. Remote Control Models – Visually check steering link rod fasteners for proper tightness. (page 56)
6. Check propeller blades for damage.

After Each Use

1. Flush out the outboard cooling system if operating in salt or polluted water. (page 53)
2. Wash off all salt deposits and flush out the exhaust outlet of the propeller and gear case with fresh water if operating in salt water.

After First 20 Hours Of Use

1. Check engine fuel line filter for contaminants. (page 55)
2. Inspect and clean spark plugs. (page 60)
3. Adjust carburetors (if required).
4. Check engine timing setup.
5. Drain and replace gear case lubricant. (page 63)
6. Inspect battery. (page 60)
7. Check control cable adjustments.
8. Lubricate all lubrication points. (page 61)
9. Check tightness of bolts, nuts, and other fasteners.

MAINTENANCE

INSPECTION AND MAINTENANCE SCHEDULE (CONTINUED)

Every 50 Hours of Use or Once a Month

1. Check engine fuel filter for contaminants. (page 55)
2. Lubricate all lubrication points. (page 61)
3. Check level and condition of gear case lubricant. (page 63)
4. Inspect battery. (page 60)
5. Check corrosion control anodes. (page 57)
6. Check tightness of bolts, nuts, and other fasteners.

Every 100 Hours of Use or Once a Season

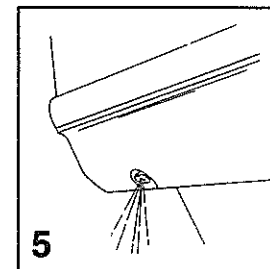
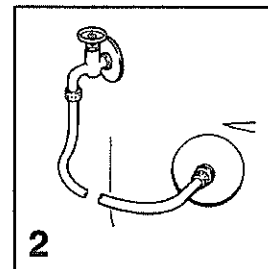
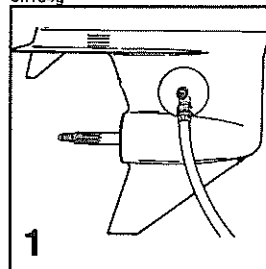
1. Inspect and clean spark plugs. (page 60)
2. Adjust carburetors (if required).
3. Check engine timing setup.
4. Drain and replace gear case lubricant. (page 63)
5. Lubricate splines on the drive shaft.
6. Check power trim fluid. (page 62)
7. Check control cable adjustments.
8. Remove engine deposits with Quicksilver Power Tune Engine Cleaner.
9. Replace water pump impeller (more often if overheating occurs or reduced water pressure is noted).

Before Periods of Storage

1. Refer to Storage procedure. (page 65)

MAINTENANCE

oh164g



oh30

FLUSHING THE COOLING SYSTEM

Flush the internal water passages of the outboard with fresh water after each use in salt, polluted, or muddy water. This will help prevent a buildup of deposits from clogging the internal water passages.

Use a Quicksilver accessory (or equivalent) flushing attachment.

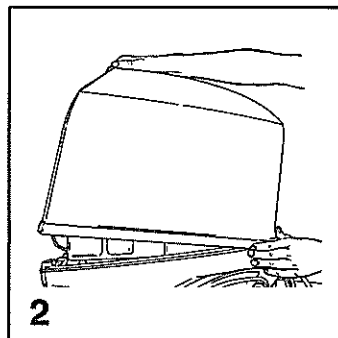
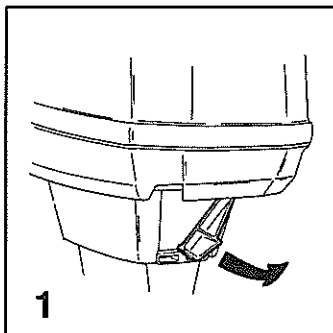
⚠ WARNING

To avoid possible injury when flushing, remove the propeller. Refer to Propeller Replacement.

- 1 Remove propeller (refer to Propeller Replacement). Install the flushing attachment so the rubber cups fit tightly over the cooling water intake holes.
- 2 Attach a water hose to the flushing attachment. Turn on the water and adjust the flow so water is leaking around the rubber cups to ensure the engine receives an adequate supply of cooling water.
- 3 Start the engine and run it at idle speed in neutral shift position.
- 4 Adjust water flow (if necessary) so excess water continues leaking out from around the rubber cups to ensure the engine is receiving an adequate supply of cooling water.
- 5 Check for a steady stream of water flowing out of the water pump indicator hole. Continue flushing the outboard for 3 to 5 minutes, carefully monitoring water supply at all times.
- 6 Stop the engine, turn off the water, and remove the flushing attachment. Reinstall the propeller.

MAINTENANCE

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oh5

TOP COWL REMOVAL AND INSTALLATION

Removal

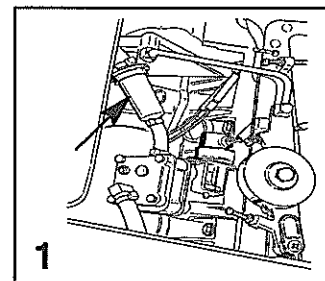
- 1 Unlock the rear latch by pushing lever down.
- 2 Lift rear of cowl and disengage front hook.

Installation

Engage the front hook and push cowl back over the cowl seal.
Push cowl down and move the rear latch lever up to lock.

MAINTENANCE

oh127g



oh113

FUEL SYSTEM

⚠ WARNING

Avoid serious injury or death from gasoline fire or explosion. Carefully follow all fuel system service instructions. Always stop the engine and DO NOT smoke or allow open flames or sparks in the area while servicing any part of the fuel system.

Before servicing any part of the fuel system, stop engine and disconnect the battery. Drain the fuel system completely. Use an approved container to collect and store fuel. Wipe up any spillage immediately. Material used to contain spillage must be disposed of in an approved receptacle. Any fuel system service must be performed in a well ventilated area. Inspect any completed service work for sign of fuel leakage.

Fuel Line Filter

- 1 Inspect the fuel line filter. If the filter appears to be contaminated, remove and replace.

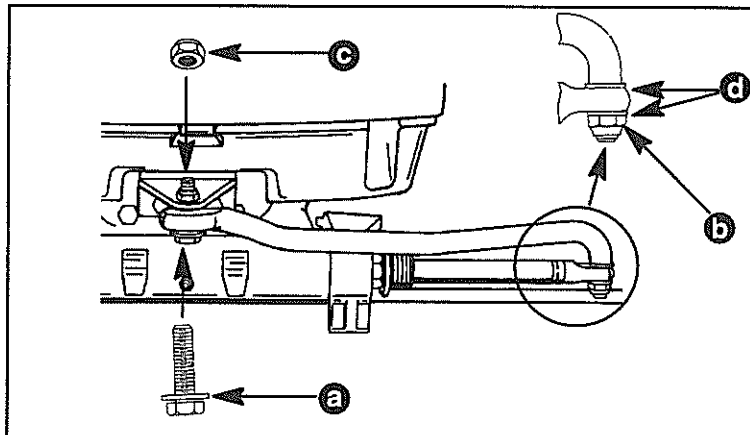
IMPORTANT: Visually inspect for fuel leakage from the filter connections by squeezing the primer bulb until firm, forcing fuel into the filter.

Fuel Line Inspection

Visually inspect the fuel line and primer bulb for cracks, swelling, leaks, hardness, or other signs of deterioration or damage. If any of these conditions is found, the fuel line or primer bulb must be replaced.

MAINTENANCE

oh128g



oh128

STEERING LINK ROD FASTENERS

IMPORTANT: The steering link rod that connects the steering cable to the engine must be fastened using special washer head bolt ("a" – Part Number 10-14000) and self locking nylon insert locknuts ("b" & "c" – Part Number 11-34863). These locknuts must never be replaced with common nuts (non locking) as they will work loose and vibrate off, freeing the link rod to disengage.

⚠ WARNING

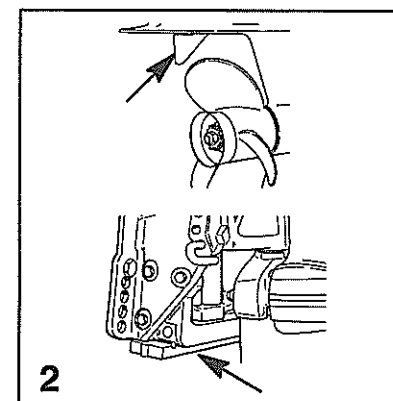
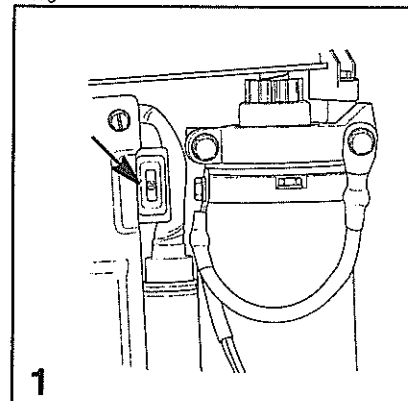
Disengagement of a steering link rod can result in the boat taking a full, sudden, sharp turn. This potentially violent action can cause occupants to be thrown overboard exposing them to serious injury or death.

Assemble steering link rod to steering cable with two flat washers (d) and nylon insert locknut ("b" – Part Number 11-34863). Tighten locknut (b) until it seats, then back nut off 1/4 turn.

Assemble steering link rod to engine with special washer head bolt ("a" – Part Number 10-14000) and locknut ("c" – Part Number 11-34863). First torque bolt (a) to 20 lb. ft. (27 N·m), then torque locknut (c) to 20 lb. ft. (27 N·m).

MAINTENANCE

oh37g



oh37

FUSE REPLACEMENT – ELECTRIC START MODELS

IMPORTANT: Always carry spare SFE 20 AMP fuses.

The electric starting circuit is protected from overload by an SFE 20 AMP fuse. If the fuse is blown, the electric starter motor will not operate. Try to locate and correct the cause of the overload. If the cause is not found, the fuse may blow again. Replace the fuse with a fuse of the same rating.

- 1 Replace with a new SFE 20 AMP fuse.

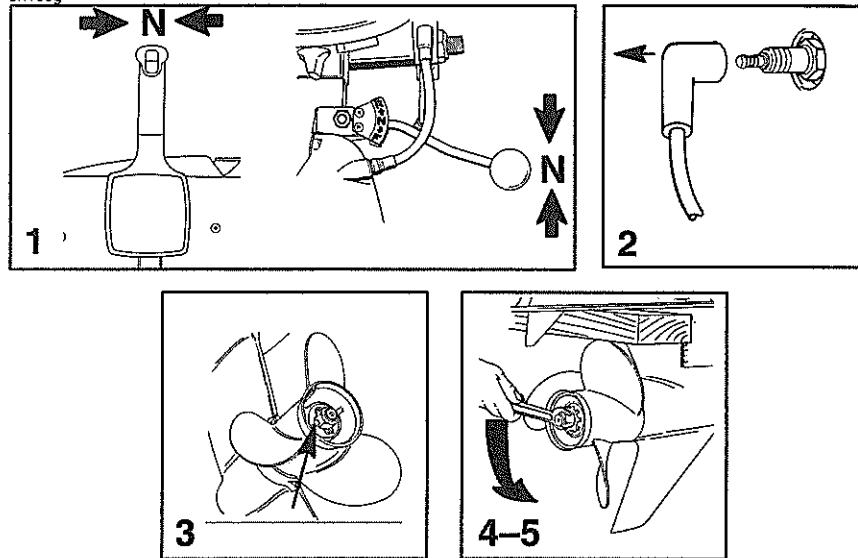
CORROSION CONTROL ANODE

Your outboard has two corrosion control anodes. One of the anodes is the trim tab installed on the gear case and the other is installed on the bottom of the transom bracket assembly. An anode helps protect the outboard against galvanic corrosion by sacrificing its metal to be slowly eroded instead of the outboard metals.

- 2 Each anode requires periodic inspection especially in salt water which will accelerate the erosion. To maintain this corrosion protection, always replace the anode before it is completely eroded. Never paint or apply a protective coating on the anode as this will reduce effectiveness of the anode.

MAINTENANCE

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oh39

PROPELLER REPLACEMENT

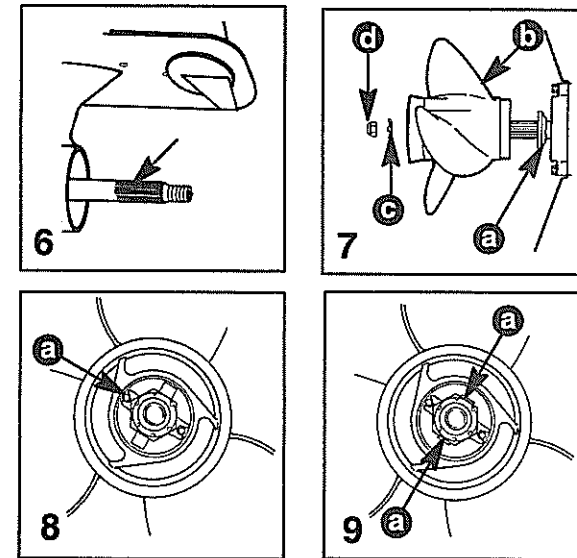
⚠ WARNING

If the propeller shaft is rotated while the engine is in gear, there is the possibility that the engine will crank over and start. To prevent this type of accidental engine starting and possible serious injury caused from being struck by a rotating propeller, always shift outboard to neutral position and remove spark plug leads when you are servicing the propeller.

- 1 Shift outboard to neutral (N) position.
- 2 Remove the spark plug leads to prevent engine from starting.
- 3 Straighten the bent tabs on the propeller nut retainer.
- 4 Place a block of wood between gear case and propeller to hold propeller and remove propeller nut.
- 5 Pull propeller straight off shaft. If propeller is seized to the shaft and cannot be removed, have the propeller removed by an authorized dealer.

MAINTENANCE

oh186g



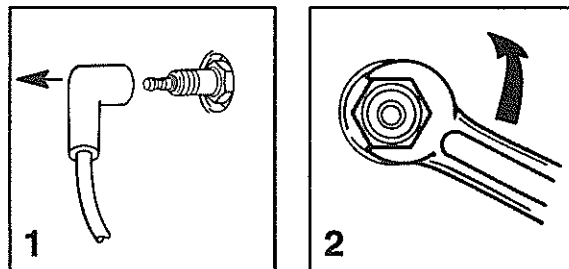
oh87

PROPELLER REPLACEMENT (CONTINUED)

- 6 Coat the propeller shaft with Quicksilver Anti-Corrosion Grease.
IMPORTANT: To prevent the propeller hub from corroding and seizing to the propeller shaft, especially in salt water, always apply a coat of Quicksilver Anti-Corrosion Grease to the entire shaft at the recommended maintenance intervals and also each time the propeller is removed.
- 7 Install thrust washer (a), propeller (b), propeller nut retainer (c), and propeller nut (d) onto the shaft.
- 8 Place propeller retainer over pins (a). Place a block of wood between gear case and propeller and tighten propeller nut to 55 lb.ft. (75 N-m), aligning flat sides of the propeller nut with tabs on the propeller nut retainer.
- 9 Secure propeller nut by bending tabs (a) up and against the flats on the propeller nut.
- 10 Reinstall spark plug leads.

MAINTENANCE

oh40g



oh101

SPARK PLUG INSPECTION

Inspect spark plugs at the recommended intervals.

- 1 Remove the spark plug leads by twisting the rubber boots slightly and pull off.
- 2 Remove the spark plugs to inspect and clean. Replace spark plug if electrode is worn or the insulator is rough, cracked, broken, blistered, or fouled.
- 3 Before reinstalling spark plugs, clean away dirt on the spark plug seats. Install plugs finger tight, and tighten 1/4 turn, or torque to 20 lb. ft. (27 N·m).

oh17

BATTERY INSPECTION

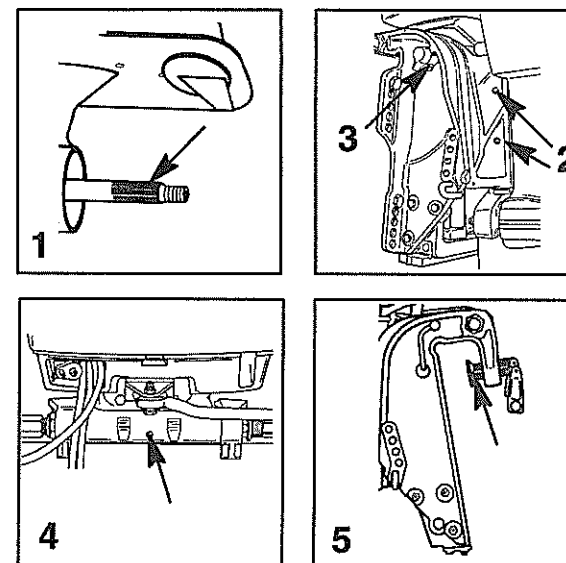
The battery should be inspected at periodic intervals to ensure proper engine starting capability.

IMPORTANT: Read the safety and maintenance instructions which accompany your battery.

1. Turn off the engine before servicing the battery.
2. Add water as necessary to keep the battery full.
3. Make sure the battery is secure against movement.
4. Battery cable terminals should be clean, tight, and correctly installed. Positive to positive and negative to negative.
5. Make sure the battery is equipped with a nonconductive shield to prevent accidental shorting of battery terminals.

MAINTENANCE

oh166g



oh41

LUBRICATION POINTS

Lubricate Point 1 with Quicksilver Anti-Corrosion Grease.

- 1 Propeller Shaft – Refer to Propeller Replacement for removal and installation of the propeller. Coat the entire propeller shaft with lubricant to prevent the propeller hub from corroding and seizing to the shaft.

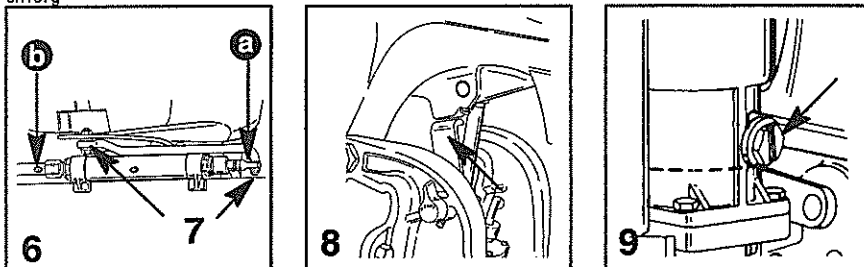
Lubricate Points 2 thru 6 with Quicksilver 2-4-C Marine Lubricant or Special Lubricant 101.

- 2 Swivel Bracket – Lubricate through both fittings.
- 3 Tilt Support Lever – Lubricate through fitting.
- 4 Tilt Tube – Lubricate through fitting.
- 5 Lubricate threads on transom clamp screws (if equipped).

(continued on next page)

MAINTENANCE

oh167g



oh58

LUBRICATION POINTS (CONTINUED)

- 6 Steering Cable – Rotate steering wheel to fully retract the steering cable end (a) into the outboard tilt tube. Lubricate through fitting (b).

⚠ WARNING

The end of the steering cable must be fully retracted into the outboard tilt tube before adding lubricant. Adding lubricant to steering cable when fully extended could cause steering cable to become hydraulically locked. An hydraulically locked steering cable will cause loss of steering control, possibly resulting in serious injury or death.

Lubricate Point 7 with light weight oil.

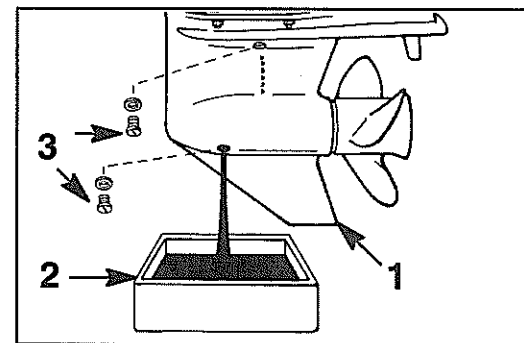
- 7 Steering Link Rod Pivot Points – Lubricate points.

CHECKING POWER TRIM FLUID

- 8 Tilt outboard to the full up position and engage the tilt support lever.
- 9 Remove fill cap and check fluid level. The fluid level should be even with the bottom of the fill hole. Add Quicksilver Power Trim & Steering Fluid or automotive transmission fluid (ATF) Type F, FA, or Dexron II.

MAINTENANCE

oh168g



oh43

GEAR CASE LUBRICATION

When adding or changing gear case lubricant, visually check for the presence of water in the lubricant. If water is present, it may have settled to the bottom and will drain out prior to the lubricant, or it may be mixed with the lubricant, giving it a milky colored appearance. If water is noticed, have the gear case checked by your dealer. Water in the lubricant may result in premature bearing failure or, in freezing temperatures, will turn to ice and damage the gear case.

Whenever you remove the fill/drain plug, examine the magnetic end for metal particles. A small amount of metal filings or fine metal particles indicates normal gear wear. An excessive amount of metal filings or larger particles (chips) may indicate abnormal gear wear and should be checked by an authorized dealer.

Draining Gear Case

- 1 Place outboard in a vertical operating position.
- 2 Place a drain pan below outboard.
- 3 Remove vent plug and fill/drain plug and drain lubricant.

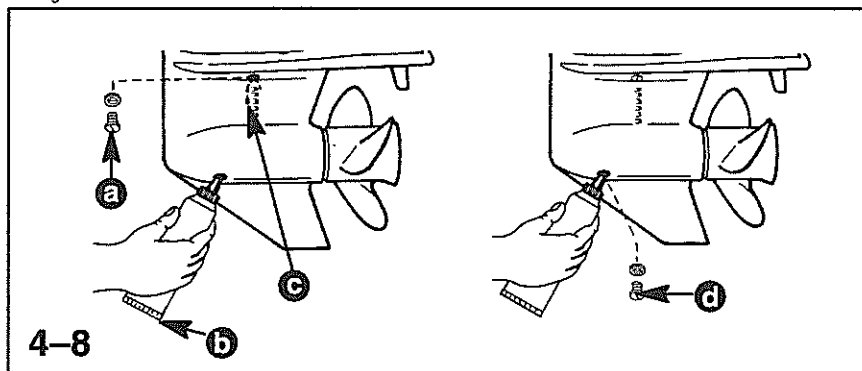
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Gear Case Lubricant Capacity

Gear case lubricant capacity is approximately 12.5 fl. oz. (370 ml).

MAINTENANCE

oh169g



oh46

GEAR CASE LUBRICATION (CONTINUED)

Checking Lubricant Level and Filling Gear Case

- 4 Place outboard in a vertical operating position.
- 5 Remove vent plug (a).
- 6 Place lubricant tube (b) into the fill hole and add lubricant until it appears at the vent hole (c).
- 7 Stop adding lubricant. Install the vent plug and sealing washer (a) before removing the lubricant tube.
- 8 Remove lubricant tube and reinstall cleaned fill/drain plug and sealing washer (d).

oh27

SUBMERGED OUTBOARD

A submerged outboard will require service within a few hours by an authorized dealer once the outboard is recovered from the water. This immediate attention by a servicing dealer is necessary once the engine is exposed to the atmosphere to minimize internal corrosion damage to the engine.

STORAGE

STORAGE PREPARATION

The major consideration in preparing your outboard for storage is to protect it from rust, corrosion, and damage caused by freezing of trapped water.

The following storage procedures should be followed to prepare your outboard for out-of-season storage or prolonged storage (two months or longer).

CAUTION

Never start or run your outboard (even momentarily) without water circulating through all the cooling water intake holes in the gear case to prevent damage to the water pump (running dry) or overheating of the engine.

Fuel system

IMPORTANT: Gasoline containing alcohol (ethanol or methanol) can cause a formation of acid during storage and can damage the fuel system. If the gasoline being use contains alcohol, It is advisable to drain as much of the remaining gasoline as possible from the fuel tank, remote fuel line, and engine fuel system.

Fill the fuel system (tank, hoses, fuel pump, and carburetors) with treated (stabilized) fuel to help prevent formation of varnish and gum. Proceed with following instructions.

1. Portable Fuel Tank – Pour the required amount of Quicksilver Gasoline Stabilizer (follow instructions on container) into fuel tank. Tip fuel tank back and forth to mix stabilizer with the fuel.
2. Permanently Installed Fuel Tank – Pour the required amount of Quicksilver Gasoline Stabilizer (follow instructions on container) into a separate container and mix with approximately one quart (one liter) of gasoline. Pour this mixture into fuel tank.
3. Place the outboard in water or connect flushing attachment for circulating cooling water. Run the engine for ten minutes to allow treated fuel to reach the carburetors.

STORAGE

Protecting External Outboard Components

4. Lubricate all outboard components listed in the Inspection and Maintenance Schedule.
5. Touch up any paint nicks. See your dealer for touch-up paint.
6. Spray Quicksilver Corrosion Guard on engine exterior, electrical components, and other metal surfaces (except corrosion control anodes).

Protecting Internal Engine Components

Note : Before performing Steps 7 and 8, make sure the fuel system has been prepared for storage. Refer to Fuel System on previous page.

7. Place the outboard in water or connect flushing attachment for circulating cooling water. Start the engine and let it run in neutral to warm up.
8. With engine running at fast idle, stop the fuel flow by disconnecting the remote fuel line. When engine begins to stall, quickly spray Quicksilver Storage Seal into carburetor until engine stops from lack of fuel.
9. Remove the spark plugs and inject a five second spray of Quicksilver Storage Seal around the inside of each cylinder.
10. Rotate the flywheel manually several times to distribute the storage seal in the cylinders. Reinstall spark plugs.

Gear Case

11. Drain and refill the gear case lubricant (refer to maintenance procedure).

Positioning Outboard for Storage

Store outboard in an upright (vertical) position to allow water to drain out of outboard.

CAUTION

If outboard is stored tilted up in freezing temperature, trapped cooling water or rain water that may have entered the propeller exhaust outlet in the gear case could freeze and cause damage to the outboard.

STORAGE

Battery Storage

1. Follow the battery manufacturers instructions for storage and recharging.
2. Remove the battery from the boat and check water level. Recharge if necessary.
3. Store the battery in a cool, dry place.
4. Periodically check the water level and recharge the battery during storage.

TROUBLESHOOTING

1 – STARTER MOTOR WILL NOT CRANK THE ENGINE (ELECTRIC START MODELS)

Possible Causes

- Remote control models – Blown 20 Amp fuse in the starting circuit. Refer to Maintenance Section
- Outboard is not shifted to neutral position.
- Weak battery or battery connections are loose or corroded.
- Ignition key switch failure.
- Wiring or electrical connection faulty.
- Starter motor or starter solenoid failure.

2 – ENGINE WILL NOT START

Possible Causes

- Lanyard stop switch not in RUN position.
- Incorrect starting procedure. Refer to Operating Section.
- Old or contaminated gasoline.
- Engine flooded. Refer to Operating Section.
- Fuel is not reaching the engine.
 - a. Fuel tank is empty.
 - b. Fuel tank vent not open or restricted.
 - c. Fuel line is disconnected or kinked.
 - d. Primer bulb not squeezed.
 - e. Primer bulb check valve is faulty.
 - f. Fuel filter is obstructed. Refer to Maintenance Section.
 - g. Fuel pump failure.
 - h. Fuel tank filter obstructed.
- Ignition system component failure
- Spark plugs fouled or defective. Refer to Maintenance Section.

TROUBLESHOOTING

3 – ENGINE RUNS ERRATICALLY

Possible Causes

- Spark plugs fouled or defective. Refer to Maintenance Section.
- Incorrect setup and adjustments.
- Fuel is being restricted to the engine.
 - a. Engine Fuel filter is obstructed. Refer to Maintenance Section.
 - b. Fuel tank filter obstructed.
 - c. Stuck anti-siphon valve located on permanently built in type fuel tanks.
 - d. Fuel line is kinked or pinched.
- Fuel pump failure.
- Ignition system component failure.

4 – PERFORMANCE LOSS

Possible Causes

- Throttle not fully open.
- Damaged or improper size propeller.
- Incorrect engine timing, adjustments, or setup.
- Boat overloaded or load improperly distributed.
- Excessive water in bilge.
- Boat bottom is dirty or damaged.

5 – BATTERY WILL NOT HOLD CHARGE

Possible Causes

- Battery connections are loose or corroded.
- Low electrolyte level in battery.
- Worn out or inefficient battery.
- Excessive use of electrical accessories.
- Defective rectifier, alternator, or voltage regulator.

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