EPA Emissions Regulations

Outboards manufactured by Mercury Marine in the United States are certified to the United States Environmental Protection Agency as conforming to the requirements of the regulations for the control of air pollution from new outboard motors. This certification is contingent on certain adjustments being set to factory standards. For this reason, the factory procedure for servicing the product must be strictly followed and, wherever practicable, returned to the original intent of the design. **Maintenance, replacement, or repair of the emission control devices and systems may be performed by any marine engine repair establishment or individual.**
Engines are labeled with an Emission Control Information decal as permanent evidence of EPA certification.

⚠ WARNING

The engine exhaust from this product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

The description and specifications contained herein were in effect at the time this manual was approved for printing. Mercury Racing, 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.

Mercury Marine, Fond du Lac, Wisconsin U.S.A. Litho in U.S.A.

Thank You . . .

for your purchase of one of the finest outboards available. You have made a sound investment in boating pleasure. Your outboard has been manufactured by Mercury Racing, a unit of Mercury Marine, the world leader in marine technology and outboard manufacturing since 1939. These years of experience have been committed to the goal of producing the finest quality products. This has led to Mercury Racing's reputation for strict quality control, excellence, durability, lasting performance and being the best at providing after-the-sale support.

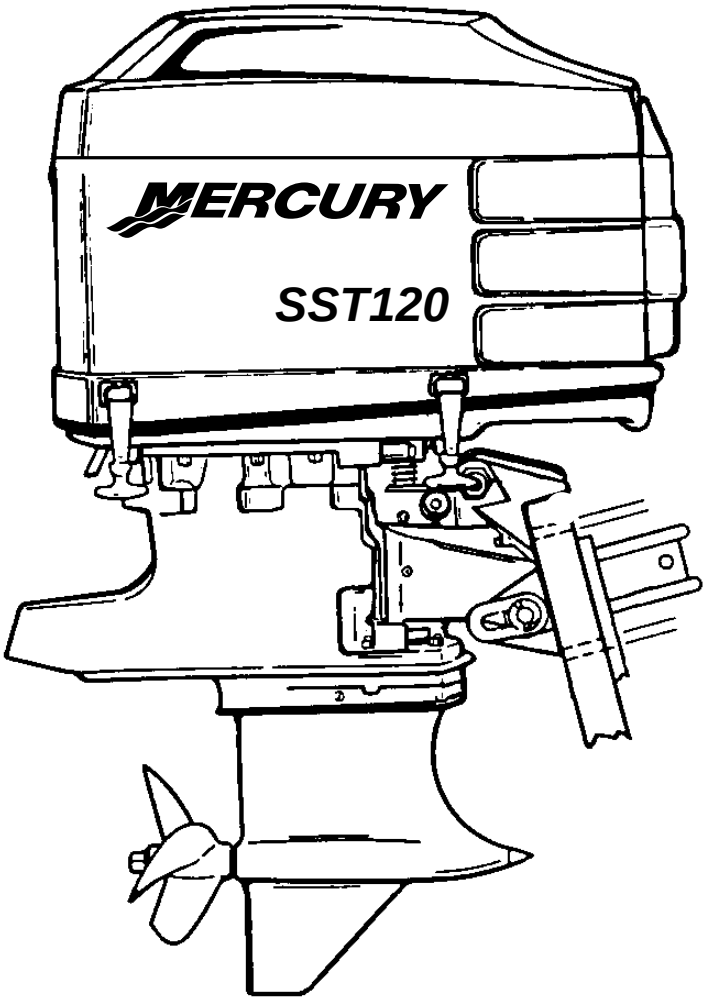
Please read this manual carefully before operating your outboard. This manual has been prepared to assist you in the operation, safe use and care of your outboard.

All of us at Mercury Racing took pride in building your outboard and wish you many years of happy and safe boating.

Again, thank you for your confidence in Mercury Marine.

MERCURY Racing

Mercury Racing
N7480 County Road "UU"
Fond du Lac, WI 54935-9585



oa

TABLE OF CONTENTS

General Information

Fuel & Oil

Features & Controls

oa

TABLE OF CONTENTS

Operation

Maintenance

Maintenance Log

TABLE OF CONTENTS

GENERAL INFORMATION

oba1
Boater’s Responsibilities

The boat (driver) is responsible for 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.

obb1
Before Operating Your Outboard

Read this manual carefully. Safety and operating information that is practiced along with using good common sense can help prevent personal injury and product damage. If you have any questions, contact your dealer.

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

⚠ WARNING

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

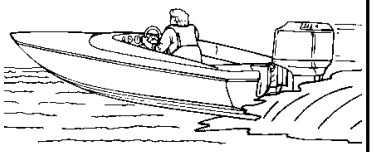
⚠ CAUTION

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

GENERAL INFORMATION

U.S. COAST GUARD CAPACITY	
MAXIMUM HORSEPOWER	XXX
MAXIMUM PERSON CAPACITY (POUNDS)	XXX
MAXIMUM WEIGHT CAPACITY	XXX

1



2

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

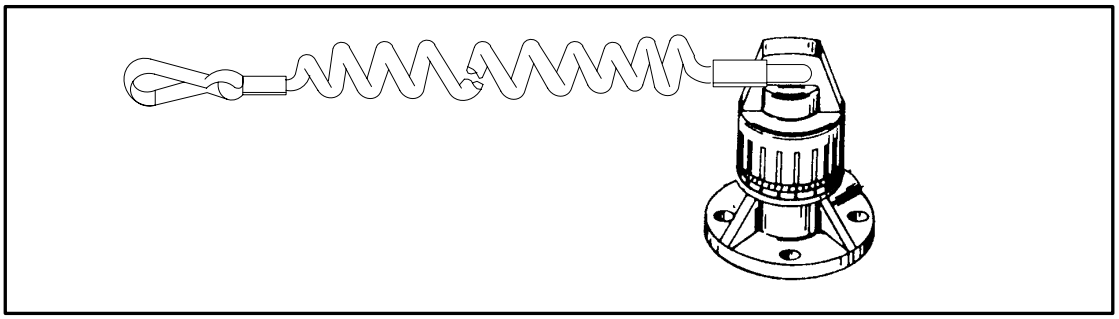
Overpowering a Boat Can Cause:

- **Serious injury, death, or boat damage.**
- **Loss of Boat Control.**
- **Flotation Characteristics of Boat to be Altered from Placing Too Much Weight on Transom.**
- **Boat to Break Apart, Particularly Around the Transom Area.**

High-Speed and High-Performance Boat Operation

2 If you are not familiar with high-performance boat operation we recommend that you first request an orientation/demonstration ride with your dealer or an operator experienced with your boat/outboard combination. Refer to the “Guide to Hi-Performance Boat Operation” booklet included in your literature packet.

GENERAL INFORMATION



Lanyard Stop Switch

⚠ WARNING

Should the operator fall out of the boat, the possibility of serious injury or death from being run over by the boat can be greatly reduced by stopping the engine immediately. Always properly connect both ends of the stop switch lanyard – to the stop switch and the operator.

1 The purpose of a lanyard stop switch is to turn off the engine when the operator moves far enough away from the operator's position (as in accidental ejection from the operator's position) to activate the switch. A lanyard stop switch can be installed as an accessory – generally on the dashboard or side adjacent to the operator's position.

2 While activation of the lanyard stop switch will stop the engine immediately, a boat will 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.

(continued on next page)

GENERAL INFORMATION

Lanyard Stop Switch (Continued)

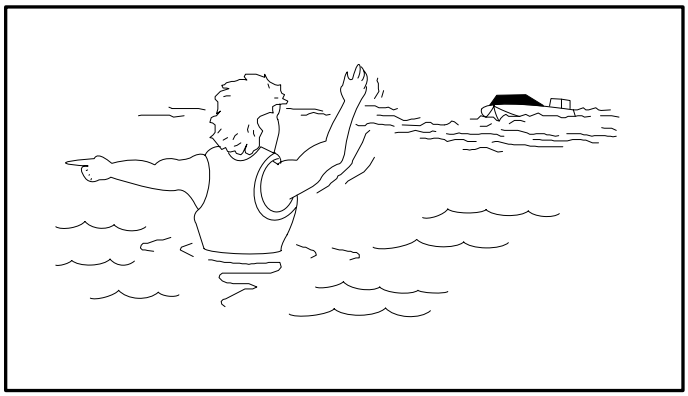
⚠ WARNING

Avoid serious injury or death from deceleration forces resulting from in accidental stop switch activation. The boat operator should never leave the operator's station without first disconnecting the stop switch lanyard cord from themself.

Accidental or unintended activation of the Lanyard Stop Switch during normal operation is a possibility and could cause any, or all, of the following potentially hazardous situations:

1. Occupants could be thrown forward due to unexpected loss of forward motion – a particular concern for passengers in the front of the boat who could be ejected over the bow and possibly struck by the gear case or propeller.
2. Loss of power and directional control in heavy seas, strong current or high winds.
3. Loss of control when docking.

GENERAL INFORMATION



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.

WHILE BOAT IS STATIONARY

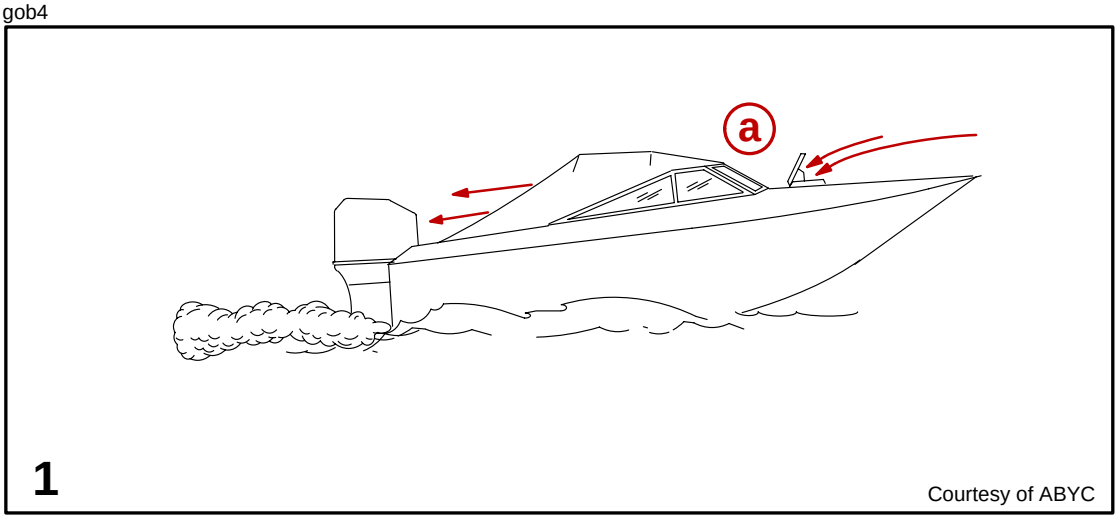
Shut off the engine before allowing people to swim or be in the water near your boat.

⚠ 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

gob4



1

Courtesy of ABYC

Carbon Monoxide Risk

⚠ WARNING

Avoid the combination of a running engine and poor ventilation. Prolonged exposure to carbon monoxide in sufficient concentration can lead to unconsciousness, brain damage, or death.

Carbon monoxide is a deadly gas that is odorless, colorless and tasteless and is present in the exhaust fumes of all internal combustion engines.

Early symptoms of carbon monoxide poisoning which should not be confused with seasickness or intoxication, include headache, dizziness, drowsiness, and nausea.

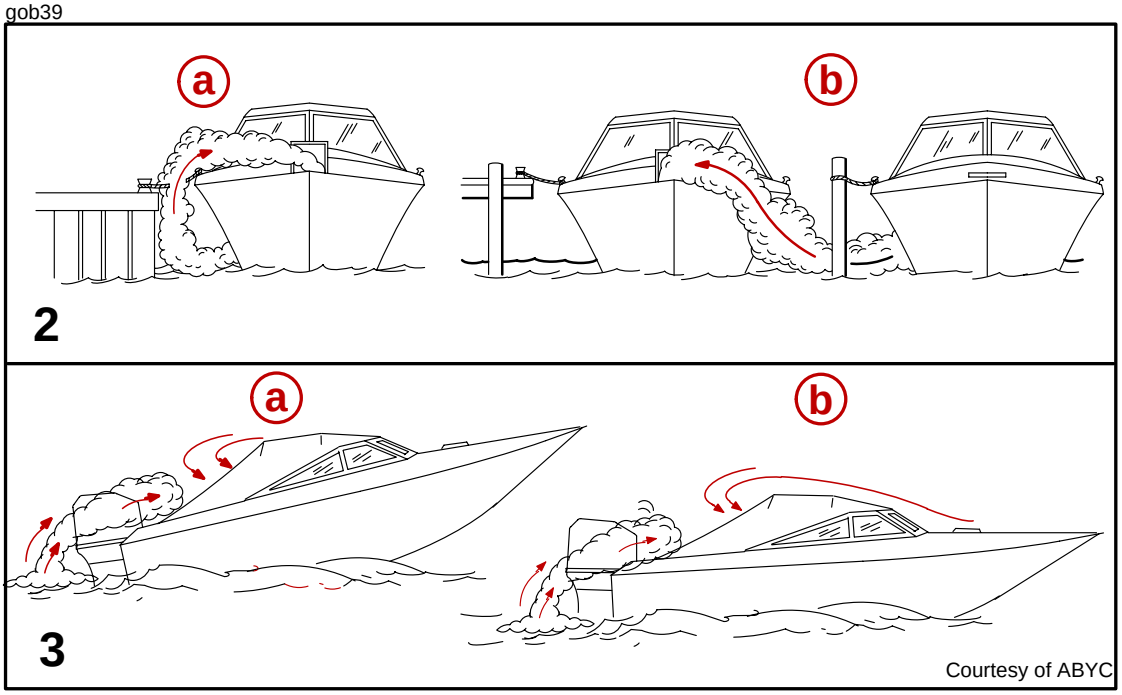
SUFFICIENT FRESH AIR FLOW

1 Example of desired air flow through the boat;

a. Ventilate passenger area, open side curtains, or forward hatches to remove carbon monoxide fumes.

GENERAL INFORMATION

gob39



obi3

Carbon Monoxide Risk (Continued)

INSUFFICIENT FRESH AIR FLOW

Under certain conditions, enclosed or canvas enclosed cabins or cockpits with insufficient ventilation may draw in carbon monoxide. Install one or more carbon monoxide detectors in your boat.

Although rare, on a very calm day, swimmers and passengers in an open stationary boat with a running engine, or near a running engine may be exposed to a hazardous level of carbon monoxide.

Insufficient Air Flow Could Occur If:

2 While boat is stationary:

- **a -** Boat moored in a confined space with the engine running.
- **b -** Boat is moored close to another boat with its engine running.

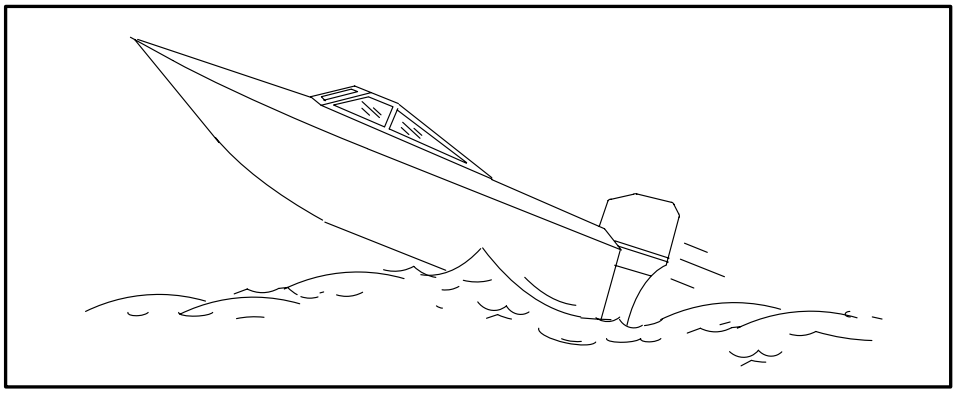
3 While boat is moving:

- **a -** Running the boat with the trim angle of the bow too high.
- **b -** Running the boat with no forward hatches open (station wagon effect).

ob

GENERAL INFORMATION

gob4



obu1

Wave And Wake Jumping

Operating recreational boats over waves and wakes is a natural part of boating. However, when this activity is done with speed to force the boat hull partially or completely out of the water, certain hazards arise, particularly when the boat re-enters the water.

The primary concern is the boat changing direction while in the midst of the jump. In such case the landing may cause the boat to violently veer in a new direction. Such a sharp change in direction or turn can cause occupants to be thrown out of their seats or out of the boat.

There is another less common hazardous result from allowing your boat to launch off a wave or wake. If the bow of your boat pitches down far enough while airborne, upon water contact it may penetrate under the water surface and “submarine” for an instant. This will bring the boat nearly to a stop in an instant and can send the occupants flying forward. The boat may also steer sharply to one side.

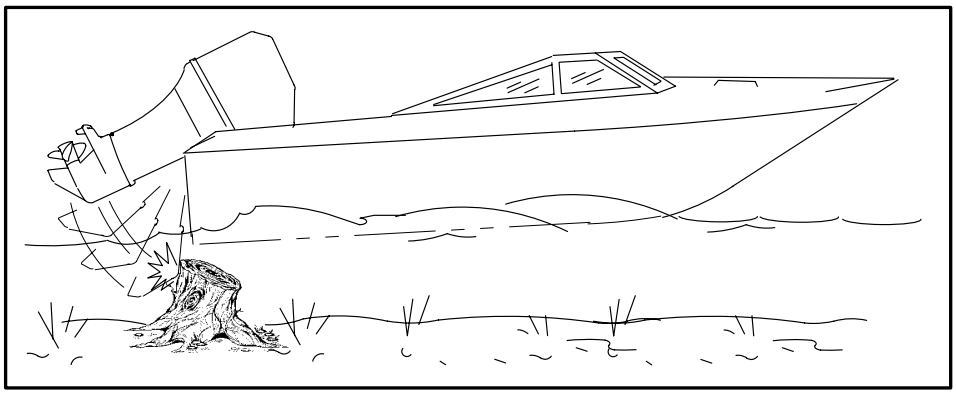
⚠ WARNING

Avoid serious injury or death from being thrown within or out of a boat when it lands after jumping a wave or wake. Avoid wave or wake jumping whenever possible. Instruct all occupants that if a wake or wave jump occurs, get low and hang on to any boat hand hold.

ob

GENERAL INFORMATION

gob4



obt1

Impact With Underwater Hazards

Reduce speed and proceed with caution whenever you're driving a boat in shallow water areas or in areas where the waters are suspected of having underwater obstacles that could be struck by the outboard or the boat bottom. **The most important thing you can do to help reduce injury or impact damage from striking a floating or underwater object is control the boat speed. Under these conditions, boat speed should be kept to a minimum planing speed (15 to 25 MPH).**

⚠ WARNING

To avoid serious injury or death from all or part of an outboard coming into the boat after striking a floating or underwater obstacle maintain a top speed no greater than minimum planing speed.

Striking a floating or underwater object could result in an infinite number of situations. Some of these situations could result in the following:

- Part of the outboard or the entire outboard could break loose and fly into the boat.
- The boat could move suddenly in a new direction. Such a sharp change in direction or turn can cause occupants to be thrown out of their seats or out of the boat.
- A rapid reduction in speed. This will cause occupants to be thrown forward, even out of the boat.
- Impact damage to the outboard and/or boat.

(continued on next page)

obt4

Impact With Underwater Hazards (Continued)

Keep in mind, one of the most important things you can do to help reduce injury or impact damage in these situations is control the boat speed. Boat speed should be kept to a minimum planing speed when driving in waters known to have underwater obstacles.

After striking a submerged object, stop the engine as soon as possible and inspect the outboard for any broken or loose parts. If damage is present or suspected, the outboard should be taken to an authorized dealer for a thorough inspection and necessary repair.

The boat should also be checked for any hull fractures, transom fractures, water leaks.

Operating a damaged outboard could cause additional damage to other parts of the outboard, or could affect control of the boat. If continued running is necessary, do so at greatly reduced speeds.

⚠ WARNING

Avoid serious injury or death from loss of boat control. Continued boating with major impact damage can result in sudden outboard component failure with or without subsequent impacts. Have the outboard thoroughly inspected and any necessary repairs made.

GENERAL INFORMATION

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 installing accessories. Misuse of acceptable accessories or the use of unacceptable accessories can result in serious injury, death, or product failure.

obk1

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 Life Jackets. Have an approved life jacket of suitable size for each person aboard and have it readily accessible (it is the law). However, we strongly recommend that everyone aboard wear their life jacket.

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.

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.

(continued on next page)

GENERAL INFORMATION

Safe Boating Suggestions (Continued)

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 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.

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.

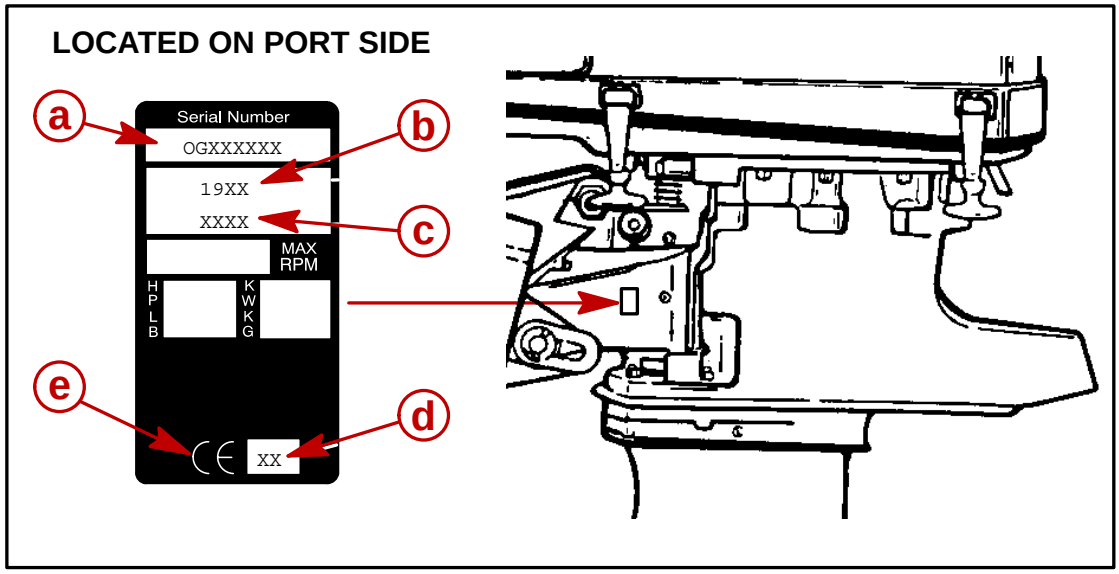
ob

GENERAL INFORMATION

obl2

Recording Serial Number

Record the following numbers from your engine as shown for future reference.



a - Serial Number
b - Model Year
c - Model Designation
d - Year Manufactured
e - Certified Europe Insignia

GENERAL INFORMATION

Specifications (General)

MODEL	SST 120/S2000
Full Throttle RPM Range	7500/8000 RPM
Weight	275 lbs.
Piston Displacement	122 cu. in. (1998 cc)
Bore	3.125 in. (79.4 mm)
Stroke	2.650 in. (67.3 mm)
Recommended Spark Plug	NGK-BUHW (P/N 33-97180)
Gear Ratio & Oil Capacity	14:15 (1.07:1 VI SSM [Optional 15:17 (1.13:1) IV SSM] 16 oz. (474 ml)
Recommended Gasoline	Min. Octane Rating of (R + M) ÷ 2 = 92 or RON of 98
Recommended Oil	Quicksilver Performance Blend (92-813743A2)
Spark Advance	25° BTDC or 150 in.
Idle Timing	None
Fuel Pressure	5 to 6 PSI
Gear Lube	Hi-Performance Gear Lube (P/N 92-850743A1)
Fuel Consumption	22 GPH @ 7500 RPM
Firing Order	6-5-4-3-2-1

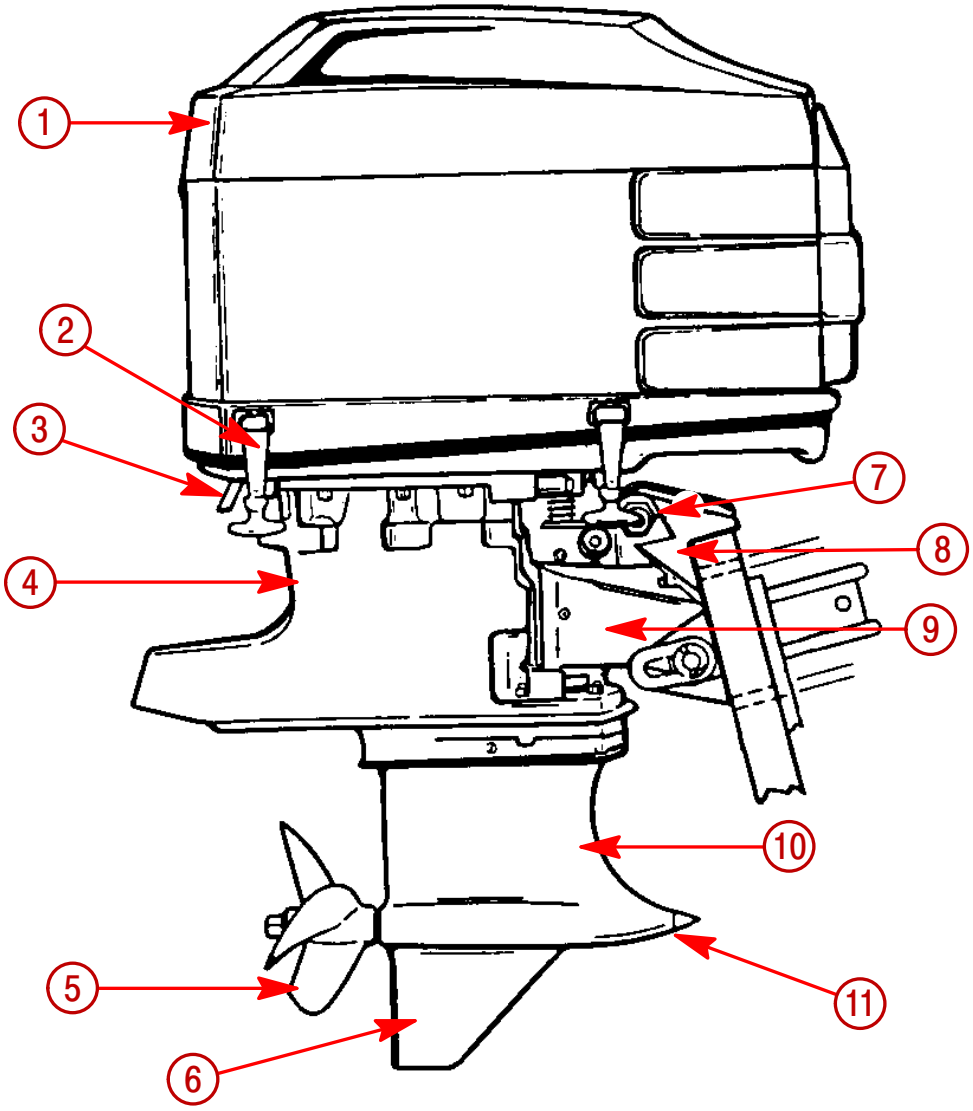
GENERAL INFORMATION

Specifications (Torques)

MODEL	SST 120/S2000
Cyl. Head Bolts	30 lb-ft (41 Nm) + 90° (1/4 turn) Light Oil
Exhaust Divider Plate	200 lb-in. (23 Nm)
Lower End Cap	100 lb-in. (11 Nm) 271 Loctite
Upper End Cap	200 lb-in. (23 Nm)
Carb Adaptor to Reed Hsg.	100 lb-in. (11 Nm) 271 Loctite
Reed Block to Reed Block Hsg.	100 lb-in. (11 Nm) 271 Loctite
Connecting Rods	30 lb-ft (41 Nm) 271 Loctite
Crankcase Cover to Block	**3/8 in.** - 40 lb-ft (54 Nm) Light Oil **5/16 in.** - 200 lb-in. (23 Nm) Light Oil
Stator Screws	40 lb-in. (5 Nm) 271 Loctite
Ign. Coil Screws	Tighten Securely 271 Loctite
Flywheel Nut	150 lb-ft (203 Nm)
Spark Plugs	20 lb-ft (27 Nm)
Powerhead to Drive Shaft Housing	35 lb-ft (47 Nm)
Gear Case to DSH	Tighten Securely

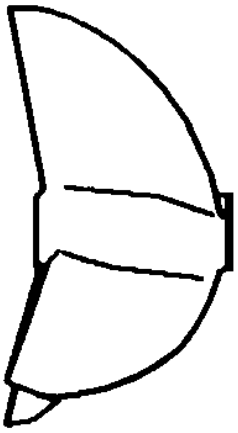
GENERAL INFORMATION

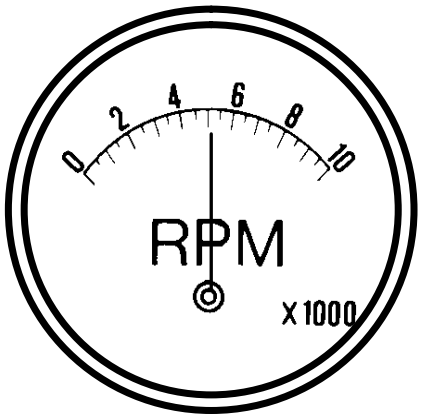
Component Identification



1. Top Cowl
2. Cowl Latch
3. Water Pump Indicator Hose (Tell-Tail)
4. Drive Shaft Housing
5. Propeller
6. Skeg
7. Tilt Tube
8. Transom Mounting Bracket
9. Serial Number Location (Port Side)
10. Gear Case
11. Cooling Water Intake Holes

GENERAL INFORMATION





Propeller Selection

Select a propeller that allows the engine to operate at 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 (such as warmer, more humid weather, operation at higher elevations, increased boat load, or a dirty boat bottom/ gear case) cause the RPM to drop below the recommended range a propeller change or boat cleaning may be required.

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.”

FUEL & OIL

Gasoline Recommendations

UNITED STATES AND CANADA

Use a major brand of automotive unleaded gasoline with a minimum posted octane rating (R + M ÷ 2) of 92. Automotive gasolines that contain fuel injector cleaner are recommended for added internal engine cleanliness.

INTERNATIONAL

Use a major brand of automotive unleaded gasoline with a minimum posted octane rating of 98RON. 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.

GENERAL RECOMMENDATIONS

During periods of extended non use, a fuel stabilizer is highly recommended (See Storage Section).

Leaded Gasoline is acceptable to use in areas where unleaded is not available. However, exhaust passageway corrosion may occur due to the accumulation of exhausted lead particles.

ALCOHOL IN GASOLINE

We do not recommend gasoline containing alcohol due to the possible adverse effect the alcohol may have on the fuel system. 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.
- Fuel penetrating through flexible fuel lines.
- Wear and damage of internal engine parts.

(continued on next page)

FUEL & OIL

ALCOHOL IN GASOLINE (CONT.)

- Starting and operating difficulties.
- Vapor lock or fuel starvation.

The tendency of gasoline containing alcohol to absorb moisture from the air, results 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.

Oil Recommendation

Oil Recommendations	
• **All oils used must be NMMA certified TC-W3 2-Cycle oil** • **Mercury 2-Cycle oil is recommended above other manufacturers oil**	
Recommended Oil	Mercury Precision 2-Cycle Performance Blend Oil
<u>For Emergency Use Only</u> (Use the following oils)	
First Choice	Mercury Precision Premium Plus Oil
Second Choice	2-Cycle outboard manufacturers oil
Third Choice	Another brand of 2-Cycle outboard oil

⚠ CAUTION
Damage from use of inferior oil may not be covered under the limited warranty.

New Engine Gasoline/Oil Break-In Mixture

During and after break-in, use a 32:1 (3.1%) gasoline/oil mixture in your fuel tank.

GASOLINE/OIL MIXING RATIO CHART

Gas/ Oil Ratio	1 Gallon Gas (3.8 Liters)	3 Gallons Gas (11.5 Liters)	6 Gallons Gas (23 Liters)
32:1 (3.1%)	4 fl. oz. (118 ml) Oil	12 fl. oz. (355 ml) Oil	24 fl. oz. (710 ml) Oil

oe

FUEL & OIL

Filling Gasoline 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. To help prevent a static charge during filling, portable fuel tanks must be removed from the boat and placed directly on the ground for filling.

- 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 completely fill the fuel tanks. Leave approximately 10% of the tank volume unfilled. Fuel will expand in volume as its temperature rises and can leak under pressure if the tank is completely filled.

FEATURES & CONTROLS

Power Trim

Outboard position can be adjusted by pressing trim switch. This range is used while operating your boat on plane.

- **Pressing (DN):** Moves the outboard in closer to the boat transom, called trimming “in” or “down.”
- **Pressing (UP):** Moves the outboard further away from the boat transom, called trimming “out” or “up.”

The term “trim”:

- Generally refers to the adjustment of the outboard within the first 20° range of travel.

POWER TRIM OPERATION

With most boats, operating around the middle of the “trim” range will give satisfactory results. Trimming your outboard all the way in or out may improve performance but cause some potential control hazards.

⚠ 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 in either direction may result. Failure to keep a continuous firm grip on the steering wheel 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:

- Lower the bow of the boat.
- Result in quicker planing off.
- Generally improve the ride in choppy water.
- Increase steering torque or pull to the right (with the normal right hand rotation propeller).
- In excess, lower the bow to a point at which the boat begins to plow with the 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

Power Trim (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.

Trimming Out or Up can:

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

FEATURES & CONTROLS

Hydraulic Up/Down Adjustment

Your outboard can be raised up and down approximately 1” (2.54 cm) hydraulically. The hydraulic system allows the operator to raise or lower the outboard while on plane.

HYDRAULIC UP/DOWN OPERATION

The optimum height adjustment for your boat will depend on many variables such as water conditions, boat design, propeller size and design, weight distribution, etc. During a race both water conditions and fuel load could/will change which could greatly affect the optimum height adjustment of your outboard. Care must be given to optimize safe handling throughout a race or other operation of the boat and to maintain adequate water supply to the engine at all times.

⚠ WARNING

Avoid possible serious injury or death. Do not operate your outboard at a height adjustment that could cause unsafe handling conditions or a lack of cooling water to the engine. When racing, extensive testing is necessary for the operator to be familiar with all aspects of the boats handling, which can be greatly affected by the Up/Down adjustment.

Trim Pump Thermal Switch Operation

Release the trim switch as soon as the outboard reaches the end of its travel or an overload switch will stop the pump motor operation. If the overload switch should open, do not depress the trim switch for approximately one minute. After this period of time, the overload switch will reset itself and the pump may again be operated.

OPERATION

Engine Break-In

⚠ CAUTION

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

BREAK-IN PROCEDURE
Partial break-in is done at the factory. Additional break-in is recommended. During and after break-in, use a 32:1 gasoline/ oil mixture in your fuel tank.
Increasing load on engine during break-in: **- Use largest appropriate propeller** **- Operate with the engine trimmed in**
FIRST 1/2 HOUR - Operate your outboard at various RPM range between (3500 - 4500 RPM).
SECOND 1/2 HOUR - Operate your outboard at various RPM range between (3500 - 6000 RPM).
AFTER FIRST HOUR OF BREAK-IN - Run engine for additional 15 minutes during acceleration runs starting at 3500 RPM up to W.O.T. Do not sustain W.O.T. for more than 1 minute.

⚠ CAUTION

It is the boat operators responsibility to always drive in a safe manner. Improper trim angle of the outboard when driving at speed can be difficult and dangerous. Trim angle is specified to help guide the operator in determining how to put the proper load on the engine during the break-in period. These guidelines do not suggest or require unsafe boat operation.

NOTE: After Break-in is complete, change carburetor jetting.

These engines have break-in jets (six) installed at the factory. After break-in, remove the six (6) main jet holders and jets and replace with run jets sent with the engine. Reinstall jet holders making sure gaskets are in place. These jets will provide maximum power when used in the 70-75° F (21-24° C) range. In cooler conditions, increase jet size. Warmer conditions, decrease. For each 10° F (6° C) of temperature change, increase or decrease one jet size in each location.

OPERATION

Pre-Starting Check List

- ☐ Engine lowered to run position with all water intake holes submerged.
- ☐ Fuel supply OK. (Vent cap open or fuel petcock “On”).
- ☐ Fuel mixture OK.
- ☐ Lanyard stop switch in “Run” position and cord connected.
- ☐ Top cowl latches secure.
- ☐ Make inspection checks listed in the Inspection and Maintenance Schedule. Refer to Maintenance Section.

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.

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 lift the outboard so the gear case is completely out of water (except in freezing temperature) when not in use.

(continued on next page)

OPERATION

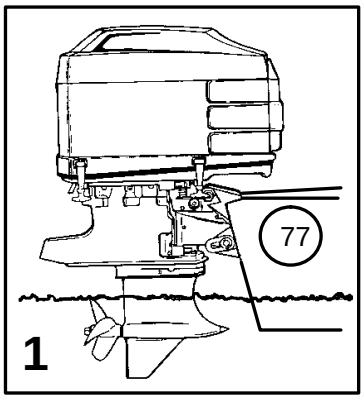
Operating In Salt Water or Polluted Water (cont.)

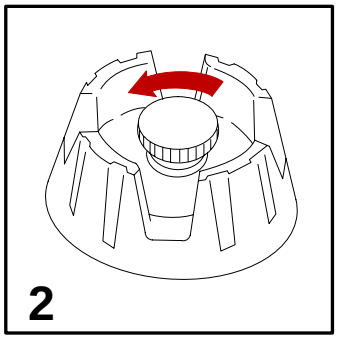
Wash down the outboard exterior and flush out the exhaust outlet of the propeller and gear case with fresh water after each use. After each usage spray Quicksilver Corrosion Guard on the engine exterior, electrical components and other metal surfaces (do not spray on corrosion control anodes as this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

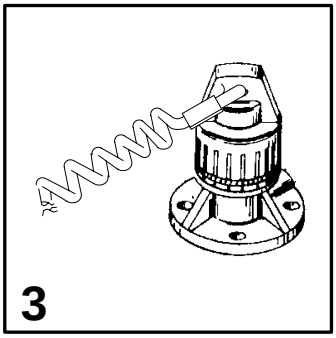
Operating at High Elevations

A propeller with a different pitch may be required to help reduce the normal performance loss experienced as a result of reduced oxygen in the air. Your engine may also require jet changes to maintain optimum performance in addition to propeller changes. Consult your dealer.

OPERATION







Starting the Engine

⚠ WARNING

Avoid possible serious injury or death. Your racing outboard can only be started in forward gear. Extreme care must be taken by the operator to assure that the area around the boat is safe for starting and that he/she is in control of the boat when the start switch is engaged.

Before starting, read the Pre-Starting Check List, Special Operating Instructions, in the Operation Section.

⚠ CAUTION

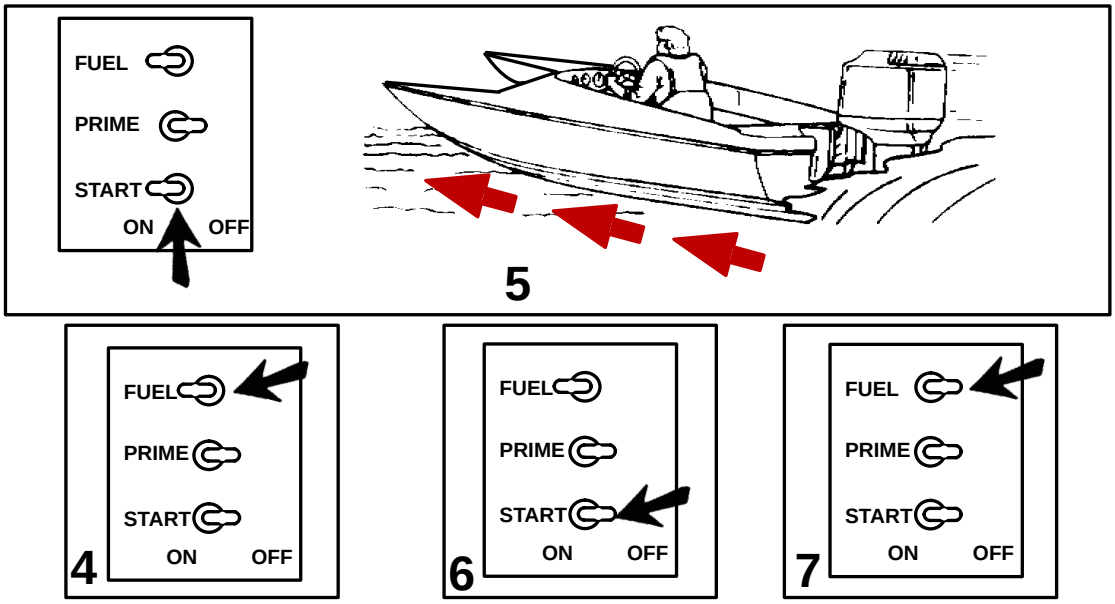
Never start or run your outboard (even momentarily) without water circulating through all the cooling water intake holes in the gear case to prevent damage to the water pump (running dry) or overheating of the engine.

1 Lower the outboard to the run position. Make sure all the cooling water intake holes are submerged.

2 Open fuel tank filler cap vent screw (manual venting fuel tanks).

3 Place the Lanyard safety cord onto the stop switch and set the Lanyard Stop Switch cap into position. Read the Lanyard Stop Switch safety explanation and Warning in the General Information Section.

OPERATION



Starting the Engine (cont.)

4 Toggle the fuel pump switch to the ON position.

5 Your racing outboard is always in forward gear. You must be prepared for immediate forward thrust as soon as the start switch is engaged. See preceding warning. Start engine.

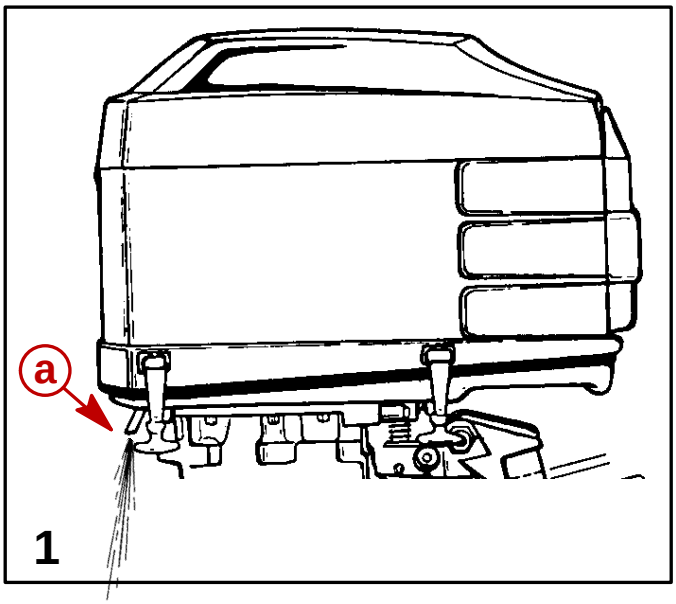
Stopping the Engine

6 Bring boat off plane and reduce engine speed to an idle. Toggle ignition start switch to the OFF position.

⚠ WARNING

Avoid possible serious injury or death. Failure to shut off the fuel pump switch after the engine is stopped could lead to a possible fire hazard. Shutting the fuel pump switch off before the ignition switch is shut off could lead to possible engine damage also.

7 Toggle the fuel pump switch to the OFF position.



Engine Overheating

1 If the engine overheats, immediately reduce throttle speed to idle and check for a steady stream of water coming out of the water pump indicator hoses (a).

⚠ CAUTION

Operating the engine while overheated will cause engine damage. The overheat problem must be corrected before you can resume normal operation.

a. **If no water is coming out of the water pump indicator hose (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.

b. **If a steady stream of water is coming out of the water pump indicator hose (a) and the water temperature gauge continues to indicate hot:**

- There may be insufficient cooling water or an engine problem.
- Stop engine and have it checked by your dealer.

MAINTENANCE

Outboard Care

To ensure safety and retain dependability keep your outboard in the best operating condition by performing the periodic inspections and maintenance listed in the Inspection and Maintenance Schedule. Record maintenance performed in Maintenance Log at the back of this book. Save all maintenance work orders and receipts.

ohr1

⚠ WARNING

Neglected outboard inspection and maintenance or performing maintenance or repairs you are not familiar with, could result in personal injury, death or product failure.

Submerged Outboard

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

Selecting Replacement Parts For Your Outboard

We recommend using original Mercury Precision replacement parts and Lubricants.

⚠ WARNING

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

MAINTENANCE

Inspection and Maintenance Schedule

Before Each Race

1. Check that lanyard stop switch stops the engine.
2. Visually inspect the fuel system for deterioration or leaks.
3. Check fuel pressure.
4. Check outboard for tightness on transom.
5. Check steering system for binding or loose components.
6. Check control cable adjustments.
7. Check tightness of bolts, nuts, and other fasteners.
8. Check level and condition of gear case lubricant.
9. Check propeller blades for damage.
10. Check propeller for tightness.
11. Inspect battery.
12. Clean and inspect motor exterior.

AFTER EACH USE OR RACE

1. Flush out the outboard cooling system if operating in salt or polluted water.
2. If operating in salt water, wash off salt deposits and flush propeller and gear case exhaust outlet with fresh water.

EVERY 2 OR 3 RACES

1. Replace 10 micron final fuel filter.
2. Inspect spark plugs.
3. Inspect reeds.
4. Check engine timing setup.

EVERY 25 HOURS OF USE OR ONCE A MONTH

1. Check charging system.
2. Inspect/replace spark plugs if needed.

(continued on next page)

MAINTENANCE

Inspection and Maintenance Schedule (cont.)

EVERY 25 HOURS OF USE OR ONCE A MONTH (CONT.)

3. Drain and replace gear case lubricant.
4. Lubricate drive shaft splines.*
5. Check power trim pump oil level.
6. Lubricate all lubrication points. (More frequently in salt water).
7. Replace water pump impeller (more often if overheating occurs or reduced water pressure is noted).*
8. Check control cable adjustments.*

* *These items should be serviced by an authorized dealer.*

BEFORE PERIODS OF STORAGE

1. Refer to Storage procedure.

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.

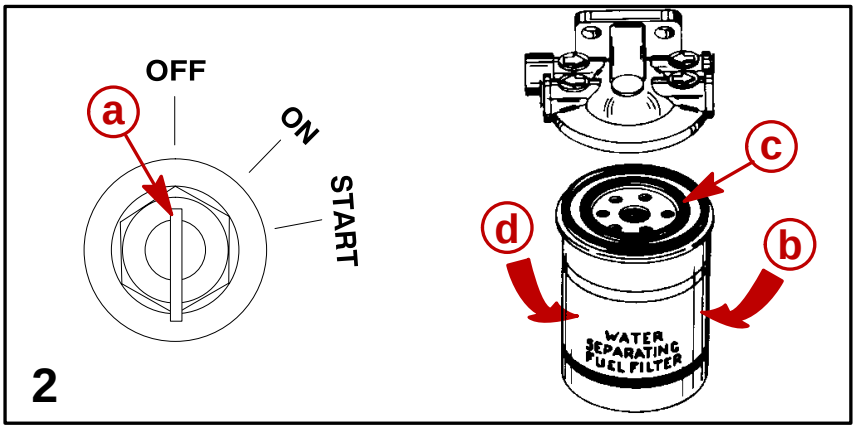
Before servicing any part of the fuel system:

- Stop engine and disconnect the battery.
- Drain the fuel system completely.
- Fuel system service must be performed in a well ventilated area.
- Inspect any completed service work for sign of fuel leakage.

IMPORTANT: 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.

FUEL LINE INSPECTION

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



Fuel System (cont.)

Final 10 Micron Fuel Filter

⚠ CAUTION

The fuel in this filter is under high pressure. The fuel system will have to be relieved of pressure before servicing. You should have this filter serviced by an authorized dealer.

Replace element every 2 or 3 races.

WATER SEPARATING FUEL FILTER (NOT INCLUDED WITH ENGINE)

1 We recommend a water separating fuel filter which removes moisture and debris from the fuel. This filter should be installed in the fuel supply line before the electric fuel pump which is supplied with your engine. If the filter becomes filled with water, the water can be removed. If the filter becomes plugged with debris, the filter must be replaced with a new filter.

2 **Remove and replace filter as follows:**

- **a** - Turn ignition key switch to OFF position.
- **b** - Remove filter by turning the filter (counterclockwise). Dump fluid in a suitable container.
- **c** - Lubricate the sealing ring on the filter with oil.
- **d** - Thread on filter and tighten securely by hand.

IMPORTANT: Visually inspect for fuel leakage from the filter after starting the engine.

MAINTENANCE

Steering and Throttle Systems

⚠ WARNING

The need for steering system/throttle controls inspection or service is indicated by increased effort or binding while turning the steering wheel, excessive free-play or unusual sound while steering. If any of these problems exist, DO NOT WAIT. Remedy problem immediately. Use extreme care and observe slow speeds if operating boat before repairs are made.

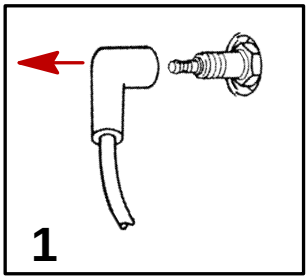
1. Check the steering system for ease of operation. Be alert to any changes in steering action.
2. Check throttle and throttle linkages for ease of operation and make sure that all anchor bolts and nuts are tightened properly. Be alert for unusual looseness, sticking or jamming and, if problems exist, follow instructions in “Safety Warning” immediately preceding.

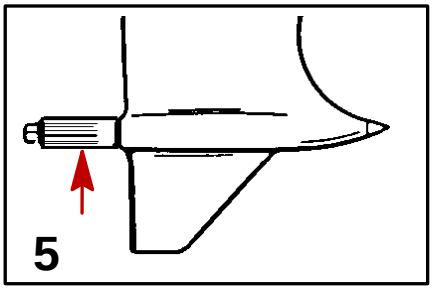
Propeller Repair

Some damaged Mercury Marine propellers can be repaired. Consult Mercury Racing for available repairs and costs:

Mercury Racing
N7480 County RD. “UU”
Fond du Lac, Wi 54936
Phone: 920-921-5330
Fax: 920-921-6533

MAINTENANCE





Propeller Replacement

⚠ WARNING

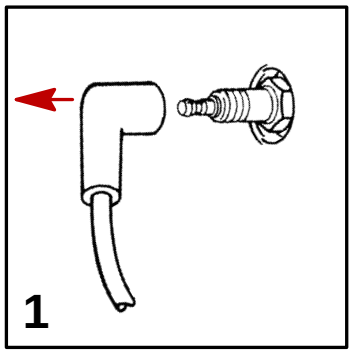
If the propeller shaft is rotated while the engine is in gear, there is the possibility that the engine will crank over and start. To prevent this type of accidental engine starting and possible serious injury caused from being struck by a rotating propeller, always remove spark plug leads when you are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

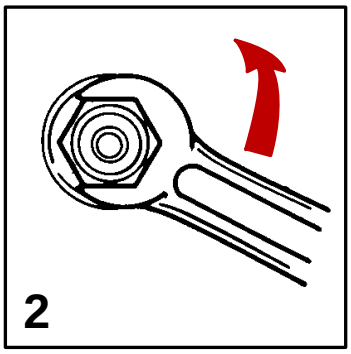
1. To prevent engine from starting, remove top cowl and disconnect spark plug leads (twist rubber boots slightly to remove).
2. Turn propeller shaft nut counterclockwise to remove nut and washer.
3. Pull propeller straight off shaft. If propeller is seized to the shaft and cannot be removed, have the propeller removed by an authorized dealer.
4. Remove splined forward thrust washer from propeller shaft.
5. Coat the propeller shaft with Quicksilver Anti-Corrosion Grease or 2-4-C Marine Lubricant with Teflon.

IMPORTANT: To prevent the propeller hub from corroding and seizing to the propeller shaft, especially in salt water, apply a coat of Quicksilver Anti-Corrosion Grease or 2-4-C Marine Lubricant with Teflon to the entire shaft at the recommended maintenance intervals and each time the propeller is removed.

6. Install inner thrust splined washer, propeller, outer washer, and propeller nut. Torque propeller nut to 55 lb. ft. (75 N·m).

MAINTENANCE





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. Inspect spark plug boots and replace if cracked.

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).

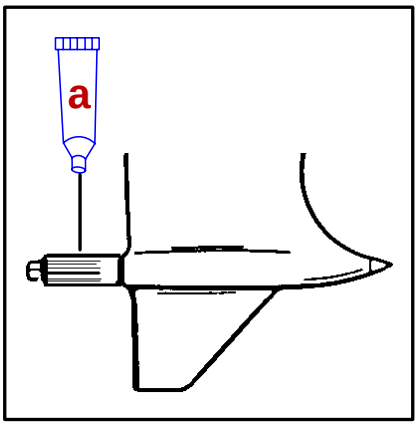
Battery Inspection

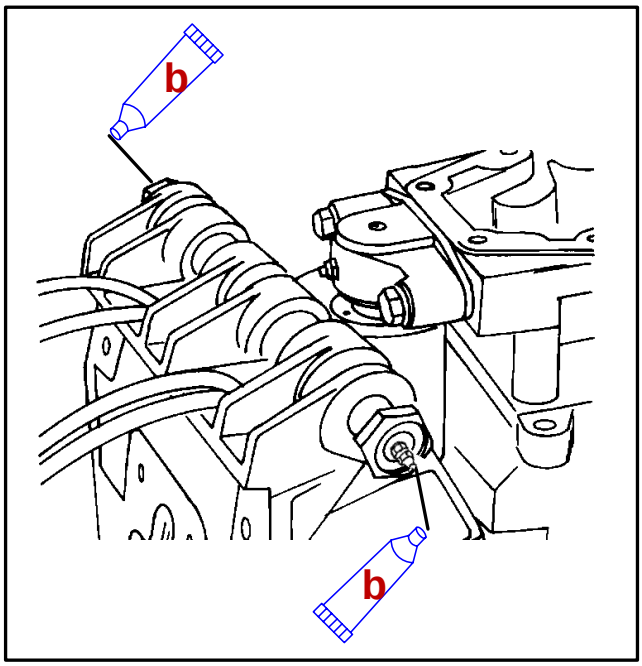
The battery should be periodically inspected.

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.
4. Battery cable terminals should be clean, tight, and positive to positive and negative to negative.
5. Make sure the battery is equipped with nonconductive terminal shields to prevent accidental shorting of battery terminals.

MAINTENANCE





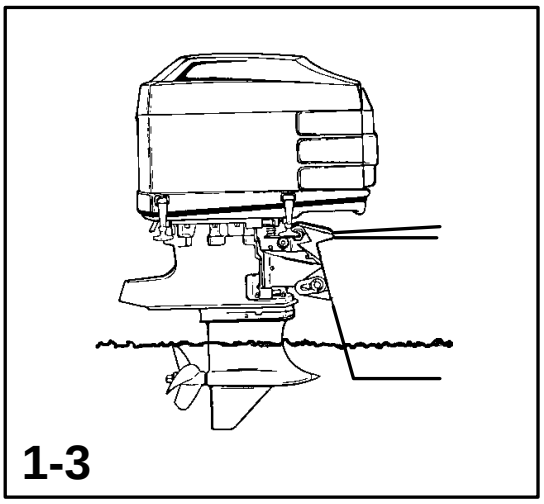
Lubrication Points

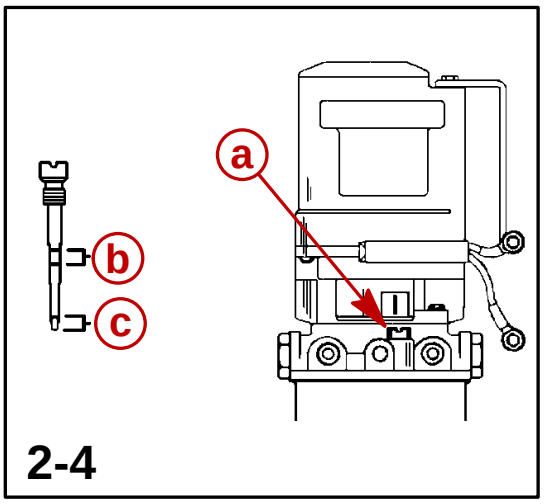
a - Mercury Marine Anti-Corrosion Grease (92-78376A6)

b - Mercury Marine 2-4-C (92-825407A1) or Special Lubricant 101 (92-13872A1) Lubricate through fitting.

NOTE: *Propeller Shaft – Refer to Propeller Replacement for removal and installation.*

MAINTENANCE


1-3



2-4

Checking Power Trim or Hydraulic Up/Down Fluid

1 Place outboard in the full down (in) position.

2 Remove trim pump fill/vent screw (a)

- Wipe fill/vent screw with a clean, lint-free cloth and reinstall - DO NOT THREAD INTO PUMP.
- Remove fill/vent screw and note oil level. Oil level must be between the “ADD” (c) and “FULL” (b) marks on dipstick.
- If necessary, add Quicksilver Power Trim & Steering Fluid or SAE 10W-30 or 10W-40 motor oil thru the fill/vent screw hole to bring level up to the “FULL” mark on the dipstick. DO NOT OVERFILL.

3 To purge system of air, raise the outboard 2 or 3 times. Recheck oil level and add oil if necessary.

4 Reinstall fill/vent screw by turning it all-the-way in, then back it out one and a half (1-1/2) turns.

⚠ CAUTION

Fill/Vent screw MUST BE backed out one and a half (1-1/2) turns (after bottoming out) to vent pump reservoir. FAILURE TO BACK SCREW OUT COULD RESULT IN DAMAGE TO PUMP.

ok

MAINTENANCE LOG

Record here all maintenance performed on your outboard. Be sure to save all work orders and receipts.

DATE	MAINTENANCE PERFORMED	ENGINE HOURS

ok

MAINTENANCE LOG

DATE	MAINTENANCE PERFORMED	ENGINE HOURS

STORAGE

Storage Preparation

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

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

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, water may enter the propeller exhaust outlet in the gear case and could freeze causing damage to the outboard.

hib1

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 used 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.

To prevent varnish or gum buildup during extended storage, we recommend adding Mercury Precision Fuel System Treatment and Stabilizer (92-802875A1) to the fuel tank and operation of the engine to introduce the additives to the system.

(continued on next page)

STORAGE

hib1
Fuel System (Continued)

1. Portable Fuel Tank – Pour the required amount of Mercury Precision Fuel System Treatment and Stabilizer (92-802875A1) (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 Mercury Precision Fuel System Treatment and Stabilizer (92-802875A1) (follow instructions on container) into a separate container and mix with approximately one quart (one liter) of gasoline. Pour this mixture into fuel tank.

⚠ CAUTION

Prevent damage to the water pump or overheating of the engine, never start or run your outboard (even momentarily) without an adequate water supply to the engine.

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 fill the fuel system.

hid1
Protecting Internal Engine Components

NOTE: *Before performing the following steps, make sure the fuel system has been prepared for storage. Refer to Fuel System.*

1. Remove the spark plugs and inject a five second spray of Mercury Precision Storage Seal Rust Inhibitor (92-802878-56) around the inside of each cylinder.
2. Rotate the flywheel manually several times to distribute the storage seal in the cylinders. Reinstall spark plugs.
3. Remove the water separating fuel filter and empty contents in a suitable container. Refer to Maintenance Section for removal and installation of filter. Replace fuel filter annually, or every 100 Hours of operation, or if large amount of fuel contamination is present.

oi

STORAGE

oic7

Protecting External Outboard Components

1. Lubricate all outboard components listed in the Inspection and Maintenance Schedule.
2. Touch up any paint nicks. See dealer for touch-up paint.
3. Spray Mercury Precision Corrosion Guard (92-802878-55) on external metal surfaces, (Do not apply on corrosion control anodes).

oie1

Gear Case

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

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.

oj

TROUBLESHOOTING

ojc1

1 – STARTER MOTOR WILL NOT CRANK THE ENGINE

POSSIBLE CAUSES

- 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. Fuel filter is obstructed. Refer to Maintenance Section.
    e. Fuel pump failure.
    f. Fuel tank filter obstructed.
- Ignition system component failure.
- Spark plugs fouled or defective. Refer to Maintenance Section.

oj

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. Fuel tank filter obstructed.
    b. Water separating filter or In-Line filter clogged.
    c. Stuck anti-siphon valve on built in fuel tank.
    d. Fuel line is kinked or pinched.
    e. Reed valve open or broken.
- Fuel pump failure.
- Ignition system component failure.

4 – PERFORMANCE LOSS

POSSIBLE CAUSES

- Throttle not opening fully.
- 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.

oj

TROUBLESHOOTING

5 – BATTERY WILL NOT HOLD CHARGE

POSSIBLE CAUSES

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

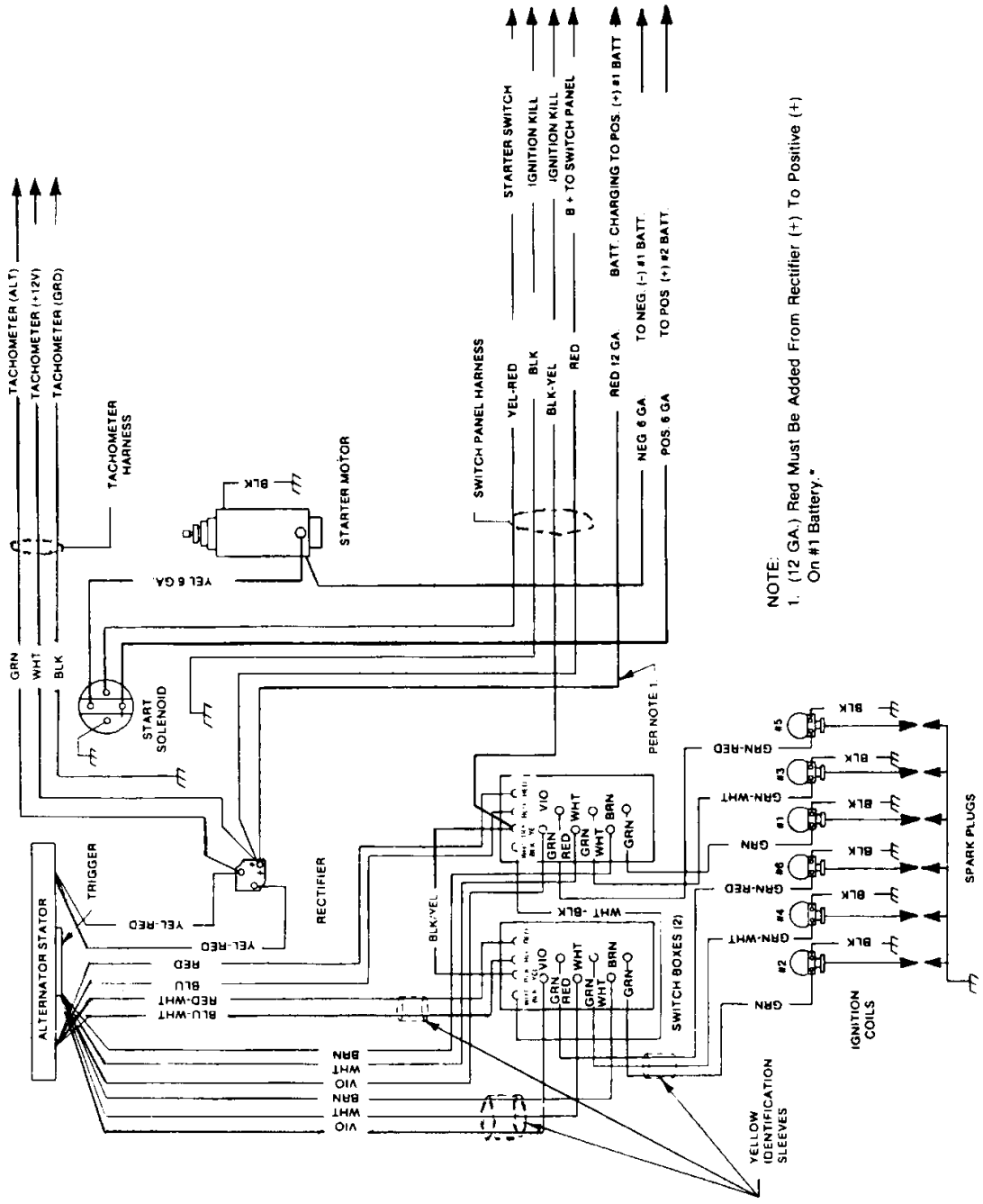
6 – ENGINE OVERHEATING

POSSIBLE CAUSES

- Cooling system clogged.
- Incorrect ignition timing.
- Incorrect transom height (water pickups not getting adequate water supply).
- Not enough oil in fuel mixture.
- Lean fuel mixture.

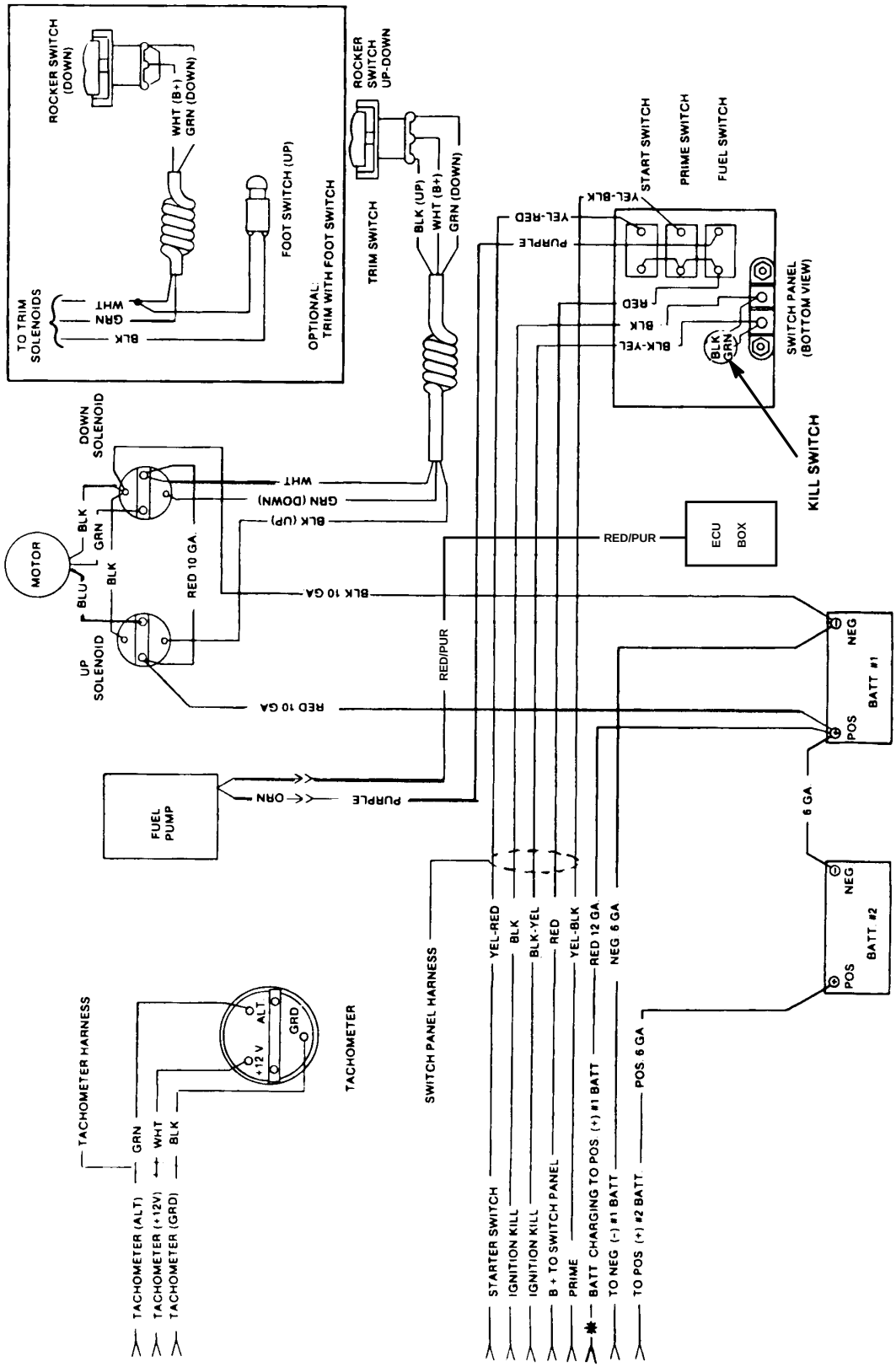
WIRING DIAGRAMS

Engine Wiring Diagram
All 12v Run-24v Start



WIRING DIAGRAMS

Boat Wiring Diagram
All 12v Run-24v Start



OWNER SERVICE ASSISTANCE

or6

Local Repair Service

Always return your outboard to your local authorized dealer should the need for service arise. Only he has the factory-trained mechanics, knowledge, special tools and equipment and the genuine parts and accessories to properly service your engine should the need occur. He knows your engine best.

Service Away From Home

If you are away from your local dealer and the need arises for service, contact the nearest authorized dealer. Refer to the Yellow Pages of the telephone directory. If, for any reason, you cannot obtain service, contact the nearest Mercury Marine Service Office. Outside the United States and Canada, contact the nearest Marine Power International Service Center.

or7

Parts And Accessories Inquiries

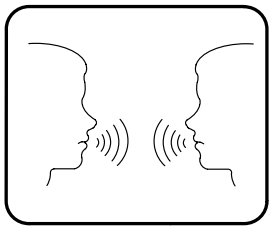
All inquiries concerning genuine replacement parts and accessories should be directed to your local authorized dealer. The dealer has the necessary information to order parts and accessories for you. When inquiring on parts and accessories, the dealer requires the **model** and **serial number** to order the correct parts.

OWNER SERVICE ASSISTANCE

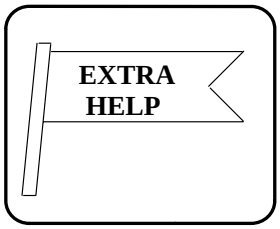
or4
Service Assistance

Your satisfaction with your outboard product is very important to your dealer and to us. If you ever have a problem, question or concern about your outboard product, contact your dealer or any Authorized Mercury Marine Dealership. If additional assistance is required, take these steps.

1. *Talk with the dealership's sales manager or service manager. If this has already been done, then contact the owner of the dealership.*



2. *Should you have a question, concern or problem that cannot be resolved by your dealership, please contact Mercury Marine Service Office for assistance. Mercury Marine will work with you and your dealership to resolve all problems.*



The following information will be needed by the service office:

- Your name and address
- Daytime telephone number
- Model and serial number of your outboard
- The name and address of your dealership
- Nature of problem

Mercury Marine Service Offices are listed on the next pages.

OWNER SERVICE ASSISTANCE

or5
Mercury Marine Service Offices

For assistance, call, fax, or write. *Please include your daytime telephone number with mail and fax correspondence.*

Telephone 	Fax 	Mail 
United States		
(920) 929-5040	(920) 929-5893	Mercury Marine W6250 W. Pioneer Road P.O. Box 1939 Fond du Lac, WI 54936-1939
United States (Mercury Racing)		
(920) 924-2088	(920) 924-2096	Mercury Racing N7480 County Rd. “UU” Fond du Lac, WI 54935-9585
Canada		
(905) 567-6372	(905) 567-8515	Mercury Marine Ltd. 2395 Meadowpine Blvd. Mississauga, Ontario Canada L5N 7W6
Australia, Pacific		
(61) (3) 9791-5822	(61) (3) 9793-5880	Mercury Marine Australia 132-140 Frankston Road Dandenong, Victoria 3164 Australia
Europe, Middle East, Africa		
(32) (87) 32-3211	(32) (87) 31-1965	Marine Power - Europe, Inc. Parc Industriel de Petit-Rechain B-4800 Verviers Belgium
Mexico, Central America, South America, Caribbean		
(305) 385-9585	(305) 385-5507	Mercury Marine - Latin America & Caribbean 9010 S.W. 137th Ave. Suite 226 Miami, FL 33186 U.S.A.

OWNER SERVICE ASSISTANCE

or5
Mercury Marine Service Offices (cont.)

Telephone 	Fax 	Mail 
Japan		
(81) 543/34-2500	(81) 543/34-2022	Mercury Marine - Japan No. 27-2 Muramatsu Chisaki-Shinden Shimizu City Shizuoka Prefecture Japan 424
Asia, Singapore		
(65) 546-6160	(65) 546-7789	Mercury Marine Singapore 72 Loyang Way Singapore 508762

CA752

Ordering Literature

Before ordering literature, please have the following information about your power package available:

Model _____ Horsepower_____
Serial Number_____ Year_____

United States and Canada

For information on additional literature that is available for your particular Mercury/MerCruiser power package and how to order that literature contact your nearest dealer or contact:

Mercury Marine

Telephone 	Fax 	Mail 
(920) 929-5110	(920) 929-4894	Mercury Marine Attn: Publications Department P.O. Box 1939 Fond du Lac, WI 54936-1939

Outside The United States and Canada

Contact your nearest dealer or Marine Power Service Center for information on additional literature that is available for your particular Mercury/MerCruiser power package and how to order that literature.