If the outboard engine's serial number plate contains the CE mark in the lower left-hand corner, the following statement applies:

This outboard engine manufactured by Mercury Marine, Fond du Lac, Wisconsin, USA or Marine Power Europe Inc. Park Industriel, de Petit-Rechain, Belgium complies with the requirements of the following directives and standards, as amended:

Machinery Directive:	98/37/EC,
EMC Directive:	89/336/EC; std. EN50081-1, SAE J551 (CISPR Pub. 12), EN 50082-1, IEC 61000 PT4-2, IEC 61000 PT4-3

Patrick C. Mackey

President, Mercury Marine, Fond du Lac, WI USA

European Regulations Contact:
Product Environmental Engineering Department, Mercury Marine, Fond du Lac, WI USA

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 engines. 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.

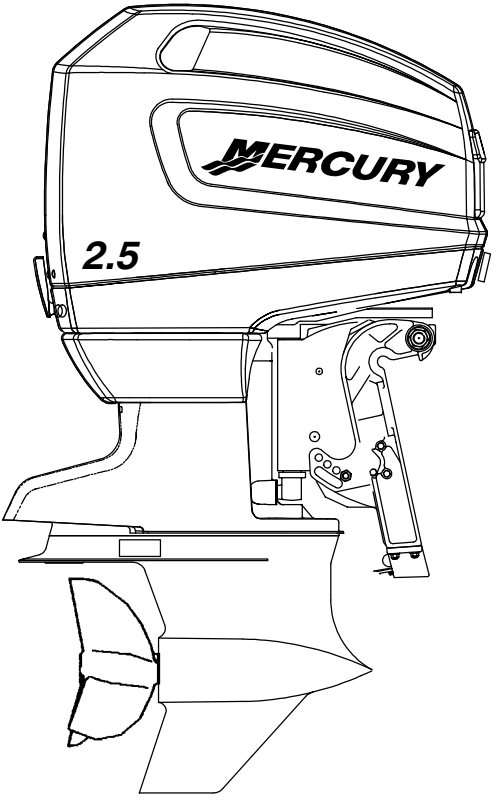
Please read this manual carefully before operating your outboard. This manual has been prepared to assist you in the operation, safe use and care of your outboard.

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


MERCURY
2.5

oa

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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.

Ensure 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.

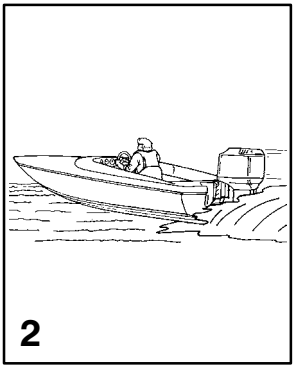
ob

GENERAL INFORMATION

gob12

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

1



2

obc1

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.**

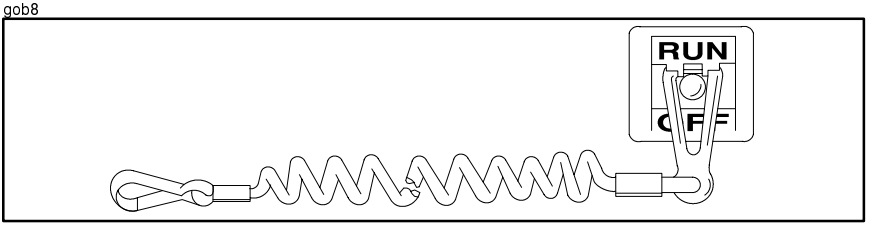
obd2

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

gob8



obg6

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.

ob

GENERAL INFORMATION

obg6

Lanyard Stop Switch

⚠ 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.

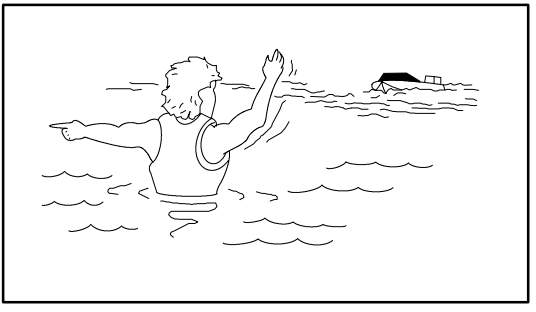
Accidental or unintended activation of the Lanyard Stop Switch during normal operation is a possibility and could cause any, or all, of the following potentially hazardous situations:

- 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.
- Loss of power and directional control in heavy seas, strong current or high winds.
- Loss of control when docking.

ob

GENERAL INFORMATION

gob3



Protecting People In The Water

WHILE YOU ARE CRUISING

It is very difficult for a person in the water to take quick action to avoid a boat heading in their 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 (even coasting) even with the outboard in neutral position, there is sufficient force by the water to rotate the propeller. This neutral propeller rotation can cause serious injury.

WHILE BOAT IS STATIONARY

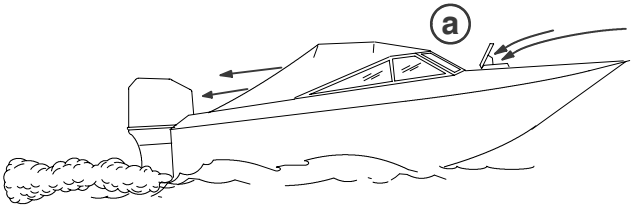
Shift outboard into neutral and shut off the engine before allowing people to swim or be in the water near your boat.

⚠ 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

gob4



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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.

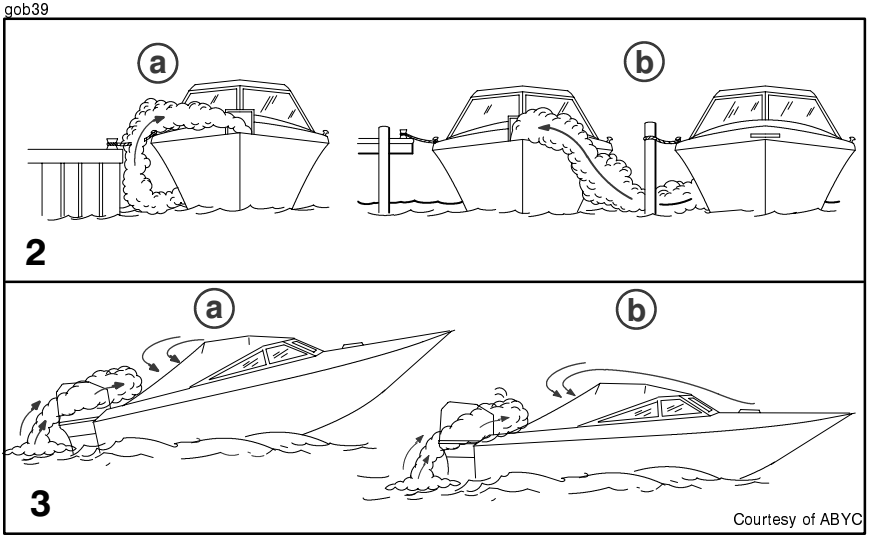
SUFFICIENT FRESH AIR FLOW

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

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 operating.
- **b** - Boat is moored close to another boat with its engine running.

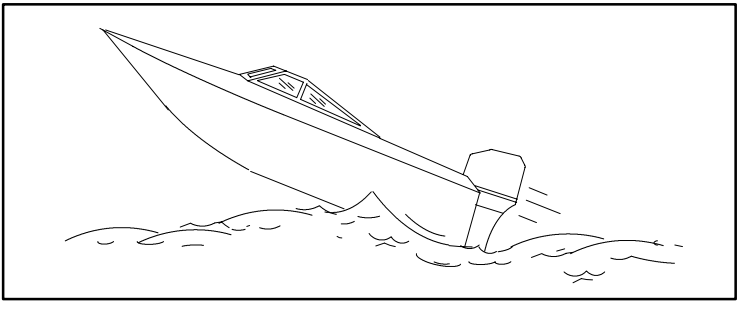
3 While boat is moving:

- **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.

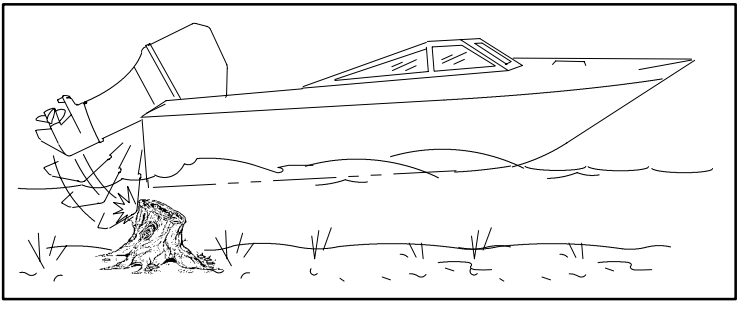
⚠ WARNING

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.

obt4

Impact With Underwater Hazards

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 operation 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.

ob

GENERAL INFORMATION

obj1

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.

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 Hot-line, 1-800-368-5647 or the Boat U.S. Foundation information number 1-800-336-BOAT.

GENERAL INFORMATION

Safe Boating Suggestions

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.

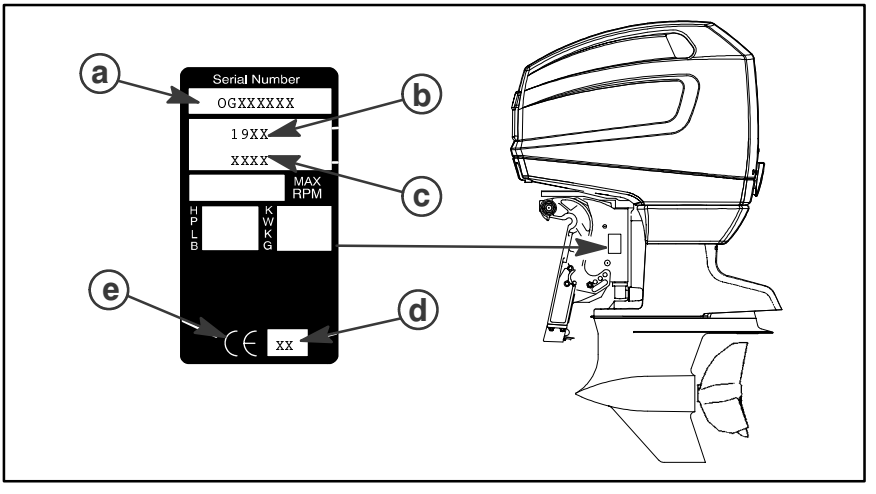
ob

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

ob

GENERAL INFORMATION

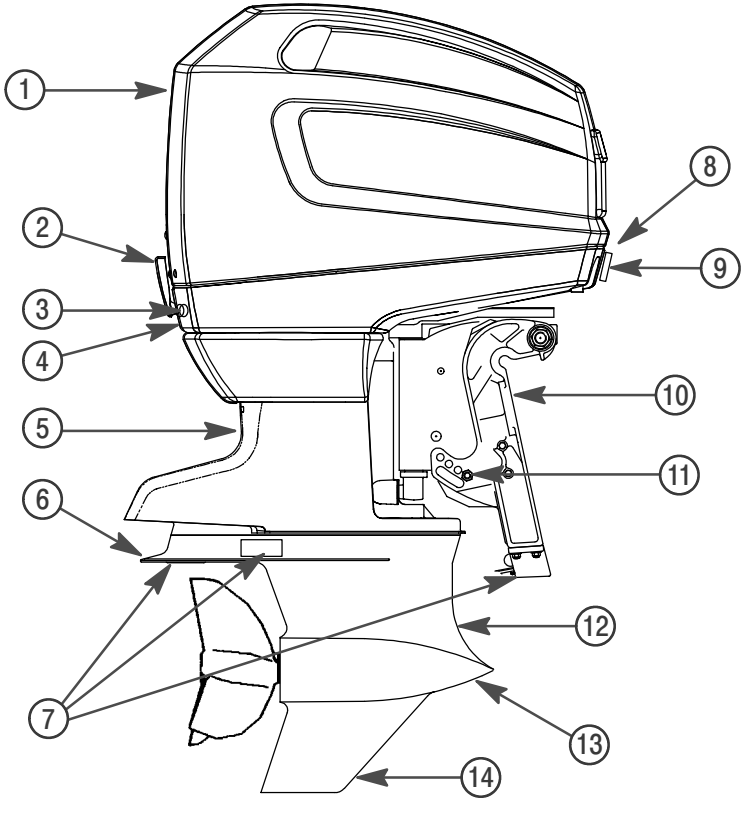
Specifications

MODEL	2.5 EFI DRAG
Horsepower	315
Propshaft Kilowatts[1]	235
ECU Box Rev Limit	11500
Idle rpm in Forward Gear	650-750
Weight	170 kg (375 lb)
Piston Displacement	2507 cc (153 cu. in.)
Bore	89 mm (3.5 in.)
Stroke	67 mm (2.65 in.)
Recommended Spark Plug	NGK-BUZHW (P/N 33-14103550)
Firing Order	1-2-3-4-5-6
Maximum Timing	25° BTDC
Idle Speed Pickup Timing	TDC 0°
Fuel Pressure	386 kPa (56 psi)
Min. Water Pres. @ WOT	15 psi Taken at Top of Exh. Cover
Gear Ratio	1.87:1 or 2:1
Recommended Gasoline	Refer to Fuel and Oil Section
Recommended Oil	Refer to Fuel and Oil Section
Recommended Gear Case Oil	Hi-Performance Gear Lube
Gear Case Lubricant Cap.	666 ml (22.5 fl. oz.)
Battery Rating	Minimum reserve capacity rating of 100 minutes and CCA of 350
Charging System Output	16 amps @ 7500 rpm
Transom Height	381 mm (15 in.)

[1] Measured at the propshaft in accordance with ICOMIA28

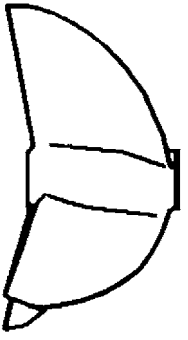
GENERAL INFORMATION

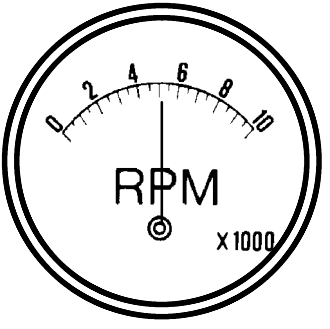
Component Identification



1. Top cowl
2. Cowl latch (rear)
3. Water pump indicator hose (tell-tale)
4. Bottom cowl
5. Drive shaft housing
6. Anti-ventilation plate
7. Corrosion anode(s)
8. Wiring harness, fuel line and control cables (Install through bottom cowl)
9. Cowl latch (front)
10. Transom brackets
11. Trim adjustment bolt
12. Gear case
13. Cooling water intake holes
14. Skeg

GENERAL INFORMATION





Propeller Selection

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).

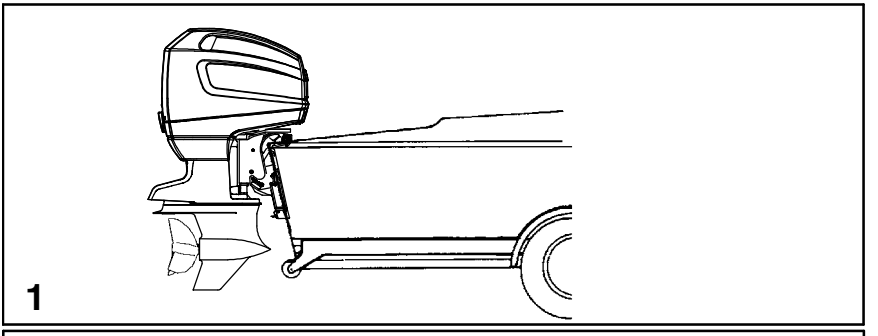
If full throttle operation is below the recommended range, the propeller must be changed to prevent loss of performance and possible engine damage. On the other hand, operating an engine above the recommended operating rpm range will cause higher than normal wear and/or damage. Generally, there is a 200-300 rpm change between propeller pitches.

Rpm loss may require a change to a lower pitch propeller due to the following conditions:

- Warmer weather and greater humidity.
- Operating in a higher elevation.
- Operating with a damaged propeller or dirty boat bottom.
- Operating with increased load (additional passengers, pulling skiers, etc.).

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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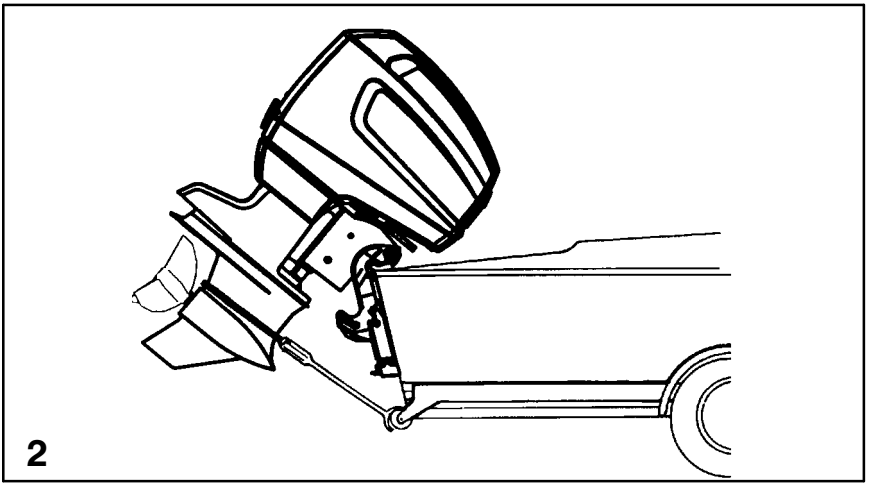

2

Trailering Boat/Outboard

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

2 If additional ground clearance is required for, railroad crossings, driveways or trailer bouncing, support the outboard using a support device. Contact your local dealer for recommendations.

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.

To prevent the propeller from spinning freely shift into forward gear.

oe

FUEL & OIL

Fuel Recommendations

UNITED STATES AND CANADA

Use a major brand of automotive unleaded fuel with a minimum posted octane rating matching that specified below. Automotive fuels that contain fuel injector cleaner are recommended for added internal engine cleanliness.

Fuel Type	Minimum Posted Octane
Racing Fuel	112 (R+M)/2

INTERNATIONAL

Use a major brand of automotive unleaded fuel with a minimum posted octane rating matching that specified below. Automotive gasolines that contain fuel injector cleaner are preferred for added internal engine cleanliness. Leaded fuel is acceptable in areas where unleaded fuel is not available. However, exhaust passageway corrosion may occur due to the accumulation of exhausted lead particles.

Fuel Type	Minimum Posted Octane
Racing Fuel	118 RON

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 FUEL

We do not recommend fuel containing alcohol due to the possible adverse effect the alcohol may have on the fuel system. If only fuel containing alcohol is available, it must not contain more than 10% ethanol or 5% methanol, and the addition of a Water Separating Fuel Filter is recommended.

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

FUEL & OIL

ALCOHOL IN FUEL

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

The tendency of fuel containing alcohol to absorb moisture from the air, results in a phase of water and alcohol which separates from the fuel in the fuel tank.

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

Oil Recommendation

- **All oils used must be NMMA certified TC-W3 2-Cycle oil.**
- **Mercury 2-Cycle oil is recommended above other manufacturers.**

Oil Recommendations	
Recommended Oil	Mercury Precision 2-Cycle Performance Blend Oil
Use the following Oils For Emergency Use Only	
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.

oe

FUEL & OIL

Fuel/Oil Mixture

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

Use a 32:1 fuel/oil mixture in your fuel tank. Use the following ratio for both normal operation and Break-in.

Fuel to Oil Mixing Ratio	This Much Fuel:	Requires This Much Oil:
32:1 (3.1%)	3.8 l (1 U.S. gal)	118 ml (4 fl. oz.)
	11.5 l (3 U.S. gal)	359 ml (12 fl. oz.)
	23 l (6 U.S. gal)	710 ml (24 fl. oz.)

Filling the Fuel Tank

⚠ WARNING

Avoid serious injury or death from a fuel 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 expands in volume as its temperature rises and can leak under pressure if the tank is completely filled.

FEATURES & CONTROLS

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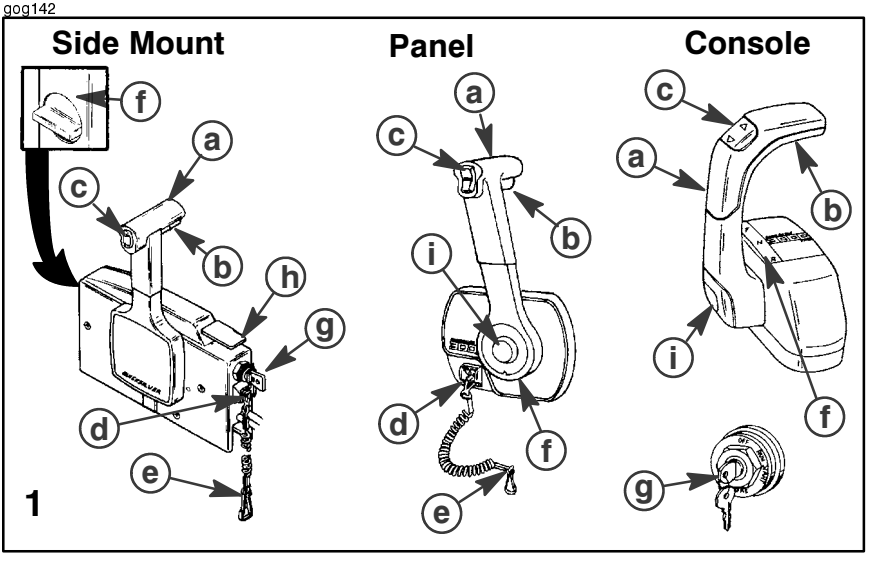


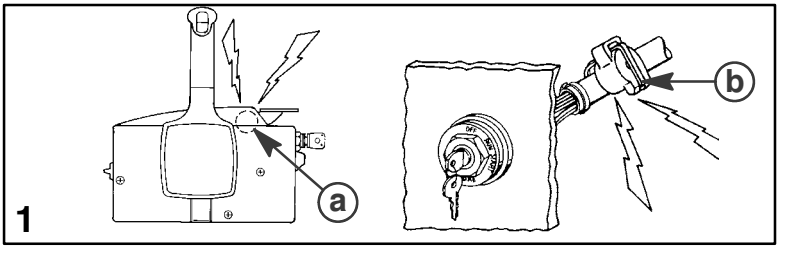
oge5

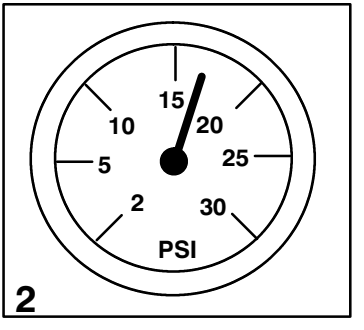
Remote Control Features

1 Your boat may be equipped with one of the Quicksilver remote controls shown. If not, consult your dealer for operation of your remote control.

- **a** - Control Shift/Throttle Handle
- **b** - Neutral Release Lever
- **c** - Trim/Tilt Switch
- **d** - Lanyard Stop Switch - Read the Lanyard Stop Switch safety explanation and Warning in the General Information Section.
- **e** - Lanyard - Read the lanyard stop switch safety explanation and warning in the General Information Section.
- **f** - Throttle Friction Adjustment
- **g** - Ignition Key Switch, Choke
- **h** - Fast Idle Lever - Raising lever will increase engine idle speed in neutral.
- **i** - Throttle Only Button - Pushing the button in will enable advancing the control handle and increase engine idle speed without shifting outboard into gear.

FEATURES & CONTROLS





Warning Horn System

1 The outboard warning system incorporates a warning horn inside the boat. The warning horn may be located inside the remote control or under the dash connected to the ignition key switch.

a - Inside the remote control
b - Under the dash

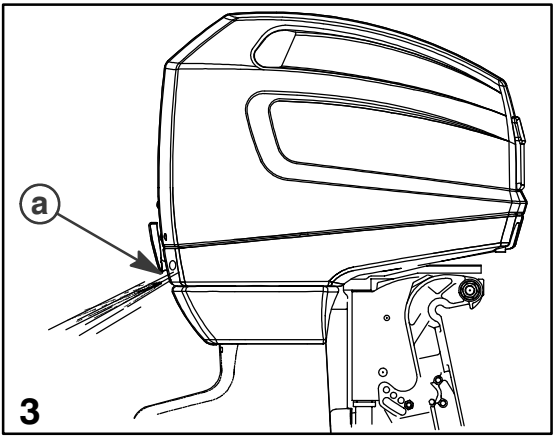
The system is designed for the warning horn to emit a continuous beep. This will alert the operator of a engine overheat problem.

THE WARNING HORN SOUNDS CONTINUOUSLY

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

2 **Low Water Pressure/Overheating:** Monitor the water pressure gauge during operation for early signs of an overheat condition. Low water pressure could indicate an engine overheat condition even before the warning horn sounds. Minimum water pressure at wide open throttle is 103 kPa (15 psi) taken at the top of the exhaust cover.

FEATURES & CONTROLS



Warning Horn System

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

b. **If a steady stream of water is coming out of the water pump indicator hole (a) and the warning horn continues to sound:**

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

FEATURES & CONTROLS

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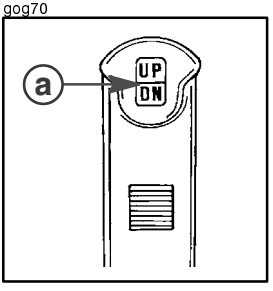

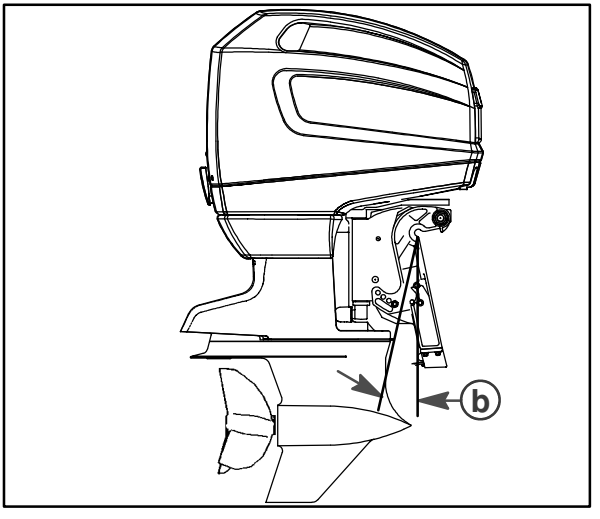

Power Trim And Tilt

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

- **Pressing (DN):** Moves the outboard in closer to the boat transom, called trimming IN/DOWN.
- **Pressing (UP):** Moves the outboard further away from the boat transom, called trimming OUT/UP.

The term “trim”:

- Generally refers to the adjustment of the outboard within the first 20 range of travel (b).

The term “tilt”:

- Generally refers to adjusting the outboard further up out of the water.

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.

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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/DOWN

Trimming IN/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.

FEATURES & CONTROLS

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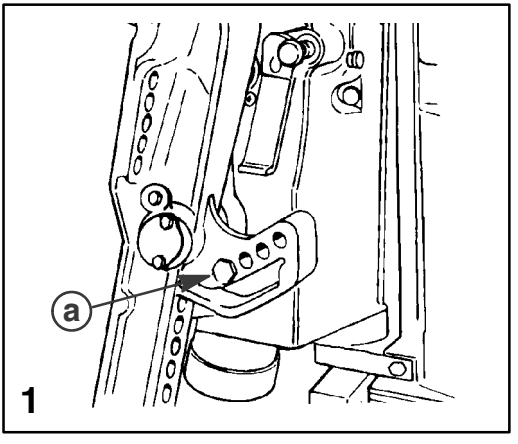
Power Trim Operation



⚠ WARNING

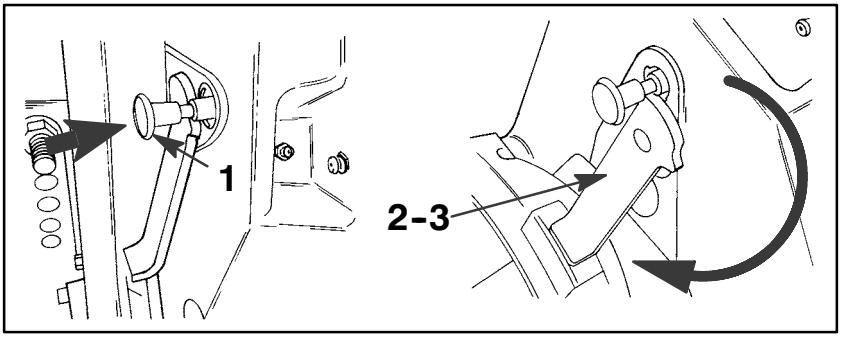
Avoid possible serious injury or death. Adjust outboard to an intermediate trim position as soon as boat is on plane to avoid possible ejection due to boat spin-out. Do not attempt to turn boat when on plane if outboard is trimmed extremely in or down and there is a pull on the steering wheel.

The trim in limit may be set by inserting the tilt pin (a) into the desired transom bracket hole.

TRIMMING OUT/UP

Trimming OUT/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.



Tilting Operation

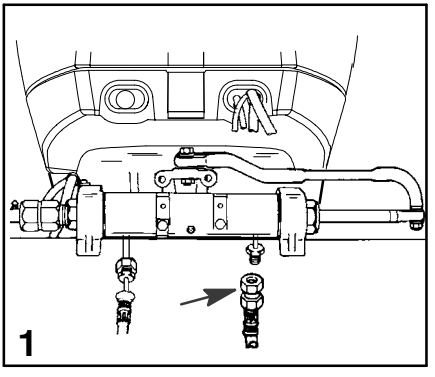
To tilt outboard, shut off the engine and press the trim/tilt switch to the up position. The outboard will tilt up until the switch is released or it reaches its maximum tilt position.

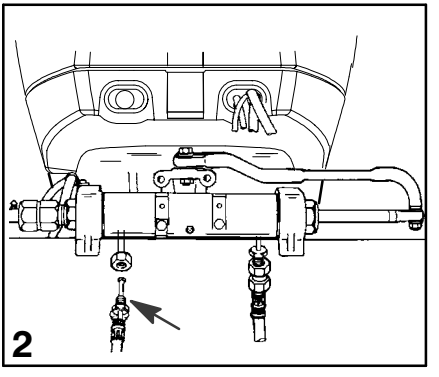
1 Push in on the tilt support release knob.

2 Move tilt support lever into locking position and 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 up until it locks. Lower the outboard.

FEATURES & CONTROLS





Manual Tilting

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

⚠ CAUTION

The engine must be supported during lowering in the following steps or the engine may drop rapidly and personal injury as well as damage to the engine could occur.

NOTE: *Place a suitable container below the connection and wrap the connection with a cloth to collect any fluid which may be dispelled during the following operations.*

1 TILTING (IN/DOWN):

- Loosen the (starboard-right, facing engine from front) hydraulic connection at the front of the swivel bracket.
- Slowly lower the engine to the desired position, and reconnect the hydraulic connection.

2 TILTING (OUT/UP):

- Loosen the (port-left, facing engine from front) hydraulic connection at the front of the swivel bracket.
- Slowly lift the engine and engage the tilt lock lever. Reconnect the hydraulic connection.

IMPORTANT: If the hydraulic lines are disconnected and fluid is lost, the power trim pump must be refilled and the lines purged of air.

of

OPERATION

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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 fuel/oil mixture in your fuel tank.
BEFORE BREAK-IN - When shipped from the factory the ECU trim is set at 100%. For break-in, the ECU trim setting of 100% should be changed to 105% by using FMS (Fuel Management System) Tester.
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 - Operate engine for additional 15 minutes during acceleration runs starting at 3500 rpm up to WOT. Do not sustain WOT. for more than 15 seconds.

⚠ 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.

of

OPERATION

Pre-starting Check List

- ☐ Engine lowered to RUN position with all water intake holes submerged.
- ☐ Fuel tank vent cap open or fuel drain valve ON.
- ☐ Fuel supply OK.
- ☐ Lanyard stop switch in RUN position and cord connected.
- ☐ Remote control in NEUTRAL.
- ☐ Top cowl latches secure.
- ☐ Make inspection checks listed in the Inspection and Maintenance Schedule. Refer to Maintenance Section.

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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.

of

OPERATION

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Operating In Salt Water Or Polluted Water

We recommend flushing the internal water passages of your outboard with fresh water after each use in salt or polluted water to 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 Corrosion Guard on external 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 750 m (2500 ft.) above sea level may require an Electronic Control Unit (ECU) adjustment 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 ECU was changed for high elevation) at a lower elevation unless the ECU is again adjusted to correspond to the new elevation.

FUEL PUMP OPERATION

IMPORTANT: The fuel pump should not be grounded by its mounting bracket or braided or metal fuel lines.

The fuel pump operation is controlled by the Electronic Control Unit (ECU) and functions as follows:

- The pump will not run if there is no spark.
- The pump will run as long as there is either cranking or engine rpm but will shut off if there is no rpm for 5 or more seconds.

OPERATION

Effects of Elevation and Weather on Performance

The following conditions **lower** engine performance and cannot be compensated by the engine fuel or electronic management systems.

- Above sea level elevations
- High temperature.
- Low barometric pressure.
- High humidity.

These conditions above reduce air density to the engine which in turn lowers the following:

- Boost pressure on supercharged engines
- Horsepower and torque throughout the rpm range
- Peak rpm
- Cranking compression

EXAMPLE: An engine run at an elevation of 2,440 m (8,000 ft.) will have over a 30% power loss while a loss of engine power on a hot and humid day could be as much as 14%.These losses apply to normally aspirated and supercharged engines.

Compensating for power robbing conditions:

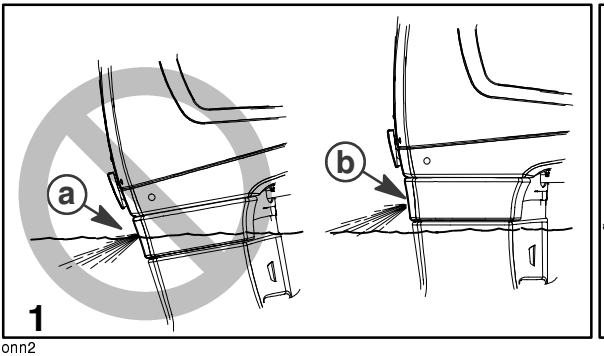
- Switch to lower pitch propeller.
- Change gear ratio.

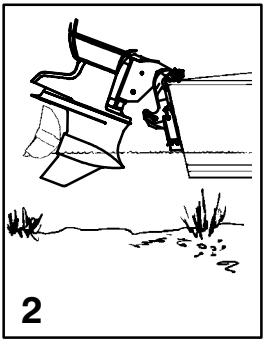
Some **boat** performance can be regained by dropping to a lower pitch propeller but engine performance will still remain lower. In some cases, a gear ratio reduction may be more beneficial. To optimize engine performance, prop the engine to allow it to operate at or near the top end of the recommended maximum rpm range at wide open throttle with a normal boat load.

Other advantages to propeller or gear ratio changes:

- Reduces the possibility of detonation.
- Enhances overall reliability and durability of the engine.

OPERATION





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Setting Trim Angle While Running Engine at Idle Speed

1 Submerging the exhaust relief hole (a) on the outboard can happen on some boats if you trim full IN while running at idle speed, resulting in, exhaust restriction, rough idle, excessive smoke, and fouled spark plugs. If this condition exists, trim outboard up until exhaust relief hole is out of the water (b).

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Operating in Shallow Water

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

a. Operate the engine at slow speed only. Do not exceed 1200 rpm with the outboard trimmed beyond the side supports of the swivel bracket.

b. Tilt outboard up. Make sure all the cooling water intake holes stay submerged at all times.

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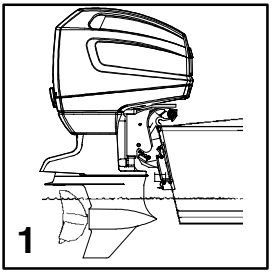
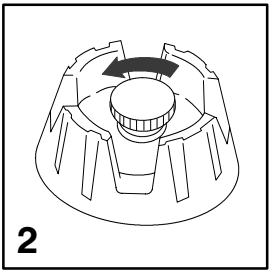
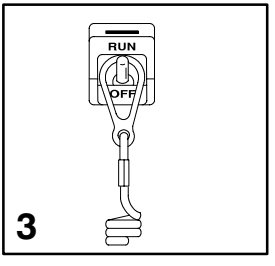
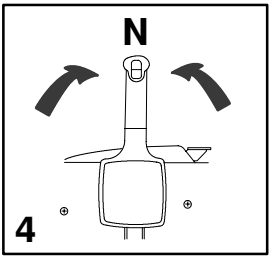
OPERATION









Starting The Engine

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.

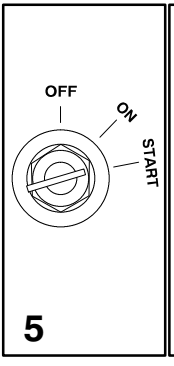
1 Lower the outboard to the run position. Make sure all the cooling water intake holes are submerged.

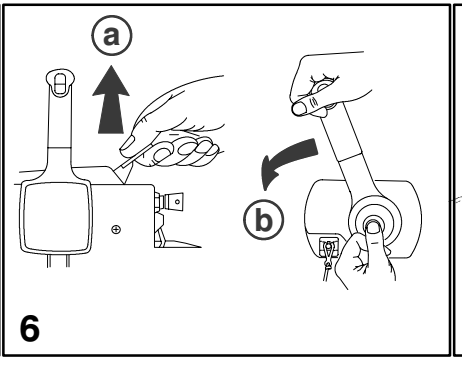
2 Open fuel tank filler cap vent screw (manual venting fuel tanks).

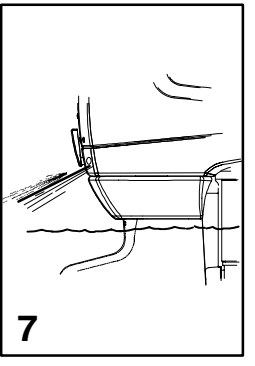
3 Set the lanyard stop switch to RUN position. Read the Lanyard Stop Switch safety explanation and Warning in the General Information Section.

4 Shift outboard to NEUTRAL position.

OPERATION







Starting the Engine

5 Turn the ignition key to START position. Release the key when engine starts. If engine fails to start in 10 seconds, return the key to ON position, wait 30 seconds and try again.

NOTE: *The first time the key is in the start position, there is a extra shot of fuel to help the engine start. This cycle will repeat after 5 minutes or more of non-use. If the engine starts or the key is released, upon trying to start again, the engine will see no extra fuel. One can manually prime the system by pushing in on the key switch (if equipped) or connecting a remote choke switch to the yel/blk wire at the engine harness connector.*

6 **Starting Flooded Engine** - Raise the fast idle speed lever (a) or push in throttle only button and advance throttle lever (b) to at least 1/2 open (gear case in neutral), and crank engine for 10 seconds. Wait 30 seconds and repeat until engine starts.

7 A steady water stream must be present from the water pump indicator hole with engine running.

IMPORTANT: If no water is coming out of the water pump indicator hole, Immediately stop engine, refer to "Troubleshooting".

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OPERATION

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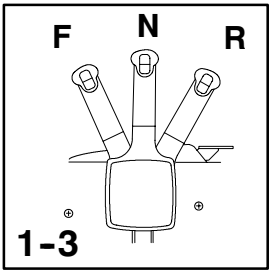

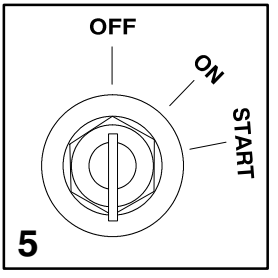

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Starting The Engine

Gear Shifting

IMPORTANT: Observe the following:

- **Never shift outboard into gear unless engine is at idle.**
- **Never shift outboard into Reverse without the engine running.**

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

2 When shifting, always stop at neutral position and allow the engine speed to return to idle.

3 Always shift outboard into gear with a quick motion.

4 After shifting outboard into gear, advance the lever further to increase speed.

Stopping The Engine

5 Reduce engine speed and shift outboard to neutral position. Turn ignition key to OFF position.

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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.

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⚠ 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 Marine 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.

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MAINTENANCE

Inspection and Maintenance Schedule

BEFORE EACH USE OR RACE

- Ensure that lanyard stop switch stops the engine.
- Visually inspect the fuel system for deterioration or leaks.
- Check outboard for tightness on transom.
- Check steering system for binding or loose components.
- Visually check steering link rod fasteners for proper tightness.
- Check level and condition of gear case lubricant.
- Check propeller blades for damage.
- Check propeller for tightness.

AFTER EACH USE OR RACE

- Flush out the outboard cooling system if operating in salt or polluted water.
- 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

- Replace 10 micron final fuel filter.
- Inspect spark plugs.
- Inspect reeds.
- Check engine timing setup.

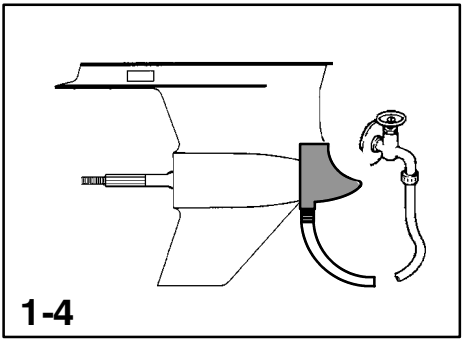
MAINTENANCE

EVERY 25 HOURS OF USE OR ONCE A MONTH

- Check injector spray pattern.
- Check charging system.
- Inspect/replace spark plugs if needed.
- Drain and replace gear case lubricant.
- Lubricate spline on the drive shaft.
- Check power trim pump oil level.
- Lubricate all lubrication points.
- Inspect water pump impeller.

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.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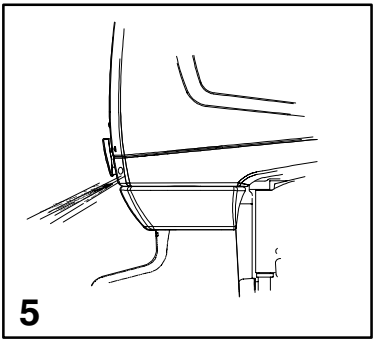
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Flushing the Cooling System

⚠ WARNING

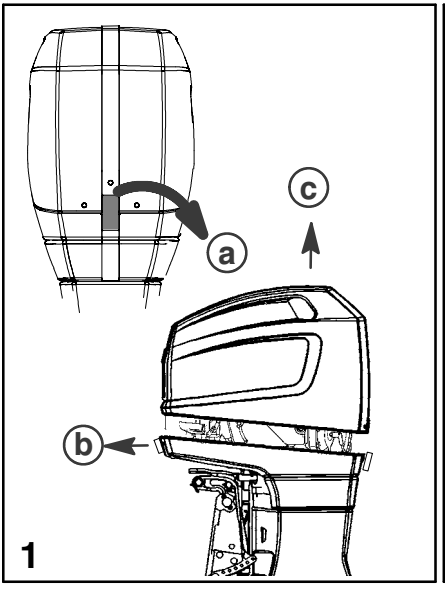
To avoid possible injury when flushing, remove the propeller. Refer to Propeller Replacement.

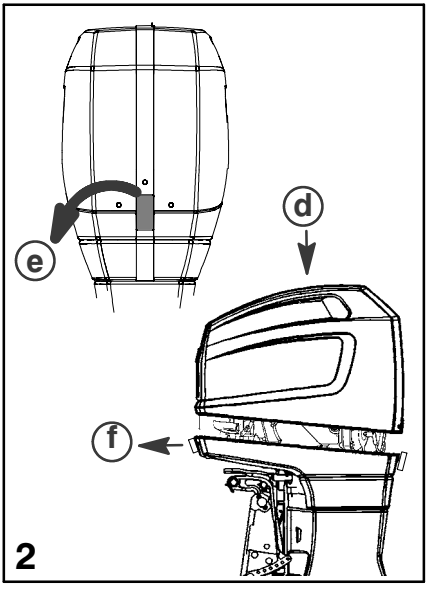
QUICKSILVER FLUSHING KIT

Mercury Marine does offer a nose cone flushing attachment for the Sport Master gearcase. They can be ordered through your Mercury or Mariner dealer.

1. Remove propeller (refer to Propeller Replacement). Install the flushing attachment to fit tightly over the cooling water intake.
2. Attach a water hose to the flushing attachment. Turn on the water and adjust the flow so water is leaking around the flushing attachment 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 so excess water continues leaking out from around the flushing attachment 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 hoses. Continue flushing the outboard for 3 to 5 minutes, carefully monitoring water supply at all times. Stop the engine, turn off the water, and remove the flushing attachment. Reinstall the propeller.

MAINTENANCE





Top Cowl Removal and Installation

⚠ WARNING

Avoid Serious Injury or Death. Do Not attempt to remove or install cowl while engine is running.

1 Removal

a - Rotate rear latching handle clockwise.
b - Pull out on front latching handle and at the same time lift front of cowl.
c - Lift cowl from engine.

2 Installation

d - Lower top cowl into position over engine.
e - Rotate the rear latch counterclockwise to secure the rear cowl latch.
f - Pull out on front latching handle and push down on the front of the cowl to engage the front latch.

MAINTENANCE

Fuel System

⚠ WARNING

Avoid serious injury or death from fuel 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:

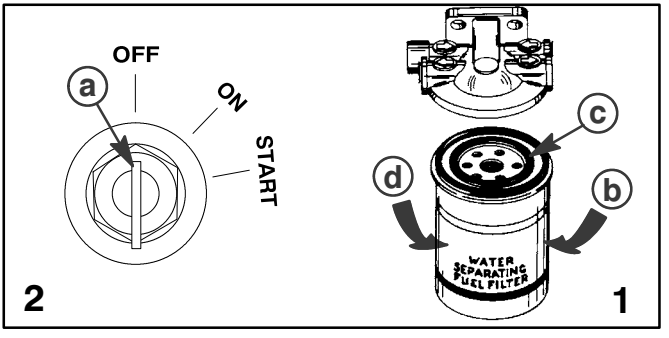
- Stop engine and disconnect the battery.
- Drain the fuel system completely.
- Fuel system service must be performed in a well ventilated area.
- Inspect any completed service work for sign of fuel leakage.

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.

MAINTENANCE



Fuel System

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.

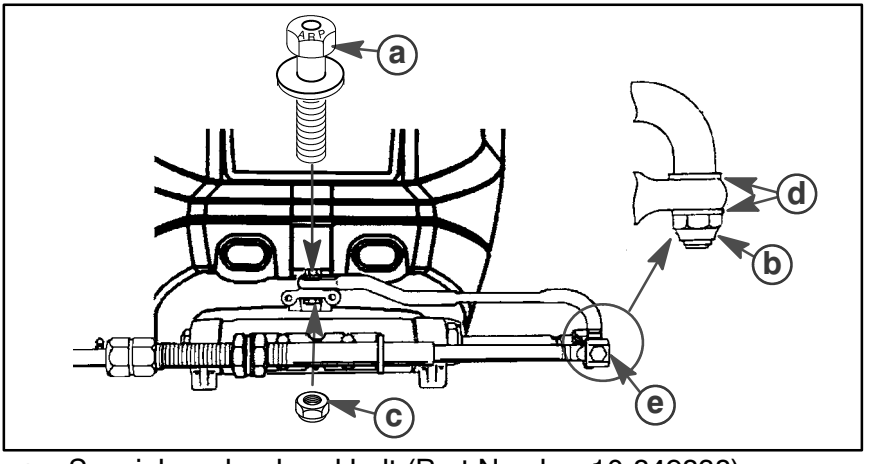
WATER SEPARATING FUEL FILTER (NOT INCLUDED WITH ENGINE)

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.



a - Special washer head bolt (Part Number 10-849838)
b - Self-locking nylon insert locknut (Part Number 11-826709113)
c - Self-locking nylon insert locknut (Part Number 11-826709113)
d - Flat washers
e - Steering cable coupler

Steering Link Rod Fasteners

IMPORTANT: The steering link rod that connects the steering cables to the engine must be fastened using special washer head bolt (Part Number 10-849838) and self locking nylon insert locknuts (Part Number 11-826709113). Never replace locknuts with common nuts (non locking) as they will work loose/vibrate off freeing link rod to disengage.

MAINTENANCE

Steering Link Rod Fasteners

⚠ 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.

1 Assemble steering link rod to steering cable coupler with two flat washers and self locking nylon insert locknut “b” (Part Number 11-826709113).

Description	Nm	lb-in.	lb-ft
Locknut “b”	Tighten until it seats, then loosen 1/4 turn.		

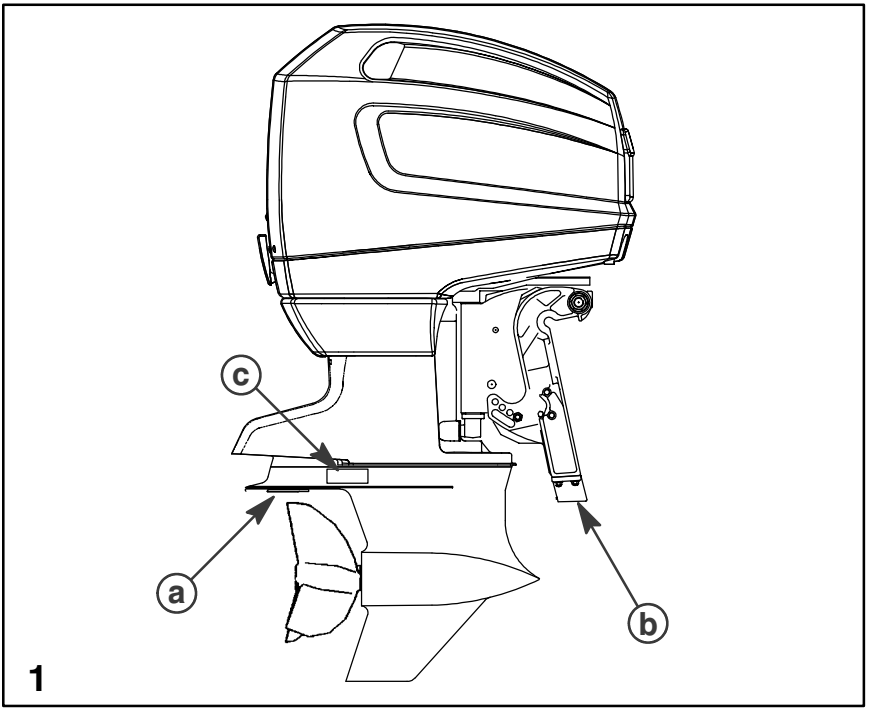
2 Assemble the steering link rod to the engine with the special washer head bolt (Part Number 10-849838) and self locking nylon insert locknut “c” (11-826709113).

Description	Nm	lb-in.	lb-ft
Special washer head bolt	27		20
Locknut “c”	27		20

⚠ CAUTION

Steering Attachment Components Used On Hi-Performance Outboards Should Be Visually Inspected For Wear, Lubricated And All Attachment Hardware Checked For Proper Torque Tightness Every 25 Hours Of Operation.

MAINTENANCE



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Corrosion Control Anodes

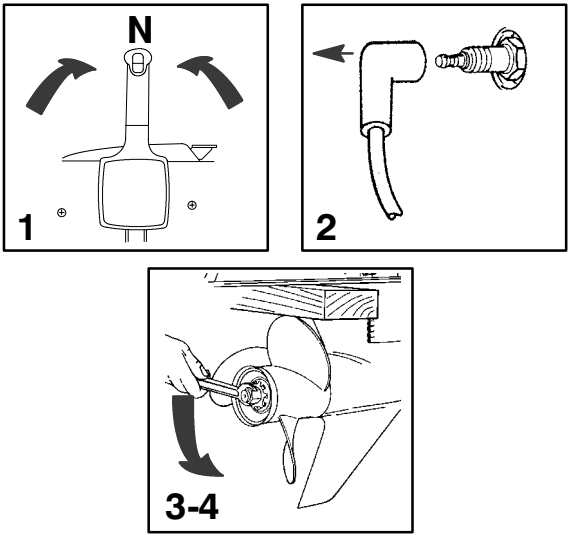
IMPORTANT: Anodes help protect the metal of the outboard from galvanic corrosion by sacrificing their metal to be slowly eroded instead of the outboard metals being eroded. All anodes require periodic inspection, especially in salt water. Replace any anodes before they are completely eroded. Never paint or apply protective coating on the anode as effectiveness of the anode will be reduced.

1 Your outboard has the following (four) corrosion control anodes.

a - One plate installed under the anti-ventilation plate.
b - One bar across the bottom of the transom bracket assembly.
c - Two bars, one in each side of the drive shaft housing above the anti-ventilation plate.

MAINTENANCE

goh112



Propeller Replacement

⚠ WARNING

If the propeller is rotated while the engine is in gear, there is the possibility that the engine will crank over and start. To prevent this 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 before you service the propeller.

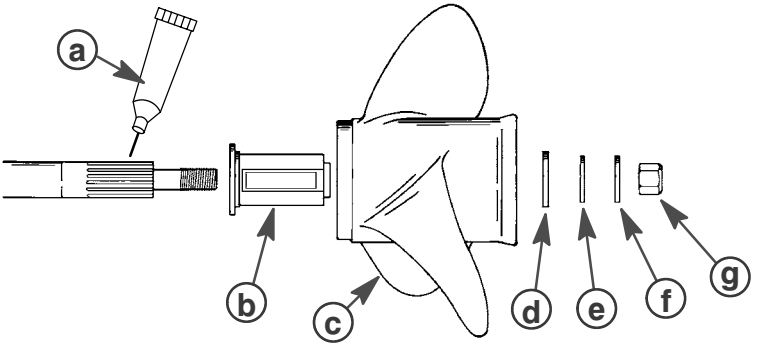
1 Shift outboard to NEUTRAL position.

2 Remove spark plug leads to prevent engine from starting.

3 Place a block of wood between gear case and propeller to hold propeller and remove propeller nut.

4 If propeller is seized to the shaft and cannot be removed, consult an authorized dealer.

MAINTENANCE



5-7

Propeller Replacement

5 Coat the propeller shaft with Anti-Corrosion Grease.

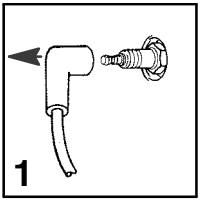
IMPORTANT: To prevent the propeller hub from corroding and seizing to the propeller shaft, especially in salt water, always apply a coat of the recommended lubricant to the entire propeller shaft at the recommended maintenance intervals and also each time the propeller is removed.

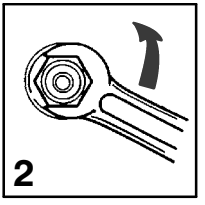
6 Heavy Duty Prop Shaft Hub Kit
(Included with engine) Coat propshaft with Anti-Corrosion Grease (a). Install prop hub assembly (b), propeller (c), washer (d), belleville washer (e), washer (f), and propeller nut (g) onto the shaft.

7 Place a block of wood between gear case and propeller and torque propeller nut to the specified value.

Description	Nm	lb-in.	lb-ft
Propeller nut	75		55

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 Remove any dirt on the spark plug seats.

Description	Nm	lb-in.	lb-ft
Spark plugs	Finger-tight, then 27 Nm (20 lb-ft)		

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.

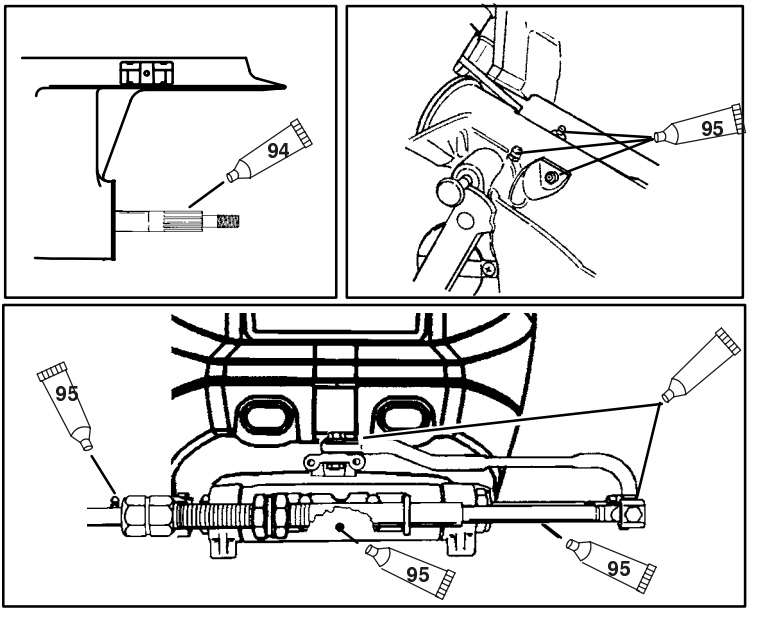
3 Make sure the battery is secure.

4 Battery cable terminals should be clean, tight, and positive to positive and negative to negative.

IMPORTANT: Installing the battery cables on the wrong battery terminals will result in immediate rectifier damage.

5 Make sure the battery is equipped with a nonconductive shield to prevent accidental shorting of battery terminals.

MAINTENANCE



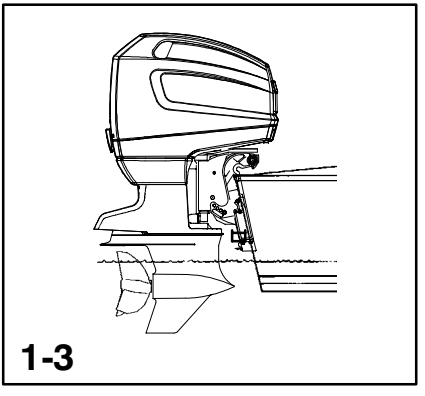
Lubrication Points

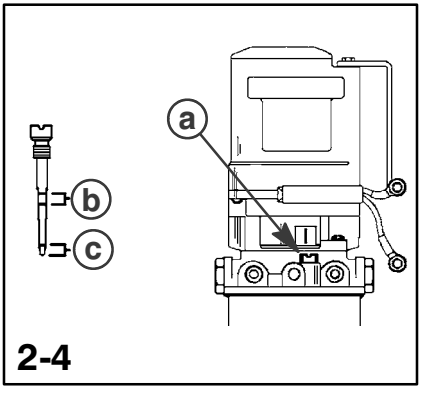
Tube Reference Number	Description	Where Used
94	Anti Corrosion Grease	Propeller shaft splines
95	2-4-C w/Teflon	Grease fittings as shown
	Light Weight Oil	Steering cable

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

⚠ WARNING

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


1-3



2-4

Checking Power Trim 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 Power Trim & Steering Fluid or SAE 10W-30 or 10W-40 engine oil through the fill/vent screw hole to bring level up to the FULL mark on the dipstick. DO NOT OVERFILL.

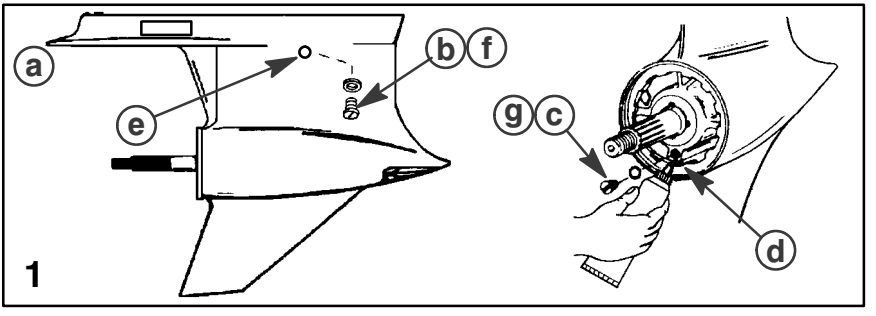
3 To purge system of air, raise the outboard 2 or 3 times. Re-check oil level and add oil if necessary.

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.

MAINTENANCE



Gear Case Lubricant

Water in Gear Lubricant May:

- Settle to bottom and drain out with the lubricant.
- Be mixed with lubricant giving a milky color to lubricant.

Water in Gear Lubricant Will:

- Result in premature bearing failure.
- In freezing temperatures, turn to ice and damage gearcase.

1 Checking Gear Case Lubricant / Refilling Gear Case

a - Place outboard in a vertical operating position.
b - Remove the (upper) Vent plug and sealing washer.
c - Remove the (lower) Fill/Drain plug.

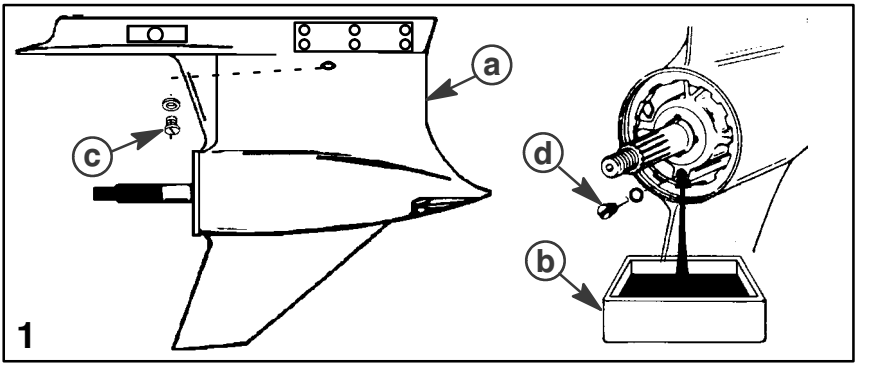
NOTE: *Examine the magnetic fill/drain plug for metal particles. A small amount of metal filings or fine metal particles indicates normal gear wear. An excessive amount of metal filings or larger particles (chips) should be checked by an authorized dealer.*

d - Quickly place lubricant tube into the fill hole.
e - Slowly add lubricant until it flows from the (upper) vent hole.

IMPORTANT: Replace sealing washers if damaged.

f - Stop adding lubricant. Install the (upper) vent plug and sealing washer before removing the lubricant tube.
g - Remove lubricant tube and reinstall cleaned (lower) fill/drain plug and sealing washer.

MAINTENANCE



Gear Case Lubricant

1 Draining Gear Case

a - Place outboard in a vertical operating position.
b - Place drain pan below outboard.
c - Remove (upper) vent plug and sealing ring.
d - Remove (lower) fill/drain plug and sealing ring and drain lubricant.

ohv8

GEAR CASE LUBRICANT CAPACITY

Gear case lubricant capacity is approximately 666 ml (22.5 fl. oz.).

ok

MAINTENANCE LOG

oka1

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

ok

MAINTENANCE LOG

Date	Maintenance Performed	Engine Hours

oi

STORAGE

oia2

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 fuel being used contains alcohol, it is advisable to drain as much of the remaining fuel 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 Fuel System Treatment and Stabilizer to the fuel tank and operation of the engine to introduce the additives to the system.

STORAGE

hib1
Fuel System

PORTABLE FUEL TANK

Pour the required amount of Fuel System Treatment and Stabilizer (follow instructions on container) into fuel tank. Tip fuel tank back and forth to mix stabilizer with the fuel.

PERMANENTLY INSTALLED FUEL TANK

Pour the required amount of Fuel System Treatment and Stabilizer (follow instructions on container) into a separate container and mix with approximately 1 l (1 qt.) of fuel. 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.

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 Storage Seal Rust Inhibitor 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.

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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 Corrosion Guard on external metal surfaces, (Do not apply on corrosion control anodes).

oie1

Gear Case

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

Starter Motor Will Not Crank the Engine

POSSIBLE CAUSES

- 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.

Engine Will Not Start

POSSIBLE CAUSES

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

oj

TROUBLESHOOTING

Engine Runs Erratically

POSSIBLE CAUSES

- Spark plugs fouled or defective. Refer to Maintenance Section.
- Incorrect setup and adjustments.
- Fuel pump failure.
- Fuel is being restricted to the engine.
  - h. Water separating filter or In-Line filter clogged.
  - i. Fuel injectors obstructed (backflush injectors).
  - j. Fuel tank filter obstructed.
  - k. Stuck anti-siphon valve on built in fuel tank.
  - l. Fuel line is kinked or pinched.
  - m. Reed valve open or broken
- Ignition system component failure.

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.

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.

oj

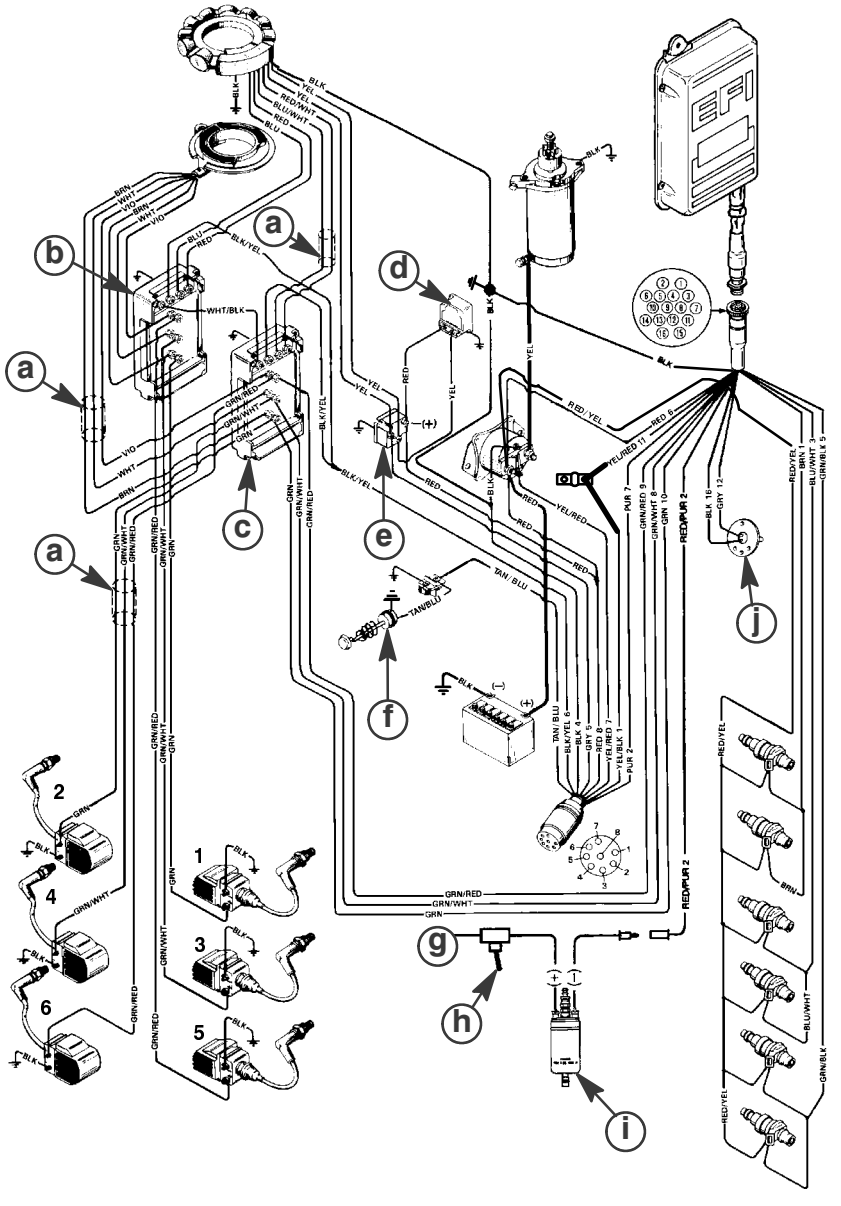
TROUBLESHOOTING

Engine Overheating (Continuous Horn Sound)

POSSIBLE CAUSES

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

ENGINE WIRING DIAGRAM



ENGINE WIRING DIAGRAM

a - Yellow identification sleeve
b - Inner switch box
c - Outer switch box
d - Voltage regulator
e - Rectifier
f - Overheat warning sensor (not used on all models)
g - TO any 12 volt source
h - On/Off switch
i - Electric fuel pump
j - Air temperature sensor

Wiring Legend

BLK = Black

BLU = Blue

BRN = Brown

GRN = Green

GRY = Gray

VIO = Violet (Purple)

RED = Red

TAN = Tan

WHT = White

YEL = Yellow

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

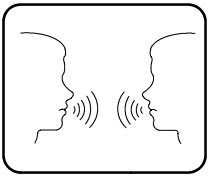
All inquiries concerning genuine replacement parts and accessories should be directed to your local authorized dealer. The dealer has the necessary information to order parts and accessories for you. When inquiring on parts and accessories, the dealer requires the **model** and **serial number** to order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

OWNER SERVICE ASSISTANCE

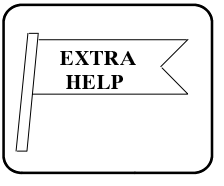
or4
Service Assistance

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

Telephone 	Fax 	Mail 
Japan		
(81) 53-423-2500	(81) 53-423-2510	Mercury Marine - Japan 283-1 Anshin-cho Hamamatsu Shizuoka, 435-0005 Japan
Asia, Singapore		
(65) 546-6160	(65) 546-7789	Mercury Marine Singapore 72 Loyang Way Singapore 508762

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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.