MERCURY

Outboard Operation, Maintenance & Warranty Manual

90-10211060 205

4/5/6 4-Stroke

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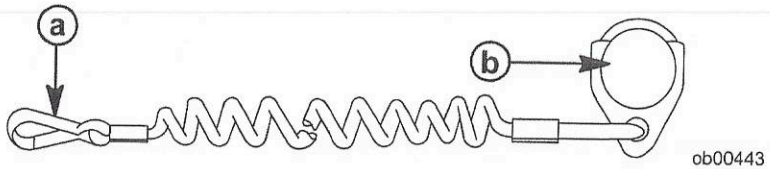
MAINTENANCE LOG

The lanyard is a cord usually between 1220 and 1524 mm (4 and 5 feet) in length when stretched out, with an element on one end made to be inserted into the switch and a snap on the other end for attaching to the operator. The lanyard is coiled to make its at-rest condition as short as possible to minimize the likelihood of lanyard entanglement with nearby objects. Its stretched-out length is made to minimize the likelihood of accidental activation should the operator choose to move around in an area close to the normal operator's position. If it is desired to have a shorter lanyard, wrap the lanyard around the operator's wrist or leg, or tie a knot in the lanyard.



a - Lanyard cord. b - Lanyard stop switch

Read the following Safety Information before proceeding.

Important Safety Information: The purpose of a lanyard stop switch is to stop the engine when the operator moves far enough away from the operator's position to activate the switch. This would occur if the operator accidentally falls overboard or moves within the boat a sufficient distance from the operator's position. Falling overboard and accidental ejections are more likely to occur in certain types of boats such as low sided inflatables, bass boats, high performance boats, and light, sensitive handling fishing boats operated by a hand tiller. Falling overboard and accidental ejections are also likely to occur as a result of poor operating practices such as sitting on the back of the seat or gunwale at planing speeds, standing at planing speeds, sitting on elevated fishing boat decks, operating at planing speeds in shallow or obstacle infested waters, releasing your grip on a steering wheel or tiller handle that is pulling in one direction, drinking alcohol or consuming drugs, or daring, high speed boat maneuvers.

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.

⚠ 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.

We strongly recommend that other occupants be instructed on proper starting and operating procedures should they be required to operate the engine in an emergency (e.g. if the operator is accidentally ejected).

⚠ WARNING

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

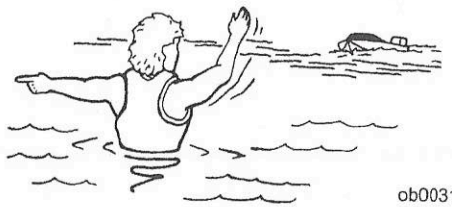
Accidental or unintended activation of the switch during normal operation is also a possibility. This could cause any, or all, of the following potentially hazardous situations:

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

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.

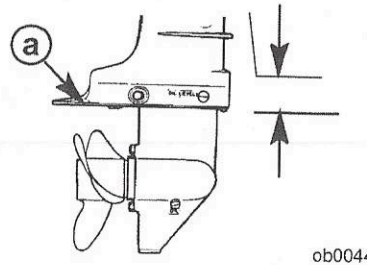
4/5/6 Specifications

Models	4	5	6
Horsepower	4	5	6
Kilowatts	2.98	3.73	4.47
Full Throttle RPM Range	4500-5500		5000-6000
Idle Speed	1100 RPM in Forward Gear 1300 RPM in Neutral		
Number of Cylinders	1		
Piston Displacement	123 cc (7.51 cu. in.)		
Cylinder Bore	59 mm (2.32 in.)		
Piston Stroke	45 mm (1.77 in.)		
Engine Oil Capacity	450 ml (15 fl. oz.)		
Recommended Spark Plug	NGK DCPR6E		
Spark Plug Gap	0.9 mm (0.035 in.)		
Gearcase Lubricant Capacity	195 ml (6.6 fl. oz.)		
Gear ratio	2.15:1		
Recommended Gasoline	Refer to **Fuel & Oil**		
Recommended Oil	Refer to **Fuel & Oil**		

Installing Outboard

BOAT TRANSOM HEIGHT REQUIREMENT

1. Measure the transom height of your boat. The anti-ventilation plate should be 25 - 50 mm (1 - 2 in.) below the bottom of the boat.

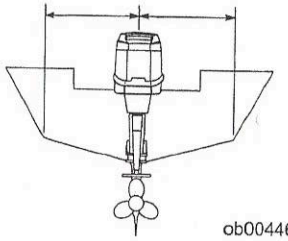


ob00445

a - Anti-ventilation plate

INSTALLING OUTBOARD ON TRANSOM

1. Place outboard on center line of transom.



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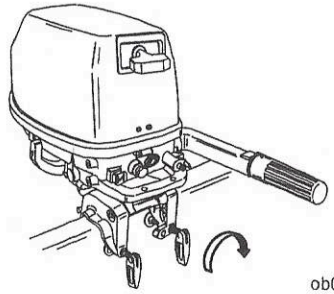
2. Tighten transom clamp handles.



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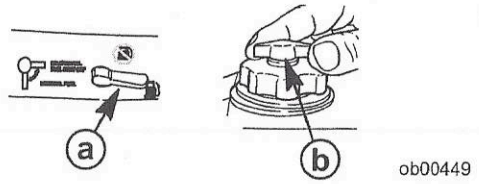
Carrying, Storing and Transporting Your Outboard When Removed From Boat

Internal fuel tank models - With the outboard still in the water, close the fuel valve and run engine until it stops. This will drain fuel from the carburetor. Close the fuel tank vent after engine has stopped.



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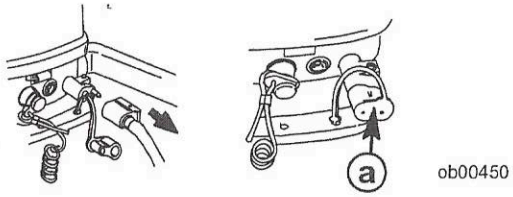
a - Fuel valve

b - Fuel tank vent

Remote fuel tank models - With the outboard still in the water, disconnect the remote fuel line and run engine until it stops. This will drain fuel from the carburetor. Install the protector cap over the fuel connector.



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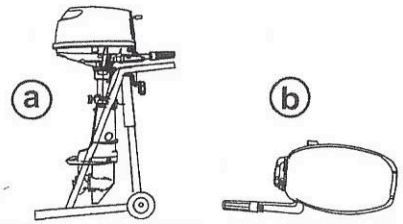
a - Protector cap

Remove outboard and hold it upright until the water is drained out. Keep the outboard in an upright position when carrying.

Carry, transport or store the outboard only in the upright position or tiller handle down position. These positions will prevent oil from draining out of the crankcase.



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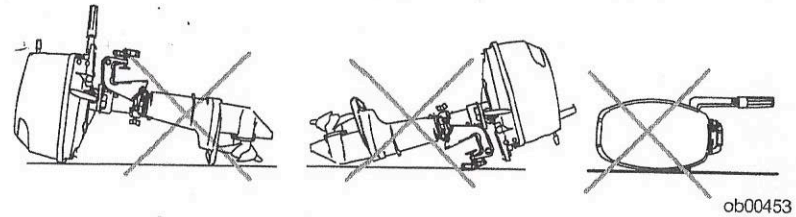
a - Upright position

b - Tiller handle down position

Never carry, store or transport the outboard in these positions. Engine damage could result from oil draining out of the crankcase.



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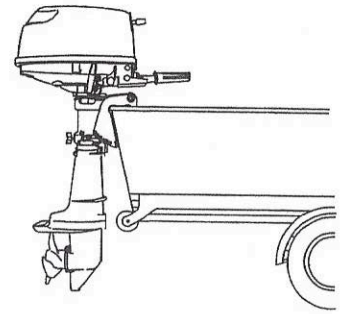
Trailering Your Boat

IMPORTANT: The tilt lock mechanism is not intended to support the outboard in the tilted up position when trailering your boat. Use of the tilt lock mechanism could allow the outboard to bounce and drop down causing damage to the outboard.

Your boat should be trailered with the outboard tilted down (normal operating position).

If additional ground clearance is required, remove the outboard from the boat and store securely. Additional clearance may be needed for railroad crossings, driveways, and trailer bouncing.

Set the gear shift into forward gear. This prevents the propeller from spinning freely.



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Fuel Recommendations

IMPORTANT: Use of improper gasoline can damage your engine. Engine damage resulting from the use of improper gasoline is considered misuse of the engine, and damage caused thereby will not be covered under the limited warranty.

FUEL RATINGS

Mercury Marine engines will operate satisfactorily when using a major brand of unleaded gasoline meeting the following specifications:

USA and Canada - having a posted pump Octane Rating of 87 (R+M)/2 minimum. Premium gasoline [92 (R+M)/2 Octane] is also acceptable. Do NOT use leaded gasoline.

Outside USA and Canada - having a posted pump Octane Rating of 90 RON minimum. Premium gasoline (98 RON) is also acceptable. If unleaded gasoline is not available, use a major brand of leaded gasoline.

USING REFORMULATED (OXYGENATED) GASOLINES (USA ONLY)

This type of gasoline is required in certain areas of the USA. The 2 types of oxygenates used in these fuels is Alcohol (Ethanol) or Ether (MTBE or ETBE). If Ethanol is the oxygenate that is used in the gasoline in your area, refer to Gasolines Containing Alcohol.

These Reformulated Gasolines are acceptable for use in your Mercury Marine engine.

GASOLINES CONTAINING ALCOHOL

If the gasoline in your area contains either methanol (methyl alcohol) or ethanol (ethyl alcohol), you should be aware of certain adverse effects that can occur. These adverse effects are more severe with methanol. Increasing the percentage of alcohol in the fuel can also worsen these adverse effects.

Some of these adverse effects are caused because the alcohol in the gasoline can absorb moisture from the air, resulting in a separation of the water/alcohol from the gasoline in the fuel tank.

The fuel system components on your Mercury Marine engine will withstand up to 10% alcohol content in the gasoline. We do not know what percentage your boat's fuel system will withstand. Contact your boat manufacturer for specific recommendations on the boat's fuel system components (fuel tanks, fuel lines, and fittings). Be aware that gasolines containing alcohol may cause increased:

- Corrosion of metal parts
- Deterioration of rubber or plastic parts

- Fuel permeation through rubber fuel lines
- Starting and operating difficulties

⚠ WARNING

FIRE AND EXPLOSION HAZARD: Fuel leakage from any part of the fuel system can be a fire and explosion hazard which can cause serious bodily injury or death. Careful periodic inspection of entire fuel system is mandatory, particularly after storage. All fuel components should be inspected for leakage, softening, hardening, swelling or corrosion. Any sign of leakage or deterioration requires replacement before further engine operation.

Because of possible adverse effects of alcohol in gasoline, it is recommended that only alcohol-free gasoline be used where possible. If only fuel containing alcohol is available, or if the presence of alcohol is unknown, increased inspection frequency for leaks and abnormalities is required.

IMPORTANT: When operating a Mercury Marine engine on gasoline containing alcohol, storage of gasoline in the fuel tank for long periods should be avoided. Long periods of storage, common to boats, create unique problems. In cars, alcohol-blend fuels normally are consumed before they can absorb enough moisture to cause trouble, but boats often sit idle long enough for phase separation to take place. In addition, internal corrosion may take place during storage if alcohol has washed protective oil films from internal components.

Filling Fuel Tank

⚠ WARNING

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

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

Remove portable fuel tanks from boat to refill them.

Always stop engine before refilling tanks.

Do not 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.

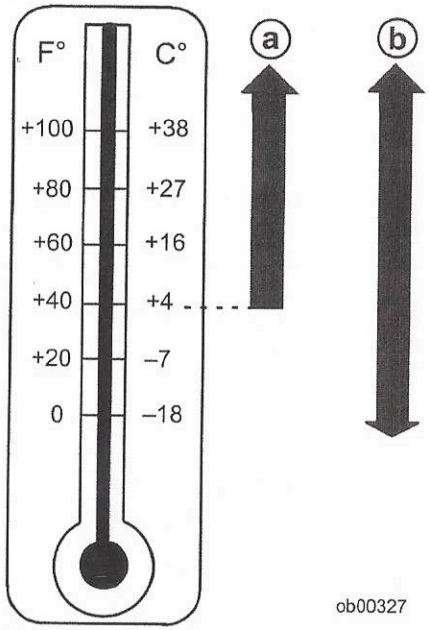
PORTABLE FUEL TANK PLACEMENT IN THE BOAT

Place the fuel tank in the boat so the vent is higher than the fuel level under normal boat operating conditions.

Engine Oil Recommendations

We recommend the use of Mercury or Quicksilver NMMA FC-W certified 10W-30 4-Stroke Outboard Oil for general, all-temperature use. If NMMA certified synthetic blend 25W-40 4-Stroke outboard oil is preferred, use Mercury or Quicksilver synthetic blend 4-Stroke Outboard Oil. If the recommended Mercury or Quicksilver NMMA FC-W certified outboard oils are not available, a major FC-W certified 4-stroke outboard oil may be used.

IMPORTANT: The use of detergent oils, multi-viscosity oils (other than Mercury or Quicksilver NMMA FC-W certified oil or a major brand NMMA FC-W certified oil), synthetic oils, low quality or oils that contain solid additives are not recommended.



Recommended SAE Viscosity for Engine Oil

a - NMMA FC-W certified 25W-40 4-stroke outboard oil may be used at temperatures above 4 °C (40 °F)

b - NMMA FC-W certified 10W-30 4-stroke outboard oil is recommended for use in all temperatures.

Checking Engine Oil

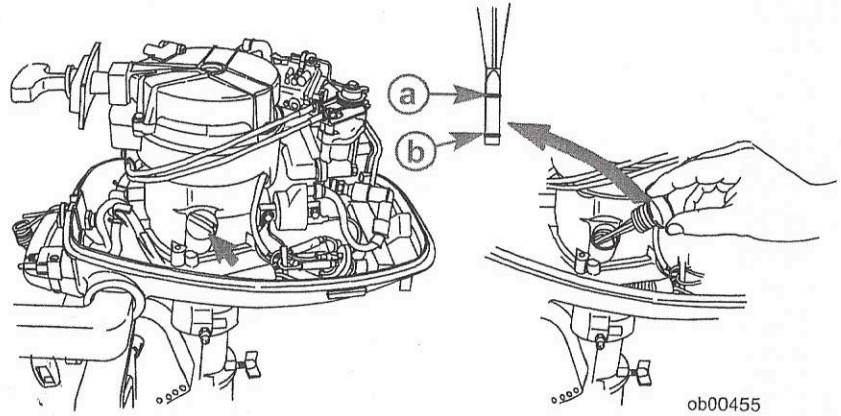
IMPORTANT: Do not overfill. Be sure that the outboard is upright (not tilted) when checking oil.

1. Position the outboard vertical and remove the top cowl.
2. Remove the oil filler cap. Wipe oil off the dipstick and screw the oil filler cap back into the oil fill hole completely. Remove the oil filler cap and check oil level on dipstick. Oil must be between full mark and add mark. If oil level is low, add oil to bring level no higher than full mark.

NOTE: If oil level is at the add mark, add 100 ml (3 oz.) of oil.

IMPORTANT: Inspect oil for signs of contamination. Oil contaminated with water will have a milky color to it; oil contaminated with fuel will have a strong fuel smell. If contaminated oil is noticed, have the engine checked by your dealer.

3. Reinstall the oil filler cap and tighten securely.

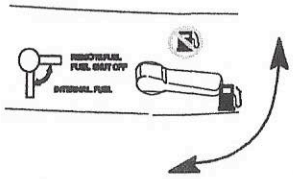


a - Full mark

b - Add mark

Features & Controls

Fuel Shut-Off Valve (4 Hp Models) - Turn valve up to close or down to open. If an optional remote fuel tank is used, turn valve up when using the remote fuel tank. Turn valve down when using the internal fuel tank.



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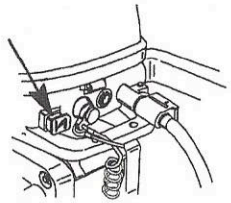
Choke Knob - Pull completely out when starting a cold engine. Push halfway in as engine is warming up. Push in completely after engine is warmed up.



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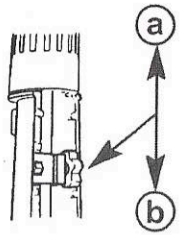
Throttle Grip Friction Knob - Turn friction knob to set and maintain the throttle at desired speed. Turn knob up to tighten friction and down to loosen friction.



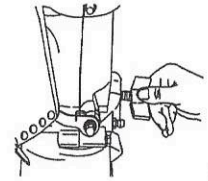
ob00458

a - Direction to tighten friction b - Direction to loosen friction

⚠ WARNING

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

Steering Friction Adjustment - Adjust this knob to achieve the desired steering friction (drag) on the tiller handle. Turn knob clockwise to tighten friction and counterclockwise to loosen friction.

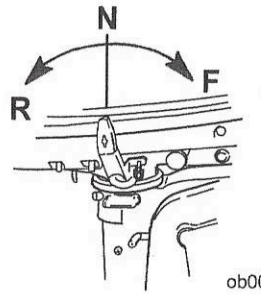


ob00459

Oil Pressure Indicator - If oil pressure drops too low, the oil pressure indicator light will turn on. If the oil pressure indicator light turns on while the engine is running, stop the engine as soon as possible. Check oil level and add oil as needed. If the oil pressure indicator light should stay on when the oil level is correct, consult your dealer.

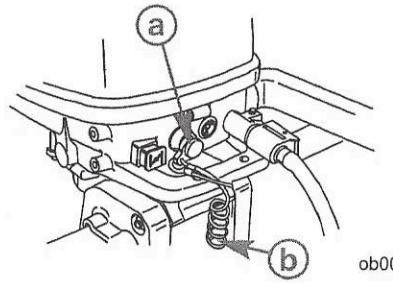
ob00460

Side Handle Gear Shift - Controls gear shift.



ob00461

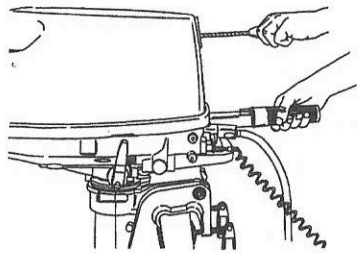
Engine Stop Switch/Lanyard Stop Switch - Push in or pull lanyard to stop engine. The engine will not start unless the lanyard is engaged with the stop switch.



ob00462

a - Lanyard stop switch b - Lanyard

Starter Rope - Pulling the starter rope cranks the engine over for starting.



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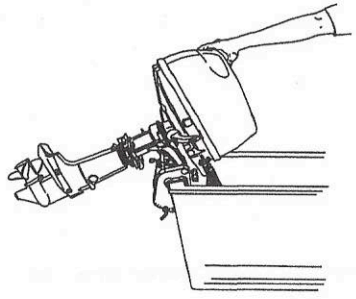
Tilting Outboard

TILTING TO FULL UP POSITION

1. Stop the engine. Shift the outboard into forward gear.
2. Take hold of the top cowl grip and raise outboard to the full up position.

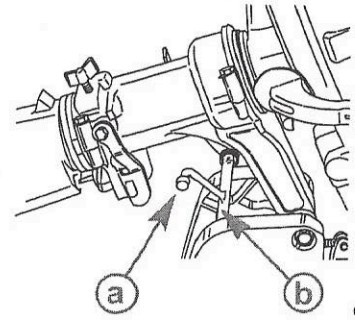


ob00464

3. The spring loaded tilt lock lever will engage automatically and lock the outboard in full up position.

LOWERING TO RUN POSITION

1. Raise the outboard and pull up on the tilt release lever. Gently lower outboard down.



ob00465

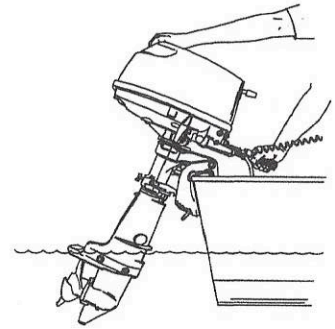
a - Tilt release lever b - Tilt lock lever

Shallow Water Operation

This outboard has a shallow water drive position. This will allow you to tilt the outboard to a higher position to prevent hitting bottom.

ENGAGING SHALLOW WATER DRIVE

1. Reduce engine speed to idle in forward gear. Take hold of the top cowl grip and raise outboard to the higher tilt position. The spring loaded tilt lock lever will engage automatically and lock the outboard in the shallow water drive position.



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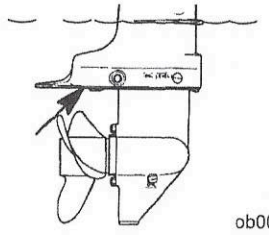
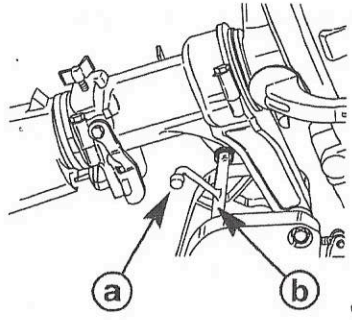
2. Ensure the cooling water intake is submerged.



ob00469

IMPORTANT: Operate outboard at slow speed for shallow water operation and keep the cooling water intake submerged.

3. To release outboard back down to run position, tilt outboard up slightly and pull up on the tilt release lever. Gently lower outboard down.



ob00465

a - Tilt release lever

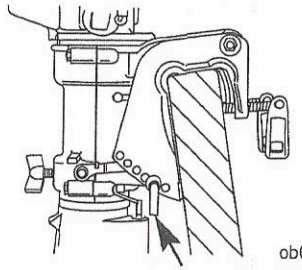
b - Tilt lock lever

Setting The Operating Angle Of Your Outboard

The vertical operating angle of your outboard is adjusted by changing the position of the tilt pin in the adjustment holes provided. Proper adjustment allows the boat to achieve optimum performance, stability, and minimize steering effort.

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

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



ob00468

Engine Over-Speed Protection System

The engine over-speed protection system is activated if the engine speed should exceed the maximum allowable limit. This will protect the engine from mechanical damage.

Anytime the engine over-speed protection system is activated, the engine speed is automatically reduced to within the allowable limit. If engine over-speed continues, have the outboard checked by your dealer.

NOTE: Your engine speed should never reach the maximum limit to activate the system unless the propeller is ventilating, an incorrect propeller is being used, or the propeller is faulty.

Pre-Starting Check List

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

Operating In Freezing Temperatures

When using your outboard or having your outboard moored in freezing or near freezing temperatures, keep the outboard tilted down at all times so the gearcase is submerged. This prevents trapped water in gearcase 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 driveshaft 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 **Maintenance - Flushing The Cooling System.**

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

Wash the outboard exterior and flush out the exhaust outlet of the propeller and gearcase with fresh water after each use. Each month, spray Mercury Precision or Quicksilver Corrosion Guard on external metal surfaces. Do not spray on corrosion control anodes as this will reduce the effectiveness of the anodes.

Engine Break-in Procedure

⚠ CAUTION

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

1. For the first hour of operation, run the engine at varied throttle settings up to 2000 RPM or at approximately half throttle.
2. For the second hour of operation, run the engine at varied throttle settings up to 3000 RPM or at three-quarter throttle, and at full throttle for approximately one minute every ten minutes.
3. For the next eight hours of operation, avoid continuous operation at full throttle for more than five minutes at a time.

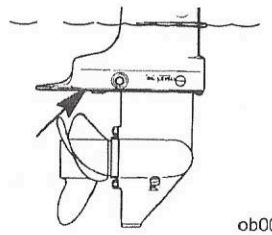
Starting The Engine

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

⚠ CAUTION

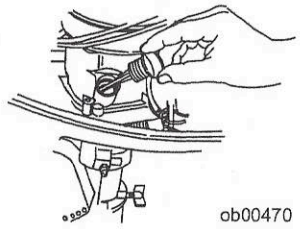
Never start or operate your outboard (even momentarily) without water circulating through all the cooling water intake holes in the gearcase to prevent damage to the water pump (running dry) or overheating of the engine.

1. Make sure the cooling water intake is submerged.



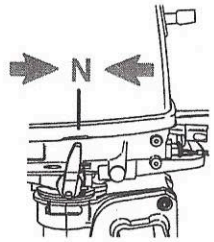
ob00469

2. Check the engine oil level.



ob00470

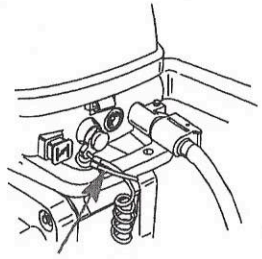
3. Shift outboard to neutral (N) position.



ob00471

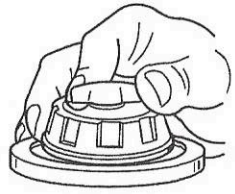
NOTE: The engine will not start unless the lanyard is engaged with the stop switch.

4. Attach the lanyard to the stop switch. Refer to **General Information - Lanyard Stop Switch.**



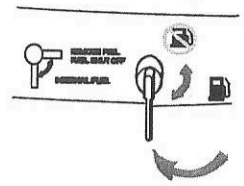
ob00472

5. Starting models with internal fuel tank
   a. Open the vent on the internal fuel tank.



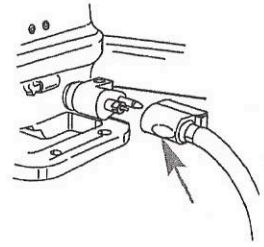
ob00473

b. Move the fuel shut-off valve to the lower position.



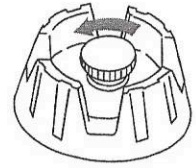
ob00474

6. Starting models with remote fuel tank
   a. Connect the remote fuel line to the outboard. Make sure connector is snapped into place.



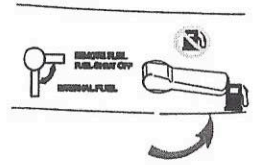
ob00475

b. Open fuel tank vent on manual venting type tanks.



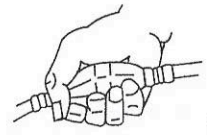
ob00348

c. 4 Hp Models with optional remote fuel tank - Move the fuel valve to the up position.



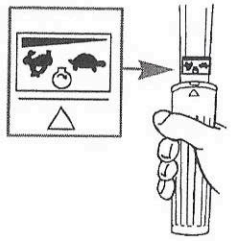
ob00476

d. Squeeze the fuel line primer bulb several times until it feels firm.



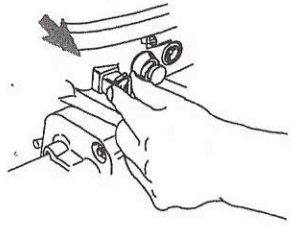
ob00349

7. Set the throttle grip to start position.



ob00477

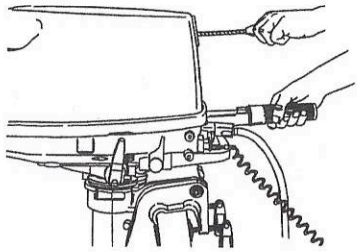
8. If engine is cold, completely pull out the choke. Push in the choke halfway as the engine is warming up. Push in completely after engine is warmed up.



ob00478

NOTE: Starting Flooded Engine - Push in the choke knob. Wait 30 seconds, then continue to crank engine for starting.

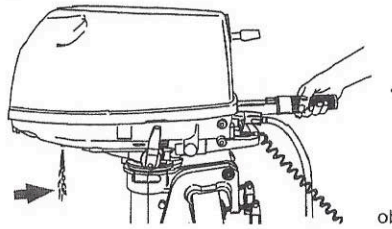
9. Pull the starter rope slowly until you feel the starter engage, then pull rapidly to crank the engine. Allow rope to return slowly. Repeat until engine starts.



ob00463

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

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



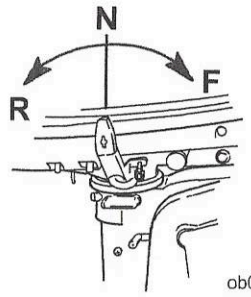
ob00479

Gear Shifting

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

Reduce throttle speed to idle speed.

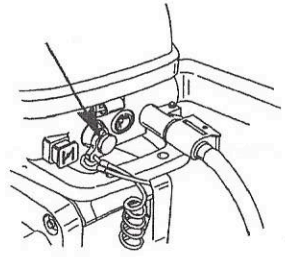
Always shift outboard into gear with a quick motion.



ob00461

Stopping The Engine

Reduce engine speed and push in the stop switch or pull the lanyard.

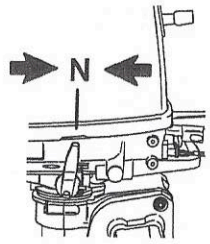


ob00480

Emergency Starting

If the starter rope should break or the rewind starter fails, use the spare starter rope (provided) and follow this procedure.

1. Shift outboard to neutral position.

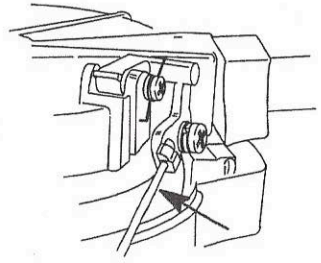


ob00471

⚠ WARNING

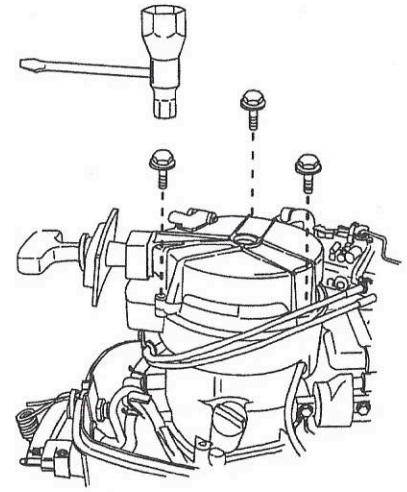
When using the emergency starter rope to start engine, the start at idle speed protection is inoperative. Make sure to have the engine speed set at slow, and the outboard gear shift positioned in neutral to prevent outboard from starting in gear. Sudden unexpected acceleration could result in serious injury or death.

2. Disconnect linkage from rewind starter assembly.



ob00481

3. Remove three bolts and rewind starter assembly.



ob00482

⚠ WARNING

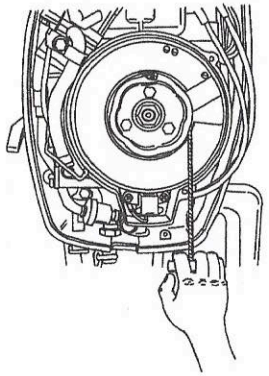
To prevent getting an electrical shock, do not touch any ignition component, wiring, or spark plug wire when starting or running the engine.

⚠ WARNING

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

4. Place the starter rope knot into the starter cup notch and wind the rope clockwise around the cup.

5. Pull the starter rope to start the engine.



ob00483

Outboard Care

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

⚠ WARNING

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

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

SELECTING REPLACEMENT PARTS FOR YOUR OUTBOARD

We recommend using original Mercury Precision or Quicksilver replacement parts and Genuine Lubricants.

⚠ WARNING

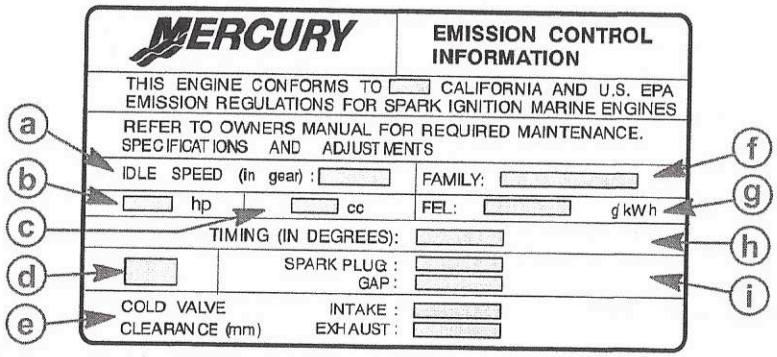
Using a replacement part that is inferior to the original part could result in personal injury, death, or product failure.

EPA Emissions Regulations

All new outboards manufactured by Mercury Marine 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 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 spark ignition (SI) engine repair establishment or individual.**

EMISSION CERTIFICATION LABEL

An emission certification label, showing emission levels and engine specifications directly related to emissions, is placed on the engine at time of manufacture.



ob00366

a - Idle speed
b - Engine horsepower
c - Piston displacement
d - Date of manufacture
e - Valve clearance (if applicable)
f - Family number
g - Maximum emission output for the engine family
h - Timing specification
i - Recommended spark plug and gap

OWNER RESPONSIBILITY

The owner/operator is required to have routine engine maintenance performed to maintain emission levels within prescribed certification standards.

The owner/operator is not to modify the engine in any manner that would alter the horsepower or allow emissions levels to exceed their predetermined factory specifications.

Inspection And Maintenance Schedule

BEFORE EACH USE

- Check engine oil level. See **Fuel & Oil - Checking and Adding Engine Oil.**
- Visually inspect the fuel system for deterioration or leaks.
- Check outboard for tightness on transom.
- Check propeller blades for damage.

AFTER EACH USE

- Flush out the outboard cooling system if operating in salt or pollutec water. See **Flushing the Cooling System.**
- Wash off all salt deposits and flush out the exhaust outlet of the propeller and gearcase with fresh water if operating in salt water.

EVERY 100 HOURS OF USE OR ONCE YEARLY, WHICHEVER OCCURS FIRST

- Lubricate all lubrication points. Lubricate more frequently when usec in salt water. See **Lubrication Points.**
- Change engine oil. The oil should be changed more often when the engine is operated under adverse conditions such as extendec trolling. See **Changing Engine Oil.**
- Replace spark plug at first 100 hours or first year. After that, inspect spark plug every 100 hours or once yearly. Replace spark plug as needed. See **Spark Plug Inspection and Replacement.**
- Drain and replace gearcase lubricant. See **Gearcase Lubrication.**
- Check fuel line filter for contaminants. See **Fuel System.**
- Check corrosion control anode. Check more frequently when used in salt water. See **Corrosion Control Anodes.**
- Lubricate splines on the driveshaft.[1]
- Replace water pump impeller.[1]
- Check tightness of bolts, nuts, and other fasteners.

BEFORE PERIODS OF STORAGE

- Refer to Storage procedure. See **Storage** section.

Flushing The Cooling System

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

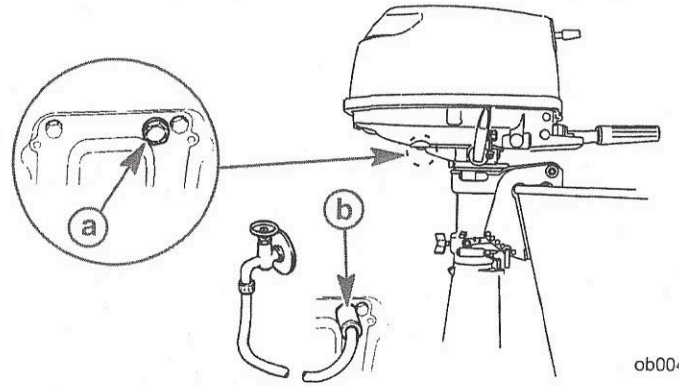
Use a Mercury Precision or Quicksilver accessory (or equivalent) flushin attachment.

NOTE: Do not run the engine while flushing the cooling system.

1. Remove plug and gasket and thread-in hose coupling.
2. Attach a water hose to the hose coupling. Turn on the water gently and flush the cooling system for 3 to 5 minutes.

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

3. Remove the thread-in hose coupling and reinstall plug and gasket.



ob00484

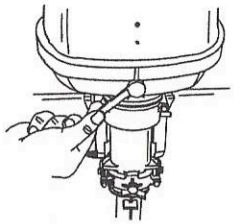
a - Gasket

b - Thread-in hose coupling

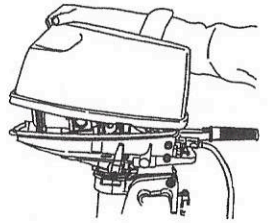
Top Cowl Removal And Installation

REMOVAL

1. Unlock the rear latch by pushing lever down.


ob00485

2. Lift rear of cowl and disengage front hook.


ob00486

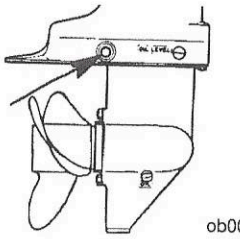
INSTALLATION

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

Corrosion Control Anode

Your outboard has a corrosion control anode installed on the gearcase. An anode helps protect the outboard against galvanic corrosion by sacrificing its metal to be slowly corroded instead of the outboard metals.

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


ob00487

Exterior Care

Your outboard is protected with a durable baked enamel finish. Clean and wax often using marine cleaners and waxes.

Fuel System

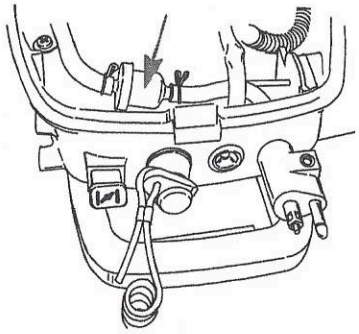
⚠ WARNING

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

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

FUEL LINE FILTER

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



ob00488

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

FUEL LINE INSPECTION

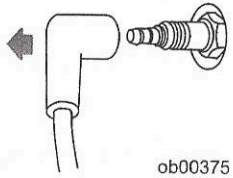
Visually inspect the fuel line and primer bulb for cracks, swelling, leaks, hardness, or other signs of deterioration or damage. If any of these conditions are found, the fuel line or primer bulb must be replaced.

Propeller Replacement

⚠ WARNING

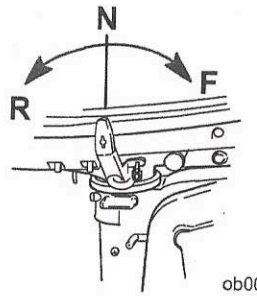
If the propeller shaft is rotated while the engine is in gear, there is the possibility that the engine will crank over and start. To prevent this type of accidental engine starting and possible serious injury caused from being struck by a rotating propeller, always shift outboard to neutral position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

1. Remove the spark plug lead to prevent engine from starting.



ob00375

2. Move gear shift lever into neutral.

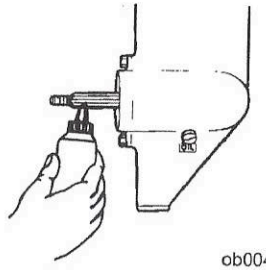


ob00461

3. Straighten and remove cotter pin.
4. Place a block of wood between gearcase and propeller to hold propeller and remove propeller nut.
5. Pull propeller straight off shaft. If propeller is seized to the shaft and cannot be removed, have the propeller removed by an authorized dealer.

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. Coat the propeller shaft with Quicksilver or Mercury Precision Lubricants Anti-Corrosion Grease or 2-4-C with Teflon.

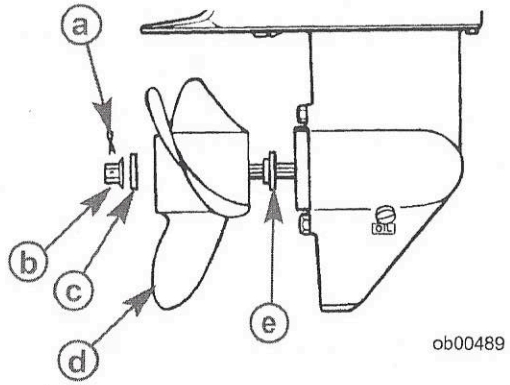


ob00490

Tube Ref No.	Description	Where Used	Part No.
94	Anti-Corrosion Grease	Propeller shaft	92-802867A 1
95	2-4-C with Teflon	Propeller shaft	92-802859A 1

7. Install front thrust washer, propeller, rear thrust hub, and propeller nut onto the shaft.

8. Place a block of wood between gearcase and propeller to prevent rotation and tighten propeller nut. Secure propeller nut to the shaft with cotter pin.



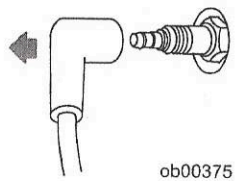
a - Cotter pin
b - Propeller nut
c - Rear thrust hub
d - Propeller
e - Front thrust washer

Spark Plug Inspection And Replacement

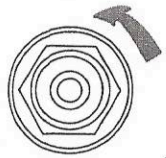
⚠ WARNING

Avoid serious injury or death from fire or explosion caused by damaged spark plug boots. Damaged spark plug boots can emit sparks. Sparks can ignite fuel vapors under the engine cowl. To avoid damaging spark plug boots, do not use any sharp object or metal tool such as pliers, screwdriver, etc. to remove spark plug boots.

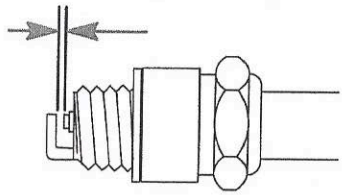
1. Remove the spark plug boot. Twist the rubber boot slightly and pull off.



2. Remove the spark plug to inspect. Replace spark plug if electrode is worn or the insulator is rough, cracked, broken, blistered or fouled.



3. Set the spark plug gap to specification.



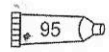
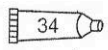
Spark Plug	
Spark plug gap	0.9 mm (0.035 in.)

4. Before installing spark plug, clean off any dirt on the spark plug seat. Install plug finger tight, and then tighten 1/4 turn or torque to specifications.

Description	Nm	lb. in.	lb. ft.
Spark plug	27		20

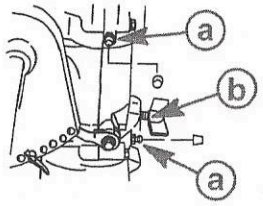
Lubrication Points

1. Lubricate the following with Quicksilver or Mercury Precision Lubricants 2-4-C with Teflon or Special Lubricant 101.

Tube Ref No.	Description	Where Used	Part No.
	2-4-C with Teflon	Co-pilot, swivel bracket, transom clamp screws, tiller handle bushing, shift handle detent	92-802859A 1
	Special Lubricant 101	Co-pilot, swivel bracket, transom clamp screws, tiller handle bushing, shift handle detent	92-802865A 1

- Co-Pilot - Lubricate threads.

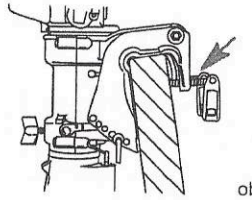
- Swivel Bracket - Lubricate through fittings.



ob00491

a - Swivel bracket b - Co-pilot

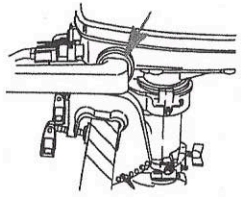
- Transom Clamp Screws - Lubricate threads.



ob00492

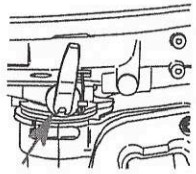
NOTE: *Lubricating the tiller handle bushing and shift handle detent requires disassembly of the product. These points should be lubricated at least once a year by an authorized dealer.*

- Tiller Handle Rubber Bushing - Lubricate internal diameter.



ob00493

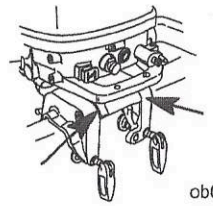
- Shift Handle Detent - Lubricate detent.



ob00494

2. Lubricate the following with Light Weight Oil.

- Tilt Pivot.

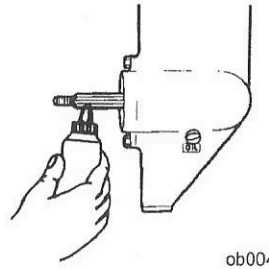


ob00495

3. Lubricate the following with Quicksilver or Mercury Precision Lubricants Anti-Corrosion Grease or 2-4-C with Teflon.

Tube Ref No.	Description	Where Used	Part No.
94	Anti-Corrosion Grease	Propeller shaft	92-802867A 1
95	2-4-C with Teflon	Propeller shaft	92-802859A 1

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



ob00490

Changing Engine Oil

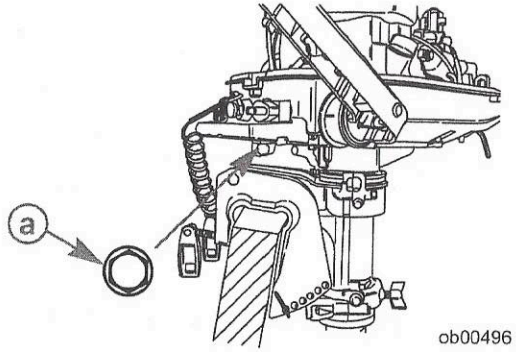
ENGINE OIL CAPACITY

Engine oil capacaity is approximately 450 ml (15 fl. oz.).

OIL CHANGING PROCEDURE

1. Place outboard in an upright (not tilted) position.
2. Turn the outboard to gain access to the drain plug. Remove drain plug and drain engine oil into an appropriate container. Lubricate the seal on the drain plug with oil and reinstall.

IMPORTANT: Inspect oil for signs of contamination. Oil contaminated with water will have a milky color to it; oil contaminated with fuel will have a stong fuel smell. If contaminated oil is noticed, have the engine checked by your dealer.



a - Drain plug

OIL FILLING

IMPORTANT: Do not overfill. Be sure that the outboard is upright (not tilted) when checking oil.

Remove the oil fill cap and refill with 450 ml (15 fl. oz.) of oil. Reinstall the oil fill cap.

Idle engine for five minutes and check for leaks. Stop engine and check oil level on dipstick. Add oil if necessary.

Gearcase Lubrication

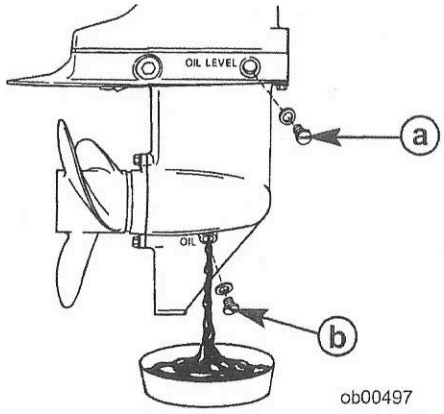
When adding or changing gearcase lubricant, visually check for the presence of water in the lubricant. If water is present, it may have settled to the bottom and will drain out prior to the lubricant, or it may be mixed with the lubricant, giving it a milky colored appearance. If water is noticed, have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

Examine the drained gearcase lubricant for metal particles. A small amount of metal particles indicates normal gear wear. An excessive amount of metal filings or larger particles (chips) may indicate abnormal gear wear and should be checked by an authorized dealer.

DRAINING GEARCASE

1. Tilt outboard so that the oil drain plug is at the lowest point.
2. Place drain pan below outboard.

3. Remove vent plug and fill/drain plug and drain lubricant.



a - Vent plug

b - Fill/drain plug

GEARCASE LUBRICANT CAPACITY

Gearcase lubricant capacity is approximately 195 ml (6.6 fl. oz.).

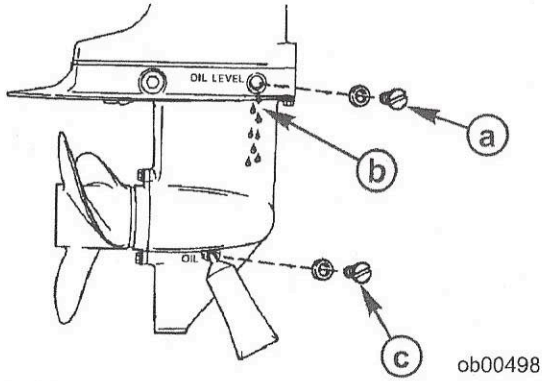
GEARCASE LUBRICANT RECOMMENDATION

Mercury or Quicksilver Premium or High Performance Gear Lubricant.

CHECKING LUBRICANT LEVEL AND REFILLING GEARCASE

1. Place outboard in a vertical operating position.
2. Remove vent plug from vent hole.

3. Place lubricant tube into the fill hole and add lubricant until it appears at the vent hole.



a - Vent plug
b - Lubricant at vent hole
c - Fill/drain plug

IMPORTANT: Replace sealing washers if damaged.

4. Stop adding lubricant. Install the vent plug and sealing washer before removing the lubricant tube.
5. Remove lubricant tube and reinstall cleaned fill/drain plug and sealing washer.

Submerged Outboard

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

Storage Preparation

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

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

⚠ CAUTION

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

FUEL SYSTEM

IMPORTANT: Gasoline containing alcohol (ethanol or methanol) car 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.

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

- Portable Fuel Tank - Pour the required amount of gasoline 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 gasoline stabilizer (follow instructions on container) into a separate container and mix with approximately one quart (one liter) of gasoline. Pour this mixture into fuel tank.
- Place the outboard in water or connect flushing attachment for circulating cooling water. Run the engine for ten minutes to fill the engine fuel system.

Flushing Device	91-44357Q 2

Protecting External Outboard Components

- Lubricate all outboard components listed in **Maintenance - Inspection and Maintenance Schedule.**
- Touch up any paint nicks. See your dealer for touch-up paint.
- Spray Quicksilver or Mercury Precision Lubricants Corrosion Guard on external metal surfaces (except corrosion control anodes).