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WARRANTY

Outboard Limited Warranty United States, Canada, Europe and Confederation of Independent States

Outside the United States, Canada and Europe - check with local distributor.

WHAT IS COVERED: Mercury Marine warrants its new Outboard and Jet Products to be free of defects in material and workmanship during the period described below.

DURATION OF COVERAGE: This Limited Warranty provides coverage for two (2) years from the date the product is first sold to a recreational use retail purchaser, or the date on which the product is first put into service, whichever occurs first. Commercial users of these products receive warranty coverage of one (1) year from the date of first retail sale, or one (1) year from the date in which the product was first put into service, whichever occurs first. Commercial use is defined as any work or employment related use of the product, or any use of the product which generates income, for any part of the warranty period, even if the product is only occasionally used for such purposes. The repair or replacement of parts, or the performance of service under this warranty, does not extend the life of this warranty beyond its original expiration date. Unexpired warranty coverage can be transferred from one recreational use customer to a subsequent recreational use customer upon proper re–registration of the product. Unexpired warrant coverage cannot be transferred either to or from a commercial use customer.

CONDITIONS THAT MUST BE MET IN ORDER TO OBTAIN WARRANTY COVERAGE: Warranty coverage is available only to retail customers that purchase from a Dealer authorized by Mercury Marine to distribute the product in the country in which the sale occurred, and then only after the Mercury Marine specified pre–delivery inspection process is completed and documented. Warranty coverage becomes available upon proper registration of the product by the authorized dealer. Routine maintenance outlined in the Operation and Maintenance Manual must be timely performed in order to maintain warranty coverage. Mercury Marine reserves the right to make future warranty coverage contingent on proof of proper maintenance.

WARRANTY

WHAT MERCURY WILL DO: Mercury's sole and exclusive obligation under this warranty is limited to, at our option, repairing a defective part, replacing such part or parts with new or Mercury Marine certified remanufactured parts, or refunding the purchase price of the Mercury product. Mercury reserves the right to improve or modify products from time to time without assuming an obligation to modify products previously manufactured.

HOW TO OBTAIN WARRANTY COVERAGE: The customer must provide Mercury with a reasonable opportunity to repair, and reasonable access to the product for warranty service. Warranty claims shall be made by delivering the product for inspection to a Mercury dealer authorized to service the product. If purchaser cannot deliver the product to such a dealer, written notice must be given to Mercury. We will then arrange for the inspection and any covered repair. Purchaser in that case shall pay for all related transportation charges and/or travel time. If the service provided is not covered by this warranty, purchaser shall pay for all related labor and material, and any other expenses associated with that service. Purchaser shall not, unless requested by Mercury, ship the product or parts of the product directly to Mercury. Proof of registered ownership must be presented to the dealer at the time warranty service is requested in order to obtain coverage.

WARRANTY

WHAT IS NOT COVERED: This limited warranty does not cover routine maintenance items, tune ups, adjustments, normal wear and tear, damage caused by abuse, abnormal use, use of a propeller or gear ratio that does not allow the engine to run in its recommended wide open throttle RPM range (see the Operation and Maintenance Manual), operation of the product in a manner inconsistent with the recommended operation/duty cycle section of the Operation and Maintenance Manual, neglect, accident, submersion, improper installation (proper installation specifications and techniques are set forth in the installation instructions for the product), improper service, use of an accessory or part not manufactured or sold by us, jet pump impellers and liners, operation with fuels, oils or lubricants which are not suitable for use with the product (see the Operation and Maintenance Manual), alteration or removal of parts, or water entering the engine through the fuel intake, air intake or exhaust system, or damage to the product from insufficient cooling water caused by blockage of the cooling system by a foreign body, running the engine out of water, mounting the engine too high on the transom, or running the boat with the engine trimmed out too far.. Use of the product for racing or other competitive activity, or operating with a racing type lower unit, at any point, even by a prior owner of the product, voids the warranty.

Expenses related to haul out, launch, towing, storage, telephone, rental, inconvenience, slip fees, insurance coverage, loan payments, loss of time, loss of income, or any other type of incidental or consequential damages are not covered by this warranty. Also, expenses associated with the removal and/or replacement of boat partitions or material caused by boat design for access to the product are not covered by this warranty.

No individual or entity, including Mercury Marine authorized dealers, has been given authority by Mercury Marine to make any affirmation, representation or warranty regarding the product, other than those contained in this limited warranty, and if made, shall not be enforceable against Mercury Marine.

For additional information regarding events and circumstances covered by this warranty, and those that are not, see the Warranty Coverage section of the Operation and Maintenance Manual, incorporated by reference into this warranty.

WARRANTY

DISCLAIMERS AND LIMITATIONS:
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. TO THE EXTENT THAT THEY CANNOT BE DISCLAIMED, THE IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE LIFE OF THE EXPRESS WARRANTY. INCIDENTAL AND CONSEQUENTIAL DAMAGES ARE EXCLUDED FROM COVERAGE UNDER THIS WARRANTY. SOME STATES/COUNTRIES DO NOT ALLOW FOR THE DISCLAIMERS, LIMITATIONS AND EXCLUSIONS IDENTIFIED ABOVE, AS A RESULT, THEY MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER LEGAL RIGHTS WHICH VARY FROM STATE TO STATE AND COUNTRY TO COUNTRY.

GENERAL INFORMATION

Before Operating Your Outboard

Read this manual carefully. Learn the difference in handling characteristics between a jet drive boat and a propeller driven boat. If you have any questions, contact your dealer.

STEERING AT LOW SPEEDS

Unlike propeller driven boats, the jet drive boat tends to lose steering control as less water is drawn in and expelled. Increase speed slightly to regain steering.

MANEUVERABILITY

The jet drive is highly maneuverable at higher speeds, more so, than propeller driven boats. Use caution when turning to prevent spin-outs.

IN NEUTRAL

The impeller will continue to rotate while the engine is in neutral. Although the approximate balancing of forward and reverse thrust will minimize boat movement, the boat may tend to move slowly forward or backward. This is normal for a direct-drive jet driven boat. The operator should be aware of this and use caution whenever the engine is running.

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

This manual as well as safety labels posted on the outboard use the following safety alerts[1] to draw your attention to special safety instructions that should be followed.

⚠ DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

1. These safety alerts follow ANSI standard Z535.6-2006 for product safety information in product manuals, instructions, and other collateral materials.

⚠ CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates a situation which, if not avoided, could result in engine or major component failure.

IMPORTANT: Identifies information essential to the successful completion of the task.

NOTE: *Indicates information that helps in the understanding of a particular step or action.*

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 when boating in an area where there might be people in the water.

Avoid shallow water or where any loose material such as sand, shells, seaweed, grass, tree branches, etc., can be pulled in and expelled from the pump as a high speed projectile.

WHILE BOAT IS STATIONARY

⚠ WARNING

Avoid injury resulting from contacting the rotating impeller or having hair, clothing, or loose objects drawn into the water intake and wrapping around the impeller shaft. Stay away from the water intake and never insert an object into the water intake or water outlet nozzle when the engine is running.

Stop the engine immediately whenever a person is in the water near the boat. The jet drive is always drawing water through the water intake when the engine is running. Stay away from the water intake located under the jet drive and never insert an object into the water intake or outlet nozzle when the engine is running.

Safe Boating Suggestions

In order to safely enjoy the waterways, the operator should be familiar with local and other governmental boating regulations and restrictions, and consider the following suggestions.

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

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

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

Make sure everyone in the boat is properly seated. Do not allow anyone to sit or ride on any part of the boat that was not intended for such use. This includes the back of seats, gunwales, transom, bow, decks, raised fishing seats, any rotating fishing seat; or anywhere that an 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). Alcohol or drug use impairs judgment and greatly reduces the ability to react quickly.

Prepare other boat operators. Instruct at least one other person on board in the basics of starting and operating the jet drive, 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.

Avoid shallow water conditions. Never operate the jet drive in very shallow water or where there is a noticeable amount of floating debris or weeks. Always be in at least 61 to 91 cm (2 to 3 ft.) of water. Any loose material such as sand, shells, seaweed, grass, tree branches, etc., can be pulled in by the pump. This may not only block the water flow and cause lost of steering control, but can be expelled from the rear of the pump as a high-speed projectile.

Watch for boat movement in neutral. When the jet drive is in neutral, the drive impeller continues to rotate. Although the approximate balancing of forward and reverse thrust will minimize boat movement, the boat may tend to move slowly forward or backward. This is normal for a direct-drive jet driven boat. The operator should be aware of this and use caution whenever the engine is running.

Never drive the boat directly behind a water skier in case the skier falls. As an example, a boat traveling at 40 km/hr (25 MPH) will overtake a fallen skier 61 m (200 ft.) in front of the boat in 5 seconds.

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

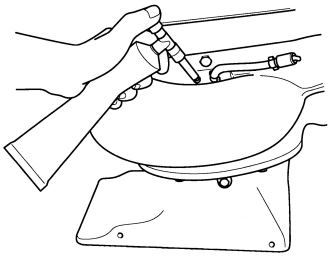
GENERAL INFORMATION

Report accidents. Boat operators are required by law to file a Boating Accident Report with their state boating law enforcement agency when the 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.

OPERATION

Lubricating the Driveshaft Bearing

Before each use, lubricate the driveshaft bearing. Refer to **Maintenance - Lubricating the Driveshaft Bearing**.



Operating In Freezing Temperatures

If there is a chance of ice forming on the water, the jet drive 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. Do not start the engine until the ice is clear.

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.
- Ensure the boat drain plug is installed.
- 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.
- Check steering for free operation.
- Check for debris around the rudder and reverse gate which may jam or hinder operation.
- Before launching, examine the jet drive water intake for obstructions which may prevent pumping of water.
- Ensure the driveshaft bearing on the jet drive is lubricated.

Operating In Salt Water Or Polluted Water

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

Wash down the outboard exterior and flush out the exhaust outlet of the jet drive with fresh water after each use. Each month, spray Mercury Precision or Quicksilver Corrosion Guard on external metal surfaces.

Operating In Shallow Water

The life of the impeller and water intake can be greatly increased by avoiding the intake of sand and gravel. The intake suction will act like a dredge when the water intake comes close to the bottom. It is better to stop the engine and drift up to shore when landing, and to shove off with an oar when leaving. The engine can idle through areas of water less than 61 cm (2 ft.) deep, but there should be more than 61 cm (2 ft.) of water under the boat when increasing speed to reach full plane.

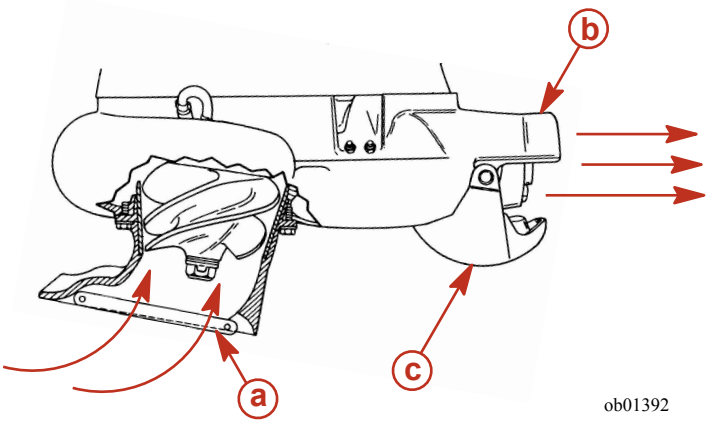
Once the boat is on plane, the boat speed will prevent the ingestion of gravel and other debris from the bottom. The suction is still present, but the water intake passes too quickly over the bottom to allow debris to be drawn into the water intake.

When boating through shallow water areas, choose a course of travel that avoids sharp rocks and other underwater obstacles that could damage the boat. Running the boat through these areas on full plane may be helpful as the boat will be riding higher in the water. If the boat gets stuck on the bottom, immediately stop the engine and move the boat to deeper water.

How the Jet Drive Operates

A jet driven boat has substantially different handling characteristics compared to a propeller driven boat. It is recommended that the operator adjusts to these characteristics by experimenting in open water at both high and low speeds.

The driveshaft driven impeller draws water up through the water intake and then redirects it at a high pressure through the water outlet nozzle to create forward thrust. To obtain reverse, the reverse gate moves over the outlet nozzle to direct the water in the opposite direction.



a - Water intake
b - Water outlet nozzle
c - Reverse gate

When the jet drive is in neutral, the impeller continues to rotate. However, the reverse gate is positioned so that some of the forward thrust is diverted to create reverse thrust. This approximate balancing of forward and reverse thrust will minimize any boat movement. Because the impeller is always rotating and creating thrust when the engine is running, the boat may tend to move slowly forward or backward. This is normal for a direct-drive jet driven boat. The operator should be aware of this and use caution whenever the engine is running.

⚠ WARNING

Avoid injury resulting from contacting the rotating impeller or having hair, clothing, or loose objects drawn into the water intake and wrapping around the impeller shaft. Stay away from the water intake and never insert an object into the water intake or water outlet nozzle when the engine is running.

The jet drive is always drawing water into the housing when the engine is running. Do not operate the jet drive with the grate removed from the water intake. Keep hands, feet, hair, loose clothing, life jackets, etc., away from the water intake. Never insert an object into the water intake or water outlet nozzle when the engine is running.

Stopping the Boat in an Emergency

A jet powered boat has emergency stopping capability unique to this form of propulsion.

⚠ WARNING

Using the emergency stopping capability of a jet drive unit will slow down the boat in an emergency. However, sudden stopping may cause the occupants of the boat to be thrown forward or out of the boat resulting in serious injury or death. Use caution when performing the emergency stopping procedure, and be sure to practice in a safe area.

In an emergency, putting the jet outboard into reverse and applying reverse throttle can rapidly slow down the boat and reduce stopping distance. However, such a maneuver may cause occupants in the boat to be thrown forward or possibly out of the boat.

Steering The Boat

The jet drive is dependent on water jet thrust for steering the boat. If the water jet thrust should ever stop, (water blockage, engine stops, etc.) the boat to slow to a stop. However, while slowing there will be a reduced ability to steer the boat.

⚠ WARNING

Avoid serious injury or death. Do not attempt to steer the boat into a tight turn. At high speeds, the boat could spin-out or even roll over, resulting in occupants being thrown within the boat or out of the boat.

⚠ WARNING

A loss or reduction in water jet thrust will directly affect boat directional control, and may result in property damage, personal injury, or death. Boat directional control can also be substantially reduced or lost altogether by a sudden loss of power such as running out of gas, quickly backing off the throttle, turning off the ignition switch, activating the lanyard stop switch, or plugging the water intake to the jet pump. Use caution when maneuvering at high speeds in areas where debris (weeds, logs, gravel, etc.) could be picked up into the jet drive. The ability to take evasive action is dependent on sufficient water jet thrust to control the boat.

While steering the boat at engine speeds above idle, the boat will respond quickly; but due to the relatively flat-bottom hulls and lack of a gearcase in the water, the boat will tend to skid on turns. Turns must be started early and use sufficient power to maintain steering control.

Mooring The Boat

Be sure to tilt the jet drive out of the water when the boat is pulled onto a beach or tied to a dock in shallow water. Failure to do this may cause the water intake housing to fill with sand or debris and could prevent the outboard from cranking over for starting.

Water Intake Blockage

⚠ WARNING

A rotating impeller could cause injury if contact is made with hands, clothing, or tools. To avoid injury, keep hands and clothing away from the inlet or outlet of the jetdrive, regardless of whether the boat is in the water. Secure tools and loose items to avoid being struck by projectiles as a result of contact with the rotating impeller, and to prevent damage to the impeller.

A large amount of debris being drawn into the water intake may result in a loss of power. Intake suction holding debris against the grate will result in restricted water flow. Shutting the engine off may allow the debris to fall off the intake grate allowing full power to be restored. If debris does not fall off the intake grate, the engine must be shut off and debris physically removed from the grate.

Clearing A Lodged Impeller

⚠ WARNING

If the flywheel is rotated to free a lodged impeller, there is the possibility that the engine will crank over and start. To prevent this type of accidental engine starting and possible serious injury, always turn the ignition key or lanyard stop switch to the "OFF" position and remove all spark plug leads from the spark plugs.

It is possible for debris to lodge between the impeller and jet housing wall, especially after the engine has been stopped. This will lock the driveshaft and will prevent the engine from being able to crank over for starting. Following are steps for dislodging the impeller.

1. Position lanyard stop switch to the "OFF" position.
2. Remove spark plug leads to prevent the engine from accidentally starting.
3. Remove flywheel or rewind cover and rotate the engine flywheel counterclockwise.

If this does not dislodge the impeller, it will be necessary to remove the six screws and water intake housing.

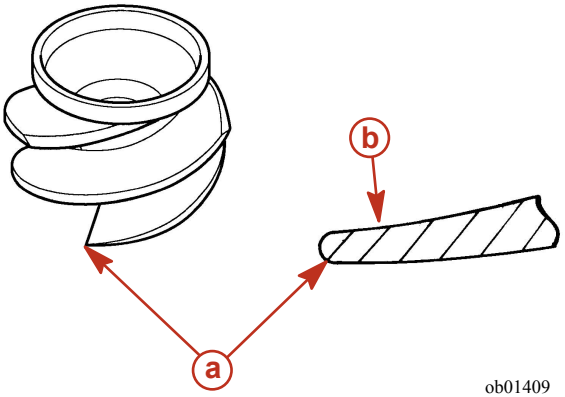
Worn/Dull Impeller

The intake of gravel through the pump can round off and wear the leading edges of the impeller. Some conditions that could be experienced from a worn/dull impeller are as follows:

- Noticeable performance loss, especially on acceleration
- Difficulty getting the boat on plane
- An increase in engine RPM at wide open throttle

IMPORTANT: Do not sharpen or alter the top side lifting angle.

Check the impeller blades occasionally for damage. Use a flat file to resharpen the leading edges. Sharpen to a 0.8 mm (1/32 in.) radius by removing material from bottom side only.

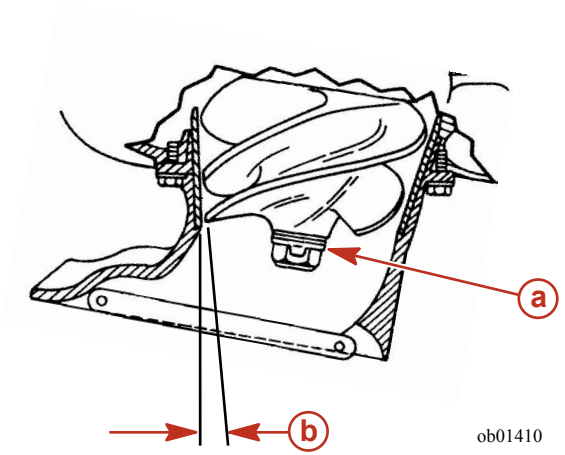


a - Leading edge **b -** Top side lifting angle

Impeller Clearance Adjustment

The impeller should be adjusted so there is approximately 0.8 mm (0.03 in.) clearance between the impeller edge and liner. Operating the jet drive in waters that contain sand and gravel can cause wear to the impeller blades, and the clearance will start to exceed 0.8 mm (0.03 in.).

As the blades wear, shims located in the stack outside of the impeller can be transferred behind the impeller. This will move the impeller further down into the tapered liner to reduce the clearance.

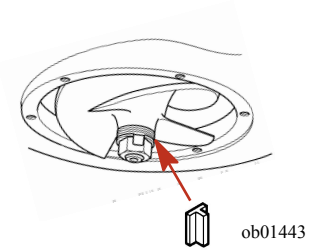


a - Shims
b - Clearance between impeller edge and liner

Check the impeller clearance by sliding a feeler gauge through the intake grate and measure the clearance between the impeller edge and liner. If adjustment is required, refer to **Impeller Removal and Installation.**

Replaceable Jet Drive Shear Key

The jet drive is equipped with a shear key to protect it in the event of a lodged impeller. The shear key can be reached by removing the water intake housing and impeller. Refer to **Maintenance - Impeller Removal and Installation**.

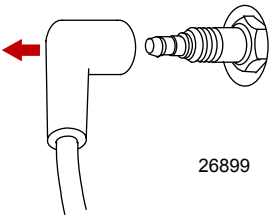


Impeller Removal and Installation

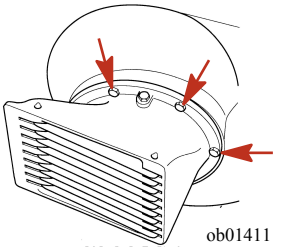
⚠ WARNING

If the driveshaft is rotated, 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 impeller, always turn the ignition key or lanyard stop switch to the "OFF" position and remove the spark plug leads from the spark plugs while servicing the impeller.

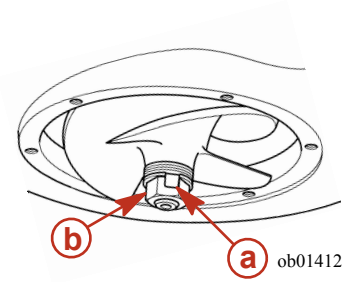
1. Shift the outboard to the neutral position.
2. Position the key switch or lanyard stop switch to the "OFF" position.
3. Remove the spark plug leads to prevent the engine from starting.



4. Remove the six screws securing the water intake housing, and remove the water intake housing.



5. Straighten the bent tabs on the impeller nut retainer and remove the impeller nut.



a - Tabs **b -** Impeller nut

6. Pull the impeller straight off the shaft. If the impeller is tight, use a hammer and a block of wood to rotate the impeller clockwise on the shaft until the keyway is directly above the flat on the shaft. This will free the jammed key and allow removal.

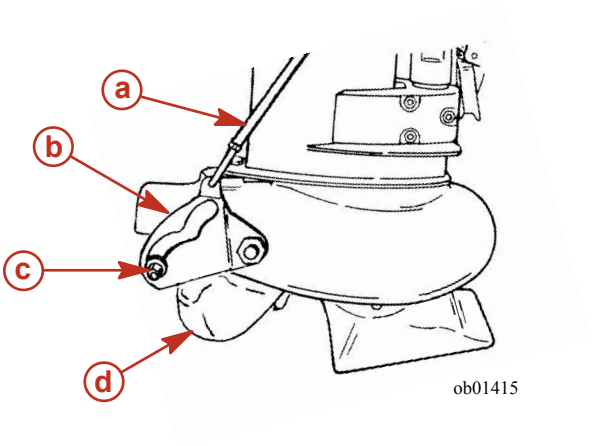
Shift Link Rod Adjustment

⚠ WARNING

The shift link rod must be adjusted to lock the reverse gate against unexpected engagement (caused by water pressure hitting the gate) while operating the boat in forward. Activation of the reverse gate will cause sudden unexpected stopping of the boat. Sudden stopping may cause occupants to be thrown within the boat or even out of the boat. This action may result in serious injury or death.

CHECKING SHIFT LINK ROD ADJUSTMENT

Check the shift link rod adjustment in forward shift position. The correct adjustment will position the shift cam far enough on the roller in order to lock the reverse gate into forward position. The reverse gate should not be able to be forced up towards neutral. Pull on the reverse gate by hand to verify.



a - Shift link rod
b - Shift cam
c - Roller
d - Reverse gate

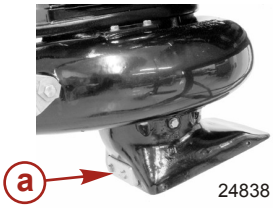
ADJUSTING SHIFT LINK ROD

1. Place the shift handle into full forward shift position.
2. Adjust the length of the shift link rod so the roller is at the full end of travel (bottom) in the shift cam when the shift handle is in forward.

Corrosion Control Anode

An anode helps protect the outboard against galvanic corrosion by sacrificing its metal to be slowly corroded instead of the outboard metals.

An anode is located on the water intake housing. An 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.



a - Water intake housing anode

Lubricating the Driveshaft Bearing

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	Driveshaft bearing	92-802867Q 1
95	2-4-C with Teflon	Driveshaft bearing	92-802859A1

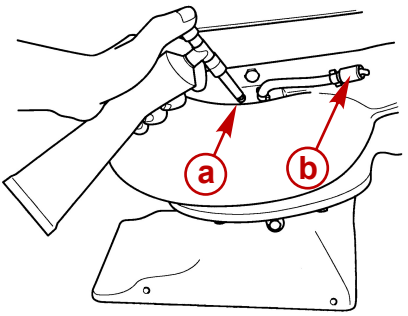
- Driveshaft bearing

IMPORTANT: It is important not to use a general all purpose grease for this bearing. The lubricant recommended is a water resistant grease of the proper consistency for this application. If a substitute is used, be sure that it is water resistant and of the same consistency.

a. Pull the vent hose off of the grease fitting.

b. Pump in grease through the grease fitting, using the grease gun provided, until excess grease starts to exit the vent hose.

c. Reconnect the vent hose onto the grease fitting after greasing.



a - Grease fitting **b -** Vent hose

NOTE: *After 30 hours of operation, pump in extra grease to purge out any moisture. Visually inspecting the purged grease at this time will give an indication of conditions inside the bearing housing. A gradual increase in moisture content indicates seal wear. If the grease begins to turn dark or dirty gray, the driveshaft bearing and seals should be inspected and replaced if necessary. Some discoloration of the grease is normal during the break-in period on a new set of seals.*

TROUBLESHOOTING

Engine Over-Speed (Excessive RPM)

POSSIBLE CAUSES

- Outboard mounted too high on the transom.
- Worn jet pump impeller or liner.
- Incorrect jet pump impeller clearance adjustment.
- Tilting the outboard out beyond a vertical position.
- Cavitation of the impeller due to rough water or obstruction in the boat hull.
- Blockage of the water intake.

Performance Loss

POSSIBLE CAUSES

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

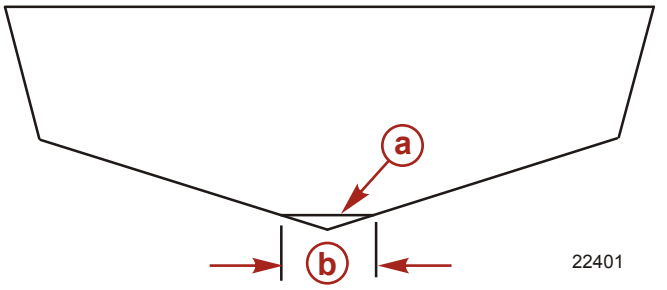
Determining the Mounting Height of the Outboard

The following outboard mounting height settings will work good for most applications, however, because of different boat/hull designs, the setting should be rechecked by test running the boat. Refer to **Water Testing**.

- Installing the outboard too high on the transom will allow the water intake to suck in air and cause cavitation. Cavitation causes the engine to overspeed in spurts and reduce thrust. This condition should be avoided by proper height setting.
- Installing the outboard too low on the transom will allow excessive drag.

BOATS WITH A "V" BOTTOM HULL

1. Measure the width of the leading edge on the water intake housing. Make a horizontal line on the transom up from the "V" bottom the same length as the width of the water intake housing.



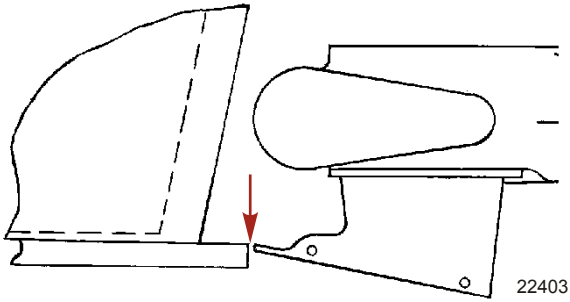
a - Horizontal line

b - Width of the leading edge on the water intake housing

2. Place (center) the outboard on the boat transom. Set the height of the outboard on the boat transom so that the front edge of the water intake housing is in line with the horizontal line made in step 1. Fasten the outboard to the transom at this height.

BOATS WITH A FLAT BOTTOM HULL

1. Place (center) the outboard on the boat transom. Set the height of the outboard on the boat transom so that the front edge of the water intake housing is in line with the bottom of the boat as shown. Fasten outboard to the transom at this height.



Water Testing

CHECKING FOR CAVITATION

The initial outboard height setting should be close to the optimum setting for the outboard. However because of the hull design of some boats, obstructions, or imperfections in the hull ahead of the water intake, adjustments may be required to prevent cavitation at running speeds.

When operating the boat, the outboard driveshaft housing should be vertical, or tilted toward the boat, when planing to provide a scooping angle on the water intake. Tilting the outboard out beyond a vertical position reduces the scoop angle and can cause impeller slippage and cavitation.

IMPORTANT: If the angle of the boat transom does not allow the driveshaft housing to be positioned vertical, a wedge kit should be installed behind the transom brackets to increase the tilt-in angle.

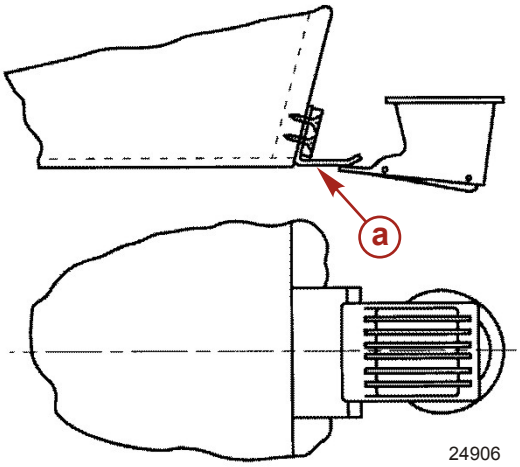
NOTE: *Slight cavitation in sharp turns and rough water is acceptable but excessive cavitation is harmful to the outboard and should be avoided.*

Test run the boat. If cavitation occurs (air enters the pump), the first thing to try is lowering the outboard mounting height.

If cavitation still exists after lowering the outboard, it maybe helpful to seek advice from the boat manufacturer.

Another option to further reduce cavitation is a rough water plate.

1. A rough water plate may be helpful in reducing cavitation when running in windy, rough water conditions where air is sucked into the water intake when jumping waves. Install a 0.8 mm (1/32 in.) metal plate that extends from the hull bottom to the top of the water intake housing. This plate tends to reduce air intake as well as reduce spray.



a - Rough water plate