



**MERCURY**<sup>®</sup>

8M0104623 315 eng



**Outboard  
Operation  
Maintenance  
Warranty  
Installation  
Manual**

**2.5/3.3**

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# Declaration of Conformity - Outboard, Commercial 2-Stroke, TMC—Not RCD Compliant

Manufacturer:

Tohatsu Marine Corporation (TMC)  
Mercury Marine Joint Venture  
Shimodaira 4495-9, Komagane-City,  
Nagano, Japan 399-4101

Authorized Representative:

Brunswick Marine in EMEA Inc.  
Parc Industriel de Petit-Rechain,  
B-4800 Verviers, Belgium

## **Safety of Machinery Directive 2006/42/EC**

Principles of safety integration (1.1.2)	ISO 12100-1; ISO 12100-2; EN 1050
Noise (1.5.8)	ICOMIA 39/94
Vibration (1.5.9)	ICOMIA 38/94

## **Electromagnetic compatibility Directive 2004/108/EC**

Generic emission standard	EN 61000-6-3
Generic emission standard	EN 61000-6-1
Vehicles, boats and internal combustion engine driven devices - Radio disturbance characteristics	SAE J551 CISPR 12; EN 55012:2002/ A1:2005
Electrostatic discharge testing	EN 61000-6-2; EN 61000-4-2; EN 61000-4-3

Engine type: Outboard  
Fuel type: Gasoline  
Combustion cycle: 2-Stroke

This declaration is issued under the sole responsibility of Mercury Marine and Brunswick Marine in EMEA Inc.

**Name / function:**

John Pfeifer, President,  
Mercury Marine

**Date and place of issue:**

March 16, 2015

Mercury Marine, Fond du Lac, WI USA

European Regulations Contact:

Regulations and Product Safety Department,

Mercury Marine, Fond du Lac, WI USA

**Welcome**

You have selected one of the finest outboards available. It incorporates numerous design features to ensure operating ease and durability.

With proper care and maintenance, you will enjoy using this product for many boating seasons. To ensure maximum performance and carefree use, we ask that you thoroughly read this manual.

This manual contains specific instructions for using and maintaining your product. We recommend that this manual remain with the product for ready reference whenever you are on the water.

Thank you for purchasing one of our products. We sincerely hope your boating will be pleasant!

Mercury Marine

**Warranty Message**

The product you have purchased comes with a limited warranty from Mercury Marine. The terms of the warranty are set forth in the **Warranty Information** section of this manual. The warranty statement contains a description of what is covered, what is not covered, the duration of coverage, how to best obtain warranty coverage, important disclaimers and limitations of damages, and other related information. Please review this information.

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

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# WARRANTY INFORMATION

## Transfer of Warranty

### UNITED STATES AND CANADA

The limited warranty is transferable to a subsequent purchaser, but only for the remainder of the unused portion of the limited warranty. The limited warranty cannot be transferred on products used for commercial applications.

To transfer the warranty to the subsequent owner, mail or fax a copy of the bill of sale or purchase agreement, new owner's name, address, and engine serial number to Mercury Marine's warranty registration department. In the United States and Canada, mail to:

Mercury Marine  
Attn: Warranty Registration Department  
W6250 Pioneer Road  
P.O. Box 1939  
Fond du Lac, WI 54936-1939  
920-929-5054  
Fax +1 920 907 6663

Upon processing the transfer of warranty, Mercury Marine will record the new owner's information.

There is no charge for this service.

### OUTSIDE THE UNITED STATES AND CANADA

For products purchased outside the United States and Canada, contact the distributor in your country or the Marine Power Service Center closest to you.

## Warranty Registration—Outside the United States and Canada

*Warranty registration procedures may vary by region, check with your local distributor.*

1. It is important that your selling dealer fills out the warranty registration card completely and mails it to the distributor or Marine Power Service Center responsible for administering the warranty registration and claim program for your area.
2. The warranty registration card identifies your name and address, product model and serial numbers, date of sale, type of use and the selling distributor's and dealer's code number, name, and address. The distributor or dealer also certifies that you are the original purchaser and user of the product.

# WARRANTY INFORMATION

3. A copy of the warranty registration card, designated as the purchaser's copy, must be given to you immediately after the card has been completely filled out by the selling distributor or dealer. This card represents your factory registration identification, and should be retained by you for future use when required. Should you ever require warranty service on this product, your dealer may ask you for the warranty registration card to verify date of purchase and to use the information on the card to prepare the warranty claim forms.
4. In some countries, the Marine Power Service Center will issue you a permanent (plastic) warranty registration card within 30 days after receiving the factory copy of the warranty registration card from your distributor or dealer. If you receive a plastic warranty registration card, you may discard the purchaser's copy that you received from the distributor or dealer when you purchased the product. Ask your distributor or dealer if this plastic card program applies to you.

**IMPORTANT: Registration lists must be maintained by the factory and dealer in some countries by law. It is our desire to have ALL products registered at the factory should it ever be necessary to contact you. Make sure your Mercury Marine distributor or Mercury Marine authorized dealer fills out the warranty registration card immediately and sends the factory copy to the Marine Power International Service Center for your area.**

## 3 Year Limited Warranty Against Corrosion

**WHAT IS COVERED:** Mercury Marine warrants that each new Mercury, Mariner, Mercury Racing, Sport-Jet, M<sup>2</sup> Jet Drive, Tracker by Mercury Marine Outboard, Mercury MerCruiser Inboard or Sterndrive Engine (Product) will not be rendered inoperative as a direct result of corrosion for the period of time described below.

**DURATION OF COVERAGE:** This limited corrosion warranty provides coverage for three (3) years from either the date the product is first sold, or the date on which the product is first put into service, whichever occurs first. 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 to subsequent (noncommercial use) purchaser upon proper reregistration of the product.

# WARRANTY INFORMATION

## **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. Corrosion prevention devices specified in the Operation and Maintenance Manual must be in use on the boat, and routine maintenance outlined in the Operation and Maintenance Manual must be timely performed (including, without limitation, the replacement of sacrificial anodes, use of specified lubricants, and touch-up of nicks and scratches) in order to maintain warranty coverage. Mercury Marine reserves the right to make warranty coverage contingent upon proof of proper maintenance.

**WHAT MERCURY WILL DO:** Mercury's sole and exclusive obligation under this warranty is limited to, at our option, repairing a corroded 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.

**WHAT IS NOT COVERED:** This limited warranty does not cover electrical system corrosion; corrosion resulting from damage, corrosion which causes purely cosmetic damage, abuse, or improper service; corrosion to accessories, instruments, steering systems; corrosion to factory installed jet drive unit; damage due to marine growth; product sold with less than a one year limited Product warranty; replacement parts (parts purchased by customer); products used in a commercial application. 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.

# WARRANTY INFORMATION

Corrosion damage caused by stray electrical currents (onshore power connections, nearby boats, submerged metal) is not covered by this corrosion warranty and should be protected against by the use of a corrosion protection system, such as the Mercury Precision Parts or Quicksilver MerCathode system and/or Galvanic Isolator. Corrosion damage caused by improper application of copper base antifouling paints is also not covered by this limited warranty. If antifouling protection is required, Tri-Butyl-Tin-Adipate (TBTA) base antifouling paints are recommended on Outboard and MerCruiser boating applications. In areas where TBTA base paints are prohibited by law, copper base paints can be used on the hull and transom. Do not apply paint to the outboard or MerCruiser product. In addition, care must be taken to avoid an electrical interconnection between the warranted product and the paint. For MerCruiser product, an unpainted gap of at least 38 mm (1.5 in.) should be left around the transom assembly. Refer to the Operation and Maintenance Manual for additional details.

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.

## **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.**

## **Warranty Coverage and Exclusions**

The purpose of this section is to help eliminate some of the more common misunderstandings regarding warranty coverage. The following information explains some of the types of services that are not covered by warranty. The provisions set forth following have been incorporated by reference into the Three Year Limited Warranty Against Corrosion Failure, the International Limited Outboard Warranty, and the United States and Canada Limited Outboard Warranty.

Keep in mind that warranty covers repairs that are needed within the warranty period because of defects in material and workmanship. Installation errors, accidents, normal wear, and a variety of other causes that affect the product are not covered.

# WARRANTY INFORMATION

Warranty is limited to defects in material or workmanship, but only when the consumer sale is made in the country to which distribution is authorized by us. Should you have any questions concerning warranty coverage, contact your authorized dealer. They will be pleased to answer any questions that you may have.

## GENERAL EXCLUSIONS FROM WARRANTY

1. Minor adjustments and tune-ups, including checking, cleaning, or adjusting spark plugs, ignition components, carburetor settings, filters, belts, controls, and checking lubrication made in connection with normal services.
2. Installation errors, accidents, normal wear and tear, and faded paint.
3. Factory installed jet drive units - Specific parts excluded from the warranty are: the jet drive impeller and jet drive liner damaged by impact or wear, and water damaged driveshaft bearings as a result of improper maintenance.
4. Damage caused by neglect, lack of maintenance, accident, abnormal operation, or improper installation or service.
5. Haul-out, launch, towing charges, removal and/or replacement of boat partitions or material because of boat design for necessary access to the product, all related transportation charges and/or travel time, etc. Reasonable access must be provided to the product for warranty service. Customer must deliver product to an authorized dealer.
6. Additional service work requested by customer other than that necessary to satisfy the warranty obligation.
7. Labor performed by other than an authorized dealer may be covered only under the following circumstances: when performed on emergency basis (providing there are no authorized dealers in the area who can perform the work required or have no facilities to haul-out, etc., and prior factory approval has been given to have the work performed at this facility).
8. All incidental and/or consequential damages (storage charges, telephone or rental charges of any type, inconvenience or loss of time or income) are the owner's responsibility.
9. Use of other than Mercury Precision or Quicksilver parts when making warranty repairs.
10. Oils, lubricants, or fluids changed as a matter of normal maintenance is customer's responsibility unless loss or contamination of same is caused by product failure that would be eligible for warranty consideration.
11. Participating in or preparing for racing or other competitive activity or operating with a racing type lower unit.
12. Engine noise does not necessarily indicate a serious engine problem. If diagnosis indicates a serious internal engine condition which could result in a failure, condition responsible for noise should be corrected under the warranty.

# WARRANTY INFORMATION

13. Lower unit and/or propeller damage caused by striking a submerged object is considered a marine hazard.
14. Water entering engine through the fuel intake, air intake, or exhaust system or submersion.
15. Failure of any parts caused by lack of cooling water, which results from starting motor out of water, foreign material blocking inlet holes, motor being mounted too high, or trimmed too far out.
16. Use of fuels and lubricants which are not suitable for use with or on the product. Refer to the **Maintenance** section.
17. Our limited warranty does not apply to any damage to our products caused by the installation or use of parts and accessories which are not manufactured or sold by us. Failures which are not related to the use of those parts or accessories are covered under warranty if they otherwise meet the terms of the limited warranty for that product.

## Warranty Policy—Australia and New Zealand

### MERCURY/MARINER OUTBOARD LIMITED WARRANTY—AUSTRALIA AND NEW ZEALAND POLICY

This limited warranty is given by Marine Power International Pty Ltd ACN 003 100 007 of 41–71 Bessemer Drive, Dandenong South, Victoria 3175 Australia (telephone (61) (3) 9791 5822) e-mail: [merc\\_info@mercmarine.com](mailto:merc_info@mercmarine.com).

#### What is Covered

Mercury Marine warrants its new products to be free of defects in material and workmanship during the period described following. The benefits to the consumer given by the warranty are in addition to other rights and remedies of the consumer under a law in relation to the goods or services to which the warranty relates.

#### Guarantees Under Australian Consumer Law

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

#### Warranty Period for Recreational Use

This Limited Warranty provides coverage for three (3) 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. Unexpired warranty coverage can be transferred to a subsequent recreational use customer upon proper registration of the product.



# WARRANTY INFORMATION

## **Warranty Period for Commercial Use**

Commercial users of these products receive warranty coverage under this Limited Warranty of one (1) year from the date of first retail sale, or one (1) year from the date on 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. Unexpired warranty coverage cannot be transferred either to or from a commercial use customer.

## **Conditions That Must Be Met to Obtain Warranty Coverage**

Warranty coverage under this Limited Warranty 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 predelivery inspection process is completed and documented. Warranty coverage becomes available upon proper registration of the product by the authorized dealer. Inaccurate warranty registration information regarding recreational use, or subsequent change of use from recreational to commercial (unless properly registered) may void the warranty at the sole discretion of Mercury Marine. 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 warranty coverage contingent upon proof of proper maintenance.

## **What Mercury Will Do**

Mercury Marine's sole and exclusive obligation under this Limited 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 Marine product. Mercury Marine reserves the right to improve or modify products from time to time without assuming an obligation to modify products previously manufactured.

# WARRANTY INFORMATION

## How to Obtain Warranty Coverage Under This Limited Warranty

The customer must provide Mercury Marine 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 Marine dealer authorized to service the product. A list of dealers and their contact details is available at [www.mercurymarine.com.au](http://www.mercurymarine.com.au). If the purchaser cannot deliver the product to such a dealer, written notice must be given to Mercury Marine at the address shown above. Mercury Marine will then arrange for the inspection and any covered repair. This Limited Warranty will not cover the purchaser for all related transportation charges and travel time. If the service provided is not covered by this limited warranty, the purchaser shall pay for all related labor and material and any other expenses associated with that service, provided that a consumer will not be obligated to pay where the service has been carried out to remedy a failure of an acceptable quality guarantee which is binding on Mercury Marine under the Australian Consumer Law. The purchaser shall not, unless requested by Mercury Marine, ship the product or parts of the product directly to Mercury Marine. Proof of registered ownership must be presented to the dealer at the time warranty service is requested in order to obtain coverage under this Limited Warranty.

## What is Not Covered

This limited warranty does not cover routine maintenance items, tune-ups, adjustments, normal wear and tear, faded paint, 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 that are not suitable for use with the product (see the Operation and Maintenance Manual), alteration or removal of parts, 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 Limited 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.

# WARRANTY INFORMATION

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.

## Expense of Claiming This Limited Warranty

This Limited Warranty does not cover any expenses you may incur claiming the warranty.

### **DISCLAIMERS AND LIMITATIONS:**

**EXCEPT FOR APPLICABLE GUARANTEES AND OTHER RIGHTS AND REMEDIES THAT A CONSUMER MAY HAVE UNDER THE AUSTRALIAN CONSUMER LAW OR OTHER LAW IN RELATION TO WHICH THE PRODUCTS RELATE, 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 LIMITED WARRANTY.**

## **TRANSFER OF WARRANTY—AUSTRALIA AND NEW ZEALAND POLICY**

The limited warranty is transferable to a subsequent purchaser, but only for the remainder of the unused portion of the limited warranty. This will not apply to products used for commercial applications.

To transfer the warranty to the subsequent owner, send or fax a copy of the Bill of Sale or Purchase Agreement, new owner's name, address, and hull identification number (HIN) to Mercury Marine's Warranty Registration Department. In Australia and New Zealand, mail to:

Mercury Marine  
Attn: Warranty Registration Department  
Brunswick Asia Pacific Group  
Private Bag 1420  
Dandenong South, Victoria 3164  
Australia

Upon processing the transfer of warranty, Mercury Marine will send registration verification to the new owner of the product by mail. There is no charge for this service.

# WARRANTY INFORMATION

You may change your address at any time, including at the time of the warranty claim, by calling Mercury Marine or sending a letter or fax with your name, old address, new address, and hull identification number (HIN) to Mercury Marine's Warranty Registration Department.

## Global Warranty Charts Outboard and Jets

### AUSTRALIA AND NEW ZEALAND WARRANTY CHARTS—OUTBOARD AND JET

Products	Standard Limited Warranty	Standard Limited Corrosion Warranty	Light Commercial
All outboard	3 years	3 years	Contact the Marine Power Service Center closest to you

#### Outside of Australia and New Zealand

For product purchased outside of Australia and New Zealand, contact the distributor in your country, or the Marine Power Service Center closest to you.

### SOUTH PACIFIC WARRANTY CHART—OUTBOARD AND JET

Products	Standard Limited Warranty	Standard Limited Corrosion Warranty	Light Commercial
All outboard	2 years	3 years	Contact the Marine Power Service Center closest to you

#### Outside of South Pacific

For product purchased outside of the South Pacific region, contact the distributor in your country, or the Marine Power Service Center closest to you.

# WARRANTY INFORMATION

## ASIA WARRANTY CHARTS—OUTBOARD AND JET

Product (Recreational only)	Standard Limited Warranty	Standard Limited Corrosion Warranty	Commercial Application
2-Stroke	1 year	3 years	Contact the Marine Power Service Center closest to you
FourStroke	1 year	3 years	
OptiMax	1 year	3 years	
Verado	1 year	3 years	

Racing Product (Recreational only)	Standard Limited Warranty	Standard Limited Corrosion Warranty	Commercial Application
Verado 400R	1 year	3 years	None

### Outside of Asia

For product purchased outside of the Asian region, contact the distributor in your country, or the Marine Power Service Center closest to you.

## EUROPE AND THE CONFEDERATION OF INDEPENDENT STATES (CIS) WARRANTY CHARTS—OUTBOARD AND JET

Product (Recreational only)	Standard Limited Warranty	Standard Limited Corrosion Warranty	Commercial Application
2-Stroke	2 years	3 years	Contact the Marine Power Service Center closest to you
FourStroke	2 years	3 years	
OptiMax (including Pro XS)	3 years	3 years	
Verado (including Pro)	3 years	3 years	

# WARRANTY INFORMATION

<b>Racing Product (Recreational only)</b>	<b>Standard Limited Warranty</b>	<b>Standard Limited Corrosion Warranty</b>	<b>Commercial Application</b>
Verado 400R	2 years	3 years	Contact the Marine Power Service Center closest to you

## Outside Europe and CIS

For products purchased outside of Europe and CIS regions, contact the distributor in your country, or the Marine Power Service Center closest to you.

## MIDDLE-EAST AND AFRICA (EXCLUDING SOUTH AFRICA) WARRANTY CHARTS—OUTBOARD AND JET

<b>Product (Recreational only)</b>	<b>Standard Limited Warranty</b>	<b>Standard Limited Corrosion Warranty</b>	<b>Commercial Application</b>
2-Stroke	1 year	3 years	Contact the Marine Power Service Center closest to you
FourStroke	2 years	3 years	
OptiMax (including Pro XS)	3 years	3 years	
Verado (including Pro)	3 years	3 years	

<b>Racing Product (Recreational only)</b>	<b>Standard Limited Warranty</b>	<b>Standard Limited Corrosion Warranty</b>
Verado 400R	2 years	3 years

## Outside Middle-East and Africa

For products purchased outside of the Middle-East and Africa regions, contact the distributor in your country, or the Marine Power Service Center closest to you.

# WARRANTY INFORMATION

## SOUTH AFRICA WARRANTY CHARTS—OUTBOARD AND JET

Product (Recreational only)	Standard Limited Warranty	Standard Limited Corrosion Warranty	Commercial Application
2-Stroke	2 years	3 years	Contact the Marine Power Service Center closest to you
FourStroke	2 years	3 years	
OptiMax (including Pro XS)	3 years	3 years	
Verado (including Pro)	3 years	3 years	

Racing Product (Recreational only)	Standard Limited Warranty	Standard Limited Corrosion Warranty
Verado 400R	2 years	3 years

### Outside South Africa

For products purchased outside of the South Africa region, contact the distributor in your country, or the Marine Power Service Center closest to you.

# GENERAL INFORMATION

## Boater's Responsibilities

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

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

## Before Operating Your Outboard

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

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

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

### WARNING

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

### 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.

## Boat Horsepower Capacity

### WARNING

Exceeding the boat's maximum horsepower rating can cause serious injury or death. Overpowering the boat can affect boat control and flotation characteristics or break the transom. Do not install an engine that exceeds the boat's maximum power rating.



# GENERAL INFORMATION

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

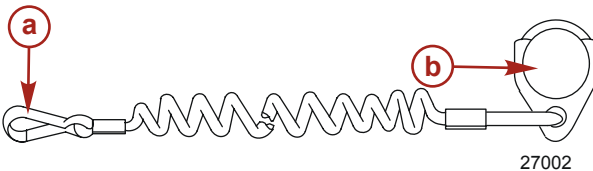
U.S. COAST GUARD CAPACITY	
MAXIMUM HORSEPOWER	XXX
MAXIMUM PERSON CAPACITY (POUNDS)	XXX
MAXIMUM WEIGHT CAPACITY	XXX

26777

## Lanyard Stop Switch

The purpose of a lanyard stop switch is to turn off the engine when the operator moves far enough away from the operator's position (as in accidental ejection from the operator's position) to activate the switch. Tiller handle outboards and some remote control units are equipped with a lanyard stop switch. A lanyard stop switch can be installed as an accessory - generally on the dashboard or side adjacent to the operator's position.

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.



27002

- a** - Lanyard cord
- b** - Lanyard stop switch

Read the following Safety Information before proceeding.

# GENERAL INFORMATION

**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

**If the operator falls out of the boat, stop the engine immediately to reduce the possibility of serious injury or death from being struck by the boat. Always properly connect the operator to the stop switch using a lanyard.**

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.

# GENERAL INFORMATION

## Protecting People in the Water

### WHILE YOU ARE CRUISING

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



21604

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

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

### WHILE THE BOAT IS STATIONARY

#### **▲ WARNING**

**A spinning propeller, a moving boat, or any solid device attached to the boat can cause serious injury or death to swimmers. Stop the engine immediately whenever anyone in the water is near your boat.**

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

## Exhaust Emissions

### BE ALERT TO CARBON MONOXIDE POISONING

Carbon monoxide is present in the exhaust fumes of all internal combustion engines. This includes the outboards, sterndrives, and inboard engines that propel boats, as well as the generators that power various boat accessories. Carbon monoxide is a deadly gas that is odorless, colorless, and tasteless.

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

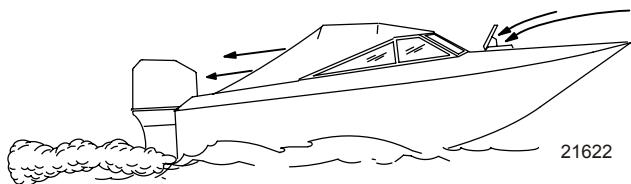
#### **▲ WARNING**

**Carbon monoxide poisoning can lead to unconsciousness, brain damage, or death. Keep the boat well ventilated while at rest or underway and avoid prolonged exposure to carbon monoxide.**

# GENERAL INFORMATION

## GOOD VENTILATION

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



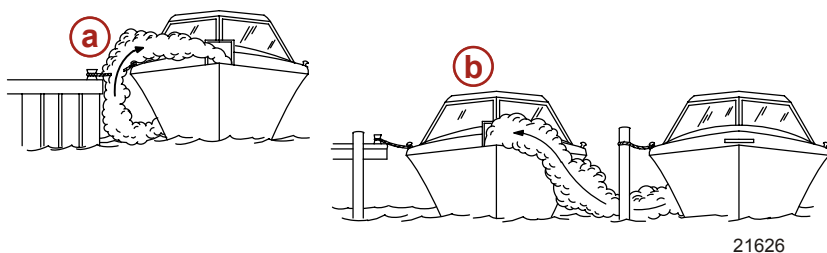
Example of desired air flow through the boat

## POOR VENTILATION

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

Although the occurrence is rare, on a very calm day, swimmers and passengers in an enclosed area of a stationary boat that contains or is near a running engine may be exposed to a hazardous level of carbon monoxide.

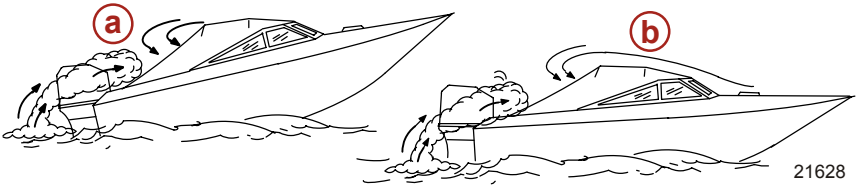
## WHILE BOAT IS STATIONARY



- a** - Running the engine when the boat is moored in a confined space
- b** - Mooring close to another boat that has its engine running

# GENERAL INFORMATION

## WHILE BOAT IS MOVING



- a** - Running the boat with the trim angle of the bow too high
- b** - Running the boat with no forward hatches open

## Selecting Accessories for Your Outboard

Genuine Mercury Precision or Quicksilver Accessories have been specifically designed and tested for your outboard. These accessories are available from Mercury Marine dealers.

**IMPORTANT: Check with your dealer before installing accessories. The misuse of approved accessories or the use of nonapproved accessories can damage the product.**

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

## Safe Boating Suggestions

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

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

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

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

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

# GENERAL INFORMATION

**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 your judgment and greatly reduces your ability to react quickly.

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

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

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

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

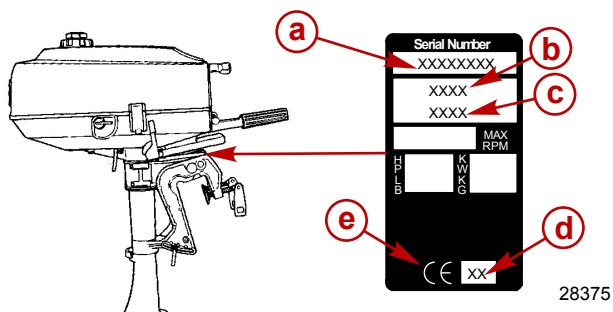
**Watch fallen skiers.** When using your boat for waterskiing or similar activities, always keep a fallen or down skier on the operator's side of the boat while returning to assist the skier. The operator should always have the down skier in sight and never back up to the skier or anyone in the water.

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

# GENERAL INFORMATION

## Recording Serial Number

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



- a** - Serial number
- b** - Model year
- c** - Model designation
- d** - Year manufactured
- e** - Certified Europe Insignia (as applicable)

## Specifications

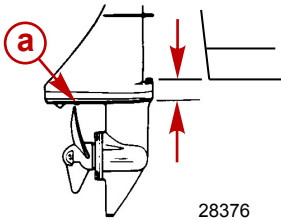
Models	2.5	3.3
Horsepower	2.5	3.3
Kilowatts	1.9	2.5
Full Throttle RPM Range	4000-5000	4500-5500
Idle Speed in Forward Gear	900-1000 RPM	
Number of Cylinders	1	
Piston Displacement	74.6 cc (4.6 cu. in.)	
Cylinder Bore	47 mm (1.85 in.)	
Piston Stroke	43 mm (1.69 in.)	
Recommended Spark Plug	NGK BPR6HS-10 or Champion RL87YC	
Spark Plug Gap	1.0 mm (0.40 in.)	
Gearcase Lubricant Capacity	135 ml (4.5 fl. oz.)	
Gear Ratio	2.18:1	1.85:1
Recommended Gasoline	Refer to <b>Fuel &amp; Oil</b>	
Recommended Oil	Refer to <b>Fuel &amp; Oil</b>	

# INSTALLATION

## 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.

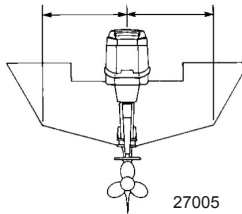


**a** - Anti-ventilation plate

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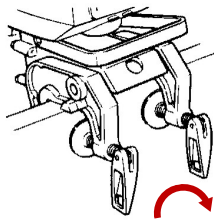
### INSTALLING OUTBOARD ON TRANSOM

1. Place outboard on center line of transom.



27005

2. Tighten transom clamp handles.



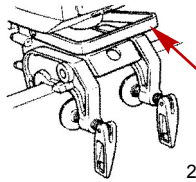
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# TRANSPORTING

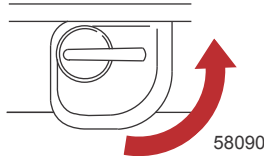
## Carrying Outboard

The outboard has a carrying handle located in front.

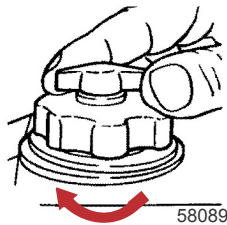


## Transporting Outboard When Removed From Boat

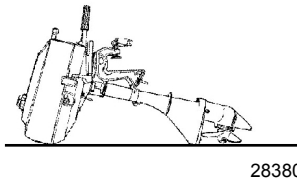
1. With the outboard still in the water, close the fuel shut-off valve and run engine until it stops. The running engine will consume remaining fuel in the carburetor.



2. Close the fuel tank vent.



3. Remove the outboard from the boat and hold upright until all cooling water has drained out.
4. Lay the outboard down on its back side so the tiller handle is facing up, as shown. Place a protective pad under the outboard.



# TRANSPORTING

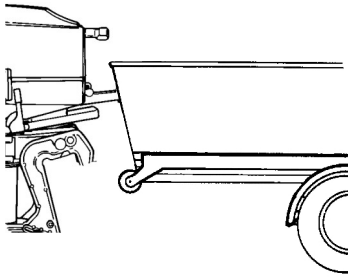
## Trailing Boat

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

The 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.

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



28381

# FUEL AND OIL

## 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 two types of oxygenates used in these fuels are 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

# FUEL AND OIL

## ⚠ WARNING

Fuel leakage is a fire or explosion hazard, which can cause serious injury or death. Periodically inspect all fuel system components for leaks, softening, hardening, swelling, or corrosion, particularly after storage. 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.

## Oil Recommendation

Recommended Oil	Mercury or Quicksilver Premium 2-Cycle TC-W3 Outboard Oil
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**IMPORTANT:** Oil must be NMMA certified TC-W3 2-Cycle oil.

Mercury or Quicksilver Premium TC-W3 2-Cycle oil is recommended for this engine. For added protection and lubrication, Mercury or Quicksilver Premium Plus TC-W3 2-Cycle oil is recommended. If Mercury or Quicksilver outboard oil is not available, substitute another brand of 2-cycle outboard oil that is NMMA Certified TC-W3. Severe engine damage may result from use of an inferior oil.

## Mixing Fuel and Oil

Use a 25:1 (4%) gasoline/oil mixture in the first tank of fuel.

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

## GASOLINE/OIL MIXING RATIO CHART

GASOLINE/OIL MIXING RATIO CHART			
Gas/Oil Ratio	3.8 liters (1 gal.) gas	11.5 liters (3 gal.) gas	23 liters (6 gal.) gas
25:1 (4%)	148 ml (5 fl. oz.) oil	473 ml (16 fl. oz.) oil	946 ml (32 fl. oz.) oil

# FUEL AND OIL

GASOLINE/OIL MIXING RATIO CHART			
Gas/Oil Ratio	3.8 liters (1 gal.) gas	11.5 liters (3 gal.) gas	23 liters (6 gal.) gas
50:1 (2%)	89 ml (3 fl. oz.) oil	237 ml (8 fl. oz.) oil	473 ml (16 fl. oz.) oil

## MIXING PROCEDURE

Pour the full amount of oil along with approximately one gallon of gasoline into an approved container. Shake the two together until they are thoroughly mixed. Add the remainder of gasoline and shake container to ensure mixing.

## Filling Fuel Tank

### WARNING

**Avoid serious injury or death from a gasoline fire or explosion. Use caution when filling fuel tanks. 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.

Always stop engine before refilling tanks.

Do not overfill the fuel tank. Fuel will expand in volume as its temperature rises and can leak under pressure if the tank is completely filled.

The oil and fuel mixture should always be thoroughly mixed in an approved container before pouring into motor fuel tank. Do not pour separately into fuel tank.

Pour fuel into tank through a fine mesh strainer to remove dirt which may be present.

# FEATURES AND CONTROLS

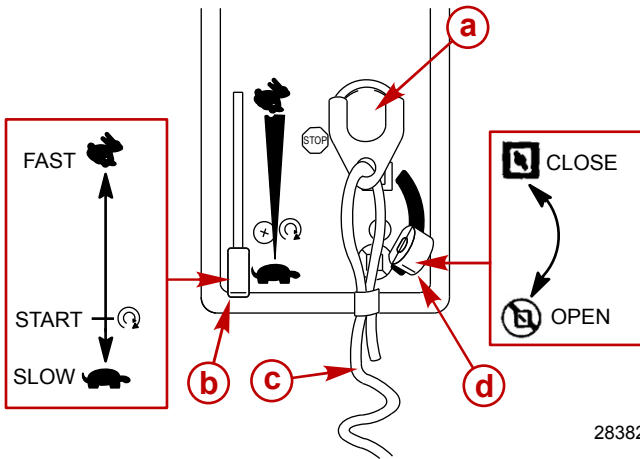
## Features & Controls

Throttle lever - Move to start position for starting. Move lever up to increase engine speed and down to reduce engine speed.

Choke lever - Move up to the closed position for starting a cold engine. Move halfway down as engine warms up. Move down to the open position after engine is warmed up.

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.

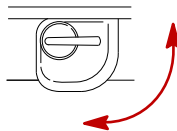
Lanyard - Refer to **General Information - Lanyard Stop Switch**.



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- a** - Engine stop switch/lanyard stop switch
- b** - Throttle lever
- c** - Lanyard
- d** - Choke lever

Fuel shut-off valve - Turn clockwise to open fuel line and turn counterclockwise to close.



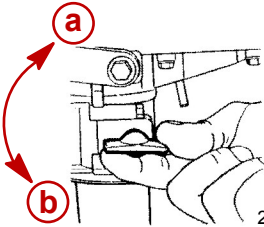
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# FEATURES AND CONTROLS

## ⚠ WARNING

Insufficient friction adjustment can cause serious injury or death due to loss of boat control. When setting the friction adjustment, maintain sufficient steering friction to prevent the outboard from steering into a full turn if the tiller handle or steering wheel is released.

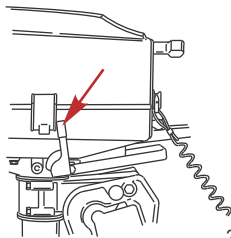
Steering friction adjustment - Adjust this knob to achieve the desired steering friction (drag) on the tiller handle. Move knob clockwise to tighten friction and move knob counterclockwise to loosen friction.



28384

- a - Tighten friction
- b - Loosen friction

Side handle gear shift (if equipped) - controls gear shift.

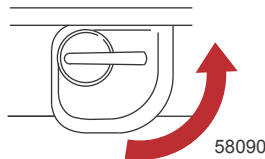


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## Tilting Outboard

### TILTING TO FULL UP POSITION

1. Close the fuel shut-off valve and run the engine out of fuel. This will prevent fuel spilling out of the carburetor.

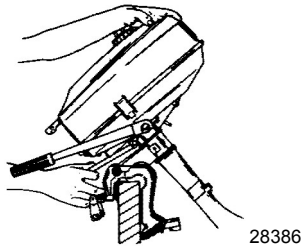


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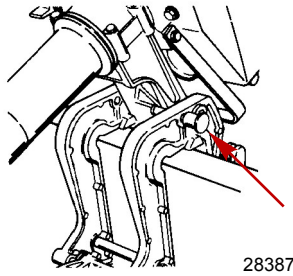
2. Close the fuel tank vent. This will prevent fuel spilling out of the fuel tank vent.

# FEATURES AND CONTROLS

3. Take hold of the top cowl grip and raise outboard to the full up position.

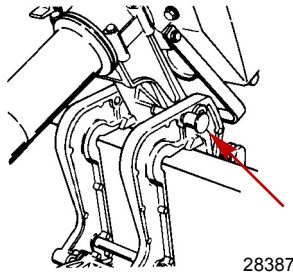


4. Push in the tilt support pin. Lower the outboard to rest on the tilt support pin.



## LOWERING TO RUN POSITION

1. Lift the outboard and pull out the tilt support pin. Lower the outboard.



2. Open the fuel tank vent and open the fuel shut-off valve.

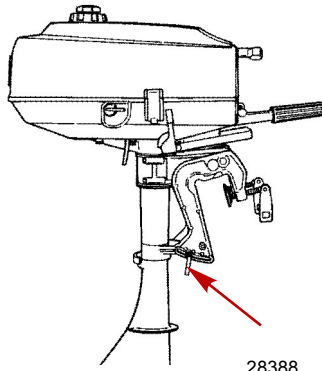
## Setting The Operating Angle Of Your Outboard

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.



## FEATURES AND CONTROLS

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.



28388

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

# OPERATION

## Prestarting 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 the trapped water in the 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 Saltwater 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.

# OPERATION

## Engine Break-in Procedure

**IMPORTANT:** Failure to follow the engine break-in procedures can result in poor performance throughout the life of the engine and can cause engine damage. Always follow break-in procedures.

### ENGINE BREAK-IN FUEL MIXTURE

Use a 25:1 (4%) gasoline/oil mixture in the first tank of fuel.

### BREAK-IN PROCEDURE

Vary the throttle setting during the first hour of operation. During the first hour of operation, avoid remaining at a constant speed for more than two minutes and avoid sustained wide open throttle.

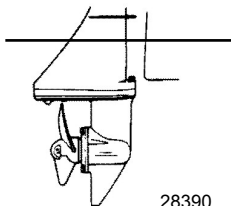
## Starting The Engine

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

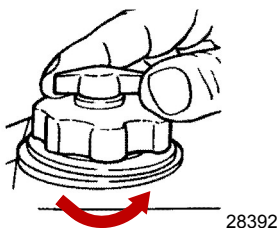
### NOTICE

**Without sufficient cooling water, the engine, the water pump, and other components will overheat and suffer damage. Provide a sufficient supply of water to the water inlets during operation.**

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

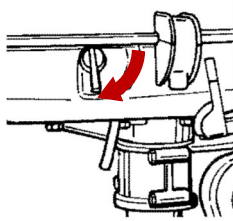


2. Open fuel tank vent.



# OPERATION

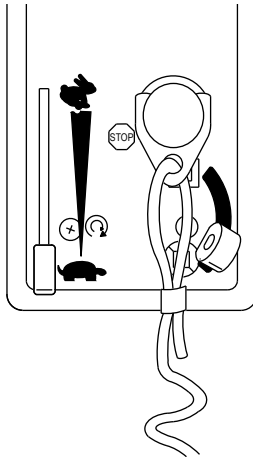
3. Open the fuel shut-off valve.



28396

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

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

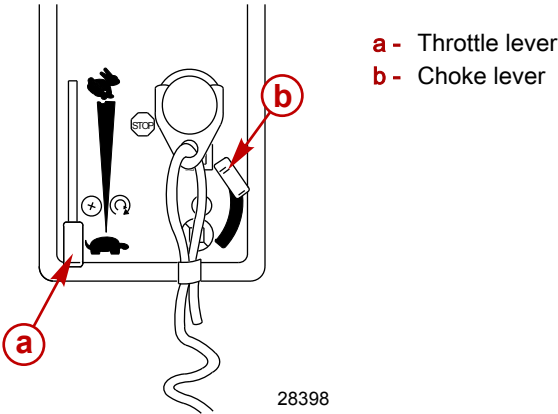


28397

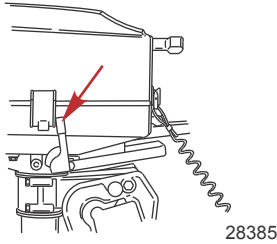
5. If engine is cold, move choke lever to closed (up) position. Move halfway down as engine warms up. Move down to the open position after engine is warmed up.

# OPERATION

6. Move the throttle lever to the start position.



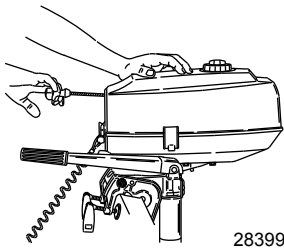
7. Models with gear shift - Move gear shift lever to neutral position.



## ⚠ WARNING

Sudden acceleration can serious injury or death. This outboard is a direct-drive model, meaning the lower unit is in gear at all times. Do not start the engine with the throttle lever past the start position and remain seated when starting.

8. Always remain seated when attempting to start the engine. Pull the starter rope slowly until the starter engages, then pull rapidly to crank the engine. Allow rope to return slowly. Repeat until engine starts.

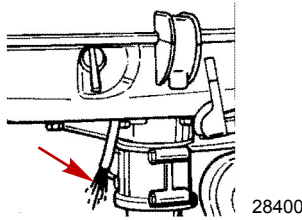


# OPERATION

**NOTE:** Starting flooded engine - Move the choke lever down to the open position. Wait 30 seconds, keep the throttle lever at the start position, then continue to crank engine for starting.

9. After engine starts, check for a steady stream of water flowing out of the water pump indicator hole.

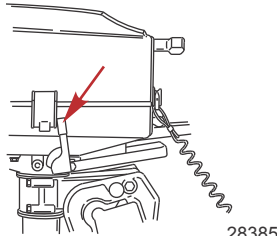
**IMPORTANT:** If no water is coming out of the water pump indicator hole, stop engine and check cooling water intake for obstruction. No obstruction may indicate a water pump failure or blockage in the cooling system. These conditions will cause the engine to overheat. Have the outboard checked by your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



28400

## Gear Shifting - Models with Gear Shift

- The outboard has two gear shift positions to provide operation: forward and neutral.
- Reduce throttle speed to idle speed.
- Always shift outboard into gear with a quick motion.

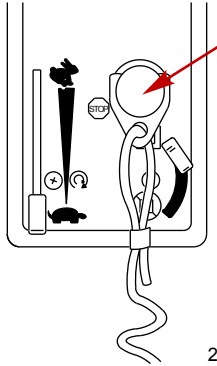


28385

# OPERATION

## Stopping The Engine

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



28401

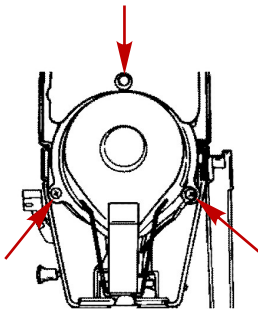
## Emergency Starting

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

### ▲ WARNING

The neutral-speed-protection device is inoperative when starting the engine with the emergency starter rope. Set the engine speed at idle and the gear shift in neutral to prevent the outboard from starting in gear.

1. Side shift models - Shift outboard to neutral position.
2. Remove three bolts and rewind starter assembly.

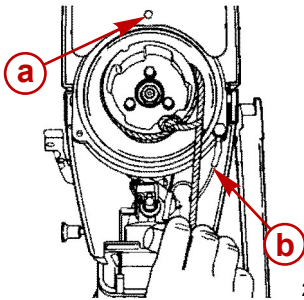


28402

3. Reinstall the rear rewind starter mounting bolt into the fuel tank.  
**IMPORTANT:** The black lead from the engine stop switch will have to be reconnected in order to use the engine stop switch to stop the engine.

# OPERATION

4. Reconnect the black lead using a bolt from the rewind starter.



- a - Bolt
- b - Black lead

28403

5. Place the starter rope knot into the starter cup notch and wind the rope clockwise around the cup.
6. Pull the starter rope to start the engine.

## ▲ WARNING

High voltage is present any time the key is turned on, especially when starting or operating the engine. Do not touch ignition components or metal test probes and stay clear of spark plug leads when performing live tests.

## ▲ 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.



# MAINTENANCE

## 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.

Record maintenance performed in the **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.

## EPA 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 being set to factory standards. For this reason, the factory procedure for servicing the product must be strictly followed and, wherever practicable, returned to the original intent of the design.

**Maintenance, replacement, or repair of the emission control devices and systems may be performed by any marine spark ignition (SI) engine repair establishment or individual.**

# MAINTENANCE

## EPA Emissions

### 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.

The diagram shows a rectangular label with the Mercury logo on the left and the title "EMISSION CONTROL INFORMATION" on the right. The label contains several fields for engine specifications and emissions data. Red callouts labeled 'a' through 'i' point to specific fields: 'a' points to the 'IDLE SPEED' field; 'b' points to the 'hp' field; 'c' points to the 'TIMING (IN DEGREES)' field; 'd' points to the 'Standard spark plug' and 'GAP' fields; 'e' points to the 'Valve Clearance (Cold) mm' field; 'f' points to the 'FAMILY' field; 'g' points to the 'FEL' field; 'h' points to the 'cc' field; and 'i' points to a date field in the bottom right corner.

MERCURY		EMISSION CONTROL INFORMATION	
This engine conforms to <input type="checkbox"/> model year EPA regulations for Marine SI engines. Refer to Owner's Manual for required maintenance.			
IDLE SPEED: <input type="text"/>	FAMILY: <input type="text"/>		<input type="text"/>
<input type="text"/> hp	<input type="text"/> cc	FEL: <input type="text"/>	<input type="text"/> g/kWh
TIMING (IN DEGREES): <input type="text"/>			
Standard spark plug: <input type="text"/>			<input type="text"/>
Suppressor spark plug: <input type="text"/>			
GAP: <input type="text"/>			
Valve Clearance (Cold) mm	Intake <input type="text"/>	Exhaust <input type="text"/>	<input type="text"/>

28405

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

### 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 emission levels to exceed their predetermined factory specifications.

### Inspection And Maintenance Schedule

#### BEFORE EACH USE

- Visually inspect the fuel system for deterioration or leaks.
- Check outboard for tightness on transom.
- Check steering system for binding or loose components.
- Check propeller blades for damage.

# MAINTENANCE

## AFTER EACH USE

- Flush out the outboard cooling system if operating in salt or polluted water. See **Flushing the Cooling System**.
- Wash off all salt deposits 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 used in salt water. See **Lubrication Points**.
- 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 corrosion control anode. Check more frequently when used in salt water. See **Corrosion Control Anodes**.
- Lubricate splines on the drive shaft.<sup>1</sup>
- Replace water pump impeller.<sup>1</sup>
- Check tightness of bolts, nuts, and other fasteners.

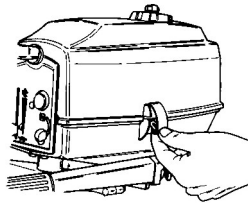
## BEFORE PERIODS OF STORAGE

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

## Top Cowl Removal And Installation

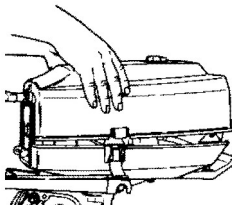
### REMOVAL

1. Open cowl latches on both sides of cowl.



28406

2. Lift top cowl off engine.



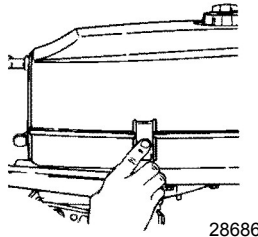
28685

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

# MAINTENANCE

## INSTALLATION

1. Position top cowl over engine. Place the rear of the cowl on first, then the front.
2. Engage cowl latches to fasten cowl.



## Exterior Care

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

## Flushing The Cooling System

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

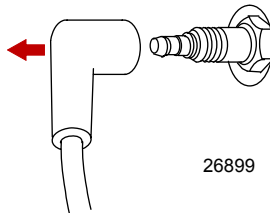
1. Place outboard in a test tank containing fresh water. Start the outboard and operate for 3 to 4 minutes.

## Propeller Replacement

### **▲ WARNING**

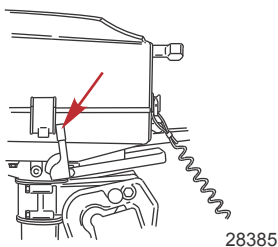
Rotating propellers can cause serious injury or death. Never operate the boat out of the water with a propeller installed. Before installing or removing a propeller, place the drive unit in neutral and engage the lanyard stop switch to prevent the engine from starting. Place a block of wood between the propeller blade and the anti-ventilation plate.

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

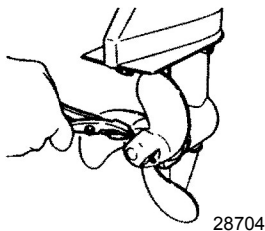


# MAINTENANCE

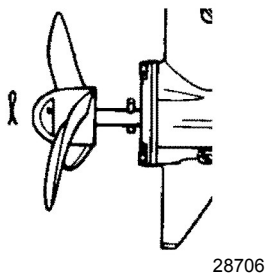
2. Move gear shift lever into neutral.



3. Straighten and remove cotter pin.



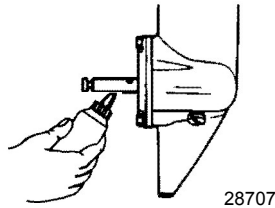
4. Pull the propeller off the shaft. If propeller is seized to the shaft and cannot be removed, have the propeller removed by an authorized dealer.



**IMPORTANT:** To prevent the propeller hub from corroding and seizing to the propeller shaft (especially in saltwater), 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.

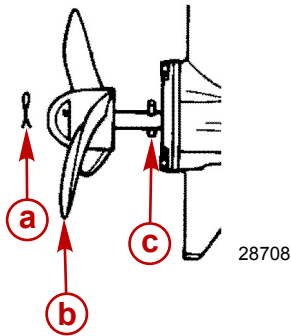
# MAINTENANCE

5. Apply 2-4-C with PTFE to the propeller shaft.



Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with PTFE	Propeller shaft	92-802859A 1

6. If removed, insert drive pin into propeller shaft.
7. Slide propeller onto shaft and verify the slot in propeller engages with the drive pin.
8. Install the cotter pin through hole in propeller and bend cotter pins to secure the propeller in place.



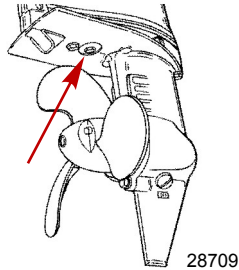
- a - Cotter pin
- b - Propeller
- c - Drive pin

## 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.

# MAINTENANCE

The anode requires periodic inspection especially in saltwater 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.

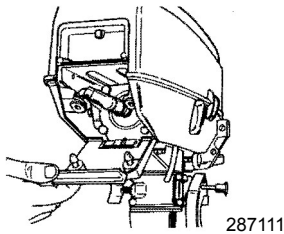


## Spark Plug Inspection And Replacement

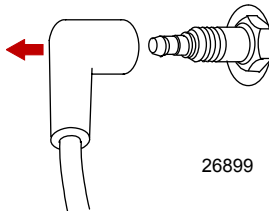
### ⚠ WARNING

Damaged spark plug boots may emit sparks that can ignite fuel vapors under the engine cowl, resulting in serious injury or death from a fire or explosion. To avoid damaging the spark plug boots, do not use any sharp object or metal tool to remove the spark plug boots.

1. Open the spark plug access door.

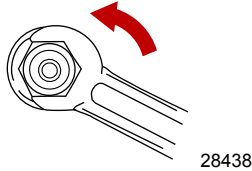


2. Remove the spark plug boot. Twist the rubber boots slightly and pull off.

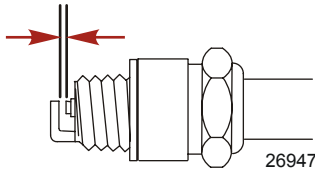


# MAINTENANCE

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



- Set spark plug gap to specifications.



Spark Plug	
Spark plug gap	1.0 mm (0.040 in.)

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

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

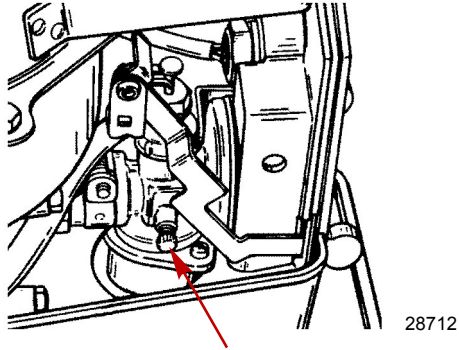
## Engine Idle Speed Adjustment

- With boat tied securely to dock, start engine and allow it to warm up.
- With outboard in forward gear, reduce engine speed to idle.



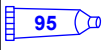
# MAINTENANCE

3. Adjust the idle speed screw to obtain the recommended engine idle speed. See **General Information - Specifications**.

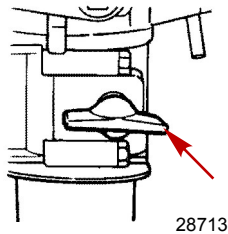


## Lubrication Points

1. Lubricate the following with 2-4-C with PTFE.

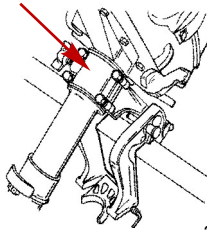
Tube Ref No.	Description	Where Used	Part No.
 95	2-4-C with PTFE	Copilot threads, swivel bracket, tilt support pin, transom clamp screw threads, propeller shaft	92-802859A 1

- Copilot - Lubricate threads.



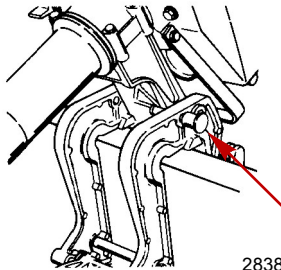
# MAINTENANCE

- Swivel bracket - Remove four (4) bolts and rear cover and lubricate the inner nylon bushings.



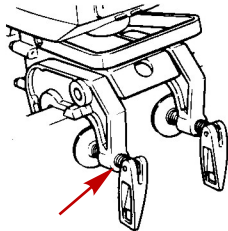
28714

- Tilt support pin.



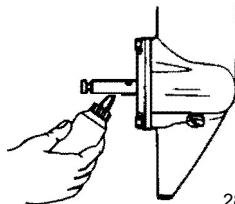
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- Transom clamp screw threads.



28715

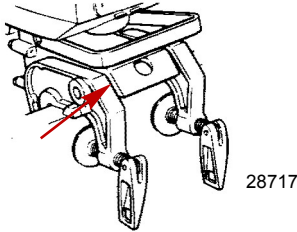
- Propeller shaft - Refer to **Propeller Replacement** for removal and installation of the propeller. Apply 2-4-C with PTFE to the entire propeller shaft to prevent the propeller hub from corroding to the shaft.



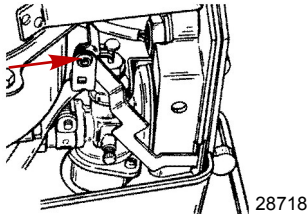
28707

# MAINTENANCE

2. Lubricate the following with lightweight oil.
  - Tilt pivot.



- Throttle linkage - Lubricate pivot point.



## 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.

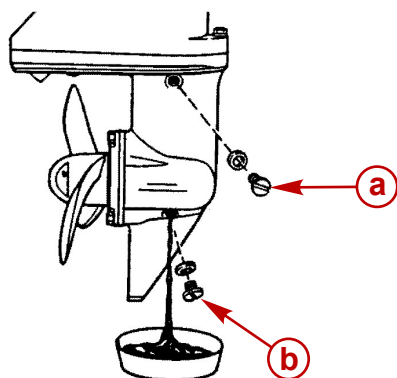
Examine the drained gearcase lubricant for metal particles. A small amount of metal particles indicates normal gear wear. An excessive amount of metal filings or larger particles (chips) may indicate abnormal gear wear and should be checked by an authorized dealer.

## DRAINING GEARCASE

1. Place outboard in a vertical operating position.
2. Place drain pan below outboard.

# MAINTENANCE

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



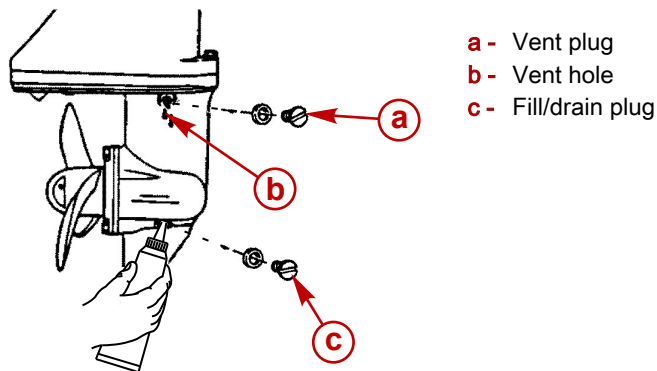
28719

## GEARCASE LUBRICANT CAPACITY

Gearcase lubricant capacity is approximately 135 ml (4.5 fl. oz.).

## CHECKING LUBRICANT LEVEL AND REFILLING GEARCASE

1. Place outboard in a vertical operating position.
2. Remove vent plug.
3. Remove fill/drain plug. Place lubricant tube into the fill hole and add lubricant until it appears at the vent hole.



28720

## 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.

# MAINTENANCE

## **Submerged Outboard**

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

# STORAGE

## Storage Preparation

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

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

### NOTICE

Without sufficient cooling water, the engine, the water pump, and other components will overheat and suffer damage. Provide a sufficient supply of water to the water inlets during operation.

## FUEL SYSTEM



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

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

- 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.
- Place the outboard in water. Run the engine for five minutes to allow treated fuel to reach the carburetor.

## 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).

Tube Ref No.	Description	Where Used	Part No.
 120 	Corrosion Guard	External metal surfaces	92-802878 55

## Protecting Internal Engine Components

**NOTE:** Make sure the fuel system has been prepared for storage. Refer to *Fuel System, preceding*.

**IMPORTANT:** Refer to **Maintenance - Spark Plug Inspection and Replacement** for correct procedure for removing spark plug boots.

- Place the outboard in water. Start the engine and let it run in neutral to warm up.

# STORAGE

- With engine running at fast idle, stop the fuel flow by closing the fuel shut-off valve. When engine begins to stall, quickly spray Quicksilver or Mercury Precision Lubricants Storage Seal into carburetor until engine stops from lack of fuel.
- Remove the spark plug and inject a five second spray of storage seal around the inside of the cylinder.
- Rotate the flywheel manually several times to distribute the storage seal in the cylinder. Reinstall spark plug.

## Gearcase

- Drain and refill the gearcase lubricant (refer to **Gearcase Lubrication**).

## Positioning Outboard for Storage

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

### *NOTICE*

Storing the outboard in a tilted position can damage the outboard. Water trapped in the cooling passages or rain water collected in the propeller exhaust outlet in the gearcase can freeze. Store the outboard in the full down position.

# TROUBLESHOOTING

## Engine Will Not Start

### POSSIBLE CAUSES

- Incorrect starting procedure. Refer to **Operation** section.
- Old or contaminated gasoline.
- Engine flooded. Refer to **Operation** section.
- Fuel is not reaching the engine.
  - a. Fuel tank is empty.
  - b. Fuel tank vent not open or restricted.
  - c. Fuel shut-off valve closed
  - d. Fuel tank filter obstructed.
- Ignition system component failure.
- Spark plug fouled or defective. Refer to **Maintenance** section.
- Carburetor inlet needle stuck from contaminated gasoline.

## Engine Runs Erratically

### POSSIBLE CAUSES

- Spark plug fouled or defective. Refer to **Maintenance** section.
- Fuel is being restricted to the engine.
  - a. Fuel tank vent not open or restricted.
  - b. Fuel tank filter obstructed.
- Ignition system component failure.

## Performance Loss

### POSSIBLE CAUSES

- Damaged or improper size propeller.
- Boat overloaded or load improperly distributed.
- Excessive water in bilge.
- Boat bottom is dirty or damaged.



# OWNER SERVICE ASSISTANCE

## Service Assistance

### LOCAL REPAIR SERVICE

If you need service for your Mercury-outboard-powered boat, take it to your authorized dealer. Only authorized dealers specialize in Mercury products and have factory-trained mechanics, special tools and equipment, and genuine Quicksilver parts and accessories to properly service your engine.

**NOTE:** *Quicksilver parts and accessories are engineered and built by Mercury Marine specifically for your power package.*

### SERVICE AWAY FROM HOME

If you are away from your local dealer and the need arises for service, contact the nearest authorized dealer. If, for any reason, you cannot obtain service, contact the nearest Regional Service Center. Outside the United States and Canada, contact the nearest Marine Power International Service Center.

### STOLEN POWER PACKAGE

If your power package is stolen, immediately advise the local authorities and Mercury Marine of the model and serial numbers and to whom the recovery is to be reported. This information is maintained in a database at Mercury Marine to aid authorities and dealers in the recovery of stolen power packages.

### ATTENTION REQUIRED AFTER SUBMERSION

1. Before recovery, contact an authorized Mercury dealer.
2. After recovery, immediate service by an authorized Mercury dealer is required to reduce the possibility of serious engine damage.

### REPLACEMENT SERVICE PARTS

#### WARNING

**Avoid fire or explosion hazard. Electrical, ignition, and fuel system components on Mercury Marine products comply with federal and international standards to minimize risk of fire or explosion. Do not use replacement electrical or fuel system components that do not comply with these standards. When servicing the electrical and fuel systems, properly install and tighten all components.**

Marine engines are expected to operate at or near full throttle for most of their lives. They are also expected to operate in both fresh and saltwater environments. These conditions require numerous special parts.

# OWNER SERVICE ASSISTANCE

## PARTS AND ACCESSORIES INQUIRIES

Direct any inquiries concerning Quicksilver replacement parts and accessories to your local authorized dealer. The dealer has the necessary information to order parts and accessories for you if they are not in stock. Only authorized dealers can purchase genuine Quicksilver parts and accessories from the factory. Mercury Marine does not sell to unauthorized dealers or retail customers. When inquiring about parts and accessories, the dealer requires the **engine model** and **serial numbers** to order the correct parts.

## RESOLVING A PROBLEM

Satisfaction with your Mercury product is important to your dealer and to us. If you ever have a problem, question or concern about your power package, contact your dealer or any authorized Mercury dealership. If you need additional assistance:

1. Talk with the dealership's sales manager or service manager. Contact the owner of the dealership if the sales manager and service manager have been unable to resolve the problem.
2. If your question, concern, or problem cannot be resolved by your dealership, please contact the Mercury Marine Service Office for assistance. Mercury Marine will work with you and your dealership to resolve all problems.

The following information will be needed by the Customer Service:

- Your name and address
- Your daytime telephone number
- The model and serial numbers of your power package
- The name and address of your dealership
- The nature of the problem

## CONTACT INFORMATION FOR MERCURY MARINE CUSTOMER SERVICE

For assistance, call, fax, or write to the geographic office in your area. Please include your daytime telephone number with mail and fax correspondence.

United States, Canada		
Telephone	English +1 920 929 5040 Français +1 905 636 4751	Mercury Marine W6250 Pioneer Road P.O. Box 1939 Fond du Lac, WI 54936-1939
Fax	English +1 920 929 5893 Français +1 905 636 1704	
Website	www.mercurymarine.com	

# OWNER SERVICE ASSISTANCE

<b>Australia, Pacific</b>		
Telephone	+61 3 9791 5822	Brunswick Asia Pacific Group 41-71 Bessemer Drive Dandenong South, Victoria 3175 Australia
Fax	+61 3 9706 7228	

<b>Europe, Middle East, Africa</b>		
Telephone	+32 87 32 32 11	Brunswick Marine Europe Parc Industriel de Petit-Rechain B-4800 Verviers, Belgium
Fax	+32 87 31 19 65	

<b>Mexico, Central America, South America, Caribbean</b>		
Telephone	+1 954 744 3500	Mercury Marine 11650 Interchange Circle North Miramar, FL 33025 U.S.A.
Fax	+1 954 744 3535	

<b>Japan</b>		
Telephone	+072 233 8888	Kisaka Co., Ltd. 4-130 Kannabecho, Sakai-ku Sakai-shi, Osaka 590-0984, Japan
Fax	+072 233 8833	

<b>Asia, Singapore</b>		
Telephone	+65 65466160	Brunswick Asia Pacific Group T/A Mercury Marine Singapore Pte Ltd 29 Loyang Drive Singapore, 508944
Fax	+65 65467789	

## Ordering Literature

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

Model		Serial Number	
Horsepower		Year	

## UNITED STATES AND CANADA

For additional literature for your Mercury Marine power package, contact your nearest Mercury Marine dealer or contact:

# OWNER SERVICE ASSISTANCE

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

## OUTSIDE THE UNITED STATES AND CANADA

Contact your nearest Mercury Marine authorized service center to order additional literature that is available for your particular power package.

Submit the following order form with payment to:	Mercury Marine Attn: Publications Department W6250 Pioneer Road P.O. Box 1939 Fond du Lac, WI 54936-1939
<b>Ship To: (Copy this form and print or type—This is your shipping label)</b>	
<b>Name</b>	
<b>Address</b>	
<b>City, State, Province</b>	
<b>ZIP or postal code</b>	
<b>Country</b>	

Quantity	Item	Stock Number	Price	Total
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			.	.
			.	.
			.	.
			.	.
<b>Total Due</b>				.

# MAINTENANCE LOG

## Maintenance Log

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

<b>Date</b>	<b>Maintenance Performed</b>	<b>Engine Hours</b>