Thank You

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

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

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

Again, thank you for your confidence in Mercury Marine.

EPA Emissions Regulations

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

Engines are labeled with an Emission Control Information decal as permanent evidence of EPA certification.

⚠ WARNING

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

90-10262081 110

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 important 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, to change specifications, designs, methods, or procedures without notice and without incurring obligation.

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

Litho in U.S.A.

Declaration of Conformity - Outboard, Conventional 2-Stroke

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-2800 Verviers, Belgium

Safety of Machinery Directive 98/37/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

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 and function:

Mark D. Schwabero
President, Mercury Marine, Fond du Lac, WI USA

Date and place of issue:
November 20, 2008
Mercury Marine, Fond du Lac, WI USA
European Regulations Contact:
Regulations and Product Safety Department,
Mercury Marine, Fond du Lac, WI USA

TABLE OF CONTENTS

Warranty Information

GENERAL INFORMATION

TABLE OF CONTENTS

INSTALLATION

TRANSPORTING

FUEL AND OIL

TABLE OF CONTENTS

FEATURES & CONTROLS

OPERATION

TABLE OF CONTENTS

MAINTENANCE

STORAGE

TROUBLESHOOTING

TABLE OF CONTENTS

ASSOCIATED PARTS

ACCESSORIES

OWNER SERVICE ASSISTANCE

WIRING DIAGRAMS

WARRANTY INFORMATION

Transfer of Warranty

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 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 W. Pioneer Road
P.O. Box 1939
Fond du Lac, WI 54936-1939
920-929-5054
Fax +1 920 929 5893

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.

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

Transfer of Mercury Product Protection (Extended Service Coverage) Plan

The remaining coverage period of the Product Protection Plan is transferable to the subsequent purchaser of the engine within thirty (30) days from the date of sale. Contracts not transferred within thirty (30) days of the subsequent purchase will no longer be valid and the product will no longer be eligible for coverage under the terms of the contract.

To transfer the plan to the subsequent owner, contact Mercury Product Protection or authorized dealer to receive a Request for Transfer form. Submit to Mercury Product Protection a receipt/bill of sale, a completed Request of Transfer form, and a check payable to Mercury Marine in the amount of $50.00 (per engine) to cover the transfer fee.

WARRANTY INFORMATION

Plan coverage is not transferable from one product to another product or for non-eligible applications.

The Certified Pre-Owned engine plans are not transferable.

For help or assistance, contact Mercury Product Protection Department at 1-888-427-5373 from 7:30 a.m. to 4:30 p.m. CST, Monday - Friday or email mpp_support@mercurymarine.com.

Warranty Registration United States and Canada

Outside United States and Canada - Check with your local distributor.

1. You may change your address at any time, including at time of warranty claim, by calling Mercury Marine or sending a letter or fax with your name, old address, new address, and engine serial number to Mercury Marine's warranty registration department. Your dealer can also process this change of information.
   Mercury Marine
   Attn: Warranty Registration Department
   W6250 W. Pioneer Road
   P.O. Box 1939
   Fond du Lac, WI 54936-1939
   920-929-5054
   Fax +1 920 929 5893

NOTE: *Registration lists must be maintained by Mercury Marine and any dealer on marine products sold in the United States, should a safety recall notification under the Federal Safety Act be required.*

2. To be eligible for warranty coverage, the product must be registered with Mercury Marine. At the time of sale, the dealer should complete the warranty registration and immediately submit it to Mercury Marine via MercNET, E-mail, or mail. Upon receipt of this warranty registration, Mercury Marine will record the registration.

3. Upon processing the warranty registration, Mercury Marine will send registration verification by mail to the purchaser of the product. If this registration verification is not received within 30 days, please contact your selling dealer immediately. Warranty coverage is not effective until your product is registered with Mercury Marine.

Outboard Limited Warranty

Outside the United States and Canada - Check with your local distributor.

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

DURATION OF COVERAGE: This limited warranty provided coverage for one (1) year 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 from one recreational use customer to a subsequent recreational use customer upon proper reregistration of the product. Unexpired warranty coverage cannot be transferred either to or from a commercial use customer. 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

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 predelivery inspection process is completed and documented. Warranty coverage becomes available upon proper registration of the product by the authorized dealer. Routine maintenance outlined in the Operation and Maintenance Manual must be timely performed in order to maintain warranty coverage. Mercury Marine reserves the right to make 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 defective part, replacing such part or parts with new or Mercury Marine certified remanufactured parts, or refunding the purchase price of the Mercury product. Mercury reserves the right to improve or modify products from time to time without assuming an obligation to modify products previously manufactured.

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

WARRANTY INFORMATION

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

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

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

WARRANTY INFORMATION

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.

3 Year Limited Warranty Against Corrosion

WHAT IS COVERED: Mercury Marine warrants that each new Mercury, Mariner, Mercury Racing, Sport Jet, M^2 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 predelivery 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.

WARRANTY INFORMATION

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.

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.

WARRANTY INFORMATION

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 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.

WARRANTY INFORMATION

2. 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.
3. Damage caused by neglect, lack of maintenance, accident, abnormal operation, or improper installation or service.
4. 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.
5. Additional service work requested by customer other than that necessary to satisfy the warranty obligation.
6. 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).
7. 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.
8. Use of other than Mercury Precision or Quicksilver parts when making warranty repairs.
9. 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.
10. Participating in or preparing for racing or other competitive activity or operating with a racing type lower unit.
11. 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.

12. Lower unit and/or propeller damage caused by striking a submerged object is considered a marine hazard.
13. Water entering engine through the fuel intake, air intake, or exhaust system or submersion.
14. 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.
15. Use of fuels and lubricants which are not suitable for use with or on the product. Refer to the **Maintenance** section.
16. 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.

GENERAL INFORMATION

Boater's Responsibilities

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

Be sure at least one additional person 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.

⚠ DANGER

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

⚠ WARNING

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

⚠ 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.

GENERAL INFORMATION

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.

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

High-Speed and High-Performance Boat Operation

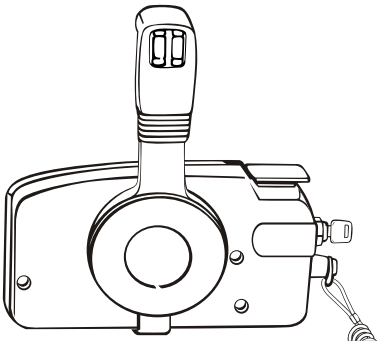
If your outboard is to be used on a high-speed or high-performance boat with which you are unfamiliar, we recommend that you never operate it at its high speed capability without first requesting an initial orientation and familiarization demonstration ride with your dealer or an operator experienced with your boat/outboard combination. For additional information, obtain a copy of our **Hi-Performance Boat Operation** booklet from your dealer, distributor, or Mercury Marine.

Outboard Remote Control Models

The remote control connected to your outboard must be equipped with a start in neutral only protection device. This prevents the engine from starting when the shift is actuated in any position other than neutral.

⚠ WARNING

Starting the engine with the drive in gear can cause serious injury or death. Never operate a boat that does not have a neutral-safety-protection device.



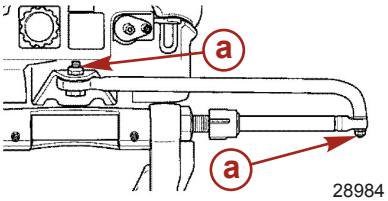
37882

Remote Steering Notice

⚠ WARNING

Improper fasteners or improper installation procedures can result in loosening or disengagement of the steering link rod. This can cause a sudden, unexpected loss of boat control, resulting in serious injury or death due to occupants being thrown within or out of the boat. Always use required components and follow instructions and torque procedures.

The steering link rod that connects the steering cable to the engine must be fastened utilizing self-locking nuts. These self-locking nuts must never be replaced with common nuts (non-locking) as they will work loose and vibrate off, freeing the link rod to disengage.



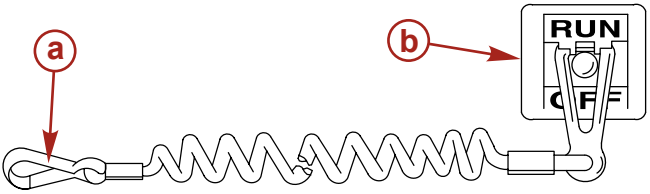
28984

a - Self-locking nuts

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 122–152 cm (4–5 feet) in length when stretched out, with an element on one end made to be inserted into the switch and a lanyard cord 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.



21629

a - Lanyard cord
b - Lanyard stop switch

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 shutdown. 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.

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 (for example, if the operator is accidentally ejected).

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

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

Protecting People in the Water

WHILE YOU ARE CRUISING

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

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

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

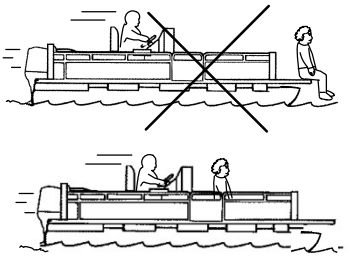
Passenger Safety Message - Pontoon Boats and Deck Boats

Whenever the boat is in motion, observe the location of all passengers. Do not allow any passengers to stand or use seats other than those designated for traveling faster than idle speed. A sudden reduction in boat speed, such as plunging into a large wave or wake, a sudden throttle reduction, or a sharp change of boat direction, could throw them over the front of the boat. Falling over the front of the boat between the two pontoons will position them to be run over by the outboard.

BOATS HAVING AN OPEN FRONT DECK

No one should ever be on the deck in front of the fence while the boat is in motion. Keep all passengers behind the front fence or enclosure.

Persons on the front deck could easily be thrown overboard or persons dangling their feet over the front edge could get their legs caught by a wave and pulled into the water.



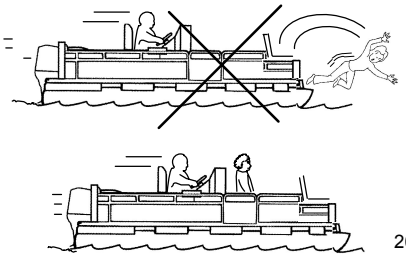
⚠ WARNING

Sitting or standing in an area of the boat not designed for passengers at speeds above idle can cause serious injury or death. Stay back from the front end of deck boats or raised platforms and remain seated while the boat is in motion.

BOATS WITH FRONT MOUNTED, RAISED PEDESTAL FISHING SEATS

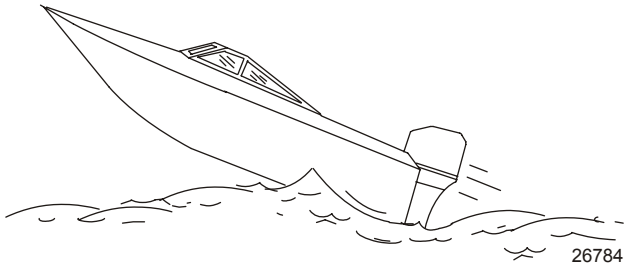
Elevated fishing seats are not intended for use when the boat is traveling faster than idle or trolling speed. Sit only in seats designated for traveling at faster speeds.

Any unexpected, sudden reduction in boat speed could result in the elevated passenger falling over the front of the boat.



Wave and Wake Jumping

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



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

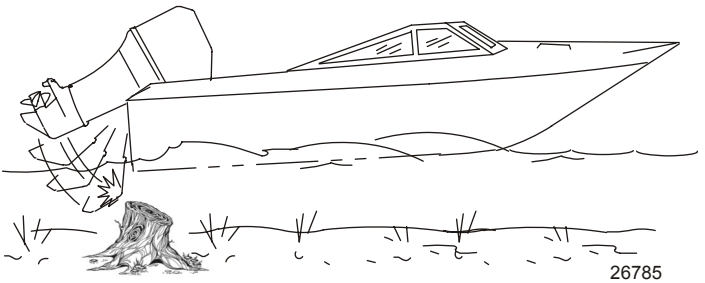
⚠ WARNING

Wave or wake jumping can cause serious injury or death from occupants being thrown within or out of the boat. Avoid wave or wake jumping whenever possible.

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

Impact with Underwater Hazards

Reduce speed and proceed with caution whenever you drive a boat in shallow water areas, or in areas where you suspect underwater obstacles may exist which could be struck by the outboard or the boat bottom. **The most important thing you can do to help reduce injury or impact damage from striking a floating or underwater object is to control the boat speed. Under these conditions, boat speed should be kept to a minimum planing speed of 24 to 40 km/h (15 to 25 MPH).**



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

- Part of the outboard or the entire outboard could break loose and fly into the boat.

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

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

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

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

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

⚠ WARNING

Operating a boat or engine with impact damage can result in product damage, serious injury, or death. If the vessel experiences any form of impact, have an authorized Mercury Marine dealer inspect and repair the vessel or power package.

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.

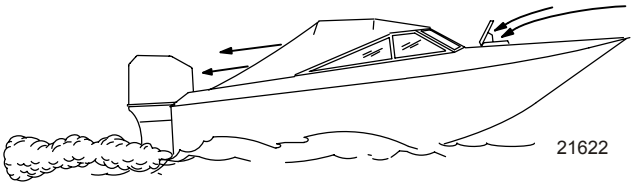
Early symptoms of carbon monoxide poisoning which should not be confused with seasickness or intoxication, include headache, dizziness, drowsiness, and nausea.

⚠ 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.

GOOD VENTILATION

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



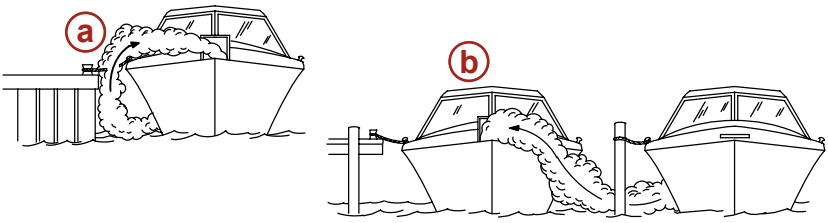
Example of desired air flow through the boat

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.

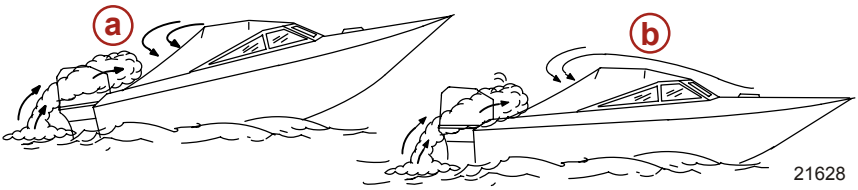
WHILE BOAT IS STATIONARY



a - Running the engine when the boat is moored in a confined space

b - Mooring close to another boat that has its engine running

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.

GENERAL INFORMATION

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.

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.

Recording Serial Number

It is important to record the serial number and other important information for future reference.

Please record the serial number of the engine as indicated (on the lower engine cover and the cylinder block) in the space below. This number will come in handy in the event of theft and it can help you to quickly identify the product type.

Serial number:
Model year:
Model designation:
Year manufactured:
Certified Europe Insignia (as applicable):

GENERAL INFORMATION

40/50 Specifications (Include English Units)

Model	40/50MH	40/50EH	40/50EHO
Overall length	1,143 mm		
Overall width	384 mm		
Overall height	S = 1,225 mm, L = 1,352 mm, UL = 1,479 mm		
Transom height	S = 403 mm, L = 530 mm, UL = 657 mm		
Weight	S = 72.0, L = 73.5, UL = 75.0 kg	L = 78.5 kg	L = 80.0, UL = 81.5 kg
Maximum output	40 = 29.4 kW, 50 = 36.8 kW		
Full throttle RPM	40 = 5000–5700, 50 = 5150–5850		
Number of cylinders	3		
Displacement	697 mL		
Bore and stroke	68 x 64 mm		
Exhaust system	Through hub exhaust		
Lubrication	Premixed fuel		Oil injection
Fuel mixing ratio	50:1		120:1–50:1
Cooling system	Thermostat controlled		
Starting system	Manual	Electric (with manual backup)	
Ignition	CDI		
Spark plugs	40: NGK B7HS-10/BR7HS-10 or Champion L-82C/ RL-82C (1.0 mm gap), 50: NGK B8HS-10/BR8HS-10 or Champion L-78C/RL-78C (1.0 mm gap)		
Alternator	12 V,130 W (12 V, 11 A)		
Trim system	Manual, 6 position		
Engine oil	Mercury or Quicksilver oil or recommended oil (TC-W3)		
Gear oil	Mercury or Quicksilver gear oil or API GL5, SAE #80 to #90, approximately 500 mL		
Fuel tank capacity	25 L (6.6 US gal)		
Engine oil capacity	–		Approximately 2.0 L (0.53 US gal)
Gear reduction ratio	13:24		
Fuel	Unleaded regular gasoline pump posted 87 octane (research octane rating of 91)		

GENERAL INFORMATION

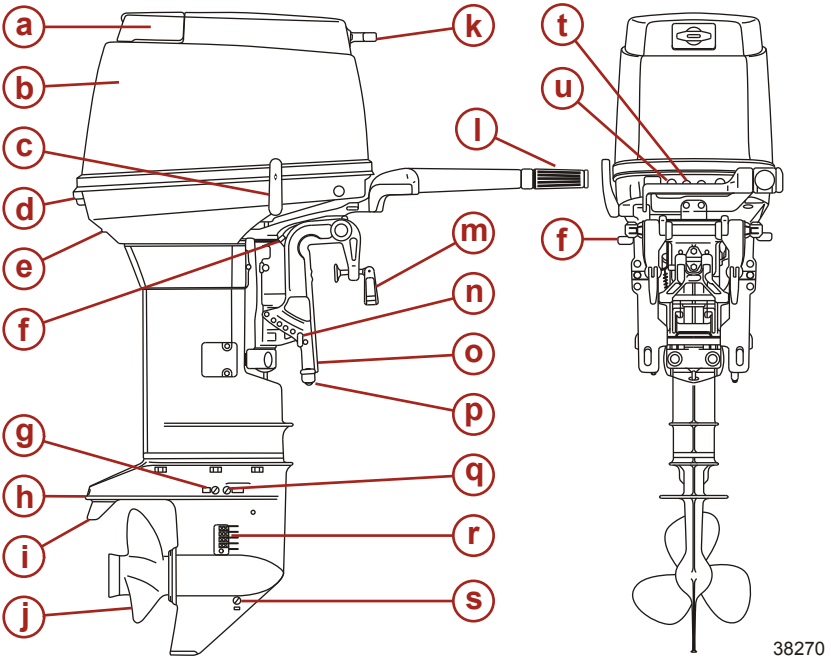
Model	40/50EHPTO	40/50EO	40/50EPTO
Overall length	1,143 mm	630 mm	
Overall width	384 mm	340 mm	355 mm
Overall height	S = 1,225, L = 1,352, UL = 1,479 mm	S = 1,212, L = 1,339, UL = 1,466 mm	
Transom height	S = 403, L = 530, UL = 657		
Weight	S = 87.5, L = 89.0, UL = 90.5 kg	S = 74.5, L = 76.0 kg	S = 83.5, L = 85.0, UL = 86.5 kg
Maximum output	40 = 29.4 kW, 50 = 36.8 kW		
Full throttle RPM	40 = 5000–5700, 50 = 5150–5850		
Number of cylinders	3		
Displacement	697 mL		
Bore and stroke	68 x 64 mm		
Exhaust system	Through hub exhaust		
Lubrication	Oil injection		
Fuel mixing ratio	120:1–50:1		
Cooling system	Thermostat controlled		
Starting system	Electric (manual backup)	Electric	
Ignition	CDI		
Spark plugs	40: NGK B7HS-10/BR7HS-10 or Champion L-82C/RL-82C (1.0 mm gap), 50: NGK B8HS-10/BR8HS-10 or Champion L-78C/RL-78C (1.0 mm gap)		
Alternator	12 V,130 W (12 V, 11 A)		
Trim system	Power trim	Manual, 6 position	Power trim
Engine oil	Mercury or Quicksilver motor oil or recommended oil (TC-W3)		
Gear oil	Mercury or Quicksilver gear oil or API GL5, SAE #80 to #90, approximately 500 mL		
Fuel tank capacity	25 L (6.6 US gal)		
Engine oil capacity	Approximately 2.0 L (0.53 US gal)		
Gear reduction ratio	13:24		
Fuel	Unleaded regular gasoline pump posted 87 octane (research octane rating of 91)		

GENERAL INFORMATION

Model	W50MH	W50EHPT	W50EO
Overall length	1,145 mm	630 mm	
Overall width	384 mm	355 mm	340 mm
Overall height	L = 1,413 mm	L = 1,410 mm	
Transom height	550 mm		
Weight	L = 79.0 kg	L = 84.0 kg	L = 81.5 kg
Maximum output	36.8 kW		
Full throttle RPM	5150–5850		
Number of cylinders	3		
Displacement	697 mL		
Bore and stroke	68 x 64 mm		
Exhaust system	Through hub exhaust		
Lubrication	Premixed fuel		Oil injection
Fuel mixing ratio	50:1		120:1 - 50:1
Cooling system	Thermostat controlled		
Starting system	Manual	Electric (w/ manual backup)	Electric
Ignition	CDI		
Spark plugs	NGK B8HS-10/BR8HS-10 or Champion L-78C/RL-78C (1.0 mm gap)		
Alternator	12 V,130 W (12 V, 11 A)		
Trim system	Manual, 6 position	Power trim	Manual, 6 position
Engine oil	Mercury or Quicksilver motor oil or recommended oil (TC-W3)		
Gear oil	Mercury or Quicksilver gear oil or API GL5, SAE #80 to #90, approximately 700 mL		
Fuel tank capacity	25 L (6.6 US gal)		
Engine oil capacity	–		Approximately 2.0 L (0.53 US gal)
Gear reduction ratio	12:23		
Fuel	Unleaded regular gasoline pump posted 87 octane (research octane rating of 91)		

COMPONENT IDENTIFICATION

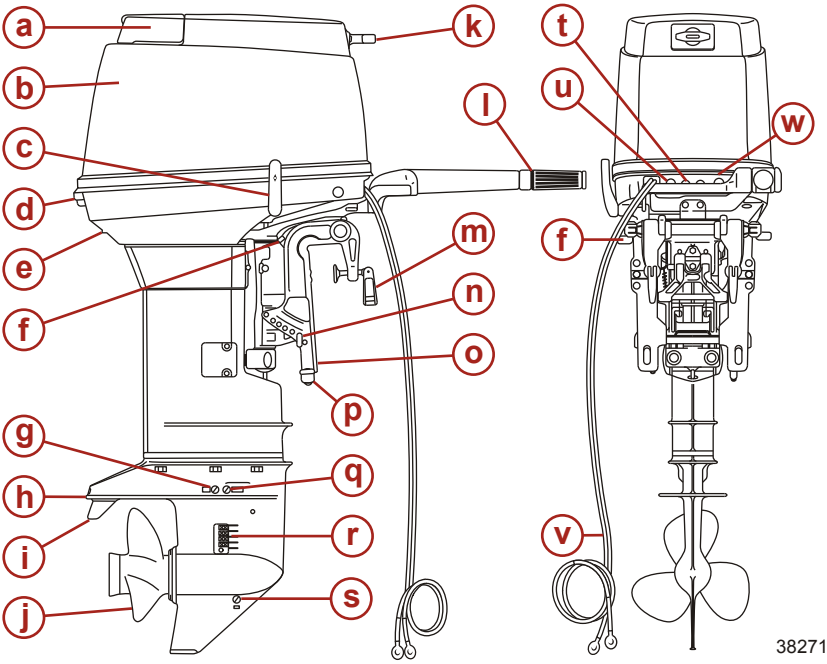
40MH/W50MH



a - Tilt handle
b - Top cowl
c - Shift lever
d - Cowl latch
e - Water pump indicator hole
f - Reverse lock lever
g - Water plug
h - Anti-ventilation plate
i - Trim tab
j - Propeller
k - Manual start handle
l - Throttle grip
m - Clamp screw
n - Trim position pin

o - Transom bracket
p - Anode
q - Oil drain plug (upper)
r - Water intake
s - Oil drain plug (lower)
t - Stop switch
u - Choke knob

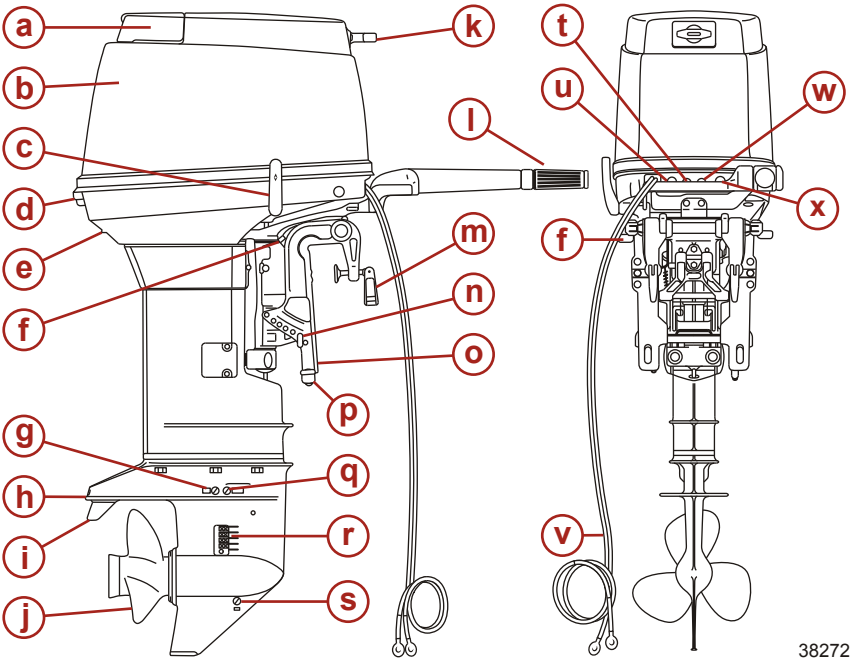
40EH/50EH



a - Tilt handle
b - Top cowl
c - Shift lever
d - Cowl latch
e - Water pump indicator hole
f - Reverse lock lever
g - Water plug
h - Anti-ventilation plate
i - Trim tab
j - Propeller
k - Manual start handle
l - Throttle grip
m -Clamp screw
n - Trim position pin
o - Transom bracket
p - Anode

q - Oil drain plug (upper)
r - Water intake
s - Oil drain plug (lower)
t - Stop switch
u - Choke knob
v - Battery cables
w - Start button

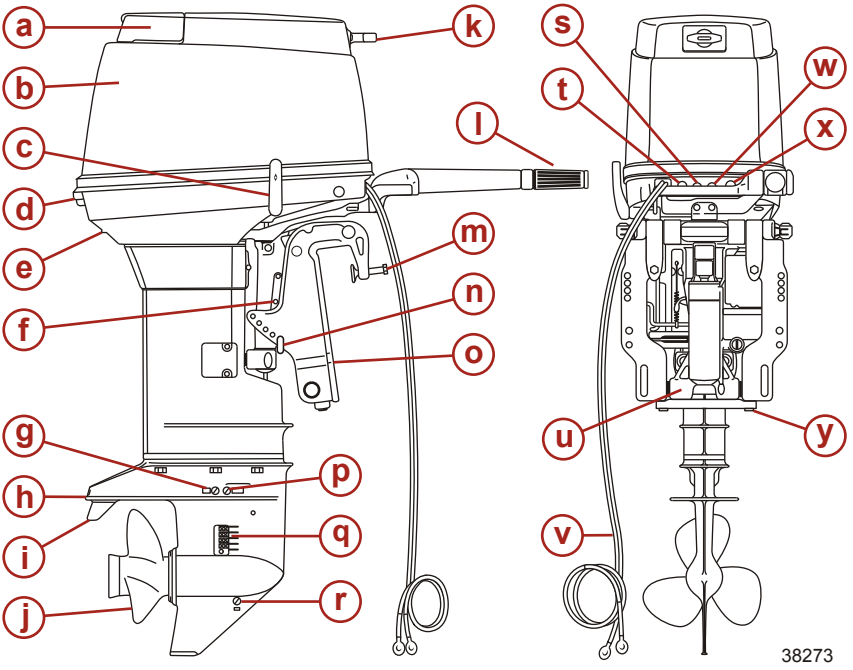
40EHO/50EHO



a - Tilt handle
b - Top cowl
c - Shift lever
d - Cowl latch
e - Water pump indicator hole
f - Reverse lock lever
g - Water plug
h - Anti-ventilation plate
i - Trim tab
j - Propeller
k - Manual start handle
l - Throttle grip
m - Clamp screw
n - Trim position pin
o - Transom bracket
p - Anode

q - Oil drain plug (upper)
r - Water intake
s - Oil drain plug (lower)
t - Stop switch
u - Choke knob
v - Battery cables
w - Low oil light
x - Start button

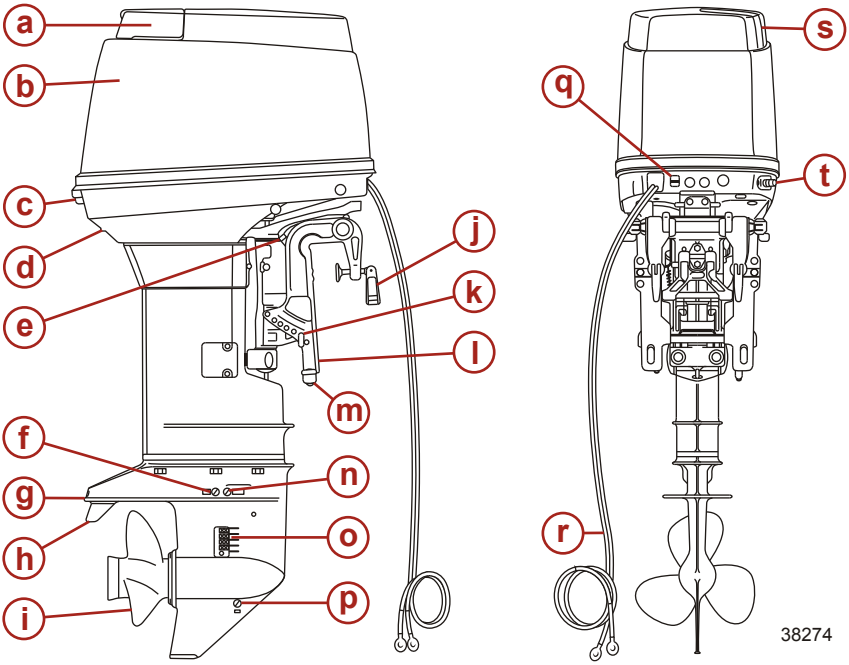
40EHPTO/50EHPTO



a - Tilt handle
b - Top cowl
c - Shift lever
d - Cowl latch
e - Water pump indicator hole
f - Tilt stopper
g - Water plug
h - Anti-ventilation plate
i - Trim tab
j - Propeller
k - Manual start handle
l - Throttle grip
m - Clamp screw
n - Trim position pin
o - Transom bracket

p - Oil drain plug (upper)
q - Water intake
r - Oil drain plug (lower)
s - Stop switch
t - Choke knob
u - Power trim and tilt
v - Battery cables
w - Low oil light
x - Start button
y - Anode

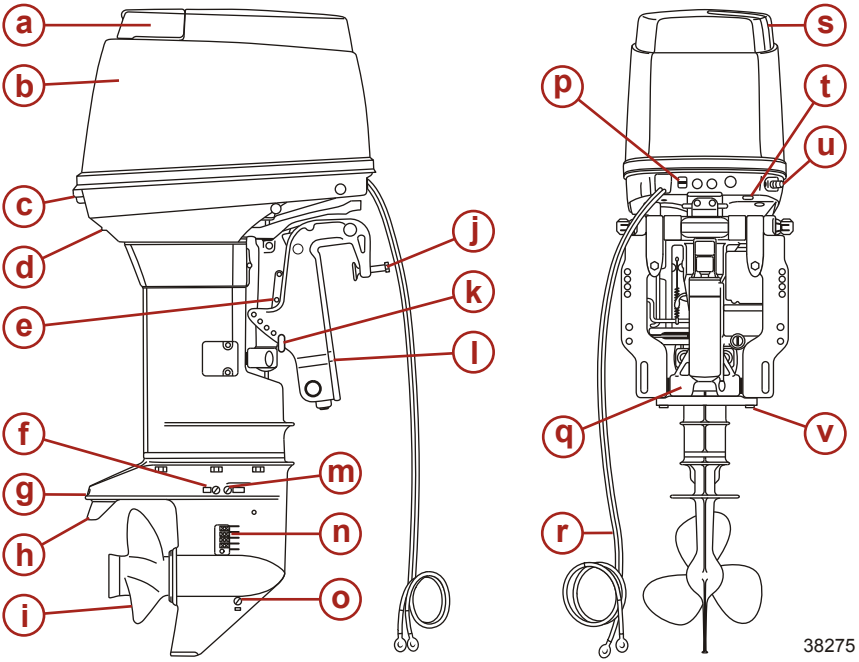
40EO/50EO



a - Tilt handle
b - Top cowl
c - Cowl latch
d - Water pump indicator hole
e - Reverse lock lever
f - Water plug
g - Anti-ventilation plate
h - Trim tab
i - Propeller
j - Clamp screw
k - Trim position pin
l - Transom bracket
m -Anode
n - Oil drain plug (upper)
o - Water intake
p - Oil drain plug (lower)

q - Choke knob
r - Battery cables
s - Oil fill door
t - Fuel connector

40EPTO/50EPTO



a - Tilt handle
b - Top cowl
c - Cowl latch
d - Water pump indicaor hole
e - Tilt stopper
f - Water plug
g - Anti-ventilation plate
h - Trim tab
i - Propeller
j - Clamp screw
k - Trim position pin
l - Transom bracket
m -Oil drain plug (upper)
n - Water intake
o - Oil drain plug (lower)
p - Choke knob

q - Power trim and tilt
r - Battery cables
s - Oil fill door
t - Power trim and tilt switch
u - Fuel connector
v - Anode

INSTALLATION

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.

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

Installing Outboard

We strongly recommend that your dealer install your outboard and related accessories to ensure proper installation and good performance. If you install the outboard yourself, follow the instructions in the manual.

⚠ WARNING

Failure to correctly fasten the outboard could result in the outboard propelling off the boat transom resulting in property damage, serious injury, or death. Before operation, the outboard must be correctly installed with the required mounting hardware. Do not accelerate above idle speed in water that may contain underwater obstacles if the outboard is not attached to the transom correctly.

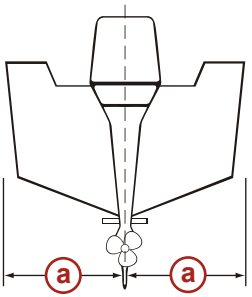
INSTALLATION

NOTE: Consult your authorized dealer to receive the proper instructions or ask your dealer to mount the motor as necessary.

IMPORTANT: Most boats are rated and certified in terms of their maximum horsepower limit, and this is shown on the boat's certification plate. Do not equip your boat with an outboard that exceeds this limit. If in doubt, contact your dealer. Do not operate the engine until it has been securely mounted on the boat in accordance with the instructions below.

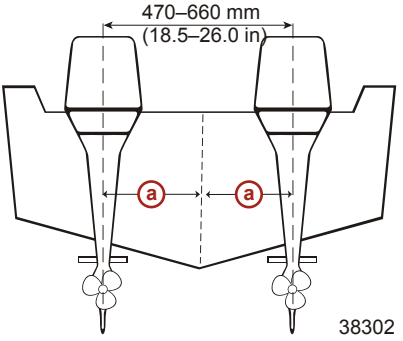
INSTALLATION

1. **Single engine installation:** Position the outboard motor at the center of the transom. Mount it using a cushioning pad or plate.

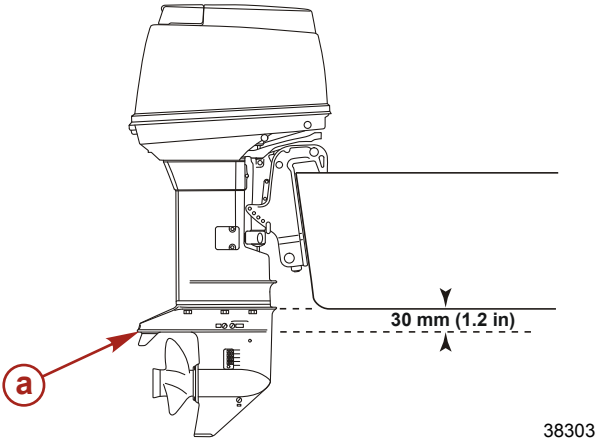


a - Outboard on the centerline of the transom

2. **Twin engine installation:** Position the outboard engines 470–660 mm (18.5–26.0 in.) apart, measured from the centerline of each engine, and equal distance (a) from the center of the transom.



3. **Transom height:** Clearance between the anti-ventilation plate of the motor and the bottom of the boat must be 10–30 mm (0.4–1.2 in.). If the height difference exceeds 30 mm (1.2 in.), engine power performance is likely to be reduced as a result of increased water resistance to the gearcase assembly.



a - Anti-ventilation plate

4. After positioning the transom brackets, attach with clamp screws. Drill two holes in the boat transom, matching the holes in the transom bracket. Secure the engine with the supplied bolts, washers, and nuts.

TRANSOM MATCHING

Ensure the anti-ventilation plate of the outboard is below the water surface when running at wide-open throttle. In case the above condition cannot be met due to the bottom shape of your boat, please consult the dealer.

IMPORTANT: Overheating may occur if the anti-ventilation plate is at a level higher than the bottom of the boat, as a result of a lack of cooling water.

If the height difference exceeds 30 mm (1.2 in.), engine power performance is likely to be reduced as a result of increased water resistance to the gercase assembly.

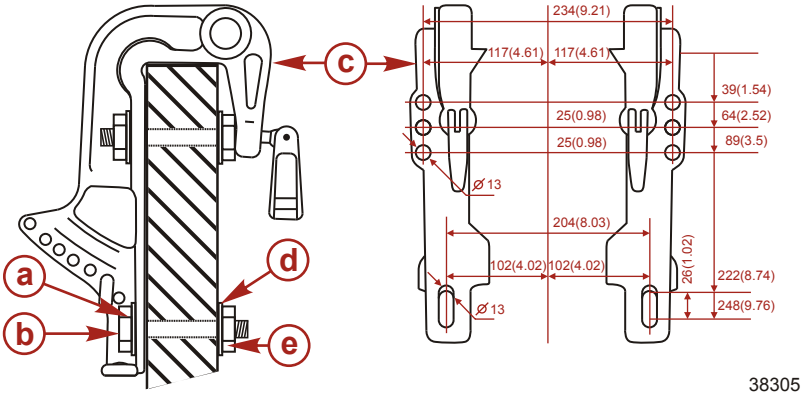
INSTALLATION

Attaching the transom bracket: After positioning the transom bracket, tighten the clamp screws. Drill four holes in the boat transom, matching the holes in the transom bracket. Secure the engine with the supplied bolts (M12 x 105 mm), washers, and nuts. Use the larger diameter washers inside of the transom board and the smaller diameter washers outside of the transom bracket.

The mounting holes may be drilled beforehand by referring to the dimensional drawing.

TRANSOM BRACKET DIMENSIONAL DRAWING

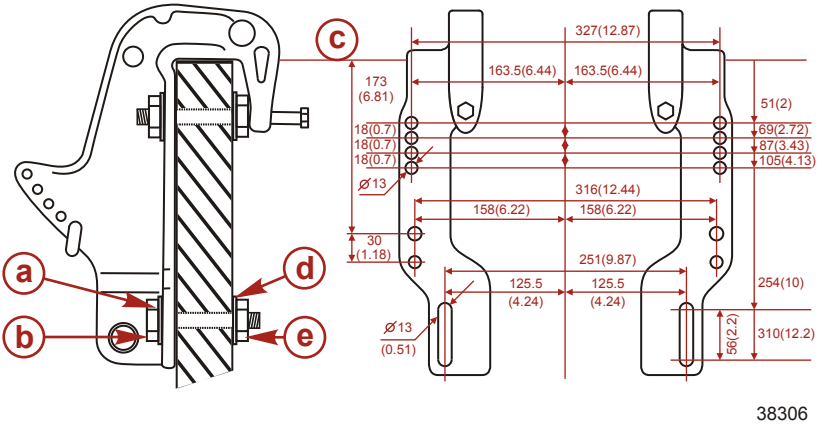
Manual tilting model: MH, EH, EHO, EO



- **a -** Washer (smaller diameter)
- **b -** Bolt (M12 x 105 mm)
- **c -** Top of transom
- **d -** Washer (larger diameter)
- **e -** Nut

INSTALLATION

Power trim and tilt model: EHPTO, EPTO



a - Washer (smaller diameter)
b - Bolt (M12 x 105 mm)
c - Top of transom
d - Washer (larger diameter)
e - Nut

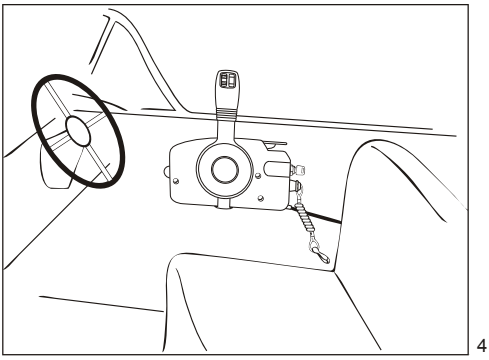
NOTE: *We recommend the bolt head of the upper bolts face inward while the nuts are kept on the outside of the boat to prevent injury to the passengers.*

1. Apply sealing agent, such as silicon sealer, between the bolts and the boat transom holes when tightening the bolt.
2. Secure the engine tightly with the bolts.

INSTALLATION

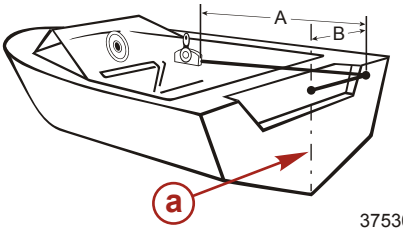
Installing the Remote Control Box

1. Position the remote control box in a place that will not interfere with the handling of the controls, levers, and switches. Confirm that there are no obstacles in the passage of the remote control cables.



41202

2. Determining remote control cable length: Use distances A and B as depicted in the illustrations. Determining the proper length for a remote control cable is dimensions A plus B plus 300 mm (12 in.).



37530

a - Center of transom

NOTE: *The minimum bend radius for a remote control cable is typically 203 mm (8 in.). Avoid making sharp bends.*

NOTE: *To prevent accidental running of the engine, which could result in an injury, do not connect the battery until the installation of the remote control box and the engine is complete.*

Installation of the Remote Control Cables (Box Side)

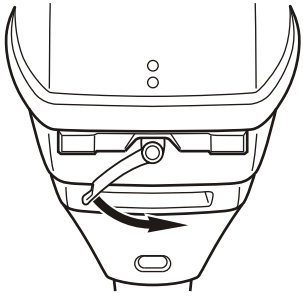
Follow the instruction manual provided with the remote control box.

Installation of the Remote Control Box on your Boat

Follow the instruction manual provided with the remote control box.

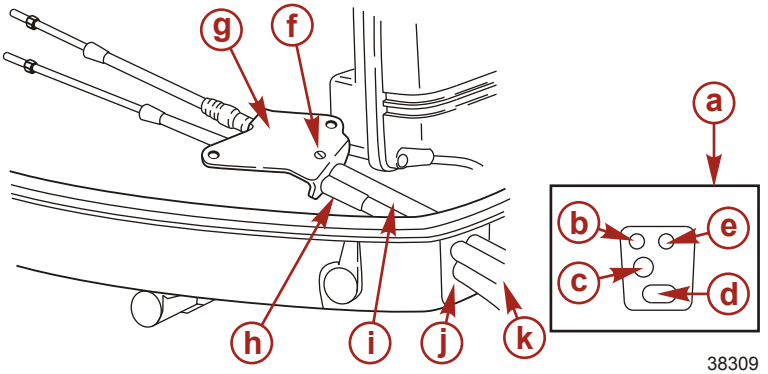
Connecting the Remote Control Cable to the Engine

1. Detach the top cowl by rotating the cowl latch.



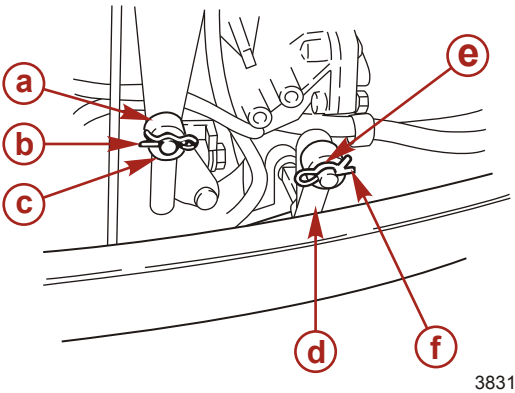
38308

2. Detach the bracket and set cable harness B and remote control cables. Having secured the remote control cables to the bracket, attach them to the bottom cowl.



a - Grommet
b - Shift cable
c - Key switch harness
d - Battery cables
e - Throttle cable
f - Screw
g - Bracket
h - Shift cable
i - Throttle cable
j - Grommet
k - Cable harness B

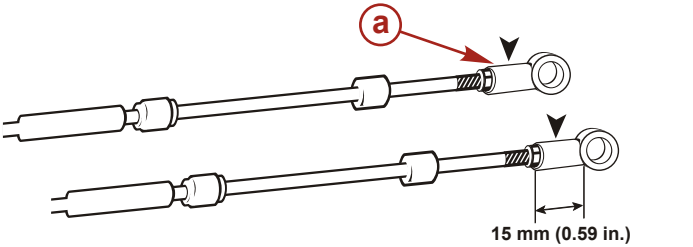
3. Detach the throttle and shift cable joints by removing the cotter pins.



38310

a - Throttle cable joint
b - Cotter pin
c - Washer
d - Shift cable joint
e - Washer
f - Cotter pin

4. Thread at least 15 mm (0.59 in.) of the remote control cables through the terminal eyes. Securely lock the terminal eyes with the locknuts.

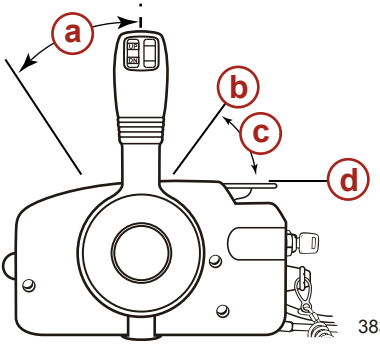


38311

a - Cable joint

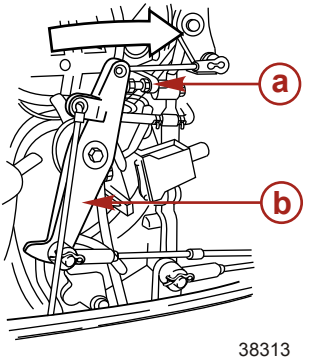
5. Move the remote control lever Forward (F), to Neutral (N), and to Reverse (R) to confirm the shift is working; then set the lever to Neutral (N).

- Double-check that the remote control cables, the throttle cable, and the shift cable have been connected correctly. Move the remote control lever Forward (F) until the first engaging point (approximately 32°). The cable which is moved first when the lever is turned, is a shift cable. Check that the shift lever is in Neutral (N) and the neutral warm-up lever is fully closed when the remote control cables have been connected.



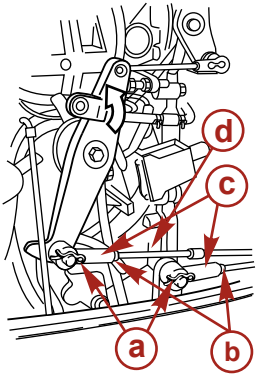
a - Approximately 32°
b - Fully opened
c - Neutral warm-up lever
d - Fully closed

6. The advancer arm on the engine should have contact with the stopper of the carburetor throttle valve to enable it to be fully closed.



a - Stopper (throttle fully closed side)
b - Advancer arm

7. Adjust the cable joint until the hole meets with the throttle arm pin. After adjustment, lock a cable joint with a nut and secure with a cotter pin.

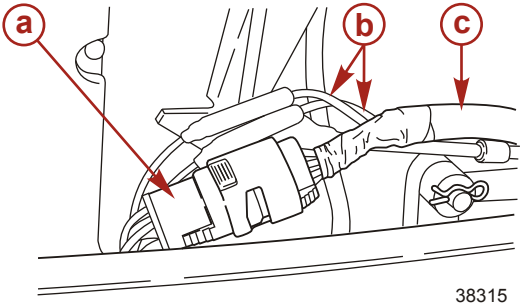


38314

a - Cotter pin
b - Nut
c - Cable joint
d - Throttle cable

Connecting Electrical Harnesses

1. Connect key switch harness to the engine harness.
2. Connect the pink and light blue leads from the key switch harness to the engine harness.



38315

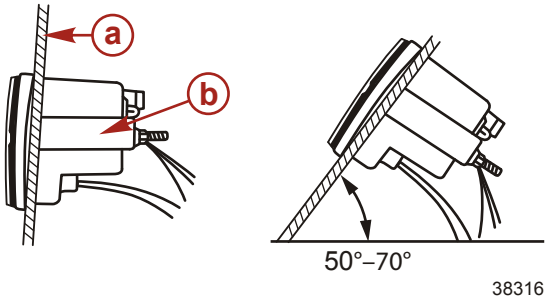
a - Key switch harness
b - Lead wires
c - Engine harness

IMPORTANT: Do not disconnect the electric couplers while the engine is running, as this will damage the CD unit and could result in a serious electric shock.

INSTALLATION

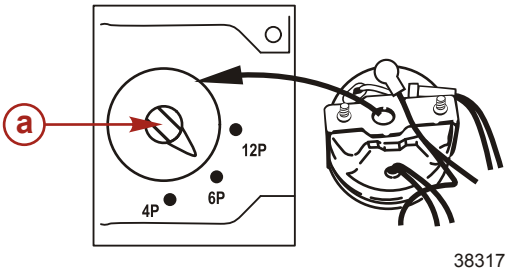
INSTALLING THE METERS

1. Install the meters securely in the dashboard where they can be easily read and are not exposed to water splashes. The recommended dashboard thickness is 2–11 mm (0.08–0.4 in.). For dashboards thicker than 11 mm (0.4 in.), the fitting plate should be cut accordingly. Be sure to tighten the nuts on the bracket evenly.



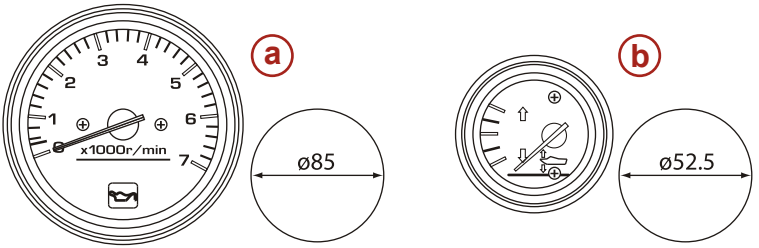
a - Dashboard
b - Bracket

2. The dashboard inclination should be 50°–70°.
3. All models of the 40 and 50 series have six electric poles. Set the tachometer selector knob to "6P."



a - Selector

4. Cut holes with 85 mm (3.346 in.) diameter for the tachometer and 52.5 mm (2.067 in.) for the trim gauge.

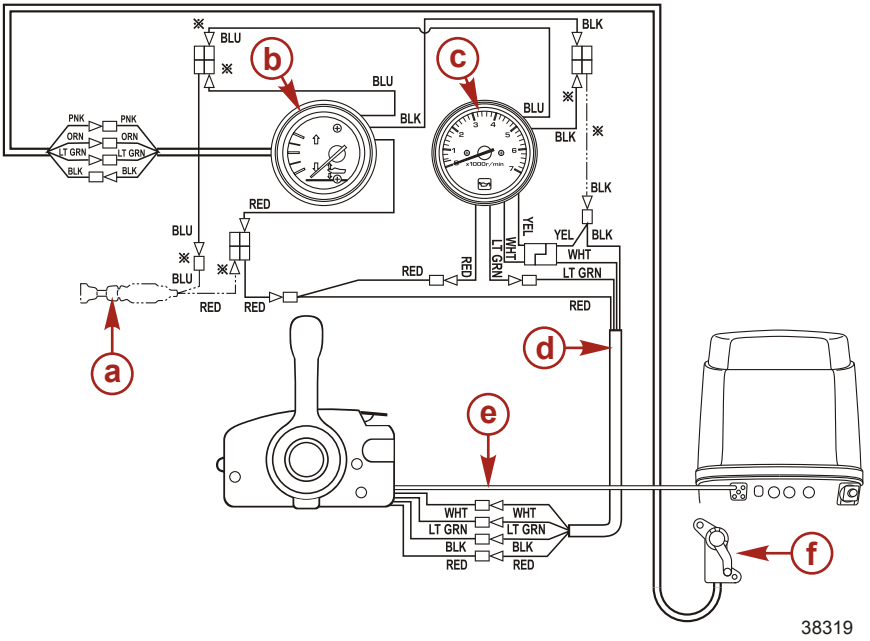


a - Tachometer
b - Trim gauge

5. Connection of leads:

- Tachometer: EO, EPTO
- Trim gauge: EPTO
- Trim sender: EPTO

Meter wiring diagram



- **a -** Meter lamp switch (optional)
- **b -** Trim gauge
- **c -** Tachometer
- **d -** Analog gauge harness
- **e -** Key switch harness
- **f -** Trim sender

NOTE: *The parts of * mark is to be wired when a meter lamp switch (optional) is connected.*

Attaching the Steering Link Rod

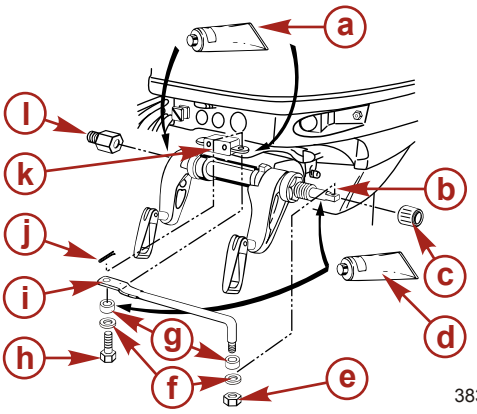
⚠ WARNING

Improper fasteners or improper installation procedures can result in loosening or disengagement of the steering link rod. This can cause a sudden, unexpected loss of boat control, resulting in serious injury or death due to occupants being thrown within or out of the boat. Always use required components and follow instructions and torque procedures.

NOTE: *The steering link rod parts are available and assembled as illustrated on the next page. Spacers may or may not be required, depending on cable brands.*

1. *Connect the steering link rod to the tip of the steering cable. Tighten the rod using a self-locking nut, making sure the rod can swing freely.*
2. *Connect the other tip of the rod to the steering bracket with a bolt, applying a collar and washer. The bolt head must face downward. Secure with a cotter pin to the bolt.*

NOTE: Apply grease in the required places (refer to the illustration below). Apply grease inside the tilt tube.



- **a -** Grease (apply grease inside the tilt tube)
- **b -** Apply grease on tip of steering cable
- **c -** Seal ring
- **d -** Grease
- **e -** Lock nut
- **f -** Washer
- **g -** Collar
- **h -** Bolt
- **i -** Steering link rod
- **j -** Cotter pin
- **k -** Steering bracket
- **l -** Spacer (optional)

Battery Installation

MOUNTING BATTERY

Follow the battery manufacturer's instructions carefully. Mount battery securely to the hull in a place free from splashing water.

NOTE: Electric starting outboards must have the battery cables connected to a battery whenever the engine is running, even if started manually, as damage to the charging system could result.

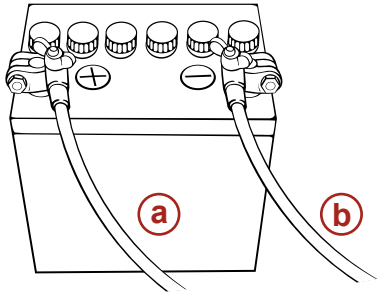
BATTERY CONNECTIONS

Connect a red cable to the positive (+) terminal first and a black cable to the negative (–) terminal of the battery. Put a red cap on the positive terminal. When disconnecting battery cables, be sure to disconnect the black cable first, and then the red cable.

Required battery rating: 12 V battery with a recommended capacity of 70 AH or over.

- Battery cables must be long enough to allow free steering.

- Battery cables must be arranged and protected from damage during steering.
- With poor cable connections, the starter will fail to start.
- Battery cable terminals should be clean, tight, and correctly installed. Positive to positive and negative to negative.
- Battery must be fully charged before running the motor.



a - Red cable
b - Black cable

IMPORTANT: Please follow the instructions below:

- **Hydrogen gas is generated when charging a battery. Keep the battery in a well-ventilated area during charging. Remove the battery from the boat; this will protect your hull and interior from damage. Electric sparks, cigarette smoking, and other sources of fire must be avoided in the charging area to prevent explosion of the battery.**
- **The battery fluid (electrolyte) contains sulfuric acid. If electrolyte is spilled on the skin or clothes, wash with plenty of water and consult a medical doctor. Always use safety glasses and rubber gloves when handling the battery.**

Propeller Selection

For best all around performance from your outboard/boat combination, select a propeller that allows the engine to operate in the upper half of the recommended full throttle RPM range with the boat normally loaded. This RPM range allows for better acceleration while maintaining maximum boat speed.

The propeller supplied with your outboard provides the best overall performance under average operating conditions.

Alternative propellers are available for specific boating requirements. See your outboard dealer.

AVAILABLE PROPELLERS

Refer to **Associated Parts - Propeller Selection** for the propeller selection.

Model	40	50
Maximum engine operating RPM range	5000–5700 RPM	5150–5850 RPM

If changing conditions cause the RPM to drop below the recommended range, such as warmer, more humid weather, operation at higher elevations, increased boat load, or a dirty boat bottom/gearcase, a propeller change or cleaning may be required to maintain performance and ensure the outboard's durability.

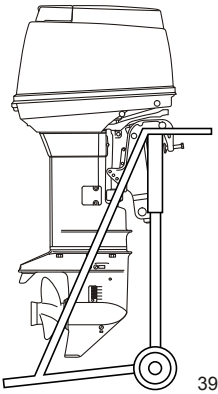
Check full-throttle RPM, using an accurate tachometer, with the engine trimmed out to a balanced-steering condition (steering effort equal in both directions) without causing the propeller to break loose.

Removing the Motor

1. Stop the engine.
2. Disconnect the fuel connector, the remote control cable, the battery cables, mounting bolts and nuts, etc. from the motor.
3. Remove the motor from the hull and completely drain the water from the outboard. Be sure to keep the engine higher than the propeller whenever you carry the motor.

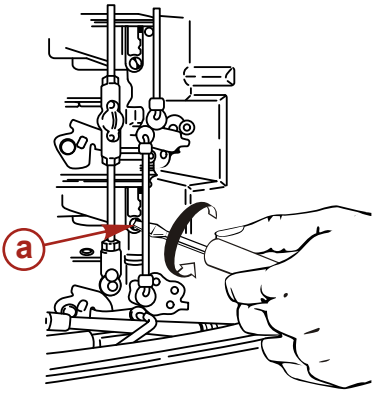
Carrying the Motor

Be sure to keep the engine vertical whenever you carry the motor.



39893

If you cannot carry the engine in an upright position, loosen the drain screw on the carburetors to drain fuel from them.



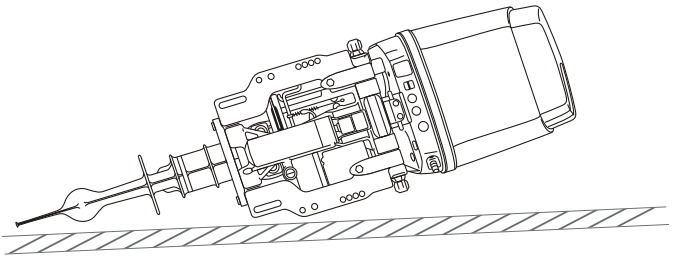
38383

a - Drain screw

TRANSPORTING

IMPORTANT: Beware of explosion danger. Spilled and vapored gasoline may easily catch fire and explode. Be sure to fully discharge gasoline from the carburetors when transporting the engine. Wipe off spilled gasoline with a rag.

When carrying or putting the engine up for storage, make sure the side with the electric pump or the power trim and tilt is down, otherwise air will enter the pump system for the power trim and tilt operation.

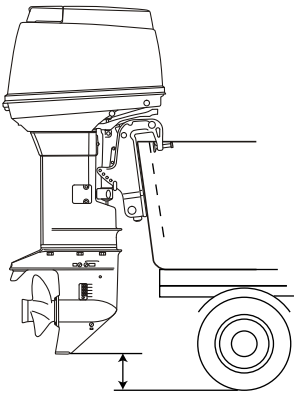


38384

Trailering Boat/Outboard

The boat should be trailered with the outboard in the vertical (normal running), fully down position.

NOTE: *Trailering in the tilted position may cause damage to the motor, boat, etc. If trailering with the engine fully down is not acceptable (the gearcase skeg is too close to the road in a vertical position), fix the motor securely using a device (like a transom saver bar) in the tilted position.*



39895

Shift the outboard to the forward gear. This prevents the propeller from spinning freely.

If additional ground clearance is required, the outboard should be tilted up using an accessory outboard support device. Refer to your local dealer for recommendations. Additional clearance may be required for railroad crossings, driveways, and trailer bouncing.

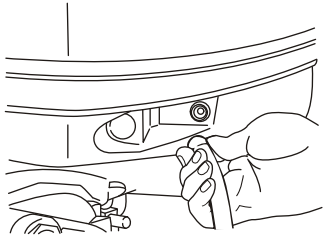
IMPORTANT: The tilt lock and shallow water drive feature (tiller handle models) on the outboard are not intended to support the outboard in the tilted position when trailering.

Mooring with the Engine Tilted Up

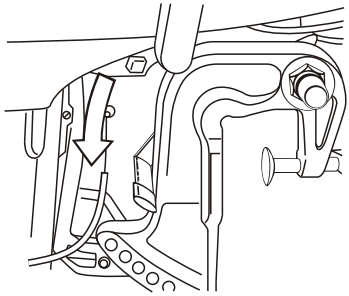
When the engine has been stopped and it will not be used for a long time, or when mooring in shallow water, tilt the engine up to prevent damage to the propeller and gearcase.

MH, EH, EHO, EO

1. Disconnect the fuel connector from the engine.

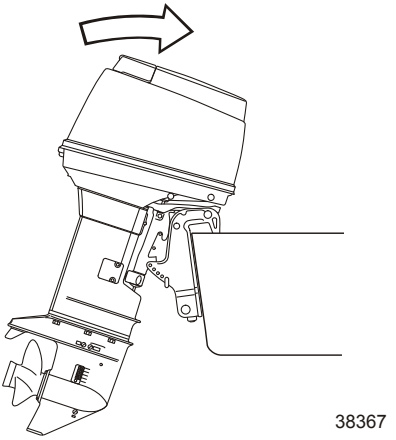


2. Set the reverse lock lever on the starboard side to release by turning it downward.

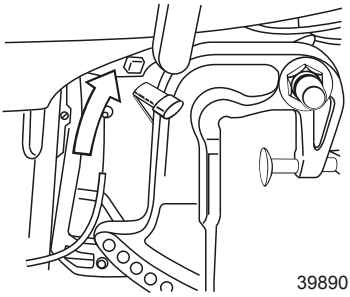


IMPORTANT: When tilting up or down, be sure your finger, or hand, is not placed in-between the swivel bracket and transom bracket. Be sure to tilt down the outboard slowly.

3. Tilt the engine up entirely. The outboard will lock in the raised position.

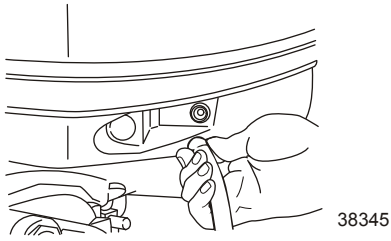


4. To tilt the outboard down. Turn the reverse lock lever upward (toward release). Tilt the engine up slightly and then tilt the engine down. The reverse lock will release automatically.

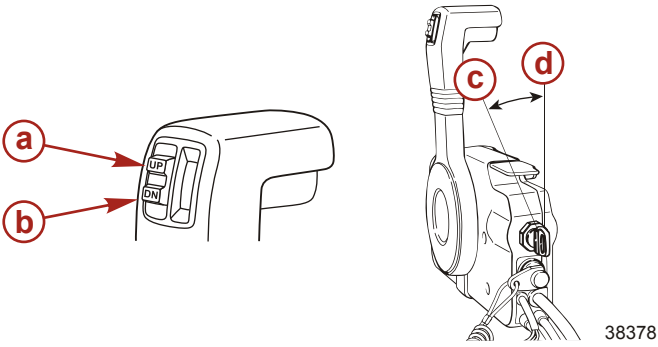


EHPTO, EPTO

1. Disconnect the fuel connector from the engine.

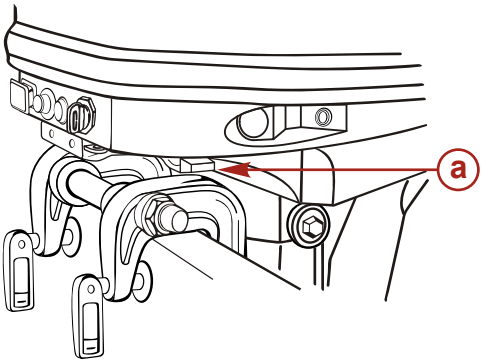


2. Operate the power trim and tilt switch on the remote control lever and tilt the engine up.



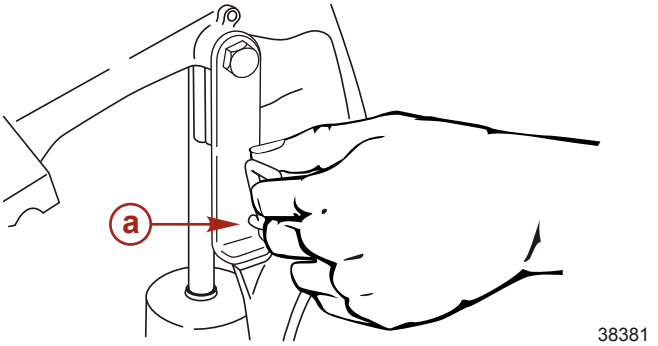
a - UP
b - Down (DN)
c - Off
d - On

3. The engine can also be tilted up using the switch provided under the bottom cowl.



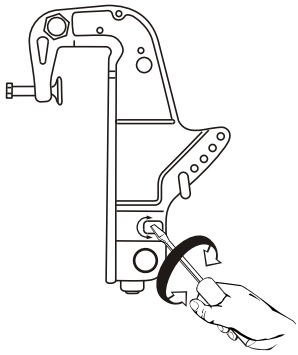
a - Power trim and tilt switch

4. Lock the tilt with the tilt stopper after the engine has been tilted up.



a - Tilt stopper

5. Manual tilting: If the engine cannot be trimmed up electrically, turn the manual valve a few turns counterclockwise. This will allow manual tilting of the engine.

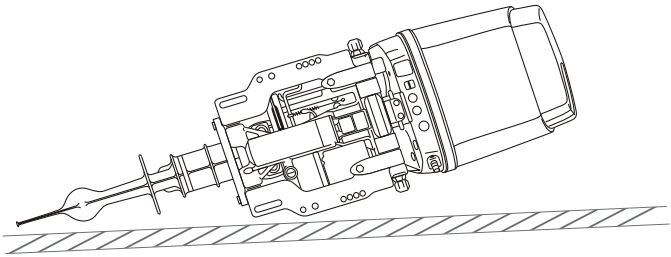


38382

Storing the Motor

Keep the motor in a vertical position when you store it.

NOTE: *If you store the motor in a horizontal position, lay the motor as shown in the figure.*



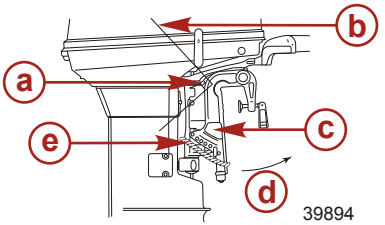
38384

EH, EHO, EO

IMPORTANT: When removing the motor from the package or removing the motor from the boat, never release the reverse lock lever. If the reverse lock lever is released, it will be very easy for the transom bracket to spring up to the tilting direction because it is not secured.

1. Secure the transom bracket to the outboard with a rope.

2. Pay attention to the tilting direction so as not to be injured by the transom bracket.



a - Reverse lock lever
b - Lock
c - Transom bracket
d - Tilting direction
e - Rope

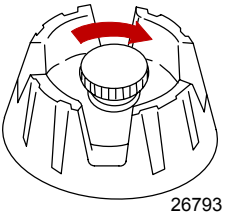
Transporting Portable Fuel Tanks

⚠ WARNING

Avoid serious injury or death from a gasoline fire or explosion. Follow the transporting instructions supplied with the portable fuel tank. Transport the fuel tank in a well ventilated area away from open flame or sparks.

MANUAL VENTING TYPE FUEL TANK

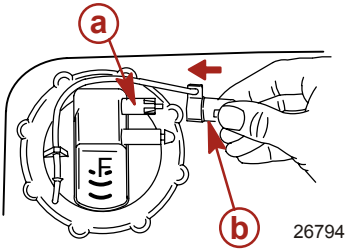
Close fuel tank air vent when transporting tank. This will prevent escape of fuel or vapors from tank.



AUTO-VENTING TYPE FUEL TANK

1. Disconnect the remote fuel line from tank. This will close the air vent and prevent escape of fuel or vapors from tank.

2. Install tether cap over the fuel line connector stem. This will protect the connector stem from being accidentally pushed-in, allowing fuel or vapor to escape.



a - Connector stem
b - Tether cap

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 2 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.

FUEL AND OIL

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

- Corrosion of metal parts
- Deterioration of rubber or plastic parts
- Fuel permeation through rubber fuel lines
- Starting and operating difficulties

⚠ WARNING

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.

FUEL AND OIL

Oil Recommendation

Recommended Oil	**Mercury or Quicksilver Premium 2-Cycle TC-W3 Outboard Oil**

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.

Non-Oil Injected Models: MH, EH

Add engine oil into the fuel tank. The mixing ratio with gasoline is 50:1 (50 parts gasoline and one part oil). Mix well by hand. The mixing ratio during break-in running is 25:1.

Mixing ratio

	Gasoline	Engine Oil
During break-in	25	1
After break-in	50	1

Pour oil into the fuel tank.

Pour gasoline into the fuel tank.

ENGINE BREAK-IN

Engine Break-in Fuel Mixture

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

Engine Break-in Procedure

Refer to **Operation - Engine Break-In Procedure** for correct break-in procedure.

Oil Injected Models: EHO, EHPTO, EO, EPTO

The required amount of engine oil is automatically supplied from the oil pump according to the engine running conditions.

FUEL AND OIL

IMPORTANT: During engine break-in, engine oil must be added to the gasoline in addition to the oil, which is automatically supplied from the oil tank.

Mixing ratio (during break-in on oil injected models)

	Gasoline	Engine Oil
During break-in	50	1
After break-in	Automatic: Fill up engine oil tank regularly	

Pour oil into the fuel tank.

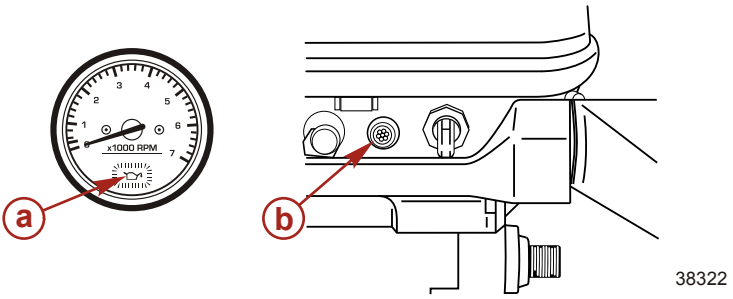
Pour gasoline into the fuel tank. Shake well to mix oil and fuel.

Alarm for low engine oil level

If the level in the oil tank falls below 0.4 L (0.105 US gal), the low engine oil alarm will be triggered. The engine oil tank capacity is 2 L (0.53 US gal).

EO, EPTO: The low oil light in the tachometer lights and the buzzer in the remote control box sounds if the engine oil level falls below 0.4 L (0.105 US gal).

EHO, EHPTO: The low oil light is on the front portion of the bottom cowl. The light will come on if the engine oil level falls below 0.4 L (0.105 US gal).



a - Low oil light in tachometer

b - Low oil light on lower engine cover

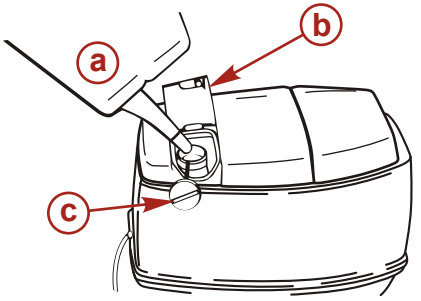
Resetting the low oil level alarm:

1. Reduce engine speed to trolling RPM and steer towards a safe area with calm water. Set the remote control lever to Neutral (buzzer will stop).

2. Turn off the ignition switch, and fill up the oil tank with recommended engine oil.
3. Start the engine, and shift into gear carefully.
4. Confirm that the indicator lamp goes out and the buzzer does not sound.

Replenishing the oil in the engine oil tank:

1. Open the oil fill door on the top cowl.
2. Remove the oil tank cap.
3. Fill up the tank with genuine engine oil or recommended oil.



38323

a - Recommended engine oil
b - Oil fill door
c - Oil tank cap

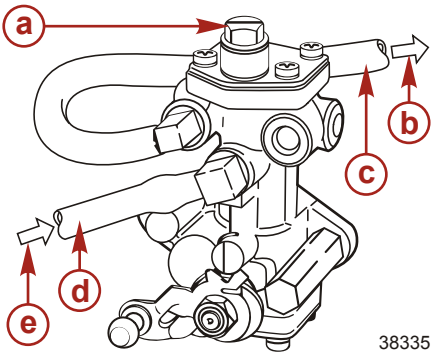
IMPORTANT: Please follow the instructions below.

1. **In the unlikely event that gasoline is filled into the oil tank by mistake, drain the oil tank completely, and consult an authorized service shop for advice.**
2. **Check the amount of oil in the oil tank visually before starting the engine.**

Oil pump air vent

Visually check whether there is air in the oil through the oil line connecting the oil tank with the oil pump. If present, purge the air as follows:

Loosen the air vent screw on the oil pump to purge the air, and tighten it when all air, as seen through the oil line to the oil pump has been purged.

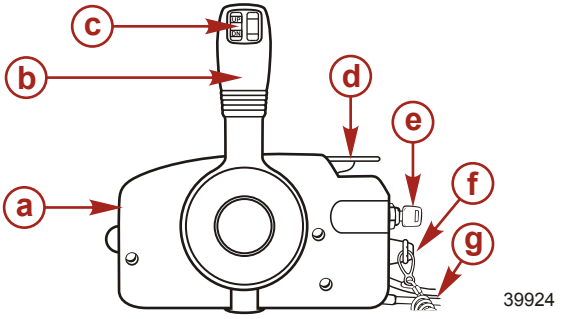


a - Air vent screw
b - To check valve
c - Oil line
d - Oil line
e - From oil filter

NOTE: *Wipe off any spilled oil with a rag, and dispose of it.*

Remote Control Features

Your boat may be equipped with the remote control shown. If not, consult your dealer for a description of the functions and operations of the remote control.



- **a -** Remote control box
- **b -** Remote control handle
- **c -** Power trim and tilt switch
- **d -** Neutral warm-up lever
- **e -** Ignition key switch
- **f -** Lanyard stop switch
- **g -** Lanyard cord

Tilting Outboard

BASIC TILTING OPERATION

The tilt feature allows the operator to tilt the outboard to a higher tilt angle for operation in shallow water, or tilt the outboard to the full up position.

When running the outboard, keep the tilt lever in the release position. This allows the outboard to return to the running position if the outboard should hit an underwater obstacle and be lifted up.

Moving the tilt lever to the tilt position will allow the outboard to lock into the shallow water drive position or the full up position.

Shallow Water Operation

The outboard is equipped with a shallow water tilt feature that allows you to tilt the outboard to a higher tilt angle to prevent hitting bottom.

IMPORTANT: Before tilting the outboard into the shallow water drive position, reduce engine speed to idle and shift engine into neutral gear.

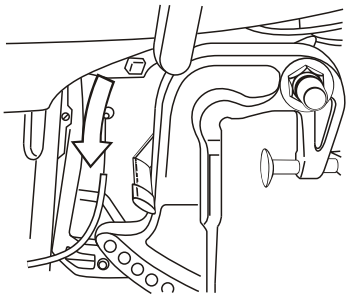
NOTE: *Please follow the instructions below:*

- *When running in shallow water, take care the water in take is submerged at all times and that water is continuously running out of the water pump indicator hole.*
- *Be sure to run slowly when using the shallow water drive. Running at higher speeds will result in lack of control and may cause damage to the gearcase.*
- *Ensure that the motor does not strike the bottom, especially when running in Reverse (R). If the motor strikes the bottom while in reverse the impact is transmitted to the transom, risking damage to both the motor and the boat.*

SHALLOW WATER RUNNING POSITION

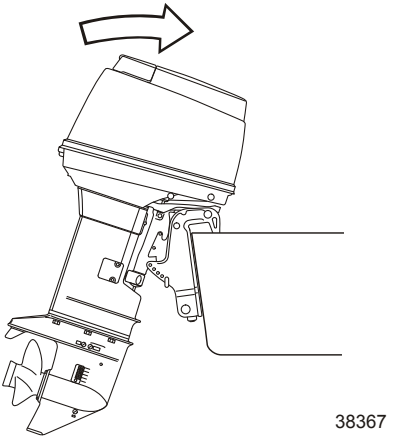
MH, EH, EHO, EO

1. Set the reverse lock lever provided on the starboard side to Release by turning it downward.



38366

2. Tilt the engine up approximately 45° and lower it. The engine will now be set to the shallow water setting.



3. Releasing the shallow water setting:
   a. Turn the reverse lock lever upward to set them in the lock position.
   b. Tilt up the engine slightly and let it go down. The shallow water setting is released.
   c. The engine is released from shallow water setting, and locked at normal running position.

EHPTO, EPTO

Tilt up the engine using the power trim and tilt system.

Trim Adjustment

Trim of the motor can be adjusted to suit the transom angle and loading conditions of your boat. Be sure to maintain the anti-ventilation plate parallel to the water level during cruising.

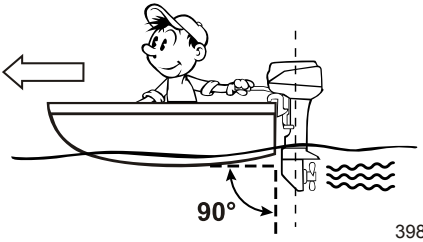
The following instructions explain how to set the best angle of the boat.

Proper adjustment allows the boat to run stable, achieve optimum performance, and minimize steering effort.

MH, EH, EHO, EO

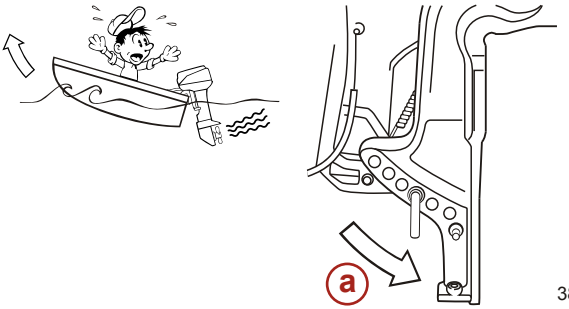
The trim angle is adjusted by setting the trim position pin in the correct trim position. Arrange passengers and load in the boat so the weight is distributed evenly.

- **Correct trim:** The trim angle is optimum when the boat is parallel to the water surface while running.



39891

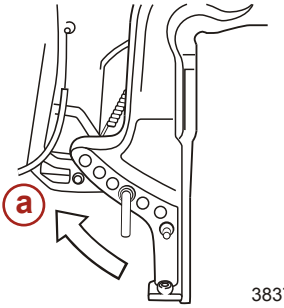
- **Trim down:** If the trim angle is excessive, the bow will rise out of the water and the speed will decrease.



38372

a - Select a lower hole

- **Trim up:** If the trim angle is low, the bow will dip into the water, the speed will decrease, and water may enter the boat. In this case, the trim angle should be increased by setting the trim position pin in a higher hole.



38374

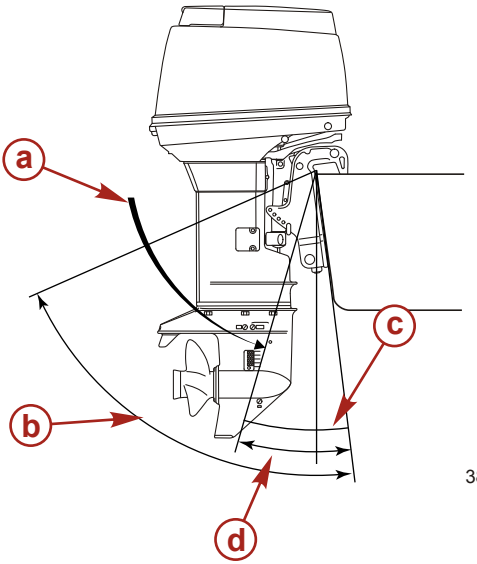
a - Select a higher hole

EHPTO, EPTO

The provided power trim and tilt can be adjusted to set the desired trim angle of the engine in relation to the transom shape, planing speeds, and load. It is imperative that the trim angle is adjusted correctly. Incorrect adjustment will cause the boat to sway, deteriorate engine performance, and may cause unsafe steering conditions.

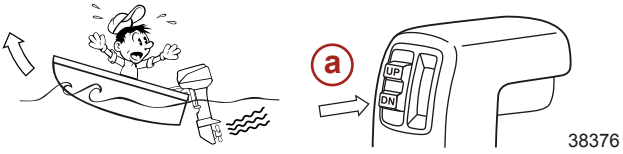
IMPORTANT: The power trim and tilt can be set to trim angle, however, avoid cruising with the engine tilted in the tilt range. Operating the boat in this manner, the engine may suck air into the water cooling system resulting in engine overheating.

How to use the trim gauge: When the trim angle is set as desired, take a reading off the trim gauge, and record it for future reference.



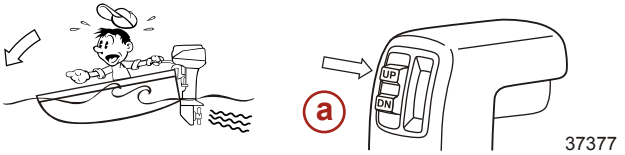
a - Trim angle adjustable range
b - 74°
c - 8°
d - 28°

- **Correct trim:** The trim angle is optimum when the boat is parallel to the water surface while running.
- **Trim down:** If the trim angle is excessive, the bow will rise out of the water and the speed will decrease. If this occurrs, press the switch on the remote control level to down (DN).



a - Remote control lever: Down (DN)

- **Trim up:** If the trim angle is low, the bow will dip into the water and the speed will decrease. Water may also enter the boat. In this case, the trim angle should be increased by pressing the switch on the remote control lever to UP.



a - Remote control lever: UP

Steering Friction Adjustment

Steering friction can be adjusted according to your preference with the steering co-pilot.

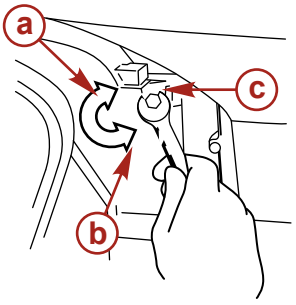
⚠ WARNING

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.

Adjust the steering co-pilot to achieve desired steering friction.

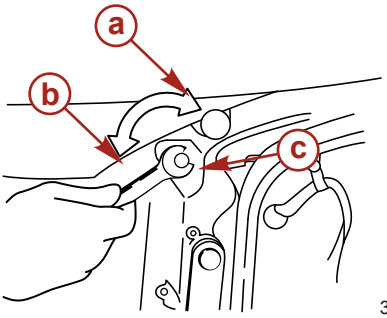
- Turn clockwise for more friction.
- Turn counterclockwise for less friction.

MH, EH, EHO, EO



a - Tight
b - Loose
c - Copilot

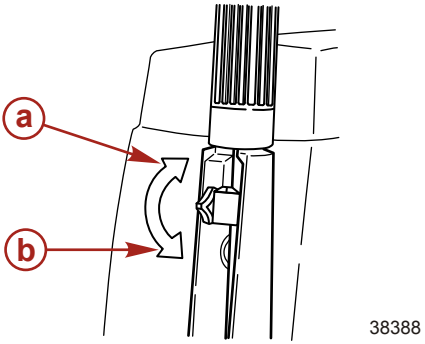
EHPTO, EPTO



a - Tight
b - Loose
c - Copilot

Throttle Grip Turning Friction Adjustment

Turn the screw clockwise to tighten friction and turn the screw counterclockwise to loosen friction.



a - Loosen friction
b - Tighten friction

Trim Tab Adjustment

Propeller steering torque will cause the boat to pull in one direction. This steering torque is a normal result from the outboard not trimmed with the propeller shaft parallel to the water surface. The trim tab can help compensate for this steering torque in many cases and can be adjusted within limits to reduce any unequal steering effort.

- Operate the boat at normal cruising speed with the outboard set at the desired operating angle position. Turn the boat left and right and note the direction the boat turns more easily.
- If an adjustment is necessary, loosen the trim tab bolt and make small adjustments at a time.

- After the adjustment, securely tighten the trim tab bolt.

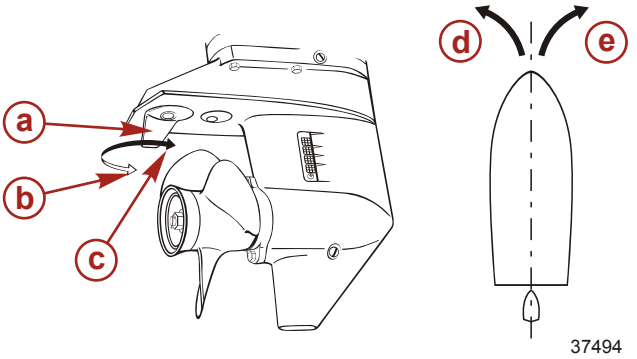
NOTE: *Inspect the tightness of the bolt and the trim tab at regular intervals. Due to corrosion, the trim tab will wear down over time.*

IMPORTANT: The trim tab also acts as an anode to prevent galvanic corrosion. Do not apply any paint, grease, or other material to the surface of the trim tab.

NOTE: *Trim tab adjustment will have little effect reducing steering torque if the outboard is installed with the anti-ventilation plate approximately 50 mm (2 in.) or more above the boat bottom.*

The trim tab is located under the anti-ventilation plate.

- If the boat steers toward the left, set the trim tab in the direction of B.
- If the boat steers toward the right, set the trim tab in the direction of C.



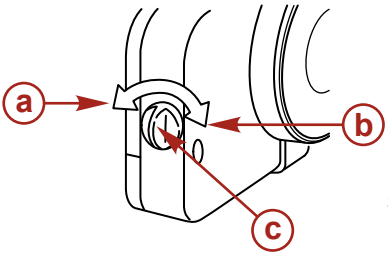
a - Trim tab
b - Steers toward the left, set the trim tab in the direction of B
c - Steers toward the right, set the trim tab in the direction of C
d - Turning left
e - Turning right

REMOTE CONTROL LEVER FRICTION

EO, EPTO

(Throttle friction adjustment screw)

To adjust the load of the remote control lever, turn the throttle friction adjustment screw on the front of the remote control box. Turn clockwise to increase the friction and counter-clockwise to decrease it.



38385

a - Turn counterclockwise to decrease the friction

b - Turn clockwise to increase the friction

c - Throttle friction adjustment screw

OPERATION

Pre-Starting Check List

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

Operating in Freezing Temperatures

When using your outboard or having your outboard moored in freezing or near freezing temperatures, keep the outboard tilted down at all times so the gearcase is submerged. This prevents 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.

Operating at High Elevations

IMPORTANT: To prevent serious damage to the engine caused by a lean fuel mixture, do not operate your outboard (if the jets were changed for high elevation) at a lower elevation unless the jets are changed again to correspond to the new elevation.

Operating your outboard at an elevation higher than 750 m (2500 ft.) above sea level may require a carburetor jet change and/or different pitch propeller. Consult your dealer. This will reduce the normal performance loss experienced as a result of reduced oxygen in the air causing an overly rich fuel mixture.

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.

Break-in running time: 10 hours

Time	0 min.~	10 min.~	1 hr.~	2 hrs.~	10 hrs.~
Method of break-in	Trolling or idling	Throttle opening <1/2 about 3,000 RPM	Throttle opening <3/4 about 4,000 RPM	Throttle opening 3/4 about 4,000 RPM	Normal running
Running conditions	Cruising at minimum speed	—	Full-throttle run is allowed for 1 min. in 10 min.	Full-throttle run is allowed for a short time.	—

ENGINE BREAK-IN FUEL MIXTURE

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

The use of poor quality fuel will shorten the life of a motor and cause trouble, including starting failure. It is recommended to use a high quality gasoline and genuine or recommended engine oil. (Refer to **Fuel and Oil** section.)

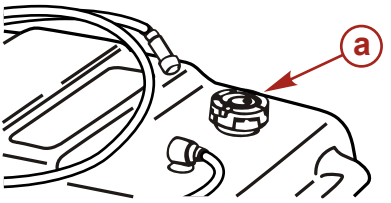
Starting the Engine

IMPORTANT: Never fill up portable fuel tanks on board to avoid fire or explosion resulting from spilled gasoline. If gasoline is ever spilled on board, wipe it off thoroughly. Fuel tanks must always be filled up on land.

IMPORTANT: Before starting, read the Pre-Starting Check List, special operating instructions, and Engine Break-in Procedure in the Operation section.

PREPARATIONS

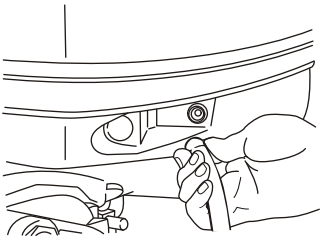
1. Loosen the air vent screw on the fuel tank cap. For tanks with a fuel tank auto air vent (optional): There is no need to loosen the air vent screw. An air vent opens automatically when the connector is attached to the tank.



a - Air vent screw

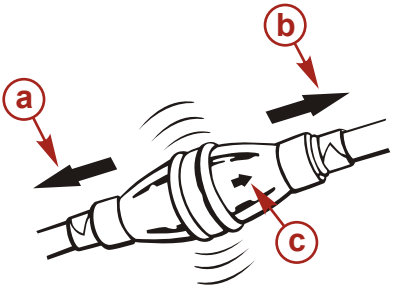
38342

2. Connect the fuel connector to the engine.



38345

3. Squeeze the primer bulb until firm.

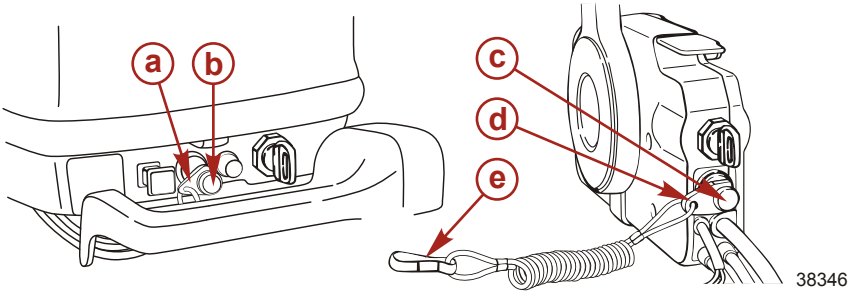


37714

a - To fuel tank
b - To engine
c - Fuel flow direction

IMPORTANT: To prevent the engine from flooding, do not squeeze the primer bulb after the engine has warmed up.

4. Install the lanyard cord.



38346

a - Lanyard cord
b - Lanyard switch
c - Lanyard switch
d - Lanyard cord
e - Hook

IMPORTANT: Be sure to connect the lanyard stop switch to your body. The engine is shut down if the stop switch is disconnected.

STARTING (MANUAL START)

IMPORTANT: Before starting, read the Pre-Starting Check List, special operating instructions, and Engine Break-in Procedure in the Operation section.

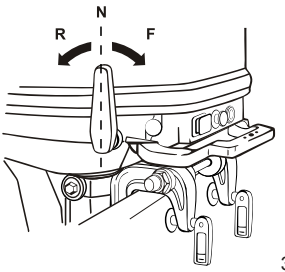
OPERATION

NOTE: *Be sure the shift is at Neutral (N) when starting the engine. This model is provided with start in gear protection.*

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.

MH: Tiller Handle Model

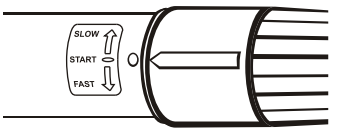
1. Set the shift lever to Neutral (N).



38347

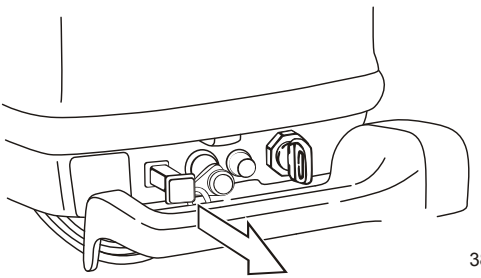
NOTE: *If the engine starts in gear, do not use the engine. Contact your dealer.*

2. Turn the throttle grip so the indicator line meets the "START" mark.



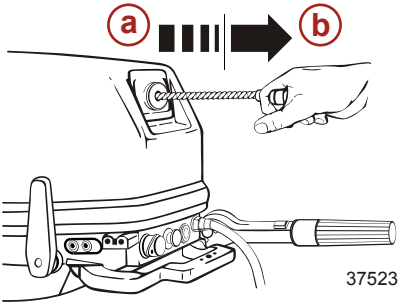
38348

3. Pull the choke knob out.


38349

NOTE: *Operation of the choke knob is not required if the engine is warm.*

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



a - Pull slowly
b - Pull rapidly

5. Carefully turn the throttle grip to "SLOW."

STARTING (ELECTRIC START)

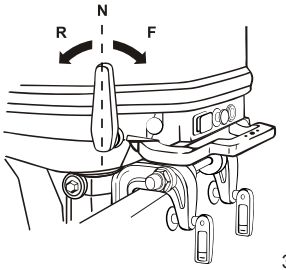
NOTE: *Be sure the shift is at Neutral (N) when starting the engine. This model is provided with start in gear protection.*

IMPORTANT: 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.

EH, EHO, EHPTO: Tiller Handle Model

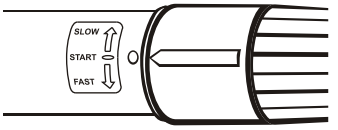
1. Set the shift lever to Neutral (N).



38347

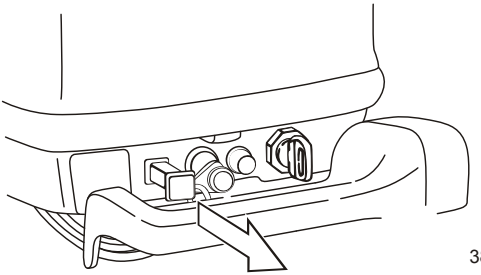
NOTE: *If the engine starts in gear, do not use the engine. Contact your dealer.*

2. Turn the throttle grip so the indicator line meet the "START" mark.



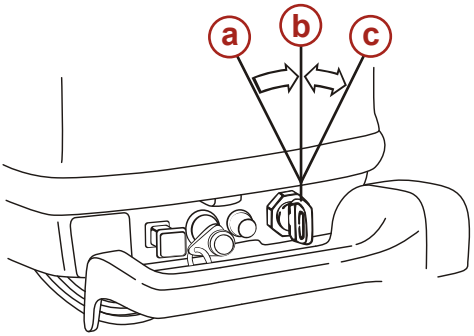
38348

3. Pull the choke knob out.


38349

NOTE: *Operation of the choke knob is not required if the engine is warm.*

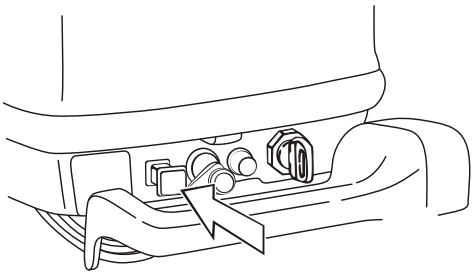
4. Turn the key switch to ON. Continue turning the key switch clockwise to start the motor.



38350

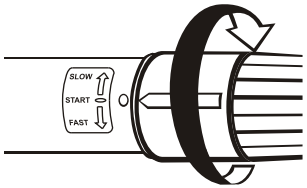
a - Off
b - On
c - Start

5. Release the key switch as soon as the engine starts. The key will return to the ON position automatically.
6. Push back the choke knob slowly.



38351

7. Carefully turn the throttle grip to "SLOW."



38352

IMPORTANT: Please follow the instructions below:

- Extended operation of the starter motor will run the battery down. Operate the starter motor for a maximum of five seconds. If the engine does not start, wait for 10 seconds before operating the starter motor again.

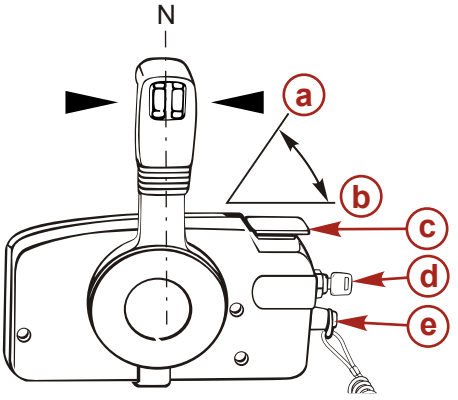
- Never operate the starter motor once the engine has started.
- If the starter motor won't turn over, ensure that the battery terminal connections are tight and the battery is fully charged.

STARTING (REMOTE CONTROL MODEL)

IMPORTANT: Before starting, read the Pre-Starting Check List, special operating instructions, and Engine Break-in Procedure in the Operation section.

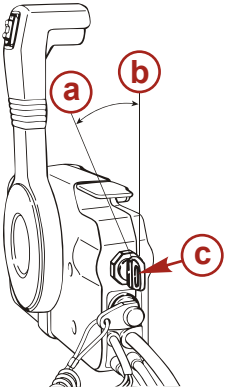
EO, EPTO

1. Insert the key into the ignition.
2. Set the remote control lever to Neutral (N), and move the neutral warm-up lever to OPEN.



a - Fully opened position
b - Fully closed position
c - Neutral warm-up lever
d - Ignition key switch
e - Lanyard stop switch

3. Turn the key switch to the ON position and push ON for choke operation. The key does not need to be pushed if the engine is warm.

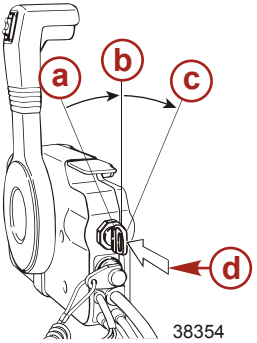


37466

a - Off
b - On
c - Push to choke

NOTE: *The neutral warm-up lever is inoperative unless the remote control lever is set to Neutral (N).*

4. While keeping the key pressed in, turn it to START.

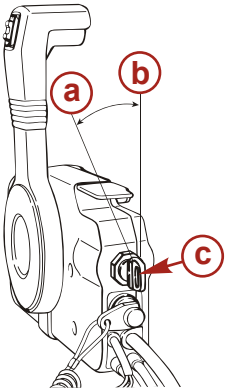


38354

a - Off
b - On
c - Start
d - Push to choke

NOTE: *If the engine is warm, there is no need to press the key for choking when turning it to START.*

5. When the engine starts, release the key and allow it to return to ON.



37466

a - Off
b - On
c - Push to choke

IMPORTANT: Please follow the instructions below:

- Extended operation of the starter motor will run the battery down. Operate the starter motor for a maximum of five seconds. If the engine does not start, wait for 10 seconds before operating the starter motor again or starter will be damaged.
- Never operate the starter motor once the engine has started.
- If the starter motor won't turn over, ensure the battery terminal connections are tight and the battery is fully charged.

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.

Gear Shifting

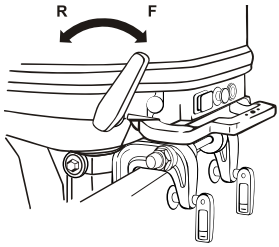
FORWARD/REVERSE RUNNING

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

IMPORTANT: It may be dangerous to attempt shifting at high RPM. Be sure to slow engine RPM down to idle RPM before shifting.

MH, EH, EHO, EHPTO

Tiller handle models: Turn the throttle grip to the "SLOW" position and move the shift lever to Forward (F) or Reverse (R) position swiftly when the engine speed drops to its lowest level.

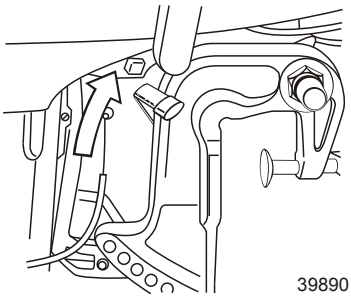


36363

IMPORTANT: It may be dangerous to attempt shifting at high RPM. Be sure to slow engine RPM down to idle RPM before shifting.

NOTE: *Please follow the instructions below:*

1. The engine must be at idling speed when the shift lever is moved from Forward (F) to Reverse (R).
2. Before moving the shift lever to Reverse (R), ensure the reverse lock is engaged in the "UP" position.


39890

MH, EH, EHO, EHPTO

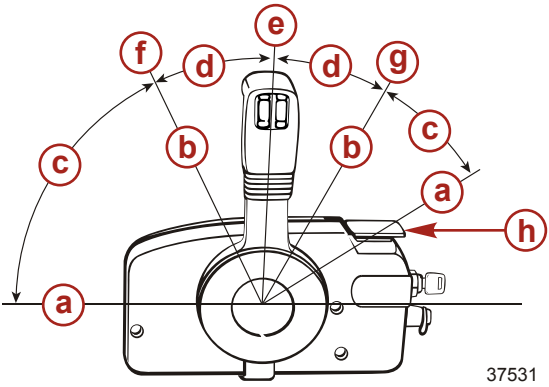
3. The shift lever cannot be moved from Neutral (N) to Reverse (R) unless the throttle grip is placed in the "SLOW" position.

IMPORTANT: Never shift the outboard into gear unless the engine speed is at idle. Do not shift the outboard into reverse when the engine is not running. It may damage the shift linkage and possibly the gear mechanism.

EO, EPTO

1. Remote control models: While pressing the lock button on the remote control lever upward, swiftly move the lever to Forward (F) or Reverse (R) to the detent (approximately 32° forward or backward from Neutral).

2. If the shift/throttle handle is moved pass the gear detent position, the throttle will begin to open.

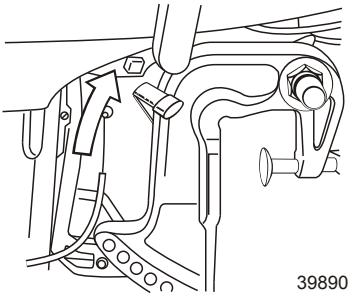


a - Full throttle position
b - Idle position
c - Throttle range
d - Shift range (32°)
e - Neutral (N)
f - Forward (F)
g - Reverse (R)
h - Newtral warm-up lever

NOTE: *Please follow the instructions below:*

1. The engine must be at idle speed when the shift lever is moved from Forward (F) to Reverse (R).

2. Before moving the shift lever to Reverse (R), ensure the reverse lock is engaged in the "UP" position.



EO, EPTO

NOTE: The remote control lever becomes inoperative unless the neutal warm-up lever is in the fully closed position.

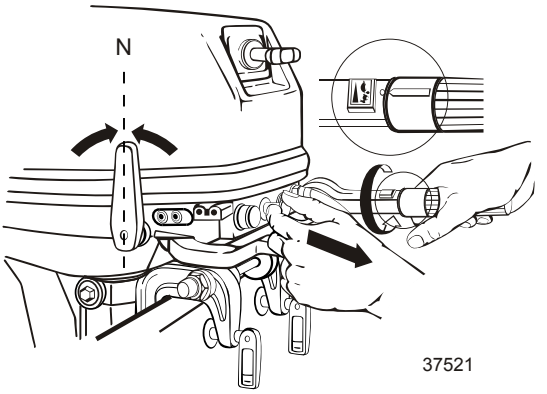
IMPORTANT: Never shift the outboard into gear unless the engine speed is at idle. Do not shift the outboard into reverse when the engine is not running.

Emergency Starting

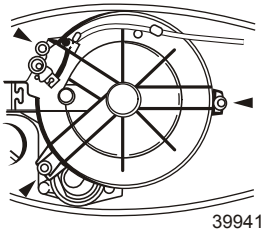
If the starter system fails, use the spare starter rope (provided) and follow the procedure.

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

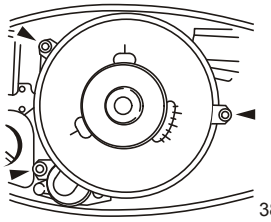
1. Set the shift lever or the remote control lever to Neutral (N).



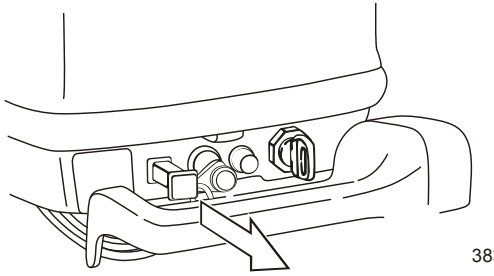
2. MH, EH, EHO, EHPTO: Remove the top cowl. Take off the starter assembly/flywheel cover.



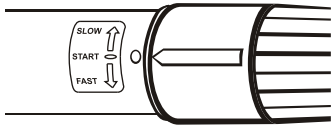
3. EO, EPTO: Remove the top cowl. Take off the flywheel cover.



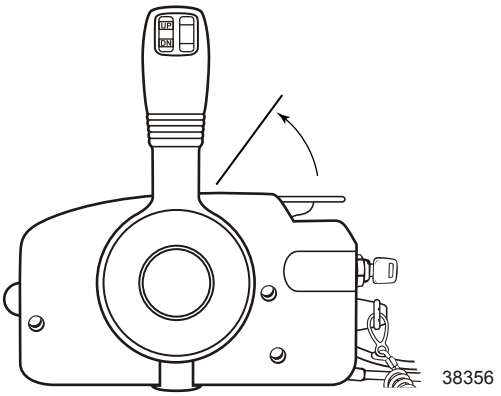
4. Pull the choke knob.



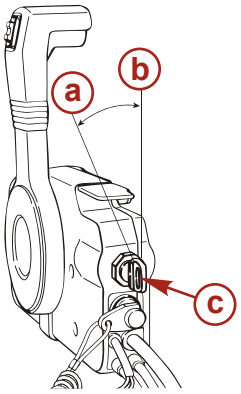
5. MH, EH, EHO, EHPTO: Turn the throttle grip so the indicator line meets the "START" mark.



6. EO, EPTO: Lift up the newtral warm-up lever 1/3 to 1/2 of its stroke.

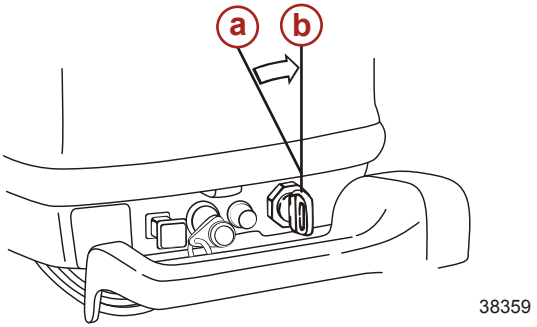


7. EO, EPTO: Turn the key switch to ON.



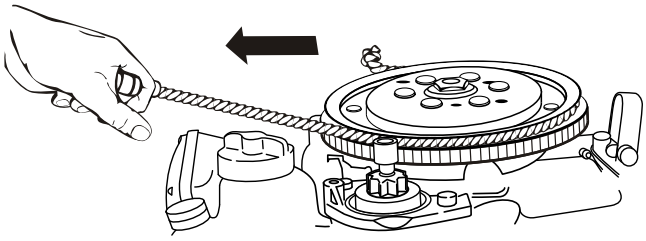
a - Off
b - On
c - Key switch

8. EH, EHO, EHPTO: Turn the key switch to ON.



a - Off
b - On

9. Wind the starter rope around the flywheel a few turns clockwise. Give it a sharp tug to start the engine. Use a socket wrench to get a firm grip on the end of the rope.



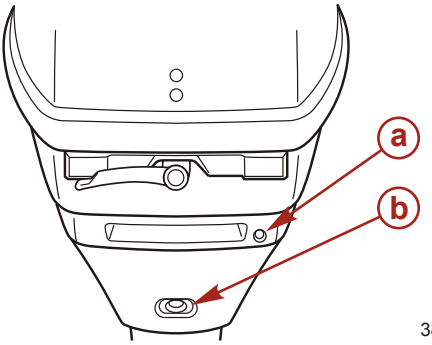
10. Remote control models: Ensure the key switch is in the "ON" position.

NOTE: *Confirm that the shift lever is in the Neutral (N) position.*

WARM-UP

Before driving the boat, let the engine run at low speed for approximately three minutes to let it warm-up. If the engine is not warmed up beforehand, the engine life will shorten greatly. During the warm-up operation, confirm that cooling water is discharged from the water pump indicator hole and idle port.

IMPORTANT: If cooling water is not discharged and engine operation is continued, the engine may overheat and damage may occur.



a - Cooling water discharge port
b - Idle port

Engine speed:

Proper idle speed after warm-up operation

In-gear	Neutral
750 RPM	900 RPM

Do not exceed the full-throttle engine speed

Full throttle engine speed	
40	**50**
5000–5700 RPM	5150–5850 RPM

OVERHEAT ALARM AND SENSOR (OPTIONAL ON SOME MODELS)

EH, EHO, EHPTO, EO, EPTO

- The overheat alarm will sound if the engine temperature exceeds the preset level.
- If the alarm sounds indicating overheating, immediately move the remote control lever to Neutral (N). Confirm that cooling water is discharged from the water pump indicator hole, and then stop the engine. Turn the key switch to "OFF" position.
- Remove dirt or other foreign matter clogging the water inlets on the gearcase.

NOTE: *If the alarm sounds frequently after restarting the engine, contact your service dealer.*

NOTE: *Check for a steady stream flowing out of the water pump indicator hole. If no water is coming out of the water pump indicator hole or flow is intermittent, stop the engine and check cooling water intake holes for obstruction. If no obstruction is found, this may indicate a blockage in the cooling system or a water pump problem. Have the outboard checked by your dealer. Operating the engine while overheated may cause engine damage.*

NOTE: *Should overheating occur and you are stranded, stop the engine and sllow it to cool down. This will usually allow some additional low speed (idle) running time before the engine starts to overheat again. Operating an overheated engine may cause engine damage.*

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.

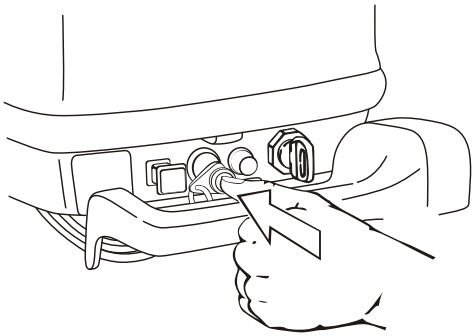
IMPORTANT: If a steady flow of water is coming out of the water pump indicator hole and the engine continues to overheat, consult your dealer.

Stopping the Engine

IMPORTANT: Never stop the engine immediately after a full throttle run. Keep it running for two or three minutes at idling speed (Neutral) to allow the engine to cool down.

MH

1. Reduce the engine speed to idle RPM.
2. Pressing on the stop switch or pull the lanyard. The engine will then stop.

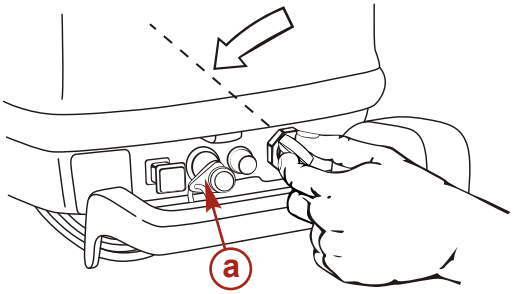


38368

EH, EHO, EHPTO

1. Reduce the engine speed to idle RPM.

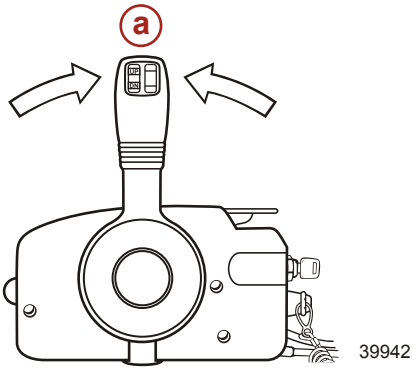
2. Turn the main switch to "OFF," press the stop switch or pull the lanyard. The engine will then stop.



a - Lanyard /stop switch

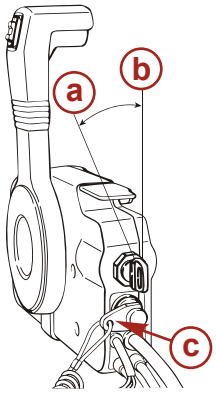
EO, EPTO

1. Move the remote control lever to Neutral (N) and let the engine idle for two or three minutes to allow it to cool down.



a - Neutral (N)

2. Turn the key switch counterclockwise to the "OFF" position or pull the lanyard. The engine will then stop. The engine can also be stopped by pressing on the lanyard switch.

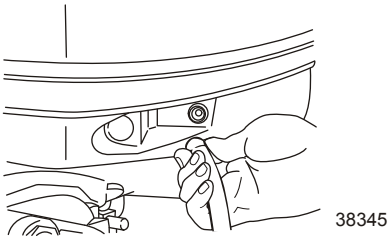


a - Off
b - On
c - Stop switch lock plate

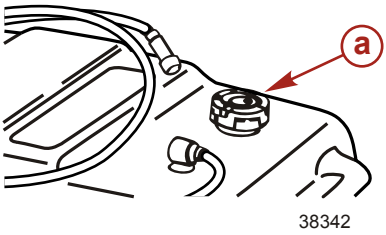
NOTE: *Please follow the instructions below:*

- *Disconnect the fuel connector from the engine.*
- *After the engine has stopped, close the air vent screw on the fuel tank cap.*
- *Disconnect the battery cables from the battery if the engine will not be used for an extended period of time.*

3. Disconnect the fuel connector from the engine.



4. Close the air vent screw on the fuel tank cap.



a - Air vent screw

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.

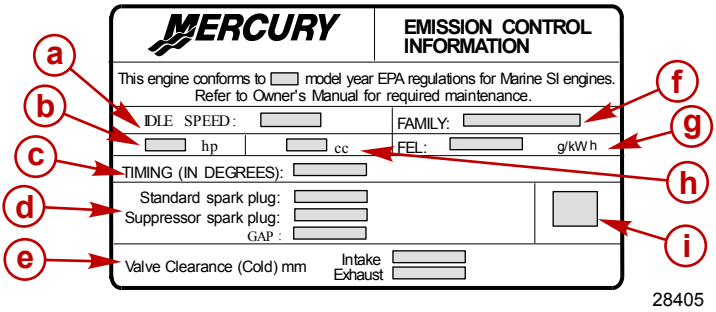
EPA Regulations

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.**

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.



- **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

- Check that lanyard stop switch stops the engine.

- Visually inspect the fuel system for deterioration or leaks.
- Check outboard for tightness on transom.
- Check steering system for binding or loose components.
- Remote control models - Visually check steering link rod fasteners for proper tightness. See **Steering Link Rod Fasteners**.
- Check propeller blades for damage.

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 and flush out the exhaust outlet of the propeller and gearcase with fresh water if operating in saltwater.

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

- Lubricate all lubrication points. Lubricate more frequently when used in saltwater. See **Lubrication Points**.
- Inspect and clean spark plugs. See **Spark Plug Inspection and Replacement**.
- Check fuel line filter for contaminants. See **Fuel System**.
- Check carburetor adjustments, if required. See **Carburetor Adjustments**.
- Check corrosion control anodes. Check more frequently when used in saltwater. See **Corrosion Control Anodes**.
- Drain and replace gearcase lubricant. See **Gearcase Lubrication**.
- Lubricate splines on the driveshaft and shift shaft.[1]
- Electric start models - Inspect battery. See **Battery Inspection**.
- Remote control models - Check control cable adjustments.[1]
- Remove engine deposits with Mercury Precision or Quicksilver Power Tune Engine Cleaner.
- Check tightness of bolts, nuts, and other fasteners.

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

- Clean fuel tank pick up filter.

EVERY 300 HOURS OF USE OR THREE YEARS

- Replace water pump impeller (more often if overheating occurs or reduced water pressure is noted).[1.]

BEFORE PERIODS OF STORAGE

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

Flushing the Cooling System

FLUSHING

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.

Use a Mercury Precision or Quicksilver Accessory (or equivalent) flushing attachment.

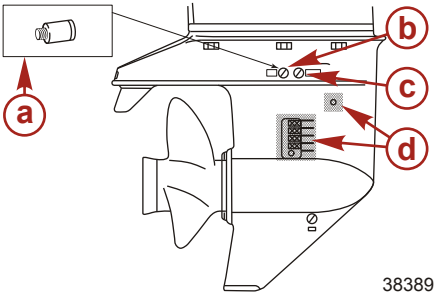
IMPORTANT: The engine must be run during flushing in order to open the thermostat and circulate water through the water passages.

⚠ 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 water plug from the motor and screw in the associated flushing plug (hose adapter).
2. Connect a hose to the flushing plug to flush out the inside of the motor with water. Be sure to seal the cooling water intake and secondary water intake, located at the gearcase, with tape.

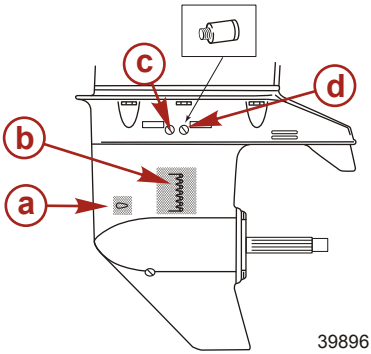
3. Be sure to secure the water strainer and sub-water strainer on the gearcase beforehand.



40/50

a - Flushing attachment (optional)
b - Wash plug
c - Oil plug
d - Tape (for flushing with screw in attachment)

4. With the shift lever in Neutral (N), run the engine at a low speed so that water flushes out the cooling system to remove seawater and mud.



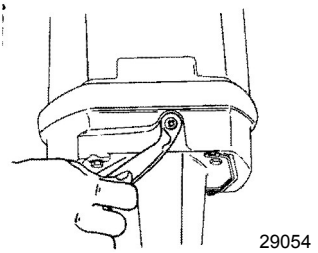
W50

a - Tape
b - Tape (for flushing with screw in attachment)
c - Oil plug
d - Flushing attachment (optional)

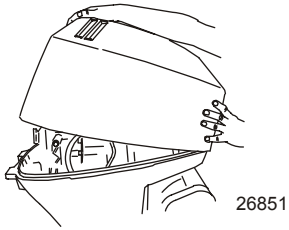
Top Cowl Removal and Installation

REMOVAL

1. Unlock the rear latch by pushing lever down.



2. Lift rear of cowl and disengage front hook.



INSTALLATION

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

Battery Inspection

The battery should be inspected at periodic intervals to ensure proper engine starting capability.

IMPORTANT: Read the safety and maintenance instructions which accompany your battery.

1. Turn off the engine before servicing the battery.
2. Ensure the battery is secure against movement.
3. Battery cable terminals should be clean, tight, and correctly installed. Positive to positive and negative to negative.
4. Ensure the battery is equipped with a nonconductive shield to prevent accidental shorting of battery terminals.

Fuel System

⚠ WARNING

Fuel is flammable and explosive. Ensure that the key switch is off and the lanyard is positioned so that the engine cannot start. Do not smoke or allow sources of spark or open flame in the area while servicing. Keep the work area well ventilated and avoid prolonged exposure to vapors. Always check for leaks before attempting to start the engine, and wipe up any spilled fuel immediately.

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

FUEL LINE INSPECTION

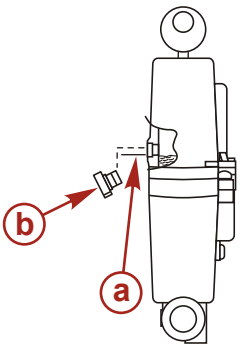
Visually inspect the fuel line and primer bulb for cracks, swelling, leaks, hardness, or other signs of deterioration or damage. If any of these conditions are found, the fuel line or primer bulb must be replaced.

ENGINE FUEL FILTER

Inspect the sight bowl for water accumulation and inspect the filter element for sediment. Clean the tank and filters as follows.

CHECKING AND REFILLING OIL IN THE POWER TRIM AND TILT

1. Check the oil level of the reservoir tank, as shown, while the engine is kept in a vertical position.
2. Remove the oil plug by turning counterclockwise, then check if the oil level reaches the bottom line of the plug hole.

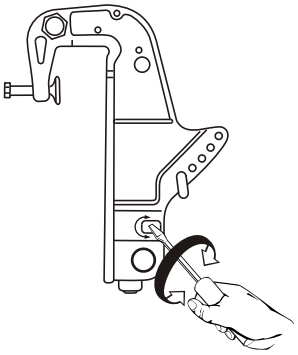


a - Oil cap
b - Oil level

NOTE: *Do not fully unscrew the oil plug with the engine tilted down. Pressurized oil in the oil tank may spurt out.*

3. Recommended oil: Add Mercury or Quicksilver Power Trim and Steering Fluid. If not available, use automotive automatic transmission fluid (ATF).

4. Air purging from the power trim and tilt unit: Entrapped air in the power trim and tilt unit will cause poor tilting movement. With the engine mounted on the boat, set the manual release valve to the manual side, and tilt the engine manually up/down 5–6 times while checking the oil level. When done, close the valve by turning towards the power side.

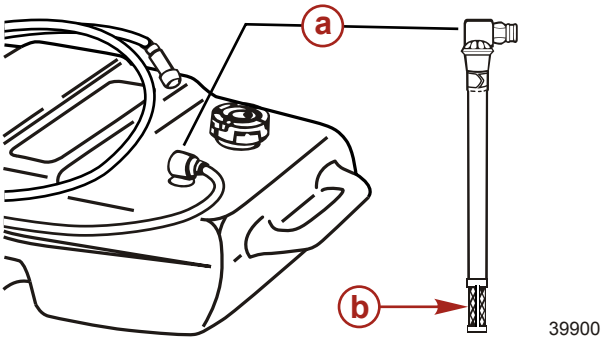


CLEANING FUEL TANKS AND FILTERS

1. Water or dirt in the fuel tank may cause engine trouble.
2. Clean the tank at specified times or after a long storage period (over three months).

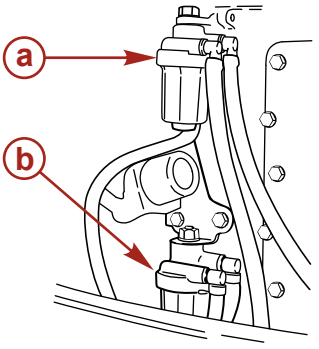
Fuel filters are provided inside the fuel tank and at the engine.

1. Loosen a fuel pickup elbow and remove it. Then clean the fuel filter.



a - Fuel pickup elbow
b - Filter

2. Clean the fuel filter on the engine after removing the fuel filter cases.



a - Oil filter
b - Fuel filter

3. Oil filter and oil tank: Check the oil tank and/or filter for entrapped water and dust.
   a. Disconnect all hoses between the oil tank and oil pump.
   b. Clean out all the foreign debris.
   c. Refit the hoses to the oil tank and pumps, and fill up with new engine oil.
   d. For air purging, refer to **Fuel & Oil - Oil pump vent**.

Fuse Replacement - Electric Start Remote Control Models

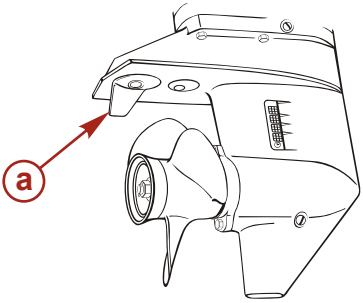
IMPORTANT: Always carry spare SFE 20 amp fuses.

The electric starting circuit is protected from overload by an SFE 20 amp fuse. If the fuse is blown, the electric starter motor will not operate. Try to locate and correct the cause of the overload. If the cause is not found, the fuse may blow again. Replace fuse with a fuse of the same rating.

Corrosion Control Anode

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

The anode requires periodic inspection, especially in 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.



37879

a - Anode (trim tab)

Important:

- **Before replacing the anode, remove the spark plug cap to make sure the engine will not start, then check and replace the anode.**
- **If the anode is worn out or no anode is fitted on the outboard motor, aluminum parts will corrode more rapidly which can cause paint to peel off and damage the surface.**

Propeller Replacement

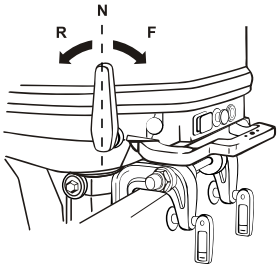
⚠ WARNING

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.

REMOVING PROPELLER

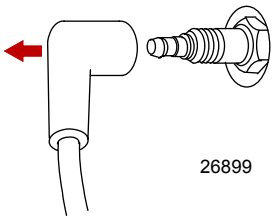
1. Remote control model: Shift outboard to Neutral (N) position.

2. Tiller handle model: Move shift lever to Neutral (N) position.

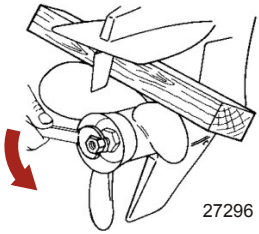


38347

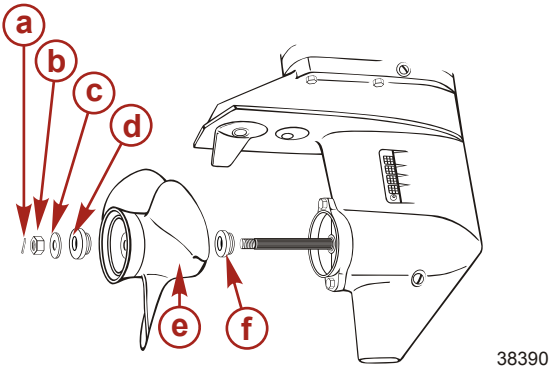
3. Remove the spark plug leads to prevent the engine from starting.


26899

4. Place a block of wood between the gearcase and propeller to hold the propeller.


27296

5. Remove the cotter pin, propeller nut, stopper, and washer.

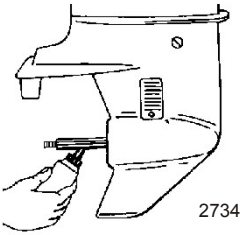


a - Cotter pin
b - Nut
c - Washer
d - Stopper
e - Propeller
f - Propeller thrust holder

6. Pull propeller straight off the propeller shaft. If the propeller is seized to the propeller shaft and cannot be removed, have the propeller removed by an authorized dealer.
7. Coat the propeller shaft with Quicksilver or Mercury Precision Lubricants Anti-Corrosion Grease or 2-4-C with Teflon.

Tube Ref No.	Description	Where Used	Part No.
94	Anti-Corrosion Grease	Propeller shaft	92-802867Q 1

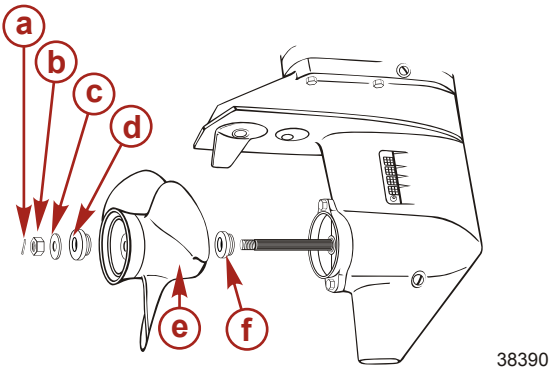
Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with Teflon	Propeller shaft	92-802859A 1



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.

INSTALLING PROPELLER

1. Install the propeller thrust holder, propeller, washer, nut, stopper, and cotter pin onto the propeller shaft.



a - Cotter pin
b - Nut
c - Washer
d - Stopper
e - Propeller
f - Propeller thrust holder

2. Place the propeller nut retainer over the pins. Place a block of wood between the gearcase and propeller. Tighten the propeller nut to the specified torque.

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

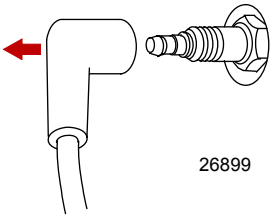
3. Install the spark plug leads.

Spark Plug Inspection and Replacement

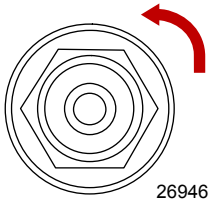
⚠ WARNING

Damaged spark plug boots may emit sparks which 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.

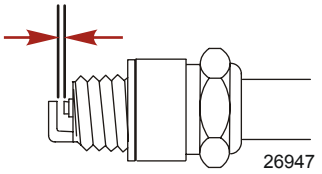
1. Remove the spark plug boots. Twist the rubber boots slightly and pull off.



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



3. Set the spark plug gap (0.9–1.0 mm).



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

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

IMPORTANT: Please follow the instructions below:

- **Do not touch the high tension cables running from the ignition coil to the spark plugs while the engine is running or it is turned by the electric starter motor, not even for testing the high tension cables or the spark plugs.**
- **The high tension cables and the spark plugs generate very high electric voltage, which can cause a serious electric shock if touched.**

Lubrication Points

It is important to inspect and maintain your outboard motor regularly. Maintenance intervals should be determined according to the number of hours or number of months, whichever comes first. For periodic servicing and maintenance guidelines, please contact your local Mercury dealer.

Item	Every 50 hours or 3 months	Every 100 hours or 6 months	Action
Sliding and rotating parts	Yes	Yes	Apply and pump in grease
Grease fittings	Yes	Yes	Apply and pump in grease

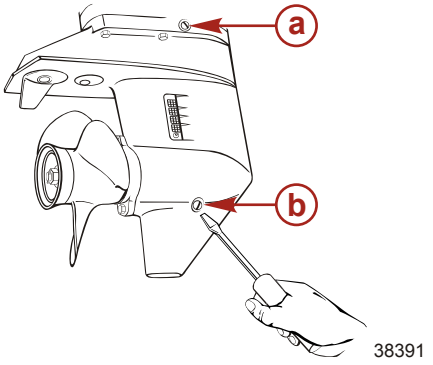
Gearcase Lubrication

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.

Remove the fill/drain plug and examine the magnetic end for metal particles. A small amount of metal filings or fine metal particles indicates normal gear wear. An excessive amount of metal filings or larger particles (chips) may indicate abnormal gear wear and should be checked by an authorized dealer.

CHANGING GEAR OIL

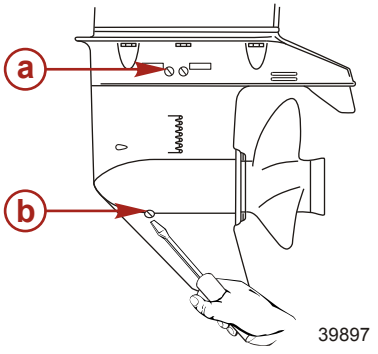
1. Place the outboard in a vertical operating position.
2. Place a drain pan below the outboard.
3. Remove the oil plugs (upper and lower) and drain the gear oil completely.



40/50

a - Vent plug

b - Fill plug

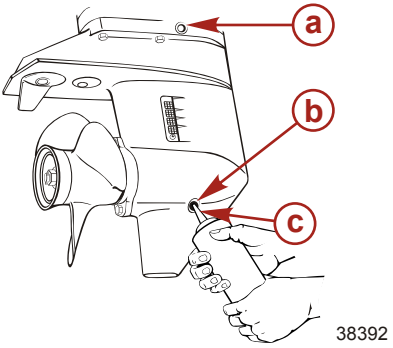


W50

a - Vent plug

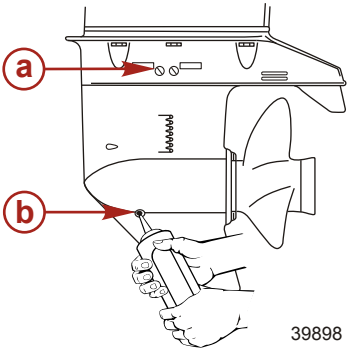
b - Fill plug

4. Place the lubricant tube nozzle into the fill/drain hole and add the lubricant until it appears at the upper oil plug hole.



40/50

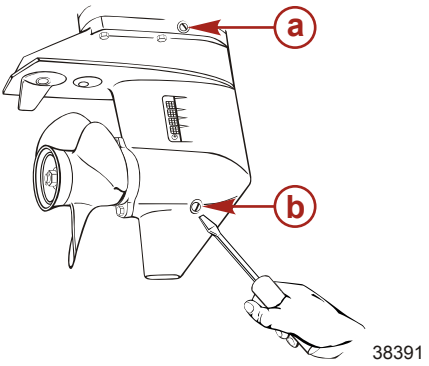
a - Vent plug
b - Fill plug
c - Lubricant tube nozzle



W50

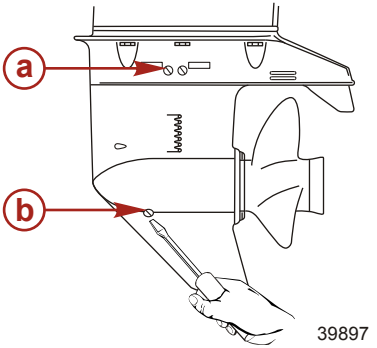
a - Vent plug
b - Fill plug

5. Install the vent plug. Then remove the lubricant tube nozzle and install the fill plug.



40/50

a - Vent plug
b - Fill plug



W50
a - Vent plug
b - Fill plug

NOTE: *Use only genuine or recommended gear oil. If not available, use an API (American Petroleum Institute) oil grade of GL5 SAE #80–SAE #90.*

Required volume		
40/50	Approximation 500 mL	17 fl oz
W50	Approximation 700 mL	24 fl oz

GEARCASE LUBRICANT RECOMMENDATION

Mercury or Quicksilver Premium or High Performance Gear Lubricant.

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.

Following are the emergency measures to be taken on the submerged outboard.

1. Immediately take it out of the water and wash it with fresh water to remove salt or dirt.
2. Remove the spark plugs and completely drain the water from the engine by pulling the rewind starter several times.
3. Sufficiently inject genuine engine oil through the spark plug hole and into the crankcase from the carburetor side. Pull the rewind starter several times to circulate the oil throughout the motor.

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.

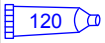
Fill the fuel tank and engine fuel system with treated (stabilized) fuel to help prevent formation of varnish and gum. Proceed with the following instructions.

- Portable fuel tank - Pour the required amount of gasoline stabilizer (follow instructions on container) into fuel tank. Tip fuel tank back and forth to mix stabilizer with the fuel.
- Permanently installed fuel tank - Pour the required amount of gasoline stabilizer (follow instructions on container) into a separate container and mix with approximately 1 liter (1 U.S. quart) of gasoline. Pour this mixture into fuel tank.
- Place the outboard in water or connect flushing attachment for circulating cooling water. Run the engine for ten minutes to fill the engine fuel system.

Flushing Device	91-44357Q 2
 9192	Attaches to the water intakes; provides a fresh water connection when flushing the cooling system or operating the engine.

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 or connect flushing attachment for circulating cooling water. Start the engine and let it run in neutral to warm up.
- With engine running at fast idle, stop the fuel flow by disconnecting the remote fuel line. 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 plugs 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.

Battery Storage

- Follow the battery manufacturer's instructions for storage and recharging.
- Remove the battery from the boat and check water level. Recharge if necessary.
- Store the battery in a cool, dry place.
- Periodically check the water level and recharge the battery during storage.

Pre-Season Check

Have your dealer check the engine before the season starts, or if you prefer, be sure to check the following items yourself:

- Check the electrolyte level, and measure the voltage and specific gravity of the battery.

Specific Gravity at 20 °C	Terminal Voltage (V)	Charge Condition
1.120	10.5	Fully discharged
1.160	11.1	1/4 charged

Specific Gravity at 20 °C	Terminal Voltage (V)	Charge Condition
1.210	11.7	1/2 charged
1.250	12.0	3/4 charged
1.280	13.2	Fully charged

- Check that the battery is secure and the battery cables are installed properly.
- Clean the engine oil filter.
- Purge air in the oil line connecting the oil tank to the oil pump.
- Check the shift and throttle function properly. Be sure to turn the propeller shaft when checking the shift function or else the shift linkage may be damaged.

TROUBLESHOOTING

Starter Motor Will Not Crank the Engine (Electric Start Models)

POSSIBLE CAUSES

- Remote control models - Blown 20 amp fuse in the starting circuit. Refer to **Maintenance** section.
- Outboard is not shifted to neutral position.
- Weak battery or battery connections are loose or corroded.
- Ignition key switch failure.
- Wiring or electrical connection faulty.
- Starter motor or starter solenoid failure.

Engine Will Not Start

POSSIBLE CAUSES

- Lanyard stop switch not in "RUN" position.
- Incorrect starting procedure. Refer to **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 line is disconnected or kinked.
  d. Primer bulb not squeezed.
  e. Primer bulb check valve is faulty.
  f. Fuel filter is obstructed. Refer to **Maintenance** section.
  g. Fuel pump failure.
  h. Fuel tank filter obstructed.
- Ignition system component failure.
- Spark plugs fouled or defective. Refer to **Maintenance** section.

Engine Runs Erratically

POSSIBLE CAUSES

- Spark plugs fouled or defective. Refer to **Maintenance** section.

- Incorrect setup and adjustments.
- Fuel is being restricted to the engine.
  - Engine fuel filter is obstructed. Refer to **Maintenance** section.
  - Fuel tank filter obstructed.
  - Stuck anti-siphon valve on built in fuel tank.
  - Fuel line is kinked or pinched.
- Fuel pump failure.
- Ignition system component failure.

Performance Loss

POSSIBLE CAUSES

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

Battery Will Not Hold Charge

POSSIBLE CAUSES

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

Associated Parts

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

Name		Quantity	Dimensions	
Service tools	Tool bag	1		
	Pliers	1		
	Socket wrench	1	10 x 13 mm	
	Socket wrench	1	21 mm	
	Socket wrench handle	1		
	Screwdriver (phillips and flat head)	1		
Spare parts	Starter rope	1	1600 mm	
	Spark plug	2	40: NGK B7HS-10	
		2	50: NGK B7HS-10	
	Cotter pin	1	Diameter x length - 3 x 25 mm	
Other*	Bracket fixing bolts	4	12 mm	
	Bracket fixing nuts	4	12 mm	
	Washers A, B	4 each	A = large, B = small	
	Fuel tank (with primer bulb)	1		
	Remote control box	1		For EO and EPTO type
	Steering link	1		
	Tachometer	1		
	Trim gauge	1	EPTO type only	
	Lead wire for gauge	1		

NOTE: ** Not included as standard accessories in some markets.*

Propeller Selection

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.

A propeller must be selected so that the engine RPM measured at wide open throttle while cruising is within the recommended range.

40	5000–5700 RPM
50	5150–5850 RPM

Lower numbers indicates heavier load and higher numbers indicates lighter load

Mark	40	50
*7		
8.5		
9		
10		
11		
12	XL transom	
C 12.5	SL transom	XL transom
13		
C 13.5		SL transom
14		
C 14.5		
C 16		

NOTE: ** Shows propeller with four blades.*

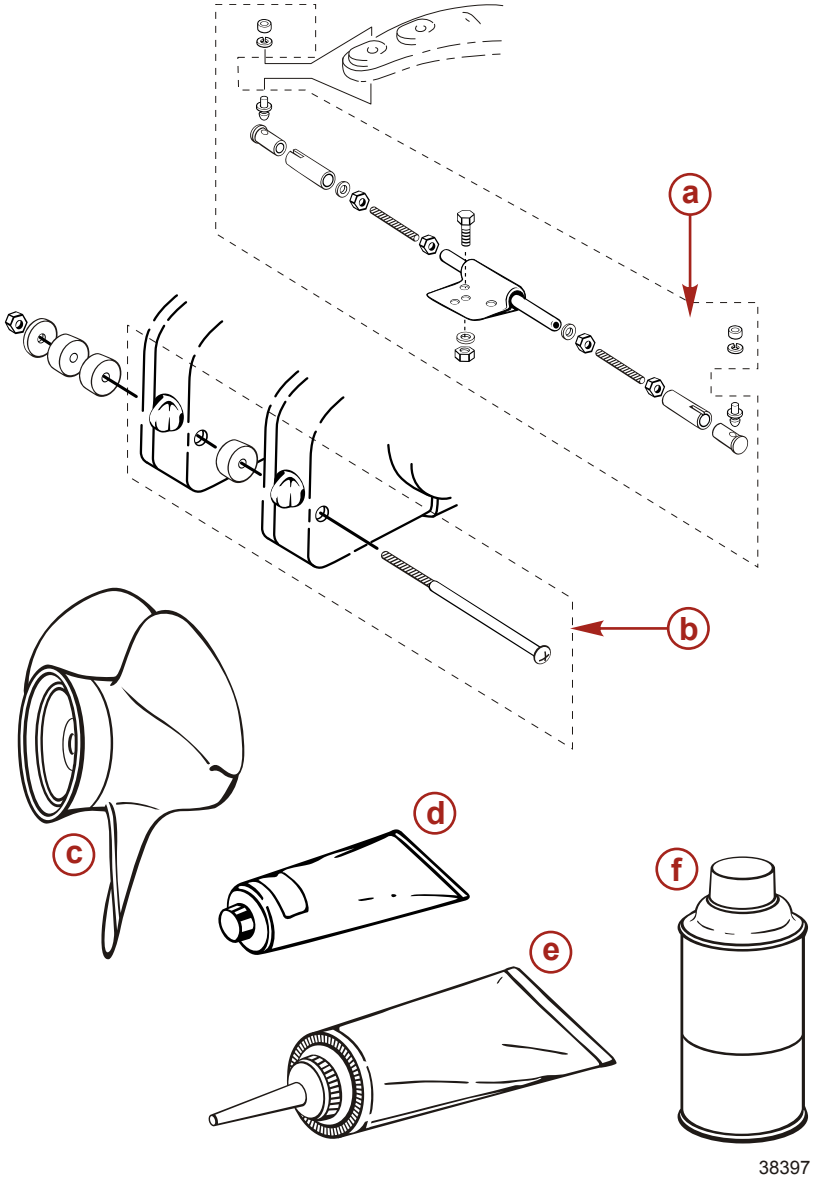
ASSOCIATED PARTS

Mark	W50
9	
10	
11	
12	L transom
13	
14	
15	
16.5	
17.5	

NOTE:

ACCESSORIES

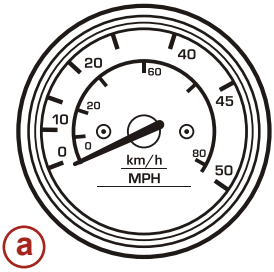
Optional Accessories



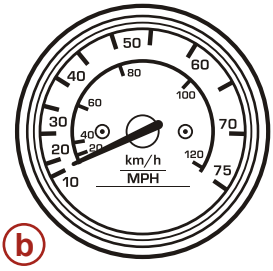
ACCESSORIES

a - Tie bar kit B (for twin - engine operation)
b - Twin - control kit (for twin - engine operation)
c - Propeller
d - Grease
e - Gear oil (500 ml)
f - Touch-up spray

ACCESSORIES



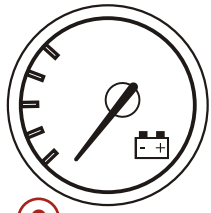
a



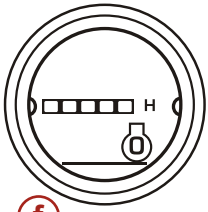
b

c

d

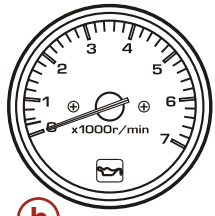


e

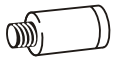


f

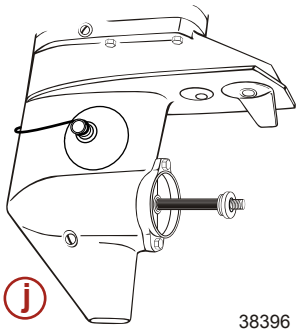
g



h



i



j

38396

a - Speedometer (50 mph)
b - Speedometer (75 mph)
c - Water pressure gauge

ACCESSORIES

d - Water temperature gauge
e - Voltmeter
f - Hour meter (engine operation hour counter)
g - Fuel gauge
h - Tachometer
i - Flushing attachment
j - Drive cleaner

OWNER SERVICE ASSISTANCE

Local Repair Service

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

Service Away from Home

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

Parts and Accessories Inquiries

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

Service Assistance

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

1. Talk with the dealership's sales manager or service manager. If this has already been done, then contact the owner of the dealership.
2. Should you have a question, concern, or problem that cannot be resolved by your dealership, please contact Mercury Marine Service Office for assistance. Mercury Marine will work with you and your dealership to resolve all problems.

The following information will be needed by the service office:

- Your name and address
- Daytime telephone number

OWNER SERVICE ASSISTANCE

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

Mercury Marine Service Offices

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

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

Australia, Pacific		
Telephone	(61) (3) 9791-5822	Brunswick Asia Pacific Group 132-140 Frankston Road Dandenong, Victoria 3164 Australia
Fax	(61) (3) 9706-7228	

Europe, Middle East, Africa		
Telephone	(32) (87) 32 • 32 • 11	Brunswick Marine Europe Parc Industriel de Petit-Rechain B-4800 Verviers, Belgium
Fax	(32) (87) 31 • 19 • 65	

Mexico, Central America, South America, Caribbean		
Telephone	(954) 744-3500	Mercury Marine 11650 Interchange Circle North Miramar, FL 33025 U.S.A.
Fax	(954) 744-3535	

Japan		
Telephone	072-233-8888	Kisaka Co., Ltd. 4-130 Kannabecho Sakai-shi Sakai-ku 5900984 Osaka, Japan
Fax	072-233-8833	

OWNER SERVICE ASSISTANCE

Asia, Singapore		
Telephone	5466160	Mercury Marine Singapore 72 Loyang Way Singapore, 508762
Fax	5467789	

Wiring Diagrams

1. Pulser coil assembly
2. Alternator
3. Exciter coil
4. CD unit
5. Ignition coil
6. Rectifier
7. Starter motor
8. Starter solenoid
9. Power trim and tilt
10. Power trim and tilt solenoid switch A
11. Power trim and tilt solenoid switch B
12. Trim sender
13. Fuse
14. Choke solenoid
15. Oil level sensor
16. Overheat sensor (**optional**)
17. Water temperature sensor
18. Battery cable
19. Harness assembly
20. Harness assembly B
21. Harness assembly C
22. Power trim and tilt switch B
23. Starter cord
24. Solenoid switch harness A
25. Solenoid switch harness B
26. Solenoid switch harness C
27. Battery
28. Main switch
29. Stop switch
30. Overheat buzzer (**optional**)
31. Neutral switch

32. Power trim and tilt switch
33. Tachometer
34. Trim gauge
35. Gauge harness
36. Oil light
37. Low oil light
38. Speedometer
39. Water pressure gauge
40. Hour meter
41. Voltmeter
42. Water temperature gauge
43. Fuel gauge
44. Fuel gauge sender
45. Fuel meter harness
46. Water temperature harness
47. Gauge light switch
48. Harness addapter (black)
49. Harness adapter (red)
50. Harness adapter (blue)

Wire Color Code Abbreviations

Wire Color Abbreviations				
BLK	Black		BLU	Blue
BRN	Brown		GRY	Gray
GRN	Green		ORN or ORG	Orange
PNK	Pink		PPL or PUR	Purple
RED	Red		TAN	Tan
WHT	White		YEL	Yellow
LT or LIT	Light		DK or DRK	Dark