Welcome
You have selected one of the finest marine power packages available. It incorporates numerous design features to ensure operating ease and durability. With proper care and maintenance, you will enjoy using this product for many boating seasons. To ensure maximum performance and carefree use, we ask that you thoroughly read this manual.
The Operation and Maintenance Manual contains specific instructions for using and maintaining your product. We suggest that this manual remain with the product for ready reference whenever you are on the water.
Thank you for purchasing one of our products. We sincerely hope your boating will be pleasant!

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

Name / function:
John Pfeifer, President,
Mercury Marine

Read This Manual Thoroughly
IMPORTANT: If you do not understand any portion of this manual, contact your dealer. Your dealer can also provide a demonstration of actual starting and operating procedures.

Notice
Throughout this publication, and on your power package, warnings, cautions, and notices, accompanied by the International Hazard Symbol, may be used to alert the installer and user to special instructions concerning a particular service or operation that may be hazardous if performed incorrectly or carelessly. Observe them carefully.
These safety alerts alone cannot eliminate the hazards that they signal. Strict compliance with these special instructions while performing the service, plus common sense operation, are major accident prevention measures.

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

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

IMPORTANT: The operator (driver) is responsible for the correct and safe operation of the boat, the equipment aboard, and the safety of all occupants aboard. We strongly recommend that the operator read this Operation and Maintenance Manual and thoroughly understand the operational instructions for the power package and all related accessories before the boat is used.

**WARNING**

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

The serial numbers are the manufacturer’s keys to numerous engineering details that apply to your Mercury Marine power package. When contacting Mercury Marine about service, **always specify model and serial numbers.**

Descriptions and specifications contained herein were in effect at the time this was approved for printing. Mercury Marine, whose policies are based on continuous improvement, reserves the right to discontinue models at any time or to change specifications or designs without notice and without incurring obligation.

**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 Manual included with the product. The Warranty Manual 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.

**Copyright and Trademark Information**

© MERCURY MARINE. All rights reserved. Reproduction in whole or in part without permission is prohibited.

Alpha, Axius, Bravo One, Bravo Two, Bravo Three, Circle M with Waves Logo, K-planes, Mariner, Mercathode, Mercruiser, Mercury, Mercury with Waves Logo, Mercury Marine, Mercury Precision Parts, Mercury Propellers, Mercury Racing, MotorGuide, OptiMax, Quicksilver, SeaCore, Skyhook, SmartCraft, Sport-Jet, Verado, VesselView, Zero Effort, Zeus, #1 On the Water and We’re Driven to Win are registered trademarks of Brunswick Corporation. Pro XS is a trademark of Brunswick Corporation. Mercury Product Protection is a registered service mark of Brunswick Corporation.
<table>
<thead>
<tr>
<th>Identification Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please record the following applicable information:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outboard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Model and Horsepower</td>
</tr>
<tr>
<td>Engine Serial Number</td>
</tr>
<tr>
<td>Gear Ratio</td>
</tr>
<tr>
<td>Propeller Number</td>
</tr>
<tr>
<td>Hull Identification Number (HIN)</td>
</tr>
<tr>
<td>Boat Manufacturer</td>
</tr>
<tr>
<td>Exhaust Gas Emissions Certification Number (Europe Only)</td>
</tr>
<tr>
<td>General Information</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Boater’s Responsibilities</td>
</tr>
<tr>
<td>Before Operating Your Outboard</td>
</tr>
<tr>
<td>Boat Horsepower Capacity</td>
</tr>
<tr>
<td>Outboard Remote Control Models</td>
</tr>
<tr>
<td>Remote Steering Notice</td>
</tr>
<tr>
<td>Lanyard Stop Switch</td>
</tr>
<tr>
<td>Protecting People in the Water</td>
</tr>
<tr>
<td>Passenger Safety Message - Pontoon Boats and Deck Boats</td>
</tr>
<tr>
<td>Wave and Wake Jumping</td>
</tr>
<tr>
<td>Impact with Underwater Hazards</td>
</tr>
<tr>
<td>Safety Instructions for Hand-Tilled Outboards</td>
</tr>
<tr>
<td>Exhaust Emissions</td>
</tr>
<tr>
<td>Selecting Accessories for Your Outboard</td>
</tr>
<tr>
<td>Safe Boating Recommendations</td>
</tr>
<tr>
<td>Recording Serial Number</td>
</tr>
<tr>
<td>Specifications</td>
</tr>
<tr>
<td>Component Identification</td>
</tr>
<tr>
<td>Associated Parts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transporting</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Removing the Motor</td>
<td>26</td>
</tr>
<tr>
<td>Carrying the Motor</td>
<td>26</td>
</tr>
<tr>
<td>Storing the Motor</td>
<td>26</td>
</tr>
<tr>
<td>Trailering Boat/Outboard</td>
<td>27</td>
</tr>
<tr>
<td>Transporting Portable Fuel Tanks</td>
<td>28</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fuel and Oil</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel Requirements</td>
<td>29</td>
</tr>
<tr>
<td>Oil Recommendation</td>
<td>30</td>
</tr>
<tr>
<td>Mixing Fuel and Oil</td>
<td>30</td>
</tr>
<tr>
<td>Engine Break-In</td>
<td>31</td>
</tr>
<tr>
<td>Filling Fuel Tank</td>
<td>31</td>
</tr>
</tbody>
</table>
# Features and Controls

<table>
<thead>
<tr>
<th>Feature</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote Control Features</td>
<td>32</td>
</tr>
<tr>
<td>Tilt Up and Tilt Down</td>
<td>32</td>
</tr>
<tr>
<td>Shallow Water Operation</td>
<td>34</td>
</tr>
<tr>
<td>Trim Angle Adjustment</td>
<td>35</td>
</tr>
<tr>
<td>Steering Friction Adjustment</td>
<td>36</td>
</tr>
<tr>
<td>Throttle Grip Turning Friction Adjustment</td>
<td>37</td>
</tr>
<tr>
<td>Trim Tab Adjustment</td>
<td>37</td>
</tr>
</tbody>
</table>

# Operation

<table>
<thead>
<tr>
<th>Operation</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prestarting Check List</td>
<td>40</td>
</tr>
<tr>
<td>Operating in Freezing Temperatures</td>
<td>40</td>
</tr>
<tr>
<td>Operating in Saltwater or Polluted Water</td>
<td>40</td>
</tr>
<tr>
<td>Operating at High Elevations</td>
<td>41</td>
</tr>
<tr>
<td>Operating Outboard as an Auxiliary Engine</td>
<td>41</td>
</tr>
<tr>
<td>Prestarting Instructions</td>
<td>41</td>
</tr>
<tr>
<td>Engine Break-In Procedure</td>
<td>42</td>
</tr>
<tr>
<td>Warming Up the Engine</td>
<td>43</td>
</tr>
<tr>
<td>Starting the Engine</td>
<td>44</td>
</tr>
<tr>
<td>Gear Shifting</td>
<td>47</td>
</tr>
<tr>
<td>Stopping the Engine</td>
<td>49</td>
</tr>
<tr>
<td>Emergency Starting</td>
<td>51</td>
</tr>
</tbody>
</table>

# Maintenance

<table>
<thead>
<tr>
<th>Maintenance</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outboard Care</td>
<td>53</td>
</tr>
<tr>
<td>Inspection and Maintenance Schedule</td>
<td>53</td>
</tr>
<tr>
<td>Flushing the Cooling System</td>
<td>54</td>
</tr>
<tr>
<td>Top Cowl Removal and Installation</td>
<td>56</td>
</tr>
<tr>
<td>Battery Inspection</td>
<td>56</td>
</tr>
<tr>
<td>Fuel System</td>
<td>57</td>
</tr>
<tr>
<td>Exterior Care</td>
<td>58</td>
</tr>
<tr>
<td>Fuse Replacement - Electric Start Remote Control Models</td>
<td>58</td>
</tr>
<tr>
<td>Replacing the Anodes</td>
<td>59</td>
</tr>
<tr>
<td>Propeller Replacement</td>
<td>60</td>
</tr>
<tr>
<td>Spark Plug Inspection and Replacement</td>
<td>63</td>
</tr>
<tr>
<td>Lubrication Points</td>
<td>64</td>
</tr>
<tr>
<td>Changing Gear Oil</td>
<td>64</td>
</tr>
<tr>
<td>Submerged Outboard</td>
<td>65</td>
</tr>
</tbody>
</table>
## Storage

- Preseason Check............................................................................................. 66
- Storage Preparation.......................................................................................... 66
- Protecting External Outboard Components...................................................... 67
- Protecting Internal Engine Components........................................................... 67
- Gearcase.......................................................................................................... 67
- Positioning Outboard for Storage..................................................................... 67
- Battery Storage................................................................................................. 68

## Troubleshooting

- Starter Motor Will Not Crank the Engine (Electric Start Models)...................... 69
- Engine Will Not Start......................................................................................... 69
- Engine Runs Erratically.................................................................................... 69
- Performance Loss............................................................................................. 70
- Battery Will Not Hold Charge............................................................................ 70

## Owner Service Assistance

- Service Assistance........................................................................................... 71
- Ordering Literature............................................................................................ 73

## Installation

- Mercury Marine Validated Engine Mounting Hardware.................................... 75
- Installing Outboard............................................................................................ 75
- Installing the Remote Control Devices.............................................................. 77
- Wire Color Code Abbreviations........................................................................ 82
- Battery Installation............................................................................................ 83
- Propeller Selection............................................................................................ 84

## Accessories

- Propeller Table................................................................................................. 85
- Accessories...................................................................................................... 86
### Wiring Diagrams

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>MH Models</td>
<td>88</td>
</tr>
<tr>
<td>EH Models</td>
<td>90</td>
</tr>
<tr>
<td>E Models</td>
<td>92</td>
</tr>
<tr>
<td>Single Remote Control Box</td>
<td>94</td>
</tr>
</tbody>
</table>

### Maintenance Log

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance Log</td>
<td>96</td>
</tr>
</tbody>
</table>
Boater's Responsibilities

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

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

Before Operating Your Outboard

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

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

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

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicates a hazardous situation which, if not avoided, could result in death or serious injury.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicates a situation which, if not avoided, could result in engine or major component failure.</td>
</tr>
</tbody>
</table>

Boat Horsepower Capacity

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>
**GENERAL INFORMATION**

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

<table>
<thead>
<tr>
<th>U.S. COAST GUARD CAPACITY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXIMUM HORSEPOWER</td>
<td>XXX</td>
</tr>
<tr>
<td>MAXIMUM PERSON CAPACITY (POUNDS)</td>
<td>XXX</td>
</tr>
<tr>
<td>MAXIMUM WEIGHT CAPACITY</td>
<td>XXX</td>
</tr>
</tbody>
</table>

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.

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.

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.
A decal near the lanyard stop switch is a visual reminder for the operator to attach the lanyard to their personal flotation device (PFD) or wrist.
The lanyard cord is 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 clip on the other end for attaching to the operator's PFD or wrist. 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.

Read the following Safety Information before proceeding.

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

While activation of the lanyard stop switch will stop the engine immediately, a boat will continue to coast for some distance depending upon the velocity and degree of any turn at shut down. However, the boat will not complete a full circle. While the boat is coasting, it can cause injury to anyone in the boat's path as seriously as the boat would when under power.

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 (if the operator is accidentally ejected).

⚠️ WARNING

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

⚠️ WARNING

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

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

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

KEEP THE LANYARD STOP SWITCH AND LANYARD CORD IN GOOD OPERATING CONDITION

Before each use, check to ensure the lanyard stop switch works properly. Start the engine and stop it by pulling the lanyard cord. If the engine does not stop, have the switch repaired before operating the boat.

Before each use, visually inspect the lanyard cord to ensure it is in good working condition and that there are no breaks, cuts, or wear to the cord. Check that the clips on the ends of the cord are in good condition. Replace any damaged or worn lanyard cords.
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 THE BOAT IS STATIONARY

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

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

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 enters the water.

The primary concern is the boat changing direction while in the midst of the jump. In such case, the landing may cause the boat to 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.
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.

Safety Instructions for Hand-Tilled Outboards

No person or cargo should occupy the area directly in front of the outboard while the boat is in motion. If an underwater obstacle is struck, the outboard will tilt up and could seriously injure anyone occupying this area.

MODELS WITH CLAMP SCREWS:

Some outboards come with transom bracket clamp screws. The use of clamp bracket screws alone, is insufficient to properly and safely secure the outboard to the transom. Proper installation of the outboard includes bolting the engine to the boat through the transom. Refer to Installation - Installing Outboard for more complete installation information.

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.

If an obstacle is struck at planing speed and the outboard is not securely fastened to the transom, it is possible the outboard could lift off the transom and land in the boat.

Exhaust Emissions

BE ALERT TO CARBON MONOXIDE POISONING

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

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

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

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

Example of desired air flow through the boat

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

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

WHILE BOAT IS STATIONARY

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

a - Running the boat with the trim angle of the bow too high

b - Running the boat with no forward hatches open

Selecting Accessories for Your Outboard

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

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

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

Safe Boating Recommendations

To safely enjoy the waterways, familiarize yourself with local and all other governmental boating regulations and restrictions and consider the following suggestions.

Know and obey all nautical rules and laws of the waterways.

- We recommend that all powerboat operators complete a boating safety course. In the U.S., the U.S. Coast Guard Auxiliary, the Power Squadron, the Red Cross, and your state or provincial boating law enforcement agency provide courses. For more information in the U.S., call the Boat U.S. Foundation at 1-800-336-BOAT (2628).

Perform safety checks and required maintenance.

- Follow a regular schedule and ensure that all repairs are properly made.

Check safety equipment onboard.

- Here are some suggestions of the types of safety equipment to carry when boating:
  - Approved fire extinguishers
  - Signal devices: flashlight, rockets or flares, flag, and whistle or horn
  - Tools necessary for minor repairs
GENERAL INFORMATION

- Anchor and extra anchor line
- Manual bilge pump and extra drain plugs
- Drinking water
- Radio
- Paddle or oar
- Spare propeller, thrust hubs, and an appropriate wrench
- First aid kit and instructions
- Waterproof storage containers
- Spare operating equipment, batteries, bulbs, and fuses
- Compass and map or chart of the area
- Personal flotation device (one per person onboard)

Watch for signs of weather change and avoid foul weather and rough-sea boating.

Tell someone where you are going and when you expect to return.

Passenger boarding.
- Stop the engine whenever passengers are boarding, unloading, or are near the back (stern) of the boat. Shifting the drive unit into neutral is not sufficient.

Use personal flotation devices.
- Federal law requires that there be a U.S. Coast Guard-approved life jacket (personal flotation device), correctly sized and readily accessible for every person onboard, plus a throwable cushion or ring. We strongly advise that everyone wear a life jacket at all times while in the boat.

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

Do not overload your boat.
- Most boats are rated and certified for maximum load (weight) capacities (refer to your boat's capacity plate). Know your boat's operating and loading limitations. Know if your boat will float if it is full of water. When in doubt, contact your authorized Mercury Marine dealer or the boat manufacturer.

Ensure that everyone in the boat is properly seated.
GENERAL INFORMATION

- Do not allow anyone to sit or ride on any part of the boat that was not intended for such use. This includes the backs of seats, gunwales, transom, bow, decks, raised fishing seats, and any rotating fishing seat. Passengers should not sit or ride anywhere that sudden unexpected acceleration, sudden stopping, unexpected loss of boat control, or sudden boat movement could cause a person to be thrown overboard or into the boat. Ensure that all passengers have a proper seat and are in it before any boat movement.

Never operate a boat while under the influence of alcohol or drugs. It is the law.
- Alcohol or drugs can impair your judgment and greatly reduce your ability to react quickly.

Know your boating area and avoid hazardous locations.

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 the boat is above idle or planing transition speed. Watch out for others, the water, and your wake.

Never drive your boat directly behind a water skier.
- Your boat traveling at 40 km/h (25 mph) will overtake a fallen skier who is 61 m (200 ft) in front of you in five 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 attend to 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.
<table>
<thead>
<tr>
<th><strong>GENERAL INFORMATION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial number:</td>
</tr>
<tr>
<td>Model year:</td>
</tr>
<tr>
<td>Model designation:</td>
</tr>
<tr>
<td>Year manufactured:</td>
</tr>
<tr>
<td>Certified Europe Insignia (as applicable):</td>
</tr>
</tbody>
</table>
## General Information

### Specifications

<table>
<thead>
<tr>
<th>MODEL</th>
<th>9.9 MH</th>
<th>9.9 EH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall length</td>
<td>869 mm (34.2 in.)</td>
<td></td>
</tr>
<tr>
<td>Overall width</td>
<td>345 mm (13.6 in.)</td>
<td></td>
</tr>
<tr>
<td>Overall height</td>
<td>S = 1067 mm (42.0 in.)</td>
<td>L = 1194 mm (47.0 in.)</td>
</tr>
<tr>
<td></td>
<td>XL = 1321 mm (52.0 in.)</td>
<td></td>
</tr>
<tr>
<td>Transom height</td>
<td>S = 435 mm (17.1 in.)</td>
<td>L = 562 mm (22.1 in.)</td>
</tr>
<tr>
<td></td>
<td>XL = 689 mm (27.1 in.)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>S 41.0 kg (90.3 lb)</td>
<td>44.0 kg (97.0 lb)</td>
</tr>
<tr>
<td></td>
<td>L 42.0 kg (92.6 lb)</td>
<td>45.0 kg (99.2 lb)</td>
</tr>
<tr>
<td></td>
<td>XL 43.0 kg (94.8 lb)</td>
<td>46.0 kg (101.4 lb)</td>
</tr>
<tr>
<td>Output</td>
<td>7.3 kW</td>
<td></td>
</tr>
<tr>
<td>Maximum operating range</td>
<td>4500–5300 RPM</td>
<td></td>
</tr>
<tr>
<td>Number of cylinders</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Displacement</td>
<td>247 cc</td>
<td></td>
</tr>
<tr>
<td>Bore x stroke</td>
<td>55 x 52 mm (2.1 x 2.0 in.)</td>
<td></td>
</tr>
<tr>
<td>Exhaust system</td>
<td>Through-the-hub exhaust</td>
<td></td>
</tr>
<tr>
<td>Lubrication system</td>
<td>Engine oil mixed gasoline</td>
<td></td>
</tr>
<tr>
<td>Cooling system</td>
<td>Thermostat controlled</td>
<td></td>
</tr>
<tr>
<td>Starting system</td>
<td>Manual</td>
<td>Electric with manual backup</td>
</tr>
<tr>
<td>Ignition</td>
<td>Flywheel magneto CDI</td>
<td></td>
</tr>
<tr>
<td>Spark plugs</td>
<td>NGK B7HS-10/BR7HS-10 or Champion L82C/RL82C</td>
<td>gap 1.0 mm (0.039 in.)</td>
</tr>
<tr>
<td>Trim system</td>
<td>Manual, 6 positions</td>
<td></td>
</tr>
<tr>
<td>Engine oil mixing ratio</td>
<td>Mercury/Quicksilver 2-Stroke engine oil: Unleaded gasoline 1:50</td>
<td></td>
</tr>
<tr>
<td>Gear oil</td>
<td>Mercury/Quicksilver gear oil API GL5, SAE #80–90 approximately 370 mL (12.5 oz)</td>
<td></td>
</tr>
<tr>
<td>Fuel tank capacity</td>
<td>25 Liter (6.6 US gal)</td>
<td></td>
</tr>
<tr>
<td>Gear reduction ratio</td>
<td>13:24 (1.84:1)</td>
<td></td>
</tr>
</tbody>
</table>
### GENERAL INFORMATION

<table>
<thead>
<tr>
<th>MODEL</th>
<th>15 MH</th>
<th>15 EH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall length</td>
<td>869 mm (34.2 in.)</td>
<td></td>
</tr>
<tr>
<td>Overall width</td>
<td>345 mm (13.6 in.)</td>
<td></td>
</tr>
<tr>
<td>Overall height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S = 1067 mm (42.0 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L = 1194 mm (47.0 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XL = 1321 mm (52.0 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transom height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S = 435 mm (17.1 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L = 562 mm (22.1 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XL = 689 mm (27.1 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>41.0 kg (90.3 lb)</td>
<td>44.0 kg (97.0 lb)</td>
</tr>
<tr>
<td>L</td>
<td>42.0 kg (92.6 lb)</td>
<td>45.0 kg (99.2 lb)</td>
</tr>
<tr>
<td>XL</td>
<td>43.0 kg (94.8 lb)</td>
<td>46.0 kg (101.4 lb)</td>
</tr>
<tr>
<td>Output</td>
<td>7.3 kW</td>
<td></td>
</tr>
<tr>
<td>Maximum operating range</td>
<td>5200–5800 RPM</td>
<td></td>
</tr>
<tr>
<td>Number of cylinders</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Displacement</td>
<td>294 cc</td>
<td></td>
</tr>
<tr>
<td>Bore x stroke</td>
<td>55 x 52 mm (2.1 x 2.0 in.)</td>
<td></td>
</tr>
<tr>
<td>Exhaust system</td>
<td>Through-the-hub exhaust</td>
<td></td>
</tr>
<tr>
<td>Lubrication system</td>
<td>Engine oil mixed gasoline</td>
<td></td>
</tr>
<tr>
<td>Cooling system</td>
<td>Thermostat controlled</td>
<td></td>
</tr>
<tr>
<td>Starting system</td>
<td>Manual</td>
<td>Electric with manual backup</td>
</tr>
<tr>
<td>Ignition</td>
<td>Flywheel magneto CDI</td>
<td></td>
</tr>
<tr>
<td>Spark plugs</td>
<td>NGK B7HS-10/BR7HS-10 or Champion L82C/RL82C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>gap 1.0 mm (0.039 in.)</td>
<td></td>
</tr>
<tr>
<td>Trim system</td>
<td>Manual, 6 positions</td>
<td></td>
</tr>
<tr>
<td>Engine oil mixing ratio</td>
<td>Mercury/Quicksilver 2-Stroke engine oil: Unleaded gasoline 1:50</td>
<td></td>
</tr>
<tr>
<td>Gear oil</td>
<td>Mercury/Quicksilver gear oil API GL5, SAE #80–90 approximately 370 mL (12.5 oz)</td>
<td></td>
</tr>
<tr>
<td>Fuel tank capacity</td>
<td>25 Liter (6.6 US gal)</td>
<td></td>
</tr>
<tr>
<td>Gear reduction ratio</td>
<td>13:24 (1.84:1)</td>
<td></td>
</tr>
</tbody>
</table>
## GENERAL INFORMATION

<table>
<thead>
<tr>
<th>MODEL</th>
<th>18 MH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall length</td>
<td>869 mm (34.2 in.)</td>
</tr>
<tr>
<td>Overall width</td>
<td>345 mm (13.6 in.)</td>
</tr>
</tbody>
</table>
| Overall height | S = 1067 mm (42.0 in.)  
L = 1194 mm (47.0 in.)  
XL = 1321 mm (52.0 in.) |
| Transom height | S = 435 mm (17.1 in.)  
L = 562 mm (22.1 in.)  
XL = 689 mm (27.1 in.) |
| Weight | S = 41.0 kg (90.3 lb)  
L = 42.0 kg (92.6 lb)  
XL = 43.0 kg (94.8 lb) |
| Output | 13.2 kW |
| Max operating range | 5200–5800 RPM |
| Number of cylinders | 2 |
| Displacement | 294 cc |
| Bore x stroke | 60 x 52 mm (2.3 x 2.0 in.) |
| Exhaust system | Through-the-hub exhaust |
| Lubrication system | Engine oil mixed gasoline |
| Cooling system | Thermostat controlled |
| Starting system | Manual |
| Ignition | Flywheel magneto CDI |
| Spark plugs | NGK B7HS-10/BR7HS-10 or Champion L82C/RL82C  
gap 1.0 mm (0.039 in.) |
| Trim system | Manual, 6 positions |
| Engine oil mixing ratio | Mercury/Quicksilver 2-Stroke engine oil: Unleaded gasoline  
1:50 |
| Gear oil | Mercury/Quicksilver gear oil API GL5, SAE #80–90  
approximately 370 mL (12.5 oz) |
| Fuel tank capacity | 25 Liter (6.6 US gal) |
| Gear reduction ratio | 13:24 (1.84:1) |
GENERAL INFORMATION

Notes:
MH Models

1 - Tilt handle
2 - Top cowl
3 - Bottom cowl
4 - Reverse lock lever
5 - Water pump indicator hole
6 - Driveshaft housing
7 - Water strainer
8 - Anti-ventilation plate
9 - Anode/trim tab
10 - Secondary water intake
11 - Propeller
12 - Oil drain plug (upper)
13 - Water plug
14 - Oil drain plug (lower)
15 - Starter handle
16 - Shift lever
17 - Stop switch
18 - Starter switch button
19 - Choke knob
20 - Fuel hose connector
21 - Throttle grip
22 - Clamp screws
23 - Transom brackets
24 - Thrust rod
25 - Primer bulb
26 - Fuel pickup elbow
27 - Fuel connector
28 - Fuel tank cap
29 - Air vent screw
30 - Fuel tank
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tilt handle</td>
</tr>
<tr>
<td>2</td>
<td>Top cowl</td>
</tr>
<tr>
<td>3</td>
<td>Bottom cowl</td>
</tr>
<tr>
<td>4</td>
<td>Reverse lock lever</td>
</tr>
<tr>
<td>5</td>
<td>Water pump indicator hole</td>
</tr>
<tr>
<td>6</td>
<td>Driveshaft housing</td>
</tr>
<tr>
<td>7</td>
<td>Water strainer</td>
</tr>
<tr>
<td>8</td>
<td>Anti-ventilation plate</td>
</tr>
<tr>
<td>9</td>
<td>Anode/trim tab</td>
</tr>
<tr>
<td>10</td>
<td>Secondary water intake</td>
</tr>
<tr>
<td>11</td>
<td>Propeller</td>
</tr>
<tr>
<td>12</td>
<td>Oil drain plug (upper)</td>
</tr>
<tr>
<td>13</td>
<td>Water plug</td>
</tr>
<tr>
<td>14</td>
<td>Oil drain plug (lower)</td>
</tr>
<tr>
<td>15</td>
<td>Starter handle</td>
</tr>
<tr>
<td>16</td>
<td>Shift lever</td>
</tr>
<tr>
<td>17</td>
<td>Stop switch</td>
</tr>
<tr>
<td>18</td>
<td>Starter switch button</td>
</tr>
<tr>
<td>19</td>
<td>Choke knob</td>
</tr>
<tr>
<td>20</td>
<td>Fuel hose connector</td>
</tr>
<tr>
<td>21</td>
<td>Throttle grip</td>
</tr>
<tr>
<td>22</td>
<td>Clamp screws</td>
</tr>
<tr>
<td>23</td>
<td>Transom brackets</td>
</tr>
<tr>
<td>24</td>
<td>Thrust rod</td>
</tr>
<tr>
<td>25</td>
<td>Battery cables</td>
</tr>
<tr>
<td>26</td>
<td>Primer bulb</td>
</tr>
<tr>
<td>27</td>
<td>Fuel pickup elbow</td>
</tr>
<tr>
<td>28</td>
<td>Fuel connector</td>
</tr>
<tr>
<td>29</td>
<td>Fuel tank cap</td>
</tr>
<tr>
<td>30</td>
<td>Air vent screw</td>
</tr>
<tr>
<td>31</td>
<td>Fuel tank</td>
</tr>
</tbody>
</table>
GENERAL INFORMATION

E Models

1 - Tilt handle
2 - Top cowl
3 - Bottom cowl
4 - Reverse lock lever
5 - Water pump indicator hole
6 - Driveshaft housing
7 - Water strainer
8 - Anti-ventilation plate
9 - Anode/trim tab
10 - Secondary water intake
11 - Propeller
12 - Oil drain plug (upper)
13 - Water plug
14 - Oil drain plug (lower)
15 - Starter handle
16 - Shift lever
17 - Stop switch (optional)
18 - Starter switch button
19 - Choke knob
20 - Fuel hose connector
21 - Throttle grip
22 - Clamp screws
23 - Transom brackets
24 - Thrust rod
25 - Battery cables
26 - Primer bulb
27 - Fuel pickup elbow
28 - Fuel connector
29 - Fuel tank cap
30 - Air vent screw
31 - Fuel tank
32 - Remote control box
33 - Main switch
34 - Lanyard stop switch
35 - Harness assembly

Associated Parts

<table>
<thead>
<tr>
<th>Name</th>
<th>Qty.</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool bag</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Pliers</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Socket wrench</td>
<td>1</td>
<td>10 x 13 mm</td>
</tr>
<tr>
<td>Socket wrench</td>
<td>1</td>
<td>21 mm</td>
</tr>
<tr>
<td>Socket wrench handle</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Screwdriver</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Screwdriver handle</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Starter rope</td>
<td>1</td>
<td>1000 mm</td>
</tr>
<tr>
<td>Spark plug</td>
<td>1</td>
<td>NGK B7HS-10 or Champion L82C (gap: 1.0 mm)</td>
</tr>
<tr>
<td>Cotter pin</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Fuel tank</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Primer bulb</td>
<td>1 set</td>
<td>E Models only</td>
</tr>
<tr>
<td>Remote control box</td>
<td>1 set</td>
<td>E Models only</td>
</tr>
<tr>
<td>Remote control attachment</td>
<td>1 set</td>
<td>E Models only</td>
</tr>
</tbody>
</table>

* Not included as standard accessories in some markets.
Removing the Motor

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

Carrying the Motor

Be sure to keep the motor in a vertical position whenever you carry the motor.

NOTE: If you carry the motor in a horizontal position, keep the powerhead higher than the propeller.

IMPORTANT: Beware of explosion danger. Spilled and vaporized 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.

Storing the Motor

Keep the motor in a vertical position whenever you store the motor.

NOTE: If you store the motor in a horizontal position, lay the motor down on the ground with the handles facing upward.
TRANSPORTING

Trailering Boat/Outboard

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

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

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.
TRANSPORTING

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 the 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 Requirements

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 will not be covered under the limited warranty.

FUEL RATINGS

Mercury outboard engines will operate satisfactorily with any major brand of unleaded gasoline that meets the following specifications:

USA and Canada - A posted pump octane rating of 87 (R+M)/2, minimum, for most models. Premium gasoline 91 (R+M)/2 octane is also acceptable for most models. Do not use leaded gasoline.

Outside USA and Canada - A posted pump octane rating of 91 RON, minimum, for most models. Premium gasoline (95 RON) is also acceptable for all models. Do not use leaded gasoline.

USING REFORMULATED (OXYGENATED) GASOLINE (USA ONLY)

Reformulated gasoline is required in certain areas of the USA and is acceptable for use in your Mercury Marine engine. The only oxygenate currently in use in the USA is alcohol (ethanol, methanol, or butanol).

GASOLINE CONTAINING ALCOHOL

Bu16 Butanol Fuel Blends

Fuel blends of up to 16.1% butanol (Bu16) that meet the published Mercury Marine fuel rating requirements are an acceptable substitute for unleaded gasoline. Contact your boat manufacturer for specific recommendations on your boat's fuel system components (fuel tanks, fuel lines, and fittings).

Methanol and Ethanol Fuel Blends

IMPORTANT: The fuel system components on your Mercury Marine engine will withstand up to 10% alcohol (methanol or ethanol) content in the gasoline. Your boat's fuel system may not be capable of withstanding the same percentage of alcohol. Contact your boat manufacturer for specific recommendations on your boat's fuel system components (fuel tanks, fuel lines, and fittings).

Be aware that gasoline containing methanol or ethanol may cause increased:

- Corrosion of metal parts
- Deterioration of rubber or plastic parts
- Fuel permeation through the rubber fuel lines
- Likelihood of phase separation (water and alcohol separating from the gasoline in the fuel tank)
**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.

**IMPORTANT:** If you use gasoline that contains or might contain methanol or ethanol, you must increase the frequency of inspection for leaks and abnormalities.

**IMPORTANT:** When operating a Mercury Marine engine on gasoline containing methanol or ethanol, do not store the gasoline in the fuel tank for long periods. Cars normally consume these blended fuels before they can absorb enough moisture to cause trouble; boats often sit idle long enough for phase separation to take place. Internal corrosion may occur during storage if alcohol has washed protective oil films from internal components.

**Oil Recommendation**

<table>
<thead>
<tr>
<th>Recommended Oil</th>
<th>Mercury or Quicksilver Premium 2-Cycle TC-W3 Outboard Oil</th>
</tr>
</thead>
</table>

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

**Mixing Fuel and Oil**

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

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

**OIL/GASOLINE MIXING RATIO CHART**

<table>
<thead>
<tr>
<th>Oil/Gas Ratio</th>
<th>3.8 liters (1 US gal) gas</th>
<th>11.5 liters (3 US gal) gas</th>
<th>23 liters (6 US gal) gas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1:25</strong></td>
<td>148 ml (5 fl oz) oil</td>
<td>473 ml (16 fl oz) oil</td>
<td>946 ml (32 fl oz) oil</td>
</tr>
<tr>
<td><strong>1:50</strong></td>
<td>89 ml (3 fl oz) oil</td>
<td>237 ml (8 fl oz) oil</td>
<td>473 ml (16 fl oz) oil</td>
</tr>
</tbody>
</table>
MIXING PROCEDURE
Pour the full amount of oil, along with one gallon of gasoline, into an approved container. Shake the two together until they are thoroughly mixed. Add the remainder of gasoline and shake container to ensure mixing.

Engine Break-In

ENGINE BREAK-IN FUEL MIXTURE
Use a 1:25 oil/gasoline mixture in the first tank of fuel.

ENGINE BREAK-IN PROCEDURE
Refer to Operation - Engine Break-In Procedure for correct break-in procedure.

Filling Fuel Tank

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

Fill fuel tanks outdoors away from heat, sparks, and open flames.
Always stop engine before refilling tanks.
Do not completely fill the fuel tanks. Leave approximately 10% of the tank volume unfilled. Fuel will expand in volume as its temperature rises and can leak under pressure if the tank is completely filled.

FILLING FUEL TANKS PERMANENTLY INSTALLED
Slowly pour the correct amount of oil along with gasoline as the tank is being filled.

FILLING PORTABLE FUEL TANKS
Remove the portable fuel tanks from the boat to refill them.
Pour the full amount of oil, along with one gallon of gasoline, into the fuel tank. Mix thoroughly, then pour the remainder of gasoline into the tank.

PORTABLE FUEL TANK PLACEMENT IN THE BOAT
Place the fuel tank in the boat so the vent is higher than the fuel level under normal boat operating conditions.
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 handle
b - Throttle only lever
c - Ignition key switch
d - Lanyard stop switch

Tilt Up and Tilt Down

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.

IMPORTANT: When tilting up or down, be careful not to place your hand between the swivel bracket and the stern bracket. Be sure to tilt the outboard down slowly.

NOTE: Stop the engine before tilting up.

1. Stop the engine.
FEATURES AND CONTROLS

2. With the shift lever in Neutral (N) or Forward (F), fully tilt the motor up toward by holding the tilt handle provided at the rear of the upper motor cover.

3. **Tilt up**: Push the reverse lock lever down until it stops. This is the tilt up position.

4. Tilt the engine all the way up until it locks in place.

5. **Tilt down**: Pull the reverse lock lever upward until it stops. This is the tilt down position.

6. Lift the engine up slightly, and then allow gravity to lower it for you.
Shallow Water Operation

IMPORTANT: When in shallow water operation, be careful not to place your hand between the swivel bracket and the stern bracket. Be sure to tilt the outboard down slowly.

NOTE: Slow down to trolling speed, and shift to Neutral (N) before operating in shallow water.

1. Stop the engine.
2. **Tilt up:** Put the reverse lock lever in the tilt up position, and tilt up the engine to put the engine in the shallow water running position.

   ![Diagram](37535)
   - Reverse lock lever

3. **Tilt down:** Pull the reverse lock lever in the tilt down position, slightly lift up the engine, then put it down.

   ![Diagram](39484)
   - Tilt down position
   - Tilt up position
   - Reverse lock lever
FEATURES AND CONTROLS

NOTE: Please follow the instructions below:

• Ensure that the water inlet is submerged at all times and that water is continuously running out of the cooling water check port.

• Be sure to run the engine slowly when using the shallow water drive. Running at higher speed will result in lack of control and may damage the engine.

• Ensure the motor does not strike the bottom, especially when running in reverse. If the motor does strike the bottom while in reverse, the impact is transmitted to the transom, which could damage both the motor and the boat.

Trim Angle Adjustment

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

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

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

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

The trim angle is adjusted by setting the trim position pin in the correct trim position.

TRIM POSITION ADJUSTMENTS

• 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. Furthermore, the bow may sway or the bottom may slam the water while cruising. In this case, decrease the trim angle by setting the trim position pin in a lower position.
FEATURES AND CONTROLS

- **Trim up**: If the trim angle is too small, the bow will enter 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 position.

![Diagram showing correct trim, trim down, trim up, move pin to raise bow up, move pin to lower bow down, and trim position pin.]

- **a** - Correct trim
- **b** - Trim down
- **c** - Trim up
- **d** - Move pin to raise bow up
- **e** - Move pin to lower bow down
- **f** - Trim position pin

**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.

NOTE: The steering adjustment bolt is used to adjust the sliding friction of the steering, but not to correct the steering. If excess tightening is given to the bolt, it may cause damage to the swivel bracket.

Throttle Grip Turning Friction Adjustment

Turn the friction adjustment screw to set and maintain the throttle at desired speed. Turn screw clockwise to tighten friction and turn screw counterclockwise to loosen 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.
FEATURES AND CONTROLS

• If 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: Check for looseness of the bolt and the trim tab at regular intervals. Due to corrosion, the trim tab will wear down over time.

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

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.
REMOTE CONTROL LEVER FRICTION (THROTTLE FRICTION ADJUSTMENT SCREW)

To adjust the friction 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 counterclockwise to decrease it.

- Turn counterclockwise to decrease the friction
- Turn clockwise to increase the friction
- Throttle friction adjustment screw
Prestarting Check List

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

Operating in Freezing Temperatures

When using your outboard or having your outboard moored in freezing or near freezing temperatures, keep the outboard tilted down at all times so the gearcase is submerged. This prevents the trapped water in the gearcase from freezing and causing possible damage to the water pump and other components.

If there is a chance of ice forming on the water, the outboard should be removed and drained completely of water. If ice should form at the water level inside the outboard driveshaft housing, it will block water flow to the engine causing possible damage.

Operating in Saltwater or Polluted Water

We recommend that you flush the internal water passages of your outboard with fresh water after each use in salt or polluted water. This will prevent a buildup of deposits from clogging the water passages. Refer to Maintenance - Flushing the Cooling System.

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

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

Operating Outboard as an Auxiliary Engine

If the outboard is used as an auxiliary engine, stop the engine and tilt the outboard out of the water when using the main power source.

IMPORTANT: The outboard must be restrained from bouncing while operating the boat using the main power source. Bouncing can damage the outboard and boat transom.

Prestarting Instructions

1. Attach the fuel connector to the engine connector. The arrow-mark on the primer bulb should be facing the engine.

---

**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.
2. Loosen the air vent screw on the tank cap.

3. Feed fuel to the carburetor by squeezing the primer bulb until it is firm.

4. Make sure the cooling water intake is submerged.

---

**Engine Break-In Procedure**

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

**ENGINE OIL**

Use Mercury or Quicksilver engine oil or the other recommended oil (TC-W3).
NOTE: Do not mix different brands of oil. The mixing of different brands, or different kinds even if the same brand, may cause gelling, resulting in blockage of filter screens. This may lead to serious engine damage due to the lack of lubrication.

Mixing ratio (1:50): Mercury or Quicksilver engine oil or recommended engine oil (TC-W3), 1:Unleaded gasoline 50.

ENGINE BREAK-IN FUEL MIXTURE
Use a 1:25 oil/gasoline mixture in the first tank of fuel. Use Mercury or Quicksilver engine oil or the recommended oil (TC-W3).

BREAK-IN
Break-in period for 10 hours
Vary the throttle setting during the first hour of operation. During the first hour of operation, avoid remaining at a constant speed for more than two minutes and avoid sustained wide-open throttle.

<table>
<thead>
<tr>
<th>Time</th>
<th>0–9 min.</th>
<th>10–59 min.</th>
<th>1:00–1:59 hrs.</th>
<th>2:00–9:59 hrs.</th>
<th>10 hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of operation</td>
<td>Idling or trolling</td>
<td>Throttle open less than ½ of the way (about 3000 RPM)</td>
<td>Throttle open less than 3/4 of the way (about 4000 RPM)</td>
<td>Throttle open 3/4 of the way (about 4000 RPM)</td>
<td>Normal operating</td>
</tr>
<tr>
<td>Conditions</td>
<td>Cruising at no more than minimum speed</td>
<td>A full-throttle run is allowed for 1 min. every 10 min.</td>
<td>A full-throttle run is allowed for 2 min. every 10 min.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Warming Up the Engine
Warm the engine at low engine speeds for about three minutes. This allows the lubrication oil to circulate to all parts of the engine. Operating the engine without allowing it to warm up, shortens the engine life. Be sure to check that water is coming out of the water pump indicator when warming up the engine.
NOTE: If the engine is operated continuously without water discharging from the water pump indicator or idle hole, the engine may overheat.

![Diagram of water pump indicator and idle hole](image)

**a** - Water pump indicator  
**b** - Idle hole

Engine speeds: Idling speed after warming up.

<table>
<thead>
<tr>
<th>In gear</th>
<th>In Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td>800 RPM</td>
<td>950 RPM</td>
</tr>
</tbody>
</table>

**Starting the Engine**

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

Electric starting outboard models must not be started manually using the starter rope, or run, without having the battery leads connected to a battery. Damage to the charging system could result.

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

1. **MH and EH Models**: Place the shift lever in the Neutral (N) position.

**NOTE**: Be sure that the shift lever is in Neutral (N) when starting the engine. This model is provided with a function that prevents starting in gear.
IMPORTANT: If the motor somehow does start in gear, do not use it. Contact your authorized dealer.

2. Turn the throttle grip until the mark on the grip faces the triangular mark on the steering handle.

3. Pull the choke knob out all the way. The choke operation is not necessary when the engine is warm.

4. **MH models**: Pull the starter handle slowly until you feel resistance. Then pull it quickly.

   a - Pull slowly
   b - Pull quickly
5. **EH Models:** Push the starter switch button.

   ![Starter switch button](39481)

6. Release the button when the engine has started.

   **IMPORTANT:** If the choke knob was used for the engine start, push it back when the engine has started.

7. **E Models:** Insert the main switch key.

8. Set the control lever in the Neutral (N) position. Raise the Neutral (N) warm-up lever.

   ![Control lever](37715)

9. Turn the main switch key to the start position. Then, continuously push the key to operate the choke.
NOTE: Choke operation is not necessary if the engine is warm.

a - Off
b - On
c - Push to operate choke

10. Stop pushing the key when the engine has started. The key returns to the original position automatically.

NOTE: The neutral warm-up lever cannot be raised when the control lever shift is in Forward (F) or Reverse (R).

NOTE: E and EH Models:
• Continuous operation of the starter motor can shorten the life of the battery and the starter motor. Operate the starter motor for a maximum of three seconds. If the engine does not start, wait five seconds before engaging the starter motor again.
• Do not engage the starter motor after the engine has started.

Gear Shifting

IMPORTANT: Observe the following:
• 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.

MH and EH Models
1. Forward: Turn the throttle grip to reduce the engine speed. When the engine reaches trolling speed, quickly pull the shift lever to the Forward (F) position.
2. **Reverse**: As when shifting to Forward (F), reduce the engine speed, when the engine reaches trolling speed, quickly push the shift lever to Reverse (R) position.

   a - Reverse (R)
   b - Forward (F)

**E Models**

1. **Forward**: Quickly push the control lever to the Forward (F) position at 32°, where the gear is connected, while lifting up on the lock button located at the bottom of the control lever grip. Further shifting will open the throttle.

2. **Reverse**: Quickly pull the control lever to the Reverse (R) position at 32°, where the gear is connected, while lifting up on the lock button located at the bottom of the control lever grip. Further shifting will open the throttle.

**NOTE**: The control lever is inoperative unless the neutral warm-up lever is in the fully closed position.
**NOTE:** Do not increase the engine speed unnecessarily when operating the neutral warm-up lever.

a - Fully open  
b - Throttle  
c - Forward (F)  
d - Shift  
e - Neutral (N)  
f - Reverse (R)  
g - Fully closed  
h - Neutral warm-up lever  
i - Lock button

**Stopping the Engine**  
**MH and EH Models**

1. Turn the throttle grip to the low speed position.  
2. Put the shift lever into the Neutral (N) position. Run the engine for 2–3 minutes at idling speed if it has been running at full speed.
3. Push the stop switch to stop the engine.

E Models
1. Put the shift lever into the Neutral (N) position and run the engine for 2–3 minutes at idling speed.
2. Turn the main switch key to the off position or pull out the lanyard stop switch lock.

- Hook
- Off
- On
- Lanyard stop switch lock

IMPORTANT: Please follow the instructions below:
- After stopping the engine, close the air vent screw on the tank cap.
- Disconnect the fuel connector of the engine or the fuel tank.
- Disconnect the battery cable of the EH or E type engine, if the engine will not be used for more than three days.

Emergency Starting
If the starter system fails, use the spare starter rope provided and follow the procedure.
Remove the top cowl and use the spare starter rope provided and follow the procedure.
1. Pull directly on the starter rope by hand.
2. Use a 10 mm socket wrench as a handle on the rope.
OPERATION

⚠️ WARNING

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

⚠️ WARNING

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

Inspection and Maintenance Schedule

DAILY CHECKS
• Check the engine oil level
• Check the lanyard stop switch
• Inspect the fuel system for leaks
• Inspect the engine tightness on the transom
• Check the steering system for binding
• Check the propeller for damage
• Inspect the hydraulic steering fittings and hoses for leaks or signs of damage, if equipped
• Check the hydraulic steering fluid level, if equipped

AFTER EACH USE
• Wash the power package exterior with fresh water
• Flush the outboard cooling system, saltwater or brackish water only

ANNUALLY OR 100 HOURS
• Grease the engine, if applicable
• Change the engine oil and filter, if equipped
• Inspect the thermostat, saltwater or brackish water only
• Add Quickleen to the fuel tank, once per year, per engine
• Apply anti-seize to the spark plug threads
• Replace the gear lubricant
• Inspect the corrosion control anodes
• Replace all filters on the suction side of the fuel system—dealer item
• Lubricate the driveshaft splines—dealer item
• Lubricate the propeller shaft splines—dealer item
• Check the tightness on all the fasteners—dealer item
MAINTENANCE

- Check the torque of the outboard mounting hardware—dealer item
- Check the battery condition and tightness of the battery cable connection—dealer item

THREE YEARS OR 300 HOURS
- Replace the spark plugs
- Replace the water pump impeller—dealer item
- Inspect the carbon fiber reeds—dealer item
- Inspect the wire harness connectors—dealer item
- Check the remote control cable adjustment, if applicable—dealer item
- Replace the high-pressure fuel filter—dealer item
- Replace the accessory drive belt—dealer item
- Check the power trim fluid level—dealer item
- Inspect the engine motor mounts—dealer item

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

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.

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

1. Remove the propeller. Refer to Propeller Replacement. Install the flushing attachment so the rubber cups fit tightly over the cooling water intake.
## MAINTENANCE

<table>
<thead>
<tr>
<th>Flushing Device</th>
<th>91-44357Q 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Flushing Device" /></td>
<td>Attaches to the water intakes; provides a fresh water connection when flushing the cooling system or operating the engine.</td>
</tr>
</tbody>
</table>

2. Attach a water hose to the flushing attachment. Turn on the water and adjust the flow so water is leaking around the rubber cups to ensure the engine receives an adequate supply of cooling water.

3. Start the engine and run it at idle speed in neutral shift position. **IMPORTANT: Do not run the engine above idle when flushing.**

4. Adjust the water flow (if necessary) so excess water continues leaking out from around the rubber cups to ensure the engine is receiving an adequate supply of cooling water.

5. Check for a steady stream of water flowing out of the water pump indicator hole. Continue flushing the outboard for 3 to 5 minutes, carefully monitoring water supply at all times.

6. Stop the engine, turn off the water, and remove the flushing attachment. Install the propeller.
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 filter as follows.

Cleaning the fuel filters and the fuel tank

Fuel filters are provided inside the fuel tank and engine.

1. **Fuel tank filter**: Loosen the fuel pickup elbow shown, remove it and clean the fuel filter.

![Diagram of fuel tank and fuel filter](image)

- **a** - Filter
- **b** - Fuel pickup elbow
2. **Engine filter**: Remove cap, then clean the fuel filter in the engine.

   - **a** - Carburetor
   - **b** - Fuel filter

3. **Fuel tank**: Water or dirt in the fuel tank may cause engine trouble. Clean the tank at specified times or after the motor has been stored for a long period (over three months).

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

**Exterior Care**

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

**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.

Replacing the Anodes

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

Two anodes are fitted at the gearcase and the mount bracket. When the anodes has been eroded more than 2/3, replace it immediately.

IMPORTANT: Please follow the instructions below:
1. Never grease or paint the anode.
2. At each inspection, retighten the anode attaching bolt, as it is likely to be subjected to electrolytic corrosion.
Propeller Replacement

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

1. Shift outboard to Neutral (N) position.

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

3. Place a block of wood between the gearcase and the propeller to hold the propeller and remove the propeller nut.
4. Remove the propeller from the shaft. If the propeller is seized to the shaft and cannot be removed, have the propeller removed by an authorized dealer.

- Cotter pin
- Nut
- Washer
- Propeller
- Thrust hub

5. Coat the propeller shaft with Mercury Extreme Grease or 2-4-C with PTFE.

<table>
<thead>
<tr>
<th>Tube Ref No.</th>
<th>Description</th>
<th>Where Used</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extreme Grease</td>
<td>Propeller shaft</td>
<td>8M0071842</td>
</tr>
<tr>
<td>95</td>
<td>2-4-C with PTFE</td>
<td>Propeller shaft</td>
<td>92-802859A 1</td>
</tr>
</tbody>
</table>

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.
6. Install forward thrust hub, propeller, washer, nut, and cotter pin onto the propeller shaft.

7. Place a block of wood between the gearcase and propeller and tighten the propeller nut.

8. Install the spark plug leads.
MAINTENANCE

Spark Plug Inspection and Replacement

**WARNING**

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

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

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

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

**Spark Plug**

NGK B7HS-10 or BPR7HS-10 or recommended ones (Champion L82 or RL 82C with 1.0 mm gap)

4. Before installing spark plugs, clean off any dirt on the spark plug seats. Install plugs finger-tight, then tighten 1/4 turn or torque to specifications.
<table>
<thead>
<tr>
<th>Description</th>
<th>Nm</th>
<th>lb-in.</th>
<th>lb-ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spark plug</td>
<td>27</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

**Lubrication Points**

Only let an authorized Mercury dealer perform service or maintenance on this product. Be sure to use genuine parts, genuine lubricants, or recommended lubricants.

**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.

4. Insert the oil tube nozzle into the lower oil drain plug hole and fill with gear oil by squeezing the oil tube until oil flows out of the upper plug hole.

5. Install the upper oil drain plug, then remove the oil tube nozzle and install the lower oil drain plug.
MAINTENANCE

IMPORTANT: Use Mercury/Quicksilver gear oil or the recommended one (APL GL-5: SAE #80–#90). Required volume: 370 ml (0.10 US gal).

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.
Preseason Check

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

<table>
<thead>
<tr>
<th>Specific Gravity at 20 °C</th>
<th>Terminal Voltage (V)</th>
<th>Charge Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.120</td>
<td>10.5</td>
<td>Fully discharged</td>
</tr>
<tr>
<td>1.160</td>
<td>11.1</td>
<td>1/4 charged</td>
</tr>
<tr>
<td>1.210</td>
<td>11.7</td>
<td>1/2 charged</td>
</tr>
<tr>
<td>1.250</td>
<td>12.0</td>
<td>3/4 charged</td>
</tr>
<tr>
<td>1.280</td>
<td>13.2</td>
<td>Fully charged</td>
</tr>
</tbody>
</table>

2. Check that the battery is secure and the battery cables are properly installed.

3. Check that 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.

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 the 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. qt) of gasoline. Pour this mixture into the fuel tank.
STORAGE

• Place the outboard in water or connect flushing attachment for circulating cooling water. Run the engine at idle RPM for ten minutes to fill the engine fuel system with stabilized fuel.

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).

<table>
<thead>
<tr>
<th>Tube Ref No.</th>
<th>Description</th>
<th>Where Used</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>Corrosion Guard</td>
<td>External metal surfaces</td>
<td>92-802878 55</td>
</tr>
</tbody>
</table>

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 Changing Gear Oil.

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 charging.
- Remove the battery from the boat and check water level. Charge if necessary.
- Store the battery in a cool, dry place.
- Periodically check the water level and charge the battery during storage.
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.
TROUBLESHOOTING

• 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.
Service Assistance

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

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

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

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

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

REPLACEMENT SERVICE PARTS

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

Marine engines are expected to operate at or near full throttle for most of their lives. They are also expected to operate in both fresh and saltwater environments. These conditions require numerous special parts.
PARTS AND ACCESSORIES INQUIRIES
Direct any inquiries concerning Quicksilver replacement parts and accessories to your local authorized dealer. The dealer has the necessary information to order parts and accessories for you if they are not in stock. Only authorized dealers can purchase genuine Quicksilver parts and accessories from the factory. Mercury Marine does not sell to unauthorized dealers or retail customers. When inquiring about parts and accessories, the dealer requires the **engine model** and **serial numbers** to order the correct parts.

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

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

The following information will be needed by the Customer Service:
- Your name and address
- Your daytime telephone number
- The model and serial numbers of your power package
- The name and address of your dealership
- The nature of the problem

CONTACT INFORMATION FOR MERCURY MARINE CUSTOMER SERVICE
For assistance, call, fax, or write to the geographic office in your area. Please include your daytime telephone number with mail and fax correspondence.

<table>
<thead>
<tr>
<th>United States, Canada</th>
</tr>
</thead>
</table>
| **Telephone**         | **English** +1 920 929 5040 | **Mercury Marine**  
                        | **Français** +1 905 636 4751 | **W6250 Pioneer Road**  
                        |                           | **P.O. Box 1939**  
                        |                           | **Fond du Lac, WI 54936-1939** |
| **Fax**               | **English** +1 920 929 5893  |                           |
                        | **Français** +1 905 636 1704 |                           |
| **Website**           | www.mercurymarine.com       |                           |
### OWNER SERVICE ASSISTANCE

#### Australia, Pacific
<table>
<thead>
<tr>
<th>Telephone</th>
<th>+61 3 9791 5822</th>
<th>Brunswick Asia Pacific Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fax</td>
<td>+61 3 9706 7228</td>
<td>41–71 Bessemer Drive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dandenong South, Victoria 3175</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Australia</td>
</tr>
</tbody>
</table>

#### Europe, Middle East, Africa
<table>
<thead>
<tr>
<th>Telephone</th>
<th>+32 87 32 32 11</th>
<th>Brunswick Marine Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fax</td>
<td>+32 87 31 19 65</td>
<td>Parc Industriel de Petit-Rechain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B-4800 Verviers, Belgium</td>
</tr>
</tbody>
</table>

#### Mexico, Central America, South America, Caribbean
<table>
<thead>
<tr>
<th>Telephone</th>
<th>+1 954 744 3500</th>
<th>Mercury Marine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fax</td>
<td>+1 954 744 3535</td>
<td>11650 Interchange Circle North</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Miramar, FL 33025</td>
</tr>
<tr>
<td></td>
<td></td>
<td>U.S.A.</td>
</tr>
</tbody>
</table>

#### Japan
<table>
<thead>
<tr>
<th>Telephone</th>
<th>+072 233 8888</th>
<th>Kisaka Co., Ltd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fax</td>
<td>+072 233 8833</td>
<td>4-130 Kannabecho, Sakai-ku</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sakai-shi, Osaka 590-0984, Japan</td>
</tr>
</tbody>
</table>

#### Asia, Singapore
<table>
<thead>
<tr>
<th>Telephone</th>
<th>+65 65466160</th>
<th>Brunswick Asia Pacific Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fax</td>
<td>+65 65467789</td>
<td>T/A Mercury Marine Singapore Pte Ltd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>29 Loyang Drive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Singapore, 508944</td>
</tr>
</tbody>
</table>

### Ordering Literature

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

<table>
<thead>
<tr>
<th>Model</th>
<th>Serial Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Horsepower</td>
<td>Year</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### UNITED STATES AND CANADA

For additional literature for your Mercury Marine power package, contact your nearest Mercury Marine dealer or contact:
## OWNER SERVICE ASSISTANCE

<table>
<thead>
<tr>
<th>Mercury Marine</th>
<th>Fax</th>
<th>Mail</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Telephone</strong></td>
<td><strong>Fax</strong></td>
<td><strong>Mail</strong></td>
</tr>
<tr>
<td>(920) 929-5110 (USA only)</td>
<td>(920) 929-4894 (USA only)</td>
<td>Mercury Marine Attn: Publications Department P.O. Box 1939 Fond du Lac, WI 54936-1939</td>
</tr>
</tbody>
</table>

**OUTSIDE THE UNITED STATES AND CANADA**

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

Submit the following order form with payment to:

| Mercury Marine | Attn: Publications Department W6250 Pioneer Road P.O. Box 1939 Fond du Lac, WI 54936-1939 |

**Ship To:** (Copy this form and print or type—This is your shipping label)

- **Name**
- **Address**
- **City, State, Province**
- **ZIP or postal code**
- **Country**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Item</th>
<th>Stock Number</th>
<th>Price</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
</tbody>
</table>

**Total Due** ..
Mercury Marine Validated Engine Mounting Hardware

IMPORTANT: Mercury Marine provides validated fasteners and installation instructions, including torque specifications, with all of our outboards so they can be properly secured to boat transoms. Improper installation of the outboard can cause performance and reliability issues that can lead to safety concerns. Follow all of the instructions relating to the outboard installation. DO NOT mount any other accessory onto the boat with the fasteners provided with the outboard. For example, do not mount tow sport bars or boarding ladders onto the boat using the mounting hardware included with the outboard. Installing other products onto the boat that utilize the outboard mounting hardware will compromise the ability of that hardware to properly and safely secure the outboard to the transom.

Outboards that require validated mounting hardware will have the following decal on the transom clamp.

![WARNING decal](image)

51965

Installing Outboard

NOTE: If outboard is a remote control electric start model, follow instructions in the outboard installation manual (provided with the outboard) for installing remote steering shift and throttle cables and remote wiring harness.

INSTALLING OUTBOARD ON TRANSOM

IMPORTANT: Most boats are rated and certified in terms of their maximum horsepower, 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 unit until it has been securely mounted on the boat in accordance with the instructions below.
1. **Single engine:** Position the outboard motor at the center of the transom. Mount it using a cushioning pad or plate.

![Diagram of single engine installation](image1.png)

2. **Twin engine:** Position the outboard engines approximately 580 mm (22.8 in.) apart, measured from the centerline of each engine, and equal distance (a) from the center of the transom.

![Diagram of twin engine installation](image2.png)

3. **Transom matching:** Be sure that the anti-ventilation plate of the outboard is below the water surface when running with the throttle wide open. If the above condition cannot be met due to the shape of the bottom of the boat, please consult the dealer.

**IMPORTANT:** If the anti-ventilation plate is at a level higher than the bottom of the boat, overheating may occur as a lack of cooling water flow in the cooling systems.
INSTALLATION

4. Clearance between the anti-ventilation plate of the motor and the bottom of the boat must be 30–50 mm (1.2–2 in.). If the height difference exceeds 50 mm (2 in.), engine power performance is likely to be reduced as a result of increased water resistance to the gearcase assembly.

![Diagram showing clearance between anti-ventilation plate and bottom of hull]

5. Fasten the outboard by drilling two 7.9 mm (5/16 in.) holes through the transom using transom clamp holes as a template. Fasten with two bolts, flat washers, and locknuts. The use of clamp bracket screws alone is insufficient to properly and safely secure the outboard to the transom. Use a marine waterproofing sealer in holes and around bolts to make the installation water tight.

![Diagram showing clamp bracket screw]

⚠️ 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.

Installing the Remote Control Devices

It is recommended to consult with your dealer for installation and adjustment of the remote control device.

1. **Installation of the remote control cables (box side):** Follow the instruction sheet provided with the remote control box.
2. **Installation of the remote control box:** Follow the instruction sheet provided with the remote control box.

3. Installing of the remote control cable (engine side) and the harness assembly (wiring harness).
   
a. **Fitting of throttle cable and shift cable guide:**
   
   - **Throttle side:** Attach the throttle cable adapter to the end of the cable and secure it with the nut.

   ![Diagram of throttle cable and shift cable guide]

   - **a** - Cable outer groove
   - **b** - Throttle cable
   - **c** - Nut
   - **d** - Spring
   - **e** - Throttle cable adapter
   - **f** - Ball holder
**INSTALLATION**

- **Shift side:** Attach the shift cable adapter to the end of the cable and secure it with the nut.

![Diagram of cable components](image)

- **Fitting of remote control cable to the engine:**
  - **Throttle side:** Set the throttle cable to the cable clip and connect the throttle cable adapter to the ball joint of the advancer arm.

```plaintext
a - Cable outer groove
b - Shift cable
c - Nut
d - Shift cable adapter
e - Lock pin
f - Spring
g - Spring pin
```


• **Shift side:** Set the shift cable to the cable clip and insert the lock pin at the shift lever fitting hole and turn it 90° to lock it.

---

**Diagram Labels:**

- **a** - Cable of the shift side
- **b** - Lock pin
- **c** - Spring
- **d** - Shift cable adapter
- **e** - Spring pin
- **f** - Shift lever
- **g** - CDU
- **h** - Advancer arm
- **i** - Ball joint
- **j** - Ball hold
- **k** - Throttle cable adapter
- **l** - Spring
- **m** - Washer
- **n** - Grommet is installed on the lower cowl
- **o** - Cable of the throttle side
- **p** - Cable outer groove
INSTALATION

q - Cable clip
r - Lower cowl
s - Clamp
t - Steering hook plate
u - Shift cable clip

NOTE: Put the control lever in the Neutral (N) position and the neutral warm-up lever in the fully closed position.

NOTE: Confirm whether the engine side shift is in gear when shifting the control lever of the remote control box to its first position in Forward (F) or Reverse (R), about 32°, and whether the throttle of the carburetor is fully open when shifting the lever further. Confirm whether the carburetor's throttle is fully closed when the control lever is shifted to the Neutral (N) position. If it is not, adjust the position of the ball holder.

c. Connecting Electrical Harnesses

• Pass the cable assembly from the remote control box through the hole in the lower cowl and connect the electric terminals.
INSTALLATION

- Secure the cable assembly with the clamp according to the drawing below.

**Wire Color Code Abbreviations**

<table>
<thead>
<tr>
<th>Wire Color Abbreviations</th>
<th>Wire Color Abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLK</td>
<td>Black</td>
</tr>
<tr>
<td>BRN</td>
<td>Brown</td>
</tr>
<tr>
<td>GRN</td>
<td>Green</td>
</tr>
<tr>
<td>PNK</td>
<td>Pink</td>
</tr>
<tr>
<td>RED</td>
<td>Red</td>
</tr>
<tr>
<td>WHT</td>
<td>White</td>
</tr>
<tr>
<td>LT or LIT</td>
<td>Light</td>
</tr>
<tr>
<td>BLU</td>
<td>Blue</td>
</tr>
<tr>
<td>GRY</td>
<td>Gray</td>
</tr>
<tr>
<td>ORN or ORG</td>
<td>Orange</td>
</tr>
<tr>
<td>PPL or PUR</td>
<td>Purple</td>
</tr>
<tr>
<td>TAN</td>
<td>Tan</td>
</tr>
<tr>
<td>YEL</td>
<td>Yellow</td>
</tr>
<tr>
<td>DK or DRK</td>
<td>Dark</td>
</tr>
</tbody>
</table>
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 40 AH or more.

- 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.

![Battery Connections Diagram]

- **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

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

A propeller must be selected so that the engine RPM when cruising with a wide-open throttle, is within the recommended range.

<table>
<thead>
<tr>
<th>Model</th>
<th>Wide-open throttle RPM range</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.9</td>
<td>4500–5300 RPM</td>
</tr>
<tr>
<td>15/18</td>
<td>5200–5800 RPM</td>
</tr>
</tbody>
</table>

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.

PROPELLER TABLE

A propeller must be selected so that the engine RPM measured at wide-open throttle while cruising is within the recommended range. Refer to Accessories - Propeller Table of this manual.
**ACCESSORIES**

**Propeller Table**

Use a Mercury/Quicksilver propeller.

A propeller must be selected so that the engine RPM measured at wide-open throttle while cruising is within the recommended range: 9.9 HP = 4500–5300 RPM; 15/18 HP = 5200–5800 RPM.

Transom height: S = short, L = long, XL = extra long

<table>
<thead>
<tr>
<th>Propeller Size</th>
<th>235 x 203 mm (9.2 x 8 in.)</th>
<th>235 x 229 mm (9.2 x 9 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.9 HP</td>
<td>L, XL</td>
<td>S</td>
</tr>
<tr>
<td>15 HP</td>
<td>L, XL</td>
<td>S</td>
</tr>
<tr>
<td>18 HP</td>
<td>XL</td>
<td>S, L</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Propeller Size</th>
<th>234 x 155 mm (9.2 x 6 in.)</th>
<th>234 x 254 mm (9.2 x 10 in.)</th>
<th>234 x 292 mm (9.2 x 11.5 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.9 HP</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>15 HP</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>18 HP</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
</tbody>
</table>
ACCESSORIES

a - Tachometer unit kit
b - Tachometer
c - Mercury/Quicksilver grease (250 g)
d - Mercury/Quicksilver gear oil (500 ml)
e - Touch-up paint
f - Mercury/Quicksilver engine oil (0.4 L, 1 L, 4 L, 20 L)
g - Flushing attachment
h - Extension cord for light (lights are available on the market)
a - Remote control box (optional)
b - Battery
c - Extension cord (optional)
d - Fuse
e - Rectifier
f - Extension cord for light (optional)
g - Receptacle plug (optional)
h - Lamp (12V 80W) [AC] (sold separately)
i - Tachometer (optional)
j - Tachometer, lead wire (optional)
k - Separate cord, yellow (optional)
l - Separate cord, white (optional)
m - Flywheel magneto
n - Spark plug
o - Ignition coil
p - CD unit
q - Lanyard stop switch
r - Stop cord (optional)
a - Main switch
b - Neutral switch
c - Starter motor
d - Starter cord
e - Starter solenoid
f - Fuse
g - Rectifier
h - Tachometer
i - Tachometer lead wire (optional)
j - Separate cord, yellow (optional)
k - Separate cord, white (optional)
l - Flywheel magneto
m - Spark plugs
n - Ignition coil
o - CDU
p - Lanyard stop switch
q - 12V 40AH or 12V 70AH (sold separately)
WIRING DIAGRAMS

E Models
WIRING DIAGRAMS

a - Harness assembly
b - 12V 40AH or 12V 70AH battery (sold separately)
c - Tachometer
d - Battery cable (+)
e - Tachometer lead wire (optional)
f - Fuse 15A
g - Starter solenoid
h - Rectifier
i - Flywheel magneto
j - Separate cord, white (optional)
k - Separate cord, yellow (optional)
l - Spark plugs
m - Ignition coil
n - CD unit
o - Lead wire, black
p - Lead wire, brown
q - Starter motor
r - Choke solenoid
s - Battery cables
t - Lanyard stop switch (optional)
a - Neutral switch
b - Main switch
c - Stop switch
d - Cord assembly
MAINTENANCE LOG

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

<table>
<thead>
<tr>
<th>Date</th>
<th>Maintenance Performed</th>
<th>Engine Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>