



**MERCURY**<sup>®</sup>  
**GO BOLDLY.**<sup>™</sup>



**Operation, Maintenance,  
and Installation Manual**

8M0153256 219 eng



**5 HP FourStroke Propane**

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## 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. Keep this manual 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, safety alerts labeled

WARNING and CAUTION (accompanied by the symbol ) , are used to alert you to special instructions concerning a particular service or operation that may be hazardous if performed incorrectly or carelessly. Observe these alerts carefully.

These safety alerts alone cannot eliminate the hazards that they signal. Strict compliance to these special instructions when 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.

Additional alerts provide information that requires special attention:

**NOTICE**

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

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

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

**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. 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.

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.

## Safety and Regulatory Notices

**▲ WARNING**

Avoid the risk of being lost at sea. Before sailing, the owner shall take on board sufficient fuel for the intended journey, taking into account the risk of changes in weather conditions.

**IMPORTANT:** Before sailing to a foreign coast, any restrictions on the use of LPG fueling systems shall be established and all necessary actions taken.

### California Proposition 65



WARNING: This product can expose you to chemicals released as a result of propane engine combustion, such as carbon monoxide, benzene, formaldehyde, and acetaldehyde, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

## 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, which can be accessed any time on the Mercury Marine website, at <http://www.mercurymarine.com/warranty-manual>. 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.

Mercury Marine products are designed and manufactured to comply with our own high quality standards, applicable industry standards and regulations, and certain emissions regulations. At Mercury Marine every engine is operated and tested before it is boxed for shipment to make sure that the product is ready for use. In addition, certain Mercury Marine products are tested in a controlled and monitored environment, for up to 10 hours of engine run time, in order to verify and make a record of compliance with applicable standards and regulations. All Mercury Marine product, sold as new, receives the applicable limited warranty coverage, whether the engine participated in one of the test programs described above or not.

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## Identification Records

**Please record the following applicable information:**

<b>Outboard</b>		
<b>Engine Model and Horsepower</b>		
<b>Engine Serial Number</b>		
<b>Gear Ratio</b>		
<b>Propeller Number</b>	<b>Pitch</b>	<b>Diameter</b>
<b>Watercraft Identification Number (WIN) or Hull Identification Number (HIN)</b>		<b>Purchase Date</b>
<b>Boat Manufacturer</b>	<b>Boat Model</b>	<b>Length</b>
<b>Exhaust Gas Emissions Certification Number (Europe Only)</b>		

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# GENERAL INFORMATION

## Boater's Responsibilities

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

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

## Boat Horsepower Capacity

### ⚠ WARNING

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

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

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

26777

## Lanyard Stop Switch

The lanyard stop switch will turn off the engine if the operator moves far enough away from the operator's position (as in accidental ejection from the operator's position) to activate the switch. This tiller handle outboard is equipped with a lanyard stop switch.

# GENERAL INFORMATION

One end of the lanyard cord has a clip that is meant to be inserted around the stop switch on the engine. It holds the switch closed, allowing the engine to operate. The other end of the lanyard cord has a clip to attach to the operator's personal flotation device (PFD) or wrist. The lanyard cord is coiled to make its at-rest condition as short as possible, to minimize the likelihood of lanyard entanglement with nearby objects.



- a - Lanyard cord clip
- b - Lanyard stop switch (on the engine)

Read the following **Important Safety Information** before operating the boat.

## IMPORTANT SAFETY INFORMATION

### ▲ 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.

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-filled waters

# GENERAL INFORMATION

- Releasing your grip on a steering wheel or tiller handle that is pulling in one direction
- Operating the boat while under the influence of drugs or alcohol
- Performing high speed boat maneuvers

While activation of the lanyard stop switch will stop the engine immediately, a boat will continue to coast for some distance, depending upon the velocity and degree of any turn at shutdown. 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).

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.



# GENERAL INFORMATION

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

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

## WHILE THE BOAT IS STATIONARY

### ⚠ WARNING

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

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

## Exhaust Emissions

### BE ALERT TO CARBON MONOXIDE POISONING

Carbon monoxide (CO) is a deadly gas that is present in the exhaust fumes of all internal combustion engines, including the engines that propel boats, and the generators that power boat accessories. By itself, CO is odorless, colorless, and tasteless, but if you can smell or taste engine exhaust, you are inhaling CO.

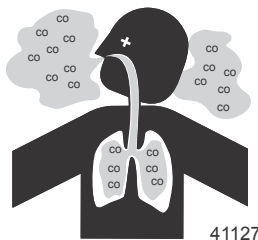
Early symptoms of carbon monoxide poisoning, which are similar to the symptoms of seasickness and intoxication, include headache, dizziness, drowsiness, and nausea.

### ⚠ WARNING

**Inhaling engine exhaust gases can result in carbon monoxide poisoning, which can lead to unconsciousness, brain damage, or death. Avoid exposure to carbon monoxide.**

**Stay clear from exhaust areas when engine is running. Keep the boat well-ventilated while at rest or underway.**

## STAY CLEAR OF EXHAUST AREAS



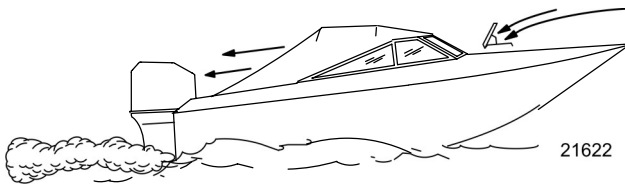
# GENERAL INFORMATION

Engine exhaust gases contain harmful carbon monoxide. Avoid areas of concentrated engine exhaust gases. When engines are running, keep swimmers away from the boat, and do not sit, lie, or stand on swim platforms or boarding ladders. While underway, do not allow passengers to be positioned immediately behind the boat (platform dragging, teak/body surfing). This dangerous practice not only places a person in an area of high engine exhaust concentration, but also subjects them to the possibility of injury from the boat propeller.

## GOOD VENTILATION

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

Example of desired air flow through the boat:

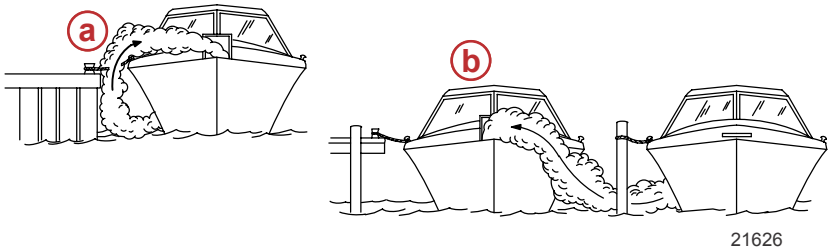


## POOR VENTILATION

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 open area of a stationary boat that contains, or is near, a running engine may be exposed to a hazardous level of carbon monoxide.

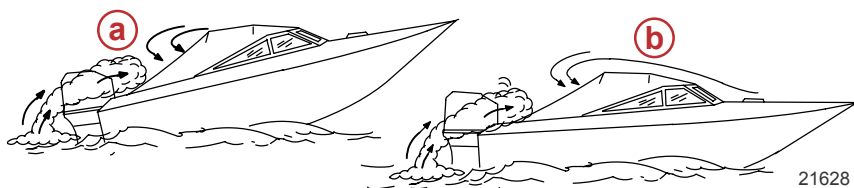
1. Examples of poor ventilation while the boat is stationary:



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

# GENERAL INFORMATION

2. Examples of poor ventilation while the boat is moving:



- a - Operating the boat with the trim angle of the bow too high
- b - Operating the boat with no forward hatches open (station wagon effect)

## 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.

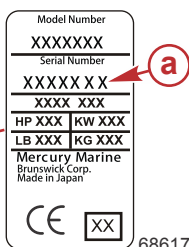
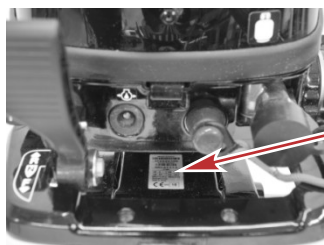
## **Report accidents.**

- 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.

# GENERAL INFORMATION

## Recording Serial Number

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



**a** - Serial number

68617

## Engine Specifications

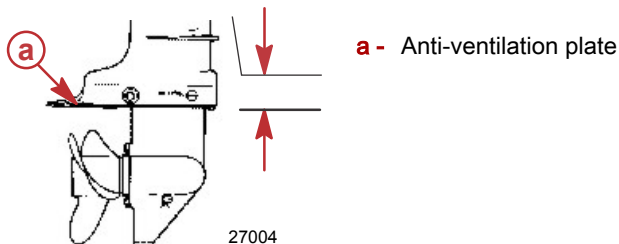
Parameter		Specification
Power		3.7 kw (5 hp)
Full throttle RPM range		5000–6000
Idle speed	Forward gear	1100 RPM
	Neutral	1100–1300 RPM
Number of cylinders		1
Piston displacement		123 cc (7.51 cid)
Cylinder bore		59 mm (2.32 in.)
Piston stroke		45 mm (1.77 in.)
Valve clearance (cold)	Intake valve	0.06–0.14 mm (0.002–0.005 in.)
	Exhaust valve	0.11–0.19 mm (0.004–0.007 in.)
Engine oil capacity		450 ml (15 fl oz)
Recommended spark plug		NGK DCPR6E
Spark plug gap		0.9 mm (0.035 in.)
Gearcase lubricant capacity		195 ml (6.6 fl oz)
Gear ratio		2.15:1
Recommended fuel		Propane
Emission control system		Engine modification (EM)
Sound at drivers ear (ICOMIA 39-94)		82.2 bBA
Tiller handle vibration (ICOMIA 38-94)		7.3 m/s <sup>2</sup>

# INSTALLATION

## Outboard Installation

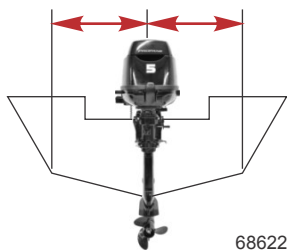
### BOAT TRANSOM HEIGHT REQUIREMENT

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



### INSTALLING THE OUTBOARD ON THE TRANSOM

1. Place the outboard on the centerline of the transom.



2. Tighten the transom clamp handles.



# TRANSPORTING

## Aquatic Invasive Species (AIS)



**STOP AQUATIC HITCHHIKERS!™**  
**Be A Good Steward. Clean. Drain. Dry.**

For additional information, visit [StopAquaticHitchhikers.org](http://StopAquaticHitchhikers.org).

AIS and their spread can detrimentally impact the boating experience and the future of the boating lifestyle. Reducing the spread of AIS has led to significant national efforts to inspect boats moving between water bodies or across state and federal boundaries and could lead to delayed or denied access if AIS are suspected or found on board.

AIS include plant life such as Eurasian watermilfoil and water hyacinth, and animals such as spiny water flea, quagga, and zebra mussels. AIS may vary in size from microscopic, to easily visible to the naked eye, and can live in residual water or mud. These species damage ecosystems and negatively impact fishing by depleting natural food resources, altering the water environment, and changing the structure of the ecosystem.

The impact of AIS has already resulted in the limiting of boating access to many waterways throughout North America, the closure of public boat ramps, and the reduction of availability for fishing and boating across the United States. Many federal, state, and local agencies have enacted laws and regulations for inspections, permits, launch availability, and water access for vessels entering public waterways.

Boats and associated equipment are major contributors to the spread of AIS. Boats that have come into contact with AIS can become a means of transportation through attachment and entrapment.

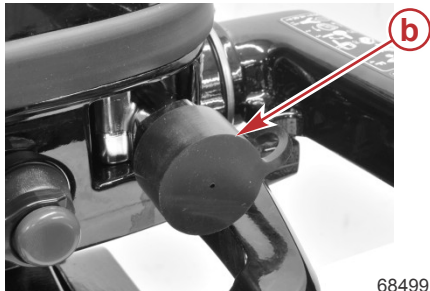
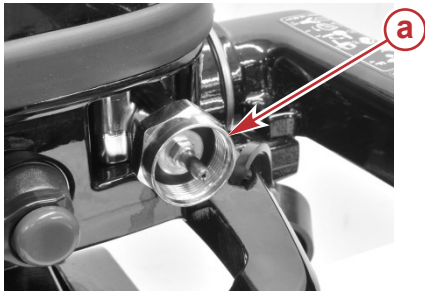
You should be aware that water passes in and out of the space under the lower cowls on your engine during normal operation of the boat. When flushing and cleaning your boat to control the spread of AIS, pay attention to this space by directing flushing water into the spaces under the lower cowl. The engine cooling system can be flushed by operating the engine with the appropriate flushing attachment and introducing heated water to the engine.

For more information about the control of AIS in your area, please contact your area wildlife conservation office or local governmental natural resources office.

# TRANSPORTING

## Carrying, Storing, and Transporting Your Outboard When Removed from Boat

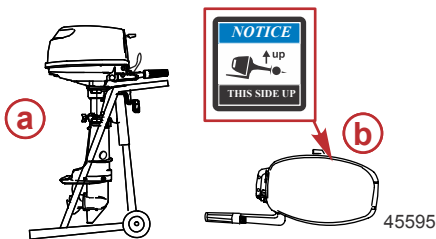
1. Disconnect the fuel line. Install the protective cap over the fuel connector.



68499

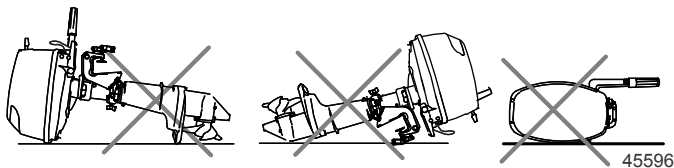
- a - Fuel line connector
- b - Protective cap

2. Remove the outboard and hold it upright until the water is drained out. Keep the outboard in an upright position when carrying.
3. Carry, transport, or store the outboard only in the upright position or tiller handle down position. These positions will prevent oil from draining out of the crankcase.



- a - Upright position
- b - Tiller handle down position

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



# TRANSPORTING

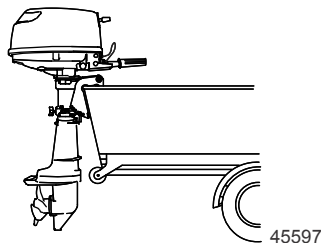
## Trailer Your Boat

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

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

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

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



# FUEL AND OIL

## Fuel Recommendations

This engine has been specifically designed to operate only on propane (liquified petroleum gas).

## LPG (Propane) Safety Precautions

Use propane only in containers or remote tanks specifically designed and approved for propane. Propane is a combustible gas. It is colorless and thus invisible to the naked eye. To ensure safe operation, always adhere to the following safety precautions.

## WARNINGS

### WARNING

Propane is highly combustible:

- Do not smoke or use an open flame when replacing LPG (propane) cylinders.
- Never use a flame to check for fuel system leaks.

### WARNING

**Carbon Monoxide Hazard:** Burning propane produces carbon monoxide (CO). CO is invisible, has no odor, and can kill you. Operating your outboard engine in an enclosed area can be dangerous.

- Use only in well ventilated areas. If you experience headache, drowsiness, or nausea, shut off the engine and seek fresh air immediately.
- Never use where people are sleeping.

### WARNING

Always handle LPG containers with care, as even when considered empty, they may contain enough fuel to remain a fire hazard.

## PROPANE ODORANT

**IMPORTANT:** Propane has a harmless odorant added so that it is possible to detect it by smell. The user should be familiar with the odor of propane (smells like sulfur or rotten eggs). If at any time the odor of propane is identified, stop the engine. If the leak persists, turn off the valve at the propane canister. Never attempt to operate a unit that has a suspected leak. Always remove the propane canister from any unit that has a suspected leak.



# FUEL AND OIL

## HANDLING AND STORAGE OF PROPANE CYLINDERS

**IMPORTANT:** Be certain to observe the following precautions for storing cylinders:

- Keep valves on empty cylinders closed and disconnected. Keep protective covers, caps, or plugs in place.
- Store reserve cylinders in ventilated housings on open decks or in gastight lockers that are vented overboard and intended for that purpose.
- Never store in enclosed spaces.
- Do not obstruct access to liquified petroleum gas (LPG) system components in any way.
- All cylinders must be secured. Keep any unconnected LPG cylinders, whether full or empty, secured in a manner similar to the cylinders connected to the system.
- Do not use LPG cylinder housings or cylinder lockers for storage of any other equipment.
- Keep out of reach of children.
- Never expose the cylinder to heat, sparks, or flame. Never store in direct sunlight. Never store at temperatures above 49 °C (120 °F).

**IMPORTANT:** Before Use:

1. Check the cylinder and appliance seals. Never use a cylinder that has damaged or missing seals, or if dirt or rust particles are in the valve area.
2. Hand tighten only. Never use tools to tighten the valve. Over-tightening can damage the seals.
3. Check for leaks. Put soapy water on connections and look for bubbles. Never use ammonia in the soap solution. Listen for a hiss of escaping gas. Feel for extreme cold. Check for a rotten egg odor coming from the connections. Do not use the cylinder if it is leaking.
4. Read and follow the operation instructions.

**IMPORTANT:** During Use:

- The cylinders shall be stored and used in the proper orientation with the relief valve in direct contact with the vapor space in the container.
- Cylinders need to be checked for leaks and signs of rust and wear.

## REFILLING PROPANE CYLINDERS

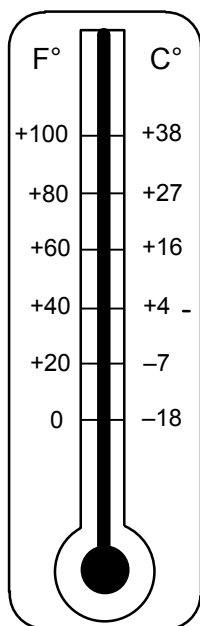
**IMPORTANT:** Never fill a cylinder greater than 80% of its volume. Always allow sufficient room for expansion of the liquid propane.

# FUEL AND OIL

## Engine Oil Recommendations

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

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



### Recommended SAE viscosity for engine oil

- a** - Mercury or Quicksilver SAE 25W-40 Synthetic Blend Marine 4-Stroke Engine Oil may be used at temperatures above 4 °C (40 °F)
- b** - Mercury or Quicksilver SAE 10W-30 4-Stroke Marine Engine Oil is recommended for use in all temperatures

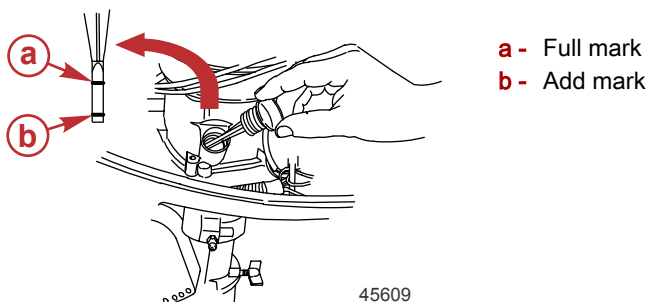
## Checking Engine Oil

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

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

## FUEL AND OIL

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



**NOTE:** Under certain conditions, the engine operating temperature may not get high enough to evaporate the normal moisture that accumulates in the crankcase. These conditions include operating at idle for long periods, repeated short trips, slow speed or quick stop-and-go operation, and operating in cooler climates. Additional moisture that collects in the crankcase eventually ends up in the oil sump, adding to the total volume of oil that appears on the dipstick reading. This increase in oil volume is known as oil dilution.

Outboard engines can typically handle large amounts of oil dilution without causing durability problems. However, to ensure extended life of the outboard engine, change the oil regularly, following the recommended oil change interval and using the recommended oil quality. If your outboard is operated frequently in the conditions described above, consider more frequent oil change intervals.

3. Install the oil filler cap and tighten securely.

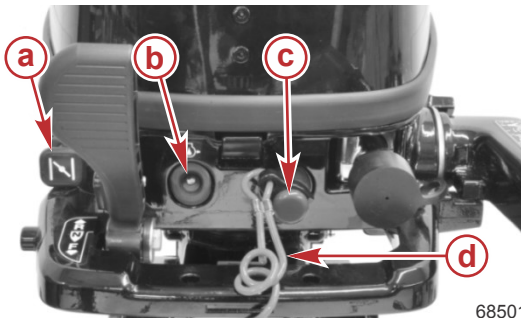
# FEATURES AND CONTROLS

## Features and Controls

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

**Oil pressure indicator** - If the oil pressure drops too low, the oil pressure indicator light will turn on. If the oil pressure indicator light turns on while the engine is running, stop the engine as soon as possible. Check the oil level and add oil as needed. If the oil pressure indicator light stays on when the oil level is correct, consult an authorized Mercury dealer.

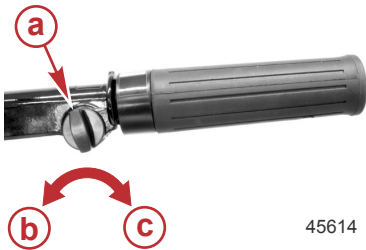
**Engine stop switch/lanyard stop switch** - Push in or pull the lanyard to stop the engine. The engine will not start unless the lanyard is engaged with the stop switch.



68501

- a** - Choke knob
- b** - Oil pressure indicator light
- c** - Lanyard stop switch
- d** - Lanyard

**Throttle grip friction knob** - Turn the friction knob to set and maintain the throttle at a desired speed. Turn the knob clockwise to increase friction or turn the knob counterclockwise to decrease friction.



45614

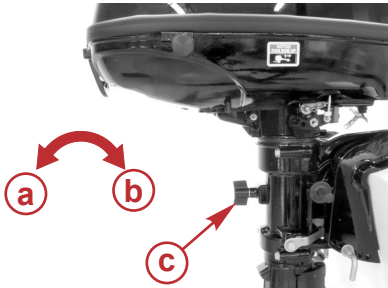
- a** - Throttle grip friction knob
- b** - Decrease friction (counterclockwise)
- c** - Increase friction (clockwise)

### **⚠ 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.

# FEATURES AND CONTROLS

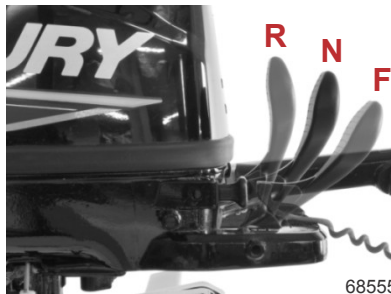
Steering friction adjustment - Adjust this knob to achieve the desired steering friction (drag) on the tiller handle. Turn the knob clockwise to increase friction and counterclockwise to decrease friction.



- a** - Decrease friction (counterclockwise)
- b** - Increase friction (clockwise)
- c** - Steering friction knob

45615

Shift handle - Controls the gear shift.

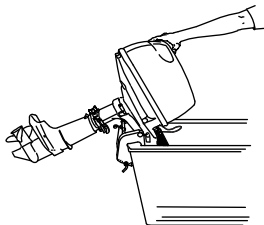


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## Tilting Outboard

### TILTING TO FULL UP POSITION

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



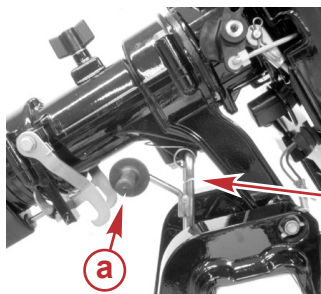
54600

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

# FEATURES AND CONTROLS

## LOWERING TO RUN POSITION

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



**a** - Tilt release lever

**b** - Tilt lock lever

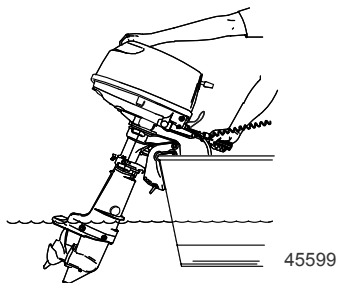
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## Shallow Water Operation

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

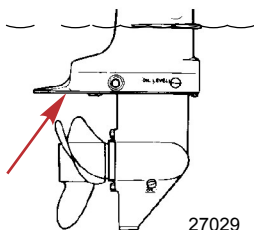
### ENGAGING SHALLOW WATER DRIVE

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



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2. Ensure the cooling water intake is submerged.

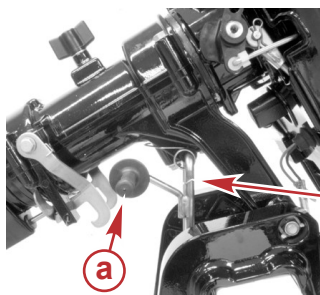


27029

# FEATURES AND CONTROLS

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

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



45616

**a** - Tilt release lever

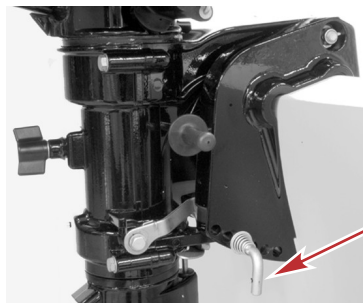
**b** - Tilt lock lever

## Setting the Operating Angle of Your Outboard

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

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

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



45617

**a** - Tilt pin

**IMPORTANT: Do not operate the outboard with the tilt pin removed.**

## Engine Overspeed Protection System

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

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

## FEATURES AND CONTROLS

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



# OPERATION

## 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.

## 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.**

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

## Starting the Engine

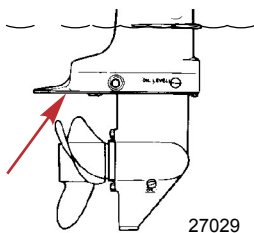
Before starting, read the **Engine Break-in Procedure**.

### NOTICE

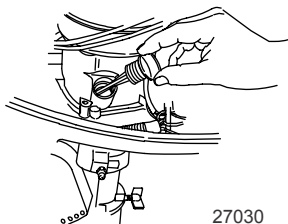
Without sufficient cooling water, the engine, the water pump, and other components will overheat and suffer damage. Provide a sufficient supply of water to the water inlets during operation.

# OPERATION

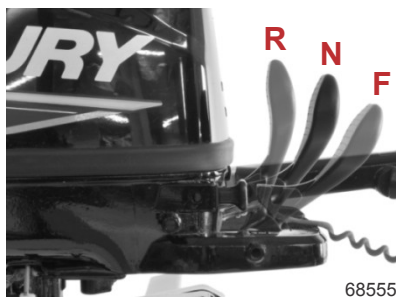
1. Ensure that the cooling water intake is submerged.



2. Check the engine oil level.



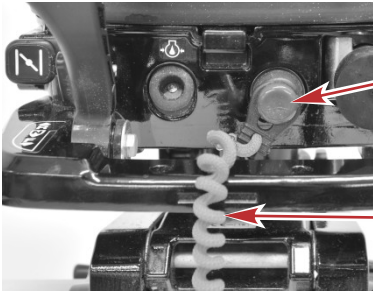
3. Shift the outboard to the neutral (N) position.



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

# OPERATION

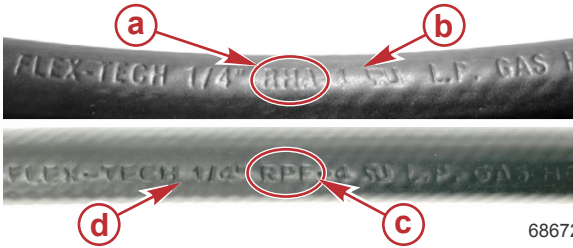
4. Attach the lanyard to the stop switch. Refer to **General Information - Lanyard Stop Switch**.



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- a** - Stop switch
- b** - Lanyard

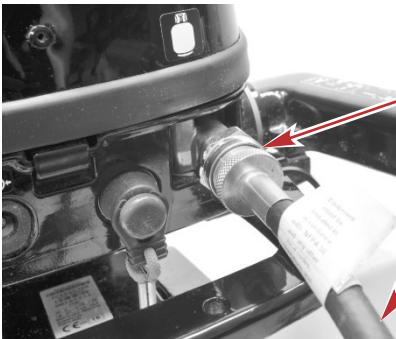
**IMPORTANT:** Use only a non-leaching fuel hose. A non-leaching fuel hose is imprinted with the designation RPF, whereas a standard hose is designated RHA.



68672

- a** - RHA
- b** - Standard hose
- c** - RPF
- d** - Non-leaching hose

5. Connect the fuel hose to the outboard.

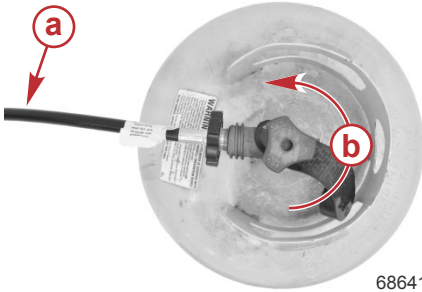


68642

- a** - Connect to outboard
- b** - Fuel hose (from fuel tank)

# OPERATION

6. Open the fuel tank valve.



- a** - RPF fuel hose (to engine)  
**b** - Open fuel tank valve

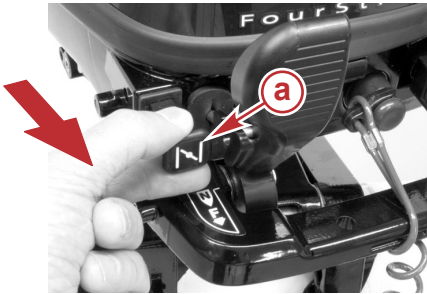
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7. Position the throttle grip to the START position.



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



- a** - Choke

45625

**NOTE:** Starting a flooded engine - Push in the choke knob. Wait 30 seconds. Then continue to crank the engine for starting.

# OPERATION

9. Pull the starter rope slowly until the starter engages. Then pull rapidly to crank the engine. Allow the rope to return slowly. Repeat until the engine starts.



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

**IMPORTANT:** If no water is coming out of the water pump indicator hole, stop the engine and check the cooling water intake for obstructions. No obstructions 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 an authorized Mercury dealer. Operating the engine while it is overheated can cause serious engine damage.



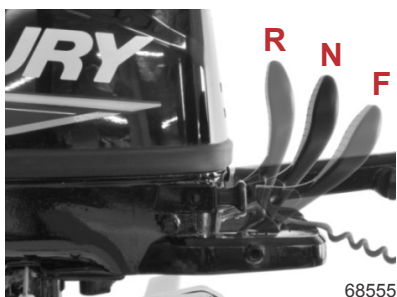
## Gear Shifting

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

Reduce the throttle speed to idle speed.

# OPERATION

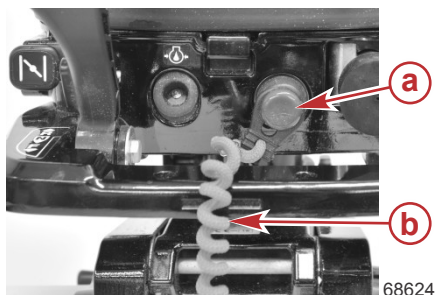
Always shift the outboard into gear with a quick motion.



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## Stopping the Engine

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



**a** - Stop switch

**b** - Lanyard

68624

# OPERATION

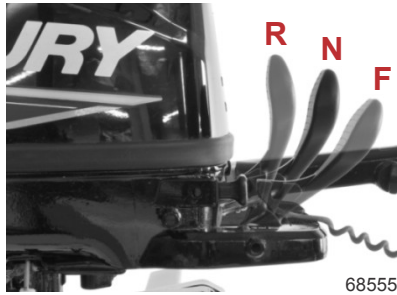
## Emergency Starting

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

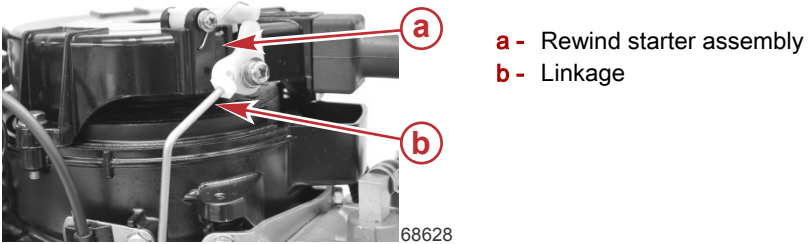
### ▲ WARNING

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

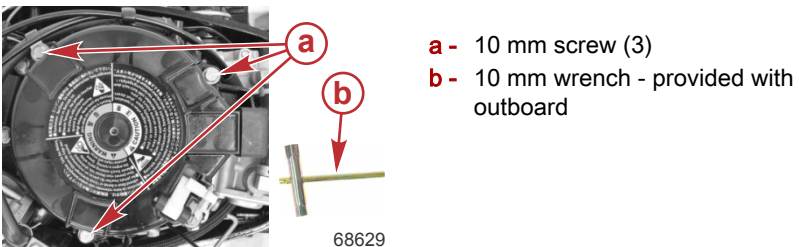
1. Shift the outboard to the neutral (N) position.



2. Disconnect the linkage from the rewind starter assembly.



3. Remove the three 10 mm screws and rewind starter assembly.

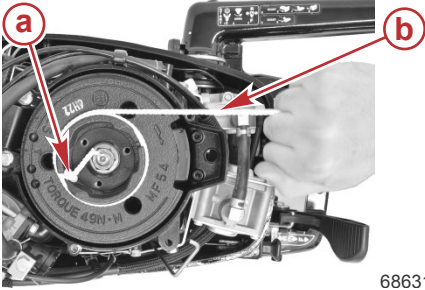


# OPERATION

## ▲ WARNING

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

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



- a - Starter rope knot
- b - Starter rope - provided with outboard



# MAINTENANCE

## Outboard Care

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

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

## SELECTING REPLACEMENT PARTS FOR YOUR OUTBOARD

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

## EPA Emissions Regulations

All new outboards manufactured by Mercury Marine are certified to the United States Environmental Protection Agency, as conforming to the requirements of the regulations for the control of air pollution from new outboard motors. This certification is contingent on certain adjustments set to factory standards. For this reason, the factory procedure for servicing the product must be strictly followed and, wherever practicable, returned to the original intent of the design.

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

# MAINTENANCE

## EMISSION CERTIFICATION LABEL

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

<b>MERCURY</b>		<b>EMISSION CONTROL INFORMATION</b>	
THIS ENGINE CONFORMS TO <input type="checkbox"/> CALIFORNIA AND U.S. EPA EMISSION REGULATIONS FOR SPARK IGNITION MARINE ENGINES			
REFER TO OWNERS MANUAL FOR REQUIRED MAINTENANCE, SPECIFICATIONS, AND ADJUSTMENTS			
IDLE SPEED (in gear): <input type="text"/>		FAMILY: <input type="text"/>	
<input type="text"/> hp	<input type="text"/> L	HC+NOx:FEL: <input type="text"/> g/kWh	
<input type="text"/> kw		CO FEL: <input type="text"/> g/kWh	
<input type="text"/>	SPARK PLUG: <input type="text"/>	<input type="text"/>	
	GAP: <input type="text"/>	<input type="text"/>	
LOW PERM/HIGH PERM: <input type="text"/>			

43210

- a - Idle speed
- b - Engine horsepower
- c - Piston displacement
- d - Engine power - kilowatts
- e - Date of manufacture
- f - US EPA engine family name
- g - Regulated emission limit for the engine family
- h - Regulated emission limit for the engine family
- i - Recommended spark plug and gap
- j - Percent of fuel line permeation

## OWNER RESPONSIBILITY

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

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

## Inspection and Maintenance Schedule

### BEFORE EACH USE

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

### AFTER EACH USE

- Flush out the outboard cooling system if operating in salt or polluted water. See **Flushing the Cooling System**.

# MAINTENANCE

- Wash off all salt deposits and flush out the exhaust outlet of the propeller and gearcase with fresh water if operating in saltwater.

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

- Lubricate all lubrication points. Lubricate more frequently when used in saltwater. See **Lubrication Points**.
- Change the engine oil. The oil should be changed more often when the engine is operated under adverse conditions such as extended trolling. See **Changing Engine Oil**.
- Replace the spark plug at the first 100 hours or first year. After that, inspect the spark plug every 100 hours or once yearly. Replace the spark plug as needed. See **Spark Plug Inspection and Replacement**.
- Check and adjust valve clearance, if necessary.<sup>1</sup>
- Drain and replace the gearcase lubricant. See **Gearcase Lubrication**.
- Check the corrosion control anode. Check more frequently when used in saltwater. See **Corrosion Control Anode**.
- Check the tightness of bolts, nuts, and other fasteners.
- Check the cowl seals to make sure the seals are intact and not damaged.
- Check the internal cowl sound reduction foam (if equipped) to make sure the foam is intact and not damaged.
- Check that the intake silencer (if equipped) is in place.
- Check that the idle relief muffler (if equipped) is in place.
- Check for loose hose clamps and rubber boots (if equipped) on the air intake assembly.

## EVERY 300 HOURS OF USE OR EVERY 3 YEARS, WHICHEVER OCCURS FIRST

- Lubricate the splines on the driveshaft.<sup>1</sup>
- Replace the water pump impeller.<sup>1</sup>

## EVERY 500 HOURS OF USE OR EVERY 5 YEARS, WHICHEVER OCCURS FIRST

Replace all LPG hoses. Hoses must be of type RPF, not RHA.

## BEFORE PERIODS OF STORAGE

- Refer to the storage procedures in the **Storage** section.

## Flushing the Cooling System

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

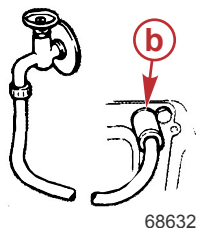
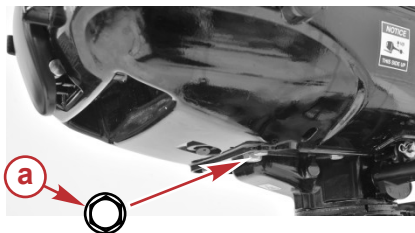
1. These items should be serviced by an authorized dealer.

# MAINTENANCE

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

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

1. Remove the plug and gasket.
2. Install the hose coupling into the plug opening.
3. Attach a water hose to the hose coupling. Turn on the water gently and flush the cooling system for 3–5 minutes.
4. Remove the hose coupling and install the plug and gasket.



- a - Plug and gasket
- b - Hose coupling

## Top Cowl Removal and Installation

### REMOVAL

1. Release the rear latch.
2. Lift up the rear of the cowl and push it towards the front of the engine to clear the front hook.



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### INSTALLATION

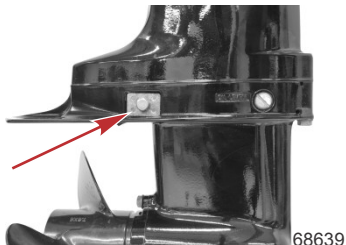
1. Engage the front hook and position the cowl over the engine.
2. Lock the rear latch.

# MAINTENANCE

## Corrosion Control Anode

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

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



## Exterior Care

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

## Fuel System

### ▲ WARNING

Liquified petroleum gas (LPG, aka propane) is extremely flammable. 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. Always check for leaks before attempting to start the engine.

### ▲ WARNING

Propane is highly combustible:

- Do not smoke or use an open flame when replacing LPG (propane) cylinders.
- Never use a flame to check for fuel system leaks.

### ▲ WARNING

Do not use solutions containing ammonia on LPG fuel system components.

Before servicing any part of the fuel system, stop the engine, disconnect the battery, and shut off the propane supply. Any fuel system service must be performed in a well-ventilated area. Inspect any completed service work for signs of fuel leakage.

# MAINTENANCE

## FUEL SYSTEM INSPECTION

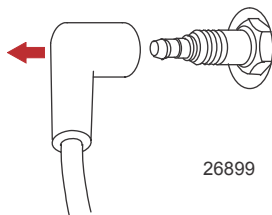
- Regularly check all fuel system connections for leakage.
  - Do not use solutions containing ammonia.
  - Never use a flame to check for leaks.
- Inspect hoses in the LPG system regularly (at least annually) and replace with hoses of the same type approval, if any deterioration is found.
- Inspect all valves and connectors for corrosion, damage, or leaks. Replace or repair as necessary.

## Propeller Replacement

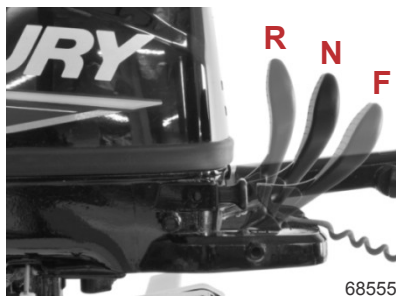
### ⚠ WARNING

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

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



2. Move the gear shift lever into neutral.



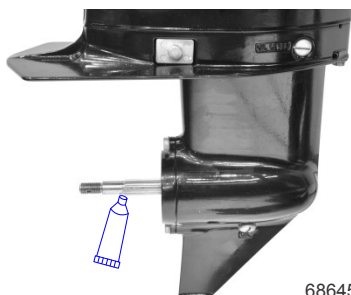
3. Straighten and remove the cotter pin.
4. Place a block of wood between the gearcase and the propeller to hold the propeller and remove the propeller nut.

# MAINTENANCE



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

**IMPORTANT:** To prevent the propeller hub from corroding and seizing to the propeller shaft (especially in saltwater), always apply a coat of the recommended lubricant to the entire propeller shaft at the recommended maintenance intervals and also each time the propeller is removed.

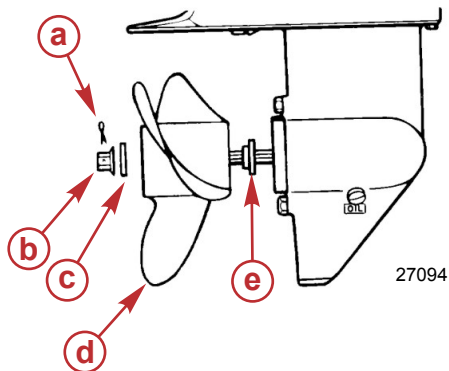
6. Coat the propeller shaft with Extreme Grease or 2-4-C with PTFE.



68645

Tube Ref No.	Description	Where Used	Part No.
	Extreme Grease	Propeller shaft	8M0071842
 95	2-4-C with PTFE	Propeller shaft	92-802859A 1

7. Install the front thrust washer, propeller, rear thrust hub, and propeller nut onto the shaft.
8. Place a block of wood between the gearcase and the propeller. Tighten the propeller nut. Secure the propeller nut to the shaft with a cotter pin.



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

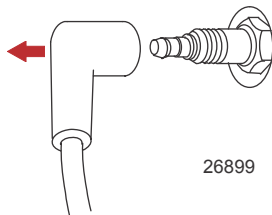
# MAINTENANCE

## Spark Plug Inspection and Replacement

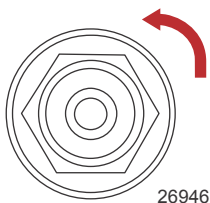
### ⚠ WARNING

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.

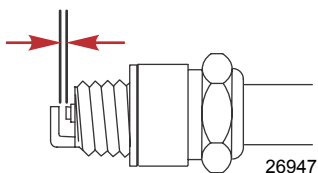
1. Remove the spark plug boot. Twist the rubber boot slightly and pull off.



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



3. Set the spark plug gap to specification.



### Spark Plug

Spark plug gap	0.9 mm (0.035 in.)
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4. Before installing spark plug, clean off any dirt on the spark plug seat. Install plug finger-tight, and then tighten 1/4 turn or torque to specifications.



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



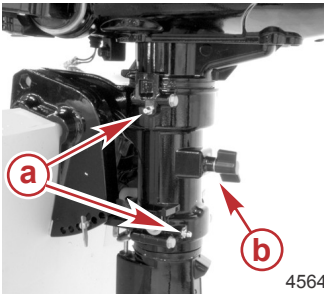
# MAINTENANCE

## Lubrication Points

1. Lubricate the following with 2-4-C with PTFE or Extreme Grease.

Tube Ref No.	Description	Where Used	Part No.
 95	2-4-C with PTFE	Copilot, swivel bracket, transom clamp screws, tiller handle bushing, shift handle detent	92-802859A 1
	Extreme Grease	Copilot, swivel bracket, transom clamp screws, tiller handle bushing, shift handle detent	8M0071842

- Copilot - lubricate threads.
- Swivel bracket - lubricate through fittings.



- a** - Swivel bracket lubrication fittings
- b** - Copilot

- Transom clamp screws - lubricate threads.

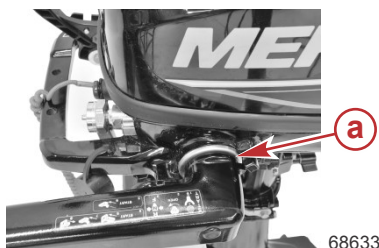


- a** - Transom clamp screws

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

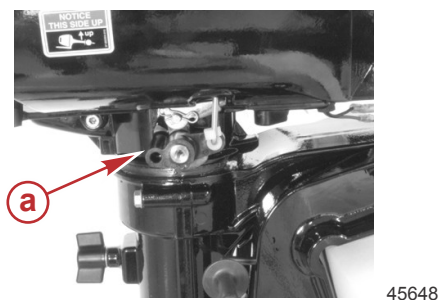
# MAINTENANCE

- Tiller handle rubber bushing - lubricate internal diameter.



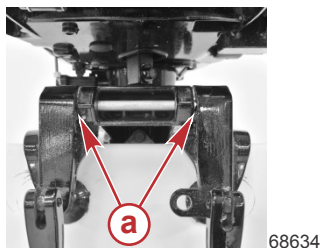
**a** - Tiller handle rubber bushing

- Shift detent - lubricate detent shaft.



**a** - Shift detent

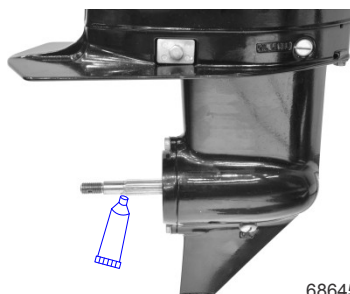
2. Lubricate the tilt pivot points with lightweight oil.





**a** - Tilt pivot points

# MAINTENANCE

3. Lubricate the propeller shaft with Extreme Grease or 2-4-C with PTFE. (Refer to **Propeller Replacement** for removal and installation of the propeller.) Coat the entire propeller shaft with lubricant to prevent the propeller hub from corroding to the shaft.



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Tube Ref No.	Description	Where Used	Part No.
	Extreme Grease	Propeller shaft	8M0071842
	2-4-C with PTFE	Propeller shaft	92-802859A 1

## Changing Engine Oil

### *NOTICE*

Discharge of oil, coolant, or other engine/drive fluids into the environment is restricted by law. Use caution not to spill oil, coolant, or other fluids into the environment when using or servicing your boat. Be aware of the local restrictions governing the disposal or recycling of waste, and contain and dispose of fluids as required.

## ENGINE OIL CAPACITY

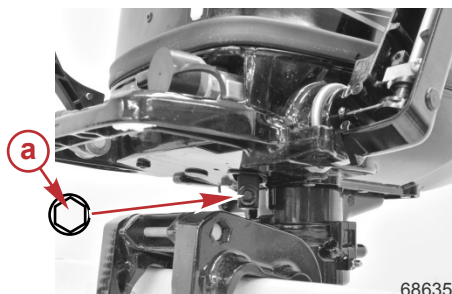
The engine oil capacity is approximately 450 ml (15 fl oz).

## OIL CHANGING PROCEDURE

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

# MAINTENANCE

**IMPORTANT:** Inspect the oil for signs of contamination. Oil contaminated with water will have a milky color. If contaminated oil is observed, have the engine checked by an authorized dealer.



**a** - Drain plug

## OIL FILLING

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

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

Operate the engine at idle for five minutes and check for leaks. Stop the engine and check the oil level on the dipstick. Add oil if necessary.

## Gearcase Lubrication

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

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

## DRAINING THE GEARCASE

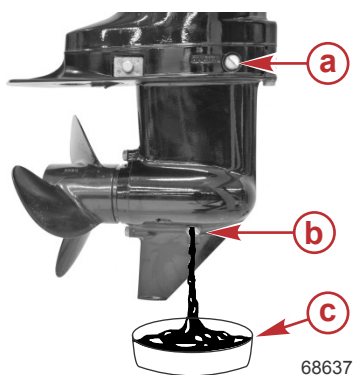
### NOTICE

Discharge of oil, coolant, or other engine/drive fluids into the environment is restricted by law. Use caution not to spill oil, coolant, or other fluids into the environment when using or servicing your boat. Be aware of the local restrictions governing the disposal or recycling of waste, and contain and dispose of fluids as required.

1. Position the outboard so that the fill/drain plug is at its lowest point.
2. Place a drain pan below the outboard.

# MAINTENANCE

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



- a - Vent plug (remove)
- b - Fill/drain plug (remove)
- c - Drain pan

## GEARCASE LUBRICANT CAPACITY

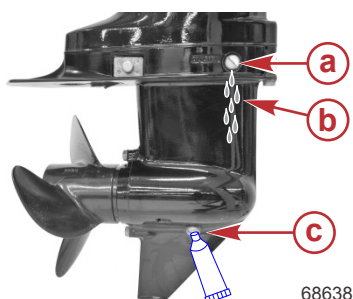
Gearcase lubricant capacity is approximately 195 ml (6.6 fl oz).

## GEARCASE LUBRICANT RECOMMENDATION

Mercury or Quicksilver Premium or High Performance Gear Lubricant.

## CHECKING LUBRICANT LEVEL AND FILLING GEARCASE

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



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

**IMPORTANT: Replace the sealing washers if they are damaged.**

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

# MAINTENANCE

## **Submerged Outboard**

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

# STORAGE


## Storage Preparation

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

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

## Protecting External Outboard Components

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

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

## Protecting Internal Engine Components

- Remove the spark plug and inject a small amount of engine oil inside the cylinder.
- Rotate the flywheel manually several times to distribute the oil in the cylinder. Install spark plug.
- Change the engine oil.

## Gearcase

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

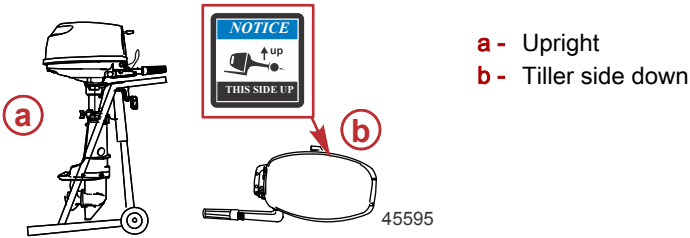
# STORAGE

## Positioning Outboard for Storage

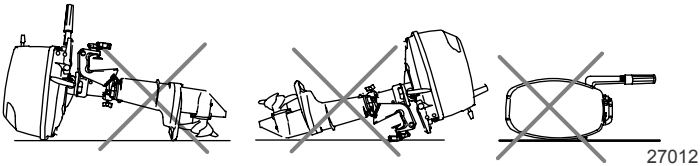
### NOTICE

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.

1. Carry, transport, or store the outboard only in the following two positions. These positions will prevent oil from draining out of the crankcase.



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





# OWNER SERVICE ASSISTANCE

## Service Assistance

### LOCAL REPAIR SERVICE

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

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

### SERVICE AWAY FROM HOME

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

### STOLEN POWER PACKAGE

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

### ATTENTION REQUIRED AFTER SUBMERSION

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

### REPLACEMENT SERVICE PARTS

#### WARNING

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

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

### PARTS AND ACCESSORIES INQUIRIES

Direct any inquiries concerning genuine Mercury Precision Parts® or Quicksilver Marine Parts and Accessories® to a local authorized dealer. Dealers have the proper systems to order parts and accessories, if they are not in stock. **Engine model** and **serial number** are required to order correct parts.

# OWNER SERVICE ASSISTANCE

## 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.
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.

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

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

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

# OWNER SERVICE ASSISTANCE

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

<b>Asia, Singapore, Japan</b>		
Telephone	+65 68058100	Mercury Marine Singapore Pte Ltd 11 Changi South Street 3, #01-02 Singapore, 486122
Fax	+65 68058138	

## Ordering Literature

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

Model		Serial Number	
Horsepower		Year	

## UNITED STATES AND CANADA

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

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

## OUTSIDE THE UNITED STATES AND CANADA

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

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

# OWNER SERVICE ASSISTANCE

Quantity	Item	Stock Number	Price	Total
			.	.
			.	.
			.	.
			.	.
			.	.
			Total Due	.

# MAINTENANCE LOG

## Maintenance Log

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

Date	Maintenance Performed	Engine Hours