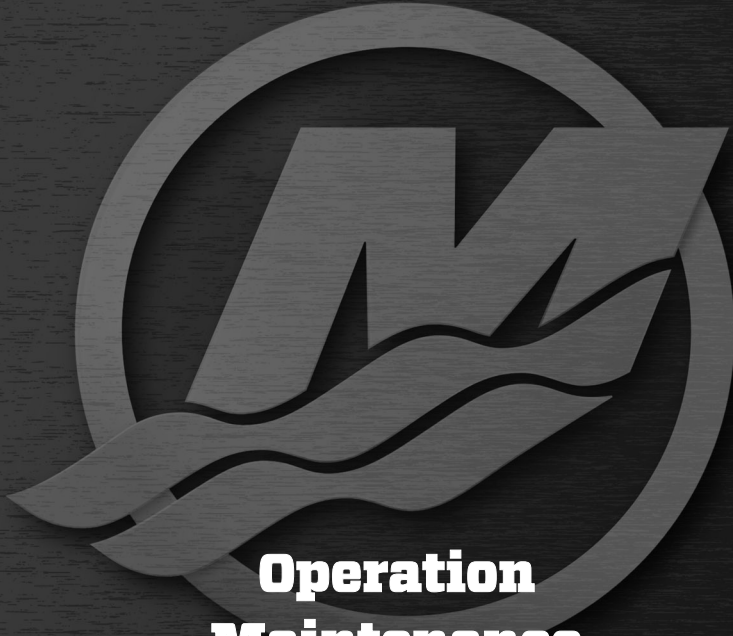




**MERCURY**<sup>®</sup>

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**Operation  
Maintenance  
and  
Installation  
Manual**

**25/30 TwoStroke**

© 2016 Mercury Marine



## 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.

## 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. 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

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## Identification Records

Please record the following applicable information:

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



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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.

## Before Operating Your Outboard

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

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

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

### **WARNING**

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

### **CAUTION**

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

### *NOTICE*

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

## Boat Horsepower Capacity

### **WARNING**

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

# GENERAL INFORMATION

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

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

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## High-Speed and High-Performance Boat Operation

If your outboard is to be used on a high-speed or high-performance boat with which you are unfamiliar, we recommend that you do not operate it at its high speed capability without first requesting an initial orientation and familiarization demonstration ride with your dealer or an operator experienced with your boat/outboard combination. For additional information, obtain a copy of our **Hi-Performance Boat Operation** booklet from your dealer, distributor, or Mercury Marine.

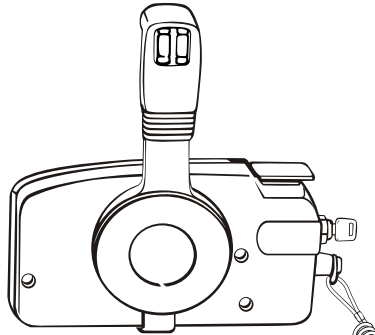
## Outboard Remote Control Models

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

# GENERAL INFORMATION

## ⚠ 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.



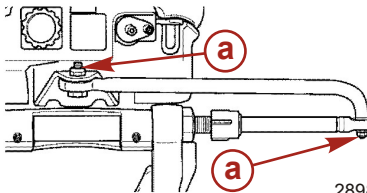
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## Remote Steering Notice

## ⚠ 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.



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**a** - Self-locking nuts

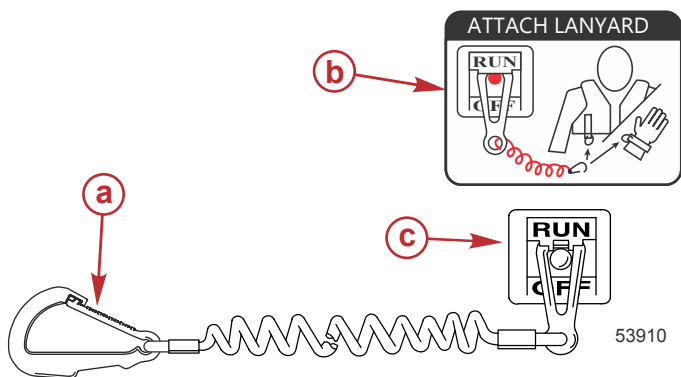
# GENERAL INFORMATION

## 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.



- a** - Lanyard cord clip
- b** - Lanyard decal
- c** - Lanyard stop switch

Read the following Safety Information before proceeding.

# GENERAL INFORMATION

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

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

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.

# GENERAL INFORMATION

## 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.



# GENERAL INFORMATION

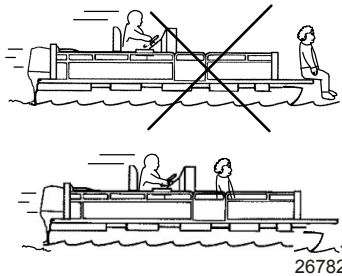
## Passenger Safety Message - Pontoon Boats and Deck Boats

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**

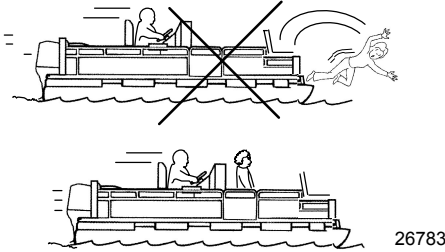
**Sitting or standing in an area of the boat not designed for passengers at speeds above idle can cause serious injury or death. Stay back from the front end of deck boats or raised platforms and remain seated while the boat is in motion.**

### 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.

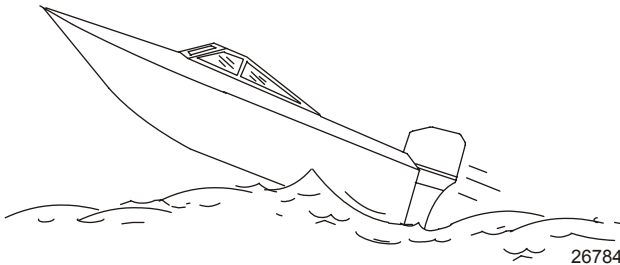
# GENERAL INFORMATION

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**

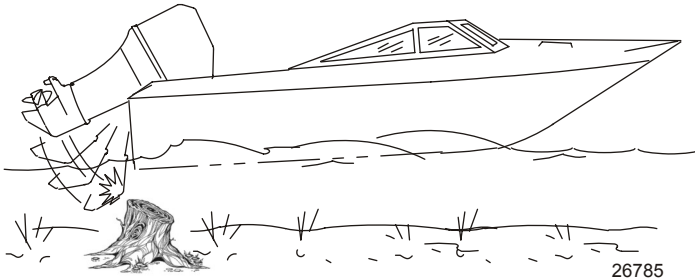
**Wave or wake jumping can cause serious injury or death from occupants being thrown within or out of the boat. Avoid wave or wake jumping whenever possible.**

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.

# GENERAL INFORMATION

## 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.

# GENERAL INFORMATION

## ⚠ WARNING

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

## Exhaust Emissions

### BE ALERT TO CARBON MONOXIDE POISONING

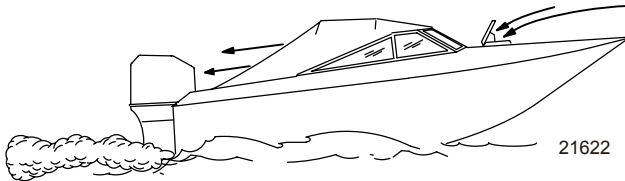
Carbon monoxide is present in the exhaust fumes of all internal combustion engines. This includes the outboards, sterndrives, and inboard engines that propel boats, as well as the generators that power various boat accessories. Carbon monoxide is a deadly gas that is odorless, colorless, and tasteless. Early symptoms of carbon monoxide poisoning which should not be confused with seasickness or intoxication, include headache, dizziness, drowsiness, and nausea.

## ⚠ WARNING

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

### GOOD VENTILATION

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



Example of desired air flow through the boat

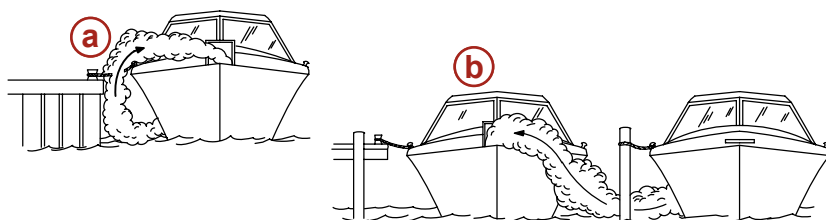
### POOR VENTILATION

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

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

# GENERAL INFORMATION

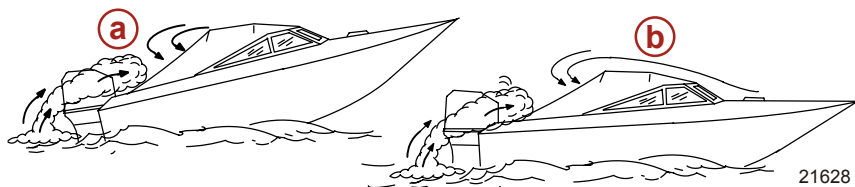
## WHILE BOAT IS STATIONARY



21626

- 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



21628

- 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.**

# GENERAL INFORMATION

- 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
  - 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.**

# GENERAL INFORMATION

- 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.**

- 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.**

# GENERAL INFORMATION

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

## Recording Serial Number

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

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

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



# GENERAL INFORMATION

## 25/30 Specifications

Model	25M	30M	30EH	30E
Overall length	884 mm (34.8 in.)			600 mm (23.6 in.)
Overall width	430 mm (16.9 in.)			355 mm (14 in.)
Overall height	S: 1124 mm (44.3 in.) - L: 1251 mm (49.3 in.)			
Transom height	S: 435 mm (17.1 in.) - L: 562 mm (22.1 in.)			
Weight	51 kg (112 lb)		55 kg (121 lb)	54 kg (119 lb)
Max output PS (KW)	25 (18.4)	30 (22.1)		
Full throttle RPM	5000–6000	5150–5850		
Fuel consumption	13 L/h			
Number of cylinders	2			
Piston displacement	430 cc (26.2 in <sup>3</sup> )			
Cylinder bore	68 mm (2.68 in.)			
Piston stroke	59 mm (2.32 in.)			
Exhaust system	Through hub exhaust			
Cooling system	Water-cooled			
Starting system	Manual		Electric/Manual	
Battery rating	Minimum reserve capacity rating of 100 minutes and 350 cold cranking amps (CCA)			
Ignition	CD ignition			
Spark plug	NGK B7HS-10 or Champion L82C-NGK BPR7HS-10			
Spark plug gap	1.0 mm (0.035 in.)			
Alternator	12 V, 80 W, 6.7 amps			
Fuel mixing ratio	50:1 (Quicksilver TC-W2 or TC-W3 2-Cycle)			
Fuel tank capacities	25 L (6.6 US gal)			
Gear reduction ratio	1.92:1			
Gear oil	Quicksilver Gear Lube Premium Blend			
Gear oil volume	280 ml (9.5 fl oz)			

# GENERAL INFORMATION

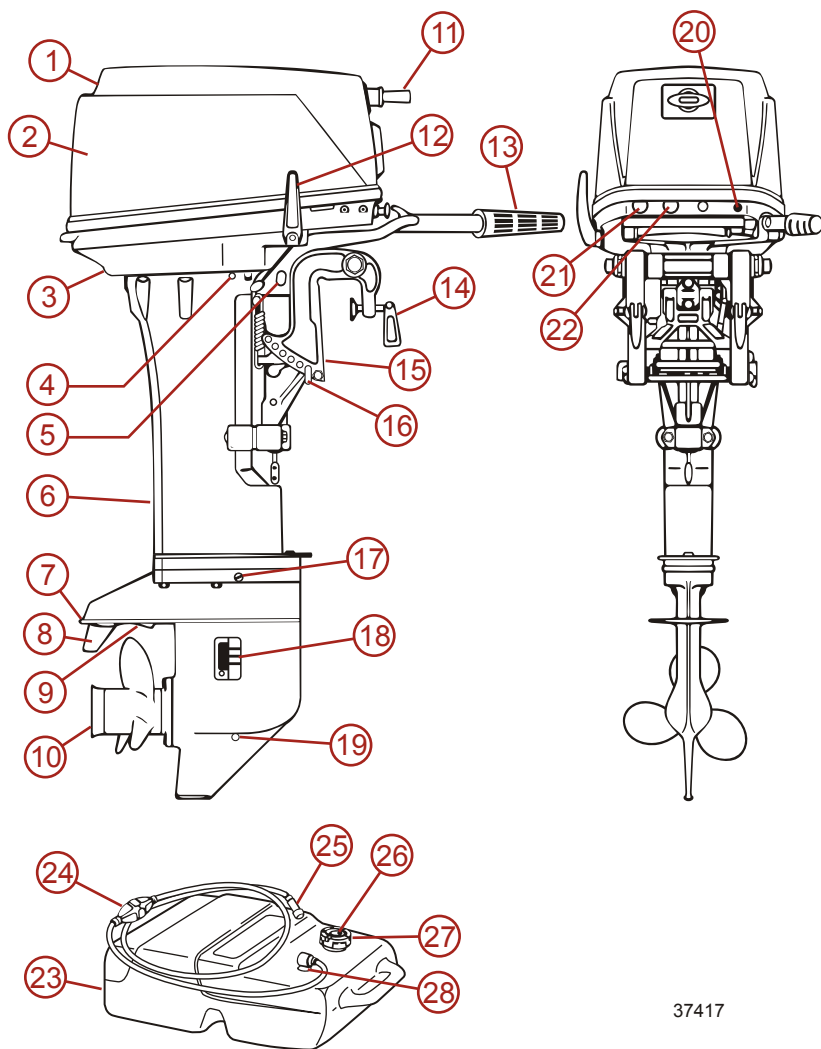
NOTE:

# GENERAL INFORMATION

Notes:

# GENERAL INFORMATION

## Components



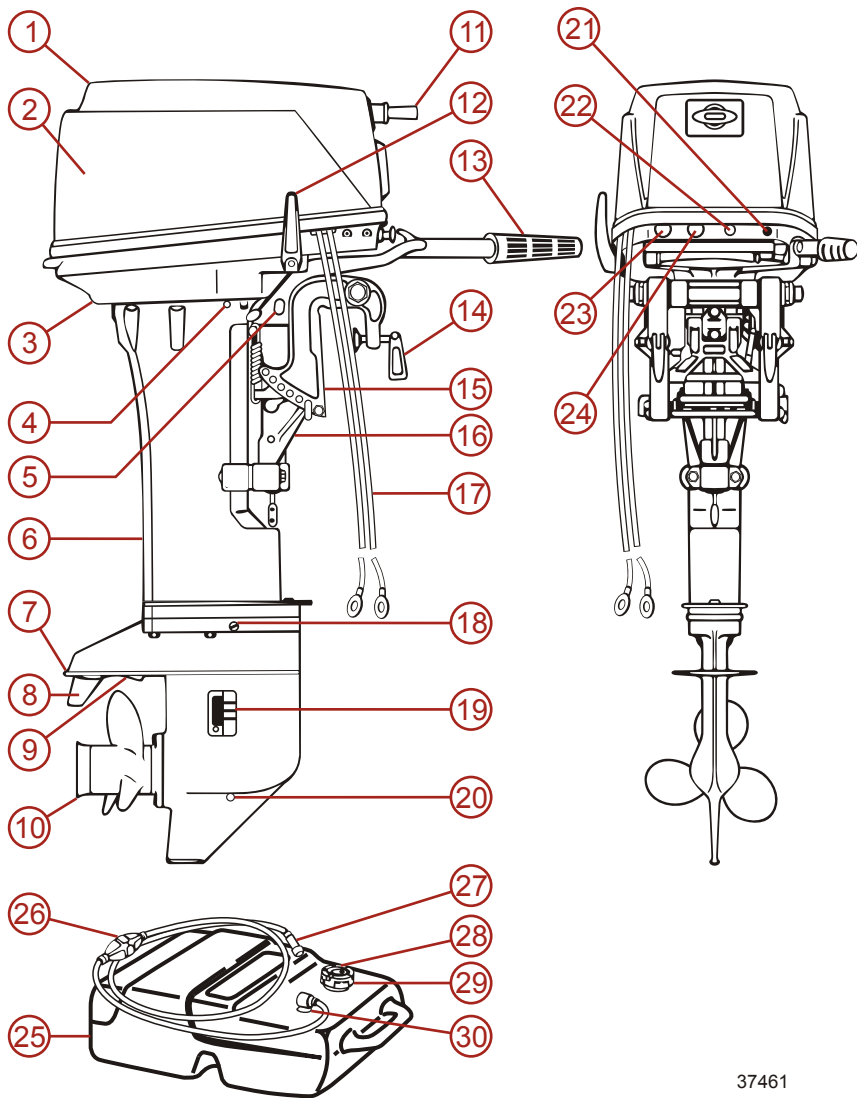
37417

# GENERAL INFORMATION

## MH models

- 1 - Tilt handle
- 2 - Upper cowl
- 3 - Water pump indicator hole
- 4 - Water plug
- 5 - Reverse lock lever
- 6 - Driveshaft housing
- 7 - Anti-ventilation plate
- 8 - Trim tab
- 9 - Secondary water intake
- 10 - Propeller
- 11 - Starter rope handle
- 12 - Shift lever
- 13 - Throttle grip
- 14 - Clamp screw
- 15 - Clamp bracket
- 16 - Trim position pin
- 17 - Upper oil plug
- 18 - Cooling water intake
- 19 - Lower oil plug
- 20 - Connector B
- 21 - Stop switch
- 22 - Choke knob
- 23 - Fuel tank
- 24 - Primer valve
- 25 - Fuel connector
- 26 - Fuel tank cap
- 27 - Air vent screw
- 28 - Fuel pickup elbow

# GENERAL INFORMATION



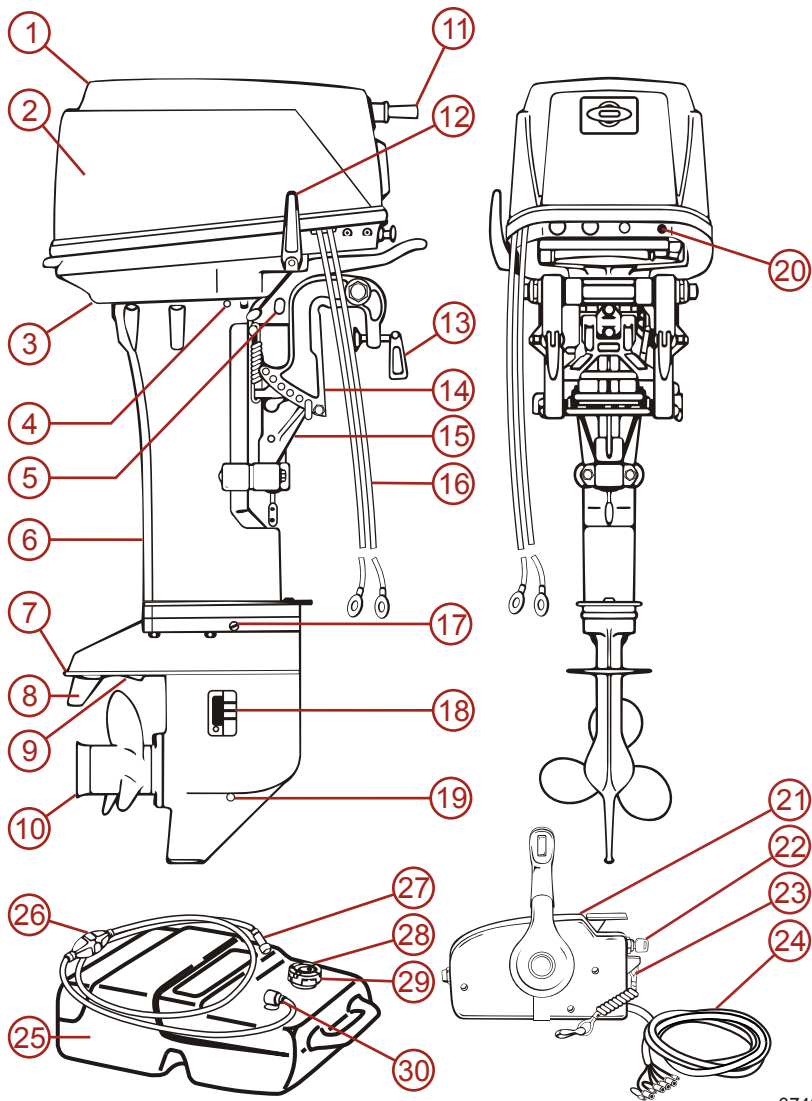
37461

# GENERAL INFORMATION

## EH models

- 1 - Tilt handle
- 2 - Upper cowl
- 3 - Water pump indicator hole
- 4 - Water plug
- 5 - Reverse lock lever
- 6 - Driveshaft housing
- 7 - Anti-ventilation plate
- 8 - Trim tab
- 9 - Secondary water intake
- 10 - Propeller
- 11 - Starter rope handle
- 12 - Shift lever
- 13 - Throttle grip
- 14 - Clamp screw
- 15 - Clamp bracket
- 16 - Trim position pin
- 17 - Battery cable
- 18 - Upper oil plug
- 19 - Cooling water intake
- 20 - Lower oil plug
- 21 - Connector B
- 22 - Main switch
- 23 - Stop switch
- 24 - Choke knob
- 25 - Fuel tank
- 26 - Primer valve
- 27 - Fuel connector
- 28 - Fuel tank cap
- 29 - Air vent screw
- 30 - Fuel pickup elbow

# GENERAL INFORMATION



37463



# GENERAL INFORMATION

## E models

- 1 - Tilt handle
- 2 - Upper cowl
- 3 - Water pump indicator hole
- 4 - Water plug
- 5 - Reverse lock lever
- 6 - Driveshaft housing
- 7 - Anti-ventilation plate
- 8 - Trim tab
- 9 - Secondary water intake
- 10 - Propeller
- 11 - Starter rope handle
- 12 - Shift lever
- 13 - Clamp screw
- 14 - Clamp bracket
- 15 - Trim position pin
- 16 - Battery cable
- 17 - Upper oil plug
- 18 - Cooling water intake
- 19 - Lower oil plug
- 20 - Connector B
- 21 - Remote control box
- 22 - Main switch
- 23 - Stop switch
- 24 - Cord assembly
- 25 - Fuel tank
- 26 - Primer valve
- 27 - Fuel connector
- 28 - Fuel tank cap
- 29 - Air vent screw
- 30 - Fuel pickup elbow

# INSTALLATION

## 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.



51965

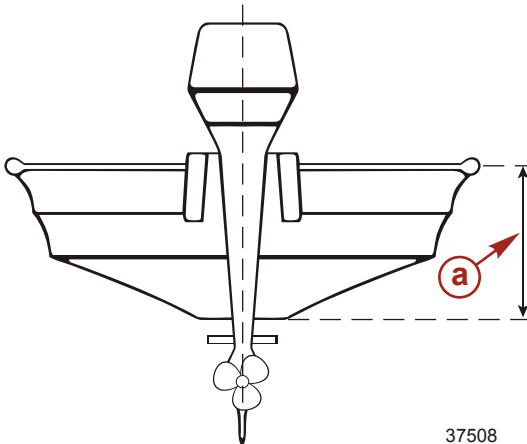
## Installing Outboard

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

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

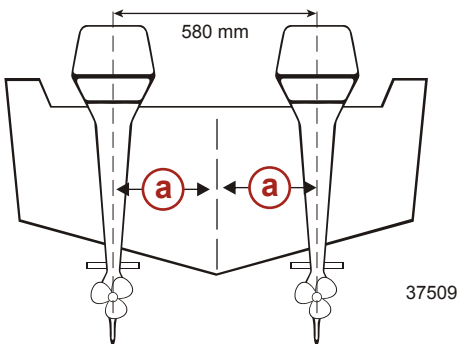
# INSTALLATION

1. One outboard: Position the outboard motor at the center of the stern. Refer to **General Information - 25/30 Specifications** for the transom height.



**a** - Transom height

2. Two outboards: Position the outboard engines about 580 mm (23 in.) apart. Refer to **General Information - 25/30 Specifications** for the transom height.

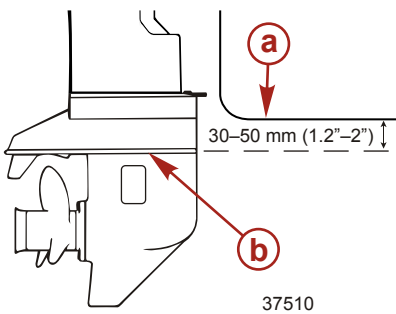


**a** - Transom height

3. 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 30–50 mm (1.2–2 in.), engine power performance is likely to be reduced as a result of increased water resistance to the gearcase assembly.

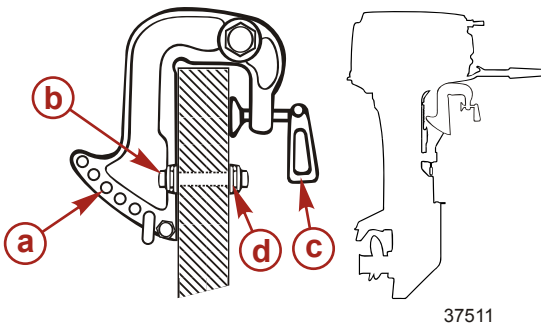
# INSTALLATION

**NOTE:** Select an outboard motor that allows the clearance shown below.



- a** - Bottom of boat
- b** - Anti-ventilation plate

4. After positioning the clamp brackets, attach it with the clamp screws then drill two holes in the transom board, matching the holes in the clamp bracket. Secure the engine with the supplied bolts and nuts. Be sure to use the washers.



- a** - Trim position pin holes
- b** - Bolt
- c** - Clamp screw
- d** - Nut

## TRANSOM MATCHING

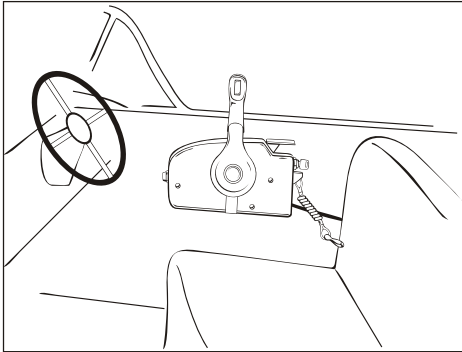
**NOTE:** Be sure that the anti-ventilation plate of the outboard is below the water surface when running at wide-open throttle. In case the above condition cannot be met due to a bottom shape of your boat, please consult the dealer.

# INSTALLATION

## Installing the Remote Control Device

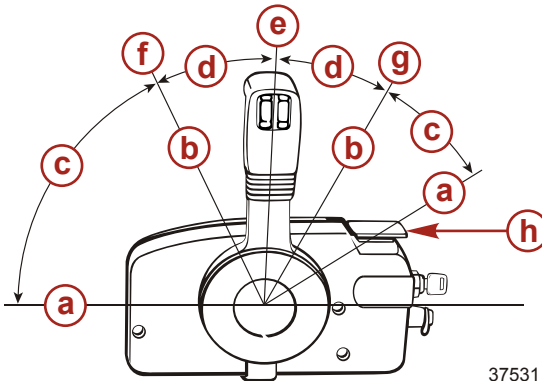
### RIGHT-HAND STEERING

1. Position the remote control box in a place that will not obstruct handling of the control levers and switches. Confirm there is no obstacle in the passage of the remote control cables.



37529

2. Remote control features:

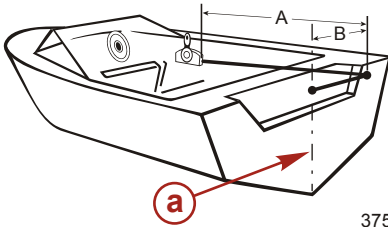


37531

- a** - Fully opened position
- b** - Fully closed position
- c** - Throttle range
- d** - Shift range
- e** - Neutral (N)
- f** - Forward (F)
- g** - Reverse (R)
- h** - Throttle only lever

# INSTALLATION

- Determining remote control cable length: A guideline for determining the proper length for a remote control cable is dimensions A plus B plus 300 mm (1 foot).

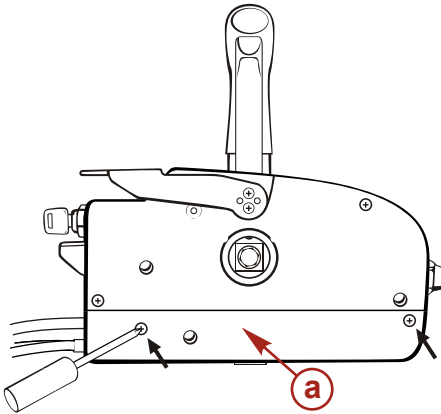


**a** - Center of transom

37530

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

- Connecting remote control cables to the remote control box: Remove the back panel by loosening two screws.

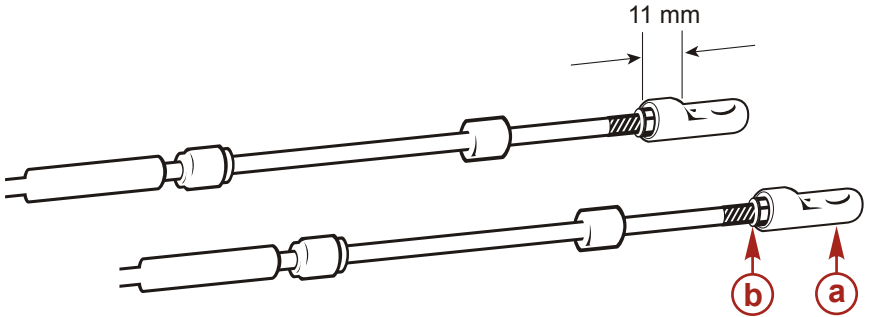


**a** - Back panel

37528

# INSTALLATION

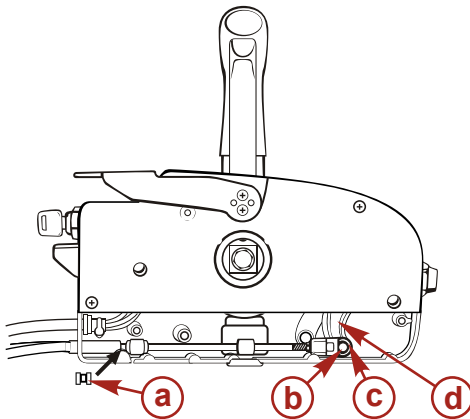
5. Thread the remote control cables through the terminal eyes at a distance of more than 16 mm (0.63 in.). Securely lock the terminal eyes with the locknut.



37497

- a** - Terminal eyes
- b** - Locknut

6. Press the neck of the shift remote control cable down into the clamp on the housing of the remote control box. Connect the terminal eye to the shift arm with the pin and E-ring. Insert a grommet, supplied with the remote control box, into the clamp.

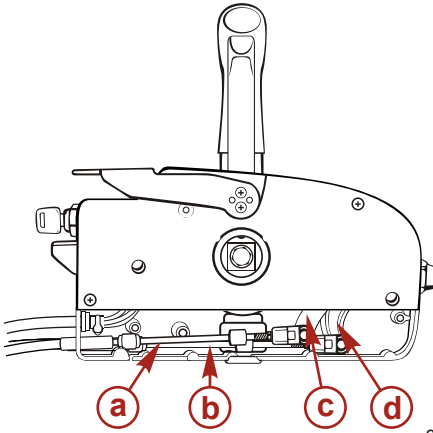


37527

- a** - Grommet
- b** - Shift arm pin
- c** - E-ring
- d** - Shift arm

# INSTALLATION

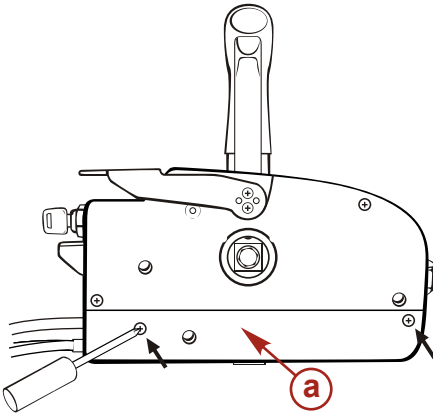
7. Connect the throttle remote control cable to the throttle arm in a manner similar to the shift remote control cable.



- a** - Throttle cable
- b** - Shift cable
- c** - Throttle arm
- d** - Shift arm

37526

8. Install the back panel.



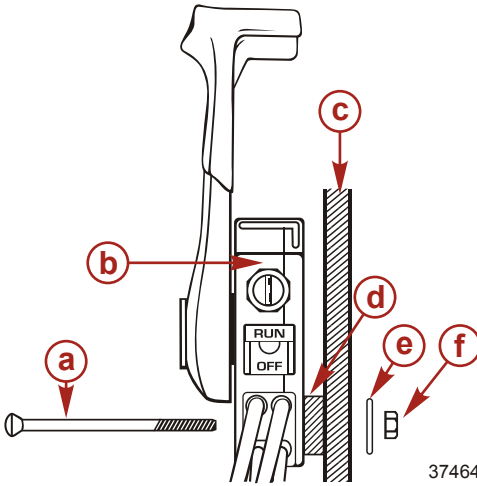
- a** - Back panel

37528



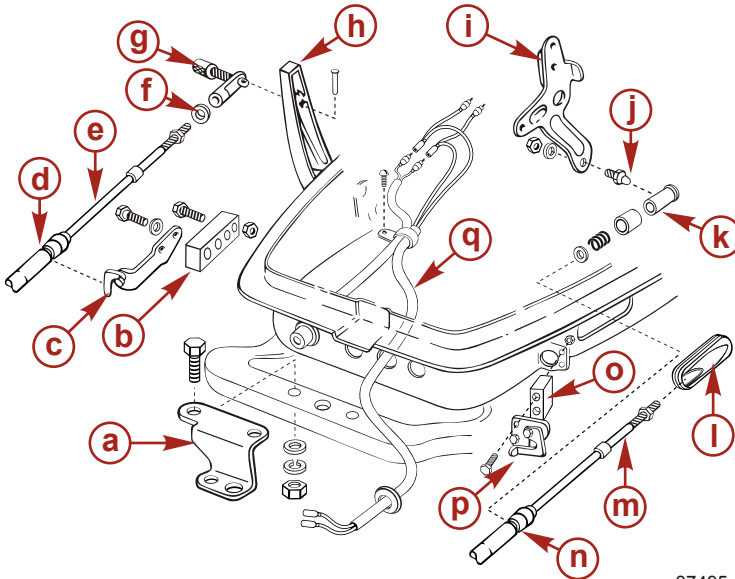
# INSTALLATION

9. Install the remote control box with three screws, spacers, and nuts.



# INSTALLATION

10. Connect the remote control cables to the engine and attach the cord assembly as shown below.



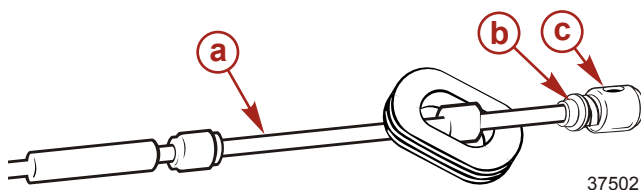
37495

- a** - Steering hook plate
- b** - Spacer
- c** - Clip
- d** - Neck of remote control cable
- e** - Shift remote control cable
- f** - Washer
- g** - Sleeve guide B: Connect remote control cable to shift lever
- h** - Shift lever
- i** - Advance arm
- j** - Ball joint
- k** - Holder cap: Connect remote control cable to ball joint
- l** - Remove grommet from lower motor cover
- m** - Throttle remote control cable
- n** - Neck of remote control cable
- o** - Spacer
- p** - clip

11. Attach a holder cap and a sleeve guide B.

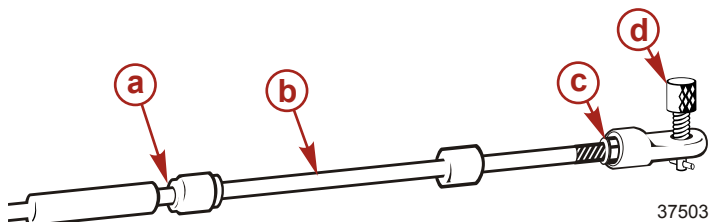
# INSTALLATION

12. Throttle side: Slide a grommet onto an end of the cable, put a holder cap on it, and lock it with a nut, as shown.



- a - Throttle cable
- b - Nut
- c - Holder cap

13. Shift side: Attach the sleeve guide B to the shift remote control cable, and lock it with a nut.



- a - Neck of remote control cable
- b - Shift cable
- c - Nut
- d - Sleeve guide B

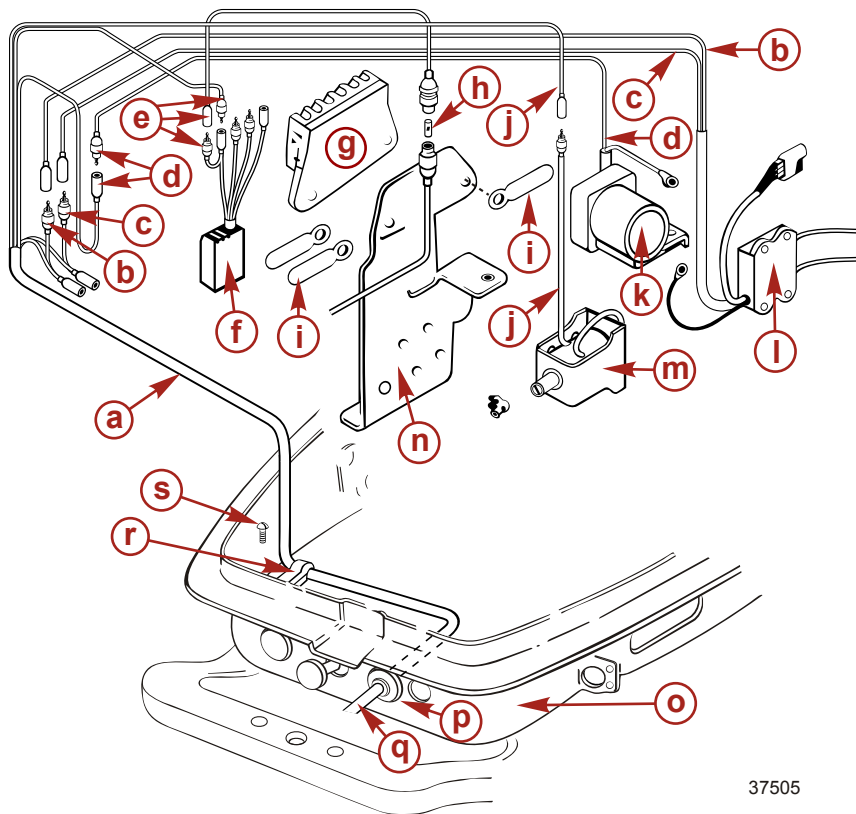
14. Connect the remote control cable to the engine.
15. Throttle side: Insert the throttle cable into a hole of the advancer arm at the lower cowl, attach the ball joint to the holder cap at the tip of the remote control cable, and fasten the remote control cable with a clip. Attach a grommet to the lower cowl.

**NOTE:** Place the control lever in Neutral (N), and the idling lever in the fully closed position.

16. Shift side: Insert the lock pin at the sleeve guide B into the shift lever attaching hole and turn it 90° to lock it, then fasten the remote control cable with a clip.

# INSTALLATION

17. Attach the cord assembly: Connect the cord assembly from the remote control box to respective terminals through the lower cowl as illustrated. Fasten the cord assembly with clamps.



37505

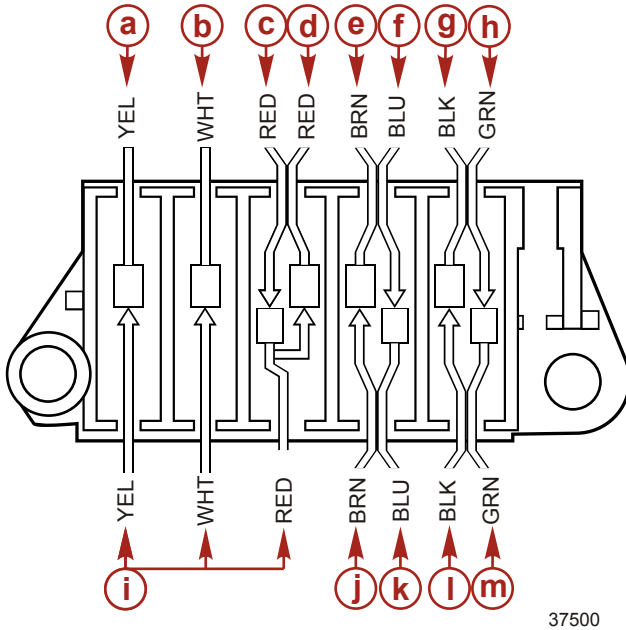
- a** - Cord assembly
- b** - Black terminal
- c** - Brown terminal
- d** - Green terminal
- e** - Red terminal
- f** - Rectifier
- g** - Terminal holder
- h** - Fuse
- i** - Clamps
- j** - Blue terminal
- k** - Starter solenoid
- l** - CD unit
- m** - Choke solenoid

# INSTALLATION

- n** - Starter solenoid bracket
- o** - Lower cowl
- p** - Grommet
- q** - To remote control box
- r** - Clamp
- s** - Screw

# INSTALLATION

18. Connect the cables to their respective terminals at the cable terminal holder.



37500

- a** - Magnet lead wire
- b** - Magnet lead wire
- c** - Cord assembly
- d** - Fuse wire
- e** - CD unit
- f** - Cord assembly
- g** - CD unit
- h** - Starter solenoid
- i** - Rectifier lead wire
- j** - Stop switch
- k** - Choke solenoid
- l** - Stop switch
- m** - Cord assembly

# INSTALLATION

## WIRE COLOR CODE ABBREVIATIONS

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

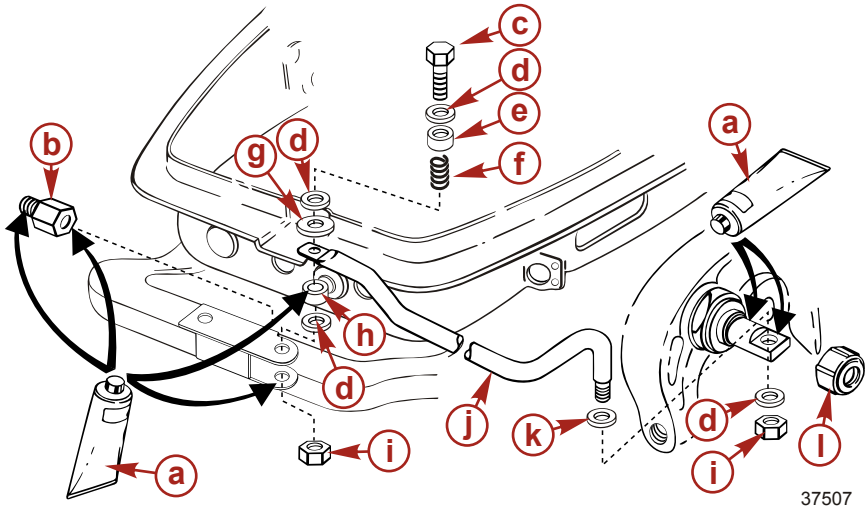
### Attaching the Steering Link Rod

#### WARNING

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

# INSTALLATION

The steering link rod parts are available and assembled as illustrated below. Spacers may or may not be required depending on cable brands.



- a - Grease
- b - Spacer (optional)
- c - Bolt
- d - Washer B
- e - Rubber cushion
- f - Spring
- g - Spacer
- h - Collar
- i - Locknut
- j - Rod
- k - Washer A
- l - Seal ring

## 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.



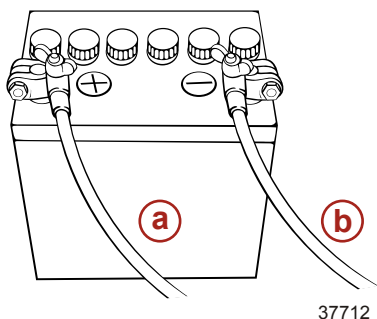
# INSTALLATION

## BATTERY CONNECTIONS

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

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

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



- a** - Red cable
- b** - Black cable

**IMPORTANT:** Please follow the instructions below:

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

## Propeller Selection

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

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

# INSTALLATION

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

## AVAILABLE PROPELLERS

Light-duty boat			—	Heavy-duty boat		
Mark	14 (E)	13 (D)	11 (C)	10 (B)	9 (A)	8 (F)
Dimensions (blade x diameter x pitch) mm	3 x 252 x 360	3 x 252 x 332	3 x 250 x 288	3 x 250 x 260	3 x 249 x 236	3 x 260 x 210

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.

# TRANSPORTING

## Trailing Boat/Outboard

The boat should be trailed with the outboard tilted down in a vertical operating position.

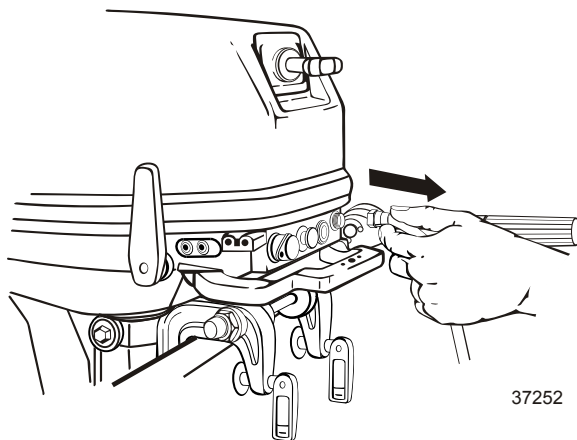
**IMPORTANT: The tilt lock and shallow water drive feature (tiller handle models) on the outboard are not intended to support the outboard in the tilted position when trailering.**

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.

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

## Removing the Motor

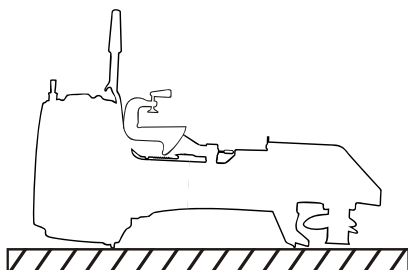
1. Stop the engine.
2. Disconnect the fuel connector from the motor.



3. Remove the motor from the hull and completely drain the water from the outboard.

# TRANSPORTING

4. When Rest the motor on the ground with the clamp screw handles facing upward.



37884

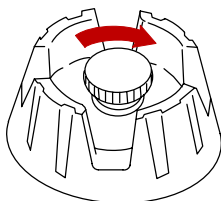
## Transporting Portable Fuel Tanks

### ⚠ 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.



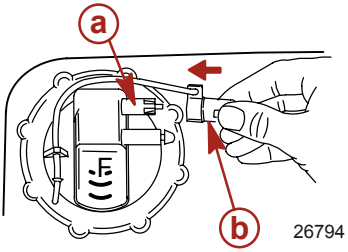
26793

### 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.

# TRANSPORTING

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)

# FUEL AND OIL

## ⚠ WARNING

Fuel leakage is a fire or explosion hazard, which can cause serious injury or death. Periodically inspect all fuel system components for leaks, softening, hardening, swelling, or corrosion, particularly after storage. Any sign of leakage or deterioration requires replacement before further engine operation.

**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

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

**IMPORTANT:** Oil must be NMMA certified TC-W3 2-Cycle oil.

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

## Mixing Fuel and Oil

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

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

## GASOLINE/OIL MIXING RATIO CHART

GASOLINE/OIL MIXING RATIO CHART			
Gas/Oil Ratio	3.8 liters (1 gal.) gas	11.5 liters (3 gal.) gas	23 liters (6 gal.) gas
25:1 (4%)	148 ml (5 fl. oz.) oil	473 ml (16 fl. oz.) oil	946 ml (32 fl. oz.) oil
50:1 (2%)	89 ml (3 fl. oz.) oil	237 ml (8 fl. oz.) oil	473 ml (16 fl. oz.) oil

# FUEL AND OIL

## MIXING PROCEDURE

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

## Filling Fuel Tank

### WARNING

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

Fill fuel tanks outdoors away from heat, sparks, and open flames.

Always stop engine before refilling tanks.

Do not 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 PERMANENTLY INSTALLED TANKS

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 the gasoline into the tank.

## PORTABLE FUEL TANK PLACEMENT IN THE BOAT

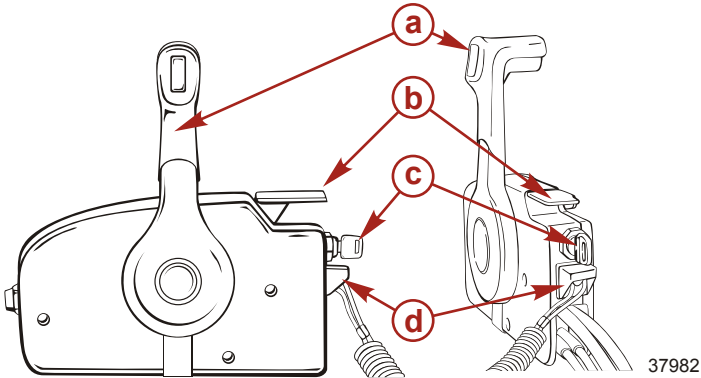
Place the fuel tank in the boat so the vent is higher than the fuel level under normal boat operating conditions.



# FEATURES AND CONTROLS

## Remote Control Features

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



- a** - Remote control handle - Forward (F), Neutral (N), Reverse (R)
- b** - Throttle only lever
- c** - Ignition key switch
- d** - Lanyard stop switch

## Tilting Outboard

### BASIC TILTING OPERATION

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

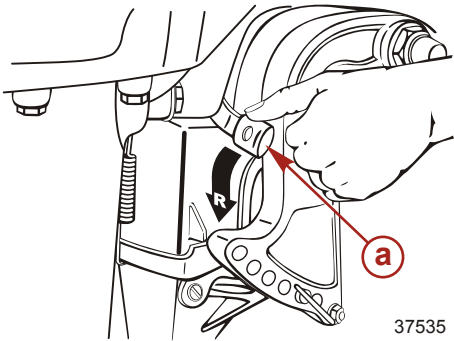
When running the outboard, keep the tilt lever in the release position. This allows the outboard to return to the running position if the outboard should hit an underwater obstacle and be lifted up.

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

# FEATURES AND CONTROLS

## TILT UP

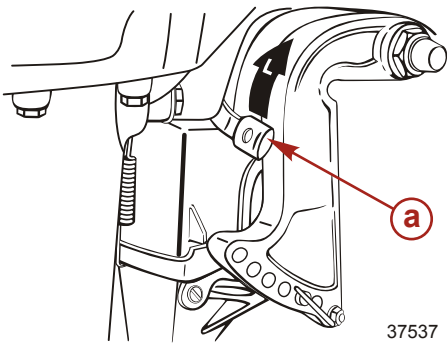
Turn the reverse lock lever to release side and tilt up the engine; the engine is set automatically.



**a** - Reverse lock lever

## TILT DOWN

Turn the reverse lock lever to lock side, lift up the engine slightly, and put it down. Reverse lock is done automatically.



**a** - Reverse lock lever

## Shallow Water Operation

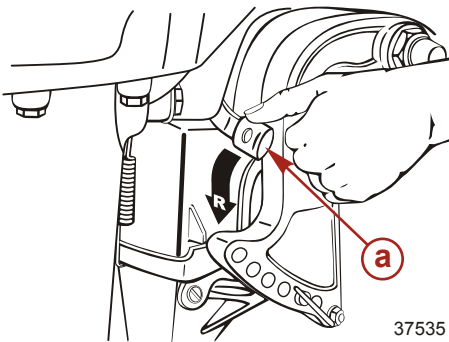
The outboard is equipped with a shallow water tilt feature that allows you to tilt the outboard to a higher tilt angle to prevent hitting bottom.

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

# FEATURES AND CONTROLS

## SHALLOW WATER RUNNING POSITION

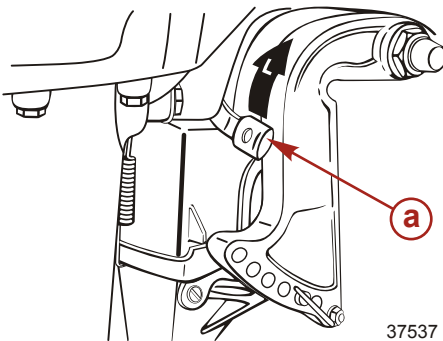
Turn the reverse lock lever to release side and tilt up the engine to set the engine to shallow water running position.



a - Reverse lock lever

## TILT DOWN FROM SHALLOW WATER RUNNING POSITION

Turn the reverse lock lever to lock side, lift up the engine slightly, and put it down. Reverse lock is done automatically.



a - Reverse lock lever

**IMPORTANT:** While in shallow water drive position, do not operate the outboard in reverse. Operate the outboard at slow speed and keep the cooling water intake submerged.

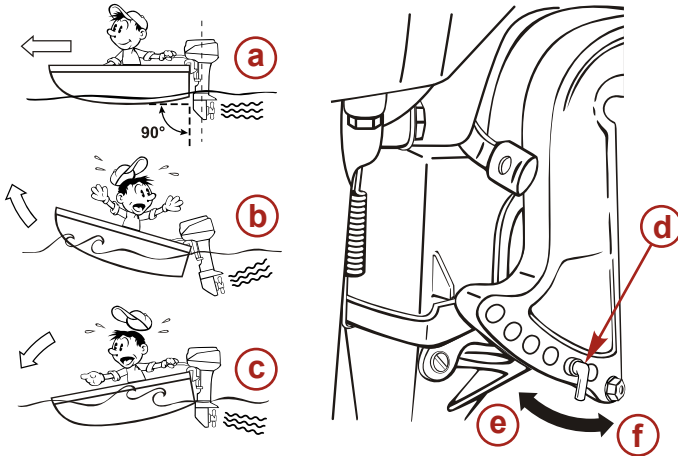
## Trim Adjustment

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

- **Correct trim:** Maintain the trim position pin perpendicular to the water level to keep your boat level during cruising.
- **Trim down:** If the bow rises too high, causing unstable cruising, trim the trim position pin down.

# FEATURES AND CONTROLS

- **Trim up:** If the bow falls into the water level when cruising, trim the trim position pin up.



37883

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

## Steering Friction Adjustment

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

### ⚠ WARNING

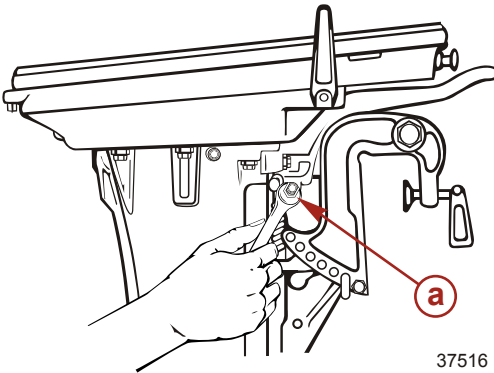
Insufficient friction adjustment can cause serious injury or death due to loss of boat control. When setting the friction adjustment, maintain sufficient steering friction to prevent the outboard from steering into a full turn if the tiller handle or steering wheel is released.

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

- Turn clockwise for more friction.

# FEATURES AND CONTROLS

- Turn counterclockwise for less friction.



a - Steering co-pilot

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## Trim Tab Adjustment

Propeller steering torque will cause the boat to pull in one direction. Steering torque results from the outboard not being tilted so the propeller shaft is parallel to the water surface. The trim tab can help compensate for this steering torque in many cases and can be adjusted within limits to reduce any unequal steering effort.

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

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

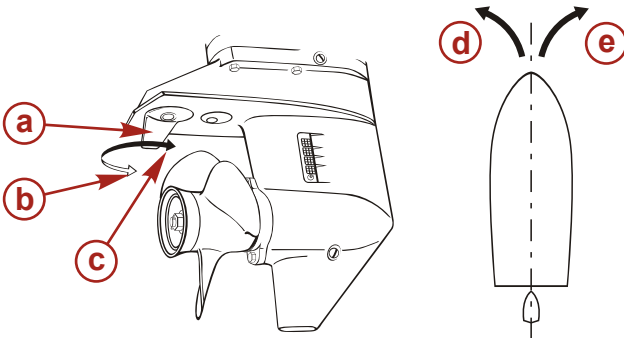
**NOTE:** Trim tab adjustment will have little effect reducing steering torque if the outboard is installed with the anti-ventilation plate approximately 50 mm (2 in.) or more above the boat bottom.

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

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

# FEATURES AND CONTROLS

- 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

# OPERATION

## Prestarting Check List

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

## Operating in Freezing Temperatures

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

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

## Operating in Saltwater or Polluted Water

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

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

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

# OPERATION

## Operating at High Elevations

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

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

## Engine Break-in Procedure

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

**Break-in running time:** 10 hours

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

## ENGINE BREAK-IN FUEL MIXTURE

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

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

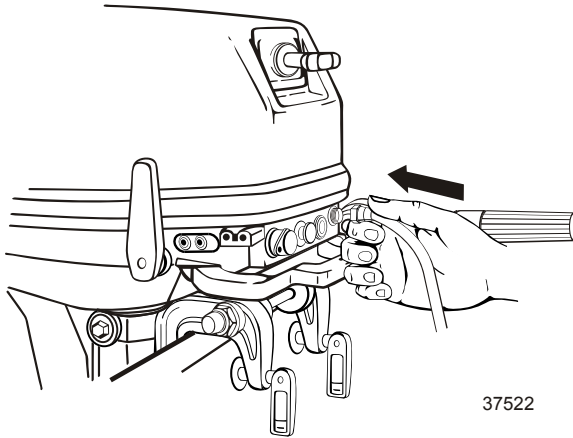


# OPERATION

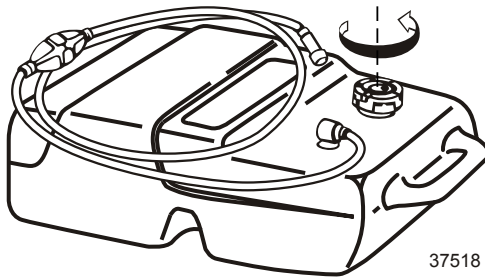
## Starting the Engine

### PREPARATIONS

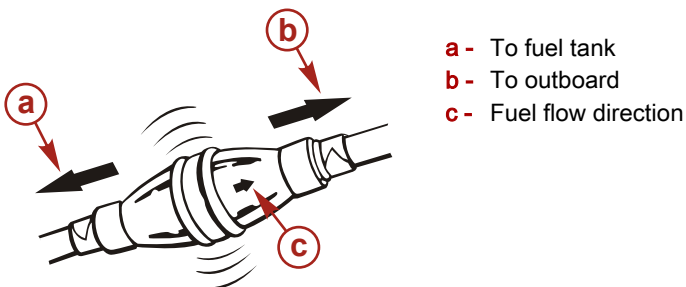
1. Install the fuel connector to the engine side connector.



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



3. Feed fuel to the carburetor by squeezing the primer valve until firm.



37714

# OPERATION

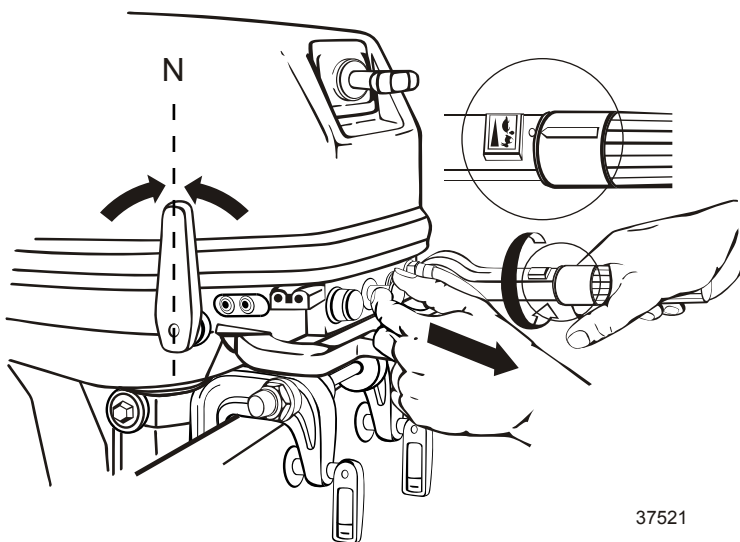
## NOTICE

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.

4. Tiller handle models: Set the shift lever to neutral position.

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

5. Turn the throttle grip until the bar mark on the grip faces the triangle mark on the steering handle.
6. Pull out the choke knob fully. No choke operation is necessary on warmed engine.

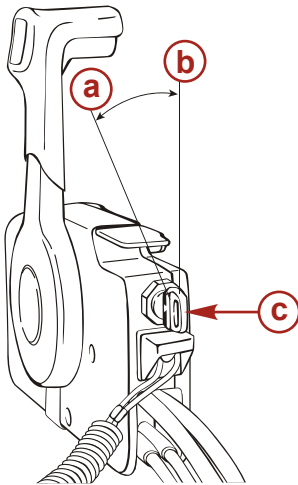


37521

7. Remote control models: Insert the key.

# OPERATION

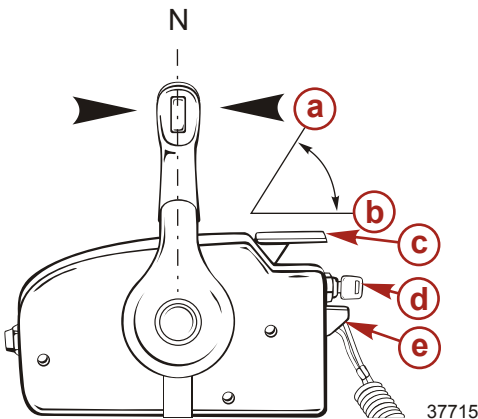
- Turn the key to the on position, and push it for choke operation. No need to push the key when the engine is warm.



- a** - Off
- b** - On
- c** - Push for choke operation

37466

- Place the control lever at Neutral (N), and move the throttle only lever to the open position.



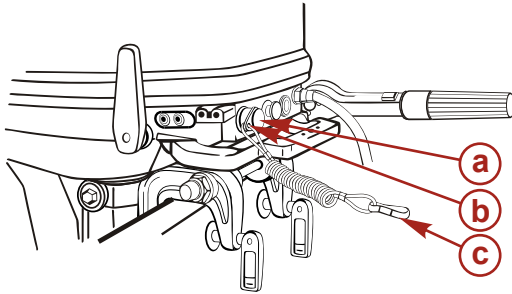
- a** - Fully opened position
- b** - Fully closed position
- c** - Throttle only lever
- d** - Ignition key switch
- e** - Lanyard stop switch

37715

# OPERATION

## SET THE LANYARD STOP SWITCH TO RUN POSITION

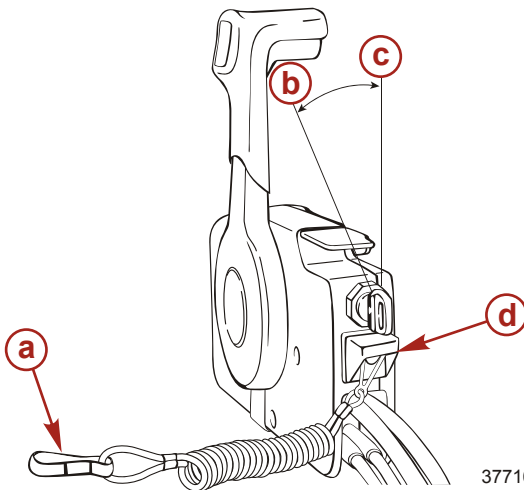
Be sure to connect the lanyard stop switch to your body. The engine will shut down if the stop lanyard is disconnected.



37465

### Tiller handle models

- a** - Lanyard stop switch
- b** - Stop switch lock
- c** - Hook



37716

### Remote control models

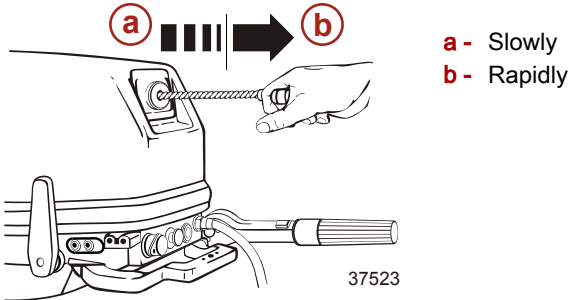
- a** - Hook
- b** - Off
- c** - On
- d** - Lanyard stop switch

**NOTE:** The engine will not start unless this switch has been properly connected and locked beforehand. Refer to **General Information - Lanyard Stop Switch**.

# OPERATION

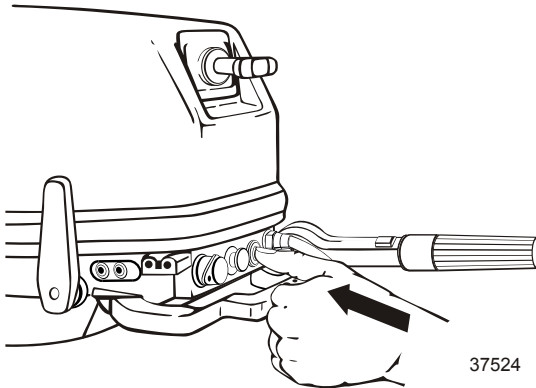
## STARTING THE ENGINE

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



**IMPORTANT:** Before starting, read the Pre-Starting Check List, Special Operating Instructions, and Engine Break-in Procedures in the Operation section.

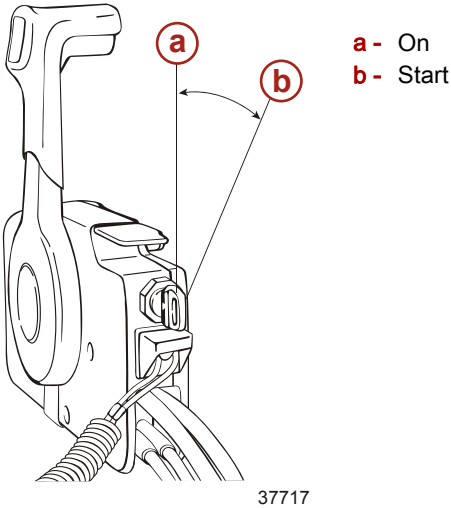
2. Tiller handle models: Push the starter button.
3. After the engine starts, release the button.



4. Remote control models: Insert, push, and turn the key to the start position.

# OPERATION

**NOTE:** When restarting a warm engine, do not push the key; merely turn it to the start position.



- When the engine starts, release the key, and it will return automatically to the run position.
- If the engine fails to start in 10 seconds, wait 30 seconds and try again. If the engine begins to stall, reprime (push key in) until the engine is running.

**IMPORTANT: RAPID ACCELERATION HAZARD:** Before shifting your outboard from neutral into gear, decrease engine speed to slow. This will prevent a rapid acceleration that can cause people in the boat to be thrown from their seats or out of the boat, causing injury or death.

## STARTING GUIDELINE

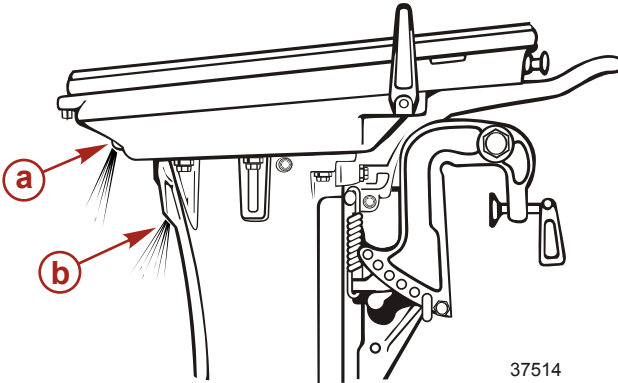
Temperature	Starting procedure
Over 25 °C (77 °F)	Turn the throttle grip to the original position. Pull the choke knob and rewind starter once. Turn the throttle grip to start position, push the choke knob back, then pull the rewind starter until the engine starts.
15 °C–25 °C (59 °F–77 °F)	Turn the throttle grip to start position. Pull the choke knob and rewind starter once. Push the choke knob back and pull the rewind starter until the engine starts.
Below 15 °C (59 °F)	Turn the throttle grip to start position. Pull the choke knob and the rewind starter until combustion occurs. Push the choke knob back and pull the rewind starter until the engine starts.

# OPERATION

## Warm-Up

Run the engine at a low speed for about three minutes for warm-up operation before cruising, permitting the oil to circulate throughout the engine, otherwise the life of the engine will be shortened greatly. During warm-up operation, confirm that cooling water is discharged from its water pump indicator hole.

**IMPORTANT:** If cooling water is not discharged, and operation continues, it may cause overheating, resulting in engine damage.



37514

**a** - Water pump indicator

**b** - Cooling water discharge port

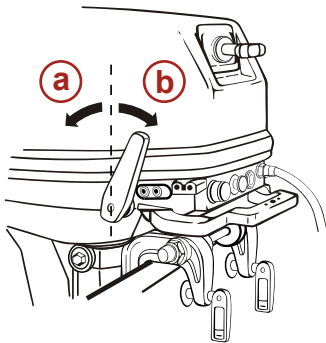
## Gear Shifting

### FORWARD

**IMPORTANT:** It may be dangerous to attempt shifting at high RPM. Be sure to slow down to trolling or idling RPM before shifting.

# OPERATION

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

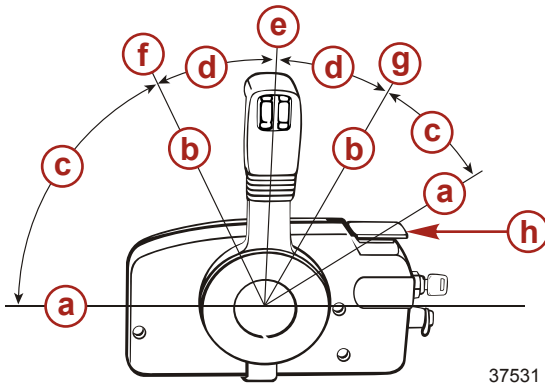


- a** - Reverse (R)
- b** - Forward (F)

37713

Remote control models: Move the throttle only lever to the lower position, then shift the control lever to Forward (F) position.

**NOTE:** Forward running is not possible unless the throttle only lever is at the lower position.



37531

- a** - Fully opened position
- b** - Fully closed position
- c** - Throttle range
- d** - Shift range
- e** - Neutral (N)
- f** - Forward (F)
- g** - Reverse (R)
- h** - Throttle only lever

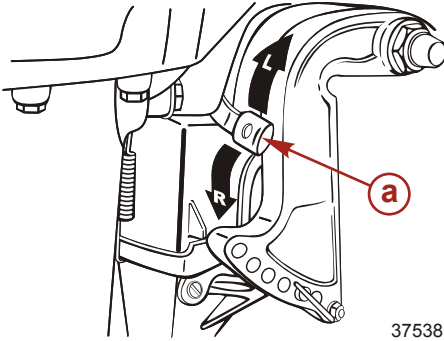


# OPERATION

## REVERSE

Tiller handle models: Move the shift lever to the Reverse (R) position swiftly when the engine speed drops to its lowest level.

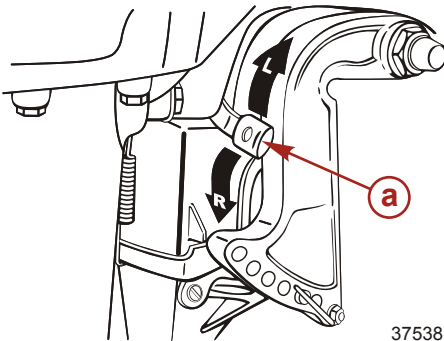
**NOTE:** Confirm that the reverse lock lever is at the lock position.



**a -** Reverse lock lever: R = Release, L = Lock

Remote control models: Shift the outboard only when the engine is at idle speed. To change Forward (F) to Reverse (R), first idle the engine and shift into Neutral (N). With the engine still running, slowly engage and gradually increase the reverse speed.

**NOTE:** Confirm that the reverse lock lever is at the lock position.



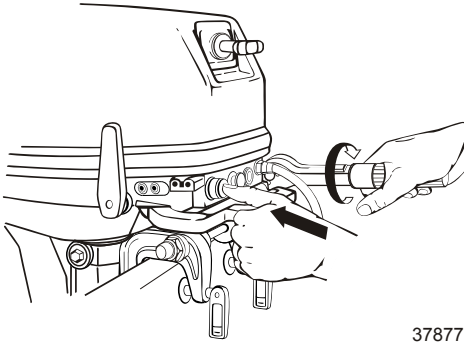
**a -** Reverse lock lever: R = Release, L = Lock

## Stopping the Engine

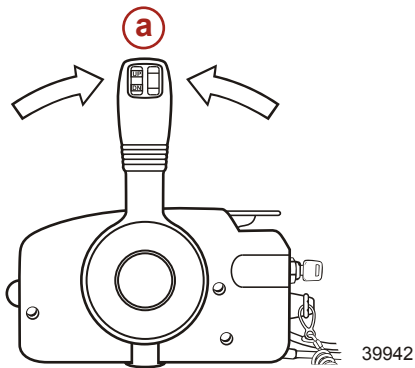
1. Tiller handle models: Reduce the speed to trolling speed by turning the throttle grip to the slow position.
2. Place the shift lever at Neutral (N).

# OPERATION

3. Press the stop switch until the engine stops completely, or pull the lanyard stop switch.

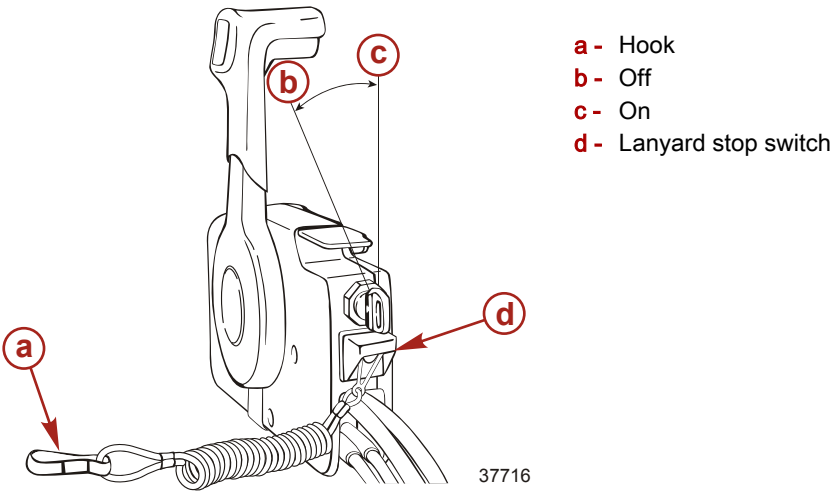


4. Remote control models: Place the remote control lever at Neutral (N) and idle the engine.



# OPERATION

- Turn the key to the off position, or pull the lanyard stop switch.



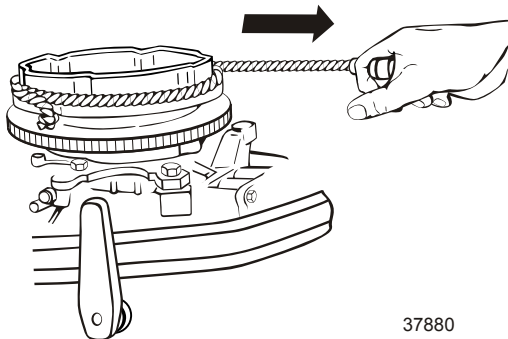
**IMPORTANT:** Follow the instructions below.

- After the engine stops, tighten the air vent screw on the tank cap.
- Disconnect the fuel connector from the engine.
- For electric start models, disconnect the cables from the battery when not in use for extended periods.

## Emergency Starting

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

1. Ensure the lanyard stop switch is in run position.
2. Remove the starter rope.
3. Wind a pull rope around the flywheel.
4. Use a 10 mm socket wrench as a pull grip, as shown below.



## OPERATION

5. Remote control models: Ensure the key switch is in the on position.

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

### WARNING

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

# MAINTENANCE

## Outboard Care

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

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

## SELECTING REPLACEMENT PARTS FOR YOUR OUTBOARD

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

## EPA Regulations

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

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

# MAINTENANCE

## EPA Emissions

### EMISSION CERTIFICATION LABEL

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

The diagram shows a rectangular label with the Mercury logo on the left and the title "EMISSION CONTROL INFORMATION" on the right. The label contains several fields for engine specifications and emissions data. Red callouts labeled 'a' through 'i' point to specific fields: 'a' points to the model year box; 'b' points to the Idle Speed field; 'c' points to the Timing field; 'd' points to the Spark Plug and Gap fields; 'e' points to the Valve Clearance field; 'f' points to the Family number field; 'g' points to the FEL field; 'h' points to the Piston Displacement field; and 'i' points to the Date of Manufacture field.

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

28405

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

## OWNER RESPONSIBILITY

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

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

## Inspection and Maintenance Schedule

### 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

# MAINTENANCE

- 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
- 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.

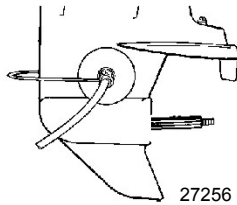
# MAINTENANCE


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

## ⚠ WARNING

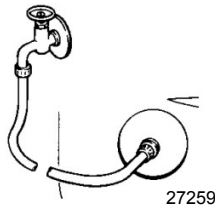
Rotating propellers can cause serious injury or death. Never operate the boat out of the water with a propeller installed. Before installing or removing a propeller, place the drive unit in neutral and engage the lanyard stop switch to prevent the engine from starting. Place a block of wood between the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

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



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

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.



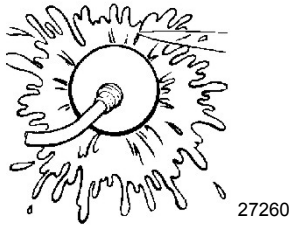
3. Start the engine and run it at idle speed in neutral shift position.



# MAINTENANCE

**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.

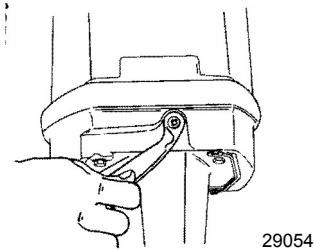


5. Check for a steady stream of water flowing out of the water pump indicator hole. Continue flushing the outboard for 3 to 5 minutes, carefully monitoring water supply at all times.
6. Stop the engine, turn off the water, and remove the flushing attachment. Install the propeller.

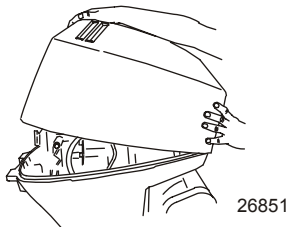
## Top Cowl Removal and Installation

### 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.

# MAINTENANCE

2. Push cowl down and move the rear latch lever up to lock.

## Battery Inspection

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

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

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

## Fuel System

### WARNING

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

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

## FUEL LINE INSPECTION

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

## ENGINE FUEL FILTER

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

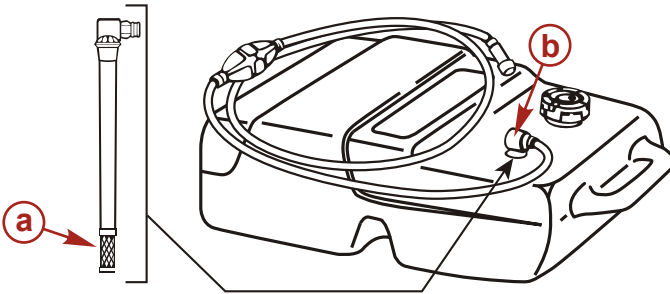
## CLEANING FUEL TANK

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

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

# MAINTENANCE

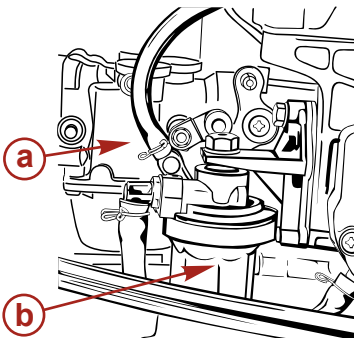
1. Unscrew four screws, remove the housing, then clean the fuel filter.



37711

- a - Filter: Unscrew the fuel pickup elbow and then clean it
- b - Fuel pickup elbow

2. Remove the fuel filter bowl, then clean the fuel filter at the engine.



37710

- a - Carburetor
- b - Fuel filter bowl

## Fuse Replacement - Electric Start Remote Control Models

**IMPORTANT:** Always carry spare SFE 20 amp fuses.

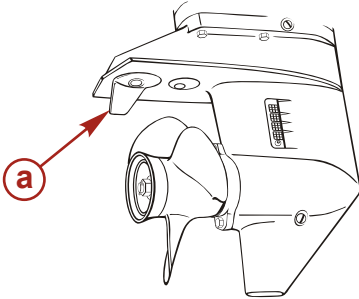
The electric starting circuit is protected from overload by an SFE 20 amp fuse. If the fuse is blown, the electric starter motor will not operate. Try to locate and correct the cause of the overload. If the cause is not found, the fuse may blow again. Replace fuse with a fuse of the same rating.

## Corrosion Control Anode

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

# MAINTENANCE

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



**a** - Anode (trim tab)

37879

## Important:

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

## Propeller Replacement

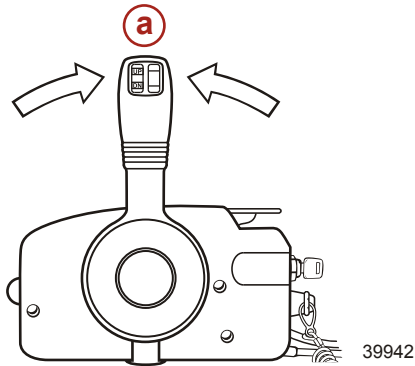
### **⚠ WARNING**

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

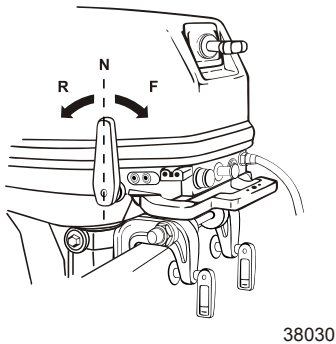
# MAINTENANCE

## REMOVING PROPELLER

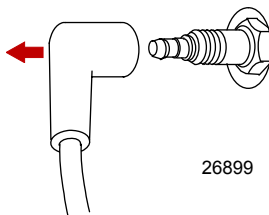
1. Remote control model: Shift outboard to Neutral (N) position.



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

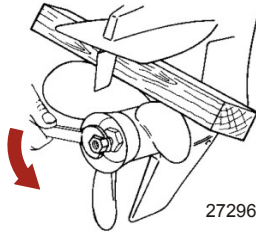


3. Remove the spark plug leads to prevent the engine from starting.

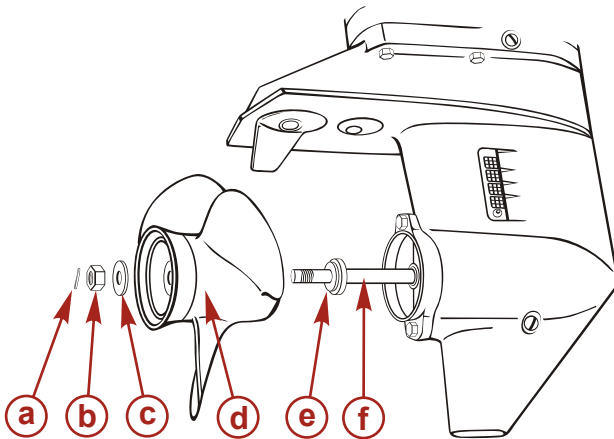


# MAINTENANCE

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





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

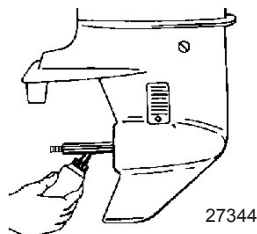


- a** - Cotter pin
- b** - Nut
- c** - Washer
- d** - Propeller
- e** - Propeller thrust holder
- f** - Propeller shaft

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

# MAINTENANCE

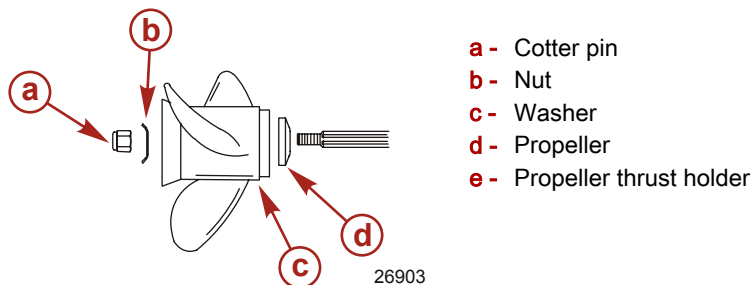
Tube Ref No.	Description	Where Used	Part No.
 95	2-4-C with PTFE	Propeller shaft	92-802859A 1
	Extreme Grease	Propeller shaft	8M0071842



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

## INSTALLING PROPELLER

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



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

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

3. Install the spark plug leads.

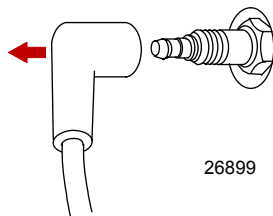
# MAINTENANCE

## Spark Plug Inspection and Replacement

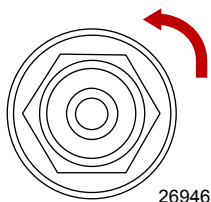
### ⚠ WARNING

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.

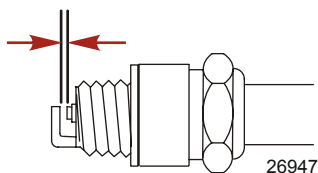
1. Remove the spark plug boots. Twist the rubber boots slightly and pull off.



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



3. Set the spark plug gap to specification.



### Spark Plug

Spark plug gap	1.0 mm (0.035 in.)
----------------	--------------------

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

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



# MAINTENANCE

## Lubrication Points

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

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

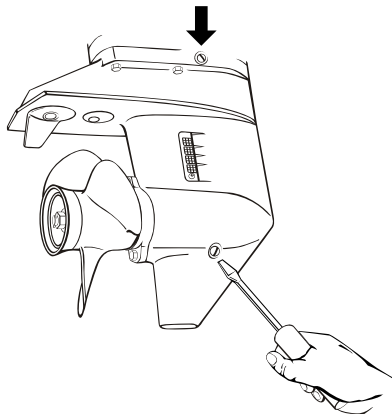
## Gearcase Lubrication

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

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

## CHANGING GEAR OIL

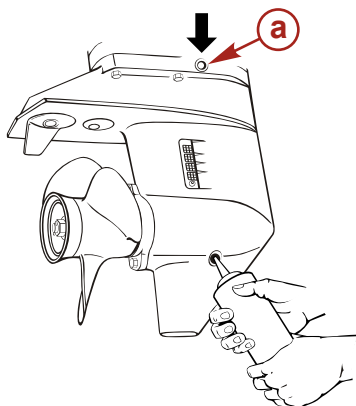
1. Place the outboard in a vertical operating position.
2. Place a drain pan below the outboard.
3. Remove the oil plugs (upper and lower) and drain the gear oil completely.



37849

# MAINTENANCE

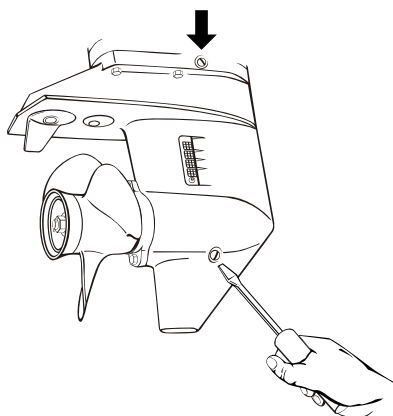
- Place the lubricant tube into the fill/drain hole and add the lubricant until it appears at the upper oil plug hole.



**a** - Upper oil plug hole

37848

- Install the upper oil plug before removing the lubricant tube.
- Remove the lubricant tube and install the lower oil plug.



37849

## GEARCASE LUBRICANT CAPACITY

Gearcase lubricant capacity is approximately 280 cc (9.5 fl oz).

## GEARCASE LUBRICANT RECOMMENDATION

Mercury or Quicksilver Premium or High Performance Gear Lubricant.

# 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.

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

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

# STORAGE

## Storage Preparation

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

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

### NOTICE

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

## FUEL SYSTEM

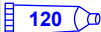
**IMPORTANT:** Gasoline containing alcohol (ethanol or methanol) can cause a formation of acid during storage and can damage the fuel system. If the gasoline being used contains alcohol, it is advisable to drain as much of the remaining gasoline as possible from the fuel tank, remote fuel line, and engine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

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

- Portable fuel tank - Pour the required amount of gasoline stabilizer (follow instructions on container) into 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.
- 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).

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

# STORAGE

## 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. Install the spark plug.

## Gearcase

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

## Positioning Outboard for Storage

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

### *NOTICE*

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

## Battery Storage

- Follow the battery manufacturer's instructions for storage and 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.

# ASSOCIATED PARTS

## Associated Parts

	Name	Quantity	Dimensions
Service tools	Tool bag	1	
	Pliers	1	
	Socket wrench	1	10 x 13 mm
	Socket wrench	1	21 mm
	Socket wrench handle	1	
	Screwdriver	1	
Spare parts	Starter rope	1	1000 mm
	Spark plug	1	NGK B7HS-10 or Champion L82C (Gap: 1.0 mm - 0.035 in.)
	Cotter pin	1	
Other*	Fuel tank	1	
	Primer bulb	1 set	
	Remote control box	1 set	
	Remote control attachment	1 set	
	Steering link	1 set	
	Flushing plug	1	

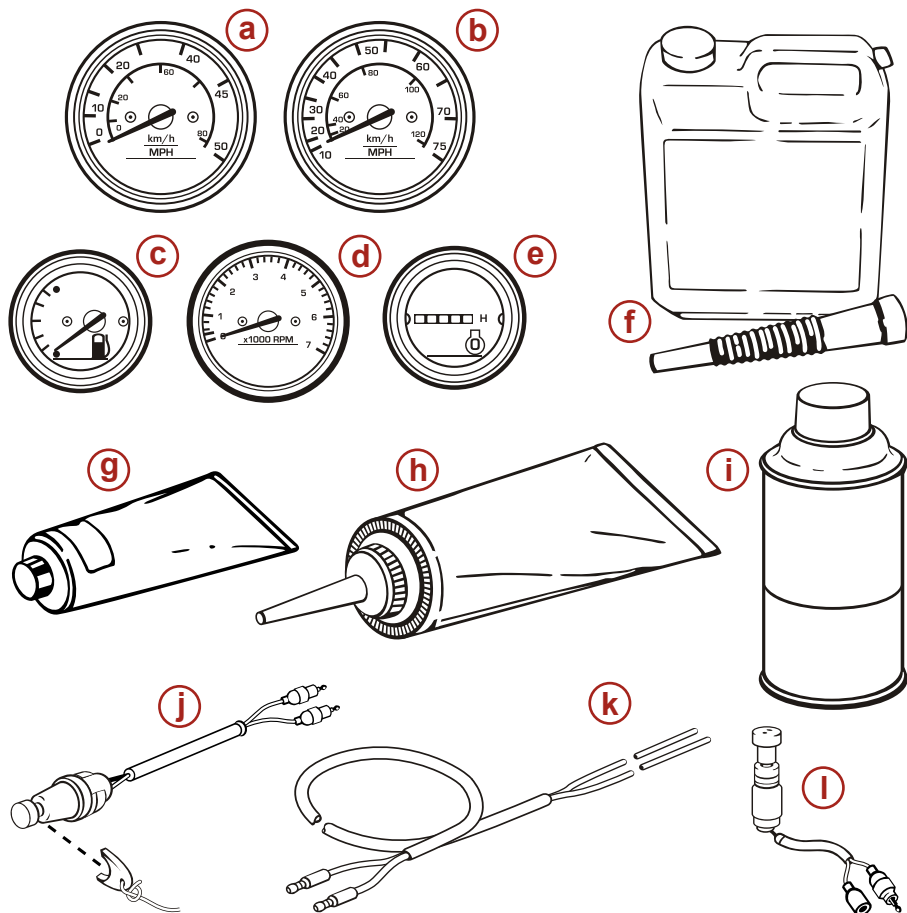
\* Not included as standard accessories in some markets.



# ACCESSORIES

## Accessories

### OPTIONAL ACCESSORIES

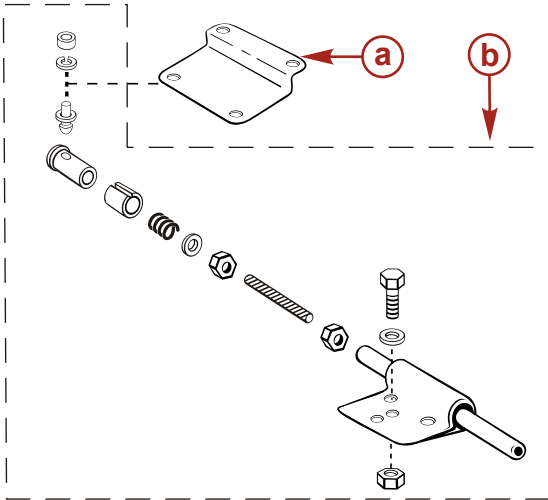


- a** - Speedometer (50 MPH)
- b** - Speedometer (75 MPH)
- c** - Fuel meter
- d** - Tachometer
- e** - Hour meter
- f** - Genuine engine oil
- g** - Genuine grease (50 g, 250 g)
- h** - Genuine gear oil (260 cc, 500 cc)

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# ACCESSORIES

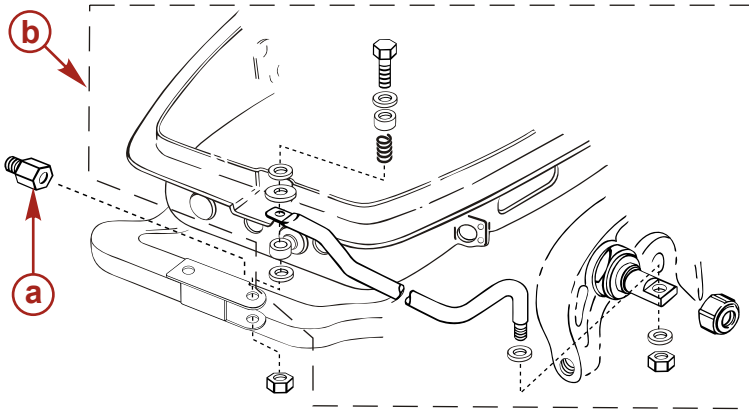
- i- Touch-up spray paint (300 ml)
- j- Stop switch
- k- Extension cord, light
- l- Meter lamp switch



37540

- a- Turnbuckle plate
- b- **Twin remote control turnbuckle assembly**

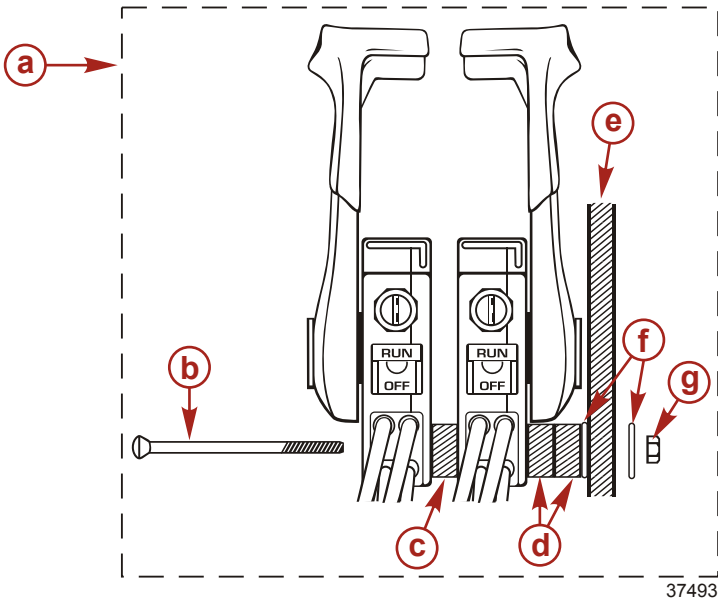
# ACCESSORIES



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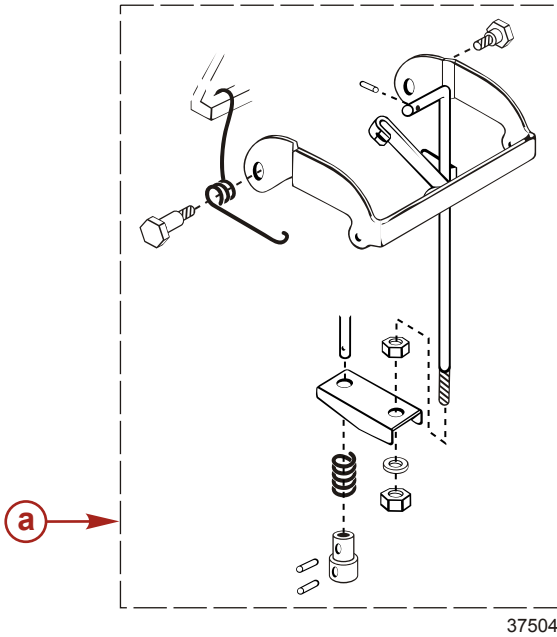
- a** - Steering spacer
- b** - **Steering link assembly** (standard: EP type)

# ACCESSORIES



- a** - Twin remote control box kit
- b** - 3 screws (included in kit)
- c** - 3 spacers (included in kit)
- d** - 6 spacers
- e** - Hull
- f** - 6 washers
- g** - 3 nuts

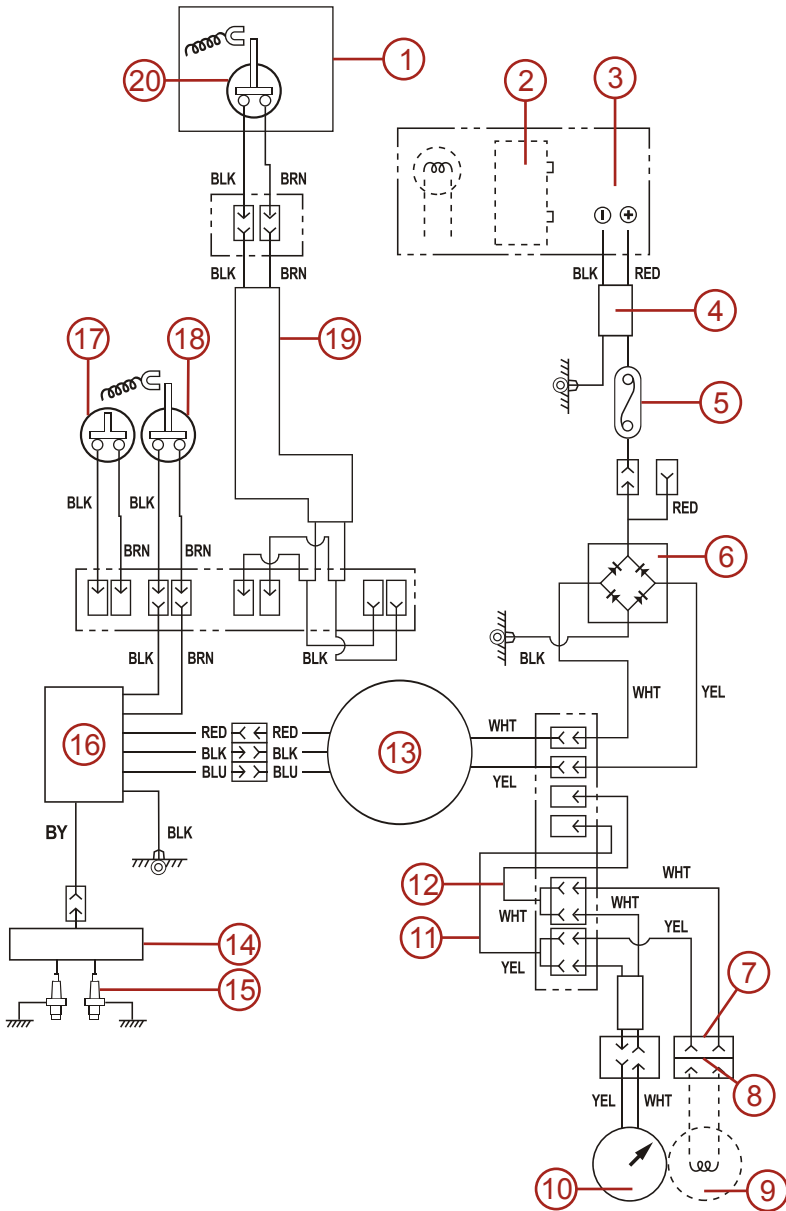
# ACCESSORIES



**a - Automatic reverse lock kit**

# WIRING DIAGRAMS

## Wiring Diagrams

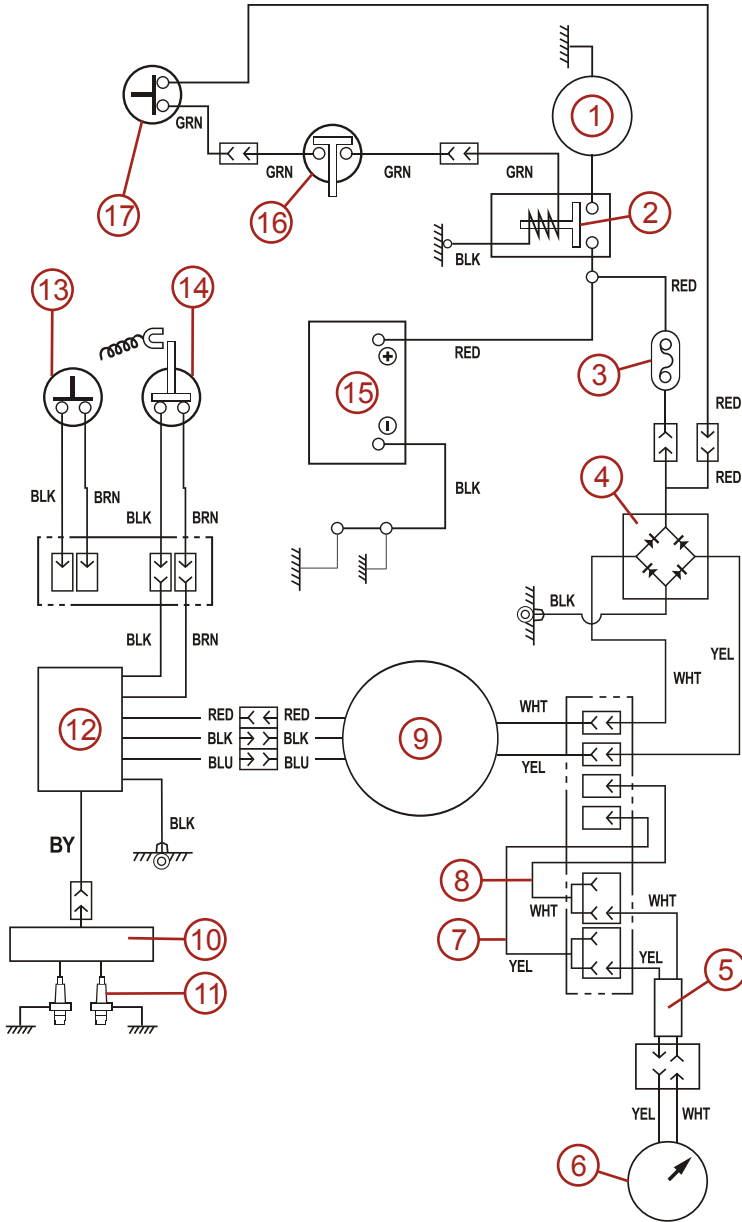


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# WIRING DIAGRAMS

- 1** - Remote control box
- 2** - Battery
- 3** - 12 V, 800 W (DC)
- 4** - Extension cord (optional)
- 5** - Fuse (15 amp)
- 6** - Rectifier (optional)
- 7** - Extension cord, light (optional)
- 8** - Receptacle plug (optional)
- 9** - Lamp (12 V, 80 W) (AC)
- 10** - Tachometer (optional)
- 11** - Separate cord (yellow) (optional)
- 12** - Separate cord (white) (optional)
- 13** - Flywheel magneto
- 14** - Ignition coil
- 15** - Spark plug
- 16** - CD unit
- 17** - Stop switch (optional)
- 18** - Stop switch
- 19** - Remote control stop cord (optional)
- 20** - Remote control stop switch

# WIRING DIAGRAMS



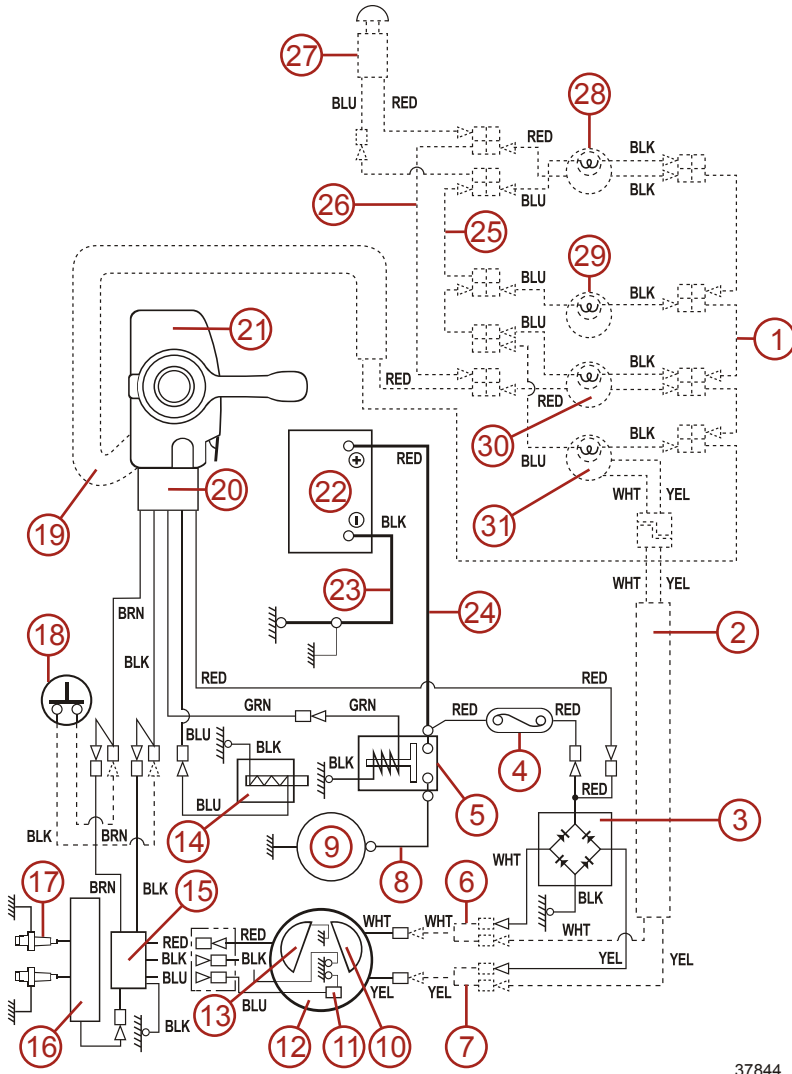
37843



# WIRING DIAGRAMS

- 1** - Starter motor
- 2** - Starter solenoid
- 3** - Fuse (15 amp)
- 4** - Rectifier
- 5** - Tachometer lead wire (optional)
- 6** - Tachometer (optional)
- 7** - Separate cord (yellow) (optional)
- 8** - Separate cord (white) (optional)
- 9** - Flywheel magneto
- 10** - Ignition coil
- 11** - Spark plug
- 12** - CD unit
- 13** - Stop switch (optional)
- 14** - Stop switch
- 15** - Battery: 12 V, 70 AH (optional)
- 16** - Neutral switch
- 17** - Main switch

# WIRING DIAGRAMS

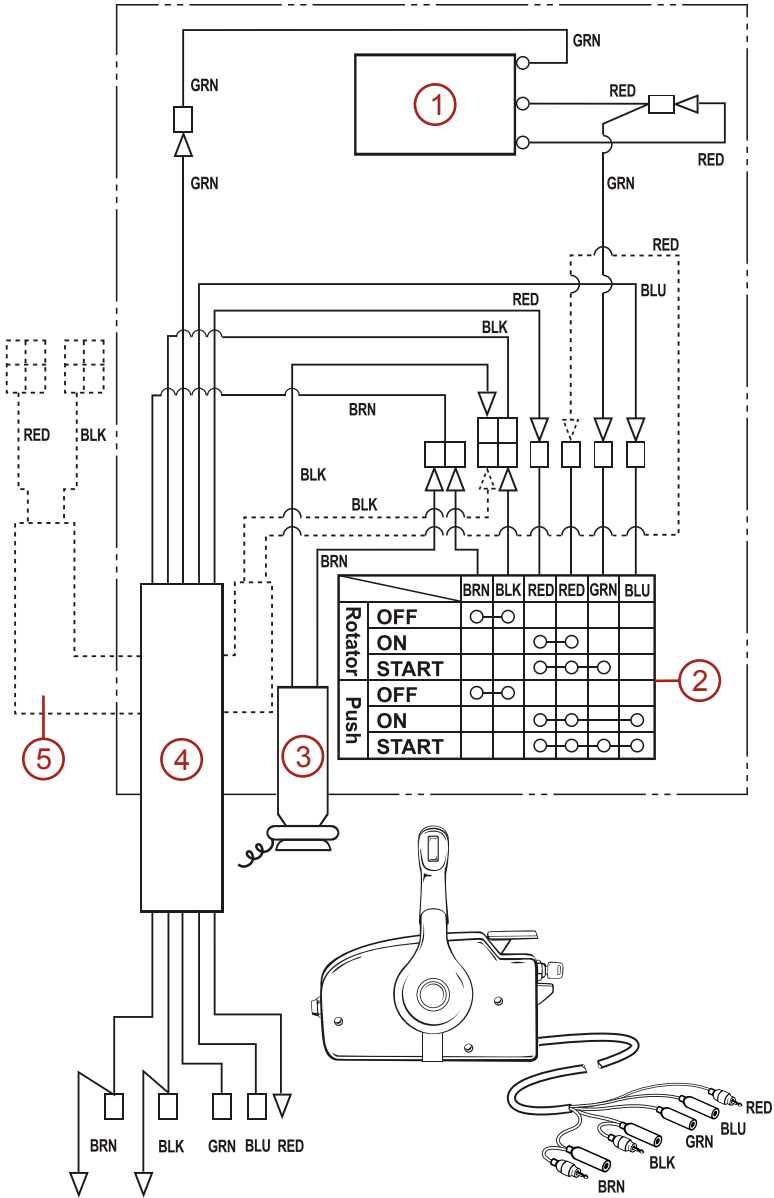


37844

# WIRING DIAGRAMS

- 1 - Assist cord (black) (optional)
- 2 - Tachometer lead wire (optional)
- 3 - Rectifier
- 4 - Fuse wire (15 amp)
- 5 - Starter solenoid
- 6 - Separate cord (white) (optional)
- 7 - Separate cord (yellow) (optional)
- 8 - Starter cord
- 9 - Starter motor
- 10 - Alternator
- 11 - Trigger coil
- 12 - Flywheel magneto
- 13 - Exciter coil
- 14 - Choke solenoid
- 15 - CD unit
- 16 - Ignition coil
- 17 - Spark plug
- 18 - Stop switch (optional)
- 19 - Meter lead wire (optional)
- 20 - Cord assembly
- 21 - Remote control box (see next page)
- 22 - Battery (12 V, 70 AH)
- 23 - Battery cord (-) (black)
- 24 - Battery cord (+) (red)
- 25 - Assist cord (blue) (optional)
- 26 - Assist cord (red) (optional)
- 27 - Meter lamp switch (optional)
- 28 - Voltmeter (optional)
- 29 - Speedometer (optional)
- 30 - Hour meter (optional)
- 31 - Tachometer (optional)

# WIRING DIAGRAMS



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# WIRING DIAGRAMS

- 1 - Neutral switch
- 2 - Main switch
- 3 - Stop switch
- 4 - Cord assembly
- 5 - Meter lead wire (optional)

# OWNER SERVICE ASSISTANCE

## Local Repair Service

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

## Service Away from Home

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

## Parts and Accessories Inquiries

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

## Service Assistance

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

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

The following information will be needed by the service office:

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

## Mercury Marine Service Offices

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

# OWNER SERVICE ASSISTANCE

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

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

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

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

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

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

# 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