YAMAHA

F2.5B

OWNER'S MANUAL

⚠ **Read this manual carefully before operating this outboard motor.**

6EG-F8199-75-E0

Read this manual carefully before operating this outboard motor. Keep this manual onboard in a waterproof bag when boating. This manual should stay with the outboard motor if it is sold.

EMU25108

To the owner

Thank you for selecting a Yamaha outboard motor. This Owner's Manual contains information needed for proper operation, maintenance and care. A thorough understanding of these simple instructions will help you obtain maximum enjoyment from your new Yamaha. If you have any question about the operation or maintenance of your outboard motor, please consult a Yamaha dealer.

In this Owner's Manual particularly important information is distinguished in the following ways.

⚠ : This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

EWM00782

⚠ WARNING

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

ECM00702

NOTICE

A NOTICE indicates special precautions that must be taken to avoid damage to the outboard motor or other property.

TIP:

A TIP provides key information to make procedures easier or clearer.

Yamaha continually seeks advancements in product design and quality. Therefore, while this manual contains the most current product information available at the time of printing, there may be minor discrepancies between your machine and this manual. If there is any question concerning this manual, please consult your Yamaha dealer.

To ensure long product life, Yamaha recommends that you use the product and perform the specified periodic inspections and maintenance by correctly following the instructions in the owner's manual. Any damage resulting from neglect of these instructions is not covered by warranty.

Some countries have laws or regulations restricting users from taking the product out of the country where it was purchased, and it may be impossible to register the product in the destination country. Additionally, the warranty may not apply in certain regions. When planning to take the product to another country, consult the dealer where the product was purchased for further information.

If the product was purchased used, please consult your closest dealer for customer re-registration, and to be eligible for the specified services.

TIP:

The F2.5BMH and the standard accessories are used as a base for the explanations and illustrations in this manual. Therefore some items may not apply to every model.

EMU45001

F2.5B
OWNER'S MANUAL
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Table of contents

Safety information 1
Outboard motor safety 1
Propeller 1
Rotating parts 1
Hot parts 1
Electric shock 1
Engine shut-off cord (lanyard) 1
Gasoline 1
Gasoline exposure and spills 1
Carbon monoxide 2
Modifications 2
Boating safety 2
Alcohol and drugs 2
Personal flotation devices (PFDs) 2
People in the water 2
Passengers 2
Overloading 2
Avoid collisions 3
Collisions with floating or submerged objects 3
Weather 3
Passenger training 3
Boating safety publications 4
Laws and regulations 4

General information 5
Identification numbers record 5
Outboard motor serial number 5
EC Declaration of Conformity (DoC) 5
CE Marking / UKCA Marking 5
Read manuals and labels 7
Warning labels 7

Specifications and requirements ... 10
Specifications 10
Installation requirements 11
Boat horsepower rating 11
Mounting outboard motor 11
Propeller selection 11
Engine oil requirements 12
Fuel requirements 12
Gasoline 12
Anti-fouling paint 13
Outboard motor disposal requirements 13
Emergency equipment 13

Components 15
Components diagram 15
Fuel tank (built-in fuel tank) 16
Fuel cock 17
Tiller handle 17
Gear shift lever 17
Throttle grip 18
Throttle indicator 18
Throttle friction adjuster 18
Engine shut-off cord (lanyard) and clip 19
Engine stop button 19
Pull-type choke knob 19
Manual starter handle 20
Steering friction adjuster 20
Trim rod (tilt pin) 20
Tilt support lever 20
Cowling lock lever 21
Carrying handle 21

Installation 22
Installation 22
Mounting the outboard motor 22
Clamping the outboard motor 24

Operation 25
First-time operation 25
Fill engine oil 25
Breaking in engine 25
Getting to know your boat 25
Checks before starting engine 25
Fuel level 26
Remove the top cowling 26
Fuel system 26
Controls 27
Engine shut-off cord (lanyard) 27
Engine oil 27
Engine 28
Installing top cowling 28

Table of contents

Filling fuel 29
Operating engine..... 30
Supplying fuel to engine..... 30
Starting engine 30
Checks after starting engine 32
Cooling water 32
Warming up engine 33
Warming up..... 33
Checks after engine warm up 33
Shifting 33
Stop switches..... 33
Shifting 33
Stopping boat 35
Stopping engine..... 35
Procedure..... 35
Trimming outboard motor 36
Adjusting trim angle 36
Adjusting boat trim..... 37
Tilting up and down 38
Procedure for tilting up 38
Procedure for tilting down..... 39
Cruising in other conditions 40

Maintenance 41
Transporting and storing outboard motor..... 41
Dismounting and transporting the outboard motor..... 41
Storing outboard motor..... 44
Procedure..... 44
Lubrication 46
Cleaning the outboard motor 46
Checking painted surface of outboard motor..... 46
Periodic maintenance 46
Replacement parts..... 47
Severe operating conditions 47
Maintenance chart 1 48
Maintenance chart 2 50
Greasing..... 51
Inspecting the spark plug..... 52
Checking fuel filter 53
Inspecting idle speed..... 53
Changing engine oil..... 53
Why Yamalube 55
Checking electrical connectors and electrical leads 56
Checking propeller 56
Removing propeller 56
Installing propeller 57
Changing gear oil 58
Inspecting and replacing anode (external) 58

Trouble Recovery..... 60
Troubleshooting..... 60
Temporary action in emergency ... 62
Impact damage 62
Starter will not operate 62
Emergency engine starting..... 63
Treatment of submerged motor.... 65

INDEX..... 66

EMU33623

Outboard motor safety

Observe these precautions at all times.

EMU36502

Propeller

People can be injured or killed if they come in contact with the propeller. The propeller can keep moving even when the motor is in neutral, and sharp edges of the propeller can cut even when stationary.

- Stop the engine when a person is in the water near you.
- Keep people out of reach of the propeller, even when the engine is off.

EMU40272

Rotating parts

Hands, feet, hair, jewelry, clothing, personal flotation device (PFD) straps, etc., can become entangled with internal rotating parts of the engine, resulting in serious injury or death.

Keep the top cowling in place whenever possible. Do not remove or replace the top cowling with the engine running.

Only operate the engine with the top cowling removed according to the specific instructions in the manual. Keep hands, feet, hair, jewelry, clothing, PFD straps, etc., away from any exposed moving parts.

EMU33641

Hot parts

During and after operation, engine parts are hot enough to cause burns. Avoid touching any parts under the top cowling until the engine has cooled.

EMU33651

Electric shock

Do not touch any electrical parts while starting or operating the engine. They can cause shock or electrocution.

EMU33672

Engine shut-off cord (lanyard)

Attach the engine shut-off cord so that the engine stops if the operator falls overboard or leaves the helm. This prevents the boat from running away under power and leaving people stranded, or running over people or objects.

Always attach the engine shut-off cord to a secure place on your clothing or your arm or leg while operating. Do not remove it to leave the helm while the boat is moving. Do not attach the cord to clothing that could tear loose, or route the cord where it could become entangled, preventing it from functioning.

Do not route the cord where it is likely to be accidentally pulled out. If the cord is pulled during operation, the engine will shut off and you will lose most steering control. The boat could slow rapidly, throwing people and objects forward.

EMU33811

Gasoline

Gasoline and its vapors are highly flammable and explosive. Always, refuel according to the procedure on page 30 to reduce the risk of fire and explosion.

EMU33821

Gasoline exposure and spills

Take care not to spill gasoline. If gasoline spills, wipe it up immediately with dry rags. Dispose of rags properly.

If any gasoline spills onto your skin, immediately wash with soap and water. Change clothing if gasoline spills on it.

If you swallow gasoline, inhale a lot of gasoline vapor, or get gasoline in your eyes, get immediate medical attention. Never siphon fuel by mouth.

EMU33901
Carbon monoxide
This product emits exhaust gases which contain carbon monoxide, a colorless, odorless gas which may cause brain damage or death when inhaled. Symptoms include nausea, dizziness, and drowsiness. Keep cockpit and cabin areas well ventilated. Avoid blocking exhaust outlets.

EMU33781
Modifications
Do not attempt to modify this outboard motor. Modifications to your outboard motor may reduce safety and reliability, and render the outboard unsafe or illegal to use.

EMU33742
Boating safety
This section includes a few of the many important safety precautions that you should follow when boating.

EMU33711
Alcohol and drugs
Never operate after drinking alcohol or taking drugs. Intoxication is one of the most common factors contributing to boating fatalities.

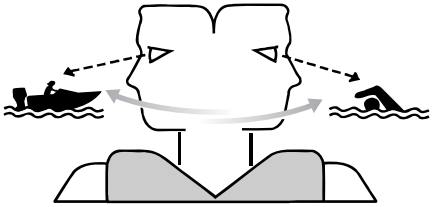
EMU40281
Personal flotation devices (PFDs)
Have an approved PFD on board for every occupant. Yamaha recommends that you must wear a PFD whenever boating. At a minimum, children and non-swimmers should always wear PFDs, and everyone should wear PFDs when there are potentially hazardous boating conditions.

EMU33732
People in the water
Always watch carefully for people in the water, such as swimmers, skiers, or divers, whenever the engine is running. When someone is in the water near the boat, shift into neutral and stop the engine.
Stay away from swimming areas. Swimmers can be hard to see.
The propeller can keep moving even when the motor is in neutral. Stop the engine when a person is in the water near you.

EMU33752
Passengers
Consult your boat manufacturer's instructions for details about appropriate passenger locations in your boat and be sure all passengers are positioned properly before accelerating and when operating above an idle speed. Standing or sitting in non-designated locations may result in being thrown either overboard or within the boat due to waves, wakes, or sudden changes in speed or direction. Even when people are positioned properly, alert your passengers if you must make any unusual maneuver. Always avoid jumping waves or wakes.

EMU33763
Overloading
Do not overload the boat. Consult the boat capacity plate or boat manufacturer for maximum weight and number of passengers. Be sure that weight is properly distributed according to the boat manufacturer's instructions. Overloading or incorrect weight distribution can compromise the boat's handling and lead to an accident, capsizing or swamping.

EMU33773
Avoid collisions
Scan constantly for people, objects, and other boats. Be alert for conditions that limit your visibility or block your vision of others.

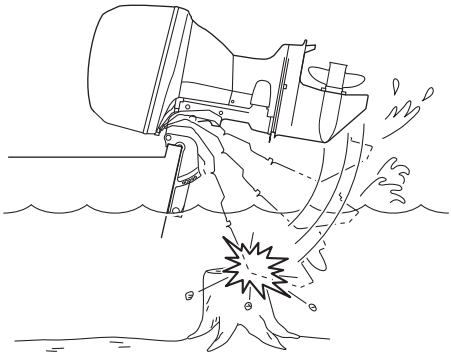


ZMU06025

Operate defensively at safe speeds and keep a safe distance away from people, objects, and other boats.
- Do not follow directly behind other boats or waterskiers.
- Avoid sharp turns or other maneuvers that make it hard for others to avoid you or understand where you are going.
- Avoid areas with submerged objects or shallow water.
- Ride within your limits and avoid aggressive maneuvers to reduce the risk of loss of control, ejection, and collision.
- Take early action to avoid collisions. Remember, boats do not have brakes, and stopping the engine or reducing throttle can reduce the ability to steer. If you are not sure that you can stop in time before hitting an obstacle, apply throttle and turn in another direction.

EMU48140
Collisions with floating or submerged objects
If the outboard motor hits a floating object or an obstacle in the water while cruising, the following could occur:
- The passengers and any loose equipment or luggage could be thrown forward due to the sudden deceleration.
- Parts of the outboard motor could come loose as a result of the impact and could be thrown into the boat.
- The boat or outboard motor could be damaged as a result of the impact.

If the outboard motor hits a floating object or an obstacle in the water, make sure that there are no abnormalities with the boat and the outboard motor. If anything abnormal is found, return to the nearest harbor at low speed and have a Yamaha dealer inspect the outboard motor.



EMU33791
Weather
Stay informed about the weather. Check weather forecasts before boating. Avoid boating in hazardous weather.

EMU33881
Passenger training
Make sure at least one other passenger is trained to operate the boat in the event of an emergency.

EMU33891

Boating safety publications

Be informed about boating safety. Additional publications and information can be obtained from many boating organizations.

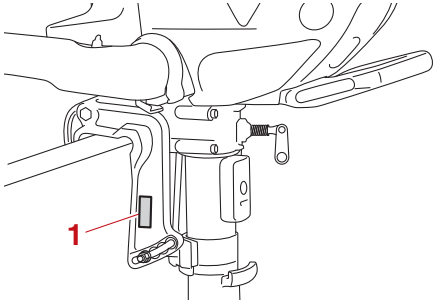
EMU33602

Laws and regulations

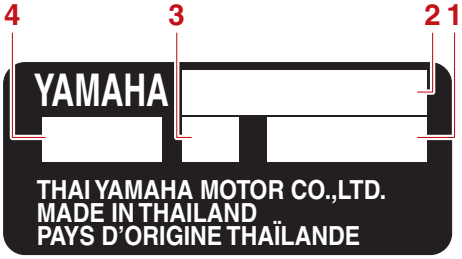
Know the marine laws and regulations where you will be boating—and obey them. Several sets of rules prevail according to geographic location, but all are basically the same as the International Rules of the Road.

EMU25172
Identification numbers record

EMU25186
Outboard motor serial number
The outboard motor serial number is stamped on the label attached to the port side of the clamp bracket.
Record your outboard motor serial number in the spaces provided to assist you in ordering spare parts from your Yamaha dealer or for reference in case your outboard motor is stolen.



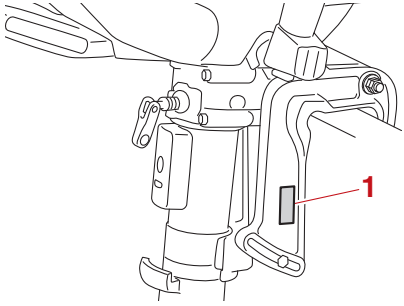
1. Outboard motor serial number location



1. Serial number
2. Model name
3. Motor transom height
4. Engine code

EMU38984
EC Declaration of Conformity (DoC)
This declaration is included with outboard motors that conform to European regulations.
This outboard motor conforms to certain portions of the European Parliament directive relating to machinery.
Each conformed outboard motor accompanied with EC DoC. EC DoC contains the following information;
- Manufacturer
- Model name
- Engine code
- Applied directives

EMU48442
CE Marking / UKCA Marking
This label is affixed to outboard motors that conform to European regulations.



1. CE marking location



CE marking

Outboard motors affixed with this “CE” marking conform with the directives of; 2006/42/EC, 2014/30/EU, and 2013/53/EU.

UKCA marking

This product is in compliance with the Recreational Craft Regulations 2017, Electromagnetic Compatibility Regulations 2016 and Supply of Machinery (Safety) Regulations 2008.

EMU33524

Read manuals and labels

Before operating or working on this outboard motor:

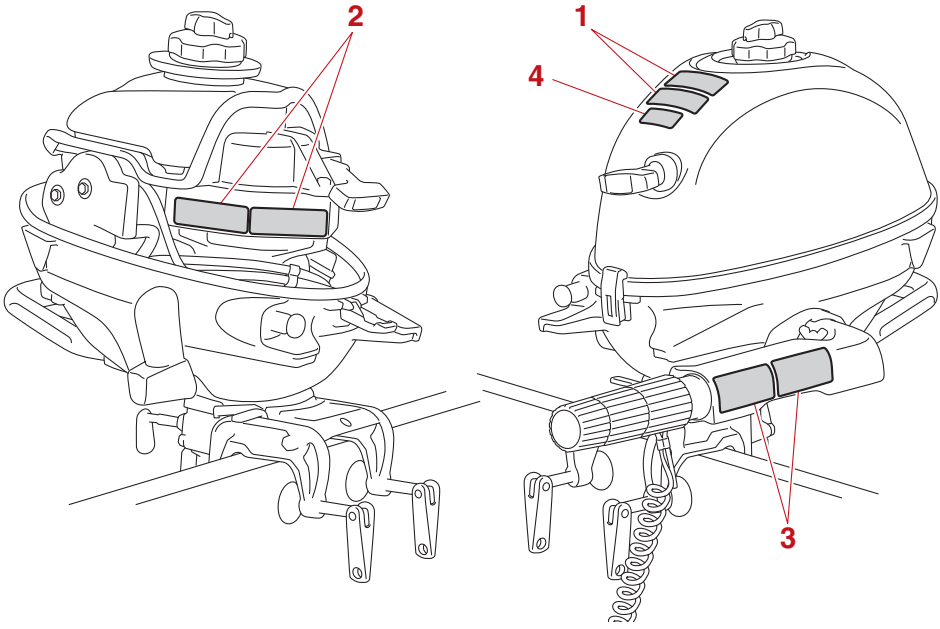
- Read this manual.
- Read any manuals supplied with the boat.
- Read all labels on the outboard motor and the boat.

If you need any additional information, contact your Yamaha dealer.

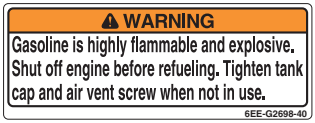
EMU33836

Warning labels

If these labels are damaged or missing, contact your Yamaha dealer for replacements.

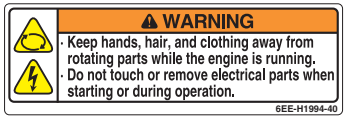


1



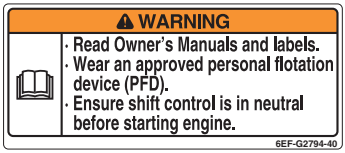


2





3





EMU33923

Contents of labels

The above warning labels mean as follows.

1

EWM01702

WARNING

Gasoline is highly flammable and explosive. Shut off engine before refueling. Tighten tank cap and air vent screw when not in use.

2

EWM01682

WARNING

- **Keep hands, hair, and clothing away from rotating parts while the engine is running.**
- **Do not touch or remove electrical parts when starting or during operation.**

3

EWM01712

WARNING

- **Read Owner's Manuals and labels.**
- **Wear an approved personal flotation device (PFD).**
- **Ensure shift control is in neutral before starting engine.**

EMU33851

Other labels

4



EMU35133

Symbols

The following symbols mean as follows.

Notice/Warning



ZMU05696

Read Owner's Manual



ZMU05664

Hazard caused by continuous rotation



ZMU05665

Electrical hazard



ZMU05666

EMU38092

Specifications

TIP:
"(AL)" stated in the specification data below represents the numerical value for the aluminum propeller installed.

EMU48360

Dimension and weight:
Overall length:
625 mm (24.6 in)
Overall width:
363 mm (14.3 in)
Overall height S:
1028 mm (40.5 in)
Overall height L:
1155 mm (45.5 in)
Motor transom height S:
433 mm (17.0 in)
Motor transom height L:
560 mm (22.0 in)
Dry weight (AL) S:
17 kg (37 lb)
Dry weight (AL) L:
18 kg (40 lb)

Performance:
Full throttle operating range:
5250–5750 r/min
Rated power:
1.8 kW (2.5 HP)
Idle speed (in neutral):
1800–2000 r/min

Power unit:
Type:
4-stroke OHV S1 2 valves
Total displacement:
72 cm^3 (4.4 c.i.)
Bore × stroke:
54.0 × 31.5 mm (2.13 × 1.24 in)
Ignition system:
TCI
Spark plug (NGK):
CR6HSB
Spark plug gap:
0.6–0.7 mm (0.024–0.028 in)
Steering system:
Tiller handle
Starting system:
Manual starter
Starting carburetion system:
Choke valve
Valve clearance IN (cold engine):
0.08–0.12 mm (0.0032–0.0047 in)
Valve clearance EX (cold engine):
0.08–0.12 mm (0.0032–0.0047 in)

Lower unit:
Gear shift positions:
Forward-neutral
Gear ratio:
2.08 (27/13)
Trim and tilt system:
Manual tilt
Propeller mark:
BS

Fuel and oil:
Recommended fuel:
Regular unleaded gasoline
Min. research octane number (RON):
90
Fuel tank capacity (built in type):
0.9 L (0.24 US gal, 0.20 Imp.gal)
Recommended engine oil:
YAMALUBE 4 or 4-stroke outboard motor oil

YAMALUBE®

Recommended engine oil grade 1:
SAE 10W-30/10W-40/5W-30
API SE/SF/SG/SH/SJ/SL
Engine oil quantity:
0.25 L (0.26 US qt, 0.22 Imp.qt)

Lubrication system:
Splash
Recommended gear oil:
YAMALUBE outboard gear oil or Hypoid gear oil
Recommended gear oil grade:
SAE 90 API GL-4
Gear oil quantity:
0.075 L (0.079 US qt, 0.066 Imp.qt)

Noise and vibration level:

Operator sound pressure level (ICOMIA 39/94):
77.4 dB(A)
Vibration on tiller handle (ICOMIA 38/94):
Vibration on tiller handle is under 2.5 m/s^2

EMU33556

Installation requirements

EMU33566

Boat horsepower rating

EWM01561

⚠ WARNING

Overpowering a boat can cause severe instability.

Before installing the outboard motor(s), confirm that the total horsepower of your outboard motor(s) does not exceed the boat's maximum horsepower rating. See the boat's capacity plate or contact the manufacturer.

EMU40491

Mounting outboard motor

EWM02501

⚠ WARNING

- **Improper mounting of the outboard motor could result in hazardous conditions such as poor handling, loss of control, or fire hazards.**
- **Because the outboard motor is very heavy, special equipment and training is required to mount it safely.**

Your dealer or other person experienced in proper rigging should mount the outboard motor using correct equipment and complete rigging instructions. For further information, see page 22.

EMU34196

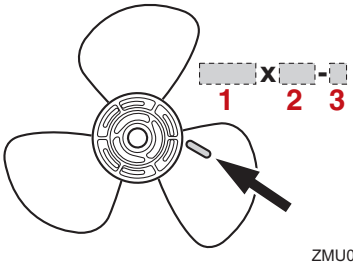
Propeller selection

Next to selecting an outboard motor, selecting the right propeller is one of the most important purchasing decisions a boater can make. The type, size, and design of your propeller have a direct impact on acceleration, top speed, fuel economy, and even engine life. Yamaha designs and manufactures propellers for every Yamaha outboard motor and every application.

Your outboard motor came with a Yamaha propeller selected to perform well over a range of applications, but there may be uses where a different propeller would be more appropriate.

Your Yamaha dealer can help you select the right propeller for your boating needs. Select a propeller that will allow the engine to reach the middle or upper half of the operating range at full throttle with the maximum boatload. Generally, select a larger pitch propeller for a smaller operating load and a smaller pitch propeller for a heavier load. If you carry loads that vary widely, select the propeller that lets the engine run in the proper range for your maximum load but remember that you may need to reduce your throttle setting to stay within the recommended engine speed range when carrying lighter loads.

To check the propeller, see page 56.



ZMU04604

1. Propeller diameter in inches
2. Propeller pitch in inches
3. Type of propeller (propeller mark)

EMU44831

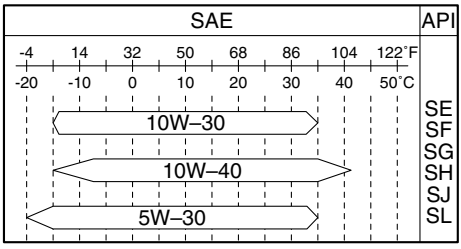
Engine oil requirements

Select an oil grade according to the average temperatures in the area where the outboard motor will be used.

Recommended engine oil:
YAMALUBE 4 or 4-stroke outboard motor oil
Recommended engine oil grade 1:
SAE 10W-30/10W-40/5W-30
API SE/SF/SG/SH/SJ/SL
Recommended engine oil grade 2:
SAE 15W-40/20W-40/20W-50
API SH/SJ/SL
Engine oil quantity:
0.25 L (0.26 US qt, 0.22 Imp.qt)

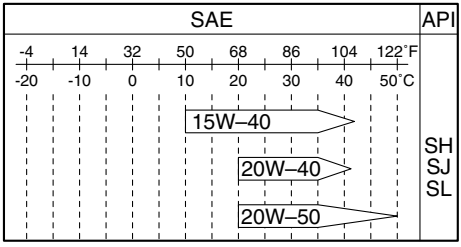
If oil grades listed under Recommended engine oil grade 1 are not available, select an alternative oil grade listed under Recommended engine oil grade 2.

Recommended engine oil grade 1



ZMU06854

Recommended engine oil grade 2



ZMU06855

EMU36361

Fuel requirements

EMU40203

Gasoline

Use a good quality gasoline that meets the minimum octane rating. If knocking or pinging occurs, use a different brand of gasoline or premium unleaded fuel.

Recommended fuel:
Regular unleaded gasoline
Min. research octane number (RON):
90

ECM01982

NOTICE

- **Do not use leaded gasoline. Leaded gasoline can seriously damage the engine.**

- **Avoid getting water and contaminants in the fuel tank. Contaminated fuel can cause poor performance or engine damage. Use only fresh gasoline that has been stored in clean containers.**



TIP:

- This mark identifies the recommended fuel for this outboard motor as specified by European regulation (EN228).
- Check that gasoline nozzle has the same identifier when fueling.

Gasohol

There are two types of gasohol: gasohol containing ethanol (E5 and E10) and that containing methanol. Ethanol can be used if the ethanol content does not exceed 10% and the fuel meets the minimum octane ratings. E85 is a fuel containing 85% ethanol and must not be used in your outboard motor. All ethanol blends containing more than 10% ethanol can cause fuel system damage or cause engine starting and running problems. Yamaha does not recommend gasohol containing methanol because it can cause fuel system damage or engine performance problems.

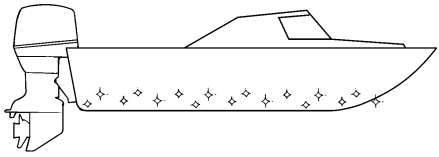
It is recommended that you install a water-separating marine fuel filter assembly (10 micron minimum) between your boat's fuel tank and outboard motor when using ethanol. Ethanol is known to allow moisture to be absorbed into boat fuel tanks and systems. Moisture in the fuel can cause corrosion of metallic fuel system components, starting and running complaints and require additional fuel system maintenance.

EMU36331

Anti-fouling paint

A clean hull improves boat performance. The boat bottom should be kept as clean of marine growth as possible. If necessary, the boat bottom can be coated with an anti-fouling paint approved for your area to inhibit marine growth.

Do not use anti-fouling paint which includes copper or graphite. These paints can cause more rapid engine corrosion.



ZMU05176

EMU40302

Outboard motor disposal requirements

Never illegally discard (dump) the outboard motor. Yamaha recommends consulting the dealer about discarding the outboard motor.

EMU36353

Emergency equipment

Keep the following items onboard in case there is trouble with the outboard motor.

- A tool kit with assorted screwdrivers, pliers, wrenches (including metric sizes), and electrical tape.
- Waterproof flashlight with extra batteries.
- An extra engine shut-off cord (lanyard) with clip.

- Spare parts, such as an extra set of spark plugs.

Consult your Yamaha dealer for details.

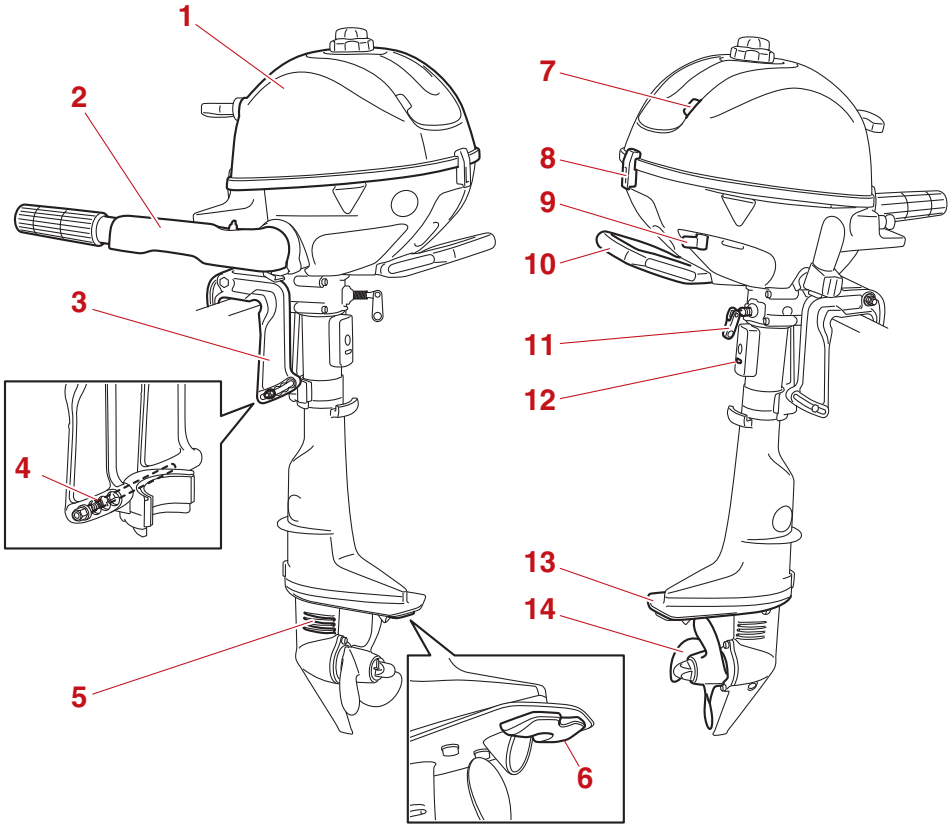
Components

EMU46722

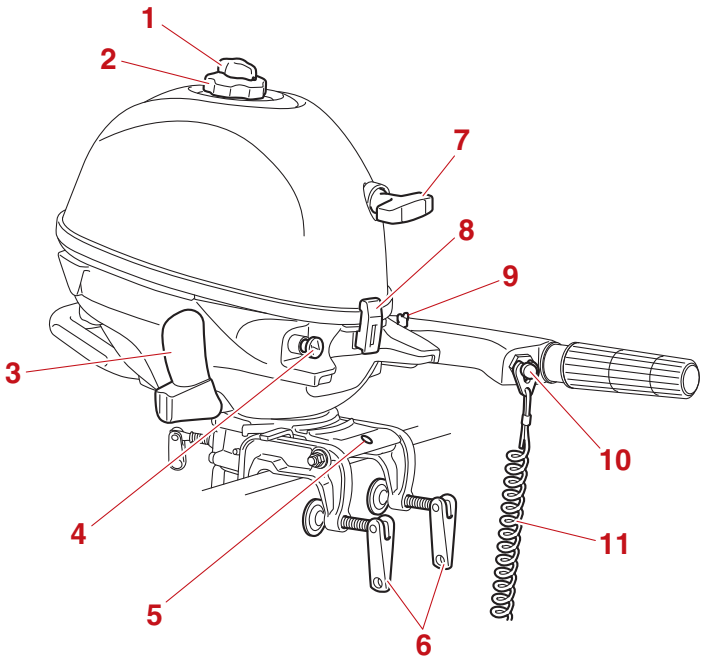
Components diagram

TIP:

* May not be exactly as shown; also may not be included as standard equipment on all models (order from dealer).



1. Top cowling
2. Tiller handle
3. Clamp bracket
4. Trim rod
5. Cooling water inlet
6. Anode
7. Air intake
8. Cowling lock lever
9. Fuel cock
10. Carrying handle
11. Steering friction adjuster
12. Idle hole
13. Anti-cavitation plate
14. Propeller



1. Air vent screw
2. Fuel tank cap
3. Gear shift lever
4. Choke knob
5. Restraint cable attachment
6. Clamp screw
7. Manual starter handle
8. Cowling lock lever
9. Throttle friction adjuster
10. Engine stop button/Engine shut-off switch
11. Engine shut-off cord (lanyard)

EMU39545

Fuel tank (built-in fuel tank)

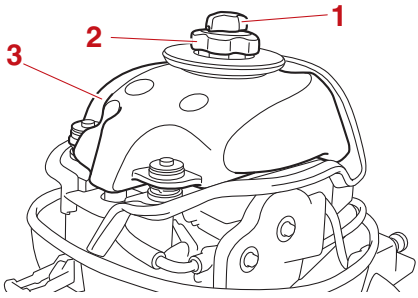
This outboard motor is equipped with a built-in fuel tank and its parts are as follows.

Fuel tank cap

This cap seals the fuel tank. When removed, the tank can be filled with fuel. To remove the cap, turn it counterclockwise.

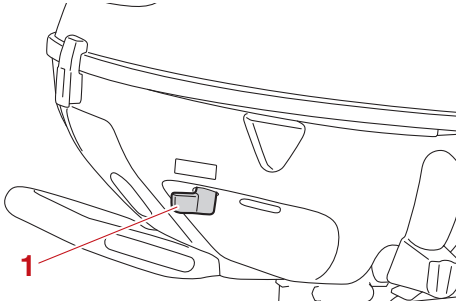
Air vent screw

This screw is on the fuel tank cap. To loosen the screw, turn it counterclockwise.



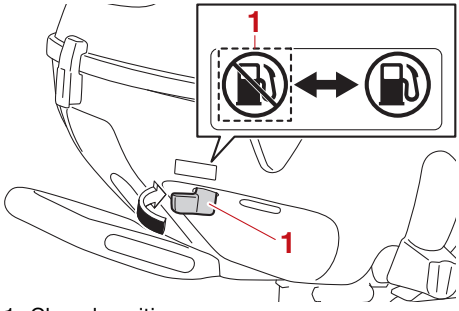
1. Air vent screw
2. Fuel tank cap
3. Built-in fuel tank

EMU42995
Fuel cock
The fuel cock turns on and off the supply of fuel from the fuel tank to the engine.



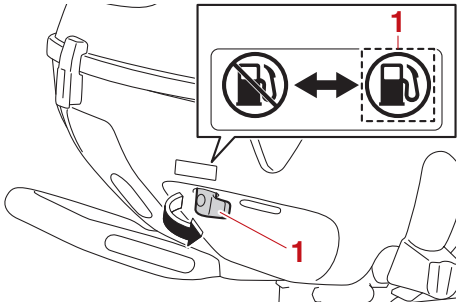
1. Fuel cock

Closed position
To stop the fuel flow to the engine, turn the fuel cock to the closed position.
Always turn the fuel cock to the closed position when the engine is not running.



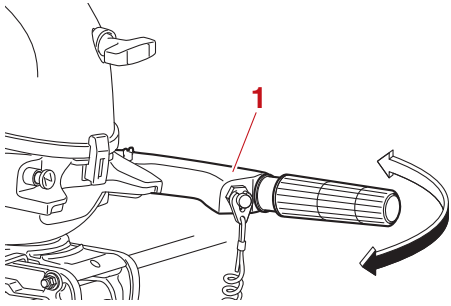
1. Closed position

Open position
To send fuel from the fuel tank to the carburetor, turn the fuel cock to the open position. Normal running is done with the fuel cock in this position.



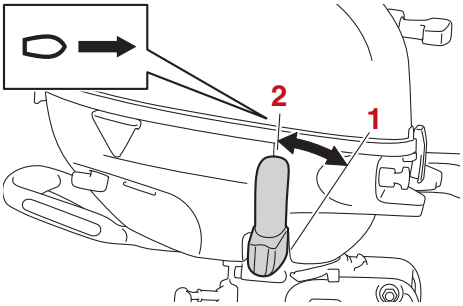
1. Open position

EMU25914
Tiller handle
To change direction, move the tiller handle to the left or right as necessary.



1. Tiller handle

EMU25931
Gear shift lever
Pulling the gear shift lever towards you puts the engine in forward gear so that the boat moves ahead.

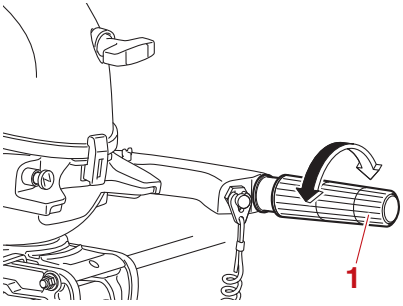


1. Forward position
2. Neutral position

EMU25943

Throttle grip

The throttle grip is on the tiller handle. Turn the grip counterclockwise to increase speed and clockwise to decrease speed.

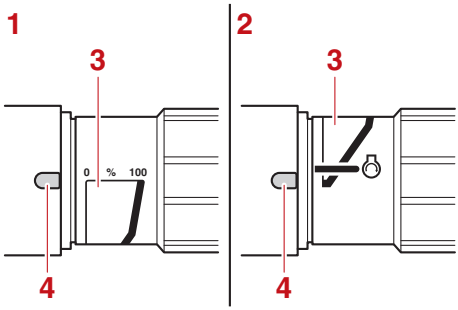


1. Throttle grip

EMU39713

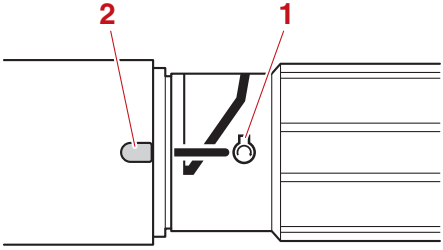
Throttle indicator

The throttle indicator shows the throttle position. When the 100% position of the throttle indicator is aligned with the notch in the tiller handle, the throttle is fully opened. When the 0% position of the throttle indicator is aligned with the notch in the tiller handle, the throttle is fully closed.



1. Fully open
2. Fully closed
3. Throttle indicator
4. Notch

The engine start mark "⏻" on the throttle indicator shows the throttle position for starting the engine.



1. Start mark "⏻"
2. Notch

EMU39244

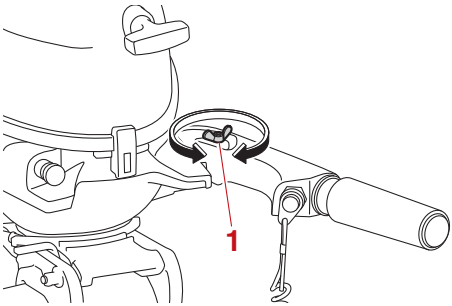
Throttle friction adjuster

The throttle friction adjuster provides adjustable resistance when the throttle grip is turned, and can be set according to operator preference.

To increase resistance, turn the throttle friction adjuster clockwise.

To decrease resistance, turn the throttle friction adjuster counterclockwise. When constant speed is desired, tighten the throttle friction adjuster to maintain the desired throttle setting. **WARNING! Do not overtighten**

the throttle friction adjuster. If there is too much resistance, it could be difficult to turn the throttle grip, which could result in an accident. [EWM02262]

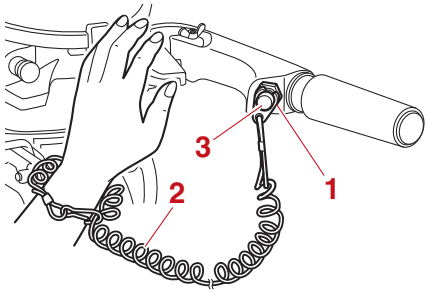


1. Throttle friction adjuster

EMU25996

Engine shut-off cord (lanyard) and clip

The clip must be attached to the engine shut-off switch for the engine to run. The cord should be attached to a secure place on the operator's clothing, or arm or leg. Should the operator fall overboard or leave the helm, the cord will pull out the clip, stopping ignition to the engine. This will prevent the boat from running away under power. **WARNING! Attach the engine shut-off cord to a secure place on your clothing, or your arm or leg while operating. Do not attach the cord to clothing that could tear loose. Do not route the cord where it could become entangled, preventing it from functioning. Avoid accidentally pulling the cord during normal operation. Loss of engine power means the loss of most steering control. Also, without engine power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.** [EWM00123]

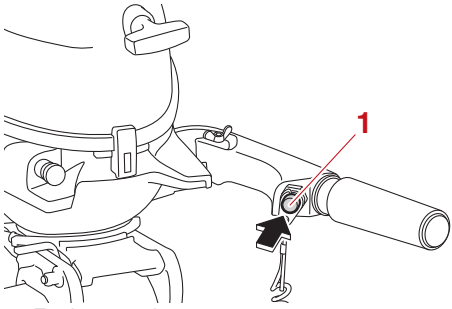


1. Clip
2. Engine shut-off cord (lanyard)
3. Engine shut-off switch

EMU26004

Engine stop button

The engine stop button stops the engine when the button is pushed.

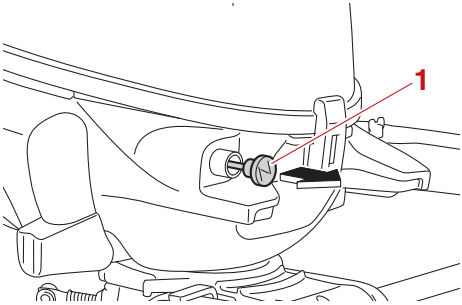


1. Engine stop button

EMU26015

Pull-type choke knob

Pull the choke knob to supply a rich fuel mixture to the engine.

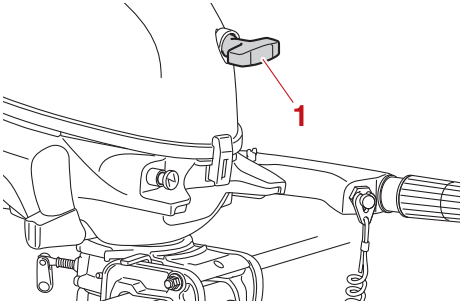


1. Choke knob

EMU26075

Manual starter handle

The manual starter handle is used to crank and start the engine.



1. Manual starter handle

EMU42822

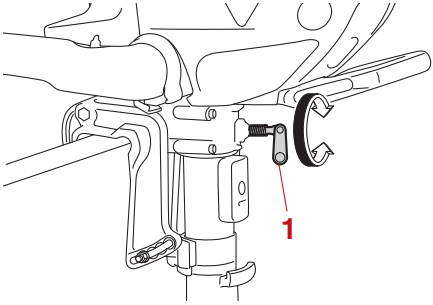
Steering friction adjuster

EWM02271

WARNING

Do not overtighten the steering friction adjuster. If there is too much resistance, it could be difficult to steer, which could result in an accident.

The steering friction adjuster provides adjustable resistance to the steering mechanism, and can be set according to operator preference. The steering friction adjuster is located on the swivel bracket.



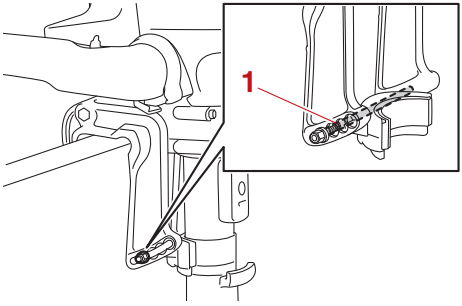
1. Steering friction adjuster

To increase resistance, turn the steering friction adjuster clockwise.
To decrease resistance, turn the steering friction adjuster counterclockwise.

EMU40102

Trim rod (tilt pin)

The trim rod (tilt pin) is used to adjust the trim angle of the outboard motor in relation to the angle of the boat transom.

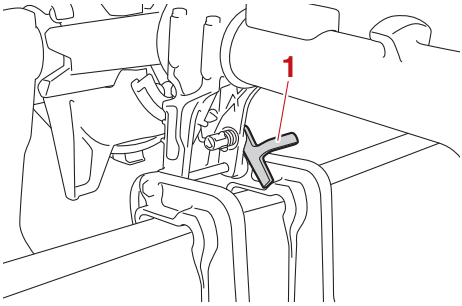


1. Trim rod

EMU42602

Tilt support lever

To keep the outboard motor in the tilted up position, lock the tilt support lever to the clamp bracket.



1. Tilt support lever

ECM00661

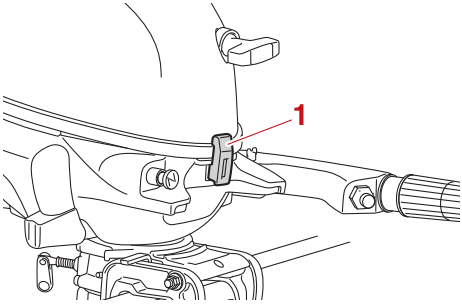
NOTICE

Do not use the tilt support lever or knob when trailering the boat. The outboard motor could shake loose from the tilt support and fall. If the motor cannot be trailered in the normal running position, use an additional support device to secure it in the tilt position.

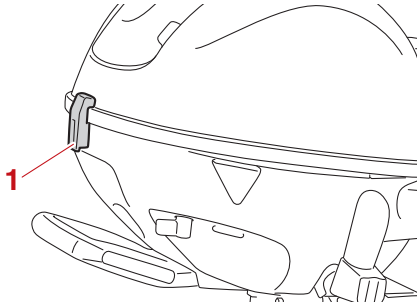
EMU39264

Cowling lock lever

The cowling lock lever(s) is used to secure the top cowling.



1. Cowling lock lever

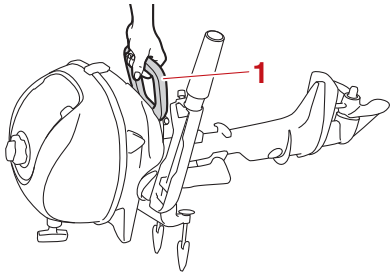


1. Cowling lock lever

EMU39373

Carrying handle

The carrying handle is used to carry the outboard motor. For information on carrying and transporting the outboard motor, see page 41.



1. Carrying handle

EMU39732

Installation

The information presented in this section is intended as reference only. It is not possible to provide complete instructions for every possible boat and motor combination. Proper mounting depends in part on experience and the specific boat and motor combination.

EWM02342

WARNING

- **Overpowering a boat could cause severe instability. Do not mount an outboard motor with more horsepower than the maximum rating on the capacity plate of the boat. If the boat does not have a capacity plate, consult the boat manufacturer.**
- **Improper mounting of the outboard motor could result in hazardous conditions, such as poor handling, loss of control, or fire hazards. If you are not able to mount the outboard motor properly, consult a Yamaha dealer.**

EMU42942

Mounting the outboard motor

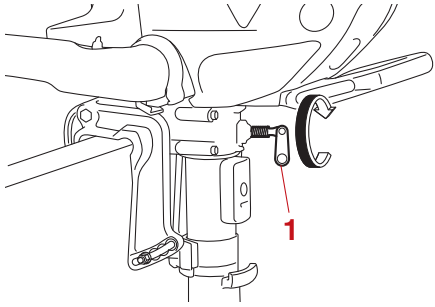
EWM02301

WARNING

Do not hold the top cowling or tiller handle when mounting or dismounting the outboard motor. Otherwise, the outboard motor could fall.

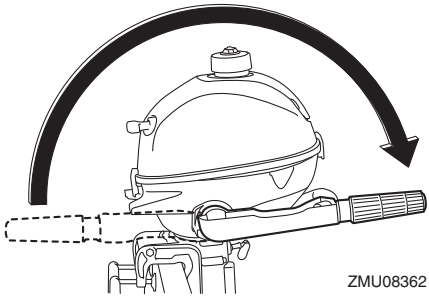
(1) Be sure to mount the outboard motor while the boat is on land. If the boat is on the water, move it to an area on land.

(2) To prevent steering movement, turn the steering friction adjuster clockwise.

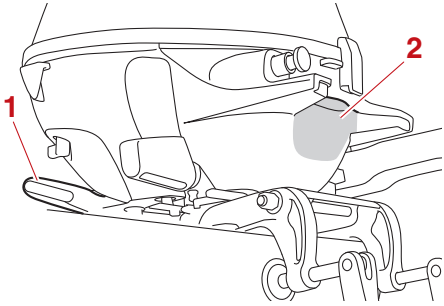


1. Steering friction adjuster

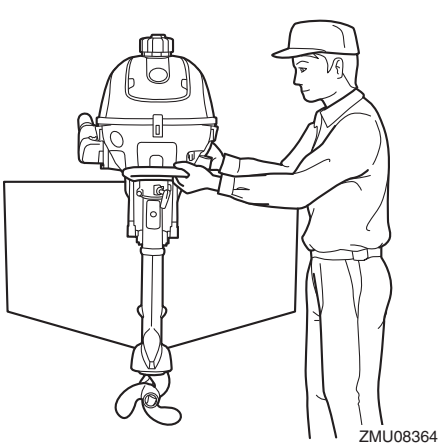
(3) Turn the tiller handle 180° so that it is pointing rearward.



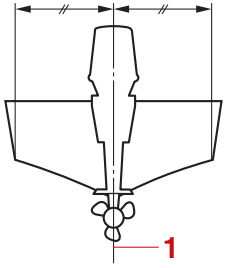
(4) Hold the carrying handle and the handgrip on the front side of the bottom cowling and lift up the outboard motor.



1. Carrying handle
2. Handgrip


ZMU08364

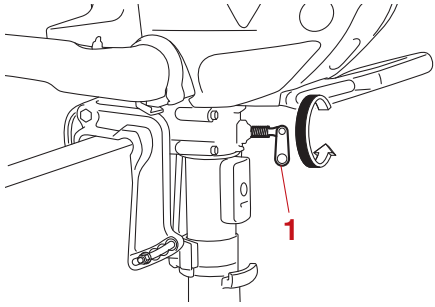
(5) Mount the outboard motor on the center line (keel line) of the boat, and ensure that the boat itself is well balanced. Otherwise the boat will be hard to steer. For boats without a keel or which are asymmetrical, consult your dealer.



1. Center line (keel line)

(6) Turn the steering friction adjuster counterclockwise to set the steering friction according to operator preference. **WARNING! If there is too much resistance it could be difficult to steer, which could result in an accident.**

[EWM00722]

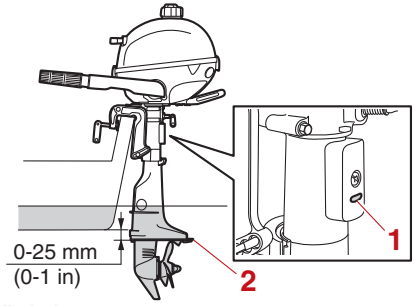


1. Steering friction adjuster

EMU39742

Mounting height

To run your boat at optimum efficiency, the water resistance (drag) of the boat and outboard motor must be made as little as possible. The mounting height of the outboard motor greatly affects the water resistance. If the mounting height is too high, cavitation tends to occur, thus reducing the propulsion; and if the propeller tips cut the air, the engine speed will rise abnormally and cause the engine to overheat. If the mounting height is too low, the water resistance will increase and thereby reduce engine efficiency. Mount the outboard motor so that the anti-cavitation plate is between the bottom of the boat and a level 25 mm (1 in) below it.



1. Idle hole
2. Anti-cavitation plate

ECM02171

NOTICE

- **Check that the idle hole stays high enough to keep out water getting inside engine even if the boat is in stationary with maximum load.**
- **Incorrect engine height or obstructions to the smooth flow of water (such as the design or condition of the boat) can create airborne water spray while the boat is cruising. If the motor is operated continuously in the presence of airborne water spray, enough water could enter the engine through the intake opening on the top cowling to cause severe engine damage. Eliminate the cause of the airborne water spray.**

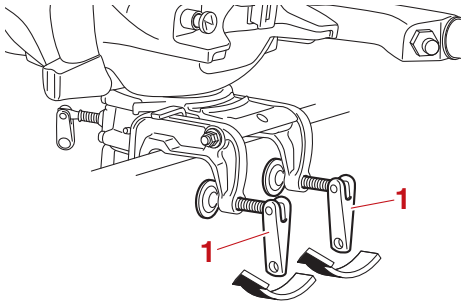
TIP:

- The optimum mounting height of the outboard motor is affected by the boat and motor combination and the desired use. Test runs at different heights can help determine the optimum mounting height. Consult your Yamaha dealer or boat manufacturer for further information on determining the proper mounting height.
- For instructions on setting the trim angle of the outboard motor, see page 36.

EMU39753

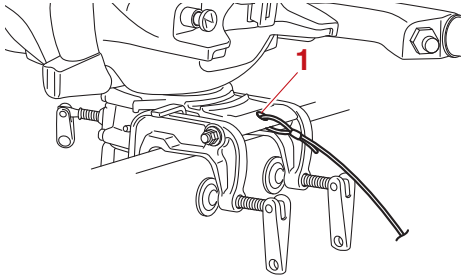
Clamping the outboard motor

(1) Place the outboard motor on the transom so that it is positioned as close to the center as possible. Tighten the clamp screws evenly and securely. Occasionally check the clamp screws for tightness during operation of the outboard motor because they could become loose due to engine vibration. **WARNING! Loose clamp screws could allow the outboard motor to fall off or move on the transom. This could cause loss of control and serious injury. Make sure the clamp screws are tightened securely. Occasionally check the screws for tightness during operation.** [EWM00643]



1. Clamp screw

(2) Attach one end to the restraint cable attachment and the other to a secure mounting point on the boat. Otherwise the engine could be completely lost if it accidentally falls off the transom.



1. Restraint cable attachment

EMU36382

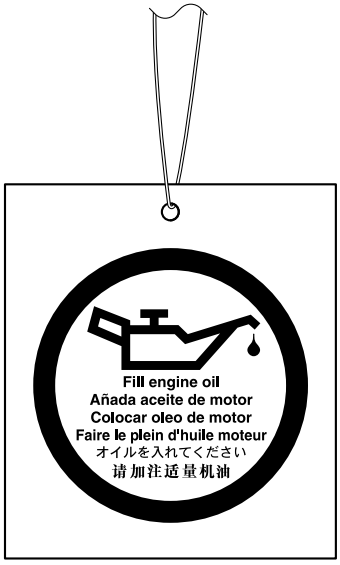
First-time operation

EMU36393

Fill engine oil

The engine is shipped from the factory without engine oil. If your dealer did not fill the oil, you must fill it before starting the engine. ***NOTICE:*** **Check that the engine is filled with oil before first-time operation to avoid severe engine damage.** [ECM01782]

The engine is shipped with the following tag, which should be removed after engine oil is filled for the first time. For more information on checking the engine oil level, see page 27.



ZMU01710

EMU30175

Breaking in engine

Your new engine requires a period of break-in to allow mating surfaces of moving parts to wear in evenly. Correct break-in will help ensure proper performance and longer engine life. ***NOTICE:*** **Failure to follow the break-in procedure could result in reduced engine life or even severe engine damage.** [ECM00802]

EMU40061

Procedure for 4-stroke models

Your new engine requires a period of 10 hours break-in to allow mating surfaces of moving parts to wear in evenly.

TIP:

Run the engine in the water, under load (in gear with a propeller installed) as follows. For 10 hours for breaking in engine avoid extended idling, rough water and crowded areas.

(1) For the first hour of operation:
Run the engine at varying speeds up to 2000 r/min or approximately half throttle.

(2) For the second hour of operation:
Run the engine at 3000 r/min or at approximately three-quarter throttle.

(3) Remaining 8 hours:
Run the engine at any speed. However, avoid operating at full throttle for more than 5 minutes at a time.

(4) After the first 10 hours:
Operate the engine normally.

EMU36402

Getting to know your boat

All boats have unique handling characteristics. Operate cautiously while you learn how your boat handles under different conditions and various trim angles (see page 36).

EMU36414

Checks before starting engine

EWM01922

WARNING

If any item in "Checks before starting engine" is not working properly, have it inspected and repaired before operating the outboard motor. Otherwise, an accident could occur.

ECM00121

NOTICE

Do not start the engine out of water. Overheating and serious engine damage can occur.

EMU36561

Fuel level

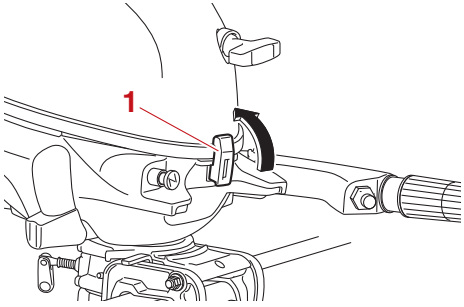
Be sure you have plenty of fuel for your trip. A good rule is to use 1/3 of your fuel to get to the destination, 1/3 to return, and to keep 1/3 as an emergency reserve. With the boat level on a trailer or in the water, check the fuel level. For fuel filling instructions, see page 29.

EMU43713

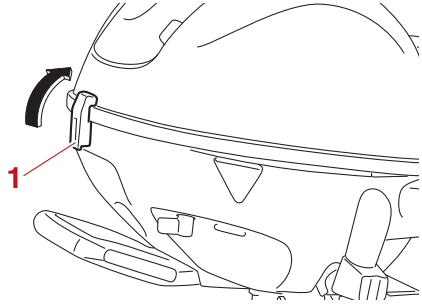
Remove the top cowling

For the following checks, remove the top cowling from the bottom cowling.

(1) Pull the cowling lock levers up.



1. Cowling lock lever

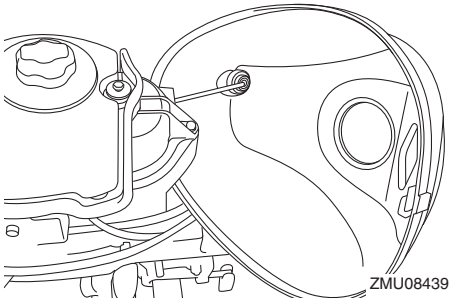


1. Cowling lock lever

(2) Lift up the top cowling slowly.

TIP:

- The top cowling is connected to the manual starter case. Because the engine could start, do not remove the top cowling with too much force.
- To remove the top cowling from the manual starter case, the manual starter handle must be removed. For details, consult a Yamaha dealer.
- If the top cowling is removed while the engine is running, noise from the manual starter could occur.



EMU36443

Fuel system

EWM00061

WARNING

Gasoline and its vapors are highly flammable and explosive. Keep away from sparks, cigarettes, flames, or other sources of ignition.

EWM00911

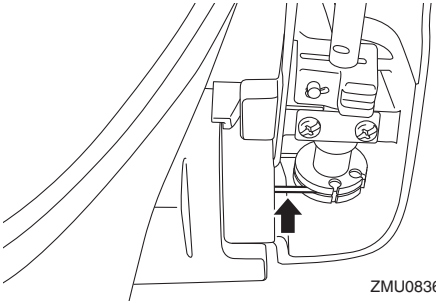
WARNING

Leaking fuel can result in fire or explosion.

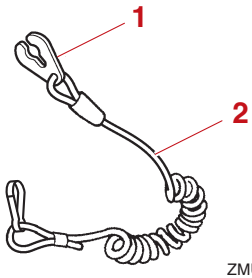
- **Check for fuel leakage regularly.**
- **If any fuel leakage is found, the fuel system must be repaired by a qualified mechanic. Improper repairs can make the outboard unsafe to operate.**

EMU36453
Check for fuel leaks
- Check for fuel leaks or gasoline fumes in the boat.
- Check for fuel leakage from the fuel system.
- Check the fuel tank and fuel lines for cracks, swellings, or other damage.

EMU36893
Controls
- Move the tiller handle fully to the left and right to make sure operation is smooth.
- Turn the throttle grip from the fully closed to the fully open position. Make sure that it turns smoothly and that it completely returns to the fully closed position.
- Look for loose or damaged connections of the throttle and shift cables.


ZMU08368

EMU36484
Engine shut-off cord (lanyard)
Inspect the engine shut-off cord and clip for damage, such as cuts, breaks, and wear.



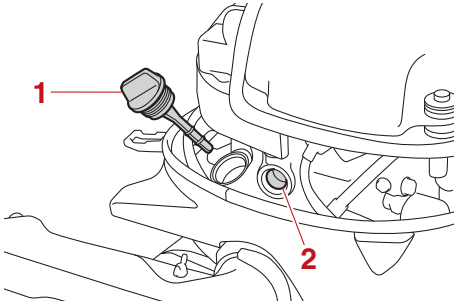
ZMU06873

1. Clip
2. Engine shut-off cord (lanyard)

EMU39385
Engine oil
(1) Place the outboard motor in an upright position (not tilted). ***NOTICE:*** **If the motor is not level, the oil level indicated on the dipstick may not be accurate.**

[ECM01791]

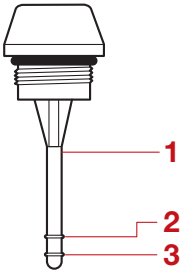
(2) Remove the top cowling.
(3) Remove the oil filler cap and wipe the attached oil dipstick clean.



1. Oil filler cap
2. Oil lubrication check window

TIP:
The oil lubrication check window does not indicate the engine oil level. Use the oil lubrication check window to make sure that the engine is being lubricated with oil while it is running.

(4) Install the oil filler cap and tighten it completely.
(5) Remove the oil filler cap again and check that the oil level on the dipstick is between the upper and lower marks. If the oil level is not at the proper level, add or extract oil until the oil is between the upper and lower marks.

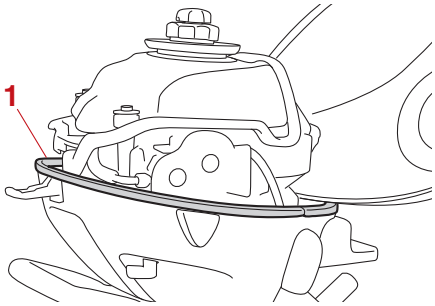


1. Oil dipstick
2. Upper mark
3. Lower mark

(6) Install the oil filler cap and tighten it completely.
(7) Install the top cowling.

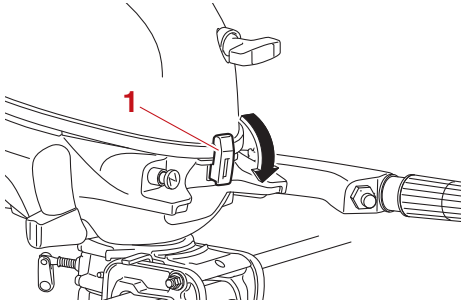
EMU27154
Engine
- Check the engine and engine mounting.
- Look for loose or damaged fasteners.
- Check the propeller for damage.
- Check for engine oil leaks.

EMU42982
Installing top cowling
(1) Check the rubber seal for damage. If the rubber seal is damaged, have it replaced by a Yamaha dealer.

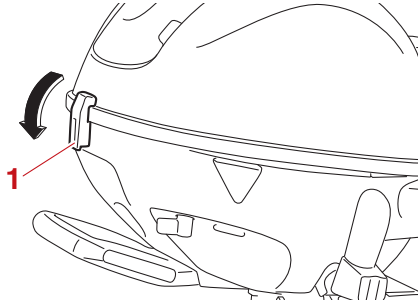


1. Rubber seal

(2) Check that the rubber seal is seated all the way around the bottom cowling.
(3) Check that all of the cowling lock levers are released.
(4) Place the top cowling on the bottom cowling.
(5) Move the levers to lock the cowling as shown.

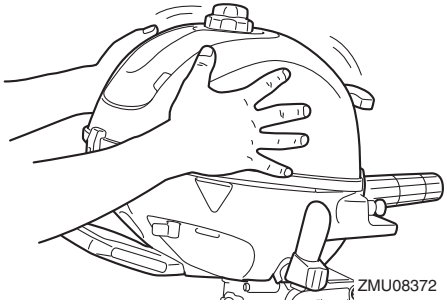


1. Cowling lock lever



1. Cowling lock lever

(6) Check the fitting of the top cowling with both hands. ***NOTICE:*** **If the top cowling is not installed correctly, water can enter the top cowling and damage the engine, or the top cowling can blow off at high speeds.** [ECM02371]



EMU46611

Filling fuel

EWM01951

⚠ WARNING

Be sure the outboard motor is securely fastened to the transom or a stable stand.

EWM01831

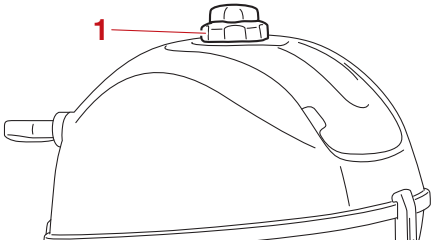
⚠ WARNING

- **Gasoline and its vapors are highly flammable and explosive. Always refuel according to this procedure to reduce the risk of fire and explosion.**
- **Gasoline is poisonous and can cause injury or death. Handle gasoline with care. Never siphon gasoline by mouth. If you should swallow some gasoline or inhale a lot of gasoline vapor, or get some gasoline in your eyes, see your doctor immediately. If gasoline spills on your skin, wash with soap and water. If gasoline spills on your clothing, change your clothes.**

Before refueling, check the following points:

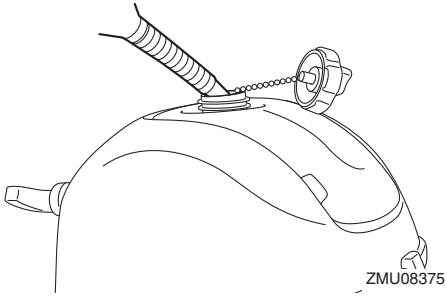
- Securely moor the boat in a well-ventilated area and stop the engine. If the boat is trailered, make sure that it is stable.
- Do not smoke and keep away from sparks, flames, static electric discharge, or other sources of ignition.
- If you use a portable container to store and dispense fuel, only use a locally approved GASOLINE container.
- To prevent electrostatic sparks, discharge any built-up static electricity from your body before refueling.

(1) Remove the fuel tank cap.



1. Fuel tank cap

(2) Fill the fuel tank. **WARNING! Do not overfill. Otherwise fuel can expand and overflow if the temperature increases.** [EWM02611]



Fuel tank capacity (built in type):
0.9 L (0.24 US gal, 0.20 Imp.gal)

(3) Tighten the fuel tank cap securely.
(4) Wipe up any spilled gasoline immediately with dry rags. Dispose of rags properly according to local laws or regulations. If you use a portable container to store and dispense fuel, only use a locally approved GASOLINE container.

EMU27453

Operating engine

EWM00421

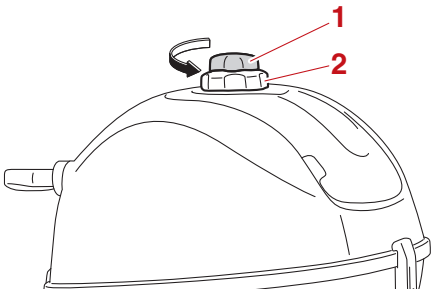
WARNING

- **Before starting the engine, make sure that the boat is tightly moored and that you can steer clear of any obstructions. Be sure there are no swimmers in the water near you.**
- **When the air vent screw is loosened, gasoline vapor will be released. Gasoline is highly flammable, and its vapors are flammable and explosive. Refrain from smoking, and keep away from open flames and sparks while loosening the air vent screw.**
- **This product emits exhaust gases which contain carbon monoxide, a colorless, odorless gas which could cause brain damage or death when inhaled. Symptoms include nausea, dizziness, and drowsiness. Keep cockpit and cabin areas well ventilated. Avoid blocking exhaust outlets.**

EMU31515

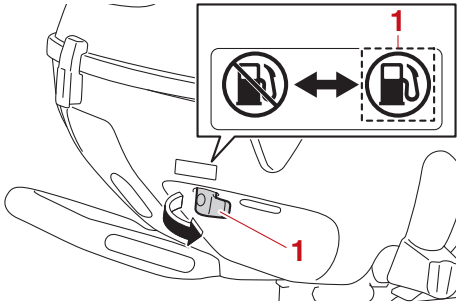
Supplying fuel to engine

(1) Loosen the air vent screw on the fuel tank cap by one turn.



1. Air vent screw
2. Fuel tank cap

(2) Open the fuel cock.



1. Open position

EMU27496

Starting engine

EWM01601

WARNING

Before starting the engine, make sure that the boat is tightly moored and that you can steer clear of any obstructions. Be sure there are no swimmers in the water near you.

EMU46670

Manual start

EWM01842

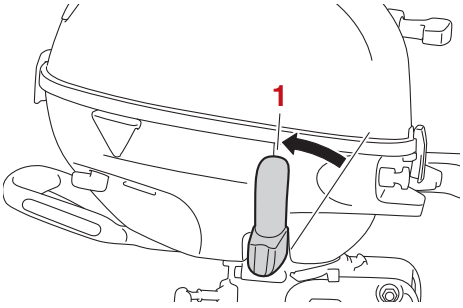
WARNING

- **Failure to attach the engine shut-off cord could result in a runaway boat if operator is ejected. Attach the engine shut-off cord to a secure place on your clothing, or your arm or leg while oper-**

ating. Do not attach the cord to clothing that could tear loose. Do not route the cord where it could become entangled, preventing it from functioning.

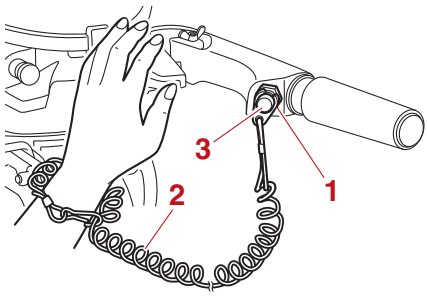
- **Avoid accidentally pulling the cord during normal operation. Loss of engine power means the loss of most steering control. Also, without engine power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.**

(1) Move the gear shift lever to the neutral position. **WARNING! Always start the engine in neutral to avoid accidentally moving the boat.** [EWM00112]



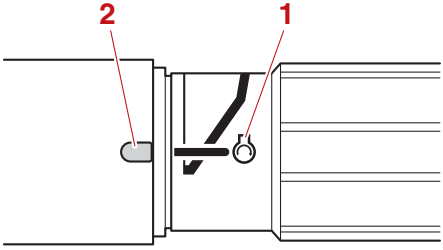
1. Neutral position

(2) Attach the engine shut-off cord to a secure place on your clothing, or your arm or leg. Then, install the clip on the other end of the cord to the engine shut-off switch.



1. Clip
2. Engine shut-off cord (lanyard)
3. Engine shut-off switch

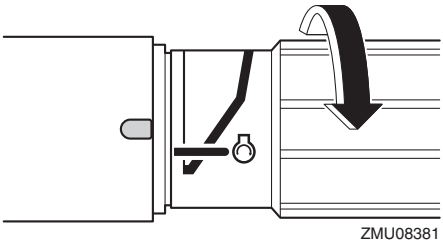
(3) Align the engine start mark "⏻" on the throttle grip with the notch in the tiller handle.



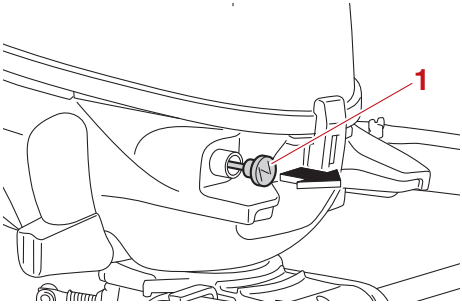
1. Start mark "⏻"
2. Notch

TIP:

If the ambient temperature is -15°C (5°F) or less, turn the throttle grip so that the engine start mark "⏻" is positioned past the notch in the tiller handle.


ZMU08381

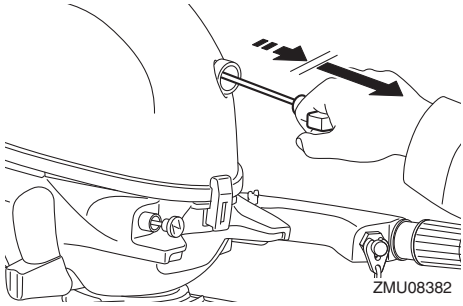
(4) Pull out the choke knob fully.



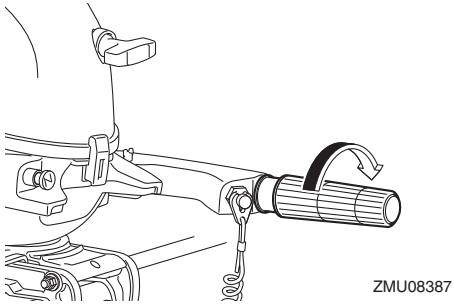
1. Choke knob

TIP:
It is not necessary to use the choke when starting a warm engine, such as immediately after the outboard motor has been operated under a load.

(5) Pull the manual starter handle slowly until you feel resistance. Then give a strong pull straight out to crank and start the engine. If the engine does not start on the first try, repeat the procedure.


ZMU08382

(6) After the engine starts, slowly return the manual starter handle to its original position before releasing it.
(7) Warm up the engine. For further information, see page 33.
(8) Return the choke knob to its original position gradually.
(9) Slowly return the throttle grip to the fully closed position.


ZMU08387

EMU36511
Checks after starting engine

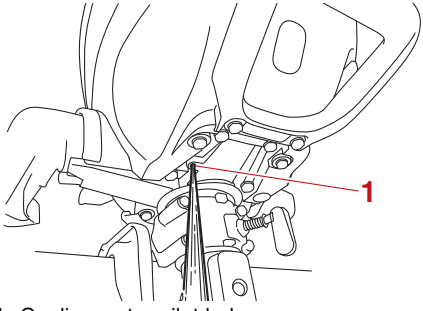
EMU41361
Cooling water
Check for a steady flow of water from the cooling water pilot hole. A continuous flow of water from the cooling water pilot hole shows that the water pump is pumping water through the cooling water passages.

TIP:
When the engine is started, there may be a slight delay before water flows from the cooling water pilot hole.

ECM02251

NOTICE

If water is not flowing out of the cooling water pilot hole at all times while the engine is running, overheating and serious damage could occur. Stop the engine and check whether the cooling water inlet on the lower case or the cooling water pilot hole is blocked. Consult your Yamaha dealer if the problem cannot be located and corrected.



1. Cooling water pilot hole

EMU27671

Warming up engine

EMU40073

Warming up

After starting the engine, return the choke knob to the halfway position. For approximately the first 5 minutes after starting, warm up the engine by operating at one fifth throttle or less. After the engine has warmed up, push the choke knob in fully. ***NOTICE:*** **Failure to do so will shorten engine life.** [ECM04550]

TIP:

- If the choke knob is left pulled out after the engine starts, the engine will stall.
- In temperatures of -5°C (23°F) or less, leave the choke knob pulled out fully for approximately 30 seconds after starting.

EMU36532

Checks after engine warm up

EMU37541

Shifting

While tightly moored, and without applying throttle, confirm that the engine shifts smoothly into forward and back to neutral.

EMU36973

Stop switches

Perform the following procedure to check that the engine stop button and engine shut-off switch operate properly.

- Start the engine, and then check that the engine stops when the engine stop button is pushed.
- Restart the engine, and then check that the engine stops when the clip is pulled from the engine shut-off switch.
- Check that the engine cannot be started with the clip removed from the engine shut-off switch.

EMU34894

Shifting

EWM00181

⚠ WARNING

Before shifting, make sure there are no swimmers or obstacles in the water near you.

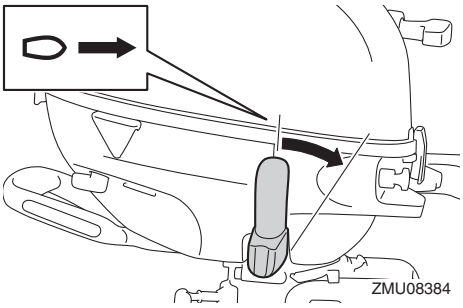
ECM01611

NOTICE

Warm up the engine before shifting into gear. Until the engine is warm, the idle speed may be higher than normal. High idle speed can prevent you from shifting back to neutral. If this occurs, stop the engine, shift to neutral, then restart the engine and allow it to warm up.

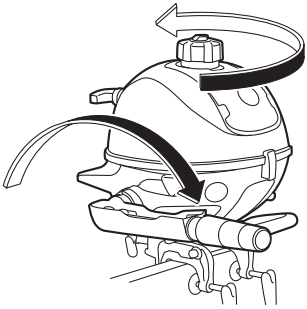
To shift out of neutral (forward)

Move the gear shift lever firmly and crisply toward the bow.


ZMU08384

To shift out of neutral (reverse)

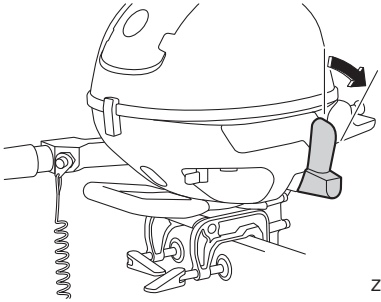
(1) Turn the outboard motor around 180°, and then move the tiller handle so that it is facing toward the bow.


ZMU08385

TIP:

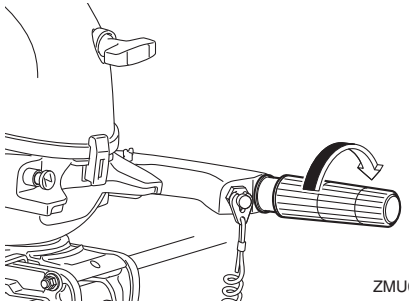
The outboard motor can be turned a full 360° in its bracket (full-pivot system).

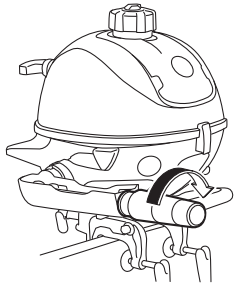
(2) Move the gear shift lever firmly and crisply toward the stern.


ZMU08386

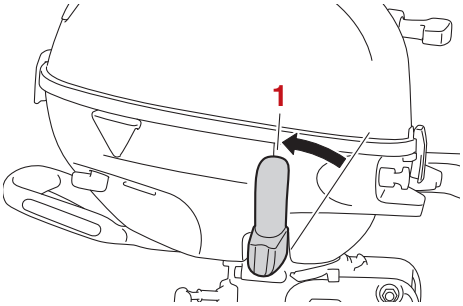
To shift from in gear to neutral

(1) Close the throttle so that the engine slows to idle speed.

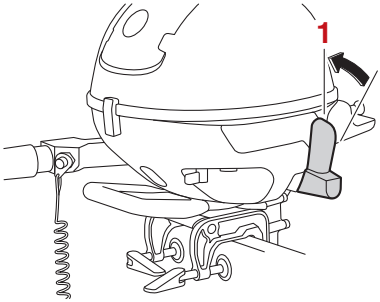

ZMU08387


ZMU08388

(2) After the engine is at idle speed in gear, move the gear shift lever firmly and crisply into the neutral position.



1. Neutral position



1. Neutral position

EMU46290

Stopping boat

The boat is not equipped with a separate braking system. Water resistance stops it after the throttle lever is moved back to the fully closed position. The stopping distance varies depending on gross weight, water surface conditions, and wind direction.

EMU27823

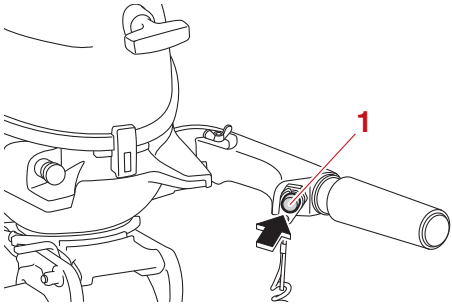
Stopping engine

Before stopping the engine, first let it cool off for a few minutes at idle or low speed. Stopping the engine immediately after operating at high speed is not recommended.

EMU31523

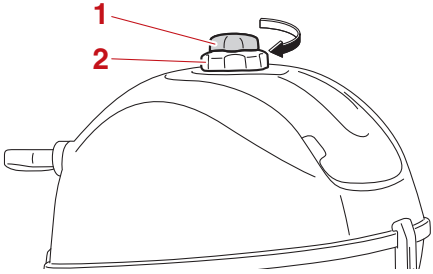
Procedure

(1) Push and hold the engine stop button until the engine comes to a complete stop.

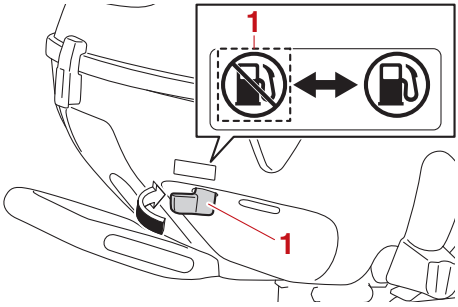


1. Engine stop button

(2) After stopping the engine, tighten the air vent screw on the fuel tank cap and set the fuel cock to the closed position.



1. Air vent screw
2. Fuel tank cap



1. Closed position

TIP:

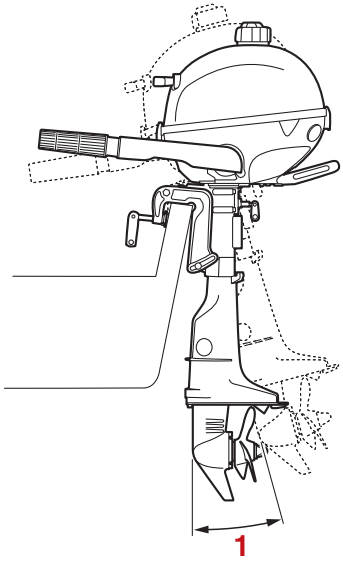
The engine can also be stopped by pulling the cord and removing the clip from the engine shut-off switch.

EMU27865
Trimming outboard motor

EWM00741
WARNING

Excessive trim for the operating conditions (either trim up or trim down) can cause boat instability and can make steering the boat more difficult. This increases the possibility of an accident. If the boat begins to feel unstable or is hard to steer, slow down and/or readjust the trim angle.

The trim angle of the outboard motor helps determine the position of the bow of the boat in the water. Correct trim angle will help improve performance and fuel economy while reducing strain on the engine. Correct trim angle depends upon the combination of boat, engine, and propeller. Correct trim is also affected by variables such as the load in the boat, sea conditions, and running speed.



1. Trim operating angle

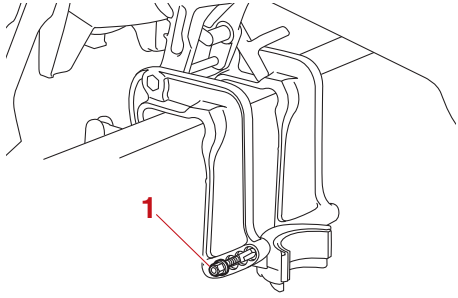
EMU42832
Adjusting trim angle

EWM04300
WARNING

- **Stop the engine before adjusting the trim angle.**
- **Use care to avoid being pinched when moving the trim rod.**
- **Use caution when trying a trim position for the first time. Increase speed gradually and watch for any signs of instability or control problems. Improper trim angle can cause loss of control.**

There are 4 notches provided in the clamp bracket to adjust the outboard motor trim angle.

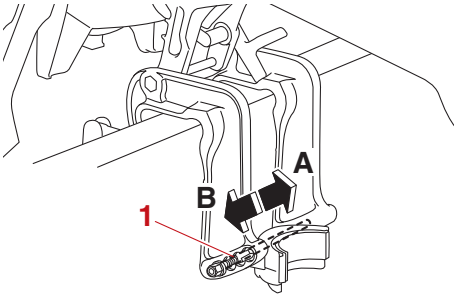
(1) Stop the engine.
(2) Tilt the outboard motor up and lower the tilt support lever to support the outboard motor. (For instructions on tilting the outboard motor up, see page 38.)
(3) Loosen the nut on the port side of the clamp bracket.



1. Nut

TIP:
To prevent the nut from falling into the water, do not remove the nut.

(4) Change the position of the trim rod in direction “A” to raise the bow (“trim-out”). Change the position of the trim rod in direction “B” to lower the bow (“trim-in”).



1. Trim rod

TIP:

The outboard motor trim angle changes approximately 4 degrees when the trim rod position is changed by 1 notch.

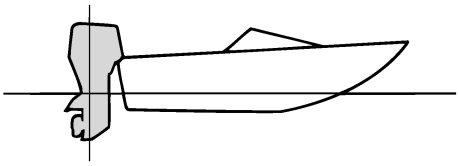
(5) Tilt the outboard motor down.

(6) Make test runs with the outboard motor set at different trim angles to find the position that works best for your boat and operating conditions.

EMU27913

Adjusting boat trim

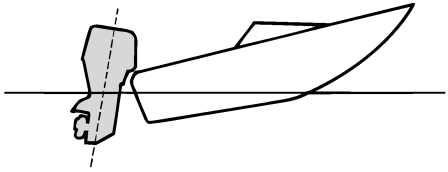
When the boat is on plane, a bow-up attitude results in less drag, greater stability and efficiency. This is generally when the keel line of the boat is up about 3 to 5 degrees. With the bow up, the boat may have a greater tendency to steer to one side or the other. Compensate for this as you steer. When the bow of the boat is down, it is easier to accelerate from a standing start onto plane.



ZMU01784

Bow Up

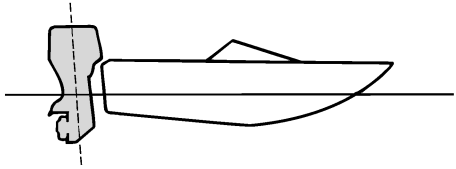
Too much trim-out puts the bow of the boat too high in the water. Performance and economy are decreased because the hull of the boat is pushing the water and there is more air drag. Excessive trim-out can also cause the propeller to ventilate, which reduces performance further, and the boat may “porpoise” (hop in the water), which could throw the operator and passengers overboard.



ZMU01785

Bow Down

Too much trim-in causes the boat to “plow” through the water, decreasing fuel economy and making it hard to increase speed. Operating with excessive trim-in at higher speeds also makes the boat unstable. Resistance at the bow is greatly increased, heightening the danger of “bow steering” and making operation difficult and dangerous.

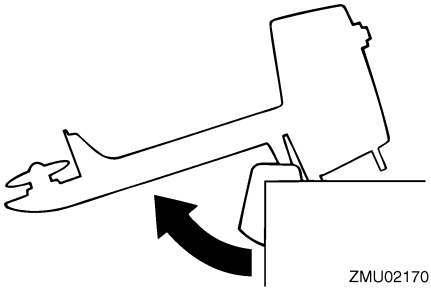


ZMU01786

TIP:
Depending on the type of boat, the outboard motor trim angle may have little effect on the trim of the boat when operating.

EMU27924
Tilting up and down

If the engine will be stopped for some time or if the boat is moored in shallows, the outboard motor should be tilted up to protect the propeller and lower casing from damage by collision with obstructions, and also to reduce salt corrosion.


ZMU02170

EWM00223
⚠ WARNING

Make sure that no one is near the outboard motor when tilting the outboard motor up or down. Otherwise, body parts could be crushed between the outboard motor and the clamp bracket.

EWM00231
⚠ WARNING

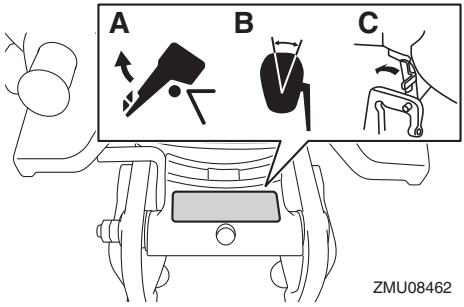
Leaking fuel is a fire hazard. Tighten the air vent screw and place the fuel cock in the closed position if the outboard motor will be tilted for more than a few minutes. Otherwise fuel may leak.

ECM00232
NOTICE

- **Before tilting the outboard motor, follow the procedure under "Stopping engine" in this chapter. Never tilt the outboard motor while the engine is running. Severe damage from overheating can result.**
- **Do not tilt up the engine by pushing the tiller handle because this could break the handle.**
- **Keep the power unit higher than the propeller at all times. Otherwise water could run into the cylinder and cause damage.**
- **The outboard motor cannot be tilted when in reverse or when the outboard motor is turned 180° (facing the rear).**

EMU42933
Procedure for tilting up

Check the contents of the label that is affixed to the top of the clamp bracket, and then perform the following procedure.

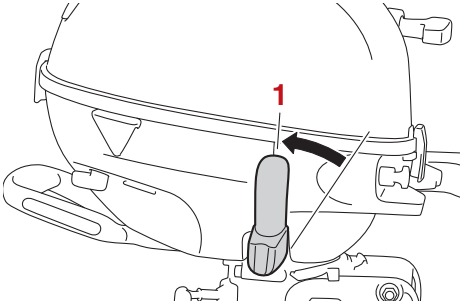


ZMU08462

TIP:
"A": Tilt the outboard motor up.
"B": When tilting the outboard motor up, face the outboard motor forward within the range indicated on the label.

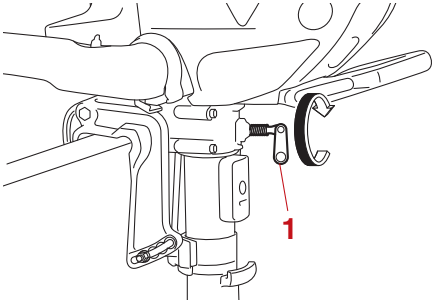
"C": When the outboard motor is tilted up fully, the tilt support lever automatically turns to the locked position.

(1) Place the gear shift lever in neutral and face the outboard motor forward.



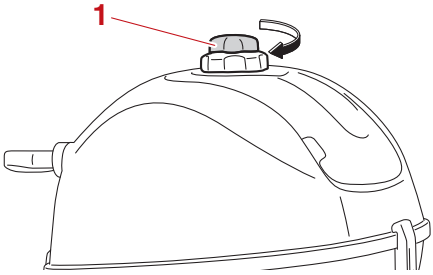
1. Neutral position

(2) To prevent steering movement, turn the steering friction adjuster clockwise.



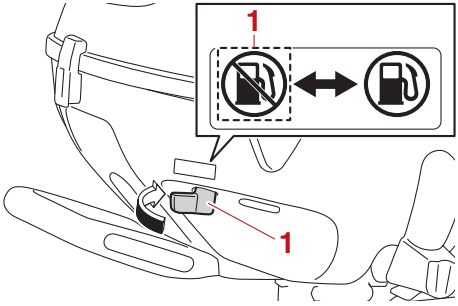
1. Steering friction adjuster

(3) Tighten the air vent screw.



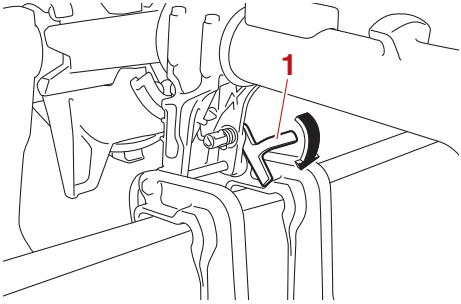
1. Air vent screw

(4) Align the fuel cock with the closed position.



1. Closed position

(5) Hold the carrying handle and tilt the outboard motor up fully until the tilt support lever automatically locks.



1. Tilt support lever

TIP:

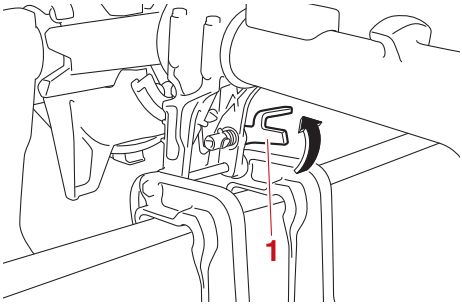
If the outboard motor is not facing forward, the tilt support lever cannot automatically turn to the locked position. If the tilt support lever does not automatically lock, swing the outboard motor a little to the left and right.

EMU42952

Procedure for tilting down

(1) Slightly tilt the outboard motor up.

(2) Slowly tilt the outboard motor down while pulling the tilt support lever up.



1. Tilt support lever

(3) Loosen the steering friction adjuster by turning it counterclockwise, and adjust the steering friction according to operator preference. **WARNING! If there is too much resistance it could be difficult to steer, which could result in an accident.** [EWM00722]

EMU35392

Cruising in other conditions

Cruising in salt water

After operating in salt water, flush the cooling water passages with fresh water to prevent them from becoming clogged. Also rinse the outside of the outboard motor with fresh water.

Cruising in muddy, turbid, or acidic water

Water in some areas can be acidic or with a lot of sediment in it, such as muddy or turbid (cloudy) water. After operating in such water, flush the cooling passages with fresh water to prevent corrosion. Also rinse the outside of the outboard motor with fresh water.

EMU43053
Transporting and storing outboard motor

EWM02621
WARNING

- **USE CARE when transporting fuel tank, whether in a boat or car.**
- **DO NOT fill fuel container to maximum capacity. Gasoline will expand considerably as it warms up and can build up pressure in the fuel container. This can cause fuel leakage and a potential fire hazard.**
- **Leaking fuel is a fire hazard. When transporting and storing the outboard motor, disconnect the fuel line from the outboard motor to prevent fuel from leaking.**
- **Never get under the outboard motor while it is tilted. Severe injury could occur if the outboard motor accidentally falls.**
- **Do not use the tilt support lever or knob when trailering the boat. The outboard motor could shake loose from the tilt support and fall. If the outboard motor cannot be trailered in the normal running position, use an additional support device to secure it in the tilt position.**

ECM02441
NOTICE

When storing the outboard motor for prolonged time, fuel must be drained from the fuel tank. The deteriorated fuel could clog the fuel line causing engine start difficulty or malfunction.

When storing or transporting the outboard motor or when the outboard motor is tilted for a prolonged time for mooring or trailering the boat, make sure to close the fuel cock, and then tighten the fuel tank cap and its air vent screw.

The outboard motor should be transported and stored in the normal running position. If there is insufficient road clearance in this position, then trailer the outboard motor in the tilt position using a motor support device such as a transom saver bar. Consult your Yamaha dealer for further details.

EMU42904
Dismounting and transporting the outboard motor

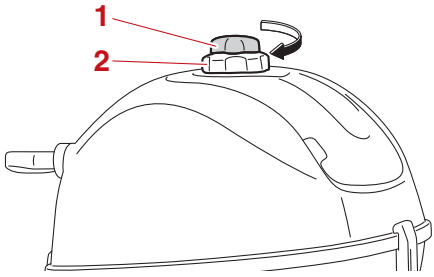
EWM02301
WARNING

Do not hold the top cowling or tiller handle when mounting or dismounting the outboard motor. Otherwise, the outboard motor could fall.

To dismount the outboard motor

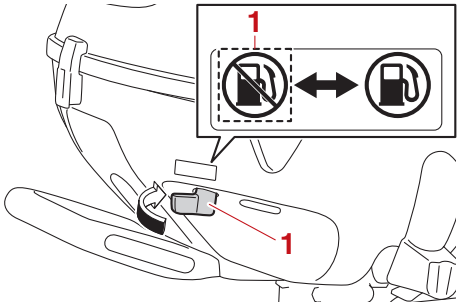
(1) Stop the engine and land the boat.

(2) Tighten the fuel tank cap and air vent screw securely.



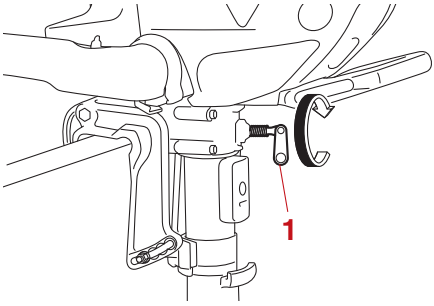
1. Air vent screw
2. Fuel tank cap

(3) Align the fuel cock with the closed position.



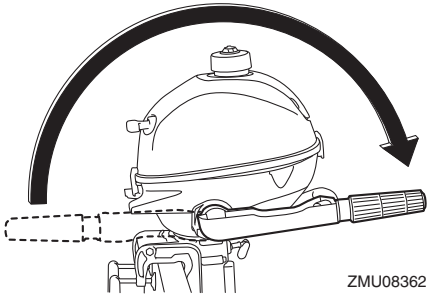
1. Closed position

(4) To prevent steering movement, turn the steering friction adjuster clockwise.

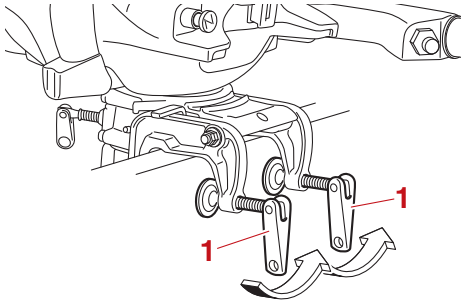


1. Steering friction adjuster

(5) Turn the tiller handle 180° so that it is pointing rearward.

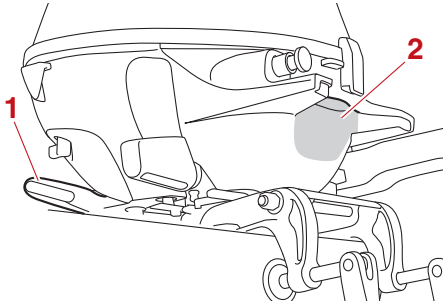


(6) Loosen the clamp screws.

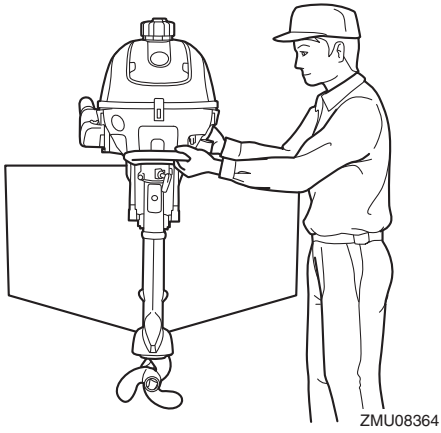


1. Clamp screw

(7) Hold the carrying handle and the handgrip on the front side of the bottom cowling and lift up the outboard motor to dismount it from the boat.

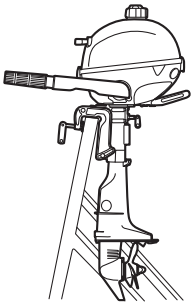


1. Carrying handle
2. Handgrip



To transport the outboard motor

When transporting or storing the outboard motor while removed from a boat, it is recommended that you use an outboard motor stand.



ZMU08398

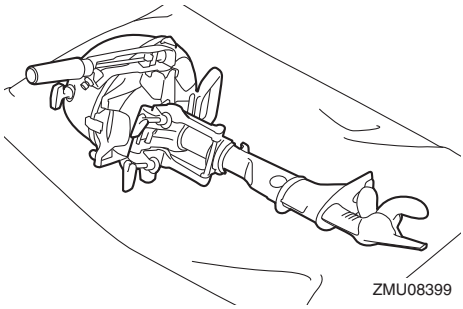
To transport the outboard motor horizontally

When transporting the outboard motor on its side, observe the following precautions.

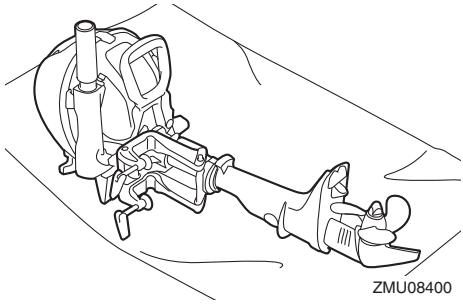
- Tighten the clamp screws completely and place a mat or something similar under the outboard motor. Otherwise, the outboard motor could be damaged or vibration during transport could cause a small amount of oil or cooling water to leak out. ***NOTICE:*** **Do not place the outboard motor on its side before the cooling water has drained from it completely. Otherwise, water may enter the cylinder through the exhaust valve and cause engine trouble.**

  [ECM05010]

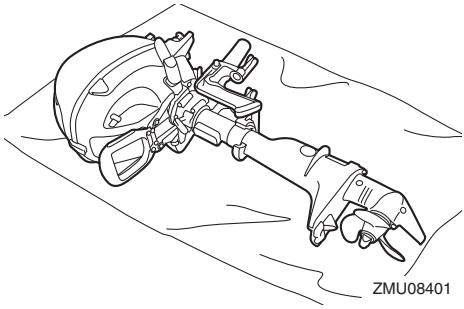
- If the front side of the outboard motor is facing down, turn the clamp bracket 90° so that it does not contact the ground, and then turn the steering friction adjuster clockwise to secure the bracket.



ZMU08399

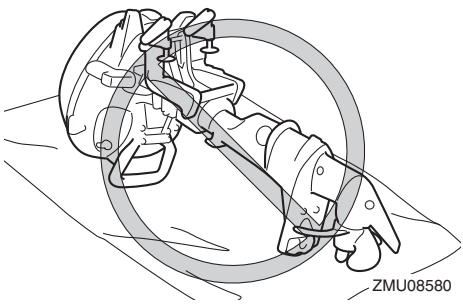


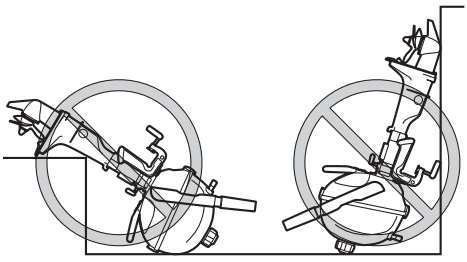
ZMU08400



ZMU08401

- Do not place the outboard motor on its side in an attitude other than those shown in the preceding illustrations.


ZMU08580


ZMU08565

EMU43664
Storing outboard motor

When storing your Yamaha outboard motor for prolonged periods of time (2 months or longer), several important procedures must be performed to prevent excessive damage. It is advisable to have your outboard motor serviced by an authorized Yamaha dealer prior to storage. However, the following procedures can be performed by the owner.

ECM02214
NOTICE

- **Do not place the outboard motor on its side before the cooling water has drained from it completely. Otherwise, water may enter the cylinder through the exhaust valve and cause engine trouble.**
- **Transport and store the outboard motor as specified in "Dismounting and transporting the outboard motor".**
- **Store the outboard motor in a dry, well-ventilated place, not in direct sunlight.**

EMU28306
Procedure

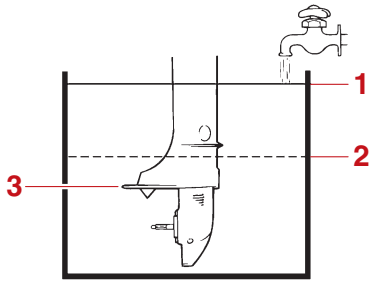
EMU43034
Flushing in a test tank

ECM00302
NOTICE

Before starting the engine, make sure to supply water to the cooling water passages. Otherwise, the engine could overheat and be damaged.

Cooling system flushing is essential to prevent the cooling system from clogging up with salt, sand, or dirt. In addition, fogging/lubricating of the engine is mandatory to prevent excessive engine damage due to rust. Perform the flushing and fogging at the same time.

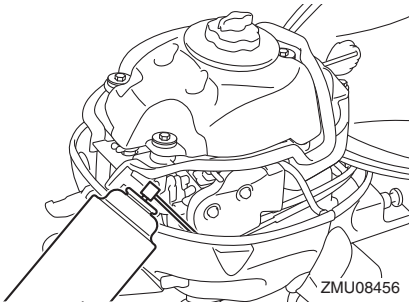
(1) Wash the outboard motor body using fresh water. ***NOTICE:*** **Do not spray water into the air intake.** [ECM01841] For further information, see page 46.
(2) Align the fuel cock with the closed position. Tighten the air vent screw on the fuel tank cap.
(3) Remove the propeller. For further information, see page 56.
(4) Install the outboard motor in the test tank.
(5) Fill the test tank with fresh water to above the level of the anti-cavitation plate. ***NOTICE:*** **If the fresh water level is below the level of the anti-cavitation plate, or if the water supply is insufficient, engine seizure may occur.** [ECM00292]



1. Water surface
2. Lowest water level
3. Anti-cavitation plate

(6) Run the engine at a fast idle for a few minutes in neutral position.

(7) Just prior to turning off the engine, lift up the top cowling slowly, and then quickly spray "Fogging Oil" into the carburetor. When properly done, the engine will smoke excessively and almost stall. **WARNING! Do not touch or remove electrical parts when starting or during operation. Keep hands, hair, and clothes away from the flywheel and other rotating parts while the engine is running.** [EWM00092]



TIP:

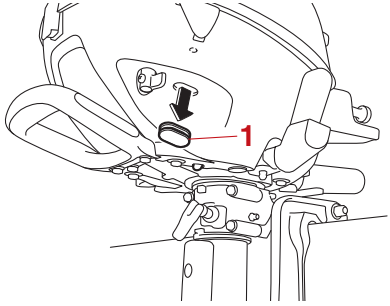
- When the top cowling is removed while the engine is running, noise from the manual starter may be heard.

- If "Fogging Oil" is not available, run the engine at a fast idle until the fuel system empties and the engine stops.
  Then, remove the spark plug. Pour a teaspoonful of clean engine oil into the cylinder. Crank several times manually. Install the spark plug.

(8) Install the top cowling.

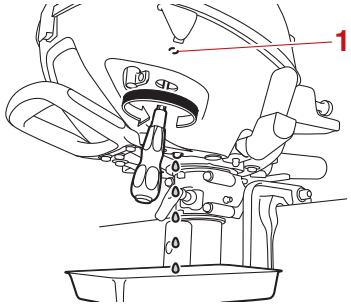
(9) Loosen the air vent screw by 1 turn. Align the fuel cock with the open position.

(10) Remove the grommet.



1. Grommet

(11) Place a container under the carburetor drain hole to catch the gasoline, and then loosen the drain screw.



1. Drain screw

(12) Tighten the drain screw. Install the grommet.

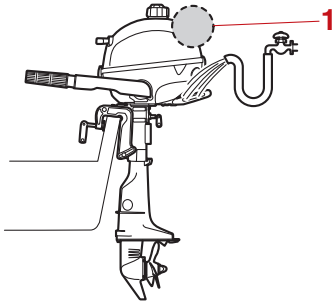
(13) Align the fuel cock with the closed position. Tighten the air vent screw.

(14) Remove the outboard motor from the test tank.
(15) Drain the cooling water completely out of the outboard motor. Clean the body thoroughly.
(16) Install the propeller. For further information, see page 57.

EMU41072
Lubrication
(1) Change the gear oil. For instructions, see page 58. Check the gear oil for the presence of water that indicates a leaky seal. Seal replacement should be performed by an authorized Yamaha dealer prior to use.
(2) Lubricate all grease fittings. For further details, see page 51.

TIP:
For long-term storage, fogging the engine with fogging oil is recommended. Contact your Yamaha dealer for information about fogging oil and procedures for your outboard motor.

EMU44342
Cleaning the outboard motor
When cleaning the outboard motor, the top cowling must be installed.
(1) Wash the exterior of the outboard motor using fresh water. ***NOTICE:*** **Do not spray water into the air intake.** [ECM01841]



1. Air intake

(2) Drain the cooling water completely out of the outboard motor. Clean the body thoroughly.

EMU28463
Checking painted surface of outboard motor
Check the outboard motor for scratches, nicks, or flaking paint. Areas with damaged paint are more likely to corrode. If necessary, clean and paint the areas. Touch-up paint is available from your Yamaha dealer.

EMU37077
Periodic maintenance
EWM01982
WARNING
These procedures require mechanical skills, tools, and supplies. If you do not have the proper skills, tools, or supplies to perform a maintenance procedure, have a Yamaha dealer or other qualified mechanic do the work.
The procedures involve disassembling the motor and exposing dangerous parts. To reduce the risk of injury from moving, hot, or electrical parts:
- **Turn off the engine and keep engine shut-off cord (lanyard) with you when you perform maintenance unless otherwise specified.**

- **Allow the engine to cool before handling hot parts or fluids.**
- **Always completely reassemble the motor before operation.**

EMU28512
Replacement parts
If replacement parts are necessary, use only genuine Yamaha parts or parts of equivalent design and quality. Any part of inferior quality may malfunction, and the resulting loss of control could endanger the operator and passengers. Yamaha genuine parts and accessories are available from your Yamaha dealer.

EMU34152
Severe operating conditions
Severe operating conditions involve one or more of the following types of operation on a regular basis:
- Operating continuously at or near maximum engine speed (rpm) for many hours
- Operating continuously at a low engine speed (rpm) for many hours
- Operating without sufficient time for engine to warm up and cool down
- Frequent quick acceleration and deceleration
- Frequent shifting
- Frequently starting and stopping the engine(s)
- Operation that fluctuates often between light and heavy cargo loads

Outboard motors operating under any of these above conditions require more frequent maintenance. Yamaha recommends that you do this service twice as often as specified in the maintenance chart. For example, if a particular service should be done at 50 hours, do it instead at 25 hours. This will help prevent more rapid deterioration of engine components.

EMU46073
Maintenance chart 1

TIP:

- Refer to the sections in this chapter for explanations of each owner-specific action.
- The maintenance cycle on these charts assume usage of 100 hours per year and regular flushing of the cooling water passages. Maintenance frequency should be adjusted when operating the engine under adverse conditions such as extended trolling.
- Disassembly or repairs may be necessary depending on the outcome of maintenance checks.
- Expendable or consumable parts and lubricants will lose their effectiveness over time and through normal usage regardless of the warranty period.
- When operating in salt water, muddy, other turbid (cloudy), acidic water, the engine should be flushed with clean water after each use.

The "●" symbol indicates the check-ups which you may carry out yourself.
The "○" symbol indicates work to be carried out by your Yamaha dealer.

Item	Actions	Initial	Every			Page
		20 hours (3 months)	100 hours (1 year)	300 hours (3 years)	500 hours (5 years)	
Anode(s) (external)	Inspection or replacement as necessary		●/○			58
Anode(s) (internal) *1	Inspection or replacement as necessary		○			—
Anode(s) (internal) *2	Replacement				○	—
Cooling water leakage	Inspection or replacement as necessary	○	○			—
Cowling lock lever	Inspection		●/○			26, 28
Engine starting condition/noise	Inspection	●/○	●/○			30
Engine idle speed/noise	Inspection	●/○	●/○			53
Engine oil	Replacement	●/○	●/○			53
Fuel filter (inside built-in fuel tank)	Inspection and cleaning as necessary		○			—
Fuel line	Inspection	●	●			—
Fuel line	Inspection or replacement as necessary	○	○			—

Item	Actions	Initial	Every			Page
		20 hours (3 months)	100 hours (1 year)	300 hours (3 years)	500 hours (5 years)	
Fuel/engine oil leakage	Inspection	○	○			–
Gear oil	Replacement	●/○	●/○			58
Greasing points	Greasing	●/○	●/○			51
Impeller/water pump housing	Inspection or replacement as necessary		○			–
Impeller/water pump housing	Replacement			○		–
Propeller/propeller nut/cotter pin	Inspection or replacement as necessary	●/○	●/○			56
Shift link	Inspection, adjustment or replacement as necessary	○	○			–
Spark plug	Inspection or replacement as necessary		●/○			52
Spark plug cap/spark plug wire	Inspection or replacement as necessary	○	○			–
Water from the cooling water pilot hole	Inspection	●/○	●/○			32
Throttle link/throttle cable	Inspection, adjustment or replacement as necessary	○	○			–
Thermostat	Inspection or replacement as necessary		○			–
Valve clearance	Inspection and adjustment				○	–
Cooling water inlet	Inspection	●/○	●/○			15
Stop switch	Inspection or replacement as necessary	○	○			–

Item	Actions	Initial	Every			Page
		20 hours (3 months)	100 hours (1 year)	300 hours (3 years)	500 hours (5 years)	
Connector connections/lead connections	Inspection or replacement as necessary	○	○			—
Fuel tank (built-in tank)	Inspection and cleaning as necessary		○			—

EMU46000

*1 thermostat cover

*2 thermostat cover

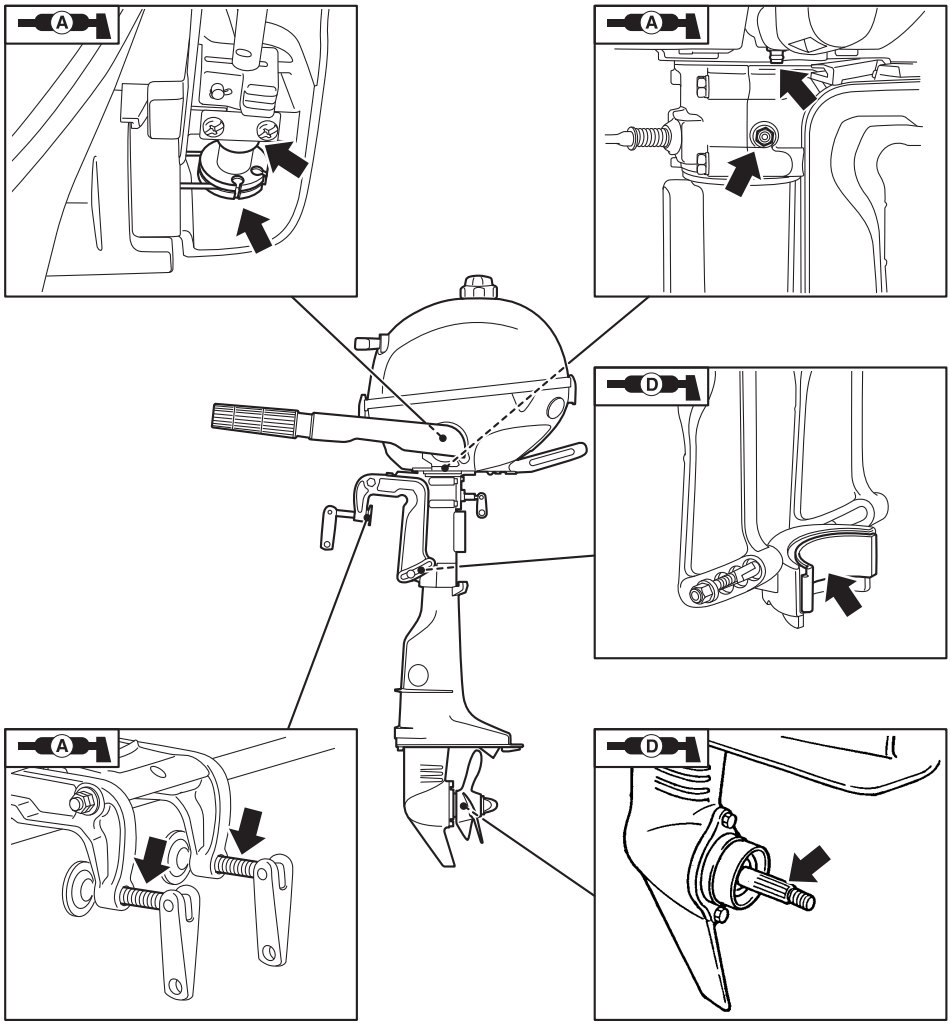
EMU46082

Maintenance chart 2

Item	Actions	Every	Page
		1000 hours	
Exhaust guide/exhaust manifold	Inspection or replacement as necessary	○	—

EMU46621
Greasing

Yamalube grease A "Ⓐ" (water resistant grease)
Yamaha grease D "Ⓓ" (corrosion resistant grease)



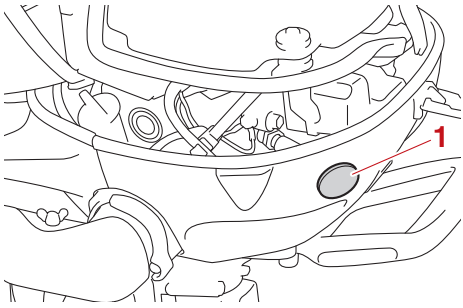
ZMU08459

EMU44892
Inspecting the spark plug

The spark plug is an important engine component. The condition of the spark plug can indicate something about the condition of the engine. For example, if the center electrode porcelain is very white, this could indicate an intake air leak or carburetion problem in that cylinder. Do not attempt to diagnose any problems yourself. Instead, take the outboard motor to a Yamaha dealer. You should periodically remove and check the spark plug because heat and deposits will cause the spark plug to slowly break down and erode.

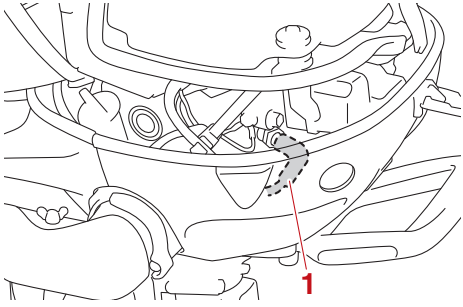
To remove the spark plug

(1) Remove the cover.



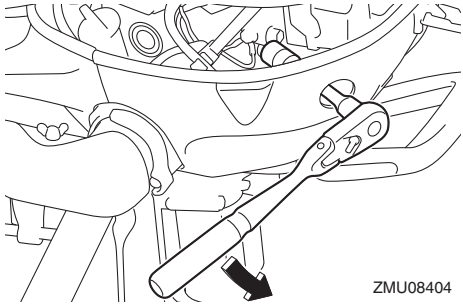
1. Cover

(2) Remove the spark plug cap from the spark plug.



1. Spark plug cap

(3) Remove the spark plug. **WARNING! When removing or installing a spark plug, be careful not to damage the insulator. A damaged insulator could allow external sparks, which could lead to explosion or fire.** [EWM00562]

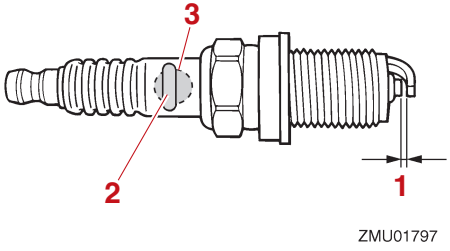


To check the spark plug

(1) Check the condition of the spark plug. If electrode erosion becomes excessive or carbon and other deposits are excessive, replace the spark plug with the specified plug.

Standard spark plug:
CR6HSB

(2) Measure the spark plug gap using a thickness gauge. If the spark plug gap is out of specification, replace the spark plug with the specified plug.



1. Spark plug gap
2. Spark plug part number

3. Spark plug I.D. mark (NGK)

Spark plug gap:
0.6–0.7 mm (0.024–0.028 in)

To install the spark plug

(1) Wipe off any dirt from the threads, insulator, and gasket surface of the spark plug.
(2) Install the spark plug, and then tighten it to the specified torque.

Spark plug tightening torque:
13 N·m (1.3 kgf·m, 9.6 lb·ft)

TIP:
If a torque-wrench is not available when you are reinstalling a spark plug, a good estimate of the correct torque is 1/12 turn past finger-tight. When you are installing a new spark plug, a good estimate of the correct torque is 1/2 turn past finger-tight.

(3) Install the spark plug cap.

TIP:
Make sure that the spark plug cap is installed securely.

(4) Install the cover.

EMU42465
Checking fuel filter
For cleaning or replacement of the fuel filters at the intervals specified in the periodic maintenance chart, consult a Yamaha dealer.

EMU40141
Inspecting idle speed
ECM02231
NOTICE

When checking the engine idle speed, make sure to supply water to the cooling water passages by placing the outboard motor in the water or by using a flushing attachment or test tank.

To check the engine idle speed, a diagnostic tachometer is required. For checking or adjustment of the engine idle speed, consult a Yamaha dealer.

EMU3951E
Changing engine oil
EWM00761
WARNING

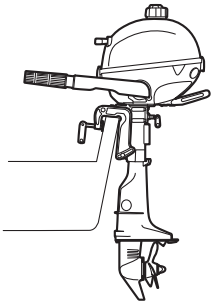
- **Avoid draining the engine oil immediately after stopping the engine. The oil is hot and should be handled with care to avoid burns.**
- **Be sure the outboard motor is securely fastened to the transom or a stable stand.**

ECM01711
NOTICE

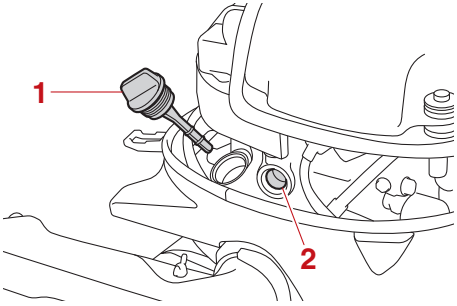
Change the engine oil after the first 20 hours of operation or 3 months, and every 100 hours or at 1-year intervals thereafter. Otherwise the engine will wear quickly.

To prevent spilling oil where it could cause damage to nature, it is strongly recommended that you use an oil changer to change the engine oil. If an oil changer is not available, drain the engine oil by removing the drain screw. If you are not familiar with the procedure for changing the engine oil, consult your Yamaha dealer.

(1) Put the outboard motor in an upright position (not tilted). ***NOTICE:*** **If the outboard motor is not level, the oil level indicated on the oil dipstick may not be accurate.** [ECM01862]


ZMU08448

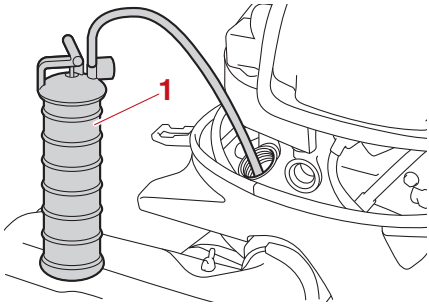
(2) Start the engine. Warm it up and keep the idle speed for 5-10 minutes.
(3) Stop the engine and leave it for 5-10 minutes.
(4) Remove the top cowling.
(5) Remove the oil filler cap.



1. Oil filler cap
2. Oil lubrication check window

TIP:
The oil lubrication check window does not indicate the engine oil level. Use the oil lubrication check window to make sure that the engine is being lubricated with oil while it is running.

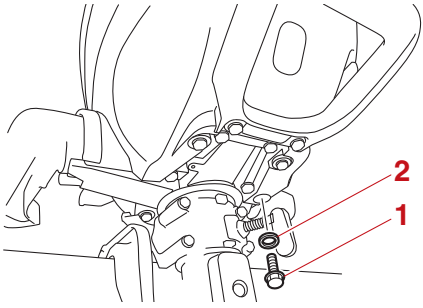
(6) Insert the tube of the oil changer into the oil filler hole, and then extract the engine oil completely using the oil changer.



1. Oil changer

TIP:
When using an oil changer, skip steps 7 and 8.

(7) Prepare a suitable container that holds a larger amount than the engine oil capacity. Remove the drain screw and gasket while holding the container under the drain hole. Let the oil drain completely. Wipe up any spilled oil immediately.



1. Drain screw
2. Gasket

TIP:
If the oil does not drain easily, change the tilt angle or turn the outboard motor to port and starboard to drain the oil.

(8) Put a new gasket on the oil drain screw. Apply a light coat of oil to the gasket and install the drain screw.

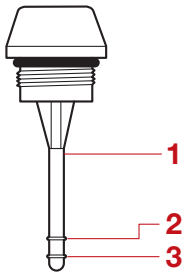
Drain screw tightening torque:
18 N·m (1.8 kgf·m, 13 lb·ft)

TIP:
If a torque wrench is not available when you are installing the drain screw, finger tighten the screw just until the gasket comes into contact with the surface of the drain hole. Then tighten 1/4 to 1/2 turn more. Tighten the drain screw to the correct torque with a torque wrench as soon as possible.

(9) Add the correct amount of oil through the filler hole. ***NOTICE:*** **Overfilling the oil could cause leakage or damage. If the oil level is above the upper mark, extract oil until the oil is between the upper and lower marks.** [ECM02183]

Recommended engine oil:
YAMALUBE 4 or 4-stroke outboard motor oil
Engine oil quantity:
0.25 L (0.26 US qt, 0.22 Imp.qt)

(10) Install the oil filler cap and tighten it completely.
(11) Wait 5-10 minutes until the oil settles.
(12) Remove the oil filler cap and wipe the attached oil dipstick clean.
(13) Install the oil filler cap and tighten it completely.
(14) Remove the oil filler cap again and check that the oil level on the dipstick is between the upper and lower marks. If the oil level is not at the proper level, add or extract oil until the oil is between the upper and lower marks.



1. Oil dipstick
2. Upper mark
3. Lower mark

(15) Install the top cowling.
(16) Start the engine and make sure that there are no oil leaks. ***NOTICE:*** **If there are oil leaks, stop the engine and find the cause. Consult your Yamaha dealer if the problem cannot be located and corrected. Continued operation with a problem could cause severe engine damage.** [ECM02151]
(17) Dispose of used oil according to local regulations.

TIP:
- For more information on the disposal of used oil, consult your Yamaha dealer.
- Change the oil more often when operating the engine under adverse conditions such as extended trolling.

EMU48060
Why Yamalube
YAMALUBE oil is a Genuine YAMAHA Part born of the engineers' passion and belief that engine oil is an important liquid engine component. We form teams of specialists in the fields of mechanical engineering, chemistry, electronics and track testing, and have them develop the engine together with the oil it will use. Yamalube oils take full advantage of the base oil's qualities and blend in the ideal bal-

ance of additives to make sure the final oil clears our performance standards. Thus, Yamalube mineral, semisynthetic and synthetic oils have their own distinct characters and value. Yamaha's experience gained over many years of research and development into oil since the 1960's helps make Yamalube the best choice for your Yamaha engine.

YAMALUBE®

EMU39773
Checking electrical connectors and electrical leads

For checking of the following items for the connectors and leads, consult a Yamaha dealer.

- Check that each connector is connected securely.
- Check that each ground lead is secured properly.

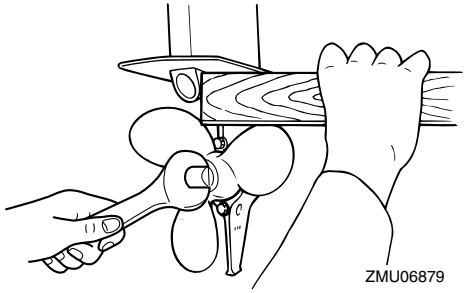
EMU39303
Checking propeller

EWM02281

WARNING

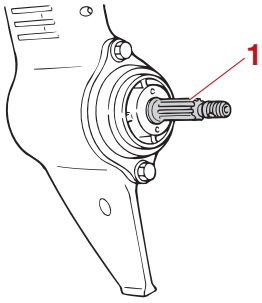
You could be seriously injured if the engine accidentally starts when you are near the propeller. Before inspecting, removing, or installing the propeller, place the gear shift lever in neutral, and remove the clip from the engine shut-off switch.

Do not use your hand to hold the propeller when loosening or tightening the propeller nut. Put a wood block between the anti-cavitation plate and the propeller to prevent the propeller from turning.


ZMU06879

Checkpoints

- Check each of the propeller blades for erosion from cavitation or ventilation, or other damage.
- Check the propeller shaft for damage.
- Check the splines for wear or damage.
- Check for fish line tangled around the propeller shaft.



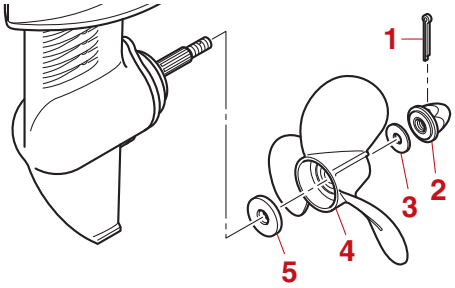
1. Propeller shaft

- Check the propeller shaft oil seal for damage.

EMU30663
Removing propeller

EMU39311
Spline models

(1) Straighten the cotter pin and pull it out using a pair of pliers.
(2) Remove the propeller nut and washer. **WARNING! Do not use your hand to hold the propeller when loosening the propeller nut.** [EWM01891]



1. Cotter pin
2. Propeller nut
3. Washer
4. Propeller
5. Thrust washer

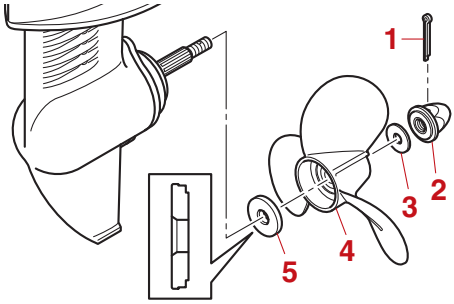
(3) Remove the propeller and thrust washer.

EMU30673
Installing propeller
EMU39327
Spline models
ECM00502

NOTICE

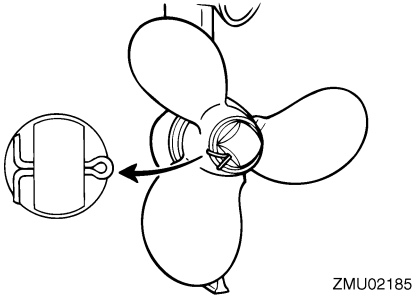
Make sure to use a new cotter pin and bend the ends over securely. Otherwise, the propeller could come off during operation and be lost.

(1) Apply Yamalube Marine Grease or Yamaha grease D (corrosion resistant grease) to the propeller shaft.
(2) Install the thrust washer and propeller onto the propeller shaft. ***NOTICE:*** **Make sure to install the thrust washer before installing the propeller. Otherwise, the lower case and propeller boss could be damaged.** [ECM01882]
(3) Install the washer and tighten the propeller nut until there is no looseness in the propeller.



1. Cotter pin
2. Propeller nut
3. Washer
4. Propeller
5. Thrust washer

(4) Align the propeller nut hole with the propeller shaft hole. Insert a new cotter pin in the holes and bend the cotter pin ends. ***NOTICE:*** **Do not reuse the cotter pin. Otherwise, the propeller can come off during operation.** [ECM01892]



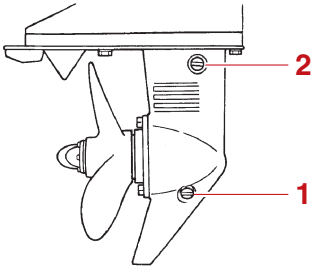
TIP:
If the propeller nut hole does not align with the propeller shaft hole after tightening the propeller nut, tighten the nut further or loosen the nut to align the holes.

EMU39785
Changing gear oil
EWM02351

WARNING

Be sure the outboard motor is securely fastened to the transom or a stable stand. You could be severely injured if the outboard motor falls on you.

(1) Put the outboard motor in an upright position (not tilted).
(2) Place a suitable container under the gear case.
(3) Remove the gear oil drain screw and gasket.



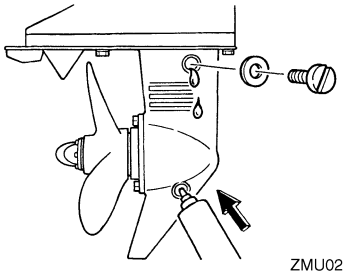
1. Gear oil drain screw
2. Oil level plug

(4) Remove the oil level plug and gasket to allow the oil to drain completely. ***NOTICE:*** **Check the used gear oil after it has been drained. If the gear oil is milky or contains water or a large amount of metal particles, the gear case may be damaged. Have a Yamaha dealer check and repair the outboard motor.** [ECM00714]

TIP:
For disposal of used oil, consult your Yamaha dealer.

(5) Using a flexible or pressurized filling device, inject the gear oil into the gear oil drain screw hole.

Recommended gear oil:
YAMALUBE outboard gear oil or Hypoid gear oil
Recommended gear oil grade:
SAE 90 API GL-4
Gear oil quantity:
0.075 L (0.079 US qt, 0.066 Imp.qt)


ZMU02187

(6) Put a new gasket on the oil level plug. When the oil begins to flow out of the oil level plug hole, insert and tighten the oil level plug.

Tightening torque:
7 N·m (0.7 kgf·m, 5.2 lb·ft)

(7) Put a new gasket on the gear oil drain screw. Insert and tighten the gear oil drain screw.

Tightening torque:
7 N·m (0.7 kgf·m, 5.2 lb·ft)

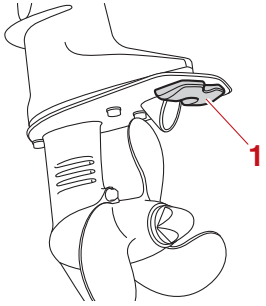
EMU39333
Inspecting and replacing anode (external)
Yamaha outboard motors are protected from corrosion by sacrificial anode. Inspect the external anode periodically. Remove scales

from the surface of the anode. Consult a Yamaha dealer for replacement of the external anode.

ECM00721

NOTICE

Do not paint anodes, as this would render them ineffective.



1. Anode

EMU46680

Troubleshooting

This section describes the likely causes and remedies for problems, such as those in the fuel, compression, and ignition systems, poor starting, and loss of power. Please note that all of the items in this section may not apply to your model.
If your outboard motor requires repair, bring it to a Yamaha dealer.

Engine will not start.
Q. Is fuel tank empty?
A. Fill tank with clean, fresh fuel.

Q. Is fuel contaminated or stale?
A. Fill tank with clean, fresh fuel.

Q. Is fuel filter clogged?
A. Clean or replace filter.

Q. Is spark plug fouled or incorrect type?
A. Inspect spark plug. Clean or replace with recommended type.

Q. Is spark plug cap fitted incorrectly?
A. Check and re-fit cap.

Q. Is spark plug wiring damaged or poorly connected?
A. Check wires for wear or breaks. Tighten all loose connections. Replace worn or broken wires.

Q. Are electrical parts malfunctioning?
A. Have serviced by a Yamaha dealer.

Q. Is clip on engine shut-off cord (lanyard) installed?
A. Install clip to engine shut-off switch.

Q. Are engine inner parts damaged?
A. Have serviced by a Yamaha dealer.

Engine idles irregularly or stalls.
Q. Is fuel system obstructed?
A. Check for pinched or kinked fuel line or other obstructions in fuel system.

Q. Is fuel contaminated or stale?
A. Fill tank with clean, fresh fuel.

Q. Is fuel filter clogged?
A. Clean or replace filter.

Q. Are electrical parts malfunctioning?
A. Have serviced by a Yamaha dealer.

Q. Is spark plug gap incorrect?
A. Replace spark plug.

Q. Is spark plug wiring damaged or poorly connected?
A. Check wires for wear or breaks. Tighten all loose connections. Replace worn or broken wires.

Q. Is specified engine oil not being used?
A. Check and replace oil with specified type.

Q. Is thermostat malfunctioning or clogged?
A. Have serviced by a Yamaha dealer.

Q. Are carburetor adjustments incorrect?
A. Have serviced by a Yamaha dealer.

Q. Is air vent screw tightened?
A. Loosen air vent screw.

Q. Is choke knob pulled out?
A. Return to home position.

Q. Is carburetor clogged?

A. Have serviced by a Yamaha dealer.

Q. Is fuel joint connection incorrect?
A. Connect correctly.

Q. Is throttle cable adjustment incorrect?
A. Have serviced by a Yamaha dealer.

Engine power loss.
Q. Is propeller damaged?
A. Have propeller repaired or replaced.

Q. Is propeller pitch or diameter incorrect?
A. Install correct propeller to operate outboard at its recommended speed (r/min) range.

Q. Is trim angle incorrect?
A. Adjust trim angle to achieve most efficient operation.

Q. Is outboard motor mounted at incorrect height on transom?
A. Have outboard motor adjusted to proper transom height.

Q. Is boat bottom fouled with marine growth?
A. Clean boat bottom.

Q. Is spark plug fouled or incorrect type?
A. Inspect spark plug. Clean or replace with recommended type.

Q. Are weeds or other foreign material tangled on gear housing?
A. Remove foreign material and clean lower unit.

Q. Is fuel system obstructed?
A. Check for pinched or kinked fuel line or other obstructions in fuel system.

Q. Is fuel filter clogged?
A. Clean or replace filter.

Q. Is fuel contaminated or stale?
A. Fill tank with clean, fresh fuel.

Q. Is spark plug gap incorrect?
A. Replace spark plug.

Q. Is spark plug wiring damaged or poorly connected?
A. Check wires for wear or breaks. Tighten all loose connections. Replace worn or broken wires.

Q. Are electrical parts malfunctioning?
A. Have serviced by a Yamaha dealer.

Q. Is specified fuel not being used?
A. Replace fuel with specified type.

Q. Is specified engine oil not being used?
A. Check and replace oil with specified type.

Q. Is thermostat malfunctioning or clogged?
A. Have serviced by a Yamaha dealer.

Q. Is air vent screw tightened?
A. Loosen air vent screw.

Q. Is fuel joint connection incorrect?
A. Connect correctly.

Engine vibrates excessively.
Q. Is propeller damaged?
A. Have propeller repaired or replaced.

Q. Is propeller shaft damaged?

A. Have serviced by a Yamaha dealer.

Q. Are weeds or other foreign material tangled on propeller?
A. Remove and clean propeller.

Q. Is steering pivot loose or damaged?
A. Have serviced by a Yamaha dealer.

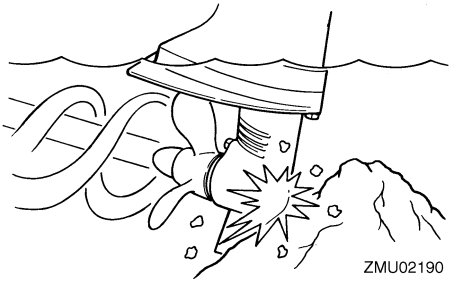
EMU29435
Temporary action in emergency

EMU29442
Impact damage

EWM00871
WARNING

The outboard motor can be seriously damaged by a collision while operating or trailering. Damage could make the outboard motor unsafe to operate.

If the outboard motor hits an object in the water, follow the procedure below.


ZMU02190

(1) Stop the engine immediately.
(2) Check the control system and all components for damage. Also, check the boat for damage.
(3) Whether damage is found or not, return to the nearest harbor slowly and carefully.
(4) Have a Yamaha dealer check the outboard motor before operating it again.

EMU43682
Starter will not operate

If the starter mechanism does not operate (the engine cannot be cranked with the starter), the engine can be started with an emergency starter rope.

EWM04290
WARNING

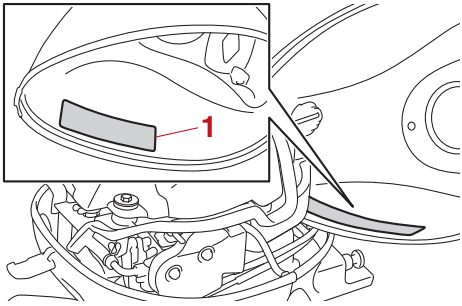
- **Use this procedure only in an emergency to return to the nearest port for repairs.**
- **Make sure the gear shift lever is in neutral. Otherwise the boat could unexpectedly start to move, which could result in an accident.**
- **Attach the engine shut-off cord to a secure place on your clothing, or your arm or leg while operating the boat.**
- **Do not attach the cord to clothing that could tear loose. Do not route the cord where it could become entangled, preventing it from functioning.**
- **Avoid accidentally pulling the cord during normal operation. Loss of engine power means the loss of most steering control. Also, without engine power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.**
- **Make sure no one is standing behind you when pulling the starter rope. It could whip behind you and injure someone.**
- **An unguarded, rotating flywheel is very dangerous. Keep loose clothing and other objects away when starting the engine. Use the emergency starter rope only as instructed. Do not touch the flywheel or other moving parts when the engine is running. Do not install the starter mechanism or top cowling after the engine is running.**

- **Do not touch the ignition coil, spark plug wire, spark plug cap, or other electrical components when starting or operating the motor. You could get an electrical shock.**

EMU42923

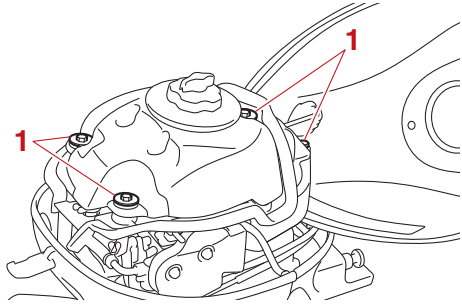
Emergency engine starting

Before performing the following procedure, make sure to read the emergency starting label on the inside of the top cowling.



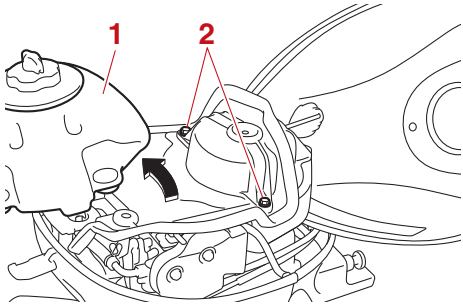
1. Emergency starting label

(1) Lift up the top cowling.
(2) Remove the bolts.



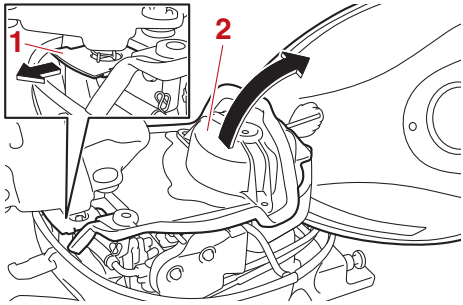
1. Bolt

(3) Move the fuel tank to the side, and then remove the bolts from the manual starter case.



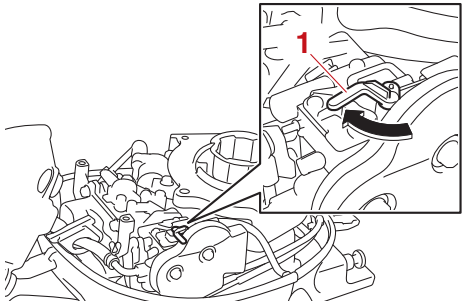
1. Fuel tank
2. Bolt

(4) Remove the grommet from the manual starter case, and then remove the manual starter case along with the top cowling.



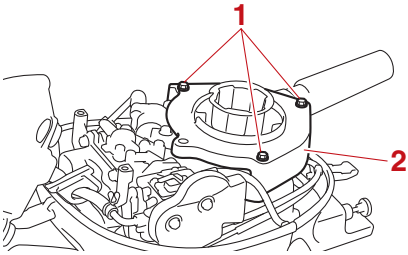
1. Grommet
2. Manual starter case

(5) Move the lever to fully open the choke.



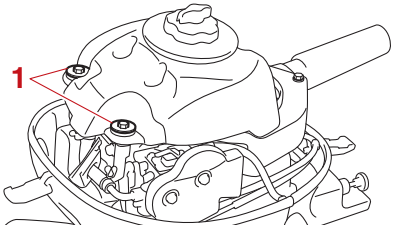
1. Lever

(6) Install the bolts to secure the bracket.



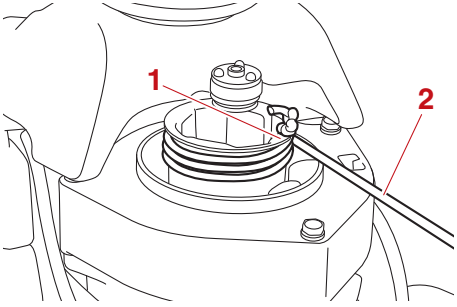
1. Bolt
2. Bracket

(7) Place the fuel tank in its original position, and then install the bolts.



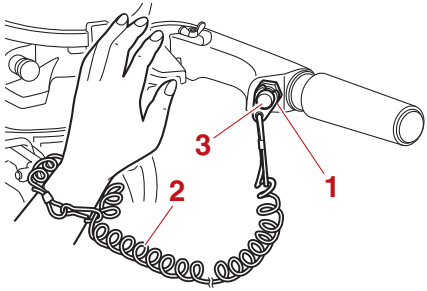
1. Bolt

(8) Insert the knotted end of the emergency starter rope into the notch in the flywheel magnet and wind the rope several turns around the flywheel magnet clockwise.



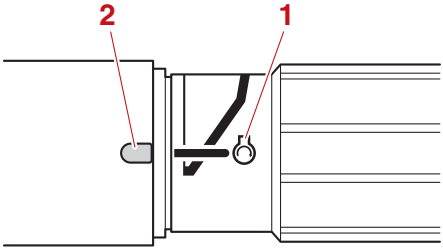
1. Notch
2. Emergency starter rope

(9) Attach the engine shut-off cord to a secure place on your clothing, or your arm or leg. Then, install the clip on the other end of the cord to the engine shut-off switch.



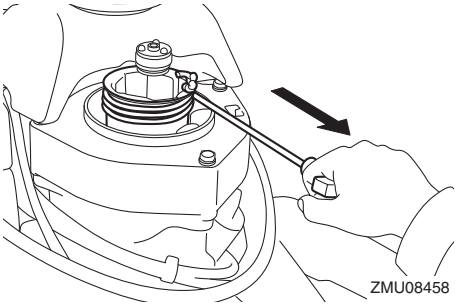
1. Clip
2. Engine shut-off cord (lanyard)
3. Engine shut-off switch

(10) Align the engine start mark "⏻" on the throttle grip with the notch in the tiller handle.



1. Start mark "⏻"
2. Notch

(11) Give a strong pull straight out to crank and start the engine.



EMU33502

Treatment of submerged motor

If the outboard motor is submerged, immediately take it to a Yamaha dealer. Otherwise some corrosion may begin almost immediately. ***NOTICE:*** **Do not attempt to run the outboard motor until it has been completely inspected.** [ECM00402]

A

Alcohol and drugs ... 2
Anode (external), inspecting and replacing ... 58
Anti-fouling paint ... 13
Avoid collisions ... 3

B

Boat horsepower rating ... 11
Boating safety ... 2
Boating safety publications ... 4
Breaking in engine ... 25

C

Carbon monoxide ... 2
Carrying handle ... 21
CE Marking / UKCA Marking ... 5
Checks after engine warm up ... 33
Checks after starting engine ... 32
Checks before starting engine ... 25
Choke knob ... 19
Clamping the outboard motor ... 24
Cleaning the outboard motor ... 46
Collisions with floating or submerged objects ... 3
Components diagram ... 15
Control functions, checking ... 27
Cooling water ... 32
Cowling lock lever ... 21
Cruising in salt water or other conditions ... 40

D

Dismounting and transporting the outboard motor ... 41

E

EC Declaration of Conformity (DoC) ... 5
Electric shock ... 1
Electrical connectors and leads, checking ... 56
Emergency engine starting ... 63
Emergency equipment ... 13
Emergency, temporary action in ... 62
Engine, checking ... 28
Engine oil ... 27
Engine oil, changing ... 53
Engine oil, filling ... 25
Engine oil requirements ... 12
Engine shut-off cord (lanyard) ... 1, 27
Engine shut-off cord (lanyard) and clip ... 19
Engine stop button ... 19

F

Filling fuel ... 29
First-time operation ... 25
Flushing in a test tank ... 44
Fuel cock ... 17
Fuel filter, checking ... 53
Fuel leaks, checking for ... 27
Fuel level ... 26
Fuel requirements ... 12
Fuel system ... 26
Fuel tank (built-in fuel tank) ... 16

G

Gasoline ... 1, 12
Gasoline exposure and spills ... 1
Gear oil, changing ... 58
Gear shift lever ... 17
Greasing ... 51

H

Hot parts ... 1

I

Identification numbers record ... 5
Idle speed, inspecting ... 53
Impact damage ... 62
Installation requirements ... 11

L

Laws and regulations ... 4
Lubrication ... 46

M

Maintenance chart 1 ... 48

INDEX

Maintenance chart 2 50
Manual starter handle 20
Modifications 2
Mounting height 23
Mounting outboard motor 11
Mounting the outboard motor 22

O

Operating engine 30
Outboard motor disposal requirements 13
Outboard motor (painted surface), checking 46
Outboard motor safety 1
Outboard motor serial number 5
Overloading 2

P

Passenger training 3
Passengers 2
People in the water 2
Periodic maintenance 46
Personal flotation devices (PFDs) 2
Propeller 1
Propeller, checking 56
Propeller, installing 57
Propeller, removing 56
Propeller selection 11

R

Read manuals and labels 7
Replacement parts 47
Rotating parts 1

S

Severe operating conditions 47
Shifting 33
Shifting (checks after engine warm up) 33
Spark plug, inspecting 52
Specifications 10
Starter will not operate 62
Starting engine 30
Steering friction adjuster 20
Stop switches 33
Stopping boat 35
Stopping engine 35
Storing outboard motor 44
Submerged outboard motor 65
Supplying fuel to engine 30

T

Throttle friction adjuster 18
Throttle grip 18
Throttle indicator 18
Tiller handle 17
Tilt support lever 20
Tilting up and down 38
Top cowling, installing 28
Top cowling, removing 26
Transporting and storing outboard motor 41
Trim rod (tilt pin) 20
Trimming outboard motor 36
Troubleshooting 60

W

Warming up engine 33
Warning labels 7
Weather 3

Y

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