YAMAHA

F2.5
F4
F6

OWNER'S MANUAL

⚠ Read this manual carefully before operating this outboard motor.

LIT-18626-10-13
6BV-F8199-37-E0

⚠ WARNING

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

YAMAHA LIT-CALIF-65-01

Les gaz d'échappement du moteur de ce produit contiennent des substances chimiques connues dans l'État de Californie pour provoquer le cancer, des anomalies congénitales et des troubles de la reproduction.

ZMU07696

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.

EMU44140

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.

EWM00781

⚠ WARNING

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

ECM00701

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 you purchased this outboard motor used, see your Yamaha dealer to have it registered in your name in Yamaha records.

TIP:

The F2.5MHA, F4MHA, F6MHA 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.

EMU44200

F2.5, F4, F6
OWNER'S MANUAL

1st Edition, April 2013

Printed in France

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EMU33622

Outboard motor safety

Observe these precautions at all times.

EMU36501

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.

EMU33630

Rotating parts

Hands, feet, hair, jewelry, clothing, 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 cowling with the engine running.

Only operate the engine with the 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.

EMU33640

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.

EMU33650

Electric shock

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

EMU33671

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.

EMU33810

Gasoline

Gasoline and its vapors are highly flammable and explosive. Always, refuel according to the procedure on page 51 to reduce the risk of fire and explosion.

EMU33820

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.

EMU33900

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.

EMU33780
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.

EMU33740
Boating safety
This section includes a few of the many important safety precautions that you should follow when boating.

EMU33710
Alcohol and drugs
Never operate after drinking alcohol or taking drugs. Intoxication is one of the most common factors contributing to boating fatalities.

EMU40280
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.

EMU33731
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.

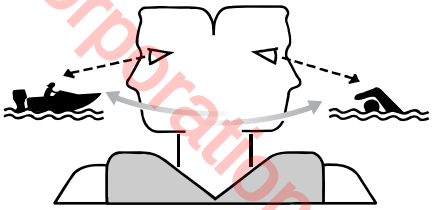
Stay away from swimming areas. Swimmers can be hard to see.

The propeller can keep moving even when the motor is in neutral. Stop the engine when a person is in the water near you.

EMU33751
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.

EMU33761
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 boats handling and lead to an accident, capsizing or swamping.

EMU33772
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.

EMU33790

Weather

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

EMU44160

Accident reporting

Boat operators are required by law to file a Boating Accident Report with their boating law enforcement agency if their boat is involved in any of the following accidents:

1. There is loss of life or probable loss of life.
2. There is personal injury that requires medical attention beyond first aid.
3. There is property damage to boats or other property over a certain amount.
4. There is complete loss of a boat.

Contact local law enforcement personnel if a report is necessary.

EMU44170

Boat education and training

For U.S.A.

Operators should take a boating safety course. This may be required in your state. Many of the organizations listed in the next section can provide information about courses in your area.

You may also want to consider an Internet-based program for basic boater education. The Online Boating Safety Course provided by the BoatU.S. Foundation, is approved by the National Association of State Boating Law Administrators (NASBLA) and recognized by the United States Coast Guard. Most, but not all, states accept this course to meet their minimum requirements. While it cannot replace an in-depth course such as one offered by the U.S. Coast Guard, U.S. Power Squadron, or other organization, this online course does provide a general overview of the basics in boating safety, requirements, navigation, and operation. Upon successful completion of the course, the user can download a certificate of completion immediately or, for a small charge, request one by mail. To take this free course, go to boatus.org.

For Canada

All operators of pleasure craft must illustrate competency by means of a Pleasure Craft Operators Card with the exception of Personal Water Craft used for rental purposes which require a rental checklist be completed. Pleasure Craft Operators Cards can be obtained following the completion of a competency course, with an on-line option. Details can be found on Transport Canada's website. www.tc.gc.ca

EMU33880

Passenger training

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

EMU33890

Boating safety publications

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

EMU33590

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. The rules

presented in the following section are condensed- and have been provided for your convenience only.
Contact the U.S. Coast Guard, the National Association of State Boating Law Administrators, or your local Power Squadron for a complete set of rules governing the waters in which you will be using your boat.

EMU44180

Boating organizations

The following organizations provide boating safety training and information about boating safety and laws.

In the U.S.A.
United States Coast Guard
Consumer Affairs Staff (G-BC)
Office of Boating, Public, and Consumer Affairs
U.S. Coast Guard Headquarters
Washington, D.C. 20593-0001
http://www.uscgboating.org/

United States Power Squadrons
1-888-FOR-USPS (1-888-367-8777)
http://www.usps.org/

Boat Owners Association of The United States
1-800-336-BOAT (1-800-336-2628)
http://www.boatus.com/

National Association of State Boating Law Administrators (NASBLA)
1500 Leestown Road, Suite 330
Lexington, KY 40511 859-225-9497
http://www.nasbla.org/

National Marine Manufacturers Association (NMMA)
200 East Randolph Drive
Suite 5100
Chicago, IL 60601
http://www.nmma.org/

Marine Retailers Association of America
155 N. Michigan Ave. Chicago,
IL 60304
http://www.mraa.com/

In the Canada
National Marine Manufacturers Association Canada
14 McEwan Drive
Suite 8
Bolton, ON
L7E 1H1
http://www.nmma.org/

EMU33691

Basic boating rules (Rules of the road)

Just as there are rules that apply when you are driving on streets and highways, there are waterway rules that apply when you are driving your boat. These rules are used internationally. (For U.S.A.: and are also enforced by the United States Coast Guard and local agencies.) You should be aware of these rules, and follow them whenever you encounter another vessel on the water.

EMU33700

Steering and sailing rules and sound signals

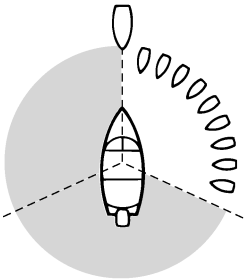
Whenever two vessels on the water meet one another, one vessel has the right-of-way; it is called the “stand-on” vessel. The vessel that does not have the right-of-way is called the “give-way” or “burdened”vessel. These rules determine which vessel has the right-of-way, and what each vessel should do.

Stand-on vessel
The vessel with the right-of-way has the duty to continue its course and speed, except to avoid an immediate collision. When you maintain your direction and speed, the other vessel will be able to determine how best to avoid you.

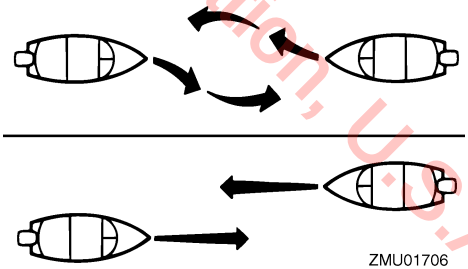
Give-way vessel
The vessel that does not have the right-of-way has the duty to take positive and timely action to stay out of the way of the Stand-On vessel. Normally, you should not cross in front of the vessel with the right-of-way. You should slow down or change directions briefly and pass behind the other vessel. You should always move in such a way that the operator of the other vessel can see what you are doing.

“ The general prudential rule ”
This rule is called Rule 2 in the International Rules and says,
“ In obeying and construing these rules due regard shall be had to all dangers of navigation and collision, and to any special circumstances, which may render a departure from the above rules necessary in order to avoid immediate danger.”
In other words, follow the standard rules except when a collision will occur unless both vessels try to avoid each other. If that is the case, both vessels become “ Give-Way ” vessels.

EMU25521
Rules when encountering vessels
There are three main situations that you may encounter with other vessels which could lead to a collision unless the Steering Rules are followed:
Meeting: (you are approaching another vessel head-on)
Crossing: (you are traveling across the other vessel’s path)
Overtaking: (you are passing or being passed by another vessel)
In the following illustration, your boat is in the center. You should give the right-of-way to any vessels shown in white area (you are the Give-Way vessel). Any vessels in the shaded area must yield to you (they are the Give-Way vessels). Both you and the meeting vessel must alter course to avoid each other.

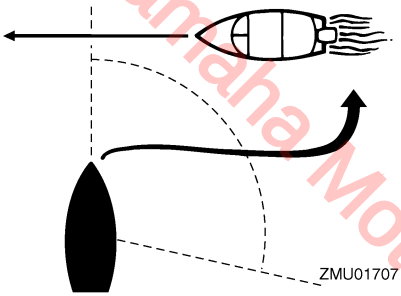

ZMU01705

Meeting
If you are meeting another power vessel head on, and are close enough to run the risk of collision, neither of you has the right-of-way Both of you should alter course to avoid an accident. You should keep the other vessel on your port (left) side. This rule doesn’t apply if both of you will clear one another if you continue on your set course and speed.


ZMU01706

Crossing

When two power driven vessels are crossing each other's path close enough to run the risk of collision, the vessel which has the other on the starboard (right) side must keep out of the way of the other. If the other vessel is on your right, you must keep out of its way; you are the Give-Way vessel. If the other vessel is on your port (left) side, remember that you should maintain course and direction, provided the other vessel gives you the right-of-way as it should.



Overtaking

If you are passing another vessel, you are the "Give-Way" vessel. This means that the other vessel is expected to maintain its course and speed. You must stay out of its way until you are clear of it. Likewise, if another vessel is passing you, you should maintain your speed and direction so that the other vessel can steer itself around you.

EMU25531

Other special situations

There are three other rules you should be aware of when driving your boat around other vessels.

Narrow channels and bends

When navigating in narrow channels, you should keep to the right when it is safe and practical to do so. If the operator of a power-driven vessel is preparing to go around a bend that may obstruct the view of other water vessels, the operator should sound a prolonged blast on the whistle (4 to 6 seconds). If another vessel is around the bend, it too should sound the whistle. Even if no reply is heard, however, the vessel should still proceed around the bend with caution. If you navigate such waters with your boat, you will need to carry a portable air horn, available from local marine supply stores.

Fishing vessel right-of-way

All vessels that are fishing with nets, lines or trawls are considered to be "fishing vessels" under the International Rules. Vessels with trolling lines are not considered fishing vessels. Fishing vessels have the right-of-way regardless of position. Fishing vessels cannot, however, impede the passage of other vessels in narrow channels.

Sailing vessel right-of-way

Sailing vessels should normally be given the right-of-way. The exceptions to this are:

1. When the sailing vessel is overtaking the power-driven vessel, the power-driven vessel has the right-of-way.
2. Sailing vessels should keep clear of any fishing vessel.
3. In a narrow channel, a sailing vessel should not hamper the safe passage of a power-driven vessel that can navigate only in such a channel.

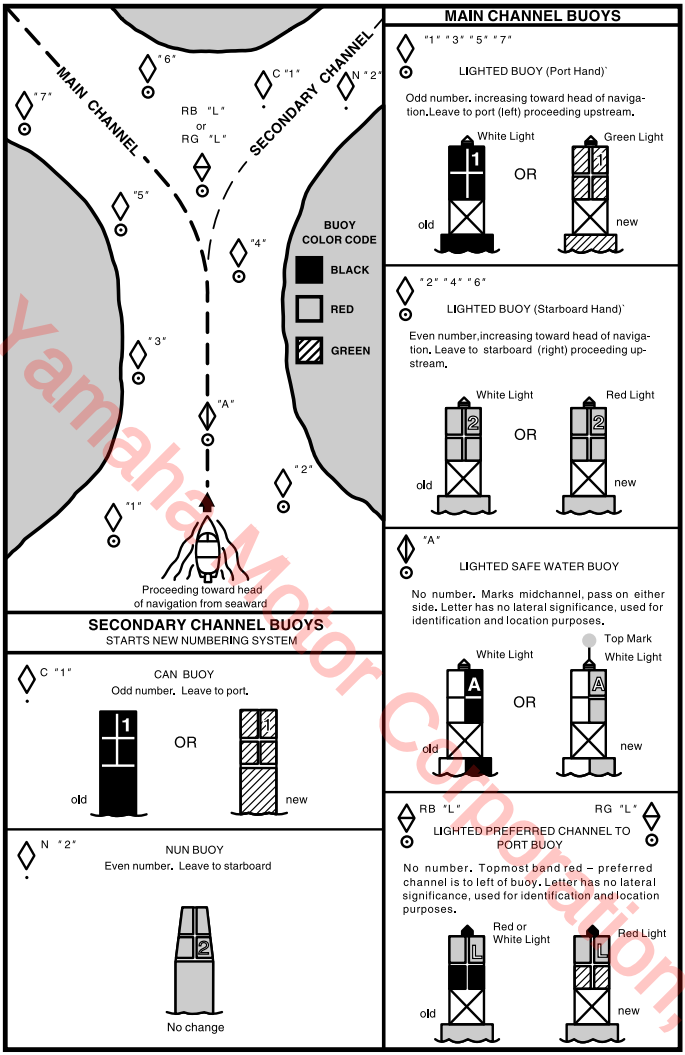
Reading buoys and other markers

The waters of the United States are marked for safe navigation by the lateral system of buoyage. Simply put, buoys and markers have an arrangement of shapes, colors, numbers and lights to show which side of the buoy a boater should pass on when navigating in a particular direction. The markings on these buoys are oriented from the perspective of being entered from seaward (the boater is going towards the port). This means that red buoys

are passed on the starboard (right) side when proceeding from open water into port, and black buoys are to port (left) side. When navigating out of port, your position with respect to the buoys should be reversed; red buoys should be to port and black buoys to starboard.

Many bodies of water used by boaters are entirely within the boundaries of a particular state. The Uniform State Waterway Marking System has been devised for these waters. This system uses buoys and signs with distinctive shapes and colors to show regulatory or advisory information. These markers are white with black letters and orange boarders. They signify speed zones, restricted areas, danger areas, and general information.

Remember, markings may vary by geographic location. Always consult local boating authorities before driving your boat in unfamiliar waters.



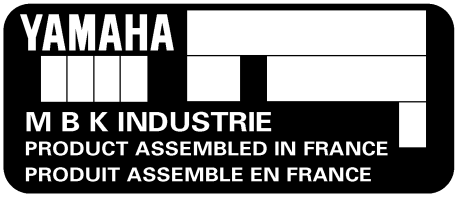
ZMU01708

EMU25171
Identification numbers record

EMU25184
Outboard motor serial number

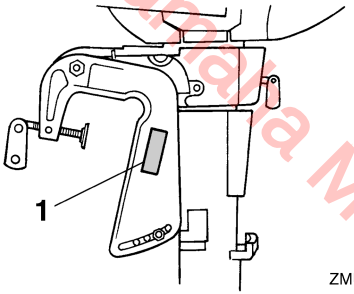
The outboard motor serial number is stamped on the label attached to the port side of the clamp bracket.

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.



ZMU02115

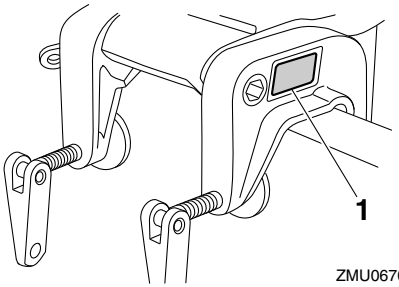
F2.5



ZMU02100

1. Outboard motor serial number location

F4, F6



ZMU06705

1. Outboard motor serial number location

EMU33523

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.

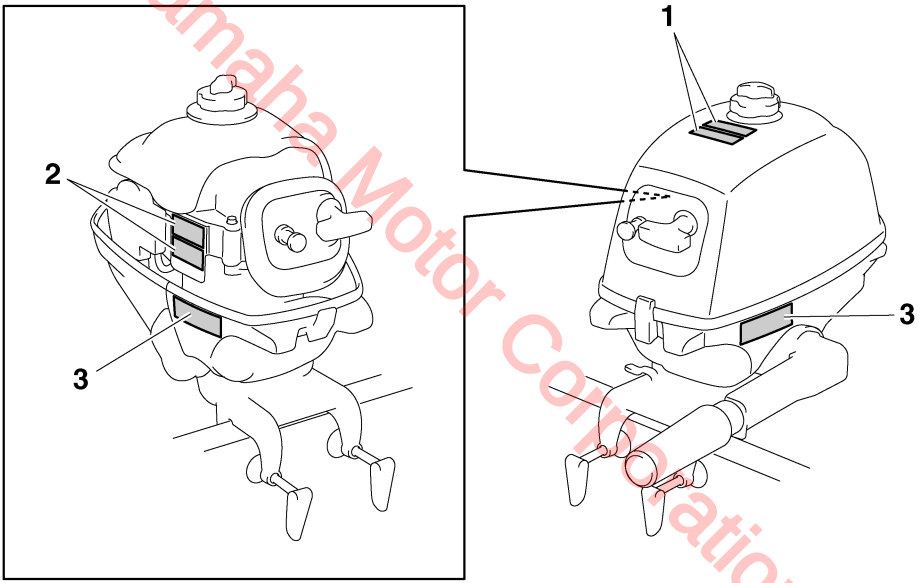
If you need any additional information, contact your Yamaha dealer.

EMU33832

Warning labels

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

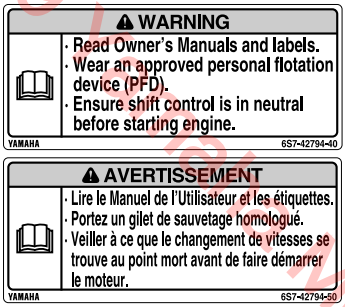
F2.5



1

2

3



ZMU05811

EMU44250

Contents of labels

The above warning labels mean as follows.

1

EWM02730

⚠ WARNING

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

2

EWM01681

⚠ 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

EWM01671

⚠ WARNING

- **Read Owner's Manuals and labels.**
- **Wear an approved personal flotation device (PFD).**
- **Attach engine shut-off cord (lanyard) to your PFD, arm, or leg so the engine stops if you accidentally leave the helm, which could prevent a runaway boat.**

EMU35132
Symbols
The following symbols mean as follows.

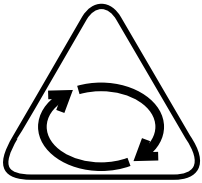
Notice/Warning

ZMU05696

Read Owner's Manual

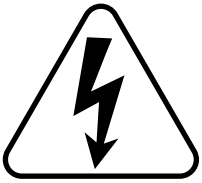
ZMU05664

Hazard caused by continuous rotation



ZMU05665

Electrical hazard



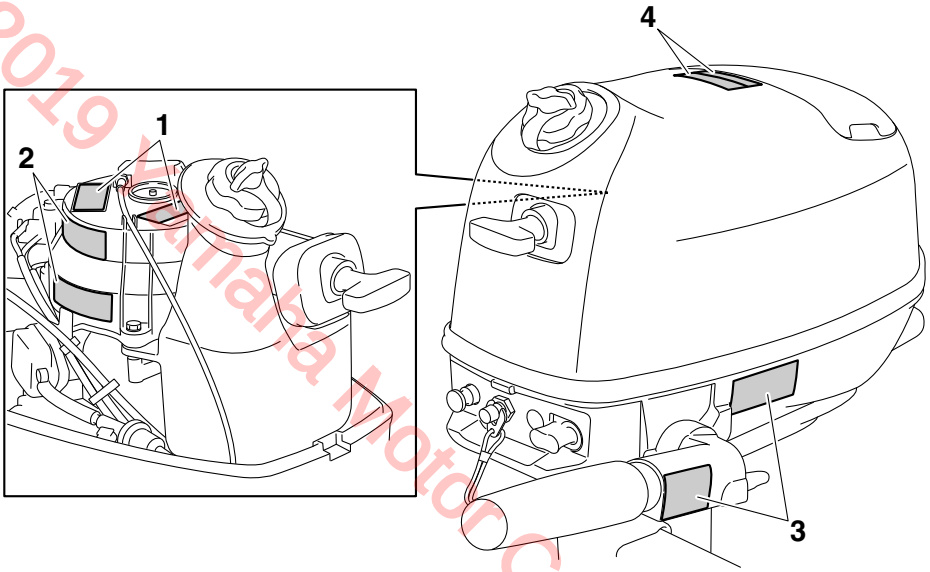
ZMU05666

EMU42710

Warning labels

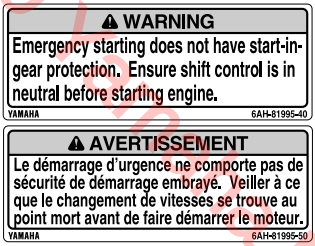
If these labels are damaged or missing, contact your Yamaha dealer for replacements.

F4, F6



ZMU06795

1



2

3

4

ZMU06861

EMU44260
Contents of labels
The above warning labels mean as follows.

1

EWM01691
⚠ WARNING

Emergency starting does not have start-in-gear protection. Ensure shift control is in neutral before starting engine.

2

EWM01681
⚠ 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

EWM01671
⚠ WARNING

- **Read Owner's Manuals and labels.**
- **Wear an approved personal flotation device (PFD).**
- **Attach engine shut-off cord (lanyard) to your PFD, arm, or leg so the engine stops if you accidentally leave the helm, which could prevent a runaway boat.**

4

EWM02730
⚠ WARNING

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

EMU42750
Symbols
The following symbols mean as follows.

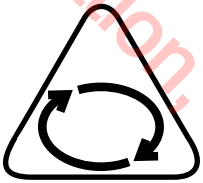
Notice/Warning

ZMU05696

Read Owner's Manual

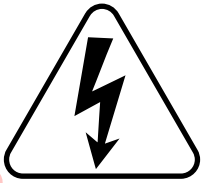
ZMU05664

Hazard caused by continuous rotation



ZMU05665

Electrical hazard



ZMU05666

EMU38091

Specifications

TIP:

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

EMU2821S

Dimension and weight:

Overall length:
F2.5MHA 623 mm (24.5 in)
F4MHA 750 mm (29.5 in)
F6MHA 750 mm (29.5 in)
Overall width:
F2.5MHA 345 mm (13.6 in)
F4MHA 403 mm (15.9 in)
F6MHA 403 mm (15.9 in)
Overall height S:
F2.5MHA 1021 mm (40.2 in)
F4MHA 1040 mm (40.9 in)
F6MHA 1040 mm (40.9 in)
Overall height L:
F2.5MHA 1148 mm (45.2 in)
F4MHA 1168 mm (46.0 in)
F6MHA 1168 mm (46.0 in)
Motor transom height S:
F2.5MHA 432 mm (17.0 in)
F4MHA 440 mm (17.3 in)
F6MHA 440 mm (17.3 in)
Motor transom height L:
F2.5MHA 559 mm (22.0 in)
F4MHA 568 mm (22.4 in)
F6MHA 568 mm (22.4 in)
Dry weight (AL) S:
F2.5MHA 17 kg (37 lb)
F4MHA 27 kg (60 lb)
F6MHA 27 kg (60 lb)
Dry weight (AL) L:
F2.5MHA 18 kg (40 lb)
F4MHA 28 kg (62 lb)
F6MHA 28 kg (62 lb)

Performance:

Full throttle operating range:
F2.5MHA 5250–5750 r/min
F4MHA 4000–5000 r/min
F6MHA 4500–5500 r/min
Rated power:
F2.5MHA 1.8 kW (2.5 HP)
Rated power:
F4MHA 2.9 kW (4 HP)
F6MHA 4.4 kW (6 HP)
Idle speed (in neutral):
F2.5MHA 1800-2000 r/min
F4MHA 1450-1550 r/min
F6MHA 1450-1550 r/min

Power unit:

Type:
4-stroke OHV S1 2valves
Total displacement:
F2.5MHA 72 cm^3 (4.4 c.i.)
F4MHA 139 cm^3 (8.5 c.i.)
F6MHA 139 cm^3 (8.5 c.i.)
Bore × stroke:
F2.5MHA 54.0 × 31.5 mm (2.13 × 1.24 in)
F4MHA 62.0 × 46.0 mm (2.44 × 1.81 in)
F6MHA 62.0 × 46.0 mm (2.44 × 1.81 in)
Ignition system:
F2.5MHA TCI
F4MHA CDI
F6MHA CDI
Spark plug (NGK):
F2.5MHA BR6HS
F4MHA CR6HSB
F6MHA 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:
F2.5MHA Forward-neutral
F4MHA Forward-neutral-reverse
F6MHA Forward-neutral-reverse
Gear ratio:
2.08(27/13)
Trim and tilt system:
Manual tilt
Propeller mark:
F2.5MHA BS
F4MHA BA
F6MHA BA

Fuel and oil:

Recommended fuel:
Regular unleaded gasoline
Min. pump octane number (PON):
86
Fuel tank capacity:
F4MHA 12 L (3.17 US gal, 2.64 Imp.gal)
F6MHA 12 L (3.17 US gal, 2.64 Imp.gal)
Fuel tank capacity (built in type):
F2.5MHA 0.9 L (0.24 US gal, 0.20 Imp.gal)
F4MHA 1.1 L (0.29 US gal, 0.24 Imp.gal)
F6MHA 1.1 L (0.29 US gal, 0.24 Imp.gal)
Recommended engine oil:
YAMALUBE 4M FC-W 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
Engine oil quantity:
F2.5MHA 0.4 L (0.42 US qt, 0.35 Imp.qt)
F4MHA 0.6 L (0.63 US qt, 0.53 Imp.qt)
F6MHA 0.6 L (0.63 US qt, 0.53 Imp.qt)
Lubrication system:
F2.5MHA Splash
F4MHA Wet sump
F6MHA Wet sump
Recommended gear oil:
Yamalube Marine Gearcase Lube or Hypoid gear oil
Recommended gear oil grade:
SAE 90 API GL-4
Gear oil quantity:
F2.5MHA 0.075 L (0.079 US qt, 0.066 Imp.qt)
F4MHA 0.100 L (0.106 US qt, 0.088 Imp.qt)
F6MHA 0.100 L (0.106 US qt, 0.088 Imp.qt)

Tightening torque:

Spark plug:
F2.5MHA 25 Nm (2.55 kgf-m, 18.4 ft-lb)
F4MHA 13 Nm (1.33 kgf-m, 9.6 ft-lb)
F6MHA 13 Nm (1.33 kgf-m, 9.6 ft-lb)
Engine oil drain bolt:
18 Nm (1.84 kgf-m, 13.3 ft-lb)

EMU33554

Installation requirements

EMU33564

Boat horsepower rating

EWM01560

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 boats maximum horsepower rating. See the boat's capacity plate or contact the manufacturer.

EMU43000
Mounting the outboard motor
F2.5
EWM01570

⚠ WARNING

- **Improper mounting of the outboard motor could result in hazardous conditions such as poor handling, loss of control, or fire hazards.**
- **Because the 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 motor using correct equipment and complete rigging instructions. For further information, see page 39.

F4, F6
EWM02430

⚠ WARNING

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.

To lift and mount the outboard motor, two people are necessary. For further information, see page 39.

EMU34195
Propeller selection

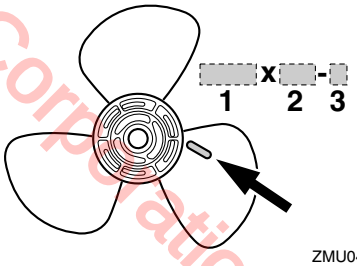
Next to selecting an outboard motor, selecting the right propeller is one of the most important purchasing decisions a boater can make. The type, size, and design of your propeller have a direct impact on acceleration, top speed, fuel economy, and even engine life. Yamaha designs and manufactures propellers 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 88.

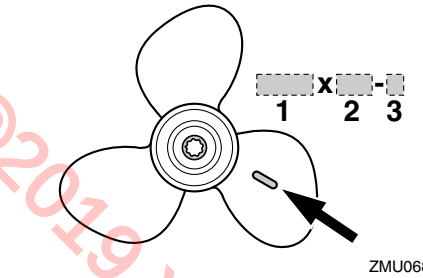
F2.5



ZMU04604

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

F4, F6



ZMU06853

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

EMU39191

Start-in-gear protection (F4, F6)

Yamaha outboard motors are equipped with start-in-gear protection device. This feature permits the engine to be started only when it is in neutral. Always select neutral before starting the engine.

EMU39692

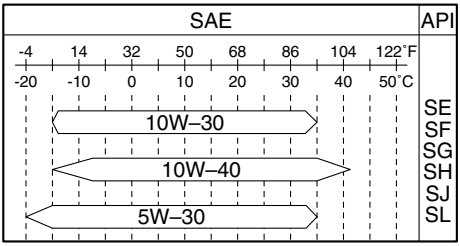
Engine oil requirements

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

Recommended engine oil:
YAMALUBE 4M FC-W 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:
F2.5MHA 0.4 L (0.42 US qt, 0.35 Imp.qt)
F4MHA 0.6 L (0.63 US qt, 0.53 Imp.qt)
F6MHA 0.6 L (0.63 US qt, 0.53 Imp.qt)

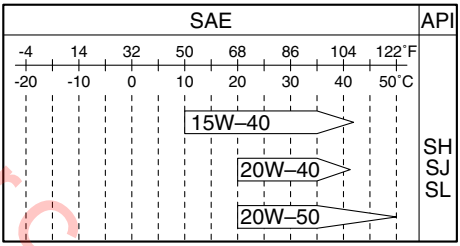
If oil grades listed under Recommended engine oil grade 1 are not available, select an alternative oil grade listed under Recommended engine oil grade 2.

Recommended engine oil grade 1



ZMU06854

Recommended engine oil grade 2



ZMU06855

EMU36360

Fuel requirements

EMU41331

Gasoline

Use a good quality gasoline that meets the minimum octane requirement. If knocking or pinging occurs, use a different brand of gasoline or premium unleaded fuel. Yamaha recommends that you use alcohol-free gasoline (see Gasoline with Ethanol) whenever possible.

The use of a poor quality gasoline may result in starting and running problems. If you encounter drivability problems, which you suspect could be related to the fuel you are using, we recommend that you switch to a recognized high quality brand of gasoline, such as

a gasoline that is advertised as Top Tier Detergent Gasoline. Failure to comply with these recommendations may also result in unscheduled maintenance, fuel system damage, and internal engine damage.

Recommended fuel:
Regular unleaded gasoline
Min. pump octane number (PON):
86

ECM01981

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.**

Gasoline with Ethanol

Two types of gasoline are commonly available in the U.S.A. and Canada for use in automobiles and boats: conventional gasoline without Ethanol and gasoline with Ethanol, which is typically referred to as E10 gasoline. According to federal regulations, E10 gasoline may contain up to 10% Ethanol.

A high quality gasoline without Ethanol is the preferred fuel for your Yamaha outboard motor. However, if gasoline with Ethanol is the only fuel available in your area, your Yamaha outboard motor is calibrated to run properly on fresh E10 gasoline that meets the minimum octane requirement specified for this model.

ECM02401

NOTICE

Never use a gasoline for your outboard motor that contains more than 10% Ethanol, such as E15 which contains 15% Ethanol or E85 which contains 85% Ethanol, or gasoline containing any amount of Methanol. These fuels can cause starting and running problems, as well as serious fuel system and internal engine damage.

Gasoline containing ethanol has several properties that may cause boat fuel system problems.

- Ethanol is a strong solvent (cleaning agent) that can clean gum and varnish deposits from a boat's fuel system, particularly in older boats, as well as tanks and pipes used in gasoline distribution. These released deposits contaminate the fuel and can cause problems, such as clogged fuel filters, carburetors, or fuel injectors, which could result in engine damage.
- Ethanol may dissolve resins used in the construction of fiberglass fuel tanks. The dissolved resins contaminate the fuel and can cause problems, such as clogged fuel filters, carburetors, or fuel injectors, which could result in engine damage.
- Ethanol is hygroscopic (has a strong attraction to water). Therefore, any water that inadvertently enters the fuel system, including moisture that is absorbed from the air, will mix with the ethanol in the gasoline. If the amount of water is excessive, the ethanol and water mixture will separate from the gasoline in a layer at the bottom of the fuel tank. This ethanol and water mixture is very corrosive to aluminum fuel tanks and fuel system components.
- The usable life span of E10 gasoline may be shorter than the normal length of off-season boat storage, causing starting and running problems related to stale fuel.

For more information on using fuel containing ethanol, visit: http://www.yamaha-motor.com

Gasoline Filtration

Yamaha outboard motors are equipped with internal fuel filters. However, excessive water or debris entering your engine's fuel system could prematurely clog the internal filters, causing starting and running problems, fuel system damage, and internal engine damage. Therefore, it is recommended that an external 10-micron water-separating fuel filter be installed on your boat and serviced frequently. Consult your authorized Yamaha dealer for a 10-micron filter that meets your engine's requirements.

EMU41341

Gasoline Additives

Gasoline blends change to meet automobile emission regulations and economic conditions. Additives, added by gasoline distributors, necessary for proper automobile engine operation and durability, may not be sufficient for typical boat applications. Intake valve and combustion chamber deposits may accumulate in boat engines more rapidly than encountered in automotive use. In addition, gasoline used for boating will typically age longer between refills than gasoline used in automobiles, resulting in stale and unusable gasoline that may cause starting and running problems, fuel system damage, and internal engine damage.

Yamaha recommends the use of two Yamalube gasoline additives to reduce internal deposits and extend the storage life of gasoline. Continuous use of Yamalube Ring Free Fuel Additive Plus reduces harmful internal deposits. Yamalube Fuel Stabilizer & Conditioner Plus added to fresh gasoline will help protect the fuel system from varnishing while helping to keep the gasoline's octane level from decreasing excessively during storage. Other additives may also be available on the market that may have varying degrees of effectiveness. Consult your Yamaha dealer concerning what may work best for the locally available gasoline and environmental conditions.

EMU36880

Muddy or acidic water

Yamaha strongly recommends that you have your dealer install the optional chromium-plated water pump kit if you use the outboard motor in muddy or acidic water conditions. However, depending on the model it might not be required.

EMU41350

Anti-fouling paint

A clean hull is required to maintain your boat's performance. Boats moored in the water should be protected from marine growth (barnacles, mussels, and marine plants). If approved by regulations for your area, the bottom of the hull can be coated with an anti-fouling paint to inhibit marine growth.

Anti-fouling paints specifically formulated for use on aluminum may be applied to the outboard motor. The original Yamaha paint surface may be scuffed lightly before applying anti-fouling paint, but do not remove the original paint. Removal of the original paint will increase the rate of corrosion.

ECM02410

NOTICE

Anti-fouling paint for fiberglass and wood may contain materials, such as copper, graphite, and tin, that can cause corrosion if applied to aluminum boats and outboard motor components. Never apply these types of paint to your outboard motor because rapid corrosion damage could occur.

Sacrificial anodes are attached to the outboard motor to provide corrosion protection and must never be painted.

ECM02420

NOTICE

Painted sacrificial anodes will not provide corrosion protection.

EMU36341

Motor disposal requirements

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

EMU36352

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.

EMU25222

Emission control information

EMU25230

North American models

This engine conforms to U.S. Environmental Protection Agency (EPA) regulations for marine SI engines. See the label affixed to your engine for details.

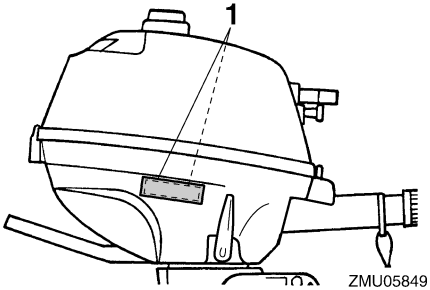
EMU25243

Approval label of emission control certificate

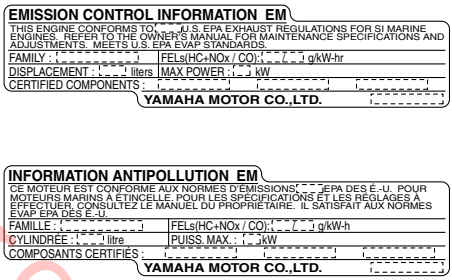
This label is attached to the bottom cowling.

New Technology; (4-stroke/HPDI) EM

F2.5



1. Approval label location


EMISSION CONTROL INFORMATION EM

THIS ENGINE CONFORMS TO U.S. EPA EXHAUST REGULATIONS FOR SI MARINE ENGINES. REFER TO THE OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS. MEETS U.S. EPA EVAP STANDARDS.

FAMILY :	FELs(HC+NOx / CO): / g/kW-hr
DISPLACEMENT : liters	MAX POWER : kW
CERTIFIED COMPONENTS :	

YAMAHA MOTOR CO.,LTD.

INFORMATION ANTIPOLLUTION EM

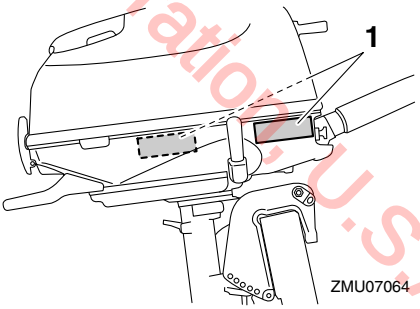
CE MOTEUR EST CONFORME AUX NORMES D'ÉMISSIONS EPA DES É.-U. POUR MOTEURS MARINS À ÉTINCELLE. POUR LES SPÉCIFICATIONS ET LES RÉGLAGES À EFFECTUER, CONSULTEZ LE MANUEL DU PROPRIÉTAIRE. IL SATISFAIT AUX NORMES EVAP EPA DES É.-U.

FAMILLE :	FELs(HC+NOx / CO): / g/kW-h
CYLINDRÉE : litre	PUISS. MAX. : kW
COMPOSANTS CERTIFIÉS :	

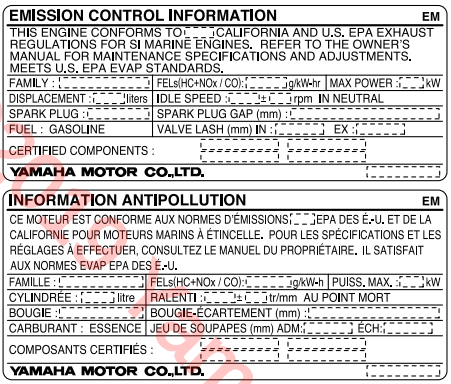
YAMAHA MOTOR CO.,LTD.

ZMU07685

F4, F6



1. Approval label location


EMISSION CONTROL INFORMATION EM

THIS ENGINE CONFORMS TO CALIFORNIA AND U.S. EPA EXHAUST REGULATIONS FOR SI MARINE ENGINES. REFER TO THE OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS. MEETS U.S. EPA EVAP STANDARDS.

FAMILY :	FELs(HC+NOx / CO): g/kW-hr	MAX POWER : kW
DISPLACEMENT : liters	IDLE SPEED : rpm IN NEUTRAL	
SPARK PLUG :	SPARK PLUG GAP (mm) :	
FUEL : GASOLINE	VALVE LASH (mm) IN : EX :	

CERTIFIED COMPONENTS :

YAMAHA MOTOR CO.,LTD.

INFORMATION ANTIPOLLUTION EM

CE MOTEUR EST CONFORME AUX NORMES D'ÉMISSIONS EPA DES É.-U. ET DE LA CALIFORNIE POUR MOTEURS MARINS À ÉTINCELLE. POUR LES SPÉCIFICATIONS ET LES RÉGLAGES À EFFECTUER, CONSULTEZ LE MANUEL DU PROPRIÉTAIRE. IL SATISFAIT AUX NORMES EVAP EPA DES É.-U.

FAMILLE :	FELs(HC+NOx / CO): g/kW-h	PUISS. MAX. : kW
CYLINDRÉE : litre	RALENTI : tr/mm AU POINT MORT	
BOUGIE :	BOUGIE-ÉCARTEMENT (mm) :	
CARBURANT : ESSENCE	JEU DE SOUPAPES (mm) ADM: ÉCH:	

COMPOSANTS CERTIFIÉS :

YAMAHA MOTOR CO.,LTD.

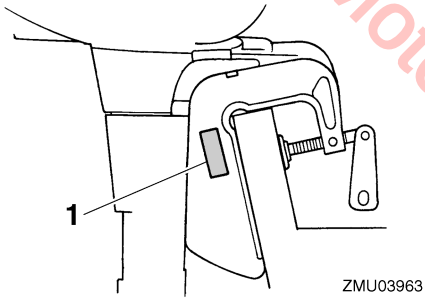
ZMU07605

EMU39201

Manufactured date label

This label is attached to the clamp bracket.

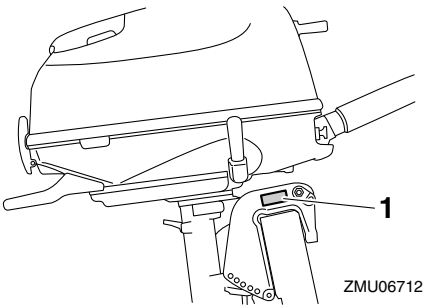
F2.5



ZMU03963

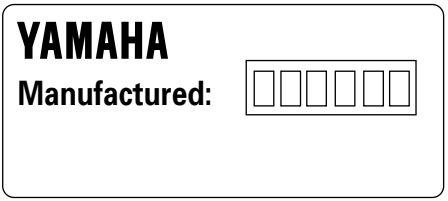
1. Manufactured date label location

F4, F6



ZMU06712

1. Manufactured date label location



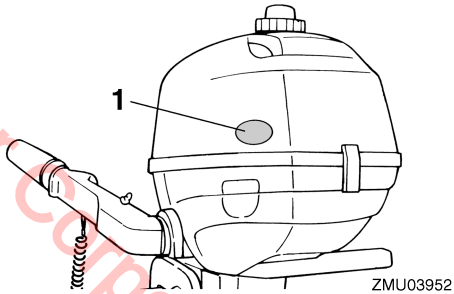
ZMU04346

EMU25274

Star labels

Your outboard motor is labeled with a California Air Resources Board (CARB) star label. See below for a description of your particular label.

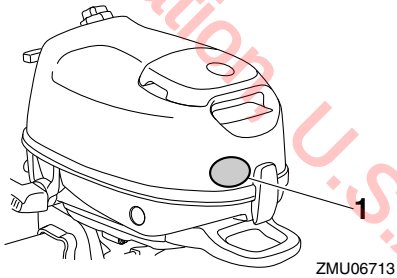
F2.5



ZMU03952

1. Star labels location

F4, F6



ZMU06713

1. Star labels location

EMU40330
One Star—Low Emission
The one-star label identifies engines that meet the Air Resources Board's Personal Watercraft and Outboard marine engine 2001 exhaust emission standards. Engines meeting these standards have 75% lower emissions than conventional carbureted two-stroke engines. These engines are equivalent to the U.S. EPA's 2006 standards for marine engines.

ZMU01702

EMU40340
Two Stars—Very Low Emission
The two-star label identifies engines that meet the Air Resources Board's Personal Watercraft and Outboard marine engine 2004 exhaust emission standards. Engines meeting these standards have 20% lower emissions than One Star-Low-Emission engines.

ZMU01703

EMU40350
Three Stars—Ultra Low Emission
The three-star label identifies engines that meet the Air Resources Board's Personal Watercraft and Outboard marine engine 2008 exhaust emission standards or the Sterndrive and Inboard marine engine 2003-2008 exhaust emission standards. Engines meeting these standards have 65% lower emissions than One Star-Low-Emission engines.

ZMU01704

EMU33861
Four Stars—Super Ultra Low Emission
The four-star label identifies engines that meet the Air Resources Board's Sterndrive and Inboard marine engine 2009 exhaust emission standards. Personal Watercraft and Outboard marine engines may also comply with these standards. Engines meeting these standards have 90% lower emissions than One Star-Low-Emission engines.

ZMU05663

Components

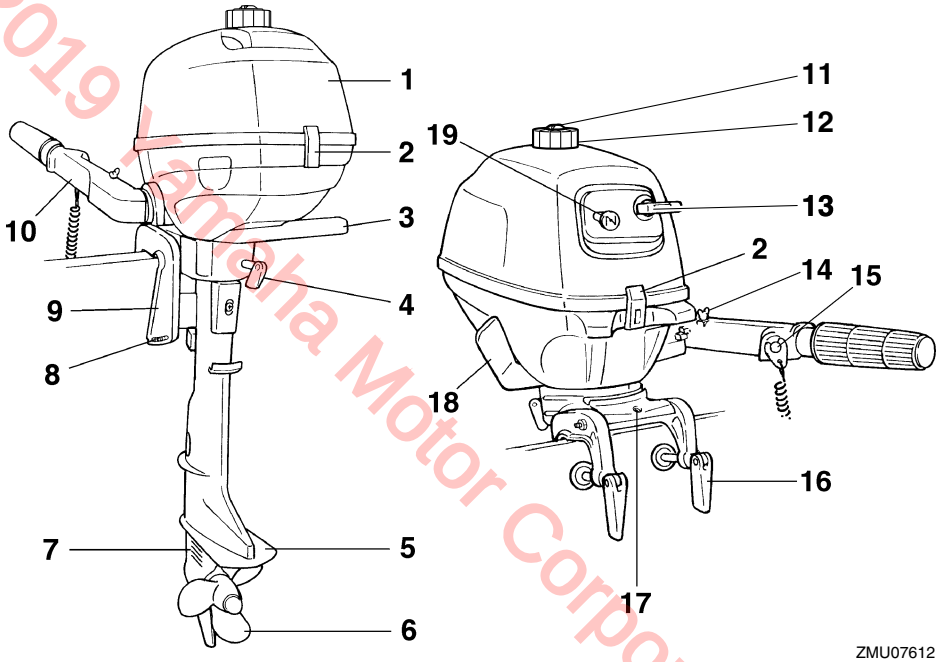
EMU2579Y

Components diagram

TIP:

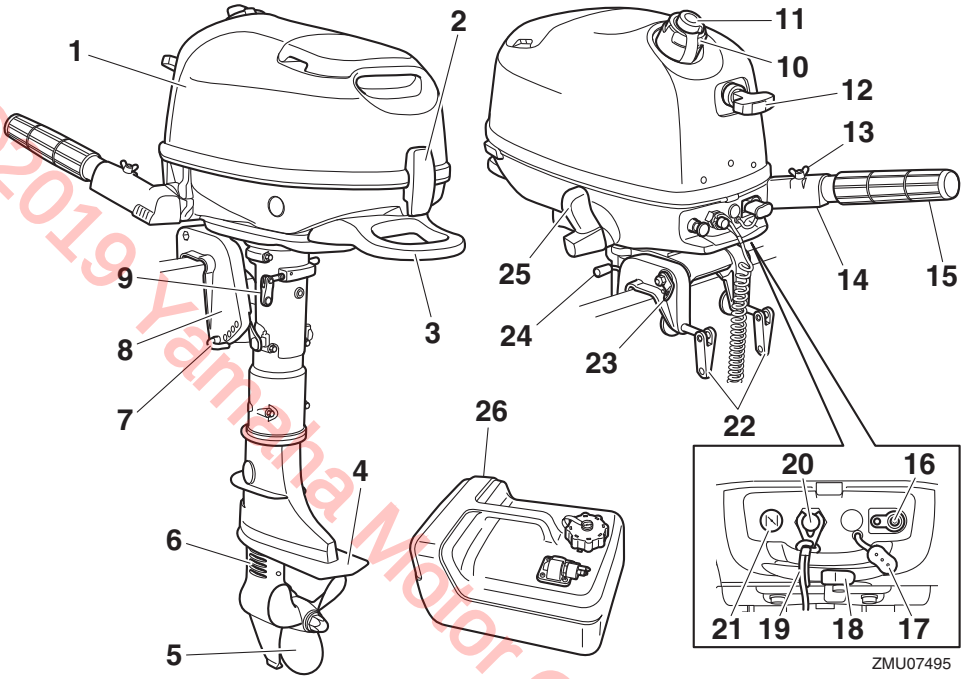
* May not be exactly as shown; also may not be included as standard equipment on all models (order from dealer).

F2.5



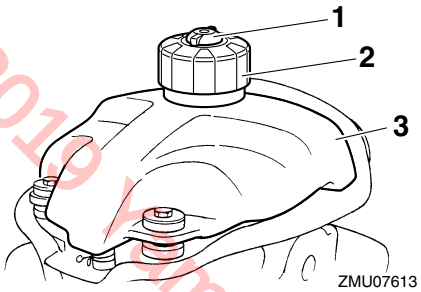
1. Top cowling
2. Cowling lock lever(s)
3. Carrying handle
4. Steering friction adjuster
5. Anti-cavitation plate
6. Propeller
7. Cooling water inlet
8. Trim rod
9. Clamp bracket
10. Tiller handle
11. Air vent valve
12. Fuel tank cap
13. Manual starter handle
14. Throttle friction adjuster
15. Engine stop button/Engine shut-off switch
16. Clamp screw
17. Restraint cable attachment
18. Gear shift lever
19. Choke knob

F4, F6



1. Top cowling
2. Cowling lock lever
3. Carrying handle
4. Anti-cavitation plate
5. Propeller*
6. Cooling water inlet
7. Trim rod
8. Clamp bracket
9. Steering friction adjuster
10. Fuel tank cap
11. Air vent valve
12. Manual starter handle
13. Throttle friction adjuster
14. Tiller handle
15. Throttle grip
16. Fuel joint
17. Fuel joint cap
18. Fuel cock
19. Engine shut-off cord (lanyard)
20. Engine stop button/Engine shut-off switch
21. Choke knob
22. Clamp screw
23. Restraint cable attachment
24. Tilt support bar
25. Gear shift lever
26. Fuel tank*

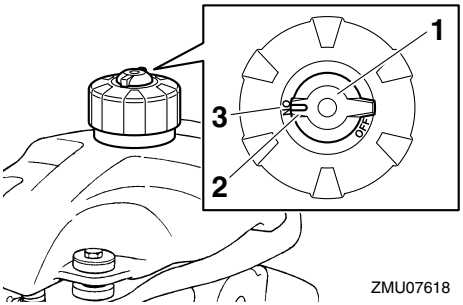
EMU44002
Fuel tank (built-in fuel tank) (F2.5)
This outboard motor is equipped with a built-in fuel tank and its parts are as follows.



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

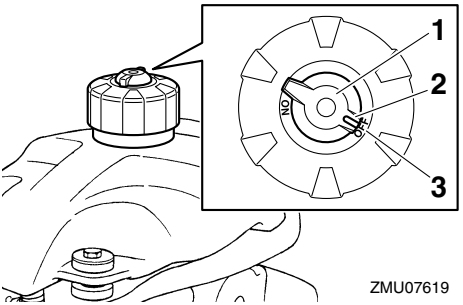
Fuel tank cap
This cap seals the fuel tank. When the cap is removed, the tank can be filled with fuel. To remove the cap, turn it counterclockwise.

Air vent valve
This valve is on the fuel tank cap.
To open the air vent valve, align the pointer on the air vent valve with the “ON” position.



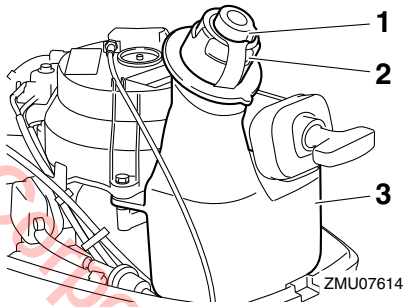
1. Air vent valve
2. Pointer
3. “ON” position

To close the air vent valve, align the pointer on the air vent valve with the “OFF” position.



1. Air vent valve
2. Pointer
3. “OFF” position

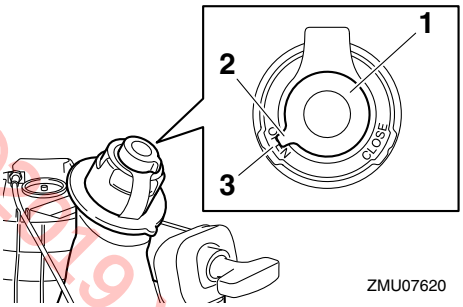
EMU44013
Fuel tank (built-in fuel tank) (F4, F6)
This outboard motor is equipped with a built-in fuel tank and its parts are as follows.



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

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

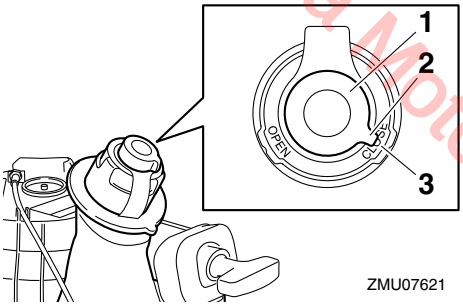
Air vent valve
This valve is on the fuel tank cap.
To open the air vent valve, align the pointer on the air vent valve with the “OPEN” position.



ZMU07620

1. Air vent valve
2. Pointer
3. “OPEN” position

To close the air vent valve, align the pointer on the air vent valve with the “CLOSE” position.



ZMU07621

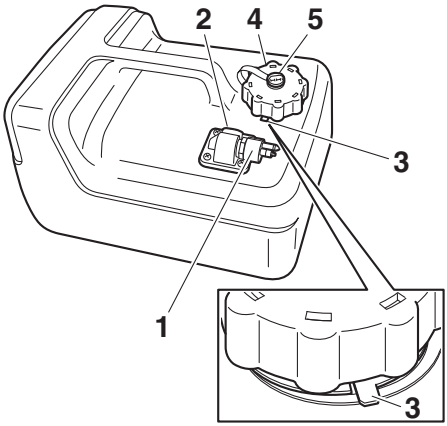
1. Air vent valve
2. Pointer
3. “CLOSE” position

EMU43102
Fuel tank (portable fuel tank) (F4, F6)

This model can be equipped with an optional portable fuel tank. The parts of the fuel tank are as follows.

EWM00020
⚠ WARNING

The fuel tank supplied with this engine is its dedicated fuel reservoir and must not be used as a fuel storage container. Commercial users should conform to relevant licensing or approval authority regulations.

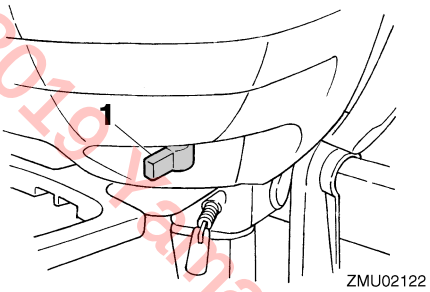


ZMU07460

1. Fuel joint
2. Fuel gauge
3. Pressure relief tab
4. Fuel tank cap
5. Air vent screw

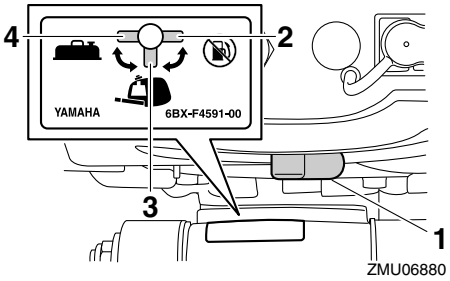
Fuel joint
This joint is used to connect the fuel line.
Fuel gauge
This gauge shows the approximate amount of fuel remaining in the fuel tank.
Pressure relief tab
This tab is attached to the filler hole of the fuel tank.
Fuel tank cap
This cap seals the fuel tank. To loosen the cap, press and hold the pressure relief tab and turn the cap counterclockwise.
Air vent screw
This screw is on the fuel tank cap. When turning the air vent screw counterclockwise, it is loosened and the pressure in the fuel tank is released to a certain pressure. Air is allowed to enter the fuel tank while operating the engine.

EMU42990
Fuel cock
F2.5
The fuel cock turns on and off the supply of fuel from the fuel tank to the engine.



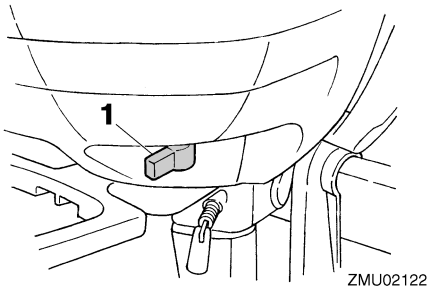
1. Fuel cock

F4, F6
The fuel cock turns on and off the supply of fuel from the fuel tank to the engine.
The fuel cock has 3 positions: the closed position, built-in fuel tank position, and portable fuel tank position. Depending on how the outboard motor will be used, align the fuel cock with the appropriate position indicated on the label that is affixed to the outboard motor.



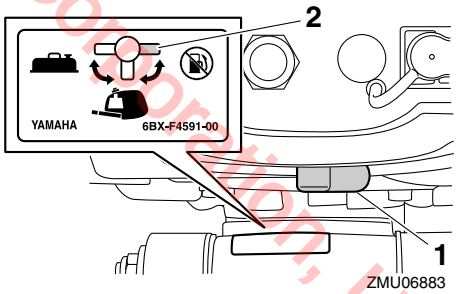
1. Fuel cock
2. Closed position
3. Built-in fuel tank position
4. Portable fuel tank position

EMU42800
Close
F2.5
To stop fuel flow to the engine, turn the lever or knob to close position.
Always turn the lever or knob to close position when the engine is not running.



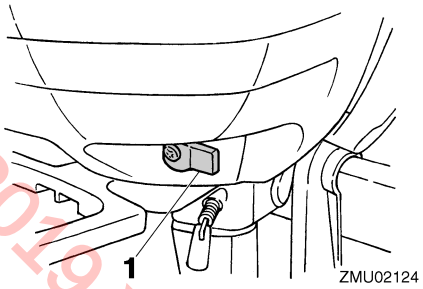
1. Close position

F4, F6
To stop the fuel flow from the fuel tank to the carburetor, align the fuel cock with the closed position.
When the engine is not running, always align the fuel cock with the closed position.



1. Fuel cock
2. Closed position

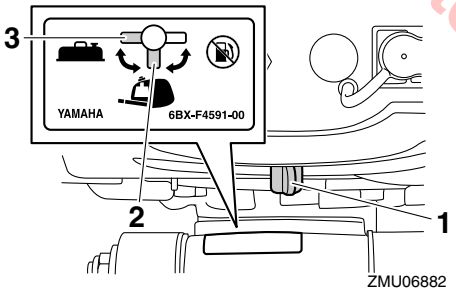
EMU42810
Open
F2.5
With the lever/knob in this position, fuel flows to the carburetor.
Normal running is done with the lever/knob in this position.



1. Open position

F4, F6

To send fuel from the fuel tank to the carburetor, align the fuel cock with the position for the built-in fuel tank or portable fuel tank according to which fuel tank is being used.
When using the built-in fuel tank, align the fuel cock with the built-in fuel tank position.
When using a portable fuel tank, align the fuel cock with the portable fuel tank position.



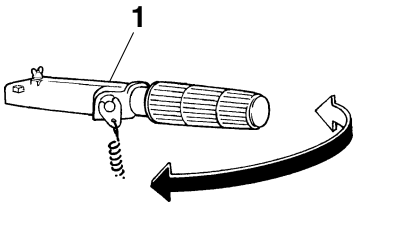
1. Fuel cock
2. Built-in fuel tank position
3. Portable fuel tank position

EMU25913

Tiller handle

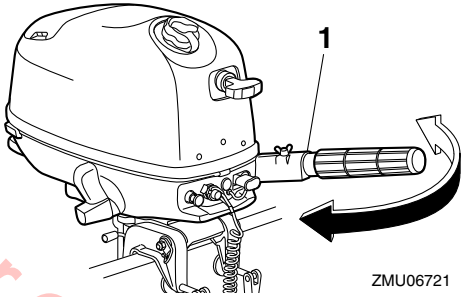
To change direction, move the tiller handle to the left or right as necessary.

F2.5



1. Tiller handle

F4, F6



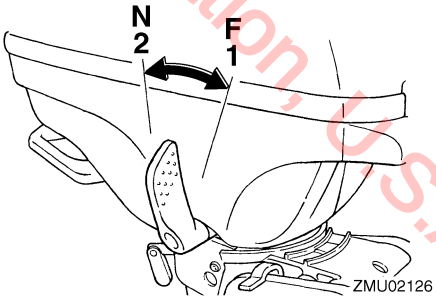
1. Tiller handle

EMU42540

Gear shift lever

F2.5

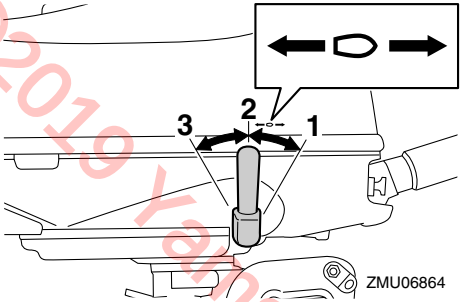
Pulling the gear shift lever towards you puts the engine in forward gear so that the boat moves ahead.



1. Forward "**F**"
2. Neutral "**N**"

F4, F6

Move the gear shift lever forward to engage the forward gear or rearward to engage the reverse gear.



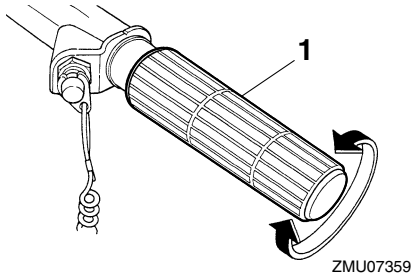
1. Forward position
2. Neutral position
3. Reverse position

EMU25942

Throttle grip

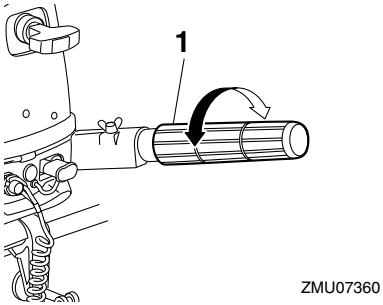
The throttle grip is on the tiller handle. Turn the grip counterclockwise to increase speed and clockwise to decrease speed.

F2.5



1. Throttle grip

F4, F6

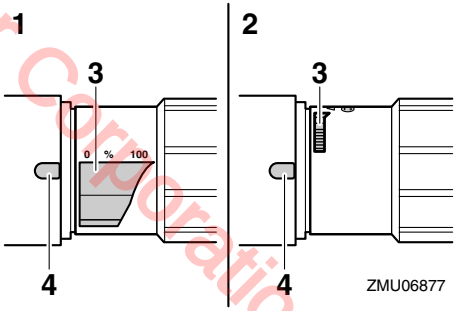


1. Throttle grip

EMU39711

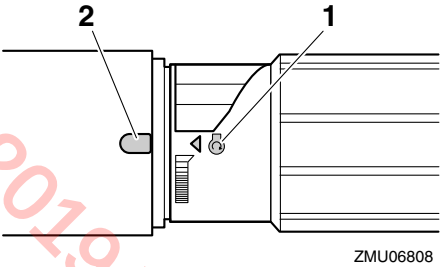
Throttle indicator

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 open. 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

EMU39243

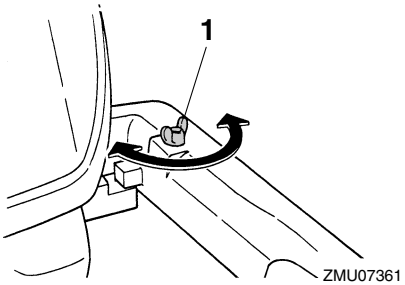
Throttle friction adjuster

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.

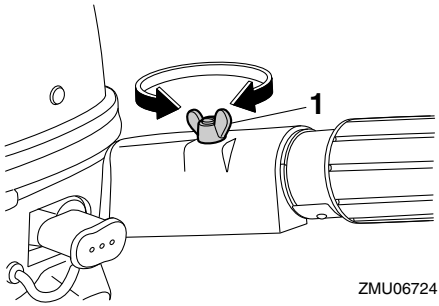
To decrease resistance, turn the throttle friction adjuster counterclockwise. When constant speed is desired, tighten the throttle friction adjuster to maintain the desired throttle setting. **WARNING! Do not overtighten the throttle friction adjuster. If there is too much resistance, it could be difficult to turn the throttle grip, which could result in an accident.** [EWM02261]

F2.5



1. Throttle friction adjuster

F4, F6



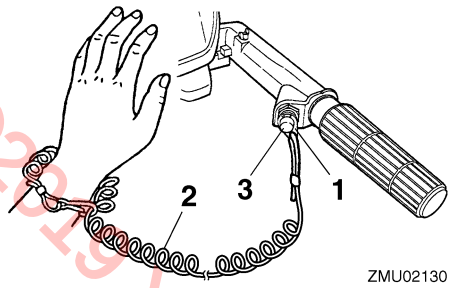
1. Throttle friction adjuster

EMU25995

Engine shut-off cord (lanyard) and clip

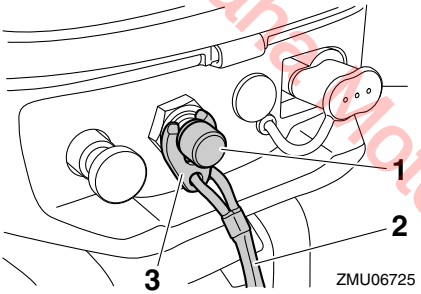
The clip must be attached to the engine shut-off switch for the engine to run. The cord should be attached to a secure place on the operator's clothing, or arm or leg. Should the operator fall overboard or leave the helm, the cord will pull out the clip, stopping ignition to the engine. This will prevent 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.** [EWM00122]

F2.5



1. Clip
2. Cord
3. Engine shut-off switch

F4, F6



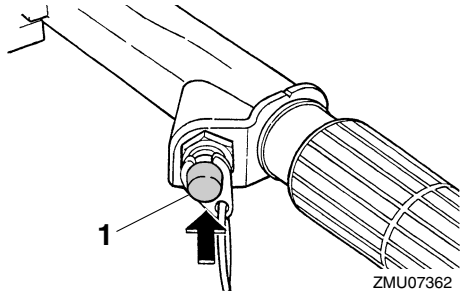
1. Engine shut-off switch
2. Cord
3. Clip

EMU26003

Engine stop button

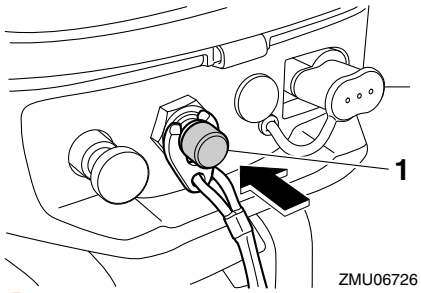
The engine stop button stops the engine when the button is pushed.

F2.5



1. Engine stop button

F4, F6



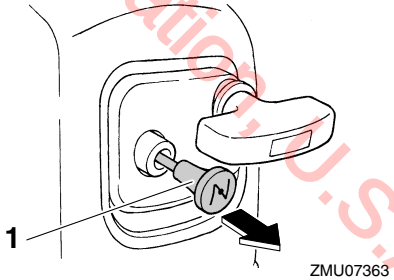
1. Engine stop button

EMU26013

Choke knob for pull type

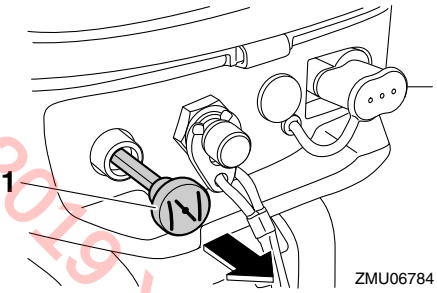
To supply the engine with the rich fuel mixture required to start, pull out this knob.

F2.5



1. Choke knob

F4, F6

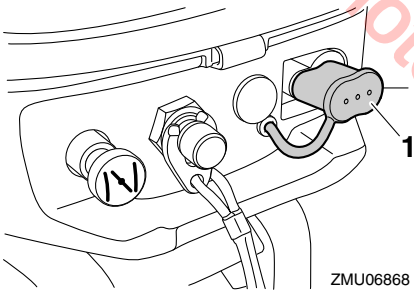


1. Choke knob

EMU39723

Fuel joint cap (F4, F6)

The fuel joint is equipped with the fuel joint cap. WARNING! When not using a portable fuel tank, make sure to install the fuel joint cap. Otherwise, injury could result from striking the fuel joint accidentally. [EWM02411]



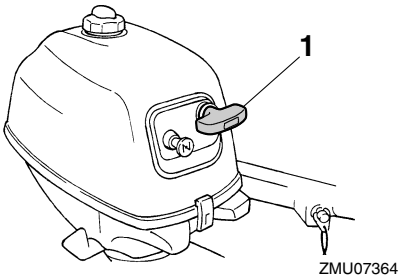
1. Fuel joint cap

EMU26074

Manual starter handle

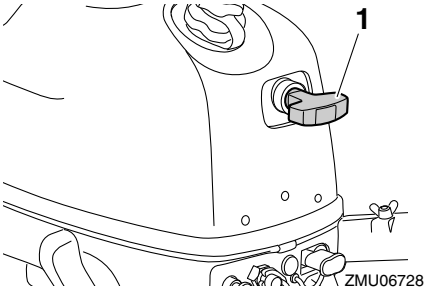
The manual starter handle is used to crank and start the engine.

F2.5



1. Manual starter handle

F4, F6



1. Manual starter handle

EMU42820

Steering friction adjuster

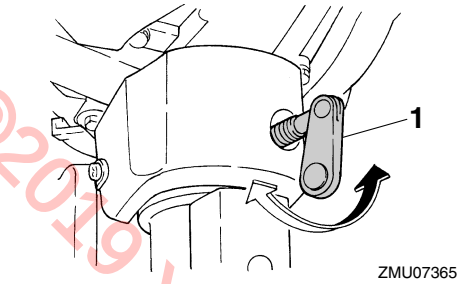
EWM02270

⚠ 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.

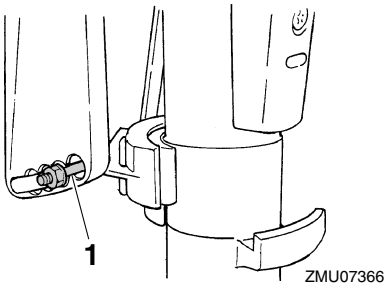
The steering friction adjuster provides adjustable resistance to the steering mechanism, and can be set according to operator preference. The steering friction adjuster is located on the swivel bracket or on the port side of the outboard motor.

F2.5



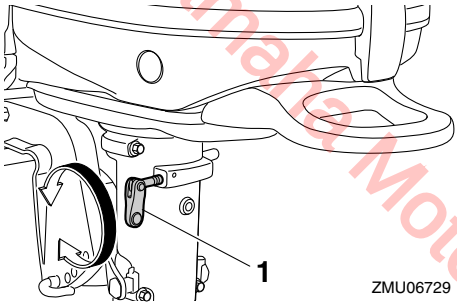
1. Steering friction adjuster

F2.5



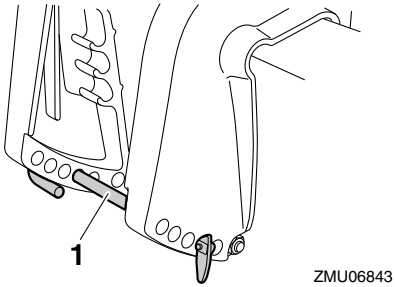
1. Trim rod

F4, F6



1. Steering friction adjuster

F4, F6



1. Trim rod

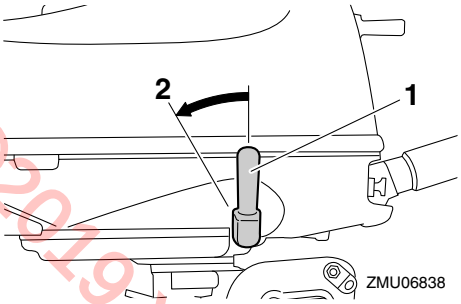
To increase resistance, turn the steering friction adjuster clockwise.
To decrease resistance, turn the steering friction adjuster counterclockwise.

EMU40101
Trim rod (tilt pin)

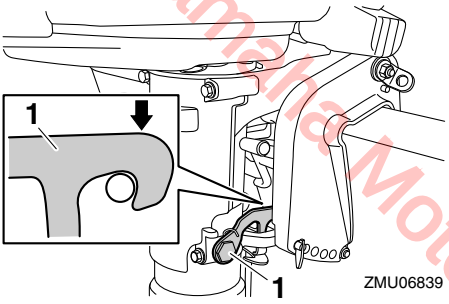
The trim rod (tilt pin) is used to adjust the trim angle of the outboard motor in relation to the angle of the boat transom.

EMU39363
Tilt lock mechanism (F4, F6)

The tilt lock mechanism is used to prevent the outboard motor from lifting out of the water when the gear shift lever is in the reverse position.
When the gear shift lever is moved to the reverse position, the tilt lock mechanism operates to prevent the outboard motor from being tilted up.



1. Gear shift lever
2. Reverse position



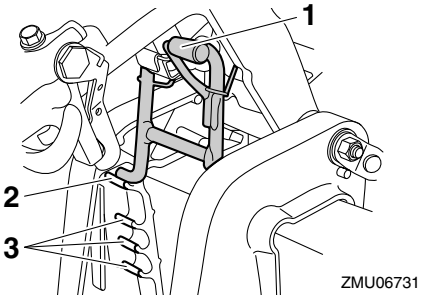
1. Tilt lock

When the gear shift lever is moved to the neutral position or forward position, the outboard motor can be tilted up.

EMU39832

Tilt support bar (F4, F6)

Use the tilt support bar to keep the outboard motor in the tilted up position or a shallow water cruising position.

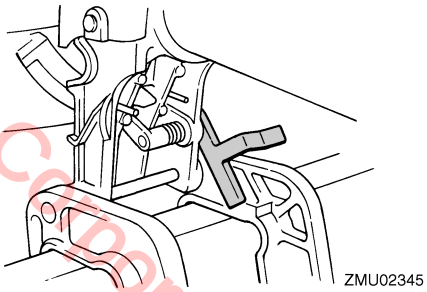


1. Tilt support bar
2. Tilted up position
3. Shallow water cruising position

EMU42600

Tilt support lever (F2.5)

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



ECM00660

NOTICE

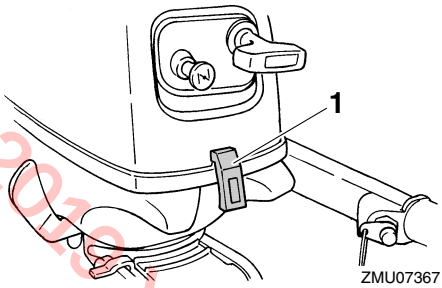
Do not use the tilt support lever or knob when trailering the boat. The outboard motor could shake loose from the tilt support and fall. If the motor cannot be trailered in the normal running position, use an additional support device to secure it in the tilt position.

EMU39263

Cowling lock lever

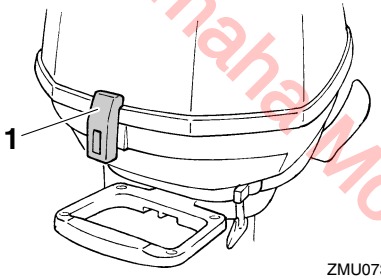
The cowling lock lever(s) is used to secure the top cowling.

F2.5



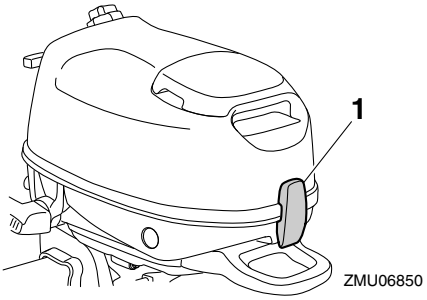
1. Cowling lock lever

F2.5



1. Cowling lock lever

F4, F6



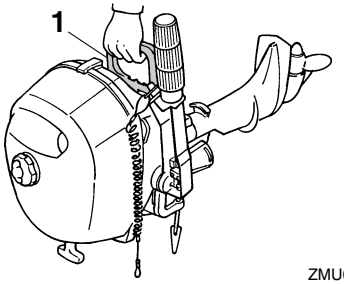
1. Cowling lock lever

EMU42850

Carrying handle

F2.5

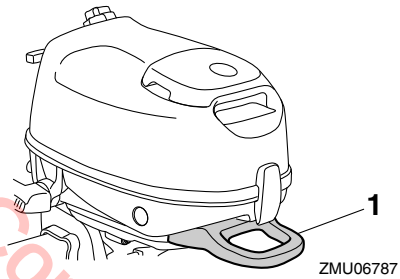
A carrying handle is provided on the rear of the outboard motor. It enables you to carry the outboard motor easily with one hand.



1. Carrying handle

F4, F6

The carrying handle is used to carry the outboard motor. For information on carrying and transporting the outboard motor, see page 70.



1. Carrying handle

EMU39731

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.

EWM02341

⚠ 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.**

EMU42940

Mounting the outboard motor

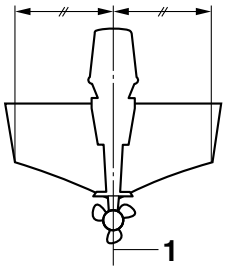
F2.5

EWM01720

⚠ WARNING

Your dealer or other person experienced in proper outboard motor mounting should show you how to mount your outboard motor.

The outboard motor should be mounted so that the boat is well balanced. Otherwise, the boat could be hard to steer. For single-engine boats, mount the outboard motor on the centerline (keel line) of the boat.



ZMU01760

1. Center line (keel line)

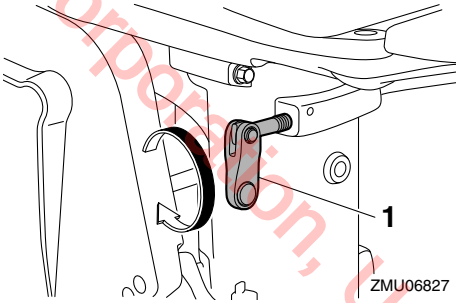
F4, F6

EWM02300

⚠ WARNING

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

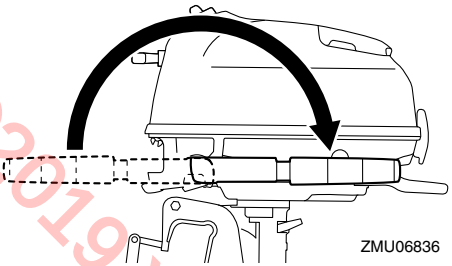
1. Be sure to mount the outboard motor while the boat is on land. If the boat is on the water, move it to an area on land.
2. To prevent steering movement, turn the steering friction adjuster clockwise.



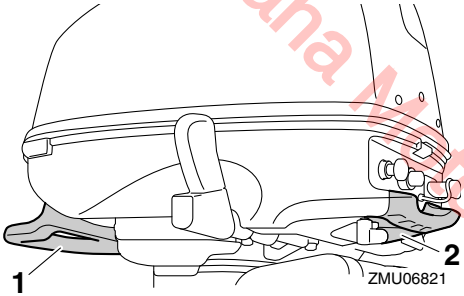
ZMU06827

1. Steering friction adjuster

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

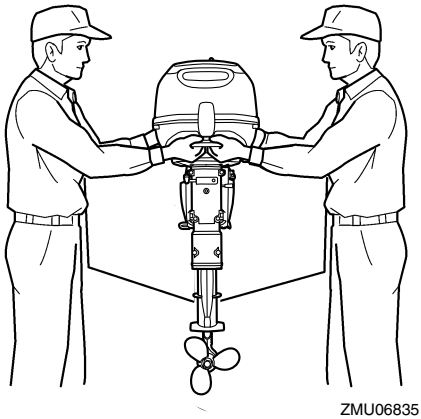

ZMU06836

4. Hold the carrying handle and the handgrip on the front side of the bottom cowling and lift up the outboard motor using two people.

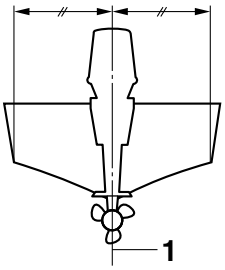


ZMU06821

1. Carrying handle
2. Handgrip


ZMU06835

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.

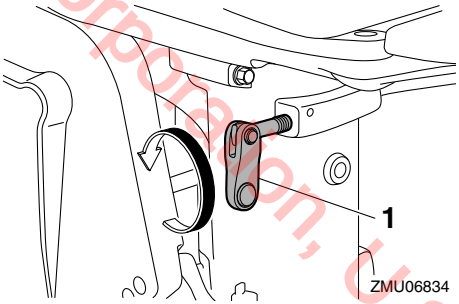


ZMU01760

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.**

[EWM00721]



ZMU06834

1. Steering friction adjuster

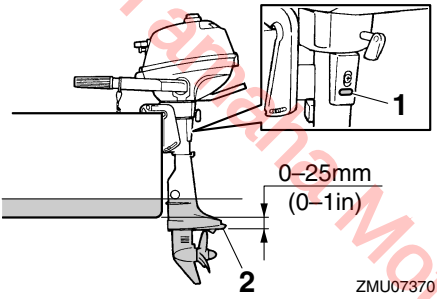
EMU39741

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

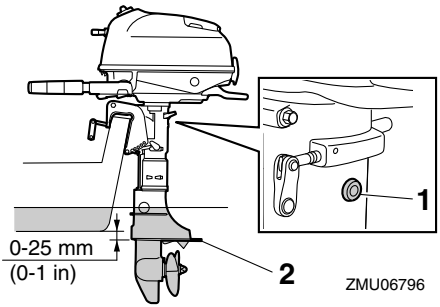
the mounting height is too high, cavitation tends to occur, thus reducing the propulsion; and if the propeller tips cut the air, the engine speed will rise abnormally and cause the engine to overheat. If the mounting height is too low, the water resistance will increase and thereby reduce engine efficiency. 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.

F2.5



1. Idle hole
2. Anti-cavitation plate

F4, F6



1. Idle hole
2. Anti-cavitation plate

ECM02170

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.**

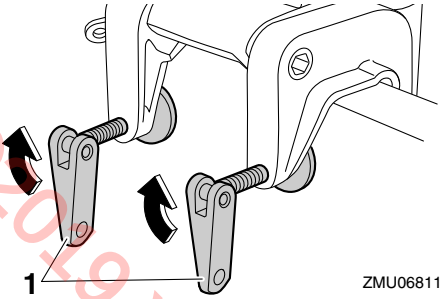
TIP:

- 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 62.

EMU39752

Clamping the outboard motor

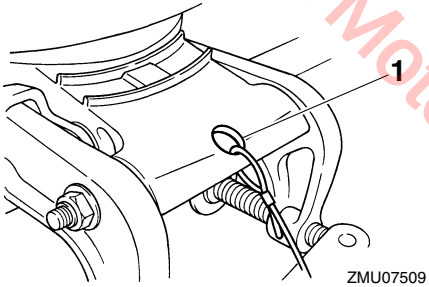
1. Place the outboard motor on the transom so that it is positioned as close to the center as possible. Tighten the clamp screws evenly and securely. Occasionally check the clamp screws for tightness during operation of the outboard motor because they could become loose due to engine vibration. **WARNING! 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.** [EWM00642]



1. Clamp screw

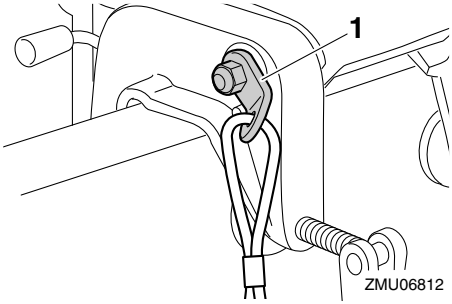
2. Attach one end to the restraint cable attachment and the other to a secure mounting point on the boat. Otherwise the engine could be completely lost if it accidentally falls off the transom.

F2.5



1. Restraint cable attachment

F4, F6



1. Restraint cable attachment

EMU36381

First-time operation

EMU36391

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.** [ECM01781]

The engine is shipped with the following sticker, which should be removed after engine oil is filled for the first time. For more information on checking the engine oil level, see page 45.

ZMU01710

EMU30174

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.** [ECM00801]

EMU40060

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.

EMU36400

Getting to know your boat

Different boats handle differently. Operate cautiously while you learn how your boat handles under different conditions and with different trim angles (see page 62).

EMU36413

Checks before starting engine

EWM01921

⚠ 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.

ECM00120

NOTICE

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

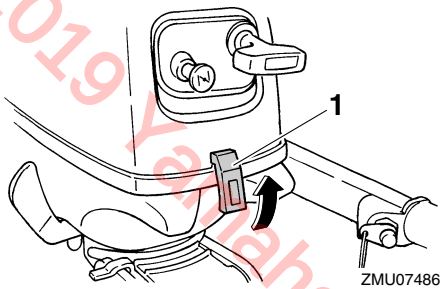
EMU36560

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 48.

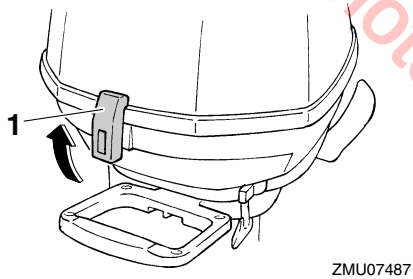
EMU43710
Remove the top cowling
For the following checks, remove the top cowling from the bottom cowling. To remove the top cowling, pull the cowling lock lever(s) up and lift up the top cowling.

F2.5



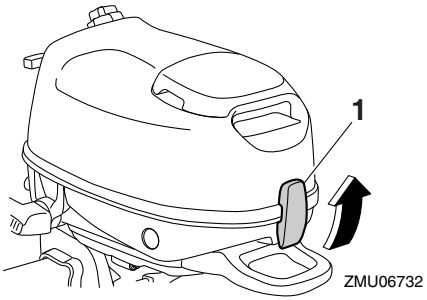
1. Cowling lock lever

F2.5



1. Cowling lock lever

F4, F6



1. Cowling lock lever

EMU36442
Fuel system
EWM00060
⚠ WARNING

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

EWM00910
⚠ WARNING

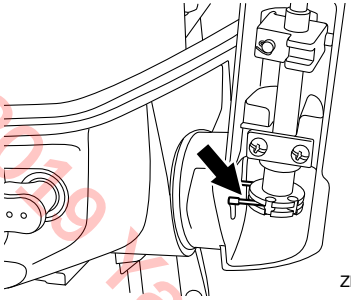
Leaking fuel can result in fire or explosion.
- **Check for fuel leakage regularly.**
- **If any fuel leakage is found, the fuel system must be repaired by a qualified mechanic. Improper repairs can make the outboard unsafe to operate.**

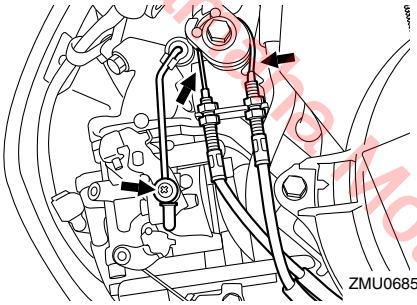
EMU36451
Check for fuel leaks
- Check for fuel leaks or gasoline fumes in the boat.
- Check for fuel leakage from the fuel system.
- Check the fuel tank and fuel lines for cracks, swellings, or other damages.

EMU42970
Controls
F2.5
- 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.

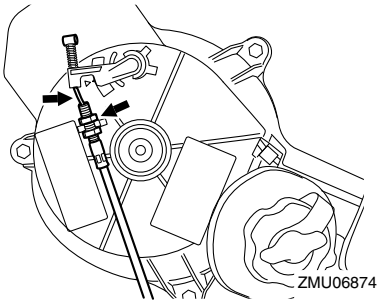
F4, F6
- Move the tiller handle fully to the left and right to check that operation is smooth.
- Turn the throttle grip from the fully closed position to the fully open position. Check that the throttle grip turns smoothly and that it completely returns to the fully closed position.

- Check the throttle cable and throttle link for loose or damaged connections.


ZMU06851


ZMU06852

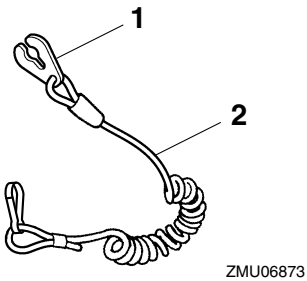
- Check the shift link and start-in-gear protection cable for loose or damaged connections.


ZMU06874

EMU36483

Engine shut-off cord (lanyard)

Inspect the engine shut-off cord and clip for damage, such as cuts, breaks, and wear.



ZMU06873

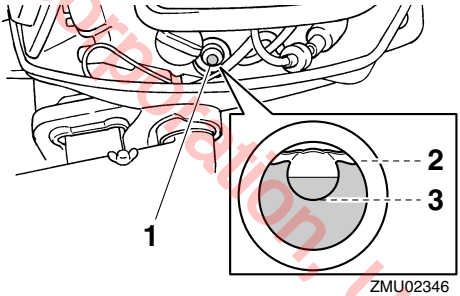
1. Clip
2. Cord

EMU42860

Engine oil

F2.5

1. Put the outboard motor in an upright position (not tilted).
2. Remove the top cowling.
3. Check the oil level using the oil level check window to be sure the level falls between the upper and lower marks. Fill with oil if it is below the lower mark, or drain to the specified level if it is above the upper mark.

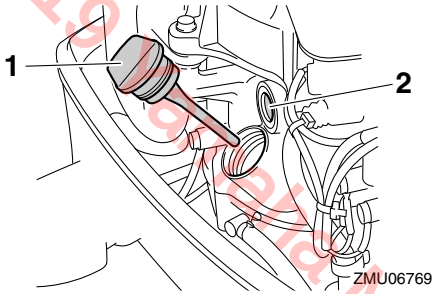


ZMU02346

1. Oil level check window
2. Upper mark
3. Lower mark

F4, F6

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.** [ECM01790]
2. Remove the oil filler cap and wipe the attached oil dipstick clean.

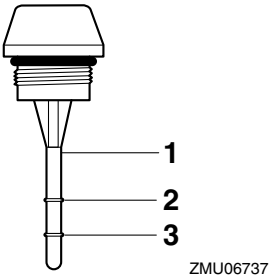


1. Oil filler cap
2. Oil lubrication check window

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.

3. Install the oil filler cap and tighten it completely.
4. 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

5. Install the oil filler cap and tighten it completely.

EMU27153

Engine

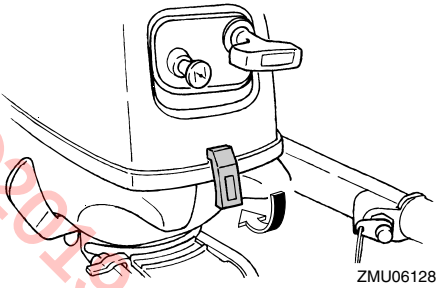
- Check the engine and engine mounting.
- Look for loose or damaged fasteners.
- Check the propeller for damage.
- Check for engine oil leaks.

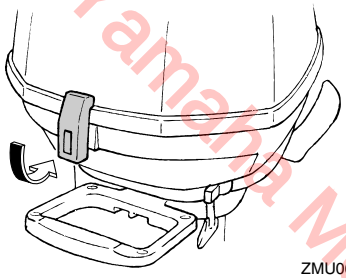
EMU42980

Installing top cowling

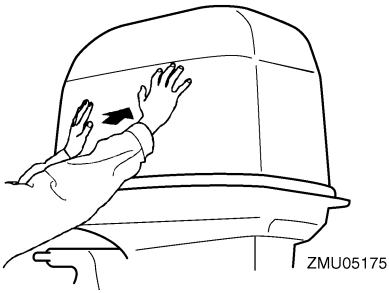
F2.5

1. Be sure that all cowling lock levers are released.
2. Be sure that the rubber seal is seated all the way around the engine.
3. Place the cowling on top of the seal.
4. Check to be sure it fits properly in the rubber seal.
5. Move the levers to lock the cowling as shown. ***NOTICE:*** **If the top cowling is not installed correctly, water spray under the top cowling can damage the engine, or the top cowling can blow off at high speeds.** [ECM01991]


ZMU06128

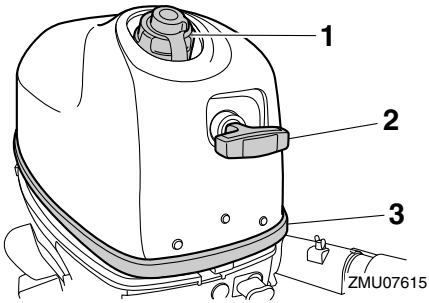

ZMU06130

After installing, check the fitting of the top cowling by pushing it with both hands. If the top cowling is loose, have it repaired by your Yamaha dealer.


ZMU05175

F4, F6

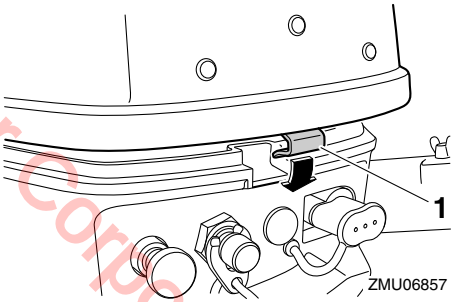
1. Check the rubber seal for damage. If the rubber seal is damaged, have it replaced by a Yamaha dealer.
2. Align the fuel tank cap and manual starter handle with their respective holes in the top cowling.



ZMU07615

1. Fuel tank cap
2. Manual starter handle
3. Rubber seal

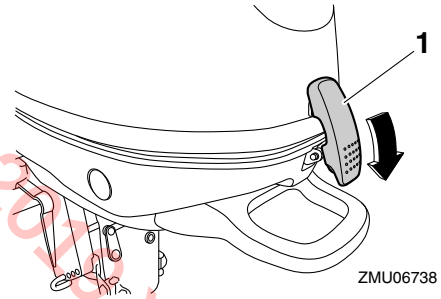
3. Hook the top cowling hook onto the bottom cowling, and then make sure that the fuel tank cap and manual starter handle fit properly into their respective holes.



ZMU06857

1. Hook

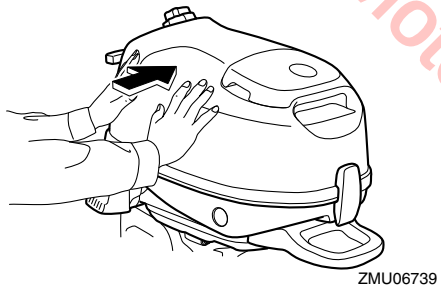
4. Check to be sure the rubber seal is seated correctly between the top cowling and the bottom cowling.
5. Pull the cowling lock lever down to secure the top cowling.



1. Cowling lock lever

6. Check the fitting of the top cowling by pushing it with both hands. ***NOTICE:*** **If the top cowling is not installed correctly, water spray under the top cowling can damage the engine, or the top cowling can blow off at high speeds.**

[ECM01991]



EMU43463

Filling fuel

EWM01950

⚠ WARNING

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

EWM01830

⚠ 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.**

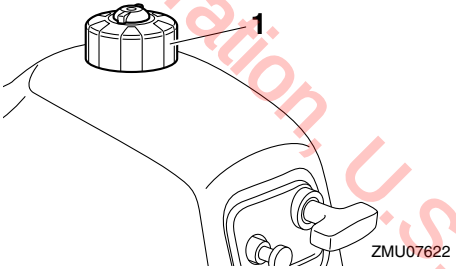
Before refueling, check the following points:

- 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.

Filling fuel for built-in fuel tank

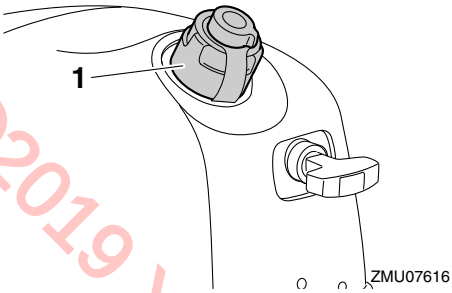
1. Remove the fuel tank cap.

F2.5



1. Fuel tank cap

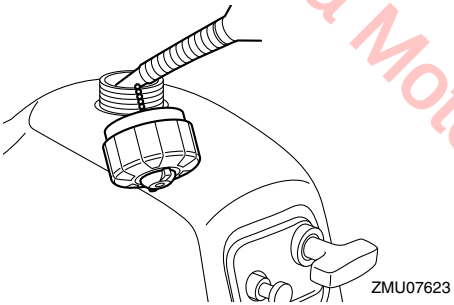
F4, F6



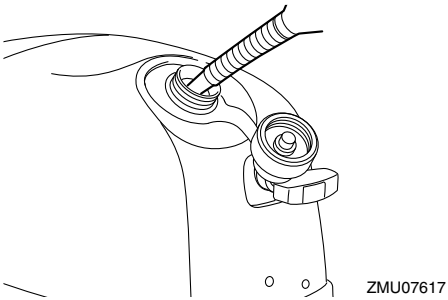
1. Fuel tank cap

2. Fill the fuel tank, but do not overfill it. **WARNING! Do not overfill. Otherwise fuel can expand and overflow if the temperature increases.** [EWM02610]

F2.5



F4, F6

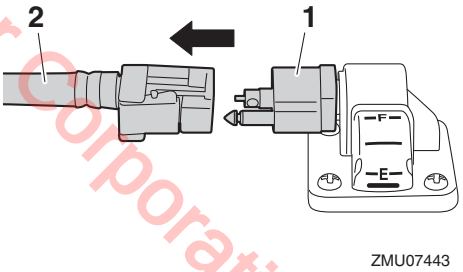


Fuel tank capacity (built in type):
F2.5MHA 0.9 L (0.24 US gal, 0.20 Imp.gal)
F4MHA 1.1 L (0.29 US gal, 0.24 Imp.gal)
F6MHA 1.1 L (0.29 US gal, 0.24 Imp.gal)

3. Tighten the fuel tank cap until a click is heard.
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.

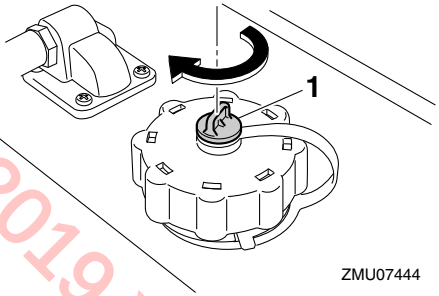
Filling fuel for portable fuel tank (optional) (F4, F6)

1. Disconnect the fuel hose from the fuel joint on the fuel tank.



1. Fuel joint
2. Fuel hose

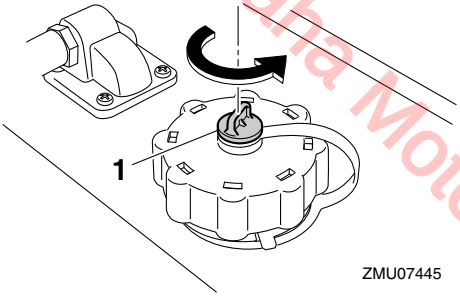
2. Turn the air vent screw clockwise to close it.



ZMU07444

1. Air vent screw

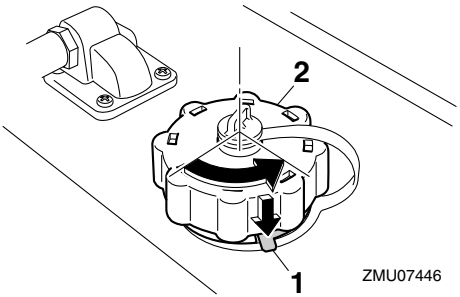
3. Remove the fuel tank from the boat.
4. To loosen the air vent screw, turn it counterclockwise until it stops.



ZMU07445

1. Air vent screw

5. While pressing and holding the pressure relief tab under the fuel tank cap, slowly turn the fuel tank cap counterclockwise 1/4 turn.



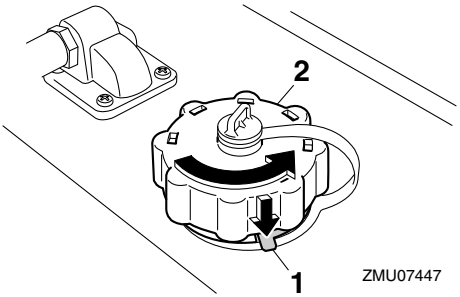
ZMU07446

1. Pressure relief tab
2. Fuel tank cap

TIP:

Release the fuel vapor contained in the fuel tank.

6. While pressing and holding the pressure relief tab under the fuel tank cap again, turn the fuel tank cap counterclockwise to remove it.

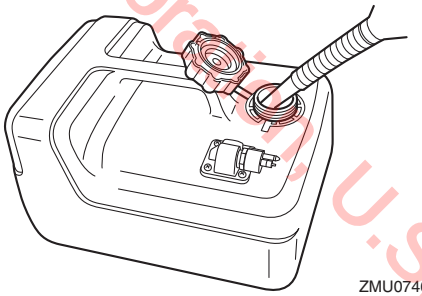


ZMU07447

1. Pressure relief tab
2. Fuel tank cap

7. Fill the fuel tank with fuel. **WARNING! Do not overfill. Otherwise fuel can expand and overflow if the temperature increases.** [EWM02610]

Fuel tank capacity:
12 L (3.17 US gal, 2.64 Imp.gal)



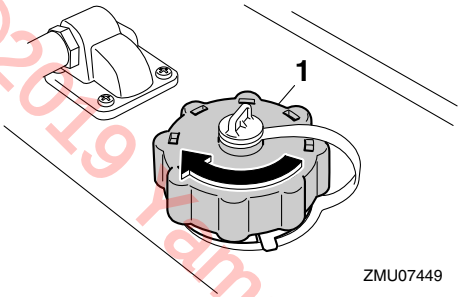
ZMU07461

TIP:

- Wipe up any spilled gasoline immediately with dry rags.

- Dispose of rags properly according to local laws or regulations.

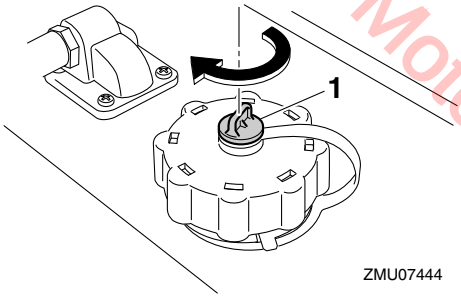
8. Turn the fuel tank cap clockwise to tighten it until a click is heard.



ZMU07449

1. Fuel tank cap

9. Turn the air vent screw clockwise to close it.



ZMU07444

1. Air vent screw

EMU44111

Operating engine

EWM02701

⚠ WARNING

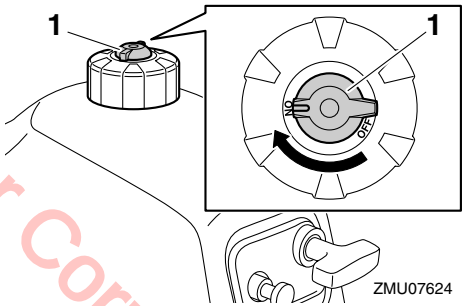
- **Before starting the engine, make sure that the boat is tightly moored and that you can steer clear of any obstructions. Be sure there are no swimmers in the water near you.**
- **When the air vent valve is opened, gasoline vapor will be released. Gasoline is highly flammable, and its vapors are flammable and explosive. Refrain from smoking, and keep away from open flames and sparks while opening the air vent valve.**
- **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.**

EMU43476

Sending fuel

Sending fuel for built-in fuel tank (F2.5)

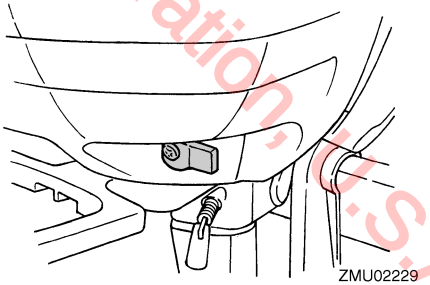
1. Open the air vent valve.



ZMU07624

1. Air vent valve

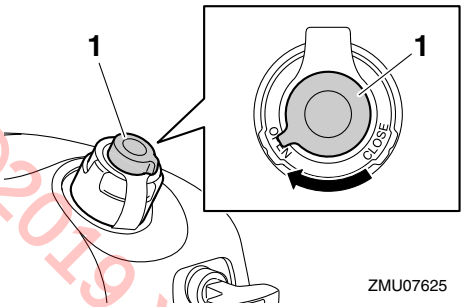
2. Open the fuel cock.



ZMU02229

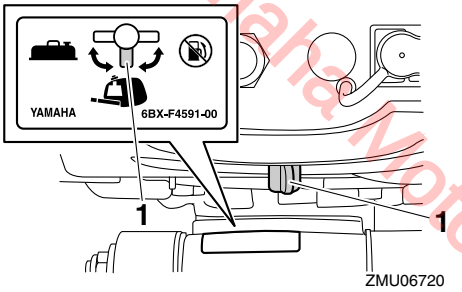
Sending fuel for built-in fuel tank (F4, F6)

1. Open the air vent valve.



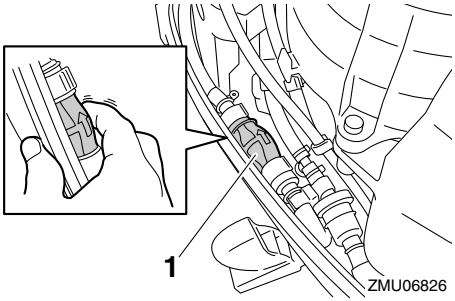
1. Air vent valve

2. Align the fuel cock with the built-in fuel tank position.



1. Built-in fuel tank position

3. Remove the top cowling, and then squeeze the primer pump in the bottom cowling repeatedly until you feel it become slightly firm.

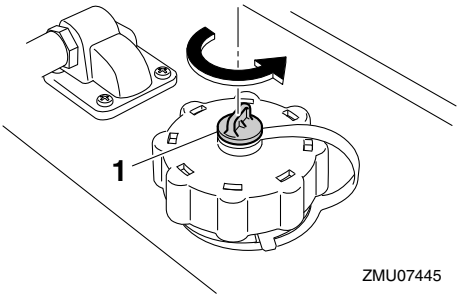


1. Primer pump

4. Install the top cowling.

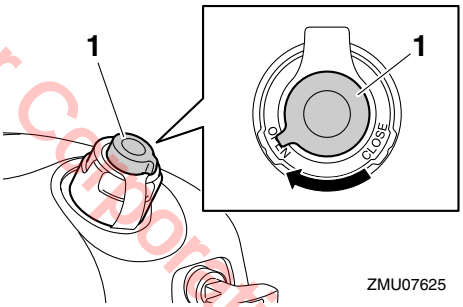
Sending fuel for portable fuel tank (optional) (F4, F6)

1. To loosen the air vent screw, turn it counterclockwise until it stops.



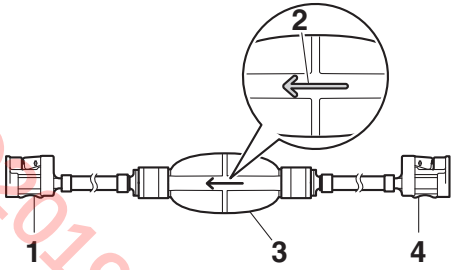
1. Air vent screw

2. If there is fuel in the built-in fuel tank, open the air vent valve to prevent pressure from increasing inside the tank due to fuel expansion.



1. Air vent valve

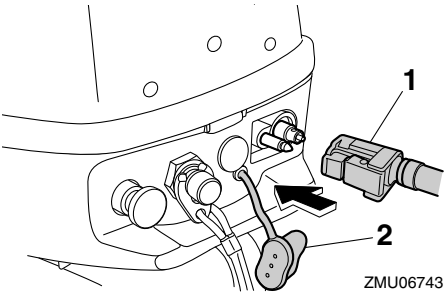
3. Check the direction of the fuel hose. Make sure that the arrow of the primer pump points toward the outboard motor.



ZMU07452

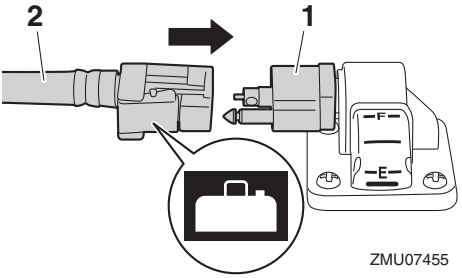
1. Toward the outboard motor
2. Arrow
3. Primer pump
4. Toward the fuel tank

4. Remove the fuel joint cap. Align the fuel joint on the fuel hose with the fuel joint on the outboard motor and connect the fuel hose securely between the tank and the outboard motor while pinching the joint so that the primer pump arrow is pointing toward the outboard motor.



ZMU06743

1. Fuel hose
2. Fuel joint cap



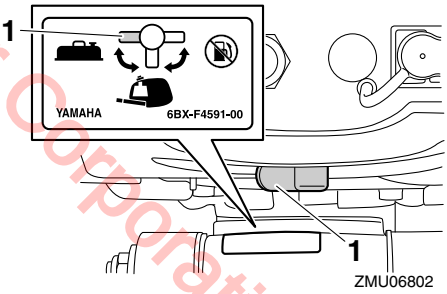
ZMU07455

1. Fuel joint
2. Fuel hose

5. Wipe up any spilled gasoline immediately with dry rags.

TIP:
Dispose of rags properly according to local laws or regulations.

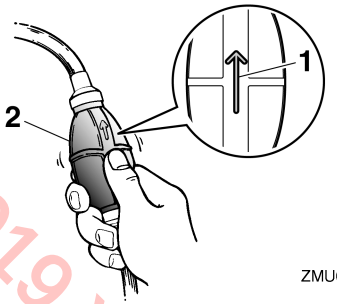
6. Align the fuel cock with the portable fuel tank position.



ZMU06802

1. Portable fuel tank position

7. Squeeze the primer pump, with the arrow pointing up, until you feel it become firm. During engine operation, place the tank horizontally, otherwise fuel cannot be drawn from the fuel tank.



1. Arrow
2. Primer pump

EMU27494
Starting engine

EWM01600
⚠ 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.

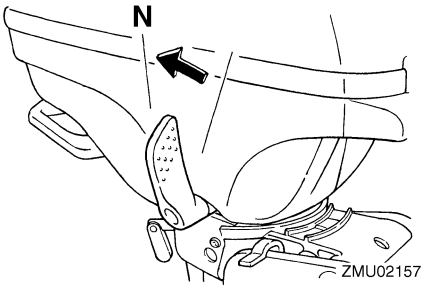
EMU42880
Manual start

EWM01840
⚠ WARNING

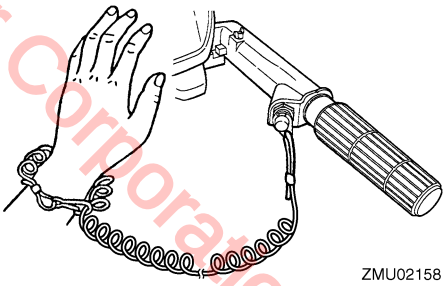
- **Failure to attached engine shut-off cord could result in a runaway boat if operator is ejected. Attach the engine shut-off cord to a secure place on your clothing, or your arm or leg while operating. Do not attach the cord to clothing that could tear loose. Do not route the cord where it could become 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.**

Procedure for starting outboard motor (F2.5)

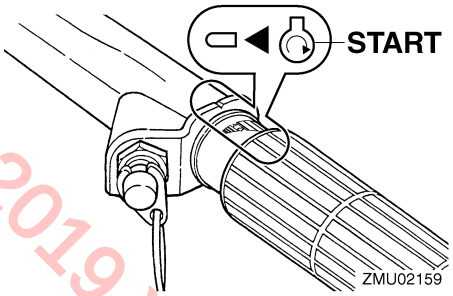
1. Place the gear shift lever in neutral. **WARNING! Always start the engine in neutral to avoid accidentally moving the boat.** [EWM00111]



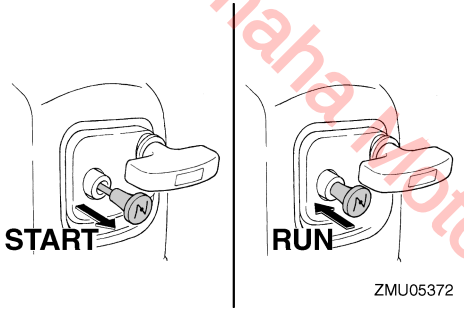
2. If the engine shut-off cord is equipped, attach it to a secure place on your clothing, or your arm or leg. Then install the clip on the other end of the cord into the engine shut-off switch.



3. Place the throttle grip in the "START" (start) position.



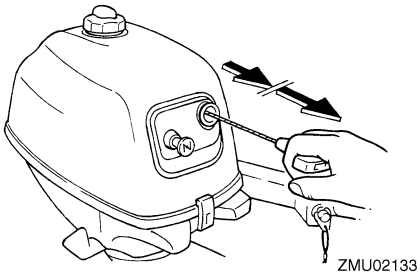
4. Place the choke knob in the "START" (start) position. After the engine starts, return the knob to the "RUN" (run) position.



TIP:

- When restarting a warm engine, place the choke knob in the "RUN" (run) position.
- If the choke knob is left in the "START" (start) position while the engine is running, the engine will run poorly or stall.

5. Pull the manual starter handle slowly until you feel resistance. Then give a strong pull straight out to start the engine. Repeat if necessary.



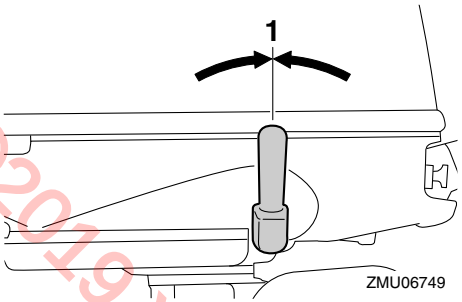
6. After the engine starts, slowly return the manual starter handle to the original position before releasing it.
7. Slowly return the throttle grip to the fully closed position.

TIP:

- When the engine is cold, it needs to be warmed up. For further information, see page 57.
- If the engine does not start on the first try, repeat the procedure. If the engine fails to start after 4 or 5 tries, open the throttle a small amount (between 1/8 and 1/4) and try again. Also if the engine is warm and fails to start, open the throttle a same amount and try to start the engine again. If the engine still fails to start, see page 92.

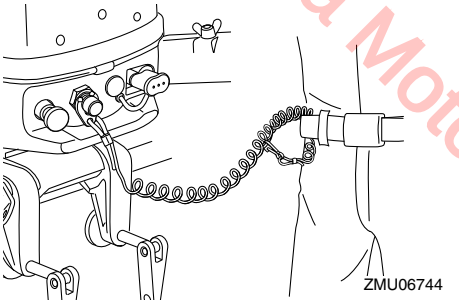
Procedure for starting outboard motor (F4, F6)

1. Move the gear shift lever to the neutral position.

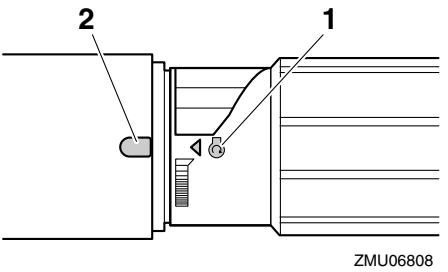


1. Neutral position

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.

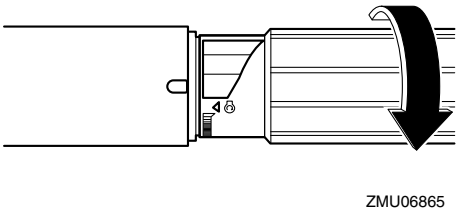


3. Align the engine start mark "⏲" on the throttle grip with the notch in the tiller handle.

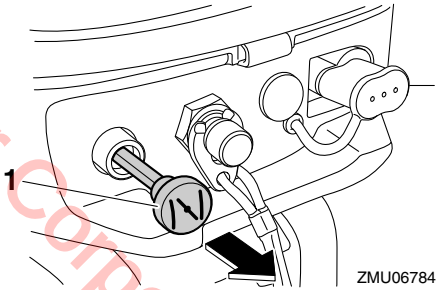


1. Start mark "⏲"
2. Notch

TIP:
If the ambient temperature is -15°C or less, turn the throttle grip so that the engine start mark "⏲" is positioned past the notch in the tiller handle.



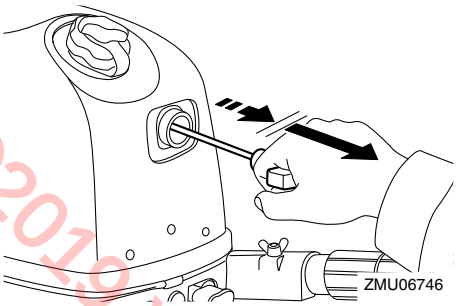
4. Pull out the choke knob fully.



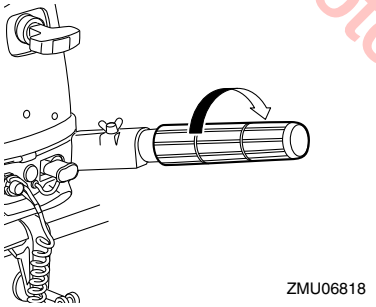
1. Choke knob

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.


ZMU06746

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 57.
8. Return the choke knob to its original position gradually.
9. Slowly return the throttle grip to the fully closed position.


ZMU06818

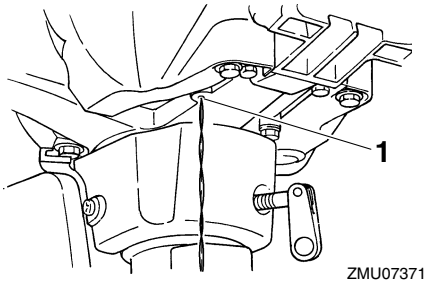
EMU36510
Checks after starting engine

EMU36523
Cooling water
Check for a steady flow of water from the cooling water pilot hole. A continuous flow of water from the pilot hole indicates that the water pump is pumping water through the cooling water passages. If the cooling water passages are frozen, it may take a while for water to start flowing out of the pilot hole.

ECM01810
NOTICE

If water is not flowing out of the 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.

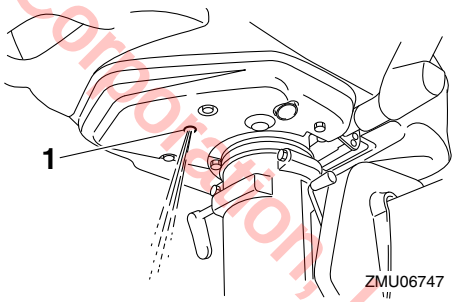
F2.5



ZMU07371

1. Cooling water pilot hole

F4, F6



ZMU06747

1. Cooling water pilot hole

EMU27670
Warming up engine

EMU40070
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. Failure to do so will shorten engine life.

TIP:

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

EMU36531

Checks after engine warm up

EMU36541

Shifting

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

EMU36971

Stop switches

Perform the following procedure to check that the engine stop switch 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.

EMU42840

Shifting

EWM00180

⚠ WARNING

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

ECM02220

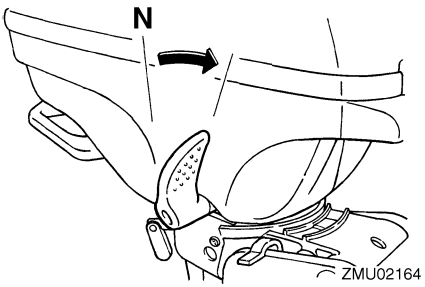
NOTICE

Before shifting the outboard motor, turn the throttle grip to the fully closed position and let the engine speed return to idle speed. Otherwise, the shift mechanism could be damaged.

F2.5

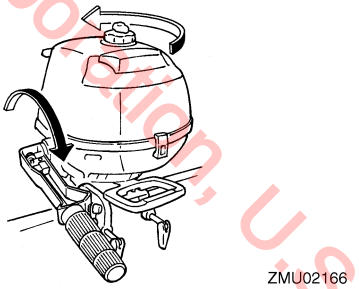
To shift out of neutral (forward)

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



To shift out of neutral (reverse)

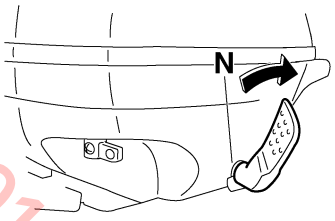
1. Turn the outboard motor around 180°, and then move the tiller handle so that it is facing toward the bow.



TIP:

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

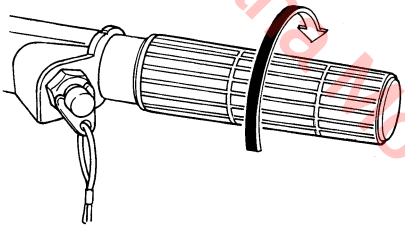
2. Move the gear shift lever firmly and crisply toward the stern.



ZMU05373

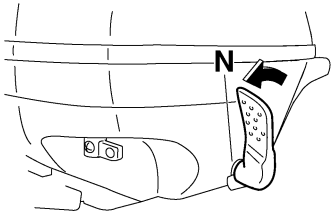
To shift from in gear to neutral

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



ZMU02163

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

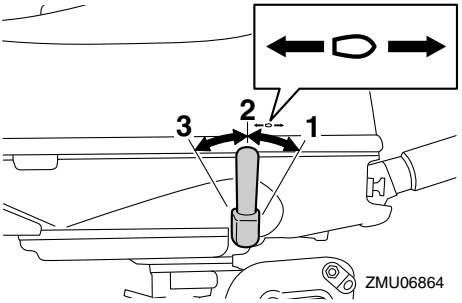


ZMU05908

F4, F6

To shift to forward or reverse

Move the gear shift lever to the forward position or reverse position.

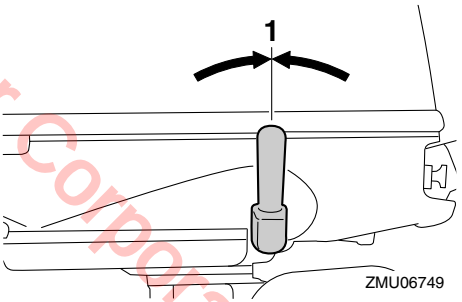


ZMU06864

1. Forward position
2. Neutral position
3. Reverse position

To shift to neutral

1. Close the throttle so that the engine slows to idle speed.
2. Move the gear shift lever to the neutral position.



ZMU06749

1. Neutral position

EMU38071

Stopping boat (F2.5)

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.

EMU39882

Stopping boat (F4, F6)

EWM02321

⚠ WARNING

Do not use the reverse function to slow down or stop the boat as it could cause you to lose control, be ejected, or impact the load or other parts of the boat. This could increase the risk of serious injury. It could also damage the shift mechanism.

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

EMU27821

Stopping engine

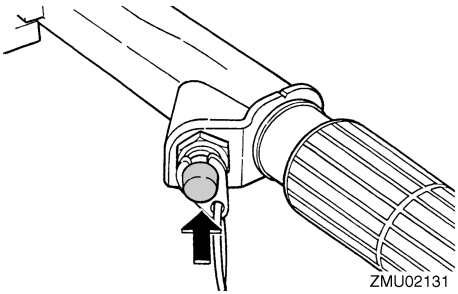
Before stopping the engine, first let it cool off for a few minutes at idle or low speed. Stopping the engine immediately after operating at high speed is not recommended.

EMU43493

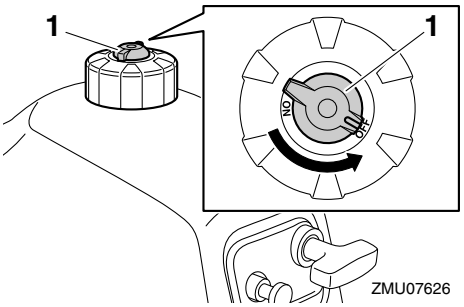
Procedure

F2.5

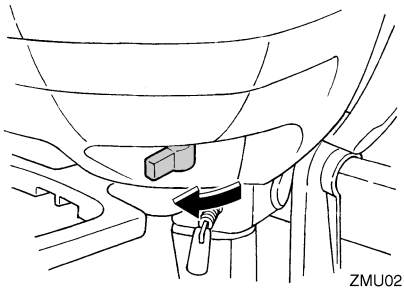
1. Push and hold the engine stop button until the engine stops completely.



2. After stopping the engine, close the air vent valve and fuel cock.



1. Air vent valve

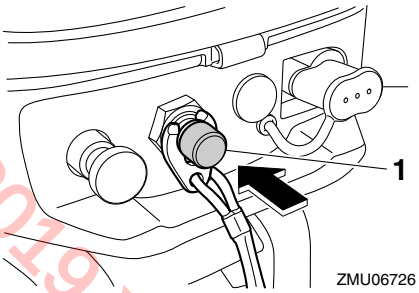


TIP:

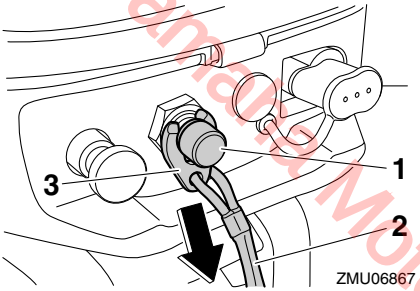
The engine can also be stopped by pulling the engine shut-off cord and removing the clip from the engine shut-off switch.

F4, F6

1. Push and hold the engine stop button until the engine stops completely. The engine can also be stopped by pulling the engine shut-off cord and removing the clip from the engine shut-off switch.

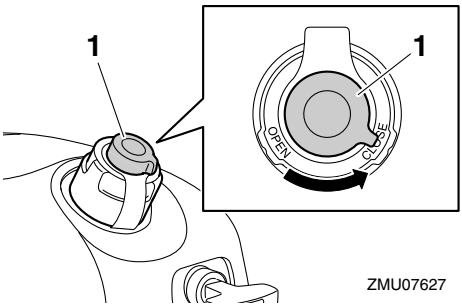


1. Engine stop button

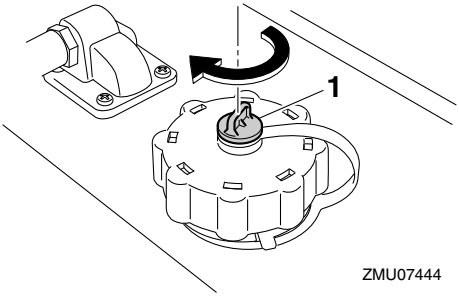


1. Engine shut-off switch
2. Cord
3. Clip

2. Close the air vent valve and air vent screw.

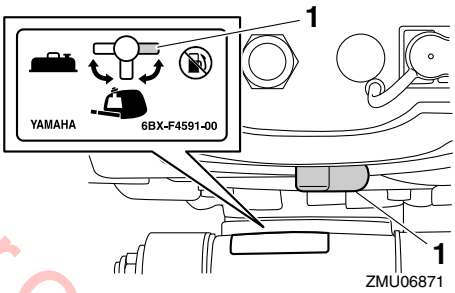


1. Air vent valve



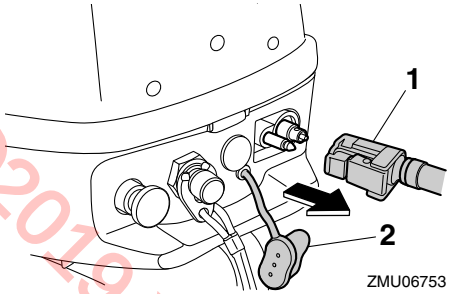
1. Air vent screw

3. Align the fuel cock with the closed position.



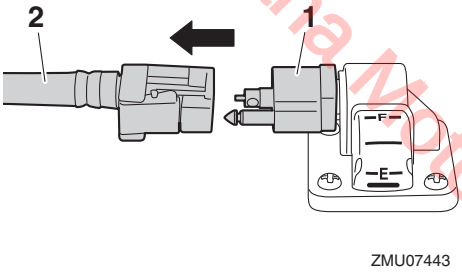
1. Closed position

4. After stopping the engine, disconnect the fuel hose from the fuel joint on the outboard motor, and then install the fuel joint cap. **WARNING! When not using a portable fuel tank, make sure to install the fuel joint cap. Otherwise, injury could result from striking the fuel joint accidentally.** [EWM02411]



1. Fuel hose
2. Fuel joint cap

5. Disconnect the fuel hose from the fuel joint on the fuel tank.



1. Fuel joint
2. Fuel hose

EMU40111

Trimming outboard motor

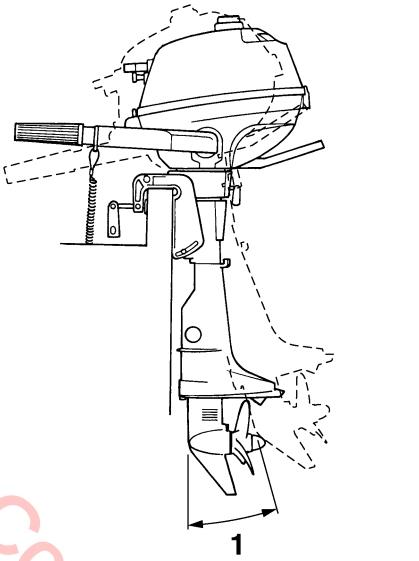
EWM00740

⚠ 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.

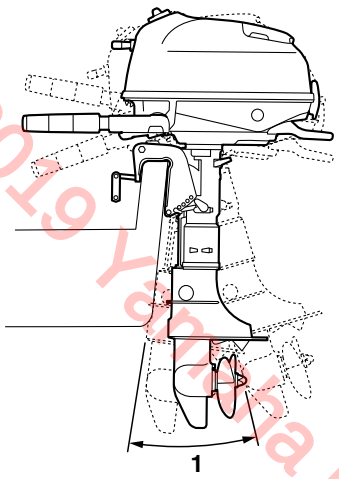
The trim angle of the outboard motor helps determine the position of the bow of the boat in the water. The correct trim angle is affected by variables, such as the load in the boat, sea conditions, and running speed.

F2.5



1. Trim operating angle

F4, F6



1. Trim operating angle

EMU42830

Adjusting trim angle for manual tilt models

EWM00400

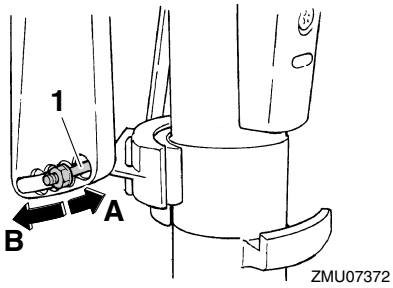
⚠ WARNING

- **Stop the engine before adjusting the trim angle.**
- **Use care to avoid being pinched when removing or installing the 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 or 5 holes provided in the clamp bracket to adjust the outboard motor trim angle.

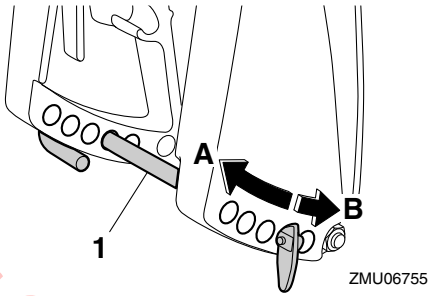
1. Stop the engine.
2. Tilt the outboard motor up, and then remove the trim rod from the clamp bracket.

F2.5



1. Trim rod

F4, F6



1. Trim rod

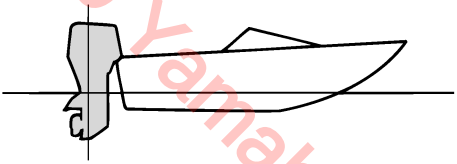
3. Change the position of the trim rod in direction “A” to raise the bow (“trim-out”). Change the position of the trim rod in direction “B” to lower the bow (“trim-in”).

TIP:

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

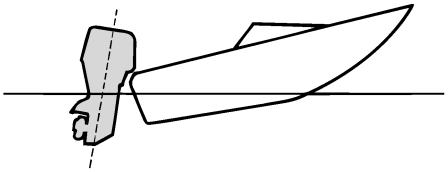
4. Make test runs with the outboard motor set at different trim angles to find the position that works best for your boat and operating conditions.

EMU40121
Adjusting boat trim
Generally, a boat is stable 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. If this occurs, adjust the trim angle.



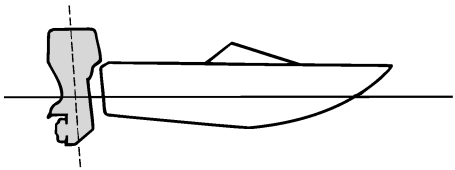
ZMU01784

Bow Up
Too much trim-out puts the bow of the boat too high in the water. 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.



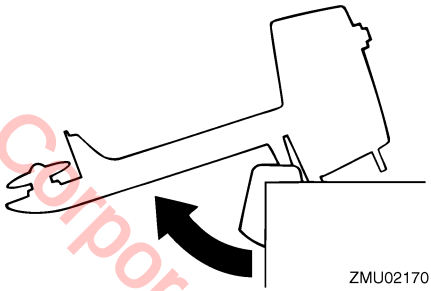
ZMU01785

Bow Down
Too much trim-in causes the boat to "plow" through the water, decreasing fuel economy and making it hard to increase speed. Resistance at the bow is greatly increased, heightening the danger of "bow steering" and making operation difficult and dangerous.



ZMU01786

EMU44132
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

EWM00222
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.

EWM02722

⚠ WARNING

Leaking fuel is a fire hazard. Close the air vent valve or 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.

ECM00231

NOTICE

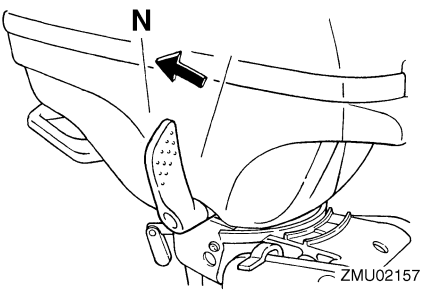
- **Before tilting the outboard motor, follow the procedure under "Stopping engine" in this chapter. Never tilt the outboard motor while the engine is running. Severe damage from overheating can result.**
- **Do not tilt up the engine by pushing the tiller handle because this could break the handle.**
- **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).**

EMU43503

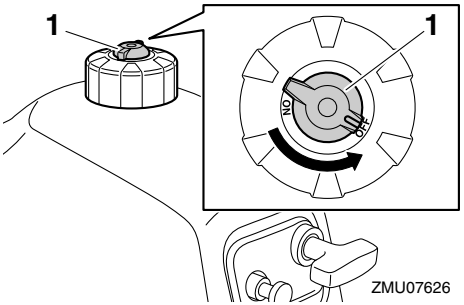
Procedure for tilting up

F2.5

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

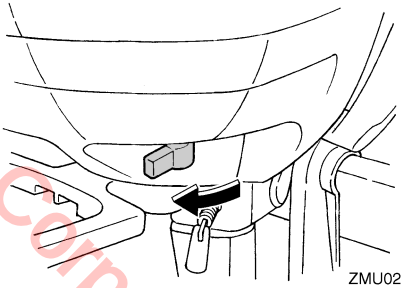


2. Tighten the steering friction adjuster by turning it clockwise to prevent the outboard motor from turning freely.
3. Close the air vent valve.

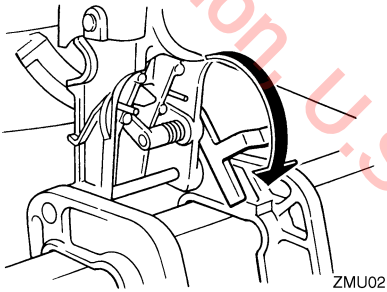


1. Air vent valve

4. Close the fuel cock.



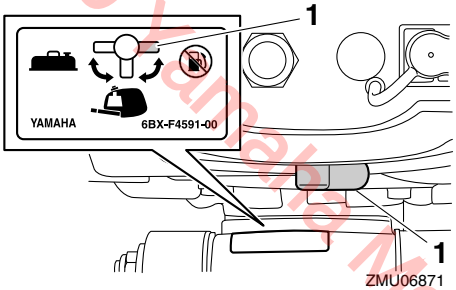
5. Hold the carrying handle and tilt the engine up fully until the tilt support lever automatically locks.



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.

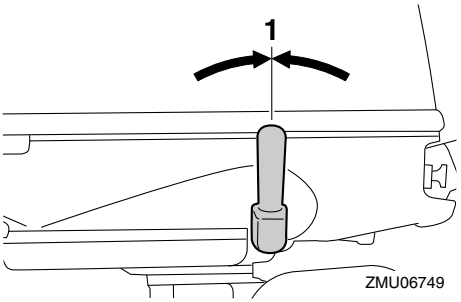
F4, F6

1. Align the fuel cock with the closed position.



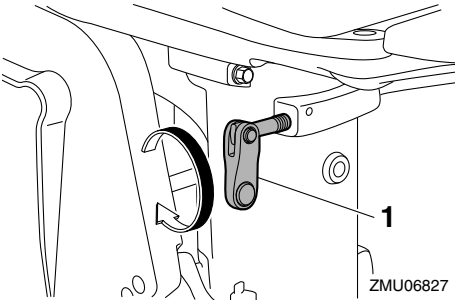
1. Closed position

2. Move the gear shift lever to the neutral position.



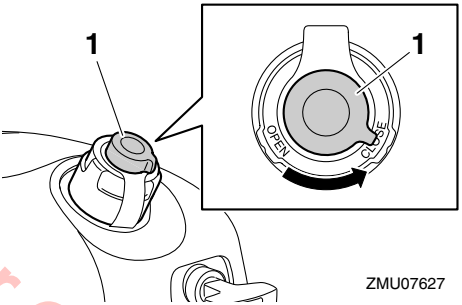
1. Neutral position

3. To prevent steering movement, turn the steering friction adjuster clockwise.



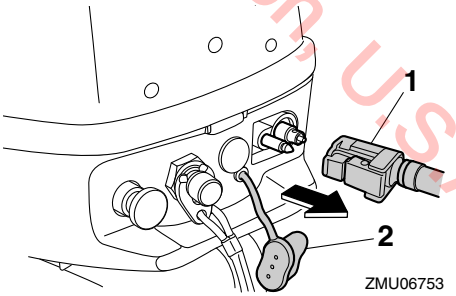
1. Steering friction adjuster

4. Close the air vent valve.



1. Air vent valve

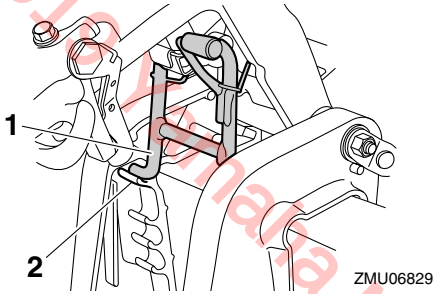
5. Disconnect the fuel hose from the fuel joint on the outboard motor, and then install the fuel joint cap. **WARNING! When not using a portable fuel tank, make sure to install the fuel joint cap. Otherwise, injury could result from striking the fuel joint accidentally.** [EWM02411]



1. Fuel hose

2. Fuel joint cap

6. Hold the rear of the top cowling and fully tilt the outboard motor up. Slightly lower the outboard motor from the fully tilted up position and fit the tilt support bar securely into the holder located on the clamp bracket.



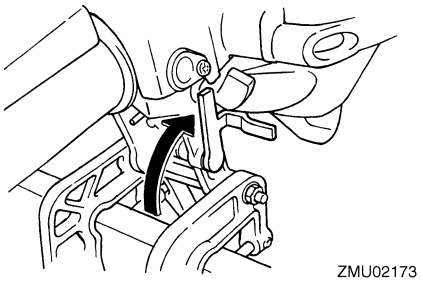
1. Tilt support bar
2. Holder

EMU42950

Procedure for tilting down

F2.5

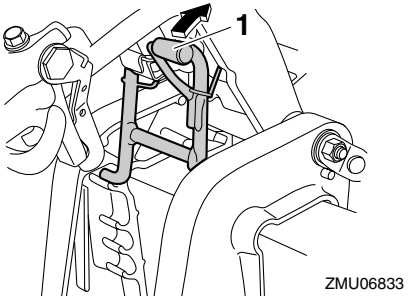
1. Slightly tilt the outboard motor up.
2. Slowly tilt the outboard motor down while pulling the tilt support lever up.



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.** [EWM00721]

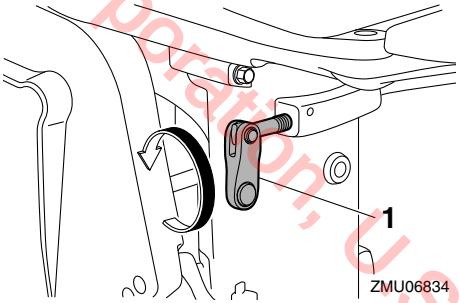
F4, F6

1. Slightly tilt the outboard motor up.
2. Slowly tilt the outboard motor down while pulling the tilt support bar up.



1. Tilt support bar

3. 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.** [EWM00721]



1. Steering friction adjuster

EMU28062

Shallow water (F4, F6)

EMU39891

Cruising in shallow water

EWM02391

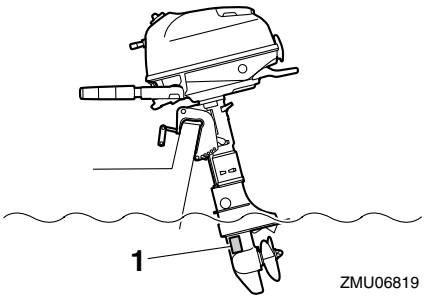
⚠ WARNING

- **Operate the boat at the lowest possible speed when cruising in shallow water. Hitting an underwater obstacle could cause the outboard motor to lift out of the water, resulting in loss of control.**
- **When cruising in shallow water, do not operate in reverse. Reverse thrust can cause the outboard motor to lift out of the water, increasing the chance of an accident and personal injury.**

ECM00260

NOTICE

Do not tilt the outboard motor up so that the cooling water inlet on the lower unit is above the surface of the water when setting up for and cruising in shallow water. Otherwise severe damage from overheating can result.

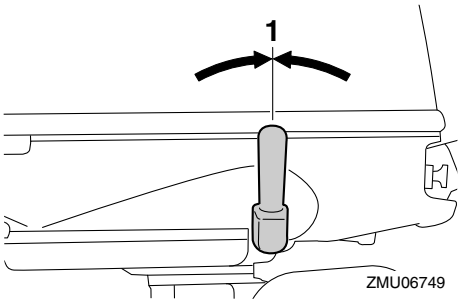


1. Cooling water inlet

EMU39583

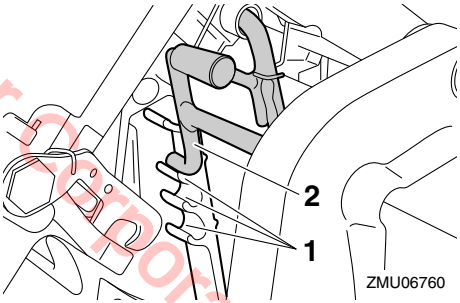
Procedure for shallow water cruising

1. Move the gear shift lever to the neutral position.



1. Neutral position

2. Hold the rear of the top cowling and slightly tilt the outboard motor up until the tilt support bar automatically locks. The outboard motor can be operated in this position for shallow water cruising. The outboard motor is equipped with 3 shallow water cruising positions.

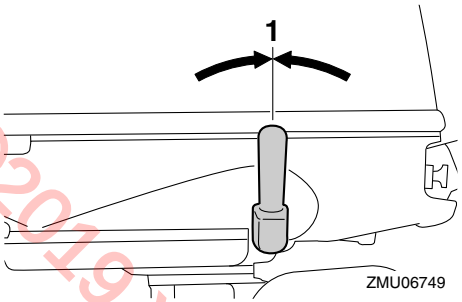


1. Shallow water cruising position
2. Tilt support bar

EMU40041

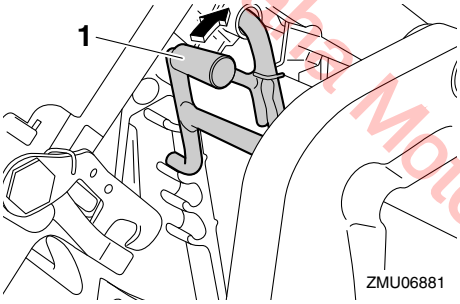
Procedure for returning to normal cruising

1. To tilt the outboard motor down to the normal running position, move the gear shift lever to the neutral position.



1. Neutral position

2. Slightly tilt the outboard motor up, and then slowly tilt the outboard motor down while pulling the tilt support bar up.



1. Tilt support bar

EMU35391

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.

EMU43015

Transporting and storing outboard motor

EWM02620

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.**

When storing or transporting the outboard motor, make sure to follow the procedure listed below.

- Disconnect the fuel hose from the fuel joint on the outboard motor and install the fuel joint cap.
- Tighten the built-in fuel tank cap until a click is heard.
- Close the air vent valve and fuel cock.
- Tighten the portable fuel tank cap and its air vent screw.
- Store the portable fuel tank in a well-ventilated place.
- Store the portable fuel tank in a place that is stable and not exposed to shocks.

When the outboard motor is tilted for a prolonged time while the boat is moored or trailered, make sure to follow the procedure listed below.

- Disconnect the fuel hose from the fuel joint on the outboard motor and install the fuel joint cap.
- Tighten the built-in fuel tank cap until a click is heard.
- Close the air vent valve and fuel cock.
- Tighten the portable fuel tank cap and its air vent screw.

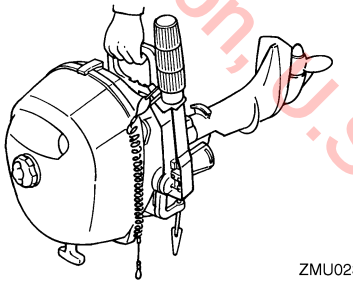
The outboard motor should be transported and stored in the normal running position. If there is insufficient road clearance in this position, then trailer the outboard motor in the tilted position using a motor support device such as a transom saver bar. Consult your Yamaha dealer for further details.

EMU43513

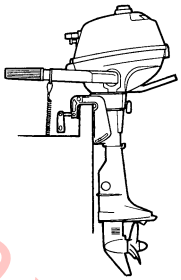
Transporting/Dismounting the outboard motor

F2.5

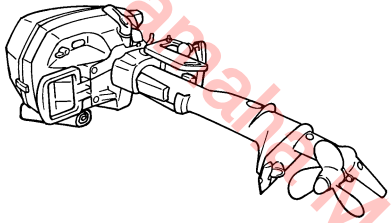
When transporting or storing the outboard motor while removed from a boat, keep the outboard motor in the attitude shown.



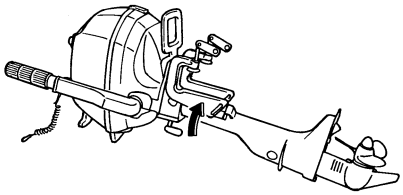
ZMU02348



ZMU02349



ZMU02350



ZMU02351

TIP:

Place a towel or something similar under the outboard motor to protect it from damage.

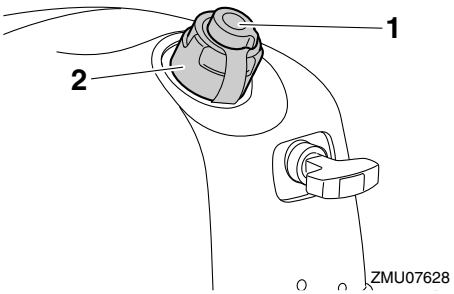
F4, F6

EWM02300

⚠ WARNING

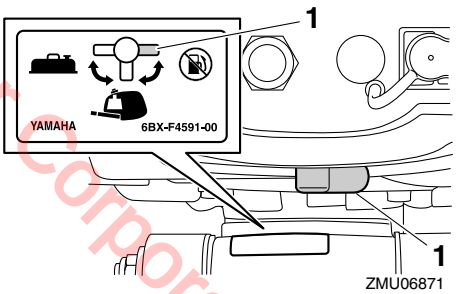
Do not hold the top cowling or tiller handle when mounting or dismounting the outboard motor. Otherwise, the outboard motor could fall.

1. Stop the engine and land the boat.
2. Tighten the fuel tank cap until a click is heard.
3. Close the air vent valve.



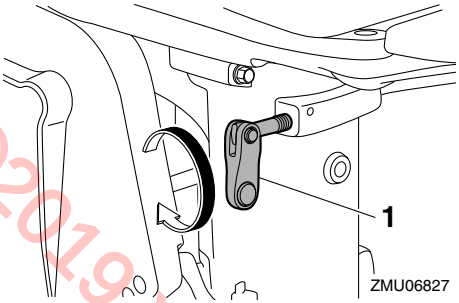
1. Air vent valve
2. Fuel tank cap

4. Align the fuel cock with the closed position.



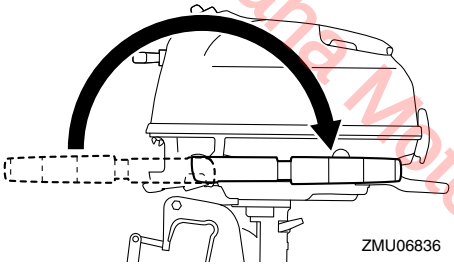
1. Closed position

5. When using a portable fuel tank, disconnect the fuel hose from the fuel joint, and then install the fuel joint cap.
6. To prevent steering movement, turn the steering friction adjuster clockwise.

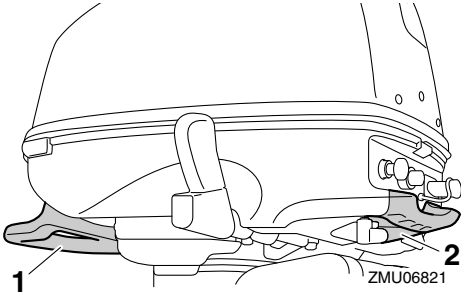


1. Steering friction adjuster

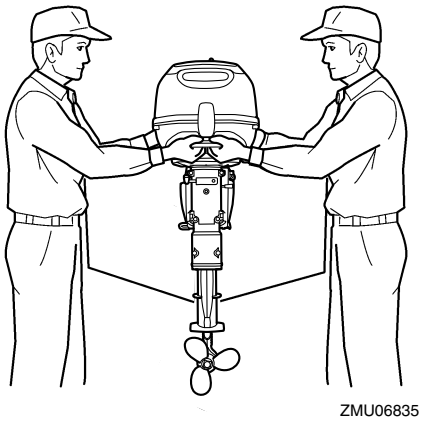
7. Turn the tiller handle 180° so that it is pointing rearward.



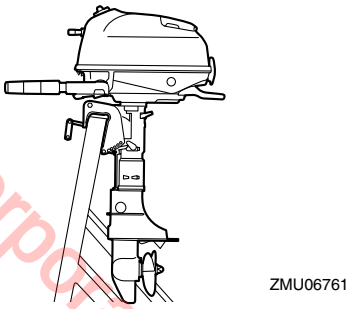
8. Loosen the clamp screws.
9. Hold the carrying handle and the handgrip on the front side of the bottom cowling and lift up the outboard motor using two people to dismount it from the boat.



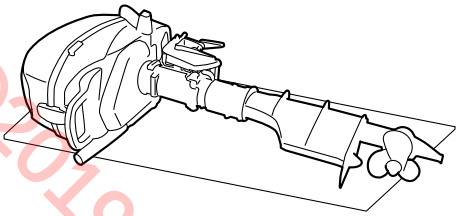
1. Carrying handle
2. Handgrip



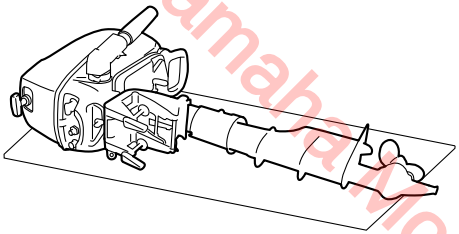
10. When transporting or storing the outboard motor while removed from a boat, use an outboard motor stand.



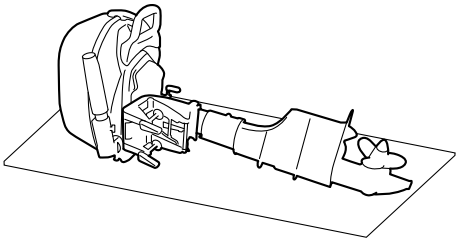
11. If transporting or storing the outboard motor horizontally cannot be avoided, tighten the clamp screws completely, place a towel or something similar under the outboard motor to protect it from damage, and then place the outboard motor in the attitude shown. If the front side of the outboard motor 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.



ZMU06806



ZMU06762



ZMU06807

EMU43661

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.

ECM02551

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 "Transporting/Dismounting the outboard motor".**
- **Store the outboard motor in a dry, well-ventilated place, not in direct sunlight.**

EMU28305

Procedure

EMU42962

Flushing in a test tank

ECM00301

NOTICE

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

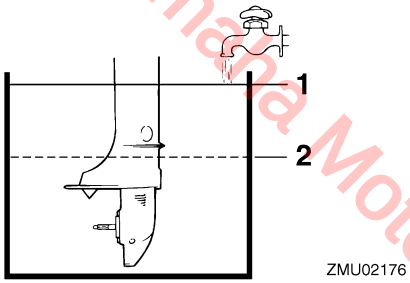
Cooling system flushing is essential to prevent the cooling system from clogging up with salt, sand, or dirt. In addition, fogging of the engine is mandatory to prevent excessive engine damage due to rust. Perform the flushing and fogging at the same time.

F2.5

1. Wash the outboard motor body using fresh water. ***NOTICE:* Do not spray water into the air intake.** [ECM01840] For further information, see page 77.
2. Fill the fuel tank with fresh fuel and add one ounce of "Yamaha Fuel Conditioner and Stabilizer" to each gallon of fuel.

TIP:
The use of "Yamaha Fuel Conditioner and Stabilizer" eliminates the need to drain the fuel system. Consult your Yamaha dealer or other qualified mechanic if the fuel system is to be drained instead.

3. Remove the engine top cowling and silencer cover.
4. Remove the propeller. For further information, see page 89.
5. Install the outboard motor on the test tank.



1. Water surface
2. Lowest water level

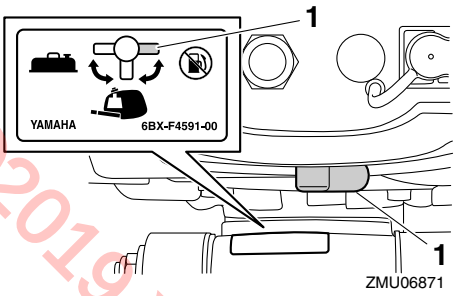
6. Fill the tank with fresh water to above the level of the anti-cavitation plate. ***NOTICE:*** **If the fresh water level is below the level of the anti-cavitation plate, or if the water supply is insufficient, engine seizure may occur.** [ECM00291]
7. Run the engine at a fast idle for 10–15 minutes in neutral position. **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.** [EWM00091]
8. Just prior to turning off the engine, quickly spray "Yamaha Stor-Rite Engine Fogging Oil" alternately into each carburetor or the fogging hole of the silencer cover, if equipped. When properly done, the engine will smoke excessively and almost stall.
9. Remove the outboard motor from the test tank.
10. Install the silencer cover/cap and top cowling.
11. Drain the cooling water completely out of the motor. Clean the body thoroughly.
12. Install the propeller. For further information, see page 89.

F4, F6

1. Wash the outboard motor body using fresh water. ***NOTICE:*** **Do not spray water into the air intake.** [ECM01840] For further information, see page 77.
2. Fill the built-in fuel tank with fresh fuel and add one ounce of "Yamaha Fuel Conditioner and Stabilizer" to each gallon of fuel.

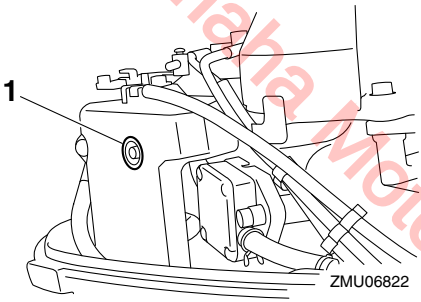
TIP:
The use of "Yamaha Fuel Conditioner and Stabilizer" eliminates the need to drain the fuel system. Consult a Yamaha dealer or other qualified mechanic if the fuel system is to be drained instead.

3. When using a portable fuel tank, disconnect the fuel hose, install the fuel joint cap, and then align the fuel cock with the closed position.



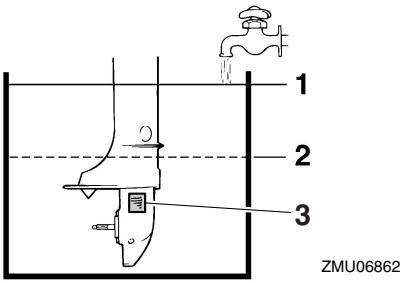
1. Closed position

4. Remove the top cowling and fogging hole cap.



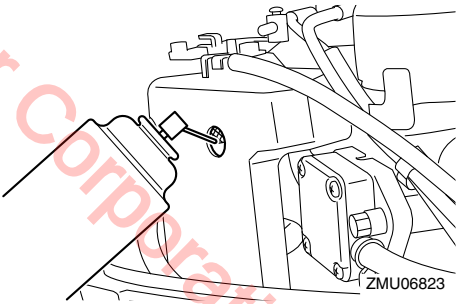
1. Cap

5. Remove the propeller. For further information, see page 89.
6. Install the outboard motor on the test tank.



1. Water surface
2. Lowest water level
3. Cooling water inlet

7. 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.** [ECM00291]
8. Start the engine, operate it for 10–15 minutes at engine idle speed. **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.** [EWM00091]
9. Quickly spray “Yamaha Stor-Rite Engine Fogging Oil” into the fogging hole of the silencer. When properly done, the engine will smoke excessively and stop.



10. Remove the outboard motor from the test tank.
11. Drain the cooling water completely out of the outboard motor. Clean the body thoroughly.
12. Install the fogging hole cap and top cowling.
13. Install the propeller. For further information, see page 89.

EMU39637
Flushing with the water flush plug (optional) (F4, F6)
ECM00301

NOTICE

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

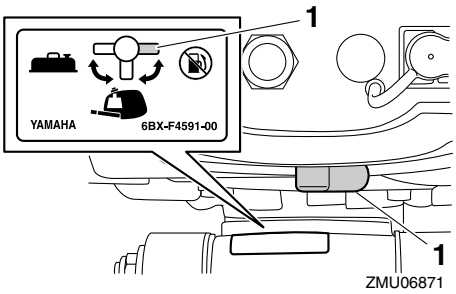
Cooling system flushing is essential to prevent the cooling system from clogging up with salt, sand, or dirt. In addition, fogging of the engine is mandatory to prevent excessive engine damage due to rust. Perform the flushing and fogging at the same time.

1. Wash the outboard motor body using fresh water. ***NOTICE:*** **Do not spray water into the air intake.** [ECM01840] For further information, see page 77.
2. Fill the built-in fuel tank with fresh fuel and add one ounce of "Yamaha Fuel Conditioner and Stabilizer" to each gallon of fuel.

TIP:

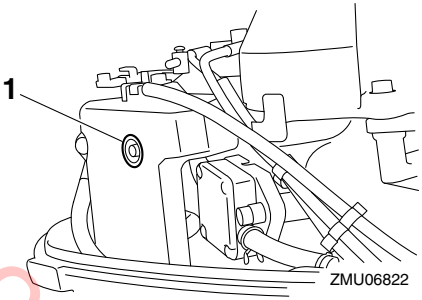
The use of "Yamaha Fuel Conditioner and Stabilizer" eliminates the need to drain the fuel system. Consult a Yamaha dealer or other qualified mechanic if the fuel system is to be drained instead.

3. When using a portable fuel tank, disconnect the fuel hose, install the fuel joint cap, and then align the fuel cock with the closed position.



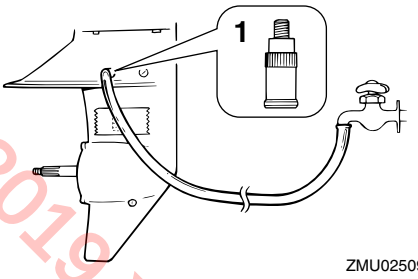
1. Closed position

4. Remove the top cowling and fogging hole cap.



1. Cap

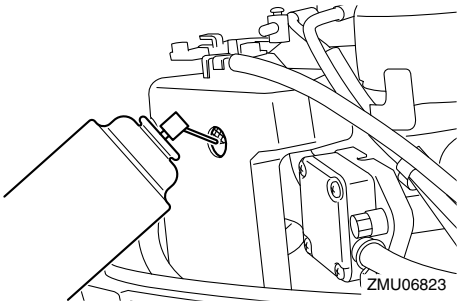
5. Remove the propeller. For further information, see page 89.
6. Remove the screw located beside the "WASH" (wash) mark on the lower case. Install the water flush plug and connect it to a fresh water tap.
7. Cover the cooling water inlet with tape.



ZMU02509

1. Water flush plug

8. Turn on the water supply to the outboard motor.
9. Start the engine, operate it for 10–15 minutes at engine idle speed. **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.** [EWM00091]
10. Quickly spray "Yamaha Stor-Rite Engine Fogging Oil" into the fogging hole of the silencer. When properly done, the engine will smoke excessively and stop.


ZMU06823

11. Turn off the water supply to the outboard motor, and then remove the water flush plug and tape.
12. Install the fogging hole cap and top cowling.
13. Install the propeller. For further information, see page 89.

EMU39280
Lubrication

1. Install the spark plug and torque to proper specification. For information on spark plug installation, see page 83.
2. Change the gear oil. For instructions, see page 90. Inspect the oil for the presence of water that indicates a leaky seal. Seal replacement should be performed by an authorized Yamaha dealer prior to use.
3. Grease all grease fittings. For further details, see page 81.

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

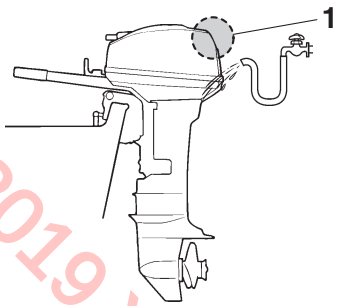
EMU30267
Cleaning and anticorrosion measures

1. Wash down the exterior of the outboard motor with fresh water and dry off completely. ***NOTICE:*** **Do not spray water into the air intake.** [ECM01840] For further information, see page 77.
2. Spray the outboard motor exterior with "Yamaha Silicone Protectant". ***NOTICE:*** **Do not spray when the engine is running. Also, do not spray near the silencer or into the engine. Otherwise the engine could be damaged.** [ECM01402]
3. Wax the cowling with a non-abrasive wax such as "Yamaha Silicone Wax".

EMU44340
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.** [ECM01840]



ZMU07862

1. Air intake

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

EMU28461

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. A touch-up paint is available from your Yamaha dealer.

EMU37081

Periodic maintenance

EWM01981

⚠ 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.**

Maintenance, replacement, or repair of the emission control devices and systems may be performed by any marine engine repair establishment or individual. All warranty repairs, however, including those to the emission control system, must be performed by an authorized Yamaha marine dealership.

A service manual is available for purchase through your Yamaha dealer for owners who have the mechanical skills, tools, and other equipment necessary to perform maintenance not covered by this owner's manual.

EMU28511

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.

EMU35521

Maintenance interval guidelines

The service intervals provided in the Maintenance Chart were developed based upon "typical" use that includes operating at varied speeds, with sufficient time for engine warm up and cool-down, a medium to light load, and an average cruising speed near the 3000 to 4000 rpm range. As with any engine, however, if your normal operating conditions are different, you should consider service more often than shown, especially how often you change your engine oil and gear oil. Examples might include extended wide-open-throttle use or long periods of trolling or idling, carrying heavy loads, or frequent starting and stopping or shifting. More frequent mainte-

nance will often pay off many times over in increased engine life and greater owner satisfaction. Consult your Yamaha dealer for additional maintenance recommendations.

EMU34446

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		
		20 hours (3 months)	100 hours (1 year)	300 hours (3 years)	500 hours (5 years)
Anode (external)	Inspection or replacement as necessary		●/○		
Anode (thermostat cover)	Inspection or replacement as necessary		○		
Cooling water leakage	Inspection or replacement as necessary	○	○		
Cowling lock lever	Inspection		●/○		
Engine starting condition/noise	Inspection	●/○	●/○		
Engine idle speed/noise	Inspection	○	○		
Engine oil	Replacement	●/○	●/○		
Engine oil filter (crankcase) (F4, F6)	Inspection, cleaning or replacement as necessary		○		
Fuel filter (disposal type) (F4, F6)	Replacement		○		
Fuel filter (inside built-in fuel tank)	Inspection and cleaning as necessary		○		
Fuel line	Inspection	●	●		

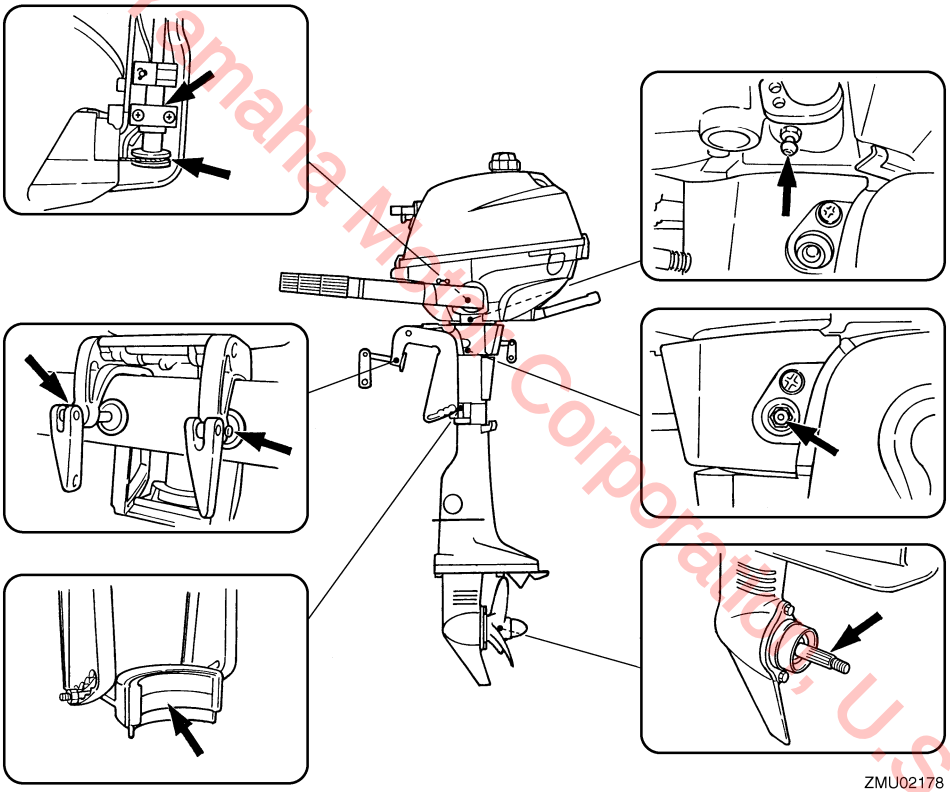
Item	Actions	Initial	Every		
		20 hours (3 months)	100 hours (1 year)	300 hours (3 years)	500 hours (5 years)
Fuel line	Inspection or replacement as necessary	○	○		
Fuel pump (F4, F6)	Inspection or replacement as necessary			○	
Fuel/engine oil leakage	Inspection	○	○		
Gear oil	Replacement	●/○	●/○		
Greasing points	Greasing	●/○	●/○		
Impeller/water pump housing	Inspection or replacement as necessary		○		
Impeller/water pump housing	Replacement			○	
Propeller/propeller nut/cotter pin	Inspection or replacement as necessary	●/○	●/○		
Shift link	Inspection, adjustment or replacement as necessary	○	○		
Spark plug	Inspection or replacement as necessary		●/○		
Spark plug cap/spark plug wire	Inspection or replacement as necessary	○	○		
Water from the cooling water pilot hole	Inspection	●/○	●/○		
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	●/○	●/○		
Stop switch	Inspection or replacement as necessary	○	○		
Connector connections/lead connections	Inspection or replacement as necessary	○	○		
Fuel tank (optional Yamaha portable fuel tank) (F4, F6)	Inspection and cleaning as necessary		○		
Fuel tank (built-in tank)	Inspection and cleaning as necessary		○		

EMU34451
Maintenance chart 2

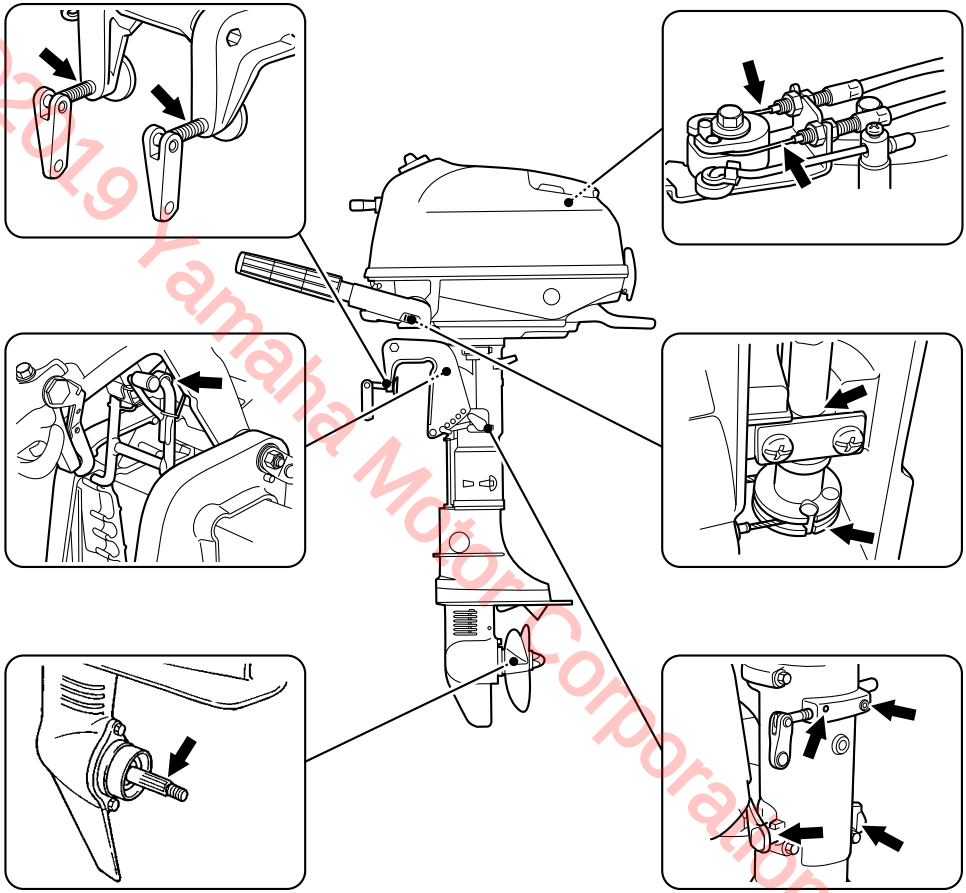
Item	Actions	Every
		1000 hours
Exhaust guide/exhaust manifold	Inspection or replacement as necessary	○

EMU28943
Greasing
Yamaha grease A (water resistant grease)
Yamaha grease D (corrosion resistant grease; for propeller shaft)

F2.5



F4, F6

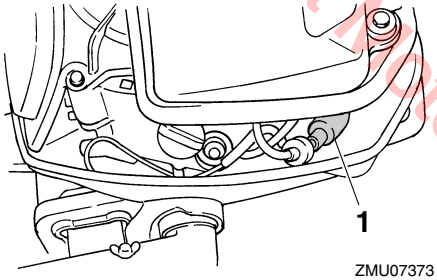


EMU39293
Cleaning and adjusting spark plug

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 inspect the spark plug because heat and deposits will cause the spark plug to slowly break down and erode.

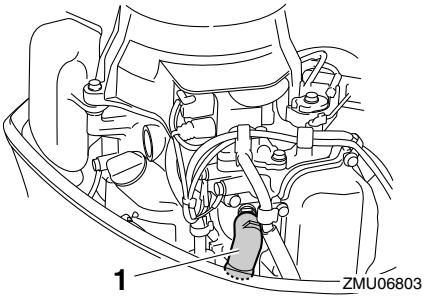
1. Remove the spark plug cap from the spark plug.

F2.5



1. Spark plug cap

F4, F6

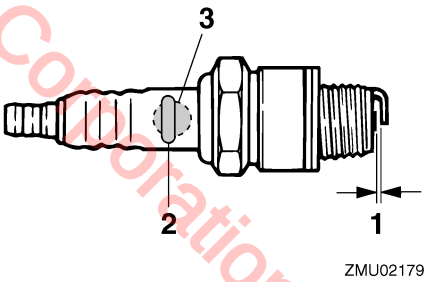


1. Spark plug cap

2. Remove the spark plug. If electrode erosion becomes excessive, or if carbon and other deposits are excessive, you should replace the spark plug with another of the correct type. **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.** [EWM00561]

Standard spark plug:
F2.5MHA BR6HS
F4MHA CR6HSB
F6MHA CR6HSB

3. Be sure to use the specified spark plug, otherwise the engine may not operate properly. Before fitting the spark plug, measure the electrode gap with a wire thickness gauge; replace it if out of specification.



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)

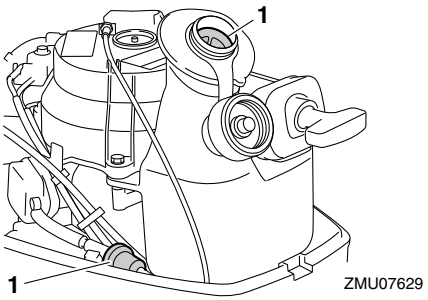
4. When fitting the plug, wipe off any dirt from the threads, and then screw it in to the correct torque.

Spark plug torque:
F2.5MHA 25 Nm (2.55 kgf-m, 18.4 ft-lb)
F4MHA 13 Nm (1.33 kgf-m, 9.6 ft-lb)
F6MHA 13 Nm (1.33 kgf-m, 9.6 ft-lb)

TIP:
If a torque-wrench is not available when you are fitting a spark plug, a good estimate of the correct torque is 1/4 to 1/2 a turn past finger-tight. Have the spark plug adjusted to the correct torque as soon as possible with a torque-wrench.

EMU42462
Checking fuel filter (F2.5)
For cleaning or replacement of the fuel filters at the intervals specified in the periodic maintenance chart, consult a Yamaha dealer.

EMU39921
Checking fuel filter (F4, F6)
The fuel filters are located in the filler hole of the built-in fuel tank and in the bottom cowling. Check the fuel filters periodically. If foreign material is found in the filters, clean or replace them. For cleaning or replacement of the fuel filters, consult a Yamaha dealer.



ZMU07629

1. Fuel filter

EMU40140
Inspecting idle speed
ECM02230

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.

EMU42911
Changing engine oil
F2.5
Change the engine oil several minutes after the engine has been stopped, so that the oil is still warm, but not hot.

EWM01950

⚠ WARNING

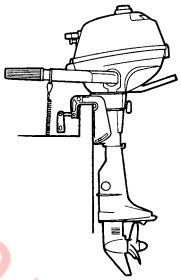
Be sure the outboard motor is securely fastened to the transom or a stable stand.

ECM01710

NOTICE

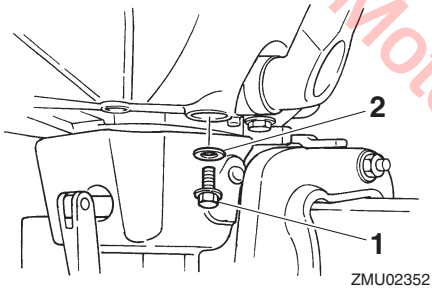
Change the engine oil after the first 20 hours of operation or 3 months, and every 100 hours or at 1-year intervals thereafter. Otherwise the engine will wear quickly.

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.** [ECM01861]



ZMU02349

2. Prepare a suitable container that holds a larger amount than the engine oil capacity. Loosen and remove the drain screw and gasket while holding the container under the drain hole. Then remove the oil filler cap. Let the oil drain completely. Wipe up any spilled oil immediately.



ZMU02352

1. Drain screw
2. Gasket

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

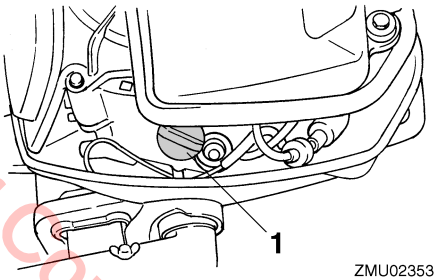
Drain screw tightening torque:
18 Nm (1.84 kgf-m, 13.3 ft-lb)

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.

4. Add the correct amount of oil through the filler hole. Install the filler cap. ***NOTICE:*** **Overfilling the oil could cause leakage or damage. If the oil level is above the upper level mark, drain until the level meets the specified capacity.** [ECM01850]

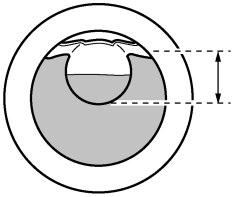
Recommended engine oil: YAMALUBE 4M FC-W or 4-stroke outboard motor oil Engine oil quantity: 0.4 L (0.42 US qt, 0.35 Imp.qt)



ZMU02353

1. Oil filler cap

5. Turn off the engine and wait 3 minutes. Recheck the oil level using the oil level check window to be sure the level falls between the upper and lower marks. Fill with oil if it is below the lower mark, or drain to the specified level if it is above the upper mark.



ZMU02354

6. 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.

F4, F6

EWM00760

⚠ 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.**

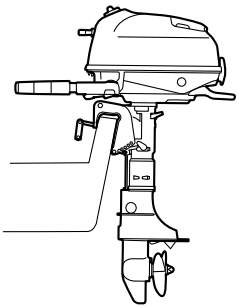
ECM01710

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.

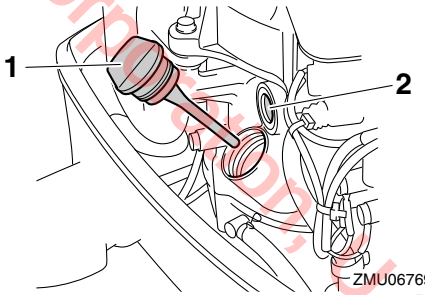
To prevent spilling oil where it could cause damage to nature, it is strongly recommended that you use an oil changer to change the engine oil. If an oil changer is not available, drain the engine oil by removing the drain screw. If you are not familiar with the procedure for changing the engine oil, 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.** [ECM01861]



ZMU06766

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.

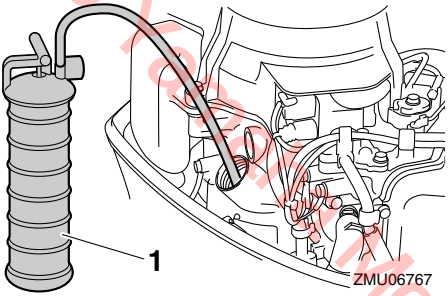


ZMU06769

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.

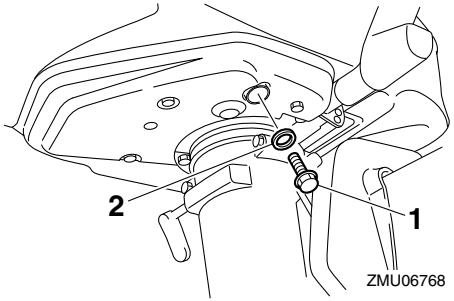
6. Insert the tube of the oil changer into the oil filler hole, and then extract the engine oil completely using the oil changer.



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 Nm (1.84 kgf-m, 13.3 ft-lb)

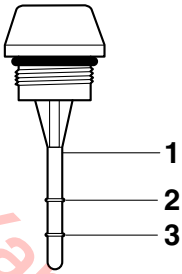
TIP:
If a torque wrench is not available when you are installing the drain screw, finger tighten the screw just until the gasket comes into contact with the surface of the drain hole. Then tighten 1/4 to 1/2 turn more. Tighten the drain screw to the correct torque with a torque wrench as soon as possible.

9. Add the correct amount of oil through the filler hole. ***NOTICE:*** **Overfilling the oil tank 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.** [ECM02181]
10. Install the oil filler cap and tighten it completely.

Recommended engine oil:
YAMALUBE 4M FC-W or 4-stroke outboard motor oil
Engine oil quantity:
0.6 L (0.63 US qt, 0.53 Imp.qt)

11. Leave the outboard motor for 5-10 minutes.
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. 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.** [ECM02150]
16. 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.

17. Install the top cowling.

EMU39771

Checking connector and lead

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.

EMU39301

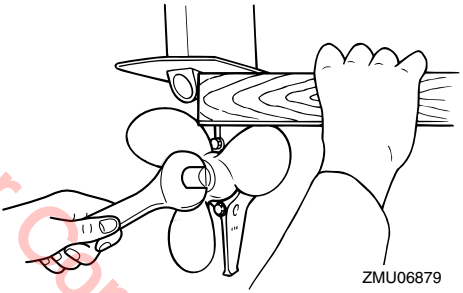
Checking propeller

EWM02280

WARNING

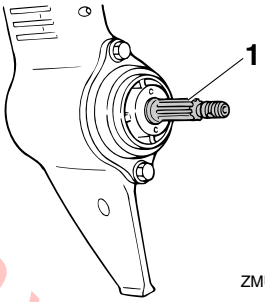
You could be seriously injured if the engine accidentally starts when you are near the propeller. Before inspecting, removing, or installing the propeller, place the gear shift lever in neutral, and remove the clip from the engine shut-off switch.

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.



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.
- Check the propeller shaft oil seal for damage.

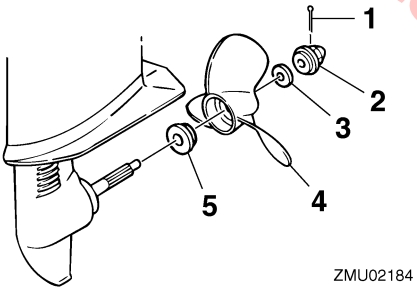


ZMU06777

1. Propeller shaft

EMU30662
Removing propeller
EMU39310
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.** [EWM01890]



ZMU02184

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

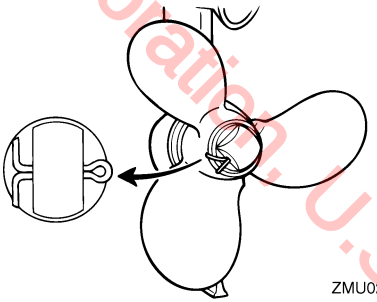
3. Remove the propeller and thrust washer.

EMU30672
Installing propeller
EMU39323
Spline models
ECM00501

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 Yamaha grease D (corrosion resistant grease) into 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.** [ECM01881]
3. Install the washer and tighten the propeller nut until there is no looseness in the propeller.
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.** [ECM01891]



ZMU02185

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.

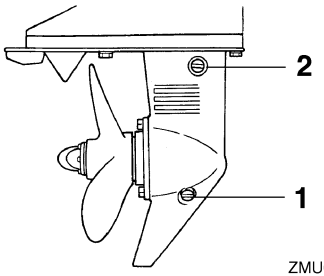
EMU39784
Changing gear oil
EWM02350

⚠ 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.

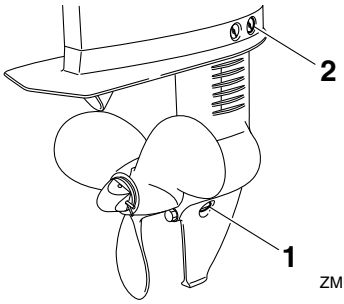
F2.5



ZMU02186

1. Gear oil drain screw
2. Oil level plug

F4, F6



ZMU06779

1. Gear oil drain screw
2. Oil level plug

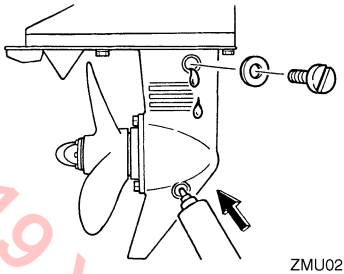
4. Remove the oil level plug and gasket to allow the oil to drain completely. ***NOTICE:*** **Check the used gear oil after it has been drained. If the gear oil is milky or contains water or a large amount of metal particles, the gear case may be damaged. Have a Yamaha dealer check and repair the outboard motor.** [ECM00713]

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.

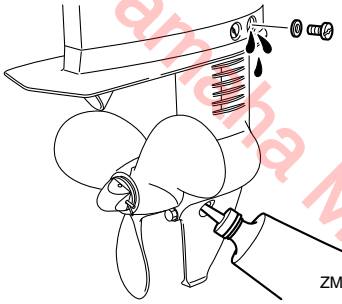
Recommended gear oil:
Yamalube Marine Gearcase Lube or Hypoid gear oil
Recommended gear oil grade:
SAE 90 API GL-4
Gear oil quantity:
F2.5MHA 0.075 L (0.079 US qt, 0.066 Imp.qt)
F4MHA 0.100 L (0.106 US qt, 0.088 Imp.qt)
F6MHA 0.100 L (0.106 US qt, 0.088 Imp.qt)

F2.5



ZMU02187

F4, F6



ZMU06780

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: 9 Nm (0.92 kgf-m, 6.6 ft-lb)

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

Tightening torque: 9 Nm (0.92 kgf-m, 6.6 ft-lb)

EMU39332

Inspecting and replacing anode (external)

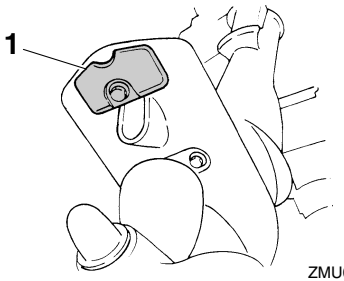
Yamaha outboard motors are protected from corrosion by sacrificial anode. Inspect the external anode periodically. Remove scales from the surface of the anode. Consult a Yamaha dealer for replacement of the external anode.

ECM00720

NOTICE

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

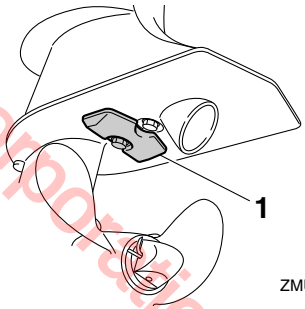
F2.5



ZMU07374

1. Anode

F4, F6



ZMU06781

1. Anode

EMU44021

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 fuel pump malfunctioning?
A. Have serviced by a Yamaha dealer.

Q. Is spark plug fouled or of 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 fuel pump malfunctioning?
A. Have serviced by a Yamaha dealer.

Q. Is air vent valve closed?

A. Open air vent valve.

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 of 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 valve closed?
A. Open air vent valve.

Q. Is fuel pump malfunctioning?
A. Have serviced by a Yamaha dealer.

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.

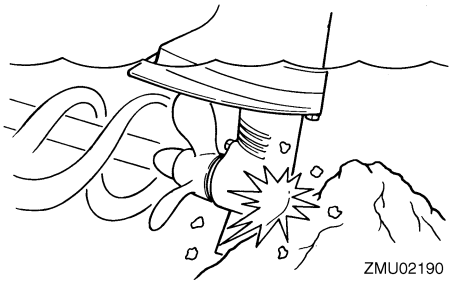
EMU29433
Temporary action in emergency

EMU29441
Impact damage

EWM00870
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.

EMU43680
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.

EMU42921
Emergency engine starting

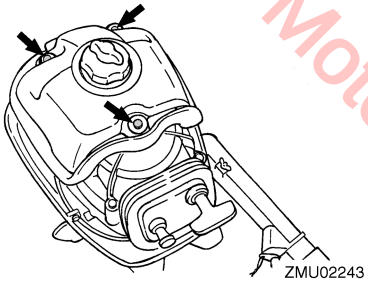
F2.5

EWM01452
WARNING

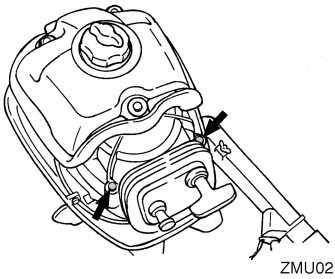
- **Use this procedure only in an emergency to return to the nearest port for repairs.**
- **Make sure the remote control lever is in neutral. Otherwise the boat could unexpectedly start to move, which could result in an accident.**
- **Attach the engine shut-off cord to a secure place on your clothing, 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.**

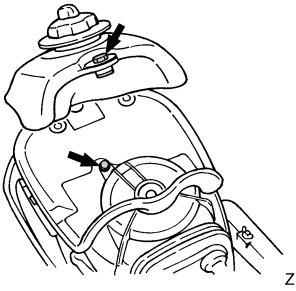
1. Remove the top cowling.
2. Remove the bolts from the fuel tank.


ZMU02243

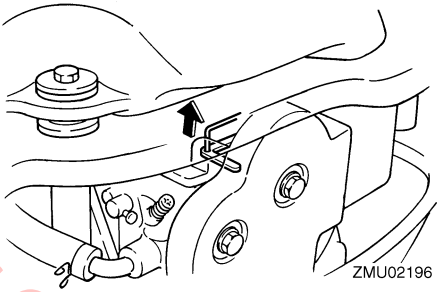
3. Remove the bolts from the starter case.


ZMU02191

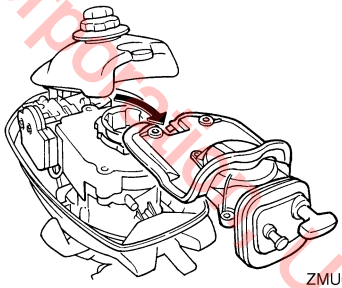
4. While lifting the fuel tank up, remove the bolt from the starter case.
5. Remove the collar.


ZMU02194

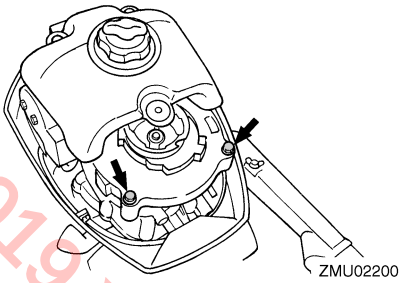
6. While lifting the starter case up, disconnect the choke wire from the carburetor.


ZMU02196

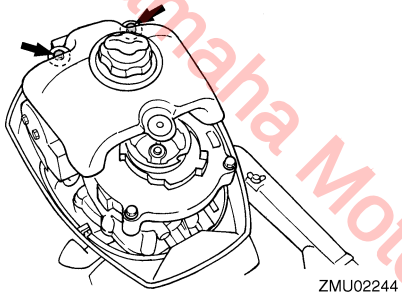
7. Remove the starter case by pulling it towards you.


ZMU02198

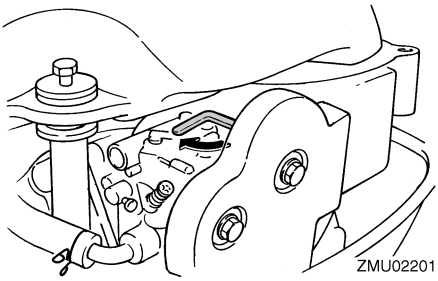
8. Install the fuel tank bracket by installing the bolts.


ZMU02200

9. Install 2 bolts into the rear section of the fuel tank.


ZMU02244

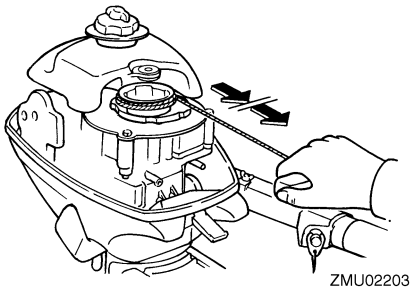
10. Prepare the engine for starting; see page 54. Be sure the engine is in neutral and that the clip is attached to the engine shut-off switch.
11. Turn the lever on the carburetor to operate the choke system when the engine is cold. After the engine starts, return the lever to the original position.


ZMU02201

12. While lifting the fuel tank, insert the knotted end of the emergency starter rope into the notch in the flywheel rotor and wind the rope several turns clockwise.

TIP:
If the rope is too long after winding it around the flywheel, shorten its length at the handle.

13. Pull the rope slowly until resistance is felt.
14. Give a strong pull straight out to crank and start the engine. Repeat if necessary.


ZMU02203

F4, F6

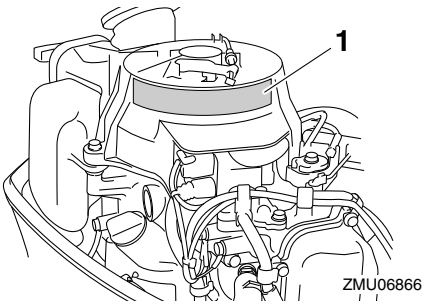
EWM02361

⚠ WARNING

- **Use this procedure only for emergency engine starting to return to the nearest port for repairs.**
- **When the emergency starter rope is used to start the engine, the start-in-gear protection device does not operate. Make sure that the shift lever is in the neutral position. 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.**

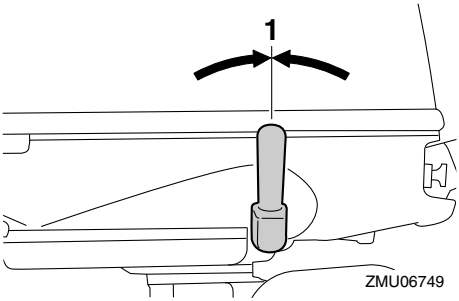
- **Avoid accidentally pulling the cord during normal operation. Loss of engine power means the loss of most steering control. Also, without engine power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.**
- **Make sure that no one is standing behind 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 outboard motor. You could get an electrical shock.**

Before performing the following procedure, make sure to read the emergency starting label on the manual starter/flywheel magnet cover.



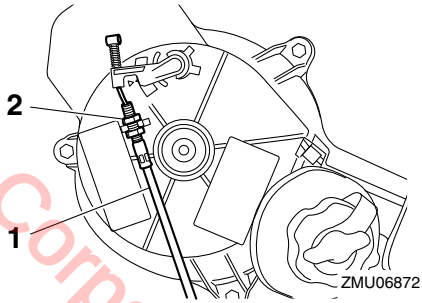
1. Emergency starting label

1. Move the gear shift lever to the neutral position.



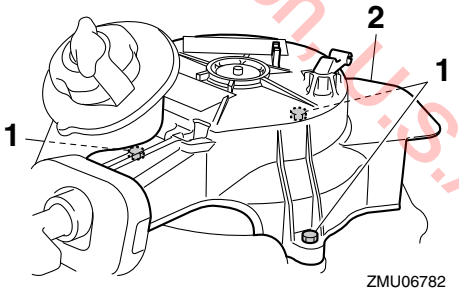
1. Neutral position

2. Remove the top cowling.
3. Loosen the nut, and then disconnect the start-in-gear protection cable.



1. Start-in-gear protection cable
2. Nut

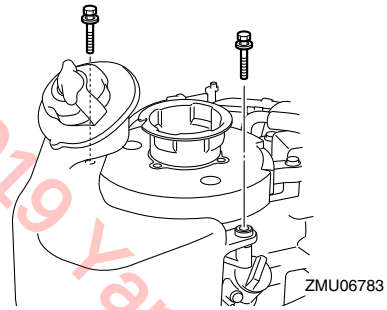
4. Remove the manual starter/flywheel magnet cover by removing the bolts.



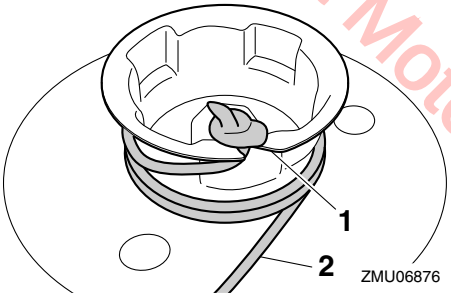
1. Bolts

2. Manual starter/flywheel magnet cover

5. Reinstall 2 bolts to secure the fuel tank.


ZMU06783

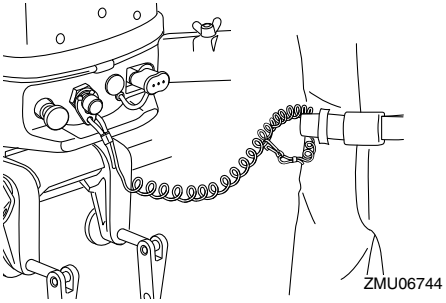
6. Insert the knotted end of the emergency starter rope into the notch in the flywheel magnet and wind the rope several turns around the flywheel magnet clockwise.



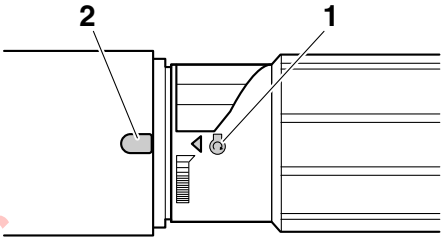
ZMU06876

1. Notch
2. Emergency starter rope

7. 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.


ZMU06744

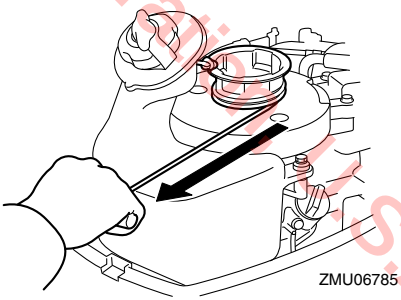
8. Align the engine start mark "⏻" on the throttle grip with the notch in the tiller handle.



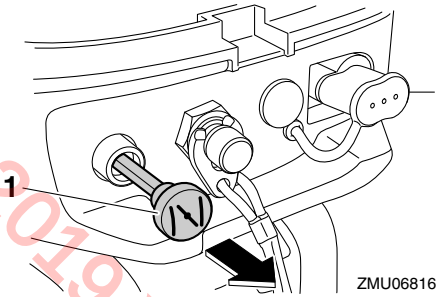
ZMU06808

1. Start mark "⏻"
2. Notch

9. Give a strong pull straight out to crank and start the engine.


ZMU06785

TIP:
If the engine does not start after several attempts, pull out the choke knob.



1. Choke knob

EMU33501

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.** [ECM00401]

EMU29836

YAMAHA FOUR-STROKE OUTBOARD MOTOR THREE-YEAR LIMITED WARRANTY

Yamaha Motor Corporation, U.S.A. and Yamaha Motor Canada Ltd. ("Yamaha") hereby warrant that new Yamaha four-stroke outboard motors will be free from defects in material and workmanship for the period of time stated herein, subject to certain stated limitations.

PERIOD OF WARRANTY. Any new Yamaha four-stroke outboard motor purchased from an authorized Yamaha dealer in the customer's country of residence (United States or Canada) and registered with Yamaha will be warranted against defects in material or workmanship, subject to exclusions noted herein, for the following applicable period determined by type of use:

- Pleasure use – three (3) years from the date of purchase.
- Commercial application – one (1) year from the date of purchase. A commercial application is defined as any use of the outboard motor to generate income (excluding tournament fishing) or support business operations in any way during the warranty period, without regard to the type or percentage of commercial use. Yamaha reserves the right to modify incorrect registration data and reduce the warranty period to reflect commercial use.
- Yamaha peripheral equipment included with the motor, such as gauges, fuel tanks, and hoses, remote control boxes, and wiring external from the motor unit, will be warranted for one (1) year from the date of purchase for either pleasure or commercial use.

Replacement parts used in warranty repairs will be warranted for the balance of the applicable warranty period.

The second and third year of warranty (if applicable) shall be limited to covering the cost of parts and labor for major components only. The major components covered are:

Power Unit Section

- Power Head
- Intake Manifold
- Carburetor Assembly and its Related Components
- Fuel Injection System and its Related Components
- Fuel and Oil Pump Assemblies
- Ignition System (Standard and Microcomputer)

Lower Unit Section Bracket Section

- Exhaust System
- Bracket System
- Upper Casing
- Power Trim and Tilt Assembly
- Lower Unit Assembly

WARRANTY REGISTRATION. To be eligible for warranty coverage, the outboard motor must be registered with Yamaha in the country of residence. Warranty registration can be accomplished by any authorized Yamaha Outboard Motor Dealer.

OBTAINING REPAIRS UNDER WARRANTY. During the period of warranty, any authorized Yamaha Outboard Motor Dealer in the country of residence will, free of charge, repair or replace, at Yamaha's option, any parts adjudged defective by Yamaha due to faulty workmanship or material from the factory. All replaced parts will become the property of Yamaha. If the customer is temporarily using a U.S.-registered outboard motor in Canada, or a Canada-registered outboard motor in the United States, and it needs warranty repairs, the owner should contact a nearby authorized Yamaha Outboard Motor Dealer for assistance. The local dealer will contact Yamaha on the owner's behalf so that needed repairs can be made as quickly as possible.

CUSTOMER'S RESPONSIBILITY. Under the terms of this warranty, the customer will be responsible for ensuring that the outboard motor is properly operated, maintained, and stored as specified in the applicable Owner's Manual. The owner of the outboard motor shall give notice to an authorized Yamaha Outboard Motor Dealer of any and all apparent defects within ten (10) days of discovery and make the motor available at that time for inspection and repairs at the dealer's place of business.

ZMU07048

GENERAL EXCLUSIONS FROM WARRANTY. This warranty will not cover the repair of damage if the damage is a result of abuse or neglect of the product. Examples of abuse and neglect include, but are not limited to:

1. Racing or competition use, modification of original parts, abnormal strain.
2. Lack of proper maintenance and off season storage as described in the Owner's Manual; installation of parts or accessories that are not equivalent in design and quality to genuine Yamaha parts.
3. Operation of the motor at an rpm other than specified, use of lubricants or oils that are not suitable for outboard motor use.
4. Damage as a result of accidents, collisions, contact with foreign materials, or submersion.
5. Growth of marine organism on motor surfaces.
6. Normal deterioration.

SPECIFIC PARTS EXCLUDED FROM WARRANTY. Parts replaced due to normal wear or routine maintenance such as oil, spark plugs, shear pins, propellers, hubs, fuel and oil filters, brushes for the starter motor and power tilt motor, water pump impellers, and anodes, are not covered by warranty. Charges for removal of the motor from a boat and transporting the motor to and from an authorized Yamaha Outboard Motor Dealer are excluded from warranty coverage.

Specific parts excluded from the second and third year of warranty (if applicable) are:

- Top and Bottom Cowling
- Electric Components (other than ignition system)
- Rubber Components (such as hoses, tubes, rubber seals, fittings, and clamps)

EMISSION CONTROL WARRANTY (United States only). Yamaha warrants to the ultimate purchaser and any subsequent owner, that the emission control components on this engine are designed, built and equipped so as to conform at the time of sale with applicable regulations under section 213 of the Clean Air Act and that this engine is covered against defects in materials and workmanship which cause said engine to fail to conform with applicable exhaust emission regulations for five (5) years from the date of purchase or 175 hours of operation, whichever comes first. Evaporative components (e.g., hoses, fuel tank, fuel cap) are two (2) years from the date of purchase. Some states have different emission control warranty provisions. As these vary from state to state, consult your Yamaha dealer or contact Yamaha Customer Relations at 1-866-894-1626 for more information.

TRANSFER OF WARRANTY Transfer of the warranty from the original purchaser to any subsequent purchaser is possible by having the motor inspected by an authorized Yamaha Outboard Motor Dealer and requesting the dealer to submit a change of registration to Yamaha within ten (10) days of the transfer.

YAMAHA MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE OBLIGATIONS AND TIME LIMITS STATED IN THIS WARRANTY ARE HEREBY DISCLAIMED BY YAMAHA AND EXCLUDED FROM THIS WARRANTY. SOME STATES/PROVINCES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU. ALSO EXCLUDED FROM THIS WARRANTY ARE ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING LOSS OF USE. SOME STATES/PROVINCES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE/PROVINCE TO PROVINCE.

ZMU07047

EMU29845

IMPORTANT WARRANTY INFORMATION IF YOU USE YOUR YAMAHA OUTSIDE THE U.S.A. OR CANADA

Welcome to the Yamaha Family!

Congratulations on the purchase of your new Yamaha products. Yamaha is committed to exceptional customer satisfaction and we want your ownership experience to be a satisfying one. Please read the following warranty information to help ensure satisfaction with your Yamaha.

This model was manufactured with specifications appropriate for sale and use in the U.S.A. and Canada. Please note the following information:

1. As explained in the Limited Warranty Statement, the Yamaha warranty covers your Yamaha when it is registered and used in your country of residence. If you are temporarily using a U.S.-registered outboard motor in Canada, or a Canada-registered outboard motor in the United States, and it needs warranty repairs, you should contact a nearby authorized Yamaha Outboard Motor Dealer for assistance. The local dealer will contact Yamaha on the owner's behalf so that needed repairs can be made as quickly as possible.
2. If you need repairs while temporarily using your Yamaha in another country, contact the local authorized Yamaha distributor for that country. Yamaha will work with that distributor to make the needed repairs as quickly as possible. If you have to pay for a repair that you believe your warranty would have covered at home, present all repair orders, receipts, or other related documents to your local dealer when you return home. He will be able to contact Yamaha on your behalf to see if any refund can be provided.

TIP:
Your Yamaha model may not be sold in some countries. Therefore, a Yamaha dealer outside the United States or Canada may not have all of the replacement parts or technical information available to provide proper service. This may unavoidably delay repairs. Thank you for your understanding should this happen.

3. If your Yamaha is registered or used primarily outside the United States or Canada, the warranty printed in this manual does not apply to you. Contact the dealer who sold the Yamaha marine power unit to you for customer support information.

ZMU05199

EMU43021

For your best ownership experience, think **Genuine Yamaha!**

Genuine Yamaha Parts — Genuine Yamaha replacement parts are the exact same parts as the ones originally equipped on your vehicle, providing you with the performance and durability you have come to expect. Why settle for aftermarket parts that may not provide full confidence and satisfaction?

Genuine Yamaha Accessories — Yamaha only offers accessories that meet our high standards for quality and performance. Buy with confidence, knowing your Genuine Yamaha Accessories will fit right and perform right — right out of the box.

Yamalube — Take care of your Yamaha with legendary Yamalube oils, lubricants, and care products. They're formulated and approved by the toughest judges we know: the Yamaha engineering teams that know your Yamaha from the inside out.

Genuine Yamaha Service Manuals — Get the same factory manual for your vehicle that the technicians at your authorized Yamaha dealer use. Service manuals are available through your Yamaha dealer or you can order them directly through yamahapubs.com (USA only).

Genuine Yamaha products are available only from your Yamaha dealer.

Find out more at yamaha–motor.com

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