

Owner's Manual

Outboard Motor Series

● **5F**

● **4F**



Important manual information

To the owner

Thank you for choosing our 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 our motor. If you have any question about the operation or maintenance of your outboard motor, please consult our dealer.

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

⚠ The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠ WARNING

Failure to follow WARNING instructions could result in severe injury or death to the machine operator, a bystander, or a person inspecting or repairing the outboard motor.

CAUTION

A CAUTION indicates special precautions that must be taken to avoid damage to the outboard motor.

NOTE:

A NOTE provides key information to make procedures easier or clearer. To ensure long product life, We recommend that you use the product and perform the specified periodic inspections and maintenance by correctly following the instructions in the owner's manual. Note that if you do not follow these instructions, not only may the product break down, but the warranty will also be voided.

NOTE:

The 5FAMH 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.

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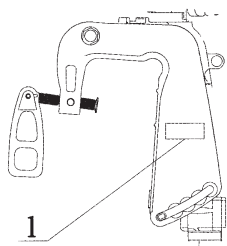
General information

Identification numbers record

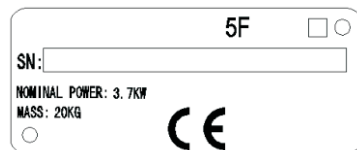
Outboard motor serial number (SN:)

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 dealer or for reference in case your outboard motor is stolen.



1 Outboard motor serial number location Safety information



- Before mounting or operating the outboard motor, read this entire manual. Read it should give you an understanding of the motor and its operation.

- Before operating the boat, read any owner's or operator's manuals supplied with it and all labels. Be sure you understand each item before operating.

- Do not overpower the boat with this outboard motor. Overpowering the boat could result in loss of control. The rated power of the outboard should be equal to or less than the rated horsepower capacity of the boat. If the rated horsepower capacity of the boat is unknown, consult the dealer or boat manufacturer.

- Do not modify the outboard. Modifications could make the motor unfit or unsafe to use.

Incorrect propeller selection and incorrect use may not only cause engine damage, but also adversely affect fuel consumption. Consult your dealer for correct use.

- Never operate after drinking alcohol or taking drugs. About 50% of all boating fatalities involve intoxication.

- Have an approved personal flotation device (PFD) on board for every occupant. It is a good idea to 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.

- Gasoline is highly flammable, and its vapors are flammable and

General information

explosive. Handle and store gasoline carefully. Make sure there are no gas fumes or leaking fuel before starting the engine.

- 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.

- Check throttle, shift, and steering for proper operation before starting the engine.

- Attach the engine stop switch lanyard cord to a secure place on your clothing, or your arm or leg while operation. If you accidentally leave the helm, the cord will pull from the switch, stopping the engine.

- Know the marine laws and regulations where you will be boating -----and obey them.

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

- Tell someone where you are going: leave a Float Plan with a responsible person. Be sure to cancel the Float Plan when you return.

- Use common sense and good judgment when boating. Know your abilities, and be sure you understand how your boat handles under the different boating conditions you may encounter. Operate within your limits, and the limits of your boat. Always operate at safe speeds, and keep a careful watch for obstacles and other traffic.

- Always watch carefully for swimmers during the engine operation.

- Stay away from swimming areas.

- When a swimmer is in the water near you shift into neutral and shut off the engine.

- Do not illegally discard empty containers used to replace or replenish oil. For the correct processing of empty containers, consult the dealer where you purchased the oil.

- When replacing oils used to lubricate the product (engine or gear oil), be sure to wipe away any spilt oil. Never pour oil without using a funnel or similar device. If necessary, verify the necessary replacement procedure with the dealer.

- Never illegally discard (dump) the product. Recommends consulting the dealer on discarding the product.

Read manuals and labels

Before operation or working on this motor:

Read this manual.

Read any manuals supplied with the boat.

Read all label on the outboard motor and the boat.

If you need any additional information, contact our dealer.

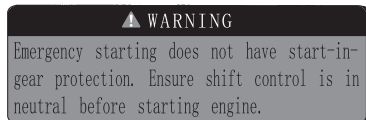
WARNING LABELS

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

5F 4F

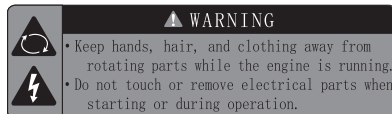
General information

1



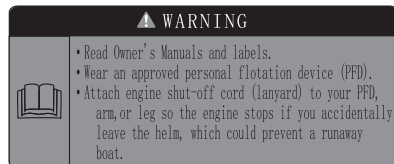
Emergency starting does not have start-in-gear protection. Ensure shift control is in neutral before starting engine.

2



- 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

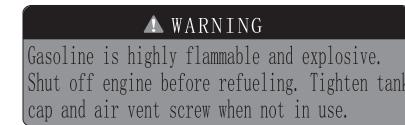


- Read Owner's Manuals and labels.
- Wear an approved personal flotation device (PFD).
- Attach engine shut-off cord (lanyard) to your PFD, arm, or leg so the

General information

engine stops if you accidentally leave the helm, which could prevent a runaway boat.

4



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

Label

CAUTION

This side up.



Fueling instructions

GASOLINE AND ITS VAPORS ARE HIGHLY FLAMMABLE AND EXPLOSIVE!

- Do not smoke when refueling, and keep away from sparks, flames, or other sources of ignition.
- Stop engine before refueling.
- Refuel in a well-ventilated area. Refuel portable fuel tanks off the boat.
- Take care not to spill gasoline. If gasoline spills, wipe it up immediately with dry rags.
- Do not overfill the fuel tank.
- Tighten the filler cap securely after refueling.
- If you should swallow some gasoline, inhale a lot of gasoline vapor, or get gasoline in your eyes, get immediate medical attention.
- If any gasoline spills onto your skin, immediately wash with soap and water. Change clothing if gasoline spills on it.
- Touch the fuel nozzle to the filler opening or funnel to help prevent electrostatic sparks.

CAUTION

Use only new clean gasoline which has been stored in clean containers and is not contaminated with water or foreign matter.

Gasoline and oil

⚠ DANGER

Gasoline vapors are present, an errant spark could cause an explosion or fire.

- Do not smoke near gasoline.
- Do not overfill gasoline.
- If any gasoline is spilt, wipe it up immediately.
- Stop the engine before fill gasoline into the fuel tank.

● Required types Gasoline

Unleaded gasoline is recommended for outboard motors.

The minimum octane rating should be 87 based on the pump-posted octane rating method (91 based on the research octane rating method).

Note:

- (1) Gasoline containing alcohol {methanol (methyl), or ethanol (ethyl)}, acetone or benzene, may cause:
 - Wear and damage to bearings, cylinder, piston, piston rings.
 - Corrosion of metal parts.
 - Deterioration of rubber parts and plastic parts.
 - Starting, idling, and other engine performance problems.
- (2) Do not use gasoline that contains more than 10% ethanol or more than 5% methanol.
- (3) Damages resulting from the use of gasolines that contain alcohol, acetone or benzene are not covered under the limited warranty.

Engine oil

Use genuine engine oil or the other recommended one, that is, TCW3. We can not recommend any other two-stroke engine oil.

- Mixing ratio (50 : 1)
 unleaded gasoline 50: GENUINE ENGINE OIL
 or
 recommended engine oil (TCW3) 1

Note:

Do not mix different brands of oil. The mixing of different brands, or different kinds even if the same brand, may cause gelling, resulting in blockage of filter screens. This may lead to serious engine damage due to the lack of lubrication.

Note:

- (1) Do not use unsuitable or poor-grade gasoline or oil. These may cause serious damage to the outboard and shorten its life span, as well as causing starting problems and other troubles.
- (2) Always use fresh gasoline. Fuel kept in the fuel tank for a long period will produce varnish and gum, which can damage the outboard and create problems in running.
- (3) Use only fuel in which the gasoline and oil have been well-mixed.
- (4) When Filling the fuel tank, be careful that no dust, water or other foreign matter enters the tank.
- (5) Do not fill the fuel tank up to the top of the mouth ring.
- (6) After filling the tank, close the tank cap securely.
- (7) When carrying the fuel tank, close the air vent screw and fuel cock securely, and drain the fuel in the carburetor oil chamber completely by removing the drain plug with a screwdriver.

Propeller selection

The performance of your outboard motor will be critically affected by your choice of propeller, as an incorrect choice could adversely affect performance and could also seriously damage the motor. Engine speed depends on the propeller size and boat load. If engine speed is too high or too low for good engine performance, this will have an adverse effect on the engine.

For a greater operating load, a smaller-pitch propeller is more suitable as it enables the correct engine speed to be maintained. Conversely, a larger-pitch propeller is more suitable for a smaller operation load.



NOTE:

If the recommended engine oil grades are not available, select an alternative temperatures in your area.

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

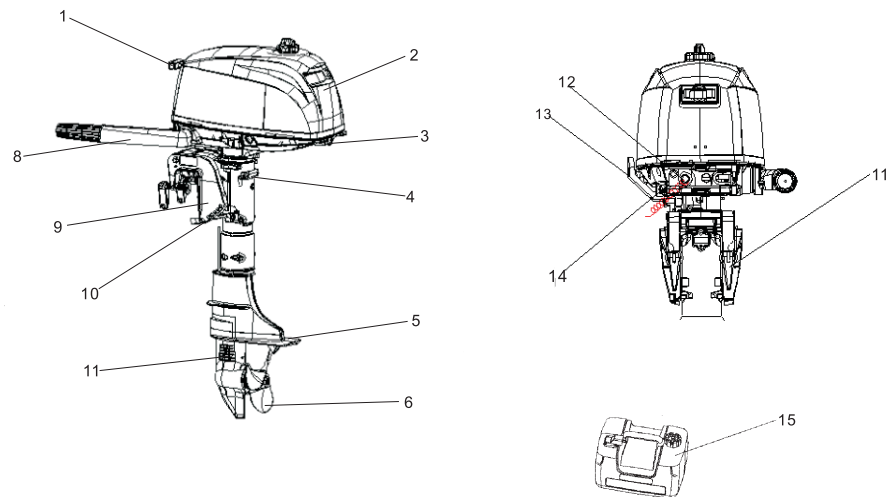
NOTE:

Select a propeller which will allow the engine to reach the middle or upper half of the operation range at full throttle with the maximum boat load. If operation conditions such as light boat loads then allow the engine r/min to rise above the maximum recommended range, reduce the throttle setting to maintain the engine in the proper operation range.

Basic components

Main components

• May not be exactly as shown; also may not be included as standard equipment on all models.

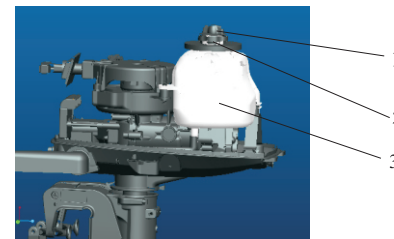


1. Air-exhaust screw
2. Top cowling
3. Carrying handle
4. Steering friction screw
5. Anti-cavitation plate
6. propeller
7. Manual starter handle
8. Tiller handle
9. Clamp bracket
10. Trim rod
11. Cooling water inlet
12. Clamp screw
13. Choke knob
14. Gear shift lever
15. Fuel tank

Basic components

Fuel tank

If your model included a fuel tank, its parts and functions are as follows.



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

Fuel tank cap

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

Air vent screw

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

Tiller handle

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

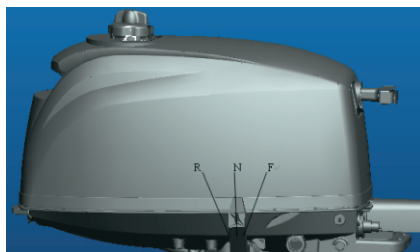


Gear shift lever

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

Reduce throttle speed to idle speed.

Always shift outboard into gear with a quick motion.



F: Forward
N: Neutral
R: Reverse

Throttle grip

The throttle grip is on the tiller handle. Turn the grip counterclockwise to

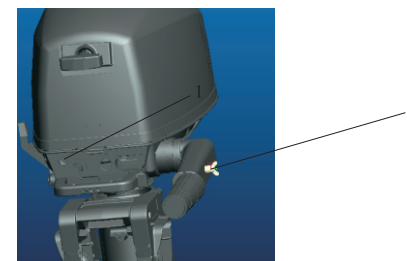
increase speed and clockwise to decrease speed.



Throttle friction adjuster

A friction device provides adjustable resistance to movement of the throttle grip or the remote control lever, and can be set according to operator preference.

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



1 Throttle friction adjuster

2 Engine stop lanyard switch

⚠ WARNING

Do not overtighten the friction adjuster. If there is too much resistance, it could be difficult to move throttle lever or grip, which could result in an accident.

When constant speed is desired, tighten the adjuster to maintain the desired throttle setting.

Engine stop lanyard switch

The stop switch lock must be attached to the engine stop switch for the engine to run. The hook should be attached to a secure place on the operators clothing, or arm or leg. Should the operator fall overboard or leave the helm, the hook will pull out the stop switch lock, stopping ignition to the engine. This will prevent the boat from running away under power.

⚠ WARNING

Attach the engine stop switch lanyard to a secure place on your clothing, or your arm or leg while operating.
Do not attach the lanyard to clothing that could tear loose. Do not route the

Basic components

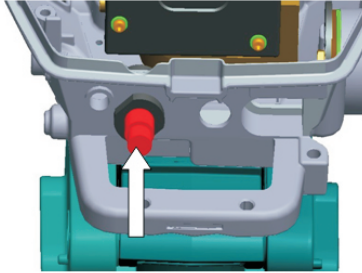
lanyard where it could become entangled, preventing it from functioning. Avoid accidentally pulling the lanyard during normal operation. Loss of engine power means the loss of most steering control. Also, without engine power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.

NOTE:

The engine cannot be started with the stop switch lock removed.

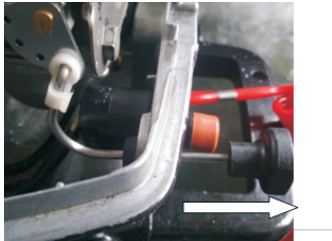
Engine stop button

To open the ignition circuit and stop the engine, push this button.



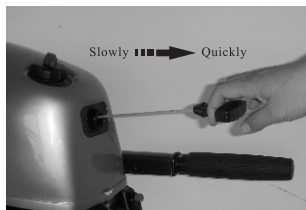
Choke knob for pull type

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



Manual starter handle

To start the engine, first gently pull the handle out until resistance is felt. From that position, then pull the handle straight out quickly to crank the engine.



Steering friction adjuster

A friction device provides adjustable resistance to the steering mechanism, and can be set according to operator preference. An adjusting screw or bolt is located on the swivel bracket.

Basic components



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

⚠ WARNING

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

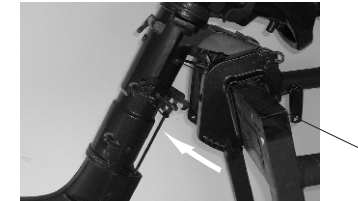
Thrust rod

The position of the thrust rod determines the minimum trim angle of the outboard motor in relation to the transom.



Tilt lock mechanism

The tilt lock mechanism is used to prevent the outboard motor from lifting out of the water when in reverse gear.



1. Tilt lock lever

To lock it, set the tilt lock lever in the lock position. To release, push the tilt lock lever in the release position.

Tilt support bar

The tilt support bar keeps the outboard motor in the tilted up position.

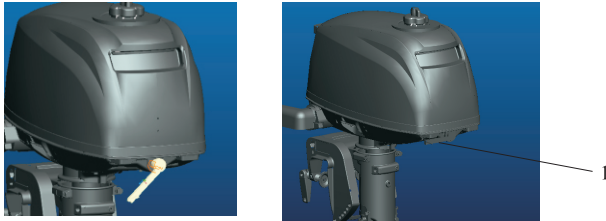


Basic components

Do not use the tilt support bar 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.

Top cowling lock lever (pull up type)

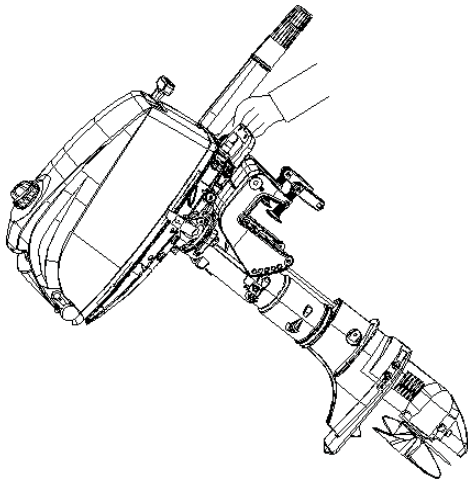
To remove the engine top cowling, pull up the lock lever(s) and lift off the cowling. When installing the cowling, check to be sure it fits properly in the rubber seal. Then lock the cowling by moving the lever(s) downward.



1. Top cowling lock lever(s)

Carrying handle

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



Operation

Installation

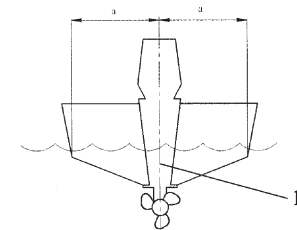
Incorrect engine height or obstructions to smooth water flow (such as the design or condition of the boat, or accessories such as transom ladders or depth finder transducers) can create airborne water spray while the boat is cruising. Severe engine damage may result if the motor is operated continuously in the presence of airborne water spray.

During water testing check the buoyancy of the boat, at rest, with its maximum load. Check that the static water level on the exhaust housing is low enough to prevent water entry into the powerhead, when water rises due to waves when the outboard is not running

Mounting the outboard motor

- Overpowering a boat could cause severe instability. Do not install 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.
- 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. Improper mounting of the outboard motor could result in hazardous conditions such as poor handling, loss of control, or fire hazards. Observe the following:
 - For permanently mounted models, your dealer or other person experienced in proper rigging should mount the motor. If you are mounting the motor yourself, you should be trained by an experienced person.
 - For portable models, your dealer or other person experienced in proper outboard motor mounting should show you how to mount your motor.

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

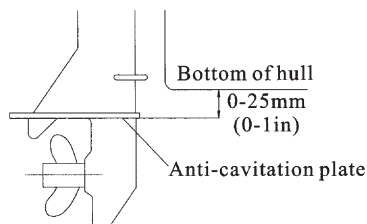


1.Center line(keel line)

Operation

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 25mm (1 in.) below it.



NOTE:

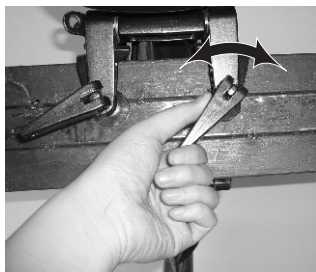
- The optimum mounting height of the outboard motor is affected by the boat and motor combination and the desired use. Test runs at different heights can help determine the optimum mounting height. Consult your boat manufacturer for further information on determining the proper mounting height.

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 transom 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.

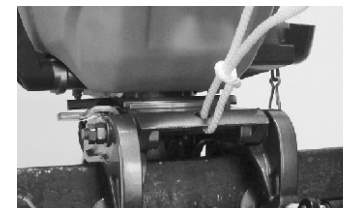
⚠ WARNING

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 transom screws are tightened securely. Occasionally check the screws for tightness during operation.



Operation

2. If the engine restraint cable attachment is equipped on your engine, an engine restraint cable or chain should be used. Attach one end to the engine 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.



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.

CAUTION

Failure to follow the break-in procedure could result in reduced engine life or even severe engine damage.

Procedure for 4-stroke models

Run the engine under load (in gear with a propeller installed) as follows.

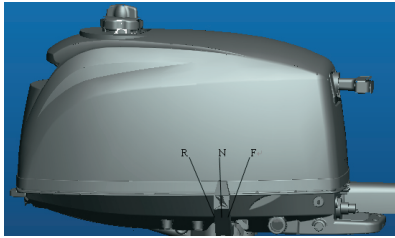
1. For the first hour of operation:
Run the engine at 3000 r/min or at approximately half throttle.
2. For the second hour of operation:
Run the engine at 4000 r/min or at approximately three-quarter throttle.
3. For the next eight hours of operation:
Avoid continuous operation at full throttle for more than five minutes at a time.
4. After the first 10 hours:
Operate the engine normally.

Starting engine

Manual start models

1. Place the gear shift lever in neutral.

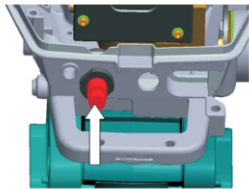
Always start the engine in neutral to avoid accidentally moving the boat.



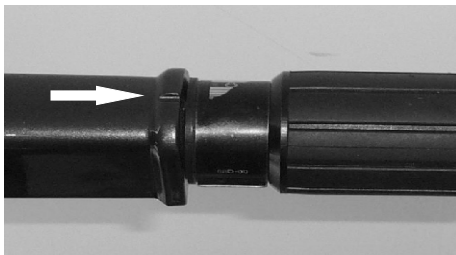
2. If the engine stop switch lanyard is equipped, attach it to a secure place on your clothing, or your arm or leg. Then install the lock plate on the other end of the lanyard into the engine stop switch.

⚠ WARNING

- Attach the engine stop switch lanyard to a secure place on your clothing, or your arm or leg while operating.
- Do not attach the lanyard to clothing that could tear loose. Do not route the lanyard where it could become entangled, preventing it from functioning.
- Avoid accidentally pulling the lanyard 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.

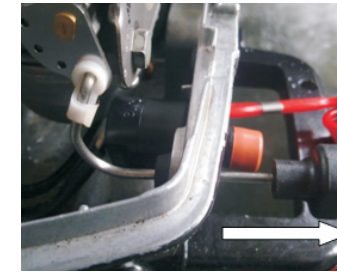


3. Place the throttle grip in the "START" (start) position.



4. Pull out the choke knob fully. After the engine starts, return the knob to

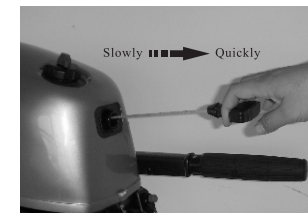
the "RUN" (home) position.



⚠ WARNING

- 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.

NOTE:

- When the engine is cold, it needs to be warmed up.
- 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.

Warming up engine

Manual start models

1. 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.

NOTE:

- If the choke knob is left pulled out after the engine starts, the engine will stall.

Operation

- In temperatures of -5° C or less, leave the choke knob pulled out fully for approximately 30 seconds after starting.

2. Check for a steady flow of water from the cooling water pilot hole.

CAUTION

A continuous flow of water from the cooling water pilot hole shows that the water pump is pumping water through the cooling passages. If water is not flowing out of the 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 dealer if the problem cannot be located and corrected.

Shifting

▲ WARNING

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

CAUTION

To change the boat direction or shifting position from forward to reverse or viceversa, first close the throttle so that the engine idles (or runs at low speeds).

Forward or Reverse

1. Place the throttle grip in the fully closed position.



2. Move the gear shift lever quickly and firmly from neutral to forward.



Operation

▲ WARNING

When operating in reverse, go slowly. Do not open the throttle more than half. Otherwise the boat could become unstable, which could result in loss of control and an accident.

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.

Procedure

1. Push and hold the engine stop button until the engine comes to a complete stop.
2. After stopping the engine, tighten the air vent screw on the fuel tank cap and set the fuel cock lever or knob to the closed position.

NOTE:

If the outboard motor is equipped with an engine stop switch lanyard, the engine can also be stopped by pulling the lanyard and removing the lock plate from the engine stop switch.

Trimming outboard motor

The trim angle of the outboard motor helps determine the position of the bow of the boat in the water. Correct trim angle will help improve performance and fuel economy while reducing strain on the engine.

Correct trim angle depends upon the combination of boat, engine, and propeller. Correct trim is also affected by variables such as the lead in the boat, sea conditions, and running speed.

▲ 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.

Adjusting trim angle

There are 4 or 5 holes provided in the clamp bracket to adjust the outboard motor trim angle.

1. Stop the engine.
2. Remove the trim rod from the clamp bracket while slightly tilting the outboard motor up.



Operation

3. Reposition the rod in the desired hole.

To raise the bow ("trim-out"), move the rod away from the transom.

To lower the bow ("trim-in"), move the rod toward the transom.

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

⚠ 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.

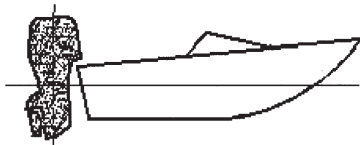
Improper trim angle can cause loss of control.

NOTE:

The outboard motor trim angle can be changed approximately 4 degrees by shifting the trim rod one hole.

Adjusting boat trim

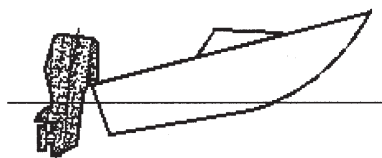
When the boat is on plane, a bow-up attitude results in less drag, greater stability and efficiency. This is generally when the keel line of the boat is up about 3 to 5 degrees. With the bow up, the boat may have a greater tendency to steer to one side or the other. Compensate for this as you steer.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



Bow Up

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

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



Bow Down

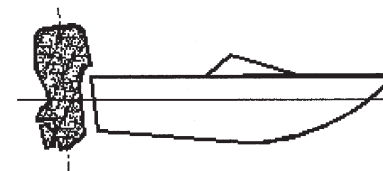
Too much trim-in causes the boat to "plow" through the water, decreasing

Operation

fuel economy and making it hard to increase speed. Operating with

excessive trim-in at higher speeds also makes the boat unstable.

Resistance at the bow is greatly increased, heightening the danger of "bow steering" and making operation difficult and dangerous.

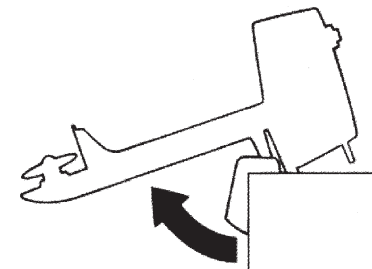


NOTE:

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

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 casing from damage by collision with obstructions, and also to reduce salt corrosion.



⚠ WARNING

Be sure all people are clear of the outboard motor when tilting up and down, also be careful not to pinch any body parts between the drive unit and engine bracket.

⚠ WARNING

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

CAUTION

- 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

Operation

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.

Procedure for tilting up

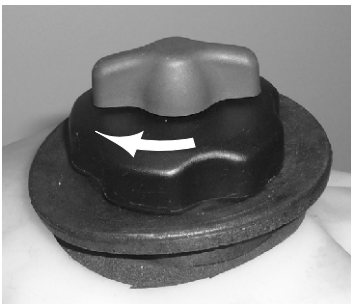
1. Place the gear shift lever in neutral and face the outboard motor forward.



2. Tighten the steering friction adjuster by turning it clockwise to prevent the motor from turning freely.



3. Tighten the air vent screw.



Operation

4. Tilt support bar equipped models: Hold the rear of the top cowling or the carrying handle with one hand and tilt the outboard motor up fully until the tilt support bar automatically locks.
5. Tilt support knob equipped models: Hold the rear of the top cowling with one hand, fully tilt the outboard motor up, and push the tilt support knob into the clamp bracket.
6. Tilt support lever equipped models: Hold the carrying handle and tilt the engine up fully until the tilt support lever automatically locks.



Procedure for tilting down

1. Slightly tilt the outboard motor up.
2. If equipped with the tilt support bar: Slowly tilt the outboard motor down while pulling the tilt support bar lever up.
3. If equipped with the tilt support knob: Pull the knob out, and then slowly tilt the outboard motor down.
4. If equipped with the tilt support lever: Slowly tilt the outboard motor down while pulling the tilt support lever up.



5. Loosen the steering friction adjuster by turning it counterclockwise, and adjust the steering friction according to operator preference.

Item \ MODEL		4F	5F
Overall Length	mm (in)	700 (27.6)	
Overall Width	mm (in)	310 (12.2)	
Overall Height	S mm (in)	1,007 (39.6)	
	L mm (in)	1,134 (44.6)	
	UL mm (in)	—	1,261 (49.6)
Transom Height	S·L·UL mm (in)	435 (17.1) · 562 (22.1) · 689 (27.1)	
Mass	S kg (lb)	20.0 (44)	
	L kg (lb)	20.5 (45)	
	UL kg (lb)	—	21.0 (46)
Output	kW (HP)	2.9 (4)	3.7 (5)
Max. Operating Range	rpm	4,500—5,500	
Idle Speed in Forward Gear	rpm	850	
Idle Speed in Neutral Gear	rpm	1,000	
Engine Type		2-Stroke	
Number of Cylinder		1	
Bore × Stroke	mm (in)	55 × 43 (2.17 × 1.69)	
Piston Displacement	mL (Cu in)	102 (6.22)	
Exhaust System		Through hub exhaust	
Cooling System		Forced water cooling	
Lubrication System		Engine oil mixed gasoline	
Fuel		Unleaded regular gasoline pump posted 87 Octane (research octane rating of 91)	
Engine Oil		Genuine or recommended 2-stroke engine oil	
Engine Oil Mixing Ratio		Fuel 50 : Engine oil 1	
Starting System		Manual starter	
Ignition System		Flywheel Magneto C.D. ignition	
Spark Plug		NGK BPR7HS-10	
Trim Position		6	
Gear Oil	mL (fl.oz.)	Genuine Gear Oil or API GL5, SAE #80 to #90, Approx. 195 (6.6)	
Fuel Tank Capacity	L (US gal)	2.5 (0.66)	* 2.5 (0.66) 12 (3.17)
Gear Reduction Ratio		2.15 (13:28)	

*In case of dual fuel tank system. Use together with 12L separate tank.

Transporting and storing outboard motor

▲ WARNING

- Leaking fuel is a fire hazard. When transporting and storing the outboard motor, close the air vent screw and fuel cock to prevent fuel from leaking.
- 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.

▲ WARNING

Never get under the lower unit while it is tilted, even if a motor support bar is used. Severe injury could occur if the outboard motor accidentally falls.

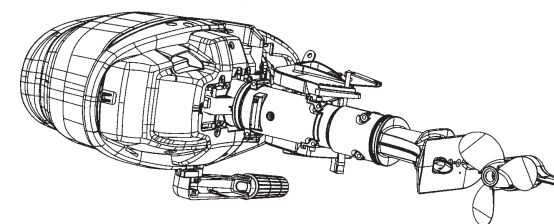
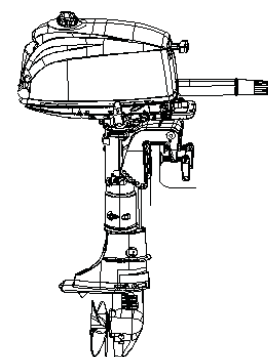
CAUTION

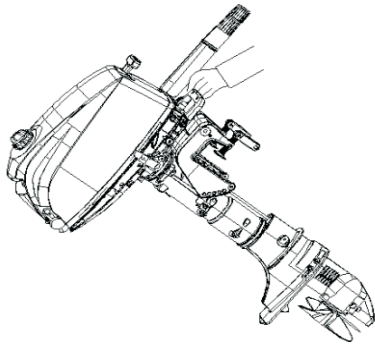
Do not use the tilt support lever when trailering the boat. The outboard motor could shake loose from the tilt support and fall. If the motor cannot be trailered in the normal running position, use an additional support device to secure it in the tilt position.

The outboard motor should be trailered and stored in the normal running position. If there is insufficient road clearance in this position, then trailer the outboard motor in the tilt position using a motor support device such as a transom saver bar.

Clamp screw mounting models

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



**NOTE:**

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

Storing outboard motor

When storing your outboard motor for prolonged periods of time (2 months or longer), several important procedures must be performed to prevent excessive damage.

CAUTION

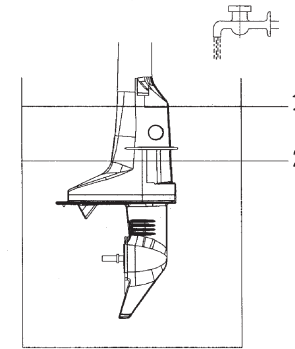
- To prevent problems which can be caused by oil entering the cylinder from the sump, keep the outboard motor in the attitude shown when transporting and storing it. If storing or transporting the outboard motor on its side (not upright), put it on a cushion after draining the engine oil.
- Do not place the outboard motor on its side before the cooling water has drained from it completely, otherwise water may enter the cylinder through the exhaust port and cause engine trouble.
- Store the outboard motor in a dry, wellventilated place, not in direct sunlight.

Procedure**Flushing in a water tank****CAUTION**

Do not run the engine without supplying it with cooling water. Either the engine water pump will be damaged or the engine will be damaged from overheating. Before starting the engine, be sure to supply water to the cooling water passages.

1. Wash the outboard motor body using fresh water.
2. Place the fuel cock in the closed position. Tighten the air vent screw on the fuel tank cap.
3. Remove the engine top cowling and silencer cover.
4. Install the outboard motor on the test tank.

1



1. Water surface

2. Lowest water level

5. Fill the tank with fresh water to above the level of the anti-cavitation plate.

CAUTION

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.

6. Run the engine at a fast idle for a few 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.

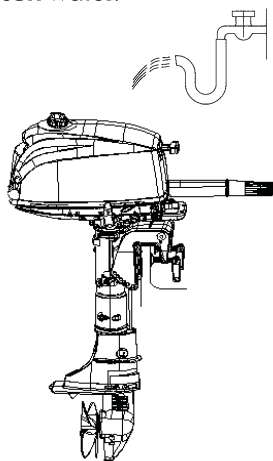
7. Just prior to turning off the engine, quickly spray "Fogging Oil" into each carburetor. When properly done, the engine will smoke excessively and almost stall.

NOTE:

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

Cleaning the outboard motor

After use, wash the exterior of the outboard motor with fresh water. Flush the cooling system with fresh water.



Checking painted surface of motor

Check the motor for scratches, nicks, or flaking paint. Areas with damaged paint are more likely to corrode, if necessary, clean and paint the areas.

Periodic maintenance

⚠ WARNING

Be sure to turn off the engine when you perform maintenance unless otherwise specified. If you or the owner is not familiar with machine servicing, this work should be done by our dealer or other qualified mechanic.

Replacement parts

If replacement parts are necessary, use only genuine parts or parts of the same type and of equivalent strength and materials. Any part of inferior quality may malfunction, and the resulting loss of control could endanger the operator and passengers. Genuine parts and accessories are available from our dealer.

Maintenance chart

Frequency of maintenance operations may be adjusted according to the operating conditions, but the following table gives general guidelines. Refer to the sections in this chapter for explanations of each owner-specific action.

When operating in salt water, turbid or muddy water, the engine should be flushed with clean water after each use.

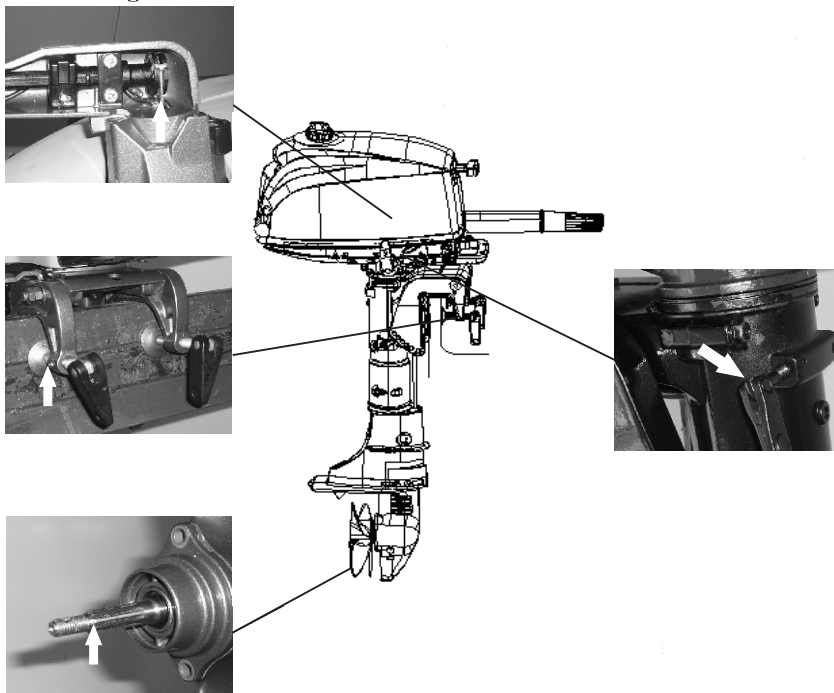
The "●" symbol indicates the check-ups which you may carry out yourself. The "○" symbol indicates work to be carried out by our dealer.

Item	Actions	Initial		Every	
		10 hours (1 month)	50 hours (3 months)	100 hours (6 months)	200 hours (1 year)
Anodes(s)	Inspection/replacement		●/○	●/○	
Cooling water passages	Cleaning		●	●	
Cowling clamp	Inspection				●
Fuel filter (inside built-in fuel tank)	Inspection/cleaning				○
Fuel system	Inspection	●	●	●	
Fuel tank (built-in tank)	Inspection/cleaning				○
Gear oil	Change	●		●	
Greasing points	Greasing			●	
Idling speed (carbure-for models)	Inspection	●/○		●/○	
Propeller and cotter pin	Inspection/replacement		●	●	
Shift link	Inspection/adjustment				○
Thermostat	Inspection/replacement				○
Throttle link/throttle cable/ throttle pick-up timing	Inspection/adjustment				○
Water pump	Cleaning/adjustment/replacement				○
Engine oil	Inspection/change	●		●	
Spark plug(s)	Cleaning/adjustment/replacement	●			●
Valve clearance (OHV)	Inspection/adjustment	○		○	
Exhaust guide, exhaust manifold	Inspection/replacement				○

Maintenance

Greasing

Water resistant grease



Cleaning and adjusting spark plug

▲ WARNING

When removing or installing a spark plug, be careful not to damage the insulator. A damaged insulator could allow external sparks, which could lead to explosion or fire.

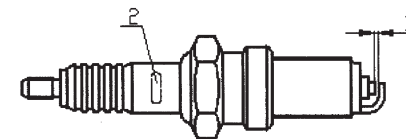
The spark plug is an important engine component and is easy to inspect. The condition of the spark plug can indicate something about the condition of the engine. For example, if the center electrode porcelain is very white, this could indicate an intake air leak or carburetion problem in that cylinder. Do not attempt to diagnose any problems yourself. Instead, take the outboard motor to our 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. 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.

Drain screw tightening torque
18.0 Nm (13.3 ft-lb) (1.84 kgf-m)

Before fitting the spark plug, measure the electrode gap with a wire

Maintenance

thickness gauge; adjust the gap to specification if necessary.



1. Spark plug gap
2. Spark plug I.D. mark (NGK)

Spark plug gap:
0.8-1.0 mm (0.031-0.039 in)

When fitting the plug, always clean the gasket surface and use a new gasket. Wipe off any dirt from the threads and screw in the spark plug to the correct torque

Spark plug torque:
25.0 Nm (18.4 ft-lb) (2.55 kgf-m)

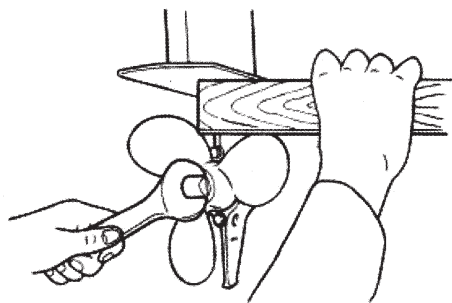
▲ WARNING

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 fingertight. Have the spark plug adjusted to the correct torque as soon as possible with a torque wrench.

Checking propeller

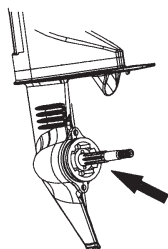
You could be seriously injured if the engine accidentally starts when you are near the propeller.

- Before inspecting, removing, or installing the propeller, remove the spark plug caps from the spark plugs. Also, place the shift control in neutral, turn the main switch to "OFF" (Off) and remove the key; and remove the lanyard from the engine stop 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 wear, erosion from cavitation or ventilation, or other damage.
- Check the propeller shaft for damage.
- Check the splines pin for wear or damage.
- Check for fish line tangled around the propeller shaft.

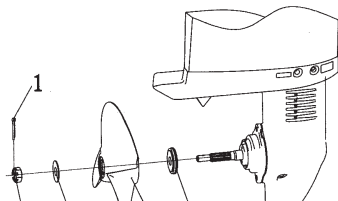


- Check the propeller shaft oil seal for damage.

Removing the propeller

Spline models

1. Straighten the split pin and pull it out using a pair of pliers.
2. Remove the propeller nut and washer.



1. Cotter pin
2. Propeller
3. Washer
4. propeller
5. Thrust wa

3. Remove the

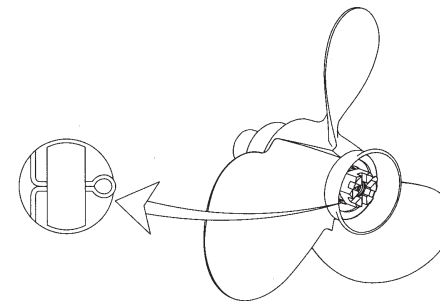
Installing the Propeller

Spline models

CAUTION

- Be sure to install the thrust holder before installing the propeller, otherwise the lower case and propeller boss could be damaged.
- Be 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 corrosion resistant grease to the propeller shaft.
2. Install the thrust holder, and propeller on the propeller shaft.
3. Install the washer. Tighten the propeller nut until there is no forward- and-backward movement.
4. Align the propeller nut with the propeller shaft hole. Insert a new cotter pin in the hole and bend the cotter pin ends.



NOTE:

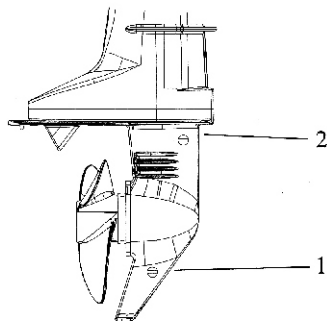
If the propeller nut does not align with the propeller shaft hole after tightening it, loosen the nut until it aligns with the hole.

Changing gear oil

⚠ 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.
- Never get under the lower unit while it is tilted, even when the tilt support lever or knob is locked. Severe injury could occur if the outboard motor accidentally falls.

1. Tilt the outboard motor so that the gear oil drain screw is at the lowest point possible.
2. Place a suitable container under the gear case.
3. Remove the gear oil drain screw.



1. Gear oil drain screw
2. Oil level plug

NOTE:

- If a magnetic gear oil drain screw is equipped, remove all metal particles from the screw before installing it.
- Always use new gaskets. Do not reuse the removed gaskets.

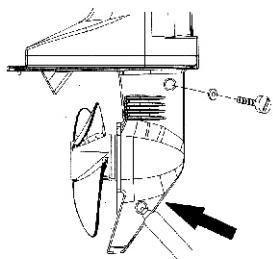
4. Remove the oil level plug to allow the oil to drain completely.

CAUTION

Inspect the used oil after it has been drained. If the oil is milky, water is getting into the gear case which can cause gear damage. Consult our dealer for repair of the lower unit seals.

5. With the outboard motor in a vertical position, and using a flexible or pressurized filling device, inject the gear oil into the gear oil drain screw hole.

Recommended gear oil:
Hypoid gear oil SAE#90
Gear oil quantity:
100.0cm³(3.39 US oz)



6. When the oil begins to flow out of the oil level plug hole, insert and tighten the oil level plug.
7. Insert and tighten the gear oil drain screw.

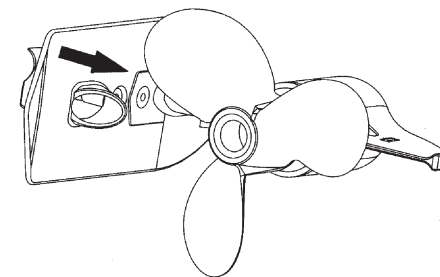
Inspecting and replacing anode(s)

Our outboard motors are protected from corrosion by sacrificial anodes. Inspect the external anodes periodically. Remove scales from the surfaces

of the anodes.

CAUTION

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

**Coating the boat bottom**

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

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

If you encounter a problem, consult the checklist below to locate the cause and then take the appropriate measures.

Regular checks and servicing by your dealer are recommended, to ensure maximum safety and optimum performance.

Engine fails to start.	Engine starts but stops soon.	Poor idling	Engine speed abnormally high	Engine speed abnormally low	Slow speed	Overheating of engine	Possible cause
●	●						Empty fuel tank
●	●						Incorrect connection of fuel system
●	●	●		●	●	●	Air entering fuel line
●	●	●		●	●	●	Deformed or damaged fuel pipe
●	●	●		●	●	●	Closed fuel tank cock or air vent on fuel tank
●	●	●		●	●	●	Clogged fuel filter, fuel pump or carburetor
		●		●	●	●	Use of improper engine oil
●		●		●	●	●	Use of improper gasoline
		●		●	●		Excessive oil in mixture
						●	Insufficient oil in mixture
●							Excessive supply of fuel/Spark plug wet with fuel
●	●	●		●	●	●	Poor carburetor adjustment
	●	●		●	●	●	Spark plug other than specified
●	●	●		●	●		Dirt or bridge on spark plug
●	●	●		●	●		No or weak spark

Engine fails to start.	Engine starts but stops soon.	Poor idling	Engine speed abnormally high	Engine speed abnormally low	Slow speed	Overheating of engine	Possible cause
				●	●	●	Insufficient cooling water flow/Clogged or defective pump
			●		●	●	Anti-ventilation plate damaged or deformed
			●	●	●	●	Incorrect propeller selection
		●	●	●	●	●	Damaged or bent propeller
			●		●	●	Improper thrust rod position
			●	●	●	●	Unbalanced load position on boat
			●	●	●	●	Transom too high or too low
●							Short-circuit of engine stop switch
●							Stop switch lock released
			●				Sheared shearpin

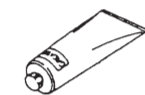
Name		Quantity	Remarks
Tool Kits	Tool Bag	1	
	Pliers	1	
	Socket Wrench	1	21mm
	Handle for Socket Wrench	1	
	Phillips Screwdriver	1	No. 2
※ Spare Parts	Spark Plug	1	NGK BPR6HS-10
	Shear Pin	1	
	Split Pin	1	
	Rope	1	

※ Not included as standard accessories in some markets.

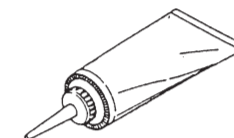
MODEL	3.5B2	3.5A2	2.5A2
Propeller 4.5 (Plastic)	—	—	OP
Propeller 6 (Plastic)	OP	STD	
Propeller 6 (Aluminum)	※OP	※OP	
Propeller 7 (Plastic)	STD	OP	—

Note: A stainless steel shear pin must be used for propeller marked. ※

A propeller must be selected so that the engine rpm measured at wide open throttle while cruising is within the recommended range.



Genuine grease
(250g)



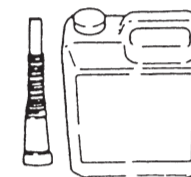
Genuine gear Oil
(500mL)



Propeller



Touch-up paint



Genuine engine Oil
(0.4L, 1L, 4L, 20L)

