

# OWNER'S MANUAL



Original instructions

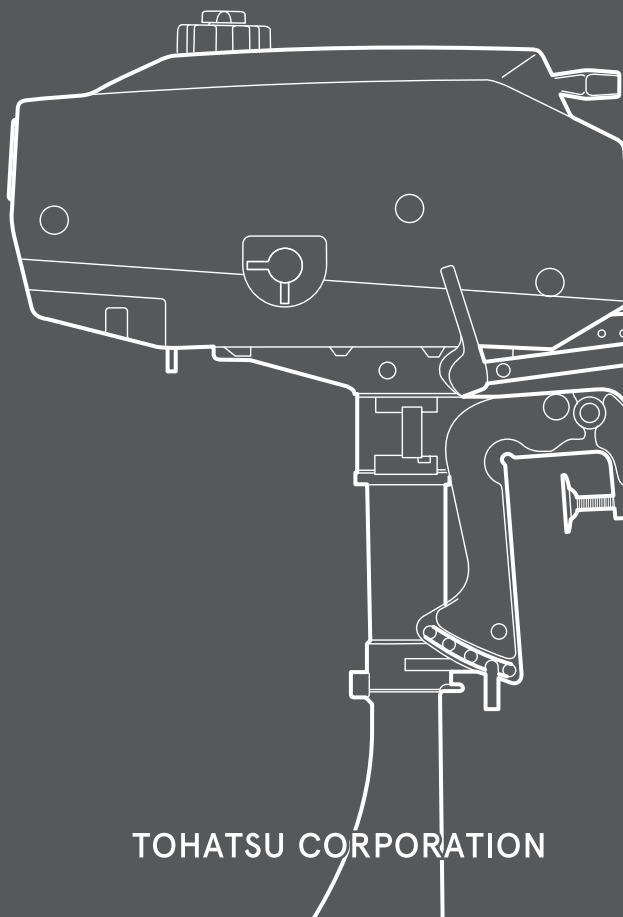
EN

M 2.5A<sub>2</sub>

M 3.5A<sub>2</sub>

M 3.5B<sub>2</sub>

OB No.003-11045-EBC1



BACKS  
YOU  
UP™

TOHATSU CORPORATION

ENOM00001-0



**READ THIS MANUAL BEFORE USING THE OUTBOARD MOTOR. FAILURE TO FOLLOW THE INSTRUCTIONS AND SAFETY PRECAUTIONS IN THIS MANUAL CAN RESULT IN SERIOUS INJURY OR DEATH. KEEP THIS MANUAL IN A SAFE LOCATION FOR FUTURE REFERENCE.**

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# YOUR TOHATSU OUTBOARD MOTOR

ENOM00006-2

## **To You, Our Customer**

Congratulations on your purchase of the TOHATSU outboard motor. You are now the proud owner of an excellent outboard motor that will serve you for many years to come. This owner's manual contains important safety, operational and maintenance information.

The efficiency and longevity of your outboard motor will depend heavily on your operating methods and periodic maintenance. Failure to operate and maintain your outboard motor according to the instruction in this owner's manual may void the limited warranty, as well as reduce the efficiency and reliability of the outboard motor.

Any person operating TOHATSU outboard motor must carefully read and fully understand the entire contents of this manual prior to operation. For safety, follow all safety warnings contained within the owner's manual and the labels applied to your outboard motor. You should keep this owner's manual where accessible while operating your outboard motor. If the outboard motor is resold, make sure the manual is passed on to the next owner. In case you encounter any problems, please contact an authorized TOHATSU service shop or dealer for assistance.

Tohatsu Corporation reserves the right to change, modify, add, or remove a part or whole of the owner's manual without prior notice and incurring any obligations.

We are excited to take a part in your boating adventures and wish for your great and safe boating experience.

**TOHATSU CORPORATION**

ENOM00003-1

## **PRE-DELIVERY INSPECTION**

Make sure Pre-delivery inspection has been properly done by authorized TOHATSU dealer before operating your outboard motor.

ENOM00113-1

## DECLARATION OF CONFORMITY (DoC)

This product conforms to certain portion of the European Parliament directive and UK Regulations. DoC contains the following information;

- Name and Address of the manufacturer, EU - notified body, EU - authorized representative, and UK - approved body.
- Applied community directives and regulations
- Reference standard
- Description of the product. (model name and serial number)
- Signature of the responsible person (name / title / date and place of issue).

ENON00937-0

### Note

#### For CE marked model

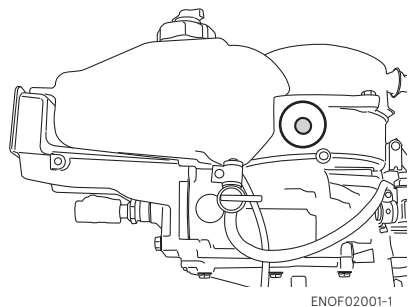
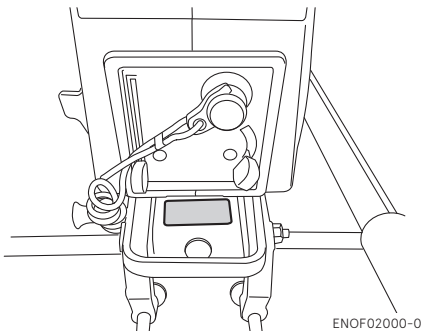
The Outboard engine is intended to install on non-recreational craft within the European Union because it has not been confirmed compliance with requirement of Directive 2013/53/EU.

ENOM00005-1

## Serial Number

Your outboard motor has a unique serial number. The serial number is identification of outboard motor and is located on the outboard motor as shown in the figures below. The serial number is required for warranty registration, filing a warranty claim as well as making technical inquiries and may be required for other occasions. Therefore, please write down the serial number and date of purchase in the space below.

### Serial Number:



Serial Number:

Date of purchase:

ENOM00007-0

**NOTICE: DANGER/WARNING/CAUTION/Note**

Before installing, operating or otherwise handling your outboard motor, be sure to thoroughly read and understand this Owner's Manual and carefully follow all of the instructions. Of particular importance is information preceded by the words "DANGER," "WARNING," "CAUTION," and "Note." Always pay special attention to such information to ensure safe operation of the outboard motor at all times.

ENOW00001-0

 **DANGER**

**Failure to observe will result in severe personal injury or death, and possibly property damage.**

ENOW00002-0

 **WARNING**

**Failure to observe could result in severe personal injury or death, or property damage.**

ENOW00003-0

 **CAUTION**

**Failure to observe could result in personal injury or property damage.**

ENON00001-0

**Note**

This instruction provides special information to facilitate the use or maintenance of the outboard motor or to clarify important points.



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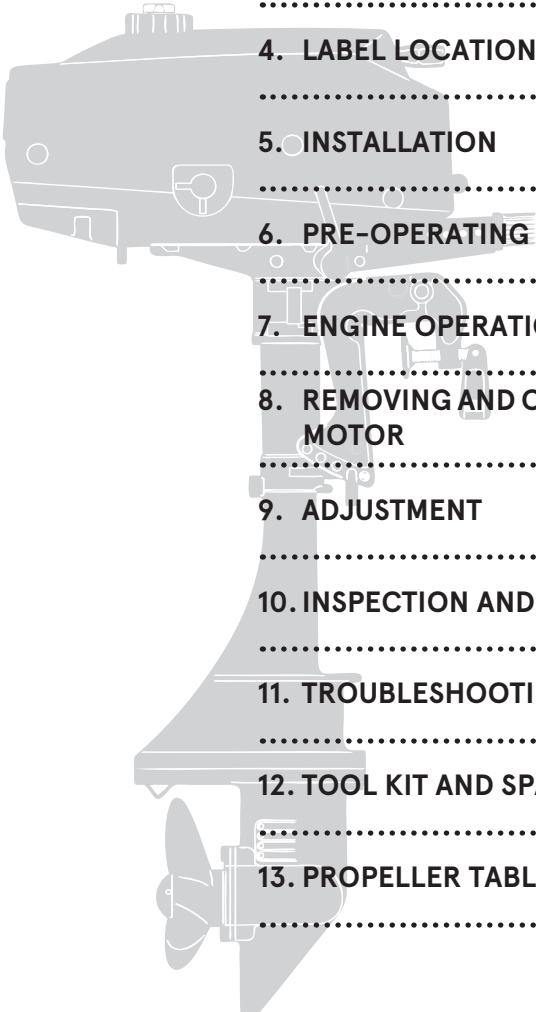
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# GENERAL SAFETY INFORMATION

## 1

ENOM00009-1

### SAFE OPERATION OF BOAT

As the operator/driver of a boat, you are responsible for the safety of those aboard and those in other boats around yours, and for following local boating regulations. You should be thoroughly knowledgeable on how to correctly operate the boat, outboard motor, and accessories. To learn about the correct operation and maintenance of the outboard motor, please read through this manual carefully.

It is very difficult for a person in the water to take evasive action should he or she see a power boat heading in his/her direction, even at a slow speed.

Therefore, when your boat is in the immediate vicinity of people in the water, the outboard motor must be shifted to neutral and shut off.

ENOW00005-0

### WARNING

**SERIOUS INJURY IS LIKELY IF A PERSON IN THE WATER MAKES CONTACT WITH A MOVING BOAT, GEAR HOUSING, PROPELLER, OR ANY SOLID DEVICE RIGIDLY ATTACHED TO A BOAT OR GEAR HOUSING.**

ENOM00247-1

### STOP SWITCH LANYARD

The engine can be stopped by pulling out the stop switch lock from the stop switch. The stop switch lanyard is the coiled red cord with the stop switch lock on one end and a metal clip on the other end. With attaching the stop switch lanyard to the operator's body part or operator's personal flotation device (PFD), the engine will stop when the stop switch lanyard is being stretched and pulled out the lock from the switch if the operator accidentally falls overboard or leaves from operator's position. This function may prevent losing control of the boat and minimize or prevent risk of collision with other boats, people and other objects. It is operator's responsibility to use the stop switch lanyard.

ENOW00004-1

### WARNING

**Accidental activation of the Stop Switch (such as the tether being pulled out in heavy seas) could cause passengers to lose their balance and even fall overboard, or it could result in loss of power in heavy seas, strong currents, or high winds. Loss of control while mooring is another potential hazard.**

**To minimize accidental activation of the Stop Switch, the 500 mm (20 inch.) stop switch lanyard is coiled and can be extended to a full 1300 mm (51 inch.).**

ENOM00800-A

### PERSONAL FLOTATION DEVICE

As the operator/driver and passenger of a boat, you are responsible to wear a PFD (Personal Flotation Device) while on the boat.

ENOM00010-1

## **SERVICING, REPLACEMENT PARTS & LUBRICANTS**

We recommend that only an authorized service shop perform service or maintenance on your outboard motor. Be sure to use genuine parts, genuine lubricants, or recommended lubricants. Be aware that the installation and use of parts not approved by Tohatsu Corporation will void warranty and may lead to unsafe operating conditions.

ENOM00011-1

## **MAINTENANCE**

As the owner of the outboard motor, you should be acquainted with correct maintenance procedures following by maintenance section of this manual (See page 41). It is the operator's responsibility to perform all safety inspections, proper lubrication and to follow all maintenance instructions for safe operation. You should take the engine to an authorized dealer or service shop for periodic inspection at the prescribed intervals. Correct periodic maintenance and proper care of outboard motor will reduce the chance of problems, limit overall operating expenses and contribute to longevity of your outboard motor.

### **Carbon Monoxide Poisoning Hazard**

Exhaust gas contains carbon monoxide, a colorless and odorless gas which can be fatal if inhaled for any length of time.

Never start or operate the engine indoors or in any space which is not well ventilated.

### **Gasoline**

Gasoline and its vapors are very flammable and can be explosive. Use extreme care when handling gasoline. You should be thoroughly knowledgeable on how to correctly handle gasoline by reading this manual.

# SPECIFICATIONS

ENOM00810-B

## MODEL FEATURE

2

Model		M2.5A2	M3.5A2	M3.5B2
Type		MF	MF	MF
Transom heights	S	●	●	●
	L	●	●	●
	UL			
Tiller Handle		●	●	●
Remote Control				
Separate fuel tank				
Integral fuel tank		●	●	●
Shifting				●
Manual tilt		●	●	●

ENOM00811-B

## MODEL NAME EXAMPLE

M3.5B2S

M	3.5	B	2	S
Model description	Horse power	Product generation	Minor change	Shaft length
M (X)= Two stroke	-	A and up	2 and up	S= Short 15 in L= Long 20 in

ENOM01300-0

**2.5A2, 3.5A2, 3.5B2**

2

Item		Model	M2.5A2	M3.5A2	M3.5B2
Overall Length	mm (in)		550 (21.7)		
Overall Width	mm (in)		195 (7.7)		220 (8.7)
Overall Height	S mm (in)		955 (37.6)		
	L mm (in)		1082 (42.6)		
Transom Height	S mm (in)		435 (17.1)		
	L mm (in)		562 (22.1)		
Weight*1	S kg (lb)		12.5 (28)		13.0 (29)
	L kg (lb)		13.0 (29)		13.5 (30)
Engine Type			2 stroke		
Number of Cylinder			1		
Piston Displacement	cm <sup>3</sup> (cu.in.)		74.6 (4.55)		
Bore x Stroke	mm (in)		47 x 43 (1.85 x 1.69)		
Max. Output	kW (PS)		1.8 (2.5)	2.6 (3.5)	
Max. Operating Range	min <sup>-1</sup> (rpm)		3800 - 5200	4200 - 5300	
Idle Speed in Forward Gear	min <sup>-1</sup> (rpm)		-		1100
Idle Speed in Neutral Gear	min <sup>-1</sup> (rpm)		-		1300
Exhaust System			Underwater exhaust		
Lubrication System			Gasoline oil mixed type		
Cooling System			Water cooling		
Starting System			Manual starter		
Ignition System			Flywheel Magneto CD Ignition		
Steering Angle	Degree		360		
Trim Angle*2	Degree		-8 - 7		
Trim Position			4		
Tilt Up Angle*2	Degree		53		58
Gear Shift			Forward		Dog clutch (F-N)
Gear Reduction Ratio			1.85 (24:13)		2.15 (28:13)
Operator Sound Pressure (ICOMIA 39/94 Rev.1) dB (A)			81.8		
Hand Vibration Level (ICOMIA 38/94 Rev.1) m/s <sup>2</sup>			5.1		

Remark: Specifications subject to change without notice.

\*1 With propeller.

\*2 Transom angle at -12°

Tohatsu outboard is power rated in accordance with ISO8665 (propeller shaft output).

## Service data

Item		Model	M2.5A2	M3.5A2	M3.5B2
Fuel			Unleaded regular gasoline : Pump posted 87 Octane (research octane rating of 91)		
Fuel Tank Capacity		L (US gal)	1.4 (0.37) integral tank		
Engine Oil		Grade	Genuine two stroke engine oil or NMMA certified TC-W3 outboard oil		
Engine Oil Mixing Ratio			Unleaded Gasoline 50 : 2-stroke Engine Oil 1		
Gear Oil		Grade	API:GL-5, SAE:80-90		
		mL (US/Imp.oz)	90 (3.0/3.2)	180 (6.1/6.3)	
Spark Plug			NGK BP6HS-10/BPR6HS-10		
Spark Plug Gap		mm (in)	0.9-1.0 (0.035-0.039)		

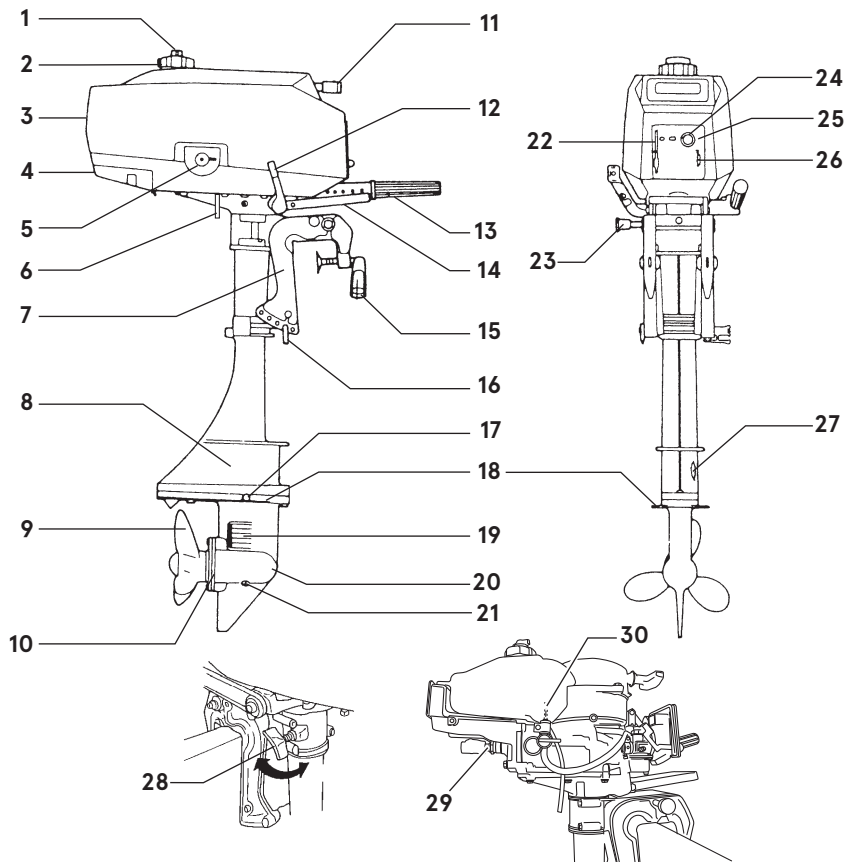
## Tightening torque

Gear Oil Plug	4N · m (3 ft · lb, 0.4 kgf · m)
Spark Plug	27N · m (20 ft · lb, 2.7 kgf · m)

# PARTS NAME

ENOM01301-0

## 2.5A2, 3.5A2, 3.5B2



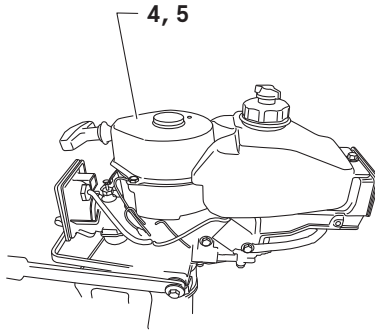
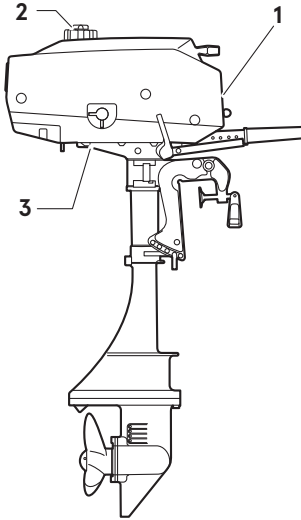
- |                             |                             |                        |
|-----------------------------|-----------------------------|------------------------|
| 1 Air Vent Screw            | 12 Shift Lever(3.5B2 only)  | 23 Tilt Stopper        |
| 2 Fuel Tank Cap             | 13 Handle Grip              | 24 Stop Switch         |
| 3 Top Cowl                  | 14 Carrying Handle          | 25 Carburetor Cover    |
| 4 Plug Cap Cover            | 15 Clamp Screw              | 26 Chork Lever         |
| 5 Fuel Cock                 | 16 Thrust Rod               | 27 Drive Shaft Housing |
| 6 Cooling Warter Check Port | 17 Oil Plug (Upper)         | Grommet (3.5B2 only)   |
| 7 Clamp Bracket             | 18 Anti-Ventilation Plate   | 28 Steering Friction   |
| 8 Drive Shaft housing       | 19 Water Inlet (3.5B2 only) | Adjustment Screw       |
| 9 Propeller                 | 20 Gear Case                | 29 Spark Plug          |
| 10 Water Inlet (2.5/3.5A2)  | 21 Oil Plug (Lower)         | 30 Fuel Filter         |
| 11 Starter Handle           | 22 Throttle Lever           |                        |

ENOF02002-0

# LABEL LOCATIONS

ENOM00019-A

## Warning label locations

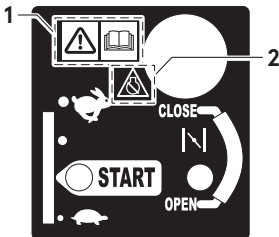


4

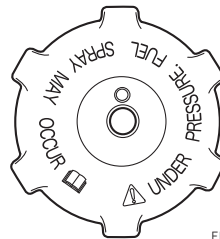
ENOF02003-1

- 1-1. Read owner's manual.  
1-2. Engine stop switch (See page 33).

2. UNDER PRESSURE FUEL SPRAY MAY OCCUR (See page 21, 26).



314X67531-3



ENOF02050-0

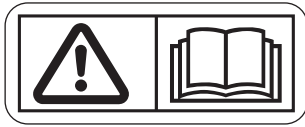
3. HOT SURFACE  
Can cause burns.  
Do not touch.



3GR-76191-0



4. Read owner's manual.



3F0X72185-0

5. HOT SURFACE

Can cause burns.

Do not touch when operating or immediately after the engine has stopped.

**ELECTRICAL SHOCK HAZARD**

High voltage can cause severe electrical shock.

Do not touch electrical components such as ignition coil or spark plug cord when starting or while the engine is in operation.

**HAZARD CAUSED BY ROTATING PARTS**

Rotating parts can cause severe injury.

Keep hands, feet, hair, and clothing away from all rotating parts to prevent injury.

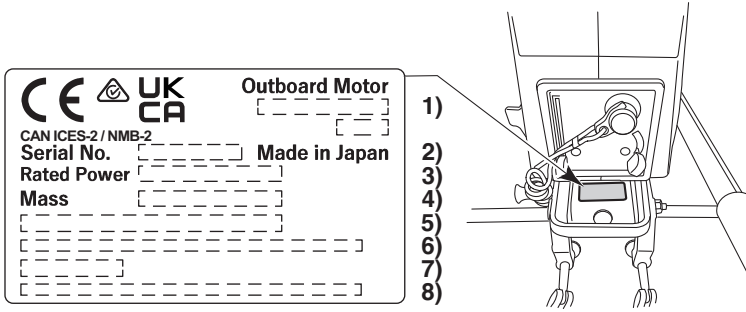


314X72185-0

ENOM01001-0

## Serial number label locations

4



ENOF02048-3

- 1. Model code(Model name)
- 2. Serial No.
- 3. Rated power
- 4. Dry mass weight
- 5. Manufacture name
- 6. Manufacture address
- 7. Authorised representative
- 8. Authorised representative address

Description of serial number year code  
 Last two digits of alphabet represent production year as below.

Year Code	BC	BD	BE	BF	BG
Year of manufacture	2023	2024	2025	2026	2027

ENON00937-0

### Note

#### For CE marked model

The Outboard engine is intended to install on non-recreational craft within the European Union because it has not been confirmed compliance with requirement of Directive 2013/53/EU.

# INSTALLATION

ENOM00024-B

## 1. Mounting the outboard motor on boat

ENOW00006-1

### WARNING

Most boats are rated and certified for their maximum allowable horsepower, as shown on the boat's certification plate. Do not equip your boat with an outboard motor that exceeds this limit. If in doubt, contact your dealer.

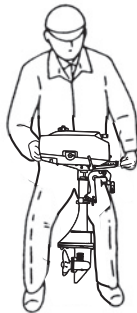
Do not operate the outboard motor until it has been securely mounted on the boat in accordance with the instructions below.

ENOW00009-2C

### WARNING

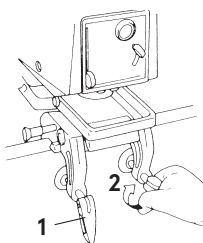
- Mounting the outboard motor without following this manual can lead to unsafe conditions such as poor maneuverability, lack of control or fire.
- Loose clamp screws can lead to the release or displacement of the outboard motor, possibly resulting in loss of control and/or serious personal injury. Check the clamp screws for tightness before operating your outboard.

Keep the outboard motor in a vertical position when mounting.



ENOF02004-0

5



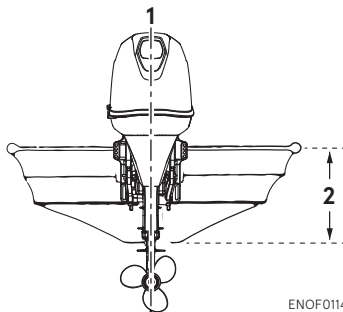
ENOF02005-0

1. Clamp Screw
2. Tighten

ENOM00025-0

### Position ... Above keel line

Place the outboard motor in the center of the boat's transom.



ENOF01141-0

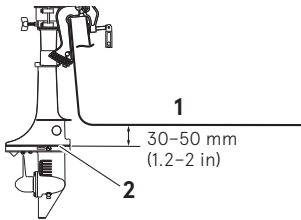
1. Center of boat
2. Boat transom

ENOM00026-0

### Transom matching

Be sure that the anti ventilation plate of the outboard motor is 30–50 mm (1.2–2 in) below the bottom of hull.

If the above condition cannot be met due to the shape of the bottom of your boat, please consult your authorized dealer.



ENOF01608-0

1. Bottom of hull
2. Anti ventilation plate

ENOW00007-1

### CAUTION

- Before running test, check the boat with maximum loading capacity. Overloading or incorrect weight distribution of the weight may result in boat to lose control, even swamping or capsizing. Make sure that there is enough distance between bottom cowl and water surface to prevent water from entering the engine.
- Make sure to mount the engine in correct position. If outboard motor is mounted incorrectly, water may intrude the engine from openings of the bottom cowl while cruising. Exposing the engine to such condition may result in severe damage to the engine.

ENOM00831-0

### Mounting the outboard motor

1. Set the outboard motor to appropriate position.
2. Tighten the clamp screws by turning their handles.
3. Secure the outboard motor to the boat with a rope to prevent accidental loss of the outboard motor overboard.

ENON00930-0

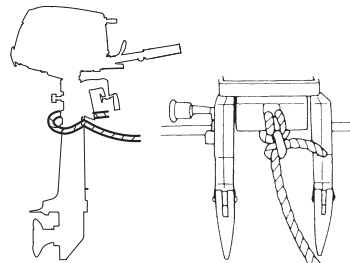
### Note

Do not use tools to tighten clamp screws. Over tightening could result in damage to the clamp screws and clamp brackets.

ENON00002-0

### Note

A rope is not included in the standard accessories.



ENOF02006-0

# PRE-OPERATING PREPARATIONS

ENOM00030-A

## 1. Fuel handling

ENOW000017-0

### CAUTION

**Use of improper gasoline can damage your engine. Engine damage resulting from the use of improper gasoline is considered misuse of the engine, and damage caused thereby will not be covered under the limited warranty.**

ENOM00031-1

## FUEL RATING

Use only major brand unleaded fuel meeting the following specifications:

**USA and Canada** – having a posted pump Octane Rating of 87 (R+M)/2 minimum.

Premium gasoline (92 [R+M]/2 Octane) is also acceptable. Do not use leaded gasoline.

**Outside USA and Canada** – Use unleaded gasoline with declared octane rating of 91 RON or over. Use of premium gasoline of 98 RON is also allowed.

ENOM00032-1

## GASOLINES CONTAINING ETHANOL

The fuel system components on your TOHATSU outboard motor will withstand up to 10% ethyl alcohol (hereinafter referred to as the "ethanol") content in the gasoline. If the gasoline in your area contains ethanol, be aware of certain adverse effects that can occur. Increasing the percentage of ethanol in the fuel can also worsen these adverse effects. Some of these adverse effects are caused by ethanol absorbing moisture in

the air, which leads to separation of the water/ethanol from the gasoline in the fuel tank.

Use of gasoline containing ethanol may accelerate:

- Corrosion of metal parts
- Deterioration of rubber or plastic parts
- Fuel permeation through rubber fuel lines
- Starting and operating difficulties

If the use of gasoline containing ethanol cannot be avoided or presence of ethanol is suspected in the gasoline, it is recommended to use a filter to separate water, and frequently check the fuel system for leaks, mechanical parts for corrosion and abnormal wear.

In case any of such abnormality is found, discontinue the use of such gasoline and contact our dealer immediately.

If the outboard motor will only be used infrequently, please see the remarks on fuel deterioration in the STORAGE chapter (P 53) for additional information.

ENOW00975-0

### CAUTION

**When operating an outboard motor with gasoline containing ethanol, storing gasoline in the fuel tank for long periods should be avoided. Storing gasoline for long periods creates unique problems. In cars, ethanol blended fuels are normally consumed before they can absorb enough moisture to cause problems, but boats often sit idle long enough for separation phase to take place. In addition, internal corrosion may take place during storage if ethanol washes away the oil films protecting internal components.**

ENOW00018-1

**WARNING**

Fuel leakage can cause fire or explosion, potentially leading to severe injury or loss of life. Every part of fuel system should be inspected periodically. Inspect for fuel leak, hardness or any alteration of rubber, expansion and/or corrosion of metals especially after long term storage. In case any indication of fuel leakage or degradation in fuel system is found, replace the part immediately before using the outboard motor.

ENOM01002-0

**2. Engine oil recommendation**

ENOW0002A-A

**CAUTION**

Use of engine oils that do not meet these requirements will result in reduced engine life, and other engine problems.

Use a genuine two stroke engine oil or ones recommended (TC-W3). Refer to your Distributor.

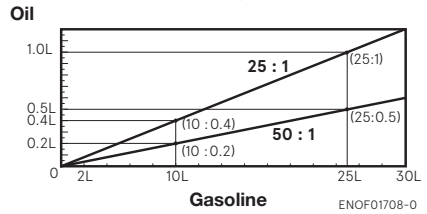
Use of other two stroke oil is not recommended.

Add engine oil into fuel tank. The mixing ratio of gasoline and oil is 50:1. Make sure that gasoline and oil are mixed well. The mixing ratio during break in is 25:1.

**Mixing Ratio**

	Gasoline : Engine Oil
During break-in	25 : 1
After break-in	50 : 1

**Fuel by Oil Mixing (25:1, 50:1)**



ENOM01003-A

**Engine oil – gasoline mixing procedure**

ENOW00937-1

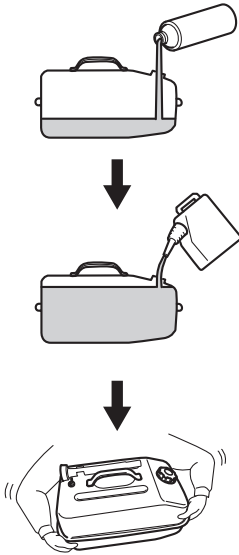
**CAUTION**

- Do not use other than two stroke engine oil with specified grade, or the engine may be damaged.
- Do not use fuel prepared in other than specified mixing ratio.
  - Lack of engine oil can cause severe engine problems such as piston seizure.
  - Excess of engine oil can shorten spark plug life, and/or cause increase of noxious exhaust.

For quantities of engine oil and gasoline to be pre-mixed, refer to table on this page.

■ **For outboard motor with integral fuel tank:**

- 1 Prepare separate fuel container for pre-mixing.
- 2 Pour engine oil into fuel container, and then, gasoline.
- 3 Put cap on the container, and close tightly.
- 4 Shake the container to mix engine oil and gasoline well.
- 5 Pour the fuel into fuel tank.



ENOF01709-B

ENON00922-1

**Notes**

- It is recommended to pre-mix by using separate fuel container. Avoid mixing the oil and gasoline in the built in fuel tank on the boat.
- If mixing in built-in fuel tank on the boat, allow it to mix well by pouring engine oil into the tank little by little while pouring gasoline into the tank.

ENOM00043-D

**3. Fuel filling**

ENOW00976-0

**! WARNING**

Do not fill the fuel tank over capacity. Under high temperature conditions, excessive gasoline may evaporate/leak through air vent

screw when it is loose or open. Leaking of gasoline is a may lead to a dangerous fire hazard.

ENOW00028-1

**! WARNING**

Consult an authorized dealer for details on handling gasoline, if necessary.

Gasoline and its vapor are very flammable and can be explosive.

When carrying a fuel tank containing gasoline:

- Close the fuel tank cap and air vent screw of fuel tank cap, or gasoline may evaporate through the air vent screw and may lead to a fire hazard.
- Do not smoke.

When or before refueling:

- Be sure to remove the static electricity charged in your body before refueling.
- The static electricity may ignite the gasoline vapor during refueling.
- Stop the engine, and do not start the engine during refueling.
- Do not smoke.
- Be careful not to overfill fuel tank. Wipe up any spilled gasoline immediately.

When or before cleaning the gasoline tank:

- Dismount fuel tank from the boat.
- Place the fuel tank away from every source of ignition, such as sparks or open flames.
- Do the work outdoors or in a well ventilated area.
- Wipe up gasoline well immediately if spilled.

After cleaning gasoline tank:

- Wipe up gasoline well immediately if spilled.
- If the fuel tank is disassembled for cleaning, reassemble carefully. Incorrect

assembly may cause a fuel leak, possibly leading to fire or explosion.

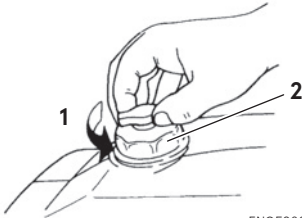
- Dispose aged or contaminated gasoline in accordance with local regulations.

ENOW00029-1

## ⚠ WARNING

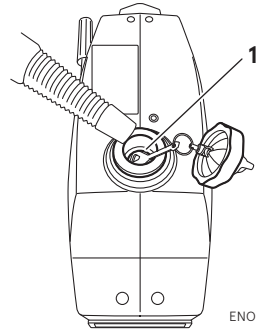
When opening fuel tank cap, be sure to follow the procedure described below. Fuel could blast out if the fuel tank cap is opened by using another procedure when internal pressure of fuel tank is raised by heat from sources such as sun light.

1. Before opening fuel tank cap, turn air vent screw two turns counterclockwise to release air pressure in the fuel tank.



ENOF02007-0

1. Two turns the air vent screw
2. Fuel tank cap
2. Open the fuel tank cap slowly.
3. Fill the fuel not to over the shown level.



ENOF02008-0

1. Full line
4. After filling the tank, close the tank cap.

ENOM00033-B

## 4. Break-In

Your new outboard motor and lower unit require break-in for the moving components according to the conditions described in the following timetable.

ENOW00024-1

## ⚠ DANGER

**Do not operate the outboard motor in closed area or area with not enough ventilation.**

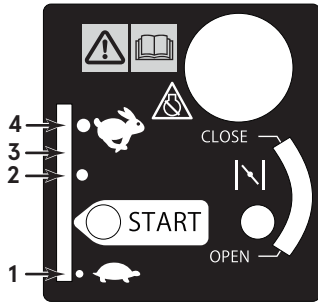
**Exhaust gas emitted by the outboard motor contains carbon monoxide that may cause dizziness, nausea, other health problem or even death if inhaled continuously.**

**During operation of the outboard motor:**

- Keep peripheral area well ventilated.
- Always stay on the windward side of emission.



	1-10 min	10 min - 3 hrs	3-5 hrs	After 5 hrs
Throttle Position	Idle	Less than 1/2 throttle	Less than 3/4 throttle	Full throttle available
Speed	1 Cruising at minimum speed	2 Approx. 500-3,500 min <sup>-1</sup> (rpm) max	3 Approx. 4,000 min <sup>-1</sup> (rpm)	4 Available to operate at wide open throttle



ENOF02010-1

ENOW00023-1

**CAUTION**

Operating the outboard motor without break-in can shorten life of the product. If any abnormality is experienced during the break-in:

- Discontinue the operation immediately.
- Have the dealer check the product and take proper action(s) if necessary.

ENOM01004-0

**Fuel mix ratio for break-in**  
Gasoline 25: Genuine Engine Oil 1

ENOW00940-0

**CAUTION**

- During the break-in period, never run the engine continuously at high speed.
- After running-in is completed, select the correct propeller so that the engine speed is the recommended range at the wide-open throttle.
- After completing 5 hours of breakin, replace the gear oil with new oil. Refer to "Changing the gear oil" in subsection (2), Periodic Inspection.

ENON00008-2

**Note**

- During Break-in, run the outboard motor at varied RPM less than specified engine speed. Not following the procedure may result in problems and may shorten the product life.
- Break-in must be conducted under load in the water in-gear with propeller installed.

# ENGINE OPERATION

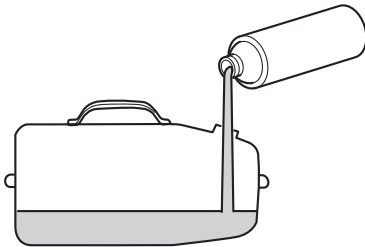
ENOM00042-0

## Before starting

ENOW00022-B

### CAUTION

Be sure to fill the engine before starting engine. (To properly fill the engine with oil follow the instructions. See page 22)



ENOF01710-B

7

ENOM00044-F

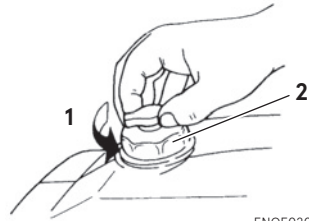
## 1. Fuel feeding

ENOW00029-1

### WARNING

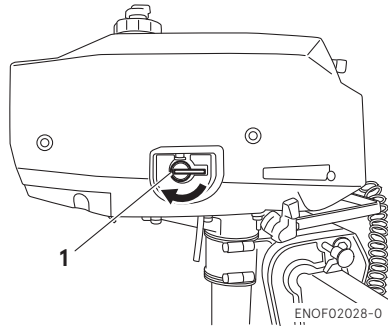
When opening fuel tank cap, be sure to follow the procedure described below. Fuel could blast out if the fuel tank cap is opened by using another procedure when internal pressure of fuel tank is raised by heat from sources such as sun light.

1. Before opening fuel tank cap, turn air vent screw two turns counterclockwise to release air pressure in the fuel tank.



ENOF02007-0

1. Two turns the air vent screw
2. Fuel tank cap
2. Open the fuel cock.



ENOF02028-0

1. Fuel cock

ENOW00937-0

### CAUTION

Be sure to close the fuel cock when the out-board motor is tilted up. Otherwise, fuel could overflow.

ENON00923-0

### Note

If fuel is not supplied immediately to the carburetor (new engine or after cleaning), wait for about 15 seconds for the proper quantity of fuel to flow into the carburetor after opening the fuel cock.

ENOM00045-D

## 2. Starting the engine

ENOW00979-0

### ⚠ WARNING

Before starting the engine, make sure that boat is properly moored and outboard motor can be steering fully to right and left. Make sure that no swimmer(s) is around of the boat.

ENOW00980-0

### ⚠ WARNING

- The propeller rotates whenever the engine is running (M3.5A2).
- Do not open the throttle lever beyond the start position when the engine starts, or the boat could move suddenly which may cause an accident.

ENOW00958-1

### ⚠ WARNING

- Do not remove or install the top cowl after the engine has started.
- The exposed rotating engine parts cause serious injury.

ENOW00959-0

### ⚠ CAUTION

The top cowl must be installed while the engine running except in an emergency. If the top cowl is not installed correctly, water splash can damage the engine.

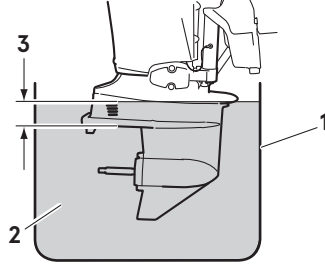
ENOW00036-1A

### ⚠ CAUTION

When starting the outboard motor in the test tank, make sure that:

1. Water level is at least 10 cm (4 in.) above the anti-ventilation plate to avoid overheating of the engine.

2. Run at idling only
3. Remove the propeller (See page 48)



ENOF00863-0

1. Test tank
2. Water
3. Over 10 cm (4 in.)

ENOW00036-1

### ⚠ CAUTION

Operating outboard motor without cooling water will lead to overheating and damage on the outboard motor severely. In case the cooling water check port is not discharging water, stop the outboard motor immediately, check for any object, debris which may be blocking the cooling water check port. If you are unable to locate the cause, consult an authorized dealer immediately.

ENOW00032-B

### ⚠ CAUTION

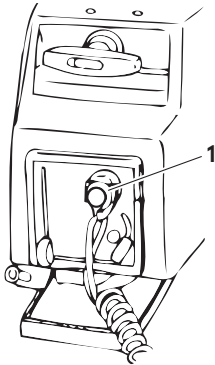
Do not try to crank after engine has started.

ENOW00941-0

### ⚠ CAUTION

When the shift lever is at the "NEUTRAL" position, never move the throttle lever to medium or high speeds. This may cause serious damage to the engine by rotating it at excessively high speed. (3.5B2)

1. Be sure to install the stop switch lock to the stop switch, and attach the stop switch lanyard securely to the operator or to the operator's PFD (Personal Flotation Device.)



ENOF02014-0

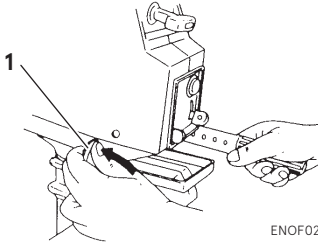
1. Stop switch lock

ENON00924-1

**Note**

The engine will not start if the stop switch lock is not securely installed.

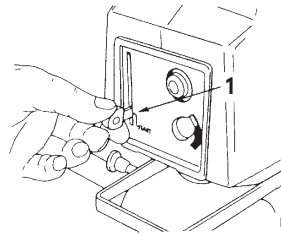
2. Set the shift lever in the Neutral position. (3.5B2 only)



ENOF02015-0

1. Shift lever

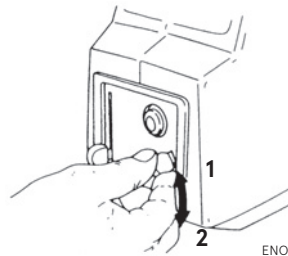
3. Set the throttle lever to the Start position.



ENOF02016-0

1. Throttle lever

4. Set the choke lever to the Close position.



ENOF02017-0

1. Close
2. Open

ENON00501-A

**Note**

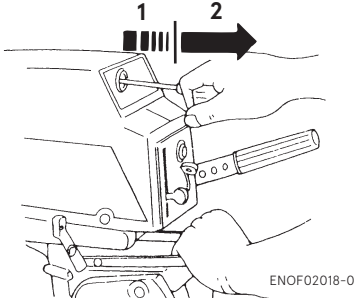
Choke is not necessary when the engine is warm.

ENON00502-1

**Note**

If engine does not start with 4 or 5 times starting operation, close the choke lever and restart.

- Pull the starter handle slowly until you feel engagement, keep pulling till you feel less resistance. Then pull it quickly. Repeat the procedure until the outboard motor is started.



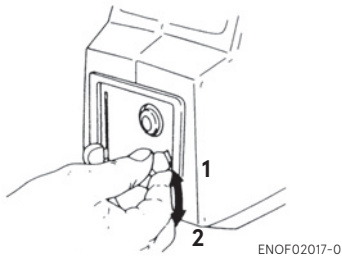
- Slowly
- Quickly

ENON00926-0

**Note**

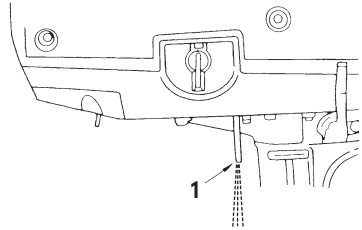
Return the recoil starter grip slowly when the engine has started. Releasing the starter grip at the extended position may cause a trouble in the starting system.

- When the engine has started, immediately return the choke lever to the Open position then move the throttle lever downward to slow speed.



- Close
- Open

- Make sure that water is being discharged from the cooling water check port.



- Cooling water check port

ENOM00042-1E

**Emergency starting**

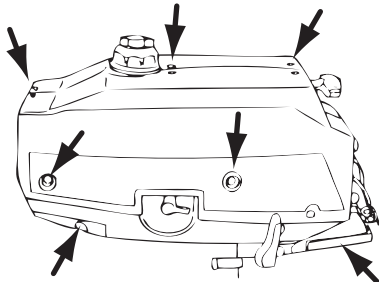
ENOW00099-1A

**⚠ WARNING**

**When the emergency starter rope is used for starting engine;**

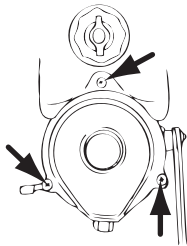
- **Start in gear protection does not work. Be sure to shift is at neutral position. Otherwise the engine will move the boat immediately and cause personal injury.**
- **Be careful that your clothes or other items do not get caught in the rotating engine parts.**
- **To prevent accident and injury by rotating parts, do not re-install flywheel cover or recoil starter, and the top cowl after the engine has been started.**
- **Do not pull starter rope if any bystander is behind. The action can injure the bystander.**
- **Attach engine stop switch lanyard to clothing or any part of body like arm before starting engine.**

- Remove the top cowl fixing screws to remove the top cowl.



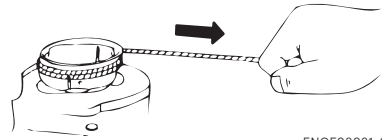
ENOF02019-0

2. Remove the three bolts fastening the recoil starter.
3. Remove the recoil starter.



ENOF02020-0

4. Insert the knotted end of the starter rope into the notch in the flywheel and wind the rope clockwise around the flywheel several turns.
5. Tie a loop to other end of the emergency starter rope and attach socket wrench that is included in the tool kit.
6. Be sure to install the stop switch lock to the stop switch, and attach the stop switch lanyard securely to the operator or to the operator's PFD (Personal Flotation Device.)
7. Set the shift lever in the Neutral position (M3.5B2).
8. Pull the starter handle slowly until you feel engagement, keep pulling till you feel less resistance, then pull it quickly.



ENOF02021-0

9. Once the outboard motor is started, do not reinstall recoil starter and top cowl.

ENOM00043-C

### 3. Warming up the engine

ENOW00932-1

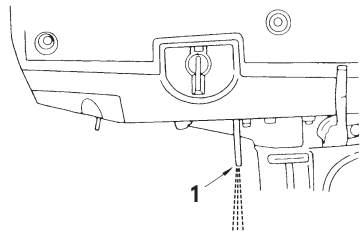
#### ⚠ CAUTION

**Be sure to check that cooling water is coming out of the cooling water check port during warm up.**

Warm the engine at low engine speeds for about

- 3 minutes : above 5°C (41°F)
- 5 minutes at 2000 min<sup>-1</sup> (rpm) : above 5°C (41°F)

This allows the lubricating oil to circulate to all parts of the engine. Operating the engine without warm up shortens the engine's life.



ENOF02022-0

1. Cooling water check port

ENOM00044-B

## Engine speeds

Idling speed after warming up.

Model	Trolling speed (in Forward)	Idling speed (in Neutral)
2.5A2	1,100 min <sup>-1</sup> (rpm)	-
3.5A2	1,100 min <sup>-1</sup> (rpm)	-
3.5B2	1,100 min <sup>-1</sup> (rpm)	1,300 min <sup>-1</sup> (rpm)

ENOM00046-A

## 4. Forward, reverse, and acceleration

ENOW00037-1

### WARNING

Before shifting into forward or reverse, make sure that boat is properly moored and outboard motor can be steered fully to the right and left. Make sure that no swimmer(s) is around of the boat.

ENOW00038-1

### WARNING

- Attach the other end of emergency stop switch lanyard to the operator's PFD (Personal Flotation device) or arm and keep it attached during cruising.
- Do not attach the tether to a part of clothing that can be torn easily when pulled.
- Arrange the tether so that will not be caught by any object when pulled.
- Be careful not to pull the tether accidentally during cruising. Unintentional stop of engine can cause loss of control of outboard motor. Rapid loss of engine power can lead to fall down or causing passenger(s) to be thrown overboard.

ENOW00861-1

### WARNING

Do not shift at high boat speed, or control may be lost, fall down or causing passenger(s) to be thrown overboard. Leading to serious personal injury.

ENOW00867-1

### WARNING

Sudden acceleration and deceleration may cause passenger(s) to be thrown overboard or fall down.

ENOW00862-1

### CAUTION

Gear and clutch damage may occur if shifting at high engine speed.

Engine must be in the slow idle position before shifting.

ENOW00863-0

### CAUTION

Idle speed may be higher during warming up of engine. If shifted to Forward or Reverse during warming up, it may be difficult to shift back to neutral. In such case, stop engine, shift to neutral, and restart engine to warm up.

ENON00014-0

### Note

Frequent shifting to forward or reverse can accelerate wear or degradation of parts. In such case, replace gear oil earlier than the period specified.

ENOW00864-0

### CAUTION

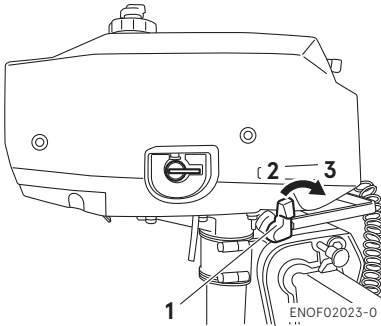
Do not increase engine speed unnecessarily when the shift is in neutral and reverse, or engine damage may occur.

ENOW00865-1A

**CAUTION**

Do not force to shift when the throttle lever is not in the fully closed position, otherwise, steering system and/or shifting mechanism may be damaged.

ENOW01303-0

**Forward (3.5B2 only)**

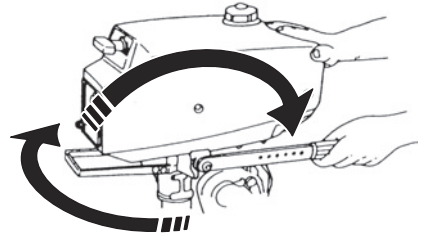
1. Shift lever
2. Neutral (N)
3. Forward (F)

**Forward**

1. Lower the throttle lever in order to reduce engine speed.
2. When the engine reaches trolling (or idling) speed, quickly pull the shift lever to the Forward position.

**Reverse**

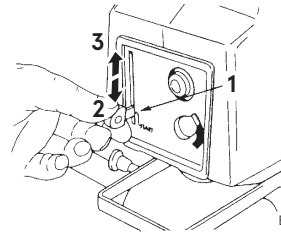
1. Lower the throttle lever in order to reduce engine speed.
2. When the engine reaches trolling (or idling) speed, quickly pull the shift lever to the Neutral position.
3. The handle upright, turn the outboard motor at an angle of 180° and quickly turn the shift lever to the Forward (F) side. (3.5B2 only needs to operate shift lever)



ENOF02024-0

**Acceleration**

The speed is controlled by operating the throttle lever. Moving the throttle lever gradually upward increases the speed, and moving it downward decreases the speed.



ENOF02025-0

1. Throttle lever
2. Fully closed
3. Fully opened

ENOM00049-C

**5. Stopping the engine**

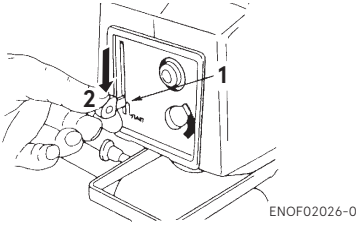
ENOW00868-1

**WARNING**

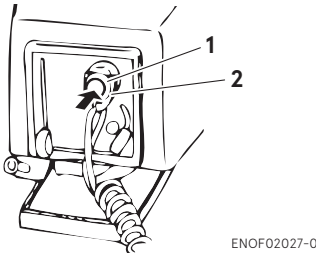
Be careful not to remove engine stop switch lanyard from engine accidentally while boat is running. Sudden stop of engine can cause loss of steering control, speed, possibly leading the crew(s) and or objects on the boat to be thrown forward due to inertial force.



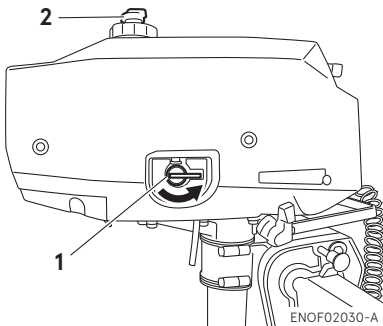
1. Lower the throttle lever in order to the slow position.



1. Throttle lever
  2. Fully closed
2. Put the shift lever in the Neutral position. (3.5B2 only)  
Run the engine for 2-3 minutes at idling speed for cooling down if it has been running at full speed.
  3. Push the stop switch.



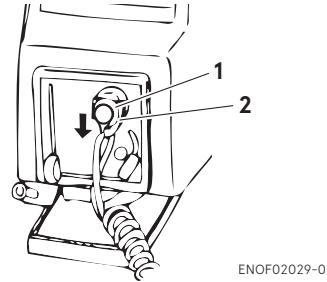
1. Stop switch
  2. Stop switch lock
4. Close the air vent screw and fuel cock.



1. Fuel cock
2. Air vent screw

**Emergency engine stopping**

Remove stop switch lock to stop the engine.



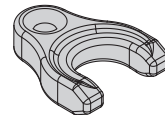
1. Stop switch
2. Stop switch lock

ENOM00910-1

**Spare emergency stop switch lock (For CE marking model)**

A spare emergency stop switch lock is provided in the accessories bag. Make sure that spare stop switch lock is available before operating outboard motor.

When used as described, the emergency stop switch clip and emergency stop switch lanyard system stops the engine if the operator is thrown overboard. When an operator falls into water, be sure to use spare emergency stop switch lock.



ENOM00920-0

## 6. Steering

ENOW00870-1

### WARNING

Sudden steering may cause passenger(s) to be thrown overboard or fall.

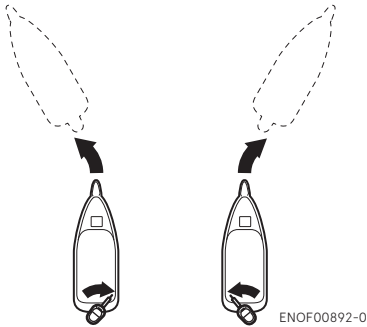
### Tiller handle type

#### Right turn

Move the tiller handle to the left

#### Left turn

Move the tiller handle to the right.



ENOM00050-0

## 7. Trim angle

ENOW00043-1

### WARNING

- Adjust the trim angle when the engine is stopped.
- Do not put hand or finger in between outboard motor body and clamp bracket when adjusting trim angle to prevent possible injury.
- Unsuitable trim position can cause loss of control of boat. When testing a trim position, run the boat slowly initially to see if it can be controlled safely.

ENOW00044-1A

### WARNING

Excessive trim up or down may cause unstable boat operation, loss of control that may lead to accident during cruising.

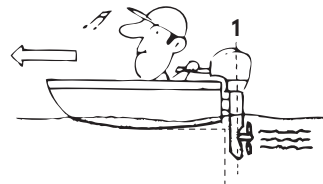
- For manual tilt model, If you feel the trim is improperly positioned, stop the boat and readjust trim angle before continuing to cruise.

The trim angle of the outboard motor can be adjusted to suit the transom angle of the hull, and load conditions. Choose an appropriate trim angle that will allow the anti-ventilation plate to run parallel to the water surface during operation.

ENOM00052-0

### Proper trim angle

The position of the thrust rod is correct if the hull is horizontal during operation.



1. Perpendicular to the water surface

ENOM00053-0

### Improper trim angle (bow rises too high)

Set the thrust rod lower if the bow of the boat rises above horizontal.



ENOF00052-0

ENOM00054-0

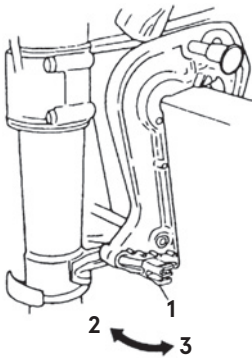
**Improper trim angle (bow dips into the water)**

Set the thrust rod higher if the bow of the boat is below horizontal.



ENOF00053-0

■ **Manual Tilt type**



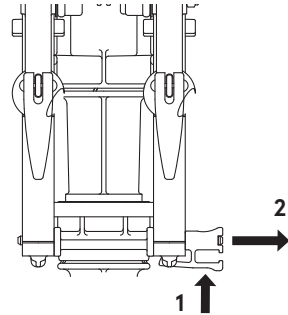
ENOF00229-0

- 1. Thrust rod
- 2. Higher
- 3. Lower

**Trim angle adjustment (Manual tilt type)**

The transom angle adjustment

- 1. Stop the engine.
- 2. Shift into neutral position (3.5B2 only)
- 3. Tilt up the outboard motor.
- 4. Remove the thrust rod by pressing clip as shown picture.



ENOF01612-0

- 1. Push in
- 2. Pull out
- 5. Reinstall the thrust rod in the desired position securely.
- 6. Gently tilt down the outboard motor.

ENOM00060-A

**8. Tilt up and down**

ENOW00055-1



Do not tilt the outboard motor up or down when swimmer(s) and/or passenger(s) are near to prevent them from being caught between outboard motor body and clamp bracket.

ENOW00048-1



When tilting up or down, be careful not to place your hand between the swivel bracket and the stern bracket.

ENOW00057-1



Do not tilt up the outboard motor while engine is operating, or no cooling water may be discharged, leading to engine seizure due to overheating.

ENOM00921-1

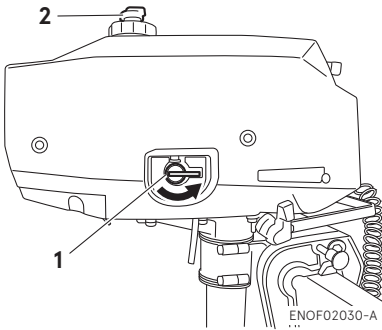
**Note**

After use, leave the outboard motor upright for a minute to drain the water from inside the engine.

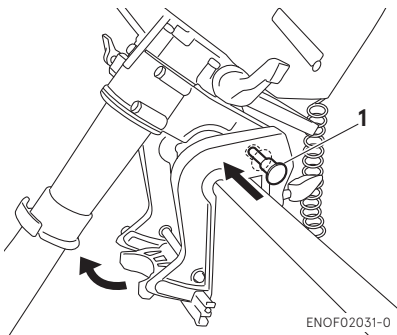
ENOM00222-A

**Tilt up**

1. Close the fuel cock and tighten the air vent screw of the tank cap.
2. Fully tilt up the outboard motor.
3. Press in the tilt stopper.
4. Gently lower the outboard motor to rest on the tilt stopper.



1. Fuel cock
2. Air vent screw

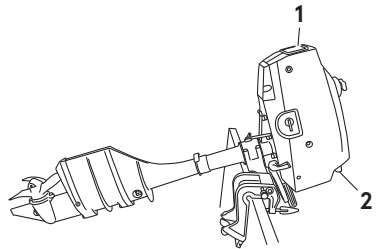


1. Tilt stopper

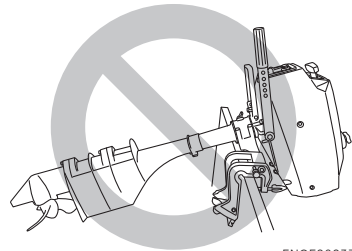
ENOM01304-0

**Outboard motor position in tilt up**

When the outboard motor is in the tiltup position, the tilt handle side must be in the upward direction. Tighten the steering friction adjustment screw to keep the direction.



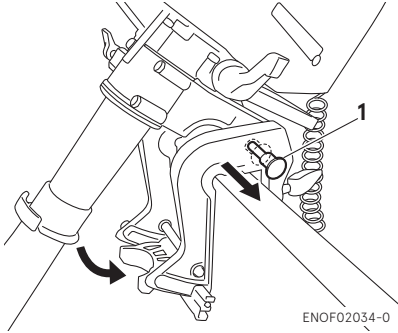
1. Tilt handle
2. Starter handle



ENOM00223-A

**Tilt down**

1. Fully tilt up the outboard motor.
2. Pull out the tilt stopper.
3. Gently tilt down the outboard motor.



1. Tilt stopper

# REMOVING AND CARRYING THE OUTBOARD MOTOR

ENOM00070-B

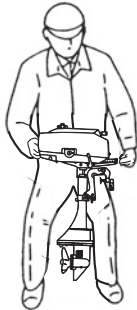
## 1. Removing the outboard motor

ENOW00064-1

### ⚠ CAUTION

Engine may be hot immediately after operation and could cause burns if came in contact. Allow engine to cool down before attempting to carry the outboard.

1. Stop the engine.
2. Be sure to close the air vent and the fuel cock.
3. Remove the outboard motor from boat and completely drain the water from the gear case.



ENOF02004-0

ENOM00071-A

## 2. Carrying the outboard motor

ENOW00065-1

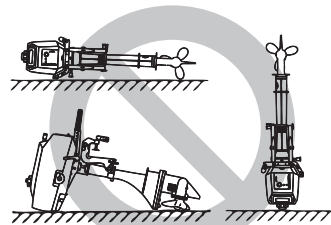
### ⚠ WARNING

Close air vent screw on fuel tank before carrying or storing outboard motor and fuel tank, or fuel may leak, potentially catching fire.

ENOW00066-1

### ⚠ CAUTION

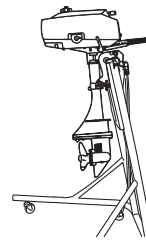
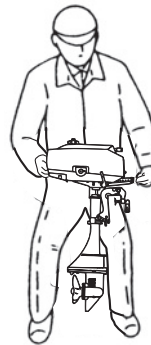
- Do not give a shock to an outboard motor during transportation.
- Do not carry or store outboard motor in any of positions described below. Otherwise, engine's exterior may be damaged or water may enter the cylinder through the exhaust port and cause engine problems.



ENOF02035-0

Keep the outboard motor in a vertical position when carrying.

The optional outboard motor stand is recommended for keeping the outboard motor vertical both during transport and storage.

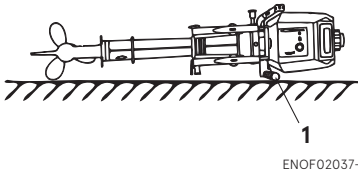


ENOF02036-0

ENON00021-3

**Note**

If the outboard motor must be laid down, be sure that fuel is completely drained, then lay the outboard motor with port side down on the cushion as shown in the drawing.



ENOF02037-0

- 1. Handle

ENOM00072-A

**3. Trailing**

ENOW00072-0

**CAUTION**

Trailing in the tilted position may cause damage to the outboard motor, boat, etc.

ENOW00068-1

**WARNING**

Close air vent screw on fuel tank and fuel cock before carrying or storing outboard motor and/or fuel tank, or fuel may leak, potentially catching fire.

ENOW00071-0

**CAUTION**

The tilt support device supplied on your outboard motor is not intended for towing. It is intended to support the outboard motor while the boat is docked, beached, etc.

ENOW00072-A

**CAUTION**

When trailing the outboard motor should be in a vertical (normal running) position,

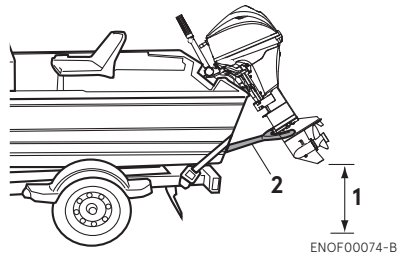
fully down. Trailing in the tilted position may cause damage to the outboard motor, boat, etc.

If trailing with outboard motor fully down is not available (the gear case skeg is too close to the road in a vertical position), fix the outboard motor securely using a device (like a transom saver bar) in the tilted position.

When transporting a boat on a trailer with the outboard motor still attached, disconnect the fuel line from the outboard motor beforehand and keep the outboard motor in the vertical position or on a transom saver bar.

**Tiller handle type**

While transporting outboard motor attached to the boat on a trailer, properly tighten the steering friction bolt to prevent the outboard motor from moving (page 40).



ENOF00074-B

- 1. Ground clearance should be provided sufficiently.
- 2. Transom saver bar

ENOW00067-0

**WARNING**

Do not go under outboard motor tilted up even if it is supported by support bar, or accidental fall of outboard motor could lead to severe personal injury.

# ADJUSTMENT

ENOM00073-E

## 1. Steering friction

ENOW00978-0

### WARNING

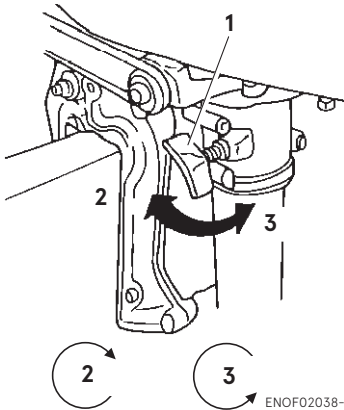
Steering may be difficult when steering friction adjustment screw is over tightened, it may also result in loss of control causing an accident and could lead to severe injury.

ENON00949-0

### Note

The steering friction adjustment screw is used to adjust the friction load of the steering. Excessive tightening of the adjustment screw may cause damage to the swivel bracket.

Steering friction can be adjusted in accordance with your preference by turning the steering friction adjustment screw.



ENOF02038-0

1. Steering friction adjustment screw
2. Heavier
3. Lighter



## INSPECTION AND MAINTENANCE

ENOM00077-1

### Care of your outboard motor

To keep your outboard motor in the best operating condition, it is very important that you perform daily and periodic maintenance as suggested in the maintenance schedules as follows.

ENOW00077-1

#### CAUTION

- Your personal safety and that of your passengers depends on how well you maintain your outboard motor. Carefully read all of the inspection and maintenance procedures described in this section.
  - The maintenance intervals shown in the checklist apply to an outboard motor in normal use. If you use your outboard motor under severe conditions such as frequent full-throttle operation, frequent operation in brackish water, or for commercial use, maintenance should be performed at shorter intervals. If in doubt, consult your dealer for advice.
  - We strongly recommend that you use only genuine replacement parts on your outboard motor. Damage to your outboard motor arising from the use of other than genuine parts is not covered under the warranty.
-

ENOM01305-0

# 1. Daily Inspection

Perform the following checks before and after use.

ENOW00078-0


**WARNING**

**Do not use outboard motor if any abnormality is found during pre-operation check or it could result in severe damage to the motor or severe personal injury.**

Item	Points to Check	Remedy
<b>Fuel System</b>	<ul style="list-style-type: none"> <li>· Check the amount of fuel in the tank.</li> <li>· Check for debris in the fuel filters.</li> <li>· Check the rubber hoses for fuel leakage.</li> </ul>	Replenish Clean or Replace Replace *1
<b>Fuel Tank Cap</b>	<ul style="list-style-type: none"> <li>· Check for crack, leakage, damage in the fuel tank cap.</li> <li>· Check for crack, damage in the gasket and tether.</li> <li>· Check for leakage at full close.</li> </ul>	Replace Replace Replace
<b>Electrical Equipment</b>	<ul style="list-style-type: none"> <li>· Check that the stop switch functions normally and make sure the lock plate is secured.</li> <li>· Check cords for loose connections and damage.</li> <li>· Check the spark plug for dirt, wear and carbon build-up.</li> </ul>	Remedy or replace *1  Correct or replace *1 Clean or replace *1
<b>Throttle System</b>	<ul style="list-style-type: none"> <li>· Check the choke plate and throttle valve to make sure carburetor is functioning normally.</li> </ul>	Replace *1 Correct *1
<b>Recoil Starter</b>	<ul style="list-style-type: none"> <li>· Check the rope for wear and chafing.</li> <li>· Check the ratchet engagement.</li> </ul>	Replace *1 Correct or replace *1
<b>Clutch and Propeller System</b>	<ul style="list-style-type: none"> <li>· Check that the clutch engages correctly when operation the shift lever. (3.5B only)</li> <li>· Visually check the propeller and shear pin for bent or damaged blades.</li> <li>· Check that the split pin is on the propeller.</li> </ul>	Adjust *1  Replace
<b>Installation of Motor</b>	<ul style="list-style-type: none"> <li>· Check the clamp screws attaching the motor to the boat for tightness.</li> <li>· Check the thrust rod installation.</li> </ul>	Tighten  Tighten
<b>Cooling Water</b>	<ul style="list-style-type: none"> <li>· After starting the outboard motor, make sure that water is being discharged from the cooling water check port.</li> </ul>	Repair *1
<b>Tools and Spares</b>	<ul style="list-style-type: none"> <li>· Check that there are tools and spare parts for replacing spark plugs, the propeller, etc.</li> <li>· Check that you have the spare rope.</li> </ul>	
<b>Other parts</b>	<ul style="list-style-type: none"> <li>· Check if the anode is securely installed.</li> <li>· Check the anode for corrosion and deformation.</li> </ul>	Repair if necessary Replace

\*1 Have this handled by your dealer.

ENOM00083-1E

**Washing outboard motor**

ENOW00920-0

**CAUTION**

**When washing the outboard motor, be careful not to spray the water inside of the top cowl, especially electrical components.**

ENON00026-0

**Note**

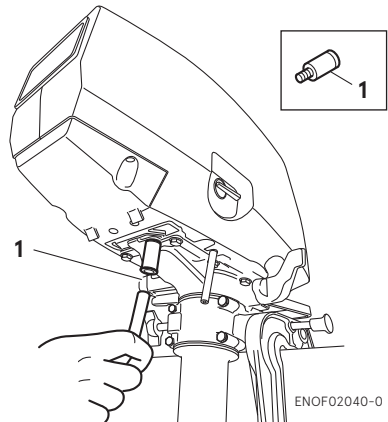
It is recommended to check chemical properties of water on which your outboard motor is regularly used.

If outboard motor is used in salt water, brackish water or water with high acidic level, use fresh water to remove salt, chemicals or mud from exterior and cooling water passage after every use or before storing outboard motor for long time. Before flushing, remove the propeller and shear pin.

ENOM00085-B

**Flushing attachment (3.5B2 only)**

1. Tilt down the outboard motor.
2. Remove the water plug from the drive shaft housing, and screw in the flushing attachment.
3. Attach the flushing attachment and connect a water hose. Turn on the water and adjust the flow. Continue flushing the outboard motor for 3 to 5 minutes.
4. After the flushing, be sure to reattach the water plug.



1. Flushing attachment (option)

ENOM00085-A

**Flushing by test tank**

ENOW00081-1

**⚠ WARNING**

Do not start engine without removing propeller, turning propeller out in the open may lead to personal injury.

ENOW00082-0

**⚠ WARNING**

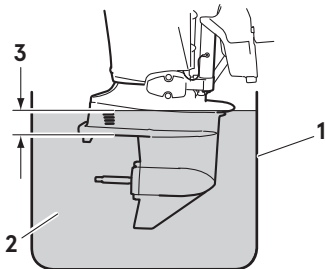
Never start or operate the engine indoors or in any space which is not well ventilated. Exhaust gas contains carbon monoxide, a colorless and odorless gas which can be fatal if inhaled for any length of time.

ENOW00036-1A

**⚠ CAUTION**

When starting the outboard motor in the test tank, make sure that:

1. Water level is at least 10 cm (4 in.) above the anti-ventilation plate to avoid overheating of the engine.
2. Run at idling only
3. Remove the propeller  
(See page 48)



ENOF00863-0

1. Test tank
2. Water
3. Over 10 cm (4 in.)

ENOM01106-1

## 2. Periodic Inspection

It is important to inspect and maintain your outboard motor regularly. Make sure to perform each service at interval specified in the chart below. Maintenance intervals are determined by the number of hours outboard motor has been used or number of months, whichever comes first.

Recode inspection performed in the INSPECTION & MAINTENANCE LOG at the back of this manual.

Item		Servicing Interval			Action	Remarks
		10 hours or 1 month	50 hours or 3 months	Every 100 hours or 6 months		
Fuel System	Carburetor *1			●	Clean, and adjust.	
	Fuel filter	●	●	●	Check and clean or Replace.	
	Piping/Hose			●	Check and Replace.	
	Fuel tank	●	●	●	Clean.	
Ignition	Spark plugs	●	●	●	Check gaps. Remove carbon deposits or Replace.	0.9–1.0 mm (0.035–0.039 in)
Starting System	Starter rope	●	●	●	Check for wear or chafing.	
Lower Unit	Propeller	●	●	●	Check for bent blades, damage, wear.	
	Shear pin & Split pin	●	●	●	Check and Replace.	
	Gear oil	●	●	●	Replace or Fill gear oil and check for water leaks.	180 mL (6.1 fl.oz.) : 3.5B2 90ml (3.0 fl.oz.) : 2.5A2/3.5A2
	Water pump *1			●	Check for wear or damage.	
Bolt and Nuts		●	●	●	Retighten.	
Sliding and Rotating Parts. Grease Nipples			●	●	Apply and pump in grease.	
Outer Equipment		●	●	●	Check for corrosion.	
Anode			●	●	Check for corrosion and deformation.	

\*1: Have this handled by your dealer.

Outboards used in rental, commercial, or other under severe condition as described below in detail require more frequent inspections and maintenance than shown in this manual.

- Continuous operation at maximum engine speed
- Continuous operation at idling or trolling speed
- Operation without appropriate warm up
- Stopping without sufficient time for the engine to cool down
- Frequent sudden acceleration and sudden deceleration
- Frequent stop start operation
- Frequent shifting operation
- Frequent operation in acidic, polluted, muddy, sandy, or shallow water

Appropriate maintenance can prolong your engine life.

Consult your Tohatsu authorized dealer for suitable maintenance interval depending on operating and environmental conditions.

ENOM00093-A

### Fuel filters and fuel tank cleaning

ENOW00093-1



**Gasoline and its vapor is very flammable and can be explosive.**

- Do not start this procedure while engine is operating or while engine is hot.
- Place fuel filter away from every source of ignition such as sparks or open flames.
- If gasoline is spilled, wipe up immediately and dispose according to the local regulations.
- Install fuel filter with all related parts in place, or fuel leak could occur, leading to catching fire or explosion.
- Check fuel system regularly for leakage.
- Contact authorized dealer for fuel system services. Services by unqualified person could lead to engine damage.

Fuel filters are provided inside the fuel tank and engine.

ENOM01405-0

### Fuel filter (for fuel tank)

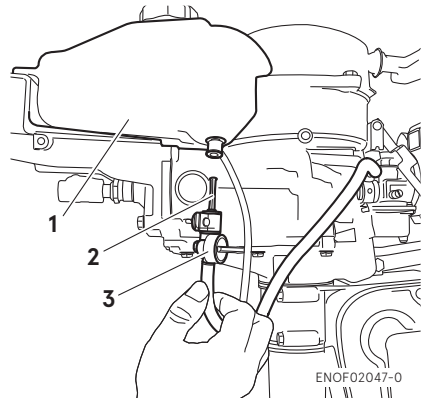
Water or dirt in the fuel tank will cause engine performance problems.

Check and clean the tank at specified intervals or after the outboard motor has

been stored over three months.

#### ■ integral tank type

1. Drain all fuel from the fuel tank.
2. Remove the fuel cock from the fuel tank and clean the fuel filter. Replace it if necessary.



ENOF02047-0

1. Fuel tank
2. Fuel filter
3. Fuel cock

ENOM00098-1A

**Gear oil replacement**

ENOW00076-1

**WARNING**

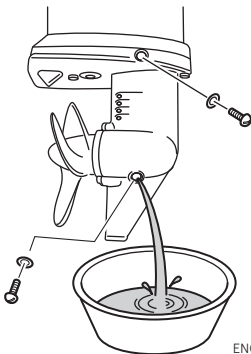
- Be sure that the outboard motor is secured to transom or service stand, or accidental drop or fall of outboard motor could lead to severe personal injury.
- Be sure to lock the outboard motor in the tilt up position, or accidental fall of outboard motor could lead to severe personal injury.
- Do not go under outboard motor in the tilt up position and locked, or accidental fall of outboard motor could lead to severe personal injury.

ENON00934-1

**Note**

Please dispose of used oil in a manner that is compatible with the environment. We suggest you take it in a sealed container to your local service station for reclamation. Do not throw it in the trash, pour it on the ground or down a drain.

1. Tilt down the outboard motor.
2. Remove the oil plugs (lower and upper), and completely drain the gear oil into a pan.



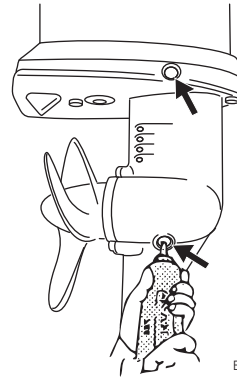
ENOF01617-0

3. Insert the oil tube nozzle into the lower oil plug hole and fill with gear oil by squeezing the oil tube until oil flows out of the upper plug hole. Make sure that no bubbles are coming out of the upper plug hole and there is no air inside the gear case.

ENON00033-1

**Note**

Use genuine gear oil or the ones recommended (API GL-5: SAE #80 to #90). Required volume: approx. 360 mL (11.8 fl.oz.).



ENOF01618-0

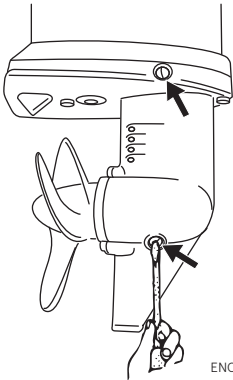
4. Install the upper oil plug, and then remove oil tube nozzle and install the lower oil plug.

Oil plug specified tightening torque  
**4N·m (3 ft·lb, 0.4 kgf·m)**

ENOW00095-0

**⚠ CAUTION**

Do not reuse oil plug gasket. Always use new gasket and tighten oil plug properly to prevent entry of water into lower unit.



ENOF01619-0

ENOW00928-1

**⚠ CAUTION**

If gear oil is spilled, wipe off immediately and dispose according to the local regulations.

ENON00032-1

**Note**

If the gear oil color appears to be milky color, contact your dealer.

10

ENOM00232-D

**Propeller replacement**

ENOW00084-1

**⚠ WARNING**

- Do not install or remove propeller on the outboard motor with spark plug caps attached, shift in forward or reverse, main switch at other than "OFF", engine stop switch lock attached to the switch, and starter key attached, or engine could accidentally start leading to serious personal injury. Disconnecting battery cable is recommended (if equipped).
- The propeller edge is thin and sharp. Wear the gloves while installing or removing to protect your hands.

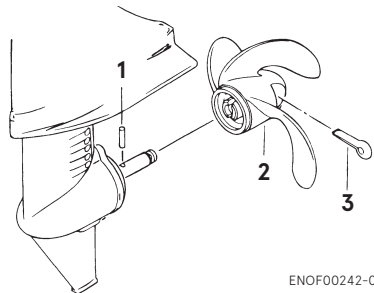
ENOW00208-A

**⚠ CAUTION**

- Do not reuse split pin.
- After installing split pin, spread the pin apart to prevent it from falling out which could lead to the propeller coming off during operation.

A worn-out or bent propeller will lower the outboard motor's performance, and cause engine trouble.

1. Pull out the split pin from the propeller boss and remove the propeller from the shaft.



ENOF00242-0

1. Shear pin
2. Propeller
3. Split pin



- Remove the shear pin from the shaft.
- Apply waterproof grease to the propeller shaft before installing a new propeller.
- Install the propeller with a new shear pin.
- Install a new split pin into the propeller's hole and bend the end of pin apart to lock propeller in place.

ENOM00087-C

### Spark plugs replacement

ENOW00087-1

#### WARNING

- Do not reuse spark plug, if the insulation is damaged or sparks can leak through crack, potentially leading to electric shock, explosion and/or fire.
- Do not touch spark plugs immediately after stopping engine as they will be hot and could cause severe burns if touched.

ENOW00929-0

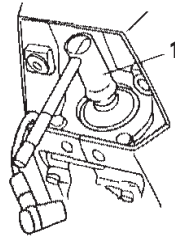
#### CAUTION

Use only the recommended spark plugs. Spark plugs which have an different heat range may cause engine damage.

If the spark plug is fouled, has carbon build up, or is worn, it should be replaced.

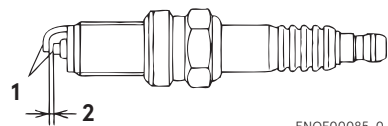
When reusing spark plug, remove dirt from the electrodes and check the spark gap to specification.

- Stop the engine.
- Remove the plug cap cover.
- Remove the spark plug cap.



ENOF02042-0

- Socket wrench
- Remove the spark plug by turning it counter-clockwise, using a 13/16" (21 mm) socket wrench and handle that is provided in tool bag.
- Inspect the spark plug. Replace the spark plug with wear on electrodes and if the insulators are cracked or chipped.
- Measure the spark gap with a wire type feeler gauge. The gap should be 0.9-1.0 mm (0.035-0.039 inches). If the gap is different, replace the spark plug with a new one  
Use spark plug (NGK BP6HS-10 or BPR6HS-10) or recommended ones.



ENOF00085-0

- Electrode
- Spark gap (0.9-1.0 mm, 0.035-0.039 in)
- Install the spark plug by hand and turn it carefully to avoid cross-threading.

8. Tighten the spark plug to the specified torque.

ENON00028-2

---

**Note**

- **Spark plug tightening torque:  
27 N·m (20 ft·lb) [2.7 kgf·m]**

If a torque-wrench is not available when you are installing a new spark plug, tighten it 1/2 to 2/3 a turn past finger-tight. If reusing a spark plug, tighten 1/12 a turn past finger tight. Have the spark plug adjustment to the correct torque as soon as possible with a torque-wrench.

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ENOM00088-1A

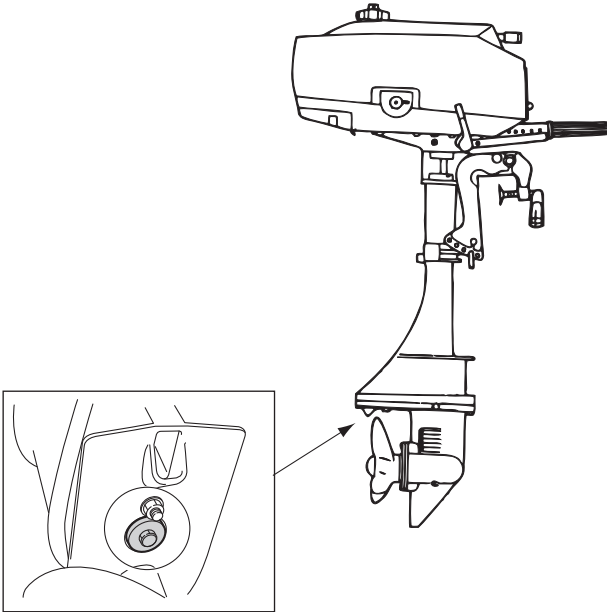
## Anode replacement

A sacrificial anode protects the outboard motor from galvanic corrosion. Anode is located on the gear case, cylinder etc.. When the anode is eroded more than 1/3 of original size, replace it.

ENON00029-1

### Notes

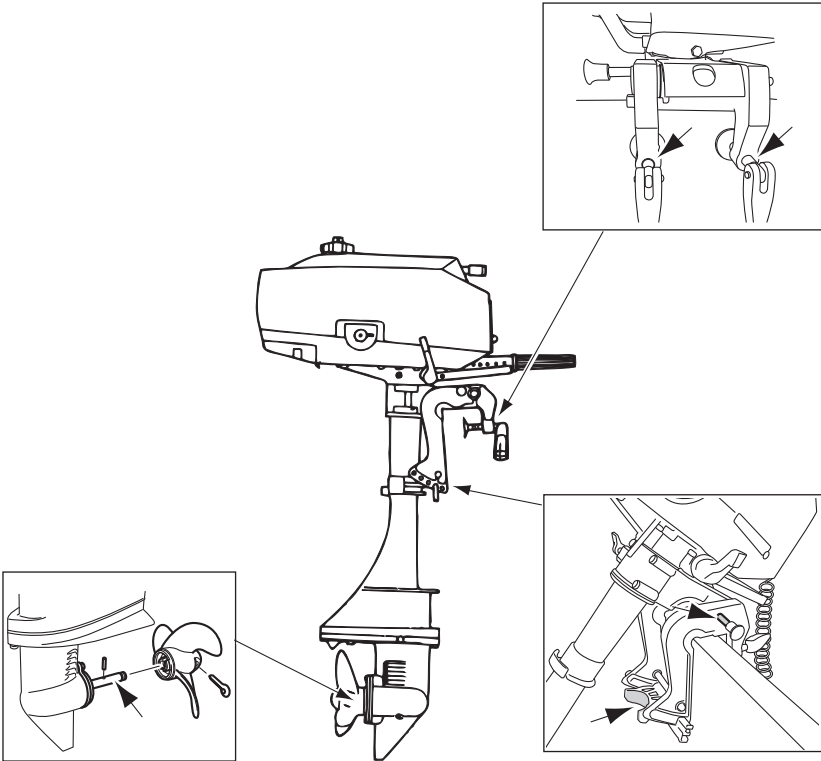
- Never grease or paint the anode.
- At each inspection, re-tighten all the anode attaching bolts. Those bolts may loosen if the anodes are corroded.



ENOM00960-0

### Grease point

Apply waterproof grease to the parts shown below.



10

ENOM00100-A

### 3. Off-season storage

ENOW00097-0

#### ⚠ WARNING

**Be sure to use cloth to remove fuel remaining in the cowl and dispose of it in accordance with local fire prevention and environment protection regulations.**

ENOW00096-A

#### ⚠ CAUTION

**Before servicing the motor for storage:**

- Remove the spark plug caps from the spark plugs.
- Do not run the motor out of the water.

Before you put your outboard motor in storage, it is a good opportunity to have it serviced by your dealer.

Be sure to use fuel stabilizer while running the motor before storage. (See page 54)

ENOM00101-F

### Engine

1. Wash the engine exterior and flush the cooling water system thoroughly with fresh water. Drain the water completely.  
Wipe off any surface water with an oily rag.
2. Drain all fuel from the fuel system (See page 54), and clean these parts. Keep in mind that if residue in the carburetor for a long time, gum and varnish will develop, causing the float valve to stick, restricting the fuel flow.

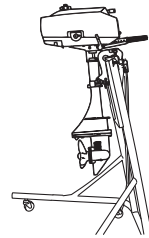
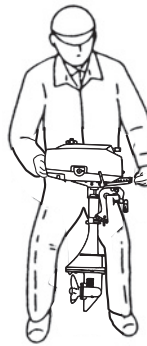
3. Remove the spark plug and put a tea-spoon of engine oil or spray storage oil into the combustion chamber through the spark plug holes.
4. Pull the recoil starter several times to lubricate inside the cylinder.

ENOW00930-1

#### ⚠ WARNING

- Be sure to remove stop switch lock to prevent the spark plugs from igniting.
- Put a cloth to spark plug hole and wipe up any spilled engine oil, when cranking the outboard motor.

5. Change the gear oil in the gear case (See page 47).
6. Apply grease to grease point (See page 52).
7. Stand the outboard motor up vertically in a dry area.



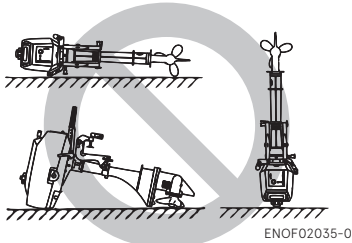
ENOF02036-0

ENOW00066-1

**CAUTION**

Do not carry or store outboard motor in any of positions described below.

Otherwise, engine's exterior parts may be damaged or water may enter the cylinder through the exhaust port and cause engine problems.

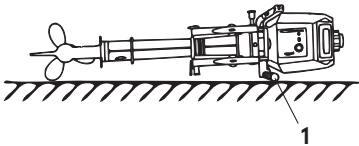


ENOF02035-0

ENON00021-3

**Note**

If the outboard motor must be laid down, be sure that fuel is completely drained, then lay the outboard motor with port side down on the cushion as shown in the drawing.



ENOF02037-0

1. Handle

ENOM00950-A

**Adding a fuel stabilizer**

When adding a fuel stabilizer additive (commercially available), first fill the fuel tank with fresh oil and fuel. If the fuel tank is only partially filled, air in the tank may deteriorate the fuel during storage.

1. Before adding fuel stabilizer additive, drain the carburetor (See page 54).

2. Follow the instructions on the label when adding the fuel stabilizer additive.
3. After adding the additive, let the outboard motor run in water for 10 minutes to make sure any old fuel in the fuel system has been completely replaced by the fuel with additive.
4. Turn the engine OFF

ENON00891-1

**Note**

If your motor is used occasionally, it is recommended to use a high quality fuel stabilizer for the fuel and keep the fuel tank full to reduce condensation and evaporation.

ENOM00970-C

**Fuel system draining**

ENOW00028-A

**WARNING**

For details on handling fuel, contact an authorized dealer.

Fuel and fuel vapors are extremely flammable and can be explosive.

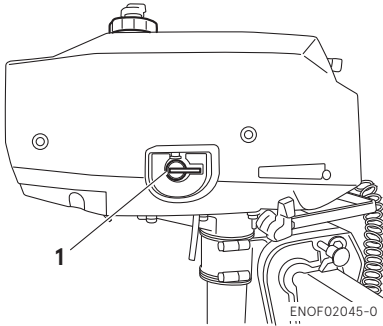
- If fuel is spilled, wipe it up immediately.
- Keep the fuel tank well away from sources of ignition, e.g. sparks or open flames
- Perform all work outdoors or in a well ventilated place.

ENOW00097-0

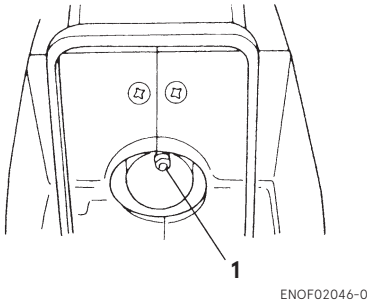
**WARNING**

Be sure to use cloth to remove fuel remaining in the cowl and dispose of it in accordance with local fire prevention and environment protection regulations.

1. Close the fuel cock.



1. Fuel cock
2. Turn the outboard motor.
3. Place an approved fuel container under the drain screw.
4. Loosen the carburetor drain screw.



1. Carburetor drain screw
5. Leave the outboard motor in this position until all fuel has been drained.
6. When thoroughly drained, retighten the drain screw securely.

7. Check the drained fuel for the presence of water or other contaminants. If fuel is contaminated, reassemble the outboard motor, refill the carburetor with fuel, and then drain the fuel again. Repeat this procedure until no water or other contaminants are present in the drained fuel.

ENOM01310-0

## 4. Pre-season check

The following steps must be taken when first using the engine after off season storage.

1. Check that the shift and throttle function properly. (Be sure to turn the propeller shaft when checking the shift function for any damage on the shift linkage. M3.5B2 only)
2. Fill fuel tank with oil and fuel.
3. Open the fuel cock.
4. Before starting the engine, disconnect stop switch lock and pull recoil starter approximately 10 times in order to circulate the oil.
5. Start the engine and warm up the engine for 3 minutes in the "NEUTRAL" position.
6. Run the engine for 5 minutes at the slowest speed.
7. Run the engine for 10 minutes at half throttle. The oil shall circulate to assure optimum performance.

ENOM00105-D

## 5. Submerged outboard motor

ENOW00098-0

### CAUTION

**Do not attempt to start submerged outboard motor immediately after it is recovered, or engine could be severely damaged.**

After taking your outboard motor out of the water, immediately take it to your dealer.

The following are the emergency measures to be taken for a submerged outboard motor.

1. Wash the outboard motor with fresh water to remove salt or dirt.
2. Remove the spark plugs, and completely drain the water from the engine by pulling recoil starter several times.
3. Inject a sufficient amount of engine oil through the spark plug holes. Pull the recoil starter rope several times to circulate the oil throughout the outboard motor.

ENOM00106-1

## 6. Cold weather precautions

If you moor your boat in cold weather at temperatures below 0°C (32°F), water residue in water pump may freeze and may damage the pump, impeller, etc. To avoid, submerge the lower half of the outboard motor into the water.

ENOM00107-A

## 7. Striking underwater object

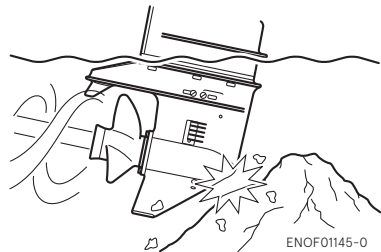
ENOW00935-0

### CAUTION

**Striking the sea bottom or an underwater object may severely damage the outboard motor.**

Follow the procedure below and consult a dealer as soon as possible.

1. Stop the engine immediately.
2. Check the control system, gear case, boat transom etc.
3. Return to the nearest harbor slowly and carefully.
4. Consult a dealer check the outboard motor before operation again.



ENOM00120-0

## 8. Auxiliary outboard motor operation

When the auxiliary outboard motor will not be used, be sure to remove the stop switch lock, shift into forward, and then tilt the outboard motor up. Otherwise, over-rotation of the propeller due to water spray could damage the gear.



# ■ TROUBLESHOOTING

ENOM01109-0

If you encounter a problem, check the list below to determine the cause and to take the proper action.

An authorized dealer will always be happy to provide any assistance and information.

	Engine failing to start	Engine starts but stops immediately	Poor idling	Abnormally high engine speed	Abnormally low engine speed	Unable to reach high speed	Overheating of engine	Possible cause
FUEL SYSTEM	●	●						Empty fuel tank
	●	●						Incorrect connection of fuel system
	●	●	●		●	●	●	Air entering fuel line
	●	●	●		●	●	●	Deformed or damaged fuel pipe
	●	●	●		●	●	●	Closed 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
	●						●	Shortage of oil in mixture
ELECTRICAL SYSTEM		●	●		●	●	●	Excessive supply of fuel
		●	●		●	●	●	Poor carburetor adjustment
	●	●	●		●	●	●	Spark plug other than specified
	●	●	●		●	●		Dirt, soot, etc. on spark plugs
	●	●	●		●	●		No spark or weak spark
	●							Short circuit of engine stop switch
OTHERS				●				Ignition timing incorrect
								Lock plate not fitted to stop switch
					●			Sheard shearpin
					●	●	●	Insufficient cooling water flow, clogged or defective pump
				●		●	●	Cavitation or ventilation
				●	●	●	●	Incorrect propeller selection
			●	●	●	●	●	Damaged and bent propeller
				●		●	●	Improper thrust rod position
			●	●	●	●	Unbalanced load on boat	
			●	●	●	●	Transom too high or too low	

## TOOL KIT AND SPARE PARTS

ENOM01308-0

The followings are a list of the tools and spare parts provided with the motor.

	Name	Quantity	Remark
Service tools	Tool bag	1	
	Pliers	1	
	Socket wrench	1	10 × 13 mm
	Socket wrench	1	21 mm
	Socket wrench handle	1	
	Screwdriver (Phillips-type and flat head)	1	Adapter-type
Spare parts	Emergency starter rope	1	ø4-1000 mm
	Spare stop switch lock	1	
	Spark plug	1	NGK: BPR6HS-10
	Share pin	1	
	Split pin	1	

## ■ PROPELLER TABLE

ENOM01108-1

To ensure optimum performance, the propeller should match the boat type and its load.

Use a genuine propeller.

When selecting propeller, make sure that RPM stays in the maximum operating range of engine at wide open throttle.

2.5A2: 3800–5200  $\text{min}^{-1}$  (rpm)

3.5A2/3.5B2: 4200–5300  $\text{min}^{-1}$  (rpm)

ENON00245-0

### Note

Each size shows number of propeller blades × diameters × pitch.

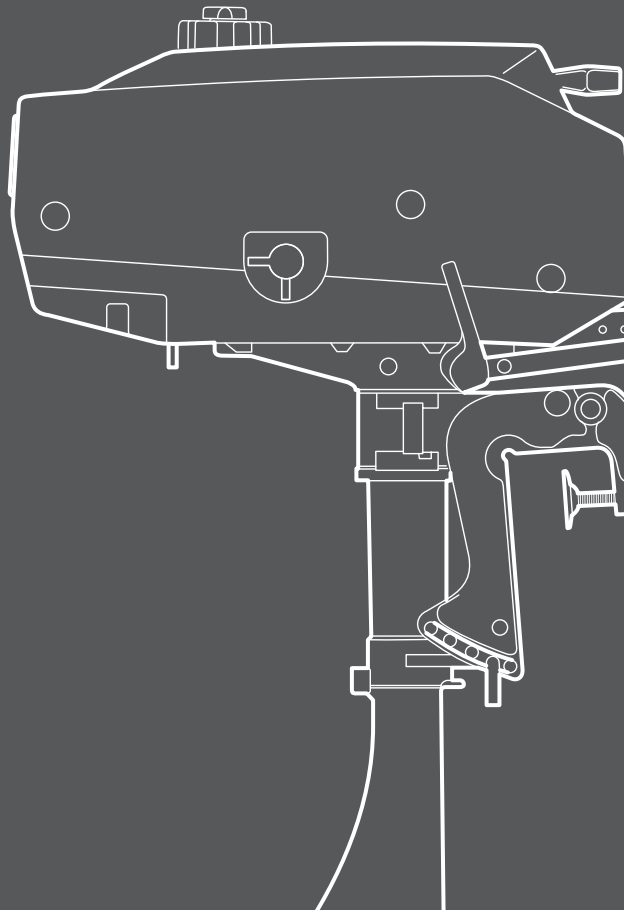
	Propeller Mark	Propeller Size Diameter × pitch	Material
Light boats   Heavy boats	7	3 × 188 × 178 mm 3 × 7.4 × 7.0 in	Plastic
	6	3 × 188 × 145 mm 3 × 7.4 × 5.7 in	Plastic
			Aluminum
4.5	3 × 188 × 110 mm 3 × 7.4 × 4.3 in	Plastic	





# OWNER'S MANUAL

M 2.5A<sub>2</sub>  
M 3.5A<sub>2</sub>  
M 3.5B<sub>2</sub>



**TOHATSU CORPORATION**

5-4, Azusawa 3-Chome, Itabashi-Ku  
Tokyo 174-0051, Japan  
Tel: +81-3-3966-3117 Fax: +81-3-3966-2951  
[www.tohatsu.com](http://www.tohatsu.com)