

en

OWNER'S MANUAL

fr

MANUEL DE L'UTILISATEUR

es

MANUAL DEL PROPIETARIO

pt

MANUAL DO PROPRIETÁRIO

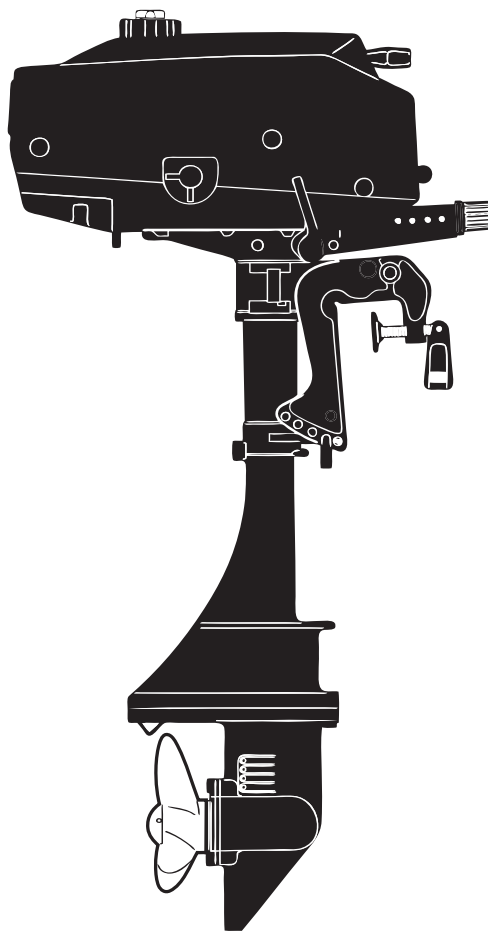
zh

用户手册

ru

РУКОВОДСТВО ПОЛЬЗОВАТЕЛЯ

TOHATSU



M 2.5A₂

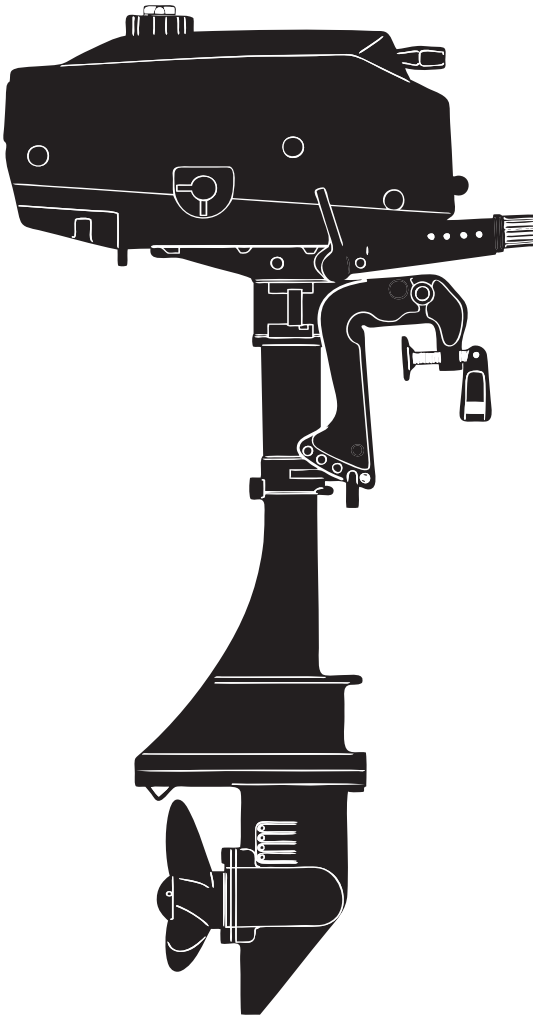
M 3.5A₂

M 3.5B₂

OB No.003-11045-7AF1

TOHATSU

OWNER'S MANUAL



M 2.5A₂

M 3.5A₂

M 3.5B₂

OB No.003-11045-7AF1

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.**

Copyright © 2016 Tohatsu Corporation. All rights reserved. No part of this manual may be reproduced or transmitted in any form or by any means without the express written permission of Tohatsu Corporation.

YOUR TOHATSU OUTBOARD MOTOR

ENOM00006-A

To You, Our Customer

Thank you for selecting a TOHATSU outboard motor. You are now the proud owner of an excellent outboard motor that will service you for many years to come.

This manual should be read in its entirety and the inspection and maintenance procedures described later in this manual should be followed carefully. Should a problem arise with the outboard motor, please follow the troubleshooting procedures listed at the end of this manual. If the problem persists, contact an authorized TOHATSU service shop or dealer.

Please always keep this manual together with the outboard motor as a reference to everyone who uses the outboard motor. If the outboard motor is resold, make sure the manual is passed on to the next owner.

We hope you will enjoy your outboard motor and wish you good luck in your boating adventures.

TOHATSU CORPORATION

ENOM00003-0

PRE-DELIVERY CHECK

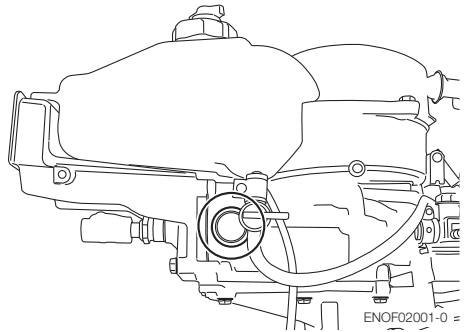
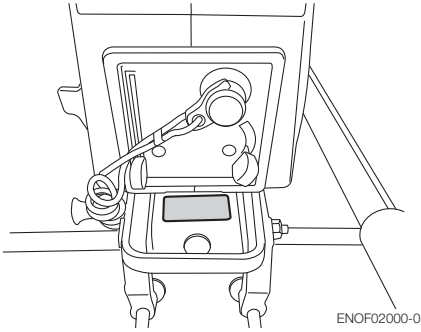
Be sure that the product has been checked by an authorized TOHATSU dealer before you take delivery.

ENOM00005-B

Serial Number

In the space below, please record the outboard motor's serial number (indicated both on the swivel bracket and on the cylinder block). The serial number will be needed when ordering parts, and when making technical or warranty inquiries.

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

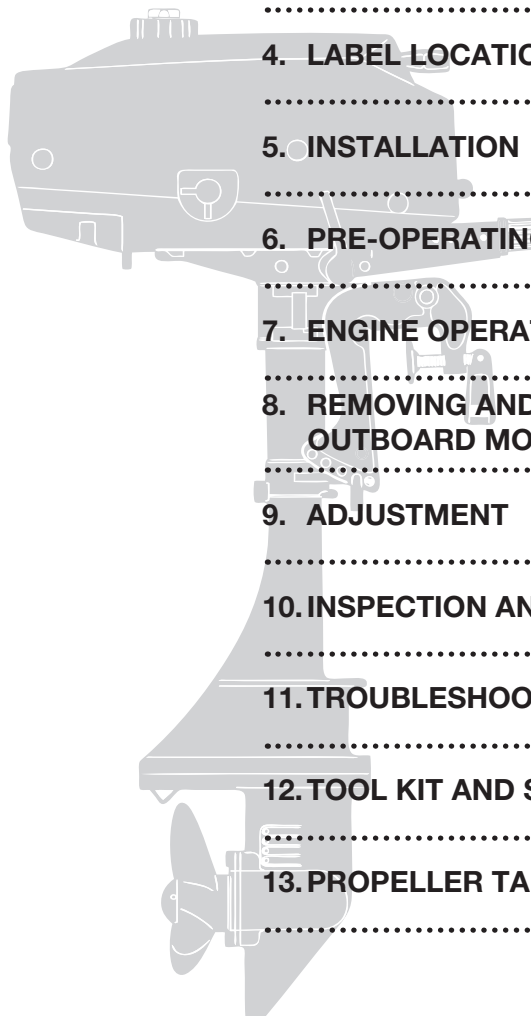
This instruction provides special information to facilitate the use or maintenance of the outboard motor or to clarify important points.

CONTENTS

1. GENERAL SAFETY INFORMATION	10
2. SPECIFICATIONS	12
3. PARTS NAME	14
4. LABEL LOCATIONS	15
5. INSTALLATION	17
1. Mounting the outboard motor on boat	17
6. PRE-OPERATING PREPARATIONS	19
1. Fuel handling	19
2. Engine oil recommendation	20
3. Fuel filling	21
4. Break-In	22
7. ENGINE OPERATION	24
Before starting	24
1. Fuel feeding	24
2. Starting the engine	25
3. Warming up the engine	28
4. Forward, reverse, and acceleration	28
5. Stopping the engine	30
6. Steering	31
7. Trim angle	32
8. Tilt up and down	33
8. REMOVING AND CARRYING THE OUTBOARD MOTOR	36
1. Removing the outboard motor	36
2. Carrying the outboard motor	36
3. Traillering	37
9. ADJUSTMENT	39
1. Steering friction	39
10. INSPECTION AND MAINTENANCE	40
1. Daily Inspection	41
2. Periodic Inspection	44
3. Off-season storage	51
4. Pre-season check	53
5. Submerged outboard motor	54
6. Cold weather precautions	54
7. Striking underwater object	54
8. Auxiliary outboard motor operation	54
11. TROUBLESHOOTING	55
12. TOOL KIT AND SPARE PARTS	56
13. PROPELLER TABLE	57

INDEX

1 GENERAL SAFETY INFORMATION	1
.....	
2. SPECIFICATIONS	2
.....	
3. PARTS NAME	3
.....	
4. LABEL LOCATIONS	4
.....	
5. INSTALLATION	5
.....	
6. PRE-OPERATING PREPARATIONS	6
.....	
7. ENGINE OPERATION	7
.....	
8. REMOVING AND CARRYING THE OUTBOARD MOTOR	8
.....	
9. ADJUSTMENT	9
.....	
10. INSPECTION AND MAINTENANCE	10
.....	
11. TROUBLESHOOTING	11
.....	
12. TOOL KIT AND SPARE PARTS	12
.....	
13. PROPELLER TABLE	13
.....	



GENERAL SAFETY INFORMATION

ENOM00009-0

SAFE OPERATION OF BOAT

As the operator/driver of the 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 standing or floating 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 should 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.

ENOM00008-A

EMERGENCY STOP SWITCH

The Emergency Stop Switch will stall the outboard motor when the stop switch lanyard is pulled off. This stop switch lanyard has to be attached to the operator of the outboard motor to minimize or prevent injuries from the propeller in case the operator falls overboard.

It is operator's responsibility to use the Emergency Stop Switch Lanyard.

ENOW00004-A

WARNING

Accidental activation of the Emergency 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 Emergency 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 FLOATATION DEVICE

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

ENOM00010-0

SERVICING, REPLACEMENT PARTS & LUBRICANTS

We recommend that only an authorized service shop perform service or maintenance on this outboard motor. Be sure to use genuine parts, genuine lubricants, or recommended lubricants.

ENOM00011-A

MAINTENANCE

As the owner of this outboard motor, you should be acquainted with correct maintenance procedures following maintenance section of this manual (See page 40). It is the operator's responsibility to perform all safety checks and to ensure that all lubrication and maintenance instructions are complied with for safe operation. Please comply with all instructions concerning lubrication and maintenance. 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 this outboard motor will reduce the chance of problems and limit overall operating expenses.

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 F= Four stroke D= Two stroke DI	-	A and up	2 and up	S= Short 15 in L= Long 20 in UL= Ultra long 25 in

ENOM01300-0

2.5A2, 3.5A2, 3.5B2

2

Item	MODEL	2.5A2	3.5A2	3.5B2
Overall Length	mm (in)	550 (21.7)		
Overall Width	mm (in)	345 (13.6)		220 (8.7)
Overall Height	S mm (in)	958 (37.7)		
	L mm (in)	1085 (42.7)		
Transom Height	S mm (in)	435 (17.1)		
	L mm (in)	562 (22.1)		
Weight	S kg (lb)	12.5 (28)		13.0 (29)
	L kg (lb)	13.0 (29)		13.5 (30)
Output	kW (ps)	1.8 (2.5)	2.6 (3.5)	
Max. Operating Range	rpm	3,800-5,200	4,200-5,300	
Trolling Speed in Forward Gear	rpm	1,100		
Idle Speed in Neutral Gear	rpm	-	1,300	
Engine Type		2-Stroke		
Number of Cylinders		1		
Bore x Stroke	mm (in)	47 x 43 (1.85 x 1.69)		
Piston Displacement	mL (Cu in)	74.6 (4.55)		
Exhaust System		Underwater exhaust		
Cooling System		Forced water cooling		
Lubrication System		Engine Oil Mixed Gasoline		
Starting System		Manual starter		
Ignition System		Flywheel Magneto C.D. Ignition		
Spark Plugs		NGK BP6HS-10/BPR6HS-10		
Trim Position		4		
Fuel		Unleaded regular gasoline : Pump posted 87 Octane (research octane rating of 91)		
Fuel Tank Capacity	L (US gal)	Approx. 1.4 (0.37) integral tank		
Engine Oil		Genuine motor oil or recommended one (TCW-III)		
Fuel : Engine Oil Mixing Ratio		Unleaded Gasoline 50 : Genuine 2-stroke Engine Oil 1		
Gear Oil		Genuine Gear Oil or API GL5, SAE #80 to #90, approx. 3.5B2:180mL (6.1 fl.oz), 3.5A2 & 2.5A2:90mL (3.0 fl.oz),		
Gear Shift		Forward		F-N
Gear Reduction Ratio		1.85 (13 : 24)		2.15 (13 : 28)

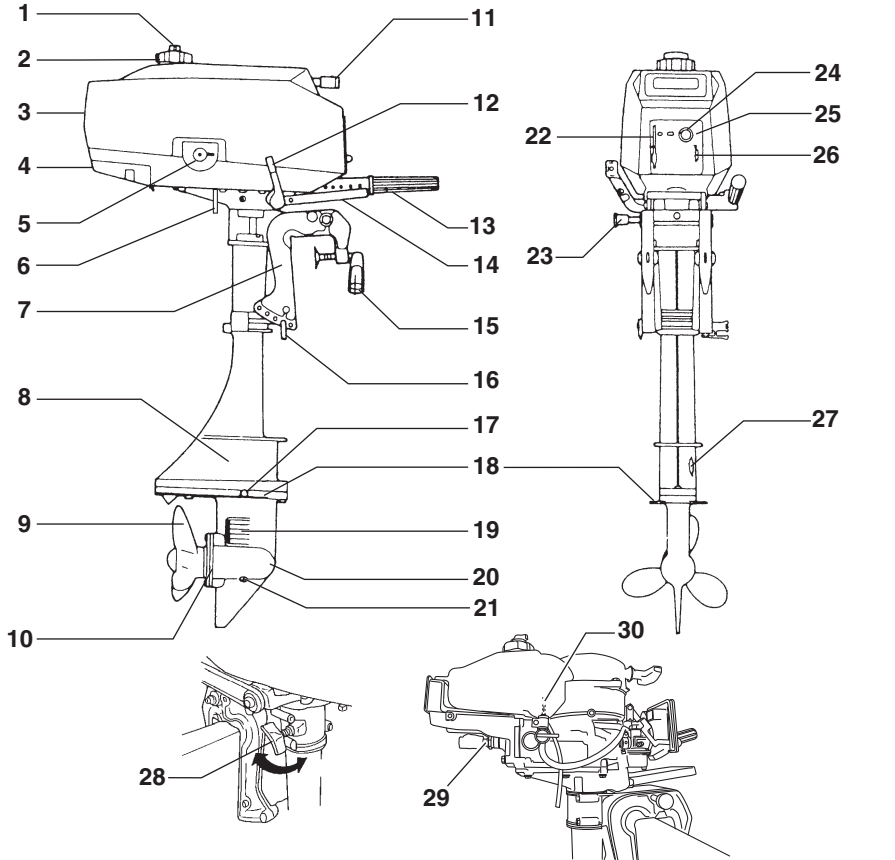
Remark: Specifications subject to change without notice.

Tohatsu outboard is power rated in accordance with ISO8655 (propeller shaft output).

PARTS NAME

ENOM1301-0

2.5A2, 3.5A2, 3.5B2



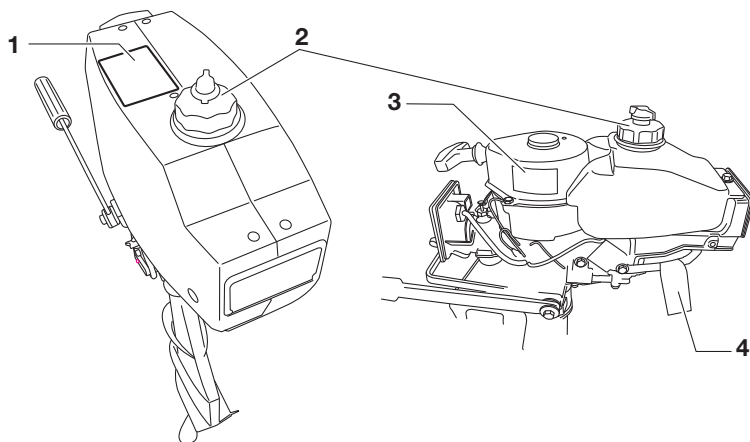
ENOF02002-0

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

■ LABEL LOCATIONS

ENOM00019-A

Warning label locations



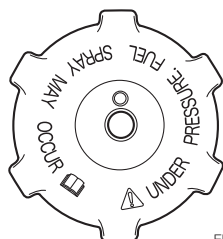
ENOF02003-0

1. Warning label regarding owner's manual, top cowl, engine stop switch.



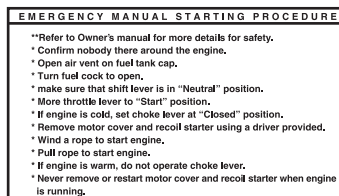
3C7-72180-3

2. Warning regarding fuel tank cap. (See page19, 24)



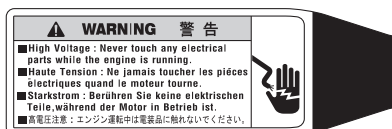
ENOF02050-0

3. Warning label regarding Emergency manual starting procedure (3.5B2 only) (See page 27)



ENOF00005-Z

4. Warning regarding high voltage.

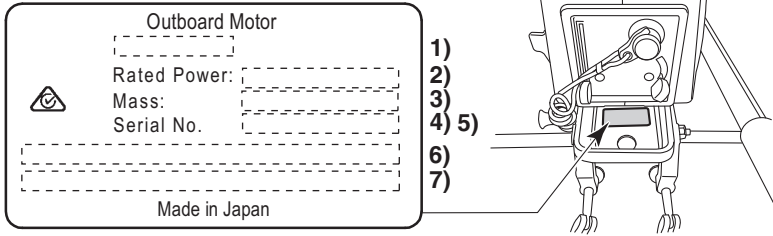


3C8-72181-0B

ENOM01001-0

Serial number label locations

4



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

ENOF02048-0

INSTALLATION

ENOM00024-B

1. Mounting the outboard motor on boat

ENOW00006-0

WARNING

Most boats are rated and certified in terms of 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.

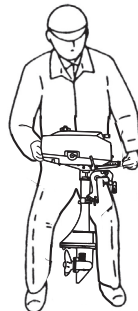
Do not operate the outboard motor until it has been securely mounted on the boat in accordance with the instructions below.

ENOW00009-0

WARNING

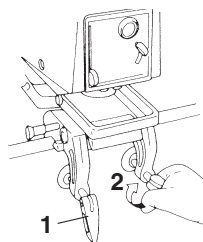
- Mounting the outboard motor without following this manual can lead to unsafe conditions such as poor maneuverability, lack of control or fire.
- Loose clamp screws and/or mounting bolts can lead to the release or displacement of the outboard motor, possibly resulting in lost of control and/or serious personal injury. Be sure that fasteners are tightened to the specified torque (30 Nm (3.0 kgf) 13 ft-lb). Check the fasteners for tightness from time to time.
- Be sure to use outboard mounting fasteners included in the outboard motor package or their equivalents in terms of size, material, quality and strength. Tighten fasteners to the specified torque (30 Nm (3.0 kgf) 13 ft-lb). Test cruise to check if fasteners are tightened securely.
- Outboard motor mounting must be performed by trained service person(s) using lift or hoist with sufficient capacity.

Keep the outboard motor in a vertical position when mounting.



ENOF02004-0

5



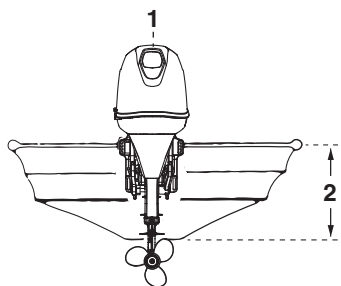
ENOF02005-0

1. Clamp Screw
2. Tighten

ENOM00025-0

Position ... Above keel line

Set engine at center of boat.



ENOF01141-0

1. Center of boat

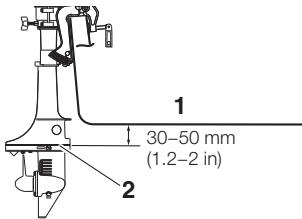
2. Boat transom

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

ENOW00007-0

CAUTION

- **Before beginning the running test, check that the boat with maximum capacity loading floats on the water in a proper attitude. Check the position of water surface on the driveshaft housing. If the water surface is near the bottom cowling, in high waves, water may enter the engine cylinders.**
- **Incorrect outboard motor mounting height or existence of underwater object(s), such as hull bottom design, bottom surface conditions or underwater accessories, can cause water spray possibly reaching the engine through an opening of the bottom cowling during cruising. Exposing the engine to such conditions for extended periods can lead to severe engine damage.**

ENOM00830-A

Mounting bolts**Manual tilt type**

1. To attach the outboard motor to the boat, tighten the clamp screws by turning their handles.

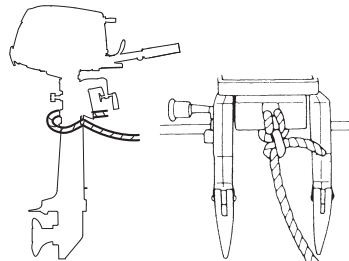
Also, use the bolts to secure the outboard motor brackets on transom board.

Secure the outboard motor with a rope to prevent loss overboard.

ENON00002-0

Note

A rope is not included in the standard accessories.



ENOF02006-0

PRE-OPERATING PREPARATIONS

ENOM00030-A

1. Fuel handling

ENOW000017-0



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-A

FUEL RATING

TOHATSU engines will operate satisfactorily when using a major brand of unleaded gasoline 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-A

GASOLINES CONTAINING ALCOHOL

The fuel system components on your TOHATSU engine will withstand up to 10% ethyl alcohol (hereinafter referred to as the "ethanol"), content in the gasoline. But if the gasoline in your area contains ethanol, you should 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 because the ethanol in the gasoline can absorb moisture from the air, resulting in a separation of the water/ethanol from the gasoline in the fuel tank.

These may cause increased:

- 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 alcohol is inevitable, or presence of alcohol is suspected in the gasoline, it is recommended to add a filter that has water separating capability, and check the fuel system for leaks and mechanical parts for corrosion and abnormal wear more frequently.

And, 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 51) for additional information.

ENOW00020-0



When operating a TOHATSU engine on gasoline containing alcohol, storage of gasoline in the fuel tank for long periods should be avoided. Long periods of storage, common to boats, create unique problems. In cars, alcohol blend fuels normally are consumed before they can absorb enough moisture to cause trouble, but boats often sit idle long enough for phase separation to take place. In addition, internal corrosion may take place during stor-

age if alcohol has washed protective oil films from internal components.

ENOW00018-0

WARNING

Fuel leakage can cause fire or explosion, potentially leading to severe injury or loss of life. Every fuel system part should be checked periodically, and especially after long term storage, for fuel leak, change of hardness of rubber, expansion and/or corrosion of metals. In case any indication of fuel leakage or degradation of fuel part is found, replace relevant part immediately before continuing operation.

ENOM01002-0

6 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.

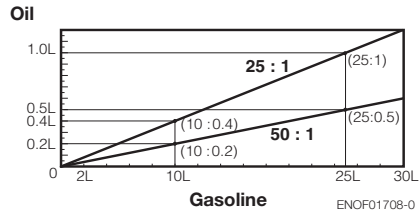
Use a genuine engine oil or recommended one (TCW3). Refer to your Distributor. Will not recommend use of other two stroke engine oil.

Add engine oil into fuel oil tank. The mixing ratio with gasoline is 50 : 1 (50 parts gasoline and one part oil). Mix well by hand. The mixing ratio during break-in running 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

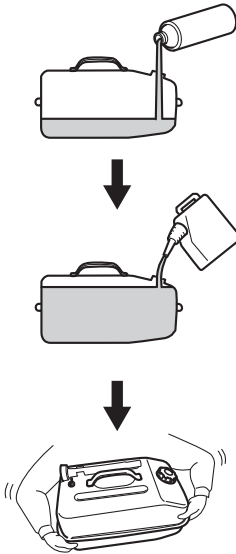
ENOW00937-0

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 trouble 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 in previous page.

- When fuel tank built in the outboard motors is used for operation:
 - 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 and even.
 - 5 Pour the mixture into fuel tank.



ENOF01709-B

ENON00922-0

Notes

- It is recommended to pre-mix by using separate fuel container. Attempting to pre-mix in the integral fuel tank can make the mixture uneven.
- If integral fuel tank is used for mixing, pour engine oil into the tank little by little while putting gasoline into the tank.

ENOM00043-D

3. Fuel filling

ENOW00019-0

WARNING

Do not fill the fuel tank over capacity. The rise of gasoline temperature may cause gasoline to expand which, if overfilled, may leak through air vent screw when it is open.

Leaking gasoline is a dangerous fire hazard.

ENOW00028-A

WARNING

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

Gasoline and its vapors 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 vapor will be emitted through the air vent screw, creating a fire hazard.
- Do not smoke.

When or before refueling:

- Be sure to remove the static electricity charged in your body before refueling.
- The sparks due to static electricity may cause explosion of flammable gasoline.
- 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 off gasoline well immediately if spilled.
-

After cleaning gasoline tank:

- Wipe off gasoline well immediately if spilled.
- If the fuel tank is disassembled for cleaning, reassemble carefully. Imperfect assembly may cause a fuel leak, possibly leading to fire or explosion.

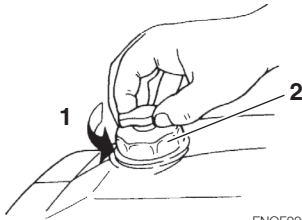
- **Dispose aged or contaminated gasoline in accordance with local regulations.**

ENOW00029-A

⚠ WARNING

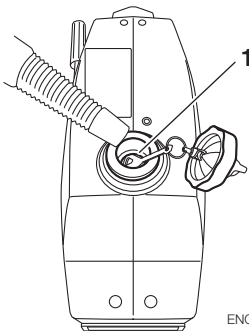
When opening fuel tank cap, be sure to follow the procedure described below. Fuel could blast out through the fuel tank cap in case the cap is loosened by using another procedure when internal pressure of fuel tank is raised by heat from sources such as sun light.

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.



ENOF2008-0

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

JENOM00033-AB

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 time table. Please refer to ENGINE OPERATION section (See page 24) to learn how to correctly start and operate the outboard motor.

ENOW00024-A

⚠ WARNING

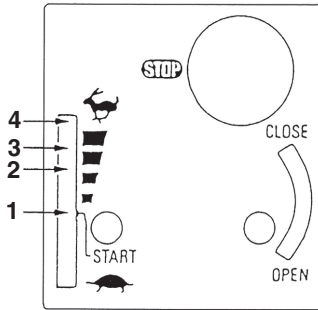
Do not operate the outboard motor in closed area or area with no forced ventilation.

Exhaust gas emitted by this outboard motor contains carbon monoxide that will cause death if inhaled continuously. Inhaling the gas initially causes symptoms such as feeling of sickness, drowsiness and headache.

During operation of the outboard motor:

- **Keep peripheral area well ventilated.**
- **Always attempt to 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 rpm max	3 Approx. 4,000 rpm	4 Available to operate at wide open throttle



ENOF02010-0

ENOW00023-0

⚠ CAUTION

Operating the outboard motor without break-in can shorten service 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

25:1 when using genuine engine oil or the recommended one (TCW3).

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.

ENON00008-0

Note

Proper break-in allows outboard motor to deliver it full performance for longer service life.

ENGINE OPERATION

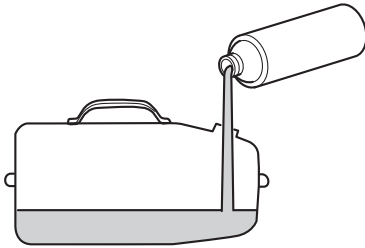
ENOM00042-0

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 20)



ENOF01710-B

7

ENOW00027-C

CAUTION

Before starting engine for the first time after reassembling engine or off-season storage, disconnect stop switch lock and crank approximately 10 times in order to spread the engine oil.

ENOM00044-F

1. Fuel feeding

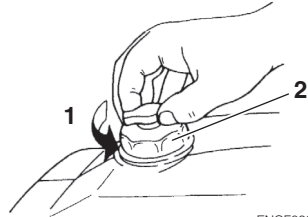
ENOW00029-A

WARNING

When opening fuel tank cap, be sure to follow the procedure described below. Fuel could blast out through the fuel tank cap in case the cap is loosened by using another procedure when internal pressure of fuel

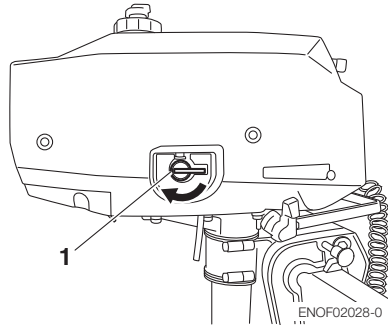
tank is raised by heat from sources such as sun light.

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 outboard 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

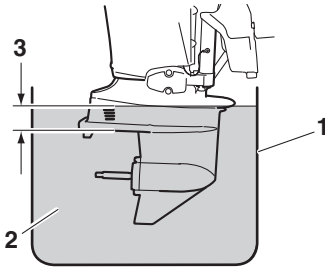
ENOW00036-A

⚠ CAUTION

When the engine is started in the test tank, to avoid over heating and water pump damage, be sure the water level is at least 10 cm (4 in.) above the anti ventilation plate.

Run the engine only at idling.

And be sure to remove the propeller, when starting the engine in the test tank. (See page 47)



ENOF00863-0

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

ENOW00036-0

⚠ CAUTION

Be sure to stop engine immediately if cooling water check port is not discharging water, and check if cooling water intake is blocked. Operating engine could lead to overheating potentially leading to engine damage. Consult an authorized dealer if the cause cannot be found.

ENOW00032-B

⚠ CAUTION

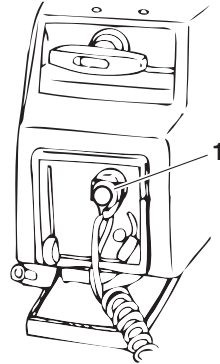
Do not try to crank after engine has started.

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 Flo-tation Device.)



ENOF02014-0

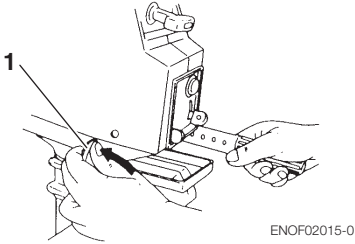
1. Stop switch lock

ENON00924-0

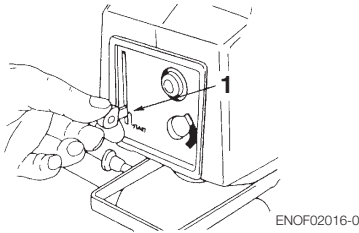
Note

The engine will not start if the lock is in released condition.

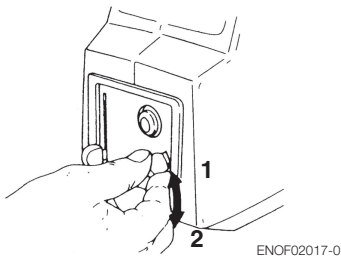
- Set the shift lever in the Neutral position. (3.5B2 only)



- Shift lever
- Set the throttle lever to the Start position.



- Throttle lever
- Set the choke lever to the Close position.



- Close
 - Open
- ENON00501-A

Note

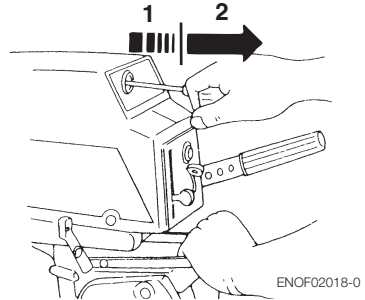
Choke is not necessary when the engine is warm.

ENON00502-0

Note

If engine does not start with 4 or 5 times starting operation, push the knob back and restart.

- Pull the starter handle slowly until you feel engagement, keep pulling till you feel less resistance. Then pull it quickly. repeat if necessary until started.



- Slowly
- Quickly

ENON00926-0

Note

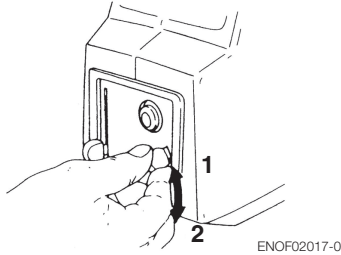
Return the recoil starter grip slowly when the engine has started. Releasing the starter grip at the extended position may cause a trouble in the starting system.

ENON00927-0

Note

In cold weather, pull the starter handle 2 or 3 times while moving up the choke lever to choke the engine.

- 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

ENON00928-0

Note

If the engine stops soon after having been started with the choke lever at the Close position, set the choke lever to the Open position and perform the starting procedure again.

ENOM00042-D

Emergency starting

ENOW00099-A

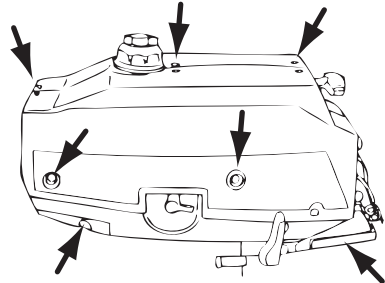


When the emergency starter rope is used for starting engine;

- **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-attach flywheel cover 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.**

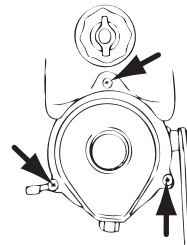
- **Attach engine stop switch lanyard to clothing or any part of body like arm before starting engine.**

- Remove the top cowl fixing bolts, to remove the top cowl.



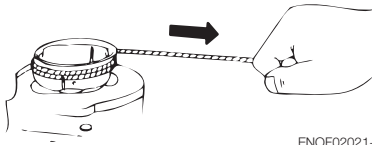
ENOF02019-0

- Remove the three bolts fastening the recoil starter.
- Remove the recoil starter.



ENOF02020-0

- Insert the knotted end of the starter rope into the notch in the flywheel and wind the rope around the flywheel several turns clockwise.
- Tie a loop in the another end of the emergency starter rope and attach socket wrench that is included in the tool kit.
- Set the control lever in the Neutral position.
- Pull the starter handle slowly until you feel engagement, keep pulling till you feel less resistance. Then pull it quickly.



ENOF02021-0

- After engine starts, do not reinstall flywheel cover and top cowl.

ENOM00043-C

3. Warming up the engine

ENOW00932-0

CAUTION

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

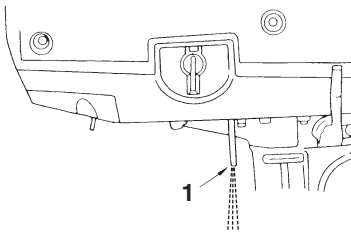
7

Warm the engine at low engine speeds for about

3 minutes : above 41°F (5 °C)

5 minutes at 2000 rpm : above 41°F (5 °C)

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

- 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 rpm	-
3.5A2	1,100 rpm	-
3.5B2	1,100 rpm	1,300 rpm

ENOM00046-A

4. Forward, reverse, and acceleration

ENOW00037-0

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 ahead or astern of the boat.

ENOW00038-A

WARNING

- Attach 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 falling down or causing passenger(s) to be thrown overboard.

ENOW00042-0

WARNING

- Do not shift into Reverse during planing, or control will be lost leading to serious personal injury, boat may swamp, and/ or hull may be damaged.

- Do not shift into Reverse during cruising, or control may be lost, falling down or causing passenger(s) to be thrown overboard. Leading to serious personal injury, and steering system and/or shifting mechanism may be damaged.

ENOW00861-0

⚠ WARNING

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

ENOW00862-0

⚠ CAUTION

Gear and clutch damage may occur if shifting at high engine speed. Engine must be in the slow idle position before shifting is attempted.

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.

ENOM00890-B

Tiller handle type

ENOW00867-0

⚠ WARNING

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

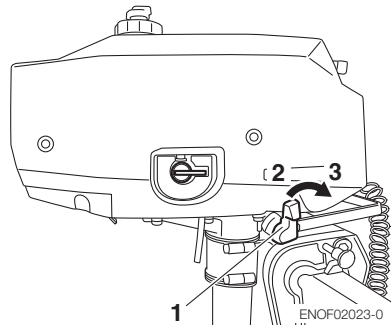
ENOW00865-A

⚠ CAUTION

Do not force to shift when the throttle grip 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)

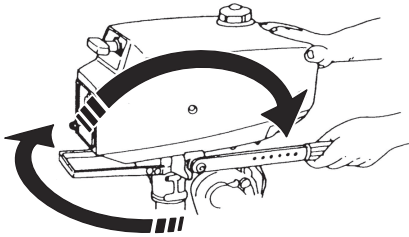
Forward

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.

- 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

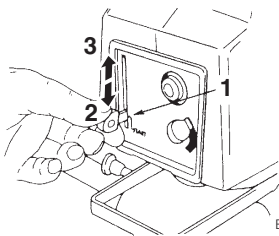
Acceleration

ENOW00867-0

WARNING

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

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

- Throttle lever
- Fully closed
- Fully opened

ENOM00049-C

5. Stopping the engine

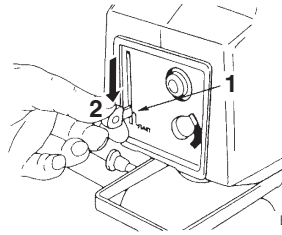
ENOW00868-0

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. It can also cause loss of boat speed, possibly leading the crew(s) and or objects on the boat to be thrown forward due to inertial force.

Tiller handle type

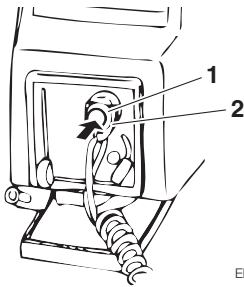
- Lower the throttle lever in order to the slow position.



ENOF02026-0

- Throttle lever
 - Fully closed
- 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.

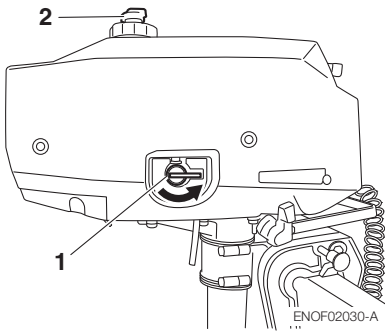
3. Push the stop switch.



ENOF02027-0

1. Stop switch
2. Stop switch lock

4. Close the air vent screw and fuel cock.



ENOF02030-A

1. Fuel cock
2. Air vent screw

ENOW00869-0

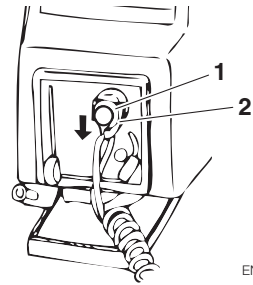
! WARNING

After stopping the engine:

- Close the air vent screw on the fuel tank cap.
- Disconnect the fuel connector of the engine and the fuel tank.
- Disconnect the battery cord, after each use.

Emergency engine stopping

Remove stop switch lock to stop the engine.



ENOF02029-0

1. Stop switch
2. Stop switch lock

ENOM00920-0

6. Steering

ENOW00870-0

! WARNING

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

7

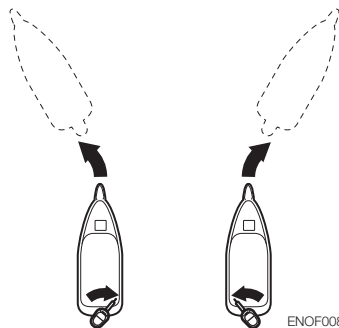
Tiller handle type

Right turn

Move the tiller handle to the left

Left turn

Move the tiller handle to the right.



ENOF00892-0

ENOM00050-0

7. Trim angle

ENOW00043-A

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 injury in case the outboard motor body falls.
- Unsuitable trim position can cause loss of control of boat. When testing a trim position, run boat slow initially to see if it can be controlled safely.

ENOW00044-0

WARNING

Excessive trim up or down may lead to unstable boat operation, potentially causing the steering difficulty that leads to accident during cruising.

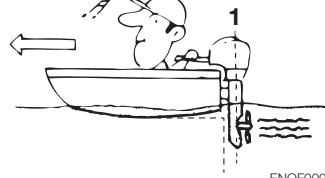
- Do not cruise at high speed if improper trim position is suspected. Stop the boat and readjust trim angle before continuing cruise.
- For outboard motor model with PTT switch on the bottom cowl, do not operate the switch during cruising, or control of boat may be lost.

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.



ENOF00051-1

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

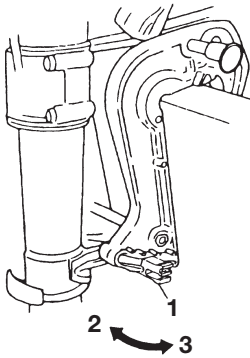
Improper trim angle (bow dips into the water)

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



ENOF00053-0

■ Manual Tilt type



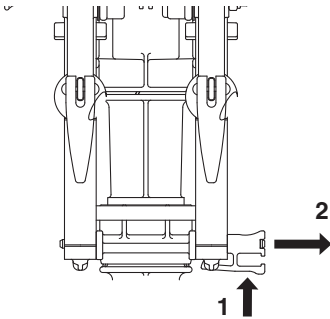
ENOF00229-0

- 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.
- 3. Raise the outboard motor to the tilt up position.
- 4. Change the thrust rod position as following picture.



ENOF01612-0

- 1. Push in
- 2. Pull out
- 5. Reinstall the thrust rod securely.

- 6. Gently lower the outboard.

ENOM00060-A

8. Tilt up and down

ENOW00055-0

⚠ WARNING

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

ENOW00048-0

⚠ WARNING

When tilting up or down, be careful not to place your hand between the swivel bracket and the stern bracket. Be sure to tilt the outboard motor down slowly.

ENOW00056-A

⚠ WARNING

When tilting up outboard motor with fuel joint for over a few minutes, be sure to disconnect fuel hose, or fuel may leak, potentially catching fire.

ENOW00057-0

⚠ CAUTION

Do not tilt up outboard motor while engine operates, or no cooling water may be fed, leading to engine seizure due to overheating.

ENOM00921-0

Note

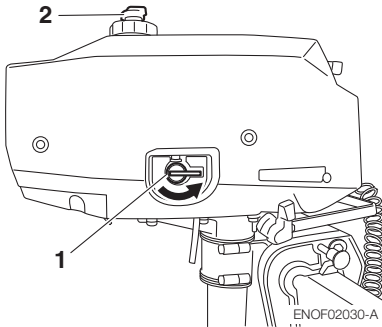
Before tilting the outboard motor up, after stopping the motor leave it in the running

position for about a minute to allow water to drain from inside the engine.

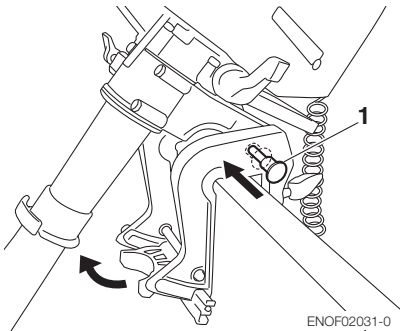
ENOM00222-0

Tilt up

1. Close the fuel cock and tighten the air vent screw of the tank cap.
2. Tilt up the outboard motor fully to your side and press the tilt stopper knob inside to set it up.



1. Fuel cock
2. Air vent screw



1. Tilt stopper

ENOM01304-0

Outboard motor position in tilt up

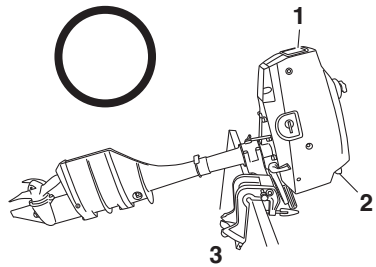
ENOW00053-0

⚠ CAUTION

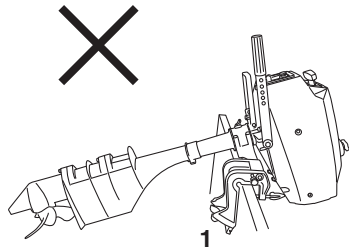
However, the outboard motor may be set in the wrong tilt-up position if the motor direction is sharply changed in course of tilting up.

If the outboard motor is set in a wrong position, try to tilt it up once more to set it in the correct position.

When the outboard motor is in the tiltup position, the tilt handle side must be in the upward direction.



1. Tilt handle
2. Starter handle
3. Correct

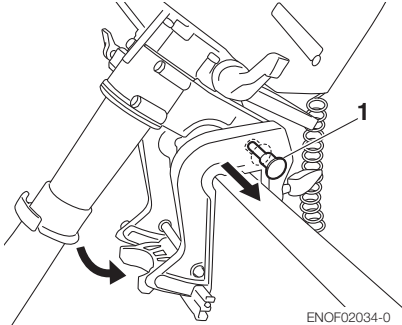


1. Wrong

ENOM00223-0

Tilt down

Pull the outboard motor to your side and draw the tilt stopper knob out for tilting down.



ENOF02034-0

1. Tilt stopper

REMOVING AND CARRYING THE OUTBOARD MOTOR

ENOM00070-B

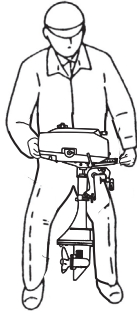
1. Removing the outboard motor

ENOW00064-B

CAUTION

Engine may be hot immediately after operating and could cause burns if touched. 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

ENOW00933-0

WARNING

Be sure to disconnect fuel connector except when operating engine. Fuel leakage is a fire or explosion hazard, which can cause serious injury or death.

ENOW00065-0

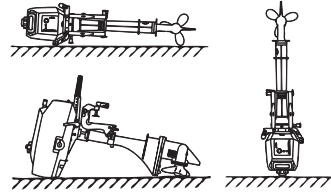
WARNING

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

ENOW00066-0

CAUTION

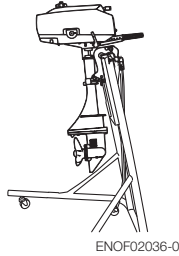
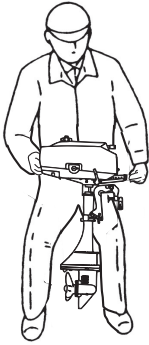
- Do not give a shock to an outboard motor during transportation. It becomes a cause of breakage.
- Do not carry or store outboard motor in any of positions described below. Otherwise, engine damage or property damage could result from leaking oil.



ENOF02035-0

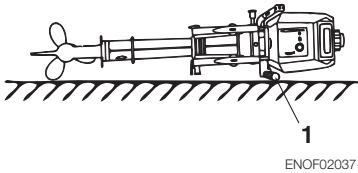
Keep the outboard motor in a vertical position when carrying.

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



ENON00021-A
Note

- If the outboard motor must be laid down be sure drain the fuel and engine oil, then the port side faces down as shown in the drawing above.
- Elevate power unit 2 inches to 4 inches if traveling to avoid oil spillage.



1. Handle

ENOM00072-A

3. Trailing

ENOW00072-0

CAUTION

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

ENOW00068-0

WARNING

Close air vent screw of fuel tank and fuel cock before carrying or storing outboard

motor and 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 trailering the outboard motor should be in a vertical (normal running) position, fully down. Trailering in the tilted position may cause damage to the outboard motor, boat, etc.

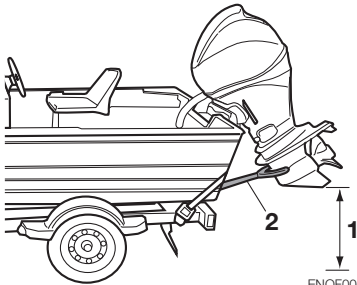
If trailering with outboard motor fully down is not available (the gear case skeg is too close to the road in a vertical position), fix the outboard motor securely using a device (like a transom saver bar) in the tilted position.

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 normal running position or on a transom saver bar.

Tiller handle type

To prevent the outboard motor from moving when it is attached on a boat during transport on a trailer, properly tighten the steering friction lever (page 39).

38 REMOVING AND CARRYING THE OUTBOARD MOTOR



ENOF00073-A

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-A

1. Steering friction

ENOW00074-A

WARNING

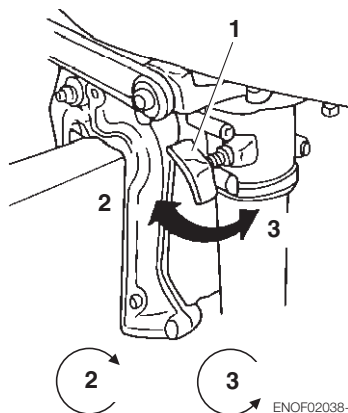
Do not overtighten the steering friction lever it could result in difficulty of movement resulting in the loss of control causing an accident and could lead to severe injury.

ENON0925-0

Note

The steering adjust screw is used to adjust the friction load of the steering, but not to fix the steering. Excess tightening of the adjustment screw may cause damage to the swivel bracket.

Adjust this lever to achieve the desired steering friction (drag) on the tiller handle. Move lever towards (2) to tighten friction and move lever towards (3) to loosen friction.



1. Steering friction bolt
2. Heavier
3. Lighter

INSPECTION AND MAINTENANCE

ENOM00077-0

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 that follow.

ENOW00077-0



CAUTION

- **Your personal safety and that of your passengers depends on how well you maintain your outboard motor. Carefully observe 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



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

*1 Have this handled by your dealer.

ENOM00083-0

Washing outboard motor

ENOW00081-0

⚠ WARNING

Do not start engine without removing propeller, or accidentally turning propeller could cause 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.

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.

10

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

ENOM00085-B

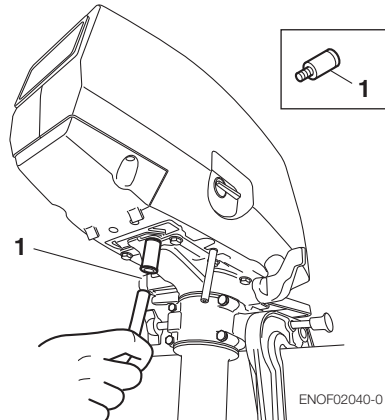
Flushing attachment (3.5B2 only)

ENOW00922-0

⚠ CAUTION

To prevent the engine from starting when you are near the propeller, remove the stop switch lock.

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.
5. Tilt up the outboard motor.



ENOF02040-0

1. Flushing attachment (option)

ENOM00085-A

Flushing by test tank

ENOW00081-0

⚠ WARNING

Do not start engine without removing propeller, or accidentally turning propeller could cause personal injury.

ENOW00082-0

⚠ WARNING

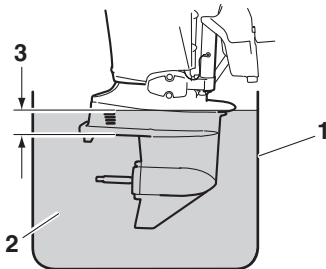
Never start or operate the engine indoors or in any space which is not well ventilated. Exhaust gas contains carbon monoxide, a colorless and odorless gas which can be fatal if inhaled for any length of time.

ENOW00036-A

⚠ CAUTION

When the engine is started in the test tank, to avoid over heating and water pump damage, be sure the water level is at least 10 cm (4 in.) above the anti ventilation plate.

And be sure to remove the propeller, when starting the engine in the test tank. (See page 47)



ENOF00863-0

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

ENOM01306-0

2. Periodic Inspection

It is important to inspect and maintain your outboard motor regularly. At each interval on the chart below, be sure to perform the indicated servicing.

Maintenance intervals should be determined according to the number of hours or number of months, whichever comes first.

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.

ENON00030-0

Note

Your outboard motor should receive careful, and complete inspection at 300 hours. This is the best time for major maintenance procedures to be carried out.

ENOM00093-A

Fuel filters and fuel tank cleaning

ENOW00093-B

⚠ WARNING

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

Keep out of reach of children.

- Avoid repeated or prolonged contact with skin or breathing of vapor.
- Do not start this procedure while engine is operating or hot even after stopping it.
- Place fuel filter away from every source of ignition such as sparks or open flames.
- Wipe off gasoline well immediately if spilled and dispose of it in accordance with local fire prevention and environment protection 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

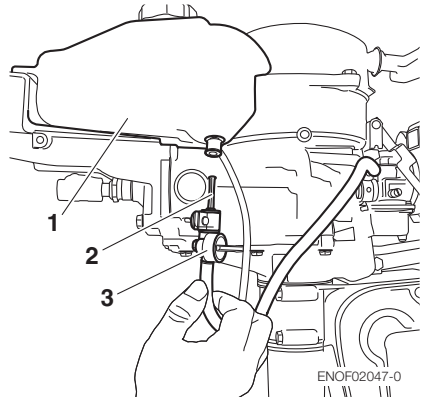
Fuel filter (for fuel tank)

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

Check and clean the tank at specified times or after the outboard motor has been stored for a long period of time (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.



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

ENOM00098-A

Gear oil replacement

ENOW00094-0

⚠ WARNING

- Be sure that 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 outboard motor if it is tilted up, or accidental fall of outboard motor could lead to severe personal injury.
- Do not go under outboard motor tilted up and locked, or accidental fall of outboard motor could lead to severe personal injury.

ENON00934-0

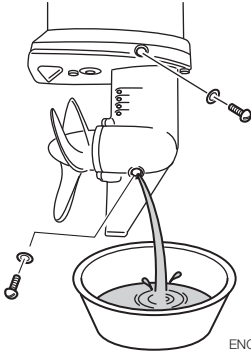
Note

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.

- Remove the oil plugs (lower and upper), and completely drain the gear oil into a pan.



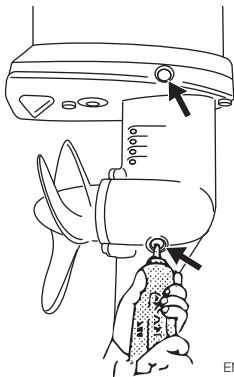
ENOF01617-0

- 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 and bubbles disappeared to remove the air.

ENON00033-0

Note

Use genuine gear oil or the recommended one (API GL-5; SAE #80 to #90).
 Required volume:
 approx. 180 mL (6.1 fl.oz) 3.5B2
 approx. 90 ml (3.0 fi.oz.) 2.5A2/3.5A2



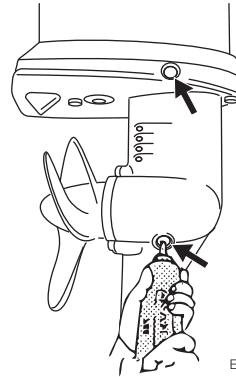
ENOF01618-0

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

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.



ENOF01618-0

ENOW00928-0

CAUTION

Wipe off gear oil well immediately if spilled and dispose of it in accordance with local fire prevention and environment protection regulations.

ENON00032-0

Note

If water in the oil, giving it a milky colored appearance. Contact your dealer.

ENON00033-0

Note

Use genuine gear oil or the recommended one (API GL-5; SAE #80 to #90).
 Required volume:
 approx. 180 mL (6.1 fl.oz) 3.5B2
 approx. 90 ml (3.0 fi.oz.) 2.5A2/3.5A2

ENOM00232-A

Propeller replacement

ENOW00084-0

WARNING

- Do not begin propeller removal and installation procedure 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. Disconnect battery cable if possible.
- The propeller edge is thin and sharp. Wear the groves during replacement to protect your hands.

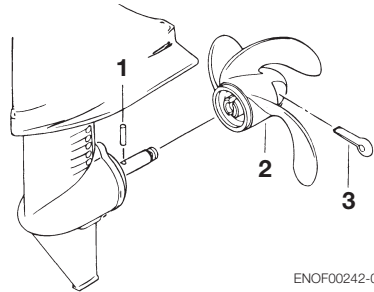
ENOW00208-0

CAUTION

- Do not install propeller without thrust holder, or propeller boss could be damaged.
- 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 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
2. Remove the shear pin from the shaft.
 3. Install a new shear pin.

ENOM00087-C

Spark plugs replacement

ENOW00087-0

WARNING

- Do not reuse spark plug with damaged insulation, 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. Allow motor to cool down first.

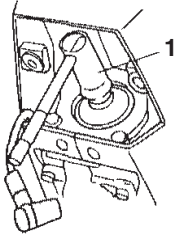
ENOW00929-0

CAUTION

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

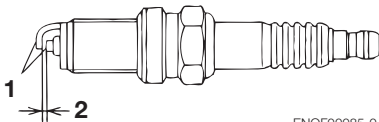
If the spark plug(s) is fouled, has carbon build up, or is worn, it should be replaced. When reusing spark plugs, remove dirt from the electrodes and adjust spark gap to specification.

1. Stop the engine.
2. Remove the plug cap cover.
3. Remove the spark plug caps.



ENOF02042-0

1. Socket wrench
4. Remove the spark plugs by turning it counter-clockwise, using a 13/16" (21 mm) socket wrench and handle that is provided in tool bag.
5. Inspect the spark plug. Replace the spark plug if the electrodes are worn or if the insulators are cracked or chipped.
6. Measure the spark plug electrode 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

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

ENON00028-0

Note

- **Spark plug torque:
27.0 Nm (20.0 ft-lb) [2.7 kgf-m]**

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

ENOM00088-A

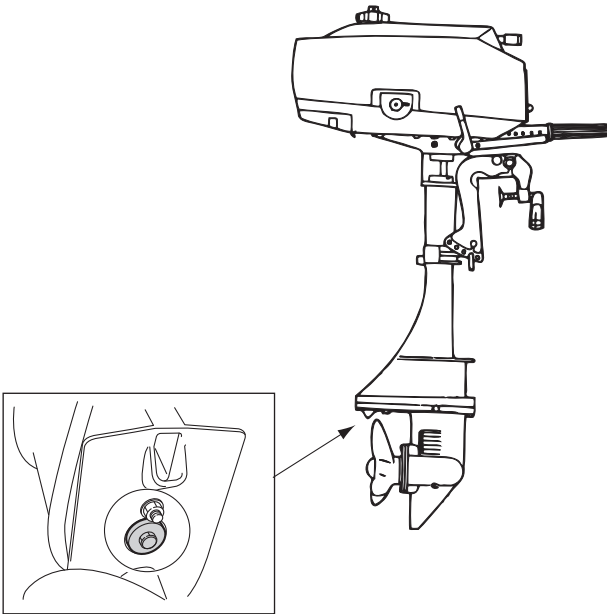
Anode replacement

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

ENON00029-0

Notes

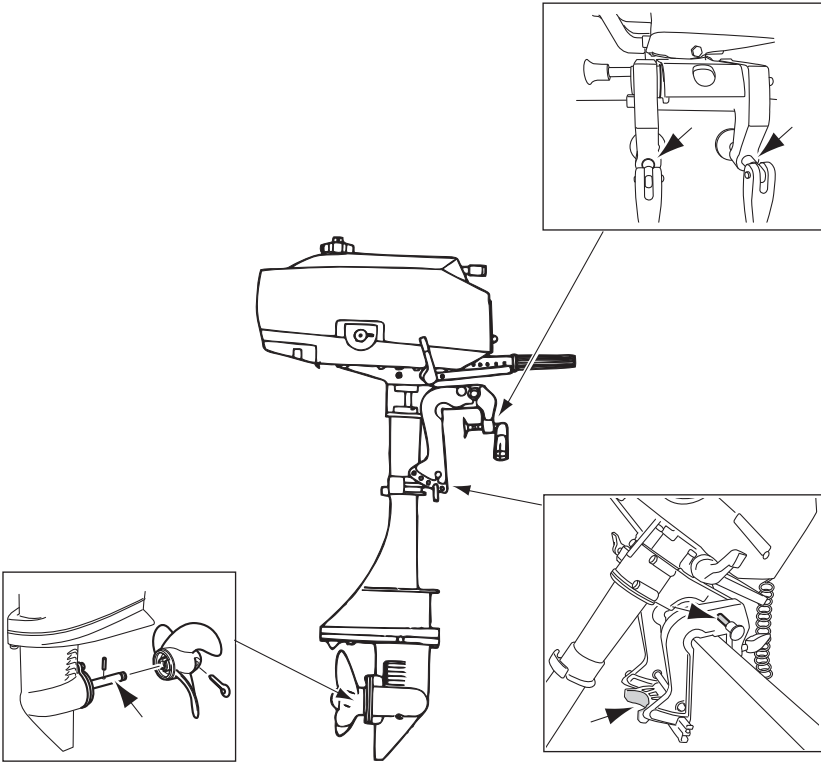
- Never grease or paint the anode.
- At each inspection re-tighten the anode attaching bolt. As it is likely to be subjected to electrolytic corrosion.



ENOM00960-0

Grease point

Apply water proof grease to the parts shown below.



10

ENOM00100-A

3. Off-season storage

ENOW00934-0

⚠ WARNING

- Be sure to disconnect fuel connector except when operating engine.
- Fuel leakage is a fire or explosion hazard, which can cause serious injury or death.

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 and prepared by your dealer.

Be sure to use fuel stabilizer while running the motor before storage. (See page 52)

ENOM00101-D

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. Remove the fuel hose from the outboard motor.

3. Drain all fuel from the fuel hoses and carburetor (See page 52), and clean these parts.

Keep in mind that if gasoline is kept in the carburetor for a long time, gum and varnish will develop, causing the float valve to stick, restricting the fuel flow.

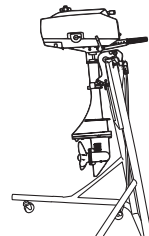
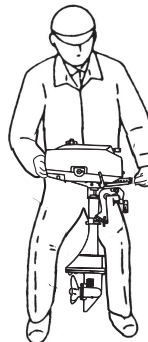
4. Remove the spark plugs and put a teaspoon of engine oil or spray storage oil into the combustion chamber through the spark plug holes.
5. Pull the recoil starter several times to lubricate inside the cylinder.

ENOW00930-0

⚠ WARNING

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

6. Change the gear oil in the gear case (See page 45).
7. Apply grease to grease point (See page 50).
8. Stand the outboard motor up vertically in a dry place.

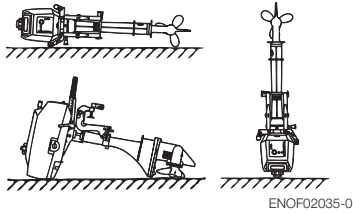


ENOF02036-0

ENOW00066-0

CAUTION

Do not carry or store outboard motor in any of positions described below. Otherwise, engine damage or property damage could result from leaking oil.

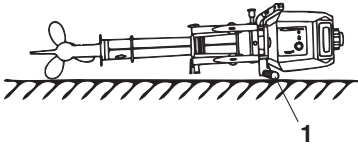


ENOF02035-0

ENON00021-A

Note

- If the outboard motor must be laid down be sure drain the fuel and engine oil, then the outboard motor on a cushion as shown in the drawing below (See page 79 and 68).
- Elevate power unit 2 inches to 4 inches if traveling to avoid oil spillage.



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 can cause the fuel to deteriorate during storage.

1. Before adding fuel stabilizer additive, drain the carburetor (See page 52).
2. Follow the instructions on the label when adding the fuel stabilizer additive.
3. After adding the additive, let the outboard motor run in the 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

ENON00891-0

Note

If your motor is used occasionally, it is recommended to use a good fuel stabilizer in every tank of fuel and keep the container 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.

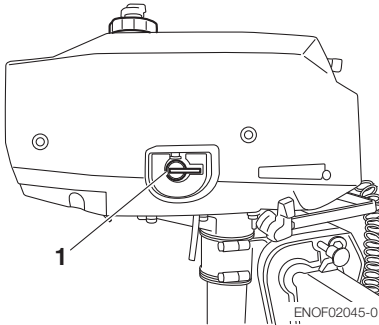
- If fuel is spilled, wipe it up immediately.
- Keep the fuel tank well away from sources of ignition, e.g. sparks or open flames
- Perform all work outdoors or in a well ventilated place.

ENOW00097-0

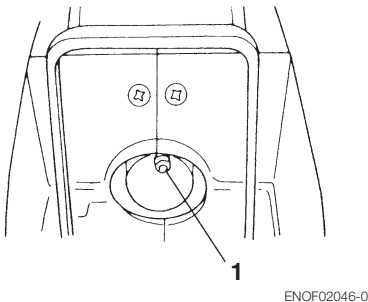
WARNING

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 either is present, 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.

ENOM00104-F

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 or else the shift linkage may be damaged.)
2. Fill fuel tank with oil and fuel.
3. Open the fuel cock.
4. Before starting the engine, disconnect stop switch lock and crank 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 used for storage inside the engine will be circulated out 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, if you can not take it your dealer right away.

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-A

6. Cold weather precautions

If you moor your boat in cold weather at temperatures below 0°C (32°F), there is the danger of remained water freezing in the cooling water pump, which may damage the pump, impeller, etc. To avoid this problem, submerge the lower half of the outboard motor into the water.

ENOM00107-A

7. Striking underwater object

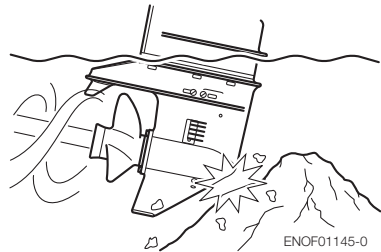
ENOW00935-0

⚠ 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

ENOM01307-0

If you encounter a problem, consult the check 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 starting but stopping soon	Poor idling	Engine speed abnormally high	Engine speed abnormally low	High engine speeds not possible	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
	●							Excessive supply of fuel
ELECTRICAL SYSTEM	●	●	●		●	●	●	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
	●		●		●	●		Ignition timing incorrect
OTHERS				●				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 following 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
	Spark plug	1	NGK: BPR6HS-10
	Share pin	1	
	Split pin	1	

* Not included as standard accessories in some markets.

PROPELLER TABLE

ENOM01309-0

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

Use a genuine propeller.

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

2.5A2: 3800–5200 rpm

3.5A2/3.5B2: 4200–5300 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	Plastics
	6	3 × 188 × 145 mm 3 × 7.4 × 5.7 in	Plastics
			Aluminum
4.5	3 × 188 × 110 mm 3 × 7.4 × 4.3 in	Plastics	



OWNER'S MANUAL

M 2.5A₂

M 3.5A₂

M 3.5B₂



en
OWNER'S MANUAL

fr
MANUEL DE L'UTILISATEUR

es
MANUAL DEL PROPIETARIO

pt
MANUAL DO PROPRIETÁRIO

zh
用户手册

ru
РУКОВОДСТВО ПОЛЬЗОВАТЕЛЯ

M 2.5A₂

M 3.5A₂

M 3.5B₂

TOHATSU CORPORATION

Address : 5-4, Azusawa 3-Chome, Itabashi-ku,
Tokyo, Japan

Phone : TOKYO +81-3-3966-3117

FAX : TOKYO +81-3-3966-2951

URL : www.tohatsu.co.jp