

**NISSAN**  
MARINE

# OUTBOARD MOTOR

NSF40A/50A

OWNER'S OPERATING MANUAL

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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<https://www.boat-manuals.com/>

# YOUR NISSAN MARINE OUTBOARD MOTOR

ENOM00006-A

## To You, Our Customer

Thank you for selecting a NISSAN MARINE 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 NISSAN MARINE 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.

**NISSAN MARINE**

ENOM00002-0

## OWNER REGISTRATION AND IDENTIFICATION

Upon purchasing this product, be sure that the WARRANTY CARD is correctly and completely filled out and mailed to the addressee noted there on. This WARRANTY CARD identifies you as the legal owner of the product and serves as your warranty registration.

TO THE EXTENT PERMITTED BY APPLICABLE LAW, YOUR OUTBOARD MOTOR WILL NOT BE COVERED BY THE APPLICABLE LIMITED WARRANTY, IF THIS PROCEDURE IS NOT FOLLOWED.

ENOM00003-0

## PRE-DELIVERY CHECK

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

ENOM00004-0

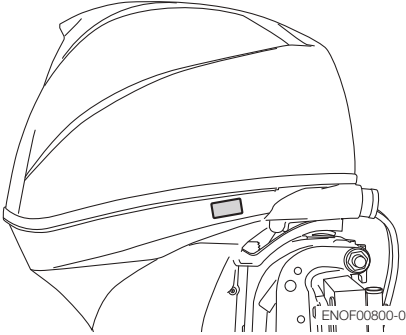
## Limited Warranty

Please refer to the NISSAN MARINE outboard motor Limited warranty provided to you with this product, the terms and conditions of which, as amended from time to time, are incorporated by reference into the manual.

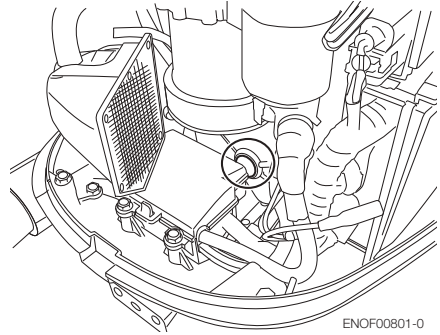
ENOM00005-A

**Serial Number**

In the space below, please record the outboard motor's serial number (indicated both on the bottom cowl and on the cylinder block). The serial number will be needed when ordering parts, and when making technical or warranty inquiries (P 93).

**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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## GENERAL SAFETY INFORMATION

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# 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 boat 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 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 by following maintenance section of this manual (See page 64). 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.

ENOM00810-A

**MODEL FEATURE**

| Model             |   | NSF40A |    | NSF50A |    |
|-------------------|---|--------|----|--------|----|
| Type              |   | ET     | EG | ET     | EG |
| Transom heights   | S | ●      | ●  | ●      | ●  |
|                   | L | ●      | ●  | ●      | ●  |
| Tiller Handle     |   | (●)    | ●  | (●)    | ●  |
| Remote Control    |   | (●)    |    | (●)    |    |
| Power Trim & Tilt |   | ●      |    | ●      |    |
| Gas-assisted tilt |   |        | ●  |        | ●  |

(●) These models can be purchased with remote rigging kit or multi function tiller handle.

ENOM00811-A

**MODEL NAME EXAMPLE**

NSF 50A ETL

| NSF                                   | 50          | A                  | E  | T   | L   |
|---------------------------------------|-------------|--------------------|--|---|---|
| Model description                     | Horse power | Product generation | Starter system                             | Tilt system   | Shaft length  |
| NSF= Four stroke<br>MD= Two stroke DI | -           | A and up           | E= Electrical start<br>Blank= Manual start | T= Power trim&tilt<br>G= Gas assist<br>Blank= Manual tilt | S= Short 15 in<br>L= Long 20 in<br>UL= Ultra long 25 in |

# SPECIFICATIONS

ENOM00013-0

## ET, EG

|                      |                            | NSF40A/50A  |   |   |
|----------------------|----------------------------|---|---|---|
| Item                 | MODEL                      | ET<br>(with RC)   | ET (with<br>multifunction<br>tiller handle) | EG (with<br>multifunction<br>tiller handle) |
| Overall Length       | mm (in)                    | 783 (30.8)  | 1382 (54.4)                                 | 1382 (54.4)                                 |
| Overall Width        | mm (in)                    | 404 (15.9)  |   |   |
| Overall Height S-L   | mm (in)                    | 1257 (49.5) 1390 (54.7)   |   |   |
| Transom Height S-L   | mm (in)                    | 405 (15.9) 538 (21.2)   |   |   |
| Weight*              | S kg (lb)                  | 95 (209)  | 100 (220)                                   | 97.5 (215)                                  |
|                      | L kg (lb)                  | 97 (214)  | 102 (225)                                   | 99.5 (219)                                  |
| Engine Type          |                            | 4-Stroke EFI  |   |   |
| Number of Cylinder   |                            | 3   |   |   |
| Piston Displacement  | mL (Cu in)                 | 866 (52.8)  |   |   |
| Bore x Stroke        | mm (in)                    | 70 x 75 (2.76 x 2.96)   |   |   |
| Max. Output          | kW (ps)                    | 40A : 29.4 (40) 50A : 36.8 (50)   |   |   |
| Max. Operating Range | rpm                        | 5000-6000   |   |   |
| Idle Speed           | rpm                        | 850   |   |   |
| Exhaust System       |                            | Through hub exhaust   |   |   |
| Engine Lubrication   |                            | Wet sump (Trochoid pump)  |   |   |
| Cooling System       |                            | Water cooling (with thermostat)   |   |   |
| Starting System      |                            | Electric starter motor  |   |   |
| Ignition System      |                            | Battery ignition  |   |   |
| Spark Plug           |                            | NGK DCPR6E  |   |   |
| Alternator           | A                          | 21  |   |   |
| Steering angle       | Degree                     | 70  |   |   |
| Trim angle           | Degree                     | 8-20  |   |   |
| Trim position        |                            | 4   |   |   |
| Tilt up angle        | Degree                     | 74  | 68  |   |
| Gear shift           |                            | Dog clutch ( F-N-R)   |   |   |
| Gear Reduction Ratio |                            | 2.08 (3:27)   |   |   |
| Fuel                 |                            | Unleaded regular gasoline : Pump posted<br>87 Octane (research octane rating of 91) |   |   |
| Engine Oil           | Grade                      | API standard SH, SJ, SL 10W-30/40   |   |   |
|                      | ml (US qt)                 | 2200 (2.3)  |   |   |
| Gear Oil             | Grade                      | Genuine Gear Oil or API GL5,SAE #80-90  |   |   |
|                      | ml (US qt)                 | 500 (0.53)  |   |   |
| Battery              |                            | 12V 100AH/5HR, 850 CCA  |   |   |
|                      | Cold weather specification | 12V 120AH/5HR, 1000 CCA   |   |   |

## 14 SPECIFICATIONS

|   |       | NSF40A/50A   |   |   |
|---|-------|--|---|---|
| Item  | MODEL | ET<br>(with RC)  | ET (with<br>multifunction<br>tiller handle) | EG (with<br>multifunction<br>tiller handle) |
| TachometerPoleSetting   |       | 4  |   |   |
| Emission Control System   |       | MFI (Multiport Fuel Injection - EFI Electronic Fuel Injection) |   |   |
| Operator Sound Pressure<br>(ICOMIA 39/94 Rev.1) dB (A)          |       | 81.8   |   |   |
| Hand Vibration Level<br>(ICOMIA 38/94 Rev.1) m/sec <sup>2</sup> |       | -  | 2.9   |   |

Remark: Specifications subject to change without notice.

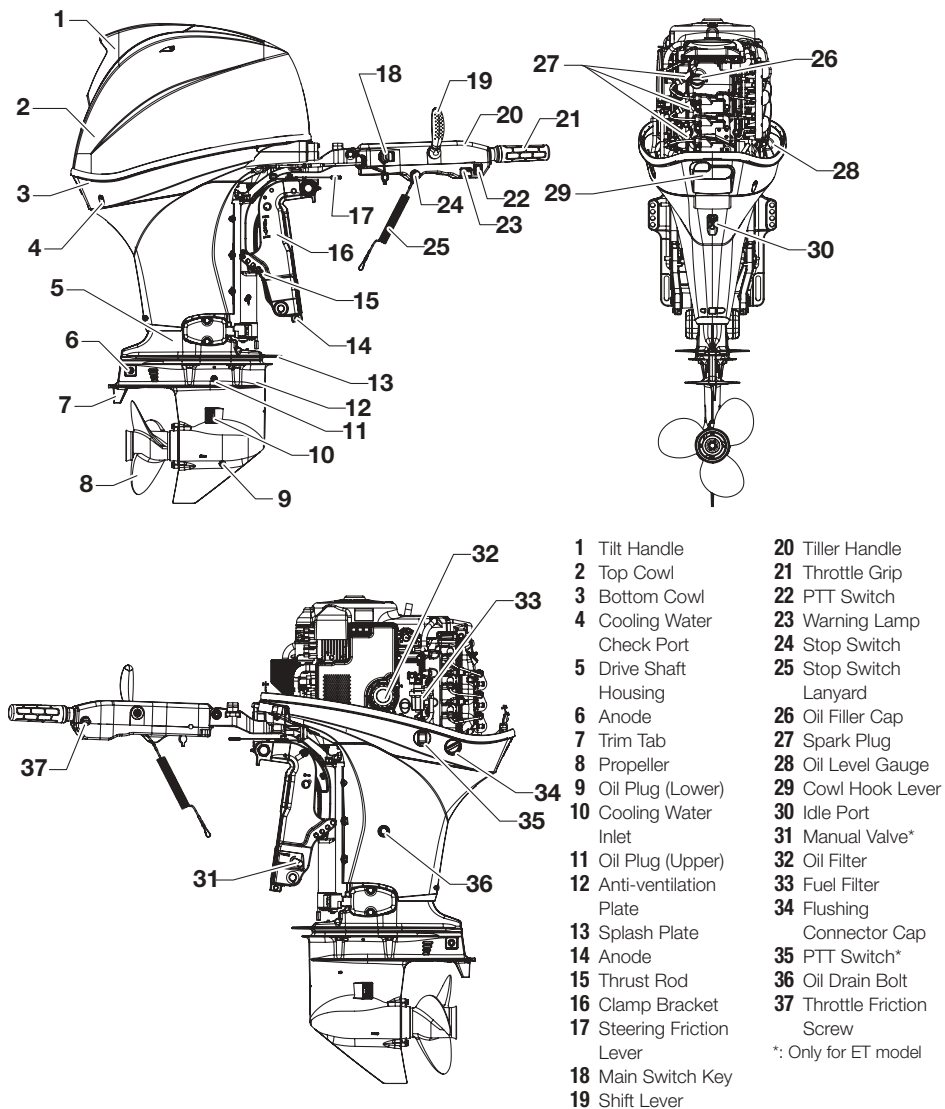
\*Without propeller, with battery cable.

NISSAN MARINE outboard is power rated in accordance with NMMA procedures and using the ICOMIA standard 28/23.

# PARTS NAME

ENOM00820-0

## ET, EG (with multi-function tiller handle)

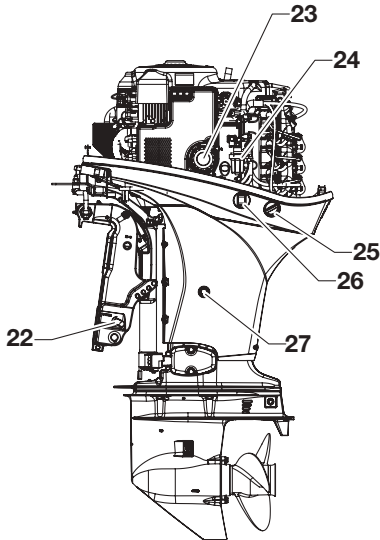
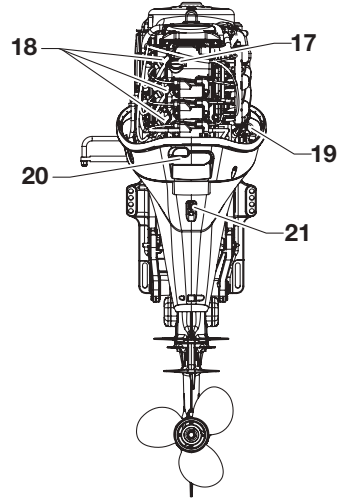
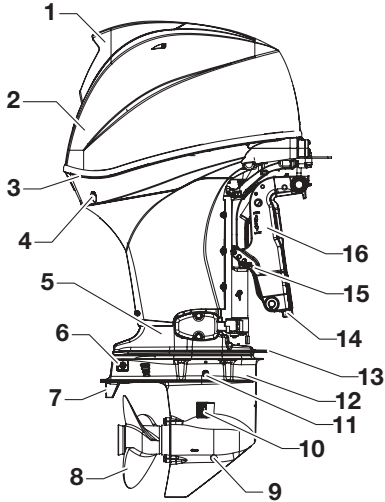


- |                            |                            |
|----------------------------|----------------------------|
| 1 Tilt Handle              | 20 Tiller Handle           |
| 2 Top Cowl                 | 21 Throttle Grip           |
| 3 Bottom Cowl              | 22 PTT Switch              |
| 4 Cooling Water Check Port | 23 Warning Lamp            |
| 5 Drive Shaft Housing      | 24 Stop Switch             |
| 6 Anode                    | 25 Stop Switch Lanyard     |
| 7 Trim Tab                 | 26 Oil Filler Cap          |
| 8 Propeller                | 27 Spark Plug              |
| 9 Oil Plug (Lower)         | 28 Oil Level Gauge         |
| 10 Cooling Water Inlet     | 29 Cowl Hook Lever         |
| 11 Oil Plug (Upper)        | 30 Idle Port               |
| 12 Anti-ventilation Plate  | 31 Manual Valve*           |
| 13 Splash Plate            | 32 Oil Filter              |
| 14 Anode                   | 33 Fuel Filter             |
| 15 Thrust Rod              | 34 Flushing Connector Cap  |
| 16 Clamp Bracket           | 35 PTT Switch*             |
| 17 Steering Friction Lever | 36 Oil Drain Bolt          |
| 18 Main Switch Key         | 37 Throttle Friction Screw |
| 19 Shift Lever             |                            |
- \*: Only for ET model

ENOF00820-A

ENOM00821-0

**ET (with RC)**



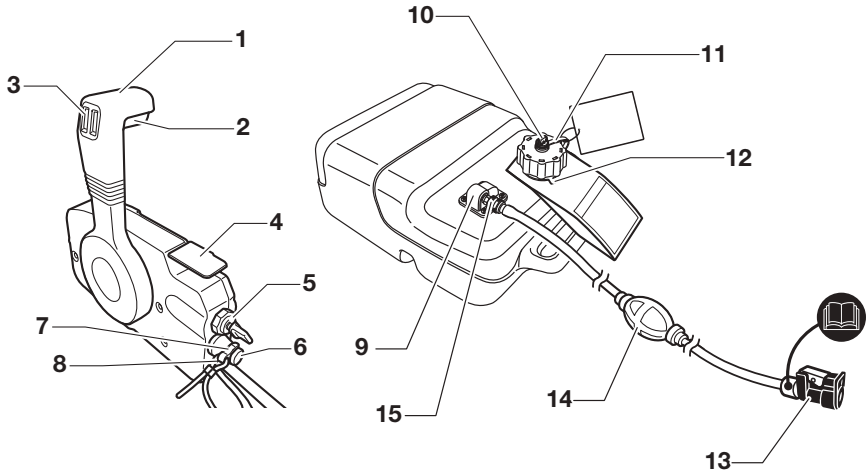
- |                               |                              |
|-------------------------------|------------------------------|
| 1 Tilt Handle                 | 14 Anode                     |
| 2 Top Cowl                    | 15 Thrust Rod                |
| 3 Bottom Cowl                 | 16 Clamp Bracket             |
| 4 Cooling Water<br>Check Port | 17 Oil filler Cap            |
| 5 Drive Shaft<br>Housing      | 18 Spark Plug                |
| 6 Anode                       | 19 Oil Level Gauge           |
| 7 Trim Tab                    | 20 Cowl Hook Lever           |
| 8 Propeller                   | 21 Idle Port                 |
| 9 Oil Plug (Lower)            | 22 Manual Valve              |
| 10 Cooling Water<br>Inlet     | 23 Oil Filter                |
| 11 Oil Plug (Upper)           | 24 Fuel Filter               |
| 12 Anti-ventilation<br>Plate  | 25 Flushing<br>Connector Cap |
| 13 Splash Plate               | 26 PTT Switch                |
|                               | 27 Oil Drain Bolt            |

ENOF00821-A



ENOM00822-0

## Remote control box & Fuel tank (optional part)



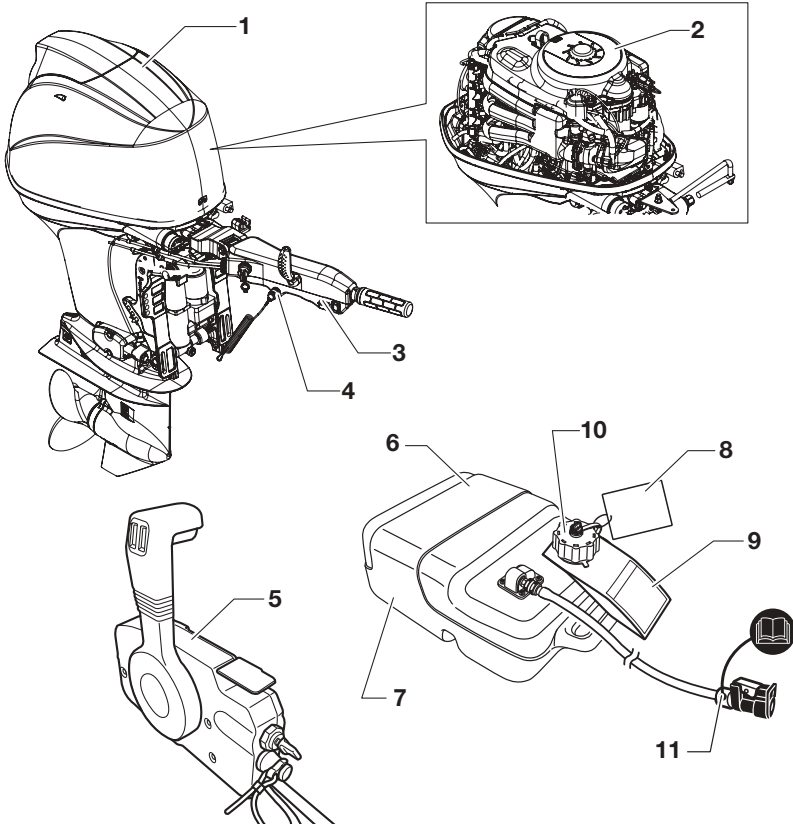
ENOF00127-A

- |                       |                                    |
|-----------------------|------------------------------------|
| 1 Control Lever       | 9 Fuel Gauge                       |
| 2 Neutral Lock Arm    | 10 Air Vent Screw                  |
| 3 PTT Switch          | 11 Fuel Tank Cap                   |
| 4 Free Throttle Lever | 12 Tab Lock                        |
| 5 Main Switch         | 13 Fuel Connector (Engine side)    |
| 6 Stop Switch         | 14 Primer Bulb                     |
| 7 Stop Switch Lock    | 15 Fuel Connector (Fuel tank side) |
| 8 Stop Switch Lanyard |                                    |

# LABEL LOCATIONS

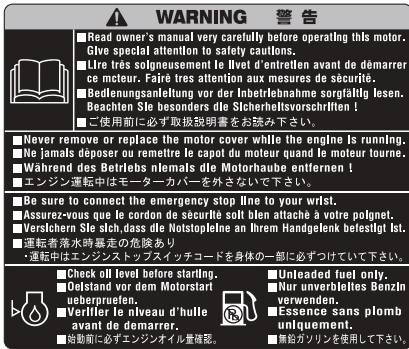
ENOM00019-A

## Warning label locations



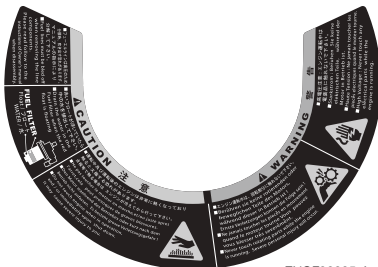
ENOF00127-B

- Warning label regarding owner's manual, top cowl, engine stop switch, engine oil level and unleaded gasoline.



ENOF00005-0

- Warning label regarding rotating parts, electrical shock, high temperature and fuel treatment.



ENOF00005-A

**For tiller handle model**

- Indicator label regarding engine failure/ malfunction (See page 35).



ENOF00005-C

**For tiller handle model**

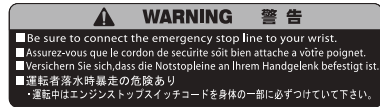
- Warning label regarding stop switch (See page 41 and page 48)



ENOF00005-P

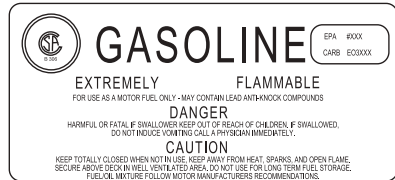
**For RC model**

- Warning label regarding stop switch lanyard.



ENOF00005-D

- Warning regarding gasoline.



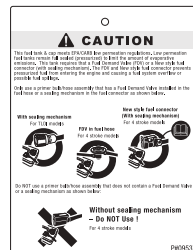
ENOF00005-E

- Warning regarding gasoline (See page 29).



ENOF00005-F

- Warning tag regarding primer combination of the fuel tank and primer bulb ass'y (See page 38).



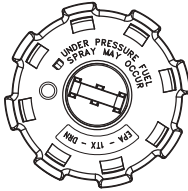
ENOF00010-0

- 9. Warning tag regarding instructions of the fuel tank cap (See page 31).



ENOF00011-0

- 10. Warning regarding fuel tank cap (See page 31)



ENOF00012-0

- 11. Warning regarding fuel connector (See page 38).



ENOF00005-J

ENOM00023-0

### Symbols

Individual symbol marks means as described below.

#### Warning/Caution



ENOF00114-0

#### Read manual thoroughly



ENOF00115-0

#### Check oil level



ENOF00116-0

#### Engine stop



ENOF00005-K

#### Use unleaded gasoline only



ENOF00117-0

**Flammable - Keep Fire Away**



ENOF00119-0

**Warning, high temperature**



ENOF00205-1

**Gear shift lever operation direction, dual direction**



ENOF00122-0

**Engine start/Engine cranking**



ENOF00123-0

**Warning, rotating object**



ENOF00249-1

**Warning, high voltage**

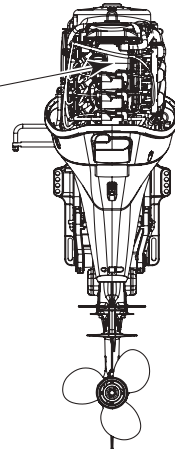


ENOF00204-0

ENOM00019-A

**ECI (Emission Control Information) decal locations**

|     |   |              |     |
|-----|---|--------------|-----|
| JAN | <b>EMISSION CONTROL INFORMATION</b>   | <b>MFI</b>   | JUL |
| FEB |   | (MODEL YEAR) | AUG |
| MAR | THIS ENGINE CONFORMS TO (MODEL YEAR) CALIFORNIA AND U.S. EPA EMISSION REGULATIONS FOR SPARK-IGNITION MARINE ENGINES. REFER TO THE OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS. THIS ENGINE IS CERTIFIED TO OPERATE ON GASOLINE. DISP. 0.866 L |              | SEP |
| APR | FAMILY NAME: E1TXM. 86622A  |              | OCT |
| MAY | FEL(g/kW-hr) HC+NOx=16.8, CO= 31.5  |              | NOV |
| JUN | MAX. POWER: 29.4 - 37 kW  |              | DEC |
|     | PART NO: 3KY-72089-0 40 - 50 HP   |              |     |



ENOF00005-G

**EPA Emissions Regulations**

Outboards sold by Nissan Marine & Power Products (NMPP) in the United States are certified to the United States Environmental Protection Agency as conforming to the requirements of the regulations for the control of air pollution from new outboard engines. This certification is contingent on certain adjustments being set to factory standards. For this reason, the factory procedure for servicing the product must be strictly followed and, wherever practicable, returned to the original intent of the design.

**Maintenance, replacement, or repair of the emission control devices and systems may be performed by any marine engine repair establishment or individual.**

Engines are labeled with an Emission Con-

trol Information decal as permanent evidence of EPA certification.

**Emissions Warranty Coverage  
WARRANTY INFORMATION**

**Four Stroke Outboard Limited Warranty**

Canadian and California residents who have purchased an outboard motor from a Canadian and California dealer receive additional warranty coverage for specific emissions related components. To fully understand your warranty coverage please read our standard warranty statement and the Emission Warranty Statement provided by your dealer.

# INSTALLATION

ENOM00024-A

## 1. Mounting the outboard motor on boat

Outboard motor mounting must be performed by trained service person(s) using lift or hoist with sufficient capacity.

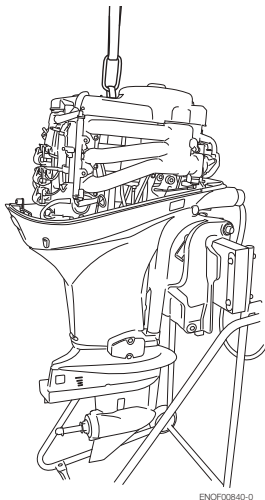
ENOM00840-0

### Gas assist type

ENOW00006-A

#### WARNING

- When taking outboard motor from package or removing outboard motor from the boat, never release the lock lever. If the lock lever is released, it will very easy for the clamp bracket to spring up to the tilting direction because it is not fixed.
- Before installing the outboard motor on the boat, hang the outboard motor with the hoist or equivalent device by attaching the engine hanger to the outboard. Use the hoist with allowable load is 250 kg (550 lbs) or above.



ENOW00006-0

#### WARNING

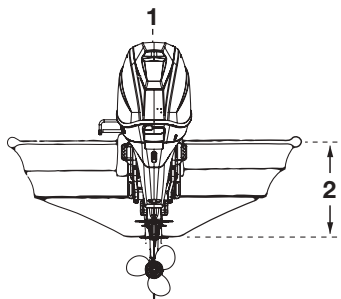
Most boats are rated and certified in terms of their maximum allowable horsepower, as shown on the boat's certification plate. Do not equip your boat with an outboard motor that exceeds this limit. If in doubt, contact your dealer.

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

ENOM00025-0

### Position ... Above keel line

Set engine at center of boat.



ENOF00014-A

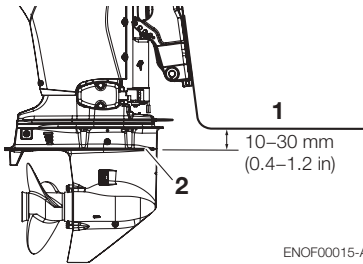
1. Center of boat
2. Boat transom

ENOM00026-0

### Transom matching

Be sure that the anti ventilation plate of the outboard motor is 10–30 mm (0.4–1.2 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.



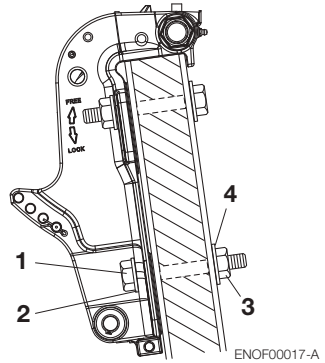
- 1. Bottom of hull
- 2. Anti ventilation plate

ENOW00007-0

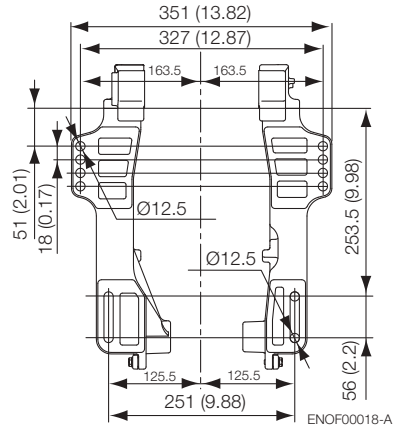
**CAUTION**

- 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 cowl- ing, 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 underwa- ter accessories, can cause water spray possibly reaching the engine through an opening of the bottom cowl- ing during cruising. Exposing the engine to such conditions for extended periods can lead to severe engine damage.

ENOM00830-0  
**Mounting bolts**



- 1. Bolt (12 x 105)
- 2. Washer (small diameter)
- 3. Nut
- 4. Washer (large diameter)



View A

ENOW00008-0

**CAUTION**

Mounting bolts should be installed with the bolt head at inside surface of the transom. Mounting bolts installed with the threaded end at the inside surface of the transom can cause personal injury.



ENON00003-0

**Notes**

1. Apply sealing agent, such as silicone sealed between the bolts and the transom board holes before tightening the bolts.
2. Be sure to tighten the mounting bolt nuts to the specified torque. (30 Nm (3.0 kgf) 13 ft-lb)

ENOW00009-0

**⚠ WARNING**

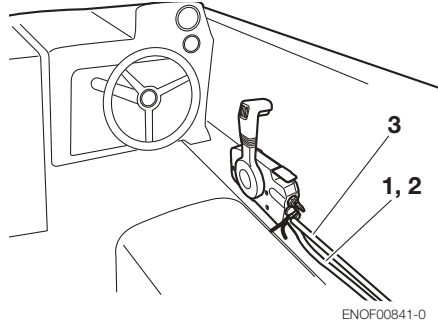
- **Mounting the outboard motor without following this manual can lead to unsafe conditions such as poor maneuverability, lack of control or fire.**
- **Loose clamp screws and/or mounting bolts can lead to the release or displacement of the outboard motor, possibly resulting in lost of control and/or 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.**

ENOM00840-0

**2. Remote control device installation**

ENOW00850-0

**Remote control box location**



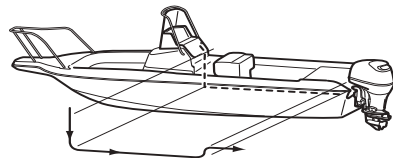
Install the remote control box in a position where it is easy to reach and operate the controls.

Make sure there are no obstacles that can interfere with the operation of the remote control cable.

1. Shift cable
2. Throttle cable
3. Cable harness B

ENOW00850-0

**Remote control cable length**



Measure the distance from the remote control box to the outboard motor where the remote control cable should be routed. Prepare a cable that is 300-450mm (11.8-

17.7in) longer than the measured distance. Temporarily pull the cable along the intended cable route to check its length is sufficient.

Connect the remote control cable to the engine, then run the cable to the remote control box, making sure it is not sharply bent, too taut and free from obstructions that could interfere with steering.

ENOW00100-A

### CAUTION

Be careful not to loop the remote control cables to a diameter of 406 mm (16 inches) or less. Otherwise, it affects the service life of the cable.

ENOW00029-A

## 3. Battery installation

ENOW00012-0

### WARNING

Battery electrolyte contains sulfuric acid and thus is hazardous, causing a burn if it comes in contact with your skin, or poisoning if swallowed.

Keep battery and electrolyte away from reach of children

When handling the battery, be sure to:

- Read all warnings shown on the battery case
- Prevent electrolyte from coming in contact with any part of your body. Contact can cause serious burn or, if it comes in contact with your eye, loss of sight. Use safety glasses and rubber gloves.

In case battery electrolyte comes in contact with:

- Skin, flush thoroughly with water.
- Eye, flush thoroughly with water, and then seek immediate medical treatment.

In case battery electrolyte is swallowed:

- Seek immediate medical treatment.

ENOW00013-0

### WARNING

Battery generates explosive hydrogen gas. Be sure to:

- Charge the battery in a well-ventilated place.
- Place the battery away from any source of fire, sparks and open flames such as burners or welding equipment.
- Do not smoke when handling the battery.
- Do not smoke near the battery when the battery is charging.

ENOW00014-0

### CAUTION

- Make sure that the battery leads do not get stuck between the outboard motor and boat when turning, etc.
- The starter motor may fail to operate if the leads are incorrectly connected.
- Be sure to correctly connect the (+) and (-) leads. If not, the charging system will be damaged.
- Do not disconnect the battery leads from battery while the engine is operating, the electrical parts could be damaged.
- Always use a fully charged battery.

ENOW00015-0

### CAUTION

Do not use a battery that is not recommended. Use of a battery not recommended can lead to poor performance of, and/or damage to, the electrical system.

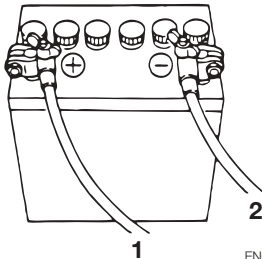
ENON00006-A

**Note**

Recommended battery: 12V 100AH/5HR, 850 (Cold Cranking Amps (CCA), In case of cold weather: 12V120AH/5HR (1000CCA)) Specifications and features of batteries vary among the manufacturers. Consult the manufacturer for details.

\* The battery should be purchased separately and is not supplied with the outboard motor.

1. Place the battery box in a convenient position away from possible water spray. Securely fasten both the box and the battery so they do not shake loose.
2. Connect the positive lead (+) to the positive terminal (+) of the battery, and then connect the negative lead (-). When disconnecting the battery always remove the negative lead (-) first. After connecting the positive terminal (+), securely place a cap on it to prevent short circuits.



ENOF00022-0

1. Battery cord (red)
2. Battery cord (black)

ENOM00045-A

**4. Propeller installation**

ENOW00085-A

**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.**

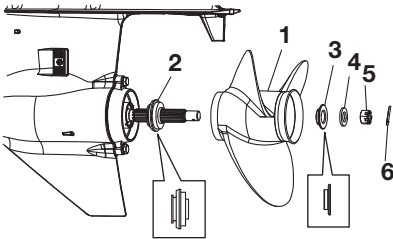
**Disconnect battery cable if possible.**

Propeller must be selected that will allow the engine to reach recommended rpm when cruising at wide-open throttle.

| Wide-open throttle rpm range |
|------------------------------|
| 40/50                        |
| 5000 – 6000 rpm              |

Genuine propellers are listed on PROPELLER TABLE of this manual (See page 87).

1. Remove the split pin, propeller nut and washer.
2. Apply water proof grease to the propeller shaft before installing a new propeller.
3. Install the thrust holder, propeller stopper, washer and propeller nut onto the shaft.
4. Tighten the propeller nut to specific torque, and align one of grooves to propeller shaft hole.  
 Propeller nut torque:  
 35 Nm (25 ft-lb, 3.5kgf-m)
5. Install a new split pin into the nut hole and bend it.



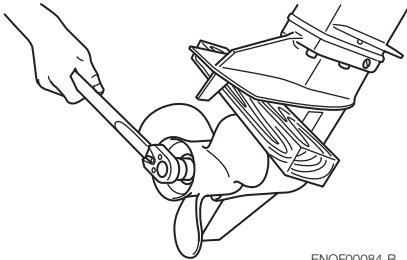
ENOF00084-A

- 1. Propeller
- 2. Thrust holder
- 3. Stopper
- 4. Washer
- 5. Nut
- 6. Split pin

ENOW00085-0

**! WARNING**

**Do not hold propeller with hand(s) when loosening or tightening propeller nut. Put a piece of wood block between propeller blade and anti-ventilation plate to hold propeller.**



ENOF00084-B

ENOW00086-0

**! 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.

# PRE-OPERATING PREPARATIONS

ENOM00016-A

## DANGER

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 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:

- 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.

ENOM00030-A

## 1. Fuel handling

ENOM000017-0

## 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-A

## FUEL RATING

NISSAN MARINE 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 NISSAN MARINE 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 81) for additional information.

ENOW00020-0

### CAUTION

**When operating a NISSAN MARINE 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.**

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.**

ENOM00043-A

## 2. Fuel filling

ENOW00028-0

### DANGER

**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:**

- 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:**

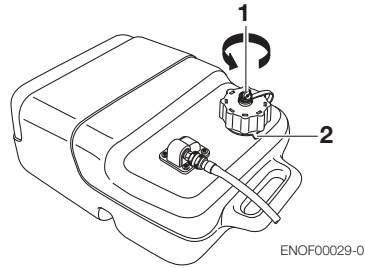
- Wipe off gasoline well immediately if spilled.
- If the fuel tank is disassembled for cleaning, reassemble carefully. Imperfect assembly may cause a fuel leak, possibly leading to fire or explosion.
- Dispose aged or contaminated gasoline in accordance with local regulations.

ENOW00029-A

**⚠ WARNING**

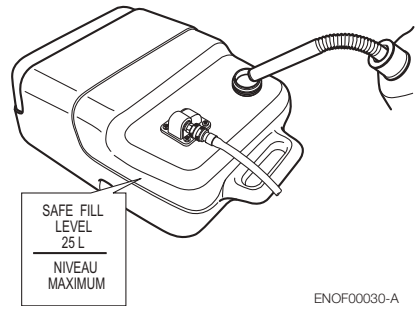
When opening fuel tank cap, be sure to follow the procedure described below. Fuel could blast out through the fuel tank cap in case the cap is loosened by using another procedure when internal pressure of fuel tank is raised by heat from sources such as sun light.

1. Full open the air vent screw on the tank cap and release internal pressure.



1. Air vent screw
2. Tab lock

2. Loosen the tank cap until it contacts the tab lock and release internal pressure completely. After that, press down the tab lock and open the tank cap.
3. Fill the fuel carefully not to over flow.



4. After filling the tank, close the tank cap until two clicks sound is heard.

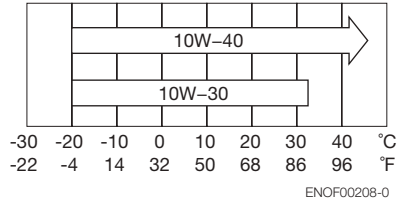
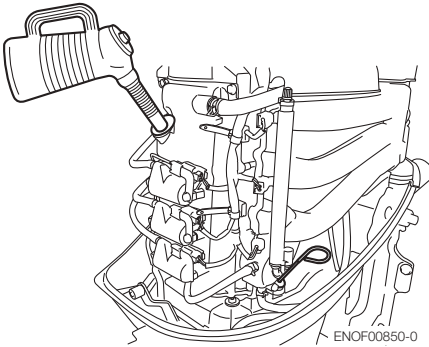
ENOM00037-A

### 3. Engine oil recommendation

ENOW00022-A

**CAUTION**

The engine oil is drained for shipping from the factory. Be sure to fill the engine to the proper level before starting engine. (To properly fill the engine with oil follow the instructions, See page 65)



ENOW0002A-A

**CAUTION**

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

Use only high quality 4-stroke engine oil to insure performance and prolonged engine life.

The SAE oil viscosity 10W-30 or 10W-40 FC-W outboard motor engine oil is recommended.

You can also use oils that carry the API rating of SH, SJ, or SL. Select the appropriate viscosity, based on atmospheric temperature, from the chart below.



JENOM00033-A

## 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 39) to learn how to correctly start and operate the outboard motor.

ENOW00023-0



**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.**

|                   | 1-10 min | 10 min – 2 hrs         | 2-3 hrs  | 3-10 hrs   | After 10 hrs            |
|-------------------|----------|------------------------|--|--|-------------------------|
| Throttle Position | Idle     | Less than 1/2 throttle | Less than 3/4 throttle                           | 3/4 throttle   | Full throttle available |
| Speed             |          | Approx. 3000 rpm max   | Full throttle run allowed for 1 min every 10 min | Approx. 4000 rpm. Full throttle run allowed for 2 min every 10 min |                         |

ENON00008-0

### Note

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

ENOW00024-0



**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.**

ENOM00039-0

## 5. Warning system

If outboard motor encounters an abnormal condition of fault, the warning horn will emit a continuous beep or intermittent short beeps and the warning lamp (LED) will synchronize with the horn and engine speed will be limited (engine will not be stopped).

See next page for conditions which will lead to an abnormal condition or fault.

ENOM00040-A

### Location of warning horn and lamp

#### ■ Warning horn

RC model: Located inside the remote control.

Tiller handle model: Located in the tiller handle.

#### ■ Warning lamp (LED)

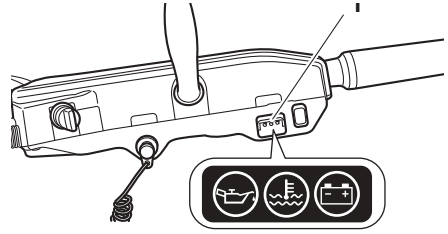
RC model: Located in the tachometer.

Tiller handle model: Located on the tiller handle.

ENON00009-0

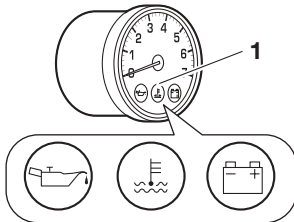
#### Note

Warning lamp for optional tachometer will synchronize with the LED.



ENOF00852-0

1. Warning lamp






ENOF00851-0

1. Warning lamp

ENOM00041-A

## Warning indicators, faults and remedy

| Warning indicators |  |  |  | ESG            | Description of faults or notice   | Remark                            | Remedy |
|--------------------|--|--|--|----------------|---|-----------------------------------|--------|
| Sound              |  A lamp |  B lamp |  C lamp |                |   |                                   |        |
| Continuous         | ON   | ON   | ON   | -              | Normal system test when key on  | 1 second                          |        |
| Continuous         | -  | -  | -  | High speed ESG | Engine speed exceeds maximum allowable RPM                              | Approx. 6,200 r/min               | 1      |
| Continuous         | ON   | -  | -  | Low speed ESG  | Low oil pressure  |                                   | 2      |
| Continuous         | -  | Flashing   | -  | Low speed ESG  | Cooling water temp. is high   | Over 85°C/185°F                   | 3      |
| -                  | -  | -  | Flashing   | -              | Battery voltage is low  | Engine is stopped under 9V        | 4      |
| -                  | Flashing   | Flashing   | Flashing   | Low speed ESG  | Malfunction of sensor   |                                   | 5      |
| -                  | Flashing   | Flashing   | Flashing   | -              | Malfunction of electrical part  |                                   | 5      |
| -                  | Flashing   | -  | -  | -              | Inform the recommended timing of engine oil replacement (every 100hrs.) | "A lamp" ON 1 sec. and OFF 9 sec. | 6      |
| One beep           | -  | -  | -  | -              | Lowest idling speed of variable idling system                           |                                   |        |
| Two beep           | -  | -  | -  | -              | Highest idling speed of variable idling system                          |                                   |        |

### High speed ESG (Electronic Safety Governor)

High speed ESG is a device to prevent over revolution of the engine. If the load to the engine becomes light for some reason, it runs at a higher speed than the usual. In such the case, the buzzer sounds and the ESG is activated not to ignite the spark plug, therefore, the engine speed varies and be controlled under 6200rpm.

### Low speed ESG

Low speed ESG is a device to prevent the engine from getting damage. If the engine has problems regarding cooling water, oil pressure, and sensors, the low speed ESG is activated not to ignite the spark plug, and disable fueling therefore, the engine speed varies and be controlled under 3000rpm.

**Remedy**

1. Reduce the throttle to less than half opening, and move to safe place quickly, and stop the engine. Check the propeller for bent or damaged blades. Consult an authorized dealer if engine shows the same result even after replacing propeller with new one.
2. Move to safe place quickly, and stop the engine. Check the engine oil level, and add engine oil if necessary. Consult your dealer if the engine oil level is too low or too high.
3. Move to safe place quickly, and check the discharge of cooling water from the water check port at idle speed and stop engine. Remove any foreign matter on the gear case and propeller if necessary. Consult an authorized dealer if no discharge of cooling water.
4. Charge or replace the battery.
5. Consult an authorized dealer.
6. Replace the engine oil (See page 70) and reset the indicator (See page 36).

ENOW00025-A

**⚠ CAUTION**

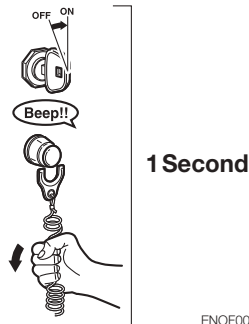
- **Low speed ESG ON: Engine speed will be limited to 3000 rpm, however you should not continue to run engine.**
- **High speed ESG ON: Engine speed will be limited to 6200 rpm and engine will run rough until throttle is reduced.**

ENOM00870-0

**Engine oil replacement indicator function reset method**

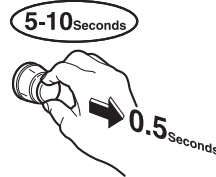
As for "Engine oil replacement indicator function", informing the appropriate timing of engine oil replacement by blinking of the lamp, when beyond 100 hours operating.

1. Be certain the safety lanyard is installed. Turn the key to the 'on' position and after the 'beep' pull the safety lanyard off.



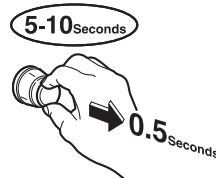
ENOF00853-0

2. Within 5-10 seconds, Pull the red knob on the safety switch out and release.



ENOF00854-0

3. Wait 5-10 seconds and pull the red knob out and release.



ENOF00854-0

4. Within 5-10 seconds you will here 3 beeps to inform you that you have successfully reset the system.

**5Seconds**

**Beep!!  
Beep!!  
Beep!!**

ENOF00856-0

5. Turn the ley to the 'off' position and replace the safety lanyard lock.

The engine oil replacement indicators function operates again after 100 hours operation from reset this function.

# ENGINE OPERATION

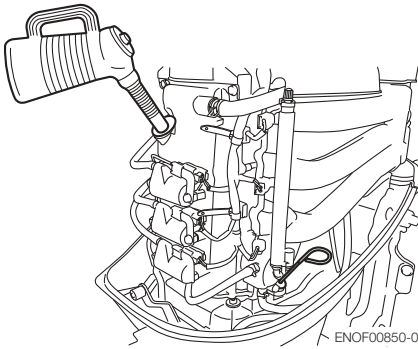
ENOM00042-0

## Before starting

ENOW00022-A

### ⚠ CAUTION

The engine oil is drained for shipping from the factory. Be sure to fill the engine to the proper level before starting engine. (To properly fill the engine with oil follow the instructions. See page 65)



ENOW00027-A

### ⚠ CAUTION

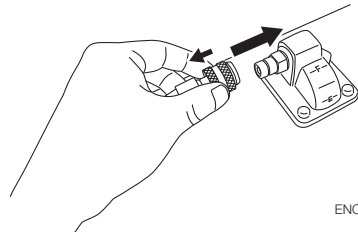
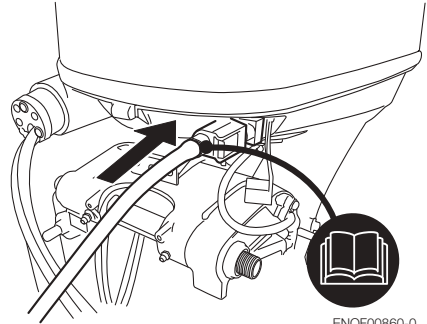
Before starting engine for the first time after reassembling engine or off-season storage, disconnect stop switch lock and crank approximately 10 times in order to prime the oil pump.

ENOM00044-A

## 1. Fuel feeding

1. Full open the air vent screw on the tank cap.

2. Loosen the tank cap until contacts the tab lock and release internal pressure completely. After that, close the tank cap until two click sound is heard.
3. Connect the fuel connector to the engine and fuel tank.



4. Squeeze primer bulb until it becomes stiff to feed fuel to vapor separator. Direct arrow mark upward when priming.



ENOF00862-0

1. Engine side
2. Fuel tank side

Do not squeeze primer bulb with engine

running or when the outboard motor is tilted up. Otherwise, fuel could overflow.

ENOW00030-A

**⚠ WARNING**

When using EPA approval fuel tank, only use a primer bulb/hose assembly that has a Fuel Demand Valve (FDV) installed in the fuel hose or a sealing mechanism in the fuel connector as shown below.

FDV and fuel connector that has an sealing mechanism prevent pressurized fuel spillage when the fuel connector is connected to the engine.



ENOF00035-0

1. FDV in fuel hose
2. Sealing mechanism in fuel connector
3. Identification

**Do NOT use a primer bulb/hose assembly that does not contain a Fuel Demand Valve or a sealing mechanism as shown below: otherwise fuel spillage may occur when the connector is connected to the engine.**



ENOF00036-0

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

ENOM00045-A

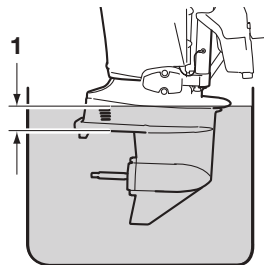
**2. Starting the engine**

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.

And be sure to remove the propeller, when starting the engine in the test tank. (See page 27)



ENOF00863-0

1. 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.

ENOW00032-0

**⚠ CAUTION**

Do not keep turning starter motor for over 5 seconds, or the battery may be consumed, potentially making the engine start-

ing impossible and/or damaging the starter.

If cranking over 5 seconds fails to start engine, return main switch to "ON", and crank engine again after 10 seconds or more.

This model is provided with start in gear protection.

ENON00010-0

**Note**

Start-in-gear protection prevents engine from starting at other than neutral shift. In-gear starting of engine will move the boat immediately, potentially leading to falling down or causing passenger(s) to be thrown overboard.

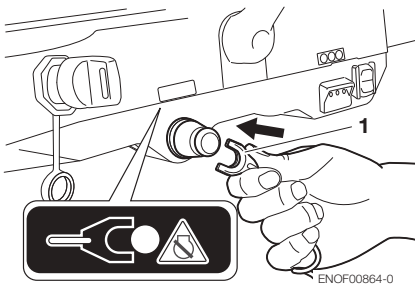
ENOW00031-0



If the engine starts in gear, do not use it. Contact an authorized dealer.

**Tiller handle type**

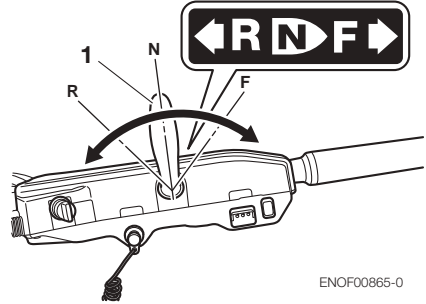
1. Be sure to install the stop switch lock to the stop switch, and attach the stop switch lanyard securely to the operator or to the operator's PFD (Personal Floation Device.)



1. Stop switch lock

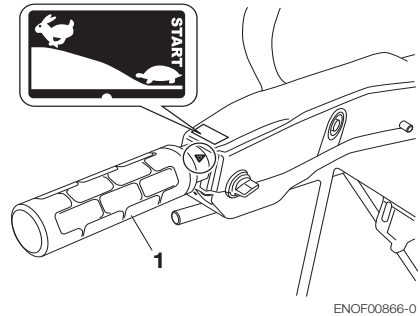
2. Insert the main switch key.

3. Set the control lever in the Neutral position.



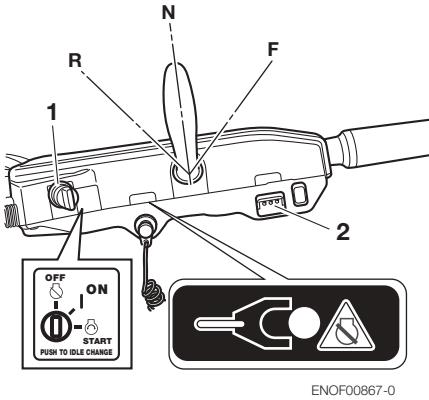
1. Shift lever

4. Set the throttle grip to START position.



5. Turn the main switch key to ON position and confirm three warning lamps light up with buzzer sound and then go off.
6. Turn the main switch key to START position and release the key when the engine has started. The key returns to the original position, automatically.





- 1. Main switch key
- 2. Warning lamp

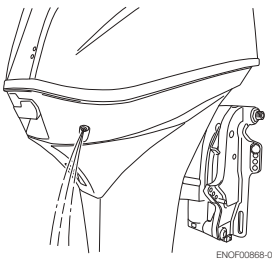
ENOW00032-0

**CAUTION**

Do not keep turning starter motor for over 5 seconds, or the battery may be consumed, potentially making the engine starting impossible and/or damaging the starter.

If cranking over 5 seconds fails to start engine, return main switch to "ON", and crank engine again after 10 seconds or more.

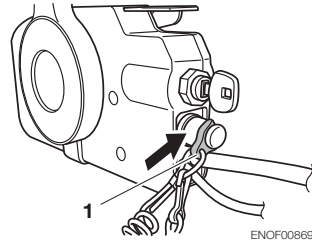
- 7. Check the cooling water from cooling water check port.



ENOF00868-0

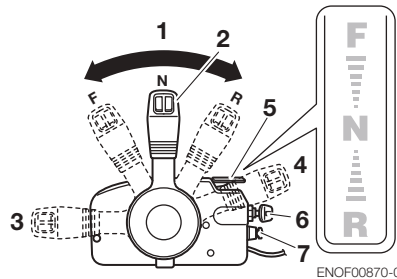
**Side mount RC type**

- 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 Floation Device.)



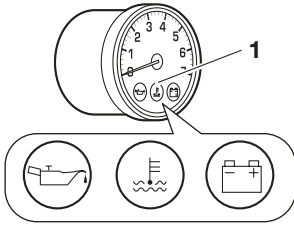
ENOF00869-0

- 1. Stop switch lock
- 2. Insert the main switch key.
- 3. Set the control lever in the Neutral position. Do not raise the free throttle lever when starting the engine.



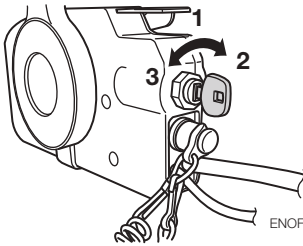
ENOF00870-0

- 1. Neutral (N)
  - 2. Control lever
  - 3. Fully open (Forward)
  - 4. Fully closed (Fully closed)
  - 5. Free throttle lever
  - 6. Main switch key
  - 7. Stop switch
- 4. Turn the main switch key to ON position and confirm three warning lamps light up with buzzer sound and then go off.



ENOF00851-0

1. Warning lamp
5. Turn the main switch key to START position and release the key when the engine has started. The key returns to the original position, automatically.



ENOF00871-0

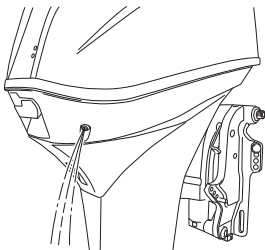
1. ON
2. START
3. OFF

ENON00035-A

**Note**

The free throttle lever can not be raised when the control lever shift is in Forward or Reverse.

6. Check the cooling water from cooling water check port.



ENOF00868-0

ENOM00042-A

**Emergency starting**

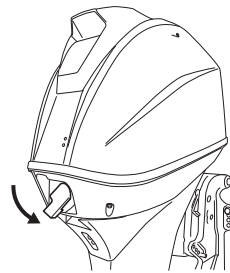
ENOW00099-A



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

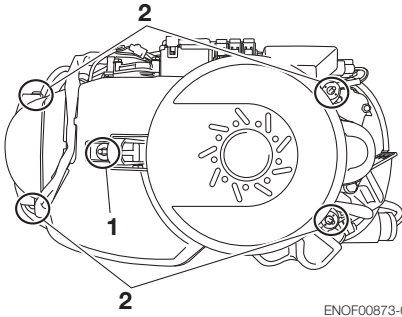
- Start in gear protection does not work. Be sure to shift is at neutral position. Otherwise the engine will move the boat immediately and cause personal injury.
- Be careful that your clothes or other items do not get caught in the rotating engine parts.
- To prevent accident and injury by rotating 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.

1. Remove the top cowl.

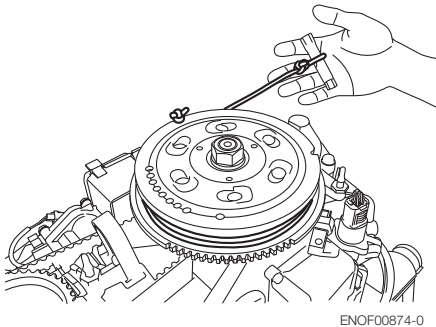


ENOF00872-0

- Remove the flywheel cover.



- Bolt
  - Rubber grommet
- 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.)
  - Insert the knotted end of the starter rope into the notch in the flywheel and wind the rope around the flywheel several turns clockwise.

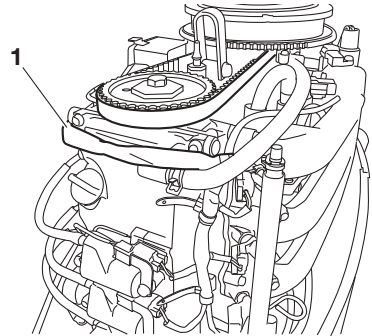


- Tie a loop in the another end of the emergency starter rope and attach socket wrench that is included in the tool kit.

ENOW00860-0

**CAUTION**

**Be sure to keep the harness away from the rotation parts.**



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

ENOM00043-A

---

### **3. Warming up the engine**

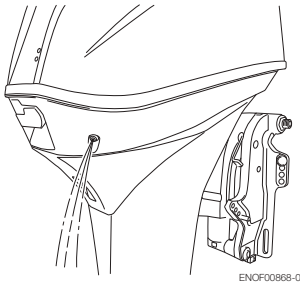
---

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.

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



ENOM00044-0

### Engine speeds

Idling speed after warming up.

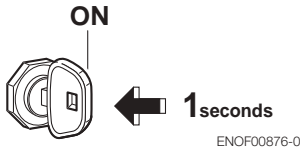
Remark: In case of cold engine starting, idling speed is increased about 400 rpm for several minutes.

| Clutch in (In gear) | Clutch off (Out of gear) |
|---------------------|--------------------------|
| 850 rpm             | 850 rpm                  |

ENOM00880-0

### Trolling engine speed control function

If the main switch key is pressed for 1 (one) second during idling or trolling operation, engine revolution change.



Each time the main switch key is pressed in the above manner, engine speed changes as follows.

#### Starting

850rpm → 750rpm → 650rpm

↑ ↓  
950rpm ← 850rpm ← 750rpm

Buzzer short sounded one time, when set to 650 rpm engine speed, and tells the lowest engine speed was set.

Buzzer short sounded twice, when set to 950 rpm engine speed, and tells the highest engine speed was set.

Reset the engine speed when after engine restarted and or engine speed is above 3,000 rpm, and then trolling engine speed to be 850 rpm as standard.

In addition, this function does not operate when battery voltage is lower than specified, set engine idle and trolling engine speed to 850 rpm automatically.

ENOM00046-A

## 4. Forward, reverse, and acceleration

ENOW00037-0



**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



- 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.

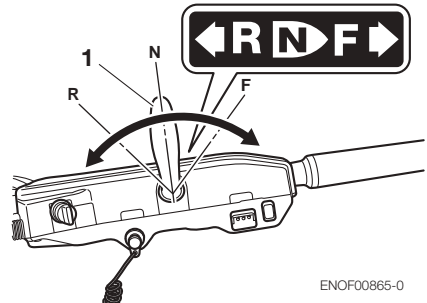
ENOW00864-0

**CAUTION**

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

ENOM00890-0

**Tiller handle type**



ENOF00865-0

1. Shift lever

ENOW00865-0

**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. The control lever is inoperative unless the throttle grip is in the fully closed position.

**Forward**

1. Turn the throttle grip to reduce engine speed.

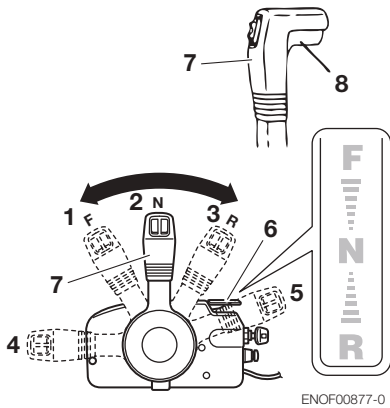
- When the engine reaches trolling (or idling) speed, quickly pull the shift lever to the Forward position.

**Reverse**

- Turn the throttle grip to reduce engine speed.
- When the engine reaches trolling (or idling) speed, quickly pull the shift lever to the Reverse position.

ENOM0900-0

**Side mount RC type**



- Forward (F)
- Neutral (N)
- Reverse (R)
- Fully open (Forward)
- Full open (Reverse)
- Free throttle lever
- Control lever
- Lock button

ENOW00866-0

**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. The control lever is inoperative unless the throttle grip is in the fully closed position.

**Forward**

- Quickly push the control lever to the Forward (F) position 32°, where the gear is connected, while lifting up on the lock button located under the control lever grip.
- Further forward motion will open the throttle.

**Reverse**

- Quickly pull the control lever to the Reverse (R) position at 32°, where the gear is connected, while lifting up on the lock button located under the control lever grip.
- Further rearward motion will open the throttle.

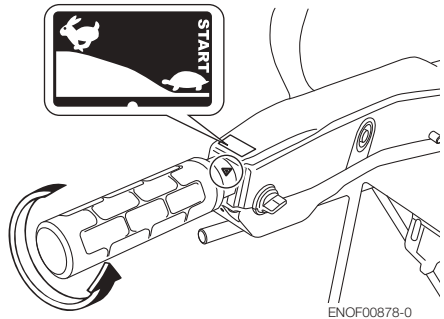
**Acceleration**

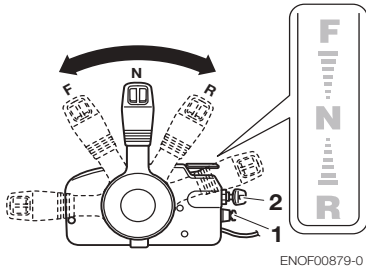
Open throttle grip or control lever gradually.

ENOW00867-0

**CAUTION**

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





ENOM0049-A

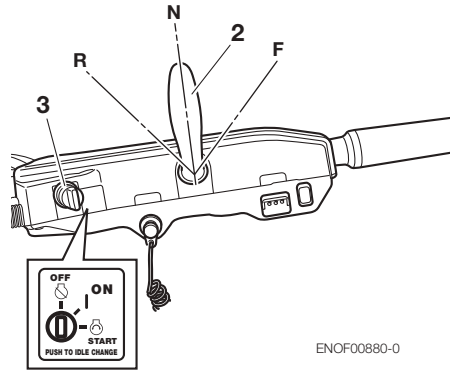
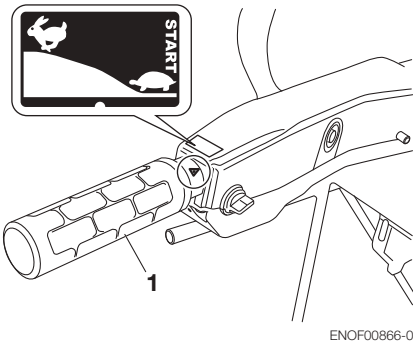
### 5. Stopping the engine

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



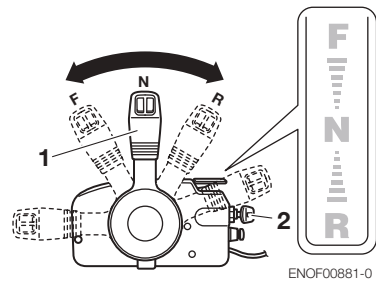
- 1. Throttle grip
- 2. Shift lever
- 3. Main switch key

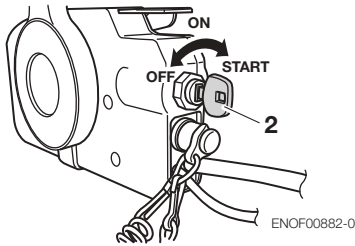
1. Turn the throttle grip to the slow position.
2. Put the shift lever in the Neutral position.

Run the engine for 2-3 minutes at idling speed for cooling down if it has been running at full speed.

3. Turn the main switch key to the OFF position.

#### Side mount RC type





- 1. Control lever
- 2. Mine switch key

1. Put the control lever in the Neutral position and run the engine for 2-3 minutes at idling speed for cooling down if it has been running at full speed.
2. Turn the main switch key to the OFF position.

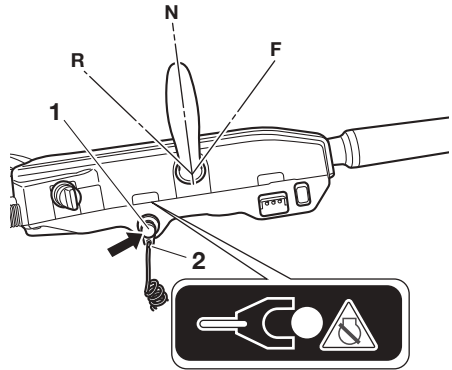
ENOW00869-0

**WARNING**

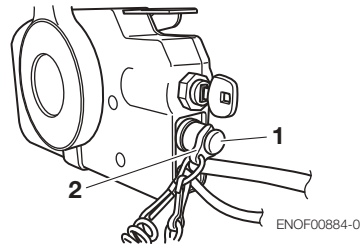
- After stopping the engine, close the air vent screw on the tank cap.
- Disconnect the fuel connector of the engine and the fuel tank.
- Disconnect the battery cord, after each use.

**Emergency engine stopping**

Press the emergency stop switch or remove stop switch lock to stop the engine.



- 1. Stop switch
- 2. Stop switch lock



- 1. Stop switch
- 2. Stop switch lock

ENOM00910-0

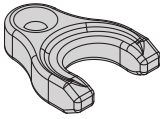
**Spare emergency stop switch lock**

A spare emergency stop switch lock is provided in the tool bag.

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

Be sure to confirm the spare stop switch lock is in the tool bag before begin to operate.





ENOF00891-0

ENOM00920-0

## 6. Steering

ENOW00870-0

### **WARNING**

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

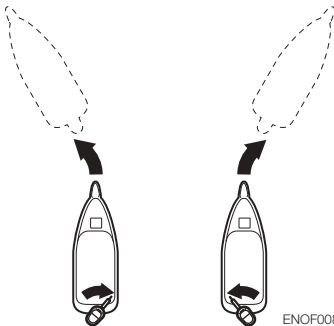
### Tiller handle type

#### Right turn

Move the tiller handle to the left

#### Left turn

Move the tiller handle to the right.



ENOF00892-0

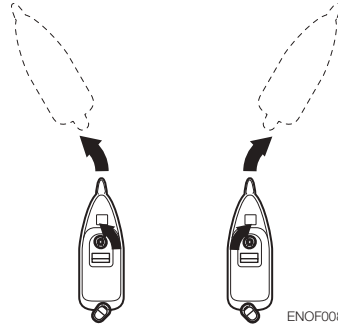
### Remote control type

#### Right turn

Turn the steering wheel to the right.

#### Left turn

Turn the steering wheel to the left.



ENOF00893-0

ENOM00050-0

## 7. Trim angle

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.

ENOW00043-0

### **WARNING**

- 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.



ENOF00053-0

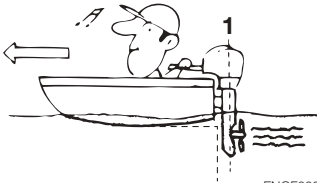
ENOM00051-A

**Gas assist type**

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.

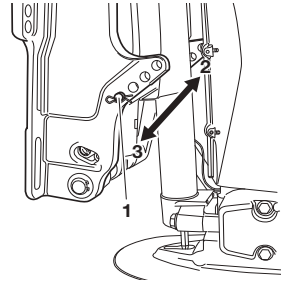


ENOF00052-0

ENOM00054-0

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

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



ENOF00888-0

1. Thrust rod
2. Higher
3. Lower

ENOM00055-A

**Power Trim & Tilt type**

The provided Power tilt makes tilt-up/down electrically. It may be used as a power trim and tilt when the outboard motor is used with the light load condition. In this case, it can be adjusted to set the desired trim angle of the outboard motor in relation to the transom shape, planing speeds and load. It is imperative that the trim angle is adjusted correctly. Incorrect adjustment will cause the boat to sway, deteriorate engine performance and may cause unsafe steering conditions.

ENOW00045-0



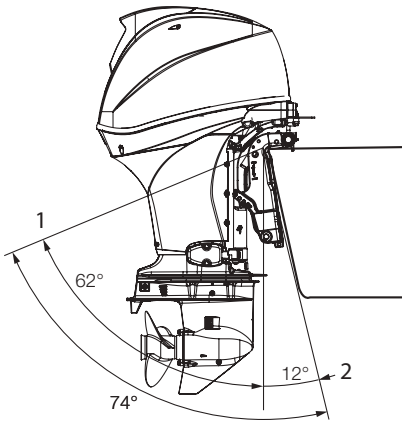
**The Power Trim & Tilt can be set to any trim angle, however, avoid cruising with the outboard motor tilted in the tilt range. Operate-**

ing the boat in this manner, the outboard motor may ingest air into the water cooling system, resulting in engine overheating.

ENOM00056-0

### How to use the trim meter (option)

When the trim angle is set as desired, take a reading off the trim meter, and record it for future reference.



ENOF00055-A

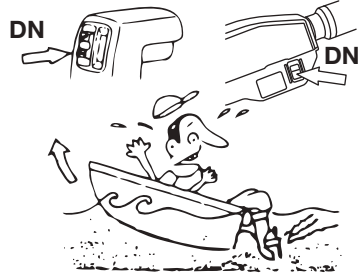
1. Tilt range
2. Trim angle

ENOM00057-0

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

If the trim angle is excessive, the bow will rise out of the water and the speed will decrease.

Furthermore, the bow may sway or the bottom may slam the water while cruising. In this case, decrease the trim angle by pressing the switch on the remote control lever to "DN".

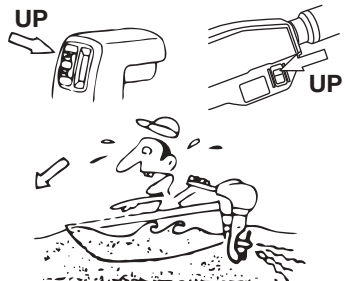


ENOF00056-1

ENOM00058-0

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

If the trim angle is too small, the bow will dip into the water, the speed will decrease, and water may enter the boat. In this case, the trim angle should be increased by pressing the switch on the remote control lever to "UP".



ENOF00057-1

ENOM00059-0

### Proper trim angle

The trim angle is optimum when the boat is parallel to the water surface while running.

ENOW00043-0

## ⚠ WARNING

- 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.

ENOM00060-A

**8. Tilt up, tilt down and shallow water operation**

ENOM00930-A

**Tilt up and down**

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.

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.

ENOM00065-A

**Gas assist type**

ENOW00871-0

 **WARNING**

When taking outboard motor from package or removing outboard motor from the boat, never release the lock lever. If the lock lever is released, it will very easy for the clamp bracket to spring up to the tilting direction because it is not fixed.

ENOW00070-0

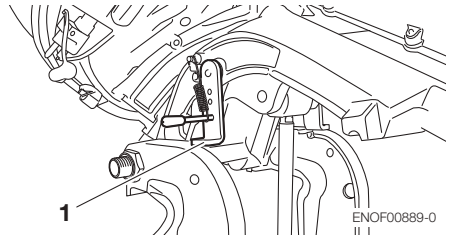
 **WARNING**

Never attempt to disassemble shock absorber of gas assist tilt system. It is dangerous because high pressure gas is included in the shock absorber.

ENOM00066-A

**Tilt up**

1. Move (UP) lock lever to “Free” position.
2. Fully tilt up the outboard motor.
3. While keeping the outboard motor in full tilt up position, move, (DOWN) lock lever to “Lock” position.
4. For safety, set the tilt stopper into the set-up position, although the outboard motor is kept in the tilt up position after the lock lever is moved (DOWN) to “Lock” position.

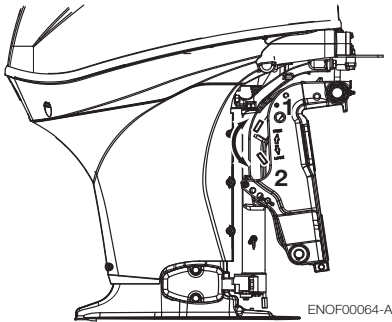


1. Tilt stopper

ENOM00067-A

**Tilt down**

1. Move (UP) lock lever to “Free” position.
2. Release the tilt stopper from the set-up position while slightly tilting up outboard motor.
3. Release outboard motor down to thrust rod.
4. Move (DOWN) lock lever to “Lock” position after the outboard motor is completely tilted down.



1. Free position
2. Lock position

ENOM00069-A

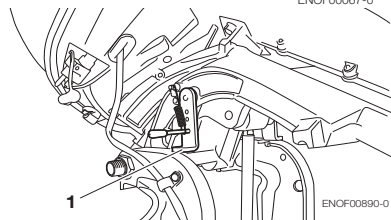
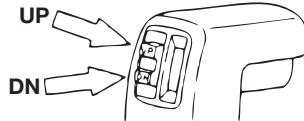
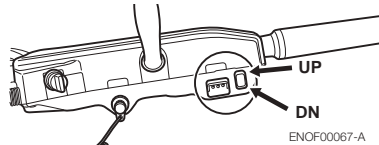
**Power Trim & Tilt type**

**Tilt up**

1. Operate the Power Trim & Tilt switch and tilt the outboard motor up.
2. Lock the tilt with the Tilt stopper after the outboard motor has been tilted up

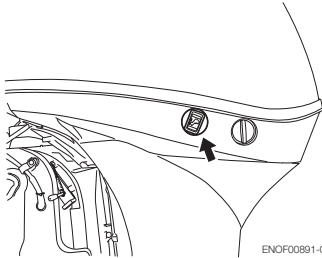
**Tilt down**

1. Release the tilt stopper from the set-up position while slightly tilting up outboard motor.
2. Operate the Power Trim & Tilt switch and tilt the outboard motor down until the motor touches to the thrust rod.



1. Tilt stopper

The outboard motor can also be tilted up and down using the switch provided under the bottom cowl.



It is possible to tilt up or down in spite of main switch "ON" or "OFF".

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.

ENOW00056-0

**! WARNING**

When tilting up outboard motor with fuel joint for over a few minutes, be sure to disconnect fuel hose or close fuel cock, 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.

ENOM00940-0

**Manual relief valve**

If the battery is dead, and the power trim & tilt switch thus inoperative, open the manual valve completely in the Manual direction. This will allow manual tilting of the outboard motor.

ENOW00872-0

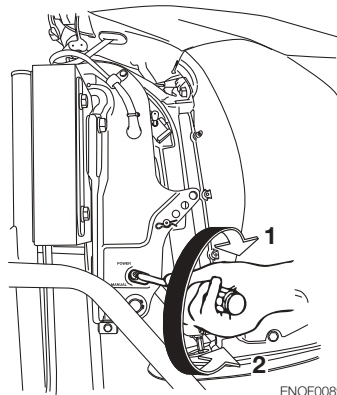
**! WARNING**

Make sure the manual relief valve is closed before operating the outboard motor. If the manual relief valve is not closed, the outboard motor will tilt up when operated in reverse.

ENOW00873-0

**! WARNING**

Before opening the manual relief valve, make sure nobody is under the outboard motor. If the outboard motor is in the tilted up position, it will tip down suddenly if the manual relief valve is loosened in the "Manual" direction.



- 1. Power
- 2. Manual

ENOM00068-A

### 9. Shallow water operation

ENOW00051-0

**⚠ WARNING**

During shallow water operation, be careful not to place your hand between the swivel bracket and the clamp bracket. Be sure to tilt the outboard motor down slowly.

ENOW00053-0

**⚠ CAUTION**

While in shallow water drive position, do not operate the outboard motor in Reverse. Operate the outboard motor at slow speed and keep the cooling water intake submerged.

ENOW00054-0

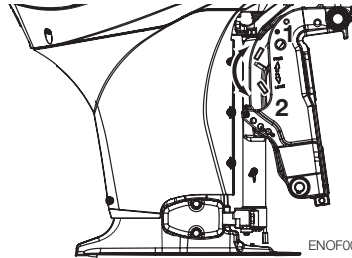
**⚠ CAUTION**

Do not overtilt outboard motor when driving shallow water, or air may be sucked through water inlet, potentially leading to engine overheating.

ENOM00880-A

### Gas assist type

1. Move (UP) lock lever to "Free" position. Tilt up outboard motor into desired shallow water running. While keeping the outboard motor in the desired shallow water running position, move (DOWN) lock lever "Lock" position.



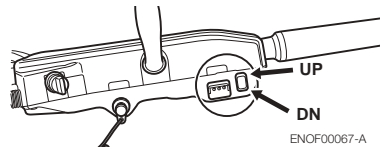
ENOF00064-A

1. Free position
  2. Lock position
2. Return to normal running position  
Move (UP) lock lever to "Free" position. Outboard motor moves down to thrust rod.  
Move (DOWN) lock lever to "Lock" position.

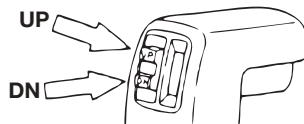
ENOM00069-A

### Power Trim & Tilt type

1. Operate the Power Trim & Tilt switch and tilt the outboard motor up into desired shallow water running position.



ENOF00067-A



ENOF00067-0

# REMOVING AND CARRYING THE OUTBOARD MOTOR

ENOM00070-A

## 1. Removing the outboard motor

ENOW00890-0

### WARNING

Before installing the outboard motor on the boat, hang the outboard motor with the hoist or equivalent device by attaching the engine hanger to the outboard.

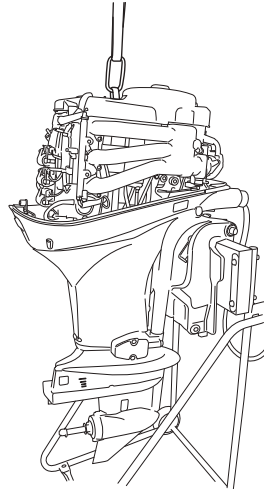
Use the hoist with allowable load is 250 kg (550 lbs) or above.

ENOW00064-0

### 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. Remove the top cowl.
3. Disconnect the fuel connector, the remote control cables and the battery cords from the outboard motor.
4. Attach the hoist hooks to the engine hanger.
5. Remove the outboard motor from boat and completely drain the water from the gear case.



ENOF00840-0

ENOM00071-A

## 2. Carrying the outboard motor

ENOW00065-A

### WARNING

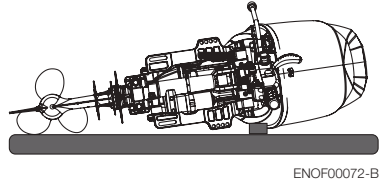
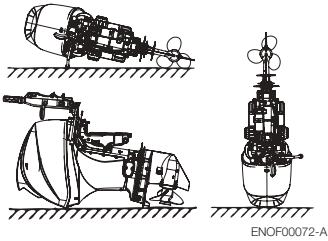
Close air vent screw of fuel tank before carrying or storing outboard motor and fuel tank, or fuel may leak, potentially catching fire.

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.





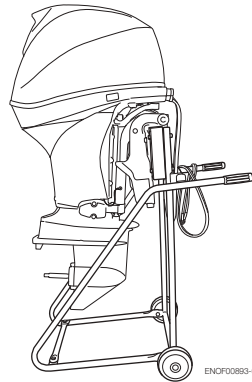
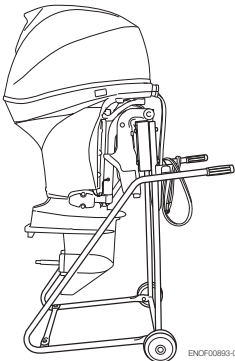
ENOM00072-A

### 3. Storing the outboard motor

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.

Outboard motor should be stored in a vertical position.



ENOW00066-0

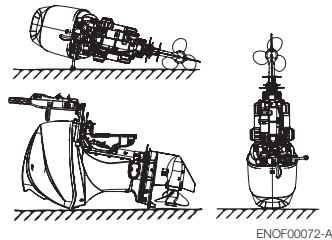
ENON00021-A

**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.

**⚠ 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.**



ENOM00950-0

**Adding a fuel stabilizer**

When adding a fuel stabilizer additive (commercially available), first fill the fuel tank with fresh 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 vapor separator (See page 81).
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**

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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.

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# TRAILERING

ENOM00072-A

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

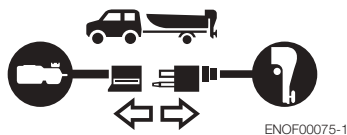
To prevent the outboard motor from moving when it is attached on a boat during transport on a trailer, properly tighten the steering friction lever (See page 61).

ENOW00073-0

### WARNING

Please disconnect fuel connector except when operating engine.

Fuel leakage is a fire or explosion hazard, which can cause serious injury or death.



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.

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

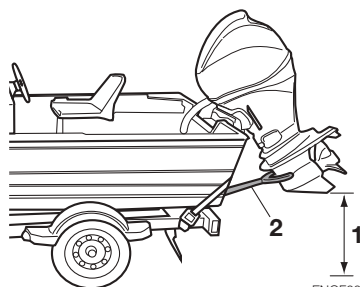
The tilt support device supplied on your outboard motor is not intended for towing. It is intended to support the outboard motor while the boat is docked, beached, etc.

ENOW00072-0

### 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.

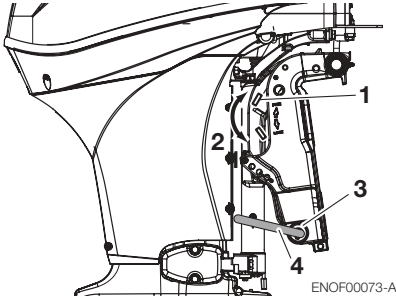
If trailering with outboard motor fully down is not available (the gear case skag is too close to the road in a vertical position), fix the outboard motor securely using a device (like a transom saver bar) in the tilted position.



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

### Gas assist type

Care must be taken so as not to release lock lever by accident. For more safety, tie the cylinder pin lower to the outboard motor with a rope.



- 1. Lock lever
- 2. Lock position
- 3. Cylinder pin lower
- 4. Rope

# ADJUSTMENT

ENOM00073-0

## 1. Steering friction

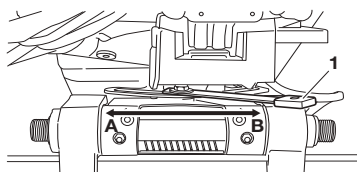
### Tiller handle type

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.**

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



ENOF00910-0

1. Steering friction lever
- A. Heavier
- B. Lighter

ENOM00074-A

## 2. Throttle grip friction

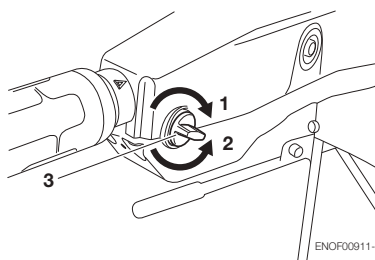
ENOW00074-B

#### **! WARNING**

**Do not overtighten the throttle adjustment screw or it could result in difficulty of movement resulting in the loss of control causing an accident and could lead to severe injury.**

Friction adjustment of the throttle grip can be made with the throttle adjustment

screw.



ENOF00911-0

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

ENOM00075-0

## 3. Remote control lever friction

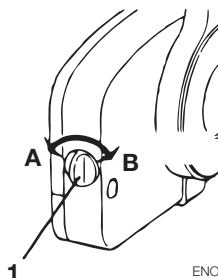
ENOW00074-C

#### **! WARNING**

**Do not overtighten the remote control throttle friction adjustment screw or it could result in difficulty of movement resulting in the loss of control causing an accident and could lead to severe injury.**

To adjust the friction of the remote control lever, turn the throttle friction adjustment screw on the front of the remote control. Turn clockwise to increase the friction and counter-clockwise to decrease it.

### Side mount type



ENOF00078-0

- 1. Throttle friction adjustment screw
- A. Lighter
- B. Heavier

ENOM00076-0

#### 4. Trim tab adjustment

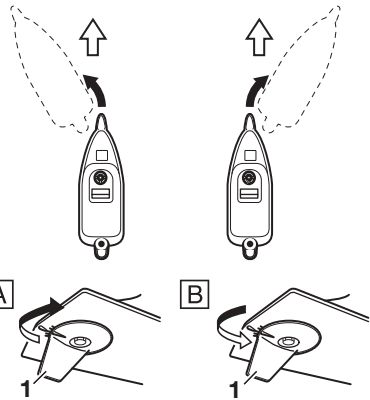
If straight-line cruising can not be achieved, adjust the trim tab located under the anti-ventilation plate.

ENOW00076-0

### 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.

- If the boat veers toward the left direct the trim tab towards A (left from rear of boat).
- If the boat veers toward the right direct the trim tab towards B (right from rear of boat).



ENOF00912-0

- 1. Trim tab

ENOW00075-0

### WARNING

**Inappropriate adjustment of trim tab could cause steering difficulty. After installing or readjusting trim tab, check if steering friction is even.**

ENON00022-A

#### Notes

- After adjustment securely tighten the trim tab fixing bolt.
- Check for looseness of the bolt and the trim tab at regular intervals.

# 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.**

adjustments. **Maintenance, replacement, or repair of the emission control devices and systems may be performed by any marine SI (Spark Ignition) engine repair establishment or individual.**

ENOM00078-0

## EPA Emissions Regulations

EPA (United States Environmental Protection Agency) has emission regulations regulating air pollution from new outboard motors. All new outboard motor manufactured by us are certified to EPA as conforming to the requirements of the regulations. This certification depends upon factory standards. Therefore, factory specifications must be followed when servicing emission related controls, or making

ENOM00079-0

## 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 or water in the fuel filters.</li> <li>• Check the rubber hoses for fuel leakage.</li> </ul>  | Replenish<br>Clean or replace if necessary<br>Replace if necessary   |
| <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.</li> <li>• Check for leakage at full close.</li> <li>• Check for ratchet performance.</li> </ul>   | Replace if necessary<br>Replace if necessary<br>Replace if necessary<br>Replace if necessary   |
| <b>Engine Oil</b>                  | <ul style="list-style-type: none"> <li>• Check the oil level.</li> </ul>   | Fill oil   |
| <b>Electrical Equipment</b>        | <ul style="list-style-type: none"> <li>• Check that the main switch functions normally.</li> <li>• Check that the battery electrolyte level and specific gravity are normal.</li> <li>• Check for loose connections on the battery terminal.</li> <li>• Check that the stop switch functions normally and make sure the stop switch lock is there.</li> <li>• Check cords for loose connections and damage.</li> <li>• Check the spark plugs for dirt, wear and carbon build-up.</li> <li>• Check the warning horn (one beep) and warning LED lamp (ON for 1 secs.) when key is ON.</li> </ul> | Replace if necessary<br>Replenish or recharge<br><br>Retighten<br>Remedy or replace if necessary<br>Correct or replace if necessary<br>Clean or replace if necessary<br>Repair |
| <b>Clutch and Propeller System</b> | <ul style="list-style-type: none"> <li>• Check that clutch engages correctly when operating the shift lever.</li> <li>• Visually Check propeller for bent or damaged blades.</li> <li>• Check the propeller nut is tightened and the split pin is present.</li> </ul>  | Adjust<br><br>Replace if necessary<br>Tighten or replace   |
| <b>Installation of Motor</b>       | <ul style="list-style-type: none"> <li>• Check all the bolts attaching the motor to the boat.</li> <li>• Check the thrust rod installation.</li> </ul>   | Tighten<br>Replace if necessary  |
| <b>Power Trim &amp; Tilt</b>       | <ul style="list-style-type: none"> <li>• Check working of the tilt up and down of the motor.</li> </ul>  | Repair   |
| <b>Cooling Water</b>               | <ul style="list-style-type: none"> <li>• Check that cooling water is discharged from the cooling water check port after the engine has started.</li> </ul>   | Repair   |
| <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 and stop switch lock.</li> </ul>  | Order<br><br>Order   |
| <b>Steering Devices</b>            | <ul style="list-style-type: none"> <li>• Check the operation of the steering handle.</li> </ul>  | Repair   |



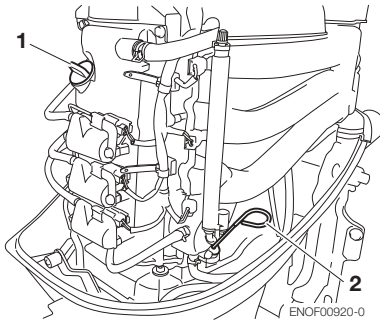
| Item        | Points to Check   | Remedy                         |
|-------------|---|--------------------------------|
| Other parts | <ul style="list-style-type: none"> <li>• Check if the anode is securely installed.</li> <li>• Check the anode for corrosion and deformation.</li> </ul> | Repair if necessary<br>Replace |

ENOM00081-A

### Oil level checking

If the oil level is low, or too high, the life of the engine will be shortened significantly.

1. Stop the engine and set it in a vertical position.
2. Remove the top cowl.
3. Remove the dipstick.
4. Wipe oil off the oil dipstick with a clean rag.
5. Put in the dipstick.
6. Take out the dipstick and check the oil level.
7. Return the dipstick.



1. Filler cap
2. Dipstick



1. Upper level 2200 mL

2. Lower level 1700 mL

ENON00024-0

#### Note

The oil level should be checked when the engine is cold.

ENON00025-0

#### Note

Consult with an authorized dealer if the engine oil is milky color, or appears contaminated.

ENOM00082-A

### Engine oil replenishing

If the oil level is low, or at lowest mark, add recommended oil to the middle dipstick mark.

ENOW00079-A

**CAUTION**

- Do not add engine oil of brand and grade other than existing one. In case engine oil of other brand or grade is added, drain all oil and ask dealer for treatment.
- In case other than engine oil such as gasoline is put in the oil chamber, empty the chamber and ask dealer for treatment.
- When replenishing engine oil, be careful not to allow entry of foreign matters such as dust and water into oil chamber.
- Wipe off engine oil well immediately if spilled and dispose of it in accordance with local fire prevention and environment protection regulations.
- Do not replenish engine oil over upper limit. If overfilled, remove oil to upper limit. If engine oil is over the upper limit, it can leak potentially leading to engine damage.

ENOM00083-0

**Washing outboard motor**

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.

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.**

ENOW00080-0

**! CAUTION**

**Keep cooling water passage free of clogs, or lack of cooling water flow could lead to engine overheating, potentially resulting in engine trouble.**

ENOW00920-0

**! CAUTION**

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

ENOM00026-0

**Note**

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

ENOM00085-A

**Flushing attachment**

ENOW00921-0

**! CAUTION**

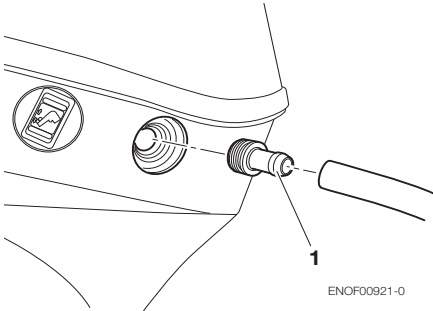
**Do not operate the engine when flushing the outboard motor with a flushing attachment as this can cause damage to the outboard motor.**

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 flushing connector cap from the outboard motor, 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 flushing connector cap.
5. Tilt up the outboard motor.



1. Flushing attachment

ENOM00085-A

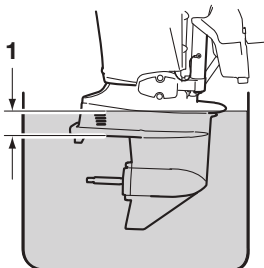
### Flushing by test tank and drive cleaner

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 27)



1. Over 10 cm (4 in.)

ENOM00950-0

### Fuse replacement

If a blown fuse is detected, try to determine the cause for this and correct it. If the cause for the problem is not corrected, the fuse will likely blow again.

If the fuse continues to blow, request an authorized NISSAN MARINE dealer to inspect the outboard motor.

ENOW00923-0

#### CAUTION

**Before replacing a fuse, disconnect the battery cable from the battery negative (-) terminal. Failure to do so may cause a short-circuit.**

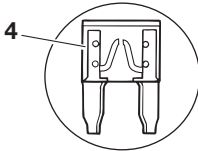
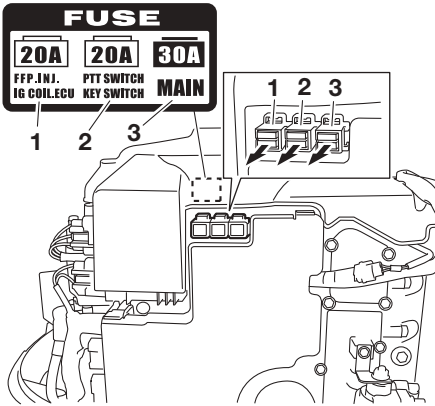
ENOW00924-0

#### CAUTION

**Never use a fuse with a rating that exceeds the specified rating as this could cause serious damage to the electrical system.**

1. Stop the engine and disconnect the battery cable from the battery negative (-) terminal.
2. Remove the engine cover.
3. Remove the fuse box lid.

4. Remove the fuse and check it. If the fuse is blown, replace it with a fuse of the same specified rating. The out-board motor is supplied with spare fuses in the spare fuse holder.



ENOF00922-0

1. Fuse for the fuel feed pump, injectors, ignition coils and ECU
2. Fuse for PTT switch and main key switch
3. Fuse for main circuit
4. Blown fuse

ENOM00090-0

## 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.

| Description                     |                               | Inspection intervals      |                            |                             |                           | Inspection procedure  | Remarks   |
|---------------------------------|-------------------------------|---------------------------|----------------------------|-----------------------------|---------------------------|---|---|
|                                 |                               | First 20 hours of 1 month | Every 50 hours of 3 months | Every 100 hours of 6 months | Every 200 hours of 1 year |   |   |
| Fuel System                     | Fuel filter                   | •                         | •                          |                             |                           | Check and clean or Replace if necessary. (See page 73)                    |   |
|                                 | Piping/Hoses* <sup>2</sup>    | •                         | •                          |                             |                           | Check and clean or Replace if necessary.                                  |   |
|                                 | Fuel tank* <sup>2</sup>       | •                         | •                          |                             |                           | Clean (See page 73)   |   |
|                                 | Fuel tank cap* <sup>2</sup>   | •                         | •                          |                             |                           | Check and clean or Replace if necessary.                                  |   |
|                                 | Fuel pump* <sup>1</sup>       | •                         | •                          |                             |                           | Check and clean or Replace if necessary.                                  |   |
| Ignition                        | Spark plug                    | •                         |                            | •                           |                           | Check gaps. Remove carbon deposits or Replace if necessary. (See page 76) | 0.8-0.9 mm (0.031-0.035 in)   |
|                                 | Ignition timing* <sup>1</sup> | •                         |                            | •                           |                           | Check timing  |   |
| Starting System                 | Starter motor* <sup>1</sup>   |                           |                            | •                           |                           | Check for salt deposits and the battery cable condition.                  |   |
|                                 | Battery                       | •                         | •                          |                             |                           | Check installation, fluid quantity, gravity.                              |   |
| Engine                          | Engine oil                    | Replace<br>•              |                            | Replace<br>•                |                           | Replace. (See page 70)  | 2200 ml (2.3 US qt.)  |
|                                 | Oil filter* <sup>1</sup>      | Replace<br>•              |                            |                             | Replace<br>•              | Replace every 200 hrs or 1 years (See page 72)                            | Entire cartridge  |
|                                 | Valve Clearance* <sup>1</sup> | •                         |                            | •                           |                           | Check & adjust  | IN:<br>0.15-0.25 mm (0.0059-0.0098 in)<br>EX:<br>0.25-0.35 mm (0.098-0.0138 in) |
|                                 | Timing belt* <sup>1</sup>     |                           |                            | •                           |                           | Check and Replace if necessary.   |   |
|                                 | Thermostat* <sup>1</sup>      |                           |                            | •                           |                           | Check and Replace if necessary.   |   |
| Lower Unit                      | Propeller                     | •                         | •                          |                             |                           | Check for bent blades, damage, wear. Replace if necessary. (See page 75)  |   |
|                                 | Gear oil                      | Replace<br>•              | •                          | Replace<br>•                |                           | Change or replenish-oil and check for water leaks. (See page 74)          | 500 mL (16.9 fl.oz.)  |
|                                 | Water pump* <sup>1</sup>      |                           | •                          |                             | Replace<br>•              | Check for wear or damage and replace if necessary                         | Replace impeller every 12 months.   |
| Power trim & tilt* <sup>1</sup> |                               | •                         |                            | •                           |                           | Check & replenish oil, manually operate                                   |   |
| Warning system* <sup>1</sup>    |                               |                           | •                          |                             |                           | Check function  |   |
| Bolts and Nuts                  |                               | •                         | •                          |                             |                           | Retighten   |   |

| Description                                   | Inspection intervals      |                            |                             |                           | Inspection procedure                    | Remarks               |
|---|---------------------------|----------------------------|-----------------------------|---------------------------|---|-----------------------|
|   | First 20 hours of 1 month | Every 50 hours of 3 months | Every 100 hours of 6 months | Every 200 hours of 1 year |   |                       |
| Sliding and Rotating Parts.<br>Grease Nipples | •                         | •                          |                             |                           | Apply and pump in grease. (See page 79) |                       |
| Outer Equipment                               | •                         | •                          |                             |                           | Check for corrosion.                    |                       |
| Anode   |                           |                            | •                           |                           | Check for corrosion and deformation.    | Replace if necessary. |

\*1: Have this handled by your dealer.

\*2: In USA, you have to use EPA approved part (See pages 38–39).

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.

ENOM00091-A

**Engine oil replacement**

Engine oil mixed with dust or water will dramatically shorten the life of the engine.

ENOW00091-0



**You may be injured due to high engine temperatures if you fill engine oil just after stopping. Changing engine oil should be done after the engine has been cooled.**

ENOW00092-0



- **Do not overfill engine oil, or engine oil could leak and/or engine could be damaged. If engine oil level is over upper limit marks of oil gauge, drain oil to level lower than upper limit.**
- **Be sure that outboard motor is in upright and level position when checking or changing oil.**
- **Stop engine immediately if low oil pressure warning lamp is lit or oil leak is found, or engine could be severely damaged. Consult dealer.**

ENOW00090-0



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

**To change engine oil:**

Be sure to use recommended engine oil (see page 13).

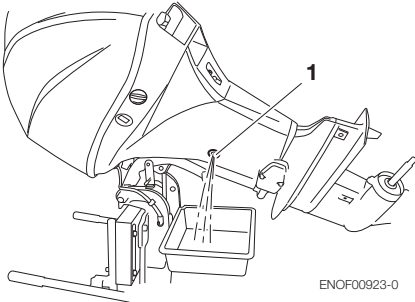
1. Stop the engine and allow it to cool.
2. Tilt up the outboard motor and and lock the tilt with the tilt stopper.
3. Turn the steering on the outboard motor so that the drain hole is facing downward.
4. Put a oil drain pan under the oil drain screw.
5. Remove the oil drain screw and completely drain oil from the engine.
6. Tighten the oil drain screw. (Use new oil drain washer)

Oil drain screw specified torque

**24Nm (17 ft-lb, 2.4 kgf-m)**

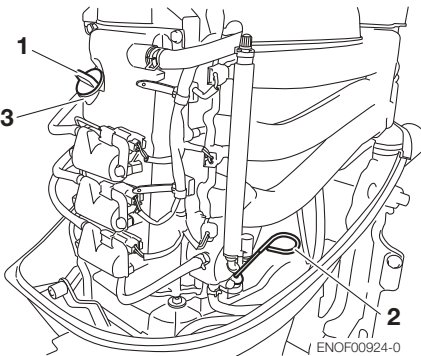
7. Reset the engine in a vertical position.
8. Repeat 3 to 7 procedures two or three times to drain the oil completely.

- Fill the engine through filler port with recommended oil (see chart below) to the middle of dipstick mark.
- Tighten the oil filler cap.



ENOF00923-0

- Drain hole



ENOF00924-0

- Filler cap
- Dipstick
- Filler port



ENOF00113-0

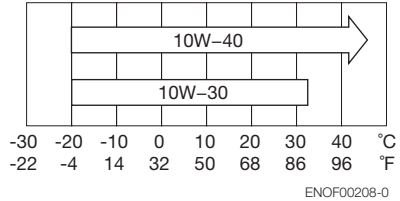
- Upper limit (Max.)

- Lower limit (Min.)

ENON00920-0

**Note**

Use only recommended engine oil (See page 13)



| Oil volume needed for complete oil replacement |                                |
|--|--------------------------------|
| With oil filter replacement                    | Without oil filter replacement |
| 2400 mL<br>(2.5 US qt.)                        | 2200 mL<br>(2.3 US qt.)        |

ENOW00925-0

**CAUTION**

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

ENON00031-0

**Note**

- If any amount of water is found in engine oil, making it milky white, consult dealer.
- If engine oil is contaminated with fuel, emitting strong fuel smell, consult dealer.
- Some oil dilution is normal if engine is idled or trolled for long periods, especially in cooler water temperatures.

ENOM00092-A

### Oil filter replacement

ENOW00091-0

**⚠ CAUTION**

**You may be injured due to high engine temperatures if you fill engine oil just after stopping. Changing engine oil should be done after the engine has been cooled.**

1. Drain oil from the engine.
2. Place a rag or towel below the oil filter to absorb any spilled oil.
3. Unscrew old filter by turning the filter to counter clockwise.
4. Clean the mounting base. Apply film of clean oil to O-ring.

Do not use grease.

Install oil filter and tighten it to specified torque by using oil filter wrench.

Oil filter torque:

18 Nm (13 ft-lb, 1.8 kgf-m)

ENOW00926-0

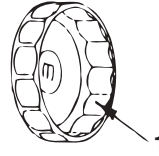
**⚠ CAUTION**

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

ENON00028-A

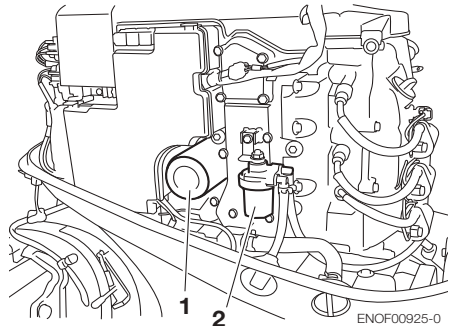
#### Note

If a torque-wrench is not available when you are fitting a oil filter, a good estimate of the correct torque is 3/4 to 1 a turn past finger-tight. Have the oil filter adjusted to the correct torque as soon as possible with a torque-wrench.



ENOF00094-0

1. Oil filter wrench  
P/N 3AC-99090-0  
P/N 3AC99090M  
(US, CANADA Only)



ENOF00925-0

1. Oil filter
2. Fuel filter

ENOM00093-A

### Fuel filters and fuel tank cleaning

Fuel filters are provided inside the fuel tank and engine.

ENOW00093-0

**⚠ WARNING**

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

- 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.

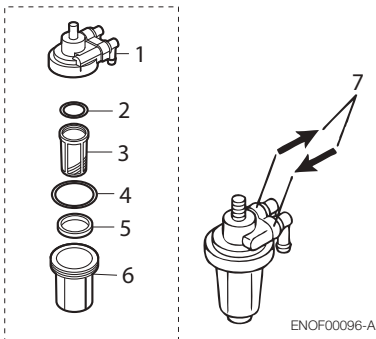


- Install fuel filter with all related parts in place, or fuel leak could occur, leading to catching fire or explosion.
- Check fuel system regularly for leakage.
- Contact authorized dealer for fuel system services. Services by unqualified person could lead to engine damage.

ENOM00094-0

### Fuel filter (for engine)

1. Check in the cup for water and debris.



1. Body
  2. O-ring
  3. Filter
  4. O-ring
  5. Float
  6. Cup
  7. Arrow to indicate fuel flow direction
2. If present, disconnect hoses from the fuel connector (male) and the fuel pump.
  3. Remove the cup, filter and O-rings from the fuel filter body.
  4. Check the wear and clogging for each parts, and replace if necessary.
  5. Remove fuel and any water or debris from the cup, filter and hoses.
  6. Reassemble all parts.

ENOM00096-0

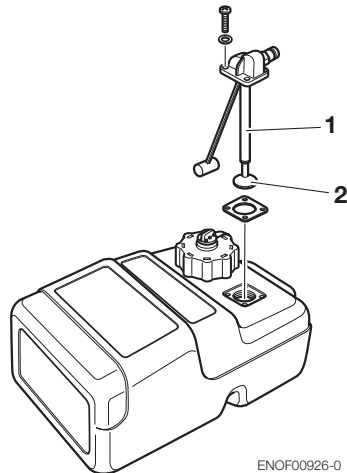
### Fuel filter (for fuel tank)

1. Remove the fuel pickup elbow of the fuel tank by turning it counterclockwise
2. Clean the fuel filter or replace it if necessary.
3. Reassemble all parts.

ENOM00097-0

### 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).



1. Fuel pickup
2. Filter

ENOM00098-A

### Gear oil replacement

ENOW00094-0

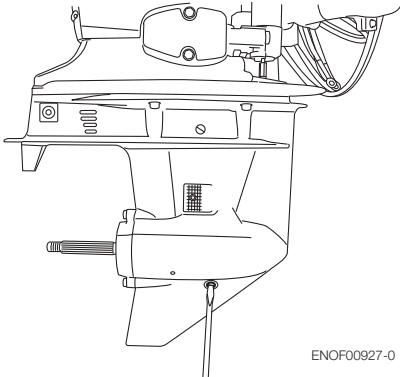


- Be sure that outboard motor is secured to transom or service stand, or accident-

tal 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.

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



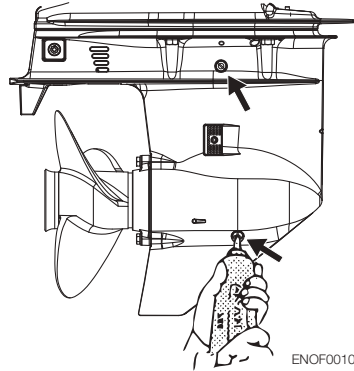
ENOF00927-0

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.

ENOW00927-0

**CAUTION**

Over fill the gear oil until bubble is disappeared to remove the air.



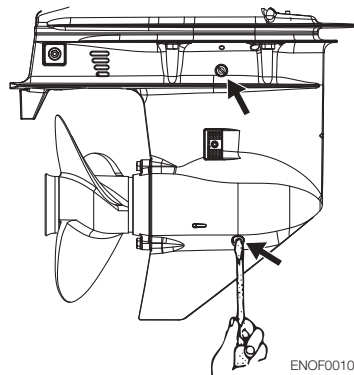
ENOF00100-A

4. 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.



ENOF00101-A

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. 500 mL.

ENOM00086-A

## Propeller replacement

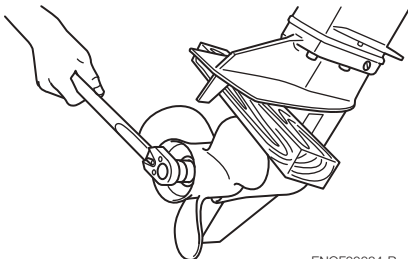
A worn-out or bent propeller will lower the motor's performance, and cause engine trouble.

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.**

1. Put a piece of wood block between propeller blade and anti-ventilation plate to hold propeller.



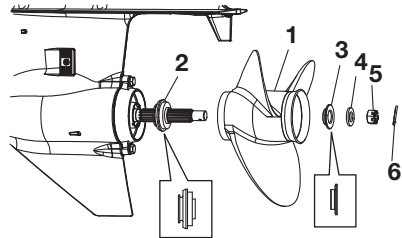
ENOF00084-B

2. Remove the split pin, propeller nut and washer.
3. Remove the propeller and thrust holder.
4. Apply genuine grease to the propeller shaft before installing a new propeller.
5. Install the thrust holder, propeller, stopper, washer and propeller nut onto the shaft.
6. Tighten the propeller nut to specified torque, and align one of grooves to propeller shaft hole.

Propeller nut torque:

**35 Nm (25 ft-lb, 3.5kgf-m)**

7. Install a new split pin into the nut hole and bend it.



ENOF00084-A

1. Propeller
2. Thrust holder
3. Stopper
4. Washer
5. Propeller nut
6. Split pin

ENOW00086-0

### ! 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.

ENOM00087-A

**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

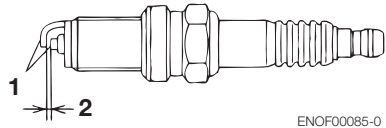
**! CAUTION**

**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 top cowl.
3. Remove the spark plug caps.
4. Remove the spark plugs by turning it counter-clockwise, using a 5/8" (16 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 0.8-0.9 mm (0.031-0.035 inches). If the gap is different, replace the spark plug with a new one Use spark plug NGK DCPR-6E.



ENOF00085-0

1. Electrode
  2. Spark gap (0.8–0.9 mm, 0.031–0.035 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:**  
**18.0 Nm (13.3 ft-lb) [1.84 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

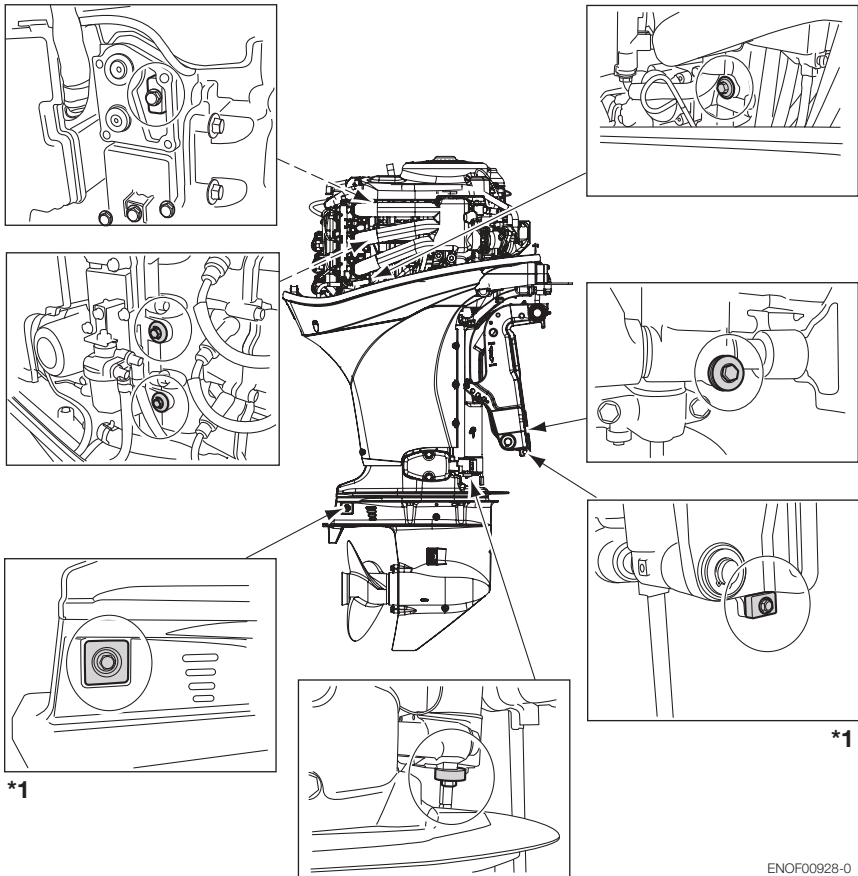
## Anode replacement

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 (16 mm), 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.



\*1 : Both side

ENOF00928-0

ENOM00089-A

### Power Trim & Tilt oil checking

ENOW00088-0

**⚠ 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.

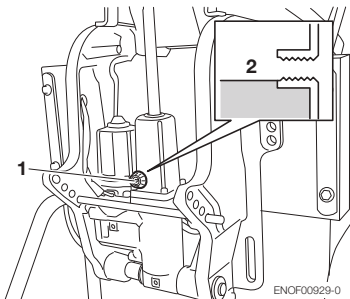
ENOW00089-0

**⚠ CAUTION**

**Do not unscrew the oil plug with the outboard motor tilted down. Pressurized oil in the oil tank may spurt out.**

Check the oil level in the reservoir tank while the tank is kept in a vertical position.

1. Tilt the outboard motor up and lock the tilt with the tilt stopper.
2. Remove the oil cap by turning counter clockwise, then check if the oil level reaches the bottom line of the plug hole.



ENOF00929-0

1. Oil cap
2. Oil level

**Recommended oil**

Use an automatic transmission fluid or equivalent.

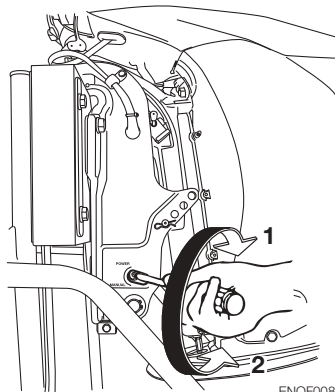
Recommended oils are as shown below.

**ATF Dexron III**

**Air purging from the Power Trim and Tilt unit.**

Entrapped air in the Power Trim & Tilt unit will cause poor tilting movement and increased noise.

1. With the outboard motor mounted on the boat, set the manual release valve to the Manual side, and tilt the outboard motor manually up/down 5-6 times while checking the oil level.
2. When done, close the valve by turning it clockwise towards the Power side.



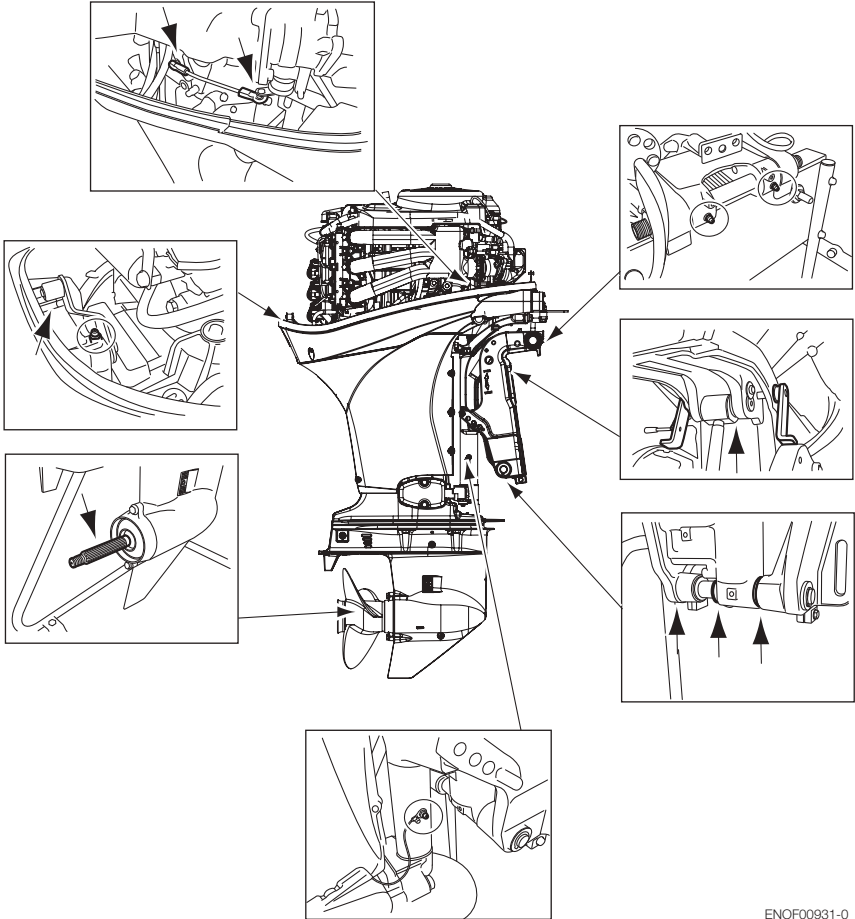
ENOF00892-0

1. POWER
2. MANUAL

ENOM00960-0

**Grease point**

Apply water proof grease to the parts shown below.



ENOF00931-0

ENOM00100-A

### 3. Off-season storage

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.

ENOW00096-0

#### CAUTION

**Before servicing the motor for storage:**

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

ENOM00101-A

#### 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. Use a dry cloth to completely wipe off water and salt from the electrical components.
3. Drain all fuel from the fuel hoses, fuel pump, fuel filter (See page 72) and vapor separator (See page 81), and clean these parts.  
Keep in mind that if gasoline is kept in the vapor separator 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. Turn the starter motor several turns 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 engine oil (See page 70).
7. Change the gear oil in the gear case.
8. Apply grease to grease point (See page 79).
9. Stand the outboard motor up vertically in a dry place.

ENOW00097-0

#### WARNING

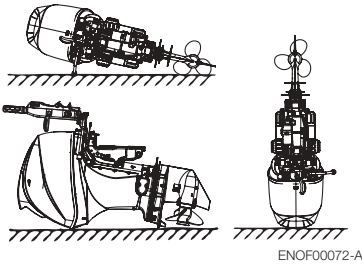
**Be sure to use cloth to remove fuel remaining in the cowl and dispose of it in accordance with local fire prevention and environment protection regulations.**

ENOW00066-0

#### CAUTION

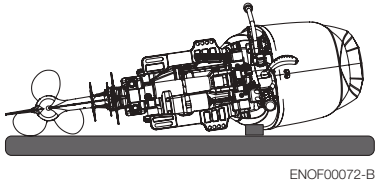
**Do not carry or store outboard motor in any of positions described below. Otherwise, engine damage or property damage could result from leaking oil.**





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 81 and 70).
- Elevate power unit 2 inches to 4 inches if traveling to avoid oil spillage.



ENOM00970-0

## Fuel system draining

ENOW00028-A

### DANGER

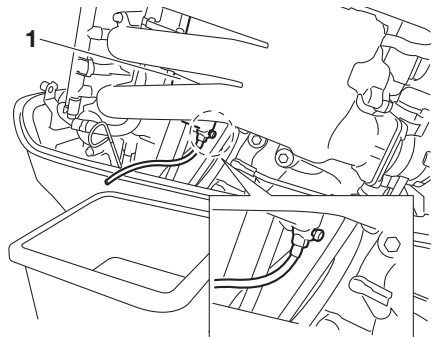
For details on handling fuel, contact an authorized dealer.

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.**

1. Disconnect the fuel hose from the outboard motor.
2. Remove the top cowl.
3. Release the drain tube from the clamp and pull the tube outside the bottom cowl. Place an approved fuel container under the drain tube end and use a funnel to avoid spilling fuel.
4. Loosen the vapor separator drain screw.
5. Tilt up the outboard motor until fuel flows out of the drain tube.
6. Leave the outboard motor in this position until all fuel has been drained.
7. When thoroughly drained, retighten the drain screw securely.
8. Check the drained fuel for the presence of water or other contaminants. If either is present, reassemble the outboard motor, refill the vapor separator with fuel, and then drain the fuel again. Repeat this procedure until no water or other contaminants are present in the drained fuel.



1. Vapor separator

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.**

ENOM00102-0

**Battery**

ENOW000931-0

**⚠ WARNING**

**Place the battery away from any source of fire, sparks and open flames such as burners or welding equipment.**

1. Disconnect the battery cables and be sure to remove the negative terminal first.
2. Wipe off any chemical deposits, dirt, or grease.
3. Apply grease to the battery terminals.
4. Charge the battery completely before storing it for the winter.
5. Recharge the battery once a month to prevent it from discharging and the electrolyte from deteriorating.
6. Store the battery in a dry place.

ENOM00104-A

**4. Pre-season check**

The following steps must be taken when first using the engine after winter 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. Check the electrolyte level, and measure the voltage and specific gravity of the battery.

| Specific Gravity at 20° | Terminal Voltage (V) | Charge Condition |
|-------------------------|----------------------|------------------|
| 1.120                   | 10.5                 | Fully discharged |
| 1.160                   | 11.1                 | 1/4 charged      |
| 1.210                   | 11.7                 | 1/2 charged      |
| 1.250                   | 12                   | 3/4 charged      |
| 1.280                   | 13.2                 | Fully charged    |

3. Check that the battery is secure and the battery cables are properly installed.
4. Change the engine oil (See page 71).
5. Before starting the engine, disconnect stop switch lock and crank approximately 10 times in order to prime the oil pump.
6. Fill fuel tank completely.
7. Start the engine and warm up the engine for 3 minutes in the "NEUTRAL" position.
8. Run the engine for 5 minutes at the slowest speed.
9. 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-A

**5. Submerged outboard motor**

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 engine oil drain screw and completely drain water and oil from the engine.
3. Remove the spark plugs, and completely drain the water from the engine by pulling emergency starter rope (See page 42) several times.  
Replace oil filter and oil to the correct level.  
The oil and filter may need to be changed again after running a short period to get all moisture completely out of the crankcase.
4. Inject a sufficient amount of engine oil through the spark plug holes.  
Pull the emergency starter rope several times to circulate the oil throughout the outboard motor.

ENOW00098-0


**CAUTION**

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

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

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.

# TROUBLESHOOTING

ENOM00108-0

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.

|                   | Difficult to start engine | Engine runs erratically | Low engine speed/<br>Poor boat speed | Battery will not hold charge | Starter motor will not crank | Power T & T inoperative | Warning lamp A "ON" | Warning lamp B "Flash" | Warning lamp C "Flash" | Three warning lamps "Flash" | Warning buzzer "ON" | Possible cause   |   |
|-------------------|---------------------------|-------------------------|--------------------------------------|------------------------------|------------------------------|-------------------------|---------------------|------------------------|------------------------|-----------------------------|---------------------|--|---|
| FUEL SYSTEM       | •                         |                         |                                      |                              |                              |                         |                     |                        |                        |                             |                     | Empty fuel tank  |   |
|                   | •                         | •                       | •                                    |                              |                              |                         |                     |                        |                        |                             |                     | Incorrect connection of fuel system  |   |
|                   | •                         | •                       | •                                    |                              |                              |                         |                     |                        |                        |                             |                     | Air entering fuel line   |   |
|                   | •                         | •                       | •                                    |                              |                              |                         |                     |                        |                        |                             |                     | Deformed or damaged fuel hose  |   |
|                   | •                         | •                       | •                                    |                              |                              |                         |                     |                        |                        |                             |                     | Closed air vent on fuel tank   |   |
|                   | •                         | •                       | •                                    |                              |                              |                         |                     |                        |                        |                             |                     | Clogged fuel filter or fuel pump   |   |
|                   | •                         | •                       | •                                    |                              |                              |                         |                     |                        |                        |                             |                     | Fuel pump malfunction  |   |
|                   | •                         | •                       | •                                    |                              |                              |                         | •                   |                        |                        |                             |                     |  | Use of improper engine oil                                |
|                   | •                         | •                       | •                                    |                              |                              |                         |                     |                        |                        |                             |                     |  | Use of improper gasoline                                  |
|                   | •                         |                         |                                      |                              |                              |                         |                     |                        |                        |                             |                     |  | Not enough fuel supply by primer                          |
| ELECTRICAL SYSTEM | •                         | •                       | •                                    | •                            | •                            | •                       | •                   | •                      | •                      | •                           |                     | Electrical components out of range or improper or loose wiring connection. |   |
|                   |                           | •                       | •                                    |                              |                              |                         |                     |                        |                        |                             |                     | Spark plug other than specified  |   |
|                   | •                         | •                       | •                                    |                              |                              |                         |                     |                        |                        |                             |                     | Dirt, soot, etc. on spark plug   |   |
|                   | •                         | •                       | •                                    |                              |                              |                         |                     |                        |                        |                             |                     | No Spark or weak spark   |   |
|                   | •                         |                         |                                      |                              |                              |                         |                     |                        |                        |                             |                     | Short circuit of engine stop switch  |   |
|                   | •                         |                         |                                      |                              |                              |                         |                     |                        |                        |                             |                     | Lack of stop switch lock plate   |   |
|                   |                           |                         |                                      | •                            |                              |                         |                     |                        |                        | •                           |                     |  | Rectifier failure   |
|                   | •                         |                         |                                      |                              | •                            | •                       |                     |                        |                        |                             |                     |  | Blown 30 Amp fuse in the starting circuit                 |
|                   | •                         |                         |                                      |                              | •                            | •                       |                     |                        |                        |                             |                     |  | Not shifted into neutral position                         |
|                   | •                         |                         |                                      | •                            | •                            | •                       |                     |                        |                        | •                           |                     |  | Weak battery or battery connections are loose or corroded |
|                   | •                         |                         |                                      |                              | •                            | •                       |                     |                        |                        |                             |                     |  | Ignition key switch failure                               |
|                   | •                         |                         |                                      |                              | •                            |                         |                     |                        |                        |                             |                     |  | Starter motor or starter solenoid failure                 |
|                   |                           |                         |                                      |                              |                              | •                       |                     |                        |                        |                             |                     |  | Power trim & tilt switch defective, Solenoid is defective |

|        |                          | Difficult to start engine | Engine runs erratically | Low engine speed/<br>Poor boat speed | Battery will not hold charge | Starter motor will not crank | Power T & T inoperative | Warning lamp A "ON" | Warning lamp B "Flash" | Warning lamp C "Flash" | Three warning lamps "Flash" | Warning buzzer "ON" | Possible cause  |
|--------|--------------------------|---------------------------|-------------------------|--------------------------------------|------------------------------|------------------------------|-------------------------|---------------------|------------------------|------------------------|-----------------------------|---------------------|---|
| OTHERS | COMPRESSION & OIL SYSTEM | ●                         | ●                       | ●                                    |                              |                              |                         |                     |                        |                        |                             |                     |   |
|        |                          |                           |                         |                                      | ●                            | ●                            |                         |                     |                        |                        |                             |                     |   |
|        |                          |                           | ●                       | ●                                    |                              |                              |                         |                     |                        |                        |                             |                     | Carbon deposits in the combustion chamber   |
|        |                          |                           | ●                       | ●                                    |                              |                              |                         |                     |                        |                        |                             |                     | Incorrect valve clearance   |
|        |                          |                           |                         | ●                                    |                              |                              | ●                       |                     |                        |                        |                             | ●                   | Low oil pressure/level, oil pump failure, Clogged oil filter (Pressure switch ON) |
|        |                          |                           | ●                       | ●                                    |                              |                              |                         | ●                   |                        |                        |                             |                     | Insufficient cooling water flow, clogged or defective pump                        |
|        |                          |                           |                         | ●                                    |                              |                              |                         | ●                   |                        |                        |                             |                     | Faulty thermostat   |
|        |                          |                           | ●                       | ●                                    |                              |                              |                         | ●                   |                        |                        |                             |                     | ● Cavitations or ventilation  |
|        |                          |                           | ●                       | ●                                    |                              |                              |                         |                     |                        |                        |                             |                     | ● Incorrect propeller selection   |
|        |                          |                           | ●                       | ●                                    |                              |                              |                         |                     |                        |                        |                             |                     | ● Damaged or bent propeller   |
|        |                          |                           |                         | ●                                    |                              |                              |                         |                     |                        |                        |                             |                     | Improper thrust rod position  |
|        |                          |                           |                         | ●                                    |                              |                              |                         |                     |                        |                        |                             |                     | Unbalanced load on boat   |
|        |                          |                           | ●                       | ●                                    |                              |                              |                         |                     |                        |                        |                             |                     | ● Transom too high or too low   |
|        |                          |                           |                         |                                      |                              | ●                            |                         |                     |                        |                        |                             |                     | A great deal of air is contained inside pump                                      |
|        |                          |                           |                         | ●                                    |                              |                              |                         |                     |                        |                        |                             |                     | Insufficient throttle aperture  |

## TOOL KIT AND SPARE PARTS

ENOM00109-0

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

| Items                      | Quantity | Remark                 |
|----------------------------|----------|------------------------|
| Tool bag                   | 1        | Socket wrench 16       |
|                            | 1        | Socket wrench 10-13    |
|                            | 1        | Socket wrench handle   |
|                            | 1        | Pliers                 |
|                            | 1        | ± Screwdriver          |
| Emergency starter rope     | 1        |                        |
| Spark plug                 | 3        | NGK DCPR6E             |
| Propeller nut split pin    | 1        | In tool bag            |
| Owner's manual             | 1        |                        |
| Spare stop switch lock     | 1        |                        |
| Flushing attachment        | 1        |                        |
| Rigging bolt set           | 4        | Bolt M12 P1.25 X 105mm |
|                            | 4        | Washer 13-34-3         |
|                            | 4        | Washer M12             |
|                            | 4        | Nut M12 1.5            |
| Cable joint set            | 2        | Cable joint            |
|                            | 2        | Washer 8.5-18-1.6      |
|                            | 2        | Snap pin               |
| Fuel hose with primer bulb | 1        | 2.5m                   |

## ■ PROPELLER TABLE

ENOM00111-0

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.

40/50: 5000–6000 rpm

|             | Propeller Mark | Propeller Size (Diameter × pitch × Diameter) |
|-------------|----------------|--|
| Light boats | CS17           | 3 × 432 × 280                                |
|             | CS16           | 3 × 406 × 279                                |
|             | CS15           | 3 × 381 × 278                                |
|             | CS14           | 3 × 356 × 279                                |
|             | CS13           | 3 × 330 × 277                                |
|             | CS12           | 3 × 305 × 283                                |
|             | CS11           | 3 × 279 × 290                                |
|             | CS9            | 3 × 229 × 311                                |
| Heavy boats | 7              | 4 × 180 × 290                                |

## EMISSION CONTROL SYSTEM INFORMATION

ENOM01000-0

### **Emission Sources**

Carbon monoxide, oxides of nitrogen and hydrocarbons are produced in the course of the combustion process. Controlling production of oxides of nitrogen and hydrocarbons is very important because they react to form a photochemical smog under certain conditions when subjected to sunlight. Carbon monoxide does not react in the same way, but is a toxic byproduct.

ENOM01001-0

### **Ignition Timing Control System**

To reduce the amount of HC, CO and NO<sub>x</sub> produced, the ignition timing control system continuously adjusts the ignition timing.

ENOM01002-0

### **EFI (Electronic Fuel Injection) system**

The EFI system relies on, multiport fuel injection for both engine control and fuel control. The Engine Control Unit (ECU) has several sensors to determine how much fuel is needed for injection under all operating conditions.

ENOM01003-0

### **Clean Air Acts of the United States and California, and Environment Canada**

EPA, California, and Canadian regulations require all manufacturers to provide written instructions that describe the operation and maintenance of commercial emission control systems.

The following instructions and procedures must be followed in order to keep the emissions from your engine within these emission standards.

ENOM01004-0

### **Tampering and Modifications**

*Tampering is a violation of the Federal Laws of the United States and California.*

Tampering with or altering the emission control system could cause emissions to increase beyond legal limits. The following acts, although not all inclusive, are considered as tampering:

- Removing or modifying any part of the intake, fuel or exhaust system.
- Modifications that cause the engine to operate outside its design parameters.



ENOM01005-0

**Problems that can affect emission**

If you notice any of the following symptoms, have your outboard motor inspected and repaired by an authorized NISSAN MARINE service dealer before further use.

- Hard starting or stalling immediately after starting
- Rough idling
- Misfiring/backfiring under load
- Afterburning (backfiring)
- Black exhaust smoke or increased fuel consumption

ENOM01006-0

**Replacement Parts**

The emission control system in your NISSAN MARINE outboard motor has been designed, built, and certified to conform with the EPA and California emission regulations. Whenever requesting maintenance, use of NISSAN MARINE Genuine parts is highly recommended. NISSAN MARINE Genuine parts constitute replacement parts manufactured to the same high standards as the original parts, thus guaranteeing uninterrupted high performance of your outboard motor. The use of replacement parts other than NISSAN MARINE Genuine parts could jeopardize the effectiveness of the emission control system.

NISSAN MARINE, as a manufacturer of aftermarket parts, assumes the responsibility that replacement parts will not adversely affect emission performance. The manufacturer or rebuilder of the

replacements parts must certify that use of the parts will not result in a failure of the engine to comply with these regulations.

ENOM00033-0

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**Low permeation fuel hose requirement**


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**EQUIPPED FOR UNITED STATES AND CANADA MODEL**

Required for outboards manufactured for sale, sold, or offered for sale in the United States.

- NISSAN MARINE engine has used fuel hoses for The Environmental Protection Agency (EPA) requires from January 1, 2011.

ENOM00034-A

**EPA pressurized portable fuel tank requirements**

**EQUIPPED FOR UNITED STATES AND CANADA MODEL**

The Environmental Protection Agency (EPA) required portable fuel systems that are produced after January 1, 2011 for use with outboard engines to remain fully sealed (pressurized) up to 34.4 kPa (5.0 psi). These tanks may contain the following:

- An air inlet that opens to allow air to enter as the fuel is drawn out of the tank.
- An air outlet that opens (vents) to the atmosphere if pressure exceeds 34.4 kPa (5.0 psi). A hissing noise may be heard as the tank vents to the atmosphere. This is normal.
- When installing the fuel tank cap, turn the cap to the right until you hear two clicks. This signals that the fuel cap is fully seated. A built-in device prevents overtightening.
- The fuel tank has a manual vent screw which should be closed for transportation and full open for operation and cap removal.

Since sealed fuel tanks are not openly vented, they will expand and contract as the fuel expands and contracts during heating and cooling cycles of the outside air. This is normal.

ENOM00036-0

**EPA approval Primer valve/hose assembly**

**EQUIPPED FOR UNITED STATES AND CANADA MODEL**

NISSAN MARINE adopts Primer bulb/hose assembly approved by the Environment Protection Agency (EPA).

Please use the EPA approved primer bulb/hose assembly with the identification mark on the fuel connector.

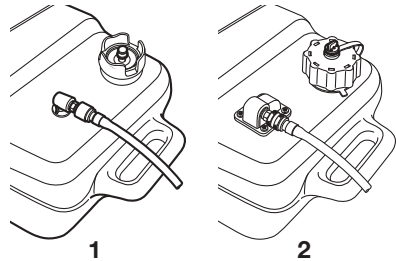


ENOF001111-0

ENOW00021-0

**⚠ CAUTION**

**Be sure to use EPA approved tank and EPA approved primer bulb/hose assembly as a set. Confirm shapes of EPA approved tank and regular tank.**



ENOF00024-0

1. Except for U.S. model (regular tank)
2. For U.S. and Canada model (EPA approved tank)

ENOM01007-0

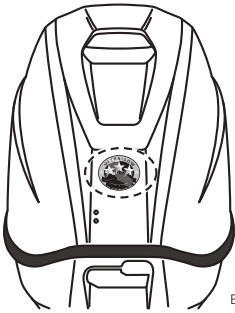
**Maintenance**

Follow the maintenance schedule presented on page 70. Keep in mind that this schedule is based on the assumption that the outboard motor will only be used for its intended purpose. Operation under sustained high loads or other unusual conditions will require more frequent service.

ENOM01008-0

**Star label**

This outboard motor is labeled with the California Air Resources Board (CARB) star label. A description of this label is presented below.



ENOF01000-0



ENOF01001-0

ENOM01009-0

**One Star-Low Emission**

One Star- Low emission The one-star label identifies engines that meet the Air

Resources Board's Personal Watercraft and Outboard marine engine 2001 exhaust emission standards.

Engines meeting these standards have 75% lower emissions than conventional carbureted two-stroke engines.

These engines are equivalent to the U.S. EPA's 2006 standards for marine engines.



ENOF01002-0

ENOM01010-0

**Two Stars-Very Low Emission**

The two-star label identifies engines that meet the Air Resources Board's Personal Watercraft and Outboard marine engine 2004 exhaust emission standards.

Engines meeting these standards have 20% lower emissions than One Star-Low Emission engines.



ENOF01003-0

ENOM01011-0

**Three Stars-Ultra Low Emission**

The three-star label identifies engines that meet the Air Resources Board's Personal Watercraft and Outboard marine engine 2008 exhaust emission standards or the Sterndrive and Inboard marine engine 2003-2008 exhaust emission standards.

Engines meeting these standards have 65% lower emissions than One Star-Low Emission engines.



ENOM01012-0

**Four Stars-Super Ultra Low Emission**

The four-star label identifies engines that meet the Air Resources Board's Sterndrive and Inboard marine engine 2009 exhaust emission standards.

Personal Watercraft and Outboard marine engines may also comply with these standards.

Engines meeting these standards have 90% lower emissions than One Star-Low Emission engines.

# ■ LIMITED WARRANTY INFORMATION

## 1. THINGS YOU SHOULD KNOW ABOUT THE NISSAN MARINE OUTBOARD ENGINE LIMITED WARRANTIES

### PERIODIC MAINTENANCE SERVICE

Proper maintenance and care of the outboard engine is indispensable for safe usage and lower overall running costs. Periodic maintenance, as outlined in the Owner's Manual, have minimum requirements which should be performed at your initiative.

### SERVICING DEALER

It is recommended that periodic maintenance and warranty service be performed by your selling Nissan Marine Outboard Dealer since that dealer has a direct interest in your continued satisfaction.

### NOTICE OF CHANGE OF ADDRESS

If your name and/or address have changed, or if you have become a subsequent owner, please be sure to send a postcard notifying Nissan Marine & Power Products (NMPP) of such changes at the address shown in Section 6 of this booklet. This action will enable us to accurately maintain our product ownership files in case we need to contact you in the future.

### DESIGN CHANGE

Nissan Marine has the right at any time to make changes to the design or specifications of any Nissan Marine outboard engines without notice and without any obligation to make such changes on outboard engines that have been sold in the past.

## Outboard & Dealer Record

**Model:** \_\_\_\_\_ **Serial Number:** \_\_\_\_\_

**Owner Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Dealer Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Dealer Phone Number:** \_\_\_\_\_

## 2. TLDI NISSAN MARINE OUTBOARD ENGINE 5 YEAR LIMITED WARRANTY



5 Year limited warranty

### WHAT IS COVERED

1. **Nissan Marine & Power Products** (NMPP) warrants each new TLDI (Two-stroke Low-pressure Direct Injection) Nissan Marine Outboard Engine (serial numbers ending in "AA" or above, sold after Jan 1st, 2013) distributed by NMPP, to be free from defects in both materials and workmanship for a period of **5 years (60 months)** from either the date of first retail sale or the date on which the outboard engine is first put into service, whichever occurs first, subject to the following limitations.
2. New TLDI Nissan Marine Outboard Engines used at any time in commercial or rental applications are warranted for a period of **1 year (12 months)** from either the date of first retail sale or the date on which the outboard engine is first put into service, whichever occurs first, subject to the original purchaser providing evidence that the mandatory commercial maintenance checklist is performed. See Section 7 of this booklet "**PERIODIC MAINTENANCE SERVICE RECORDS**" and the "**WARRANTY REGISTRATION CARD**".
3. This limited warranty does not cover the components covered by the Emission Control System Limited Warranty in Section 4 of this booklet, those items listed under the caption "**WHAT IS NOT COVERED**" below, and the following:
  - a. The **second** through **fifth** year of this limited warranty is limited to covering the cost of parts and labor for major components and TLDI technology related components only. The major components and TLDI technology related components covered are:
    - i. **Major Components:** Power Head, Exhaust System, Bracket Assembly, Direct Injection System, Power Trim and Tilt Assembly, Fuel and Oil Pump Assembly, Lower Unit Assembly, Ignition System; and
    - ii. **TLDI Technology Related Components:** Air Rail, Air/Fuel Injector, Air/Fuel Regulator, Vapor Separator, Fuel Feed Pump, Electric Fuel Pump, Throttle Position Sensor, ECU, Air Compressor, Water Temperature Sensor, Crank Position Sensor.
4. Emission Control System Limited Warranty: NMPP shall provide a 5 year (60 months) or 250 hours of operation, whichever occurs first, limited warranty for emission related components of Nissan Marine TLDI Outboard Engines initially sold in the United States (excluding the state of California) or a 5 year (60 months) or 250 hours of operation, whichever occurs first, limited warranty for emission related components of Nissan Marine TLDI Outboard Engines originally sold in the state of California. This Emission Control System Limited Warranty is applicable to 2001 and later model year TLDI Nissan Marine Outboard Engines.

For more details, see Section 4 of this booklet "NISSAN MARINE OUTBOARD ENGINE EMISSION CONTROL SYSTEM LIMITED WARRANTY".

## WHAT IS NOT COVERED

1. AFTER THE FIRST YEAR OF THIS LIMITED WARRANTY, THE FOLLOWING ITEMS ARE NOT COVERED:
  - a. Upper and lower cowlings, gauges, meters, fuel and oil tank, remote control box and external wire harnesses;
  - b. Electrical components (other than ignition and direct fuel injection components); and
  - c. Tubes, seals, gaskets, o-rings, plastic components and fittings.
2. THROUGHOUT THE ENTIRE TERM OF THIS LIMITED WARRANTY, THE FOLLOWING ITEMS ARE NOT COVERED:
  - a. Any of the parts, materials or labor costs involved with required or recommended routine maintenance.
  - b. The following parts:
    - i. Anode, trim-tab, fuel filter, oil filter, air filter, spark plugs, shear-pin, propeller, propeller hubs, wire cable, drive belt, brushes for starter motor and power tilt motor; and
    - ii. Rubber goods, including the water pump impeller, fuel hoses, primer bulb assembly and vinyl pipe.
  - c. Damages or failures of the outboard engine resulting from:
    - i. Accident, theft, fire, misapplication or misuse (proper use is described in the Owner's Manual), submersion or freezing due to improper protection / storage;
    - ii. Striking any submerged object;
    - iii. Use of improper, dirty and/or contaminated fuels, fluids or lubricants;
    - iv. Use of parts not equivalent in design and quality to parts supplied or authorized by NMPP;
    - v. Any unauthorized modification or alteration or improper repair;
    - vi. Normal cosmetic deterioration, such as rust, corrosion, fading of decal or paint color, peeling of paint or decal caused by lack of maintenance or harsh climate conditions; and
    - vii. Racing or speed contests.

### 3. FOUR STROKE NISSAN MARINE OUTBOARD ENGINE 5 YEAR LIMITED WARRANTY



5 Year limited warranty

#### WHAT IS COVERED

1. **Nissan Marine & Power Products** (NMPP) warrants each new Four Stroke Nissan Marine Outboard Engine (serial numbers ending in "AA" or above, sold after Jan 1st, 2013) distributed by NMPP, to be free from defects in both materials and workmanship for a period of **5 years (60 months)** from either the date of first retail sale or the date on which the outboard engine is first put into service, whichever occurs first, subject to the following limitations.
2. New Four Stroke Nissan Marine Outboard Engines used at any time in commercial or rental applications are warranted for a period of **1 year (12 months)** from either the date of first retail sale or the date on which the product is first put into service, whichever occurs first, subject to the original purchaser providing evidence that the mandatory commercial maintenance checklist is performed. See Section 7 of this booklet "**PERIODIC MAINTENANCE SERVICE RECORDS**" and the "**WARRANTY REGISTRATION CARD**".
3. This limited warranty does not cover the components covered by the Emission Control System Limited Warranty in Section 4 of this booklet, those items listed under the caption "**WHAT IS NOT COVERED**" below, and the following:
  - a. The through **fifth** year of this limited warranty is limited to covering the cost of parts and labor for major components only.

The major components covered are:

Major Components: Power Head, Exhaust System, Bracket Assembly, Power Trim and Tilt Assembly, Fuel and Oil Pump Assembly, Lower Unit Assembly, Ignition System.

4. Emission Control System Limited Warranty: NMPP shall provide a 5 year (60 months) or 250 hours of operation, whichever occurs first, limited warranty for emission related components of Nissan Marine Four Stroke Outboard Engines initially sold in the United States (excluding the state of California), or a 5 year (60 months) or 250 hours of operation, whichever occurs first, limited warranty for emission related components of Nissan Marine Four Stroke Outboard Engines initially sold in the state of California. This Emission Control System Limited Warranty is applicable to 2001 and later model year Four Stroke Nissan Marine Outboard Engines.

For more details, see Section 4 of this booklet "NISSAN MARINE OUTBOARD ENGINE EMISSION CONTROL SYSTEM LIMITED WARRANTY".



## WHAT IS NOT COVERED

1. AFTER THE FIRST YEAR OF THIS LIMITED WARRANTY, THE FOLLOWING ITEMS ARE NOT COVERED:
  - a. Upper and lower cowlings, gauges, meters, fuel and oil tank, remote control box and external wire harnesses;
  - b. Electrical components (other than ignition); and
  - c. Tubes, seals, gaskets, o-rings, plastic components and fittings.
2. THROUGHOUT THE ENTIRE TERM OF THIS LIMITED WARRANTY THE FOLLOWING ITEMS ARE NOT COVERED:
  - a. Any of the parts, materials or labor costs involved with required or recommended routine maintenance.
  - b. The following parts:
    - i. Anode, trim-tab, fuel filter, oil filter, air filter, spark plugs, shear-pin, propeller, propeller hubs, wire cable, drive belt, brushes for starter motor and power tilt motor; and
    - ii. Rubber goods, including the water pump impeller, fuel hoses, primer bulb assembly and vinyl pipe.
  - c. Damages or failures of the outboard engine resulting from:
    - i. Accident, theft, fire, misapplication or misuse (proper use is described in the owner's manual), submersion or freezing due to improper protection / storage;
    - ii. Striking any submerged object;
    - iii. Use of improper, dirty and/or contaminated fuels, fluids or lubricants;
    - iv. Use of parts not equivalent in design and quality to parts supplied or authorized by NMPP;
    - v. Any unauthorized modification or alteration or improper repair;
    - vi. Normal cosmetic deterioration, such as rust, corrosion, fading of decal or paint color, peeling of paint or decal caused by lack of maintenance or harsh climate conditions; and
    - vii. Racing or speed contests.


## 4. NISSAN MARINE OUTBOARD ENGINE EMISSION CONTROL SYSTEM LIMITED WARRANTY

### EPA Emissions Regulations

Outboards sold by Nissan Marine & Power Products (NMPP) in the United States are certified to the United States Environmental Protection Agency as conforming to the requirements of the regulations for the control of air pollution from new outboard engines. This certification is contingent on certain adjustments being set to factory standards. For this reason, the factory procedure for servicing the product must be strictly followed and, wherever practicable, returned to the original intent of the design.

**Maintenance, replacement, or repair of the emission control devices and systems may be performed by any marine engine repair establishment or individual.**

Engines are labeled with an Emission Control Information decal as permanent evidence of EPA certification.

 **WARNING**

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

### U.S. EPA Emissions Limited Warranty

Consistent with the obligations created by 40 CFR Part 1045, Subpart B, NMPP provides a five year or 175 hours of engine use, whichever occurs first, emission-related limited warranty to the retail customer that the outboard engine is designed, built, and equipped so as to conform at the time of sale with applicable regulations under section 213 of the Clean Air Act, and that the engine is free from defects in materials and workmanship which cause the outboard engine to fail to conform with applicable regulations. This emission-related limited warranty covers all the components listed in the Emission Control System Components.

### Emission Control System Components (EPA/CARB)

The EPA and California emission-related limited warranty covers the following components:

| MODEL       | TLDI   | FOUR STROKE                  |
|-------------|--|------------------------------|
| Fuel System | Fuel injector  | Carburetor and Fuel injector |
|             | Air rail   | Fuel rail                    |
|             | Fuel regulator   | Fuel cooler                  |
|             | Fuel feed pump   | Intake valve                 |
|             | Vapor separator  | Vapor separator              |
|             | Throttle body including throttle position sensor (TPS) |                              |

| MODEL                | TLDI                           | FOUR STROKE                       |
|----------------------|--------------------------------|-----------------------------------|
| Air Induction System | Air chamber                    | Intake manifold, Throttle body    |
|                      | Throttle position sensor       | ISC valve                         |
|                      | Air compressor                 | MAT sensor                        |
|                      | Reed valve                     | MAP sensor                        |
| Ignition System      | Flywheel                       | Flywheel                          |
|                      | C.P.S. (Crank Position Sensor) | C.P.S. (Crank Position Sensor)    |
|                      | Ignition coil                  | Ignition coil                     |
|                      | Engine Control Unit (ECU)      | ECU or CD unit                    |
| Lubrication System   | Oil pump and internal parts    | Oil pump and internal parts       |
| Exhaust System       | Exhaust manifold               | Exhaust valve<br>Exhaust manifold |
| Miscellaneous Items  | Tubings (Fuel hose, Oil pipe)  | Tubings (Fuel hose, Oil pipe)     |
|                      | Oil seal for Power Unit        | Oil seal for Power Unit           |
|                      | Gaskets for Power Unit         | Gaskets for Power Unit            |

The emission-related limited warranty does not cover components whose failure would not increase an outboard engine's emissions on any regulated pollutant.

### California Emissions Limited Warranty

The California Air Resources Board has promulgated air emission regulations for outboard engines. The regulations apply to all outboard engines sold to retail consumers in California, and which are manufactured for the 2013 or 2014 model year. NMPP, in compliance with those regulations, provides this limited warranty for the emission control systems (see the components listed in the **Emission Control System Components**), and further warrants that the outboard engine was designed, built, and equipped to conform with all applicable regulations adopted by the California Air Resources Board pursuant to its authority in Chapters 1 and 2, Part 5, Division 26 of the Health and Safety Code. For information regarding the limited warranty for the non-emission related components of the outboard, please see the limited warranty statement for your outboard.

#### WHAT IS COVERED?

NMPP warrants the components of the emissions control systems (see the components listed in the **Emission Control System Components**) of its new, 2013 or 2014 model year outboards, sold by a California dealer to retail customers residing in California, to be free from defects in material or workmanship, that cause the failure of a warranted part to be identical in all material respects to that part as described in the application of NMPP for certification from the California Air Resources Board, for the period of time, and under the conditions, identified below. The cost to diagnose a warranty failure is covered under the warranty (if the warranty claim is approved). Damage to other engine components caused by the failure of a warranted part will also be repaired under warranty.

#### WHAT IS NOT COVERED?

The engine has been abused, neglected, or improperly maintained, and that such abuse, neglect, or improper maintenance was the direct cause of the need for the repair or replacement of the part.

**DURATION OF COVERAGE:**

This limited warranty provides coverage for the components of the emissions control systems of new, 2013 or 2014 model year outboards, sold to retail customers in California for four (4) years from either the date the product is first sold, or first put into service, or the accumulation of 250 hours of engine operation (as determined by the engine's hour meter, if any) whichever first occurs. Emission related normal maintenance items such as spark plugs and filters, that are on the warranted parts list, are warranted up to their first required replacement interval only. Refer to Emission Control System Components and Maintenance Schedule. The repair or replacement of parts, or the performance of service under this warranty, does not extend the life of this warranty beyond its original expiration date. Unexpired warranty coverage can be transferred to a subsequent purchaser. (See instructions on transfer of warranty.)

**HOW TO OBTAIN WARRANTY COVERAGE:**

The customer must provide NMPP with a reasonable opportunity to repair and reasonable access to the product for warranty service. Warranty claims shall be made by delivering the product for inspection to a NMPP dealer authorized to service the product. If purchaser cannot deliver the product to such a dealer, please notify NMPP. Then NMPP will then arrange for the inspection and any covered repair. Purchaser, in that case, shall pay for all related transportation charges and/or travel time. If the service provided is not covered by this warranty, purchaser shall pay for all related labor and material, and any other expenses associated with that service. Purchaser shall not, unless requested by NMPP, ship the product or parts of the product directly to NMPP.

**WHAT NISSAN MARINE & POWER PRODUCTS (NMPP) WILL DO?**

NMPP sole and exclusive obligation under this warranty is limited to, at our expense and at our option, repairing or replacing defective parts with new or NMPP certified remanufactured parts, or refunding the purchase price of the NMPP product. NMPP reserves the right to improve or modify products from time to time without assuming an obligation to modify products previously manufactured.

**WHAT IS NOT COVERED?**

The use of non NMPP parts for non warranty maintenance or repairs will not be grounds for disallowing other warranty work. The use of add on (as defined at section 1900 (b) (1) and (b) (10) of Title 13 of the California Code of Regulations) or modified parts not exempted by the California Air Resources Board may be grounds for disallowing a warranty claim at the discretion of NMPP. Failures of warranted parts caused by the use of a non exempted add on or modified part will not be covered.

**California Emission Control Warranty Statement****YOUR WARRANTY RIGHTS AND OBLIGATIONS:**

The California Air Resources Board and NMPP are pleased to explain the emission control system warranty on your 2013 or 2014 model year outboard engine. In California, new outboard engines must be designed, built, and equipped to meet the State's stringent anti-smog standards. NMPP must warrant the emission control system on your outboard engine for the periods of time listed below, provided there has been no abuse, neglect, or improper maintenance of your outboard engine. Your emission control system may include parts such as the carburetor or fuel injection system, the ignition system, and catalytic converter. Also included may be hoses, belts, connectors, and other emission related assemblies.

Where a warrantable condition exists, NMPP will repair your outboard engine at no cost to you, including diagnosis, parts, and labor.

**MANUFACTURER'S WARRANTY COVERAGE:**

Select emission control parts from model year 2001 and later outboard engines are warranted for four (4) years, or for 250 hours of use, whichever occurs first. However, warranty coverage based on the hourly period is only permitted for outboard engines and personal watercraft equipped with appropriate hour

meters or their equivalent. If any emission-related part on your engine is defective under warranty, the part will be repaired or replaced by NMPP.

**OWNER'S WARRANTY RESPONSIBILITIES:**

As the outboard engine owner, you are responsible for the performance of the required maintenance listed in the **Maintenance** section. NMPP recommends that you retain all receipts covering maintenance on your outboard engine, but NMPP cannot deny warranty solely for the lack of receipts or your failure to ensure the performance of all scheduled maintenance.

As the outboard engine owner, you should, however, be aware that NMPP may deny you warranty coverage if your outboard engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.

You are responsible for presenting your outboard engine to a NMPP dealer authorized to service the product as soon as a problem exists. The warranty repairs will be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact NMPP at 1 214-420-6440

## **5. INFORMATION COMMON TO ALL LIMITED WARRANTIES**

### **DEALER RESPONSIBILITIES**

1. Any Authorized Nissan Marine Outboard Dealer will perform warranty repairs to your outboard engine.
2. The Authorized Nissan Marine Outboard Dealer from whom you purchased your outboard engine should provide you with a signed copy of the Pre-Delivery Inspection (PDI) form.
3. The Pre-Delivery Inspection form outlines the steps your dealer has taken to fulfill its pre-delivery responsibility to properly install and service your new Nissan Marine Outboard Engine.

### **WHAT WARRANTY HOLDER MUST DO**

1. Warranty holder must properly operate, maintain and care for the Nissan Marine Outboard Engine as described and outlined in the Owner's Manual.
2. All Nissan Marine Outboard Engines should be registered with NMPP within 15 days of the purchase date.

### **TRANSFER**

1. Warranty coverage for non-commercial applications may be transferred to a subsequent user for the remainder of the unused portion of the applicable limited warranty upon proper registration of the outboard engine (Transfer fees may be applicable. Please contact NMPP for more details.).
2. Repairs will not be covered if the limited warranty is not transferred in accordance with NMPP procedures prior to repairs being performed.

### **OBTAINING WARRANTY SERVICE**

In order to obtain warranty service, you must take your Nissan Marine Outboard Engine and proof of the original purchase date, at your expense, to any authorized Nissan Marine & Power Products Outboard Dealer during normal business hours.

### **WHAT NMPP WILL DO**

1. Warranty items will be repaired at no charge for both parts and labor. Any needed repairs will be made with new or remanufactured parts, at NMPP's discretion. Unless otherwise provided in this booklet, repair or replacement of the defective items is your sole remedy under the applicable limited warranty. NMPP is not responsible for any costs associated with transferring the defective items to an Authorized Nissan Marine Outboard Engine Dealer. All parts replaced under the applicable limited warranty become the property of NMPP.
2. NMPP reserves the right to change or improve the design of any NMPP product without assuming any obligation to modify any such units previously manufactured.

THROUGHOUT THE ENTIRE TERM OF THE APPLICABLE LIMITED WARRANTY, NMPP SHALL NOT BE LIABLE FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL SPECIAL AND/OR PUNITIVE DAMAGES, LOST PROFITS, LOSS OF USE, INCONVENIENCE, TRANSPORTATION COSTS, AND/OR COMMERCIAL LOSS.

NOTE : Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply. If you have any questions about the warranty coverage please contact NMPP.

#### **OTHER LIMITED WARRANTY TERMS AND CONDITIONS**

ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS LIMITED TO THE TERMS AND CONDITIONS OF THE APPLICABLE WRITTEN LIMITED WARRANTY. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT BE APPLICABLE. THE APPLICABLE LIMITED WARRANTY PROVIDES SPECIFIC LEGAL RIGHTS, AND ANY ADDITIONAL RIGHTS MAY VARY FROM STATE TO STATE. IN NO EVENT SHALL THE LIABILITY OF NMPP UNDER THE APPLICABLE LIMITED WARRANTY EXCEED THE ORIGINAL COST OF THE NISSAN MARINE OUTBOARD ENGINE, EXCEPT AS OTHERWISE PROVIDED BY APPLICABLE LAW.

#### CANADA CUSTOMERS:

##### OTHER LIMITED WARRANTY TERMS AND CONDITIONS

LIMITATIONS: EXCEPT AS EXPRESSLY SET OUT IN THE APPLICABLE LIMITED WARRANTY, THERE ARE NO OTHER CONDITIONS OR WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED CONDITIONS OR WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

UNDER PROVINCIAL AND TERRITORIAL LAWS THE LIMIT OF NMPP LIABILITY FOR ANY DIRECT DAMAGES WILL NOT IN THE AGGREGATE EXCEED THE PURCHASE PRICE PAID FOR THE NISSAN MARINE OUTBOARD ENGINE. NMPP WILL NOT BE LIABLE IN ANY WAY WHATSOEVER FOR ANY INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR BUSINESS REVENUE, LOST BUSINESS, OR OTHER COMMERCIAL OR ECONOMIC LOSS OF ANY KIND WHATSOEVER, WHETHER OR NOT SUCH DAMAGES ARE FORESEEABLE.

## 6. CONSUMER ASSISTANCE

Your complete satisfaction with your outboard engine is of primary concern to your Authorized Nissan Marine Outboard Dealer and Nissan Marine & Power Products (NMPP). If a problem arises that you feel has not been handled satisfactorily, the following steps are suggested.

### STEP 1.

Discuss the problem with the repairing dealership management first.

If you feel something more should be done and the dealer is unable to resolve the matter satisfactorily, then...

### STEP 2.

Write the NMPP Warranty Manager at:  
Nissan Marine & Power Products  
2005 Valley View Lane Suite 200  
Farmers Branch, Texas 75234  
Phone: 214-420-6440  
Fax: 214-420-6464

### GIVE:

- Your name and address
- Daytime telephone number
- Model and serial number of your outboard engine
- Date of purchase
- Your Nissan Marine Outboards Dealer's name
- Nature of problem

### NOTE:

Your questions will most likely be resolved by your Authorized Nissan Marine Outboard Dealer, utilizing his/her facilities, equipment and technical personnel.



## 7. PERIODIC MAINTENANCE SERVICE RECORDS

Please use this chart as a record of the work required as specified on the maintenance schedule in the Owner's Manual. All records should be given to any subsequent owner of the outboard engine.

| Maintenance Schedule  | Maintenance Performed | Date |
|-----------------------|-----------------------|------|
| Delivery Inspection   |                       |      |
| Break in or 10 hrs    |                       |      |
| 3 months or 50 hrs    |                       |      |
| 6 months or 100 hrs   |                       |      |
| 9 months or 150 hrs   |                       |      |
| 12 months or 200 hrs  |                       |      |
| 15 months or 250 hrs  |                       |      |
| 18 months or 300 hrs  |                       |      |
| 21 months or 350 hrs  |                       |      |
| 24 months or 400 hrs  |                       |      |
| 27 months or 450 hrs  |                       |      |
| 30 months or 500 hrs  |                       |      |
| 33 months or 550 hrs  |                       |      |
| 36 months or 600 hrs  |                       |      |
| 39 months or 650 hrs  |                       |      |
| 42 months or 700 hrs  |                       |      |
| 45 months or 750 hrs  |                       |      |
| 48 months or 800 hrs  |                       |      |
| 51 months or 850 hrs  |                       |      |
| 54 months or 900 hrs  |                       |      |
| 57 months or 950 hrs  |                       |      |
| 60 months or 1000 hrs |                       |      |

NISSAN MARINE CO., LTD