



# DF250S

## *OWNER'S MANUAL*

Keep with boat at all times.

This owner's manual contains important information on safety, operation and maintenance.

Part No. 99011-93J10-03A  
September, 2009 Eng. (TK)

# IMPORTANT

## ▲ WARNING/CAUTION/NOTE

Please read this manual and follow its instructions carefully. To emphasize special information, the symbol ▲ and the words WARNING, CAUTION and NOTE have special meanings. Pay special attention to the messages highlighted by these signal words.

### ▲ WARNING

**▲ WARNING** indicates a potential hazard that could result in death or injury.

### CAUTION

**CAUTION** indicates a potential hazard that could result in motor damage.

#### NOTE:

*Indicates special information to make maintenance easier or instructions clearer.*

## BREAK-IN INFORMATION FOR YOUR OUTBOARD MOTOR

The first 10 hours are the most important in the life of your engine. Proper operation during this break-in period is essential to help ensure maximum life and performance.

Refer to the BREAK-IN section of this manual for specific break-in recommendations.

## IMPORTANT NOTICE TO OWNERS

### ▲ WARNING

Follow these safety precautions to decrease your risk of injury:

- Prior to first-time use of your outboard motor, familiarize yourself thoroughly with the contents of this owner's manual. Be aware of all outboard motor features and all safety and maintenance requirements.
- Inspect the boat and motor before each trip. See the INSPECTION BEFORE BOATING section for important items.
- Become thoroughly familiar with all operating and handling characteristics of your boat and motor. Practice at low and moderate speeds until competent at handling boat and motor. Do not attempt to operate at maximum performance until you are completely familiar with all these characteristics.

- Carry boating safety and emergency equipment. This important equipment includes; flotation aids for each person (plus one throwable buoyant cushion in any boat 16 feet or longer), fire extinguisher, sound signaling device, visual distress signals, anchor, bilge pump, bucket, compass, emergency starter rope, extra fuel and oil, first aid kit, flashlight, food and water, mirror, paddles, tool kit, and transistor radio. Be sure you are carrying the equipment appropriate for your trip before launching.
- Never start the engine or let it run indoors or where there is little or no ventilation. Exhaust gas contains carbon monoxide, a gas that is colorless and odorless and can cause death or severe injury.
- Instruct your passengers on how to operate the boat, how to deal with emergencies and how to operate safety and emergency equipment.
- Do not hold onto the motor cover or any other parts of your outboard motor while getting on or off your boat.
- Ensure that everyone wears a life jacket on board.
- Never operate the boat under the influence of alcohol or other drugs.
- Distribute all weight load evenly in the boat.
- Have all scheduled maintenance performed. Consult your authorized Suzuki Marine Dealer as required.
- Do not modify or remove any outboard motor standard equipment. To do so may make the motor unsafe to use.
- Learn and obey all applicable navigation rules.
- Adhere to all weather forecasts. Do not set out if weather is unsettled.
- Use extreme caution when purchasing replacement parts or accessories. Suzuki strongly recommends that only genuine Suzuki replacement parts/accessories or their equivalent are used. Inappropriate or poor quality replacement parts or accessories can create unsafe operating conditions.

### CAUTION

To prevent noise interference from the engine electrical systems, Suzuki recommends that radio transceiver or navigational equipment antennae are mounted at least one (1) meter (40 inches) away from the engine cowling.

**This manual should be considered a permanent part of the outboard motor and should remain with the outboard motor when resold or otherwise transferred to a new owner or operator. Please read this manual carefully before operating your new Suzuki and review the manual from time to time. It contains important information on safety, operation, and maintenance.**

## **FOREWORD**

The proper care and maintenance that your outboard motor requires is outlined in this manual. By following these instructions explicitly you will ensure a long trouble-free operating life for your outboard motor. This outboard motor also conforms to the U.S. Environmental Protection Agency emission regulations which apply to new outboard motors. The proper adjustment of engine components is necessary for this outboard motor to comply with the EPA regulations. Therefore, please follow the maintenance instructions closely to ensure emission compliance. Your Suzuki dealer has experienced technicians that are trained to provide your outboard motor with the best possible service with the right tools and equipment.

All information in this manual is based on the latest product information available at the time of publication. Due to improvements or other changes, there may be discrepancies between this manual and your outboard motor. Suzuki reserves the right to make production changes at any time, without notice and without incurring any obligation to make the same or similar changes to outboard motor previously built or sold.

## **PLEASE PRESERVE NATURE**

Protect and preserve your boating waters and their land access. Never pollute the water or land with oil, gas, or other harmful products. For example, make sure you dispose of used gear oil properly following a gear oil change. Also remember not to litter. With a little bit of effort, our boating waters can be enjoyed for many years to come.

Suzuki Motor Corporation believes in conservation and protection of Earth's natural resources.

To that end, we encourage every outboard motor owner to recycle, trade in, or properly dispose of, as appropriate, used oil and batteries.

## **TAKE A BOATING SAFETY CLASS**

An educated boater will enjoy boating more and will be a safer boater. We recommend that you take a boating safety class.

Classes explaining required and recommended equipment for small boats and offering training in good seamanship are conducted by the U.S. Coast Guard Auxiliary, the U.S. Power Squadron, and many Red Cross chapters. For information on classes in your area, call toll-free 1-800-336-BOAT (2628).

Your state's department of boating and your Suzuki Marine dealer can supply you with additional information on boating safety and regulations, or you can call the U.S. Coast Guard Boating Safety Hotline toll-free at 1-800-368-5647.

## **California Proposition 65 Warning**

### **▲ WARNING**

**Engine exhaust, some of its constituents, and certain product components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.**

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# FUEL AND OIL

## GASOLINE

Suzuki highly recommends that you use alcohol-free unleaded gasoline whenever possible, with a minimum pump octane rating of 87 ((R+M)/2 method). In some areas, the only fuels that are available are oxygenated fuels. Oxygenated fuels which meet the minimum octane requirement and the requirements described below may be used in your outboard motor without jeopardizing the New Outboard Motor Limited Warranty.

### CAUTION

- **If leaded gasoline is used, engine damage may result. Use only unleaded gasoline.**
- **Do not use fuel of a lower than recommended octane or fuel that may be stale or contaminated by dirt/water etc. Such poor quality fuel will affect performance and may damage your engine and fuel system.**

#### NOTE:

*Oxygenated fuels are fuels which contain oxygen-carrying additives such as MTBE or alcohol.*

Suzuki recommends that you install a water-separating fuel filter assembly between your boat's fuel tank(s) and outboard motor(s). Fuel filtration systems of this type will help prevent water that may be present in your boat's fuel tank(s) from contaminating your motor's electronic fuel injection system. Water contamination can cause poor engine performance and can also cause damage to the electronic fuel injection system components.

Your Authorized Suzuki Marine Dealer can provide you advice about water-separating fuel filter systems and installation.

## Gasoline Containing MTBE

Unleaded gasoline containing MTBE (Methyl Tertiary Butyl Ether) may be used in your outboard motor if the MTBE content is not greater than 15%. This oxygenated fuel does not contain alcohol.

## Gasoline/Ethanol Blends

Blends of unleaded gasoline and ethanol (grain alcohol), also known as gasohol, may be used in your outboard motor if the ethanol content is not greater than 10%.

## Gasoline/Methanol Blends

Avoid using blends of unleaded gasoline and methanol (wood alcohol) whenever possible. DO NOT USE fuels containing more than 5% methanol under any circumstances. Fuel system damage or outboard motor performance problems resulting from the use of such fuels are not the responsibility of Suzuki and may not be covered under the New Outboard Motor Limited Warranty.

Fuel containing 5% or less methanol may be suitable for use in your outboard motor if they contain cosolvents and corrosion inhibitors.

## Fuel Pump Labeling

In some states, pumps that dispense oxygenated fuels are required to be labeled for the type and percentage of oxygenate, and whether important additives are present. Such labels may provide enough information for you to determine if a particular blend of fuel meets the requirements listed above. In other states, pumps may not be clearly labeled as to the content or type of oxygenate and additives. If you are not sure that the fuel you intend to use meets these requirements, check with the service station operator or the fuel suppliers.

**NOTE:**

- Be sure that any oxygenated fuel blend you use has octane ratings of at least 87 pump octane ((R+M)/2 method).
- If you are not satisfied with the driveability or fuel economy of your outboard motor when you are using a gasoline/alcohol blend, you should switch back to unleaded gasoline containing no alcohol.
- If engine pinging is experienced, substitute another brand, as there are differences between brands.
- Unleaded gasoline will extend spark plug life.

**⚠ WARNING**

**Gasoline is extremely flammable and toxic. Always observe the following precautions when refueling:**

- Never permit anyone other than an adult to refill the fuel tank.
- If you use a portable fuel tank, always stop the motor and remove the fuel tank from the boat to refill it.
- Do not fill the fuel tank all the way to the top or fuel may overflow when it expands due to heating by the sun.
- Be careful not to spill fuel. If you do, wipe it up immediately.
- Do not smoke, and keep away from open flames and sparks.

**CAUTION**

**Always use fresh gasoline. Gasoline kept in the fuel tank for long periods of time will produce varnish and gum, which can damage the engine.**

**CAUTION**

**Be careful not to spill fuel containing alcohol while refueling. Fuels containing alcohol can cause paint damage, which is not covered under the New Outboard Motor Limited Warranty.**

**ENGINE OIL**

**CAUTION**

**The choice of engine oil is a major factor affecting engine performance and life.**

Oil quality is a major contributor to your engine's performance and life. Always select good quality engine oil.

Suzuki recommends the use of SAE 10W-40 SUZUKI MARINE 4-CYCLE ENGINE OIL. If SUZUKI MARINE 4-CYCLE ENGINE OIL is not available, select a NMMA certified FC-W oil or good quality 4-cycle motor oil from the following chart according to the average temperatures in your area.

API Classification	SAE Viscosity Grade	
SG	10W-40	
SH		
SJ		
SL	10W-30	
SM		
TEMP.	°C: -20 -10 0 10 20 30 40 °F: -4 14 32 50 68 86 104	

**NOTE:**

*In very cold weather (below 5°C (41°F), use SAE (or NMMA FC-W) 5W-30 for easier starting and smooth operation.*

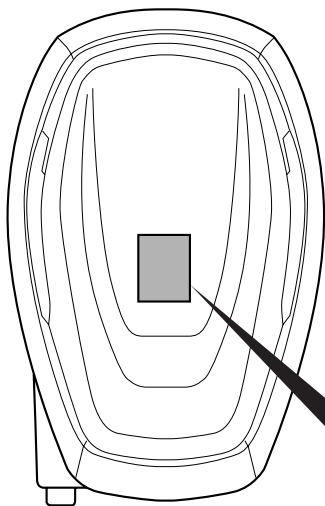
**GEAR OIL**

Suzuki recommends the use of SUZUKI HYPOID GEAR OIL. If it is not available, use SAE 90 hypoid gear oil which is rated GL-5 under the API classification system.

# LOCATION OF SAFETY LABELS

Read and follow all of the labels on your outboard motor or fuel tank. Make sure you understand all of the labels.

Keep the labels on your outboard motor or fuel tank. Do not remove them for any reason.



## **⚠ WARNING**

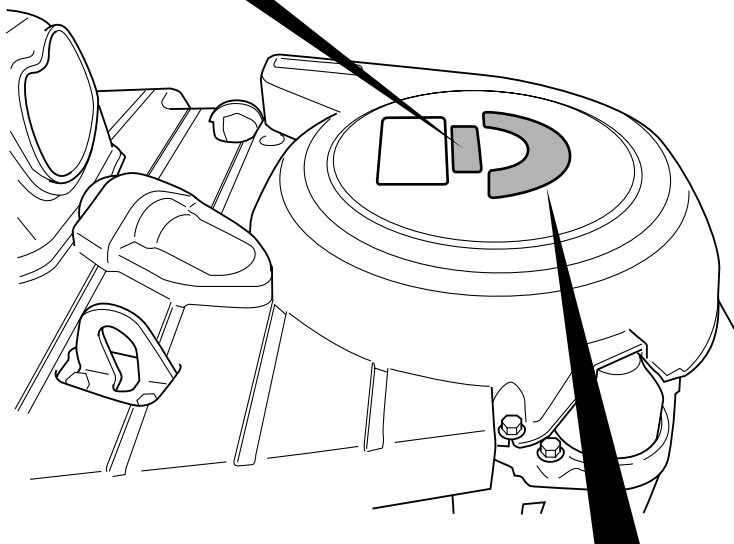
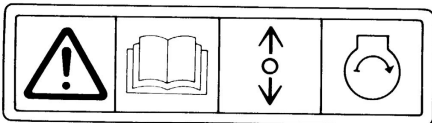
- Ensure shift control is in neutral before starting motor.
- When engine is running, do not remove or install motor cover.
- Read owner's manual carefully before operating the motor.

## **⚠ AVERTISSEMENT**

- S'assurer que le levier de changement de vitesse est au point mort avant de mettre le moteur en marche.
- Quand le moteur est en marche, ne pas retirer ou remettre le capot du moteur.
- Bien lire le manuel du propriétaire avant de mettre le moteur en marche.

## **⚠ ADVERTENCIA**

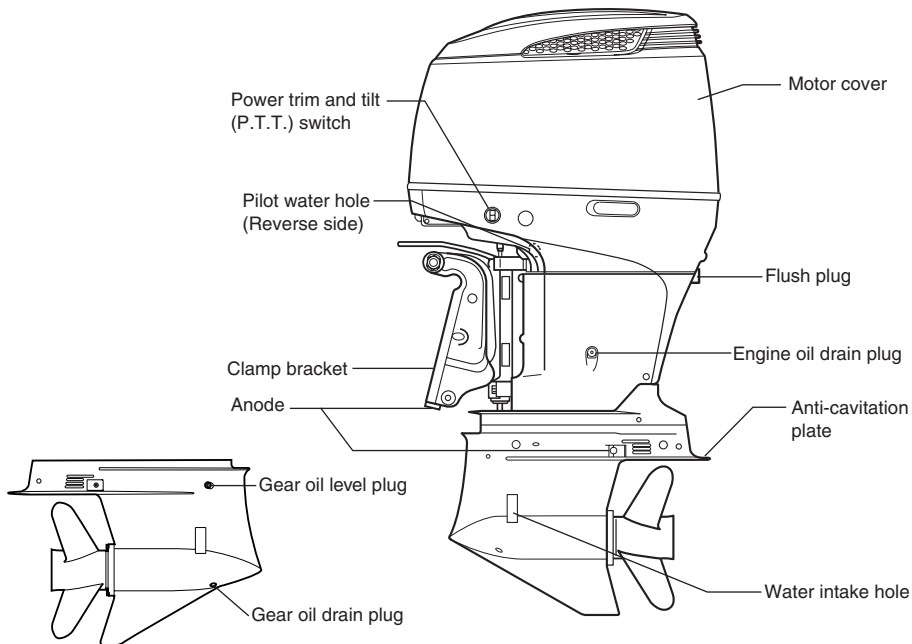
- Asegúrese de que el control de cambio de marcha esté en punto muerto antes de arrancar el motor.
- Cuando el motor esté funcionando, no monte ni desmonte la capota del motor.
- Lea cuidadosamente el manual del propietario antes de utilizar el motor.



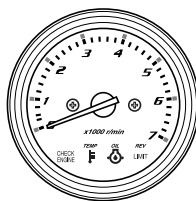
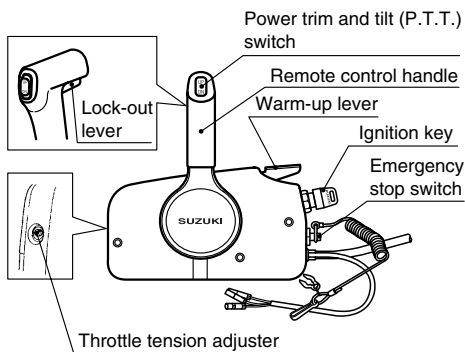
<p><b>▲ WARNING</b></p> <p>When engine is running, keep your hands, feet, clothing, etc., away from moving parts of the motor.</p> <p>• Read owner's manual carefully before operating.</p>	<p><b>▲ AVERTISSEMENT</b></p> <p>Quand le moteur est en marche, éloigner les mains, etc. du moteur.</p> <p>• Bien lire le manuel du propriétaire avant de mettre le moteur en marche.</p>	<p><b>▲ ADVERTENCIA</b></p> <p>Cuando el motor está funcionando, mantenga sus manos, pies, ropa, etc., alejados de las partes móviles del motor.</p> <p>• Lea cuidadosamente el manual del propietario antes de utilizar el motor.</p>
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# LOCATION OF PARTS



## SIDE MOUNT TYPE

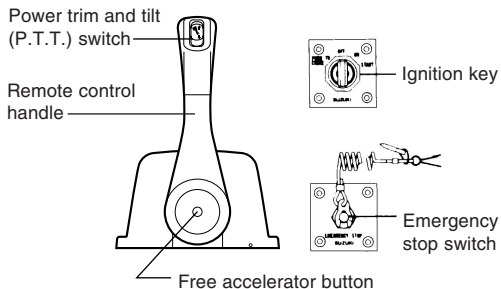


MONITOR-TACHOMETER



PRIMING BULB

## TOP MOUNT TYPE



REMOTE CONTROL BOX (Option)

# MOTOR INSTALLATION

## **▲ WARNING**

**Do not overpower your boat. Never install an outboard motor with horsepower exceeding the manufacturer's recommended maximum horsepower (listed on the boat "Certification Plate").**

**Excessive horsepower will have an adverse effect on hull safety and may cause operating/handling difficulties.**

**The boat may also sustain stress and hull damage. It is against federal regulations for any marine dealer to service a motor that exceeds the recommended maximum horsepower for your boat.**

**Contact your authorized Suzuki Marine Dealer if you are unable to locate the hull "Certification Plate".**

Suzuki strongly recommends that you have your outboard motor, controls and gauges installed by your authorized Suzuki Marine Dealer. He has the tools, the facilities and the know-how.

## **▲ WARNING**

**Failure to have your outboard motor and associated controls and gauges properly installed can result in personal injury or damage.**

# BATTERY INSTALLATION

## **BATTERY REQUIREMENT**

Choose a 12 Volt cranking-type lead acid battery that meets the specifications shown below.

**850 Marine Cranking Amps (MCA)/ABYC, or 670 Cold Cranking Amps (CCA)/SAE or 180 Reserve Capacity (RC) Minutes/SAE**

### *NOTE:*

- The specifications listed above are the minimum battery rating requirements for starting the engine.*
- Additional electrical loads from the boat will require larger capacity batteries. Consult your Suzuki dealer to determine the proper battery sizing for your boat and engine combination.*
- Dual-purpose (Cranking/Deep-cycle) batteries can be used if they meet the minimum specifications listed above (MCA, CCA, or RC).*
- Do not use a Deep Cycle battery for the main cranking battery.*
- The use of Maintenance-Free, sealed, or Gel-Cell batteries is not recommended because they may not be compatible with Suzuki's charging system.*
- When connecting batteries in parallel, they must be of the same type, capacity, manufacturer, and of similar age. When replacement is necessary, they should be replaced as a set. Consult your Suzuki dealer for proper battery installation information.*

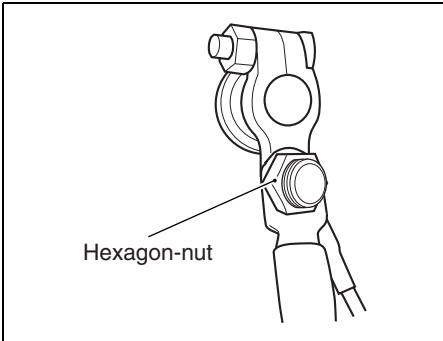
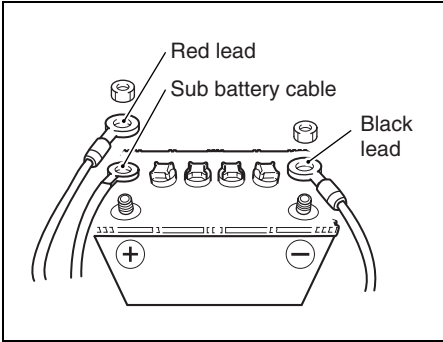
## BATTERY INSTALLATION

Secure the battery in a dry area of the boat, away from vibration.

### NOTE:

- It is recommended that the battery be installed in an enclosed battery case.
- When connecting batteries, hexagon-nuts must be used to secure battery leads to battery posts.

To hook up the battery, first connect the red lead from the motor to the positive battery terminal, then connect the black lead to the negative battery terminal.



To remove the battery, first disconnect the black lead from the negative terminal, then disconnect the red lead from the positive terminal.

Connecting and disconnecting the battery as described above will help minimize the chance of creating an accidental short circuit and sparks.

### ⚠ WARNING

- Batteries produce explosive gases. Do not smoke, and keep away from open flames and sparks.
- Battery acid is poisonous and corrosive. Avoid contact with eyes, skin, clothing, and painted surfaces. If battery acid comes in contact with any of these, flush immediately with large amounts of water. If acid contacts the eyes or skin, get immediate medical attention.
- Do not place the battery near the fuel tank.

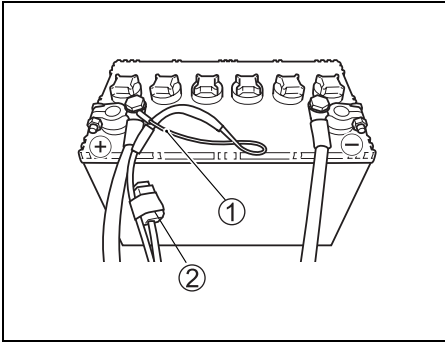
### CAUTION

- If the battery leads are incorrectly connected, the electrical system could be damaged.
- Do not disconnect the battery leads from battery while the engine is running. The electrical components could be damaged.

## SUB BATTERY CABLE

The sub battery cable ① is used to supply voltage to the engine control system. In the midst of the cable, a 15 A fuse ② is provided to protect the control circuit.

If the sub battery cable is not correctly connected to the battery, engine cannot be started.



## USE OF ELECTRICAL ACCESSORIES

The amount of power (12V DC) available for accessories depends on the operating condition of the motor. For getting a detailed information, please inquire of your authorized Suzuki Marine Dealer.

### CAUTION

**Use of too much power for electrical accessories under certain operating conditions can cause the battery to discharge.**

## PROPELLER SELECTION AND INSTALLATION

### PROPELLER SELECTION

It is essential to use a propeller on your outboard motor that is properly matched to your boat's operating characteristics. The speed of the engine when you operate your boat at full throttle depends on the propeller you use. Excessive engine speed can seriously damage the motor, while low engine speed at full throttle will adversely affect the performance. Your operating load will also affect propeller selection. Smaller loads generally require larger-pitch propellers; larger loads generally require smaller-pitch propellers. Your authorized Suzuki Marine Dealer will assist you in selecting a suitable propeller for your boat.

### CAUTION

**Installing a propeller with pitch either too high or too low will cause incorrect maximum engine speed, which may result in severe damage to the motor.**

You can determine if your propeller is appropriate for use with your boat by using a tachometer to measure engine speed when operating your boat at full throttle, under minimum load conditions. If you are using an appropriate propeller, the engine speed will be within the following range:

DF250S	5300 – 6300 r/min. (min <sup>-1</sup> )
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If the engine speed is not within this range, consult your authorized Suzuki Marine Dealer to determine which propeller size is best for you.

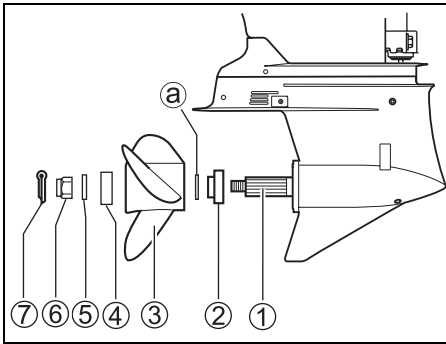
If you change propellers, be sure to perform the above check again, to confirm that the engine speed under full throttle is within the specified range.

## PROPELLER INSTALLATION

### ▲ WARNING

- When installing or removing the propeller, shift into “Neutral” and remove the emergency stop switch lock plate so that the motor cannot be started accidentally.
- To protect hands, wear gloves and “Lock” the propeller by placing a block of wood between the blades and the anti-cavitation plate.

To install a propeller on your outboard motor, use the following procedure:



1. Coat the propeller shaft splines ① liberally with Suzuki water resistant grease to help prevent corrosion.
2. Place the stopper ② on the shaft.
3. Install the washer ⑤.
4. Align the propeller ③ with the propeller shaft splines and slide the propeller onto the shaft.
5. Place the spacer ④ and washer ⑤ on the shaft.
6. Install the propeller nut ⑥ and tighten it with a torque wrench to 50 – 60 N·m (5.0 – 6.0 kg-m/36.0 – 43.5 lb-ft).
7. Align the grooves in the propeller nut with the hole in the shaft, then insert the cotter pin ⑦ and bend the pin ends over to lock it in place.

To remove the propeller, reverse the above procedure.

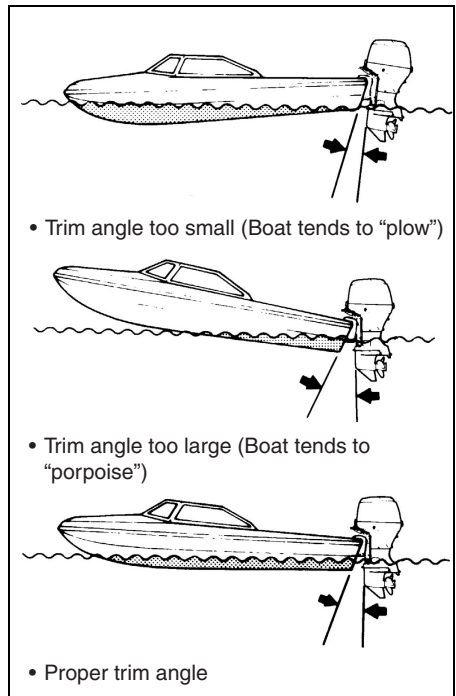
## ADJUSTMENTS

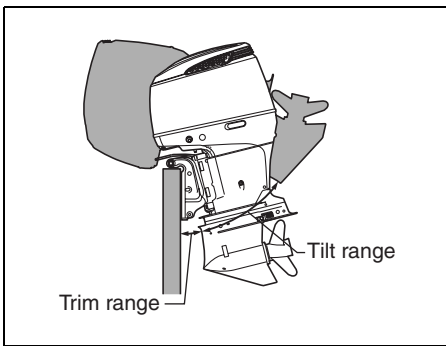
### TRIM ANGLE ADJUSTMENT

To help maintain steering stability and good performance, always maintain the proper trim angle as shown in the illustration. The appropriate trim angle varies depending on the combination of the boat, engine, and propeller, as well as operating conditions.

Make a test run in the boat to determine if the trim angle needs to be adjusted. Adjust the trim angle using the Power Trim and Tilt system. Refer to the POWER TRIM AND TILT section.

If you still cannot achieve good performance, there may be a problem with engine mounting height. Consult your dealer for assistance.



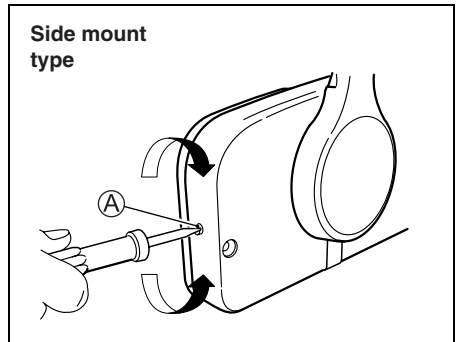


## ⚠ WARNING

- If the trim angle is too small, the boat may “plow” or “bow steer”, causing instability. If the trim angle is too large, steering control may be lost, the boat may “chine walk” from side to side or “porpoise” up and down, all of which may cause occupants to be thrown overboard.
- Do not operate the engine above 1500 r/min or operate the boat in a planing attitude with the engine beyond the maximum trim position (in other words, in a tilt position). In a tilt position, the swivel bracket will not have side support from the clamp bracket, and the tilt system will be unable to cushion the engine if the lower unit strikes an obstruction. This could lead to occupant injury. In addition, beyond the maximum trim position, the water intake holes may be above the water line, resulting in severe engine damage from overheating.

## THROTTLE TENSION ADJUSTMENT

The tension of the remote control handle can be adjusted according to your preference. To increase the tension, turn the adjuster Ⓐ clockwise. To decrease the tension, turn the adjuster counterclockwise.



**NOTE:**

### **Top mount type**

When adjusting the tension of the remote control handle, consult your authorized Suzuki Marine Dealer.

## IDLE SPEED ADJUSTMENT

The idle speed has been factory adjusted between 600 – 700 r/min. in neutral.

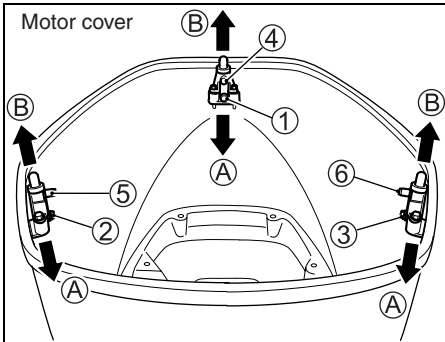
**NOTE:**

If idle speed cannot be set within the specified range, contact your authorized Suzuki Marine Dealer.

## MOTOR COVER FASTENING ADJUSTMENT

If you feel motor cover fastening is loose or too tight when locking the levers, adjust as follows:

1. Loosen the bolts ①, ② and ③.
2. Adjust the position of brackets ④, ⑤ and ⑥. To increase the fastening, move the brackets to the direction ①. To decrease the fastening, move the brackets to the direction ②.
3. Tighten the bolts.



## CAUTION SYSTEM

The caution systems are designed to alert you to certain situations which may cause damage to your outboard motor.

### CAUTION

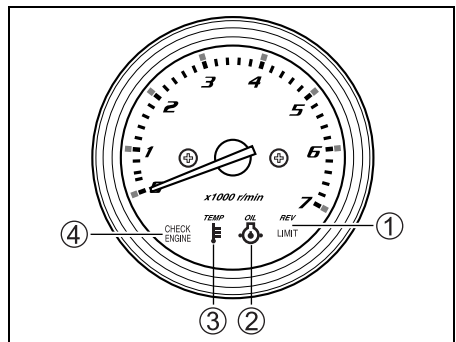
- Do not rely on the Caution System to alert you to any malfunction which may occur or to give you an indication of the need for maintenance. To prevent damage to your outboard motor, it is essential to regularly inspect and maintain it.
- If the Caution System activates while you are operating your outboard motor, stop the motor as soon as possible and correct the problem or consult your authorized Suzuki Marine Dealer for assistance. Continuing to operate the motor with the Caution System activated can result in severe motor damage.

## INDICATOR CHECK

Each time the ignition key is turned to the "ON" position, four lamps – the REV LIMIT ①, the OIL ②, the TEMP ③ and the CHECK ENGINE ④ in the monitor-tachometer will light briefly and the buzzer will also sound for the first two seconds, regardless of the motor conditions.

For the next three seconds, the monitor-tachometer will indicate the total motor operating hours by means of the lamp flashing and needle indicating.

After this brief check period, the monitor-tachometer will return to their stand-by mode and will only respond to motor conditions requiring a caution alert.



## CAUTION

If any of the four lamps does not light or the buzzer does not sound when the key is turned to the "ON" position, the lamp or buzzer may be broken or a failure may exist in the system circuit. In this case, consult your authorized Suzuki Marine Dealer.

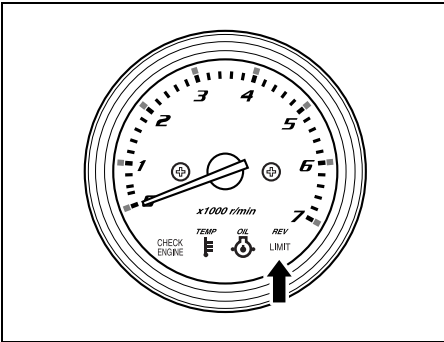
### NOTE:

For checking the total motor operating hours, refer to the CHART OF TOTAL OPERATING HOURS INDICATION on the last page.

## OVER-REVOLUTION CAUTION SYSTEM

This system is activated when engine speed exceeds maximum recommended speed for more than 10 seconds.

If this system activates, engine speed will automatically be reduced to approximately 3000 r/min. with red REV LIMIT lamp lit.



This system must be reset by moving the throttle to the idle position for about one second to restore full engine operation.

## CAUTION

The Over-Revolution Caution System will not be activated at recommended maximum throttle unless propeller pitch is insufficient or other factors (like "over-trimming" or "ventilation") prevail. If the system activates for no apparent reason, you should contact your authorized Suzuki Marine Dealer.

## OIL PRESSURE CAUTION SYSTEM

This system operates when the engine lubricating oil pressure drops below the correct level.

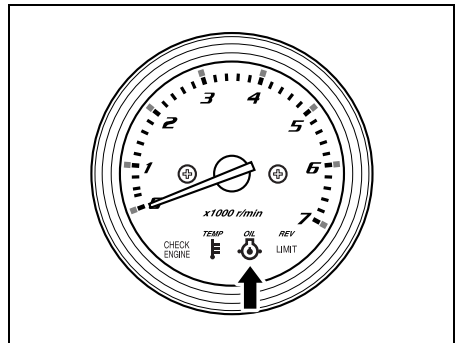
If this system activates, the red OIL lamp will light and a buzzer will begin a series of beep. In addition, when this system is activated at 1000 r/min. or higher, engine speed will automatically be reduced to approximately 1000 r/min. with REV LIMIT lamp lit.

If you continue to run, the engine will automatically stop 3 minutes after beginning of the above CAUTION system activation.

### NOTE:

In case that the engine is automatically stopped due to the CAUTION system, the engine can be started again.

However the CAUTION system will repeatedly activate until eliminating the cause.



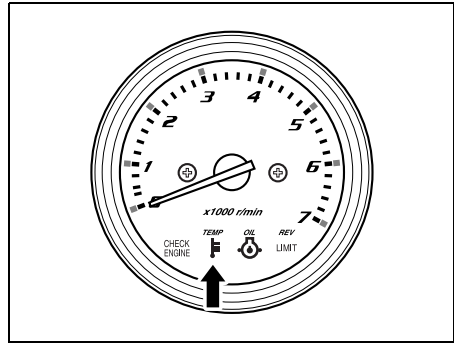
If this system activates, stop the engine immediately, if wind and water conditions make it safe to do so.



Check the oil level and add oil if necessary. If the oil level is correct, consult your authorized Suzuki Marine Dealer.

### CAUTION

- If you operate the engine with this caution system activated, severe engine damage can result.
- Do not rely on the caution system to indicate the need to add oil. Be sure to periodically check the engine oil level. If the oil level is low, severe engine damage can result.



### COOLING WATER CAUTION SYSTEM

This system is activated when the cylinder wall temperature is too high due to insufficient water cooling.

**NOTE:**

*The cooling water caution system will not detect high combustion chamber temperature caused by, for example, an oil system malfunction, poor quality fuel, or spark plugs with an incorrect heat range.*

If this system activates, the red TEMP lamp will light and the buzzer will begin a series of beep. In addition, when this system is activated at 3000 r/min. or higher, engine speed will automatically be reduced to approximately 3000 r/min. with REV LIMIT lamp lit.

If you continue to run, the engine will automatically stop 3 minutes after beginning of the above CAUTION system activation.

**NOTE:**

*In case that the engine is automatically stopped due to the CAUTION system, the engine can be started again. However the CAUTION system will repeatedly activate until eliminating the cause.*

If the cooling water caution system activates when operating, reduce engine speed immediately and check if water is being discharged from the pilot water hole. If no water is seen, follow the procedures outlined below.

Water and wind conditions permitting, stop the engine, tilt it out of the water and remove any debris like seaweed, plastic bags or sand that may have blocked the water intakes. Lower the engine into the water, being sure that water intakes are immersed, and restart it.

Check (A) that water discharges from the pilot hole and (B) that the red TEMP lamp is no longer lit.

Be aware that the red TEMP lamp may light again if engine temperature rises abnormally. If either of the above situations arises, your authorized Suzuki Marine Dealer must be consulted as soon as possible.

**NOTE:**

*If pilot hole water discharge is sufficient, buzzer and TEMP lamp may still operate until engine temperature decreases. Run engine in NEUTRAL only until the caution systems are cancelled.*

## CAUTION

- Wind and water conditions permitting, stop the engine if the caution system activates. Inspect the engine according to the above instructions. Consult your authorized Suzuki Marine Dealer if you cannot correct the problem. Continuing to operate with this caution system activated can result in severe engine damage.
- Remember that the cooling water caution system cannot detect overheating caused by, for example, an oil system malfunction, poor quality fuel, or incorrect spark plugs.

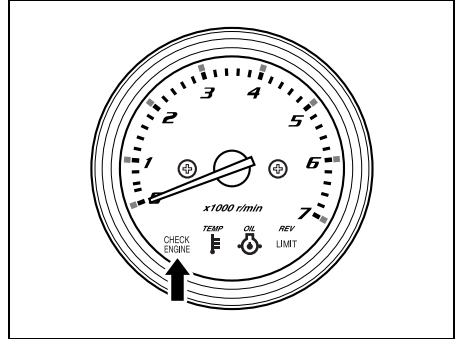
### NOTE:

If the engine is operated beyond the maximum trim position, the water intake holes may be above the water line. In this situation, the cooling water caution system may activate.

## BATTERY VOLTAGE CAUTION SYSTEM

This system is activated when the battery voltage deficiency which could impair your motor's performance occurs.

If this system activates, the red CHECK ENGINE lamp will light and buzzer will begin a series of beep.



This system will be canceled automatically when the battery voltage restores to the proper voltage level. Refrain from using any electrical equipment such as P.T.T. system, hydraulic trim tabs, hydraulic jack plate, etc.

## ▲ WARNING

**Do not attempt battery inspection without first reading the warnings, cautions, and instructions in the “BATTERY INSTALLATION” section of this manual.**

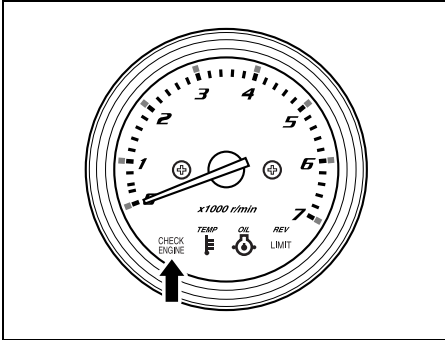
### NOTE:

- A marginal battery may have enough power to start your engine, yet may still cause this caution system to activate whenever engine or boat accessory use places a high current demand on the battery.
- If this caution system activates continuously, even after you have stopped using engine or boat accessories, contact your authorized Suzuki Marine Dealer.

# DIAGNOSTIC SYSTEM

If abnormal conditions exist in any sensor signal being sent to the control unit, the self-diagnostic system warns of the abnormal condition.

If this system activates, the red CHECK ENGINE lamp will flash and a buzzer will sound.



Also incorporated is a fail-safe provision that allows the operation at a restricted speed even under such a failure condition.

### NOTE:

- The CHECK ENGINE lamp will light briefly when the ignition key is turned to the "ON" position.
- The failed system can be identified by the mode of the red CHECK ENGINE lamp flashing and buzzer sounding.  
This diagnostic code is designed to appear while the ignition key is turned on.
- The buzzer sound with diagnostic system activating will be canceled by pushing the ignition key in.

## CAUTION

If the diagnostic system activates while you are operating your outboard motor, you should consult your authorized Suzuki Marine Dealer for repair of the control system.

# OIL CHANGE REMINDER SYSTEM

This system informs the operator of the time for replacing engine oil on the basis of the maintenance schedule.

The system is designed to register the total operating hours of the outboard motor and function its operation when the preprogrammed hours have reached.

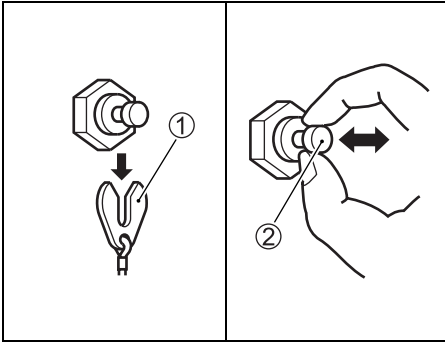
(Refer to the INSPECTION AND MAINTENANCE section and the last page.)

## SYSTEM ACTIVATION

When the total operating hours have reached the preprogrammed hours, the OIL lamp will flash. If the engine is not running, the buzzer will begin a series of double beeps additionally. This indication will repeat until you cancel the system activation.

## CANCELLATION

1. Turn the ignition key to the "ON" position.
2. Pull out the emergency stop switch plate ①.
3. Pull up the emergency stop switch knob ② three times in 10 seconds. A short beep will be heard if the cancellation is successfully finished.



4. Turn the ignition key to the "OFF" position.
5. Set the plate ① in the original position.

### NOTE:

- *Canceling of the system activation is possible regardless of whether or not the engine oil has been replaced. Once the system has operated, however, Suzuki strongly recommends that the engine oil be replaced before canceling the system activation.*
- *Even if the engine oil has been replaced with the system not operating, it is still necessary to perform the cancellation.*

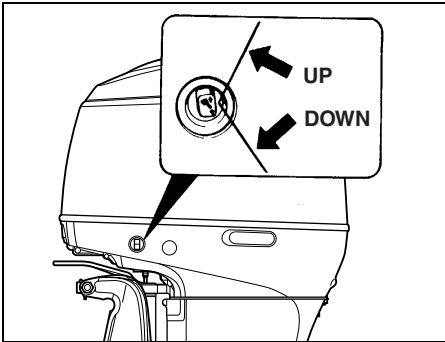
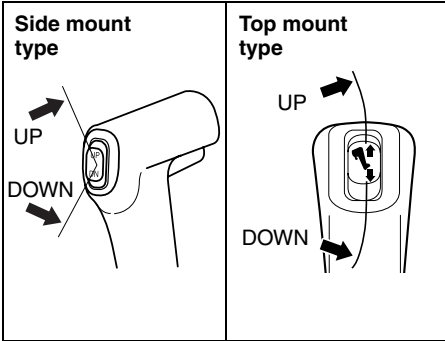
## ENGINE STALLING CAUTION SYSTEM

This system informs the operator when the motor stalls while it is operating. When the engine stalls for any reason, the caution buzzer sounds twice briefly.

# OPERATION OF TILTING SYSTEMS

## POWER TRIM AND TILT

The "Power Trim and Tilt" is operated by pressing the switch. To tilt the motor up, press the upper part of the switch. To tilt the motor down, press the lower part of the switch.



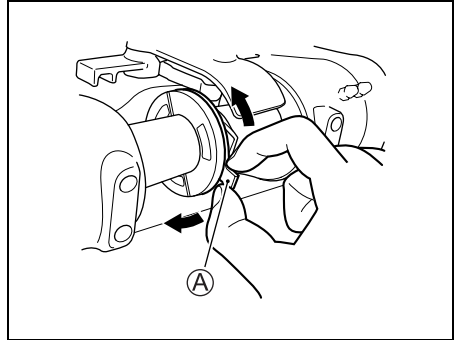
### ▲ WARNING

The power trim and tilt (PTT) switch can be activated when the ignition key is off. Keep all persons away from the outboard motor to help prevent accidental use of the PTT system.

## TILT LIMITER CAM

If the outboard motor contacts the motor well of the boat while tilting, adjust the tilt limiter cam to limit maximum tilt position.

1. Place the motor in the normal running position.
2. Rotate the tilt limiter cam:  
To reduce the amount of tilt, move the tab (A) of cam upward.  
To increase the amount of tilt, move the tab (A) of cam downward.



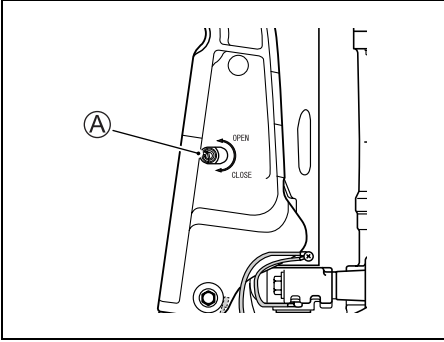
3. To check your adjustment, tilt the motor fully up to check for motor contact. Adjust further if necessary. Return the motor to the normal running position for each adjustment, and repeat your check after each adjustment.

### ▲ WARNING

Adjusting the tilt limiter cam will not prevent the outboard motor from tilting fully up and contacting the motor well if the motor's lower unit hits an object at high speed. Such tilting and contact could damage your motor and boat and injure boat occupants. Keep all boat occupants away from the motor when operating at high speed.

## MANUAL TILTING

If you are unable to tilt the motor using the “Power Trim and Tilt” because of an electrical problem or some other problem, you can move the motor up or down, turn the manual release screw (A) two turns counterclockwise, move the motor to the desired position, then retighten the release screw.



### ▲ WARNING

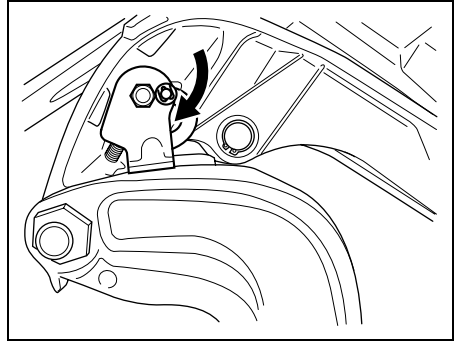
The motor is very heavy. Ensure that your grip and footing are secure and that you are able to support the weight of the motor.

## TILT LEVER

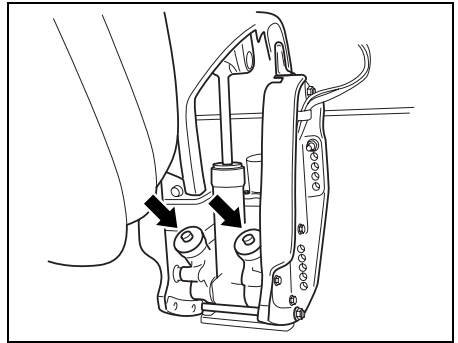
The Tilt Lever is provided so you can support the motor in a tilted position for non-moving engine support.

To set the Tilt Lever:

1. Tilt the motor all the way up by pressing the Power Trim and Tilt “UP” switch.
2. Pull down the Tilt Lever as shown in the illustration.
3. Lower the motor by pressing the Power Trim and Tilt “DOWN” switch, until the motor is supported by the Tilt Lever.



4. Continue to operate the Power Trim and Tilt “DOWN” switch until the trim rods are completely retracted.



### CAUTION

Be sure to retract the trim rams completely when mooring. This helps protect the trim rams from deterioration and corrosion.

To release the Lever, tilt the motor all the way up using the Power Trim and Tilt, and pull up the Tilt Lever.

### ▲ WARNING

- The remote Power Trim and Tilt switch will work when the ignition is off. To avoid injuring your hand while you are moving the tilt lever, keep all persons away from the remote Power Trim and Tilt switch.
- The tilt lever relieves pressure from the power trim and tilt and should be used only when boat is moored or otherwise stationary. Do not use the tilt lever when trailering your boat and motor. Refer to the TRAILERING section.

## INSPECTION BEFORE BOATING

### ▲ WARNING

To ensure the safety of all occupants, always conduct the following inspection before beginning your trip.

It is important to make sure that your boat and motor are in good condition and that you are properly prepared for an emergency. Always perform the following checks before you begin boating:

- Check that you have enough fuel for the intended run.
- Check the level of engine oil in the sump.

### CAUTION

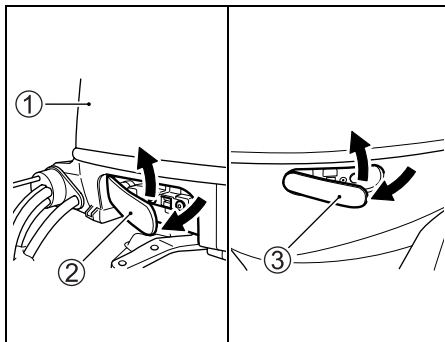
Running the engine with insufficient oil can cause serious engine damage.

To check the oil level:

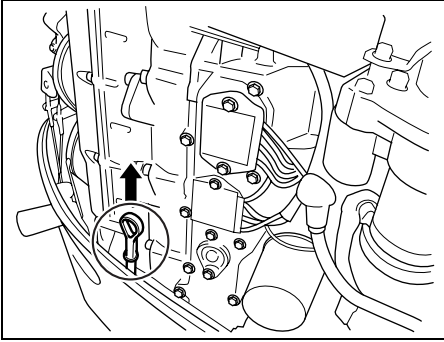
#### NOTE:

To avoid an incorrect assessment of engine oil level, check the level only when the engine has cooled.

1. Place the motor in a vertical position, then remove the motor cover ① by unlocking the lever ② and ③.



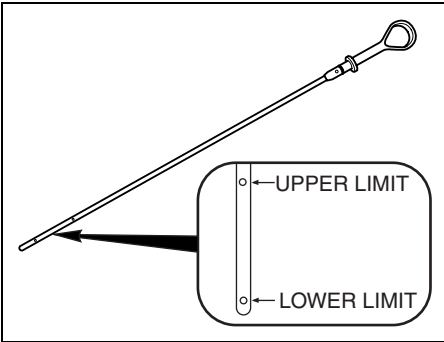
2. Pull out the oil dipstick and wipe oil off with a clean cloth.



**NOTE:**

If the engine oil is contaminated or discolored, replace with fresh engine oil. Refer to the ENGINE OIL section.

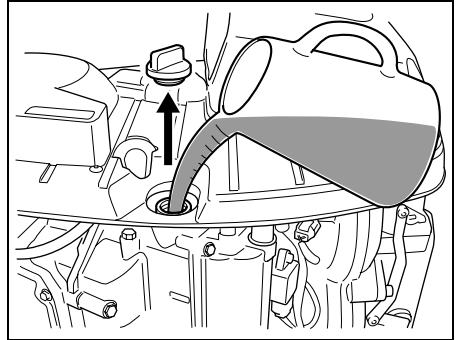
3. Insert the dipstick all the way into the engine, then remove it again.



The oil on the dipstick should be between the upper and lower limits shown on the dipstick. If the oil level indication is near the lower limit, add enough oil to raise the level to the upper limit.

To fill the engine with oil:

1. Remove the oil filler cap.
2. Fill with recommended engine oil to the upper level.



**CAUTION**

**Do not overfill, as excessive oil can damage the engine.**

3. Tighten the oil filler cap securely.

- **Check the battery solution level.**  
The level should be kept between the MAX and the MIN level lines at all times. If the level drops below the MIN level line, refer to MAINTENANCE section.
- **Make sure that the battery leads are securely connected to the battery terminals.**
- **Visually check the propeller to make sure it is not damaged.**
- **Make sure the motor is securely mounted to the transom.**
- **Check for proper operation of the Power Trim and Tilt.**
- **Check for proper trim angle.**
- **Make sure you have the boating safety and emergency equipment on board.**



# BREAK-IN

Proper operation during this break-in period will help ensure maximum life and performance from your engine. The following guidelines will explain proper break-in procedures.

## CAUTION

**Failure to follow the break-in procedures described below can result in severe engine damage.**

**Break-in period:** 10 hours

### Break-in procedure

1. For the initial 2 hours:  
Allow sufficient idling time (about 5 minutes) for the engine to warm up after cold engine starting.

## CAUTION

**High speed without sufficient warm-up may cause severe engine damage such as piston seizure.**

After warming up, run the engine at idling speed or the lowest in-gear speed for about 15 minutes.

During the remaining 1 hour and 45 minutes, if safe boating conditions permit, operate the engine in gear at less than 1/2 (half) throttle (3000 r/min.).

### NOTE:

*You may throttle up beyond the recommended operating range to plane your boat, then immediately reduce the throttle to the recommended operating range.*

2. For the next 1 hour:  
Safe boating conditions permitting, operate the engine in gear at 4000 r/min. or at three-quarter throttle. Avoid running the engine at full throttle.

3. Remaining 7 hours:

Safe boating conditions permitting, operate the engine in gear at desired engine speed.

You may occasionally use full throttle; however do not operate the engine continuously at full throttle for more than 5 minutes at any time.

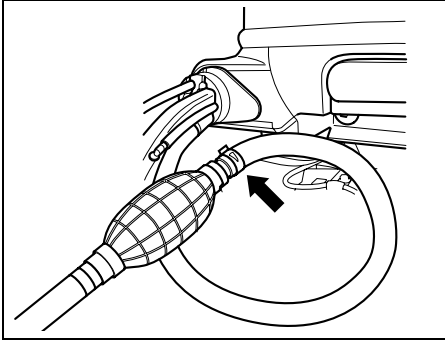
### NOTE:

*For the remaining 7 hours of break-in operation, you may use full throttle; however do not operate the engine continuously at full throttle for more than 5 minutes at a time or severe engine damage such as seizure may result.*

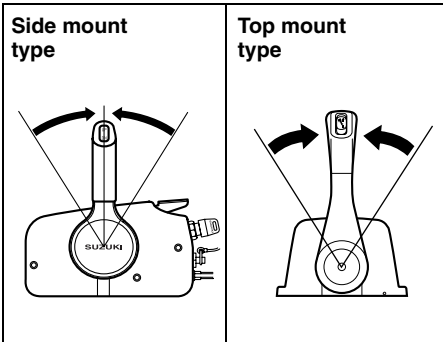
# OPERATION

## BEFORE ATTEMPTING TO START THE ENGINE

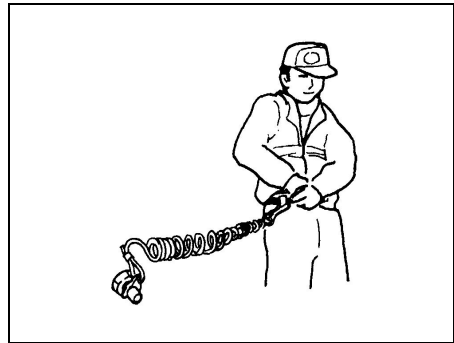
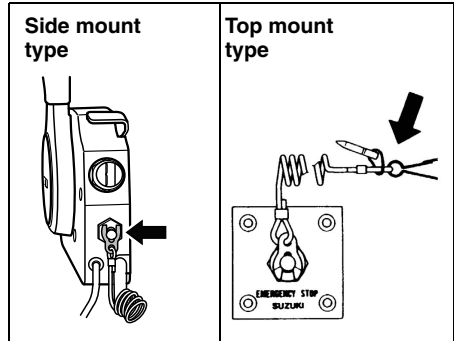
1. Lower the motor into the water.
2. Make sure that the motor fuel hose and the hose from the boat's fuel tank are securely attached and clamped.



3. Make sure the motor is in "NEUTRAL".



4. Make sure the lock plate is in place and the emergency stop switch cord is fastened securely to your wrist or appropriate clothing area such as your belt.



### **▲ WARNING**

- The emergency stop switch cord should be fastened securely to the operator's wrist or to an appropriate clothing area (belt etc.). In this way, in an emergency, or if the operator is thrown overboard, the detached cord will stop the motor quickly.
- Ensure that no obstructions impede or restrict emergency stop switch operation.
- Take care not to pull the stop switch cord or knock out the lock plate during normal operation. The motor will stop abruptly, and the loss of forward motion may unexpectedly throw occupants forward.

**NOTE:**

There is a spare plastic lock plate for temporary use only. Remove it from the cord and place in a safe place on the boat. However, the original cord and lock plate should be replaced as soon as possible.

## STARTING THE ENGINE

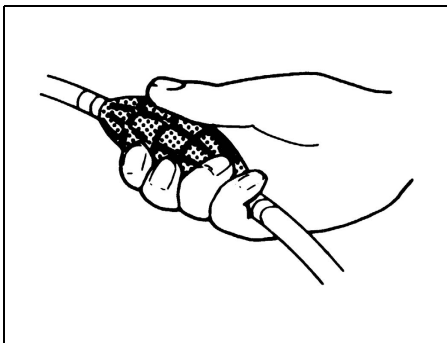
### ▲ WARNING

- Never start the engine or let it run indoors or where there is little or no ventilation. Exhaust gas contains carbon monoxide, a gas that is colorless and odorless and can cause death or severe injury.
- Before starting the engine, make sure that you have enough fuel and oil to complete your intended trip.

**NOTE:**

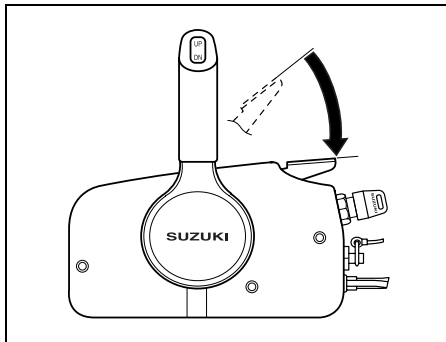
If the emergency stop switch lock plate is not in position, the starter motor cannot operate.

1. Squeeze the fuel line priming bulb several times until you feel resistance.

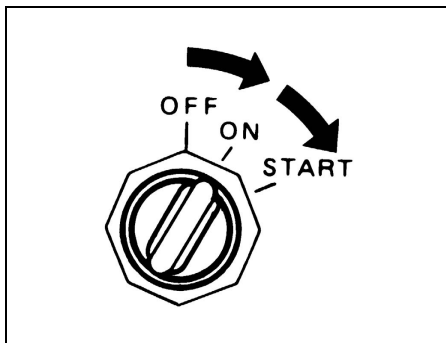


### 2. Side mount type:

Make sure the warm-up lever is in the fully closed position.



3. Turn the ignition key to the "ON" position, then observe the monitor-tachometer indication. If nothing abnormal is indicated, then turn the key to the "START" position to start the engine.



### CAUTION

Never move the ignition key to "START" position for more than 5 seconds, or the starter system could be damaged.

### CAUTION

If the OIL lamp remains lit while operating, check the engine oil level after stopping the engine.

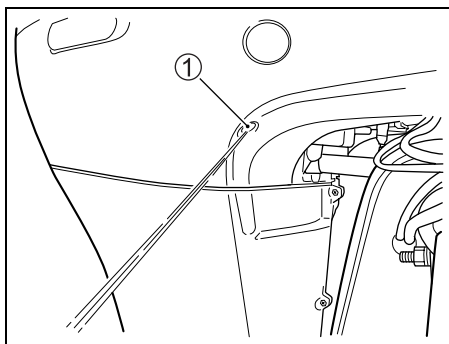
**NOTE:**

If the engine fails to start after 5 seconds, wait 10 seconds and try again.

4. Warm up the engine for about 5 minutes.

**Cooling water check**

As soon as the engine starts, water should spray out of the pilot water hole ①, indicating that the water pump and cooling system are working properly. If you notice that water does not spray out of the pilot water hole, stop the engine as soon as possible and consult your authorized Suzuki Marine Dealer.



**CAUTION**

- Never operate your outboard motor when there is no water coming out of the pilot water hole, or severe damage can result.
- Before setting off, be sure that emergency stop switch operates properly.

**SHIFTING AND SPEED CONTROL**

**CAUTION**

- Before shifting from “FORWARD” to “REVERSE” or from “REVERSE” to “FORWARD”, stop at the “NEUTRAL” position and allow the engine speed to return to idle and the boat speed to reduce.
- Exercise caution and use minimal speed when operating the boat in reverse. Be sure the handle/shift lever is in the desired position before accelerating.

**CAUTION**

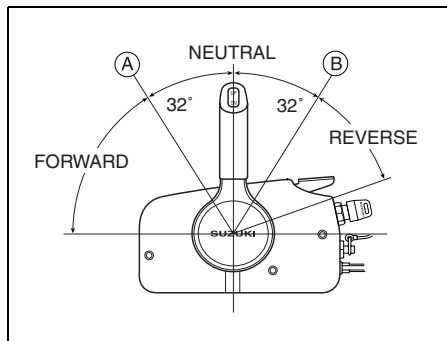
Avoid shifting into gear when the engine is not running, or the shifting mechanism can be damaged.

**Shifting**

To shift into “FORWARD”, squeeze the lock-out lever on the control handle and move the control handle forward to approximate position (A), as shown in the illustration.

To shift into “REVERSE”, squeeze the lock-out lever on the control handle and move the control handle rearward to approximate position (B), as shown in the illustration.

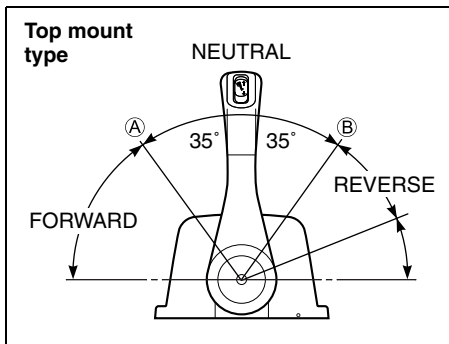
A detent or notch is present on all Suzuki control boxes to provide a “feel” for positions (A), (B), and neutral. Always shift quickly and firmly from neutral to position (A) or (B) to prevent abnormal wear on the gear and clutch engagement surfaces.



NOTE:

**Top mount type**

Not equipped with a lock-out lever. Exercise care when selecting neutral position.



**Speed control**

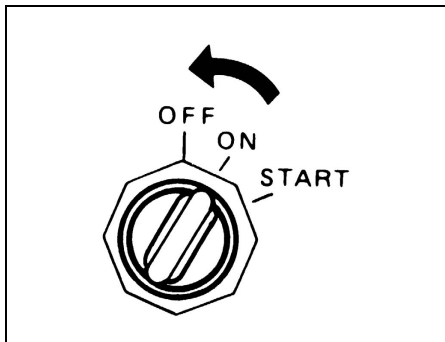
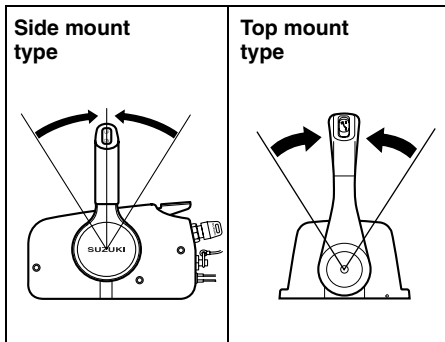
To increase speed after you have shifted into gear, continue moving the control handle forward or rearward.

**▲ WARNING**

Since the same handle is used for shifting and speed control, you must be careful not to move the control handle too far forward or rearward when shifting. If you move the handle past the detent, throttle will be engaged and the boat can start moving suddenly.

**STOPPING THE ENGINE**

To stop the engine, shift into "NEUTRAL" and turn the ignition key to the "OFF" position. Always leave the ignition key in the "OFF" position when the motor is not running, or the battery can discharge.



**▲ WARNING**

To prevent unauthorized use of your boat, be sure to remove the key and emergency stop switch lock plate when the boat is unattended.

NOTE:

To make sure that the emergency stop switch operates properly, stop the engine occasionally by pulling out the lock plate, while operating the engine at idling speed.

## MOORING

The motor should be tilted up out of the water when you moor the boat in shallow water or if the motor will not be used for some time, to protect it from damage by underwater obstacles at low tide or corrosion from salt water.

Refer to the TILT LEVER section for details on how to tilt up the motor.

### CAUTION

**Do not allow your motor to rub against quay walls, piers or other boats when the boat is tied up.**

## OPERATION IN SHALLOW WATER

When operating your boat in shallow water, it may be necessary to tilt the motor higher than the normal trim angle. When you tilt the motor beyond the normal trim angle, however, you should only operate the boat at slow speeds. After returning to deep water, be sure to lower the motor to the normal trim angle.

To tilt the motor higher than the normal trim angle, use the Power Trim and Tilt switch.

### WARNING

**Do not operate the engine above 1500 r/min or operate the boat in a planing attitude with the engine beyond the maximum trim position (in other words, in a tilt position). In a tilt position, the swivel bracket will not have side support from the clamp bracket, and the power trim and tilt system will be unable to cushion the engine if the lower unit strikes an obstruction. This could lead to occupant injury. In addition, beyond the maximum trim position, the water intake holes may be above the water line, resulting in severe engine damage from overheating.**

### CAUTION

- **When you tilt your motor for shallow water operation, make sure that the water intake holes remain in the water at all times and that water is always spraying out of the water discharge hole.**
- **Do not allow your motor to hit bottom. Serious damage can result. If the motor does strike bottom, inspect it immediately for damage.**

## OPERATION IN SALT WATER

After operating the motor in salt water, you should flush the water passages with clean, fresh water as outlined in the FLUSHING THE WATER PASSAGES section. If you do not flush the water passages, salt can corrode the motor and shorten its life.

## OPERATION IN FREEZING WEATHER

When operating your outboard motor in freezing temperatures, you should keep the lower unit submerged in the water at all times.

When taking motor out of the water, stand it up in a vertical position until the cooling system drains completely.

### CAUTION

**If you leave your outboard motor out of the water in freezing temperatures with water still in the cooling system, the water can freeze and expand, causing severe damage to the motor.**

# MOTOR REMOVAL AND TRANSPORTING

## MOTOR REMOVAL

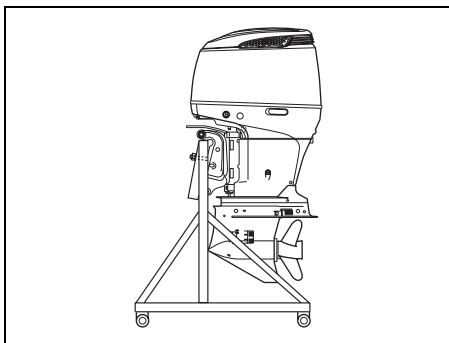
If it is necessary to remove the outboard motor from your boat, we recommend that you ask your authorized Suzuki Marine Dealer to do the work for you.

## MOTOR TRANSPORTING

When transporting the motor, place the motor either vertically or horizontally.

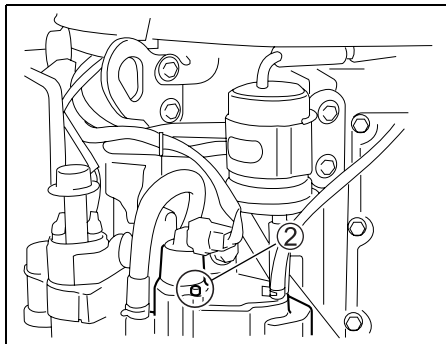
### Vertical transport:

Attach the clamp bracket to a stand by securing two transom bolts.

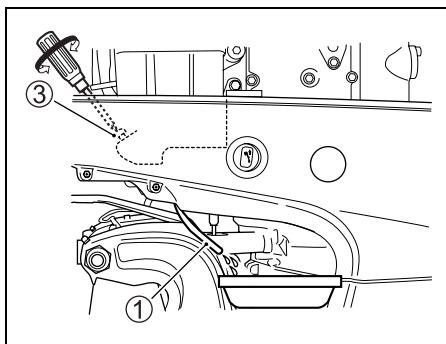


### Horizontal transport:

1. Drain the engine oil. Refer to the ENGINE OIL section.
2. Drain the gasoline from the vapor separator as follows:
  - (1) Remove the motor cover.
  - (2) Pull the drain hose end ① out.
  - (3) Loosen the air vent screw ②.



- (4) Loosen the vapor separator drain screw ③ and drain the gasoline into a suitable container.

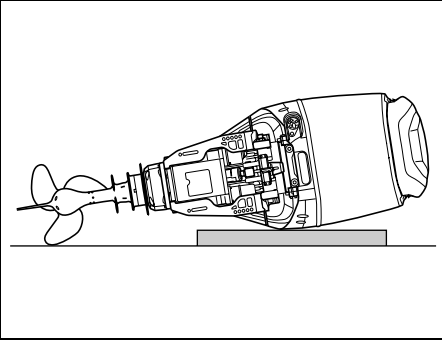


## ▲ WARNING

Use a proper, safe container to store any gasoline drained from the outboard motor.

- (5) After draining, retighten the screws ② and ③, and then put the drain hose back.

3. Rest the motor on a case protector with the port side downwards as shown.



### CAUTION

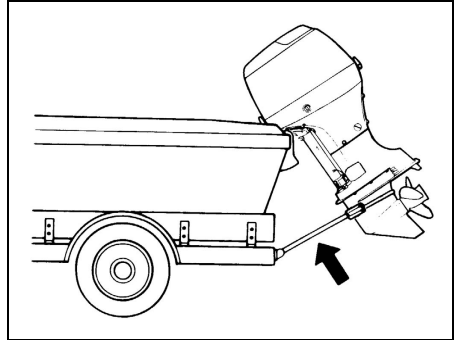
- Do not rest the engine before the engine oil has drained, as oil may enter the cylinder from the sump or outer casings may be damaged.
- Do not rest the engine before the cooling water has drained completely, as water may enter the cylinder through the exhaust port and cause problems.

### CAUTION

Do not let the lower unit of the outboard sit higher than the power head during transporting or storing, or water may trickle into the power head, causing damage to the engine.

## TRAILERING

When trailering your boat with the motor attached, keep the motor in the normal operating position unless there is not enough ground clearance. If you need more ground clearance, trailer the motor in a tilted position using a transom saver bar or similar device to support the weight of the motor.



### CAUTION

When trailering the boat and the motor, do not use the tilt up lock arm to hold the motor in the fully tilted position. Towing motion or poor road surfaces may cause unexpected tilt lock release, resulting in damage to the motor and the tilt lock mechanism.



# INSPECTION AND MAINTENANCE

## NOTICE

MAINTENANCE, REPLACEMENT OR REPAIR OF EMISSION CONTROL DEVICES AND SYSTEMS MAY BE PERFORMED BY ANY MARINE SI ENGINE REPAIR ESTABLISHMENT OR INDIVIDUAL USING ANY PART WHICH HAS BEEN CERTIFIED UNDER THE PROVISIONS IN THE CLEAN AIR ACT Sec. 207 (a) (2).

## MAINTENANCE SCHEDULE

It is important to inspect and maintain your outboard motor regularly. Follow the chart below. At each interval, be sure to perform the indicated service. Maintenance intervals should be judged by number of hours or number of months, whichever comes first.

### WARNING

**Never start the engine or let it run indoors or where there is little or no ventilation. Exhaust gas contains carbon monoxide, a gas that is colorless and odorless and can cause death or severe injury.**

Interval Item to be serviced	Initial 20 hrs. or 1 month	Every 50 hrs. or 3 months	Every 100 hrs. or 6 months	Every 200 hrs. or 12 months
Spark plug	–	–	I	R
Breather & Fuel line	I	I	I	I
	*Replace every 2 years.			
Engine oil	R	–	R	R
Gear oil	R	–	R	R
Lubrication	–	I	I	I
Anodes & Bonding wires	–	I	I	I
Battery	–	I	I	I
Low pressure fuel filter	–	I	I	I
	Replace every 400 hours or 2 years.			
* Low pressure fuel pump filter	Replace every 1000 hours.			
* Engine oil filter	R	–	–	R
* High pressure fuel filter	Replace every 1000 hours.			
* Ignition timing	–	–	–	I
* Idle speed	I	–	–	I
* Valve clearance	–	–	–	I
* Water pump	–	–	–	I
* Water pump impeller	–	–	–	R
* Propeller nut & pin	I	–	I	I
* Bolts & Nuts	T	–	T	T

I: Inspect and clean, adjust, lubricate, or replace, if necessary T: Tighten R: Replace

### NOTE:

*Water-separating fuel filter*

*Replace the filter element every 12-months (or more frequently if recommended by the filter manufacturer).*

### **▲ WARNING**

Improper maintenance or failure to perform recommended maintenance can be hazardous. Poor maintenance increases the chance of an accident or equipment damage.

Suzuki recommends that only your authorized Suzuki Marine Dealer or a qualified service mechanic perform maintenance on those items in the chart above which are marked with an asterisk (\*).

You may perform maintenance on the unmarked items by referring to the instructions in this section if you have mechanical experience. If you are not sure whether you can successfully complete any of the unmarked maintenance jobs, ask your authorized Suzuki Marine Dealer to do the maintenance for you.

### **▲ WARNING**

- The safety of you and your passengers depends on how well you maintain your outboard motor. Follow all inspection and maintenance instructions carefully.
- Do not attempt to perform maintenance on this outboard motor if you do not have prior mechanical experience. You could be injured or may damage the motor.

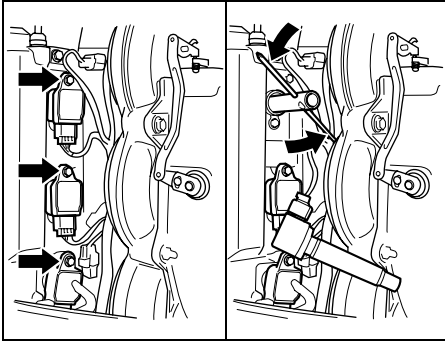
### **CAUTION**

- The maintenance intervals in the chart were established for normal usage of your outboard motor. If your outboard motor is used under severe conditions such as frequent full throttle operation or frequent operation in muddy, silty, sandy, acidic, or shallow water, you should perform maintenance more often than indicated in the chart. If you have any questions regarding appropriate maintenance intervals, consult your authorized Suzuki Marine Dealer.
- When replacing parts on your outboard motor, Suzuki strongly recommends that you use genuine Suzuki parts or their equivalent.

# SPARK PLUG

Remove the spark plugs as follows:

1. Remove the bolt securing the ignition coil.
2. Pull out the ignition coil.
3. Loosen and remove the spark plug using the box wrench in the tool bag.



Your outboard motor comes equipped with the following “standard” spark plug for normal usage.

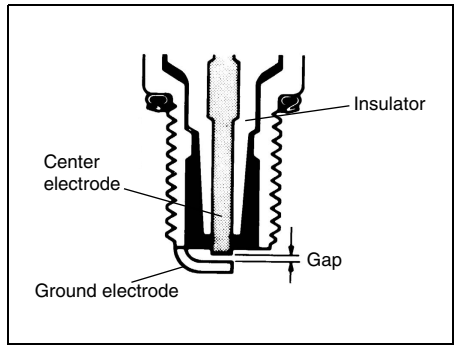
Standard spark plug	NGK BKR6E
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## CAUTION

It is important that you use **ONLY resistor-type spark plugs. Non-resistor types will interfere with the function of the electronic ignition, causing misfiring, or cause problems with other electronic boat equipment and accessories.**

Your authorized Suzuki Marine Dealer can determine if the standard spark plug is suitable for your type of motor usage by inspecting the color of the plug’s porcelain center electrode insulator after operation.

If the plug tends to run hot (usually evidenced by whitening of the insulator or a burnt electrode), stop using your motor immediately as severe engine damage may result. If the plug tends to run cold (usually evidenced by blackening of the insulator or a wet electrode), performance may suffer. Ask your authorized Suzuki Marine dealer to evaluate either of these problems to determine the cause.



## CAUTION

Use of improper spark plug can cause severe engine damage.

- Do not experiment with other spark plug brands unless you can determine that they are directly equivalent to the specified brand, or you may experience engine damage which will not be covered under warranty. Note that after-market cross-reference charts may not be accurate.
- To install spark plug; seat it as far as possible by hand, then use wrench to secure to either recommended torque setting or rotation angle.

Tightening torque	
2.5 – 2.8 kg-m (18.1 – 20.0 lb-ft)	
Rotation angle	
New plug	1/2 – 3/4 of a turn
Re-use plug	1/12 – 1/8 of a turn

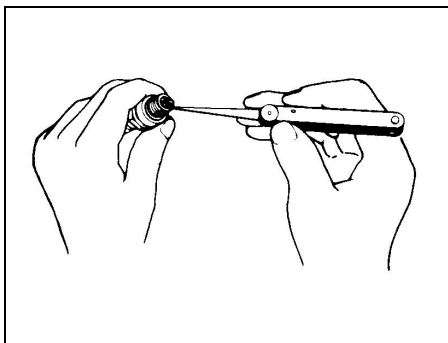
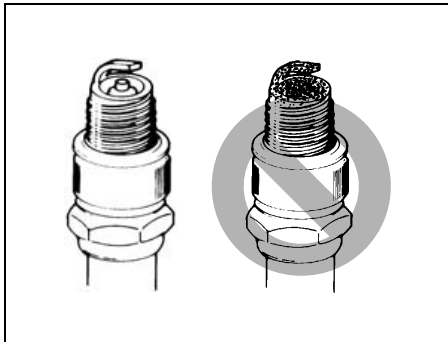
**Do not overtighten or cross thread the spark plug, as this will damage the aluminum threads of the cylinder head.**

- Spark plugs must be seated properly and securely tightened. Loosely installed spark plugs may get abnormally hot and engine damage could result.

To maintain a strong spark, you should clean and adjust the plug at the interval shown in the maintenance schedule.

Remove carbon deposits from the spark plug using a small wire brush or spark plug cleaner, and adjust the gap as follows;

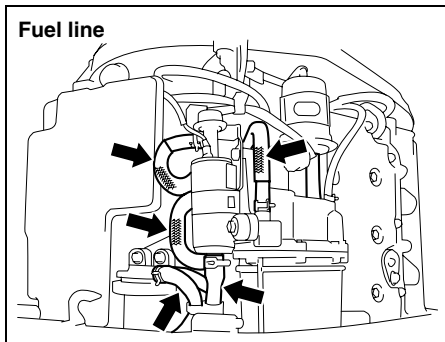
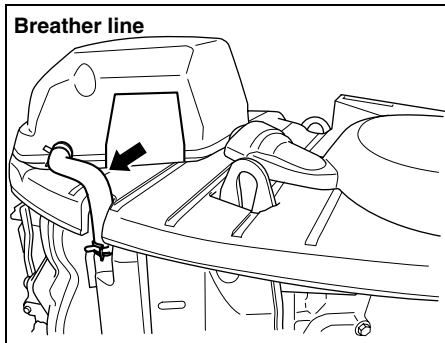
Spark plug gap	0.7 – 0.8 mm (0.028 – 0.031 in.)
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If the electrode or insulator is damaged, or if either shows excessive wear, then the spark plug should be replaced.

## BREATHER AND FUEL LINE

Inspect the breather and fuel line for leaks, cracks, swelling, or other damage. If the breather and fuel line are damaged in any way, they must be replaced. Consult your authorized Suzuki Marine dealer if it is necessary to replace them.



### ▲ WARNING

**Fuel leakage can contribute to an explosion or fire, causing serious personal injury. Have your authorized Suzuki Marine Dealer replace the fuel line if there is any evidence of leaking, cracking or swelling.**

## ENGINE OIL

### ⚠ WARNING

The motor must be shut off before any ENGINE OIL procedures are performed.

### CAUTION

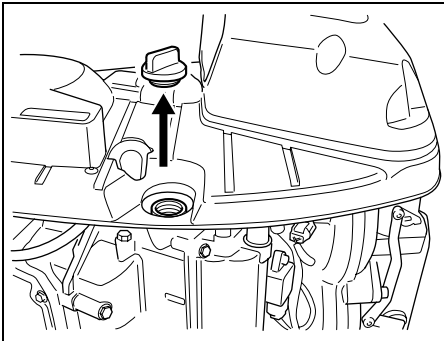
The oil should be changed more often when the engine is operated under adverse conditions like extended trolling.

### Engine oil change

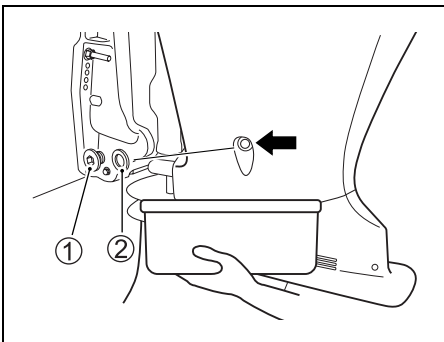
The oil should be changed when engine is warm so that the oil will drain thoroughly from the engine.

To change the engine oil:

1. Place the motor in a vertical position and remove the motor cover.
2. Remove the oil filler cap.



3. Place a drain pan under the engine oil drain screw.
4. Remove the engine oil drain screw ① and gasket ②, then let the engine oil drain.



5. After draining, secure the engine oil drain screw with a new gasket.

### CAUTION

Do not re-use gasket removed. Be sure to use new gasket.

### NOTE:

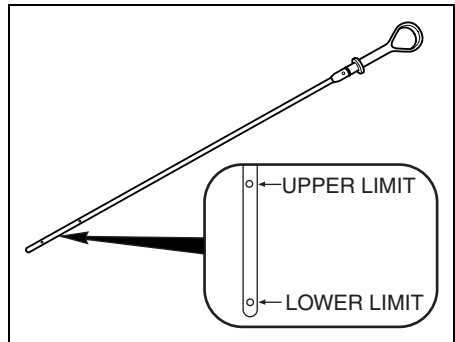
There are spare gaskets in the tool bag.

6. Fill with recommended engine oil to the upper level.

Oil capacity: 8.0 L (8.5/7.0 US/Imp. qt.)

Engine oil: SAE (or NMMA FC-W) 10W-40  
API (or NMMA FC-W) Classification SG, SH, SJ, SL, SM

7. Check the engine oil level.



### NOTE:

To avoid incorrect measurement of engine oil level, check oil level only when the engine has cooled.

8. Reinstall the oil filler cap.

## ⚠ WARNING

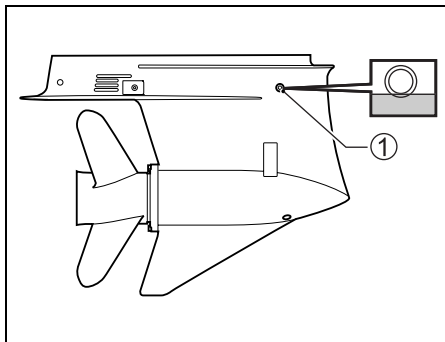
- The engine oil temperature may be high enough to burn your fingers when the drain plug is loosened. Wait until the drain plug is cool enough to touch with bare hands.
- New and used oil can be hazardous. Children and pets may be harmed by swallowing new or used oil. Continuous contact with used engine oil has been found to cause skin cancer in laboratory animals. Brief contact with used oil may irritate skin.
- Keep new and used oil away from children and pets. To minimize your exposure to oil, wear a long-sleeve shirt and moisture-proof gloves (such as dish-washing gloves) when changing oil. If oil contacts your skin, wash thoroughly with soap and water. Launder any clothing or rags if wet with oil.

### NOTE:

*Recycle or properly dispose of used engine oil. Do not throw it in the trash, pour it on the ground, down a drain, or into the water.*

## GEAR OIL

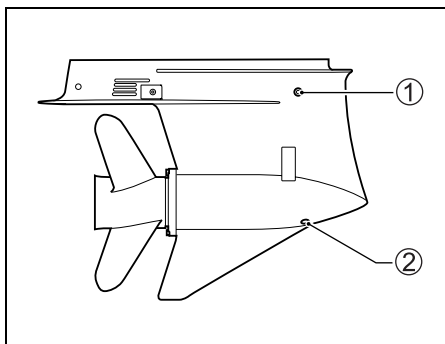
To check the gear oil level, adjust the engine to an upright position, remove the gear oil level plug ① and look into the hole. The oil level should be at the bottom edge of the hole. If the oil level is low, add the specified gear oil until the level reaches the bottom edge of the hole. Then, reinstall and tighten the plug.



Periodic gear oil replacement is essential for long life of your outboard motor.

To change the gear oil:

1. Make sure the motor is in an upright position. Place a drain pan under the lower casing.
2. Remove the gear oil drain plug ②, then remove the gear oil level plug ①.



3. After the oil has drained completely, inject the specified gear oil into the gear oil drain hole ② until it just starts to come out of the gear oil level hole ①. Approximately 1100 ml (37.2/38.7 US/Imp. oz.) will be required.
4. Reinstall and tighten the gear oil level plug ①, then quickly reinstall and tighten the gear oil drain plug ②.

**NOTE:**

To avoid insufficient injection of gear oil, check the gear oil level 10 minutes after doing the procedure in the step 4. If the oil level is low, slowly inject the gear oil into the gear oil level hole ① up to the correct level.

**▲ WARNING**

New and used oil can be hazardous. Children and pets may be harmed by swallowing new or used oil. Continuous contact with used gear oil has been found to cause skin cancer in laboratory animals. Brief contact with used oil may irritate skin.

To minimize your exposure to used oil, wear a long-sleeve shirt and moisture-proof gloves (such as dishwashing gloves) when changing oil. If oil contacts your skin, wash thoroughly with soap and water. Launder any clothing or rags if wet with oil.

Recycle or properly dispose of used oil.

**CAUTION**

If fishing line should wrap around the rotating propeller shaft, this may damage the propeller shaft oil seal allowing water to enter the gear case causing severe mechanical damage.

The seal will need to be replaced and the internal gear case components should be inspected for damage.

Gear oil contaminated with water will have a milky color. If you notice any water in the gear oil, immediately contact your authorized Suzuki Marine Dealer. Do not operate until the oil is changed and the reason for contamination is eliminated.

**LOW PRESSURE FUEL FILTER**

**▲ WARNING**

Gasoline is extremely flammable and toxic.

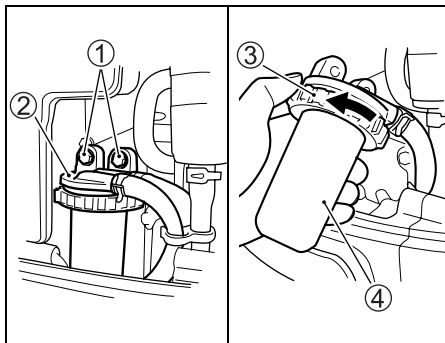
- Stop the motor before cleaning the fuel filter.
- Be careful not to spill fuel. If you do, wipe it up immediately.
- Do not smoke, and keep away from open flames and sparks.

**▲ WARNING**

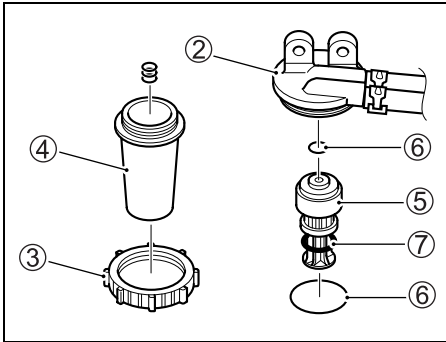
Keep cleaning solvent away from children and pets. Dispose of used solvent properly.

Inspect and clean the fuel filter as follows:

1. Turn the engine off and allow it to cool.
2. Remove the bolts ① securing the fuel filter cap ② in place.
3. Loosen the ring nut ③ and remove the cup ④.



- Pull out the filter element ⑤. Inspect the element and the O-rings ⑥ for damage. If they are damaged, replace them.
- Wash the element with clean solvent and dry it.
- Reinstall the element and O-rings in their original positions.
- Screw the ring nut to the cap until the cup is lightly seated.
- Tighten the ring nut approximately an additional 1/4 turn to secure the cup.
- Reinstall the fuel filter cap with the bolts.



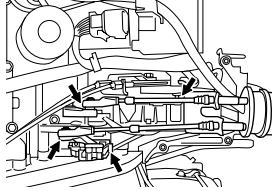
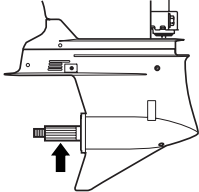
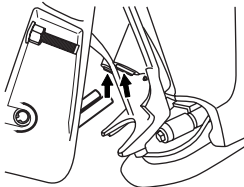
- Restart the engine and check that there are no leaks around the fuel filter.

**NOTE:**

If any water exists in the fuel filter cup, the red ring ⑦ will float. If so, remove the cup and drain the water. Always dispose of excess fuel safely. For questions, consult your authorized Suzuki Marine Dealer.

## LUBRICATION

Proper lubrication is important for the safe, smooth operation and long life of each working part of your outboard motor. The following chart shows the lubrication points of your motor and the recommended lubricant:

LOCATION	LUBRICANT
 <p data-bbox="613 486 822 510">Throttle/Shift linkage</p>	<p data-bbox="871 603 1023 683">Marine-grade water resistant grease</p>
 <p data-bbox="647 730 785 754">Propeller shaft</p>	
 <p data-bbox="650 973 781 997">Trim ram pad</p>	

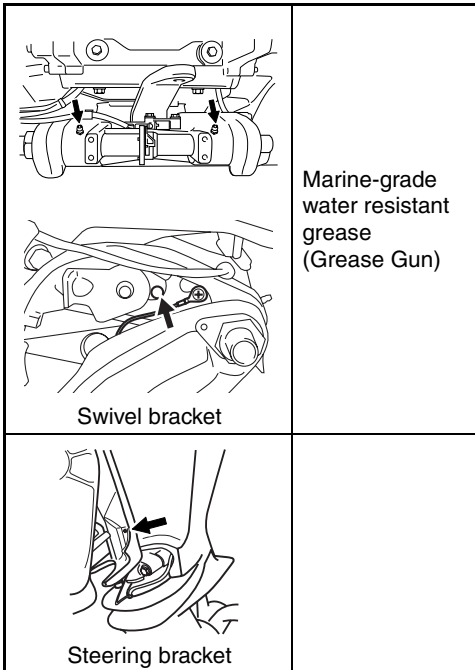


## CORROSION PREVENTION

### ANODES

The motor is protected from exterior corrosion by anodes. These anodes control electrolysis and help prevent corrosion. The anodes will corrode in place of the parts they are protecting. You should periodically inspect each of the anodes and replace them when 2/3 of the metal has corroded away.

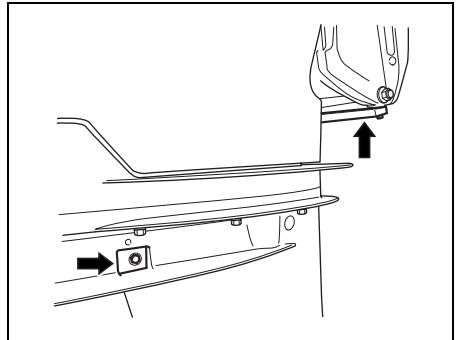
In certain areas of the country, the water is unusually harsh on metal. Additional anti-corrosion measures may be helpful under those conditions. Consult your authorized Suzuki Marine Dealer for details.



Swivel bracket

Steering bracket

Your authorized Suzuki Marine Dealer may also have additional recommendations due to regional climate or operating conditions. Please consult him for advice.

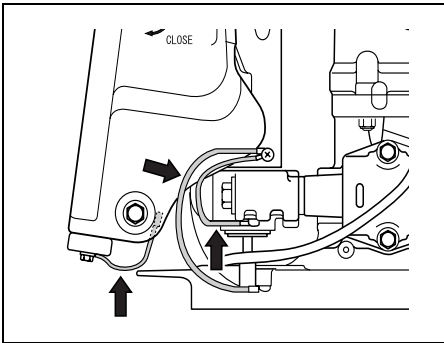
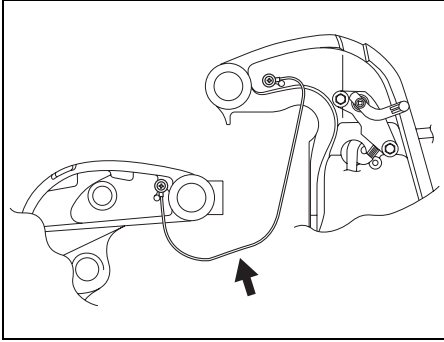


### CAUTION

- If anodes have become detached or corroded away, underwater aluminum surfaces (such as the lower unit) will suffer galvanic corrosion damage.
- Do not paint anodes, as this will render them ineffective.
- All anodes should be cleaned periodically with a wire brush to remove any coating which might decrease their protective ability.

## BONDING WIRES

Bonding wires are used to electrically connect the engine components so they exist in a common ground circuit. This allows them to be protected against electrolysis by the anodes. These wires and their terminals should be checked periodically to be sure they have not been damaged.



## BATTERY

If you are using a maintenance-free battery, inspect the window area according to the instructions on the battery to make sure the battery is in good condition.

If you are not using a maintenance-free battery, the battery fluid level should be checked every 50 hours of operation or 3 months. The battery solution level must be kept between the MAX and the MIN level lines at all times. If the level drops below the MIN level line, add DISTILLED WATER ONLY until the battery solution level reaches the MAX level line.

## ⚠ WARNING

Battery acid is poisonous and corrosive. Avoid contact with eyes, skin, clothing, and painted surfaces. If battery acid comes in contact with any of these, flush immediately with large amounts of water. If acid contacts the eyes or skin, get immediate medical attention.

## ⚠ WARNING

When checking or servicing the battery, disconnect the negative (black) cable. Be careful not to cause a short circuit by allowing metal objects to contact the battery posts and the motor at the same time.

## ⚠ WARNING

Battery posts, terminals, and related accessories contain lead and lead compounds. Wash hands after handling.

## CAUTION

Once the battery has been initially serviced, NEVER add diluted sulphuric acid, or you will damage the battery. Follow the battery manufacturer's instructions for specific maintenance procedures.

## ENGINE OIL FILTER

The engine oil filter must be changed by authorized Suzuki Marine Dealer periodically. Replace engine oil filter with a new one at initial 20 hours (1 month).

Replace engine oil filter with a new one at every 200 hours (12 months).

# FLUSHING THE WATER PASSAGES

After operation in muddy, brackish, or salt water, you should flush the water passages and motor surface with clean, fresh water.

If you do not flush the water passages, salt can corrode the motor and shorten its life. Flush the water passages as follows.

## ENGINE RUNNING – Vertical position –

Suzuki recommends that you flush the water passage by using this method.

To flush the water passages, you must obtain a commercially available engine flush device.

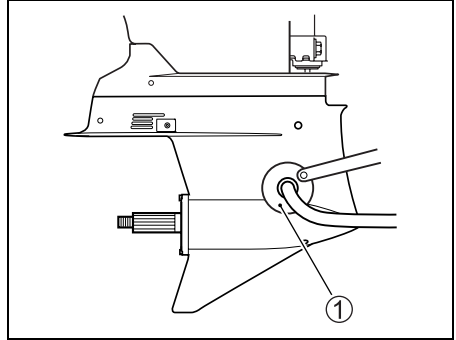
### ▲ WARNING

- Never start the engine or let it run indoors or where there is little or no ventilation. Exhaust gas contains carbon monoxide, a gas that is colorless and odorless and can cause death or severe injury.
- Make sure the engine remains in NEUTRAL while flushing out the water passages. If shifted into gear, the propeller shaft will turn, possibly resulting in personal injury.
- Make sure the motor is properly clamped to a secure stand or boat and remain in attendance until flushing is completed.
- Keep children and pets away from the area, and stay clear of all moving parts during this procedure.

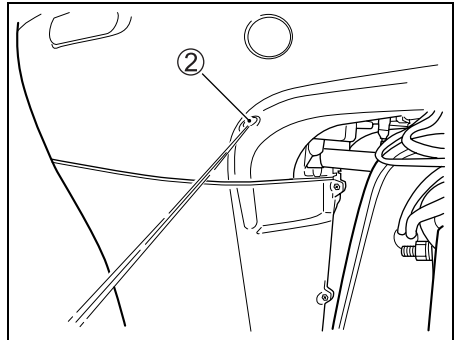
### CAUTION

Never start the motor without supplying water to the cooling system as water pump damage could result in as little as 15 seconds. Severe engine damage could result from no water supply.

1. Install the flushing attachment ① so that the water intake holes are covered by the rubber cups on the attachment.
2. Connect a garden hose to the flushing attachment and turn on the water to obtain enough flow so that plenty of excess water is flowing out from around the rubber cups on the attachment.



3. Place the remote control lever in the “NEUTRAL” position with the propeller removed and start the motor. As soon as the engine starts, water should spray out of the pilot water hole ②, indicating proper water pump operation. If no water spray is evident, stop the motor immediately and consult your dealer.

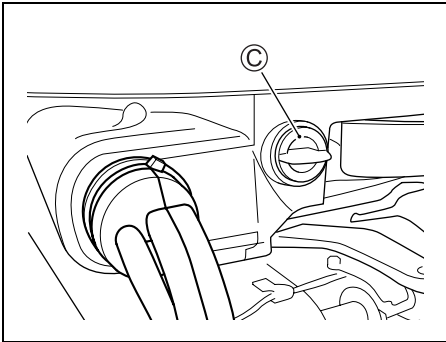
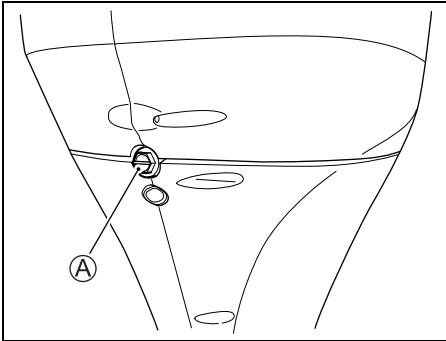


4. Allow the engine to run only at idle speed while flushing. Readjust the water flow, if necessary, so that there is still plenty of excess water flowing out from around the rubber cups.
5. Allow the water to continue circulating for a few minutes.
6. Stop the motor, then turn off the water.
7. Remove the flushing attachment from the water intake hole.

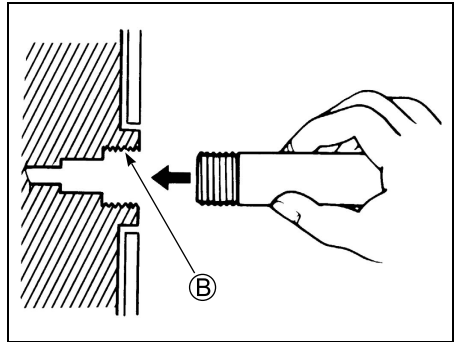
- Clean the motor surface and apply a coat of automotive wax on the external finish of the motor.

**ENGINE NOT RUNNING – Vertical position –**

- Remove one of the plug (A) or (C) from the two flushing ports.



- Install garden hose directly or by using a hose connector matched to flushing point thread (B).  
Thread (B): 0.75 – 11.5 NHR (American standard hose coupling threads for garden hose applications.)



- Turn on the water to obtain a good water flow. Flush the engine for about five minutes.
- Turn off the water.
- Remove the hose and connector (if used) then reinstall the plug into the flushing port.
- Leave the motor in a vertical position until the engine is drained completely.

**ENGINE NOT RUNNING – Full tilt up position –**

- Raise the engine to the full tilt up position.
- Follow the “ENGINE NOT RUNNING – Vertical position” instructions.  
**DO NOT RUN ENGINE IN THE FULL TILT UP POSITION.**
- Lower the motor to a vertical position until the engine is drained completely.

# SUBMERGED MOTOR

If your motor has been accidentally submerged in water, it must receive a special repair service as soon as possible to prevent corrosion. If possible, have a qualified marine dealer service the engine. If immediate servicing is not available, take the following steps to help protect your motor. In the event that your motor is accidentally submerged, take the following steps:

1. Get the motor out of the water as soon as possible.
2. Remove the engine cover and immediately wash the engine thoroughly with fresh water to completely remove all salt, mud, and seaweed.
3. Remove the spark plugs. Drain the water from the cylinders through the spark plug holes by manually turning the flywheel several times.
4. Check if any water is evident in the engine oil. If water is seen, remove the oil drain plug and drain the oil. After draining, tighten the oil drain plug.
5. Drain the fuel line and all filters.

## WARNING

**Keep flames and sparks away from gasoline. Dispose of unwanted fuel properly.**

6. Pour one tablespoon of engine oil in through each spark plug hole. Coat the engine inner parts with oil by manually turning the flywheel several times. Don't use the electric starter, as this may bend the connecting rods.

## CAUTION

**If you encounter friction or resistance while cranking the engine, stop at once and do not attempt to start the engine until it is inspected or repaired.**

7. Have your authorized Suzuki marine dealer inspect the engine as soon as possible.

## CAUTION

**If the boat's fuel tank filler and vent were also submerged, the fuel supply could be contaminated and should be inspected.**

# STORAGE PROCEDURE

## MOTOR STORAGE

When storing your motor for a long period of time (for example, at the end of the boating season), it is recommended that you take your motor to your authorized Suzuki Marine Dealer. However, if you choose to prepare the motor for storage yourself, follow the procedure outlined below:

1. Change the gear oil as outlined in the GEAR OIL section.
2. Change the engine oil as outlined in the ENGINE OIL section.
3. Fill a high quality fuel stabilizer to the fuel tank according to the instructions on the stabilizer can.
4. Flush the water passages in the motor thoroughly. Refer to the FLUSHING THE WATER PASSAGES (Engine running) section.
5. Readjust the water flow, run the engine at about 1500 r/min. in neutral for five minutes to distribute the stabilized fuel through the engine.
6. Stop the engine. Then turn off the water and disconnect the flushing attachment.

7. Lubricate all other specified parts. Refer to the LUBRICATION section. Spray entire powerhead with a rust preventative (not a penetrating oil product).
8. Apply a coat of automotive wax on the external finish of the motor. If paint damage is evident, apply touch up paint before waxing.
9. Store the motor in an upright position in a dry, well-ventilated area. Select an area with constant temperature to avoid corrosion caused by condensation. Do not store next to furnaces, heaters, etc.

**▲ WARNING**

When the engine is running, keep your hands, hair, clothing, etc., away from the engine.

**CAUTION**

Never start the motor without supplying water to the cooling system as water pump damage could result in as little as 15 seconds. Severe engine damage could result from no water supply.

## BATTERY STORAGE

1. When the outboard motor will not be used for a month or longer, remove the battery and store it in a cool, dark place. Do not set battery on concrete or earth, as this will accelerate loss of charge.
2. Wash the casing and terminals using fresh water only, then dry with clean cloth.
3. Fully charge the battery. If the battery will be stored for a long period of time, check the specific gravity of the fluid at least once a month and recharge the battery when the charge is low.

**▲ WARNING**

- Explosive vapors are produced by batteries. Do not smoke, and keep battery away from open flames and sparks. To avoid creating a spark when charging the battery, connect the battery charger cables to the proper terminals before turning the battery charger on.
- Handle the battery with extreme care; avoid skin contact with electrolyte. Wear proper protective clothing (Safety glasses, gloves, etc.)

## AFTER STORAGE

When taking your motor out of storage, follow the procedure below to return it to operating condition:

1. Thoroughly clean the spark plugs. Replace them if necessary.
2. Check the gear-case oil level and if necessary, add gear oil according to the procedure outlined in the GEAR OIL section.
3. Lubricate all moving parts according to the LUBRICATION section.
4. Check the engine oil level.
5. Clean the motor and wax the painted surfaces.
6. Recharge the battery before installing it.

## GENERAL INFORMATION

### WARRANTIES (For U.S.A)

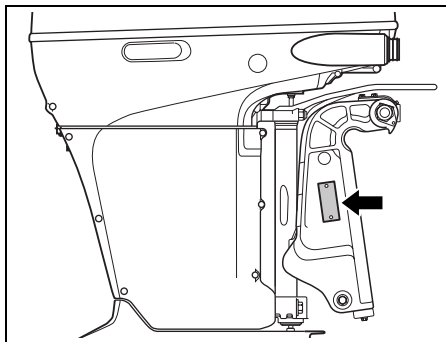
The warranties covering your outboard motor are explained in a separate Limited Warranty booklet given to you at the time of sale. Please read this booklet carefully so you can understand your rights and responsibilities.

## IDENTIFICATION NUMBER LOCATION

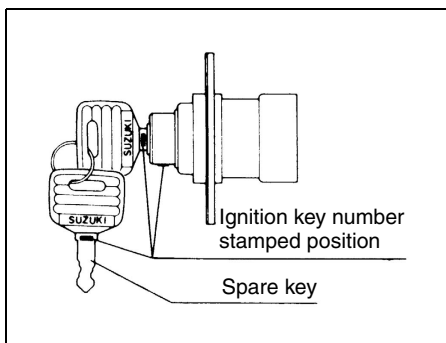
The model and identification numbers of your outboard motor are stamped on a plate attached to the clamp bracket. Record these numbers below for future reference. It is important to know these numbers when you place a parts order or if your motor is stolen.

Model Number:

Identification Number:



Ignition Key Number:



# EMISSION CONTROL INFORMATION

## NOTICE

- THIS ENGINE IS CERTIFIED TO OPERATE ON UNLEADED GASOLINE OF 87 OCTANE ((R+M)/2 METHOD) OR GREATER.
- EXHAUST EMISSION CONTROL SYSTEM:  
ECM, MFI

## TROUBLESHOOTING

This troubleshooting guide is provided to help you find the cause of common complaints.

### CAUTION

Failure to troubleshoot a problem correctly can damage your outboard motor. Improper repairs or adjustments may damage the outboard motor instead of fixing it. Such damage may not be covered under warranty.

If you are not sure about the proper action, consult your Suzuki Marine Dealer about the problem.

### Starter motor will not operate:

- Shift lever is not in NEUTRAL.
- Fuse is blown out.
- Emergency stop switch lock plate is not in position.

### Engine will not start (hard to start):

- Fuel tank is empty.
- Fuel hose is not properly connected to engine.
- Fuel hose is kinked or pinched.
- Spark plug is fouled.

### Engine idles unstably or stalls:

- Fuel hose is kinked or pinched.
- Spark plug is fouled.

### Engine speed will not increase (Engine power is low):

- Engine is overloaded.
- Caution/Diagnosis system is activated.
- Propeller is damaged.
- Propeller is not properly matched to loads.

### Engine vibrates excessively:

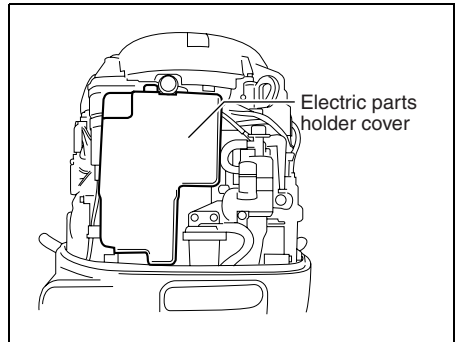
- Engine mounting bolts or clamp screws are loose.
- Foreign object (seaweed etc.) is tangled on propeller.
- Propeller is damaged.

### Engine overheats:

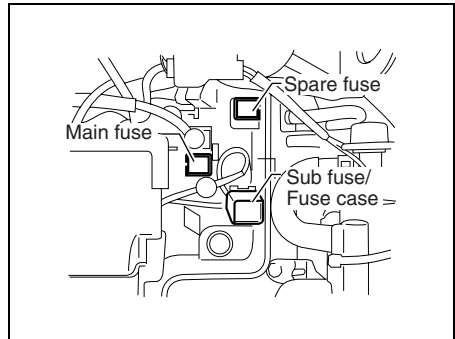
- Cooling water intake(s) are blocked.
- Engine is overloaded.
- Propeller is not properly matched to loads.

## FUSE

1. Turn the ignition key to the "off" position.
2. Remove the motor cover and electric parts holder cover.

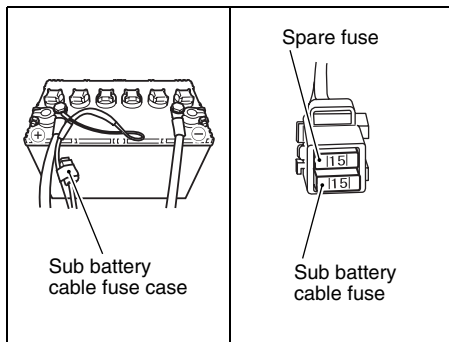


3. Remove the fuse cover and pull off the fuse.

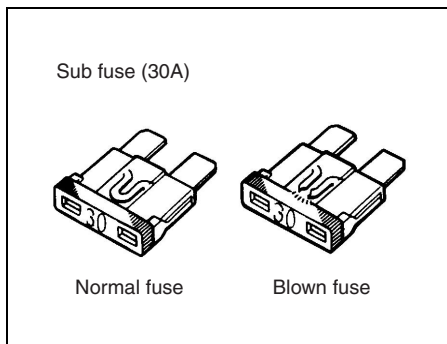
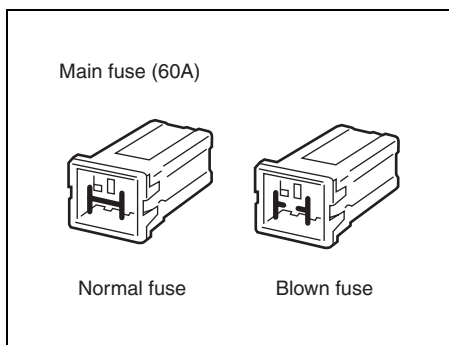




4. Remove the Sub battery cable fuse.



5. Inspect the fuse and replace with new fuse if needed.



**CAUTION**

**Always replace a blown fuse with a fuse of the same type and rating. If the new fuse blows in a short time, consult your Suzuki dealer or a qualified mechanic immediately.**

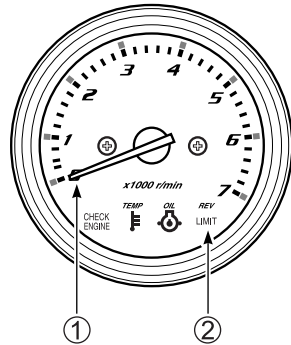
## SPECIFICATIONS

Item	DF250S
Engine Type	4 Stroke
Number of Cylinders	6
Bore and Stroke	98.0 × 89.0 mm (3.86 × 3.50 in.)
Piston Displacement	4028 cm <sup>3</sup> (245.7 cu. in.)
Maximum output	184 kW (250PS)
Full Throttle Operating Range	5300 – 6300 r/min. (min <sup>-1</sup> )
Idle speed (in Neutral)	650 ± 50 r/min. (min <sup>-1</sup> )
Ignition System	Full-transistor
Engine Lubrication	Trochoid pump pressure lubrication
Engine Oil Capacity	8.0 L (8.5/7.0 US/Imp. qt.)

Power rated in accordance with NMMA procedure.

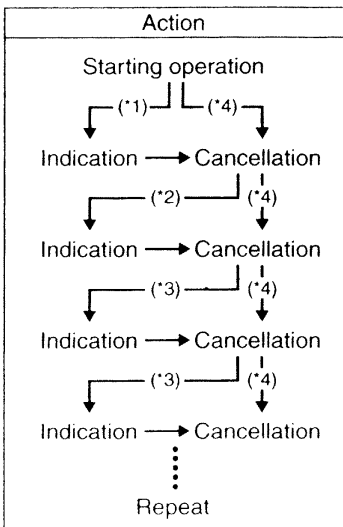
# CHART OF TOTAL OPERATING HOURS INDICATION

Total operating hours	MONITOR-TACHOMETER	
	Needle ① indication	REV-LIMIT lamp ② flashing *
0h-(49h)	No	No
50h-	500rpm	No
60h-	600rpm	No
⋮	⋮	⋮
⋮	⋮	⋮
540h-	5400rpm	No
550h-	500rpm	1 time
560h-	600rpm	1 time
⋮	⋮	⋮
⋮	⋮	⋮
1040h-	5400rpm	1 time
1050h-	500rpm	2 times
⋮	⋮	⋮
⋮	⋮	⋮
1540h-	5400rpm	2 times
1550h-	500rpm	3 times
⋮	⋮	⋮
⋮	⋮	⋮
2030h-	5300rpm	3 times
2040h or over	5400rpm	3 times



\*: One flashing is corresponded to 500 hours.

# FLOWCHART OF OIL CHANGE REMINDER SYSTEM



- \*1 : Lapse of initial 20 hour's operation
- \*2 : Lapse of 80 hour's operation
- \*3 : Lapse of 100 hour's operation
- \*4 : When performing cancellation before system activation

**NOTE:**  
This system will activate up to 2100 hour's operation.



Prepared by

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Marine Design Department

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DF250S



*K10*

**SUZUKI MOTOR CORPORATION**  
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