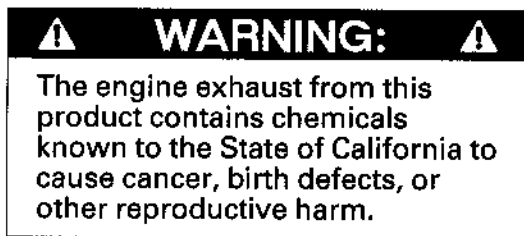


**HONDA**  
**MARINE**

BF2D  
Owner's Manual





Keep this owner's manual handy, so you can refer to it at any time. This owner's manual is considered a permanent part of the outboard motor and should remain with the outboard motor if resold.

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# INTRODUCTION

Congratulations on your selection of a Honda outboard motor. We are certain you will be pleased with your purchase of one of the finest outboard motors on the market.

We want to help you get the best results from your new outboard motor and to operate it safely. This manual contains the information on how to do that; please read it carefully.

As you read this manual you will find information preceded by a

**NOTICE** symbol. That information is intended to help you avoid damage to your outboard motor, other property, or the environment.

We suggest you read the warranty policy to fully understand its coverage and your responsibilities of ownership. The warranty policy is a separate document that should have been given to you by your dealer.

When your outboard motor needs scheduled maintenance, keep in mind that your Honda marine dealer is specially trained in servicing Honda outboard motors. Your Honda marine dealer is dedicated to your satisfaction and will be pleased to answer your questions and concerns.

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# INTRODUCTION

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## A FEW WORDS ABOUT SAFETY

Your safety and the safety of others are very important. And using this outboard motor safely is an important responsibility.




To help you make informed decisions about safety, we have provided operating procedures and other information on labels and in this manual. This information alerts you to potential hazards that could hurt you or others.

Of course, it is not practical or possible to warn you about all the hazards associated with operating or maintaining an outboard motor. You must use your own good judgment.

You will find important safety information in a variety of forms, including:

- **Safety Labels** — on the outboard motor.
- **Safety Messages** — preceded by a safety alert symbol  and one of three signal words, DANGER, WARNING, or CAUTION.

These signal words mean:

-  You **WILL** be **KILLED** or **SERIOUSLY HURT** if you don't follow instructions.
-  You **CAN** be **KILLED** or **SERIOUSLY HURT** if you don't follow instructions.
-  You **CAN** be **HURT** if you don't follow instructions.

- **Safety Headings** — such as *IMPORTANT SAFETY INFORMATION*.
- **Safety Section** — such as *OUTBOARD MOTOR SAFETY*.
- **Instructions** — how to use this outboard motor correctly and safely.

This entire book is filled with important safety information — please read it carefully.

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# OUTBOARD MOTOR SAFETY

## IMPORTANT SAFETY INFORMATION

Honda BF2D outboard motor is designed for use with boats that have a suitable manufacturer's power recommendation. Other uses can result in injury to the operator or damage to the outboard motor and other property.

Most accidents can be prevented if you follow all instructions in this manual and on the outboard motor. The most common hazards are discussed below, along with the best way to protect yourself and others.

## Operator Responsibility

- It is the operator's responsibility to provide the necessary safeguards to protect people and property. Know how to stop the engine quickly in case of emergency. Understand the use of all controls.
- Stop the engine immediately if anyone falls overboard, and do not run the engine while the boat is near anyone in the water.
- Always stop the engine if you must leave the controls for any reason.

- Attach the emergency stop switch lanyard securely to the operator.
- Always wear a PFD (Personal Flotation Device) while on the boat.
- Familiarize yourself with all laws and regulations relating to boating and the use of outboard motors.
- Be sure that anyone who operates the outboard motor receives proper instruction.
- Be sure the outboard motor is properly mounted on the boat.
- Do not remove the engine cover while the engine is running.



### Refuel With Care

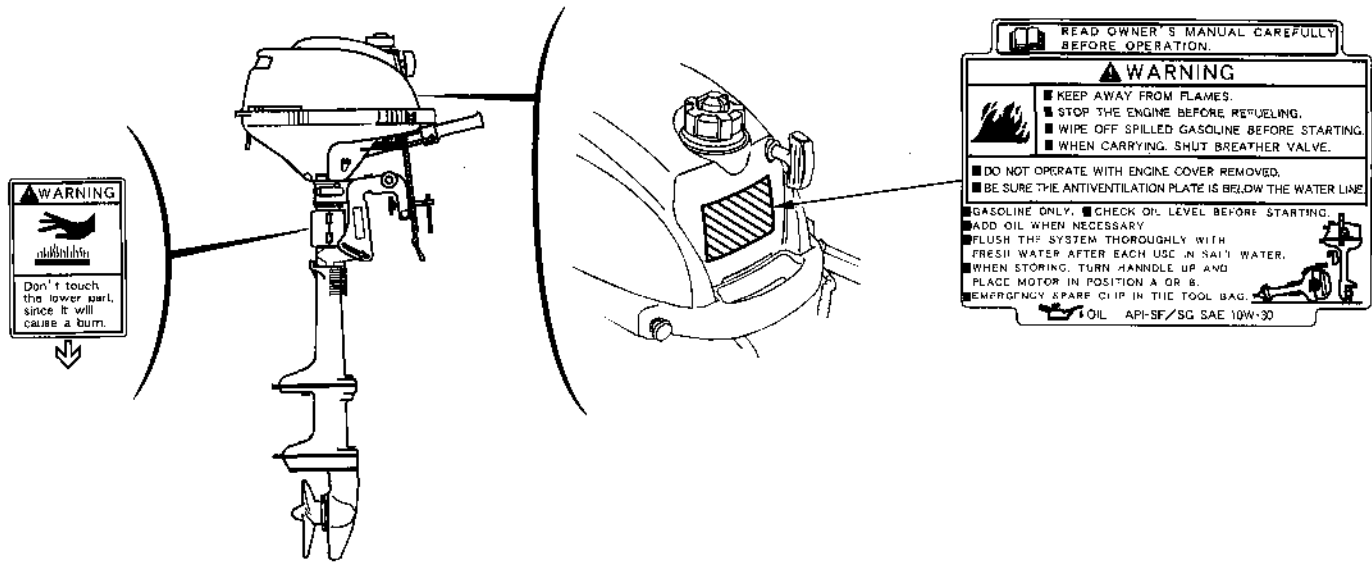
- Gasoline is extremely flammable, and gasoline vapor can explode. Refuel outdoors, in a well-ventilated area, with the engine stopped. Never smoke near gasoline, and keep other flames and sparks away.
- Refuel carefully to avoid spilling fuel. Avoid overfilling the fuel tank.
- After refueling, tighten the filler cap securely. If any fuel is spilled, make sure the area is dry before starting the engine.

### Carbon Monoxide Hazard

Exhaust gas contains poisonous carbon monoxide. Avoid inhalation of exhaust gas. Never run the engine in a closed garage or confined area.

# OUTBOARD MOTOR SAFETY

## SAFETY LABEL LOCATIONS



The labels shown here contain important safety information. Please read them carefully. These labels are considered permanent parts of your outboard motor. If a label comes off or becomes hard to read, contact an authorized Honda Marine servicing dealer for a replacement.

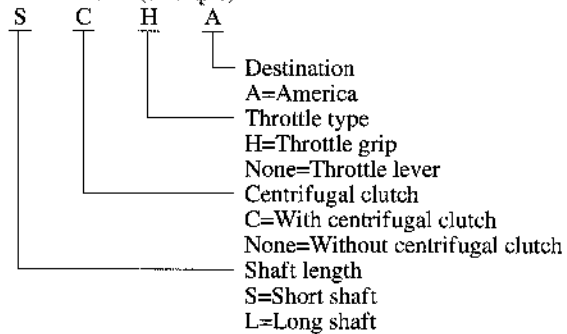
# CONTROLS AND FEATURES

## CONTROL AND FEATURE IDENTIFICATION CODES

Model		BF2D			
Type		SA	SHA	SCHA	LCHA
Shaft Length	S	•	•	•	
	L				•
Throttle Lever		•			
Throttle Grip			•	•	•
Centrifugal Clutch				•	•

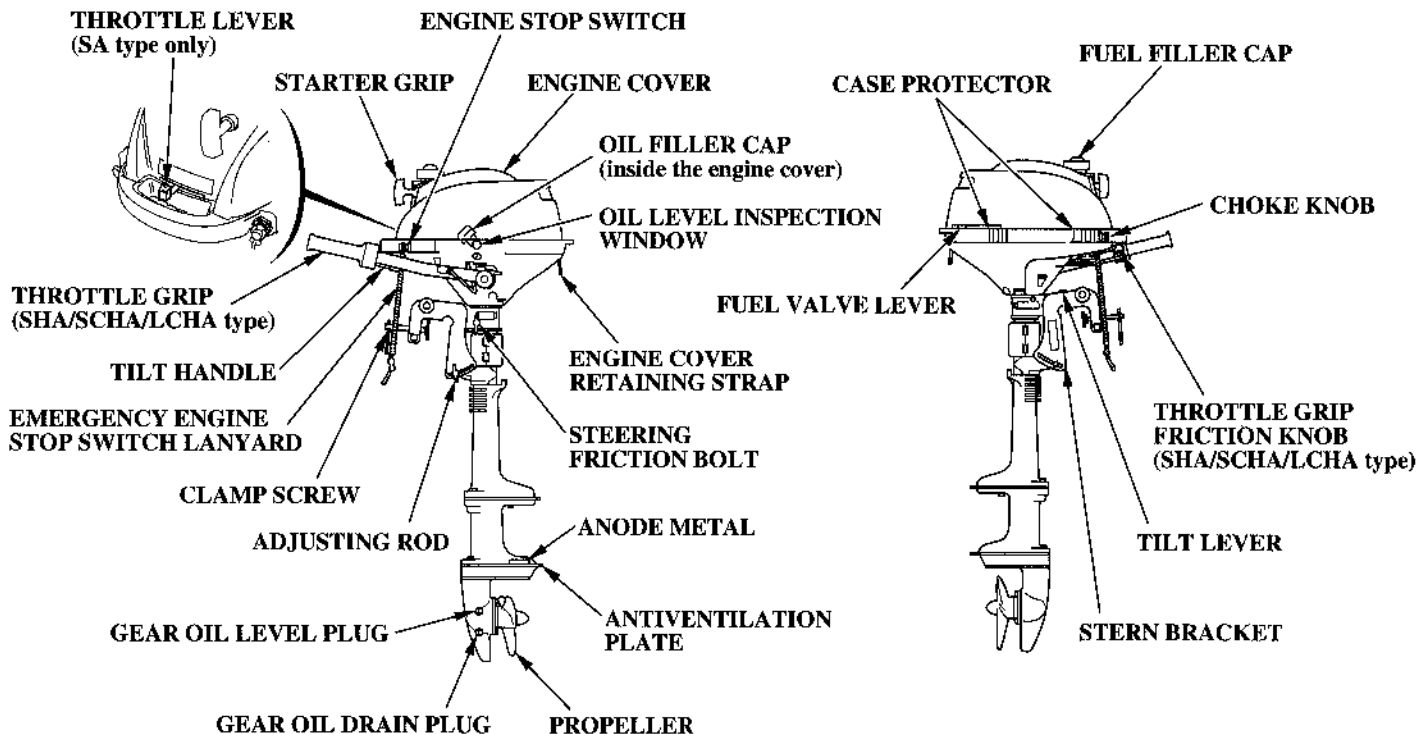
Refer to this chart for an explanation of the Type Codes used in this manual to identify control and feature applications.

TYPE CODE(example)



# CONTROLS AND FEATURES

## COMPONENT AND CONTROL LOCATIONS

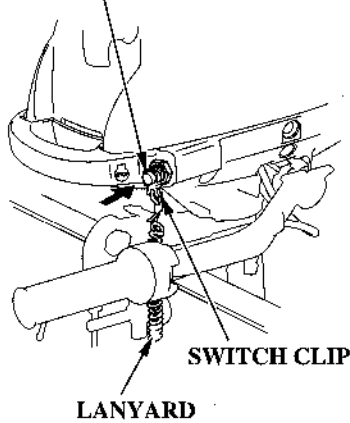


LCHA type is shown

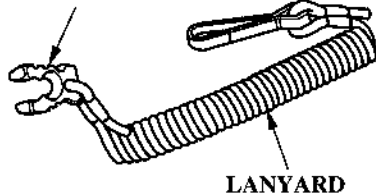
## CONTROLS

### Engine Stop Switch and Switch Clip

ENGINE STOP SWITCH



SWITCH CLIP



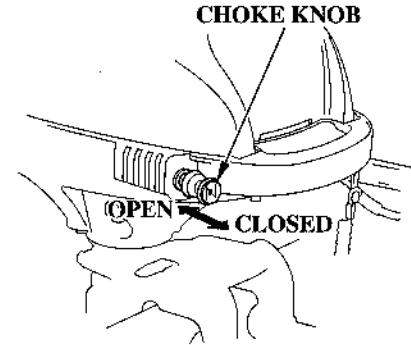
The engine stop switch has controls for normal engine stopping and emergency engine stopping.

The switch clip must be inserted in the engine stop switch in order for the engine to start and run. The lanyard should be attached to the operator's PFD (Personal Flotation Device) or worn around the wrist as shown.

When used as described, the engine stop switch and lanyard system stops the engine if the operator falls away from the controls.

A spare switch clip is supplied with the tool kit.

### Choke Knob



The choke knob opens and closes the choke valves in the carburetor.

The **CLOSED** position enriches the fuel mixture for starting a cold engine.

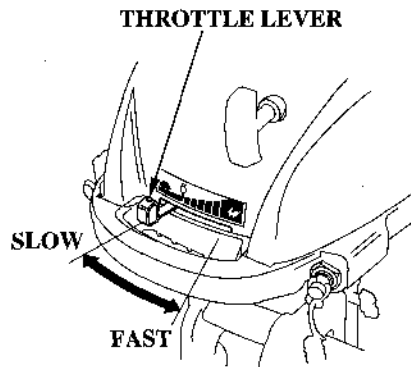
The **OPEN** position provides the correct fuel mixture for operation after starting, and for restarting a warm engine.

## CONTROLS AND FEATURES

### Throttle Lever (SA type only)

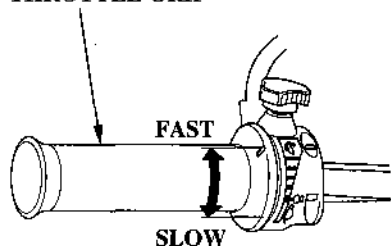
The throttle lever controls engine speed.

An index mark on the engine cover shows throttle position and is helpful for setting the throttle correctly when starting (p. 24 ).



### Throttle Grip (SHA/SCHA/LCHA type)

THROTTLE GRIP

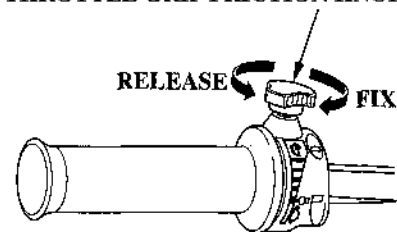


The throttle grip controls engine speed.

An index mark on the tiller arm shows throttle position and is helpful for setting the throttle correctly when starting (p. 24 ).

### Throttle Friction Knob (SHA/SCHA/LCHA type)

THROTTLE GRIP FRICTION KNOB

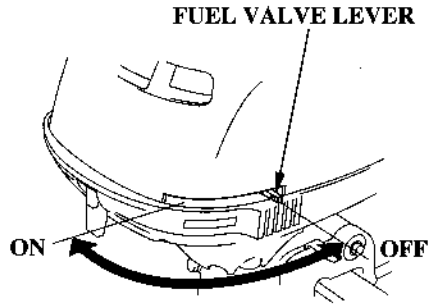


The throttle friction knob adjusts resistance to throttle grip rotation.

Turn the knob clockwise to increase friction for holding a throttle setting while cruising.

Turn the knob counterclockwise to decrease friction for easy throttle grip rotation.

### Fuel Valve Lever

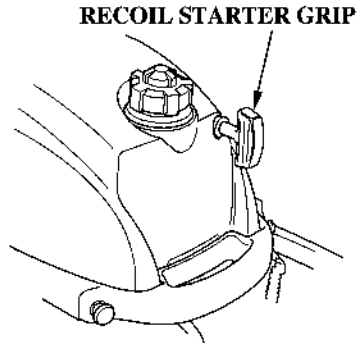


The fuel valve opens and closes the connection between the fuel tank and the carburetor.

The fuel valve lever must be in the ON position for the engine to run.

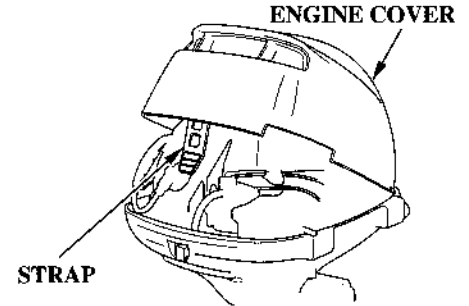
When the engine is not in use, leave the fuel valve lever in the OFF position to prevent carburetor flooding and to reduce the possibility of fuel leakage.

### Recoil Starter Grip



Pull the starter grip to operate the recoil starter for starting the engine.

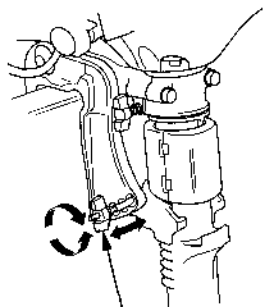
### Engine Cover Retaining Strap



Use the retaining strap to hold the engine cover closed. Do not remove the engine cover while the engine is running.

## CONTROLS AND FEATURES

### Transom Angle Adjusting Bolt



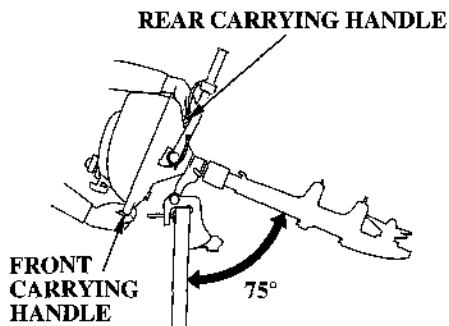
ADJUSTING BOLT AND WING NUT

The transom angle adjusting bolt is used to adjust the angle of the outboard motor in the normal operating position (see page 22 ).

Loosen the wing nut to free the adjusting bolt.

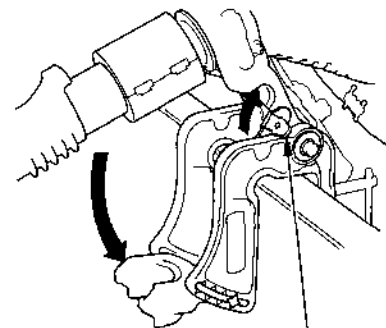
Adjust the angle of the outboard motor, and tighten the wing nut. Be sure that the bolt head and wing nut are seated in one of the four recesses in the adjustment slot.

### Tilt Lever



The tilt lever enables the outboard motor to be tilted for shallow water operation, beaching, launching, or mooring.

Tilt the outboard motor by holding the carrying handles, as shown. The spring-loaded tilt lever will automatically move into position and hold the outboard motor when it reaches approximately 75°.

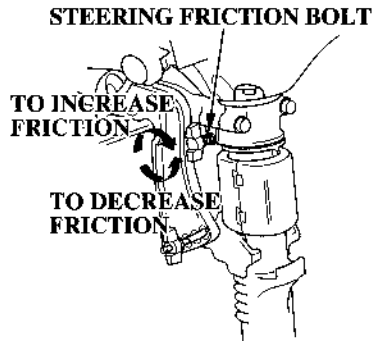


TILT LEVER

To return the outboard motor to the normal running position, hold the outboard motor and pull the tilt lever, then slowly lower the outboard motor.



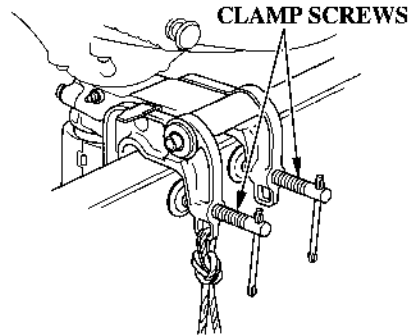
## Steering Friction Bolt



The steering friction bolt adjusts steering resistance.

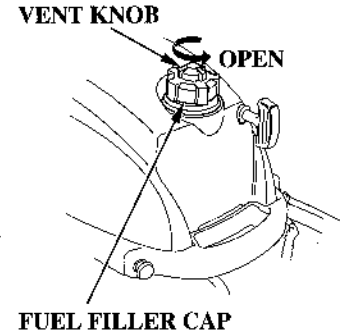
Less friction allows the outboard motor to turn more easily. More friction helps to hold steady course while cruising or to prevent the outboard motor from swinging while trailering the boat.

## Clamp Screws



Use the clamp screws to secure the outboard motor to the transom.

## Fuel Cap Vent Knob



The cap is provided with a vent knob to seal the fuel tank. Open the vent knob 2 or 3 turns before starting the engine (p. 23).

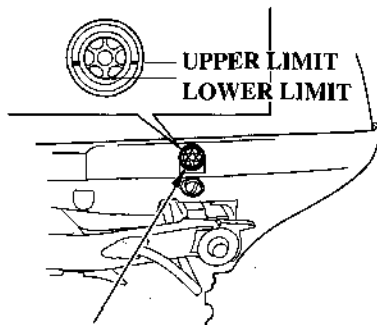
# CONTROLS AND FEATURES

## OTHER FEATURES

### Centrifugal Clutch (SCHA/ LCHA type)

The centrifugal clutch automatically engages and transmits power when engine speed is increased above approximately 2,700 rpm. At idle speed, the clutch is disengaged.

### Oil Level Inspection Window



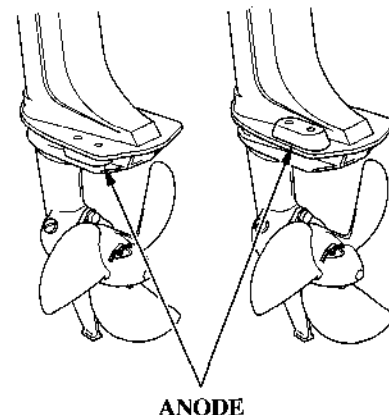
### OIL LEVEL INSPECTION WINDOW

Use the oil level inspection window to check the engine oil level with the engine stopped and the outboard motor in the upright position.

### Anode

#### Short shaft type

#### Long shaft type



The anode is made of a sacrificial material that helps to protect the outboard motor from corrosion.

# INSTALLATION

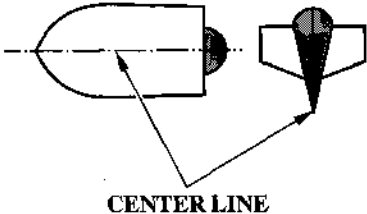
Correct and secure installation is essential for safe boating and good performance. Follow the installation instructions provided in this manual.

## POWER REQUIREMENTS

Before installation, check to be sure that the outboard motor does not exceed the recommended maximum horsepower for the boat on which it is to be installed. Refer to the boat's certification plate for recommended maximum horsepower. If the certification plate information is not available, contact the boat dealer or manufacturer.

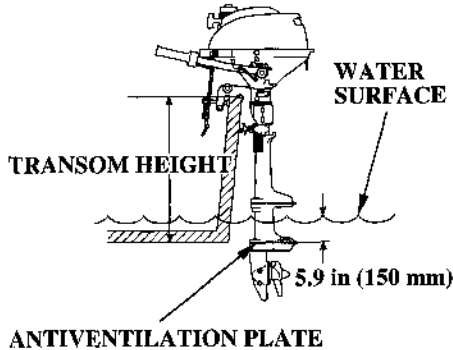
For most applications, the outboard motor should have a horsepower rating which provides 80% of the maximum recommended horsepower for the boat.

## INSTALLATION POSITION



Install the outboard motor on the center of the boat transom.

The antiventilation plate of the outboard motor should be 0 – 2.0 inches below the bottom of the boat. With the boat in the water and loaded, the antiventilation plate should be about 5.9 inches below the surface of the water.



Type:	Transom Height
S:	16.5 in (418 mm)
L:	22.5 in (571 mm)

## INSTALLATION

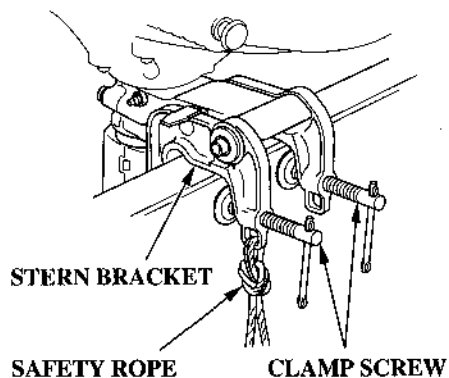
If the outboard motor is installed too low, the boat will squat and be hard to plane, it will tend to porpoise, and high-speed stability will be reduced.

If the outboard motor is installed too high, that will cause ventilation.

Optimum installation height varies with boat type and bottom shape. Contact the boat manufacturer for any special recommendations that are unique to a specific model of boat.

If the transom needs to be modified to accommodate the outboard motor, contact the boat manufacturer and follow their recommendations for corrective action.

### ATTACHMENT



Attach the stern bracket to the boat transom by tightening the clamp screws.

Attach a rope from the boat to the hole in the stern bracket. This will help to prevent accidental loss of the outboard motor.

### **TRANSOM ANGLE ADJUSTMENT**

Use the transom angle adjustment bolt (p. 22 ) to adjust the angle of the outboard motor so the propeller is perpendicular to the surface of the water.

# BEFORE OPERATION

## ARE YOU READY TO GET UNDER WAY ?

Your safety is your responsibility. A little time spent in preparation will significantly reduce your risk of injury.

### Knowledge

Read and understand this manual. Know what the controls do and how to operate them.

Familiarize yourself with the outboard motor and its operation before you get under way. Know what to do in case of emergencies.

Familiarize yourself with all laws and regulations relating to boating and the use of outboard motors.

### Safety

Always wear a PFD (Personal Flotation Device) while on the boat.

Attach the emergency stop switch lanyard securely to your PFD or to your wrist.

## IS YOUR OUTBOARD MOTOR READY TO GO ?

For your safety, and to maximize the service life of your equipment, it is very important to take a few moments before you operate the outboard motor to check its condition. Be sure to take care of any problem you find, or have your authorized Honda Marine dealer correct it, before you operate the outboard motor.

### WARNING

Improperly maintaining this outboard motor, or failing to correct a problem before operation, could cause a malfunction in which you could be seriously injured.

Always perform a preoperation inspection before each operation, and correct any problem.

### Safety Inspection

- Look around the outboard motor for signs of oil or gasoline leaks.
- Wipe up any spills before starting the engine.
- Check the stern bracket to be sure the outboard motor is securely installed.
- Check that all controls are operating properly.
- Replace any damaged parts.
- Check that all fasteners are in place and securely tightened.

### Maintenance Inspection

- Check the engine oil level (p. 41). Running the engine with a low oil level can cause engine damage.
- Check to be sure the propeller is undamaged (p. 52).
- Check that the anode is securely attached to the antiventilation plate (p. 51) and is not excessively worn. The anode helps to protect the outboard motor from corrosion.
- Make sure the tool kit and emergency starter rope are onboard (p. 38). Replace any missing items.
- Check the fuel level in the fuel tank (p. 49).

# OPERATION

## SAFE OPERATING PRECAUTIONS

To safely realize the full potential of this outboard motor, you need a complete understanding of its operation and a certain amount of practice with its controls.

Before operating the outboard motor for the first time, please review the *IMPORTANT SAFETY INFORMATION* on page 7 and the chapter titled *BEFORE OPERATION*.

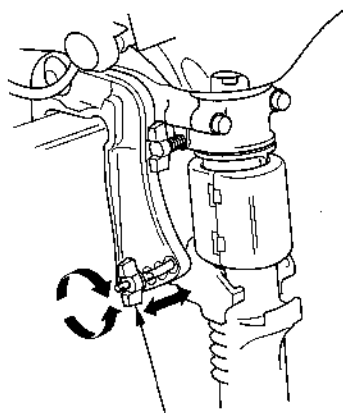
For your safety, avoid starting or operating the engine in an enclosed area. Your engine's exhaust contains poisonous carbon monoxide gas which can collect rapidly in an enclosed area and cause illness or death.

## BREAK-IN PROCEDURE

Proper break-in procedure allows the moving parts to wear in smoothly for best performance and long service life.

For the first 10 hours, run the outboard motor at low speed, and avoid full-throttle operation.

## TRANSOM ANGLE ADJUSTMENT



ADJUSTING BOLT AND WING NUT

The transom angle adjusting bolt is used to adjust the angle of the outboard motor in the normal operating position (p. 33).

To adjust, first tilt the outboard motor so it is not resting on the bolt.

There are four adjustment positions.

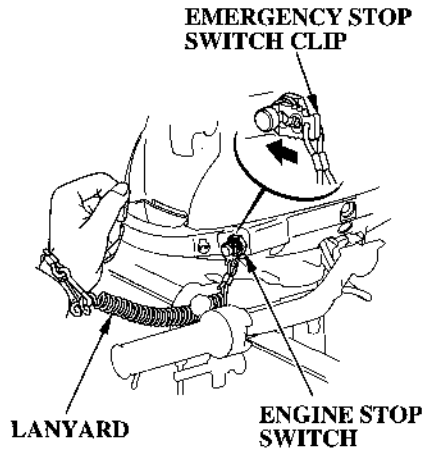
1. Loosen the wing nut to free the adjusting bolt.
2. Adjust the angle of the motor, and tighten the wing nut. Be sure that the bolt head and wing nut are seated in one of the four adjustment positions.

### NOTICE

*To prevent damage to the motor or boat, make sure the transom angle adjusting bolt is locked.*



## STARTING THE ENGINE

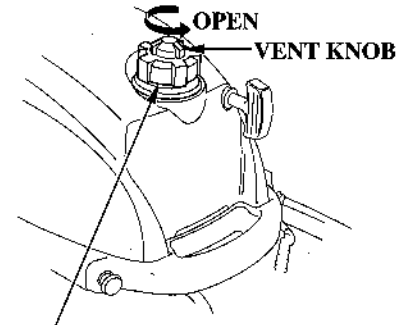


1. Put the emergency stop switch clip in the engine stop switch, and attach the lanyard to your PFD (Personal Flotation Device) or to your wrist, as shown.

The engine will not start or run, unless the clip is in the switch.

The emergency stop switch clip and lanyard system is a safety device that will stop the engine if you fall away from the controls while operating the boat.

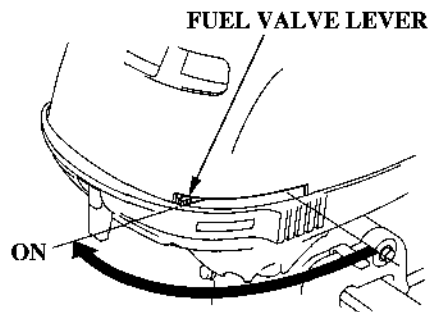
Always attach the lanyard to your PFD, or to your wrist, before starting the engine.



**FUEL FILLER CAP**

2. Open the fuel tank vent by turning the vent knob at least 2 or 3 turns counterclockwise.

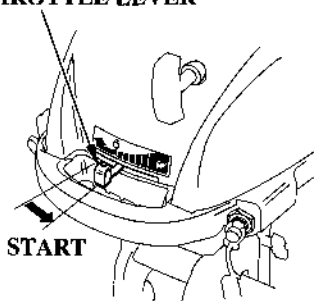
# OPERATION



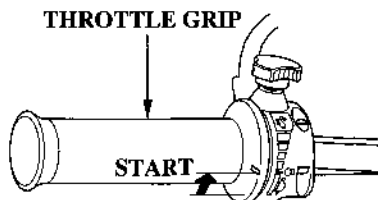
3. Move the fuel valve lever to the ON position.

## THROTTLE LEVER type: SA

### THROTTLE LEVER



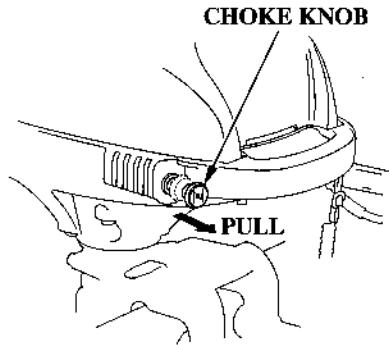
## THROTTLE GRIP type: SHA, SCHA, LCHA



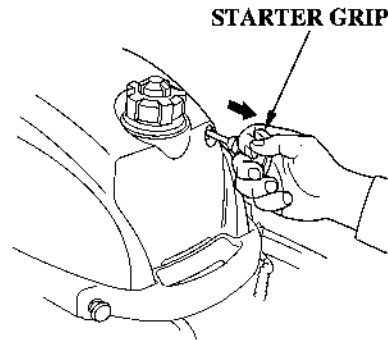
4. Move the throttle lever or the throttle grip to the START position.

### NOTICE

*Do not start the engine with the throttle lever or the throttle grip in the FAST position, or the boat will move suddenly when the engine starts.*



5. To start a cold engine, pull the choke knob to the **CLOSED** position. To restart a warm engine, leave the choke knob in the **OPEN** position.



6. Pull the recoil starter grip slowly until you feel resistance, then pull briskly.

Return the starter grip gently.

7. If the choke knob was pulled to the **CLOSED** position to start the engine, gradually push it to the **OPEN** position as the engine warms up.

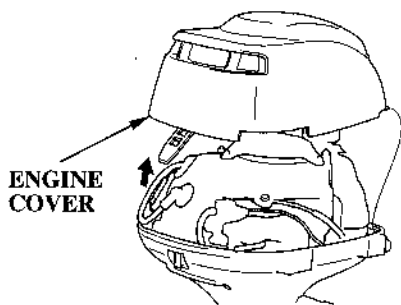
Also, as the engine warms up, the throttle lever or the throttle grip can be turned to the **SLOW** position without stalling.

8. Before getting under way, allow the engine to warm up sufficiently to ensure good performance.

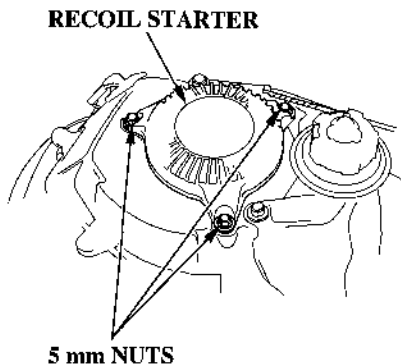
# OPERATION

## EMERGENCY STARTING

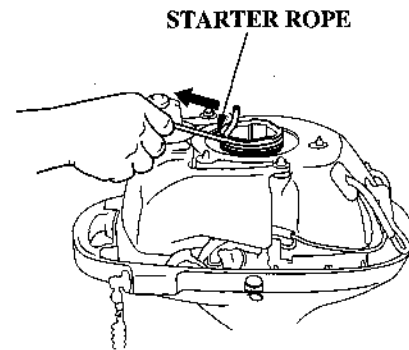
If the recoil starter is not working properly, you can start the engine manually using the emergency starter rope supplied with the tool kit.



1. Remove the engine cover.



2. Remove the recoil starter by removing the three 5 mm nuts.
3. Set the controls the same as for normal starting (see pages 23 – 25 ). Use the choke control if needed.



4. Set the knotted end of the emergency starter rope in the notch in the flywheel. Wind the rope clockwise around the flywheel, as shown.

5. Pull the emergency starter rope slowly until resistance is felt, then pull briskly.

Keep away from moving parts while pulling the rope.

If necessary, rewind the rope and pull again. If the engine does not start after several attempts, refer to *TAKING CARE OF UNEXPECTED PROBLEMS*, p. 78 .

6. If the choke was used to start the engine, return the knob to the normal operating position as the engine warms up.
7. Leave the recoil starter assembly off, but install the engine cover (p. 13 ).

### **▲ WARNING**

Exposed moving parts can cause injury.

- Do not operate the outboard motor without the engine cover.
- Use extreme care when installing the engine cover.

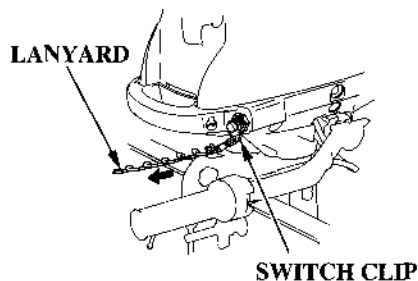
8. If it was necessary to remove the emergency stop switch lanyard from your wrist to perform the emergency starting procedure, be sure the lanyard is attached to your wrist before operating the outboard motor.
9. Have your closest authorized Honda marine dealer check your recoil starter system and correct the problem, so you can use the recoil starter.

The recoil starter assembly (p. 26 ) should be reinstalled after the recoil starter is working again. Install the recoil starter assembly with the engine stopped.

# OPERATION

## STOPPING THE ENGINE

### Emergency Engine Stopping

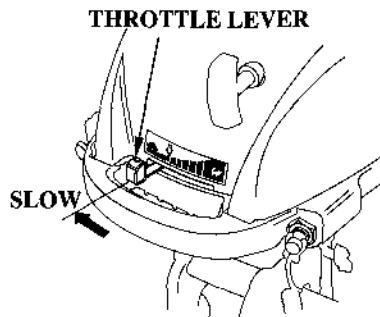


To stop the engine in an emergency, pull the clip out of the engine stop switch by pulling the lanyard.

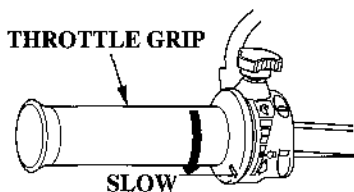
We suggest that you stop the engine this way occasionally to verify that the engine or emergency stop switch is operating properly.

### Normal Engine Stopping

#### THROTTLE LEVER type: SA

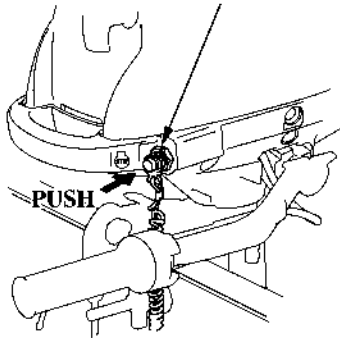


#### THROTTLE GRIP type: SHA, SCHA, LCHA



1. Move the throttle lever or the throttle grip to the SLOW position.

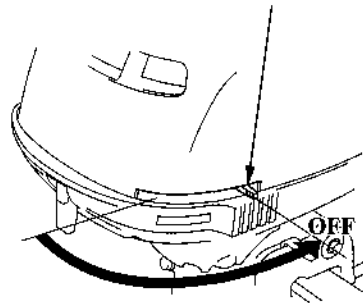
**ENGINE STOP SWITCH**



2. Push the engine stop switch button until the engine stops.

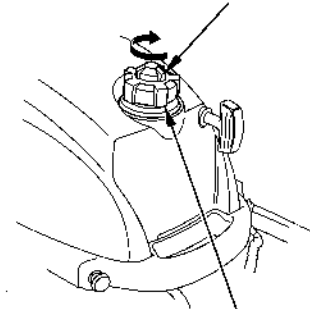
In the event that the engine does not stop when you push the engine stop switch, pull the emergency engine stop switch lanyard. If the engine continues to run, move the fuel valve lever to the OFF position and pull the choke knob to stop the engine.

**FUEL VALVE LEVER**



3. Move the fuel valve lever to the OFF position.

**FUEL CAP VENT KNOB**



**FUEL FILLER CAP**

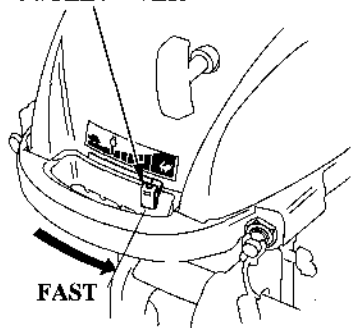
4. Close the fuel tank vent by turning vent knob clockwise.

# OPERATION

## THROTTLE OPERATION

**THROTTLE LEVER** type: SA

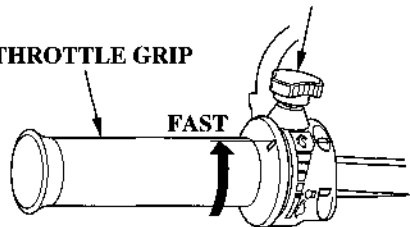
**THROTTLE LEVER**



**THROTTLE GRIP** type: SHA, SCHA, LCHA

**THROTTLE FRICTION KNOB**

**THROTTLE GRIP**



Use the throttle friction knob to help hold a constant throttle setting while cruising.

Turn the knob clockwise to increase throttle grip friction for holding a constant speed.

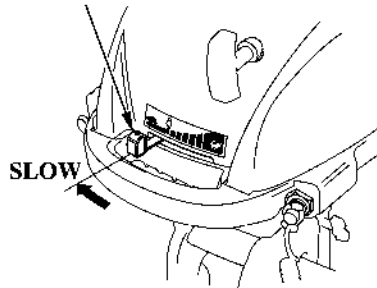
Turn the knob counterclockwise to decrease friction for easy grip rotation.



## REVERSING THE OUTBOARD MOTOR

**THROTTLE LEVER** type: SA

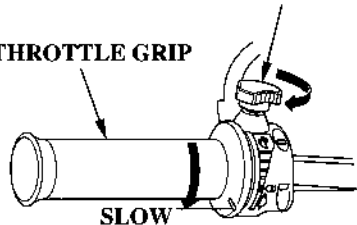
**THROTTLE LEVER**



**THROTTLE GRIP** type: SHA, SCHA, LCHA

**THROTTLE GRIP FRICTION KNOB**

**THROTTLE GRIP**

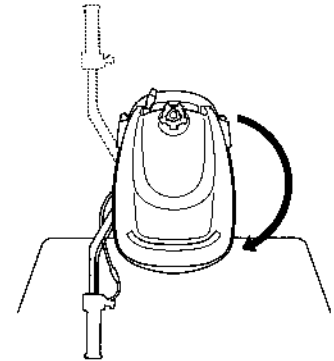


1. For the throttle lever type: Move the throttle lever to the SLOW position.

For the throttle grip type: Move the throttle grip to the SLOW position and hold it there by turning the throttle grip friction knob clockwise.

### NOTICE

*Before rotating the outboard motor (from either forward to reverse or from reverse to forward) reduce the engine speed to SLOW, or the boat could capsize.*



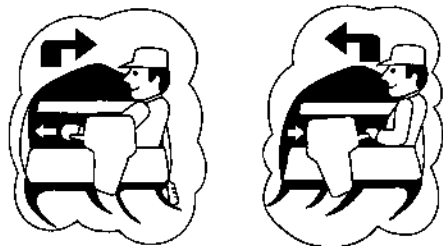
2. To reverse direction, turn the outboard motor 180°, and then pivot the tiller handle as shown. For the throttle grip type, be careful not to hold and move the throttle grip when pivoting the tiller handle.

### NOTICE

*When operating in reverse, proceed with caution to avoid hitting any underwater obstructions with the propeller.*

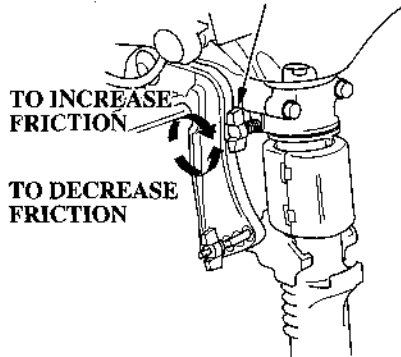
# OPERATION

## STEERING



Steer by moving the tiller handle opposite the direction you want the boat to turn.

### STEERING FRICTION BOLT



Use the steering friction bolt to help hold a steady course while cruising.

Turn the bolt clockwise to increase steering friction for holding a steady course.

Turn the bolt counterclockwise to decrease friction for easy turning.

### CRUISING

#### Engine Speed

For best fuel economy, limit the throttle opening to 80%. Use the throttle friction control (p. 45) to help you hold a steady speed.

For rough water conditions or large waves, slow down to prevent the propeller from rising out of the water.

The engine is equipped with an overrev limiter to prevent the possibility of mechanical damage from excessive engine speed.

If, for example, the outboard motor is tilted excessively, or ventilation occurs during a sharp turn, the engine may overrev, activating the overrev limiter.

If engine speed becomes unstable at high speed due to activation of the overrev limiter, reduce speed and check the trim angle of the outboard motor.

#### Trim

Install the outboard motor at the best trim angle for stable cruising and maximum power.

Trim angle too large: Incorrect causes boat to "squat".

Trim angle too small: Incorrect causes boat to "plow".

It is necessary to trim the angle of the outboard motor to compensate for changes in boat load, weight distribution, water conditions, or propeller selection.

Under normal conditions, the boat will perform best when the antiventilation plate is level with the water.

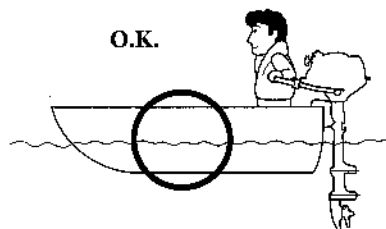
When cruising into a high wind, trim the outboard motor down slightly to level the boat and improve stability. With a tail wind, trim the outboard motor up slightly.

## OPERATION

### NOTICE

*Excessive trim/tilt angle during operation can cause propeller ventilation, overheating, and water pump damage.*

#### Motor Angle (Cruising)

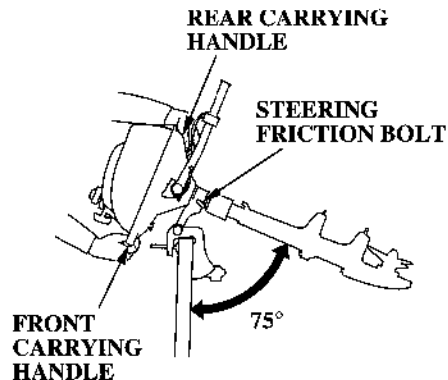


**CORRECT  
GIVES MAXIMUM PERFORMANCE**

### MOORING, BEACHING, LAUNCHING

To raise the outboard motor out of the water while the boat is moored, or for maximum clearance when beaching or launching, tilt the outboard motor to the 75° position.

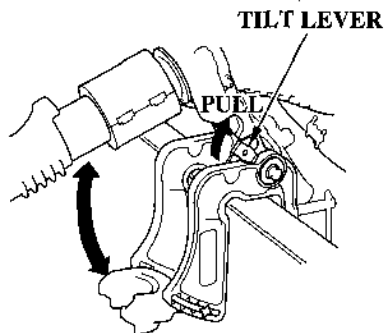
Stop the engine before tilting the outboard motor. The 75° position is not an operating position.



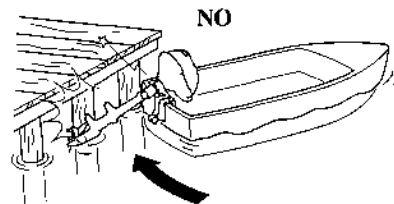
1. Stop the engine and turn the fuel valve lever off.
2. Close the fuel tank vent by turning the vent knob clockwise.
3. With the motor in the forward position, tilt the outboard motor using the front and rear carrying handles on the engine cover. The spring-loaded tilt lever will automatically move into position and hold the outboard motor when it reaches approximately 75°.
4. Adjust the steering friction bolt to keep the motor from moving.

### NOTICE

- Do not use the tiller handle as a lever to raise the outboard motor. Applying excessive force to the tiller handle can damage it.
- If the motor is tilted in the reverse position, crankcase oil will enter the cylinder and may cause difficult starting or may prevent the engine from being cranked.



5. To return the outboard motor to the normal running position, hold the outboard motor by the front carrying handle on the engine case and pull the tilt level toward you, then lower the outboard motor slowly.



### NOTICE

To avoid damaging the motor, be very careful when mooring a boat, especially when its motor is tilted up. Don't allow the motor to strike against the pier or other boats.

# SERVICING YOUR OUTBOARD MOTOR

## THE IMPORTANCE OF MAINTENANCE

Good maintenance is essential for safe, economical, and trouble-free operation. It will also help reduce air pollution.

### **▲ WARNING**

Improperly maintaining this outboard motor, or failure to correct a problem before operation, can cause a malfunction in which you could be seriously hurt or killed.

Always follow the inspection and maintenance recommendations and schedules in this owner's manual.

To help you properly care for your outboard motor, the following pages include a maintenance schedule, routine inspection procedures, and simple maintenance procedures using basic hand tools. Other service tasks that are more difficult, or require special tools, are best handled by professionals and are normally performed by a Honda technician or other qualified mechanic.

The maintenance schedule applies to normal operating conditions. If you operate your outboard motor under unusual conditions, consult an authorized Honda marine dealer for recommendations applicable to your individual needs and use.

Remember that your authorized Honda marine dealer knows your outboard motor best and is fully equipped to maintain and repair it.

To ensure the best quality and reliability, use only new, genuine Honda parts or their equivalents for repair and replacement.

**Maintenance, replacement, or repair of the emission control devices and systems may be performed by any marine engine repair establishment or individual, using parts that are "certified" to EPA standards.**

## MAINTENANCE SAFETY

Some of the most important safety precautions follow. However, we cannot warn you of every conceivable hazard that can arise in performing maintenance. Only you can decide whether or not you should perform a given task.

### **▲ WARNING**

Failure to properly follow maintenance instructions and precautions can cause you to be seriously hurt or killed.

Always follow the procedures and precautions in the owner's manual.

## Safety Precautions

- Make sure the engine is off before you begin any maintenance or repairs. This will eliminate several potential hazards:
  - **Carbon monoxide poisoning from engine exhaust.**  
Be sure there is adequate ventilation whenever you operate the engine.
  - **Burns from hot parts.**  
Let the engine and exhaust system cool before touching.
  - **Injury from moving parts.**  
Do not run the engine unless instructed to do so.
- Read the instructions before you begin, and make sure you have the tools and skills required.
- To reduce the possibility of fire or explosion, be careful when working around gasoline. Use only a nonflammable solvent, not gasoline, to clean parts. Keep cigarettes, sparks, and flames away from all fuel-related parts.
- Wear gloves when handling the propeller to protect your hands from sharp edges.

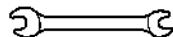
# SERVICING YOUR OUTBOARD MOTOR

## TOOL KIT AND EMERGENCY STARTER ROPE



EMERGENCY STARTER ROPE

The following tools are supplied with the outboard motor for simple maintenance procedures and emergency repairs. An emergency starter rope is also supplied. Keep these items on the boat, so they will always be available if you need them.



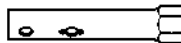
8 × 10 mm WRENCH



FLAT/PHILLIPS  
SCREWDRIVER



EMERGENCY STOP  
SWITCH CLIP



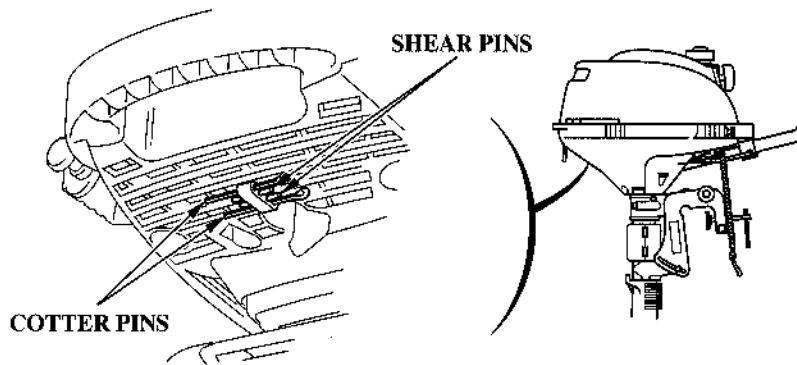
SOCKET WRENCH



PLIERS



TOOL BAG





# SERVICING YOUR OUTBOARD MOTOR

## MAINTENANCE SCHEDULE

REGULAR SERVICE PERIOD (3) Perform at every indicated month or operating hour interval, whichever comes first.		Each use	First month or 10 hrs.	Every 6 months or 50 hrs.	Every year or 150 hrs.
ITEM					
• Engine oil	Check level	<input type="radio"/>			
	Change		<input type="radio"/>	<input type="radio"/>	
Gear case oil	Change		<input type="radio"/>	<input type="radio"/>	
Starter rope	Check			<input type="radio"/>	
Carburetor linkage	Check-adjust		<input type="radio"/> (2)	<input type="radio"/> (2)	
• Valve clearance	Check-adjust				<input type="radio"/> (2)
• Spark plug	Check-adjust			<input type="radio"/>	
	Replace		Every 200 hrs.		
Propeller and Cotter pin	Check	<input type="radio"/>			
Anode	Check	<input type="radio"/>			
Idling speed	Check-adjust		<input type="radio"/> (2)	<input type="radio"/> (2)	
• Clutch shoes and drum (With clutch type)	Replace				<input type="radio"/> (2)

• Emission related items.

- (1) Lubricate more frequently when used in salt water.
- (2) These items should be serviced by an authorized Honda marine dealer, unless you have the proper tools and are mechanically proficient. Refer to the Honda shop manual for service procedures.
- (3) For professional commercial use, log hours of operation to determine proper maintenance intervals.

# SERVICING YOUR OUTBOARD MOTOR

REGULAR SERVICE PERIOD (3) Perform at every indicated month or operating hour interval, whichever comes first. ITEM		Each use	First month or 10 hrs.	Every 6 months or 50 hrs.	Every year or 150 hrs.
	Swivel case lining and bush	Replace	Every 3 years (2)		
	Water sealing	Replace	Every 3 years (2)		
•	Fuel line	Check	<input type="radio"/>		
			Every 2 years (If necessary) (2)		
	Bolts and nuts	Check-tightness	<input type="radio"/> (2)		<input type="radio"/> (2)
	Lubrication	Grease	<input type="radio"/> (1)	<input type="radio"/> (1)	
•	Fuel tank and tank filter	Clean		<input type="radio"/> (2)	
•	Crankcase breather tube	Check			<input type="radio"/> (2)

• Emission related items.

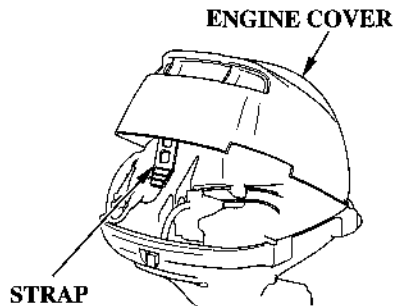
(1) Lubricate more frequently when used in salt water.

(2) These items should be serviced by an authorized Honda marine dealer, unless you have the proper tools and are mechanically proficient. Refer to the Honda shop manual for service procedures.

(3) For professional commercial use, log hours of operation to determine proper maintenance intervals.

# SERVICING YOUR OUTBOARD MOTOR

## ENGINE COVER REMOVAL AND INSTALLATION



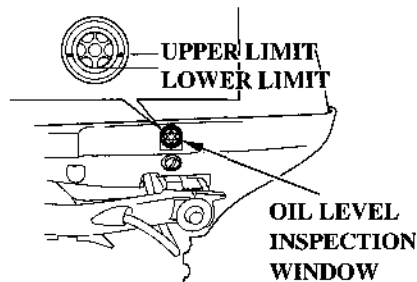
The engine cover retaining strap fastens the engine cover to the outboard motor.

To remove the engine cover, unhook the engine cover retaining strap, then lift the engine cover off the outboard motor.

To install the engine cover, place the cover on the outboard motor, then hook the engine cover retaining strap securely.

## Engine Oil Level Check

Check the engine oil level with the engine stopped and the outboard motor in the vertical position.



1. Check the oil level shown on the oil level inspection window.
2. If the oil level is near or below the lower limit mark on the window, fill with the recommended oil to the upper limit mark on the window (see page 41).

### NOTICE

*Running the engine with a low oil level can cause engine damage.*

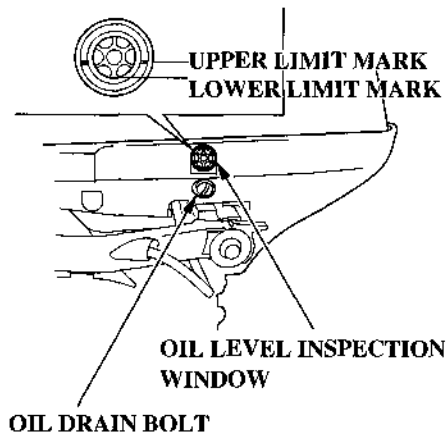
## Engine Oil Change

An engine oil evacuation/filling device may be used to remove/add the engine oil.

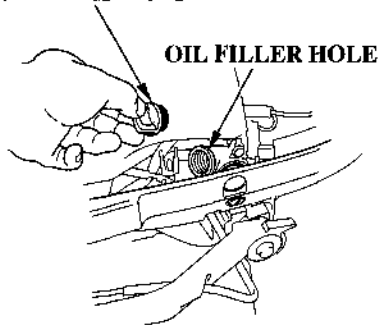
Drain the used oil while the engine is warm. Warm oil drains quickly and completely.

## SERVICING YOUR OUTBOARD MOTOR

1. Move the fuel valve lever to the OFF position, and turn the fuel cap vent knob clockwise to close the fuel vent.
2. Loosen the oil drain bolt, and turn the motor on its tiller handle side.
3. Remove the oil drain bolt and washer to drain the oil.



### OIL FILLER CAP



4. Stand the outboard motor in a vertical position, and install a new washer and the oil drain bolt securely.
5. Remove the engine cover.

### NOTICE

*Improper disposal of engine oil can be harmful to the environment. If you change your own oil, please dispose of the used oil properly. Put it in a sealed container, and take it to a recycling center. Do not discard it in a trash bin or dump it on the ground.*

6. Remove the oil filler cap and fill the crankcase with the recommended oil (see page 43 ) up to the upper limit mark on the oil level inspection window.

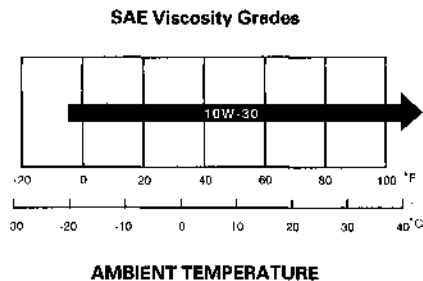
Engine oil refill capacity:  
0.26 US qt (0.25 ℓ , 0.22 Imp qt)

7. Install the oil filler cap and tighten it securely.
8. Install the engine cover.

## SERVICING YOUR OUTBOARD MOTOR

### Engine Oil Recommendations

Oil is a major factor affecting performance and service life. Use 4-stroke automotive detergent oil.



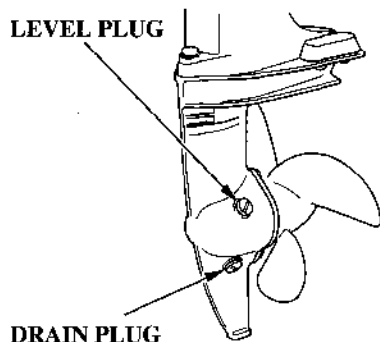
SAE 10W-30 is recommended for general use. Other viscosities shown in the chart may be used when the average temperature in your area is within the recommended range.

The SAE oil viscosity and service classification are in the API label on the oil container. Honda recommends that you use API SERVICE category SF or SG oil with the “starburst” certification mark displayed on the container.

# SERVICING YOUR OUTBOARD MOTOR

## Gear Oil Change

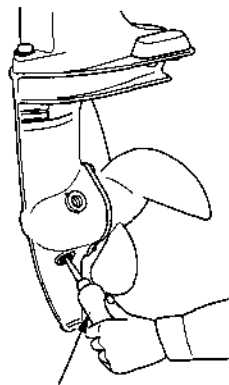
Change the gear oil with the engine stopped and the outboard motor in the vertical position.



1. Place a suitable container below the oil drain hole to catch the used oil, then remove the oil level plug, and oil drain plug.
2. Remove any metal particles from the magnetic end of the oil drain plug.

3. Allow the used oil to drain completely, then install an oil pump adapter in the oil drain hole.

If water or contaminated (milky-colored) oil flows out the drain hole when the plug is removed, have the outboard motor checked by an authorized Honda Marine dealer.



**GEAR OIL BOTTLE**

4. Add oil through the oil drain hole until it flows out the oil level hole, then install the oil level plug and the oil drain plug.

**GEAR OIL CAPACITY:**  
0.05 US qt (0.05 ℓ , 0.04 Imp qt)

Outboard motor SAE 90 hypoid gear oil API Service classification (GL-4 or GL-5)

## SERVICING YOUR OUTBOARD MOTOR

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**OIL LEVEL PLUG TORQUE:**  
2.5 lbf·ft (3.4 N·m , 0.35 kgf·m)

Avoid losing more than 1 fl oz (30 cm<sup>3</sup>) while reinstalling the drain plug.

**OIL DRAIN PLUG TORQUE:**  
2.5 lbf·ft (3.4 N·m , 0.35 kgf·m)

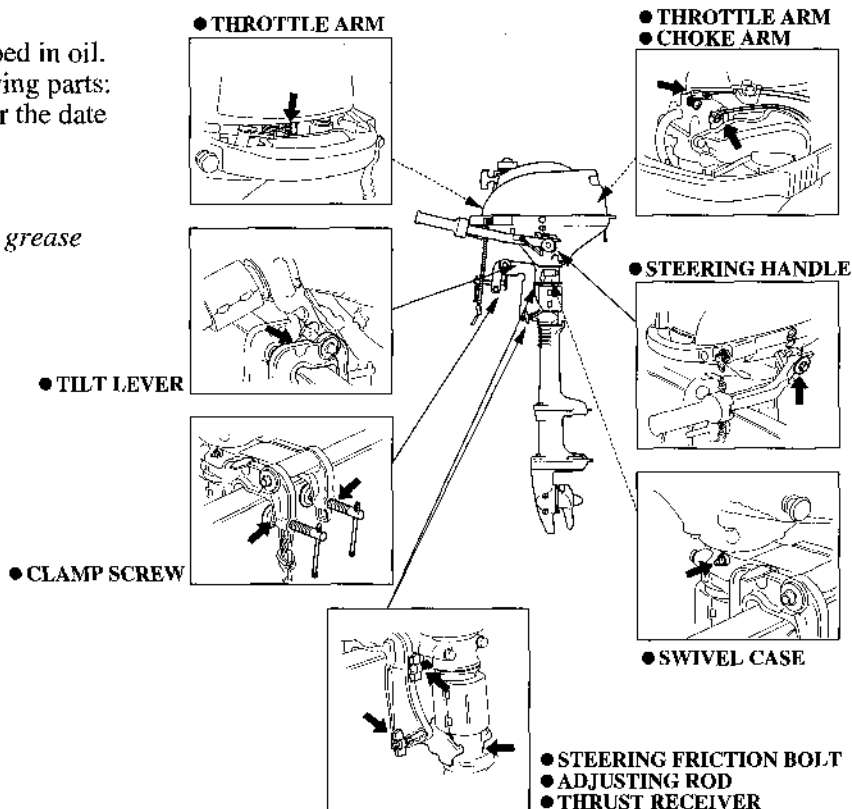
# SERVICING YOUR OUTBOARD MOTOR

## Lubrication Points

Wipe the outside of the engine with a cloth dipped in oil. Apply marine anticorrosion grease to the following parts: lubrication, then every 20 hours or a month after the date of purchase for initial 100 hours or 6 months.

### NOTICE

*Apply anticorrosion oil to pivot surfaces where grease cannot penetrate.*



Apply Honda Marine Corrosion Inhibitor (or equivalent) to all areas under the engine cover except the belts.



## SERVICING YOUR OUTBOARD MOTOR

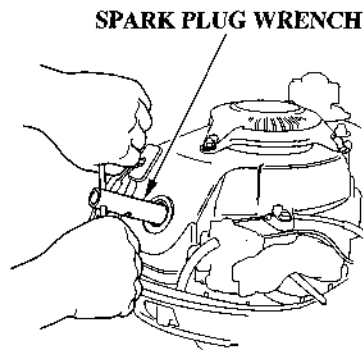
### Spark Plug Service

RECOMMENDED SPARK PLUG:  
CR4HSB (NGK)  
U14FSR-UB (DENSO)

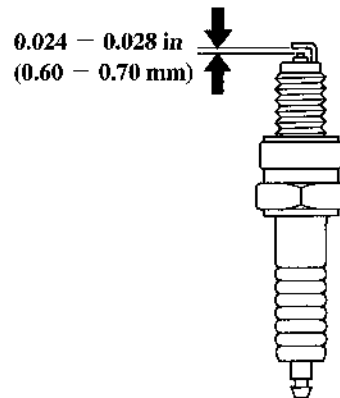
#### NOTICE

*Incorrect spark plug can cause engine damage.*

1. Remove the engine cover (p. 41).
2. Disconnect the spark plug cap from the spark plug.
3. Remove the spark plug with a spark plug wrench and screwdriver supplied in the tool kit.



4. Inspect the spark plug. Replace it if the electrodes is worn, or if the insulators is cracked or chipped. Clean the spark plug with a wire brush if you are going to reuse it.



5. Measure the spark plug electrode gap with a suitable gauge. The gap should be 0.024 - 0.028 inches (0.60 - 0.70 mm).

## SERVICING YOUR OUTBOARD MOTOR

---

6. Install the spark plug carefully, by hand, to avoid cross-threading.

7. After the spark plug seats, tighten with a spark plug wrench supplied in the tool kit to compress the sealing washer.

If reinstalling the used spark plug, tighten 1/8 - 1/4 turn after the spark plug seats.

If reinstalling a new spark plug, tighten 1/2 turn after the spark plugs seat.

**NOTICE**

*Loose spark plug can overheat and damage the engine.*

*Overtightening the spark plug can damage the threads in the cylinder head.*

8. Attach the spark plug cap.

9. Install the engine cover.

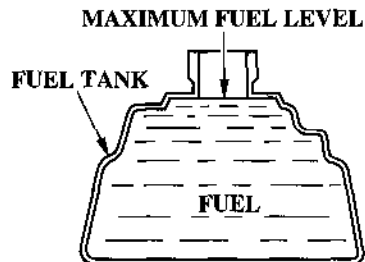
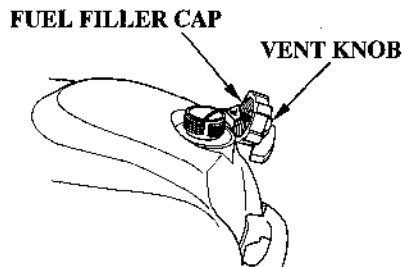
## SERVICING YOUR OUTBOARD MOTOR

### REFUELING

**FUEL TANK CAPACITY:**  
0.26 US gal (1.0 ℓ , 0.22 Imp gal)

With the engine stopped, turn the vent knob counterclockwise to open the fuel tank vent and remove the fuel filler cap.

Refill the fuel tank if the fuel level is low.



Refuel in a well-ventilated area. Fill the tank to the maximum fuel level.

After refueling, install the cap and tighten it securely. Turn the vent knob clockwise to close the fuel tank vent.

### **▲ WARNING**

Gasoline is highly flammable and explosive.

You can be burned or seriously injured when handling fuel.

- Stop the engine and keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

Never refill the fuel tank inside a building where gasoline fumes may reach flames or sparks. Keep gasoline away from appliance pilot lights, barbecues, electric appliances, power tools, etc.

Spilled fuel is not only a fire hazard, it causes environmental damage. Wipe up spills immediately.

## SERVICING YOUR OUTBOARD MOTOR

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### FUEL RECOMMENDATIONS

**Use unleaded gasoline with a pump octane rating of 86 or higher.**

This outboard motor is certified to operate on unleaded gasoline. Unleaded gasoline produces fewer engine and spark plug deposits and extends exhaust system life.

Never use stale or contaminated gasoline or an oil/gasoline mixture. Avoid getting dirt or water in the fuel tank.

Occasionally you may hear a light “spark knock” or “pinging” (metallic rapping noise) while operating under heavy loads. This is no cause for concern.

If spark knock or pinging occurs at a steady engine speed, under normal load, change brands of gasoline. If spark knock or pinging persists, see an authorized Honda marine dealer.

#### NOTICE

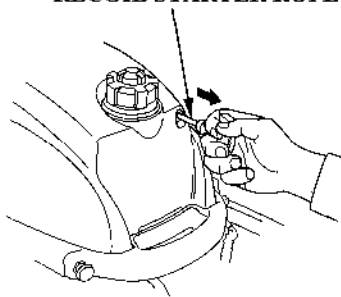
*Running the engine with persistent spark knock or pinging can cause engine damage.*

Running the engine with persistent spark knock or pinging is misuse, and the *Distributor's Limited Warranty* does not cover parts damaged by misuse.

# SERVICING YOUR OUTBOARD MOTOR

## Recoil Starter Rope Inspection

### RECOIL STARTER ROPE

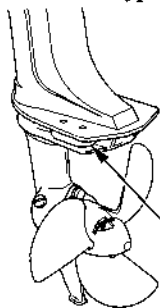


Inspect the recoil starter rope, and replace it if it becomes frayed.

Always keep the emergency starter rope on the boat in case the recoil starter rope fails.

## Anode Replacement

### Short shaft type



### Long shaft type



ANODE

The anode is made of a sacrificial material that helps to protect the outboard motor from corrosion.

Replace the anode when it has been reduced to about half their original size, or if they are crumbling.

### NOTICE

*Painting or coating the anode will defeat its purpose and will lead to rust and corrosion damage to the outboard motor. The anode must be exposed to the water in order to protect the outboard motor.*

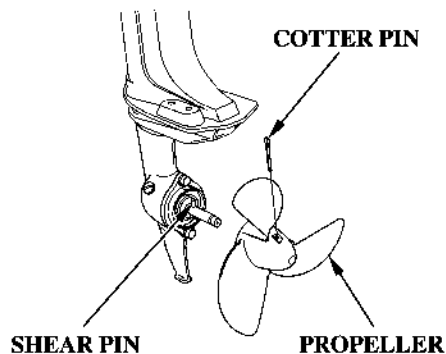
# SERVICING YOUR OUTBOARD MOTOR

## Propeller Replacement

Before replacing the propeller, remove the clip from the engine stop switch to prevent any possibility of the engine being started while you are working with the propeller.

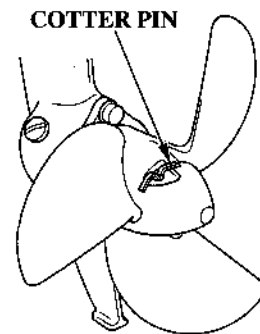
The propeller blades may have sharp edges, so wear heavy gloves to protect your hands.

### Removal



Remove the cotter pin, then remove the propeller and shear pin.

### Installation



1. Install the propeller in the reverse order of removal.

#### NOTICE

- Use a genuine *Honda* cotter pin and bend the pin ends as shown.

## STORAGE PREPARATION

Proper storage preparation is essential for keeping your outboard motor troublefree and looking good. The following steps will help to keep rust and corrosion from impairing your outboard motor's function and appearance, and will make the engine easier to start when you use the outboard motor again.

### Cleaning and Flushing

Thoroughly clean and flush the outboard motor with fresh water after operation in dirty water or salt water.

### Cleaning

Wash the outside of the outboard motor with clean, fresh water to remove mud, salt, seaweed, etc.

## Fuel

Gasoline will oxidize and deteriorate in storage. Old gasoline will cause hard starting, and it leaves gum deposits that clog the fuel system. If the gasoline in your fuel tank and carburetor deteriorates during storage, you may need to have the carburetor and other fuel system components serviced or replaced.

The length of time that gasoline can be left in your fuel tank and carburetor without causing functional problems will vary with such factors as gasoline blend, your storage temperatures, and whether the fuel tank is partially or completely filled. The air in a partially filled fuel tank promotes fuel deterioration. Very warm storage temperatures accelerate fuel deterioration. Fuel deterioration problems may occur within a few months, or even less if the gasoline was not fresh when you filled the fuel tank.

The *Distributor's Limited Warranty* does not cover fuel system damage or engine performance problems resulting from neglected storage preparation.

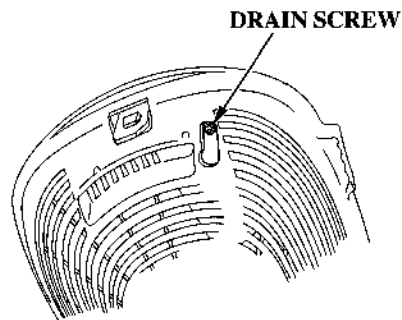
You can avoid fuel deterioration problems by draining the fuel tank and carburetors.

With the outboard motor in a vertical position, place an approved gasoline container below the fuel drain outlet, and use a funnel to avoid spilling fuel.

1. With the engine stopped, turn the fuel cap vent knob counterclockwise to open the fuel vent and remove the fuel filler cap.
2. Empty the fuel tank into an approved gasoline container, using a commercially available hand siphon. Reinstall the fuel filler cap.

## STORAGE

- Loosen the carburetor drain screw and move the fuel valve lever to the ON position to drain the carburetor and the fuel tank into an approved gasoline container.



### ▲ WARNING

Gasoline is highly flammable and explosive.

You can be burned or seriously injured when handling fuel.

- Stop the engine and keep heat, sparks, and flame away.
  - Handle fuel only outdoors.
  - Wipe up spills immediately.
- After draining is completed, tighten the carburetor drain screw and turn the fuel valve to the OFF position.
  - Turn the fuel filler cap vent knob clockwise to close the fuel vent.

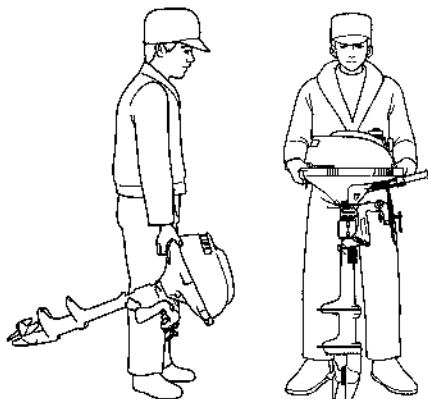
### Engine Oil

- Change the engine oil (p. 41 – 42).
- Remove the spark plug (p. 63), and remove the clip from the engine stop switch.
- Pour a tablespoon (5 – 10 cm<sup>3</sup>) of clean engine oil into the cylinder.
- Pull the starter rope several times to distribute the oil in the cylinder.
- Reinstall the spark plug (p. 48).



### STORAGE PRECAUTIONS

Select a well-ventilated storage area. If possible, avoid storage areas with high humidity.



To carry the outboard motor, hold it by the carrying handle, as shown.

#### NOTICE

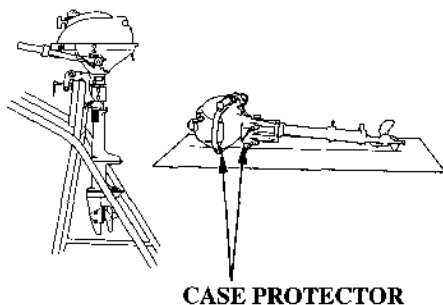
*Lifting the outboard motor by the engine cover, or using the installed outboard motor as a handle or lever to move the boat, can damage the outboard motor.*

If your fuel tank contains gasoline, store it away from any appliance that operates with a flame, such as a furnace, water heater, or clothes dryer. Also avoid any area with a spark-producing electric motor, or where power tools are operated.

Store the outboard motor either vertically or horizontally with the tiller handle side up.

# STORAGE

**CORRECT**

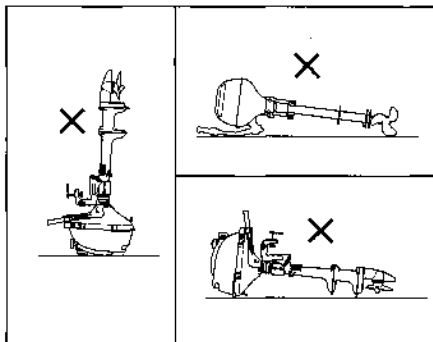


If storing horizontally, be sure to fold the tiller handle, and the outboard motor rests on its case protectors.

## **NOTICE**

*Any other horizontal storage position may cause damage or oil leakage.*

**INCORRECT**



Cover the outboard motor to keep out dust. Do not use sheet plastic as a dust cover. A nonporous cover will trap moisture, promoting rust and corrosion.

## **REMOVAL FROM STORAGE**

Check your outboard motor as described in the *BEFORE OPERATION* chapter of this manual.

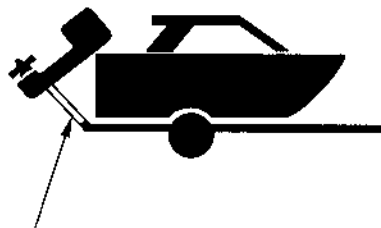
If the cylinder was coated with oil during storage preparation, the engine may smoke briefly at startup. This is normal.

## TRANSPORTING

### WITH OUTBOARD MOTOR INSTALLED ON BOAT

When trailering a boat with the outboard motor attached, leave the engine in the normal running position, if possible, and tighten the steering friction bolt securely (p. 32).

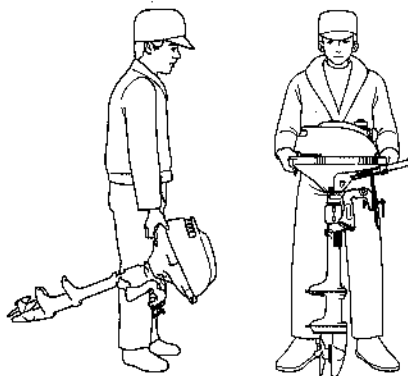
If there is insufficient road clearance in the normal running position, then tilt the outboard motor and use a motor support bar, or remove the outboard motor from the boat. Refer to the manufacturer's instructions for using a motor support bar.



**MOTOR SUPPORT BAR**  
(commercially available)

### WITH OUTBOARD MOTOR REMOVED FROM BOAT

Secure the outboard motor in either the vertical or horizontal position shown on p. 56.



To carry, hold the outboard motor by the carrying handle, as shown.

#### **NOTICE**

*Lifting the outboard motor by the engine cover, or using the installed outboard motor as a handle or lever to move the boat, can damage the outboard motor.*

## TAKING CARE OF UNEXPECTED PROBLEMS

ENGINE WILL NOT START	Possible Cause	Correction
1. Check emergency stop switch clip.	Clip not inserted in stop switch.	Insert clip in stop switch.
2. Check control positions.	Choke OPEN.	Pull choke knob to CLOSED position, unless engine is warm (p. 11).
	Throttle lever or grip not in START position.	Turn throttle lever or grip to START position (p. 24).

## TAKING CARE OF UNEXPECTED PROBLEMS

ENGINE WILL NOT START (continued)	Possible Cause	Correction
3. Check fuel.	Out of fuel.	Refuel (p. 49).
	Fuel vent closed.	Open fuel tank vent (p. 15).
	Bad fuel; boat stored without treating or draining gasoline, or refueled with bad gasoline.	Drain fuel tank and carburetors (p. 54 ). Refill with fresh gasoline (p. 49 ).
4. Remove and inspect spark plug.	Spark plug faulty, fouled or improperly gapped.	Clean, gap or replace spark plug (p. 47 ).
	Spark plug wet with fuel (flooded engine).	Dry and reinstall spark plug. Start engine with choke and throttle open.
5. Take outboard motor to an authorized Honda Marine dealer, or refer to the shop manual.	Carburetor malfunction, fuel pump failure, ignition malfunction, stuck valves, etc.	Replace or repair faulty components as necessary.

## TAKING CARE OF UNEXPECTED PROBLEMS

HARD STARTING OR STALLS AFTER STARTING	Possible Cause	Correction
1. Check control positions.	Choke OPEN.	Pull choke knob to CLOSED position, unless engine is warm (p. 11).
	Throttle lever or grip not in START position.	Turn throttle lever or grip to START (p. 24).
2. Check fuel.	Fuel vent closed.	Open fuel tank vent (p. 15).
	Bad fuel; boat stored without treating or draining gasoline, or refueled with bad fuel.	Drain fuel tank and carburetors (p. 54). Refill with fresh gasoline (p. 49).
3. Remove and inspect spark plug.	Spark plug faulty, fouled or improperly gapped.	Clean, gap or replace spark plug (p. 47).
4. Take outboard motor to an authorized Honda Marine dealer, or refer to the shop manual.	Carburetor malfunction, fuel pump failure, ignition malfunction, etc.	Replace or repair faulty components as necessary.

## TAKING CARE OF UNEXPECTED PROBLEMS

---

ENGINE WILL NOT DRIVE THE PROPELLER	Possible Cause	Correction
1. Check shear pin.	Broken shear pin.	Replace shear pin (p. 52).
2. Take outboard motor to an authorized Honda Marine dealer, or refer to the shop manual.	Damaged gearshift mechanism.	Replace or repair faulty components as necessary.

## TAKING CARE OF UNEXPECTED PROBLEMS

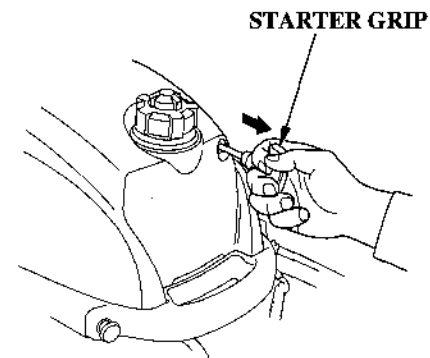
### SUBMERGED MOTOR

A submerged outboard motor must be serviced immediately after it is recovered from the water in order to minimize corrosion.

If there is a Honda marine dealership nearby, take the motor to the dealer immediately. If you are far from a dealership, proceed as follows:

1. Remove the engine cover, and rinse the outboard motor with fresh water to remove salt water, sand, mud, etc.
2. Drain the carburetor as described on p. 54 .

3. Change the engine oil as described on p. 41 — 42 . If there was water in the engine crankcase, or if the used engine oil showed signs of water contamination, then a second engine oil change should be performed after running the engine for half an hour.



4. Remove the spark plug (p. 47 ), and remove the clip from the engine switch. Pull the recoil starter grip, rotate the flywheel a few revolutions to completely expel any water from the cylinder.

If the engine was running when it submerged, there may be mechanical damage, such as a bent connecting rod. If the engine binds when cranked, do not attempt to run the engine until it has been repaired.



## TAKING CARE OF UNEXPECTED PROBLEMS

### NOTICE

*When cranking the engine with an open ignition circuit (spark plug removed from the ignition circuit), remove the clip from the engine stop switch to prevent possible damage to the ignition system.*

5. Pour a teaspoon of engine oil into the spark plug hole, then pull the recoil starter grip several times to lubricate the inside of the cylinder.
6. Reinstall the spark plug, and put the emergency stop switch clip into the switch.

7. Attempt to start the engine.

If the engine fails to start, remove the spark plug, clean and dry it, then reinstall the spark plug and attempt to start the engine again.

If the engine starts, and no mechanical damage is evident, continue to run the engine for a half hour or longer.

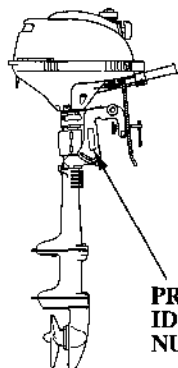
8. As soon as possible, take the outboard motor to an authorized Honda Marine dealer for inspection and service.

# TECHNICAL AND CONSUMER INFORMATION

## TECHNICAL INFORMATION

### Serial Number Locations

Record the product identification number and engine serial numbers in the space provided on this page. You will need these numbers when ordering parts, and when making technical or warranty inquiries (p. 72 ).

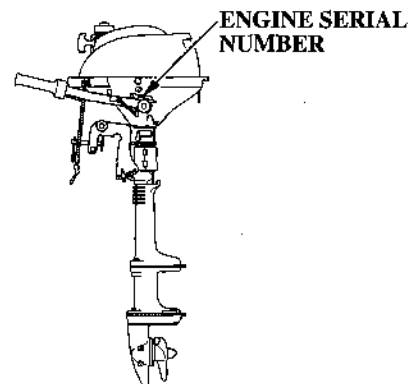


**PRODUCT  
IDENTIFICATION  
NUMBER**

The product identification number is stamped on a plate attached on side of the stern bracket.

Product identification number:

---



**ENGINE SERIAL  
NUMBER**

The engine serial number is stamped on the engine.

Engine serial number:

---

### Carburetor Modification for High Altitude Operation

At high altitude, the standard carburetor air-fuel mixture will be too rich. Performance will decrease, and fuel consumption will increase. A very rich mixture will also foul the spark plug and cause hard starting.

High altitude performance can be improved by specific modifications to the carburetor. If you always operate your outboard motor at altitudes above 5,000 feet (1,500 meters), have an authorized Honda marine dealer perform this carburetor modification.

Even with carburetor modification, engine horsepower will decrease about 3.5% for each 1,000-foot (300-meter) increase in altitude. The effect of altitude on horsepower will be greater than this if no carburetor modification is made.

#### NOTICE

*When the carburetor have been modified for high altitude operation, the air-fuel mixture will be too lean for low altitude use. Operation at altitudes below 5,000 feet (1,500 meters) with modified carburetor may cause the engine to overheat and result in serious engine damage. For use at low altitudes, have an authorized Honda Marine dealer return the carburetor to original factory specifications.*

## TECHNICAL AND CONSUMER INFORMATION

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### Oxygenated Fuels

Some conventional gasolines are being blended with alcohol or an ether compound. These gasolines are collectively referred to as oxygenated fuels. To meet clean air standards, some areas of the United States and Canada use oxygenated fuels to help reduce emissions.

If you use an oxygenated fuel, be sure it is unleaded and meets the minimum octane rating requirement.

Before using an oxygenated fuel, try to confirm the fuel's contents. Some states/provinces require this information to be posted on the pump.

The following are the EPA-approved percentages of oxygenates:

**ETHANOL:** ethyl or grain alcohol; 10% by volume.

You may use gasoline containing up to 10% ethanol by volume. Gasoline containing ethanol may be marketed under the name "Gasohol".

**MTBE:** Methyl Tertiary Butyl Ether; 15% by volume.

You may use gasoline containing up to 15% MTBE by volume.

**METHANOL:** methyl or wood alcohol; 5% by volume.

You may use gasoline containing up to 5% methanol by volume, as long as it also contains cosolvents and corrosion inhibitors to protect the fuel system. Gasoline containing more than 5% methanol by volume may cause starting and/or performance problems. It may also

damage metal, rubber, and plastic parts of your fuel system.

If you notice any undesirable operating symptoms, try another service station, or switch to another brand of gasoline.

Fuel system damage or performance problems resulting from the use of an oxygenated fuel containing more than the percentages of oxygenates mentioned above are not covered under warranty.

### **Emission Control System Information**

#### *Source of Emissions*

The combustion process produces carbon monoxide, oxides of nitrogen, and hydrocarbons. Control of hydrocarbons and oxides of nitrogen is very important because, under certain conditions, they react to form photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way, but it is toxic.

Honda utilizes lean carburetor settings and other systems to reduce the emissions of carbon monoxide, oxides of nitrogen, and hydrocarbons.

#### *The U.S. and California Clean Air Acts*

EPA and California regulations require all manufacturers to furnish written instructions describing the operation and maintenance of emission control systems.

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

#### *Tampering and Altering*

Tampering with or altering the emission control system may increase emissions beyond the legal limit. Among those acts that constitute tampering are:

- Removal or alteration of any part of the intake, fuel, or exhaust systems.
- Alterations that would cause the engine to operate outside its design parameters.

## TECHNICAL AND CONSUMER INFORMATION

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### *Problems That May Affect Emissions*

If you are aware of any of the following symptoms, have your engine inspected and repaired by your servicing dealer.

- Hard starting or stalling after starting.
- Rough idle.
- Misfiring or backfiring under load.
- Afterburning (backfiring).
- Black exhaust smoke or high fuel consumption.

### *Replacement Parts*

The emission control systems on your Honda engine were designed, built, and certified to conform with EPA and California emission regulations. We recommend the use of genuine Honda parts whenever you have maintenance done. These original-design replacement parts are manufactured to the same standards as the original parts, so you can be confident of their performance. The use of replacement parts that are not of the original design and quality may impair the effectiveness of your emission control system.

A manufacturer of an aftermarket part assumes the responsibility that the part will not adversely affect emission performance. The manufacturer or rebuilder of the part must certify that use of the part will not result in a failure of the engine to comply with emission regulations.

### *Maintenance*

Follow the maintenance schedule on p. 39. Remember that this schedule is based on the assumption that your machine will be used for its designed purpose. Sustained high-load operation, or use in unusual conditions, will require more frequent service.

## TECHNICAL AND CONSUMER INFORMATION

### Star Label

A Star label was applied to this outboard motor in accordance with the requirements of the California Air Resources Board.

### *The Star Label means Cleaner Marine Engine*

This engine has been certified as a:



### **The Symbol for Cleaner Marine Engines:**

**Cleaner Air and Water** - for healthier lifestyle and environment.

**Better Fuel Economy** - burns up to 30 - 40 percent less gas and oil than conventional carbureted two-stroke engines, saving money and resources.

**Longer Emission Warranty** - protects consumer for worry free operation.

## TECHNICAL AND CONSUMER INFORMATION

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### **One Star Low Emission**

The one-star label identifies engines that meet the Air Resources Board's 2001 exhaust emission standards. Engines meeting these standards have 75% lower emissions than conventional carbureted two-stroke engines. These engines are equivalent to the U.S. EPA's 2006 standards for marine engines.



### **Two Stars Very Low Emission**

The two-star label identifies engines that meet the Air Resources Board's 2004 exhaust emission standards. Engines meeting these standards have 20% lower emissions than One Star-Low-Emission engines.



### **Three Stars Ultra Low Emission**

The three-star label identifies engines that meet the Air Resources Board's 2008 exhaust emission standards. Engines meeting these standards have 65% lower emissions than One Star-Low-Emission engines.

Cleaner Watercraft - Get the Facts  
1-800-END-SMOG  
[www.arb.ca.gov](http://www.arb.ca.gov)



# TECHNICAL AND CONSUMER INFORMATION

## Specifications

MODEL	BF2D			
	BZBK		BZBF	
Description Code				
Type	SA	SHA	SCHA	LCHA
Overall length	16.1 in (410 mm)			
Overall width	11.0 in (280 mm)			
Overall height	37.2 in (945 mm)		43.3 in (1,100 mm)	
Transom height	16.5 in (418 mm)		22.5 in (571 mm)	
Weight	26.7 lbs (12.1 kg)	27.3 lbs (12.4 kg)	28.0 lbs (12.7 kg)	29.3 lbs (13.3 kg)
Rated power	1.5 kW (2.0 PS)			
Full throttle range	5,000 – 6,000 rpm			
Engine type	4 stroke OHV 1 cylinder			
Displacement	3.5 cu-in (57 cm <sup>3</sup> )			
Spark plug gap	0.024 – 0.028 in (0.60 – 0.70 mm)			
Starter system	Recoil starter			
Ignition system	Transisterized magneto			
Lubrication system	Oil slinger system			
Specified oil	Engine: API standard (SF or SG) SAE 10W-30 Gear case: API standard (GL4/5) SAE 90 outboard motor gear oil			
Oil capacity	Engine: 0.26 US qt (0.25 ℓ , 0.22 Imp qt) Gear case: 0.05 US qt (0.05 ℓ , 0.04 Imp qt)			

CARB star label	VERY LOW EMISSION	
Cooling system	Engine: Forced air cooling	
Exhaust system	Underwater exhaust	
Spark plug	CR4HSB (NGK) U14FSR-UB (DENSO)	
Fuel	Automotive unleaded gasoline (86 pump octane or higher)	
Tank capacity	0.26 US gal (1.0 ℓ , 0.22 Imp gal)	
Steering equipment	Tiller handle	
Steering angle	360°	
Transom angle	4 stages (5°-10°-15°-20°)	
Tilt angle	75°	
Clutch system	—	Centrifugal clutch

## Tune Up

Spark plug gap	0.024 – 0.028 in (0.60 – 0.70 mm)	See page 47
Idle speed	2,000 ± 100 rpm	See shop manual
Valve clearance (cold)	Intake: 0.08 ± 0.02 mm Exhaust: 0.11 ± 0.02 mm	See shop manual
Other specifications	No other adjustment is needed	

Honda outboards are power rated in accordance with NMMA procedures and using the ICOMIA standard 28/23.

## TECHNICAL AND CONSUMER INFORMATION

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### CONSUMER INFORMATION

#### **Honda Publications**

These publications will give you additional information for maintaining and repairing your outboard motor. You may order them from your Honda marine dealer.

#### ***Shop Manual***

This manual covers complete maintenance and overhaul procedures. It is intended to be used by a skilled technician.

#### ***Parts Catalog***

This manual provides complete, illustrated parts lists.

### **Customer Service Information**

Honda Marine dealership personnel are trained professionals. They should be able to answer any question you may have. If you encounter a problem that your dealer does not solve to your satisfaction, please discuss it with the dealership's management. The Service Manager or General Manager can help. Almost all problems are solved in this way.

If you are dissatisfied with the decision made by the dealership's management, contact the Honda Marine Customer Relations Office. You can write:

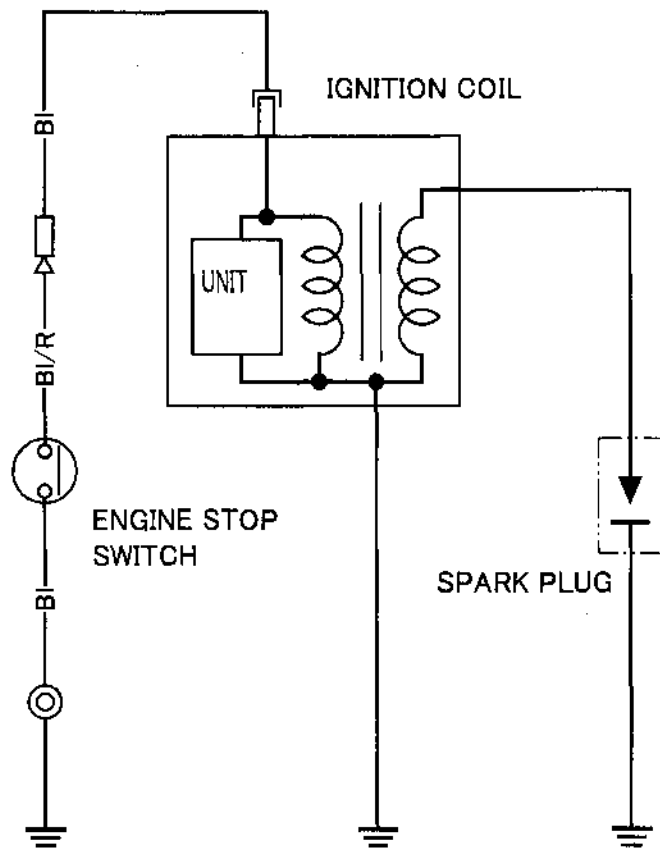
**American Honda Motor Co., Inc.**  
Marine Division  
Customer Relations Office  
4900 Marconi Drive  
Alpharetta, Georgia 30005-8847

Or telephone: (770) 497-6400

When you write or call, please give us this information:

- Model and serial numbers (p. 64)
- Name of the dealer who sold the outboard motor to you
- Name and address of the dealer who services your outboard motor
- Date of purchase
- Your name, address, and telephone number
- A detailed description of the problem

# WIRING DIAGRAM



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**HONDA**  
The Power of Dreams

31ZW6605  
00X31-ZW6-6050

**EM3** (AH) (S) (Y) (HC) 700.2002.02  
Printed in Japan