

Thank you for purchasing a Honda Outboard Motor.

This manual covers operation and maintenance of the Honda BF115D/135A/150A Outboard Motor.

All information in this publication is based on the latest product information available at the time of approval for printing.

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This manual should be considered a permanent part of the Outboard Motor and should remain with it if it is resold.

Throughout this manual, you will see safety messages preceded by the following words and symbols. Here's what they mean:

**▲ DANGER**

**Indicates serious injury or death WILL result if instructions are not followed.**

**▲ WARNING**

**Indicates a strong possibility that serious personal injury or death may result if instructions are not followed.**

**▲ CAUTION**

**Indicates a possibility that personal injury or equipment damage could result if instructions are not followed.**

**NOTICE**

**Indicates that equipment or property damage could result if instructions are not followed.**

**NOTE:** Gives helpful information.

If a problem should arise, or if you have any questions about the Outboard Motor, consult an authorized Honda Outboard Motor dealer.

**▲ WARNING**

**Honda Outboard Motors are designed to give safe and dependable service if operated according to instructions. Read and understand the Owner's Manual before operating the Outboard Motor. Failure to do so could result in personal injury or equipment damage.**

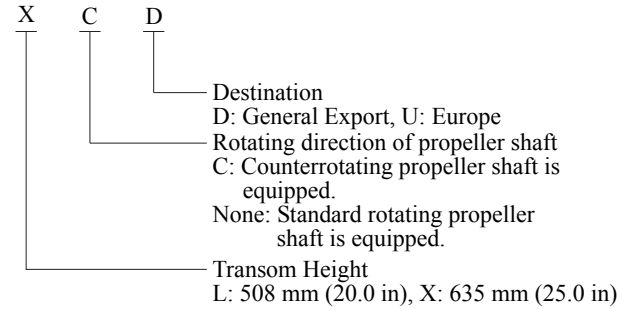
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Model		BF115D			BF135A				BF150A			
		LD LU	XD XU	XCD	LD LU	XD XU	LCU	XCD XCU	LD LU	XD XU	LCU	XCD XCU
Transom Height	508 mm (20.0 in)	•			•		•		•		•	
	635 mm (25.0 in)		•	•		•		•		•		•
Standard Rotating Propeller Shaft		•	•		•	•			•	•		
Counterrotating Propeller Shaft				•			•	•			•	•

**NOTE:** Note that the types of the outboard motor differ according to the countries where they are sold.

BF115D/135A/150A is provided with the following types according to the shaft length and the rotating direction of the propeller shaft.

TYPE CODE  
Example

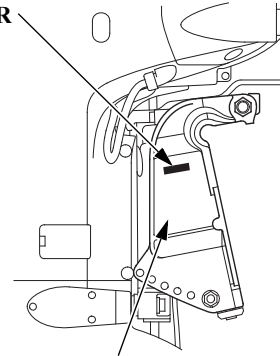


The remote control type is classified into the following three categories according to the control box position.

Side-mount type: R1 type  
Panel-mount type: R2 type  
Top-mount type: R3 type

Check the type of your outboard motor and read this Owner's Manual thoroughly before operation. Texts with no type indication are the information and/or procedures common to all types.

**FRAME SERIAL NUMBER**



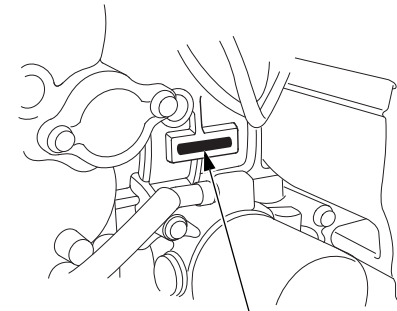
**RIGHT STERN BRACKET**

Record the frame and engine serial numbers for your reference. Refer to the serial numbers when ordering parts, and when making technical or warranty inquiries.

The frame serial number is stamped on a plate attached on right stern bracket.

Frame serial number:

\_\_\_\_\_



**ENGINE SERIAL NUMBER**

The engine serial number is stamped on the upper right side of the engine.

Engine serial number:

\_\_\_\_\_

## CONTENTS

1. SAFETY .....	6	Tachometer (optional equipment) .....	28
SAFETY INFORMATION .....	6	Digital Tachometer (optional equipment) .....	28
2. SAFETY LABEL LOCATIONS .....	8	Digital Speedometer (optional equipment) .....	28
3. COMPONENT IDENTIFICATION .....	10	Interface Coupler .....	29
4. CONTROLS AND FEATURES .....	14	5. INSTALLATION .....	30
Remote Control Lever .....	14	Transom Height .....	30
R1 type .....	14	Location .....	31
R2 type .....	15	Installation Height .....	31
R3 type .....	16	Outboard Motor Installation .....	32
Neutral Release Lever .....	17	Outboard Motor Angle Inspection (Cruising) .....	33
Engine Switch .....	17	Battery Connections .....	34
Fast Idle Lever/Fast Idle Button .....	18	Remote Control Installation (optional equipment) .....	36
PGM-FI Indicator/Buzzer .....	19	Remote Control Box Location .....	37
ACG Indicator/Buzzer .....	19	Remote Control Cable Length .....	37
Oil Pressure Indicator/Buzzer .....	20	Propeller Selection .....	38
Overheat Indicator/Buzzer .....	20	Fuel Line Connection .....	38
Water Separator Buzzer .....	20	6. PRE-OPERATION CHECKS .....	39
Power Trim/Tilt Switch .....	21	Engine Cover Removal/Installation .....	39
Trim Meter (optional equipment) .....	22	Engine Oil .....	40
Power Tilt Switch (outboard motor pan) .....	22	Fuel .....	41
TRL (Trolling) Control Switch Panel		GASOLINE CONTAINING ALCOHOL .....	42
(optional equipment) .....	23	Propeller and Cotter Pin Inspection .....	43
Manual Relief Valve .....	23	Remote Control Lever Friction .....	44
Emergency Stop Switch .....	24	Water Separator .....	44
Emergency Stop Switch Lanyard/Clip .....	24	Battery .....	45
Spare Emergency Stop Switch Clip .....	25	Other Checks .....	46
Tilt Lock Lever .....	26	7. STARTING THE ENGINE .....	47
Trim Tab .....	26	Fuel Priming .....	47
Anode .....	26	Starting the Engine .....	47
Cooling Water Check Hole .....	27	R1 type .....	47
Cooling Water Intake Port .....	27	R2, R3 types .....	51
Engine Cover Latch .....	27		



## CONTENTS

8. OPERATION .....	55	Maintenance Schedule .....	83
Break-in Procedure .....	55	Engine Oil .....	85
Gear Shifting .....	56	Spark Plugs .....	87
R1 type .....	56	Lubrication .....	92
R2 type .....	57	Fuel Filter .....	94
R3 type .....	58	Water Separator .....	97
Cruising .....	59	Emission Control System .....	99
TRL (Trolling) Control Switch (optional equipment) .....	61	Battery .....	100
Trimming the Outboard Motor .....	62	Fuse .....	102
Trim Meter (optional equipment) .....	64	Main Fuse .....	103
Tilting the Outboard Motor .....	65	ACG Fuse .....	103
Moorage .....	66	Propeller .....	104
Power Tilt Switch (outboard motor pan) .....	67	Submerged Outboard Motor .....	105
Manual Relief Valve .....	68	13. STORAGE .....	107
Trim Tab Adjustment .....	69	Fuel .....	107
Engine Protection System .....	70	Vapor Separator Draining .....	107
Engine Oil Pressure, Overheat, Water Contamination, PGM-FI and ACG Warning Systems .....	70	Engine Oil .....	108
Over-rev Limiter .....	75	Battery Storage .....	109
Anodes .....	75	Outboard Motor Position .....	110
Shallow Water Operation .....	75	14. DISPOSAL .....	111
9. STOPPING THE ENGINE .....	76	15. TROUBLESHOOTING .....	112
Emergency Engine Stop .....	76	16. SPECIFICATIONS .....	114
Normal Engine Stop .....	76	17. MAJOR Honda DISTRIBUTOR ADDRESSES .....	118
10. TRANSPORTING .....	78	18. “EC DECLARATION OF CONFORMITY” CONTENT OUTLINE .....	121
Fuel Line Disconnection .....	78	19. INDEX .....	126
Transporting .....	78	WIRING DIAGRAM .....	129
Trailerling .....	79	Inside back cover	
11. CLEANING AND FLUSHING .....	80		
12. MAINTENANCE .....	81		
Tool Kit and Owner’s Manual .....	82		
Spare Emergency Stop Switch Clip (optional equipment) .....	82		

## 1. SAFETY

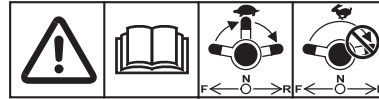
### SAFETY INFORMATION

For your safety and the safety of others, pay special attention to these precautions.

#### Operator Responsibility

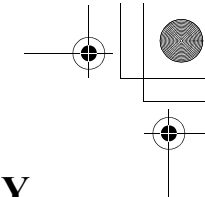
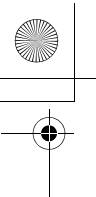


- **Honda outboard motor is designed to give safe and dependable service if operated according to instructions. Read and understand the Owner's Manual before operating the outboard motor. Failure to do so could result in personal injury or equipment damage.**



**Shift to the neutral position and then shift to the reverse position at low engine speed. Do not shift to the reverse position suddenly at high engine speed.**

- Gasoline is harmful or fatal if swallowed. Keep the fuel tank out of reach of children.
  - Gasoline is extremely flammable and is explosive under certain conditions. Refuel in a well-ventilated area with the engine stopped.
  - Do not smoke or allow flames or sparks where the engine is refueled or where gasoline is stored.
  - Do not overfill the fuel tank. After refueling make sure that the fuel tank cap is closed properly and securely.
- Be careful not to spill any fuel while refueling. Spilled fuel or fuel vapor may ignite. If any fuel is spilled make sure that the area is dry before starting the engine.
  - Know how to stop the engine quickly in case of emergency. Understand the use of all controls.
  - Do not exceed the boat manufacturer's power recommendation, and be sure that the outboard motor is properly mounted.
  - Never permit anyone to operate the outboard motor without proper instruction.
  - Before operating the outboard motor, familiarize yourself with all laws and regulations relating to boating and the use of outboard motors.
  - Do not attempt to modify the outboard motor.
  - Always wear a life-jacket when on board.



## SAFETY

- Do not operate the outboard motor without the engine cover. Exposed moving parts can cause injury.
- Do not remove any guards, labels, shields, covers or safety devices; they are installed for your safety.
- Stop the engine immediately if anyone falls overboard.
- Do not run the engine while the boat is near anyone in the water.
- Attach the emergency stop switch lanyard securely to the operator.

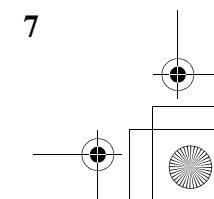
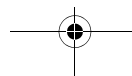
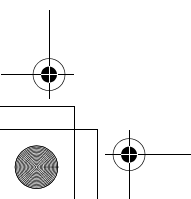
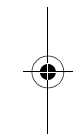
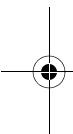
The engine and exhaust system become very hot during operation and remain hot for a while after stopping. Contact with hot engine components can cause burns and may ignite some materials.

- Avoid touching a hot engine or exhaust system.
- Allow the engine to cool before performing maintenance or transporting.

### **Carbon Monoxide Poisoning Hazard**

Exhaust contains poisonous carbon monoxide, a colorless and odorless gas. Breathing exhaust can cause loss of consciousness and may lead to death.

- If you run the engine in an area that is confined, or even partially enclosed, the air can become contaminated with a dangerous amount of exhaust gas. To keep exhaust gas from building up, provide adequate ventilation.



## 2. SAFETY LABEL LOCATIONS

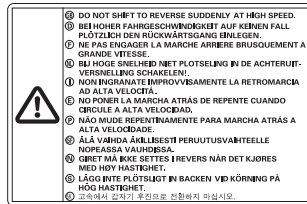
These labels are in the locations shown.

They warn you of potential hazards that can cause serious injury.

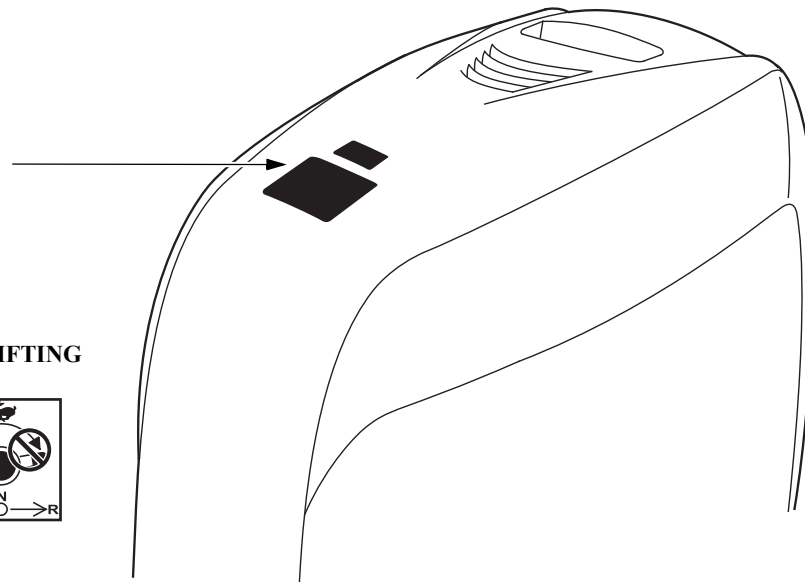
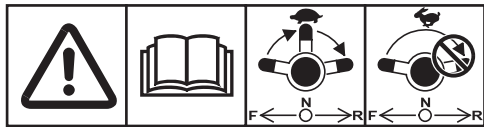
Read the labels and safety notes and precautions described in this manual carefully.

If a label comes off or becomes hard to read, contact your Honda outboard motor dealer for a replacement.

### READ OWNER'S MANUAL (general export types: except european types)



### READ OWNER'S MANUAL GEAR SHIFTING (european types)

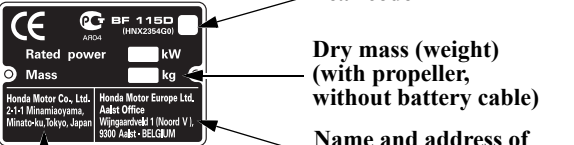


## SAFETY LABEL LOCATIONS

### CE mark location [European types]

#### CE MARK

**BF115D:**



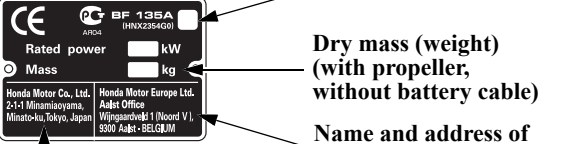
**Year code**

**Dry mass (weight)  
(with propeller,  
without battery cable)**

**Name and address of  
authorized representative**

**Manufacturer and address**

**BF135A:**



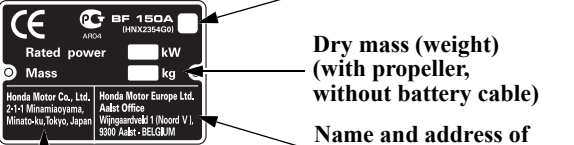
**Year code**

**Dry mass (weight)  
(with propeller,  
without battery cable)**

**Name and address of  
authorized representative**

**Manufacturer and address**

**BF150A:**

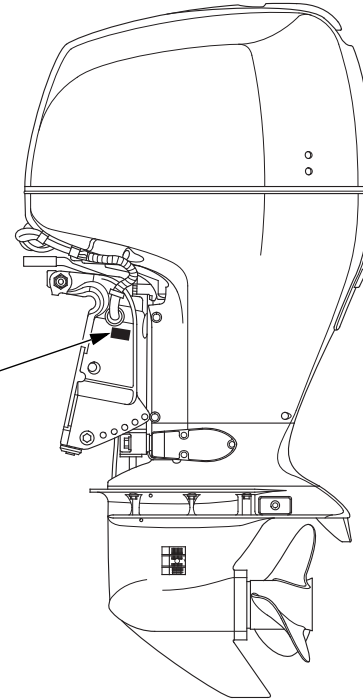


**Year code**

**Dry mass (weight)  
(with propeller,  
without battery cable)**

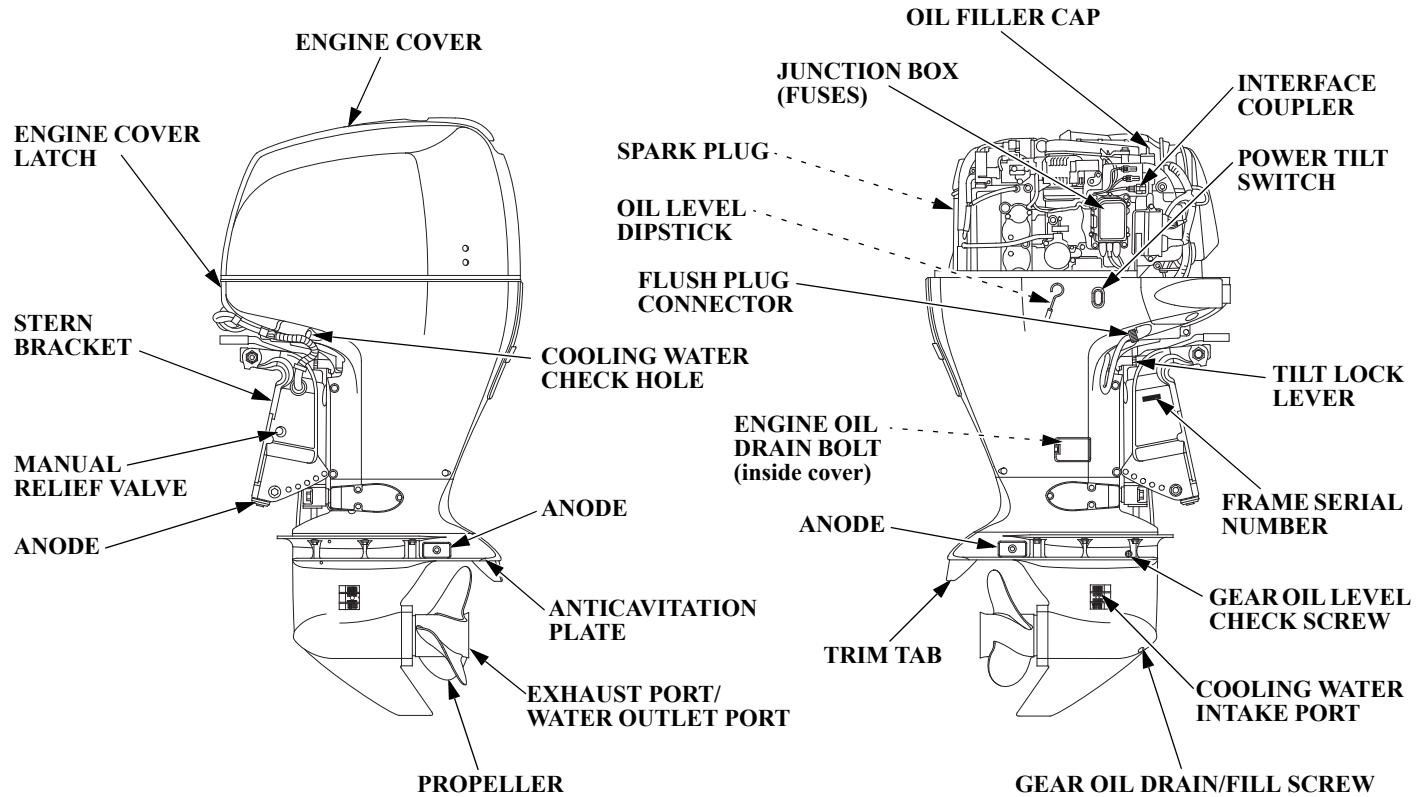
**Name and address of  
authorized representative**

**Manufacturer and address**



Year code	C	D	E	F	G	H	J
Year of manufacture	2012	2013	2014	2015	2016	2017	2018

### 3. COMPONENT IDENTIFICATION



## COMPONENT IDENTIFICATION

### REMOTE CONTROL BOX (optional equipment)

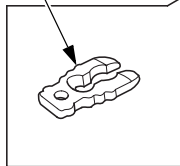
#### SIDE-MOUNT TYPE (R1 type)

##### REMOTE CONTROL LEVER

POWER TRIM/TILT SWITCH

NEUTRAL RELEASE LEVER

SPARE EMERGENCY STOP SWITCH CLIP



BUZZER (inside)

CONTROL LEVER FRICTION ADJUSTER

EMERGENCY STOP SWITCH LANYARD

INDICATORS (Oil pressure, Overheat, ACG, PGM-FI)

FAST IDLE LEVER

ENGINE SWITCH

ENGINE SWITCH KEY

EMERGENCY STOP SWITCH

EMERGENCY STOP SWITCH CLIP

#### PANEL-MOUNT TYPE (R2 type)

##### REMOTE CONTROL LEVER

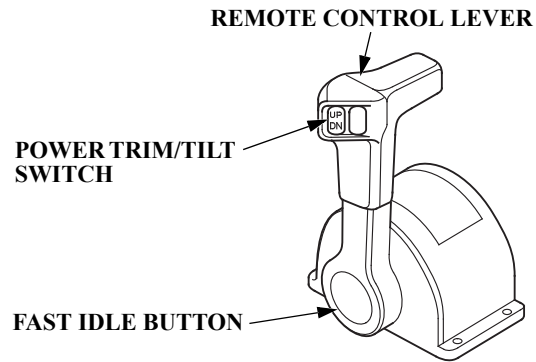
NEUTRAL RELEASE LEVER

POWER TRIM/TILT SWITCH

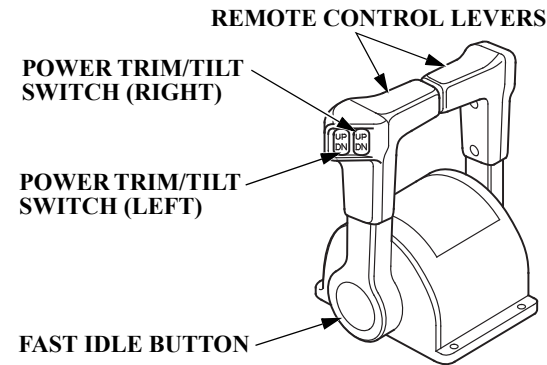
FAST IDLE BUTTON

## COMPONENT IDENTIFICATION

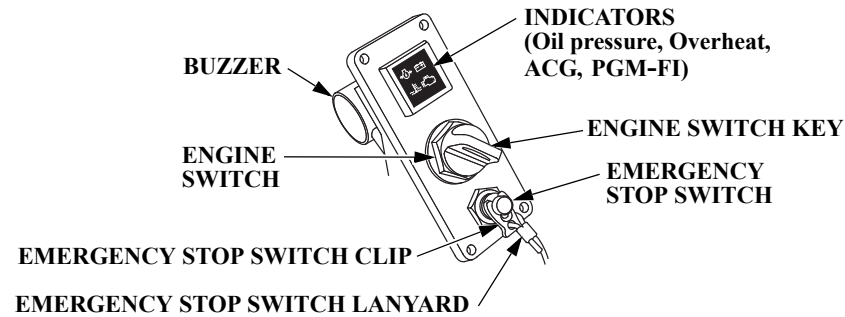
### TOP-MOUNT TYPE (R3 type) (SINGLE OUTBOARD MOTOR TYPE)



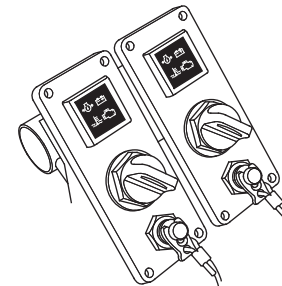
### (DUAL OUTBOARD MOTOR TYPE)



### SWITCH PANEL (optional equipment) (for PANEL-MOUNT, TOP-MOUNT SINGLE type)



### (for TOP-MOUNT DUAL type)

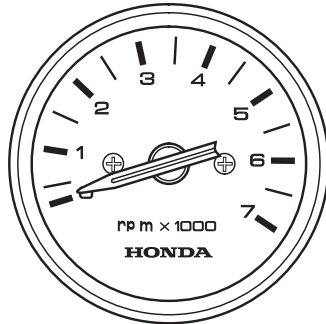




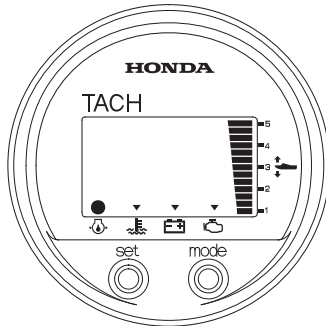
## COMPONENT IDENTIFICATION

(Common)

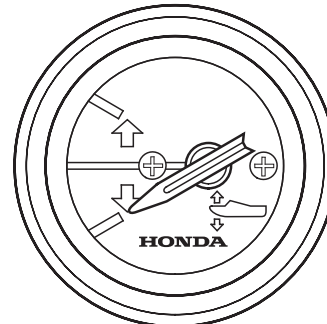
**TACHOMETER**  
(optional equipment)



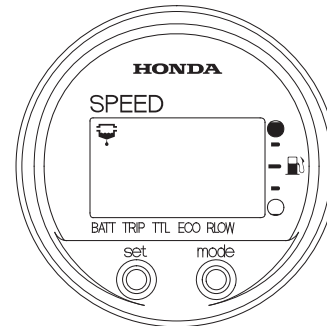
**DIGITAL TACHOMETER**  
(optional equipment)



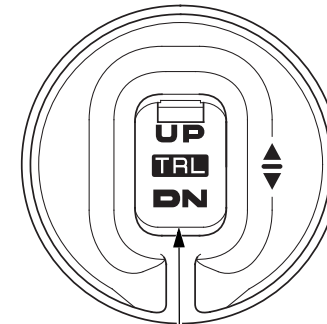
**TRIM METER**  
(optional equipment)



**DIGITAL SPEEDOMETER**  
(optional equipment)



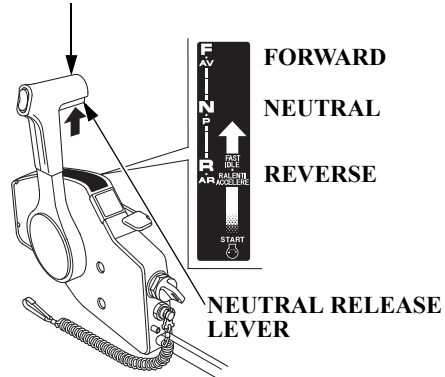
**TRL (Trolling) CONTROL SWITCH PANEL**  
(optional equipment)



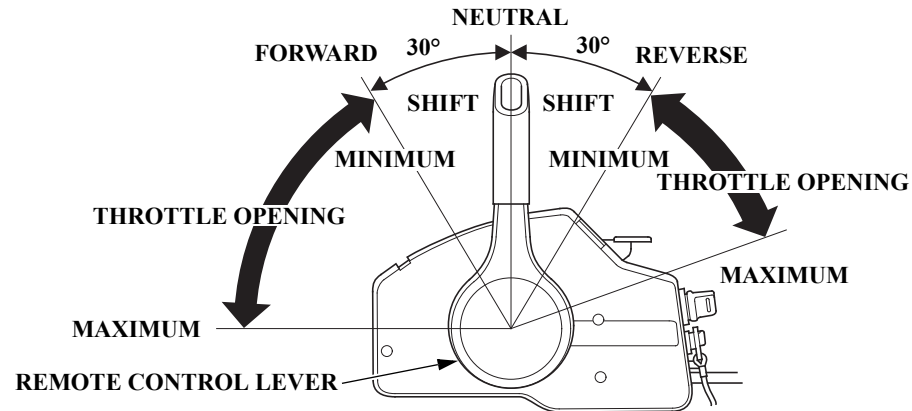
**TRL (Trolling) CONTROL SWITCH**

## 4. CONTROLS AND FEATURES

### Remote Control Lever (R1 type) REMOTE CONTROL LEVER



Shifting gear into forward, reverse, or neutral and the engine speed adjustment can be performed with the remote control lever. It is necessary to pull up the neutral release lever to operate the remote control lever.



**FORWARD:**  
Moving the lever to the FORWARD position (i.e. approximately 30° from the NEUTRAL position) engages the gear into forward. Moving the lever further from the FORWARD position will increase the throttle opening and the boat forward speed.

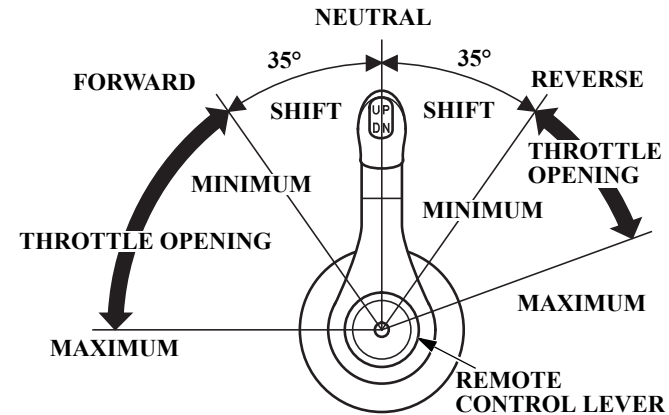
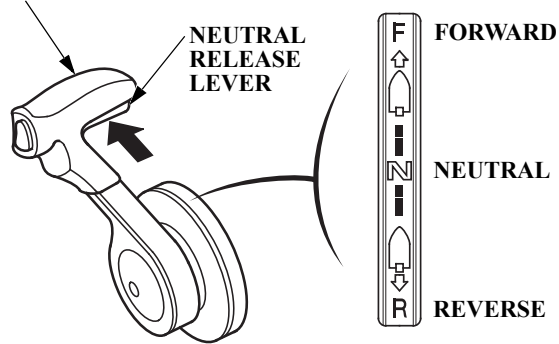
**NEUTRAL:**  
Engine power is cut off from the propeller.

**REVERSE:**  
Moving the lever to the REVERSE position (i.e. approximately 30° from the NEUTRAL position) engages the gear into reverse. Moving the lever further from the REVERSE position will increase the throttle opening and the boat reverse speed.

## CONTROLS AND FEATURES

### Remote Control Lever (R2 type)

#### REMOTE CONTROL LEVER



Shifting gear into forward, reverse, or neutral and the engine speed adjustment can be performed with the remote control lever. It is necessary to pull up the neutral release lever to operate the remote control lever.

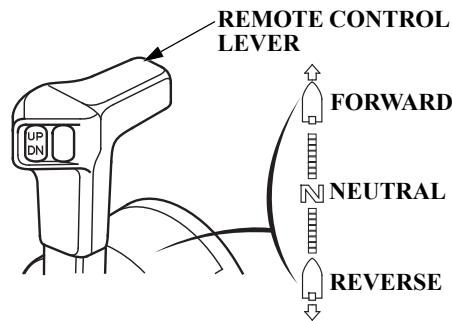
**FORWARD:**  
Moving the lever to the FORWARD position (i.e. approximately 35° from the NEUTRAL position) engages the gear into forward. Moving the lever further from the FORWARD position will increase the throttle opening and the boat forward speed.

**NEUTRAL:**  
Engine power is cut off from the propeller.

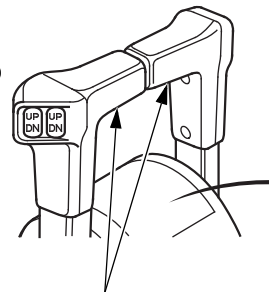
**REVERSE:**  
Moving the lever to the REVERSE position (i.e. approximately 35° from the NEUTRAL position) engages the gear into reverse. Moving the lever further from the REVERSE position will increase the throttle opening and the boat reverse speed.

## CONTROLS AND FEATURES

### Remote Control Lever (R3 type) (SINGLE TYPE)

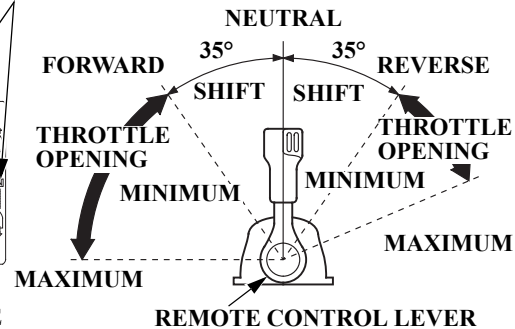


### (DUAL TYPE)



### FORWARD

### NEUTRAL



REMOTE CONTROL LEVER

REMOTE CONTROL LEVER

Shifting gear into forward, reverse, or neutral and the engine speed adjustment can be performed with the remote control lever.

#### FORWARD:

Moving the lever to the FORWARD position (i.e. approximately 35° from the NEUTRAL position) engages the gear into forward. Moving the lever further from the FORWARD position will increase the throttle opening and the boat forward speed.

#### NEUTRAL:

Engine power is cut off from the propeller.

#### REVERSE:

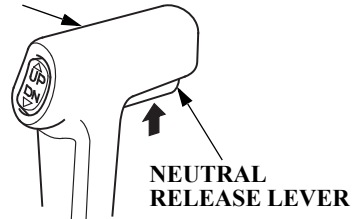
Moving the lever to the REVERSE position (i.e. approximately 35° from the NEUTRAL position) engages the gear into reverse. Moving the lever further from the REVERSE position will increase the throttle opening and the boat reverse speed.

## CONTROLS AND FEATURES

### Neutral Release Lever

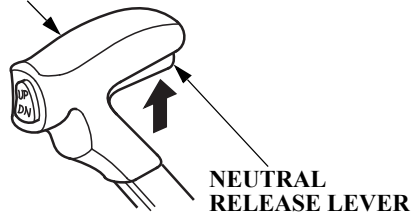
(R1 type)

REMOTE CONTROL LEVER



(R2 type)

REMOTE CONTROL LEVER

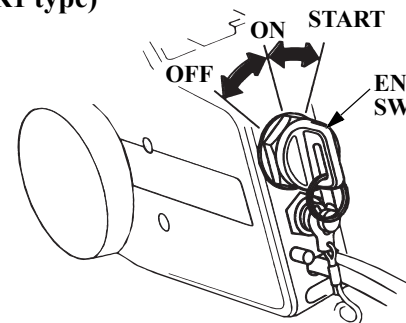


The neutral release lever is set on the remote control lever to prevent an accidental operation of the remote control lever.

The remote control lever does not operate unless it is moved while pulling the neutral release lever up.

### Engine Switch

(R1 type)

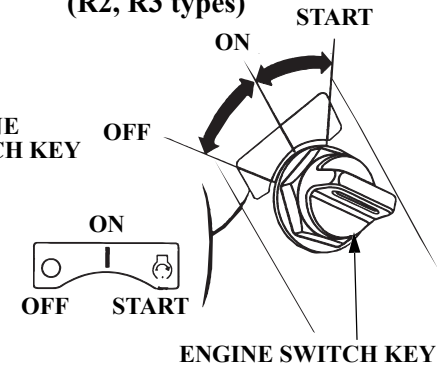


This remote control is equipped with an automotive type engine switch. On the side-mount type (R1 type), the engine switch locates on your side near the remote control box. On the panel-mount type (R2 type) and the top-mount type (R3 type), the engine switch locates at the center of the control panel.

Key positions:

- START: to start the engine.
- ON: to run the engine after starting.
- OFF: to stop the engine (IGNITION OFF).

(R2, R3 types)



#### NOTICE

**Do not leave the engine switch (ignition switch) ON (key in ON position) when the engine is not running as the battery will discharge.**

#### NOTE:

The starter motor will not work unless the remote control lever is in the NEUTRAL position, and the clip is in the emergency stop switch.

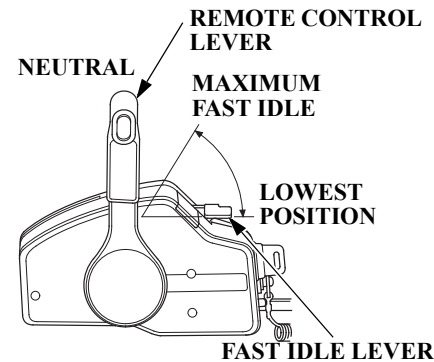
## CONTROLS AND FEATURES

### Fast Idle Lever (R1 type)/Fast Idle Button (R2, R3 types)

The fast idle lever/fast idle button is only needed for starting carbureted outboard model. The BF115D/135A/150A models use programmed fuel injection so, this lever will not be needed for starting.

After the engine starts and if the outside temperature is below 5°C (41°F), the fast idle lever/fast idle button can be used to accelerate engine warm up.

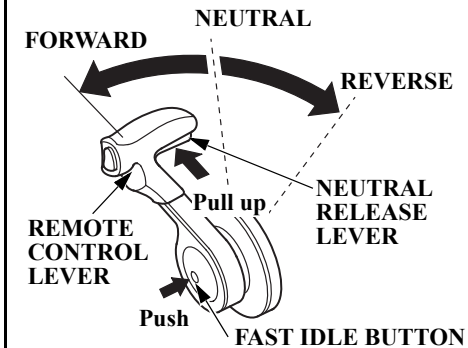
### <Fast Idle Lever> (R1 type)



The fast idle lever will not move unless the remote control lever is in the NEUTRAL position. Conversely, the remote control lever will not move unless the fast idle lever is in the lowest position.

Lower the fast idle lever to the lowest position to decrease the fast idle.

### <Fast Idle Button> (R2 type)

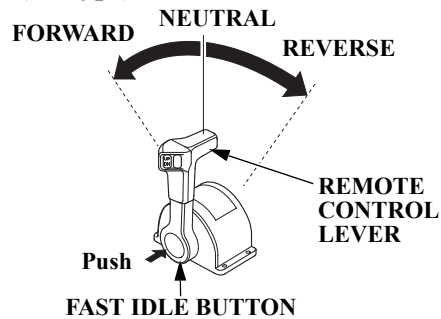


Pushing the fast idle button, turn the remote control lever forward. Keep turning the lever forward. The throttle opens and the engine speed increases after the lever passed the shift point. Note that the gearshift mechanism does not function when the fast idle button is pushed once and then released after the remote control lever is moved.

The control lever does not operate unless the neutral release lever is pulled.

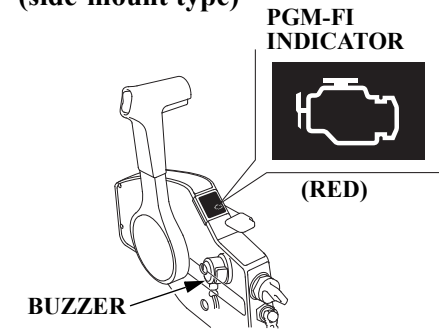
## CONTROLS AND FEATURES

### <Fast Idle Button> (R3 type)

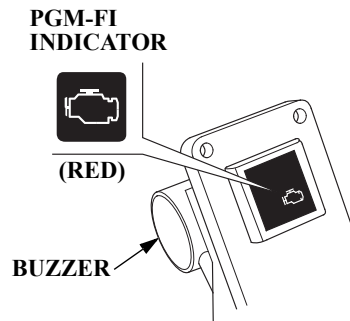


Use the fast idle button and the remote control lever to adjust the engine speed without gearshift when warming up the engine. Pushing the fast idle button, turn the remote control lever forward. Keep turning the lever forward. The throttle opens and the engine speed increases after the lever passed the shift point. Note that the gearshift mechanism does not function when the fast idle button is pushed once and then released after the remote control lever is moved.

### PGM-FI Indicator/Buzzer (side-mount type)

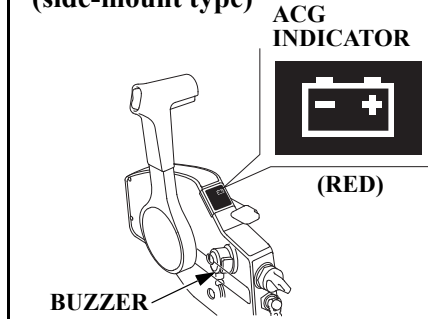


### (panel-mount/top-mount types)

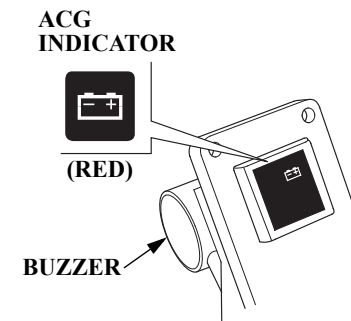


The PGM-FI indicator turns on and the buzzer sounds when the engine control system is faulty.

### ACG Indicator/Buzzer (side-mount type)



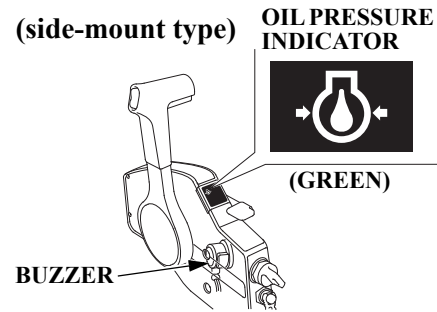
### (panel-mount/top-mount types)



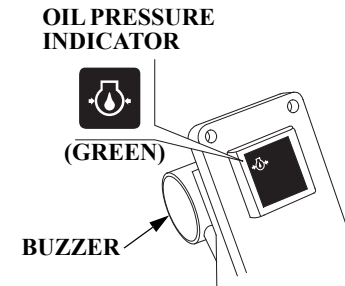
The ACG indicator turns on and the buzzer sounds when the charging system is faulty.

## CONTROLS AND FEATURES

### Oil Pressure Indicator/Buzzer (side-mount type)

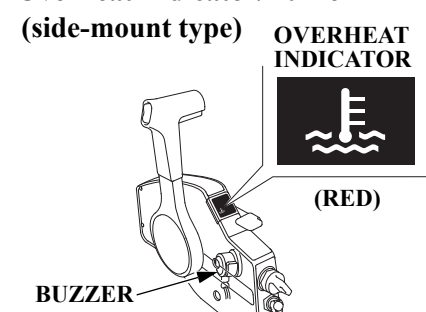


### (panel-mount/top-mount types)

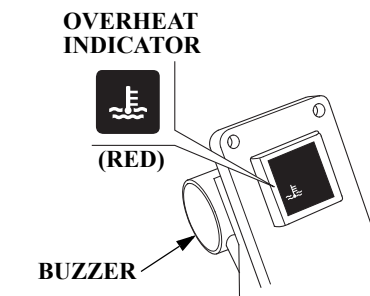


The oil pressure indicator turns off and the buzzer sounds when the oil level is low and/or the engine lubrication system is faulty. The engine speed slows down gradually this time.

### Overheat Indicator/Buzzer (side-mount type)



### (panel-mount/top-mount types)



The overheat indicator turns on and the buzzer sounds when the engine cooling circuit is faulty. The engine speed slows down this time.

### Water Separator Buzzer

The water separator buzzer sounds when water has accumulated in the water separator.



## CONTROLS AND FEATURES

### Power Trim/Tilt Switch

#### Power Trim

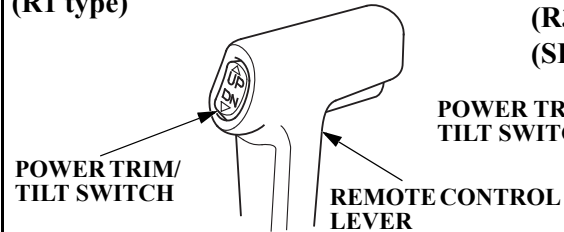
Press the power trim/tilt switch on the remote control lever to adjust the outboard motor trim angle of  $-4^{\circ}$  to  $16^{\circ}$  to maintain proper boat trim. The power trim/tilt switch can be operated while the boat is under way or while stopped.

By using the power trim/tilt switch the operator can change the trim angle of the outboard motor to achieve maximum boat acceleration, speed, stability and maintain optimum fuel consumption.

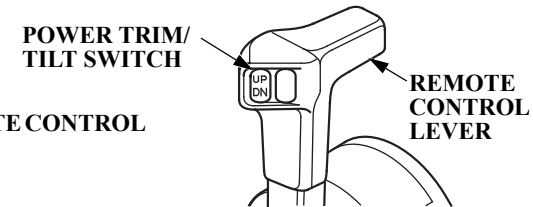
#### NOTE:

The outboard motor trim angle of  $-4^{\circ}$  to  $16^{\circ}$  is the angle when the outboard motor is installed on the boat at  $12^{\circ}$ .

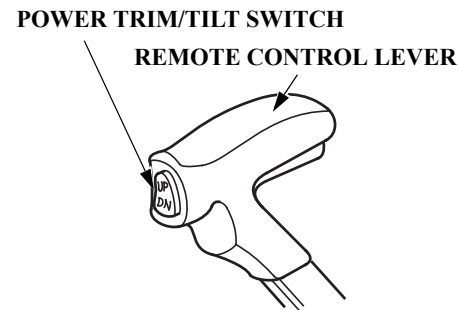
#### (R1 type)



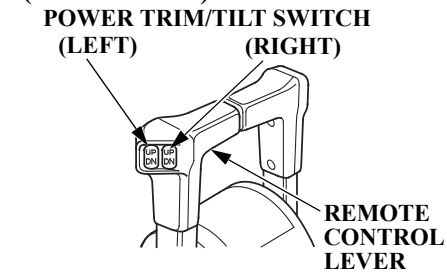
#### (R3 type) (SINGLE TYPE)



#### (R2 type)



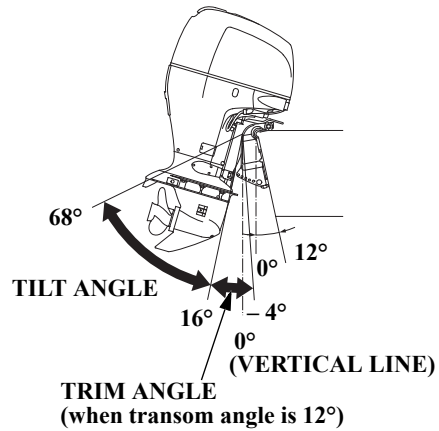
#### (DUAL TYPE)



#### NOTICE

Excessive trim/tilt angle during operation can cause the propeller to raise out of the water and cause propeller ventilation and engine over-revving. Excessive trim/tilt angle can also damage the water pump.

## CONTROLS AND FEATURES



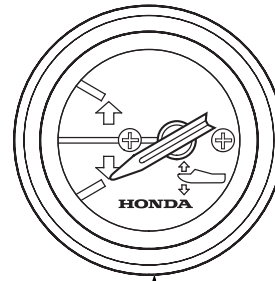
### Power Tilt

Press the power trim/tilt switch to adjust the outboard motor tilt angle of 16° to 68°.

By using the power trim/tilt switch the operator can change the tilt angle of the outboard motor for shallow water operation, beaching, launching from a trailer, or mooring.

Please tilt up simultaneously, when you mount the dual type outboard motor.

### Trim Meter (optional equipment)



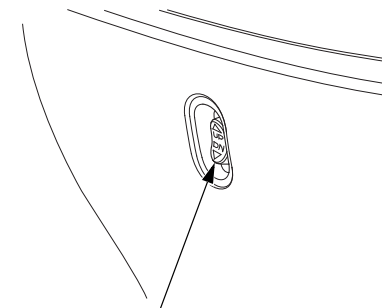
TRIM METER

The trim meter has a range of -4° to 16° and indicates the trim angle of the outboard motor. Refer to the trim meter when using the power trim/tilt switch to achieve proper boat performance.

### NOTE:

The outboard motor trim angle of -4° to 16° is the angle when the outboard motor is installed on the boat at 12°.

### Power Tilt Switch (outboard motor pan)

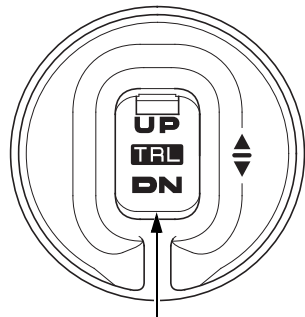


POWER TILT SWITCH

The power tilt switch located on the outboard motor pan is a convenience switch for tilting the outboard motor for trailering, or performing outboard maintenance. This power tilt switch should only be operated with the boat being stopped and engine off.

## CONTROLS AND FEATURES

### TRL (Trolling) Control Switch Panel (optional equipment)

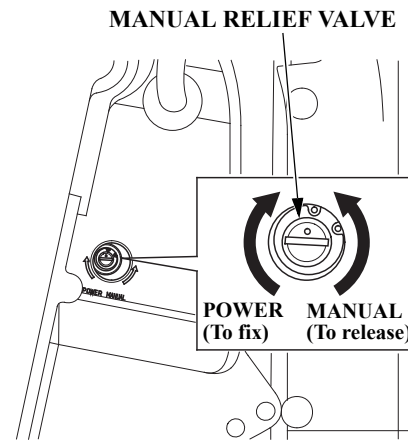


TRL (Trolling) CONTROL SWITCH

The engine speed can be adjusted with the trolling control switch when in trolling mode.

If you press and hold the TRL control switch while cruising with the throttle closed, the mode changes to trolling mode.

### Manual Relief Valve



If the power trim/tilt switch will not tilt the outboard motor, the outboard motor can be manually tilted up or down by opening the manual relief valve. To tilt the outboard motor manually, turn the manual relief valve under the left stern bracket no more than 1 or 2 turns counterclockwise using a screwdriver.

After tilting the outboard motor, turn the manual relief valve clockwise securely.

Check that no person is under the outboard motor before carrying out this position because if the manual relief valve is loosened (turned counterclockwise) when the outboard motor is tilted up, the outboard motor will suddenly tilt down.

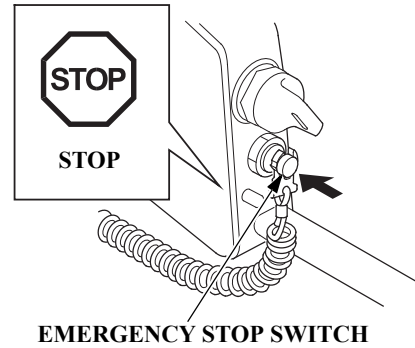
The manual relief valve must be tightened securely before operating the outboard motor or the outboard motor could tilt up when operating in reverse.

## CONTROLS AND FEATURES

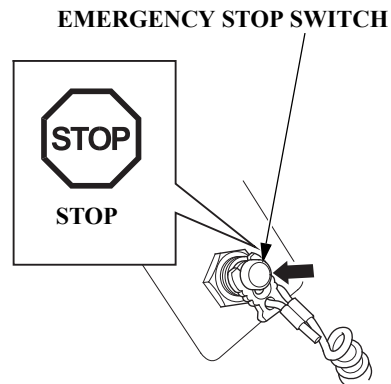
### Emergency Stop Switch

The emergency stop switch lanyard is provided to stop the engine immediately in the event the operator should fall overboard or away from the controls.

#### (R1 type)

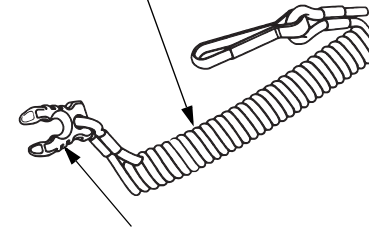


#### (R2, R3 types)



### Emergency Stop Switch Lanyard/Clip

#### EMERGENCY STOP SWITCH LANYARD



The emergency stop switch clip must be engaged with the engine stop switch or the engine will not start. When the emergency stop switch clip becomes disengaged with the emergency stop switch the engine will stop immediately.

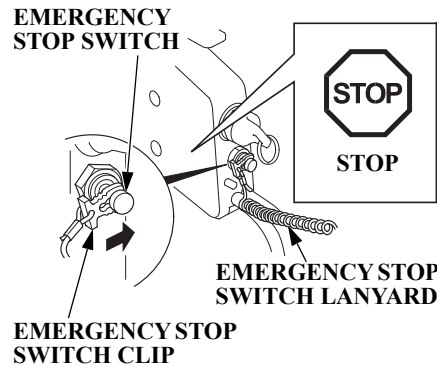
## CONTROLS AND FEATURES

For the sake of the operator's and the passenger's safety, be sure to set the emergency stop switch clip located at one end of the emergency stop switch lanyard with the emergency stop switch. Attach the other end of the emergency stop switch lanyard securely to the operator.

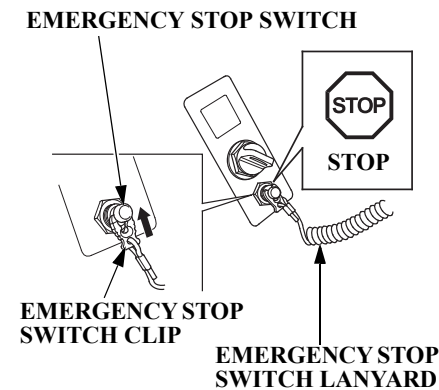
### ▲WARNING

**If the emergency stop switch lanyard is not set, the boat might run out of control when the operator, for example, falls overboard and is not able to operate the outboard motor.**

### (R1 type)

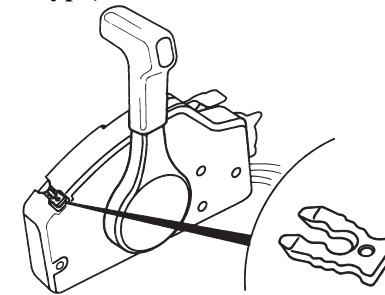


### (R2, R3 types)



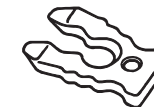
### Spare Emergency Stop Switch Clip

#### (R1 type)



A spare emergency stop switch clip is provided on the remote control box.

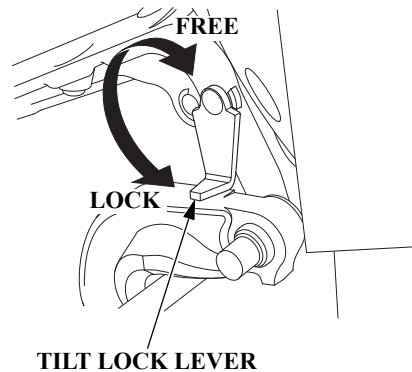
#### (R2, R3 types)



A spare emergency stop switch clip (optional equipment) can be stored in the tool bag (see page 82).

## CONTROLS AND FEATURES

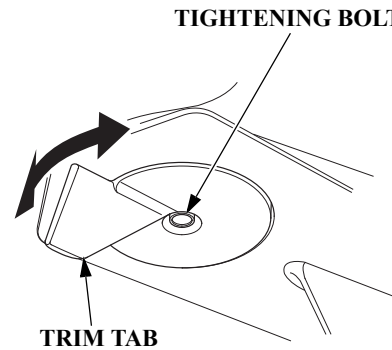
### Tilt Lock Lever



Use the tilt lock lever to raise the outboard motor and lock it in the position when the boat is moored or anchored for a long time.

Tilt the outboard motor as far as it goes and move the lock lever in the locking direction.

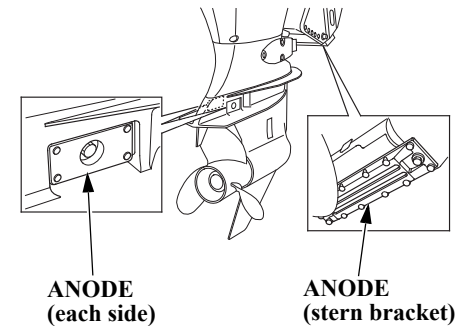
### Trim Tab



If the steering wheel is pulled to the side while running at full speed, adjust the trim tab so that the boat runs straight ahead.

Loosen the tightening bolt and turn the trim tab right or left to adjust (see page 69).

### Anode



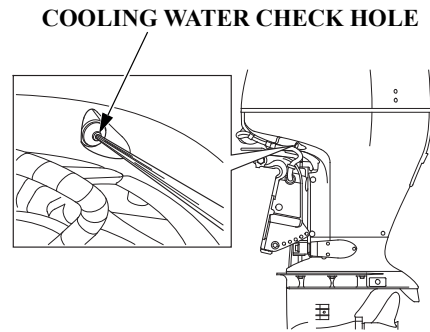
The anode metal is a sacrificed metal which protects the outboard motor from corrosion.

#### NOTICE

**Do not paint the anode. It deteriorates the function of the anode metal, which can lead to rust and corrosion damage to the outboard motor.**

## CONTROLS AND FEATURES

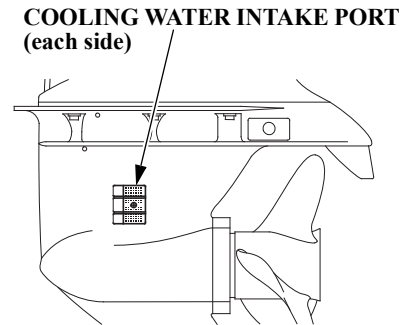
### Cooling Water Check Hole



The cooling water is checked here to see whether it is circulating inside the engine properly.

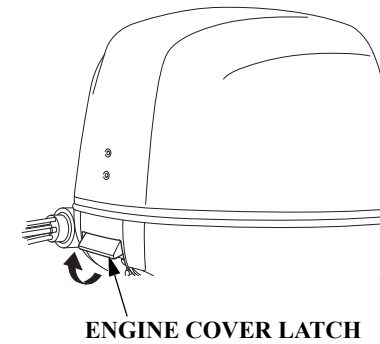
After starting the engine, check at the cooling water check hole whether the cooling water is circulating through the engine.

### Cooling Water Intake Port



The engine cooling water is drawn into the engine through this port.

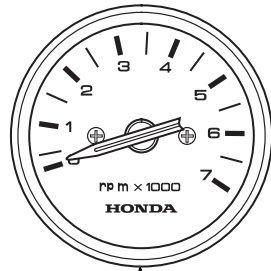
### Engine Cover Latch



Pull the engine cover latch to remove the engine cover.

## CONTROLS AND FEATURES

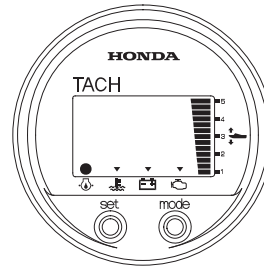
### Tachometer (optional equipment)



TACHOMETER

The tachometer shows the engine speed in revolutions per minute.

### Digital Tachometer (optional equipment)

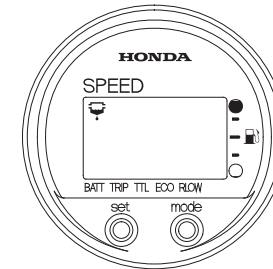


Digital Tachometer includes the following functions.

- Tachometer
- Hour Meter
- Trim Meter
- Oil Pressure Indicator
- Overheat Indicator
- ACG Indicator
- PGM-FI Indicator

Refer to the Operation Guide included with each Digital Tachometer for operation information.

### Digital Speedometer (optional equipment)

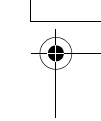
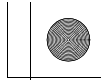
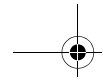
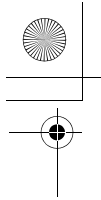


Digital Speedometer includes the following functions.

- Speedometer
- Fuel Level Meter
- Volt Meter
- Tripmeter
- Fuel Integration Meter
- Fuel Economy Meter
- Fuel Flow Meter
- Water Separator Indicator

Refer to the Operation Guide included with each Digital Speedometer for operation information.



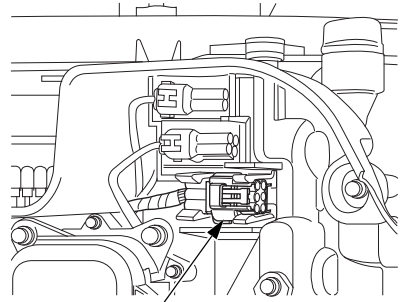
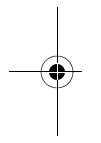


## CONTROLS AND FEATURES

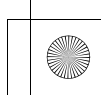
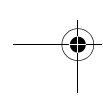
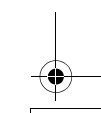
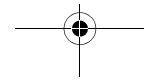
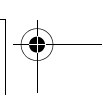
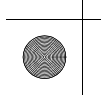
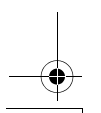
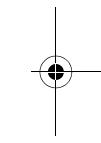
### Interface Coupler

NMEA2000 based information on engine speed, fuel consumption, and various warnings can be read by connecting to the outboard motor with the interface cable (sold separately).

Contact your dealer for more information.



**INTERFACE COUPLER  
(6 pin black)**



## 5. INSTALLATION

### NOTICE

**Improperly installed outboard motor can result in the outboard motor dropped into the water, boat not able to cruise straight ahead, engine speed not increase, and much fuel consumption.**

We recommend that the outboard motor be installed by an authorized Honda outboard motor dealer. Consult the authorized Honda dealer in your area for the Y-OP (User Optional Parts)/equipments installation and operation.

**Applicable Boat**  
Select the boat suitable for the engine power.

**Engine power:**  
BF115D: 84.6 kW (115 PS)  
BF135A: 99.3 kW (135 PS)  
BF150A: 110.3 kW (150 PS)

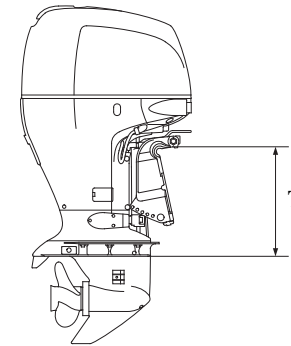
Power recommendation is indicated on most of the boats.

**30**

### ▲WARNING

**Do not exceed the boat manufacturer's power recommendation. Damage and injury may result.**

### Transom Height

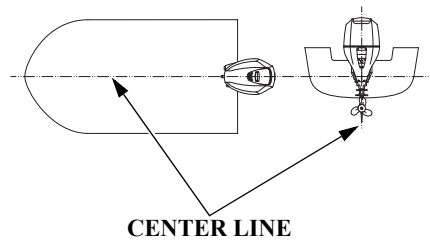


Type:	T (Outboard Motor Transom Height) <when transom angle is 12°>
L:	508 mm (20.0 in)
X:	635 mm (25.0 in)

Select the outboard motor which is correct for the boat transom height of your boat.

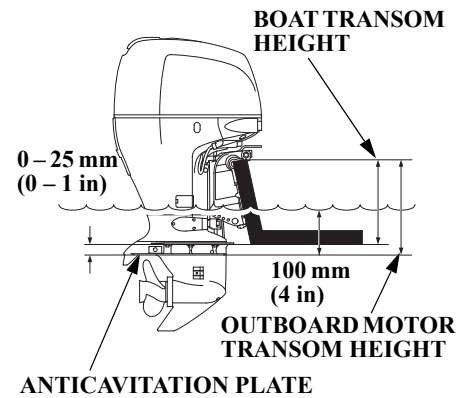
## INSTALLATION

### Location

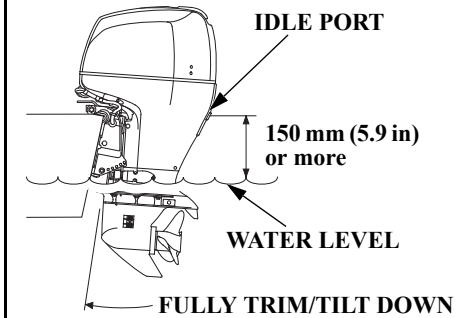


Install the outboard motor at the stern, at the center line of the boat.

### Installation Height



The anticavitation plate of the outboard motor should be 0 - 25 mm (0 - 1 in) below the bottom of the boat. The correct dimensions differ according to the type of boat and the configuration of the bottom of the boat. Follow the manufacturer's recommended installation height.

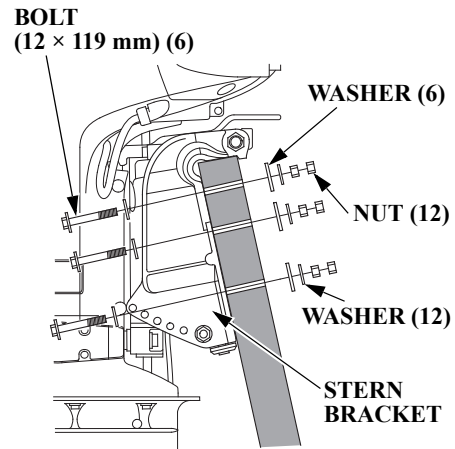


#### NOTICE

- The water level must be at least 100 mm (4 in) above the anticavitation plate, otherwise the water pump may not receive sufficient cooling water, and the engine will overheat.
- Adverse effect to the engine can occur if the installation position of the outboard motor is too low. Trim/tilt down the outboard motor with the boat fully loaded and stop the engine. Check that the idle port is 150 mm (5.9 in) or more above the water level.

## INSTALLATION

### Outboard Motor Installation



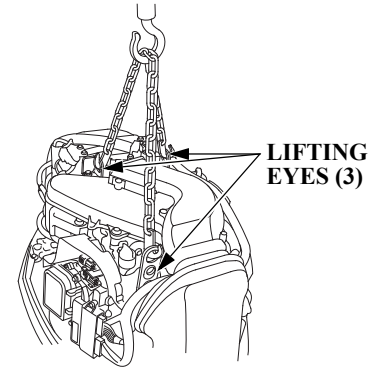
1. Apply the silicone sealant (Three Bond 1216 or equivalent) to the outboard motor mounting holes.
2. Set the outboard motor on the boat and secure with the bolts, washers, and lock nuts.

#### NOTE:

##### Standard torque:

55 N·m (5.6 kgf·m, 41 lbf·ft)

The standard torque is given just as a guideline. Torque of the nut can be different according to the material of the boat. Consult with an authorized Honda outboard motor dealer.



#### ▲ CAUTION

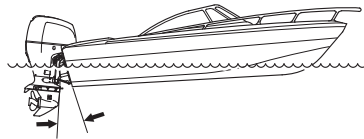
**Install the outboard motor securely. Loosely mounted outboard motor can result in accidental loss of the outboard motor and damage and injury to the equipment and personnel.**

Before installing the outboard motor on the boat, hang the outboard motor with the hoist or equivalent device by attaching the three lifting eyes to the outboard motor.

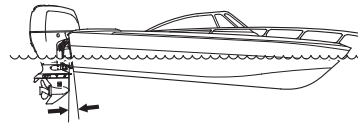
Use the hoist which allowable load is 250 kg (551 lbs) or above.

## INSTALLATION

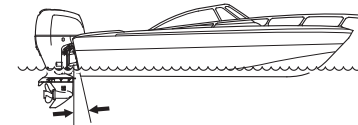
### Outboard Motor Angle Inspection (Cruising)



**INCORRECT  
CAUSES BOAT TO "SQUAT"**



**INCORRECT  
CAUSES BOAT TO "PLOW"**



**CORRECT  
GIVES MAXIMUM PERFORMANCE**

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."

The trim angle differs according to the combination of the boat, outboard motor, and propeller, and the operating conditions.

Adjust the outboard motor so that it is perpendicular to the water surface (i.e. axis of the propeller is parallel with the water surface).

## INSTALLATION

### Battery Connections

Use a battery which has CCA (COLD CRANKING AMPERES) 622A at  $-18^{\circ}\text{C}$  ( $0^{\circ}\text{F}$ ) and a reserve capacity 229 minutes (12V-64Ah/5HR or 80Ah/20HR) or more specifications.

The battery is an optional part (i.e. part to be purchased separately from the outboard motor).

#### ▲WARNING

**Batteries produce explosive gases: If ignited, an explosion can cause serious injury or blindness. Provide adequate ventilation when charging.**

- **CHEMICAL HAZARD: Battery electrolyte contains sulfuric acid. Contact with eyes or skin, even through clothing, may cause severe burns. Wear a faceshield and protective clothing.**
- **Keep flames and sparks away, and do not smoke in the area. ANTIDOTE: If electrolyte gets into your eyes, flush thoroughly with warm water for at least 15 minutes and call a physician immediately.**

- **POISON: Electrolyte is poison.**

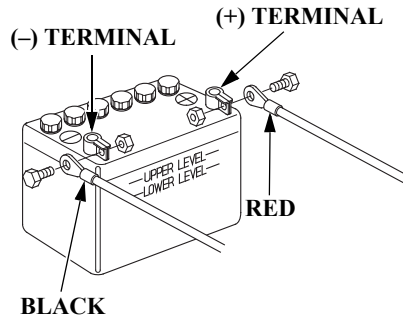
#### ANTIDOTE:

- **External: Flush thoroughly with water.**
- **Internal: Drink large quantities of water or milk. Follow with milk of magnesia or vegetable oil, and call a physician immediately.**
- **KEEP OUT OF REACH OF CHILDREN.**

To protect the battery from mechanical damage and to prevent the battery from falling or tipping over, the battery must be:

- Installed in the correct size corrosion-resistant battery box.
- Properly secured in the boat.
- Secured in a location free from direct sunlight and water spray.
- Secured away from the fuel tank to avoid potential sparks near the fuel tank.

## INSTALLATION



### Connect the battery cables:

1. Connect the cable with the red terminal cover to the positive (+) terminal of the battery.
2. Connect the cable with the black terminal cover to the negative (-) terminal of the battery.

### NOTE:

When the two outboard motors are mounted on a boat, connect a battery to the respective right and left outboard motors.

### NOTICE

- Be sure to connect the (+) side battery cable first. When disconnecting the cables, disconnect the (-) side first then the (+) side.
- Unless the cables are properly connected to the terminals, the starter motor may fail to operate normally.
- Be careful to avoid connecting the battery in reverse polarity, as this will damage the battery-charging system in the outboard motor.
- Do not disconnect the battery cables while the engine is running. Disconnecting the cables while the engine is running, will damage the outboard motor's electrical system.
- Do not place the fuel tank near the battery.

- **Battery cable extension:**  
Extending the original battery cable will cause the battery voltage to drop due to the increased length of the cable and number of connections. This voltage drop may cause the buzzer to sound momentarily when engaging the starter motor and may prevent the outboard from starting. If the outboard starts and the buzzer sounds momentarily, there may be barely sufficient voltage reaching the engine.

**WARNING:** Battery posts, terminals, and related accessories contain lead and lead compounds. Wash your hands after handling.

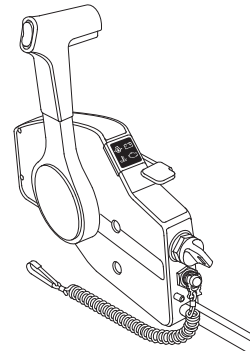
## INSTALLATION

### Remote Control Installation (optional equipment)

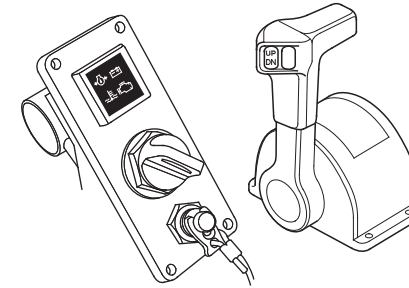
**NOTICE**

**Improperly installed steering system, remote control box, and remote control cable, or installing those of the different types could cause unpredictable accident. Consult an authorized Honda outboard motor dealer for proper installation.**

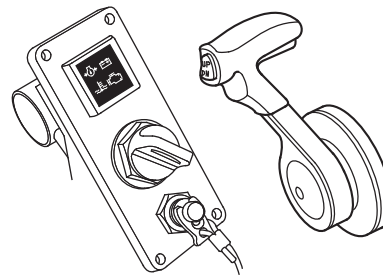
The control box is available in three types as shown. Select the most suitable control box for your outboard motor considering the installation position, operationability, etc. of the control box. See an authorized Honda outboard motor dealer for further information.



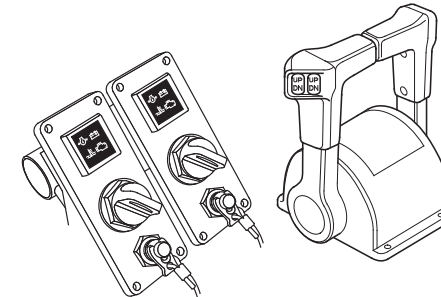
**SIDE-MOUNT TYPE CONTROL BOX**



**TOP-MOUNT TYPE CONTROL BOX AND SWITCH PANEL  
(FOR SINGLE OUTBOARD MOTOR TYPE)**



**PANEL-MOUNT TYPE CONTROL BOX AND SWITCH PANEL**

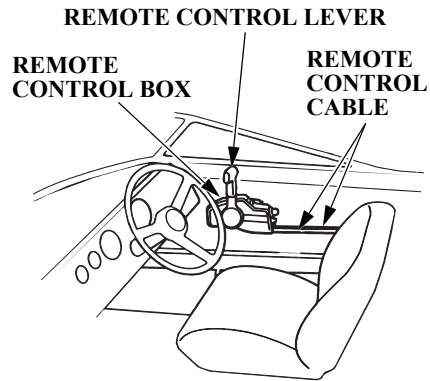


**TOP-MOUNT TYPE CONTROL BOX AND SWITCH PANELS  
(FOR DUAL OUTBOARD MOTOR TYPE)**



## INSTALLATION

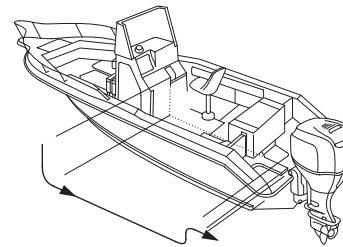
### <Remote Control Box Location>



Install the remote control box in the position where is easy to operate the remote control lever and switches. Be sure that there are no obstacles on the route of the control cable.

The control box position of the R2 type and the R3 type should be determined in the same manner.

### <Remote Control Cable Length>



Measure the distance from the control box to the outboard motor along the cable routing.

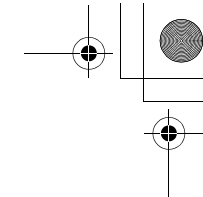
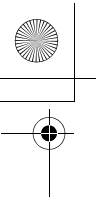
Recommended cable length is 300 – 450 mm (11.8 – 17.7 in) longer than the measured distance.

Set the cable along the predetermined route and be sure that it is long enough to the route.

Connect the cable to the engine and be sure it is not kinked, bent sharp, pulled taut, or interfered while steering.

### NOTICE

**Do not bend the remote control cable as sharp as its route diameter is 300 mm (11.8 in) or less, or it affects the service life of the cable and the remote control lever operation.**



## INSTALLATION

### Propeller Selection

Select the adequate propeller so that the engine speed at full throttle is BF115D: 4,500 min<sup>-1</sup> (rpm) to 6,000 min<sup>-1</sup> (rpm). BF135A/150A: 5,000 min<sup>-1</sup> (rpm) to 6,000 min<sup>-1</sup> (rpm) when the boat is loaded.

Engine speed varies according to the propeller size and the boat condition. Use of the outboard motor outside the full throttle speed range will adversely affect the engine and cause serious problem. Use of the correct propeller assures powerful acceleration, top speed, excellency in terms of economy and cruising comfort, and it assures longer engine life as well.

Consult with your authorized Honda outboard motor dealer for proper propeller selection.

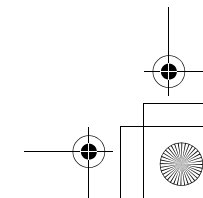
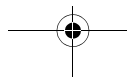
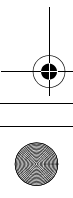
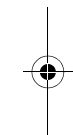
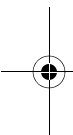
### Fuel Line Connection

Connect the fuel line to the tank and the outboard motor. Follow the boat manufacturer's instructions.

#### **▲WARNING**

**Gasoline is extremely flammable, and gasoline vapor can explode, causing serious injury or death.**

- **Be careful not to spill fuel. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before starting, storing or transporting the engine.**
- **Do not smoke or allow flames or sparks where fuel is refueled or stored.**



## 6. PRE-OPERATION CHECKS

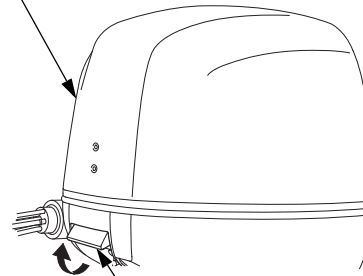
BF115D/135A/150A is 4-stroke, water cooled outboard motor which uses unleaded regular gasoline for fuel. It also requires the engine oil. Check the following before operating the outboard motor.

### ▲ CAUTION

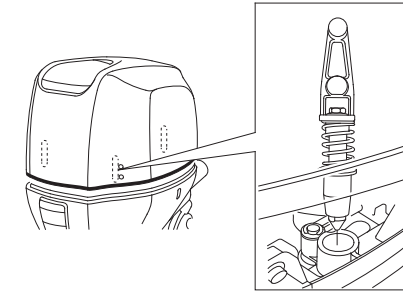
**Perform the following pre-operation checks with the engine stopped.**

### Engine Cover Removal/Installation

#### ENGINE COVER



ENGINE COVER LATCH



- To remove, pull the engine cover latch and lift the engine cover straight up.
- To install, place the engine cover on the outboard motor, and push down evenly.  
When reinstalling the covers, make sure not to jam the wire harnesses in between the covers and engine case.

### ▲ WARNING

**Do not operate the outboard motor without the engine cover. Exposed moving parts can cause injury.**

## PRE-OPERATION CHECKS

### Engine Oil

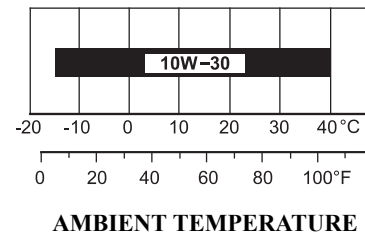
#### NOTICE

- **Engine oil is a major factor affecting engine performance and service life. Nondetergent and low quality oils are not recommended, because they have inadequate lubricating properties.**
- **Running the engine with insufficient oil can cause serious engine damage.**

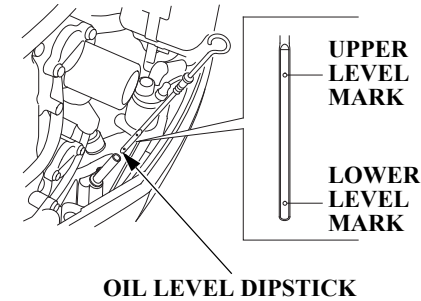
#### <Recommended oil>

Use Honda 4-stroke oil or an equivalent high detergent, premium quality motor oil certified to meet or exceed U.S. automobile manufacturer's requirements for API Service category SG, SH or SJ. Motor oils classified SG, SH or SJ will show this designation on the container.

SAE 10W-30 is recommended for general use.



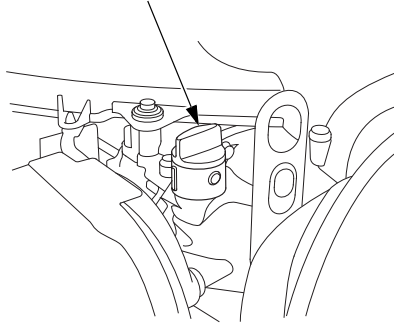
#### <Inspection and Refilling>



1. Position the outboard motor vertically, and remove the engine cover.
2. Remove the oil level dipstick and wipe with a clean rag.
3. Reinsert the dipstick all the way in, then pull it out and read the level. If near or below the lower level mark, remove the oil filler cap and fill to the upper level mark with the recommended oil. Tighten the oil filler cap and install the dipstick securely. Do not overtighten.

## PRE-OPERATION CHECKS

OIL FILLER CAP



When the engine oil is contaminated or discolored, replace with the fresh engine oil (see page 85 for replacement interval and procedure).

4. Install the engine cover and lock it securely.

**NOTICE**

**Do not overfill the engine oil. Check the engine oil after refilling. Excessive engine oil as well as the insufficient oil could cause damage to the engine.**

### Fuel

Check the fuel level and refill if necessary. Do not fill the fuel tank above the UPPER LIMIT. Refer to the boat manufacturer's instructions.

Use unleaded gasoline with a Research Octane Number of 91 or higher (a Pump Octane Number of 86 or higher). Use of leaded gasoline may cause damage to the engine.

Never use an oil/gasoline mixture or dirty gasoline. Avoid getting dirt, dust or water in the fuel tank.

**▲WARNING**

**Gasoline is extremely flammable and is explosive under certain conditions.**

- Refuel in a well-ventilated area with the engine stopped.
- Do not smoke or allow flames or sparks in the area where the engine is refueled or where gasoline is stored.
- Do not overfill the fuel tank (there should be no fuel in the filler neck). After refueling, make sure the fuel filler cap is closed properly and securely.
- Be careful not to spill fuel when refueling. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.
- Avoid repeated or prolonged contact with skin or breathing of vapor.  
**KEEP OUT OF REACH OF CHILDREN.**

## PRE-OPERATION CHECKS

### GASOLINE CONTAINING ALCOHOL

If you decide to use a gasoline containing alcohol (gasohol), be sure its octane rating is at least as high as that recommended by Honda. There are two types of “gasohol”: one containing ethanol, and the other containing methanol.

Do not use gasohol that contains more than 10% ethanol.

Do not use gasoline containing more than 5% methanol (methyl or wood alcohol) and that does not also contain co-solvents and corrosion inhibitors for methanol.

#### NOTE:

- Fuel system damage or engine performance problems resulting from the use of gasoline that contains more alcohol than recommended is not covered under the warranty.
- Before buying gasoline from an unfamiliar station, first determine if the gasoline contains alcohol, if it does, find out the type and percentage of alcohol used. If you notice any undesirable operating symptoms while using a particular gasoline. Switch to a gasoline that you know contains less than the recommended amount of alcohol.

## PRE-OPERATION CHECKS

### Propeller and Cotter Pin Inspection

#### ▲WARNING

The propeller blades are thin and sharp. Careless handling of the propeller can result in injury.

When checking the propeller:

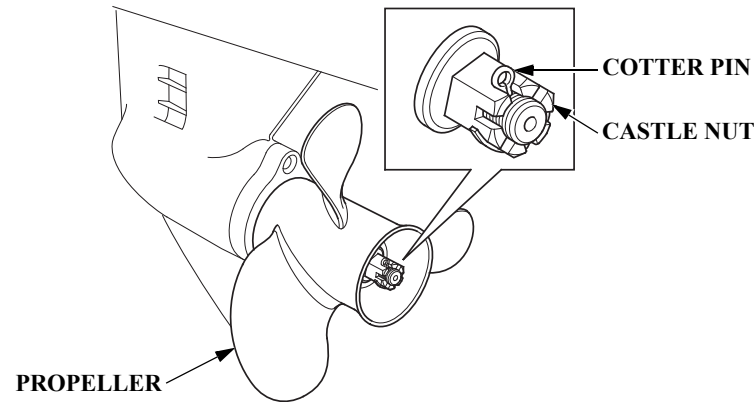
- Remove the emergency stop switch clip to prevent an accidental start of the engine.
- Wear heavy gloves.

Propeller rotates rapidly while cruising. Before starting the engine, check the propeller blades for damage and deformation and replace if necessary.

Obtain a spare propeller for the event of an unpredictable accident while cruising. If no spare propeller is available, return to the pier at low speed and replace (see page 104).

Consult an authorized Honda outboard motor dealer for propeller selection.

Keep the spare washer, castle nut and cotter pin with you on your boat.



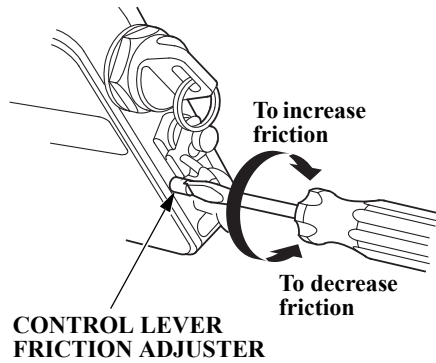
Engine speed varies according to the propeller size and the boat condition. Use of the outboard motor outside the full throttle speed range will adversely affect the engine and cause a serious problem. Use of the correct propeller assures powerful acceleration, top speed, excellency in terms of economy and cruising comfort, and it assures longer engine life as well.

Consult with your authorized Honda outboard motor dealer for proper propeller selection.

1. Check the propeller for damage, wear, or deformation. Replace whenever the propeller is faulty (see page 104).
2. Check whether the propeller is installed properly.
3. Check the cotter pin for damage.

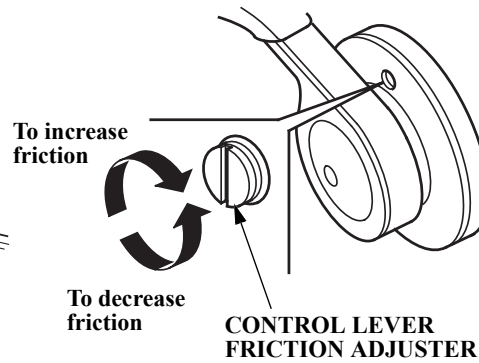
## PRE-OPERATION CHECKS

### Remote Control Lever Friction (R1 type)

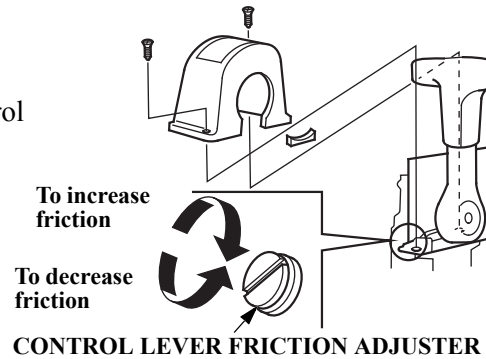


Check whether the remote control lever moves smoothly. Friction of the remote control lever can be adjusted by turning the control lever friction adjuster right or left.

### (R2 type)

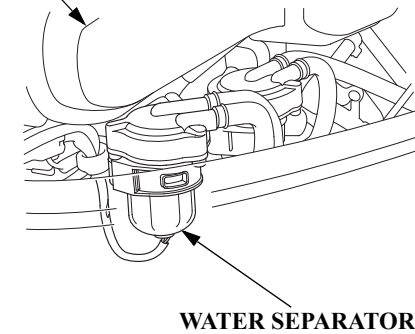


### (R3 type)



### Water Separator

#### INTAKE MANIFOLD



Water separator is located below the intake manifold. Check the water separator for water accumulation. Clean it or consult with an authorized Honda outboard motor dealer for clean (see page 97).



## PRE-OPERATION CHECKS

### Battery

#### NOTICE

Battery handling differs according to the type of the battery and the instructions described below might not be applicable to the battery of your outboard. Refer to the battery manufacturer's instructions.

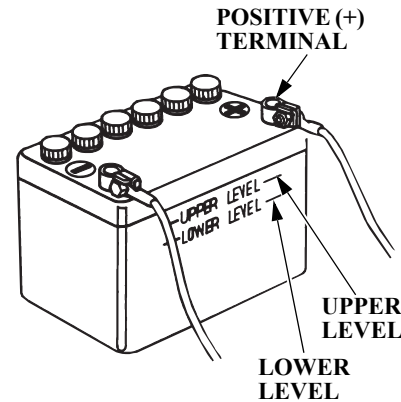
#### Battery Inspection

Check whether the battery fluid is between the upper and lower levels, and check the vent hole in the battery caps for clogging.

If the battery fluid is near or below the lower level, add the distilled water to the upper level (see page 100).

Check that the battery cables are connected securely.

If the battery terminals are contaminated or corroded, remove the battery and clean the terminals (see page 101).



#### WARNING

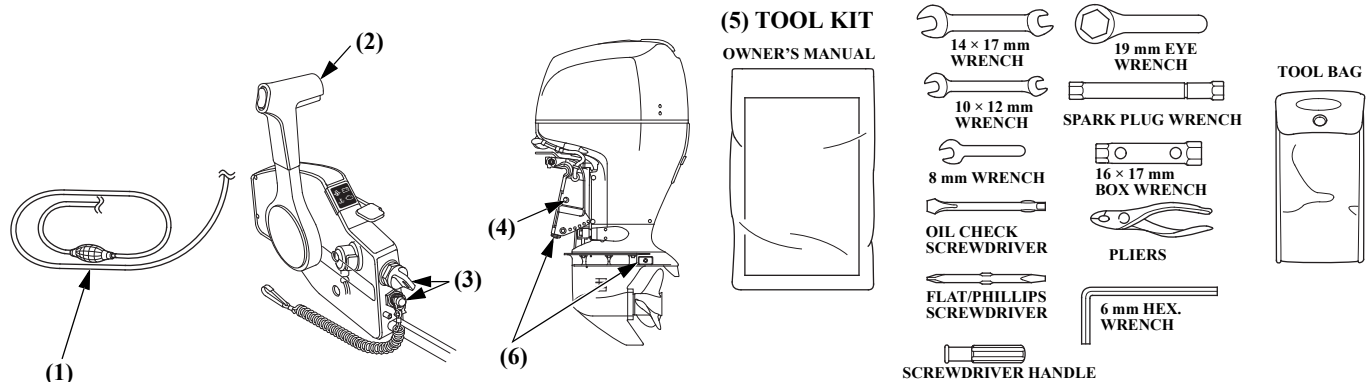
**Batteries produce explosive gases: If ignited, an explosion can cause serious injury or blindness. Provide adequate ventilation when charging.**

- **CHEMICAL HAZARD: Battery electrolyte contains sulfuric acid. Contact with eyes or skin, even through clothing, may cause severe burns. Wear a faceshield and protective clothing.**

- **Keep flames and sparks away, and do not smoke in the area.**  
**ANTIDOTE: If electrolyte gets into your eyes, flush thoroughly with warm water for at least 15 minutes and call a physician immediately.**
- **POISON: Electrolyte is poison.**  
**ANTIDOTE:**
  - **External: Flush thoroughly with water.**
  - **Internal: Drink large quantities of water or milk. Follow with milk of magnesia or vegetable oil, and call a physician immediately.**
- **KEEP OUT OF REACH OF CHILDREN.**

## PRE-OPERATION CHECKS

### Other Checks



#### Check the following items:

- (1) The fuel hose for kinking, collapsing or a loose connection.
- (2) The remote control lever for smooth operation.
- (3) The switches for correct operation.
- (4) The stern bracket for damage.
- (5) The tool kit for missing spare parts and tools.
- (6) The anode metal for damage, looseness or excessive corrosion.

The anode (sacrificed metal) helps to protect the outboard motor from corrosion damage; it must be exposed directly to the water whenever the outboard motor is in use. Replace the anodes when they have been reduced to about two-thirds of their original size, or if they are crumbling.

#### NOTICE

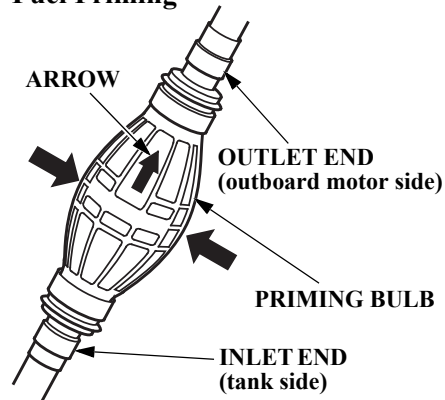
**The possibility of corrosion damage is increased if the anode is painted over or allowed to deteriorate.**

Parts/materials which should be installed on board:

- (1) Owner's Manual
- (2) Tool kit
- (3) Spare parts: spark plugs, engine oil, spare propeller, castle nut, washer and cotter pin.
- (4) Spare emergency stop switch clip.
- (5) Other parts/materials required by laws/regulations.

## 7. STARTING THE ENGINE

### Fuel Priming



Hold the priming bulb so that the outlet end is higher than the inlet (so that the arrow on the priming bulb points up), and squeeze it until it feels firm, indicating that fuel has reached the outboard motor. Check for leaks.

#### ▲WARNING

Be careful not to spill any fuel. Spilled fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.

#### NOTICE

Do not touch the priming bulb with the engine running or when tilting up the outboard motor. The vapor separator could overflow.

### Starting the Engine

(R1 type)

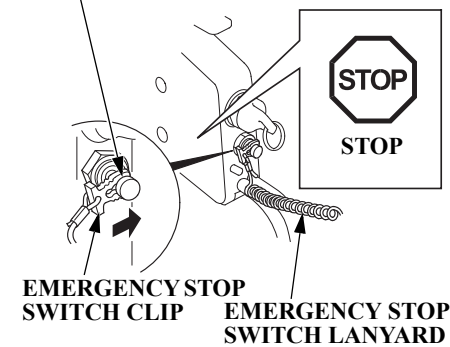
#### ▲WARNING

The exhaust contains poisonous carbon monoxide. Do not start the engine in a poor ventilation area such as in a boat house.

#### NOTICE

To prevent damage to the outboard from overheating, never run the engine with the propeller out of water.

#### EMERGENCY STOP SWITCH



## STARTING THE ENGINE

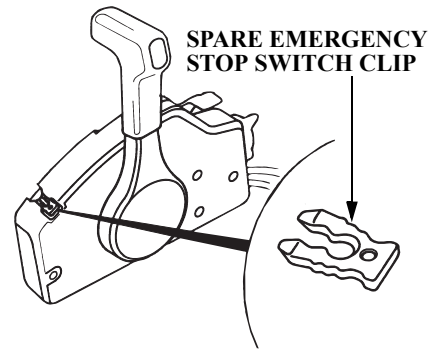
1. Insert the emergency stop switch clip at one end of the emergency stop switch lanyard into the emergency stop switch. Attach the other end of the emergency stop switch lanyard securely to the operator.

### ▲WARNING

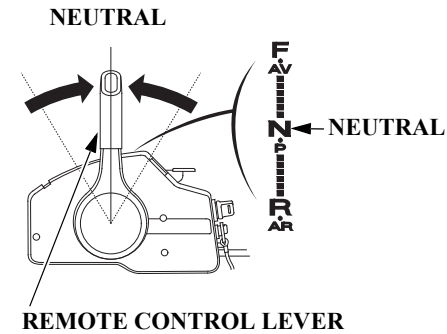
**If the operator does not attach the emergency stop switch lanyard, and is thrown from his seat or out of the boat, the out-of-control boat can seriously injure the operator, passengers, or bystanders. Always properly attach the lanyard before starting the engine.**

### NOTE:

The engine will not start unless the emergency stop switch clip is engaged with the emergency stop switch.

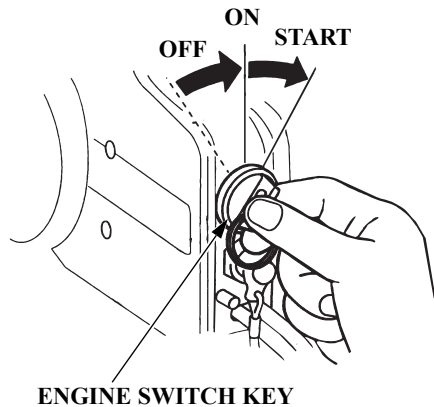


A spare emergency stop switch clip is provided on the remote control box.



2. Set the remote control lever in the NEUTRAL position.  
The engine does not start unless the remote control lever is set in the NEUTRAL position.
3. Leave the fast idle lever in the OFF (fully lowered) position.

## STARTING THE ENGINE



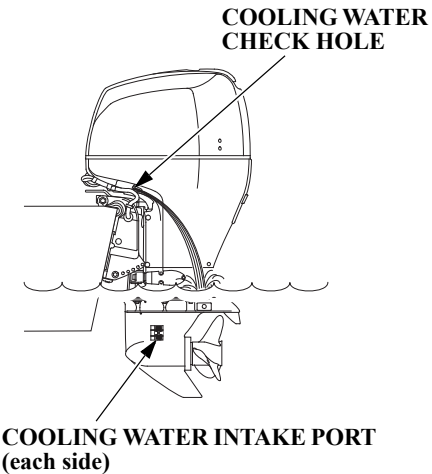
4. Turn the engine switch key to the START position and hold it there until the engine starts. When the engine starts, release the key, allowing it to return to the ON position.

### NOTICE

- The starter motor consumes a large amount of current. Do not therefore run it continuously for more than 5 seconds at a time. If the engine does not start within 5 seconds, wait at least 10 seconds before running the starter motor again.
- Do not turn the engine switch key to the START position while the engine is running.

### NOTE:

The “Neutral Starting System” prevents the engine from being started unless the control lever is set in the N (neutral) position even though the engine is cranked by the starting engine.



5. After starting, check whether the cooling water is flowing out of the cooling water check hole. Amount of water flowing out of the check hole might vary due to the thermostat operation, but this is normal.

## STARTING THE ENGINE

### NOTICE

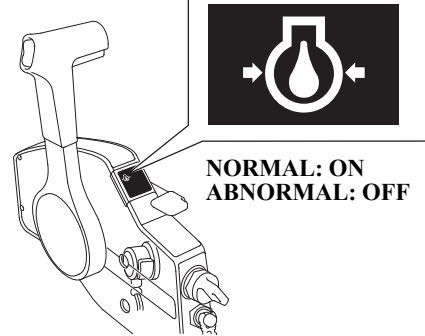
If water does not flow out, or if steam comes out, stop the engine. Check to see if the screen in the cooling water intake port is obstructed and remove foreign materials if necessary. Check the cooling water check hole for clogging. If water still does not flow out, have your outboard motor checked by an authorized Honda outboard motor dealer. Do not operate the engine until the problem has been corrected.

6. Check to see if the oil pressure indicator turns ON.

If it does not turn on, stop the engine and perform the following inspections.

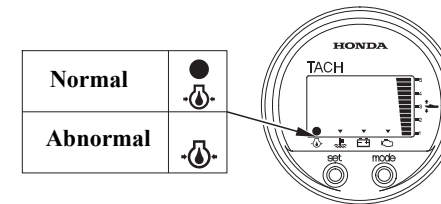
- 1) Check the oil level (see page 40).
- 2) If the oil level is normal and the oil pressure indicator light does not turn ON, consult with an authorized Honda outboard motor dealer.

### OIL PRESSURE INDICATOR LIGHT



7. Warm up the engine as follows:  
 Above 5°C (41°F) – run the engine for at least 3 minutes.  
 Below 5°C (41°F) – run the engine for at least 5 minutes at approx. 2,000 min<sup>-1</sup> (rpm).  
 Failure to completely warm up the engine will result in poor engine performance.

### Digital Tachometer



### NOTICE

- If the engine is not properly warmed-up before raising the engine speed, the warning buzzer and overheat indicator may activate and the engine speed will be automatically reduced.
- The cooling system may freeze in areas where the temperature reaches 0°C (32°F) or below. Cruising at high speed without warming the engine up may cause engine damage.

### NOTE:

Before leaving the dock, check the operation of the emergency stop switch.

## STARTING THE ENGINE

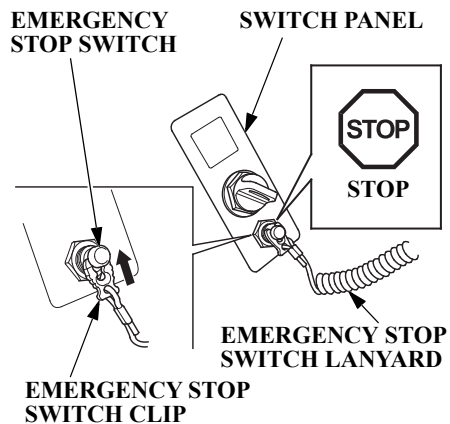
(R2, R3 types)

**▲WARNING**

The exhaust contains poisonous carbon monoxide. Do not start the engine in a poor ventilation area such as in a boat house.

**NOTICE**

To prevent damage to the outboard from overheating, never run the engine with the propeller out of water.



**NOTE:**

When the boat is mounted with the two outboard motors, perform the following on the right and left engines respectively.

1. Insert the clip at one end of the emergency stop switch lanyard into the emergency stop switch. Attach the other end of the emergency stop switch lanyard securely to the operator.

Be sure to install the emergency stop switch clip to the emergency stop switch on the remote control box as well as on the switch panel.

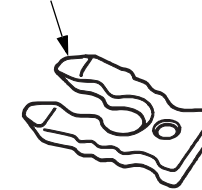
**▲WARNING**

If the operator does not attach the emergency stop switch lanyard, and is thrown from his seat or out of the boat, the out-of-control boat can seriously injure the operator, passengers, or bystanders. Always properly attach the lanyard before starting the engine.

**NOTE:**

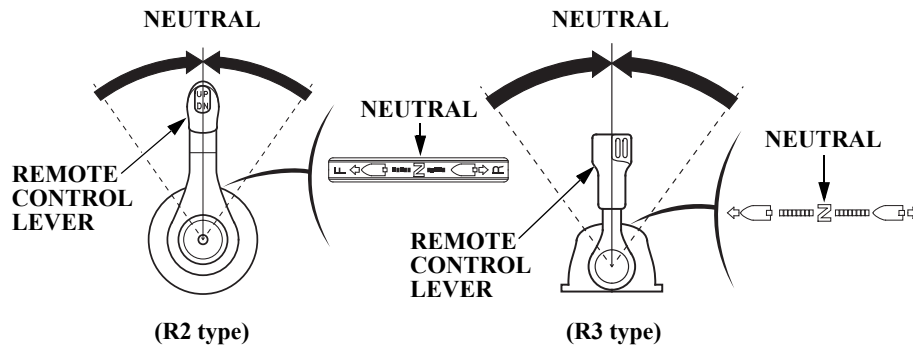
The engine does not start unless the emergency stop switch clip is set on the emergency stop switch.

**SPARE EMERGENCY STOP SWITCH CLIP (optional equipment)**

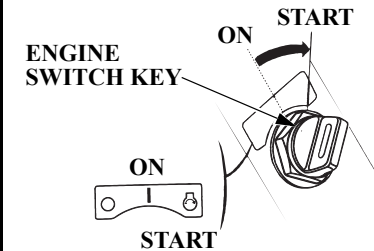


A spare emergency stop switch clip (optional equipment) can be stored in the tool bag (see page 82).

## STARTING THE ENGINE



2. Set the remote control lever in the NEUTRAL position.  
The engine does not start unless the remote control lever is set in the NEUTRAL position.



3. Turn the engine switch key to the START position and hold it there until the engine starts.  
When the engine starts, release the key, allowing it to return to the ON position.

### NOTICE

- The starter motor consumes a large amount of current. Do not therefore run it continuously for more than 5 seconds at a time. If the engine does not start within 5 seconds, wait at least 10 seconds before running the starter motor again.
- Do not turn the engine switch key to the START position while the engine is running.

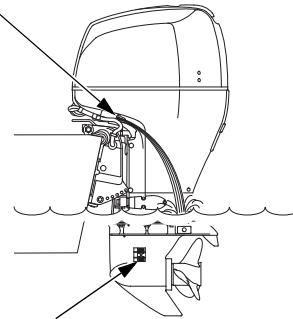


## STARTING THE ENGINE

### NOTE:

- When the boat is mounted with the two outboard motors, perform the above procedure on the right and left outboard motors respectively.
- The “Neutral Starting System” prevents the engine from being started unless the control lever is set in the N (neutral) position even though the engine is cranked by the starting engine.

### COOLING WATER CHECK HOLE



### COOLING WATER INTAKE PORT (each side)

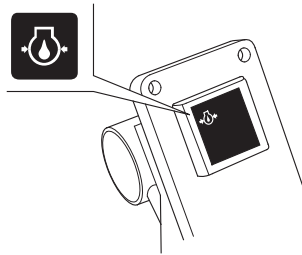
4. After starting, check whether the cooling water is flowing out of the cooling water check hole. Amount of water flowing out of the check hole might vary due to the thermostat operation, but this is normal.

### NOTICE

**If water does not flow out, or if steam comes out, stop the engine. Check to see if the screen in the cooling water intake port is obstructed and remove foreign materials if necessary. Check the cooling water check hole for clogging. If water still does not flow out, have your outboard motor checked by an authorized Honda outboard motor dealer. Do not operate the engine until the problem has been corrected.**

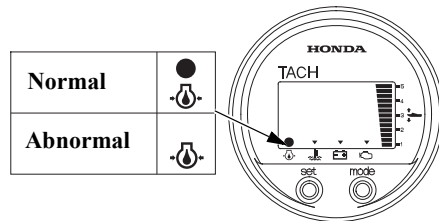
## STARTING THE ENGINE

### ENGINE OIL PRESSURE INDICATOR



**NORMAL: ON**  
**ABNORMAL: OFF**

### DIGITAL TACHOMETER



54

5. Check to see if the oil pressure indicator turns ON.

If it does not turn on, stop the engine and perform the following inspections.

- 1) Check the oil level (see page 40).
- 2) If the oil level is normal and the oil pressure indicator light does not turn ON, consult with an authorized Honda outboard motor dealer.

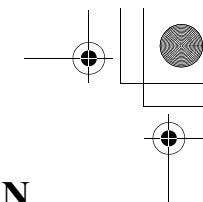
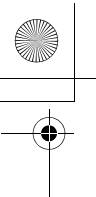
6. Warm up the engine as follows:  
Above 5°C (41°F) – run the engine for at least 3 minutes.  
Below 5°C (41°F) – run the engine for at least 5 minutes at approx. 2,000 min<sup>-1</sup> (rpm).  
Failure to completely warm up the engine will result in poor engine performance.

### NOTICE

- **If the engine is not properly warmed-up before raising the engine speed, the warning buzzer and overheat indicator may activate and the engine speed will be automatically reduced.**
- **The cooling system may freeze in areas where the temperature reaches 0°C (32°F) or below. Cruising at high speed without warming the engine up may cause engine damage.**

### NOTE:

Before leaving the dock, check the operation of the emergency stop switch.



## 8. OPERATION

### Break-in Procedure

Break-in period: 10 hours

Break-in operation allows the mating surfaces of the moving parts to wear evenly and thus ensures proper performance and longer outboard motor life.

Break-in your new outboard motor as follows.

First 15 minutes:

Run the outboard motor at trolling speed. Use the minimum amount of throttle opening necessary to operate the boat at a safe trolling speed.

Next 45 minutes:

Run the outboard motor up to a maximum of 2,000 to 3,000  $\text{min}^{-1}$  (rpm) or 10% to 30% throttle opening.

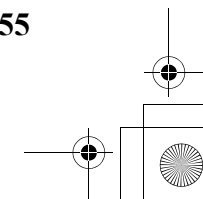
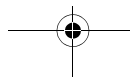
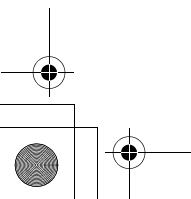
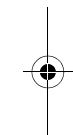
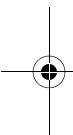
Next 60 minutes:

Run the outboard motor up to maximum of 4,000 to 5,000  $\text{min}^{-1}$  (rpm) or 50% to 80% throttle opening. Short bursts of full throttle are acceptable but do not operate the outboard motor continuously at full throttle.

Next 8 hours:

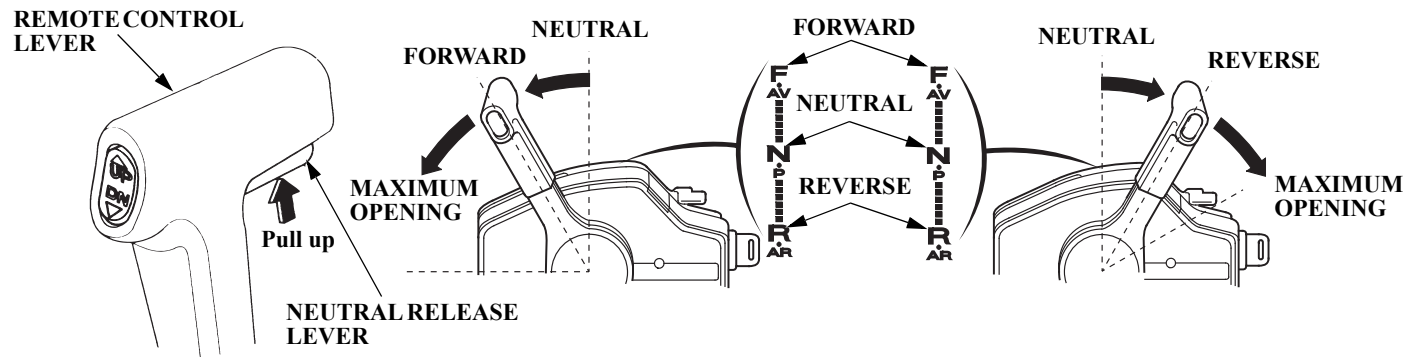
Avoid continuous full throttle operation (100% throttle opening). Do not run the outboard motor at full throttle for more than 5 minutes at a time.

For boats that plane easily, bring the boat up on plane then reduce the throttle opening to the specified break-in settings called out above.



## OPERATION

### Gear Shifting (R1 type)



#### CAUTION

**Avoid sharp and abrupt operation of the remote control lever. Operate it moderately. Operate the remote control lever and raise the engine speed after making sure that the gear was shifted securely.**

While pulling the neutral release lever, move the remote control lever approximately 30° toward the FORWARD or REVERSE position to engage the desired gear.

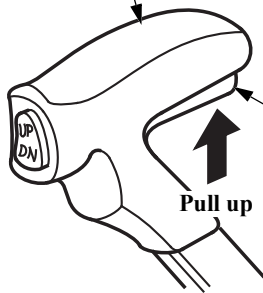
Moving the remote control lever further from approximately 30° will increase throttle opening and boat speed.

The remote control lever will not move unless the neutral release lever is pulled up.

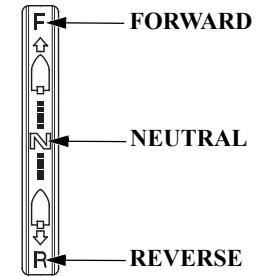
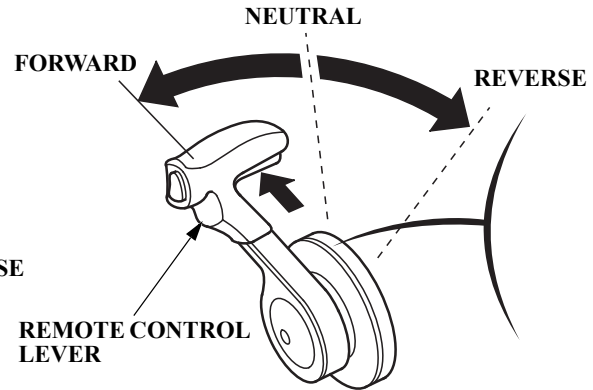
## OPERATION

### Gear Shifting (R2 type)

REMOTE CONTROL LEVER



NEUTRAL RELEASE LEVER



#### ▲ CAUTION

**Avoid sharp and abrupt operation of the remote control lever. Operate it moderately. Operate the remote control lever and raise the engine speed after making sure that the gear was shifted securely.**

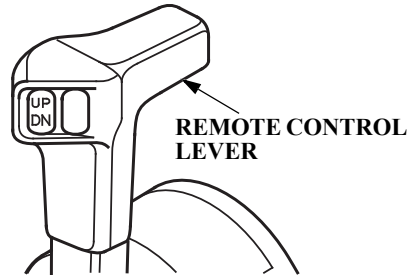
While pulling the neutral release lever, move the remote control lever approximately 35° toward the FORWARD or REVERSE position to engage the desired gear.

Moving the remote control lever further from approximately 35° will increase throttle opening and boat speed.

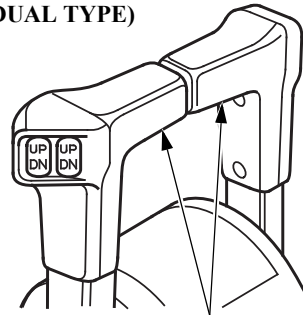
The remote control lever will not move unless the neutral release lever is pulled up.

## OPERATION

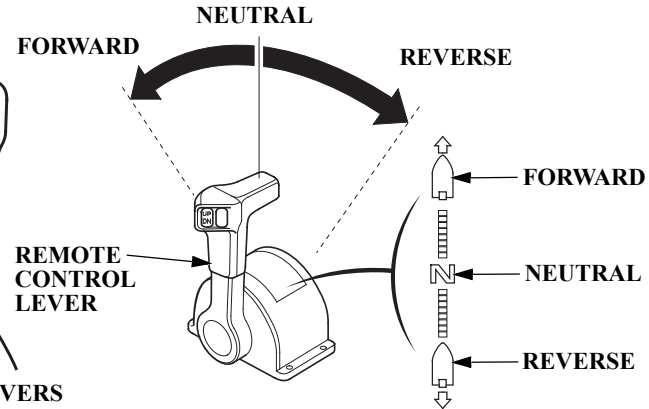
### Gear Shifting (R3 type) (SINGLE TYPE)



### (DUAL TYPE)



### REMOTE CONTROL LEVERS



#### ▲ CAUTION

Avoid sharp and abrupt operation of the remote control lever. Operate it moderately. Operate the remote control lever and raise the engine speed after making sure that the gear was shifted securely.

Move the remote control lever(s) approximately 35° toward the FORWARD or REVERSE position to operate the desired gear.

When the boat is mounted with the two outboard motors, hold the remote control lever in the center as shown, and operate the right and left levers simultaneously.

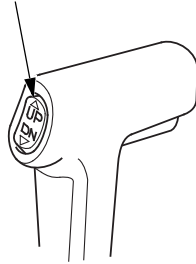
Moving the remote control lever(s) further from approximately 35° will increase throttle opening and boat speed.

## OPERATION

### Cruising

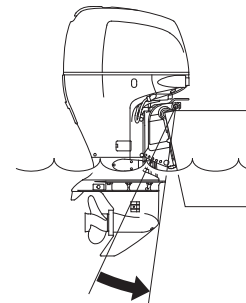
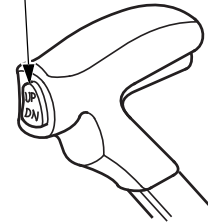
(R1 type)

POWER TRIM/TILT SWITCH



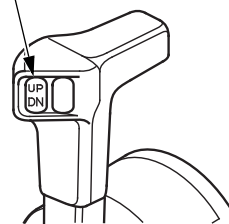
(R2 type)

POWER TRIM/TILT SWITCH

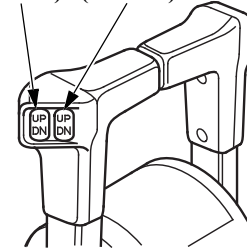


LOWERMOST POSITION

(R3 type)  
(single type)  
POWER TRIM/TILT SWITCH



(dual type)  
POWER TRIM/TILT SWITCH  
(LEFT) (RIGHT)



1. Press on the DN (down) of the power trim/tilt switch on the remote control lever and trim the outboard motor at the lowermost position.

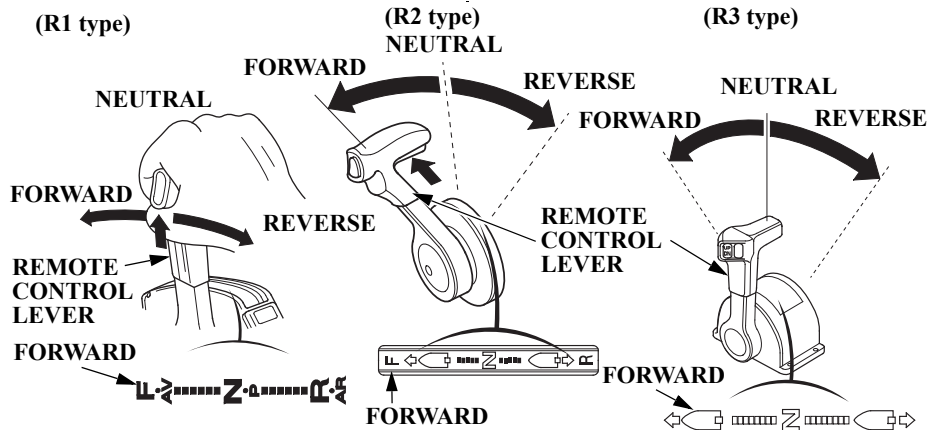
R3 type:

When the two outboard motors are mounted:

1) Press on the DN (down) of the power trim/tilt switch on the remote control lever and trim the outboard motors at the lowermost position.

2) With the outboard motors trimmed at the lowermost position, adjust the trim angle of the right and left outboard motors using the switch on the remote control lever simultaneously.

## OPERATION



2. Move the remote control lever from NEUTRAL toward FORWARD position.

**R1 type:**  
Moving about 30° engages the gear. Moving the remote control lever further opens the throttle and increases the engine speed.

**R2, R3 types:**  
Moving about 35° engages the gear. Moving the remote control lever further opens the throttle and increases the engine speed.

For the sake of fuel economy, open the throttle about 80%.

### NOTE:

- When cruising at full throttle, note that the engine speed must be in the range BF115D: between 4,500 min<sup>-1</sup> (rpm) and 6,000 min<sup>-1</sup> (rpm), BF135A/150A: between 5,000 min<sup>-1</sup> (rpm) and 6,000 min<sup>-1</sup> (rpm).
- If you feel that the engine speed jumped up when the hull jumped or at ventilation, cruise the boat by returning the throttle to the slow speed side.
- See “Propeller Selection” (page 38) for a relation between the propeller and the engine speed.

### CAUTION

**Do not operate without the engine cover. Exposed moving parts could cause injury; water may damage the engine.**

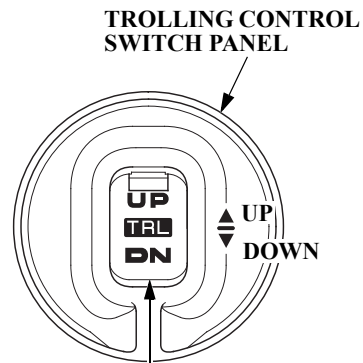
### NOTE:

For best performance, passengers and equipment should be distributed evenly to balance the boat.



## OPERATION

### TRL (Trolling) Control Switch (optional equipment)



TRL (Trolling) CONTROL SWITCH

UP: Increase engine speed  
DN: Reduce engine speed

After the engine has warmed up, keeping the UP or DN button pushed when cruising with the throttle fully closed, changes the mode to trolling mode.

A long buzz sounds once.

When the mode is changed to trolling mode, the engine speed is  $650 \text{ min}^{-1}$  (rpm).

You can adjust the engine speed by  $50 \text{ min}^{-1}$  (rpm) every time you press the switch once. You will hear a short buzz.

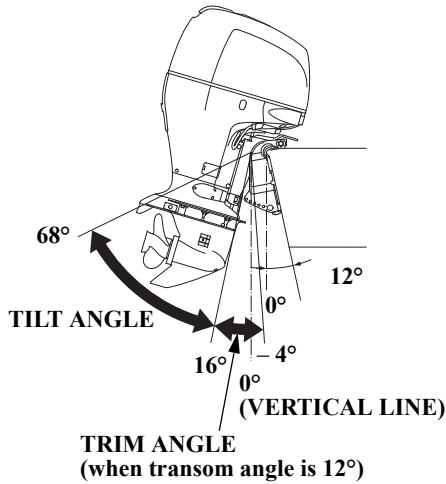
The engine speed can be adjusted within the range of  $650 - 900 \text{ min}^{-1}$  (rpm).

Continuing to press the switch will not decrease or increase the engine speed beyond the lower ( $650 \text{ min}^{-1}$  (rpm)) or higher ( $900 \text{ min}^{-1}$  (rpm)) limit.  
If you try to do this, a short buzz sounds twice.

The throttle may be operated while in trolling mode. The trolling mode is cancelled when you reach  $3,000 \text{ min}^{-1}$  (rpm).

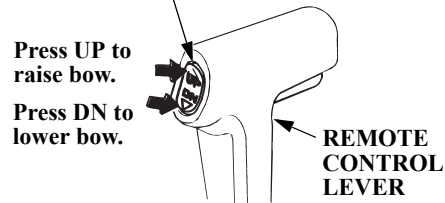
## OPERATION

### Trimming the Outboard Motor



The BF115D/135A/150A is equipped with the power trim/tilt system which can adjust the outboard motor angle (trim/tilt angle) while cruising and mooring. The outboard motor angle can also be adjusted while cruising and accelerating to obtain the maximum speed and optimum driveability and fuel economy.

#### POWER TRIM/TILT SWITCH (R1 type)

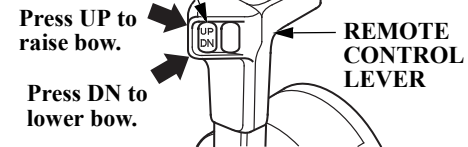


#### POWER TRIM/TILT SWITCH (R2 type)

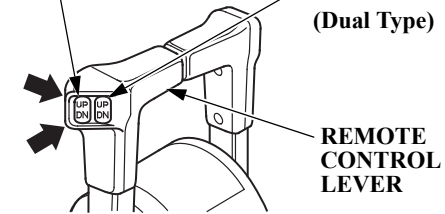


Press either UP or DN (down) of the power trim/tilt switch and tilt the outboard motor to the best position in compliance with the cruising conditions.

#### POWER TRIM/TILT SWITCH (R3 type) (Single Type)



#### POWER TRIM/TILT SWITCH (LEFT) (RIGHT) (Dual Type)



The power trim/tilt system operates when the switch is pressed, and it stops when the switch is released. To trim up slightly, press on UP momentarily but securely. To trim down slightly, press on DN (down) in the same manner.

## OPERATION

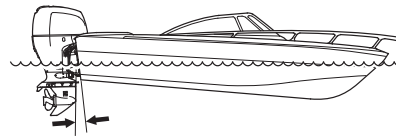
### ▲ CAUTION

- **Improper trim angle results in unstable steering condition.**
- **Do not trim excessively while cruising through rough waves, or it may cause an accident.**
- **Excessive trim angle can result in cavitation and racing of the propeller, and trimming up the outboard motor excessively can cause damage to the water pump.**

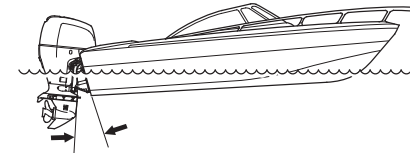
### NOTE:

- Decrease the trim angle on high speed turns to reduce the possibility of propeller ventilation.
- Improper outboard motor trim angle can result in an unstable steering condition.

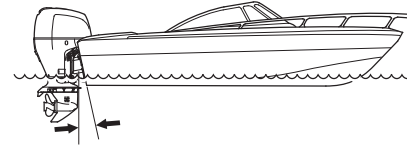
**OUTBOARD MOTOR TRIMMED TOO LOW**



**OUTBOARD MOTOR TRIMMED TOO HIGH**



**OUTBOARD MOTOR TRIMMED CORRECTLY**



### When cruising:

- Into a high wind, trim the outboard motor down slightly to lower the bow and improve boat stability.
- With a tail wind, trim the outboard motor up slightly to raise the bow and improve boat stability.
- Through rough waves, do not trim the outboard motor too low or too high to avoid an unstable steering condition.

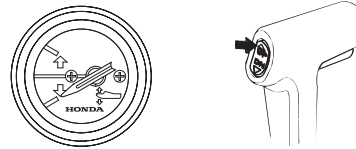
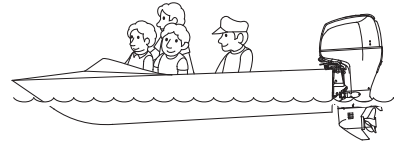
## OPERATION

### Trim Meter (optional equipment)

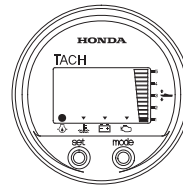
The trim meter indicates the trim angle of the outboard motor. Refer to the trim meter, and press the UP or DN (down) portion of the power trim/tilt switch to adjust the outboard motor trim angle to achieve boat performance and stability.

The illustration represents R1 type. Perform the same procedure for the other types.

- BOW TOO LOW DUE TO**  
**1. LOAD IN THE FRONT**  
**2. OUTBOARD MOTOR TRIMMED TOO LOW**

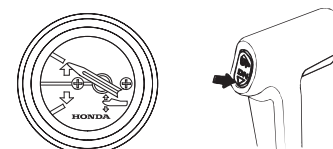
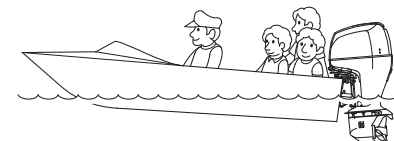


#### Digital Tachometer

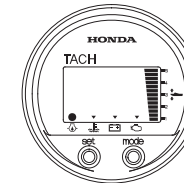


With the outboard motor trimmed low the trim meter will read as shown. To raise the bow increase the outboard motor trim angle by pressing the UP portion of the power trim/tilt switch.

- BOW TOO HIGH DUE TO**  
**1. LOAD IN THE REAR**  
**2. OUTBOARD MOTOR TRIMMED TOO HIGH**



#### Digital Tachometer



With the outboard motor trimmed high the trim meter will read as shown. To lower the bow decrease the outboard motor trim angle by pressing the DN (down) portion of the power trim/tilt switch.

## OPERATION

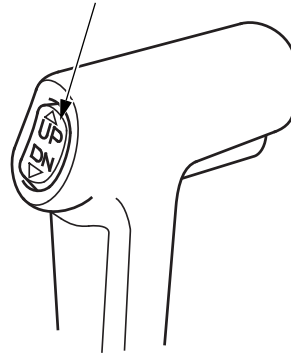
### Tilting the Outboard Motor

Tilt the outboard motor to prevent the propeller and gear case from hitting the bottom when the boat is beached or stopped in shallow water. Please tilt up simultaneously, when you mount the dual type outboard motor.

1. Move the remote control lever to the NEUTRAL position and stop the engine.
2. Press the UP of the power trim/tilt switch and tilt the outboard motor to the best position in compliance.

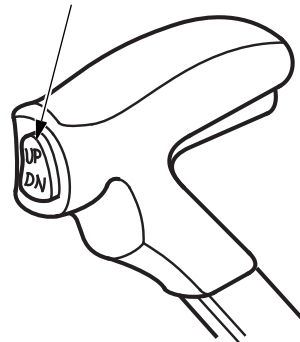
(R1 type)

POWER TRIM/TILT SWITCH



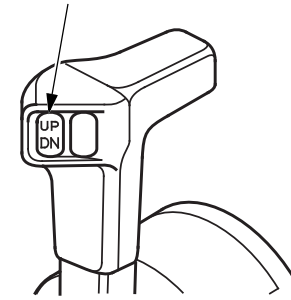
(R2 type)

POWER TRIM/TILT SWITCH



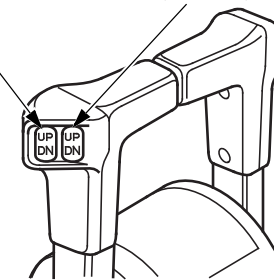
(R3 type)  
(single type)

POWER TRIM/TILT SWITCH



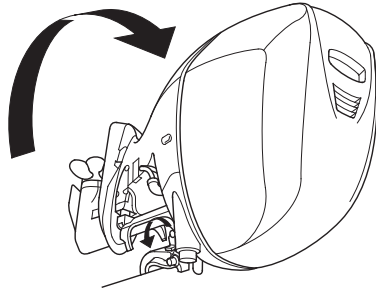
(dual type)

POWER TRIM/TILT SWITCH  
(LEFT) (RIGHT)



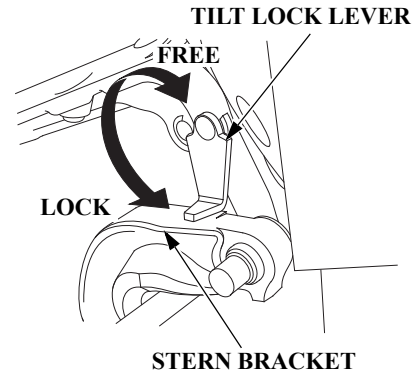
## OPERATION

### Moorage



Tilt up the outboard motor using the tilt lock lever when mooring the boat. Shift the remote control lever into the NEUTRAL position and stop the engine before tilting up the outboard motor.

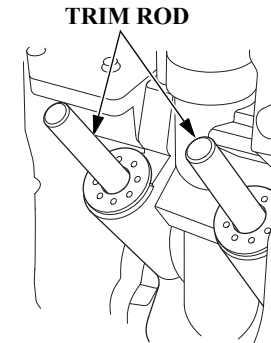
**NOTE:**  
Before tilting up, leave the outboard motor in the running position for one minute after stopping the engine to drain the water from inside the engine.



Stop the engine and disconnect the fuel line from the outboard motor before tilting the outboard motor.

1. Raise the outboard motor as full as it goes using the power trim/tilt switch.
2. Move the tilt lock lever to the LOCK position and lower the outboard motor until the lock lever contacts the stern bracket.
3. Press the DN (down) of the power trim/tilt switch and fully shorten the trim rods.

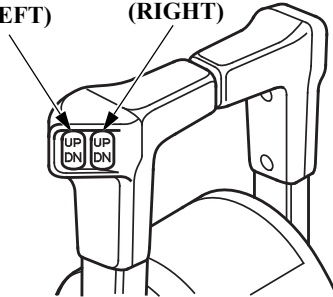
4. To tilt down, raise the outboard motor as far as it goes using the power trim/tilt switch, move the tilt lock lever to the FREE position, and lower the outboard motor to the designated position.



## OPERATION

(R3 type) (DUAL TYPE)

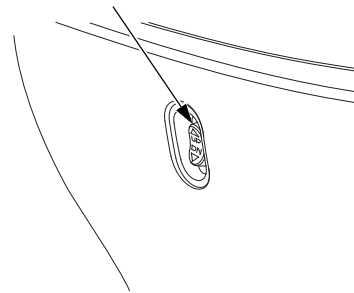
POWER TRIM/TILT SWITCH  
(LEFT) (RIGHT)



**NOTE:**  
When the boat is mounted with the two outboard motors, tilt up the right and left outboard motors one by one using the switch. Set the tilt lock lever of one outboard motor at the LOCK position, then tilt up another outboard motor.  
After tilting down the outboard motors, adjust the trim angle of the right and left outboard motors using the switch.

**Power Tilt Switch  
(outboard motor pan)**

POWER TILT SWITCH



When you are away from the power trim/tilt switch on the control lever side, you can operate the power tilt switch on the outboard motor side. The switch operation is the same as that of the power trim/tilt switch on the remote control lever side.

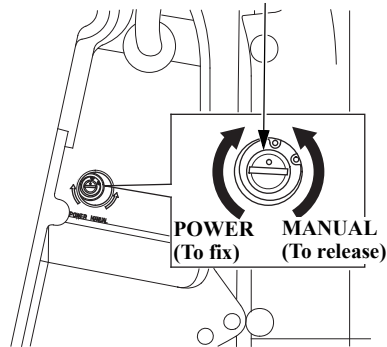
**CAUTION**

**Do not operate this power tilt switch on the outboard motor while sailing.**

## OPERATION

### Manual Relief Valve

MANUAL RELIEF VALVE



When power trim/tilt system does not operate because of dead battery or faulty power trim/tilt motor, the outboard motor can be manually tilted up or down by operating the manual relief valve.

To tilt the outboard motor manually, turn the manual relief valve under the stern bracket 1 or 2 turns counterclockwise using a screwdriver.

#### NOTICE

**Do not loosen the manual relief valve more than two turns, or the outboard motor cannot be tilted up when the manual relief valve is retightened.**

After tilting up/down manually, close the manual relief valve to lock the outboard motor in the position.

Check that no person is under the outboard motor before carrying out this operation because if the manual relief valve is loosened (turned counterclockwise) when the outboard motor is tilted up, the outboard motor will suddenly tilt down.

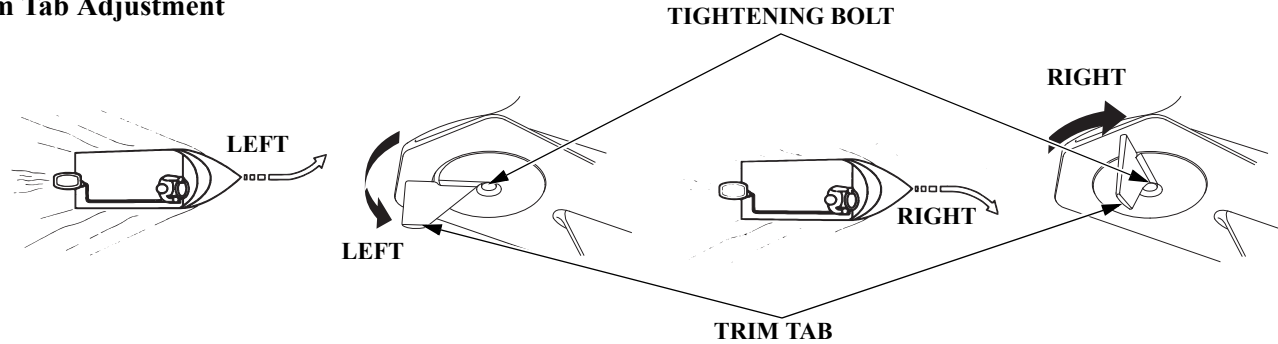
#### CAUTION

**The manual relief valve must be tightened securely before operating the outboard motor or the outboard motor could tilt when operating in reverse.**



## OPERATION

### Trim Tab Adjustment



The trim tab is provided to adjust for “torque steer” which is a reaction of the propeller rotation or propeller torque. If during a high speed turn an unequal amount of effort is required to turn the boat right or left, adjust the trim tab so that an equal amount of effort is required.

Distribute the load evenly in the boat and run the boat in a straight course at full throttle. Slightly turn the steering wheel for both right and left turns to determine the amount of effort required.

If less effort is required to make left turns:

Loosen the trim tab tightening bolt and turn the rear end of the trim tab toward the left. Tighten the bolt securely.

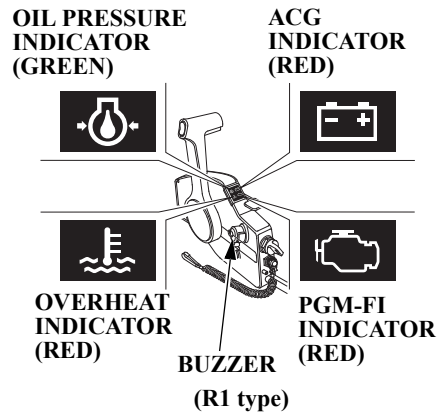
If less effort is required to make right turns:

Loosen the trim tab tightening bolt and turn the rear end of the trim tab toward the right. Tighten the bolt securely.

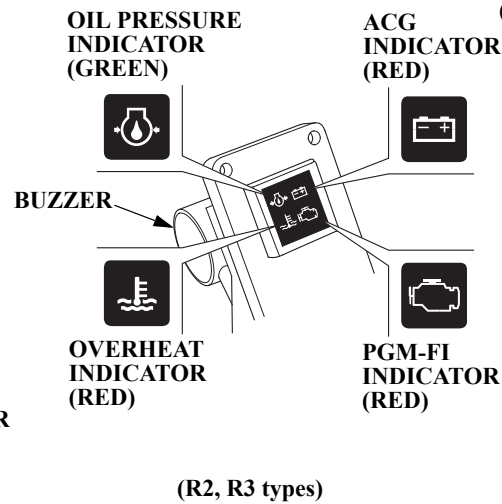
Make small adjustments at a time and retest. Incorrect trim tab adjustment can cause adverse steering.

## OPERATION

### Engine Protection System <Engine Oil Pressure, Overheat, Water Contamination, PGM-FI and ACG Warning Systems>

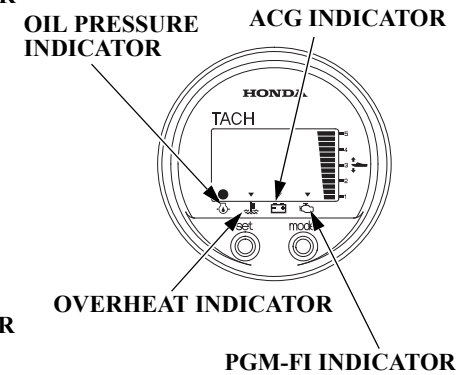


If the engine oil pressure drops and/or the engine overheats, either or both warning systems could be activated. When activated the engine speed will decrease gradually and the oil pressure indicator will turn OFF and the overheat indicator will turn ON. A continuous buzzer will sound on



the remote control type. The engine speed can not be increased with a larger throttle opening until the malfunction is corrected. When the malfunction is corrected the engine speed will increase gradually.

### DIGITAL TACHOMETER (optional equipment)



If the engine overheats, the engine will stop in 20 seconds after the engine protection system will limit engine speed.

Each warning system of PGM-FI, ACG, oil pressure, overheat, and water contamination is activated as described in the following table.

## OPERATION

System Symptom	INDICATOR LIGHTS				BUZZER
	Oil pressure (Green)	Overheat (Red)	ACG (Red)	PGM-FI (Red)	CORRESPONDING SYSTEM
At starting	ON (2 sec)	ON (2 sec)	ON	ON (2 sec)	With the engine key turned on: ON (2 times)
During operation	ON	OFF	OFF	OFF	OFF
Low oil pressure	OFF	OFF	OFF	OFF	ON (continuously)
Overheat	ON	ON	OFF	OFF	ON (continuously)
ACG warning	ON	OFF	ON	OFF	alternating ON and OFF (at long intervals)
PGM-FI warning	ON*	OFF*	OFF	ON	alternating ON and OFF (at long intervals)
Water contamination	ON	OFF	OFF	OFF	alternating ON and OFF (at short intervals)

### NOTE:

Some indicator and/or buzzer will be activated at the same time due to the occurrence of a malfunction.

\*: Occasionally may blink due to the occurrence of a malfunction.

## OPERATION

System Symptom	INDICATOR					BUZZER
	Oil pressure Indicator (1)	Overheat Indicator (1)	ACG Indicator (1)	PGM-FI Indicator (1)	Water Separator Indicator (2)	CORRESPONDING SYSTEM
At starting	ON (2 sec)	ON (2 sec)	ON (2 sec)	ON (2 sec)	ON (2 sec)	With the engine key turned on: ON (2 times)
During operation	ON	OFF	OFF	OFF	OFF	OFF
Low oil pressure	OFF	OFF	OFF	OFF	OFF	ON (continuously)
Overheat	ON	ON	OFF	OFF	OFF	ON (continuously)
ACG warning	ON	OFF	ON	OFF	OFF	alternating ON and OFF (at long intervals)
PGM-FI warning	ON*	OFF*	OFF	ON	OFF	alternating ON and OFF (at long intervals)
Water contamination	ON	OFF	OFF	OFF	ON	alternating ON and OFF (at short intervals)

### NOTE:

Some indicator and/or buzzer will be activated at the same time due to the occurrence of a malfunction.

\*: Occasionally may blink due to the occurrence of a malfunction.

- (1) The digital tachometer includes this function.
- (2) The digital speedometer includes this function.

## OPERATION

When the oil pressure warning system is activated:

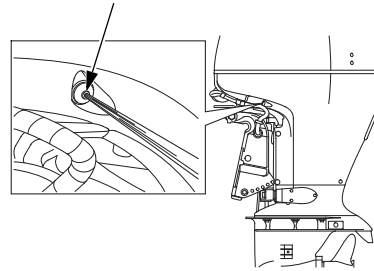
1. Stop the engine immediately and check the engine oil level (see page 40).
2. If the oil is up to the recommended level, restart the engine. If the oil pressure warning system stops after 30 seconds, the system is normal.

**NOTE:**

If the throttle was closed suddenly after cruising at full throttle, the engine speed may drop below the specified idle speed. This could cause the oil pressure warning system to activate momentarily.

3. If the oil pressure warning system stays activated after 30 seconds, return to the closest boat landing and contact your closest authorized Honda outboard motor dealer.

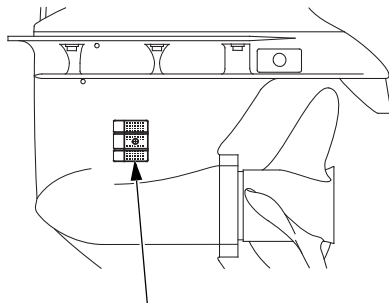
### COOLING WATER CHECK HOLE



When the overheat warning system is activated:

1. Return the remote control lever to the N (neutral) position immediately. Check to see if water is flowing out of the cooling water check hole.
2. If water is flowing out of the cooling water check hole, continue idling for 30 seconds. If the overheat warning system stops after 30 seconds the system is normal.

## OPERATION



**COOLING WATER INTAKE PORT**  
(each side)

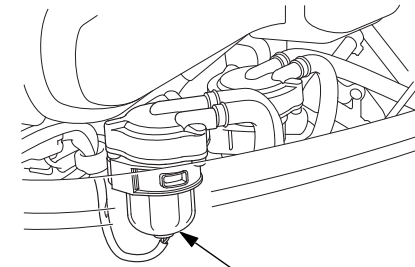
3. If the overheat warning system stays activated, stop the engine. Tilt up the outboard motor and check the water intakes for obstructions. If there are no obstructions at the water intakes, return to the closest boat landing and contact your closest authorized Honda outboard motor dealer.

When the PGM-FI activated:

1. Consult with an authorized Honda outboard motor dealer.

When the ACG warning system is activated:

1. Check the battery (see page 45).  
If the battery is OK, consult with an authorized Honda outboard motor dealer.



**WATER SEPARATOR**

When the water separator buzzer sounds:

1. Check the water separator for water contamination. If water is accumulated, clean them (see page 97).

## OPERATION

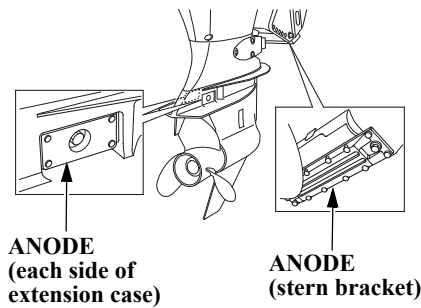
### <Over-rev Limiter>

This outboard motor is equipped with an engine over-rev limiter which activates when the engine speed increases excessively. The over-rev limiter can be activated while cruising, tilting up the outboard motor, or when ventilation occurs during a sharp turn.

When the over-rev limiter is activated:

1. Reduce the throttle opening immediately and check the trim angle.
2. If the trim angle is correct but the over-rev limiter stays activated, stop the engine, check the condition of the outboard motor, check to see if the correct propeller is installed and check it for damage.  
Correct or service as necessary, by contacting your authorized Honda outboard motor dealer.

### <Anodes>



The anodes are a sacrificial material which helps to protect the outboard motor from corrosion.

**NOTICE**  
**Painting or coating the anodes will lead to rust and corrosion damage to the outboard motor.**

There are also 2 small sacrificial anodes in the water passages of the engine block.

### Shallow Water Operation

#### NOTICE

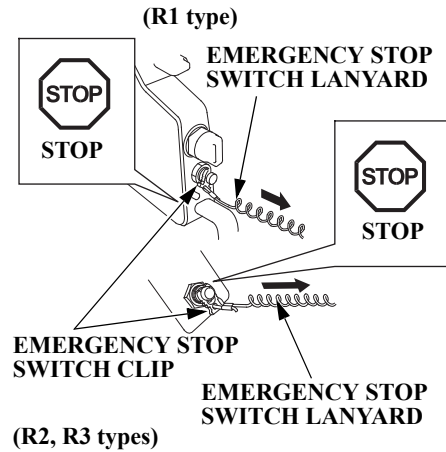
**Excessive trim/tilt angle during operation can cause the propeller to raise out of the water and cause propeller ventilation and engine over-revving. Excessive trim/tilt angle can also damage the water pump and overheat the engine.**

When operating in shallow water, tilt the outboard motor up to prevent the propeller and gear case from hitting the bottom (see page 65). With the outboard motor tilted up, operate the outboard motor at low speed.

Monitor the cooling water check hole for water discharge. Be sure that the outboard motor is not tilted so high that the water intakes are out of the water.

## 9. STOPPING THE ENGINE

### Emergency Engine Stop

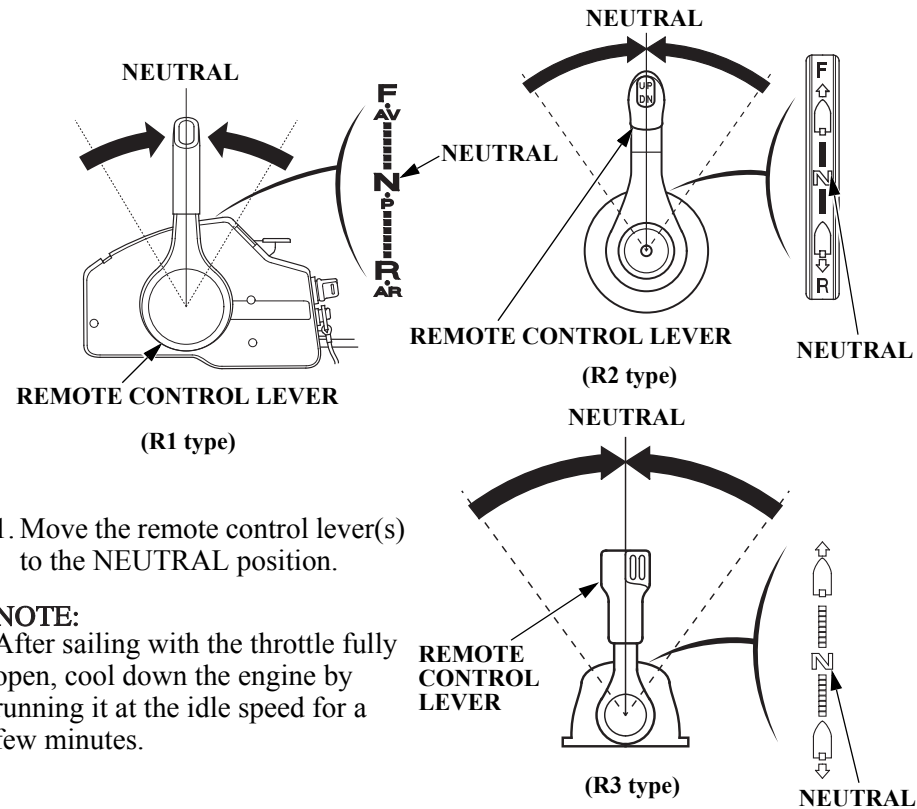


Pull the lanyard of the emergency stop switch and remove the emergency stop switch clip from the switch; this will stop the engine.

**NOTE:**  
It is a good idea to stop the engine with the emergency stop switch lanyard from time to time to be sure that the emergency stop switch is operating properly.

76

### Normal Engine Stop

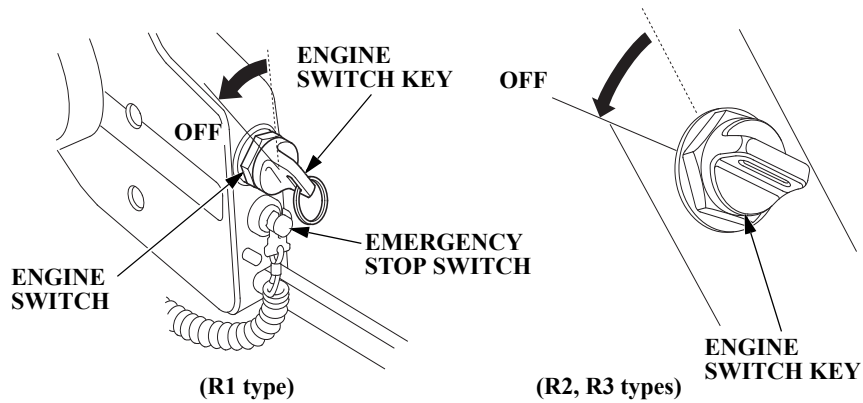


1. Move the remote control lever(s) to the NEUTRAL position.

**NOTE:**  
After sailing with the throttle fully open, cool down the engine by running it at the idle speed for a few minutes.



## STOPPING THE ENGINE



2. Turn the engine switch key to the OFF position to stop the engine.

**NOTE:**

In the event that the engine does not stop when the engine switch key is turned to OFF, push the emergency stop switch to stop the engine.

3. When the boat is not use, remove and store the engine switch key. If you are using a portable fuel tank, disconnect the fuel line if you will be storing or transporting the outboard motor.

## 10. TRANSPORTING

### Fuel Line Disconnection

Before transporting the outboard motor, disconnect and remove the fuel line.

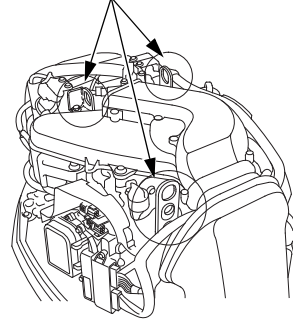
**▲WARNING**

**Gasoline is extremely flammable, and gasoline vapor can explode, causing serious injury or death.**

- **Be careful not to spill fuel.**  
Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before storing or transporting the outboard motor.
- **Do not smoke or allow flames or sparks where fuel is drained or stored.**

### Transporting

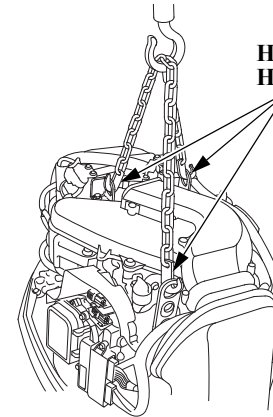
#### LIFTING EYES



When transporting the outboard motor on a vehicle, perform the following.

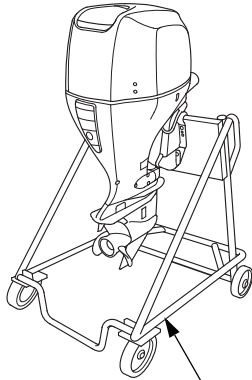
1. Remove the engine cover.

#### HOIST HOOKS



2. Set the hoist hooks against the lifting eyes and hang the outboard motor to remove it from the boat.

## TRANSPORTING



**OUTBOARD MOTOR STAND**

3. Secure the outboard motor on an outboard motor stand with the mounting bolts and nuts.
4. Remove the hoist hook and reinstall the engine cover.

### Trailer

When trailering or transporting the boat with the outboard motor attached, it is recommended that the outboard motor remain in normal running position.

#### NOTICE

**Do not trailer or transport the boat with the outboard motor in the tilted position. The boat or outboard motor could be severely damaged if the outboard motor drops.**

The outboard motor should be trailered in the normal running position. If there is insufficient road clearance in this position, then trailer the outboard motor in the tilted position using an outboard motor support device such as a transom saver bar, or remove the outboard motor from the boat.

## 11. CLEANING AND FLUSHING

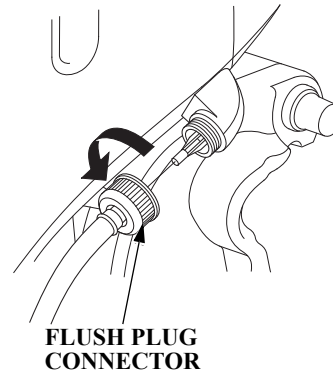
After each use in salt water or dirty water, thoroughly clean and flush the outboard motor with fresh water.

### NOTICE

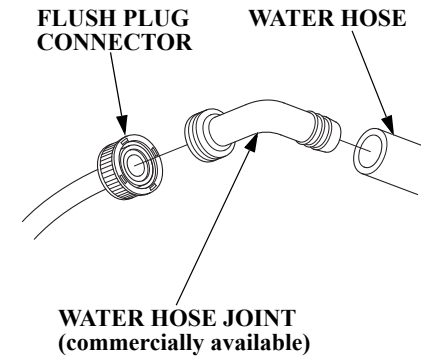
**Do not apply water or corrosion inhibitor directly to the electrical components under the engine cover, such as the AC generator, LAF sensor, or the AC generator belt. If water or corrosion inhibitor penetrates these components, they may be damaged. Before applying a corrosion inhibitor, cover the AC generator, belt and LAF sensor with a protective material to prevent damage.**

Shut off the engine before performing the cleaning and flushing.

1. Disconnect the fuel line from the outboard motor.
2. Tilt down the outboard motor.



3. Clean and wash the outside of the outboard motor with fresh water.
4. Remove the flush plug connector from the outboard motor.
5. Install the water hose joint (commercially available).



6. Connect a fresh water hose to the water hose joint.
7. Turn on the fresh water supply and flush the outboard motor for at least 10 minutes.
8. After flushing, remove the water hose and water hose joint and reinstall the flush plug connector.
9. Tilt up the outboard motor and move the tilt lock lever to the LOCK position.

## 12. MAINTENANCE

Periodic maintenance and adjustment are important to keep the outboard motor in the best operating condition. Service and inspect according to the MAINTENANCE SCHEDULE.

### ▲WARNING

**Shut off the engine before performing any maintenance. If the engine must be run, make sure the area is well ventilated. Never run the engine in an enclosed or confined area.**

**Exhaust contains poisonous carbon monoxide gas; exposure can cause loss of consciousness and may lead to death.**

**Be sure to reinstall the engine cover, if it was removed, before starting the engine. Lock the engine cover latch securely (see page 39).**

### NOTICE

- **If the engine must be run, make sure there is water at least 100 mm (4 in) above the anticavitation plate, otherwise the water pump may not receive sufficient cooling water, and the engine will overheat.**
- **Use only Honda Genuine parts or their equivalents for maintenance or repair. The use of replacement parts which are not of equivalent quality may damage the outboard motor.**

## MAINTENANCE

### Tool Kit and Owner's Manual

The following tools and owner's manual are supplied with the outboard motor for maintenance, adjustment, and emergency repairs.

#### <Spare Emergency Stop Switch Clip (optional equipment)>



**SPARE EMERGENCY STOP SWITCH CLIP**  
(optional equipment:  
R2, R3 types only)

Always carry a spare emergency stop switch clip onboard. The spare clip may either be stored in the tool bag or in an easily accessible location on the boat.

#### OWNER'S MANUAL



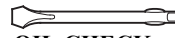
**14 × 17 mm WRENCH**



**10 × 12 mm WRENCH**



**8 mm WRENCH**



**OIL CHECK SCREWDRIVER**



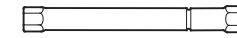
**FLAT/PHILLIPS SCREWDRIVER**



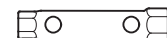
**SCREWDRIVER HANDLE**



**19 mm EYE WRENCH**



**SPARK PLUG WRENCH**



**16 × 17 mm BOX WRENCH**



**PLIERS**



**6 mm HEX. WRENCH**

#### TOOL BAG



## MAINTENANCE

### MAINTENANCE SCHEDULE

ITEM	REGULAR SERVICE PERIOD (3) Perform at every indicated month or operating hour interval, whichever comes first.	Each use	After use	First month or 20 hrs.	Every 6 months or 100 hrs.	Every year or 200 hrs.	Every 2 years or 400 hrs.	Refer to page
Engine oil	Check level	o						40
	Change			o	o			85
Gear case oil	Change			o (2)	o (2)			—
Engine oil filter	Replace					o (2)		—
ACG belt	Check-adjust					o (2)		—
Throttle linkage	Check-adjust			o (2)	o (2)			—
Idling speed	Check-adjust			o (2)	o (2)			—
Valve clearance	Check-adjust					o (2)		—
Spark plug	Check-adjust/Replace				o			87 – 91
Propeller and cotter pin	Check	o						43
Anode metal (Outside engine)	Check	o						46
Anode metal (Inside engine)	Check						o (2) (6)	—
Lubrication	Grease			o (1)	o (1)			92, 93
Water separator	Check	o						44
Fuel filter	Check				o			94
(Low pressure side)	Replace						o	95
Fuel filter (High pressure side)	Replace						o (2)	—

#### NOTE:

- (1) Lubricate more frequently when used in salt water.
- (2) These items should be serviced by your servicing dealer, unless you have the proper tools and are mechanically proficient. Refer to Honda Shop Manual for service procedures.
- (3) For professional commercial use, log hours of operation to determine proper maintenance intervals.
- (6) Replace the anodes when they have been reduced to about two-thirds of their original size, or if they are crumbling.

## MAINTENANCE

ITEM	REGULAR SERVICE PERIOD (3) Perform at every indicated month or operating hour interval, whichever comes first.	REGULAR SERVICE PERIOD (3)						Refer to page
		Each use	After use	First month or 20 hrs.	Every 6 months or 100 hrs.	Every year or 200 hrs.	Every 2 years or 400 hrs.	
Thermostat	Check					o (2)		—
Fuel line	Check	o (8)						46
	Replace				Every 2 years (if necessary) (2) (9)			—
Battery and cable connection	Check level-tightness	o						45, 100
Bolts and nuts	Check-tightness			o (2)	o (2)			—
Crankcase breather tube	Check					o (2)		—
Cooling water passages	Clean		o (4)					80
Water pump	Check					o (2)		—
Emergency stop switch	Check	o						76
Engine oil leak	Check	o						—
Each operation part	Check	o						—
Engine condition (5)	Check	o						—
Power Trim/Tilt	Check				o (2)			—
Spark plug	Check					o		91
(Optional part)	Clean					o (2)		—
	Replace						o	91
Shift cable	Check-adjust				o (2) (7)			—

### NOTE:

- (2) These items should be serviced by your servicing dealer, unless you have the proper tools and are mechanically proficient. Refer to Honda Shop Manual for service procedures.
- (3) For professional commercial use, log hours of operation to determine proper maintenance intervals.
- (4) When operating in salt water, turbid or muddy water, the engine should be flushed with clean water after each use.
- (5) Upon starting, check for unusual engine sounds and cooling water flowing freely from the check hole.
- (7) The user who performs shift operation frequently will recommend you exchange of a shift cable around three years.
- (8) Check the fuel line for leaks, cracks, or damage. If it is leaking, cracked, or damaged, take it to your servicing dealer for replacement before using your outboard.
- (9) Replace the fuel line if there are signs of leaks, cracks, or damage.



## MAINTENANCE

### Engine Oil

Insufficient or contaminated engine oil adversely affects the service life of the sliding and moving parts.

### Oil capacity:

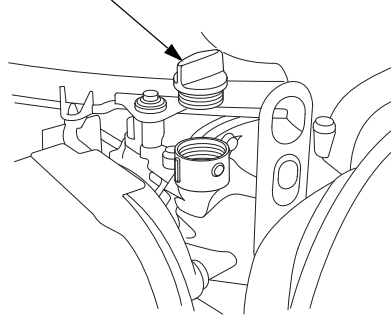
6.5 L (6.9 US qt, 5.7 Imp qt)  
...when oil filter is not replaced  
6.7 L (7.1 US qt, 5.9 Imp qt)  
...when oil filter is replaced

### Recommended Oil:

SAE 10W-30 engine oil or equivalent, API Service category SG, SH or SJ.

### <Engine Oil Change>

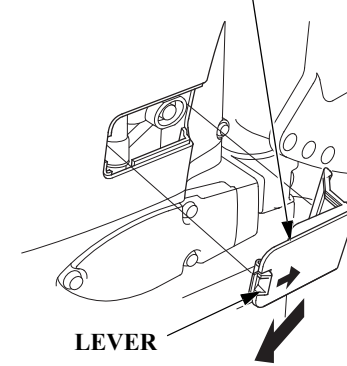
#### OIL FILLER CAP



Drain the oil while the engine is still warm to assure rapid and complete draining.

1. Position the outboard motor vertically, and remove the engine cover. Remove the oil filler cap.

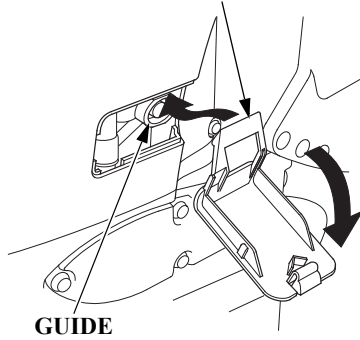
#### DRAIN PLUG COVER



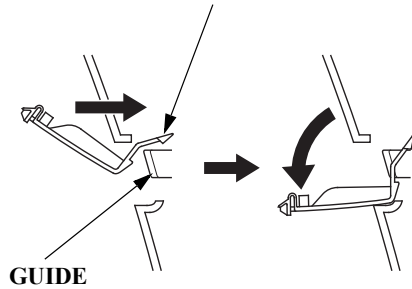
2. Push the drain plug cover lever and remove the cover while pulling the cover backward at an angle.

## MAINTENANCE

**DRAIN PLUG COVER**



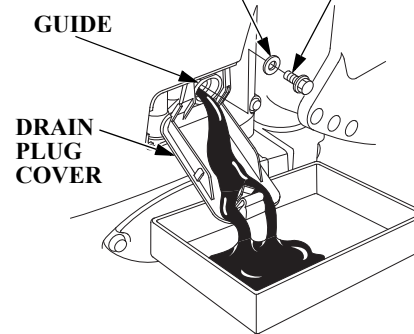
**DRAIN PLUG COVER**



3. Set the drain plug cover under the guide.

86

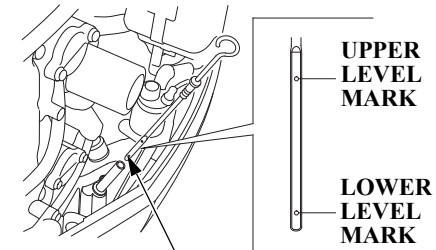
**SEALING WASHER  
DRAIN BOLT**



4. Place a suitable container under the guide.

5. Remove the engine oil drain bolt and sealing washer using the 12 mm wrench and drain the engine oil.

Install a new sealing washer and drain bolt, and tighten bolt securely.



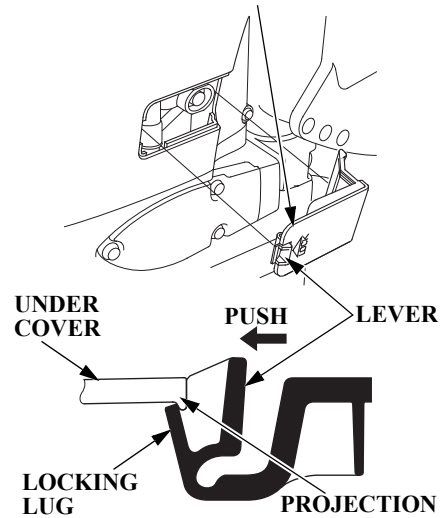
**OIL LEVEL DIPSTICK**

6. Refill to the upper level mark on the oil level dipstick with the recommended oil.

7. Install the dipstick securely.

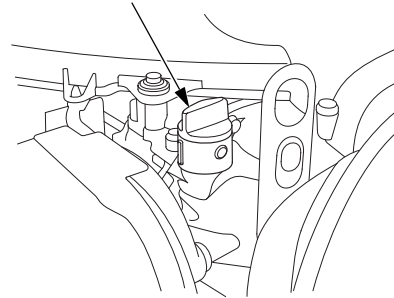
## MAINTENANCE

### DRAIN PLUG COVER



8. Install the oil drain plug cover. Push the lever of the oil drain plug cover in the direction pointed by the arrow mark of "LOCK", and install the oil drain plug cover so that the locking lug securely sets on the projection of the under cover.

### OIL FILLER CAP



9. Reinstall the oil filler cap securely. Do not overtighten.
10. Install and lock the engine cover securely.

#### NOTE:

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

Wash your hands with soap and water after handling used oil.

### Spark Plugs

To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.

#### ▲ CAUTION

**The spark plug becomes very hot during operation and will remain hot for a while after stopping the engine. Allow the engine to cool before servicing the spark plug.**

See page 91 for instructions of handling the Iridium spark plugs (optional parts).

## MAINTENANCE

### <Standard Spark Plug>

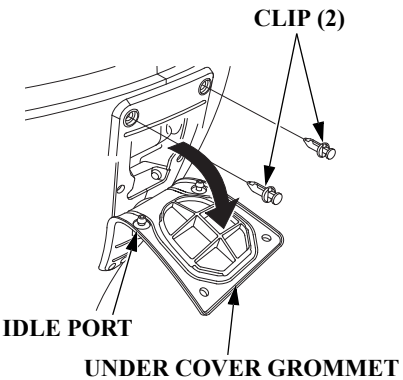
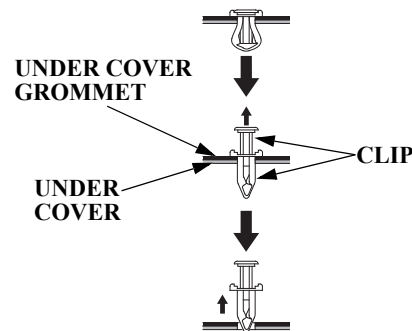
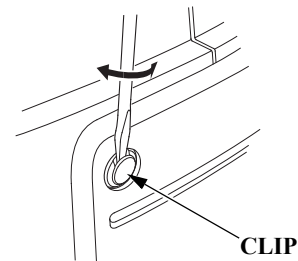
**Recommended spark plug:**  
ZFR6K-11 (NGK)  
KJ20DR-M11 (DENSO)

**NOTICE**

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

### <Inspection and Replacement>

1. Disconnect the battery negative (-) terminal.
2. Unlock and remove the engine cover (see page 39).



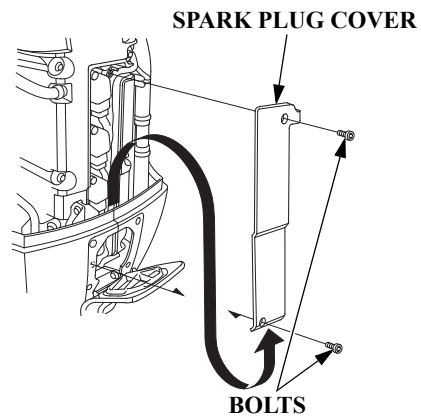
3. Remove the two clips from the upper part of the under cover grommet.  
To remove the clips, raise the inner part of each clip with a screwdriver, then pull out the clips.

**NOTICE**

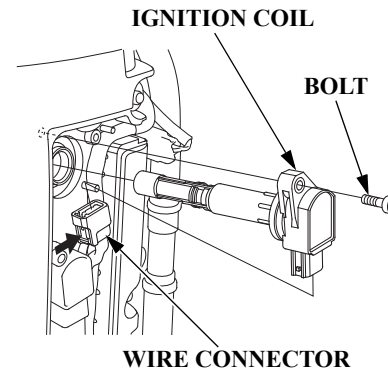
Do not try to remove the clip with force without raising the inner part of the clip. Otherwise, it can damage the clip and/or under cover.

## MAINTENANCE

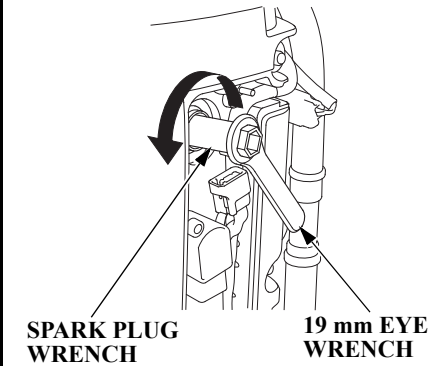
4. Fold down the upper part of the under cover grommet without removing it from the idle port.



5. Remove the two bolts with the 6 mm hex wrench, and remove the spark plug cover.
6. Use a hex. wrench to remove the bolt holding the ignition coil. Move the ignition coil to a position that allows to remove the wire connector easily.



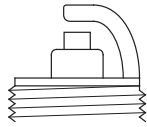
7. Disconnect the wire connector from the ignition coil by pushing on the lock tab and pulling on the connector. Pull on the plastic connector, not the wires.
8. Remove the ignition coil by pulling it up slightly. Take care not to give an impact or drop the ignition coil. Replace the ignition coil if dropped it.



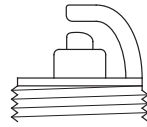
9. Use the spark plug wrench and 19 mm eye wrench supplied in the tool kit to remove the spark plugs.

## MAINTENANCE

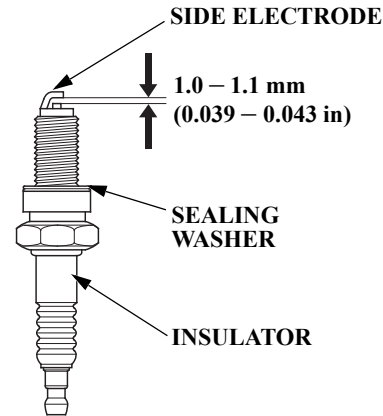
**New plug**



**Plug needing replacement**



10. Inspect the spark plugs.
- (1) If the electrodes are heavily corroded or carbon-soiled, clean with a wire brush.
  - (2) Replace a spark plug if the central electrode is worn. The spark plug can wear out in different ways. If the sealing washer shows signs of wear, or if the insulators are cracked or chipped, replace the spark plugs.



11. Measure the plug gaps with a wire-type feeler gauge. The gaps should be 1.0 – 1.1 mm (0.039 – 0.043 in). Correct as necessary by carefully bending the side electrode.
12. Thread the plugs in by hand to prevent cross threading.
13. After the spark plugs are seated, tighten with a spark plug wrench to compress the washers.

**NOTE:**

If installing new spark plugs, tighten 1/2 turn after the spark plugs seat to compress the washers.  
If reinstalling used spark plugs, tighten 1/8 – 1/4 turn after the spark plugs seat to compress the washers.

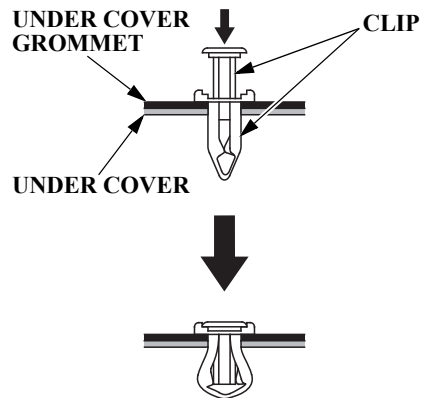
**NOTICE**

**The spark plugs must be securely tightened. An improperly tightened plug can become very hot and may cause engine damage.**

14. Push the wire connector onto the ignition coil. Make sure it locks in place.
15. Install the ignition coil. Reinstall the bolt.
16. Repeat this procedure for the other three spark plugs.

## MAINTENANCE

17. Reinstall the covers. When reinstalling the covers, make sure not to jam the wire harnesses in between the covers and engine case.



Clip installation:

- Press the under cover grommet and under cover and be sure that they adhere closely to each other.
- Insert the clips with the inner part raised off, then push in the inner part securely until they click.

### <Optional Parts: Iridium Spark Plug>

**Recommended spark plug:**  
IZFR6K11 (NGK)  
SKJ20DR-M11 (DENSO)

#### NOTICE

**Use only the recommended spark plugs or equivalent. Spark plugs which have an improper heat range may cause engine damage.**

Installation and removal procedure of the Iridium spark plugs are the same as the standard spark plugs.

These spark plugs have an iridium coated center electrode. Be sure to observe the following when servicing iridium spark plugs.

- Do not clean the spark plugs. If an electrode is contaminated with accumulated objects or dirt, replace the spark plug with a new one. The cleaning of the iridium spark plugs consult with an authorized Honda outboard motor dealer, unless the owner has the proper tools and is mechanically proficient.
- Use only a “wire-type feeler gauge” to check the spark plug gap if necessary. To prevent damaging the iridium coating of the center electrode, never use a “leaf-type feeler gauge.” The gaps should be 1.0 – 1.3 mm (0.039 – 0.051 in).
- Do not adjust the spark plug gap. If the gap is out of specification, replace the spark plug with a new one.

## MAINTENANCE

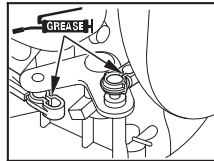
### Lubrication

Wipe the outside of the engine with a cloth dipped in clean oil. Apply marine anticorrosion grease to the following parts:

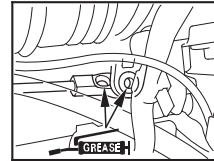
#### NOTE:

- Apply anticorrosion oil to pivot surfaces where grease cannot penetrate.
- Lubricate more frequently when used in salt water.

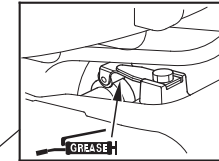
THROTTLE LINK/  
PIVOT/PLATE



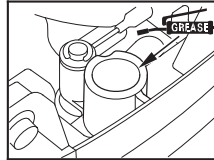
THROTTLE ROD/  
LINK



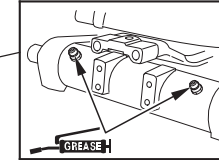
TILT BRACKET



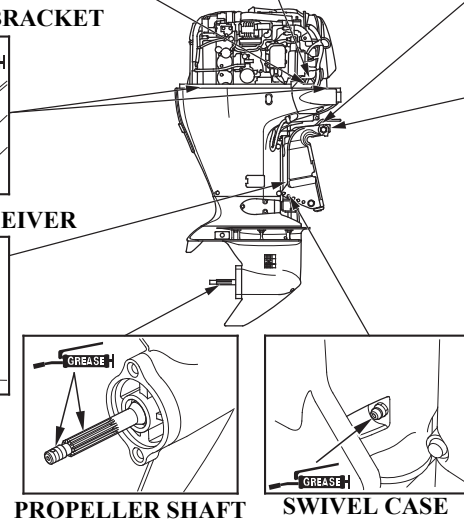
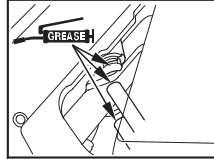
ENGINE COVER BRACKET



TILT SHAFT



PTT THRUST RECEIVER

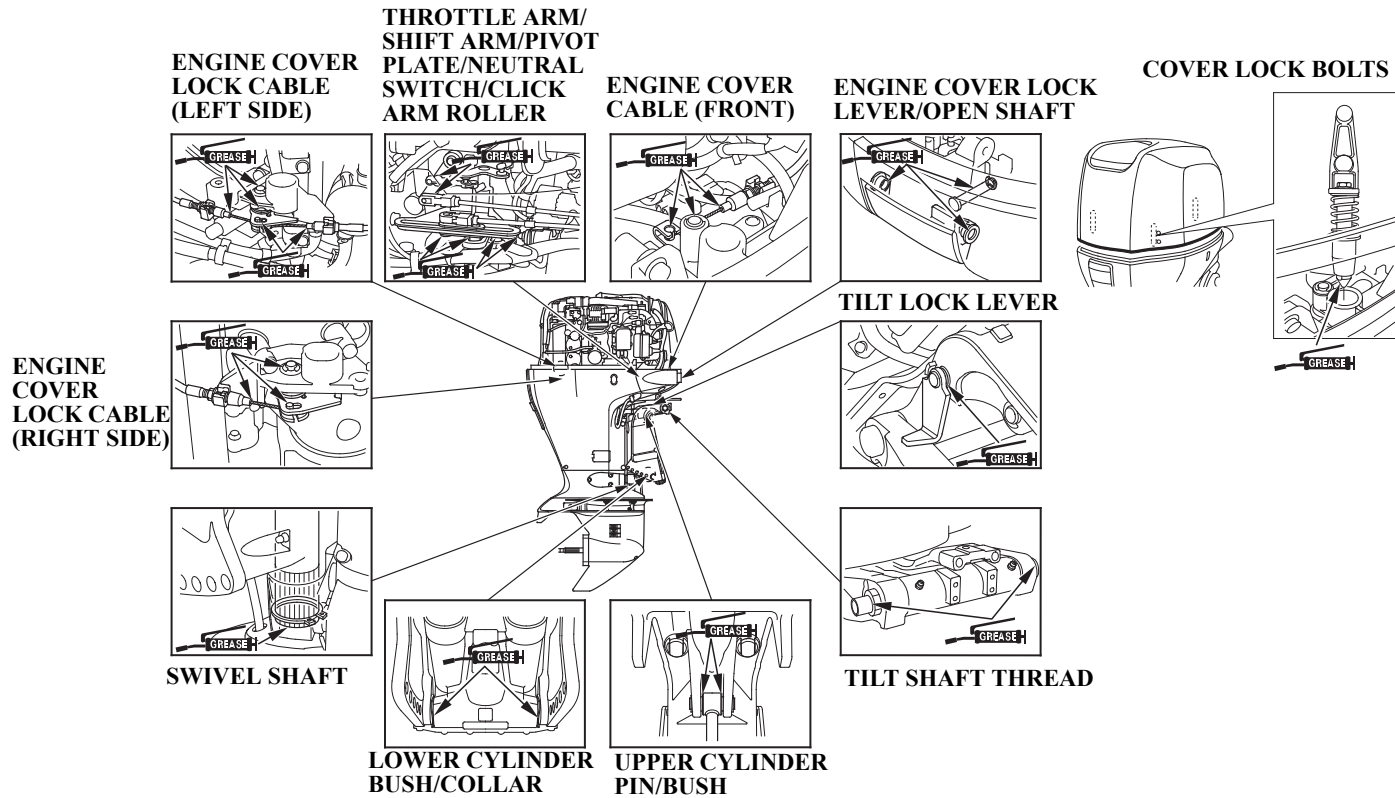


PROPELLER SHAFT

SWIVEL CASE

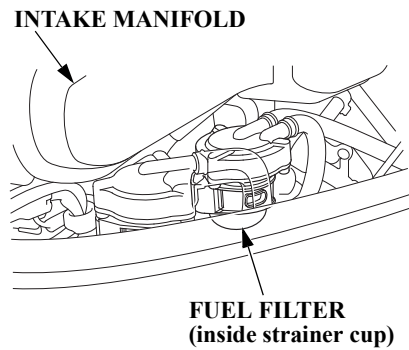


# MAINTENANCE



## MAINTENANCE

### Fuel Filter



The fuel filter (inside the strainer cup) is located below the intake manifold. Water or sediment accumulated in the fuel filter can cause loss of power or hard starting. Check and replace the fuel filter periodically.

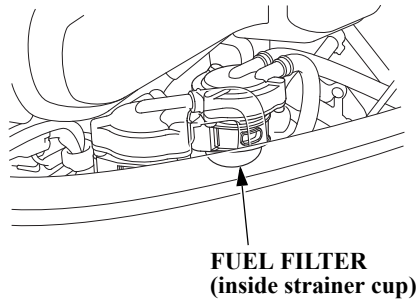
#### **▲WARNING**

**Gasoline is extremely flammable, and gasoline vapor can explode, causing serious injury or death. Do not smoke or allow flames or sparks in your working area. KEEP OUT OF REACH OF CHILDREN.**

- Always work in a well-ventilated area.
- Be sure that any fuel drained from the outboard motor is stored in a safe container.
- Be careful not to spill fuel when replacing the filter. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.

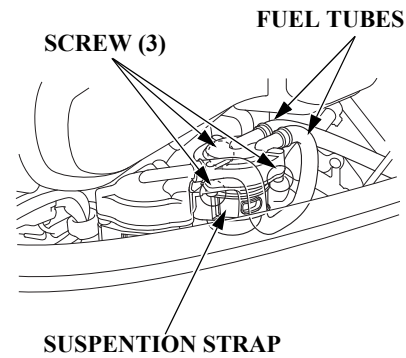
## MAINTENANCE

### <Inspection>



1. Remove the engine cover (see page 39).
2. Looking through the translucent strainer cup, check the fuel filter for water accumulation and clogging.

### <Replacement>



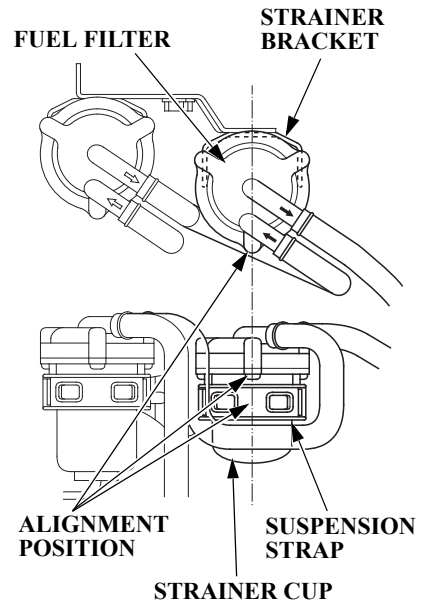
1. Remove the suspension strap from the strainer bracket, then remove the strap from the strainer assembly.

**NOTE:**  
Before removing the filter, pinch the fuel tubes on each side of filter using tube clips to prevent fuel leakage.

2. Remove the three screws and separate the fuel strainer cup from the strainer body.

3. Thoroughly clean the strainer cup, and replace with a new fuel filter.
4. Reassemble the strainer body and the cup.  
**STRAINER TIGHTENING TORQUE:**  
3.4 N·m (0.35 kgf·m, 2.5 lbf·ft)

## MAINTENANCE



5. Align the center of suspension strap with the screw position and install the fuel filter assembly.
6. Reinstall the strainer in the original position.

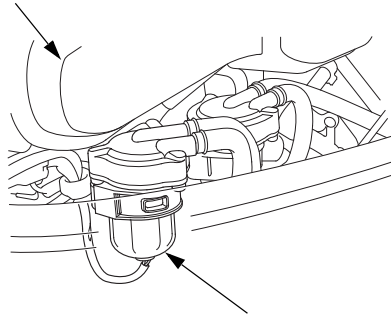
7. Prime the engine using the primer bulb (see page 47). Check for fuel leaks. Repair any fuel leaks if necessary.

**NOTE:**  
If loss of power or hard starting is found caused by excessive water or sediment accumulated in the fuel filter, inspect the fuel tank. Clean the fuel tank if necessary.

## MAINTENANCE

### Water Separator

INTAKE MANIFOLD



WATER SEPARATOR

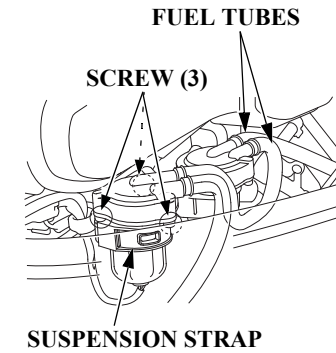
Water separator is located below the intake manifold. Water accumulation in the water separator can cause loss of power or hard starting. Check the water separator periodically. Clean it or consult with an authorized Honda outboard motor dealer for clean.

#### ▲WARNING

Gasoline is extremely flammable, and gasoline vapor can explode, causing serious injury or death. Do not smoke or allow flames or sparks in your working area. **KEEP OUT OF REACH OF CHILDREN.**

- Always work in a well-ventilated area.
- Be sure that any fuel drained from the outboard motor is stored in a safe container.
- Be careful not to spill fuel when cleaning the water separator. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.

#### <Cleaning>

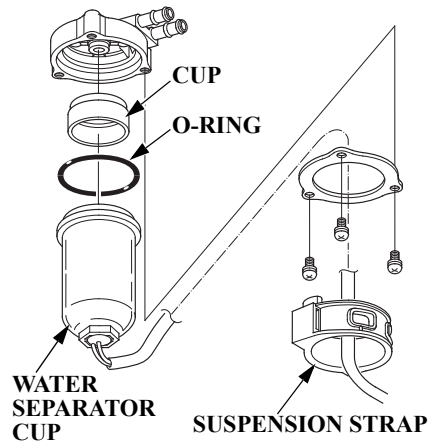


1. Remove the engine cover (see page 39).
2. Remove the suspension strap from the water separator bracket, then remove the strap from the separator assembly.

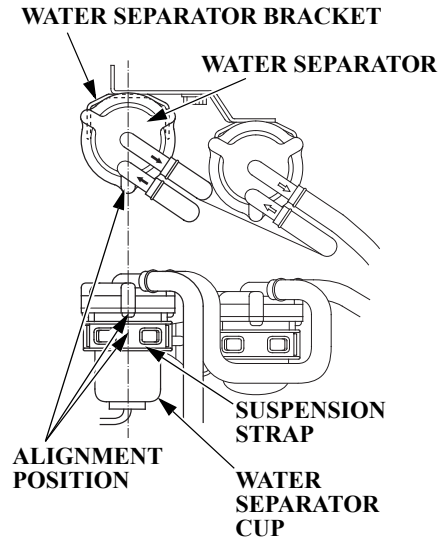
#### NOTICE

During removal of the water separator assembly, take care not to damage the wire harness with the water separator bracket.

## MAINTENANCE



3. Pinch the fuel tubes with tube clips to prevent fuel leakage.
4. Remove the three screws and separate the water separator cup from the body.
5. Thoroughly clean the water separator cup.



6. Reassemble the water separator body and the cup.  
**TIGHTENING TORQUE:**  
3.4 N·m (0.35 kgf·m, 2.5 lbf·ft)
7. Align the center of suspension strap with the screw position and install the water separator assembly.

8. Reinstall the water separator in the reverse order of removal.
9. Squeeze and release the primer bulb to fill the vapor separator, and check for leaks.

### NOTE:

If the buzzer sounds, water or sediment accumulation is found to be caused by excessive water or sediment accumulated in the water separator cup, inspect the fuel tank. Clean the fuel tank if necessary.



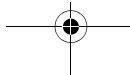
## EMISSION CONTROL SYSTEM

The combustion process produces carbon monoxide and hydrocarbons. Control of hydrocarbons 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.

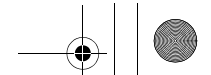
### Problems that May Affect Outboard Motor Emissions

If you are aware of any of the following symptoms, have the outboard motor inspected and repaired by your authorized Honda Dealer:

1. Hard starting or stalling after starting
2. Rough idle
3. Misfiring or backfiring during acceleration
4. Poor performance (driveability) and poor fuel economy



## MAINTENANCE



## MAINTENANCE

### Battery

#### NOTICE

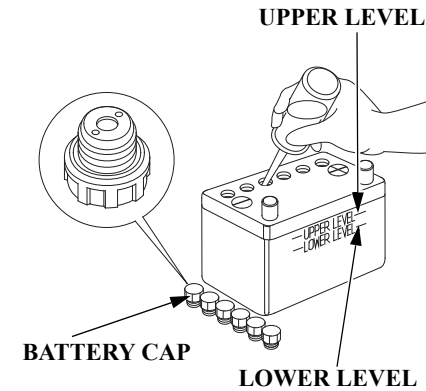
Battery handling differs according to the type of the battery and the instructions described below might not be applicable to the battery of your outboard. Refer to the battery manufacturer's instructions.

#### WARNING

Batteries produce explosive gases: If ignited, an explosion can cause serious injury or blindness. Provide adequate ventilation when charging.

- **CHEMICAL HAZARD:** Battery electrolyte contains sulfuric acid. Contact with eyes or skin, even through clothing, may cause severe burns. Wear a faceshield and protective clothing.

- **Keep flames and sparks away, and do not smoke in the area.**  
**ANTIDOTE:** If electrolyte gets into your eyes, flush thoroughly with warm water for at least 15 minutes and call a physician immediately.
- **POISON:** Electrolyte is poison.  
**ANTIDOTE:**
  - **External:** Flush thoroughly with water.
  - **Internal:** Drink large quantities of water or milk. Follow with milk of magnesia or vegetable oil, and call a physician immediately.
- **KEEP OUT OF REACH OF CHILDREN.**



#### <Battery Fluid Level>

Check whether the battery fluid is between the upper and lower levels, and check the vent hole in the battery caps for clogging.

If the battery fluid is near or below the lower level, add the distilled water to the upper level.

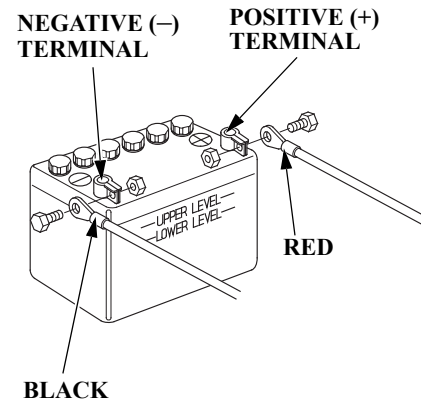


## MAINTENANCE

### <Battery Cleaning>

1. Disconnect the battery cable at the battery negative (-) terminal, then at the battery positive (+) terminal.
2. Remove the battery and clean the battery terminals and battery cable terminals with a wire brush or sand paper.

Clean the battery with a solution of baking soda and warm water, taking care not to get the solution or water in the battery cells. Dry the battery thoroughly.



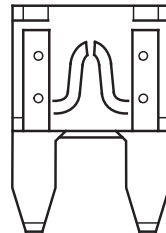
3. Connect the battery positive (+) cable to the battery positive (+) terminal, then the battery negative (-) cable to the battery negative (-) terminal. Tighten the bolts and nuts securely. Coat the battery terminals with grease.

### ▲ CAUTION

When disconnecting the battery cable, be sure to disconnect at the battery negative (-) terminal first. To connect, connect at the positive (+) terminal first, then at the negative (-) terminal. Never dis/connect the battery cable in the reverse order, or it causes a short circuit when a tool contacts the terminals.

## MAINTENANCE

### Fuse

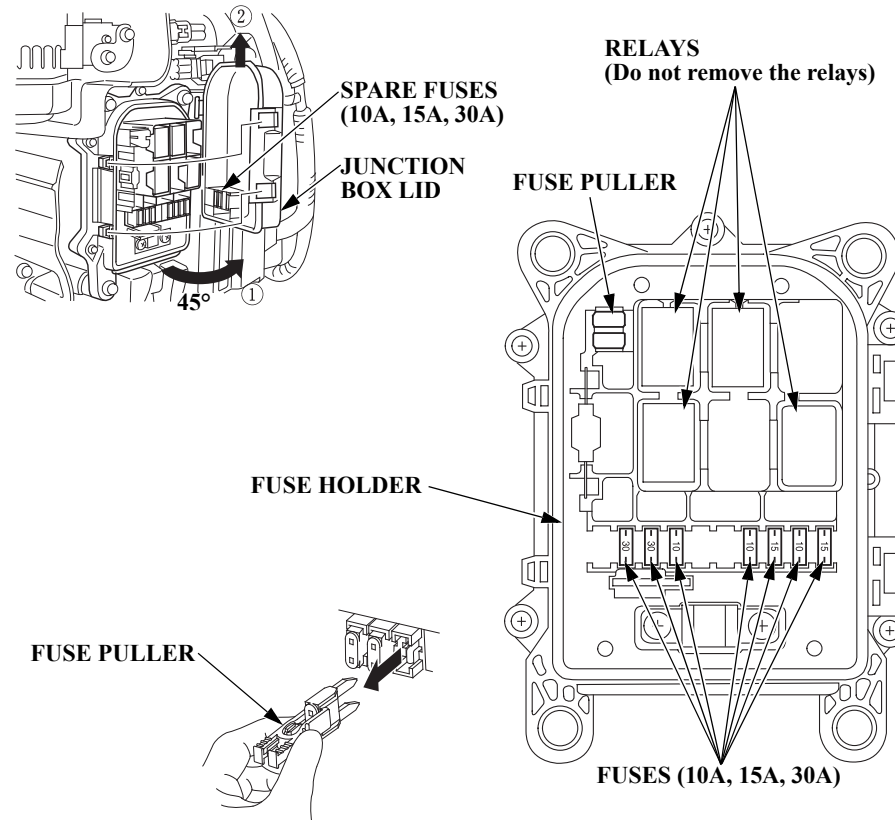


BLOWN FUSE

If the fuse blows, running the engine will not charge the battery. Before replacing the fuse, check the current ratings of the electrical accessories and ensure that there are no abnormalities.

#### ▲WARNING

- Never use a fuse with a different rating from that specified. Serious damage to the electrical system or a fire may result.
- Disconnect the battery cable at the battery negative (-) terminal before replacing the fuse. Failure to do so may cause a short circuit.



## MAINTENANCE

### NOTICE

**If the fuse is blown, check the cause, then replace the fuse with a spare fuse of the same rated capacity. Unless the cause is found, the fuse may blow again.**

### Main Fuse

#### <Replacement>

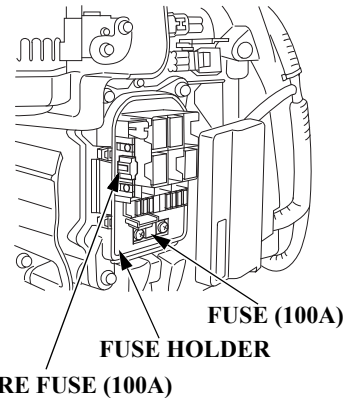
A spare fuse is located on the reverse side of the junction box lid.

1. Stop the engine.
2. Remove the engine cover.
3. Remove the junction box lid and pull the old fuse out of the clip with the fuse puller supplied in the fuse holder.
4. Push a new fuse into the clips.
5. Reinstall the junction box lid, and the engine cover.
6. Reconnect the battery.

#### DESIGNATED FUSE:

10A, 15A, 30A

### ACG Fuse



### NOTICE

**Disconnect the battery cable at the battery terminal before checking or replacing the ACG fuse.**

#### <Replacement>

A spare fuse is located in the fuse holder.

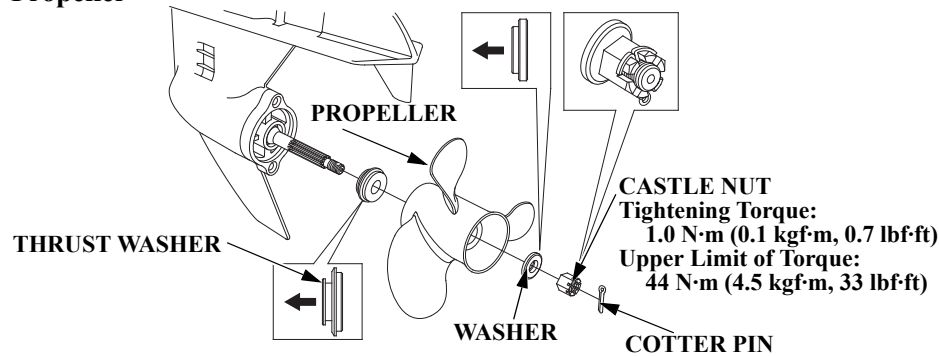
1. Stop the engine.
2. Remove the engine cover.
3. Remove the junction box lid (see page 102).
4. Remove the old fuse by removing two 5 mm screws.
5. Install a new fuse with "100A".
6. Reinstall the junction box lid, and the engine cover.
7. Reconnect the battery.

#### DESIGNATED FUSE:

100A

## MAINTENANCE

### Propeller



If the propeller is damaged by striking a rock, or other obstacle, replace the propeller as follows.

#### **▲WARNING**

- **When replacing, remove the emergency stop switch clip to prevent an accidental startup of the engine.**
- **The propeller is thin and sharp. To protect your hands, wear the heavy gloves during replacement.**

#### **Replacement**

1. Remove the cotter pin then remove the 18 mm castle nut, washer, propeller and thrust washer.
2. Install the new propeller in the reverse sequence to removal.
3. Tighten the castle nut with your hand first until the propeller has no play. Then, tighten the castle nut again with a tool until the groove in the castle nut aligns with the cotter pin hole. (Note that this tool is not included in the tools that come together with the outboard motor.)

4. Be sure to replace the cotter pin with a new one.

#### **NOTE:**

- Install the thrust washer with the grooved side toward the gear case.
- Use a genuine Honda cotter pin and bend the pin ends as shown.

## MAINTENANCE

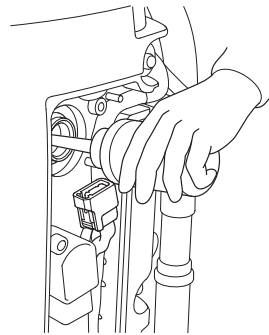
### Submerged Outboard Motor

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 outboard motor dealer nearby, take the outboard motor immediately to the dealer. If you are far from a dealer, 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 vapor separator as described on page 107.

3. Change the engine oil (see page 85). 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 1/2 hour.
4. Remove the spark plugs (see page 87). Operate the starter to expel water from the engine's cylinder.



5. Pour a teaspoon of engine oil into each spark plug hole to lubricate the inside of the cylinders. Reinstall the spark plugs.

#### NOTICE

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



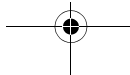
## MAINTENANCE

6. Install the engine cover and lock the latch securely (see page 39).

7. Attempt to start the engine.

- If the engine fails to start, remove the spark plugs, clean and dry the electrodes, then reinstall the spark plugs and attempt to start the engine again.
- If there was water in the engine crankcase, or the used engine oil showed signs of water contamination, then a second engine oil change should be performed after running the engine for 1/2 hour.
- If the engine starts, and no mechanical damage is evident, continue to run the engine for 1/2 hour or longer (be sure the water level is at least 100 mm (4 in) above the anticavitation plate).

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



## 13. STORAGE

For longer service life of the outboard motor, have your outboard motor serviced by an authorized Honda outboard motor dealer before storage. However, the following procedures can be performed by you, the owner, with a minimum of tools.

### Fuel

#### NOTE:

Gasoline spoils very quickly depending on factors such as light exposure, temperature and time. In worst cases, gasoline can be contaminated within 30 days. Using contaminated gasoline can seriously damage the engine (fuel system clogged, valve stuck). Such damage due to spoiled fuel is disallowed from coverage by the warranty.

To avoid this please strictly follow these recommendations:

- Only use specified gasoline (see page 41).
- Use fresh and clean gasoline.

- To slow deterioration, keep gasoline in a certified fuel container.
- If long storage (more than 30 days) is foreseen, drain fuel tank and vapor separator.

### Vapor Separator Draining

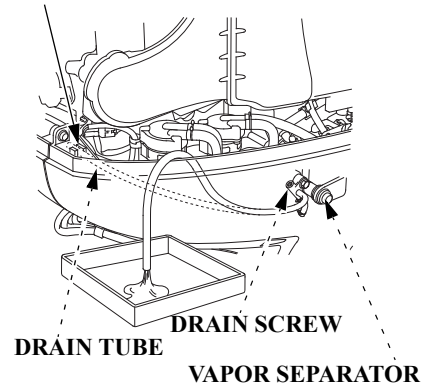
#### ▲WARNING

**Gasoline is extremely flammable, and gasoline vapor can explode, causing serious injury or death. Do not smoke or allow flames or sparks in your working area. KEEP OUT OF REACH OF CHILDREN.**

- **Be careful not to spill fuel. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before storing or transporting the outboard motor.**
- **Do not smoke or allow flames or sparks where fuel is drained or stored.**

## STORAGE

### FRONT BRACKET CLAMP



1. Remove the engine cover.
2. Unhook the drain tube from the front bracket clamp.
3. Set the end of the tube toward the outside of the engine undercase. Draining the fuel becomes easier when the front end of the drain tube is as low as possible.
4. Loosen the vapor separator drain screw.

5. Tilt up the outboard motor.
6. When the gasoline starts to flow out of the drain tube, tilt up the outboard motor and hold it in the position until the gasoline stops flowing. After draining the gasoline completely, return the outboard motor to the vertical position.
7. After draining thoroughly, tighten the drain screw securely.
8. Clamp the drain tube on the front bracket clamp.

### Engine Oil

1. Change the engine oil (see page 85).
2. Remove the spark plugs (see page 87), and remove the clip from the emergency stop switch.
3. Pour 1 – 2 teaspoons (5 – 10 cm<sup>3</sup>) of clean engine oil into the cylinder.
4. Rotate the engine a few revolutions to distribute the oil in the cylinders.
5. Reinstall the spark plugs (see page 90).



## STORAGE

### Battery Storage

#### NOTICE

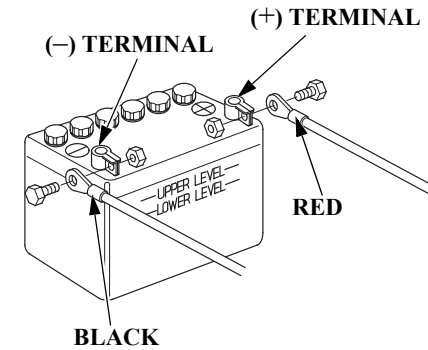
Battery handling differs according to the type of the battery and the instructions described below might not be applicable to the battery of your outboard motor. Refer to the battery manufacturer's instructions.

#### ▲WARNING

Batteries produce explosive gases: If ignited, an explosion can cause serious injury or blindness. Provide adequate ventilation when charging.

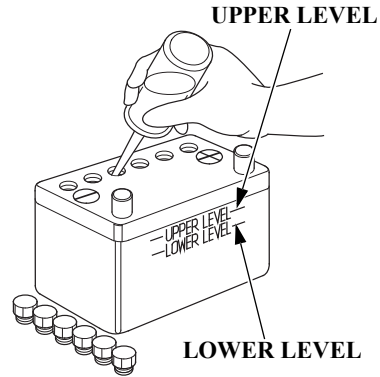
- **CHEMICAL HAZARD:** Battery electrolyte contains sulfuric acid. Contact with eyes or skin, even through clothing, may cause severe burns. Wear a faceshield and protective clothing.

- **Keep flames and sparks away, and do not smoke in the area.**  
**ANTIDOTE:** If electrolyte gets into your eyes, flush thoroughly with warm water for at least 15 minutes and call a physician immediately.
- **POISON:** Electrolyte is poison.  
**ANTIDOTE**
  - **External:** Flush thoroughly with water.
  - **Internal:** Drink large quantities of water or milk. Follow with milk of magnesia or vegetable oil, and call a physician immediately.
- **KEEP OUT OF REACH OF CHILDREN.**



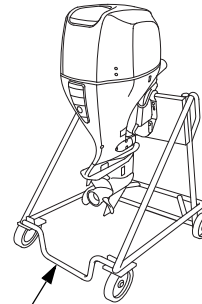
1. Disconnect the battery cable at the battery negative (-) terminal, then at the battery positive (+) terminal.
2. Remove the battery and clean the battery terminals and battery cable terminals with a wire brush or sand paper.  
Clean the battery with a solution of baking soda and warm water, taking care not to get the solution of water in the battery cells. Dry the battery thoroughly.

## STORAGE



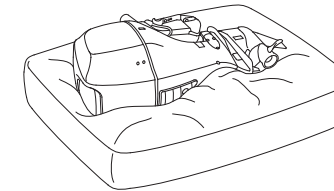
3. Fill the battery with distilled water to the upper level line. Never overfill the battery.
4. Store the battery on a level surface in a cool, dry, well ventilated place out of direct sunlight.
5. Once a month, check the specific gravity of the electrolyte and recharge as required to prolong battery life.

### Outboard Motor Position



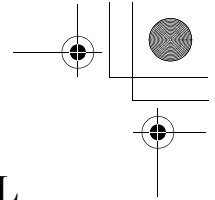
Transport and store the outboard motor either vertically or horizontally, as shown above. Attach the stern bracket to stand and secure the outboard motor with bolts and nuts. Store the outboard motor in a well-ventilated area free from direct sunlight and humidity.

**Vertical transport or storage:**  
Attach the stern bracket to a stand.



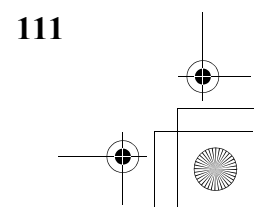
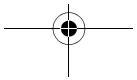
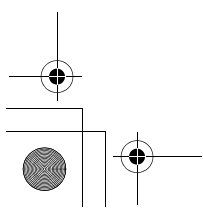
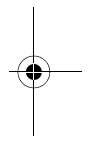
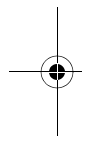
**Horizontal transport or storage:**  
Rest the outboard motor on a cushion of protective material.

**▲ CAUTION**  
**Do not place the outboard motor on its side during a prolonged period of storage. If you are obliged to place the outboard motor on its side, drain the engine oil, protect the outboard motor by wrapping it with the urethane material or the blanket as shown.**



# 14. DISPOSAL

To protect the environment, do not dispose of this product, battery, engine oil, etc. carelessly by leaving them in the waste. Observe the local laws and regulations or consult your authorized Honda dealer for disposal.



## 15. TROUBLESHOOTING

### WARNING SYSTEM COMES ON

SYMPTOM	POSSIBLE CAUSE	REMEDY
Overheat warning system comes on: • Overheat indicator comes on. • Overheat warning buzzer sounds. • Engine speed decreases and stops at last. • Engine speed cannot be increased by opening the throttle. • Engine will stop in 20 seconds after engine speed is limited.	Cooling water intake port clogged.	Clean the cooling water intake port.
	Spark plug has improper heat range.	Replace the spark plug (see page 87 – 91).
	• Faulty water pump. • Thermostat clogged. • Faulty thermostat. • Cooling water passage clogged. • Exhaust gas invades cooling system.	Consult with an authorized Honda outboard motor dealer.
Oil pressure warning system comes on: • Oil pressure indicator does not come on. • Oil pressure warning buzzer sounds. • Engine speed decreases. • Engine speed cannot be increased by opening the throttle.	Shortage of engine oil	Add engine oil to the specified level (see page 40).
	Improper engine oil is used.	Change the engine oil (see page 85).

## TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	REMEDY
Water separator warning system comes on: • Water separator warning buzzer sounds.	Water is accumulated in the water separator.	Clean the water separator (see page 97). Check the fuel tank and fuel line for water accumulation. If the buzzer sounds again, consult with an authorized Honda outboard motor dealer.
PGM-FI warning system comes on: • PGM-FI indicator comes on. • PGM-FI warning buzzer sounds intermittently.	PGM-FI warning system is faulty.	Consult with an authorized Honda outboard motor dealer.
ACG warning system comes on: • ACG indicator comes on. • ACG warning buzzer sounds intermittently.	Battery voltage is too high or low.	Check the battery (see page 45, 100).
	Faulty ACG.	Consult with an authorized Honda outboard motor dealer.

## 16. SPECIFICATIONS

MODEL	BF115D		
Description Code	BBHJ		
Type	LD LU	XD XU	XCD
Overall length	845 mm (33.3 in)		
Overall width	580 mm (22.8 in)		
Overall height	1,665 mm (65.6 in)	1,790 mm (70.5 in)	
Transom height (when transom angle at 12°)	508 mm (20.0 in)	635 mm (25.0 in)	
Dry mass (weight)*	214 kg (472 lbs)	217 kg (478 lbs)	
Rated power	84.6 kW (115 PS)		
Full throttle range	4,500 – 6,000 min <sup>-1</sup> (rpm)		
Engine type	4 stroke DOHC in-line 4-cylinder		
Displacement	2,354 cm <sup>3</sup> (143.6 cu-in)		
Spark plug gap	1.0 – 1.1 mm (0.039 – 0.043 in)		
Remote control steering system	Motor-mounted		
Starter system	Electric starter		
Ignition system	Full transistor battery		
Lubrication system	Trochoid pump pressure lubrication		
Specified oil	Engine: API standard SG, SH, SJ SAE 10W-30 Gear case: API standard GL-4 SAE 90 Hypoid gear oil		

Oil capacity	Engine: Without oil filter replacement: 6.5 L (6.9 US qt, 5.7 Imp qt) With oil filter replacement: 6.7 L (7.1 US qt, 5.9 Imp qt) Gear case: 0.98 L (1.04 US qt, 0.86 Imp qt)
D.C. output	12V – 40A
Cooling system	Water cooling with thermostat
Exhaust system	Water exhaust
Spark plugs	ZFR6K-11 (NGK), KJ20DR-M11 (DENSO)
Fuel pump	High pressure side: Electrical type Low pressure side: Mechanical type
Fuel	Unleaded gasoline (91 research octane, 86 pump octane, or higher)
Gear shift	Dog type (Forward – Neutral – Reverse)
Steering angle	30° right and left
Tilt angle (transom angle at 12°)	Stageless (72°)
Trim angle (transom angle at 12°)	– 4° to 16°

\* Without propeller and battery cable

Honda outboards are power rated in accordance with ISO8665 (propeller shaft output).

## SPECIFICATIONS

MODEL	BF135A			
Description Code	BARJ	BASJ	BARJ	BASJ
Type	LD LU	LCU	XD XU	XCD XCU
Overall length	845 mm (33.3 in)			
Overall width	580 mm (22.8 in)			
Overall height	1,665 mm (65.6 in)		1,790 mm (70.5 in)	
Transom height (when transom angle at 12°)	508 mm (20.0 in)		635 mm (25.0 in)	
Dry mass (weight)*	214 kg (472 lbs)		217 kg (478 lbs)	
Rated power	99.3 kW (135 PS)			
Full throttle range	5,000 – 6,000 min <sup>-1</sup> (rpm)			
Engine type	4 stroke DOHC in-line 4-cylinder			
Displacement	2,354 cm <sup>3</sup> (143.6 cu-in)			
Spark plug gap	1.0 – 1.1 mm (0.039 – 0.043 in)			
Remote control steering system	Motor-mounted			
Starter system	Electric starter			
Ignition system	Full transistor battery			
Lubrication system	Trochoid pump pressure lubrication			
Specified oil	Engine: API standard SG, SH, SJ SAE 10W-30 Gear case: API standard GL-4 SAE 90 Hypoid gear oil			
Oil capacity	Engine: Without oil filter replacement: 6.5 L (6.9 US qt, 5.7 Imp qt) With oil filter replacement: 6.7 L (7.1 US qt, 5.9 Imp qt) Gear case: 0.98 L (1.04 US qt, 0.86 Imp qt)			
D.C. output	12V – 40A			
Cooling system	Water cooling with thermostat			
Exhaust system	Water exhaust			
Spark plugs	ZFR6K-11 (NGK), KJ20DR-M11 (DENSO)			
Fuel pump	High pressure side: Electrical type Low pressure side: Mechanical type			
Fuel	Unleaded gasoline (91 research octane, 86 pump octane, or higher)			
Gear shift	Dog type (Forward – Neutral – Reverse)			
Steering angle	30° right and left			
Tilt angle (transom angle at 12°)	Stageless (72°)			
Trim angle (transom angle at 12°)	– 4° to 16°			

\* Without propeller and battery cable

Honda outboards are power rated in accordance with ISO8665 (propeller shaft output).

## SPECIFICATIONS

MODEL	BF150A			
Description Code	BANJ	BAPJ	BANJ	BAPJ
Type	LD LU	LCU	XD XU	XCD XCU
Overall length	845 mm (33.3 in)			
Overall width	580 mm (22.8 in)			
Overall height	1,665 mm (65.6 in)		1,790 mm (70.5 in)	
Transom height (when transom angle at 12°)	508 mm (20.0 in)		635 mm (25.0 in)	
Dry mass (weight)*	214 kg (472 lbs)		217 kg (478 lbs)	
Rated power	110.3 kW (150 PS)			
Full throttle range	5,000 – 6,000 min <sup>-1</sup> (rpm)			
Engine type	4 stroke DOHC VTEC in-line 4-cylinder			
Displacement	2,354 cm <sup>3</sup> (143.6 cu-in)			
Spark plug gap	1.0 – 1.1 mm (0.039 – 0.043 in)			
Remote control steering system	Motor-mounted			
Starter system	Electric starter			
Ignition system	Full transistor battery			
Lubrication system	Trochoid pump pressure lubrication			
Specified oil	Engine: API standard SG, SH, SJ SAE 10W-30 Gear case: API standard GL-4 SAE 90 Hypoid gear oil			

Oil capacity	Engine: Without oil filter replacement: 6.5 L (6.9 US qt, 5.7 Imp qt) With oil filter replacement: 6.7 L (7.1 US qt, 5.9 Imp qt) Gear case: 0.98 L (1.04 US qt, 0.86 Imp qt)
D.C. output	12V – 40A
Cooling system	Water cooling with thermostat
Exhaust system	Water exhaust
Spark plugs	ZFR6K-11 (NGK), KJ20DR-M11 (DENSO)
Fuel pump	High pressure side: Electrical type Low pressure side: Mechanical type
Fuel	Unleaded gasoline (91 research octane, 86 pump octane, or higher)
Gear shift	Dog type (Forward – Neutral – Reverse)
Steering angle	30° right and left
Tilt angle (transom angle at 12°)	Stageless (72°)
Trim angle (transom angle at 12°)	– 4° to 16°

\* Without propeller and battery cable

Honda outboards are power rated in accordance with ISO8665 (propeller shaft output).



## SPECIFICATIONS

### Noise and Vibration

MODEL	BF115D	BF135A	BF150A
CONTROL SYSTEM	R (Remote control)	R (Remote control)	R (Remote control)
Sound pressure level at operator's ears (2006/42/EC, ICOMIA 39-94)	80 dB (A)	78 dB (A)	80 dB (A)
Uncertainty	2 dB (A)	2 dB (A)	2 dB (A)
Measured sound power level (Reference to EN ISO3744)	—	—	—
Uncertainty	—	—	—
Vibration level at hand arm (2006/42/EC, ICOMIA 38-94)	Not Exceed 2.5 m/s <sup>2</sup>	Not Exceed 2.5 m/s <sup>2</sup>	Not Exceed 2.5 m/s <sup>2</sup>
Uncertainty	—	—	—

Reference to: ICOMIA Standard: as it specifies the engine operating conditions and measurement conditions.

## 17. MAJOR Honda DISTRIBUTOR ADDRESSES

For further information, please contact Honda Customer Information Centre at the following address or telephone number:

### For European

#### AUSTRIA

**Honda Austria GmbH**  
Hondastraße 1  
2351 Wiener Neudorf  
Tel. : +43 (0)2236 690 0  
Fax : +43 (0)2236 690 480  
<http://www.honda.at>  
✉ [hondaPP@honda.co.at](mailto:hondaPP@honda.co.at)

#### BALTIC STATES (Estonia/Latvia/ Lithuania)

**Honda Motor Europe Ltd.  
Estonian Branch**  
Tulika 15/17  
10613 Tallinn  
Tel. : +372 6801 300  
Fax : +372 6801 301  
✉ [honda.baltic@honda-eu.com](mailto:honda.baltic@honda-eu.com)

#### BELGIUM

**Honda Belgium**  
Doomveld 180-184  
1731 Zellik  
Tel. : +32 2620 10 00  
Fax : +32 2620 10 01  
<http://www.honda.be>  
✉ [BH\\_PE@HONDA-EU.COM](mailto:BH_PE@HONDA-EU.COM)

#### BULGARIA

**Kirov Ltd.**  
49 Tsaritsa Yoana Blvd  
1324 Sofia  
Tel. : +359 2 93 30 892  
Fax : +359 2 93 30 814  
[www.kirov.net](http://www.kirov.net)  
✉ [honda@kirov.net](mailto:honda@kirov.net)

#### CROATIA

**Fred Bobek d.o.o.**  
Honda-Marine Croatia - Trg. - Ind.  
zona bb  
22211 Vodice  
Tel. : +385 22 44 33 00/33 10  
Fax : +385 22 44 05 00  
[www.honda-marine.hr](http://www.honda-marine.hr)

#### CYPRUS

**Alexander Dimitriou & Sons Ltd.**  
162, Yiannos Kranidiotis  
Avenue  
2235 Latsia, Nicosia  
Tel. : +357 22 715 300  
Fax : +357 22 715 400

#### CZECH REPUBLIC

**BG Technik cs, a.s.**  
U Zavodiste 251/8  
15900 Prague 5 - Velka Chuchle  
Tel. : +420 2 838 70 850  
Fax : +420 2 667 111 45  
[www.hondamarine.cz](http://www.hondamarine.cz)

#### DENMARK

**Tima Products A/S**  
Tårnfalkevej 16  
2650 Hvidovre  
Tel. : +45 36 34 25 50  
Fax : +45 36 77 16 30  
<http://www.tima.dk>

#### FINLAND

**OY Brandt AB**  
Tuupakantie 7B  
01740 Vantaa  
Tel. : +358 207757200  
Fax : +358 (0)9 878 5276  
[www.brandt.fi](http://www.brandt.fi)

#### FRANCE

**Honda Relations Clients**  
TSA 80627  
45146 St Jean de la Ruelle Cedex  
Tel. : 02 38 81 33 90  
Fax : 02 38 81 33 91  
<http://www.honda-fr.com>  
✉ [espaceclient@honda-eu.com](mailto:espaceclient@honda-eu.com)

#### GERMANY

**Honda Deutschland GmbH**  
Sprendlinger Landstraße 166  
63069 Offenbach am Main  
Tel. : 01 80 5/20 20 90  
Fax : +49 69 8320 20  
<http://www.honda.de>  
✉ [info@post.honda.de](mailto:info@post.honda.de)

#### GREECE

**Saracakis Brothers S.A.**  
71, Leoforos Athinon  
10173 Athens  
Tel. : +30 210 3483582  
Fax : +30 210 3418092  
<http://www.honda.gr>  
✉ [info@saracakis.gr](mailto:info@saracakis.gr)

## MAJOR Honda DISTRIBUTOR ADDRESSES

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### For European (continued)

#### HUNGARY

**Motor Pedo Co., Ltd.**  
Kamaraerdei ut 3.  
2040 Budaors  
Tel. : +36 23 444 971  
Fax : +36 23 444 972  
<http://www.hondakisgepek.hu>  
✉ [info@hondakisgepek.hu](mailto:info@hondakisgepek.hu)

#### ICELAND

**Bernhard ehf.**  
Vatnagardar 24-26  
104 Reykjavik  
Tel. : +354 520 1100  
Fax : +354 520 1101  
[www.honda.is](http://www.honda.is)

#### IRELAND

**Two Wheels ltd**  
M50 Business Park, Ballymount  
Dublin 12  
Tel. : +353 1 4381900  
Fax : +353 1 4607851  
<http://www.hondaireland.ie>  
✉ [Service@hondaireland.ie](mailto:Service@hondaireland.ie)

#### ITALY

**Honda Italia Industriale S.p.A.**  
Via della Cecchignola, 13  
00143 Roma  
Tel. : +848 846 632  
Fax : +39 065 4928 400  
[www.hondaitalia.com](http://www.hondaitalia.com)  
✉ [info.marine@honda-eu.com](mailto:info.marine@honda-eu.com)

#### MALTA

**Associated Motors Company Ltd.**  
New Street in San Gwakklin Road -  
Mriehel Bypass  
Mriehel QRM17  
Tel. : +356 21 498 561  
Fax : +356 21 480 150

#### NETHERLANDS

**Honda Nederland B.V.**  
Afd. Power Equipment  
Capronilaan 1  
1119 NN Schiphol-Rijk  
Tel. : +31 20 7070000  
Fax : +31 20 7070001  
<http://www.honda.nl>

#### NORWAY

**AS Kellox**  
Boks 170 - Nygårdsveien 67  
1401 Ski  
Tel. : +47 64 97 61 00  
Fax : +47 64 97 61 92  
[www.kellox.no](http://www.kellox.no)

#### POLAND

**Aries Power Equipment Sp. z o.o.**  
ul. Wroclawska 25  
01-493 Warszawa  
Tel. : +48 (22) 861 43 01  
Fax : +48 (22) 861 43 02  
[www.ariespower.pl](http://www.ariespower.pl)  
[www.mojahonda.pl](http://www.mojahonda.pl)  
✉ [info@ariespower.pl](mailto:info@ariespower.pl)

#### PORTUGAL

**Honda Portugal S.A.**  
Rua Fontes Pereira de Melo 16  
Abrunheira, 2714-506 Sintra  
Tel. : +351 21 915 53 33  
Fax : +351 21 915 23 54  
<http://www.honda.pt>  
✉ [honda.produtos@honda-eu.com](mailto:honda.produtos@honda-eu.com)

#### REPUBLIC OF BELARUS

**Scanlink Ltd.**  
Kozlova Drive, 9  
220037 Minsk  
Tel. : +375 172 999090  
Fax : +375 172 999900  
<http://www.hondapower.by>

#### ROMANIA

**Hit Power Motor Srl**  
str. Vasile Stroescu nr. 12, Camera 6,  
Sector 2  
021374 Bucuresti  
Tel. : +40 21 637 04 58  
Fax : +40 21 637 04 78  
<http://www.honda.ro>  
✉ [hit\\_power@honda.ro](mailto:hit_power@honda.ro)

#### RUSSIA

**Honda Motor RUS LLC**  
1, Pridirizhnaya Street,  
Sharapovo settlement,  
Naro-Fominsky district, Moscow Region,  
143350 Russia  
Tel. : +7 (495) 745 20-80  
Fax : +7 (495) 745 20 81  
[www.honda.co.ru](http://www.honda.co.ru)  
✉ [postoffice@honda.co.ru](mailto:postoffice@honda.co.ru)

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#### SERBIA & MONTENEGRO

**Fred Bobek d.o.o.**  
Honda-Marine Croatia - Trg. - Ind.  
zona bb 22211 Vodice  
Tel. : +385 22 44 33 00/33 10  
Fax : +385 22 44 05 00  
[www.honda-marine.hr](http://www.honda-marine.hr)

#### SLOVAK REPUBLIC

**Honda Slovakia, s.r.o.**  
Prievozná 6 821 09 Bratislava  
Tel. : +421 2 32131112  
Fax : +421 2 32131111  
<http://www.honda.sk>

#### SLOVENIA

**AS Domzale Moto Center D.O.O.**  
Blatnica 3A  
1236 Trzin  
Tel. : +386 1 562 22 62  
Fax : +386 1 562 37 05  
[www.honda-as.com](http://www.honda-as.com)  
✉ [informacije@honda-as.com](mailto:informacije@honda-as.com)

#### SPAIN & Las Palmas province (Canary Islands)

**Greens Power Products, S.L.**  
Poligono Industrial Congost -  
Av Ramon Ciurans n°2  
08530 La Garriga - Barcelona  
Tel. : +34 93 860 50 25  
Fax : +34 93 871 81 80  
<http://www.hondaencasa.com>

#### Tenerife province (Canary Islands)

**Automocion Canarias, S.A.**  
Carretera General del Sur, KM. 8,8  
38107 Santa Cruz de Tenerife  
Tél. : +34 (922) 620 617  
Fax : +34 (922) 618 042  
[www.aucasa.com](http://www.aucasa.com)  
✉ [ventas@aucasa.com](mailto:ventas@aucasa.com)  
✉ [taller@aucasa.com](mailto:taller@aucasa.com)

#### SWEDEN

**Honda Nordic AB**  
Box 31002-Långhusgatan 4  
215 86 Malmö  
Tel. : +46 (0)40 600 23 00  
Fax : +46 (0)40 600 23 19  
[www.honda.se](http://www.honda.se)  
✉ [hpesinfo@honda-eu.com](mailto:hpesinfo@honda-eu.com)

#### SWITZERLAND

**Honda Suisse S.A.**  
10 Route des Moulières  
1214 Vernier-Genève  
Tel. : +41 (0)22 939 09 09  
Fax : +41 (0)22 939 09 97  
[www.honda.ch](http://www.honda.ch)

#### TURKEY

**Anadolu Motor Uretim ve Pazarlama  
AS**  
Esentepe mah. Anadolu cad. No: 5  
Kartal 34870 Istanbul  
Tel. : +90 216 389 59 60  
Fax : +90 216 353 31 98  
[www.anadolumotor.com.tr](http://www.anadolumotor.com.tr)  
✉ [antor@antor.com.tr](mailto:antor@antor.com.tr)

#### UKRAINE

**Honda Ukraine LLC**  
101 Volodymyrska Str. - Build. 2  
Kyiv 01033  
Tel. : +380 44 390 14 14  
Fax : +380 44 390 14 10  
<http://www.honda.ua>  
✉ [CR@honda.ua](mailto:CR@honda.ua)

#### UNITED KINGDOM

**Honda (UK) Power Equipment**  
470 London Road  
Slough - Berkshire, SL3 8QY  
Tel. : +44 (0)845 200 8000  
<http://www.honda.co.uk>

### For Australian

#### AUSTRALIA

**Honda Australia Motorcycle and  
Power Equipment Pty. Ltd**  
1954-1956 Hume Highway  
Campbellfield Victoria 3061  
Tel. : (03) 9270 1111  
Fax : (03) 9270 1133  
<http://www.hondampe.com.au/>

## 18. "EC DECLARATION OF CONFORMITY" CONTENT OUTLINE

1) **EC-DECLARATION OF CONFORMITY**

2) THE UNDERSIGNED, (14), REPRESENTING THE MANUFACTURER, HEREWITH DECLARES THAT THE **PRODUCT** IS IN CONFORMITY WITH THE **PROVISIONS** OF THE FOLLOWING **EC-DIRECTIVES**

2006/42/EC, 2004/108/EC

3) **Outboard engine, Propulsion system**

4) **REFERENCE TO HARMONIZED STANDARDS:** EN ISO 8178  
EN ISO 14509

5) **DESCRIPTION OF THE MACHINERY**

6) **CATEGORY:** 7) **Outboard engine** 8) **MAKE:** Honda

9) **TYPE:**  10) **SERIAL NUMBER:**

11) **MANUFACTURER:** Honda Motor Co., Ltd.  
2-1-1 Minamiaoyama Minato-ku Tokyo 107-8556 Japan

12) **AUTHORIZED REPRESENTATIVE:** Honda Motor Europe Ltd. - Aalst Office  
Wijngaardveld 1 (Noord V), 9300 Aalst, Belgium

13) **SIGNATURE:**

14) **NAME:**

17) **DATE:**

15) **TITLE:**

18) **PLACE:**

## “EC DECLARATION OF CONFORMITY” CONTENT OUTLINE

<p>1) DECLARATION CE DE CONFORMITE 2) LE SOUSSIGNE, (14), REPRESENTANT DU CONSTRUCTEUR, DECLARE PAR LA PRESENTE QUE LE PRODUIT EST CONFORME AUX DISPOSITIONS DES DIRECTIVES CE SUIVANTES</p> <p>3) moteur hors-bord, Systeme de propulsion</p> <p>4) REFERENCE AUX NORMES HARMONISEES 5) DESCRIPTION DE MACHINE 6) CATEGORIE 7) moteur hors-bord 8) MARQUE</p> <p>9) TYPE 10) NUMERO DI SERIE 11) CONSTRUCTEUR 12) REPRESENTANT HABILITE 13) SIGNATURE 14) NOM 15) TITRE</p> <p>16) Directeur Qualite 17) DATE 18) LIEU</p>	<b>français ( FRENCH )</b>
<p>1) DICHIARAZIONE DI CONFORMITA' CE 2) IL SOTTOSCRITTO, (14), RAPPRESENTANTE DEL COSTRUTTORE, DICHIARA QUI DI SEGUITO CHE IL PRODOTTO E' CONFORME A QUANTO PREVISTO DALLE SEGUENTI DIRETTIVE COMUNITARIE</p> <p>3) MOTORE FUORIBORDO, Sistema di propulsione</p> <p>4) RIFERIMENTO ALLE NORME ARMONIZZATE 5) DESCRIZIONE DELLA MACCHINA 6) CATEGORIA</p> <p>7) MOTORE FUORIBORDO 8) MARCA 9) TIPO 10) NUMERO DI SERIE 11) FABBRICANTE 12) RAPPRESENTANTE AUTORIZZATO</p> <p>13) FIRMA 14) NOME 15) TITOLO 16) DIRETTORE DELLA QUALITA' 17) ADDI 18) LUOGO</p>	<b>italiano ( ITALIAN )</b>
<p>1) EG-KONFORMITÄT SERKLÄUNG 2) DER UNTERZEICHNER, (14), DER DEN HERSTELLER VERTRITT, ERKLÄRT HIERMIT, DAB DAS PRODUKT IN ÜBEREINSTIMMUNG MIT DEN BESTIMMUNGEN DER NACHSTEHENDEN EG-RICHTLINIEN IST</p> <p>3) Außenbordmotor, Antriebsart</p> <p>4) VERWEIS AUF HARMONISIERTE NORMEN 5) BESCHREIBUNG DER MASCHINE 6) ART 7) Außenbordmotor</p> <p>8) FABRIKAT 9) TYP 10) SERIEN NUMMER 11) HERSTELLER 12) BEVOLLMÄCHTIGTER 13) UNTERSCHIFT 14) NAME 15) TITEL</p> <p>16) Qualitätssicherung 17) DATUM 18) ORT</p>	<b>deutsch ( GERMAN )</b>
<p>1) EG-VERKLARING VAN OVEREENSTEMMING 2) ONDERGETEKENDE, (14), VERTEGENWOORDIGER VAN DE FABRIKANT, VERKLAART HIERMEE DAT HET PRODUCT VOLDOET AAN DE BEPALINGEN VAN DE VOLGENDE EG-RICHTLIJNEN</p> <p>3) buitenboordmotor, Aandrijfsysteem</p> <p>4) REFERENTIE NAAR GEHARMONISEERDE NORMEN 5) BESCHRIJVING VAN DE MACHINE 6) CATEGORIE</p> <p>7) buitenboordmotor 8) FABRIKAT 9) TYPE 10) SERIEN UMMER 11) FABRIKANT 12) GEMACHTIGDE VAN DE FABRIKANT</p> <p>13) HANDTEKENING 14) NAAM 15) TITEL 16) Directeur Kwaliteitszorg 17) DATUM 18) PLAATS</p>	<b>nederlands ( DUTCH )</b>
<p>1) ΕΚΔΗΛΩΣΗ ΕΝΑΡΜΟΝΙΣΗΣ 2) Ο ΥΠΟΓΡΑΦΩΝ, (14), ΕΚΠΡΟΣΩΠΙΟΝΤΑΣ ΤΟΝ ΚΑΤΑΣΚΕΥΑΣΤΗ, ΔΙΑ ΤΟΥ ΠΑΡΟΝΤΟΣ ΔΗΛΩΝΕΙ ΟΤΙ ΤΟ ΠΡΟΪΟΝ ΒΡΙΣΚΕΤΑΙ ΣΕ ΕΝΑΡΜΟΝΙΣΗ ΜΕ ΤΙΣ ΠΡΟΒΛΕΨΕΙΣ ΤΩΝ ΚΑΤΩΘΙ ΟΔΗΓΙΩΝ ΤΗΣ ΕΕ</p> <p>3) Εξωλέμβια μηχανή, Σύστημα Πρόωσης</p> <p>4) ΠΑΡΑΠΟΜΠΗ ΣΤΑ ΕΝΑΡΜΟΝΙΣΜΕΝΑ ΠΡΟΤΥΠΑ 5) ΠΕΡΙΓΡΑΦΗ ΜΗΧΑΝΗΜΑΤΟΣ 6) ΚΑΤΗΓΟΡΙΑ 7) Εξωλέμβια μηχανή</p> <p>8) ΕΡΓΟΣΤΑΣΙΟ ΚΑΤΑΣΚΕΥΗΣ 9) ΤΥΠΟΣ 10) ΑΡΙΘΜΟΣ ΣΕΙΡΑΣ 11) ΚΑΤΑΣΚΕΥΑΣΤΗΣ 12) ΕΞΟΥΣΙΟΔΟΤΗΜΕΝΟΣ ΑΝΤΙΠΡΟΣΩΠΟΣ</p> <p>13) ΥΠΟΓΡΑΦΗ 14) ΟΝΟΜΑ 15) ΤΙΤΛΟΣ 16) Υπεύθυνος Ποιότητας 17) ΗΜΕΡΟΜΗΝΙΑ 18) ΤΟΠΟΣ</p>	<b>Ελληνικά ( GREEK )</b>
<p>1) EF OVERENSSTEMMELSE SERKLÆRING 2) UNDERTEGNEDE, (14), DER REPRÆSENTERER FABRIKANTEN, ERKLÆRER HERMED AT PRODUKTET ER I OVERENSSTEMMELSE MED BESTEMMELSERNE I FØLGE EF DIREKTIVERNE</p> <p>3) Utenbordsmotor, Fremdrivningssystem</p> <p>4) REFERENCE TIL HARMONISEREDE STANDARDER 5) BESKRIVELSE AF MASKINEN 6) KATEGORI 7) Utenbordsmotor 8) FABRIKANT</p> <p>9) TYPE 10) SERIEN UMNER 11) FABRIKANT 12) FABRIKANTENS REPRÆSENTANT 13) SIGNATURE 14) NAVN 15) TITEL</p> <p>16) Kvalitets Leder 17) DATO 18) STED</p>	<b>dansk ( DANISH )</b>
<p>1) DECLARACIÓN DE CONFORMIDAD 2) EL ABAJO FIRMANTE, (14), EN REPRESENTACIÓN DE FABRICANTE, DECLARA QUE EL PRODUCTO ES CONFORME CON LAS DISPOSICIONES DE LAS SIGUIENTES DIRECTIVAS CE</p> <p>3) Motor fueraborda, Sistema de propulsión</p> <p>4) REFERENCIA A ESTANDARES ARMONIZADOS 5) DESCRIPCION DE LA MAQUINARIA 6) CATEGORIA 7) Motor fueraborda 8) MARCA</p> <p>9) TIPO 10) NUMERO DE SERIE 11) FABRICANTE 12) REPRESENTANTE AUTORIZADO 13) FIRMA 14) NOMBRE 15) CARGO</p> <p>16) Director de calidad 17) FECHA 18) LUGAR</p>	<b>español ( SPANISH )</b>

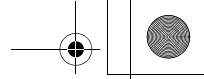
## “EC DECLARATION OF CONFORMITY” CONTENT OUTLINE

<p>1) DECLARAÇÃO CE DE CONFORMIDADE 2) O ABAIXO ASSINADO, (14), EM REPRESENTAÇÃO DO FABRICANTE, PELA PRESENTE DECLARA QUE O PRODUTO ESTÁ EM CONFORMIDADE COM O ESTABELECIDO NAS SEGUINTE DIRECTIVAS COMUNITARIAS 3) Motor fora de borda, Sistema propulsor 4) REFERÊNCIA AS NORMAS HARMONIZADAS 5) DESCRIÇÃO DA MAQUINA 6) CATEGORIA 7) Motor fora de borda 8) MARCA 9) TIPO 10) NUMERO DE SERIE 11) FABRICANTE 12) MANDATARIO AUTORIZADO 13) ASSINATURA 14) NOME 15) TITULO 16) Director de Qualidade 17) DATA 18) LOCAL</p>	<b>português ( PORTUGUESE )</b>
<p>1) EY-VAATIMUSTENMUKAISUUSVAKUUTUS 2) ALLEKIRJOITANUT, (14), JOKA EDUSTAA VALMISTAJAA, VAKUUTTAA TÄTEN, ETTÄ TUOTE ON SEURAAVIEN EU-DIREKTIIVIEN VAAIMUSTEN MUKAINEN 3) Peramootori, Työntöjärjestelmä 4) VITTAUS YHTEISIIN STANDARDEIHIN 5) KUVAUS LAITTEESTA 6) KATEGORIA 7) Peramootori 8) MERKKI 9) MALLI 10) SARJANUMERO 11) VALMISTAJA 12) VALTUUTETTU EDUSTAJA 13) ALLEKIRJOITUS 14) NIMI 15) TITTELI 16) Laaturpäällikkö 17) PÄIVÄMÄÄRÄ 18) PAIKKA</p>	<b>suomi / suomen kieli ( FINNISH )</b>
<p>1) ЕО-ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ 2) ДОЛУ ПОДШИСКАЛИЯТ СЕ, (14), ПРЕДСТАВЛЯВАЩ ДИСТРИБУТОРА, ДЕКЛАРИРА, ЧЕ ПРОДУКТА СЪОТВЕТСТВА НА ИЗСКВАНИЯТА НА СЛЕДНИТЕ ЕВРОПЕЙСКИ ДИРЕКТИВИ 3) ИЗВЪН БОРДОВИ ДВИГАТЕЛ, Задвижваща система 4) СЪОТВЕТСТВИЕ С ХАРМОНИЗИРАНИТЕ СТАНДАРТИ 5) ОПИСАНИЕ НА АРТИКУЛА 6) КАТЕГОРИЯ 7) ИЗВЪНБОРДОВИ ДВИГАТЕЛ 8) МАРКА 9) ТИП 10) СЕРИЕН НОМЕР 11) ПРОИЗВОДИТЕЛ 12) ОТОРИЗИРАН ПРЕСТАВИТЕЛ 13) ПОДПИС 14) ИМЕ 15) ТИТЛА 16) МЕНИДЖЪР НА КАЧЕСТВОТО 17) ДАТА 18) МЯСТО</p>	<b>български ( BULGARIAN )</b>
<p>1) EG-FÖRSÄKRAN OM ÖVERENSSTÄMMELSE 2) UNDERTECKNAD, (14), REPRESENTERANDE TILLVERKARE, FÖRSÄKRAR HÄRMED ATT PRODUKTEN ÖVERENSSTÄMMER MED BESTÄMMELSERNA I FÖLJANDE EG-DIREKTIVE 3) Utomborosmotor, Framdrivningssystem 4) REFERERANDE TILL HARMONISERADE STANDARDER 5) BESKRIVNING AV UTRUSTNINGEN 6) KATEGORI 7) Utomborosmotor 8) MERKKI 9) TYPBETECKNING 10) SERIENUMER 11) TILLVERKARE 12) REPRESENTERANDE TILLVERKARENS 13) SIGNATUR 14) NAMN 15) TITEL 16) Kvalitetschef 17) DATUM 18) ORT</p>	<b>svenska ( SWEDISH )</b>
<p>1) DEKLARACJA ZGODNOŚCI WE 2) NIŻEJ PODPISANY, (14), REPREZENTUJĄCY PRODUCENTA, DEKLARUJE Z CAŁĄ ODPOWIEDZIALNOŚCIĄ, ŻE PRODUKT SPEŁNIA WYMAGANIA ZAWARTE W NASTĘPUJĄCYCH DYREKTYWACH UNIJNYCH 3) Silnik zaburtowy, Układ napędowy 4) ZASTOSOWANE NORMY ZHARMONIZOWANE 5) OPIS URZĄDZENIA 6) KATEGORIA 7) Silnik zaburtowy 8) MARKA 9) TYP 10) NUMERY SERYJNE 11) PRODUCENT 12) UPOWAŻNIONY PRZEDSTAWICIEL PRODUCENTA 13) PODPIS 14) NAZWISKO 15) TYTUŁ 16) Menadżer Jakości 17) DATA 18) MIEJSCE</p>	<b>polski ( POLISH )</b>
<p>1) MEGFELELŐSÉGI NYILATKOZAT 2) ALULÍROTT, (14), MINT A GYÁRTÓ KÉPVISELŐJE NYILATKOZIK, HOGY AZ ALÁBBI TERMÉK MINDENBEN MEGFELEL A KÖVETKEZŐ EC ELOIRASOK RENDELKEZÉSEINEK: 98/37/EC, 89/336/EEC-93/68/EC: 3) KÜLSŐ CSONAKMOTOR, Hajtás rendszer 4) ÖSSZHANGBAN A KÖV. SZABVANYOKKAL 5) A GÉP LEÍRÁSA 6) KATEGÓRIA 7) KÜLSŐ CSONAKMOTOR 8) GYÁRTÓTTA 9) TÍPUS 10) SORSZÁM 11) GYÁRTÓ 12) JENGEDÉLLEL RENDELKEZŐ KÉPVISELŐ 13) ALÁÍRÁS 14) NÉV 15) BEOSZTÁS 16) MINŐSÉGI IGÁZGÁTO 17) KELTEZÉS DATUMA 18) KELTEZÉS HELYE</p>	<b>magyar ( HUNGARIAN )</b>
<p>1) Prohlášení o shodě 2) ZASTUPCE VYROBCE, (14), SVYM PODPISEM POTVRZUJE, ŽE DANY VYROBEK JE V SOULADU S NÁSLEDUJÍCIMI SMĚRNICEMI A NORMAMI EVROPSKEHO SPOLEČENSTVÍ: 3) ZÁVĚSNÝ LODNÍ MOTOR, Pohonný systém 4) ODKAZ NA HARMONIZOVANE NORMY: 5) POPIS VYROBKU 6) KATEGORIE: 7) ZÁVĚSNÝ LODNÍ MOTOR 8) ZNAČKA: 9) TYP: 10) VÝROBNÍ ČÍSLO: 11) VYROBCE: 12) AUTORIZOVANÝ ZASTUPCE: 13) PODPIS: 14) JMENO: 15) POZICE 16) Manažer kvality 17) DATUM: 18) MÍSTO:</p>	<b>čeština ( CZECH )</b>

## “EC DECLARATION OF CONFORMITY” CONTENT OUTLINE

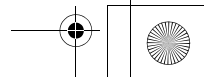
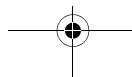
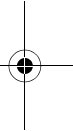
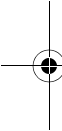
<p>1) ES VYHLÁSENIE O ZHODE 2) DOLUPODPÍSANÝ, (14), ZASTUPOJÚCI VÝROBCU, TÝMTO DEKLARUJE, ŽE  <b>PRODUKT JE V SÚLADE S USTANOVENIAMÍ NASLEDOVNÝCH SMERNÍC ES</b>  3) ZÁVESNÝ LODNÝ MOTOR, Systém pohonu  4) REFERENCIA K HARMONIZOVANÝM ŠTANDARDOM 5) IDENTIFIKÁCIA STROJOV  6) KATEGÓRIA 7) ZÁVESNÝ LODNÝ MOTOR 8) VÝROBCA/ZNAČKA 9) TYP 10) SÉRIOVÉ ČÍSLO  11) VÝROBCA 12) AUTORIZOVANÝ ZÁSTUPCA 13) PODPIS 14) MENO 15) POZÍCIA 16) MANAŽÉR KVALITY 17) DÁTUM  18) MIESTO</p>	<b>slovenčina ( SLOVAK )</b>
<p>1) EF SAMSVARSÆRKLERING 2) UNDERTEGNEDE, (14), SOM REPRESENTERER FABRIKANTEN, ERKLÆRER  HERVED AT PRODUKTET ER I OVERENSSTEMMELSE MED BESTEMMELSENE I FØLGENDE EU DIREKTIV  3) Utenbordsmotor, Fremdrifts system  4) REFERANSER TIL HARMONISERED E STANDARDE 5) BESKRIVELSE AV MASKINEN 6) KATEGORI 7) Utenbordsmotor 8)  FABRIKANT 9) TYPE 10) SERIE NUMMER 11) FABRIKANT 12) FABRIKANTENS REPRESENTANT 13) SIGNATUR 14) NAVN  15) TITTEL 16) Kvalitetssjef 17) DATO 18) STED</p>	<b>norsk (NORWEGIAN)</b>
<p>1) DECLARATIE DE CONFORMITATE. 2) SUBSEMNAȚUL, (14), REPREZENTAND PE PRODUCATOR, DECLAR PRIN PREZE  NTA CA PRODUSUL ESTE IN CONFORMITATE CU PREVEDERILE URMATOARELOR DIRECTIVE CE  3) MOTOR IN AFARA BORDULUI (EXTERN), Sistem de propulsie  4) REFERIRE LA STANDARDELE ARMONIZATE: 5) DESCRIEREA ECHIPAMENTULUI 6) CATEGORIA: 7) MOTOR EXTERN  8) MARCA 9) TIPUL 10) NUMAR DE SERIE 11) PRODUCATOR 12) REPREZENTANT AUTORIZAT 13) SEMNATURA 14) NUME  15) TITLUL 16) DIRECTOR DE CALITATE 17) DATA 18) LOCATIE</p>	<b>română (ROMANIAN)</b>
<p>1) EU VASTAVUSDEKLARATSIOON 2) ALLAKIRJUTANU, P. RENNEBOOG, ESINDADES TOOTJAT, DEKLAREERIB SIINKOHAL,  ET TOODE ON VASTAVUSES JÄRGMISTE EC DIREKTIIVIDE SÄTETEGA  3) Pardavāline mootor, Tākurussüsteem  4) VIIDE ÜHTLUSTATUD  STANDARDITELE: 5) MEHĦANISMI KIRJELDUS 6) KATEGORIA: 7) pardavāline mootor 8) VALMISTAJA: 9) TŪŪP: 10) SEERIANUMBER:  11) TOOTJA: 12) VOLITATUD ESINDAJA: 13) ALLKIRI: 14) NIMI: 15) AMET 16) Kvaliteedijuh 17) KUUPÄEV: 18) KOHT:</p>	<b>estni (ESTONIAN)</b>
<p>1) EK ATBILSTĪBAS DEKLARĀCIJA 2) ZEMĀK MINĒTAIS, (14), KĀ RAŽOTĀJA PĀRSTĀVIS AR ŠO APSTIPRINA, KA ŠIS  <b>PRODUKTS PILNĪBĀ ATBILST VISIEM STANDARTIEM, KAS ATRUNĀTI SEKOJOŠAJĀS EC-DIREKTĪVĀS</b>  3) Piekarināmais laivas dzinējs, Virzošā spēka sistēma  4) Atsaucošies uz saskaņotajiem standartiem 5) Iekārtas apraksts 6) Kategorija 7) Piekarināmais laivas motors  8) Preču zīme 9) Tips 10) Sērijas numurs 11) Izgatavotājs 12) Autorizētais pārstāvis 13) Paraksts 14) Vārds, Uzvārds 15) Tituls  16) Kvalitātes vadītājs 17) Datums 18) Vieta</p>	<b>latviešu (LATVIAN)</b>
<p>1. EB ATITIKTIES DEKLARACIJA 2. ZEMIAUI PASIRAŠES, (14), ATSTOVAUJANTIS GAMINTOJĀ DEKLARUOJA  KAD PRODUKTAS ATITINKA REIKALAVIMUS PAGAL ŠIAS EB DIREKTYVAS.  3. PAKABINAMAS VARIKLIS, Varomasis būdas  4. NUORODA Į HARMONIZUOTUS STANDARTUS. 5. MAŠINOS APRAŠYMAS. 6. KATEGORIJA. 7. Pakabinamas variklis. 8. MARKE.  9. TIPAS 10. SERIJINIS NUMERIS. 11. GAMINTOJAS. 12. AUTORIZUOTAS ATSTOVAS. 13. PARAŠAS. 14. V. PAVARDE  15. PAREIGOS 16. KOKYBĖS VADYBININKAS. 17. DATA. 18. VIETA</p>	<b>lietuvių kalba (LITHUANIAN)</b>
<p>1) ES-DEKLARACIJA O USTREZNOSTI 2) PODPISANI, (14), PREDSTAVNIK PROIZVAJALCA, IZJAVLJAM DA IZDELKI  USTREZAJO NASLEDNJIJ DEKLARACIJAM  3) Izvenkmni motorji, Pogonski sistem  4) SKLADNOST Z NASLEDNIMI STANDARDI 5) OPIS IZDELKOV  6) KATEGORIJA 7) Izvenkmni motorji 8) PROIZVAJA 9) TIP 10) SERIJSKA ŠTEVILKA 11) PROIZVAJALEC 12) POOBLAŠČEN  PREDSTAVNIK 13) PODPIS 14) IME 15) FUNKCIJA 16) Direktor presoje 17) DATUM 18 ) KRAJ</p>	<b>slovenščina (SLOVENIAN)</b>





## “EC DECLARATION OF CONFORMITY” CONTENT OUTLINE

1) EB-YFIRLÝSING 2) UNDIRRITAÐUR HR. (14), LÝSI YFIR FYRIR HÖND FRAMLEIÐANDA AÐ VARAN UPPFYLLIR EFTIRFARANDI EC-TILSKIPANIR 3) Utanborðsmótorar, knúningsafl kerfi 4) TILVÍSUN UM HEILDARSTAÐAL 5) LÝSING Á VÉLBÚNAÐI 6) FLOKKUR 7) Utanborðsmótorar 8) FRAMLEIÐSLA 9) GERÐ 10) SERÍAL NÚMER 11) FRAMLEIÐANDI 12) LÖGGILDIR AÐILAR 13) UNDIRSKRIFT 14) NAFN 15) TITILL 16) Skráningarstjóri 17) DAGSETNING 18) STAÐUR <b>Íslenska (ICELANDIC)</b>
1) AT UYGUNLUK BEYANI 2) AŞAĞIDA İMZASI BULUNAN VE İMALATÇININ YETKİLİ TEMSİLCİSİ OLAN (14), ÜRÜNÜN ŞU AT YÖNETMELİKLERİNİN HÜKÜMLERİNE UYGUN OLDUĞUNU BEYAN EDER. 3) Dıştan takma motor, tahrik sistemi 4) UYUMLAŞTIRILMIŞ STANDARTLARA ATIF 5) MAKİNANIN TARİFİ 6) KATEGORİ 7) Dıştan takma motor 8) MARKA 9) TİP 10) SERİ NUMARASI 11) İMALATÇI 12) YETKİLİ TEMSİLCİ 13) İMZA 14) ADI 15) ÜNVANI 16) Homologasyon Yöneticisi 17) TARİH 18) YER <b>Türk (TURKISH)</b>
1)JEK-IZJAVA O SUKLADNOSTI 2)POTPISANI P.RENNEBOOG, PREDSTAVNIK PROIZVOĐAČA, IZJAVLJUJE DA JE PROIZVOD U SUKLADNOSTI S ODREDBAMA SLJEDEĆEG EK PROPISA 3)Vanbrodski motor, Pogonski sustav 4)REFERENCA NA USKLAĐENE NORME 5)OPIS STROJA 6)KATEGORIJA 7)Vanbrodski motor 8)IZRADIO 9)TIP 10)SERIJSKI BROJ 11)PROIZVOĐAČ 12)OVLAŠTENI PREDSTAVNIK 13)POTPIS 14)IME 15)TITULA 16)Upravitelj homologacije 17)DATUM 18)MJESTO <b>hrvatski (CROATIAN)</b>



## 19. INDEX

<b>A</b>	<b>D</b>	<b>F</b>
ACG Fuse	Digital Speedometer ..... 28	Oil Pressure Warning
Replacement ..... 103	Digital Tachometer ..... 28	System..... 70
ACG Indicator/Buzzer	Disposal ..... 111	Overheat Warning System .... 70
Function..... 19	<b>E</b>	Over-Rev Limiter..... 75
Operation ..... 70	“EC DECLARATION OF	PGM-FI Warning System .... 70
Anode	“CONFORMITY” Content	Water Contamination
Function..... 26	Outline ..... 121	Warning System..... 70
Operation ..... 75	Emergency Stop	Serial Number ..... 3
<b>B</b>	Switch ..... 24	Switch ..... 17
Battery	Switch Lanyard/Clip..... 24	<b>F</b>
Cleaning..... 101	Switch Spare Clip ..... 25, 82	Fast Idle
Connections..... 34	EMISSION CONTROL	Button..... 18
Fluid Level Inspection..... 45	SYSTEM..... 99	Lever ..... 18
Inspection ..... 100	Engine	Frame Serial Number ..... 3
Storage..... 109	Cover	Fuel
Break-in Procedure..... 55	Latch ..... 27	Filter
<b>C</b>	Removal/Installation..... 39	Inspection..... 95
Cleaning and Flushing..... 80	Oil	Replacement..... 95
Component Identification..... 10	Change..... 85	Level ..... 41
Controls and Features..... 14	Level Inspection ..... 40	Line
Cooling Water	Refilling..... 40	Connection ..... 38
Check Hole ..... 27	Storage..... 108	Disconnection ..... 78
Intake Port ..... 27	Protection System ..... 70	Priming..... 47
Cruising ..... 59	ACG Warning System..... 70	Storage ..... 107
	Anodes..... 75	Fuse Replacement ..... 102

## INDEX

<b>G</b>		<b>O</b>		Other Checks..... 46
Gasoline Containing Alcohol ..... 42		Oil Pressure Indicator/Buzzer		Spare Parts ..... 46
Gear		Function ..... 20		Propeller and Cotter Pin
Shifting ..... 56, 57, 58		Operation ..... 70		Inspection..... 43
<b>I</b>		Operation ..... 55		Remote Control Lever
Installation		Outboard Motor		Friction..... 44
Outboard Motor..... 32		Angle Inspection..... 33		Water Separator ..... 44
Height ..... 31		Installation ..... 32		Propeller
Location..... 31		Storage Position ..... 110		Inspection..... 43
Interface Coupler ..... 29		Over-Rev Limiter..... 75		Replacement..... 104
<b>L</b>		Overheat Indicator/Buzzer		Selection..... 38
Lubrication ..... 92		Function ..... 20		<b>R</b>
<b>M</b>		Operation ..... 70		Remote Control
Maintenance ..... 81		<b>P</b>		Box
Maintenance Schedule..... 83		PGM-FI Indicator/Buzzer		Identification..... 11, 12
Major Honda Distributor		Function ..... 19		Installation Location ..... 37
Addresses..... 118		Operation ..... 70		Cable Length..... 37
Manual		Power Tilt Switch		Installation..... 36
Relief Valve		Function ..... 22		Lever
Function..... 23		Operation ..... 67		Function ..... 14, 15, 16
Operation..... 68		Power Trim/Tilt Switch		Friction Adjustment ..... 44
Moorage..... 66		Function ..... 21		
<b>N</b>		Operation ..... 59		
Neutral Release Lever ..... 17		Pre-operation Checks ..... 39		
		Battery..... 45		
		Engine Oil..... 40		
		Fuel ..... 41		

## INDEX

<b>S</b>	
Safety	
Carbon Monoxide Poisoning	
Hazard .....	7
Information .....	6
Label Locations .....	8
Operator Responsibility .....	6
Shallow Water Operation .....	75
Spare Emergency Stop Switch	
Clip .....	25, 82
Spark Plugs .....	87
Specifications .....	114
Starting the Engine	
R1 type .....	47
R2, R3 types .....	51
Stopping the Engine	
Emergency .....	76
Normal Stop .....	76
Storage .....	107
Submerged Outboard Motor	
Servicing .....	105
Switch Panel .....	12
<b>T</b>	
Tachometer .....	28
Tilt Lock Lever .....	26
Tilting the Outboard Motor .....	65
Tool Kit and Owner's Manual .....	82
Trailing .....	79
Transom Height .....	30
Transporting .....	78
Trim Meter	
Function .....	22
Operation .....	64
Trim Tab	
Function .....	26
Adjustment .....	69
Trimming the Outboard Motor .....	62
Troubleshooting	
Warning System Comes On .....	112
TRL (Trolling) Control Switch	
Function .....	23
Operation .....	61
Panel .....	23
<b>V</b>	
Vapor Separator Draining .....	107
<b>W</b>	
Water Separator Buzzer .....	20
Water Separator	
Cleaning .....	97
Inspection .....	44
Wiring Diagram .....	129
	Inside back cover

## WIRING DIAGRAM

### CONTENTS

SIDE MOUNT REMOTE CONTROL TYPE (For Analogue Meter).....	W-1
SIDE MOUNT REMOTE CONTROL TYPE (For Digital Meter).....	W-2
PANEL/TOP MOUNT REMOTE CONTROL TYPE (For Digital Meter).....	W-3

### ABBREVIATIONS

Symbol	Part name
ALT	ALTERNATOR
Bat	BATTERY
Bz	BUZZER
CKPSe	CKP SENSOR
CMPSe	CMP SENSOR
DgSpMe	Digital SPEEDOMETER
DgTme	Digital TACHOMETER
DLC	DATA LINK CONNECTOR
EBTSe	EBT SENSOR
ECTSe1	ECT SENSOR 1
ECTSe2	ECT SENSOR 2
ECTSe3	ECT SENSOR 3

EmSw	EMERGENCY STOP SWITCH
F In 1	No.1 FUEL INJECTOR
F In 2	No.2 FUEL INJECTOR
F In 3	No.3 FUEL INJECTOR
F In 4	No.4 FUEL INJECTOR
FP	FUEL PUMP
FReSe	FUEL RESERVE SENSOR
GND	GROUND
HrMe	HOUR METER
IABCV	IAB CONTROL VALVE (BF135A/150A)
IACV	IAC VALVE
IATSe	IAT SENSOR
IC	INDICATOR CONNECTOR
IfC	INTERFACE COUPLER
IgC 1	No.1 IGNITION COIL
IgC 2	No.2 IGNITION COIL
IgC 3	No.3 IGNITION COIL
IgC 4	No.4 IGNITION COIL
IgSw	ENGINE SWITCH
IL	INDICATOR LAMP
JCBx	JUNCTION BOX
JC1	JUNCTION 1
JC2	JUNCTION 2
KnSe	KNOCK SENSOR

LAFSe	LAF SENSOR
MAPSe	MAP SENSOR
NSw	NEUTRAL SWITCH
OP	OPTIONAL
OPSe	OIL PRESSURE SENSOR
PT/TMo	POWER TRIM TILT MOTOR
PT/TSw	POWER TRIM TILT SWITCH
PTRL	POWER TILT RELAY
PTSw	POWER TILT SWITCH
RAOCV	ROCKER ARM OIL CONTROL VALVE (BF150A)
RCBx	REMOTE CONTROL BOX
RCC	REMOTE CONTROL BOX CONNECTOR
SHLD	SHIELD
SP1	No.1 SPARK PLUG
SP2	No.2 SPARK PLUG
SP3	No.3 SPARK PLUG
SP4	No.4 SPARK PLUG
StMo	STARTER MOTOR

## WIRING DIAGRAM

Tme	TACHOMETER
TMePCC	TACHOMETER PULSE CHECK CONNECTOR
ToLtSw1	To LIGHT SWITCH 1
ToLtSw2	To LIGHT SWITCH 2
TPSe	TP SENSOR
TrASe	TRIM ANGLE SENSOR
TRLCSw	TROLLING CONTROL SWITCH
TRMe	TRIM METER
Vme	VOLTMETER
WLSw	WATER LEVEL SWITCH

### COLOR CODE

Bl	BLACK
Br	BROWN
Bu	BLUE
G	GREEN
Gr	GRAY
Lb	LIGHT BLUE
Lg	LIGHT GREEN
Na	NATURAL
O	ORANGE
P	PINK
R	RED
W	WHITE
Y	YELLOW

### SWITCH CONNECTIONS

#### IGNITION SWITCH

	E	IG	BAT	LOAD	ST
COLOR	Bl	Bl/R	W/Bl	Bl/Y	Bl/W
OFF	○—○				
ON	○—○—○				
START	○—○—○—○				

### POWER TRIM/TILT SWITCH

	Lg	W/Bl	Lb
UP	○—○		
NEUTRAL			
DOWN	○—○		

### EMERGENCY STOP SWITCH

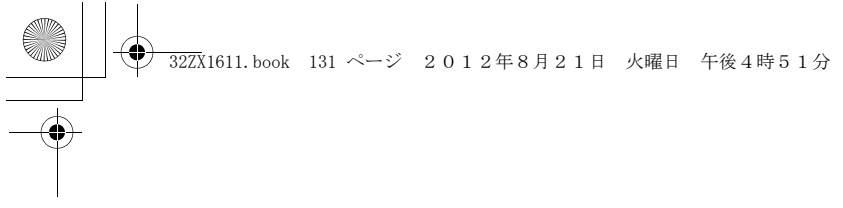
	Bl/R	Bl
PUSH or REMOVE SWITCH CLIP	○—○	
SWITCH CLIP SET		

### NEUTRAL SWITCH

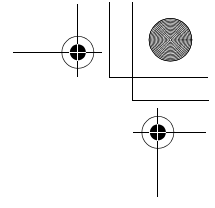
	Bl/G	Bl
NEUTRAL	○—○	
GEAR IN		

### POWER TILT SWITCH

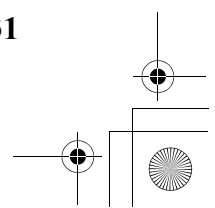
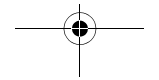
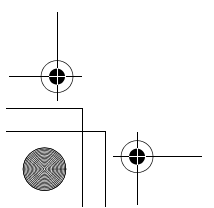
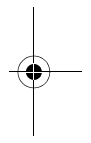
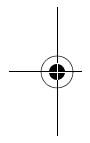
	Lg	W/Bl	Lb
UP	○—○		
NEUTRAL			
DOWN	○—○		

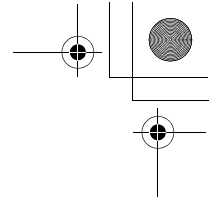
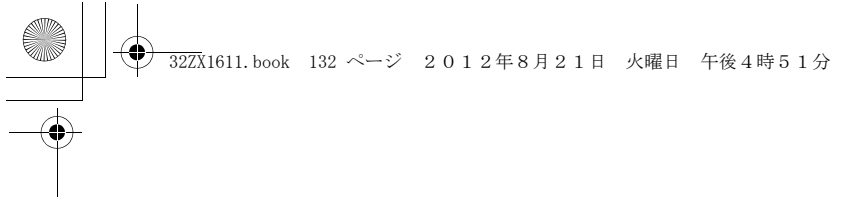


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