

# 2005

# Johnson®

## 2 Stroke

### 9.9, 10, 15 HORSEPOWER

R, RL, RH, RHL, TE, TEL



**WARNING**  
Read this Operator Guide thoroughly. It contains important safety information. When operating your boat, always have this Operator Guide onboard.

# Our First Words to the Owner/Operator

This Operator's Guide is an essential part of your *Johnson* outboard. It contains pertinent information which, if followed, will provide you with a thorough understanding needed for proper operation, maintenance, care and above all safety!

The safety section of this Guide comes first because it is our first priority and it should be yours too. It is strongly recommended that you read this Guide from front cover to rear cover. Following this recommendation will assure the completeness of the information that is essential to your safety, the safety of any passengers and other boaters. An Operator's Readiness Test has been prepared on the last page of this Guide.

Be safe! All passengers should be familiar with the proper operation of your boat and *Johnson* outboard. Be certain they fully understand and respect the controls and operation. Each operator is responsible for the safety of all passengers and other boaters. Please make safety your first priority and complete a boating safety course through your local Coast Guard, Power Squadron, Red Cross or State Boating Law Agency.

The pleasures of owning and operating a *Johnson* outboard can be significant. We strongly believe the rewards for following our recommendations will be worthwhile. Remember that YOU are the key to safety. Good safety practices not only protect you but also protect the people around you.

Having fun is what it's all about and, with your cooperation, the pertinent information in this Guide can ensure a safe and enjoyable experience.

Enjoy the great outdoors on the water...



## WARNING



**Be careful! Human error is caused by many factors: carelessness, fatigue, overload, preoccupation, unfamiliarity of operator with the product, drugs and alcohol to name a few. Damage to your boat and outboard can be fixed in a short period of time, but injury or death has a lasting effect.**

**For your safety and the safety of others, read this Guide from cover to cover and follow all safety warnings and recommendations. Do not disregard any of the safety precautions and instructions.**

**Anyone operating your boat should first read and understand this Guide before they operate your boat and motor.**

The following trademarks are the property of Bombardier Motor Corporation of America or its affiliates:

*2+4® fuel conditioner*

*Evinrude®*

*Evinrude®/Johnson® anti-corrosion spray*

*Evinrude®/Johnson® Genuine Parts*

*Evinrude®/Johnson® XD25™ Formula*

*Hi-Vis™ gearcase lubricant*

*Johnson®*

*Triple-Guard® grease*

*Twist-Grip™*

*Ultra-HPF™ gearcase lubricant*

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# GENERAL INFORMATION



## SAFETY — THE RIGHT PLACE TO GET STARTED



This Operator's Guide contains essential information to help prevent personal injury and damage to equipment. It will acquaint the operator and passengers with the *Evinrude/Johnson* outboard and its controls, operation, maintenance and boating safety measures. Make sure all operators read, understand and follow the contents. This Guide should be kept in a waterproof bag with the product at all times during operation. If the product ownership is transferred, this Guide should be forwarded to the subsequent owners.

This Operator's Guide uses the following signal words identifying important safety messages. These safety alert signal words mean:

**ATTENTION!**  
**BECOME ALERT!**  
**YOUR SAFETY IS INVOLVED!**

	<b>DANGER</b>	
<b>Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.</b>		

	<b>WARNING</b>	
<b>Indicates a potentially hazardous situation which, if not avoided, CAN result in severe injury or death.</b>		


	<b>CAUTION</b>	
<b>Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate personal injury or property damage. It also may be used to alert against unsafe practices.</b>		


**IMPORTANT:** Identifies information that will help prevent damage to machinery and appears next to information that controls correct assembly and operation of the product.

Although the mere reading of such information does not eliminate the hazard, the understanding and application of the information will promote the correct use of your outboard engine.


A responsible, educated boater will fully appreciate the pleasures of boating and will be a safe boater. Boating Safety Classes are conducted by the U.S. Coast Guard Auxiliary, the U.S. Power Squadron and some Red Cross Chapters. For information about classes, call toll free 1-800-336-BOAT. For additional information about boating safety and regulations call: U.S. Coast Guard Boating Safety Hotline 1-800-368-5647. Outside North America please contact your Dealer or distributor for details about boating safety.


## SAFETY MEASURES — General


 To fully appreciate the pleasures, enjoyment and excitement of boating there are some basic rules that should be observed and followed by any boater. Some rules may be new to you and others may be common sense or obvious... Irrespective, take them seriously! Failure to follow this safety information and safe boating rules could result in injury to you, your passengers or other water users.


 Become completely familiar with the control and operation of your boat and motor before embarking on your first trip or taking on a passenger(s). If you have not had the opportunity to do so with your Dealer, practice driving in a suitable area and feel the response of each control. Be familiar with all controls before applying the throttle above idle speed. As the operator, you are in control and responsible for safe operation.

## SAFETY MEASURES — Operation

 Be sure at least one of your passengers knows how to handle your boat in case of an emergency.

 All passengers should know the location of emergency equipment and how to use it.

 All safety equipment and personal flotation devices must be in good condition and suitable for your type of boat. Always comply with the regulations that apply to your boat.

 Contact with rotating propeller is likely to result in serious injury or death. Do not allow anyone near a propeller, even when the engine is off. Propeller blades can be sharp and can continue to turn even after the engine is shut off. Always shut off the engine when boat is near people in the water.

- ⚠ Whenever running the engine, assure there is proper ventilation to avoid the accumulation of carbon monoxide (CO), which is odorless, colorless, and tasteless, and can lead to unconsciousness, brain damage, or death if inhaled in sufficient concentrations. CO accumulation can occur while docked, anchored, or underway, and in many confined areas such as the boat cabin, cockpit, swim platform, and heads. It can be worsened or caused by weather, mooring and operating conditions, and other boats. Avoid exhaust fumes from your engine or other boats, provide proper ventilation, shut off your engine when not needed, and be aware of the risk of backdrafting and conditions that create CO accumulation. In high concentrations, CO can be fatal within minutes. Lower concentrations are just as lethal over long periods of time.
- ⚠ Proceed with caution and at very low speed in shallow water. Grounding or abrupt stops may result in personal injury or property damage. Also be alert for debris and objects in the water.
- ⚠ Be familiar with the waters you are operating in. The gearcase of this outboard extends below the water surface and could potentially come in contact with underwater obstructions. Contact with underwater obstructions may result in loss of control and personal injury.
- ⚠ Avoid standing up or shifting weight suddenly in light weight boats.
- ⚠ Keep your passengers seated in seats. The boat's bow, gunwale, transom and seat backs are not intended for use as seats.
- ⚠ Insist on the use of personal flotation devices, approved by the U.S. Coast Guard, by all passengers when boating conditions are hazardous, and by children and nonswimmers at all times.
- ⚠ Respect no wake zones, rights of other water users and the environment. As the "skipper" and owner of a boat you are responsible for damage to other boats caused by the wake of your boat. Allow no one to throw refuse overboard.
- ⚠ Know the marine traffic laws and obey them.
- ⚠ Remember, gasoline fumes are flammable and explosive. Always adhere to the fueling procedure contained in this Operator's Guide and those given to you by the fueling station. Always verify fuel level before use and during the ride. Apply the principle of 1/3 fuel to destination, 1/3 back and 1/3 reserve fuel supply. Do not carry spare fuel or flammable liquids in any storage or engine compartments.
- ⚠ Do not operate your boat if you are under the influence of drugs or alcohol.
- ⚠ High performance boats have a high power-to-weight ratio. If you are not experienced in the operation of a high performance boat, do not attempt to operate one at, or near, its top speed until you have gained that experience.
- ⚠ For more information, see your *Evinrude/Johnson Dealer* for a copy of **Introduction to High Performance Boating**, P/N 335763.

## **SAFETY MEASURES — Installation and Maintenance**

### **Outboard Installation**

- ⚠ The outboard must be correctly installed. Failure to correctly install the outboard could result in serious injury, death or property damage. We strongly recommend that your Dealer install your outboard to ensure proper installation.
- ⚠ Do not overpower your boat by using an engine that exceeds the horsepower indicated on the boat's capacity plate. Overpowering could result in loss of control. If your boat has no capacity plate, contact your Dealer or the boat's manufacturer.

### **Maintenance**

- ⚠ When replacement parts are required, use *Evinrude®/Johnson® Genuine Parts* or parts with equivalent characteristics, including type, strength and material. Using substandard parts could result in injury or product malfunction.
- ⚠ Only perform service procedures which are detailed in this Operator's Guide. Attempting to perform maintenance or repair on your outboard if you are not familiar with the correct service and safety procedure could cause personal injury or death. Further information can be obtained from your authorized *Evinrude/Johnson Dealer*. In many instances proper tools and training are required for certain service or repair procedures.
- ⚠ Maintain your boat and engine in top condition at all times. Adhere to the **Engine Maintenance and Inspection Schedule**.
- ⚠ Operate your boat and outboard prudently and have fun. Do not forget that all persons must assist other boaters in case of emergency.
- ⚠ Prevent injury from contact with rotating propeller; remove propeller before flushing or before performing any maintenance.

## PRODUCT REFERENCES, ILLUSTRATIONS AND SPECIFICATIONS

### Model and Serial Numbers

The model and serial numbers appear on a plate attached to the stern bracket or swivel bracket. Record your outboard's:

Model Number \_\_\_\_\_

Serial Number \_\_\_\_\_

Purchase Date \_\_\_\_\_

Ignition Key Number \_\_\_\_\_

### Stolen Outboards

**North America** — Report your outboard as stolen to Customer and Dealer Support Services, 250 Sea Horse Drive, Waukegan, IL 60085 U.S.A. Give the outboard's model and serial numbers and enclose a copy of the police report.

**Outside North America** — Report the theft to the Bombardier Recreational Products distributor where the outboard was registered.

### Technical Literature

BMCA offers technical literature specifically for your outboard. A service manual, a parts catalog, or an extra Operator's Guide can be purchased from your selling Dealer. For the name and location of the nearest *Evinrude/Johnson* Dealer in the United States and Canada log on to [www.evinrude.com](http://www.evinrude.com) or [www.johnson.com](http://www.johnson.com).

### Declaration of Conformity

BMCA declares that the outboard to which this Operator's Manual applies conforms to the essential requirements outlined in **CE Machinery Directive 98-37-EC**, as amended.



## WARNING



**When replacement parts are required, use *Evinrude/Johnson Genuine Parts* or parts with equivalent characteristics, including type, strength and material. Using substandard parts could result in injury or product malfunction.**

Bombardier Motor Corporation of America (BMCA) reserves the right to make changes at any time, without notice, to features, specifications and model availability. The right is also reserved to change any specification or part at any time without incurring any obligation to update older models. The information in the Guide is based on the latest specifications available at the time of publication.

Photographs and illustrations used in this Guide might not depict actual models or equipment but are intended as representative views for reference only. The continuing accuracy of this Guide cannot be guaranteed.

Certain features of systems discussed in this Guide might not be found on all models in all marketing areas.

### Owner's Identification

**North America** — At the time of purchase, your Dealer will complete your outboard registration forms. Your portion provides proof of ownership and date of purchase.

**Outside North America** — See your Dealer or distributor for details.

# BOMBARDIER MOTOR CORPORATION OF AMERICA LIMITED WARRANTY FOR 2005 *JOHNSON* 2-STROKE OUTBOARD ENGINES SOLD IN THE UNITED STATES AND CANADA

## **1. SCOPE OF THE LIMITED WARRANTY**

Bombardier Motor Corporation of America\* ("BMCA") warrants its 2005 *Johnson*® 2-stroke outboard engines sold by authorized *Johnson* dealers in the fifty United States and Canada ("Product") from defects in material or workmanship for the period and under the conditions described below.

## **2. WARRANTY COVERAGE PERIOD**

This limited warranty will be in effect from the date of purchase by the first retail consumer or the date the Product is first put to use, whichever occurs first, for a period of:

TWENTY-FOUR (24) CONSECUTIVE MONTHS for private, recreational use; or

TWELVE (12) CONSECUTIVE MONTHS for commercial use. The Product is used commercially when it is used in connection with any work or employment that generates income, during any part of the warranty period. The Product is also used commercially when, at any point during the warranty period, it is installed on a boat that has commercial tags or is licensed for commercial use.

The repair or replacement of parts or the performance of service to Product under this warranty does not extend the life of this limited warranty beyond its original expiration date. All *Evinrude*®/*Johnson Genuine Parts* and accessories installed by an authorized dealer at the time of sale, including but not limited to propellers, bear the standard BMCA parts and accessories one-year limited warranty.

## **3. CONDITIONS TO HAVE WARRANTY COVERAGE**

This warranty coverage is available only on *Johnson* 2-stroke outboard engines purchased as new and unused from a dealer authorized to distribute *Johnson* products in the country in which the sale occurred ("Dealer"), and then only after the BMCA specified pre-delivery inspection process has been completed and documented by the purchaser and Dealer. Warranty coverage only becomes available upon proper registration of Product by Dealer or owner.

Only the original purchaser and any subsequent owners who reside in the United States and Canada and have purchased Product from a U.S. or Canadian Dealer are eligible for warranty registration and warranty coverage hereunder. Such limitations are necessary in order to allow BMCA to protect the safety of its products, its consumers, and the general public.

As outlined in the Operator's Guide, timely routine required maintenance must be performed to maintain warranty coverage. BMCA may require proof of proper maintenance prior to authorizing warranty coverage.

## **4. WHAT TO DO TO OBTAIN WARRANTY COVERAGE**

The registered owner must notify an authorized Dealer within two (2) days of the appearance of a defect. Owner must bring Product, including any defective part therein, to Dealer promptly after the appearance of the defect, and in any event, within the warranty period, and must provide Dealer with reasonable opportunity to repair the defect. The expenses of transporting Product to and from Dealer for warranty service are to be borne by the owner.

If the Product has not previously been registered, the owner may also be required to present proof of purchase to Dealer for warranty repairs. Owner is required to sign the repair/work order prior to the start of the repair in order to validate the warranty repair.

All parts replaced under this warranty become the property of BMCA.

## **5. WHAT BOMBARDIER MOTOR CORPORATION OF AMERICA WILL DO**

Bombardier Motor Corporation of America's obligations under this warranty are limited to, at its sole discretion, repairing or replacing parts of Product found to be defective in material or workmanship, in the reasonable judgment of BMCA. Such repair or replacement of parts will be done without charge for parts and labor, at any authorized Dealer. BMCA's responsibility is limited to making the required repairs or replacements of parts with new or BMCA-certified re-manufactured parts. No claim of breach of warranty shall be cause for cancellation or rescission of the sale of Product to owner.

In the event that warranty service is required outside of the fifty United States or Canada, owner will bear responsibility for any additional charges due to local practices and conditions, such as, but not limited to, freight, insurance, taxes, license fees, import duties, and any and all other financial charges, including those levied by governments, states, territories and their respective agencies.

BMCA reserves the right to improve, modify or change Products from time to time without assuming any obligation to modify Products previously manufactured.

## **6. EXCLUSIONS – The following are not warranted under any circumstances:**

- Replacement of parts due to normal wear and tear;
- Routine maintenance parts and services including but not limited to: maintenance requirements, engine and lower unit oil changes, lubrication, valve and linkage adjustments and replacement of fuses, zinc anodes, thermostats, timing belts, starter motor bushings, trim motor brushes, filters, propellers, propeller bushings and spark plugs;
- Damage caused by improper or lack of installation, maintenance, winterization and/or storage, failure to follow the procedures and recommendations in the Operator's Guide;
- Damage resulting from removal of parts, improper repairs, service, maintenance, or modification, or use of parts or accessories not manufactured or approved by BMCA, which in its reasonable judgment, are either incompatible with Product or adversely affect its operation, performance, or durability, or resulting from repairs done by a person that is not an authorized Dealer;
- Damage caused by abuse, misuse, abnormal use, neglect, racing, improper operation or operation of the Product in a manner inconsistent with the recommended operation described in the Operator's Guide;
- Damage resulting from external damage, accident, submersion, water ingestion, fire, theft, vandalism or any act of God;
- Operation without proper fuel, oil or lubrication, or with fuels, oils or lubricants which are not suitable for use with the Product (see the Operator's Guide);
- Damage resulting from rust or corrosion;
- Damage caused from cooling system blockage by foreign material;
- Damage resulting from sand or debris in the water pump;
- Cosmetic or paint changes due to exposure to the elements.

This warranty **will be voided in its entirety and rendered null and void** where:

- Product has been altered or modified in such a way so as to adversely affect its operation, performance or durability, or change its intended use, horsepower or emission levels; or
- Product is or has been used for racing at any point, even by a prior owner.



## **7. LIMITATIONS OF LIABILITY**

**ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION TO THE LIFE OF THE EXPRESS LIMITED WARRANTY.**

**ALL INCIDENTAL, CONSEQUENTIAL, DIRECT, INDIRECT OR OTHER DAMAGES OF ANY KIND ARE EXCLUDED FROM COVERAGE UNDER THIS WARRANTY INCLUDING, BUT NOT LIMITED TO:** expense for gasoline, expense for transporting Product to and from Dealer, removal of Product from a boat and reinstallation, mechanic's travel time, in-and-out of water charges, slip or dock fees, trailering or towing, storage, telephone, cell phone, fax or telegram charges, rental of a like or replacement Product or boat during warranty services or down time, taxi, travel, lodging, loss of or damage to personal property, inconvenience, cost of insurance coverage, loan payments, loss of time, loss of income, revenue or profits, or loss of enjoyment or use of Product.

**SOME STATES, PROVINCES, OR JURISDICTIONS DO NOT ALLOW FOR THE DISCLAIMERS, LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR OTHER EXCLUSIONS IDENTIFIED ABOVE. AS A RESULT, THEY MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC RIGHTS, AND YOU MAY ALSO HAVE OTHER LEGAL RIGHTS WHICH MAY VARY FROM STATE TO STATE, OR PROVINCE TO PROVINCE.**

No distributor, Dealer or any other person is authorized to make any affirmation, representation or warranty regarding Product other than those contained in this limited warranty and, if made, shall not be enforceable against BMCA. BMCA reserves the right to modify this warranty at any time, being understood that such modification will not alter the warranty conditions applicable to the Products sold while this warranty is in effect.

## **8. TRANSFER**

If the ownership of Product is transferred during the warranty coverage period, this warranty shall also be transferred and be valid for the remaining coverage period provided that the former or new owner promptly contacts BMCA or Dealer and gives the name and address of the new owner.

## **9. CONSUMER ASSISTANCE**

- In the event of a controversy or dispute in connection with this BMCA limited warranty, BMCA recommends that you first try to resolve the issue at the dealership level by discussing the issue with Dealer's service manager or owner;
- If further assistance is required, please contact the Bombardier Motor Corporation of America Customer Support Services, 250 Sea Horse Drive, Waukegan, IL 60085, 1-847-689-7090.

Revision March 2004

\* Engines sold in Canada are distributed and serviced by Bombardier Recreational Products Inc.

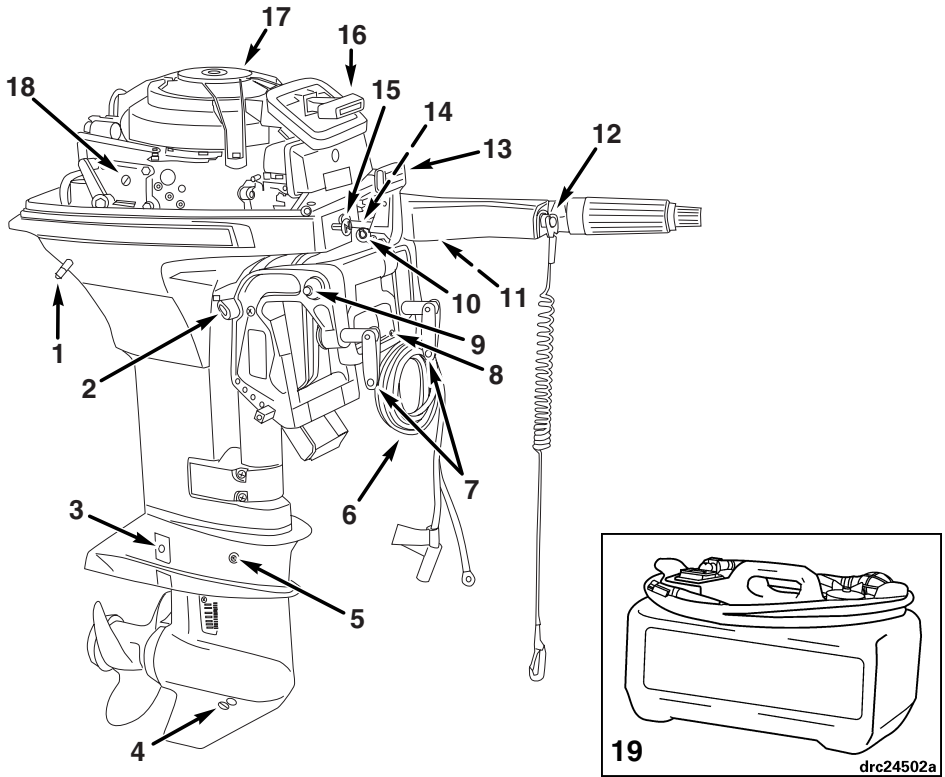
**BOMBARDIER MOTOR CORPORATION OF AMERICA  
LIMITED WARRANTY FOR 2005 JOHNSON 2-STROKE OUTBOARD ENGINES  
SOLD OUTSIDE THE UNITED STATES AND CANADA**

For a copy of the Limited Warranty, see your Bombardier Motor Corporation of America ("BMCA") distributor/dealer authorized to distribute *Johnson* 2-stroke products in the country in which the sale occurs.

If further assistance is required, please contact Bombardier Motor Corporation of America Customer Support Services, 250 Sea Horse Drive, Waukegan, Illinois, 60085, or the affiliate of BMCA where the Product was registered for warranty.

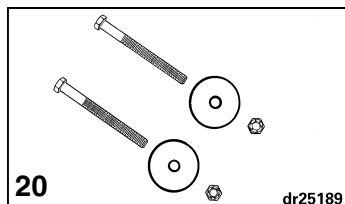
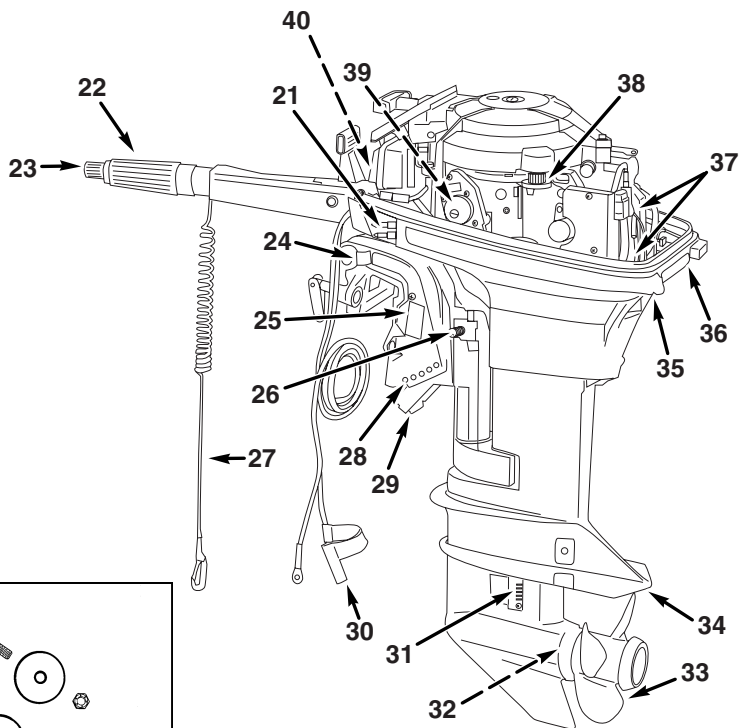


# FEATURES



Item	Description	Item	Description
1	Water Pump Indicator	11	Emergency Restart Clip
2	Tilt/Run Lever	12	Emergency Stop Switch/Stop Button
3	Anticorrosion Anode	13	Shift Lever
4	Lubricant Drain/Fill Plug	14	Neutral Indicator
5	Lubricant Level Plug	15	Choke Knob
6	Battery Cable <sup>(1)</sup>	16	Starter Handle
7	Clamp Screws	17	Manual Starter
8	Carrying Handle	18	Flushing Inlet Screw
9	Tilt Friction Nut	19	Fuel Tank
10	Start Button <sup>(1)</sup>		

(1) Electric Start Models



000288

Item	Description	Item	Description
20	Mounting Hardware	31	Water Intakes
21	Fuel Connector	32	Fish Line Trap
22	Steering Handle and <i>Twist-Grip</i> ™ Throttle	33	Propeller <sup>(2)</sup>
23	Idle Speed Adjustment	34	Antiventilation Plate
24	Retention Lug	35	Lift Grip
25	Model and Serial Number Plate	36	Engine Cover Latch
26	Steering Friction Adjustment Screw	37	Spark Plugs
27	Clip and Lanyard Assembly	38	Starter Motor <sup>(1)</sup>
28	Angle Adjusting Rod	39	Fuel Pump Filter
29	Shallow-Water Drive Bracket	40	ECI Label
30	Positive Terminal Boot <sup>(1)</sup>		

(1) Electric Start Models

(2) Not supplied in all marketing areas

## ENGINE SPECIFICATIONS

<b>9.9, 10, 15 Models</b>	
Displacement	15.6 cu. in. (256 cc)
Engine Type	Two-Cycle, In-line, 2 Cylinder
Full Throttle Operating Range	<b>9.9, 10</b> – 5000 to 6000 RPM <b>15</b> – 5500 to 6500 RPM
Power <sup>(1)</sup>	<b>9.9</b> – 9.9 HP (7.4 kw) @ 5500 RPM <b>10</b> – 10 HP (7.5 kw) @ 5500 RPM <b>15</b> – 15 HP (11.2 kw) @ 6000 RPM
Idle RPM in Gear <sup>(2)</sup>	700 ± 50
Ignition Timing – Idle <sup>(2)</sup> W.O.T.	Not Adjustable Not Adjustable
Exhaust Emission Control <sup>(2)</sup> System per SAE J1930	EM (Engine Modification)
Fuel Requirements <sup>(2)</sup>	87 Pump Posted AKI (89 RON) – Refer to <b>Fuel and Oil</b>
Fuel/Oil Ratio	50:1
Starting	<b>R, RL, RH, RHL</b> – Rope start
Battery, Minimum	360 CCA (465 MCA) <b>OR</b> 50 ampere-hour, 12 volts
Spark Plug <sup>(2)</sup> Extended Low Speed Operation Torque	Refer to ECI Label <b>9.9 only</b> – QL86C @ 0.030 in. (0.8 mm) Gap 18 to 21 ft. lbs. (24 to 28 N-m)
AC Lighting <sup>(3)</sup>	60 watts AC @ 12 volts
Gearcase – Lubricant Capacity	<i>Evinrude/Johnson Ultra-HPF™</i> gearcase lubricant 9 fl. oz. (260 ml)
Propeller <sup>(4)</sup>	<b>9.9</b> – 9 1/2 x 10 in. (24.1 x 25.4 cm) <b>10, 15</b> – 9 x 11 in. (22.9 x 27.9 cm)
Fuel Tank – Capacity	<b>9.9</b> – 3.2 U.S. Gallons (12.1 Liters) <b>10, 15</b> – 6 U.S. Gallons (22.7 Liters)
Weight	<b>R, RH</b> – 74 lbs. (33.6 kg) <b>RL, RHL</b> – 77 lbs. (34.9 kg)
Transom Height	<b>R, RH</b> – 14 1/2 to 15 in. (36.8 to 38.1 cm) <b>RL, RHL</b> – 19 1/2 to 20 in. (49.5 to 50.8 cm)
Sound at Driver's Ear (L <sub>pA</sub> ) ICOMIA 39.94	86.0 dB(A)
Vibration at Tiller (arms)	Less than 2.5 m/s <sup>2</sup>

(1) Rated following the standards of ICOMIA 28.83, ISO 3046, and NMMA.

(2) Emission Control Information

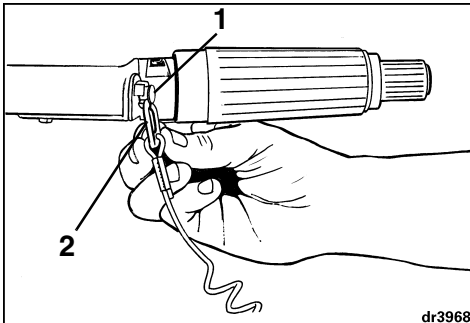
(3) Available as optional kit

(4) Not supplied in all marketing areas

## EMERGENCY STOP SWITCH

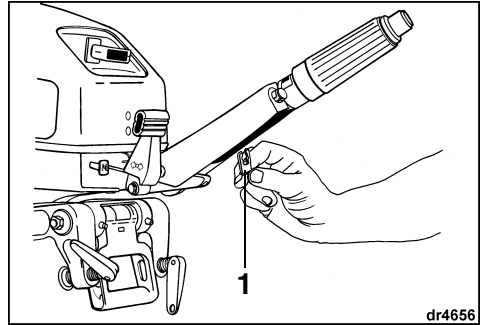
If equipped, the emergency stop switch is on the steering handle. Use of the emergency stop feature is highly recommended on all boats.

Connect the clip to the emergency stop switch. Snap the lanyard to a **secure** place on the operator's clothing or life vest — not where it might tear away instead of activating the stop switch. Disconnecting the clip and lanyard will stop the engine and prevent the boat from becoming a runaway if the driver moves beyond the range of the lanyard. If the lanyard is too long, it can be shortened by knotting or looping it. **DO NOT** cut or retie the lanyard.



1. Emergency stop switch
2. Clip

An extra clip is provided — another person can insert it in the stop switch and start the motor in an emergency.



1. Extra clip



### WARNING



Avoid knocking or pulling the clip off the stop switch during normal boating. The resulting unexpected loss of forward motion can throw occupants forward, causing injury.

Your emergency stop switch can be effective only when in good working condition. At each outing, inspect clip and lanyard for cuts, breaks, or wear. Replace worn or damaged parts.

Keep the lanyard free from obstructions and entanglements.

At each outing, test the system's operation. With the engine running, remove the clip from the switch by pulling the lanyard. If the engine does not stop running, see your Dealer.

# FUEL AND OIL

## FUEL



### WARNING



**Gasoline is extremely flammable and highly explosive under certain conditions. Follow the instructions in this section explicitly. Improper handling of fuel could result in property damage, serious injury, or death.**

**Always turn off the engine before fueling.**

**Never permit anyone other than an adult to refill the fuel tank.**

**Do not fill the fuel tank all the way to the top, or fuel may overflow when it expands due to heating by the sun.**

**Remove portable fuel tanks from the boat before fueling.**

**Always wipe off any fuel spillage.**

**Do not smoke, or allow open flames or sparks, or use electrical devices such as cellular phones in the vicinity of a fuel leak or while fueling.**

**Always work in a well-ventilated area.**

Your outboard is certified to operate on unleaded automotive gasoline with an octane rating equal to or higher than that specified in **Minimum Octane** chart. When using gasoline that contains MTBE or alcohol, follow these guidelines:

Using unleaded gasoline that contains methyl tertiary butyl ether (MTBE) is acceptable **ONLY** if the MTBE content does not exceed 15% by volume.

Using alcohol-extended fuels is acceptable **ONLY** if the alcohol content does not exceed:

- 10% ethanol by volume; or
- 5% methanol with 5% cosolvents by volume

## Minimum Octane

Inside the U.S.	87 (R+M)/2 AKI
Outside the U.S.	89 RON

Your outboard has been designed to operate using the above fuels; however, be aware of the following:

The boat's fuel system may have different requirements regarding the use of alcohol fuels. Refer to the boat's Owner Guide.

Alcohol attracts and holds moisture that can cause corrosion of metallic parts in the fuel system.

Alcohol blended fuel can cause engine performance problems.

**IMPORTANT:** Always use fresh gasoline. Gasoline will oxidize and weather; the result is loss of octane, volatile compounds, and the production of gum and varnish deposits which can damage the outboard.



### WARNING



**Leaking fuel is a fire and explosion hazard. All parts in the fuel system should be inspected frequently and replaced if signs of deterioration or leakage are found. Inspect the fuel system each time you refuel, each time you remove the engine cover, and annually.**



## OIL

**Evinrude/Johnson XD25™ Formula outboard oil is recommended for your outboard.** It contains a richer additive package than other TC-W3 oils, minimizing carbon build-up and deposits on pistons and bearing surfaces. It provides 25% greater detergency than minimum TC-W3 requirements.

Evinrude/Johnson brand oils are formulated to give best engine performance while controlling piston and combustion chamber deposits, providing superior lubrication and ensuring maximum spark plug life.

If Evinrude/Johnson XD25 Formula outboard oil is not available, you must use an NMMA-certified TC-W3 oil such as Evinrude/Johnson direct injection oil or Evinrude biodegradable outboard oil.

**IMPORTANT:** Failure to follow this recommendation could void the engine warranty if a lubrication-related failure occurs.

## ADDITIVES

**IMPORTANT:** Only use fuel additives approved by BMCA for your outboard. Use of other fuel additives can result in poor performance or engine damage.

**Evinrude/Johnson 2+4 fuel conditioner** will help prevent gum and varnish deposits from forming in fuel system components and will remove moisture from the fuel system. It can be used continuously and should be used during any period when your engine is not being operated on a regular basis. Its use will reduce spark plug fouling, fuel system icing, and fuel system component deterioration.

## FUEL/OIL RATIO

### New Engine

During break-in, you must use a **25:1 (4% oil)** fuel/oil ratio in your fuel tank. Refer to **Break-In (10 Hours)**.

### Normal Operation

After break-in, the engine must be operated at a **50:1 (2% oil)** fuel/oil ratio.

### High Performance

During high performance operation you must use a **25:1 (4% oil)** fuel/oil ratio in your fuel tank.

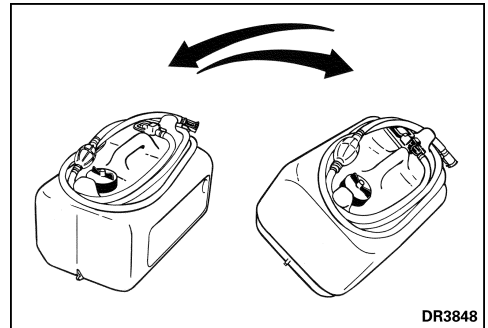
## MIXING FUEL AND OIL

Use the following chart and these guidelines to mix oil with the engine's fuel.

Ratio	Fuel		
	6 U.S. Gallons	3 U.S. Gallons	1 Liter
50:1	16 fl. oz. oil	8 fl. oz. oil	20 ml oil
25:1	32 fl. oz. oil	16 fl. oz. oil	40 ml oil

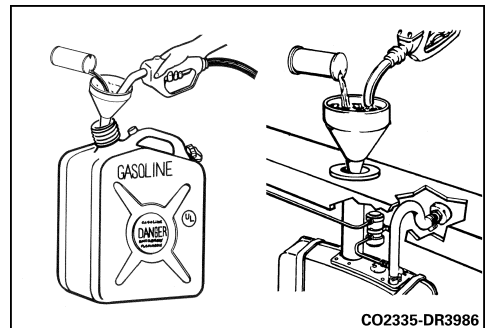
### Portable Tank

Above and below 32° F (0°C), add one gallon of fuel. Pour in required amount of oil. Add remaining fuel. Install filler cap and tip tank gently to distribute oil.



### Permanently Installed Tank

Above 32° F (0° C), pour oil slowly with the fuel as tank is filled. Below 32° F (0° C), add one gallon of fuel to a separate container. Pour in required amount of oil. Install filler cap and tip container gently to distribute oil. Slowly pour oil/fuel mixture into tank with fuel as tank is filled.



## FUEL SYSTEMS



### WARNING



If your motor is equipped with a quick-disconnect fuel hose, disconnect the fuel hose from the motor and from the fuel tank when the motor is not being used for a period of time. Disconnecting the hose will avert fuel leaks in the hose or at the engine.

**IMPORTANT:** Fuel distribution hoses in the boat must deliver fuel at the rate of flow needed by the engine. Minimum inside diameter of fuel hoses must be 5/16 in. (8 mm).

Fuel systems with built-in tanks, particularly those that include antisiphon valves and filter/primer units, may have restrictions that will not allow the engine fuel pump to deliver sufficient fuel under all conditions. This can result in a loss of performance and possible **engine damage**. If a performance problem exists, see your Dealer.

To avoid difficulty when restarting, never run the engine with the fuel hose disconnected or run the engine out of fuel.

## BREAK-IN (10 HOURS)

**IMPORTANT:** Follow this procedure to protect your new outboard during its initial hours of operation. Careful break-in allows internal engine components to “seat” properly, resulting in maximum engine performance.

Failure to carefully follow the break-in procedures can result in engine damage.

During break-in, you must use extra oil. The fuel/oil ratio for the first 10 hours of operation must be 25:1 (4% oil). The fuel/oil ratio during normal operation, after break-in, must be 50:1 (2% oil).

Perform the **10-Hour** break-in procedure with the boat and engine in the water, using an appropriate propeller.

DO NOT perform break-in using a flushing device.

DO NOT start-up or run the engine out of the water.

DO NOT leave a running engine unattended.

**IMPORTANT:** Before the first start-up of your new engine:

- Read **Engine Starting, Engine Stopping, and Shifting and Speed Control**.
- Check the gearcase lube level. Refer to **Lubrication**.
- Perform prelaunch checks of all equipment.

**Launch the boat and start the engine according to the procedures in Engine Starting.**

- Verify water pump operation often. Look for a steady stream of water from the water pump indicator. If the stream of water stops, shut off the engine to prevent damage. Find and correct the cause, or see your Dealer before you continue.
- Verify shift function by shifting into gear and observing that the boat moves and that the movement is in the same direction as the shifter. Refer to **Shifting and Speed Control**.
- Change the RPM often. Avoid holding a throttle setting longer than 15 minutes.

**1. First 10 Minutes of Operation** — Operate the engine in gear at fast idle **only**.

**2. Next 50 Minutes** — Operate engine in gear at various speeds no faster than 3500 RPM.

**DO NOT** hold a constant throttle setting. Change engine speed every 15 minutes.

With easy planing boats, use full throttle to quickly accelerate boat onto plane. Immediately reduce throttle to one-half as soon as boat is on plane. **BE SURE** boat remains on plane at this throttle setting.

**3. Second Hour** — Use full throttle to accelerate boat onto plane, then reduce throttle setting to three-quarters. **BE SURE** boat remains on plane at this throttle setting.

At intervals, apply full throttle for periods of one to two minutes, returning to three-quarters throttle for a cooling period.

Change engine speed every 15 minutes.

**4. Next Eight Hours** — Avoid continuous full throttle operation for extended periods.

Change engine speed every 15 minutes.

**DO NOT** exceed recommended maximum engine RPM. Refer to **Engine Specifications**.

# ENGINE STARTING



## DANGER



**DO NOT** run the engine indoors or without adequate ventilation or permit exhaust fumes to accumulate in confined areas. Engine exhaust contains carbon monoxide which, if inhaled, can cause serious brain damage or death.



## WARNING



The engine cover is a machinery guard. **DO NOT** operate your outboard with the cover off unless you are performing maintenance, and then be careful to keep hands, hair, and clothing clear of all moving parts. Contact with moving parts could cause injury.



## DANGER



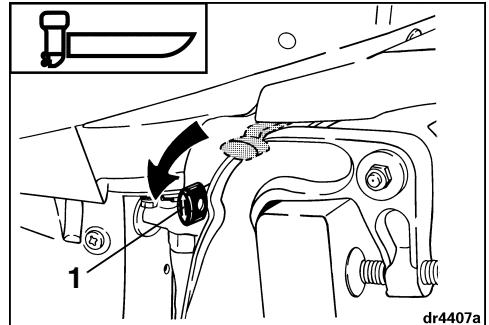
Contact with a rotating propeller is likely to result in serious injury or death. Assure the engine and prop area is clear of people and objects before starting engine or operating boat. Do not allow anyone near a propeller, even when the engine is off. Blades can be sharp and the propeller can continue to turn even after the engine is off. Always shut off the engine when near people in the water.

## BEFORE START-UP

Review and follow **Break-In (10 Hours)** if the engine is new.

You **MUST** supply water to the engine before attempting to start it. Engine damage can occur quickly. Refer to **Engine Overheating** or **Flushing**.

Move tilt/run lever to RUN. Be sure the engine is in normal operating position. Refer to **Tilting and Tilt Support**.



1. RUN position

If you will be using a battery, connect it as instructed in **Battery**.

Electric start models can be started manually and operated without a battery.



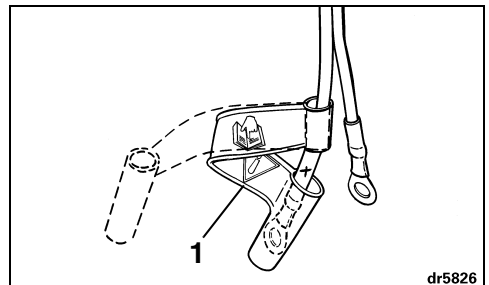
## WARNING



When not connected to a battery, cover the positive (+) battery cable's ring terminal with the attached boot to prevent the charging system from sparking.

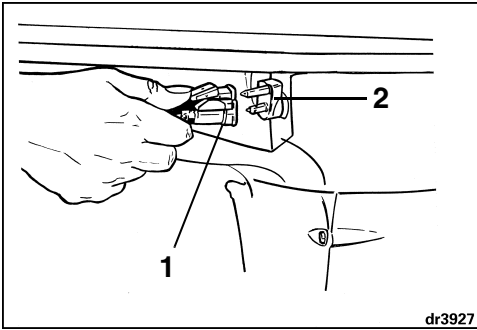
Do not wrap the loose battery cable around the engine as a way of storing it. Doing so can restrict steering or damage the cable, or both. Loop the cable and hang it close to the engine.

Do not connect electrical equipment to the engine's charging system. The connected equipment and the engine could both be damaged.



1. Positive (+) battery cable boot

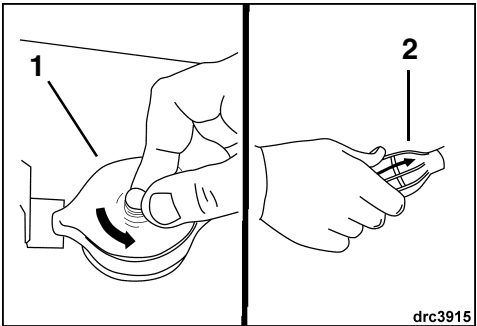
Connect the fuel hose to the fuel connector.



1. Fuel hose connector
2. Fuel connector

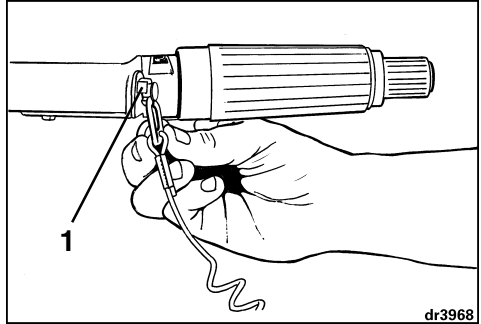
If equipped, open vent screw on fuel tank's filler cap.

Squeeze fuel primer bulb, outlet end up, until firm.



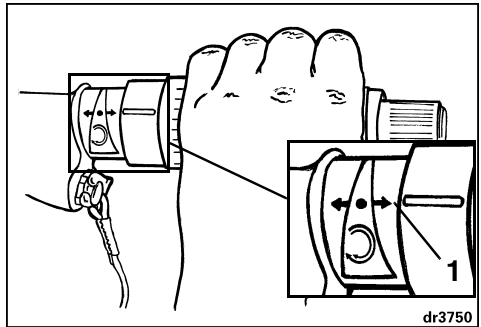
1. Fuel tank operable vent
2. Fuel primer bulb

If equipped, attach the clip and lanyard assembly to the emergency stop switch. Snap the lanyard to **secure** place on your clothing or life vest.



1. Emergency stop switch

Twist the throttle to SHIFT or slower.



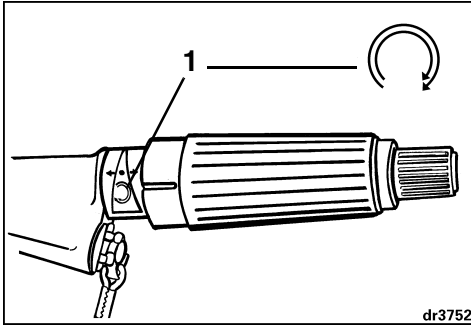
1. SHIFT

Move the shift lever to NEUTRAL. Refer to **Shifting and Speed Control**.

**⚠ WARNING ⚠**

**Always shift to NEUTRAL before starting the engine to prevent sudden boat movement, which can cause injury.**

Twist the throttle grip to START.



1. START

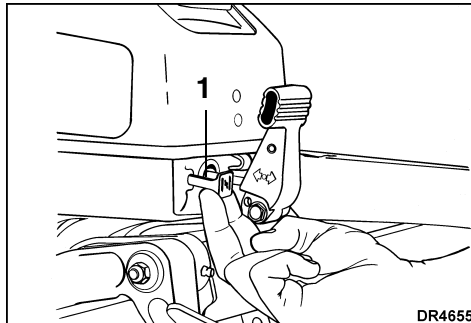
**IMPORTANT:** Avoid engine damage. DO NOT run engine above START in NEUTRAL.

### Start-up (Cold Engine)

**WARNING**

Start engine with shift lever in NEUTRAL. Attempting to manually start the engine while in gear may damage parts or cause the start-in-neutral-only feature to become inoperative.

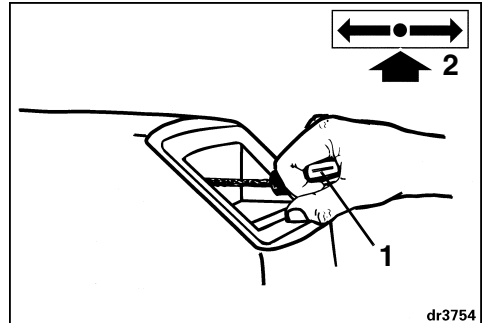
Starting a cold engine normally requires use of the engine choke. Pull the choke knob all the way out.



1. Choke knob

### Rope Start

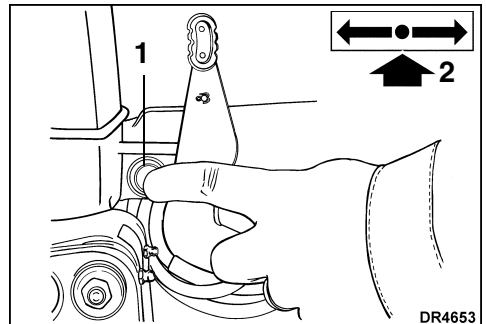
While seated, grasp the starter handle and pull slowly until starter engages, then pull hard. Repeat, if needed, until motor starts. To prevent damage to starter assembly, allow starter cord to rewind before releasing starter handle. If motor does not start, refer to **Trouble Check Chart**.



1. Starter handle
2. NEUTRAL

### Electric Start

While seated, press start button to START motor.



1. START button
2. NEUTRAL

Release start button as soon as engine starts. If engine does not start, release button momentarily and then try again.

**IMPORTANT:** Starter motor can be damaged if operated continuously for more than 10 seconds. DO NOT press start button to START position when engine is running. Starter and flywheel will be damaged.

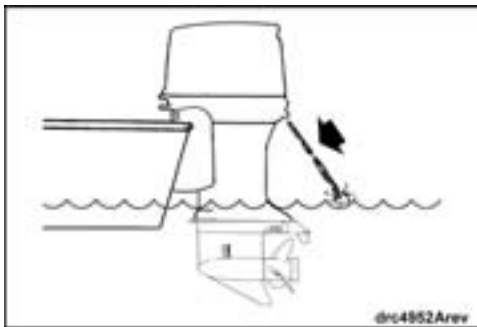
#### All Models

Push choke knob in gradually when motor is sufficiently warmed up.

**IMPORTANT:** If your outboard does not react normally to this starting procedure or fails to start, refer to **Trouble Check Chart**.

#### After Engine Starts

Check the water pump indicator. A steady stream of water indicates the water pump is working. If a steady stream of water from the water pump indicator is not visible, stop the engine. Refer to **Engine Overheating**.



**IMPORTANT:** To avoid engine damage, after start-up, do not exceed one-quarter throttle (less than 2000 RPM) in NEUTRAL for extended periods of time.

#### Start-up (Warm Engine)

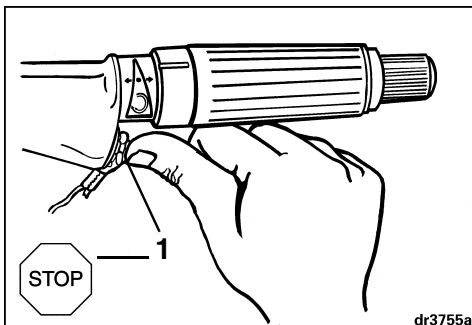
Follow **Cold Engine** procedure **except** warm engines do not normally require use of the choke. If engine fails to start, use the choke.

## ENGINE STOPPING

Twist the throttle grip to SHIFT position or slower.

Move shift lever to NEUTRAL.

Press the STOP button until the engine stops running. If equipped, close the vent screw on the fuel tank's filler cap.



1. STOP button

To avoid difficulty when restarting, never stop the engine by running it with the fuel hose disconnected or otherwise running it out of fuel.

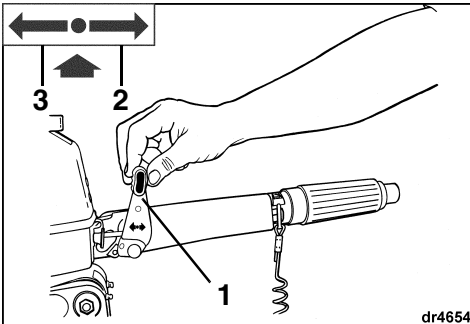
## SHIFTING AND SPEED CONTROL

**IMPORTANT:** Carefully check the function of all control and engine systems before leaving the dock. DO NOT shift the engine into FORWARD or REVERSE while it is shut OFF.

### Shifting

With the engine running, twist the throttle grip to SHIFT or slower.

Move the shift lever briskly and decisively to FORWARD or REVERSE.



1. Shift lever
2. FORWARD
3. REVERSE

**WARNING**

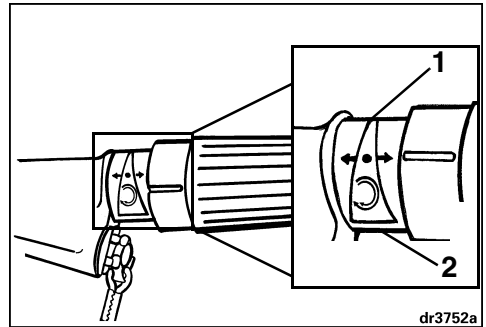
Do not operate motor in REVERSE with the tilt/run lever in TILT. Motor may tilt out of the water, resulting in loss of control.

**IMPORTANT:** Before moving the shift lever, reduce throttle to SHIFT speed or slower, then pause until motor slows to idle speed and boat has slowed.

### Speed Control

With the engine running, twist the throttle grip:

- Counterclockwise to increase speed; or
- Clockwise to decrease speed.



1. Decrease speed
2. Increase speed

## EMERGENCY STARTING

If the starter cord breaks or the starter fails, your engine can be started using a piece of the starter cord or a 9/64 in (6 mm) cord about 4 ft. (1.2 m) long.

**WARNING**

When using Emergency Starting procedures, the start-in-neutral-only feature is inoperative. Make sure shift lever is in NEUTRAL position to prevent injuries from unexpected boat movement when the engine starts.

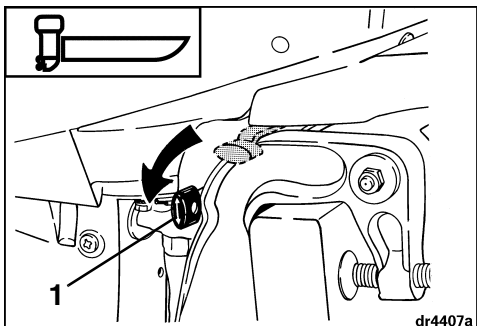
The engine cover is a machinery guard. To prevent injury from moving engine components, keep hands, clothes, and hair clear of powerhead.

Prevent electric shock by keeping clear of the ignition coils and spark plug leads when the motor is being started or is running. Shock can cause serious personal injury under certain conditions.

**DO NOT** turn flywheel by hand. Use starter cord only.

Move tilt/run lever to RUN position. Place motor in its normal operating position.

### Electric Start Models

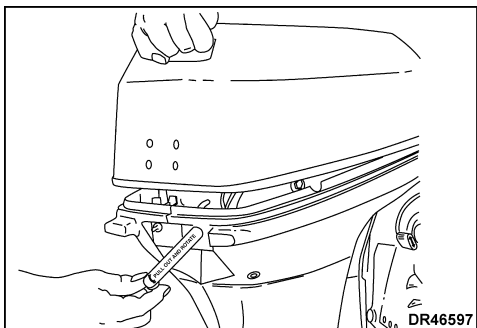


1. RUN position

Be sure:

- Engine is in normal operating position.
- Fuel hose primer bulb is firm.
- Shift lever is in NEUTRAL.
- *Twist-Grip* throttle is at START.

Pull latch and remove engine cover.



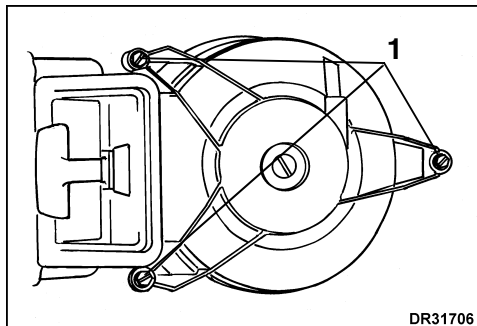
**WARNING**

DO NOT use jumper cables and a booster battery to start engine. Do not charge a battery in the boat with an external charger. Fumes vented during either operation can lead to an explosion.

Follow the procedures in **Manual Start Models**.

### Manual Start Models

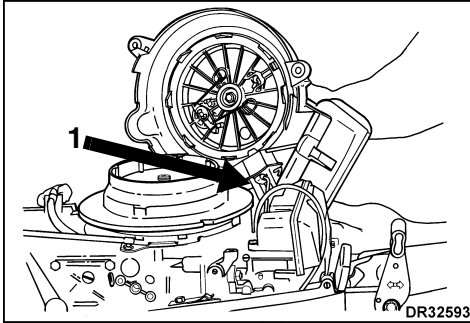
Remove three screws that secure the manual starter.



1. Screws

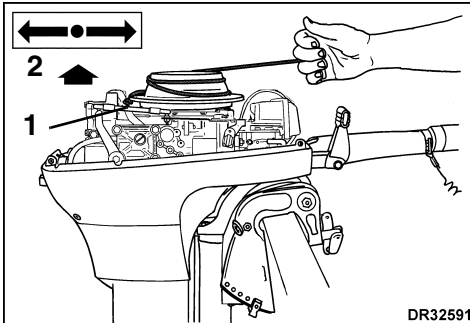


Tip the manual starter housing to remove the starter lockout link. Secure the lockout link in the lower engine cover, away from moving engine parts.



1. Starter lockout link

Tie a knot in one end of your emergency starter cord and hook it in the notch on the flywheel. Wind the cord clockwise around the starter ridge on the flywheel.



1. Knot
2. NEUTRAL

### All Models

Follow the starting procedures in **Start-up (Cold Engine)**.

While seated, pull hard on emergency starting cord to start motor. After the motor starts, run it at less than 2000 RPM in NEUTRAL for two minutes, then reduce speed to an idle.

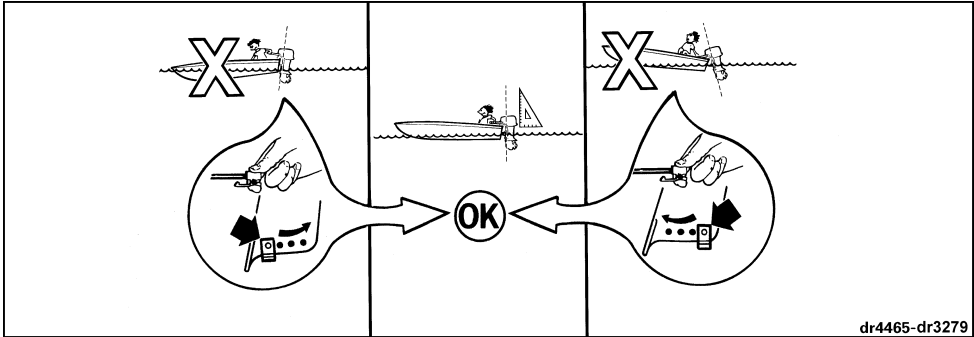
Do not attempt to replace manual starter or engine cover while engine is running. If equipped, snap emergency stop switch lanyard to a secure place on your clothing.

Proceed to nearest landing for service.

### FUEL ECONOMY

The economy throttle position can save fuel, depending on boat load and hull design. When boat reaches top speed, throttle back from FULL SPEED. You will save fuel without a noticeable loss of speed.

# OPERATION



dr4465-dr3279



## DANGER



**DO NOT** run the engine indoors or without adequate ventilation or permit exhaust fumes to accumulate in confined areas. Engine exhaust contains carbon monoxide which, if inhaled, can cause serious brain damage or death.

## TRAILERING

Trailer your boat with the motor in a vertical position. If your trailer does not provide adequate road clearance, the motor can be trailered by using an accessory trailering bracket.

**IMPORTANT:** Whenever using an accessory trailering bracket, the motor must be restrained. Bouncing during transport will damage the motor and boat's transom. **DO NOT** use the motor's tilt support or the shallow-water drive bracket as a trailering bracket.



## DANGER



Contact with a rotating propeller is likely to result in serious injury or death. Assure the engine and prop area is clear of people and objects before starting engine or operating boat. Do not allow anyone near a propeller, even when the engine is off. Blades can be sharp and the propeller can continue to turn even after the engine is off. Always shut off the engine when near people in the water.

## TILTING AND TILT SUPPORT



## WARNING



Your motor has “impact protection” and “reverse lock” only when the tilt/run lever is in RUN position. If operated with the tilt/run lever left in TILT position, the motor could tilt into the boat suddenly, causing loss of control or serious injury.

## MOTOR ANGLE ADJUSTMENT

Motor should be perpendicular to the water when the boat is underway at full speed. This adjustment can only be determined by water testing the boat. Set angle adjustment for your normal load.

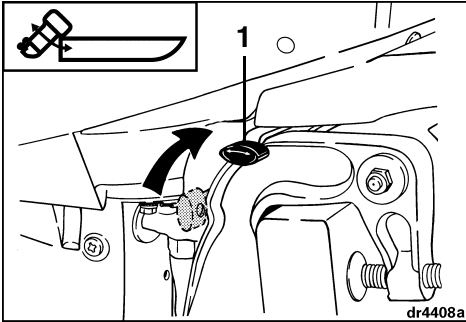
Place motor in full tilt position. Refer to **Tilting and Tilt Support**.

- Move angle adjusting rod.

**IMPORTANT:** Use the tilt grip to tilt your motor; not the steering handle.

### Tilt UP

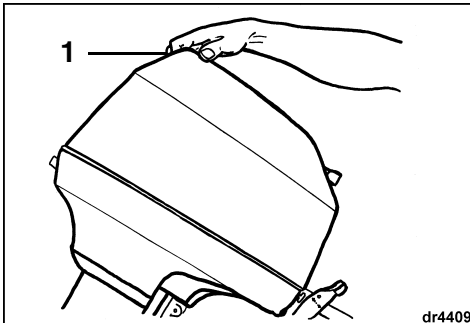
Move tilt/run lever to TILT position.



1. Tilt/run lever – TILT position

Grasp tilt grip on engine cover and tilt motor to the full tilt position.

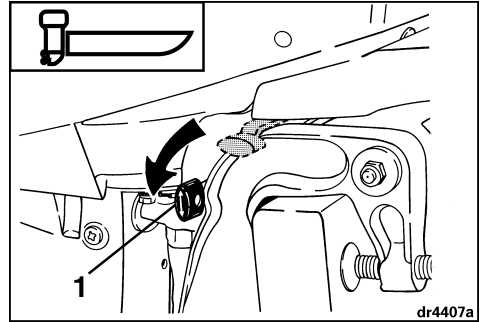
Tilt support will automatically engage.



1. Tilt grip

### Tilt DOWN

Move tilt/run lever to RUN position.



1. Tilt/run lever – RUN position

Grasp tilt grip on engine cover and raise motor slightly.

Tilt support will automatically disengage. Slowly lower motor to its normal operating position.

## SHALLOW-WATER DRIVE



### WARNING



When in shallow-water drive, your motor has no protection from the effects of underwater impact.

Operate your motor in **FORWARD** and **ONLY** at slow speed. The motor can tilt up forcibly and drop suddenly if it hits an underwater object or if you shift to **REVERSE** and apply throttle. You could lose control.



### WARNING



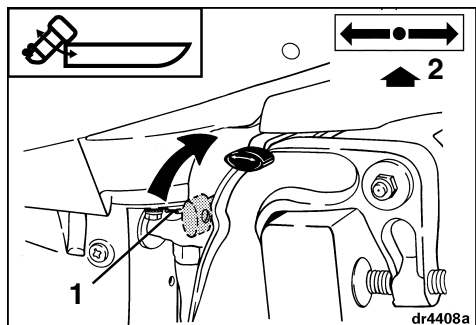
While engine is tilted, leave tilt lever in the **TILT** position. When the tilt/run lever is in the **RUN** position, tilt support can release unexpectedly and allow motor to drop.

The motor's depth in shallow-water drive is controlled by the position of the motor angle adjusting rod. Relocate the motor angle adjusting rod if necessary. Refer to **Motor Angle Adjustment**.

Slow the engine and shift to **NEUTRAL** before engaging or disengaging shallow-water drive.

## Engage

Move tilt/run lever to the TILT position.



1. Tilt/run lever – TILT position
2. NEUTRAL

Grasp tilt grip on engine cover and tilt motor half-way.

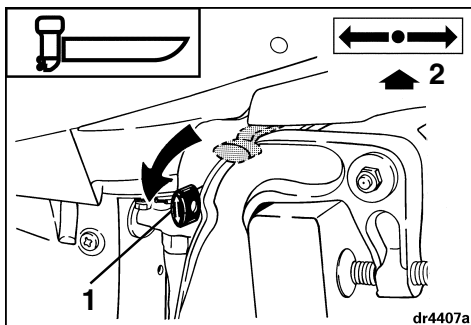
Shallow-water drive bracket will automatically engage.

Slowly, lower motor until shallow-water drive brackets rests against angle adjusting rod.

**IMPORTANT:** Check often that water intakes are completely submerged and the water pump indicator is discharging a steady stream of water.

## Disengage

Move tilt/run lever to the RUN position.



1. Tilt/run lever – RUN position
2. NEUTRAL

Grasp tilt grip on engine cover and tilt motor slightly. Shallow-water drive bracket will automatically release.

Slowly, lower motor to normal operating position.

## PROPELLER SELECTION

To select the correct propeller for your boating application, your boat and motor **MUST** be water tested. See your Dealer for assistance.

Refer to **Propeller**, before removing or installing propeller.

**IMPORTANT:** The correct propeller for your boat, under normal load conditions, will allow the engine to run near the midpoint of the RPM operating range at full throttle. Refer to **Engine Specifications**.

## MOORING

You may moor your boat with the motor's gearcase out of the water by using its tilt feature. Refer to **Tilting and Tilt Support**.

## FLUSHING

**! DANGER !**

**DO NOT run the engine indoors or without adequate ventilation or permit exhaust fumes to accumulate in confined areas. Engine exhaust contains carbon monoxide which, if inhaled, can cause serious brain damage or death.**

Flush your engine with fresh water as soon as possible after each use in salty, polluted, or brackish water to minimize the formation of deposits that can clog cooling passages. Flush the engine on the trailer or at dockside while it is:

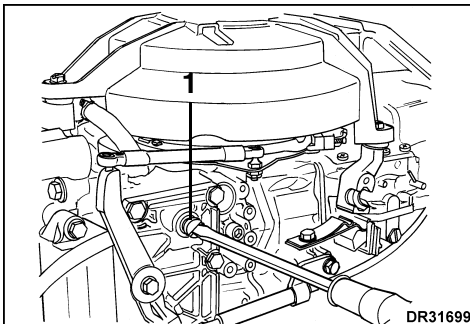
Tilted or vertical, running or stopped.

### **Outboard — Running**

**! WARNING !**

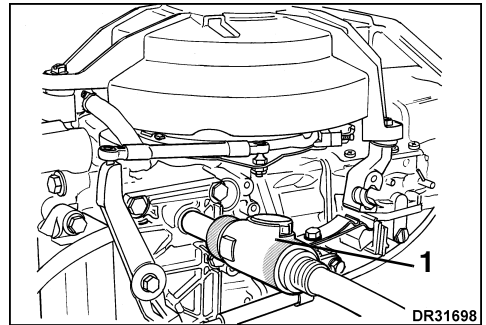
**Prevent injury from contact with rotating propeller; remove the propeller before flushing.**

- 1) Place the engine in vertical position in a well-ventilated area with good drainage.
- 2) Remove the plug from the flushing port.



1. Plug
- 2) Install flushing device (if needed) and garden hose.
- 3) Place the remote control lever in **NEUTRAL** with the propeller removed.

- 4) Start the water — keep pressure between 20 to 40 psi (140 to 300 kPa).



1. Flushing device
- 5) Start the engine — **run it at idle only** and flush it for at least five minutes.
- 6) Shut OFF the engine, remove the flusher (if used), and install the plug. If the plug is also the water pump indicator, turn it so the water streams out to the side, where it can be seen easily from the helm.
- 7) Leave the outboard in vertical position long enough to completely drain the powerhead.

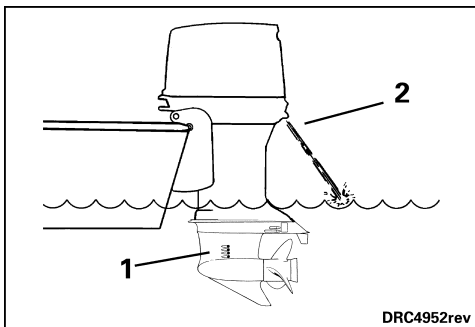
### **Outboard Not Running**

- 1) The outboard may be in a tilted or vertical position.
- 2) Remove the plug from the flushing port.
- 3) Install flushing device (if needed) and garden hose.
- 4) Start the water and flush the engine for at least five minutes — keep pressure between 20 to 40 psi (140 to 300 kPa).
- 5) Remove the flusher (if used); install the plug. If the plug is also the water pump indicator, turn it so the water streams out to the side, where it can be seen easily from the helm.
- 6) Lower the outboard to vertical position long enough to completely drain the powerhead.

## ENGINE OVERHEATING

**IMPORTANT:** Do not run your engine — even for a brief start-up — without supplying water to it. Refer to **Flushing**.

While boating, the engine's water intakes must stay completely submerged and unobstructed. Observe proper transom height and trim angle. While the engine is running, the engine's water pump indicator must discharge a steady stream of water. Check the indicator often, especially when operating in weeds, muddy and debris-laden water, and at extreme trim angles.



1. Water intake screens
2. Water pump indicator

If the stream of water from the water pump indicator becomes intermittent or stops, reduce speed to idle and:

- Shift to NEUTRAL;
- SHUT OFF the engine;
- Raise the engine;
- Clean the water intakes and the water pump indicator; and
- Restart engine and run at idle.

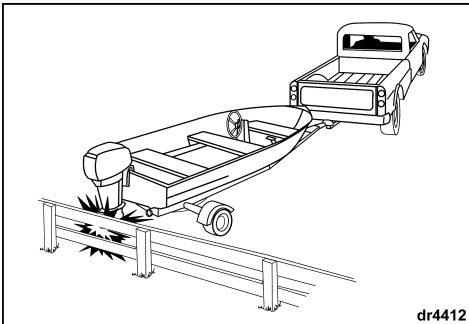
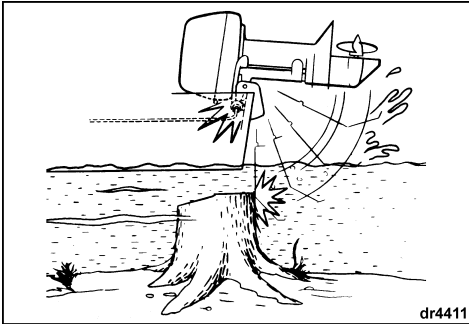
If cleaning the screens and indicator does not restore the water pump indicator's steady discharge, SHUT OFF the motor and do not attempt to operate it. See your Dealer.

If you succeed in restoring the water pump indicator's steady discharge, continue to IDLE the engine until it cools.

After an engine overheat, have your Dealer torque the cylinder head and exhaust cover screws and DETERMINE THE CAUSE OF THE OVERHEAT.

## IMPACT DAMAGE

Your engine can be damaged from impact with underwater objects. Such impacts can result in serious damage to your engine and injury to boat occupants from the engine or its parts entering the boat. Occupants can also be ejected or injured by falling against portions of the boat as a result of rapid deceleration following impacts. When boating in unfamiliar, shallow, or debris-laden waters, seek information on safe boating areas and navigation hazards from a reliable local source. Reduce your speed and keep a sharp lookout!



If you hit any object, stop immediately and examine the engine for loosening of attaching hardware and clamp screws, if equipped. Inspect for damage to swivel and stern brackets, steering components, and components in the area of impact. Also, examine the boat for structural damage. Tighten any loosened hardware. If the collision occurred in the water, proceed slowly to harbor. Before boating again, have your Dealer thoroughly inspect all components.



## WARNING



**Failure to inspect for damage could result in sudden, unexpected component failure, loss of boat control, and personal injury. Unrepaired damage could reduce your boat and engine's ability to resist future impacts.**

## STORING

To avoid difficulty when restarting, never run the engine with the fuel hose disconnected or run the engine out of fuel.

If you must tilt the motor to remove it from the water, lower it and allow the cooling system to drain completely as soon as you clear the launch area.

Between uses, store your motor in a vertical position.

For recommendations on extended periods of storage, refer to **Off-Season Storage**.

## SPECIAL OPERATING CONDITIONS

### **Salt Water**

Flush the engine internally after use in salt, polluted, or brackish water to help prevent mineral deposits from clogging cooling passages. Refer to **Flushing**.

During use in salt or brackish water, additional anodic protection for the boat and outboard may be required.

During long periods of mooring, tilt the gearcase out of the water — except in freezing temperatures. Upon removal from salt water, leave it in a vertical position until its cooling system has drained.

### **Weedy Water**

Weeds block water intakes and cause your outboard to overheat. Weeds on the propeller create vibration and reduce boat speed.

Run at slow speeds and in REVERSE frequently to clear weeds from the propeller and water intakes. Check the water pump indicator often.

If REVERSE operation does not clear away weeds, SHUT OFF the engine. Remove weeds from propeller area and water intakes before operating at high speed.

### **Boat Bottom and Engine External Finish**

The condition of your boat's bottom affects performance. A covering of marine growth reduces speed. For maximum performance, keep the boat's running surface clean by wiping it dry after each use and washing it occasionally.

After operating your outboard, rinse it with fresh water and wipe it dry. Apply *Evinrude/Johnson* Anti-Corrosion Spray to any surface subject to corrosion, but avoid the anticorrosion anode(s).

Periodically, wash the entire boat and outboard with soapy water and apply a coat of automotive wax. Leave the engine cover in place when washing the outboard.

### **High Altitude**

If you boat at altitudes above 3000 ft. (900 m), your engine might benefit from a lower pitched propeller, different carburetor calibration, or both. See your Dealer.

**IMPORTANT:** To avoid permanent powerhead damage, be sure that an engine modified for high altitude operation is properly identified and returned to original calibration and propeller size if operated below 3000 ft. (900 m).

### **Shallow Water**

**IMPORTANT:** Serious engine damage will occur if the gearcase is allowed to drag on the waterway bottom.

### **Freezing Weather**

DURING operation in freezing weather, keep the gearcase submerged at all times.

Upon removing your motor from the water, leave it in a vertical position until its cooling system is drained.

**IMPORTANT:** Water that has leaked into the gearcase, or remained in the cooling system or other components can freeze, causing serious engine damage.

### **Submerged Engine**

If your engine has been under water, **have it serviced immediately upon recovery**. If immediate service is unavailable, resubmerge it in fresh water to avoid prolonged exposure to the atmosphere.

After submersion, all boat and engine electrical, fuel, and oiling systems must be inspected for signs of water intrusion. Your Dealer should perform this service.

### **Under Tow**

Should you require a tow from another boat:

- Shift your engine to NEUTRAL;
- Tilt its gearcase out of the water; and
- Off-load all persons into another boat.

Keep towing speed slower than planing speed.

### **Auxiliary Engine**

When your auxiliary engine is shut OFF, shift it to NEUTRAL and keep its gearcase out of the water by tilting it fully or raising the mounting bracket.



# MAINTENANCE

Maintenance, replacement, or repair of the emission control devices and systems may be performed by any marine SI (spark ignition) engine repair establishments or individual.



## WARNING



Only perform service procedures which are detailed in this Operator's Guide. Attempting to perform maintenance or repair on your outboard if you are not familiar with the correct service and safety procedures could cause injury or death.

Tampering with the carburetor to change horsepower or modify emission levels beyond factory settings or specifications will void the product warranty.

## 10-HOUR INSPECTION

After 10 hours of operation, your new engine will be broken in and its mechanical parts will have seated. At that time, all systems should be checked and any adjustments needed should be made.

Your Dealer will perform this 10-Hour Inspection at your request and expense (based on local rates), according to what your engine needs — refer to **Engine Maintenance and Inspection Schedule, 10-Hour Inspection** for a partial list.

Follow consistent preventive maintenance by having your Dealer check and service your engine once a year or after each 100 hours of operation, whichever comes first.

## OFF-SEASON STORAGE

You must protect against natural environmental conditions that can be damaging to an outboard motor. Temperature and humidity changes while your outboard motor is not in use can cause corrosion of internal engine parts when they are not protected. Fuel remaining in your fuel tank and in the engine will oxidize and weather which can result in loss of octane and can cause gum deposits in the fuel system. Your warranty does not cover engine failure caused by these conditions. We strongly recommend that you have your Dealer prepare your outboard for the off-season.

To do the off-season storage preparations yourself, gather the supplies and perform the following steps.

- 2+4 fuel conditioner
- Triple-Guard® grease
- Ultra-HPF gearcase lubricant
- Storage Fogging Oil spray can

Stabilize the engine's fuel supply with 2+4 fuel conditioner during the last hours of operation to ensure proper stabilization, **following instructions on the container for mixture. Be sure to run the engine long enough for the treated fuel to reach the engine.**



## WARNING



**Prevent injury from moving engine components. Before starting the engine:**

**Shift it to NEUTRAL.**

**Keep hands, clothes, and hair clear of powerhead.**

**Remove the propeller if you use a flushing device.**

**IMPORTANT:** Provide water supply to the engine and start it. Run the engine at idle only.

To run the engine on a flusher, refer to **Flushing**.

**Storage Fogging Oil** — Following instructions on the can, fog the engine.

**Ignition, oil, and fuel systems** — Check for misplaced leads and damaged or deteriorated parts. Be sure starter solenoid terminal boot and all connectors are in place.

**Fuel filter** — Clean.

**Screws, bolts, nuts** — Tighten any that are loose.

**Propeller** — Remove and examine. If damaged, see your Dealer. Clean the propeller shaft and lubricate it. Refer to **Propeller**.

**Lubrication** — Refer to **Lubrication** to drain and refill the gearcase and for lubricating points on the engine.

Touch up painted surfaces and wax the engine's exterior. Store the engine on the boat (or an engine stand) in a vertical, self-draining position.

**IMPORTANT:** Never place the gearcase higher than the powerhead. Any water remaining in the exhaust passages can run into the cylinders and cause serious damage.

If you remove an "installed" engine, examine all hardware you loosened or removed from the engine and its steering, throttle, and shift systems. Replace damaged or missing parts with *Evinrude/Johnson Genuine Parts*, or equivalent.

**Battery** — Remove it, clean it, check its condition and water level, then charge it. Store it in a place that's cool and dry, out of direct sunlight. Check the water level and charge it periodically during the storage period.

**Portable fuel tank** — Disconnect the hose from the tank. Remove the hose from the engine if the fitting is a quick-disconnect. If not, and the hose is secured to the engine, leave it connected. Secure the hose to protect it.

With the propeller removed, check the gearcase for leakage. If leakage is evident, the gearcase seals should be replaced. See your Dealer.

**Anticorrosion anodes** — Check condition. Refer to **Anticorrosion Anodes**.

Install the propeller unless you will run the engine on a flusher for your pre-season servicing. If so, install the propeller after you shut OFF the engine and disconnect the flusher. Refer to **Flushing**.

Refer to **Propeller** to install the propeller.



## WARNING



**Prevent injury from contact with rotating propeller; remove the propeller before flushing.**

Top off fuel tank with fresh fuel.

**Battery** — Charge fully and install. Refer to **Battery**.

Follow **Engine Starting** and start the engine. Let it idle while you:

Observe running quality – if poor, refer to **Trouble Check Chart** or see your Dealer.

Observe water pump operation. Water must flow from the water pump indicator in a steady stream. If it does not, shut OFF the engine and investigate. Refer to **Engine Overheating**.

Stop the engine and check the fuel system for leaks.



## WARNING



**Failure to check for fuel leakage could allow a leak to go undetected, resulting in fire or explosion.**



## WARNING



**Store fuel tanks in a well-ventilated area, away from heat and open flame. Prevent escape of liquid or vapors which could accidentally ignite. Close the filler cap vent screw, if equipped. Be sure the disconnected fuel hose does not drip.**

## PRE-SEASON SERVICE

Remove your outboard from storage and prepare it for a season of reliable service by performing a general check and a few preventive maintenance procedures.

Examine all loosened or removed hardware and any steering, throttle, and shift systems. Replace damaged or missing parts with *Evinrude/Johnson Genuine Parts* or equivalent.



## WARNING



**Failure to carefully reattach the outboard and its control systems with factory-specified hardware can result in sudden, unexpected loss of boat control.**

## BATTERY

Each outboard needs one battery that is:

- 12-volt, heavy-duty, designated "marine";
- Vented/refillable or maintenance-free; and
- Rated according to the minimum requirements in **Engine Specifications**.

Deep-cycle batteries are suitable **IF** they meet or exceed the minimum CCA requirements.

Ask your Dealer about your outboard's requirements before installing longer battery cables, a battery switch or a battery insulator.

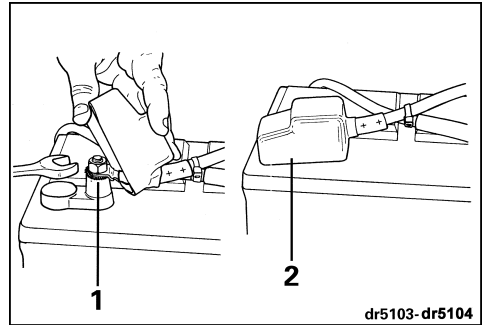
### Installation

Read and understand the safety information supplied with your battery **BEFORE** you begin installation.

**IMPORTANT:** Place the battery in a hold-down system and in a location that is easily accessible for frequent checking and recharging.

Place a large-surface star washer over the battery's positive (+) post. Stack the RED battery cable from the motor on the star washer, then install cables from accessories (if any). Finish the connection with a hex nut and tighten it firmly with a wrench.

Connect the motor's BLACK battery cable to the battery's negative (-) post in the same manner.



1. Large surface star washer
2. Cover

Tighten all connections securely and coat the installation with *Triple-Guard* grease.

**IMPORTANT: DO NOT** use wing nuts on battery connections even if they came with the battery. Wing nuts can loosen and cause errant warning signals or electrical system damage.

### Service

Before servicing the battery or the outboard, remove both battery cables from the battery, BLACK (-) cable first. Keep metal objects from contacting either battery post.

**IMPORTANT:** Service electrical components only while the outboard is **NOT** running. Be careful when identifying positive and negative battery cables and posts. If you touch the wrong post with a battery cable, even briefly, the charging system will be damaged.

**WARNING**

**Keep the battery connections clean, tight and insulated to prevent their shorting or arcing and causing an explosion. If the battery mounting system does not cover the connections, install covers. Check often to see that connections stay clean and tight.**

**WARNING**

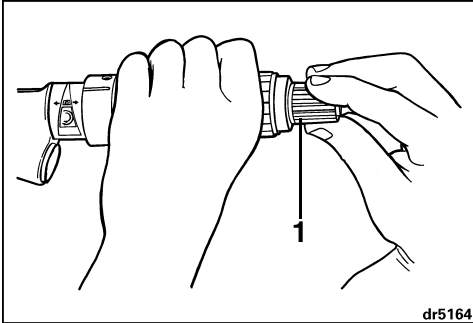
**Battery electrolyte is acidic — handle with care. If electrolyte contacts any part of the body, immediately flush with water and seek medical attention.**

## ADJUSTMENTS

### Idle Speed

The idle speed adjusting knob is located at the end of the steering handle. Before turning the knob, be sure the throttle is at SLOW and the motor has reached normal operating temperature:

- Increase idle speed – turn knob clockwise
- Decrease idle speed – turn knob counterclockwise



1. Idle speed adjusting knob

If your engine displays poor running quality at idle, ask your Dealer to perform the necessary adjustments.

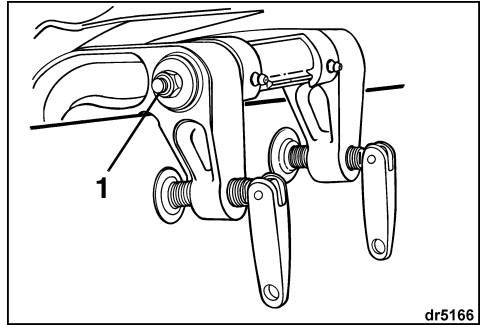
### Carburetor

**High speed** fuel calibration is maintained by the fixed high speed jet in the carburetor. Fixed jets are not adjustable.

**Low speed** fuel calibration is set at the factory with a range of adjustment provided. If your engine displays poor running quality at low speed or idle, ask your Dealer to perform the necessary adjustments.

### Tilt Friction

The tilt friction nut should be adjusted ONLY enough to control return of gearcase from tilt to normal (vertical) position.

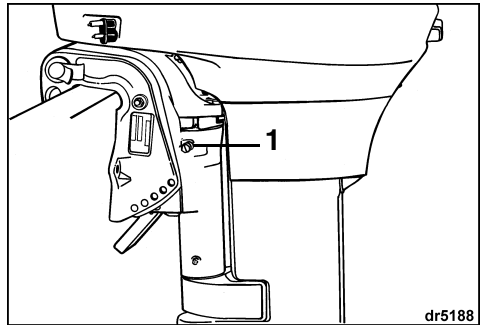


1. Tilt friction screw

### Steering Friction

The steering friction was set on your new motor before it left the factory. After the first 10 hours of service, check to see that it is still correct. A slight drag should be felt when turning the motor. If adjustment is necessary, turn the adjustment screw:

- Clockwise to increase friction; or
- Counterclockwise to decrease friction.



1. Steering friction adjustment screw



## WARNING



**DO NOT** overtighten for “hands-off” steering. Reduced steering control could result.

## LUBRICATION

### Gearcase

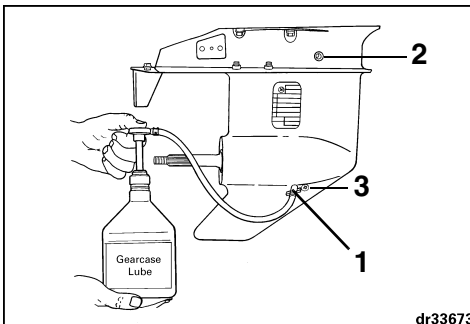
Replace gearcase lubricant after first 10 hours of operation. Check level and condition of lubricant after next 50 hours of operation. Add lubricant if necessary.

Thereafter, check level and condition of lubricant every 50 hours. Replace lubricant every 100 hours of operation or once each season, whichever occurs first. Refill with *Ultra-HPF* gearcase lubricant. If not available, *Hi-Vis™* or other marine gearcase lubricant can be used, however, long term durability may be affected with continued use. See your Dealer.

**IMPORTANT:** The recommended gear lubricants include special additives for marine applications. Do not use automotive gear lubricants, 2-stroke or 4-stroke engine oil, or any other oil or grease for gearcase applications.

With motor in normal operating position:

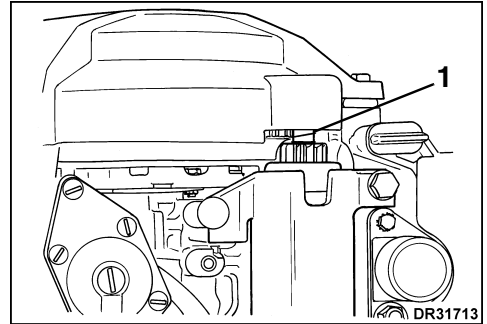
- 1) Remove drain/fill plug and lubricant level plug from side of gearcase and completely drain gearcase of old lubricant.
- 2) Examine drained lubricant for metal filings, milky appearance, or black color with burnt odor. If old lubricant has any of those characteristics, see your Dealer. If drained lubricant is in good condition, continue.
- 3) Place tube of lubricant in drain/fill hole and fill slowly until lubricant appears at lubricant level hole. See **Engine Specifications** for gearcase capacity.
- 4) Install lubricant level plug before removing tube from drain/fill hole. Drain/fill plug can then be installed without loss of lubricant.
- 5) Securely tighten both plugs.



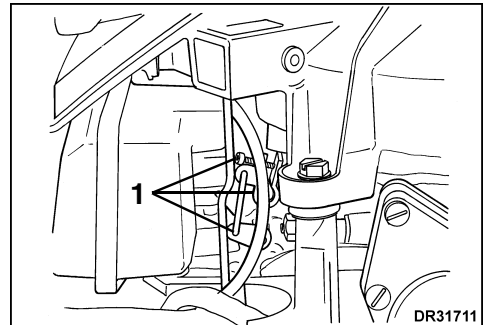
1. Drain/fill plug
2. Lubricant level plug
3. Shift cradle screw – DO NOT REMOVE.

### Lubrication Points

Refer to **Engine Maintenance and Inspection Schedule** for lubrication frequency and recommended lubricant.



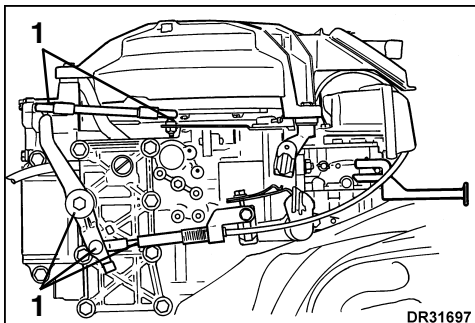
1. Starter pinion shaft



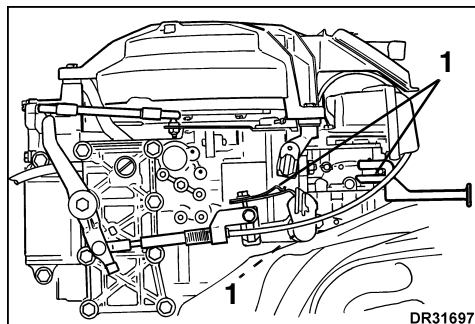
1. Cam follower, carburetor, and throttle linkage

## FUEL PUMP FILTER

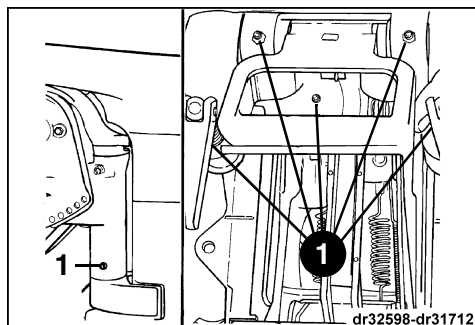
The fuel filter is located in the motor's fuel pump. An authorized *Evinrude/Johnson* Dealer should service the fuel filter.



1. Spark advance linkage



1. Choke, shift lever, shaft and detent



1. Swivel bracket, clamp screws, tilt/run lever shaft, and tilt shaft

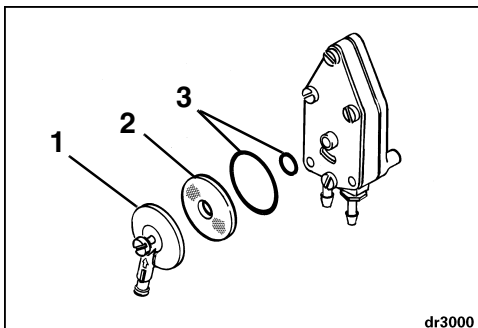
**WARNING**

Prevent excessive fuel spillage by disconnecting fuel hose from motor before disassembly.

The filter is located under the inlet cover on the fuel pump. To service, proceed as follows:

If portable tank is used, disconnect the fuel hose from the motor before servicing the filter.

Loosen screw and remove the cover. Do not lose O-rings.



1. Cover
2. Filter
3. O-rings

Wash filter with clean solvent; blow dry.

Reinstall filter, keeping lip of filter screen toward fuel pump body.

Install large O-ring in its groove in the cover and the small O-ring around center post of pump body.

Replace O-rings if cut or damaged.

Reinstall cover.

Tighten cover screw securely; clean up spilled fuel.

Check for leaks – connect fuel hose to motor and squeeze primer bulb until firm.

**WARNING**

Failure to inspect your work could allow fuel leakage to go undetected, becoming a fire or explosion hazard.

## SPARK PLUGS

**WARNING**

The ignition system presents a serious shock hazard. The primary circuit operates in excess of 250 volts; the secondary circuit operates in excess of 25,000 volts. Use caution to avoid injury from shock or injury resulting from your reaction to shock. Do not handle primary or secondary ignition components while the engine is cranking or running.

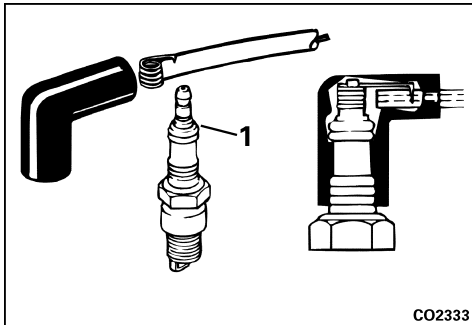
Inspect spark plugs periodically. Replace if electrodes are badly worn, insulators are cracked, or if they are badly fouled.

To remove spark plugs, twist and remove all spark plug leads. Unscrew spark plug from cylinder head.

To install spark plugs, wipe spark plug seats clean with a clean rag. Install spark plugs finger tight, then tighten to specified torque. Refer to **Engine Specifications**.

**IMPORTANT:** Avoid engine damage by installing spark plugs into COOL cylinder head and not over-tightening.

Before installing the spark plug lead, apply a light coat of *Triple-Guard* grease to the ribbed portion of the spark plug. This will help prevent corrosion between the spring terminal and the spark plug.



1. Ribbed portion of the spark plug

## PROPELLER

**WARNING**

When servicing the propeller, always shift the outboard to NEUTRAL position, and twist and remove all spark plug leads so the engine cannot be started accidentally.

**IMPORTANT:** Apply *Triple-Guard* grease to the entire propeller shaft before installing the propeller. At least annually, remove the propeller and check for debris. Clean the shaft and regrease it before reinstalling a propeller.

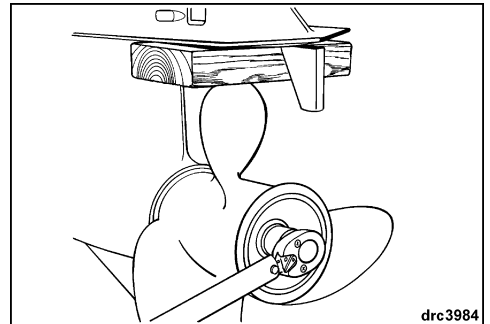
### Installation

Slide thrust washer onto shaft with fish line trap groove facing forward.

Slide propeller onto shaft, engaging the splines and seating it on the thrust washer.

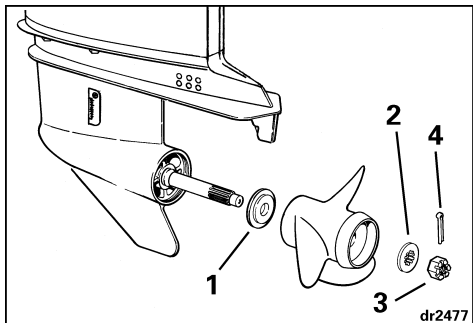
Slide spacer onto the shaft and engage the propeller shaft splines.

Wedge a block of wood between the propeller blade and the antiventilation plate.



Install propeller nut and tighten securely.

Continue to tighten propeller nut until nut slots and cotter pin hole are aligned. Install new cotter pin and bend ends to secure.



1. Thrust washer
2. Spacer
3. Propeller nut
4. Cotter pin

Remove block of wood. Make sure engine is in NEUTRAL; give propeller a spin. It must turn freely.

### Repair

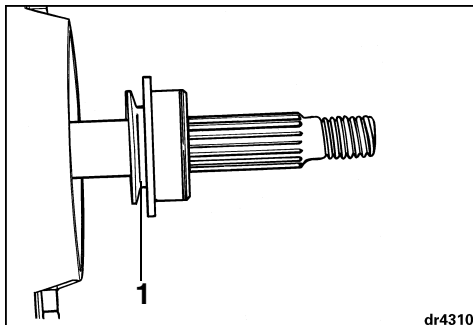
If your propeller hits a solid object, the impact is partially absorbed by the rubber bushing in the hub to help prevent damage to the engine. A strong impact can damage the hub and propeller blades. Damage to blades can cause unusual and excessive vibration. Damage to the hub can cause excessive engine RPM with little forward movement.

**IMPORTANT:** Avoid or limit operation using a damaged propeller. Carry a spare propeller.

Keep your propeller in good condition. Use a file to smooth slight damage to blade edges. See your Dealer for repair of serious damage.

### Fish Line Trap

The thrust bushing contains a built-up groove as a trap for fish line. Every 15 to 20 hours of operation, or whenever you suspect the presence of fish line, remove the propeller and check the trap. Remove any debris.



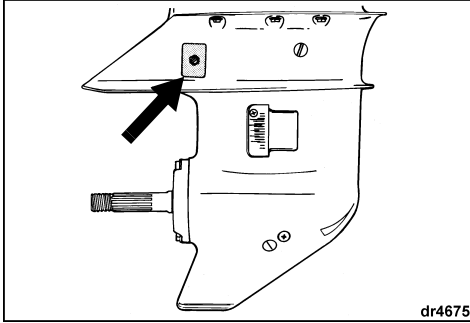
1. Fish line trap groove

**IMPORTANT:** Fish line can damage propeller shaft seals. Damaged seals can allow water to enter the gearcase, causing internal damage.



## ANTICORROSION ANODES

Your motor is equipped with one or more anodes that protect it from galvanic corrosion. Refer to **Features** for anode location. Disintegration of the anode is normal and indicates it is working. Check each anode periodically. Replace anodes smaller than 2/3 their original size. See your Dealer for replacements.

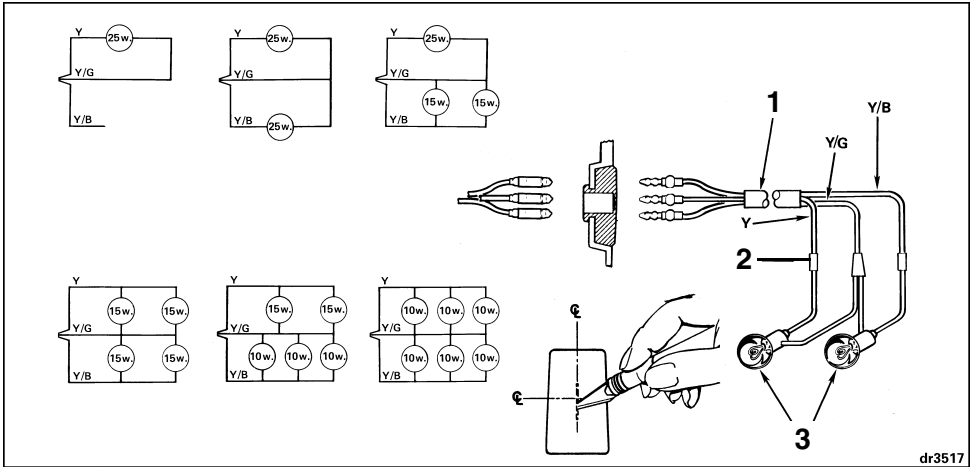


Galvanic corrosion destroys underwater metal parts and can occur in fresh or salt water; however, salt, brackish and polluted waters will accelerate corrosion.

Metal-based antifouling paint on the boat or motor and the use of improperly installed shore power in the area of your moored boat will also accelerate corrosion.

**IMPORTANT:** NEVER paint the anode, its fasteners, or its mounting surface. Painting will reduce its corrosion protection.

## AC LIGHTING



1. Sleeve
  2. Electrical tape covering connection
  3. Light bulb
- Y – Yellow wire  
YG – Yellow/Grey wire  
YB – Yellow/Blue wire

Some models have an AC (alternating current) lighting system for operating lights on a boat. An AC lighting system is available as an optional kit.

**IMPORTANT:** Alternating current is generated and **MUST NOT** be connected directly to a battery. For battery charging, install a battery charging kit. See your Dealer.

Various combinations of light bulbs can be used. Use 12-volt bulbs of wattage sizes indicated on the diagram.

Follow the illustration for proper installation of wires.

## TROUBLE CHECK CHART

**IMPORTANT: If you are unable to identify or solve the problem, contact your Dealer.**

SYMPTOM	POSSIBLE CAUSE
Starter motor will not operate	<ul style="list-style-type: none"> <li>• Shift handle not in NEUTRAL.</li> <li>• Battery and electrical connections loose or corroded.</li> </ul>
Engine will not start	<ul style="list-style-type: none"> <li>• Not following starting instructions. Refer to <b>Engine Starting</b>.</li> <li>• Fuel tank empty.</li> <li>• Fuel hose disconnected, kinked.</li> <li>• Fuel system contaminated with water or dirt.</li> <li>• Fuel filter obstructed.</li> <li>• Cold engine – Engine not choked.</li> <li>• Warm engine – Engine flooded. Disconnect fuel hose at engine, push in choke, crank engine. If it starts, run until cleared. If it fails to start, wait a few moments and try again.</li> <li>• Spark plugs incorrect. Refer to <b>Engine Specifications</b>.</li> <li>• Spark plugs improperly gapped, carboned, burned or wet.</li> <li>• Ignition system component failure.</li> </ul>
Engine will not idle properly	<ul style="list-style-type: none"> <li>• Motor angle excessive.</li> <li>• Spark plugs damaged or incorrect. Refer to <b>Engine Specifications</b>.</li> <li>• Fuel system contaminated with water or dirt.</li> <li>• Carburetor mixture out of adjustment.</li> <li>• Fuel/oil mixture incorrect.</li> </ul>
Engine loses power	<ul style="list-style-type: none"> <li>• Spark plugs damaged or incorrect. Refer to <b>Engine Specifications</b>.</li> <li>• Fuel filter obstructed.</li> <li>• Fuel system contaminated with water or dirt.</li> <li>• Water intakes obstructed and cooling system not operating correctly. Refer to <b>Engine Overheating</b>.</li> </ul>
Engine vibrates excessively	<ul style="list-style-type: none"> <li>• Propeller shaft bent.</li> <li>• Propeller fouled and restricted, blades bent or broken.</li> <li>• Fuel system contaminated with water or dirt.</li> <li>• Engine mount(s) damaged.</li> <li>• Water intakes obstructed and cooling system not operating correctly. Refer to <b>Engine Overheating</b>.</li> <li>• Carburetor mixture out of adjustment.</li> <li>• Steering friction screw loose (if so equipped).</li> </ul>
Engine runs, but makes little or no progress	<ul style="list-style-type: none"> <li>• Propeller hub loose, slipping.</li> <li>• Propeller blades bent or missing.</li> <li>• Propeller shaft bent.</li> <li>• Propeller fouled and restricted.</li> </ul>

## ENGINE MAINTENANCE AND INSPECTION SCHEDULE

Routine maintenance is necessary for all mechanized products. Periodic maintenance contributes to the product's life span. The following maintenance chart provides guidelines for engine maintenance and inspection scheduled to be performed by you and/or by an authorized Dealer. The schedule should be adjusted according to operating conditions and use.

The recommended lubricants have been formulated to protect bearings, gears and engine components. They must be used to avoid damage caused by improper lubrication.

**IMPORTANT:** Schedules for rental operations, commercial applications or high hour use will require greater frequency of inspection and maintenance.

Engine Maintenance and Inspection Schedule					
Description	Engine Care Product	Frequency			
		Each Use	10-Hour Inspection	Every 50 Hours or 6 months	Every 100 Hours or Annually
Clamp screws, lubricate <sup>(1)</sup>	7	Every 60 days / Every 30 in Saltwater			
Tilt/run lever shaft / tilt shaft, lubricate <sup>(1)</sup>	7	Every 60 days / Every 30 in Saltwater			
Swivel bracket / tilt support bracket, lubricate <sup>(1)</sup>	7	Every 60 days / Every 30 in Saltwater			
Shift lever shaft and detent / shallow water drive bracket, inspect and lubricate <sup>(1)</sup>	7	Every 60 days / Every 30 in Saltwater			
Engine cover latch, lubricate <sup>(1)</sup>	7	Every 60 days / Every 30 in Saltwater			
Throttle and shift linkage, lubricate <sup>(1)</sup>	7	Every 60 days / Every 30 in Saltwater			
Choke, carburetor linkage / starter lockout, inspect and lubricate <sup>(1)</sup>	7	Every 60 days / Every 30 in Saltwater			
Fish line trap, inspect		Every 60 days / Every 30 in Saltwater			
Anticorrosion anodes, verify operation		O	D		
Water intake screens, verify condition		O	D		
Overboard water pump indicator, verify operation		O	D		
Steering system check, verify function		O	D		
Throttle and shift operation, verify function		O	D		
Emergency stop circuit and lanyard, verify function		O	D		
Flush cooling system		O			
Emergency Start Cord, onboard and inspect		O			
Operator's Guide, onboard		O			
Clamp screws, tighten		O			
Engine upper and lower motor covers, clean and wax				O	
Operator's Guide, review				O	
Fuel filter inspection, eliminate contamination			D		
Fuel system components, inspect and repair leaks <sup>(2)</sup>			D	D	
Fastener inspection, tighten loosened components			D	D	

Engine Maintenance and Inspection Schedule						
Description	Engine Care Product	Frequency				
		Each Use	10-Hour Inspection	Every 50 Hours or 6 months	Every 100 Hours or Annually	Every 200 Hours or Biannually
Engine to transom mounting hardware, re-torque			D		D	
Cam follower, inspect and lubricate			D		D	
Spark advance linkage, lubricate			D		D	
Electric starter, lubricate			D		D	
Electrical and ignition wires and connections, inspect			D		D	
Gearcase lubricant replace	5		D		D	
Powerhead synchronization and linkage, inspect <sup>(2)</sup>	7		D		D	
Gearcase lubricant, inspect fill level and condition of lube	5			D		
Starter pinion shaft, inspect and lubricate <sup>(3)</sup>	9			D		
Propeller shaft splines, inspect and lubricate	7				D	
Spark plugs, replace <sup>(2)</sup>					D	
Decarbonize	10				D	
Driveshaft splines, inspect and lubricate	8					D
Water pump, inspect and replace						D

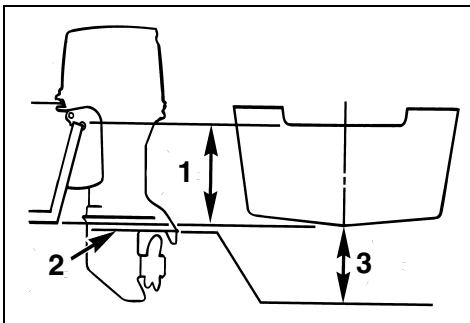
- (1) Also recommended at 10-Hour Inspection
- (2) Emission-related component
- (3) Do not use light duty penetrating lubricants

- D** Dealer Performed Service
- O** Operator Performed Service
- 4** Evinrude/Johnson anti-corrosion spray or Evinrude/Johnson "6 in 1" multi-purpose lubricant
- 5** Ultra-HPF gearcase lubricant
- 6** Power Trim/Tilt Fluid
- 7** Triple Guard grease
- 8** Evinrude/Johnson Moly Lube™ P/N 175356
- 9** Starter Bendix Lube Only P/N 337016
- 10** Evinrude/Johnson Engine Tuner



# **Bombardier Recreational Products**

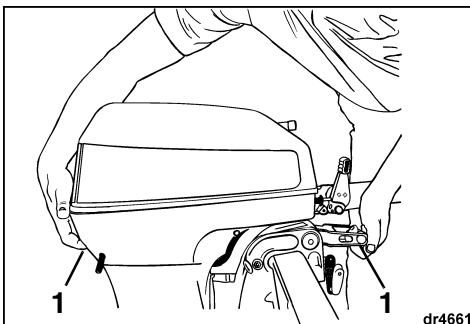
The transom height dimension listed in **Engine Specifications** is the height of the boat transom your engine needs. This dimension is measured at the transom centerline, perpendicular to the bottom of the boat.



1. Transom height
2. Antiventilation plate
3. Final position – 0 to 2 in. (0 to 51 mm)

Use this procedure to determine whether or not the boat's transom height is correct for the engine's shaft length:

Lift the engine using the lift grips (NOT the tilt grip or steering handle) and place it in the center of the boat's transom.



1. Lift grips

dr4661



## WARNING



Your engine must not exceed the maximum horsepower indicated on the boat's capacity plate. Such overpowering can cause loss of control. Contact your Dealer or the boat's manufacturer if your boat lacks a capacity plate.

Boats designed for remote-steered engines might be overpowered by a tiller-steered engine of the maximum rated horsepower. Ask your Dealer or boat manufacturer if you are unsure about your boat's suitability.

Incorrectly matched boat and engine transom heights can cause boat instability and loss of control. Refer to Transom Height and Shaft Length.

Prevent lateral movement and possible engine loss by using the mounting hardware supplied or hardware of sufficient size, strength, and quality. Refer to Installing the Engine.

A mounting surface that is damaged or too thin to support your engine while underway might fail during operation, causing you to lose control. Be sure the boat's transom or mounting bracket is structurally sound and between 1 1/2 in. (38 mm) and 2 1/4 in. (57 mm) in thickness.



If equipped, tighten clamp screws by hand, NOT with tools.

Adjust the motor angle so the antiventilation plate is parallel with the boat bottom. Refer to **Motor Angle Adjustment**.

The resulting position of the antiventilation plate must be no higher than the boat's bottom and no lower than 2 in. (5,1 cm) below it.

If the resulting position of the antiventilation plate is above or below the 0 to 2 in. (0 to 5,1 cm) range, the engine shaft length must be changed **or** the boat's transom must be modified.

If you install and operate the engine:

Lower than recommended — Serious powerhead damage could result from water entry into the lower engine cover or overloading from an under-revving propeller at wide open throttle.

Higher than recommended — Serious powerhead damage could result from inadequate cooling or an over-revving propeller. Propeller ventilation (slip-page) often occurs, resulting in poor boat performance.

On a specialty hull, non-planing hull, or on a boat with a curved transom, these guidelines might not apply. See your Dealer for special installation information.

## Installing the Engine



### WARNING



**The outboard must be correctly installed. Failure to correctly install the outboard could result in serious injury, death or property damage. We strongly recommend that your Dealer install your outboard to ensure proper installation.**

**IMPORTANT:** Follow all directions carefully. The engine's warranty will not cover product damage or failure that results from incorrect engine installation.



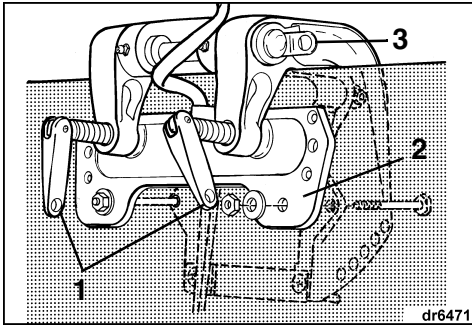
### WARNING



**Even if equipped with clamp screws, your engine must be bolted to the boat to prevent it from "working off the transom" during operation.**

Center the engine on the boat's transom (or mounting bracket) and tighten the clamp screws by hand, NOT with tools. See your Dealer for an accessory transom plate to protect the boat's transom.

Bolt your engine to the boat's transom using the mounting hardware provided.



1. Clamp screws
2. Transom plate
3. Engine retention lug

After positioning the engine, use the stern brackets as a template for location and size of holes to drill in the transom.

The stern bracket has two holes on each side of the engine. Drill only one hole on each side. Use the upper holes unless your situation requires using the lower holes. Be sure to drill at right angles to the transom.

Apply polysulfide sealant generously behind the heads and to the shanks of the mounting bolts before inserting them and to the surfaces of washers that contact the transom. Avoid RTV silicone and polyurethane sealants as they can be dissolved by gasoline.

Secure the engine with the mounting hardware.

After 30 minutes of operation, retighten clamp screws by hand. **DO NOT** use tools to tighten clamp screws. Check clamp screws regularly.

Connect a safety line between the engine retention lug and a secure place on the boat. If the engine should come off the transom during operation, a strong safety line will keep it from being lost.



## WARNING




**When replacing bolts, screws, or other fasteners, use *Johnson* parts or parts of equivalent strength and material.**

# CHANGE OF ADDRESS / CHANGE OF OWNERSHIP

If your address has changed or if there has been a change of ownership, be sure to fill out and mail the card provided on this page.

Such notification is likewise necessary for your own safety even after expiration of the original warranty, since BMCA will be in a position to contact you if correction to your outboard becomes necessary.

Outside the U.S. and Canada, this card should be sent to the Bombardier Recreational Products division where the outboard was registered. Please contact your Dealer or Distributor.



<b>Change of address</b> <input type="checkbox"/>	<b>Change of ownership</b> <input type="checkbox"/>
---	---

<b>Model number</b>	<input type="text"/>
<b>Serial Number</b>	<input type="text"/>

**Old address / Previous owner**

<b>Last name</b>	<input type="text"/>
<b>First name</b>	<input type="text"/> <b>M.I.</b> <input type="text"/>
<b>Address</b>	<input type="text"/>
<b>City</b>	<input type="text"/> <b>State</b> <input type="text"/>
<b>Zip code</b>	<input type="text"/> <b>Country</b> <input type="text"/>
<b>Phone number</b>	<input type="text"/>
<b>Signature</b>	<input type="text"/> <b>Date</b> <input type="text"/>

**New address / New owner**

<b>Last name</b>	<input type="text"/>
<b>First name</b>	<input type="text"/> <b>M.I.</b> <input type="text"/>
<b>Address</b>	<input type="text"/>
<b>City</b>	<input type="text"/> <b>State</b> <input type="text"/>
<b>Zip code</b>	<input type="text"/> <b>Country</b> <input type="text"/>
<b>Phone number</b>	<input type="text"/>
<b>Signature</b>	<input type="text"/> <b>Date</b> <input type="text"/>

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AFFIX  
STAMP  
HERE

**Bombardier Motor Corporation of America**  
**EVINRUDE / JOHNSON**  
**DEALER SUPPORT SERVICES**  
**250 SEAHORSE DRIVE**  
**WAUKEGAN, IL 60085**

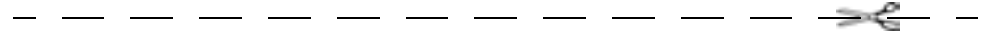
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# Operator's Guide Confirmation of Receipt

## Your Dealer

Name:	_____
	_____
Address:	_____
	_____
	_____

Upon delivery of your new *Evinrude/Johnson* Outboard, complete and sign the form hereunder. Your Dealer will take receipt of the form for their records.



## Receipt

Name:	_____
	_____
Address:	_____
	_____
	_____
Owner of Model No:	_____
Serial No:	_____
	(To be completed by customer or selling Dealer)
<p>The Dealer named on this document has instructed me on the operation, maintenance, safety features and warranty policy, all of which I understand and agree to be bound with. I am also satisfied with the predelivery set-up and inspection of my <i>Evinrude/Johnson</i> Outboard. I have also received a copy of the Operator's Guide.</p>	
Signature:	_____
Date:	_____

# **Bombardier Recreational Products**

# Readiness Test and a Final Word to the Owner/Operator

The Operator's Readiness Test...

1. Did you read this Guide from front cover to rear cover?
2. Are you ready to take responsibility for the safe operation of your boat and motor?
3. Do you understand all the safety precautions and instructions contained in this Guide?
4. Do you understand that this Guide contains essential information to help prevent personal injury and damage to equipment?
5. Are you ready to follow the recommendations in this Guide and take a boating safety course before you operate your boat and motor?
6. Do you know who to ask if you have any questions about your boat and motor?
7. Do you know your local marine traffic laws?
8. Do you understand that human error can be caused by carelessness, fatigue, overload, preoccupation, unfamiliarity of operator with the product, drugs and alcohol, just to name a few?



## WARNING



**It is impossible for this Guide to cover every hazardous situation you may encounter; however, your understanding of and adherence to essential information contained in this Guide will build good judgment when boating. Always be alert and careful: a good foundation for safety.**

