

# ***Johnson***®

**2004**

***Operator's Guide***

**3.5 HORSEPOWER**

**R**



# 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 manual.

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, and 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:

*Evinrude®*

*Evinrude®/Johnson® Genuine Parts*

*Evinrude®/Johnson® direct injection oil*

*Evinrude®/Johnson® XD25 Formula*

*Evinrude®/Johnson® anti-corrosion spray*

*Johnson®*

*2+4® fuel conditioner*

*Hi-Vis® gearcase lubricant*

*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 to identify 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 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 injury. 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



### 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* 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 this 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.

#### 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* distributor where the outboard was registered.

#### Technical Literature

*Bombardier Motor Corporation of America* 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

*Bombardier Motor Corporation of America* 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.

George Broughton  
Director of Outboards

# BOMBARDIER LIMITED WARRANTY FOR *JOHNSON* 2-STROKE OUTBOARD ENGINES SOLD IN THE UNITED STATES AND CANADA

## 1. SCOPE OF THE LIMITED WARRANTY

Bombardier Motor Corporation of America\* ("Bombardier") warrants its *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 Bombardier 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 Bombardier 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 Bombardier 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. Bombardier may require proof of proper maintenance prior to authorizing warranty coverage.

## 4. WHAT TO DO TO OBTAIN WARRANTY COVERAGE

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 Bombardier.

## 5. WHAT BOMBARDIER WILL DO

Bombardier'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 Bombardier. Such repair or replacement of parts will be done without charge for parts and labor, at any authorized Dealer. Bombardier's responsibility is limited to making the required repairs or replacements of parts with new or Bombardier-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.

Bombardier 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 Bombardier, 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 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 Bombardier. Bombardier 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 Bombardier 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 Bombardier limited warranty, Bombardier 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 Customer Support Services, 250 Sea Horse Drive, Waukegan, IL, 60085, 1-847-689-7090.

Revision February 2003

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

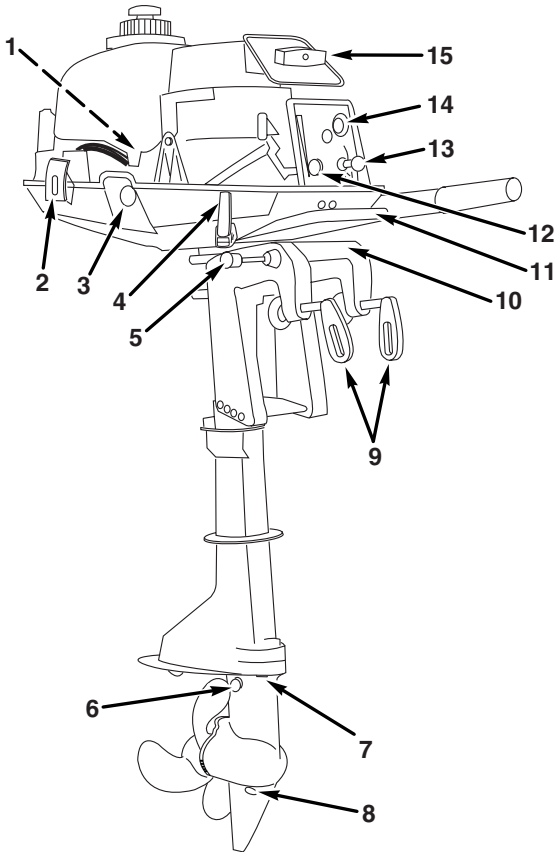
**BOMBARDIER LIMITED WARRANTY FOR *JOHNSON* 2-STROKE OUTBOARD  
ENGINES SOLD OUTSIDE THE UNITED STATES AND CANADA**

For a copy of the Limited Warranty, see your Bombardier 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 Customer Support Services, 250 Sea Horse Drive, Waukegan, Illinois, 60085, or the affiliate of Bombardier where the Product was registered for warranty.

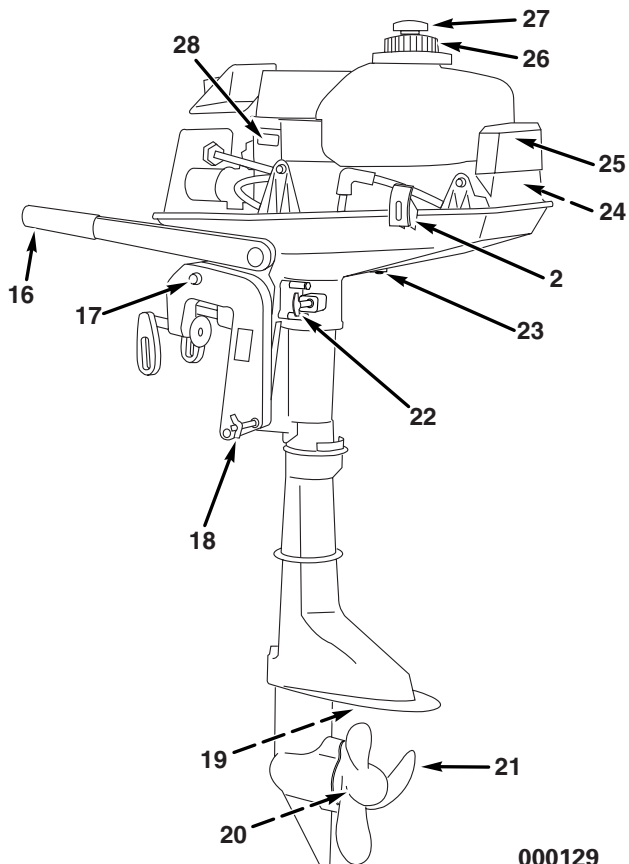


# FEATURES



**000128**

Item	Description	Item	Description
1	Fuel Filter	9	Clamp Screws
2	Engine Cover Latch	10	Model and Serial Number Plate
3	Fuel Shut-Off	11	Carrying Handle
4	Shift Lever	12	Throttle Control Lever
5	Tilt Lock Pin	13	Choke Knob
6	Lubricant Level Plug	14	Stop Button
7	Water Intake	15	Starter Handle
8	Lubricant Drain/Fill Plug		



000129

Item	Description	Item	Description
16	Steering Handle	23	Water Pump Indicator
17	Tilt Friction Nut	24	Spark Plug
18	Angle Adjustment Bolt	25	Tilt Grip
19	Anticorrosion Anode	26	Fuel Tank Cap
20	Drive Pin	27	Fuel Tank Vent
21	Propeller	28	ECI Label
22	Steering Friction Adjustment Screw		

## ENGINE SPECIFICATIONS

<b>3.5 Models</b>	
Displacement	4.75 cu. in. (77.8 cc)
Engine Type	Two-Cycle, Single Cylinder
Full Throttle Operating Range	4500 to 5500 RPM
Power <sup>(1)</sup>	3.5 HP (2.6 kw) @ 5000 RPM
Idle RPM in Gear <sup>(2)</sup>	1100 ± 100
Ignition Timing –Idle <sup>(2)</sup>	Not Adjustable
W.O.T.	Not Adjustable
Emission Control System: per SAE J1930 <sup>(2)</sup>	EM (Engine Modification)
Fuel Requirements <sup>(2)</sup>	67 Pump Posted AKI (69 RON) – Refer to <b>Fuel and Oil</b>
Fuel/Oil Ratio	50:1
Fuel Tank - Integral	Capacity – 1.6 qt. (1.5 liters)
Spark Plug <sup>(2)</sup>	Refer to ECI Label
Torque	18 to 21 ft. lbs. (24 to 28 N·m)
Gearcase – Lubricant Capacity	<i>Evinrude/Johnson Ultra-HPF™</i> gearcase lubricant 2.7 fl. oz. (80 ml)
Propeller	7 1/2 x 6 in. (191 x 152 mm)
Transom Height	14 1/2 to 15 in. (368 to 381 mm)
Weight	29.7 lbs. (13.5 kg)
Sound at Driver's Ear (LpA) ICOMIA 39.94	80.8 dB(A)
Vibration at Tiller (arms)	3.24 m/s <sup>2</sup>

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

(2) Emission Control Information.

# 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 up 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.

90 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 Operator's 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 *Bombardier* 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

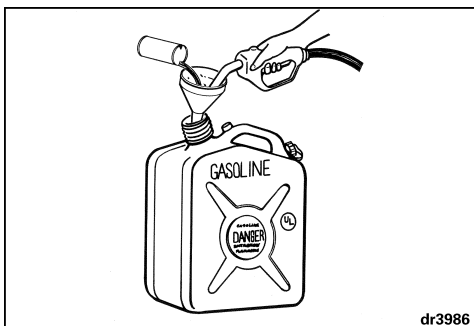
### New Engine and Normal Operation

The engine must be operated at a **50:1 (2% oil)** fuel/oil ratio.

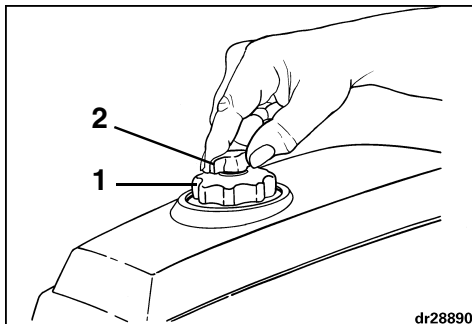
## MIXING FUEL AND OIL

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

Pour some gasoline, then all the oil needed, into a separate, approved gasoline container. Add the rest of the gasoline. Replace the cap and thoroughly mix the contents by gently tipping the container back and forth.



Pour the fuel mixture into the engine's integral fuel tank. Replace the fuel tank's cap and close its vent screw until the motor is installed on the boat and ready for use.



1. Fuel tank cap
2. Vent screw

## FUEL SYSTEM

**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.



## BREAK-IN

**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 life and performance.

The break-in period is the first 1 1/2 gallons of fuel.

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

Perform the 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**.

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 engine RPM often. Avoid holding a throttle setting longer than 15 minutes.

**1. First 5 minutes of operation** — Operate the engine in gear at fast idle **ONLY**.

**2. First 1/2 of break-in fuel** — Operate engine in gear no faster than 1/2 throttle.

**3. Second 1/2 of break-in fuel** — Operate the engine in gear at various speeds, including 30 second bursts at full throttle.

# 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.

## WARNING

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** 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**.

Be sure the engine is in the normal operating position.



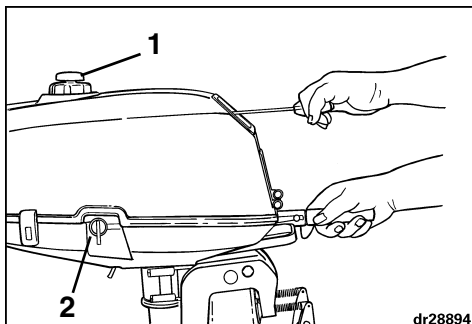
## WARNING



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

Open the tank vent screw by turning it fully counter-clockwise

Open the fuel shut-off by turning the valve knob so its handle is vertical.



1. Vent screw
2. Valve knob – OPEN position

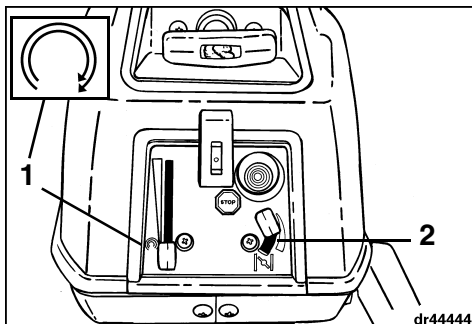
Move the shift handle to **NEUTRAL**. Refer to **Shifting and Speed Control**.

Set the throttle control lever at **START**.

**IMPORTANT:** To avoid engine damage, **DO NOT** operate engine above the **START** position in **NEUTRAL**.

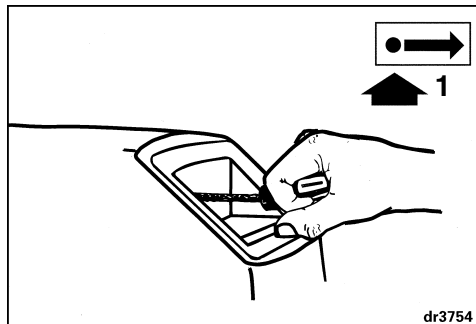
## Start-up (Cold Engine)

Starting a cold engine normally requires use of the engine choke. Slide the choke knob all the way up to the “Closed” position.



1. Throttle control lever – **START** position
2. Choke Knob – Closed position

While seated, grasp the starter handle and pull slowly until starter engages, then pull hard. Allow starter cord to rewind before releasing the handle to prevent damage to starter.



#### 1. NEUTRAL

Repeat as needed until engine starts.

After engine starts, slide choke knob down gradually until engine is running smoothly.

**IMPORTANT:** If your outboard doesn't react normally to the starting procedure or it fails to start, refer to **Trouble Check Chart**.

#### After Engine Starts

Check 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**.

#### Start-up (Warm Engine)

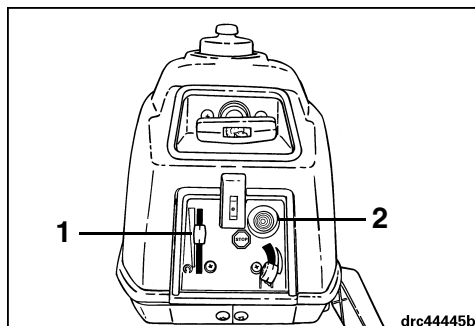
Follow the cold engine starting procedure except a warm engine does not normally require use of the choke. If your engine fails to start, then use the choke.

#### Speed Control

The throttle lever controls engine speed. Raise the lever to increase speed and lower it to decrease speed.

## ENGINE STOPPING

Press the stop button until the engine stops running. Do not stop the engine by shutting off the fuel unless you want to empty the carburetor. Refer to **Fuel Shut-off Valve**.



1. Throttle Lever
2. Stop Button



### WARNING



If you tilt the engine and leave it tilted, close the fuel tank vent screw (turn clockwise) and close the fuel shut-off valve (turn so handle is horizontal). Failure to do so might allow fuel leakage which could lead to explosion or fire.

## SHIFTING AND SPEED CONTROL

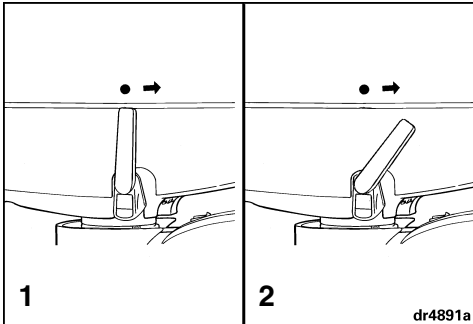
**IMPORTANT:** Carefully check the function of all control and engine systems before leaving the dock. If the following directions are not suitable for your boat's control, see your DEALER before proceeding. DO NOT shift motor into FORWARD when engine is NOT running.

### Shifting

With the engine running, move the throttle lever to idle position.

Move shift lever briskly to FORWARD.

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



1. NEUTRAL position
2. FORWARD position

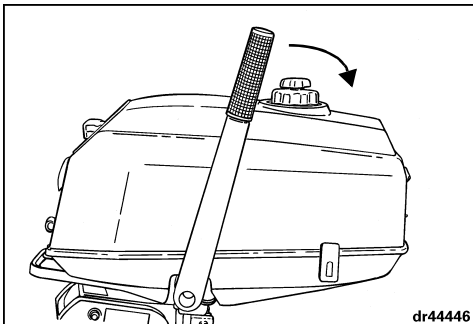
## REVERSE

The engine will swivel halfway around to REVERSE your boat.

Slow the throttle.

Stand the steering handle straight up and swivel the engine halfway around.

Lower the steering handle into the boat.



## WARNING



**Remember when the engine is in REVERSE position, the throttle lever and the stop button are facing away from the operator. Operate with caution.**

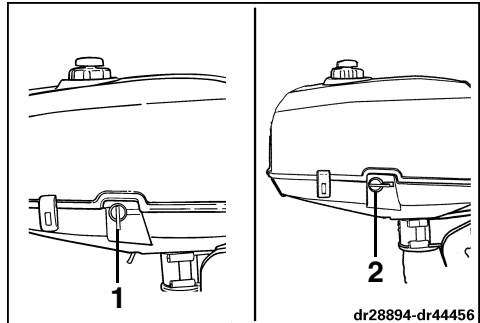
**IMPORTANT:** The engine cannot tilt when swiveled for REVERSE. Proceed slowly and avoid underwater obstructions or risk damaging your boat.

## FUEL SHUT-OFF VALVE

The fuel shut-off valve allows or prevents fuel flow from the fuel tank to the carburetor.

With the pointer on the fuel valve pointing down, the valve is "OPEN" and allows fuel flow. Open the valve when preparing to start the engine and leave it open during engine operation.

With the pointer on the fuel valve pointing to the side, the valve is "CLOSED" and prevents fuel flow. Close the valve before leaving the engine fully tilted and before laying the engine down.



1. Valve - OPEN
2. Valve - CLOSED

## EMERGENCY STARTING

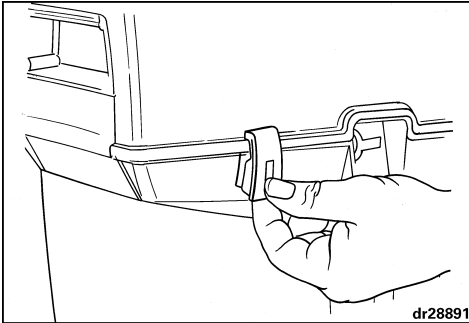
**WARNING**

The engine cover is a machinery guard. Prevent injury by keeping hands, clothing and hair clear of all moving parts. **DO NOT** use your hands to turn the flywheel; use starter cord only.

Prevent electric shock by keeping clear of the ignition coil and spark plug lead when the engine is being started or is running. Shock can cause serious injury under certain conditions.

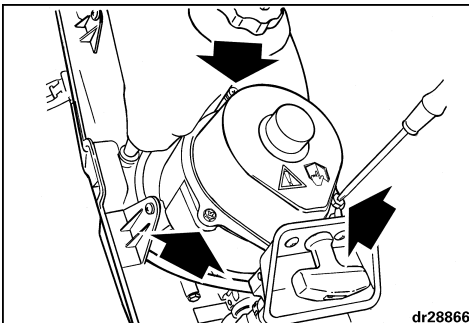
If the starter cord breaks or the starter fails, you can start your engine using a piece of its broken starter cord or another 3/16 in. (5 mm) cord about 3 ft. (0.9 m) long.

Loosen the three engine cover latches. Lift off the engine cover.

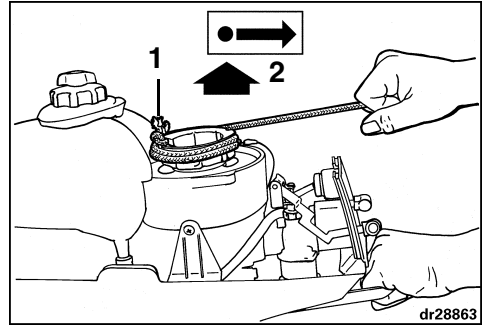


Loosen the two starter housing screws and one fuel tank mounting screw. Remove the starter housing.

Reinstall and tighten the fuel tank mounting screw and reconnect the stop switch ground wire by reinstalling it with one of the starter housing screws.



Tie a knot in the 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

Follow the starting procedure in **Engine Starting**.

With the engine in neutral, pull the emergency starting cord hard. Repeat, if necessary, until the engine starts and runs.

Do not attempt to replace the starter or engine cover while the engine is running. Proceed to nearest harbor for service.

# OPERATION

## 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

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.

## PROPELLER SELECTION

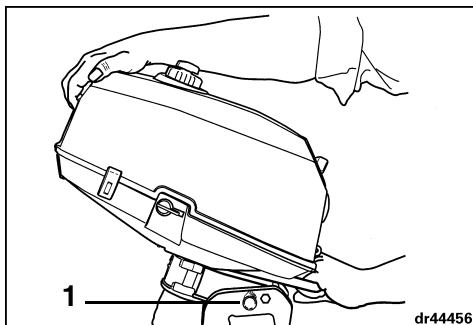
To select the correct propeller for your boating application, your boat and motor **MUST** be water tested. See your DEALER for assistance.

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**.

## TILTING

To tilt the motor, grasp tilt grip at rear of engine cover and pull motor to full tilt position. Push in the tilt lock pin.



1. Tilt lock pin

**IMPORTANT:** DO NOT tilt the motor by pushing down on the steering handle.

To lower the motor, pull the tilt lock pin and gently lower the motor until it rests against the angle adjustment bolt.

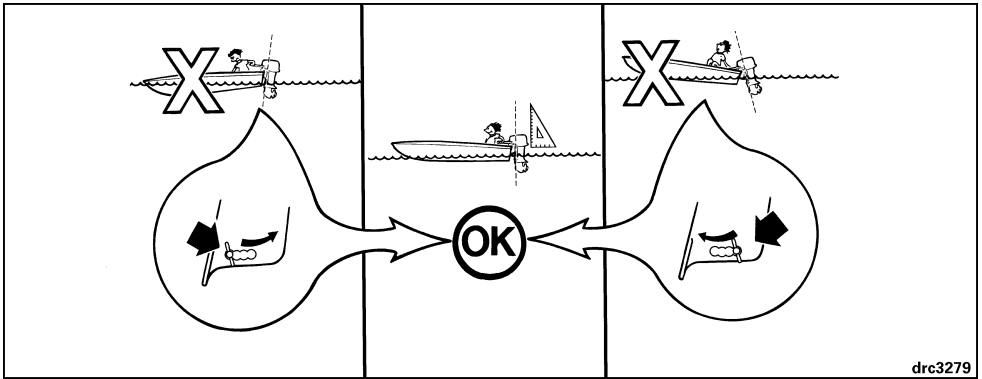


## WARNING



**If the motor will be left tilted for more than a few minutes, close the fuel tank vent screw and close the fuel shut-off valve. Failure to do so might allow fuel leakage which could lead to fire or explosion.**

The motor will automatically tilt as needed upon striking an underwater object during FORWARD travel. It cannot tilt when swiveled for REVERSE operation.

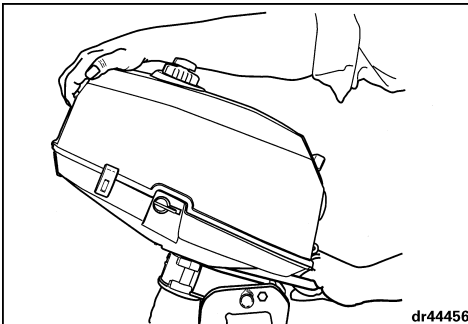


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## MOTOR ANGLE ADJUSTMENT

The engine 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.

With the engine shut OFF, tilt the motor fully and push in the tilt lock pin. Refer to **Tilting**.

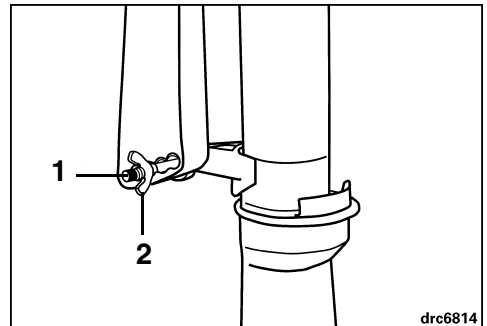


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Carefully remove the thread sleeve from the angle adjustment bolt and loosen the wing nut.

Slide the adjustment bolt to the desired position.

Tighten the wing nut and replace the thread sleeve.



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1. Thread sleeve
2. Wing nut

**IMPORTANT:** Be sure the thread sleeve is in place to prevent possible loss of the wing nut by vibration. If needed, an extra sleeve is enclosed with the Operator's Guide.

Pull the tilt lock pin and gently lower the motor until it rests against the angle adjustment bolt.

## SHALLOW-WATER DRIVE

When operating in shallow water, move the angle adjustment bolt to the outermost position so the gearcase is farthest from the boat and highest in the water. Operate at slow speed only.

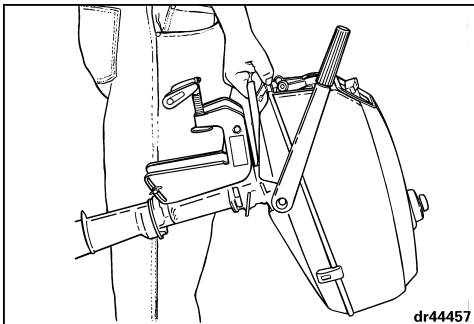
## CARRYING AND TRANSPORTING

Before you shut the engine off for the last time during your outing, close the fuel shut-off valve and the fuel tank vent screw. Run the engine until it quits. Doing so will minimize the potential for fuel leakage when you lay the engine down. Refer to **Fuel Shut-off Valve**.

After removing the engine from the boat, hold it upright until the cooling system stops draining before you lay it down for carrying.

**IMPORTANT:** Whenever the engine is horizontal, keep its powerhead higher than the gearcase. Otherwise, any water remaining in the exhaust passages could run into the block and cause serious damage.

A convenient handle is provided for carrying.



When transporting, rest the engine on the side that has the fuel shut-off valve knob.

## MOORING

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

## FLUSHING

### ANGER

**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.**



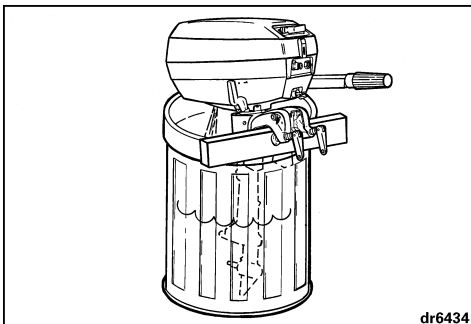
### ARNING



**Prevent injury from contact with rotating propeller by removing the propeller before flushing.**

Flush your engine for at least five minutes 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.

Run the engine in a large container of water, such as a 30-gallon garbage can. If needed, insert a board between the rim of the can and the engine's clamp screws for thickness. Be sure water covers the engine's water intakes.



### Requirements

- Well-ventilated area.
- Propeller removed.
- Water level 4 in. (10 cm) above the antiventilation plate.
- Shift handle in NEUTRAL and engine in the normal operating position.
- Engine running at fast idle only.

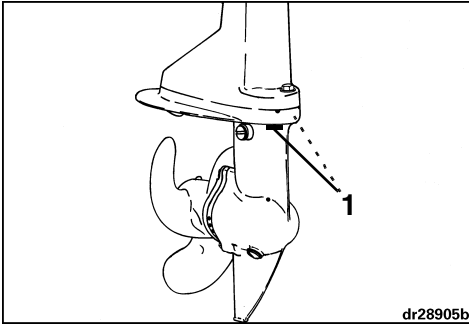
**IMPORTANT:** Water must flow from the water pump indicator. If it does not, shut OFF the engine and investigate. Refer to **Engine Overheating**.



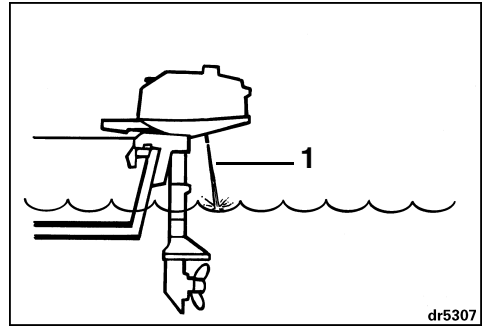
## ENGINE OVERHEATING

**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 intakes



1. Water pump indicator

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

- 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.

## TRAILERING



### WARNING



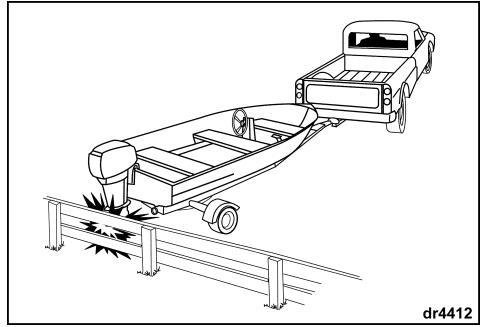
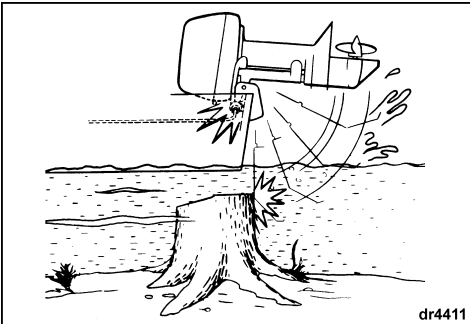
Keep everyone clear of stern area when raising or lowering the outboard. Personal injury or death can result from contact with moving parts of the outboard.

Trail your boat with the motor in a vertical position. If your trailer does not provide adequate road clearance, gain additional clearance by placing the angle adjustment rod in the hole furthest out. Refer to **Motor Angle Adjustment**. Gain maximum clearance by tilting the motor all the way and using an accessory trailering bracket.

**IMPORTANT:** Whenever trailering, the motor must be restrained. Bouncing during transport will damage the motor and boat's transom.

### IMPACT DAMAGE

Your boat and motor can be seriously damaged by a collision at high or low speeds, while trailering, or while in the water.



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 the ability of your boat and engine to resist future impacts.

### STORING

For brief periods of nonuse, store your motor on the boat or on a motor stand in a vertical, self-draining position. For long periods of nonuse, refer to **Off-Season Storage**.

**IMPORTANT:** After use and before transport, hold the engine in a vertical position until the cooling system has completely drained. Keep the powerhead higher than the gearcase at all times.

## 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. Stop and raise motor frequently to clear weeds from the propeller and water intakes. Check the water pump indicator often.

### **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. Refer to **Shallow-water drive**.

### **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 needed adjustments 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.**

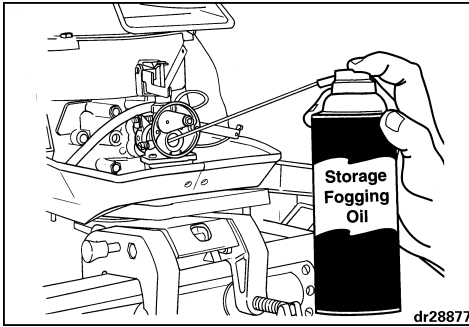
**Keep hands, clothes, and hair clear of powerhead.**

**Remove the propeller.**

**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.



Stop the engine by closing the fuel shut-off valve and letting the engine run the carburetor out of fuel.

Close the fuel tank vent screw.

	<b>WARNING</b>	
<p><b>Closing the fuel tank vent screw and fuel shut-off will prevent explosion and fire due to gasoline or its vapor escaping from these normally open places.</b></p>		

**Ignition, oil and fuel systems** — Check for misplaced leads and damaged or deteriorated parts.

**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.

If you cannot store the engine in the recommended vertical position, be sure the cooling system is drained completely.



**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.

**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.

## 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.


	<b>WARNING</b>	
<p><b>Failure to carefully reattach the outboard and its control systems with factory-specified hardware can result in sudden, unexpected loss of boat control.</b></p>		

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 **Propeller** to install the propeller.

	<b>WARNING</b>	
<p><b>Prevent accidental contact with a rotating propeller; always remove it when flushing the engine.</b></p>		

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 doesn't, shut off the engine and investigate. Refer to **Engine Overheating**.

Stop the engine and check the fuel system for leaks.

## Carburetor

**High speed** fuel calibration is maintained by 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.

## Idle Speed Adjustment

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

## 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:

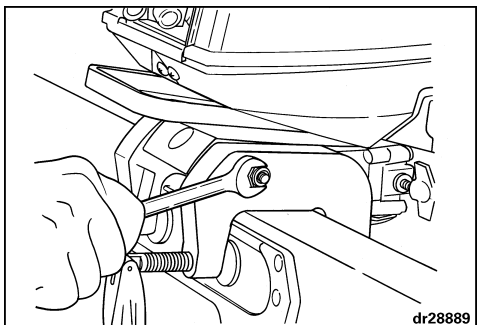
- Clockwise to increase friction; or
- Counterclockwise to decrease friction.

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

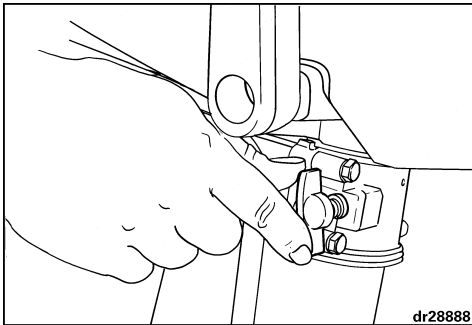
## ADJUSTMENTS

### Tilt Friction

Adjust only enough to control return of gearcase from tilt to normal operation position.



**IMPORTANT:** DO NOT overtighten. Doing so increases the pressure required to tilt the motor when an obstruction is hit. Failure of the motor to tilt upon impact can result in serious damage.



 **WARNING**   
**DO NOT overtighten for "hands-off" steering. Reduced steering control could result.**

# LUBRICATION

## Gearcase

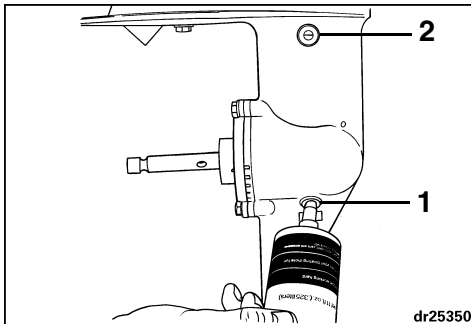
Replace gearcase lubricant after first 10 hours of operation. Check level and condition of lubricant after next 50 hours of operation. Add lubricant if necessary.

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 lube 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:

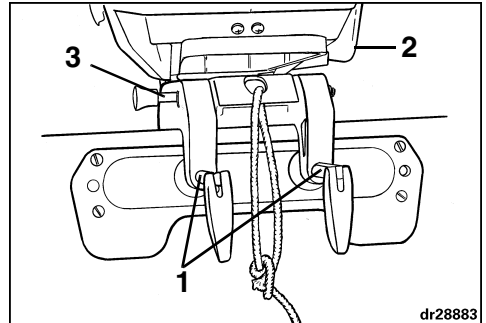
- 1) Remove drain/fill plug and lubricant level plug from side of gearcase and completely drain gearcase of old lubricant.
- 2) Examine drained lubricant for metal filings, milky appearance, or black color with burnt odor. If old lubricant has any of those characteristics, see your DEALER. If drained 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.



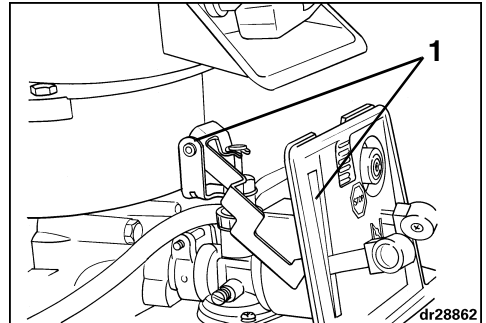
1. Drain/fill plug
2. Lubricant level plug

## Lubrication Points

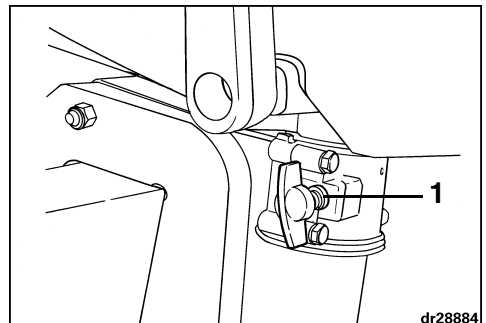
Refer to **Engine Maintenance and Inspection Schedule** for lubrication frequency and recommended lubricant.



1. Clamp screws
2. Steering handle
3. Tilt lock pin

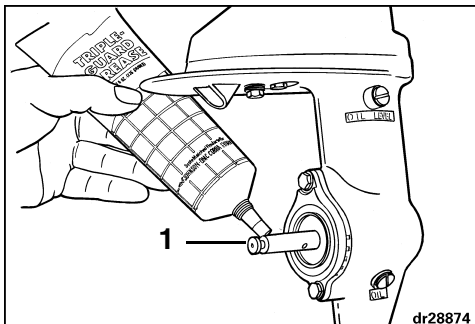


1. Carburetor/throttle linkage, choke shaft

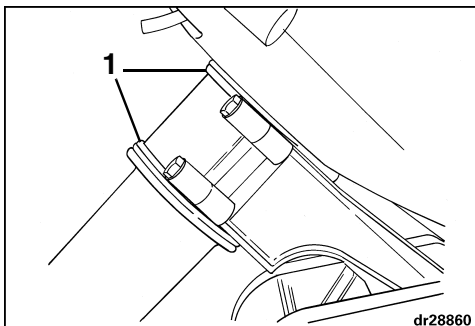


1. Steering friction adjustment screw

## SPARK PLUG



1. Propeller shaft



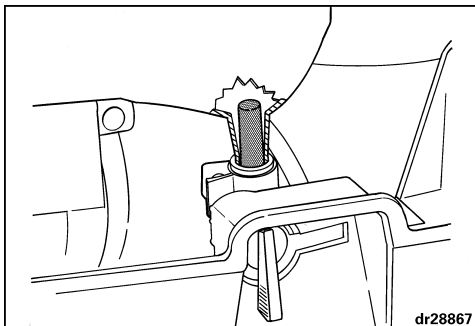
1. Exhaust housing bushing

## FUEL FILTER

Refer to **Engine Maintenance and Inspection Schedule** for frequency.

An authorized *Evinrude/Johnson* DEALER should service the fuel filter.

**IMPORTANT:** A restricted fuel delivery system will not allow the engine fuel pump to deliver sufficient fuel under all conditions. This can result in loss of performance and possibly **engine damage**.



⚠

### 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.

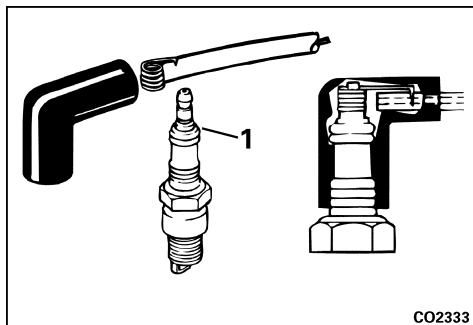
Inspect spark plug periodically. Replace if electrodes are badly worn, insulators are cracked, or if they are badly fouled.

To remove spark plug, twist and remove all spark plug lead. 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 plug 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

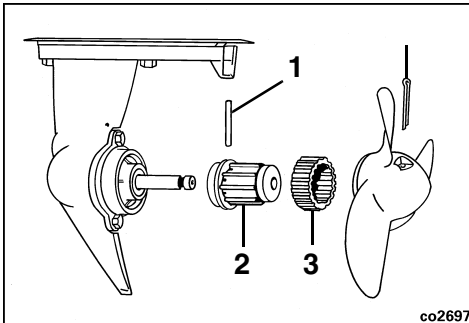


To avoid accidental starting of engine while changing propellers, twist and remove the spark plug lead.

**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

- Drive pin into propeller shaft. A new pin can be used to remove a damaged pin.
- Hub – Slide onto propeller shaft making sure it seats on drive pin.
- Shock absorber – Slide onto hub.
- Position propeller onto shock absorber.
- Cotter pin – Install new pin through propeller and shaft. Spread ends of cotter pin to secure the assembly.



1. Drive pin
2. Hub
3. Shock absorber
4. Cotter pin

### 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.

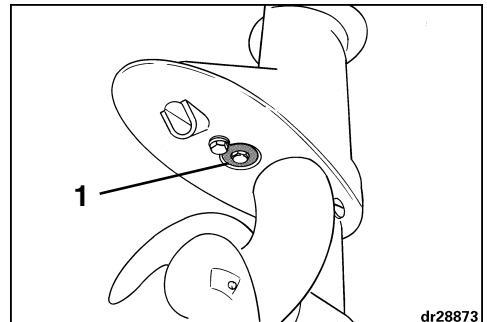
Keep your propeller in good condition. Use a file to smooth slight damage to blade edges. See your DEALER for repair of serious damage.

### Supplies

A spare drive pin and cotter pin are located inside the front lower engine cover. Always carry a supply of extra drive pins and cotter pins.

### ANTICORROSION ANODES

Your motor is equipped with one or more anodes that protect it from galvanic corrosion. Refer to **Features** section 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.



1. Anode

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.

## TROUBLE CHECK CHART

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

SYMPTOM	POSSIBLE CAUSE
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 system contaminated with water or dirt.</li> <li>• Fuel filter obstructed.</li> <li>• COLD ENGINE: Engine choke not closed.</li> <li>• WARM ENGINE: Engine flooded – Set fuel valve at remote tank position, make sure remote tank hose is not connected, open choke; crank engine. If it starts, run until cleared. If it fails to start, wait a few moments and try again. When cleared, reestablish fuel supply.</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>• Carburetor mixture out of adjustment.</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>

# NOTES

## 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	Every 200 Hours or Biannually
Steering handle, inspect and lubricate <sup>(1)</sup>	6	Every 60 days / Every 30 in Saltwater				
Clamp screws, inspect and lubricate <sup>(1)</sup>	6	Every 60 days / Every 30 in Saltwater				
Tilt lock pin, inspect and lubricate <sup>(1)</sup>	6	Every 60 days / Every 30 in Saltwater				
Carburetor/Throttle linkage, Choke shaft inspect and lubricate <sup>(1)</sup>	6	Every 60 days / Every 30 in Saltwater				
Steering Friction Adjust screw, lubricate <sup>(1)</sup>	6	Every 60 days / Every 30 in Saltwater				
Exhaust housing bushing	6	Every 60 days / Every 30 in Saltwater				
Lubrication and corrosion protection for metallic components	4	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			
Stop circuit, verify function		O	D			
Starter, inspect cord		O	D			
Flush cooling system		O				
Operator's Guide, onboard		O				
Engine upper and lower motor covers, clean and wax				O		
Operator's Guide, review					O	
Fuel system components, inspect and repair leaks <sup>(2)</sup>			D	D		
Fuel filter inspection, eliminate contamination			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
Fastener inspection, tighten loosened components			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>	6		D		D	
Gearcase lubricant, inspect fill level and condition of lube	5			D		
Propeller shaft, inspect and lubricate	6				D	
Spark plugs, replace <sup>(2)</sup>					D	
Decarbonize	7				D	
Water pump, inspect and replace						D

(1) Also recommended at 10-Hour Inspection

(2) Emission-related component

**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** *Triple Guard* grease

**7** *Evinrude/Johnson* Engine Tuner

## INSTALLATION



### 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.

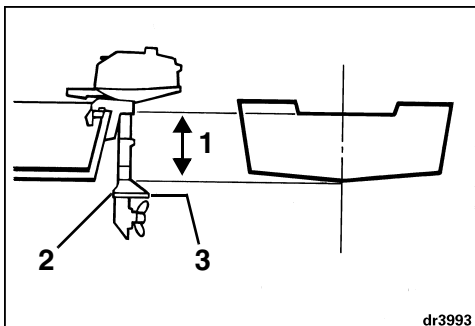
Boats designed for remote-steered engines might be overpowered by a tiller-steered engine of the maximum rated horsepower. Ask your DEALER or boat manufacturer if you are unsure about your boat's suitability.

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

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 1¼ in. (32 mm) and 1¾ in. (44 mm) in thickness.

### Transom Height and Shaft Length

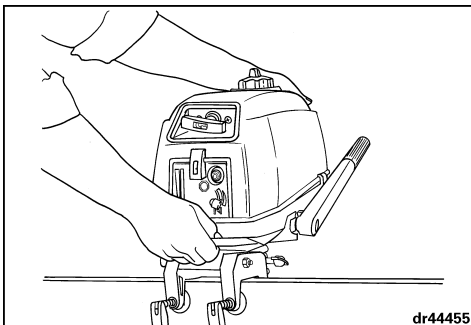
The transom height dimension listed in **Engine Specifications** is the height of the boat transom your engine needs. This dimension is measured at the transom centerline, perpendicular to the bottom of the boat.



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.



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. (51 mm) below it.

If the resulting position of the antiventilation plate is above or below the 0 to 2 in. (0 to 51 mm) 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.

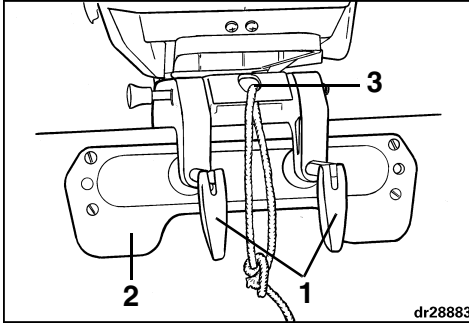
Higher than recommended — Serious powerhead damage could result from inadequate cooling or an over-revving propeller. Propeller ventilation (slip-page) often occurs, resulting in poor boat performance.

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

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

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.



1. Clamp screws
2. Transom plate
3. Retention lug

Connect a strong line to the engine and a secure place on the boat. If the engine leaves the boat during operation, a strong line will keep it from being lost.

After 15 minutes of engine operation, retighten the clamp screws. Check often to be sure they stay tight.

## Removing



## WARNING



Take care to prevent fuel spillage. Spilled fuel creates a fire hazard. Refer to Engine Stopping, Fuel Shut-off Valve, and Carrying and Transporting.

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*RECREATIONAL PRODUCTS*





# 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 Bombardier 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 division where the outboard was registered. Please contact your DEALER or distributor.



**Change of address**

**Change of ownership**

**Model number**

**Serial Number**

**Old address / Previous owner**

**Last name**

**First name**  **M.I.**

**Address**

**City**  **State**

**Zip code**  **Country**

**Phone number**

**Signature** \_\_\_\_\_ **Date** \_\_\_\_\_

**New address / New owner**

**Last name**

**First name**  **M.I.**

**Address**

**City**  **State**

**Zip code**  **Country**

**Phone number**

**Signature** \_\_\_\_\_ **Date** \_\_\_\_\_

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AFFIX  
STAMP  
HERE



**EVINRUDE / JOHNSON**  
**DEALER SUPPORT SERVICES**  
**250 SEAHORSE DRIVE**  
**WAUKEGAN, IL 60085**

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*RECREATIONAL PRODUCTS*





# **EVINRUDE**

# **Johnson**

## **GENUINE PARTS**

Welcome to the world of *Evinrude* and *Johnson* boating!

To optimize your outboard boating, **Bombardier** offers parts and accessories for your boat that integrate perfectly with your *Evinrude* or *Johnson* outboard. ***Evinrude* and *Johnson* Genuine Parts** and accessories are designed by the same engineering team that designed your outboard. We manufacture them to the same strict engineering standards and call them ***Evinrude* and *Johnson* Genuine Parts**.

You don't have to worry about product quality with ***Evinrude* and *Johnson* Genuine Parts**. Or, whether or not they will perform with your outboard. For example...

**OIL** — Protect your investment by using only *Evinrude* and *Johnson* lubricants. *Evinrude* and *Johnson* oils deliver superior lubrication in two cycle and four cycle outboards. The *Evinrude* and *Johnson* formulations minimize carbon deposits and keep the engine cleaner for optimal performance and longer life.

- *Evinrude* *Ficht Ram Injection* oil is a synthetic blend containing *CarbX™* combustion cleaner. This special additive has the cleaning power a direct injection outboard needs for peak performance. It exceeds *TC-W3* requirements and also works well in carbureted outboards.
- *Evinrude* and *Johnson* *XD25* formula outboard oil 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* Biodegradable outboard oil is a synthetic formula that doesn't smoke, doesn't smell, and doesn't leave a sheen on the water's surface. The formula is not only more responsible environmentally, it promotes the life of your outboard. It

exceeds *TC-W3* requirements and applicable international standards. It's six times more biodegradable than mineral based lubricants.

**PROPELLERS** — They're specially designed and engineered to match the power curves of *Evinrude* and *Johnson* engines AND the type of boat you use. It doesn't matter whether you have an offshore cruiser, a bass boat, a fish and ski, a runabout or a small fishing boat. *Evinrude* and *Johnson* *SST®*, *Renegade®* Bass, *Viper™*, and *Offshore Renegade®* propellers ensure your boat performs at its best.

**INSTRUMENTS** — Several distinct lines of instruments monitor your boat and engine systems. These instruments combine superior accuracy and state-of-the-art features to give you precise, dependable information.

**ENGINE CARE PRODUCTS** — A complete line of products helps you protect your boating investment. *2+4 Fuel Conditioner*, Engine Tuner, fogging oil, paints, cleaners, greases, and more help maintain your engine at maximum performance and reliability.

**FUEL** — Fuel system and oil injection system components and optional equipment kits specifically engineered for your outboard.

**STEERING AND CONTROLS** — Steering system kits and remote controls specifically designed for your outboard to keep you in control. ***Evinrude* and *Johnson* Genuine Parts** control cables feature a patented liner lubrication process for longer life and smoother operation.

**ACCESSORIES** — Optional equipment kits, safety equipment, and performance products will help you enjoy your time on the water.

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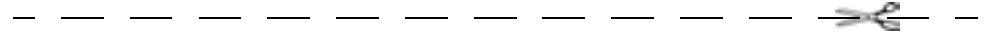


# Operator's Guide Confirmation of Receipt

## 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)
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>Johnson</i> Outboard. I have also received a copy of the Operator's Guide.	
Signature:	_____
Date:	_____

# 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.**



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