

2005

Johnson®

4 Stroke

60/70 HORSEPOWER

PL4



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:

Evinrude®

Evinrude®/Johnson® Genuine Parts

Evinrude®/Johnson® 4-Stroke outboard oil

Evinrude®/Johnson® Ultra™ 4-Stroke synthetic blend oil

Evinrude®/Johnson® anti-corrosion spray

2+4® fuel conditioner

Johnson®

Hi-Vis™ gearcase lubricant

S.L.O.W.™

SystemCheck™

Triple-Guard® grease

Ultra-HPF™ gearcase lubricant

99011-99E07-BBD

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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!

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

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


	CAUTION	
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.		


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* 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 or 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.



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* 4-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*® 4-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:

THIRTY-SIX (36) CONSECUTIVE MONTHS for private, recreational use; or

TWELVE (12) CONSECUTIVE MONTHS for commercial use, except that emission-related components providing input to emission controls (e.g. sensors) are warranted for twenty-four (24) months or two hundred (200) hours of engine use, whichever occurs first. 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.

California residents who purchased or warranty-registered a Product in California should refer to BMCA's California Emissions Control Warranty Statement.

3. CONDITIONS TO HAVE WARRANTY COVERAGE

This warranty coverage is available only on *Johnson* 4-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 4-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* 4-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.

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

Your *Johnson* 4-stroke outboard has a special environmental label required by the California Air Resources Board. The label has one, two, three, or four stars. A hangtag, provided with your outboard, describes the meaning of the star rating system.

The Star Label means Cleaner Marine Engines



The Symbol for Cleaner Marine Engines:

Cleaner Air and Water

For a healthier lifestyle and environment.

Better Fuel Economy

Burns up to 30 to 40 percent less gas and oil than conventional carbureted two-stroke engines, saving money and resources.

Longer Emission Warranty

Protects consumer for worry free operation.

One Star – Low Emission

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

Two Stars – Very Low Emission

The two-star label identifies Personal Watercraft, Outboard, Sterndrive and Inboard engines that meet the Air Resources Board's Personal Watercraft and Outboard marine engine 2004 exhaust emission standards. Engines meeting these standards have 20% lower emissions than One Star – Low Emission engines.

Three Stars – Ultra Low Emission

The three-star label identifies engines that meet the Air Resources Board's Personal Watercraft and Outboard marine engine 2008 exhaust emission standards or the Sterndrive and Inboard marine engine 2003 exhaust emission standards. Engines meeting these standards have 65% lower emissions than One Star – Low Emission engines.

Four Stars – Super Ultra Low Emission

The four-star label identifies engines that meet the Air Resources Board's Sterndrive and Inboard marine engine 2009 exhaust emission standards. Personal Watercraft and Outboard marine engines may also comply with these standards. Engines meeting these standards have 90% lower emission than One Star – Low Emission engines.

For more information: Cleaner Watercraft – Get the Facts
1-800-END-SMOG
www.arb.ca.gov

YOUR EMISSION CONTROL WARRANTY RIGHTS AND OBLIGATION

The California Air Resources Board and Bombardier Motor Corporation of America ("BMCA") are pleased to explain the emission control system warranty on your *Johnson* 4-stroke outboard. In California, new outboard engines must be designed, built, and equipped to meet the State's stringent anti-smog standards. BMCA must warrant the emission control system on your outboard for the periods of time listed below provided there has been no abuse, neglect, or improper maintenance of your outboard.

Your emission control system may include parts such as the carburetor or fuel injection system, the ignition system, and catalytic converter. Also included may be hoses, belts, connectors, and other emission-related assemblies.

Where a warrantable condition exists, BMCA will repair your outboard at no cost to you including diagnosis, parts, and labor provided that such work is performed by an authorized BMCA dealer.

Manufacturer's Limited Warranty Coverage

This emission limited warranty covers *Johnson* 4-stroke outboards certified and produced by BMCA for sale in California, that are originally sold in California to a California resident, or subsequently warranty-registered to a California resident. The BMCA U.S. and Canada limited warranty conditions for *Johnson* 4-stroke outboards are still applicable to these models with the necessary modifications.

Select emission control parts of your *Johnson* 4-stroke outboard are warranted 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: 4 years, or for 250 hours of use, whichever occurs first.

However, warranty coverage based on the hourly period is only permitted for outboards equipped with the appropriate hour meters or their equivalent. If any emission-related part on your engine is defective under warranty, the part will be repaired or replaced by BMCA.

Parts covered are:

Component	Carbureted	SPFI
Thermostat	X	X
Electrical System		
Engine/Ignition Control Module	X	X
Spark Plugs, Boots, and/or Wires	X	X
Ignition Coils	X	X
Wiring Harness	X	X
Exhaust System		
Engine Holder	X	X
Oil Pan	X	X
Exhaust Housing	X	X
Exhaust Valves	X	X
Fuel System		
Fuel Pump(s)	X	X
Fuel Injectors		X
Vapor Separator		X
Carburetor and Internal Parts	X	
Accelerator Pump	X	
Choke System	X	
Crankcase Ventilation System Components	X	X
Fuel Lines, Fittings, Clamps	X	X
Air Induction System		
Timing Chain/Belt and Tensioner	X	X
Camshaft and Followers	X	X
Intake Valves	X	X
Electronic Dash Pot System		X
Throttle Body Assembly		X
Idle Air Control		X
Closed Throttle Position Switch		X
Throttle Linkage	X	X
Intake Manifold	X	X
Sensors		
Air Temperature Sensor		X
Cam Position Sensor		X
Crankshaft Position Sensor	X	X
Throttle Position Sensor		X
Exhaust Temp Sensor		X
Intake Manifold Pressure Sensor		X
Cylinder Temperature Sensor	X	X
Gaskets		
All Emission Component Gaskets	X	X

The emission warranty covers damage to other engine components that is caused by the failure of a warranted part.

The BMCA Operator's Guide provided contains written instructions for the proper maintenance and use of your outboard. All emission warranty parts are warranted by BMCA for the entire warranty period of the outboard, unless the part is scheduled for replacement as required maintenance in the Operator's Guide.

Emission warranty parts that are scheduled for replacement, as required maintenance, are warranted by BMCA for the period of time before the first scheduled replacement date for that part. Emission warranty parts that are scheduled for regular inspection but not regular replacement are warranted by BMCA for the entire warranty period of the outboard. Any emission warranty part repaired or replaced under the terms of this warranty statement is warranted by BMCA for the remainder of the warranty period of the original part. All parts replaced under this limited warranty become the property of BMCA.

Maintenance receipts and records should be transferred to each subsequent owner of the outboard.

Owner's Warranty Responsibilities

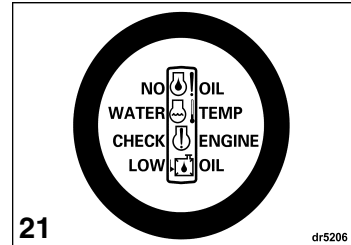
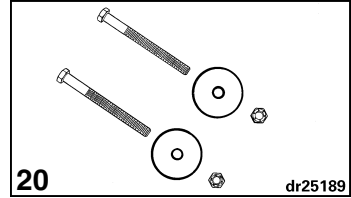
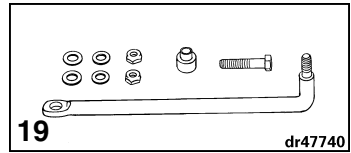
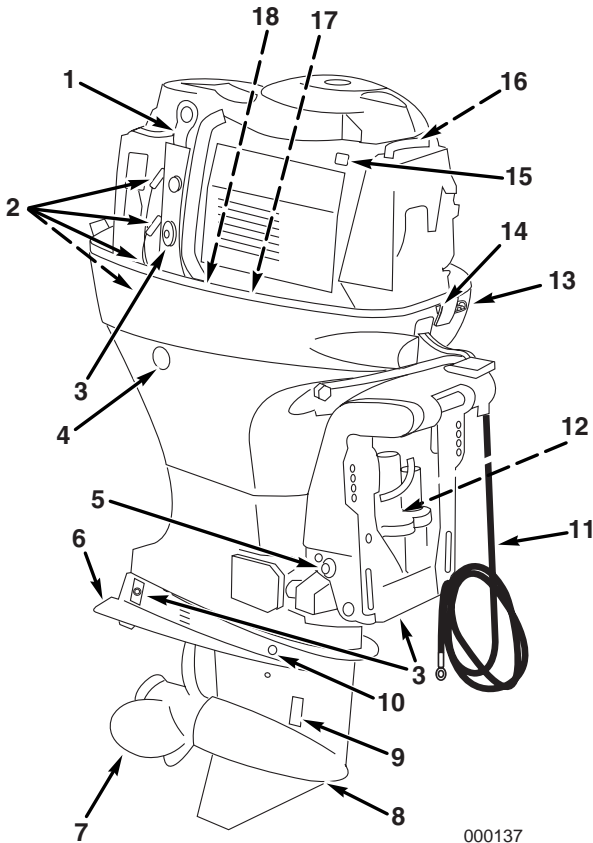
As the outboard owner, you are responsible for the performance of the required maintenance listed in your Operator's Guide. BMCA recommends that you retain all receipts covering maintenance on your outboard, but BMCA cannot deny warranty solely for the lack of receipts or your failure to ensure the performance of all scheduled maintenance.

As the outboard owner, you should however be aware that BMCA may deny you warranty coverage if your outboard or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.

You are responsible for presenting your outboard to an authorized BMCA dealer as soon as a problem exists. The warranty repairs will be completed in a reasonable amount of time, not to exceed 30 days.

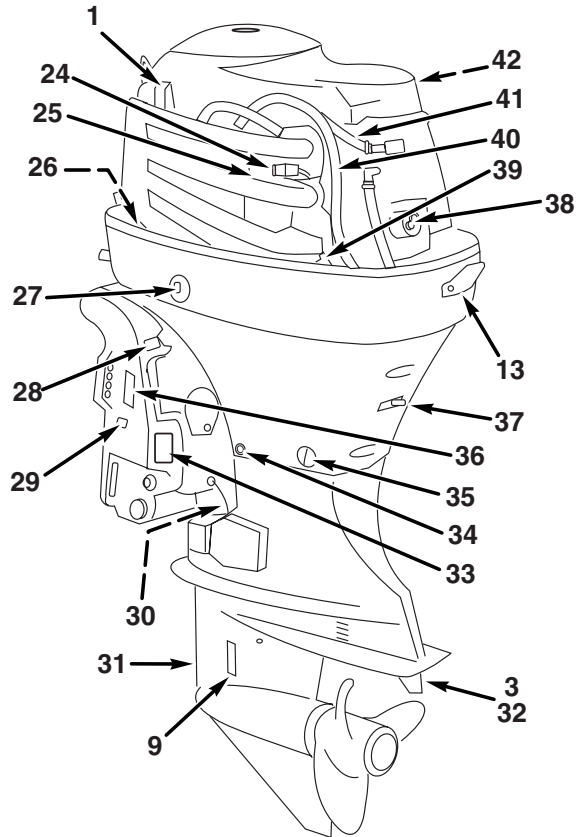
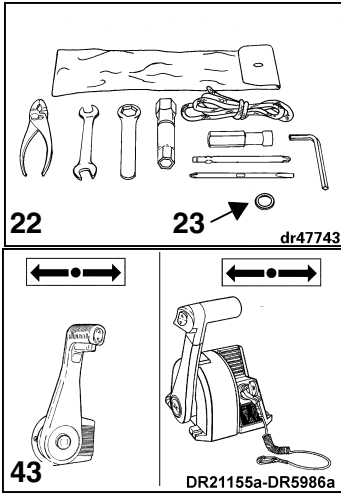
For any questions regarding your warranty rights and responsibilities or for the name and location of the nearest authorized BMCA dealer, contact Bombardier Motor Corporation of America Customer Support Services, 250 Sea Horse Drive, Waukegan, IL 60085, 1-847-689-7090 or visit www.johnson.com.

FEATURES



Item	Description	Item	Description
1	Lifting Eye	12	Power Trim/Tilt Reservoir
2	Spark Plugs	13	Fuel Connector
3	Anticorrosion Anode	14	Engine Cover Latch
4	Emissions Testing Port	15	30-Amp Fuse and Spare Fuse
5	Trim Limiter Rod	16	Starter Motor Pinion
6	Antiventilation Plate	17	Crankcase Oil Filter
7	Propeller ⁽¹⁾	18	Water Pipe and O-Ring
8	Gearcase Lube Drain/Fill Plug	19	Steering Connector
9	Engine Water Intakes	20	Installation Hardware
10	Gearcase Lube Level Plug	21	SystemCheck™ gauge ⁽¹⁾
11	Battery Cable		

(1) not supplied with outboard



000138

Item	Description	Item	Description
22	Tool Kit	33	Emission Control Information Label
23	Crankcase Oil Drain Screw Gaskets	34	Crankcase Oil Drain Screw
24	15-Amp Fuse and Spare Fuses	35	Flushing Port
25	Electric Fuel Pump	36	Model and Serial Number Plate
26	Fuel Line Filter	37	Water Pump Indicator
27	Trailing Tilt Switch	38	Oil Fill Cap
28	Tilt Support	39	Dipstick
29	Power Trim/Tilt Manual Release	40	Fuel Hose
30	Speedometer Hose Connector	41	Breather Hose
31	Speedometer Water Intake	42	Timing Belt
32	Trim Tab/Anode	43	Remote control ⁽¹⁾

(1) not supplied with outboard

ENGINE SPECIFICATIONS

60, 70 Models	
Displacement	79.2 cu. in. (1298 cc)
Engine Type	Four-Cycle, In-line, 4 Cylinder Electronic Fuel Injection
Full Throttle Operating Range	60 - 4700 to 5300 RPM 70 - 5200 to 5800 RPM
Power ⁽¹⁾	60 - 60 HP (44.1 kw) @ 5000 RPM 70 - 70 HP (51.5 kw) @ 5500 RPM
Idle RPM in Gear ⁽²⁾	700 ± 50
Ignition Timing – Idle ⁽²⁾ W.O.T.	Not Adjustable Not Adjustable
Exhaust Emission Control System: per SAE J1930 ⁽²⁾	SFI
Fuel Requirements ⁽²⁾	87 Pump Posted AKI (90 RON) – Refer to Fuel and Oil
Crankcase – Oil Capacity Filter	<i>Evinrude/Johnson Ultra™</i> 4-Stroke synthetic blend oil 4.8 qts. (4.5 Liters) See your Dealer
Warning Signals	Engine Overheat and Low Oil Pressure
Ignition Features	<i>S.L.O.W.™</i>
Starting	Remote electric
Battery, Minimum ⁽³⁾	12-Volt, 500 CCA (620 MCA) with 160 minutes reserve capacity OR 100 ampere-hour
Spark Plug ⁽²⁾ Torque	Refer to ECI Label 18 to 21 ft. lbs. (24 to 28 N·m)
Fuse	Refer to Fuses
Fuel Line Filter	P/N 5030702
Alternator	17-Amp, Fully Regulated
Gearcase – Lubricant Capacity	<i>Evinrude/Johnson Ultra-HPF™</i> gearcase lubricant 35.5 fl. oz. (1050 ml)
Pwr. Trim/Tilt - Fluid Capacity	21 fl. oz. (622 ml)
Propeller ⁽³⁾	60 - See your Dealer 70 - See your Dealer
Weight	359 lbs. (163 kg)
Sound at Driver's Ear (LpA) ICOMIA 39.94	60 - 76.7 dB(A) 70 - 78.6 dB(A)
Transom Height	19 1/2 to 20 in. (49.5 to 50.8 cm)

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

(2) Emission Control Information.

(3) Not supplied in all marketing areas.

REMOTE CONTROL

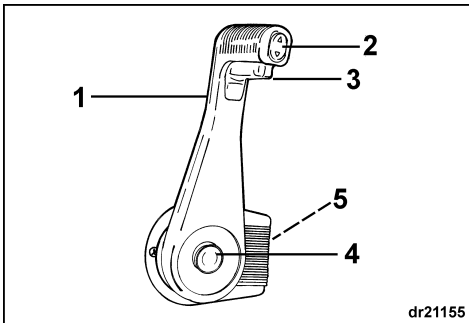
⚠ **WARNING** ⚠

If you choose a non-Evinrude/Johnson remote control, be sure it has a start-in-gear prevention feature. This feature can prevent injuries resulting from unexpected boat movement when the engine starts.

IMPORTANT: When selecting the remote control system for your boat, specify *Evinrude/Johnson* components. *Evinrude/Johnson* offers remote controls, cables and wiring kits designed specifically for your *Evinrude/Johnson* outboards. *Evinrude/Johnson* controls deliver the cable stroke your outboard needs for positive shift and throttle control, and they incorporate such safety and convenience features as:

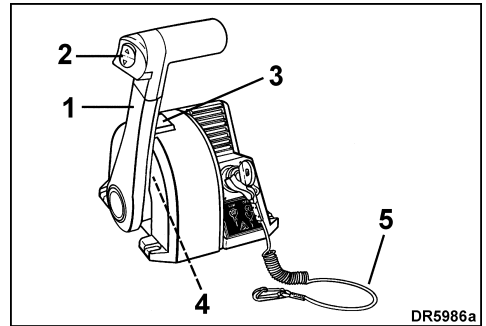
Start-in-gear prevention

Plug-in compatibility with *Evinrude/Johnson* modular wiring system



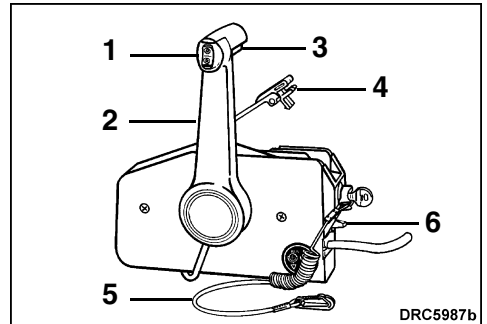
Evinrude/Johnson concealed side mount control

1. Handle – shift and throttle
2. Trim/tilt switch (where equipped)
3. Neutral lock tab
4. Fast idle button
5. Throttle friction control



Evinrude/Johnson binnacle mount control

1. Handle – shift and throttle
2. Trim/tilt switch (where equipped)
3. Fast idle button
4. Throttle friction control
5. Emergency stop clip and lanyard



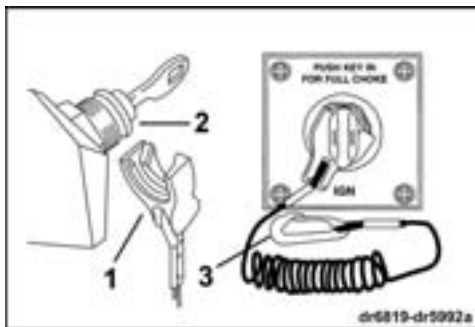
Evinrude/Johnson side mount control

1. Handle – shift and throttle
2. Trim/tilt switch (where equipped)
3. Neutral lock tab
4. Fast idle lever
5. Emergency stop clip and lanyard
6. Throttle friction control

Emergency Stop/Key Switch

A combination emergency stop switch and key switch is a feature of *Evinrude/Johnson* prewired remote controls and all *Evinrude/Johnson* control wiring kits. Use of the emergency stop feature is highly recommended on all boats.

Connect the clip to the emergency stop/key 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 and retie the lanyard. In an emergency situation, the engine can be started without the clip in place. Follow the normal starting procedure. Reinstall a clip as soon as possible.



1. Clip
2. Emergency stop / key switch
3. Lanyard



WARNING



Avoid knocking or pulling the clip off the stop switch during normal boating. Avoid bumping the key if operating without the clip on the switch. 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.

ENGINE MONITORING

IMPORTANT: Your outboard must be equipped with the *SystemCheck*[™] (or equivalent) engine monitor. Operating your outboard without the *SystemCheck* (or equivalent) engine monitor will void your warranty for failures related to the functions monitored on your engine.

When you turn the key switch ON, the *SystemCheck* engine monitor horn performs a self-test by sounding a 1/2-second beep. The gauge self-tests by turning the warning lights on, then off in sequence. During engine start-up, pause with the key switch in the ON position to observe the horn and gauge perform the self-test. If the self-test does not happen as stated, see your Dealer.

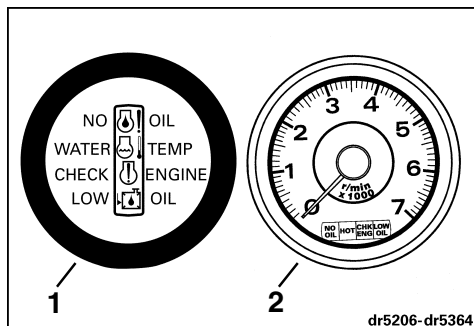
The *SystemCheck* engine monitor alerts the operator with a 10-second beep of the horn and a warning light on the gauge when certain engine problems occur. **The appropriate warning light will stay on until the key switch is turned OFF.**

If the engine management module (*EMM*) senses that the problem could cause permanent engine damage, it will also limit engine speed to 3000 RPM. This additional protection feature is referred to as *S.L.O.W.*[™] If the engine was running faster than 3000 RPM when the *S.L.O.W.* system activated, it will shake noticeably.

CAUTION

In the *S.L.O.W.* mode, the engine speed is limited. Under certain conditions, the engine's limited speed may reduce maneuverability of your boat.

If the *S.L.O.W.* mode is activated and you are unable to correct the problem, seek assistance and/or return to safe harbor. Serious engine damage, engine shutoff, and/or reduced maneuverability may be imminent.



1. *SystemCheck* Gauge
2. *SystemCheck* Gauge with Tachometer

"NO OIL"

The engine's oil pressure is too low to continue normal operation. Serious engine damage can occur quickly. The *EMM* will limit the engine speed to 3000 RPM.

Causes of low oil pressure can include:

- Insufficient oil in the crankcase.
- Air in the system causing oil to foam.
- Malfunction of oil delivery components.
- Blockage of oil system components.

To RESET the *S.L.O.W.* protection system – Slow the engine to 800 RPM or shut it OFF.

Return to harbor if you cannot restore adequate oil pressure. For more information about evaluating low oil pressure, refer to **Low Oil Pressure Warning**.

"WATER TEMP" or HOT

The engine is overheating. Serious engine damage can occur quickly.

If the engine is overheating, it will also activate *S.L.O.W.* and limit engine speed to 3000 RPM.

IMPORTANT: Refer immediately to **Engine Overheating**.

FUEL AND OIL

FUEL

Minimum Octane



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

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 owner manual.

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

Your 4-stroke engine requires oil in the crankcase.

Evinrude/Johnson Ultra 4-Stroke synthetic blend oil is recommended for this outboard engine. It allows for extended oil change intervals and is best for high load applications. *Evinrude/Johnson Ultra 4-Stroke synthetic blend oil* delivers ultra viscosity stability, sludge protection, friction reducing properties, and superior corrosion protection.

If *Evinrude/Johnson Ultra 4-Stroke synthetic blend oil* is unavailable, you may use *Evinrude/Johnson 4-Stroke outboard oil*. This oil provides excellent wear and corrosion resistance under normal operating conditions. For your engine's oil capacity, refer to **Engine Specifications**.

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 SYSTEM



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: 4-Stroke outboards are shipped without oil in the crankcase. You must add oil to the crankcase before starting the engine for the first time. It is recommended you add *Evinrude/Johnson* 4-Stroke outboard oil. Refer to **Changing the Oil** for acceptable substitute lubricants.

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.

High speed operation without sufficient engine warm-up can result in engine damage.

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 water.

DO NOT leave a running engine unattended.

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

- Read **Engine Starting, Engine Stopping and Speed Control.**
- Check the crankcase oil level. Refer to **Crankcase Oil and Filter.**
- 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.
- Change the RPM often. Avoid holding a throttle setting longer than 15 minutes.
- Check the crankcase oil level often. Add oil if needed.

First 10 minutes of operation — Operate engine in gear at idle only.

Balance of First 2 hours of operation — Operate in gear below 3500 RPM or 1/2 throttle only.

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

Third hour of operation — Run the engine in gear at various speeds up to 4000 RPM or 3/4 throttle only.

Balance of first 10 hours of operation — Run the engine in gear at various engine speeds including full throttle, but remain at full throttle no longer than 5 minutes.

Change the 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.



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

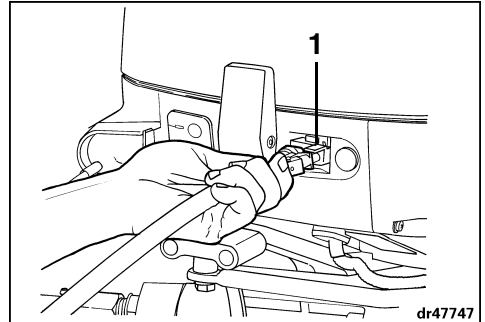
Verify crankcase oil level before start-up. Refer to **Crankcase Oil and Filter**.

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**.

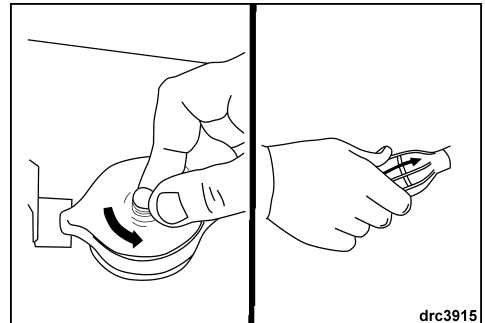
Be sure the engine is in **RUN** position. Refer to **Power Trim and Tilt** or **Tilting**.

Connect the fuel hose to the fuel connector.

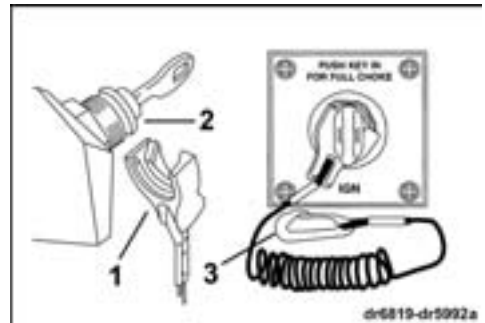


1. Fuel hose to fuel connector

If the fuel tank has an operable vent, open it. Squeeze the fuel primer bulb, outlet end up, until firm.



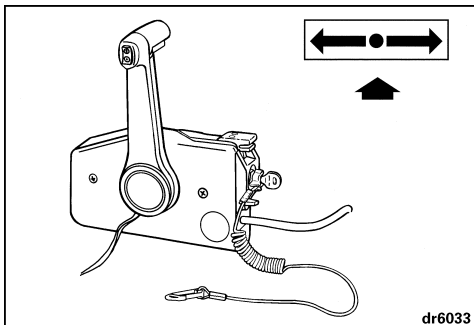
Connect the clip to the emergency stop/key switch. Snap the lanyard to a **secure** place on the operator's clothing or life vest — not where it might tear away instead of activating the stop switch.



1. Clip
2. Emergency stop / key switch
3. Lanyard

IMPORTANT: The engine will start and run without the clip connected to the key switch. However, we strongly recommend that the operator use the clip and lanyard anytime the engine is running. Refer to **Emergency Stop/Key Switch**.

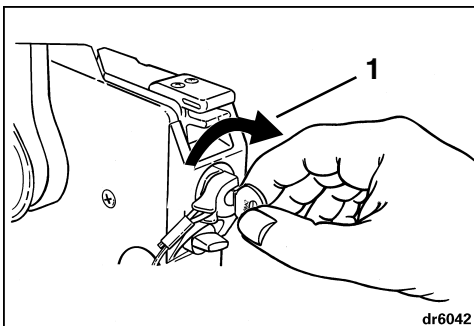
Move the remote control handle to NEUTRAL. Refer to **Shifting and Speed Control**.



1. NEUTRAL

Start-up

Turn the key switch fully clockwise to the START position. Crank the engine no longer than 10 seconds.



1. START

IMPORTANT: The starter motor can be damaged if operated continuously for more than 10 seconds.

Upon start-up, release the key.

If the engine did not start, release the key momentarily, then try again.

Each time the key switch is turned from OFF to ON, the warning system will self-test. Refer to **Engine Monitoring**. If the warning system fails to self-test during start-up, see your Dealer.

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

After Engine Starts

DO NOT turn the key switch to START while the engine is running. Damage to the starter system could result.

Allow the engine to idle in NEUTRAL for about 5 minutes to warm up before shifting.

IMPORTANT: To avoid engine damage after start-up do not exceed 2000 RPM in NEUTRAL. Do not exceed 1500 RPM in NEUTRAL for extended periods of time.

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**.



ENGINE STOPPING

Move control handle to NEUTRAL.

Turn key switch counterclockwise to OFF. Remove the key when the boat will be unattended.

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

The engine's *EMM* draws a small amount of current at all times. When you are not planning to run your engine within the next 30 days:

- If your boat is equipped with a battery switch, turn it OFF.
- If you have no battery switch, remove the 30-amp fuse. Refer to **Fuses**.

IMPORTANT: With the 30-amp fuse removed, the engine will not crank or start. Place a note on your ignition key to install the fuse before your next outing.

SHIFTING AND SPEED CONTROL

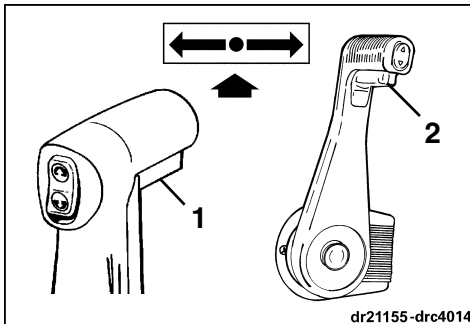
IMPORTANT: Carefully check the function of all control and engine systems before leaving the dock. DO NOT shift the engine into FORWARD or REVERSE while it is shut off. If the following directions are not suitable for your boat's control, see your Dealer before proceeding.

Shifting

With engine running and control handle in NEUTRAL:

Side Mount and Concealed Side Mount Control

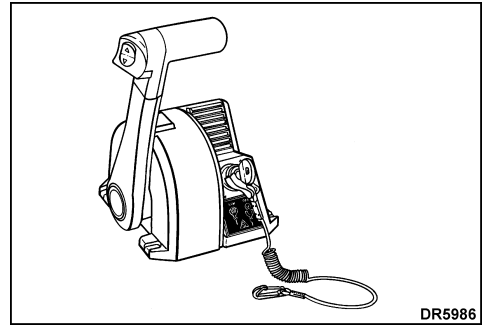
Unlock the control handle (lift the neutral lock tab by squeezing the hand grip). Briskly and decisively, move the control handle fore or aft — until it engages the gear detent.



1. Side mount NEUTRAL lock tab hand grip
2. Concealed side mount NEUTRAL lock tab hand grip

Binnacle Mount Control

Briskly and decisively, move the control handle fore or aft — until it engages the gear detent.



IMPORTANT: When shifting from FORWARD to REVERSE or from REVERSE to FORWARD, pause at NEUTRAL until the engine is at idle speed and the boat has slowed.

Speed Control

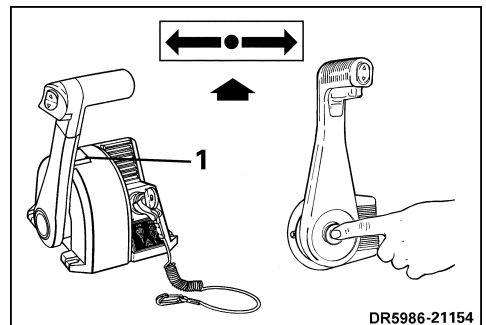
After gear engagement, move the control handle slowly in the same direction to increase speed.

Fast Idle in NEUTRAL

Concealed Side Mount and Binnacle Mount Controls

IMPORTANT: Avoid excessive engine RPM in NEUTRAL — adjust the throttle so the engine does not overspeed.

With the control handle in NEUTRAL, push the fast idle button while using the other hand to move the control handle forward, past the forward gear detent and into the throttle range. If equipped with a neutral lock tab, squeeze it to begin handle travel.



1. Fast idle button

When ready to shift, move the control handle back to NEUTRAL. Engine speed will reduce and the shift function will automatically engage for movement into FORWARD or REVERSE.

On models with *QuikStart* electronic starting or fuel injection, use the Fast Idle in NEUTRAL feature only to clear a flooded condition. Refer to **Trouble Check Chart**.

EMERGENCY STARTING



WARNING



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

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.

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

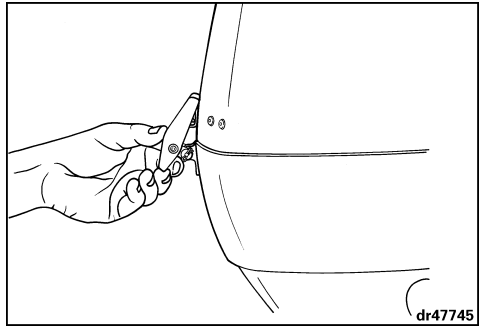
DO NOT turn flywheel by hand. Use starter cord only.

If the electric starter fails or the battery's voltage is too low to power the starter, use the cord from the supplied tool kit and these instructions to start your engine manually.

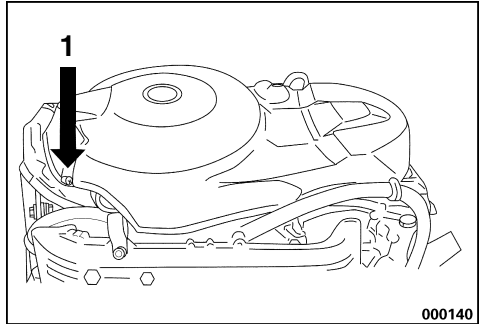
IMPORTANT: The battery must have enough reserve voltage to activate the electric pump or the engine will not start using the emergency starting procedures. Do your best to determine battery status by listening for the electric fuel pump audible cycle before continuing the emergency starting procedures. The electric fuel pump cycles each time the key switch is turned from OFF to ON.

Place key switch in OFF position with the motor in normal operating position. Refer to **Power Trim and Tilt**.

Move the control handle to NEUTRAL, then remove engine cover.

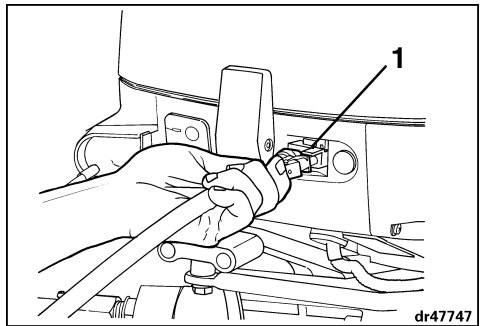


Loosen the screw securing the flywheel cover and remove the flywheel cover.



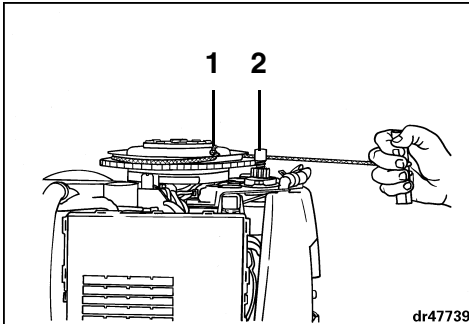
1. Flywheel cover screw

Connect the fuel hose to the fuel connector.



1. Fuel hose to fuel connector

Tie knot in each end of the emergency starter cord. Thread the small bar from the tools kit halfway through one knot so it forms a handle. Hook the other knot in the notch on the flywheel and wind the cord clockwise around the flywheel. Make sure the knot will clear the starter pinion.



1. Knot
2. Starter pinion

Connect the clip to the emergency stop / key switch. Turn the key switch to the ON position ONLY and listen carefully for the electric fuel pump to cycle.

While seated, pull the starter cord quickly and completely. The first pull is needed to energize the electrical system. Rewind the starter cord and pull again. Repeat as needed until the engine starts.

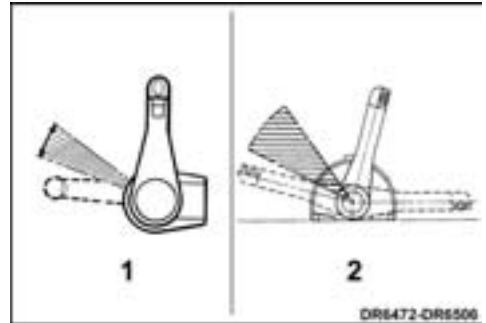
If your engine's electrical system is functional, the alternator should charge the battery once the engine is running. If it is not, the engine will quit running once the battery voltage is too low to power the electrical components and the *EMM*.

DO NOT attempt to replace the flywheel cover or the engine cover while the engine is running.

Snap lanyard to secure place on clothing and proceed to the nearest landing for service.

FUEL ECONOMY

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



1. Concealed side mount control
2. Binnacle mount control

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.

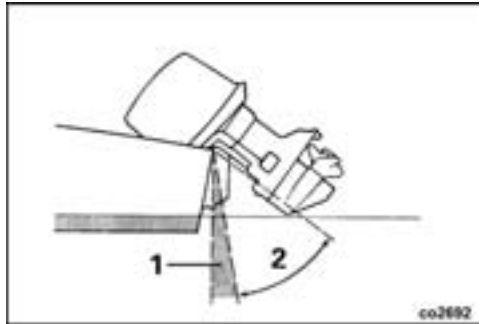


WARNING



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.

The power tilt is often used to tilt the engine for clearance when beaching, mooring, or launching.



1. Trim range
2. Tilt range

Trim Gauge

The trim gauge indicates the bow position that is achieved by the trim angle of your motor.

POWER TRIM AND TILT



WARNING



Any malfunction of the power trim and tilt unit could result in loss of shock absorber protection if an underwater obstruction is hit. Malfunction can also result in loss of reverse thrust capability.

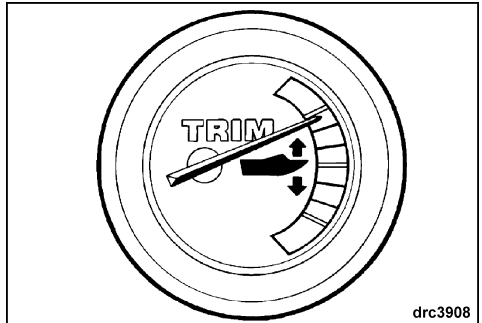
The trim system features a trim range of 30°:

You can pivot the engine to any position within this range while underway and at any boat speed.

The power trim is normally used to improve acceleration, speed, and ride quality and to adjust for changing water conditions.

The tilt system will tilt your engine an additional 45°:

While positioned within the tilt range, **DO NOT** run the engine faster than idle speed. If idling a tilted engine, keep its water intakes submerged at all times.

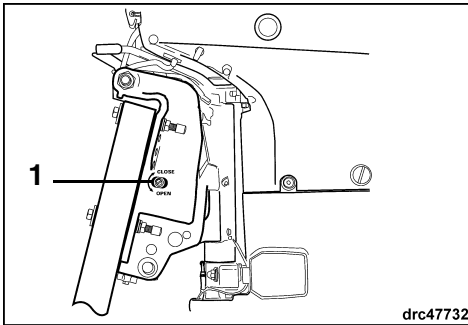


Manual Release

WARNING

Keep everyone clear of a tilted engine when backing out the manual release screw. The engine could drop suddenly and forcibly. Be sure to tighten the manual release screw after manually repositioning the engine. Tightening the screw also reactivates the engine's shock absorber protection and reverse thrust capability.

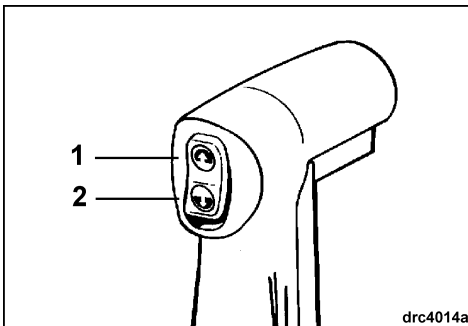
If needed, the outboard will tilt up or down manually: Turn the manual release screw counterclockwise, slowly, about 2 turns. Reposition the engine. Tighten the manual release screw to hold the engine in its new position.



1. Manual release screw

Tilting

To operate the power tilt, push and hold the trim/tilt switch in the bow-up or bow-down position. The engine will tilt up or down until the switch is released or the engine reaches the end of its travel.



1. Bow up
2. Bow down

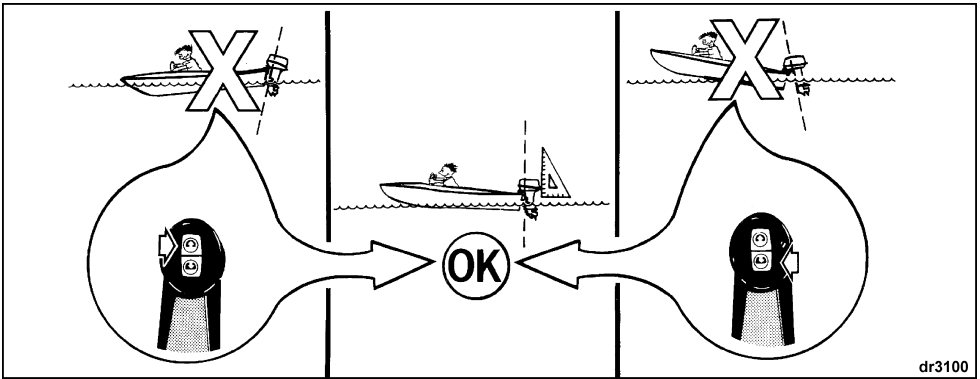
Trimming

To operate the power trim, push and hold the trim/tilt switch in the desired bow direction, either bow-up or bow-down. The engine will move until the switch is released or the engine reaches its maximum position.

The boat will be properly trimmed when the trim angle provides a bow position that results in the best boat performance for your operating conditions.

You must use a speedometer and tachometer to determine boat and engine performance at different trim positions. To help maintain steering stability and good performance, always maintain the proper trim angle, which varies depending on the combination of boat, motor, propeller, and operating conditions.

To familiarize yourself with power trim, make test runs with the boat's bow at various positions. Note the time it takes for the boat to plane, the tachometer and speedometer readings, and the ride and action of the boat.



dr3100

Bow-Up

BOW-UP position will give the best fuel economy and highest top speed.

Operating Conditions:

In the bow-up position, your boat may tend to pull to the left. If this condition exists, correct it by applying a clockwise force with the steering wheel to keep on a straight path. The trim tab can also be adjusted to compensate for steering wheel torque, but adjust the trim tab only if bow-up is commonly used. Refer to **Trim Tab**.

When the motor is trimmed to full bow-up position, the boat's bow will tend to rise above the water.

Excessive bow-up trim may cause propeller ventilation, resulting in propeller slippage.

Bow-Down

BOW-DOWN position will give the best acceleration onto plane and the best towing power for skiing. The bow-down position is normally used for accelerating from a standing start or from idle speed.

Operating Conditions:

In the bow-down position, your boat may tend to pull to the right. If this condition exists, correct it by applying a counterclockwise force with the steering wheel to keep on a straight path. The trim tab can also be adjusted to compensate for this steering wheel torque, but adjust the trim tab only if bow-down is commonly used. Refer to **Trim Tab**.

When the motor is trimmed to full bow-down position, the boat's bow will tend to go deeper into the water (plow).

IMPORTANT: Some boats plow, or are difficult to plane, when operated in the trim's lowest position. If your boat handles unsuitably when trimmed fully bow-down, set the angle adjusting rod or trim limiter rod to limit the travel of the power trim. If your motor is not equipped with this rod, purchase one from your Dealer.

WARNING

When operating in rough water or crossing a wake, excessive bow-up trim may result in the boat's bow suddenly rising skyward, possibly ejecting occupants.

WARNING

If the bow of the boat plows the water at high speeds, the boat may bow steer or spin suddenly, possibly ejecting occupants.

WARNING

Some boat/motor/propeller combinations may encounter boat instability and/or high steering torque when operated at high speed at or near the motor's trim range limits (full bow-up or bow-down). Boat stability and steering torque can also vary due to changing water conditions. If any adverse conditions occur, reduce throttle and/or adjust trim angle to maintain control. If you experience boat instability and/or high steering torque, see your Dealer to correct these conditions.

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. Depending on the model, refer to **Tilt Support** or **Power Trim and Tilt**.

FLUSHING

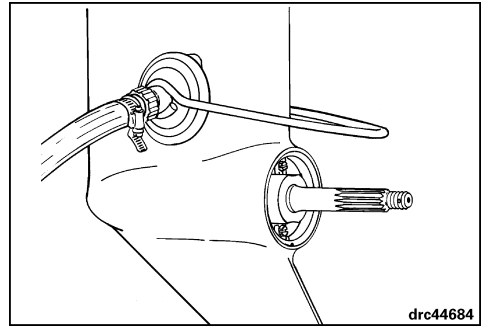
	DANGER	
<p>DO NOT run the engine indoors or without adequate ventilation or permit exhaust fumes to accumulate in confined areas. Engine exhaust contains carbon monoxide which, if inhaled, can cause serious brain damage or death.</p>		

See your Dealer for a flushing device designed to fit your engine. Follow manufacturer's instructions for installing and using it.

Outboard — Running

	WARNING	
<p>Prevent injury from contact with rotating propeller; remove the propeller before flushing.</p>		

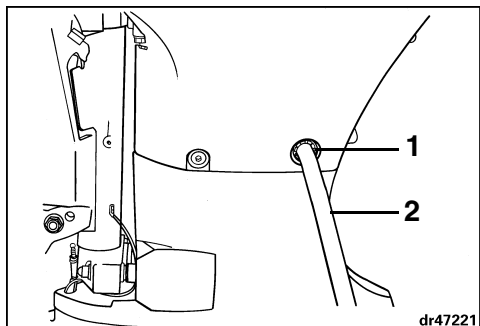
- 1) Place the engine in vertical position in a well-ventilated area with good drainage.
- 2) Install flushing device and garden hose.



- 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).
- 5) Start the engine — **run it at idle only** and flush it for at least five minutes. Check the water pump indicator. A steady stream of water must flow. If it does not, shut **OFF** the engine and investigate. Refer to **Engine Overheating**.
- 6) Shut **OFF** the engine and remove the flusher. Install the plug.
- 7) Leave the outboard in vertical position long enough to completely drain the powerhead.

Outboard — Not Running

- 1) Place the engine in a tilted or vertical position.
- 2) Remove the plug from the flushing port.
- 3) Install flushing device (if needed) and garden hose.



1. Flushing port
2. Garden hose

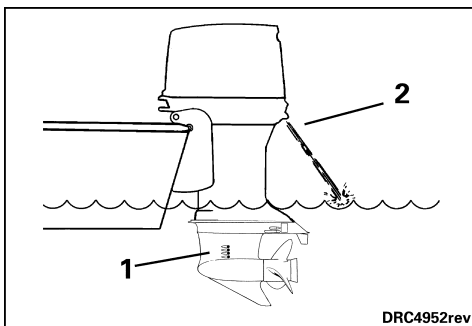
- 4) Start the water and flush the engine for at least five minutes — keep pressure between 20 to 40 psi (140 to 300 kPa).
- 5) Remove the flusher (if used). Install the plug.
- 6) Lower the outboard to vertical position long enough to completely drain the powerhead.

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 engine overheats, its *SystemCheck* engine monitor will sound the warning horn and turn on the "WATER TEMP" or HOT light. Also, the *EMM* will immediately limit the engine's speed to 3000 RPM. This additional protective feature is referred to as *S.L.O.W.* If the engine was running faster than 3000 RPM when the *S.L.O.W.* system activated, it will shake noticeably. To **RESET** the *S.L.O.W.* protection system, reduce the engine to 800 RPM or shut it OFF.

IF the *S.L.O.W.* protection system activates and the stream from the water pump indicator becomes intermittent or stops, reduce speed to idle and:

Shift to **NEUTRAL**;

SHUT OFF the engine;

Tilt the motor up;

Clean the intake screens of any blockage;

Clean the water pump indicator of any blockage;

Lower the motor; and

Restart the engine and run at idle.

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

IF cleaning the screens and indicator does restore the water pump indicator's steady discharge, you might have to run for two minutes in **NEUTRAL** to allow the engine to cool and the light to go off.

If the warning light stays on after two minutes, **STOP** the engine and see your Dealer.

IMPORTANT: You must restore cooling to the engine to avoid serious engine damage.

After any overheat, have your Dealer:

Torque the exhaust manifold bolts and zinc anode cover and the cylinder head screws.

Inspect the water pump for excessive wear or damage.

Inspect the water pipe and its O-ring.

Inspect the condition and sealing of the exhaust manifold gasket.

Inspect the thermostats.

Inspect the engine for leaks.

Inspect water pressure valve.

Check engine oil level.

Low Oil Pressure Warning

Should the oil pressure drop to a dangerously low level, the *SystemCheck* engine monitor will sound the horn and turn on the "NO OIL" light. Also, the *EMM* will immediately limit the engine speed to 3000 RPM. This additional protective feature is referred to as *S.L.O.W.* If the engine was running faster than 3000 RPM when the *S.L.O.W.* system activated, it will shake noticeable.

In case of low oil pressure:

Shut OFF engine.

If tilted, place the engine in vertical position.

Check the oil level on the dipstick and add oil, if needed. Refer to **Crankcase Oil and Filter and Engine Specifications.**

Examine the oil fill cap, filter, and drain screw for evidence of leakage. Make sure each is tight.

If dipstick shows that the oil level is okay, leave the engine upright and shut off for 10 minutes, then start it. If the engine still limits itself to about 3000 RPM, see your Dealer.

IMPORTANT: DO NOT attempt to run your engine if it repeatedly loses oil pressure. See your Dealer.

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.

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. See your Dealer.

DO NOT use the tilt support when trailering.

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

TILT SUPPORT

IMPORTANT: DO NOT use the tilt support lever while trailering. Refer to **Trailering**.



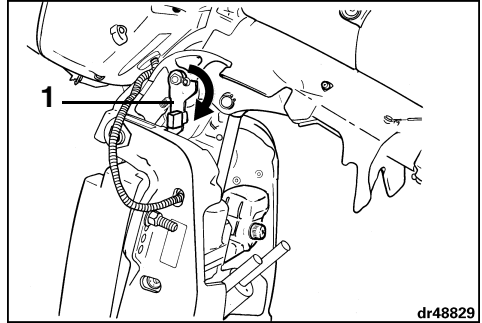
WARNING



Always use the power tilt to lift and support the motor **BEFORE** you disengage the tilt support lever. If oil pressure is lost while using the tilt support lever, the motor can drop suddenly when the support is disengaged. If the power tilt will not lift the motor, do not attempt to force the tilt lever from its position on the stern brackets. See your Dealer.

Engage the tilt support lever if you intend to leave the motor tilted for a period of time:

- Tilt the motor UP using the trailering tilt switch.
- Flip the tilt support lever down.



1. Tilt support lever

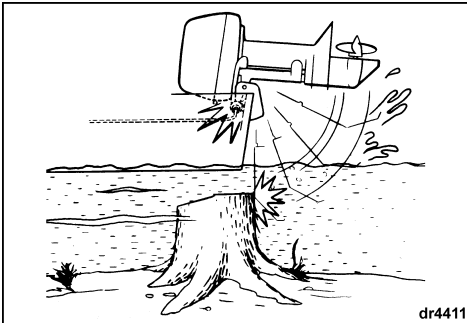
- Lower the motor until the tilt support lever rests solidly on the stern brackets.

Disengage the tilt support lever:

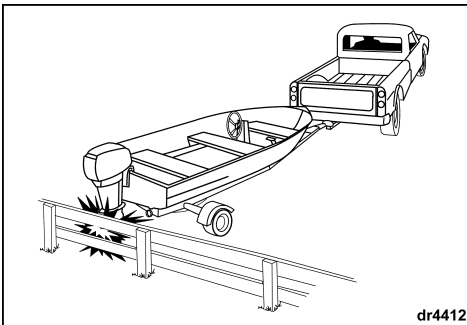
- Tilt the motor UP.
- Flip the tilt support level up.
- Lower the motor to operating position.

IMPACT DAMAGE

Your engine has a shock absorption system designed to help withstand damage from impact with underwater objects at low to moderate speeds. However, high speed impacts with rigid underwater objects like pilings or boulders can be beyond the capability of the absorption system. 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!



The engine's shock absorption system does not work while operating in reverse. If you back into an object, either in the water or while trailering, your boat and engine can be seriously damaged.



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. Your outboard has a built-in flushing port to facilitate flushing. 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 higher 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

IMPORTANT: Your engine's *EMM* will automatically compensate for changes in altitude. However, if you consistently boat above 3000 ft. (900 m), you may experience a slight loss of power due to reduced air density.

If your engine drops below the recommended RPM operating range at full throttle, have your Dealer select a lower pitch propeller.

If you return to sea level, have your Dealer install the original propeller and verify correct RPM operating range.

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.

IMPORTANT: If your outboard's gearcase is equipped with an integral speedometer pickup, all water must be cleared from the hose to prevent gearcase damage. Refer to **Off-Season Storage**.

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.

Dual Engine Operation

When you are maneuvering at slow speed, be sure both engines are running, even if one or both are in NEUTRAL.

If it is necessary to return to harbor with one engine not running, you should not attempt to operate the boat above planing speed. Tilt the inoperative engine high enough to keep its propeller out of the water.

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.

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.

ENGINE EMISSIONS INFORMATION

Manufacturer's Responsibility

Beginning with 1999 model year engines, manufacturers of marine engines must determine the exhaust emission levels for each engine horsepower family and certify these engines with the United States of America Environmental Protection Agency (EPA). An emissions control information label, showing emission levels and engine specifications, must be placed on each engine at the time of manufacture.

Dealer's Responsibility

When performing service on all *Johnson* outboards that carry an emissions control information label, adjustments must be kept within published factory specifications.

Replacement or repair of any emission related component must be executed in a manner that maintains emission levels within the prescribed certification standards.

Dealers are not to modify the engine in any manner that would alter the horsepower or allow emission levels to exceed their predetermined factory specifications.

Exceptions include manufacturer's prescribed changes, such as altitude adjustments, for example.

Owner Responsibility

The owner/operator is required to have engine maintenance performed to maintain emission levels within prescribed certification standards.

The owner/operator is not to, and should not allow anyone to, modify the engine in any manner that would alter the horsepower or allow emissions levels to exceed their predetermined factory specifications.

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

EPA Emission Regulations

All new 2002 and more recent *Johnson* outboards manufactured by BMCA are certified to the EPA as conforming to the requirements of the regulations for the control of air pollution from new watercraft marine spark ignition engines. This certification is contingent on certain adjustments being set to factory standards. For this reason, the factory procedure for servicing the product must be strictly followed and, whenever practicable, returned to the original intent of the design. The responsibilities listed above are general and in no way a complete listing of the rules and regulations pertaining to the EPA requirements on exhaust emissions for marine products. For more detailed information on this subject, you may contact the following locations:

VIA U.S. POSTAL SERVICE:

Office of Mobile Sources
Engine Programs and Compliance Division
Engine Compliance Programs
Group (6403J)
401 M St. NW
Washington, DC 20460

VIA EXPRESS or COURIER MAIL:

Office of Mobile Sources
Engine Programs and Compliance Division
Engine Compliance Programs
Group (6403J)
501 3rd. St. NW
Washington, DC 20001

EPA INTERNET WEB SITE:

www.epa.gov



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.

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

Evinrude/Johnson Ultra 4-Stroke synthetic blend oil

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 a water supply to the engine and start it. **Run the engine at idle only.**

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

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

Oil and Filter — Start the engine and run it at least five minutes to warm the crankcase oil.

Stop the engine and drain the crankcase while the engine is warm. Refill it with *Evinrude/Johnson Ultra 4-Stroke* synthetic blend oil. Replace the oil filter. Refer to **Crankcase Oil and Filter**. Restart the engine and run it for a few minutes to circulate the fresh oil.

IMPORTANT: It is very important that the bearing surfaces be coated with clean oil before entering a period of storage, so be sure you run the engine after changing the oil.

Stop the engine.

Spark Plugs — Remove and examine them. Clean or discard them, if necessary. Refer to **Spark Plugs**.

Spray *Evinrude/Johnson Storage Fogging Oil* into the spark plug holes.

Install spark plugs; tighten to specifications in **Spark Plugs**.

Crank the engine for a short burst to distribute the fogging oil and to drain the water from the water pump.

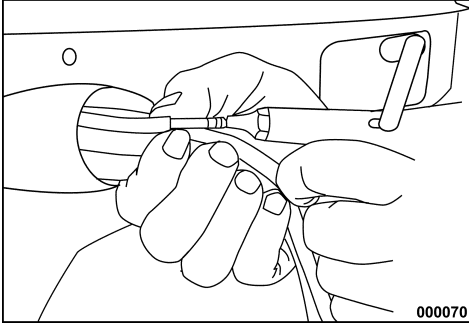
Fuel filter(s) — Clean or change.

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.

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**.

Gearcase speedometer pickup, if equipped — Disconnect the speedometer hose at the upper connection. With air pressure no more than 25 psi (167 kPa), blow all water from the gearcase speedometer pickup system. Reconnect speedometer pickup after all the water has been removed.



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.

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.



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



Do not use a booster battery and jumper cables to start the engine. Fumes vented can cause explosion and fire, resulting in property damage, serious injury, or death.



WARNING



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

Engine Oil — Check the engine oil level. Refer to **Crankcase Oil and Filter**.

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



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



WARNING



Prevent accidental contact with a rotating propeller; always remove it when using a flusher to run the engine.

Top off fuel tank with fresh fuel.

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

BATTERY

Each outboard needs one battery that is:

- 12-volt, heavy-duty, designated "marine"
- Vented/refillable or maintenance-free
- 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.

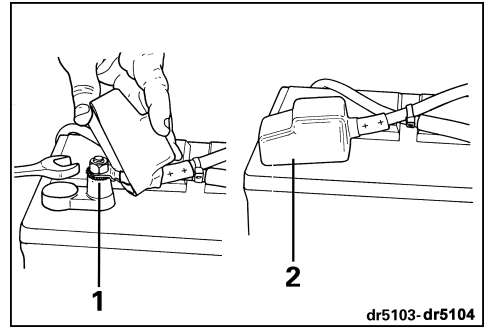
Installation

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.

CRANKCASE OIL AND FILTER

Initial Fill

IMPORTANT: 4-Stroke outboards are shipped without oil in the crankcase. You must add oil to the crankcase before starting the engine for the first time. It is recommended you add *Evinrude/Johnson* 4-Stroke outboard oil. Refer to **Changing the Oil** for acceptable substitute lubricants.

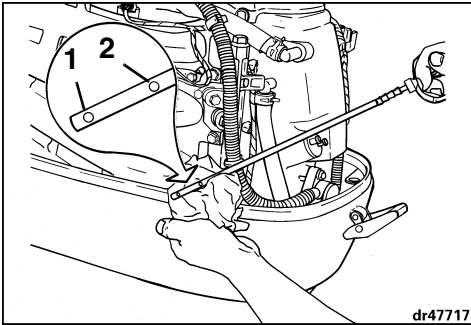
BEFORE filling the crankcase for the first time, be sure it is empty by checking the dipstick. Refer to **Checking**.

After the first 10 hours of operation, replace the break-in lubricant with *Evinrude/Johnson Ultra* 4-Stroke synthetic blend oil. Refer to **10-Hour Inspection**.

Checking

Check the oil level when the engine is cold to ensure an accurate reading.

- 1) Place the engine in a vertical position and remove the upper engine cover.
- 2) Remove the dipstick, wipe it clean, and install it.
- 3) Move the dipstick again and locate the line of oil. If the line of oil is not between the ADD and the FULL marks, you must add or remove oil as indicated.

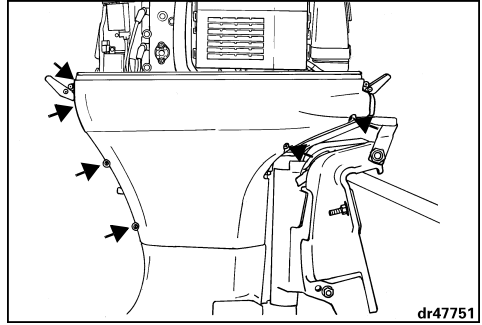


1. Add
2. Full
- 4) Securely install the dipstick and wipe up any spilled oil.

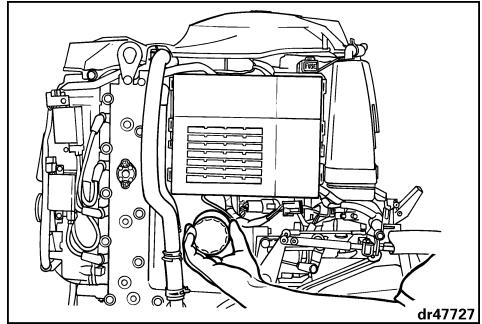
IMPORTANT: Operating the engine with too much or too little oil in the crankcase will damage it.

Changing the Filter

- 1) Remove the upper engine cover, the aft cover latch and the starboard lower engine cover.



1. Starboard lower engine cover screws
- 2) Place a rag under the oil filter on the engine. Remove the filter by turning it counterclockwise.
- 3) Use clean oil to lubricate the gasket on a new oil filter. Make sure the filter gasket is firmly seated in its groove.
- 4) Install the filter and tighten 2/3 of a revolution after the gasket contacts base. Hand tighten only. Remove rag and any spilled oil.



- 5) Reinstall the lower engine cover, aft cover, latch, and upper engine cover.

Changing the Oil

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

After the first 10 hours of operation, replace the break-in lubricant with *Evinrude/Johnson Ultra 4-Stroke* synthetic blend oil. Refer to **10-Hour Inspection**.

If *Evinrude/Johnson Ultra 4-Stroke* synthetic blend oil is temporarily unavailable, you may use *Evinrude/Johnson 4-Stroke* outboard oil or an equivalent FC-W-approved 10W-40 or 10W-50 oil.

Drain (or siphon) the old oil after running the engine to warm it. Warm oil flows more quickly and completely, containing more suspended sludge than cold oil. If you change the oil only once a season, time the work so the engine contains clean oil during storage.

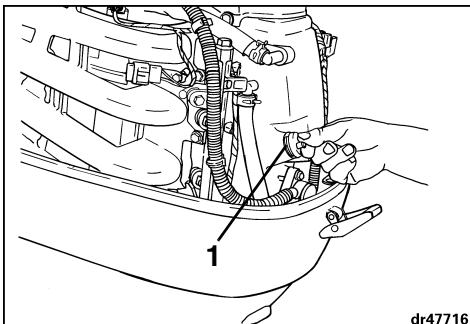


CAUTION



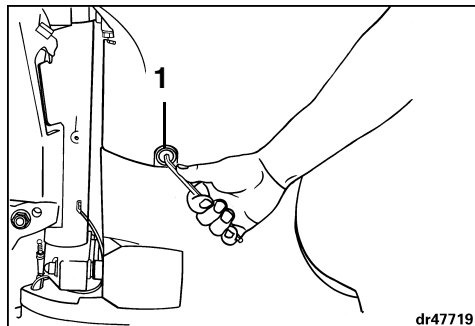
Used motor oil may be harmful. Avoid prolonged and repeated skin contact. Wash affected skin with soap and water.

- 1) Place the engine in a vertical position and remove the upper engine cover.
- 2) Unscrew and remove the oil fill cap.



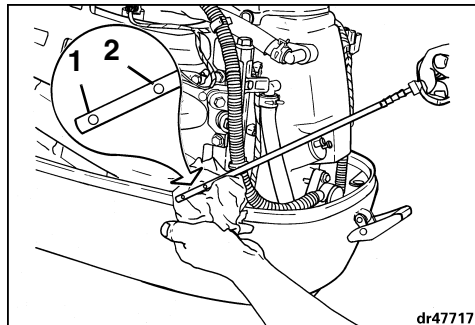
1. Oil fill cap

- 3) Hold a suitable container under the oil drain screw. Remove the screw and drain the reservoir. Before you reinstall the screw, replace the gasket with a new one (several were included in your tool kit). Reinstall the screw and tighten it securely.



1. Oil drain screw

- 4) Pour the recommended oil into the oil fill until it reaches the upper mark on the dipstick. Refer to **Engine Specifications** for crankcase and filter capacity.
- 5) Replace the oil fill cap and clean any spilled oil off the engine and your skin.
- 6) Reinstall the upper cover.
- 7) Supply water to the cooling system and run the engine at idle to check for leaks, especially around the oil filter, drain screw and oil fill cap. Correct any problems.
- 8) Stop the engine and recheck crankcase oil level using the dipstick. Add oil as indicated.



1. Add
2. Full

Dispose of used oil in a reasonable manner following all local regulations.

ADJUSTMENTS

Trim Tab



WARNING



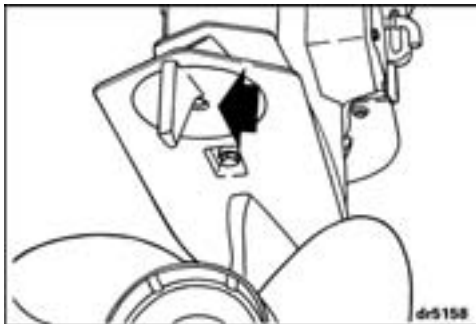
Improper trim tab adjustment can cause difficult steering.

The trim tab is also an anti-corrosion anode. Disintegration of the anode can effect boat handling and performance. Make sure the trim tab is in good condition and adjust properly.

A propeller will generate steering torque when the propeller shaft is not running parallel to the water's surface. The trim tab is adjustable to compensate for this steering torque.

IMPORTANT: A single trim tab adjustment will relieve steering effort under only one set of speed, motor angle and load conditions. No single adjustment can relieve steering effort under all speed, motor angle and load conditions. If the boat pulls to the left or right when its load is evenly distributed, adjust the trim tab as follows:

With the motor shut OFF, loosen the trim tab screw. If the boat pulled to the right, move the rear of the trim tab slightly to the right. If the boat pulled to the left, move the rear of the trim tab slightly to the left.



Tighten the trim tab screw to a torque of 11 to 15 ft. lbs. (15 to 20 N·m).

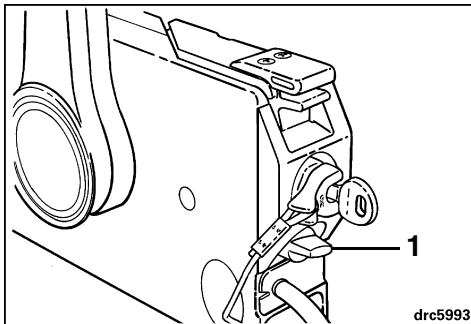
Test the boat and, if needed, repeat the procedure until steering effort is as equal as possible.

High motor installations — The trim tab might be above the water when the motor is trimmed out. Steering effort might increase. Steering effort will be reduced if you trim the motor in and submerge the trim tab.

Throttle Friction

Adjust throttle friction on your remote control to maintain its position and prevent unwanted throttle "creep" under normal operating conditions.

To adjust, start engine and move control handle into FORWARD throttle range. While underway, turn adjustment knob clockwise to increase friction. The friction adjustment is effective only in the FORWARD throttle range.



1. Throttle friction control

See your Dealer for throttle friction adjustments on your specific remote control.

LUBRICATION

Gearcase

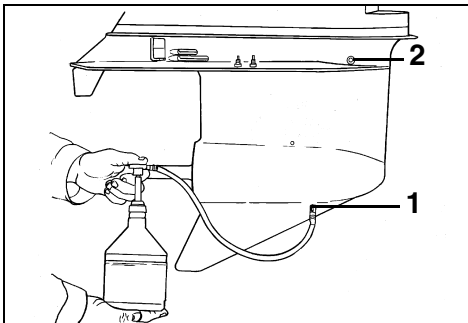
Replace gearcase lubricant after first 10 hours of operation. Check level and condition of lubricant after next 50 hours of operation. Add lubricant if necessary.

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.

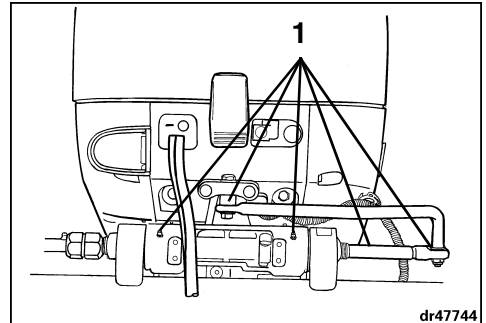


1. Drain/fill plug
2. Lubricant level plug

IMPORTANT: To avoid insufficient injection of lubricant, check the gear oil level 10 minutes after filling. If the oil level is low, slowly inject the lubricant up to the correct level.

Steering System

The installer was instructed to grease the steering cable ram during installation. Periodic regreasing of the steering cable ram with *Triple-Guard* grease is required. Refer to **Engine Maintenance and Inspection Schedule** for lubrication frequency. Refer to steering system manufacturer's information when servicing boat's steering system.



1. Steering, tilt tube



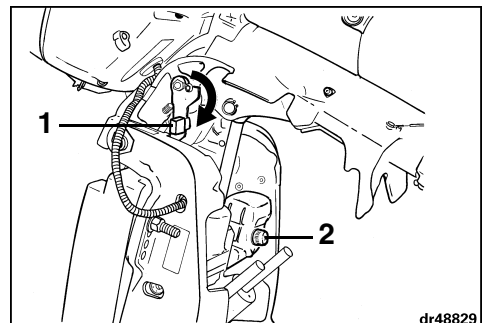
WARNING



Failure to regrease as recommended could result in steering system corrosion. Corrosion can affect steering effort, making operator control difficult.

Power Trim and Tilt Fluid Reservoir

Tilt the motor up and engage the tilt support. Depending on your model, refer to **Power Trim and Tilt**. Remove filler cap and check fluid level. If necessary, add enough *Evinrude/Johnson Power Trim/Tilt and Power Steering Fluid* to bring the fluid level even with the bottom of the fill cap hole when the unit is at full tilt.

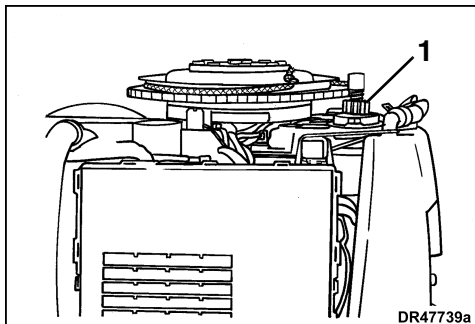


1. Tilt support
2. Filler cap

IMPORTANT: Correct fluid level must be maintained to ensure operation of the impact protection built into this unit.

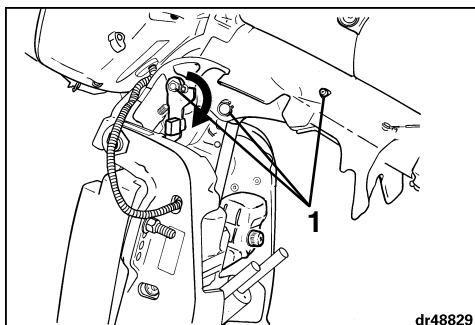
Lubrication Points

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



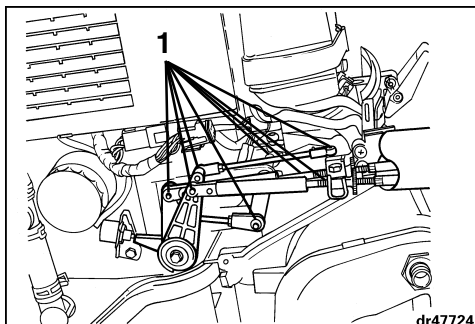
DR47739a

1. Starter pinion shaft



dr48829

1. Swivel bracket, tilt support

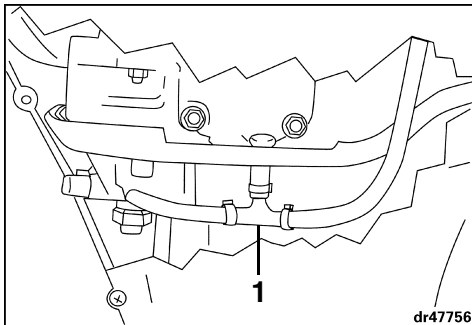


dr47724

1. Throttle and shift linkage

WATER PRESSURE

An optional water pressure gauge is recommended to monitor cooling system pressures. Noticing changes in water pressure can help prevent engine overheating. The water pressure gauge must be connected at the correct point to ensure the most accurate pressure readings. Follow the installation instructions included with the water pressure gauge.



dr47756

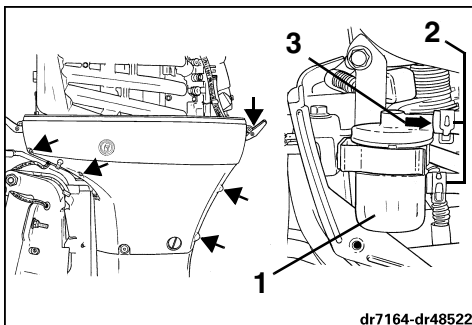
1. Water pressure gauge (optional)

FUEL LINE FILTER

It is recommended a water-separating fuel filter be installed to help prevent water that may be present in the outboard's fuel tank. Water in the fuel tank can damage your outboard's fuel injection system, causing poor engine performance. 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**.



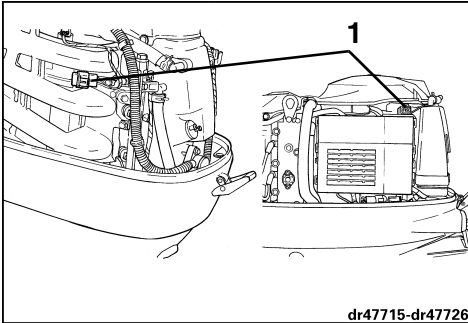
dr7164-dr48522

1. Filter
2. Hose clamps
3. Direction of flow

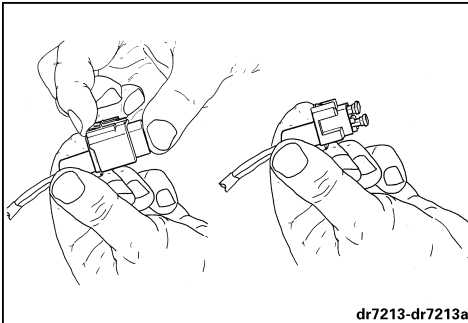
FUSES

IMPORTANT: Always carry spare fuses. Use the spare fuse holder to hold an extra fuse.

The fuse is located in the fuse holder. Refer to **Engine Specifications**.



1. Fuse holder



Spare fuse holder

Fuse Failure

A minor electrical problem can blow a fuse. Replace it with a fuse of the same rating.

Repeated failures of fuses in the same position indicate a serious problem. Do not replace it with higher rated fuses; see your Dealer for service.

Fuse	Color	Circuit	P/N
15-Amp	Blue	Fuel Pump	505723
30-Amp	Green	EMM, Trim/Tilt Switch, Rectifier/Regulator	505726

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.

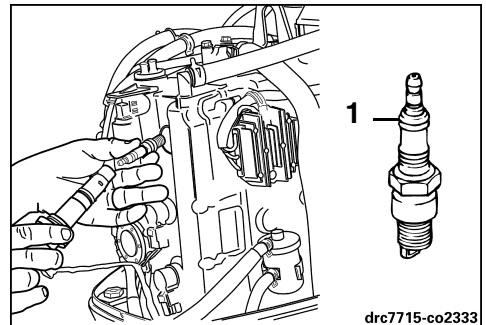
Inspect spark plugs periodically. Replace if electrodes are badly worn, insulators are cracked, or if they are badly fouled.

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, turn the key switch OFF and disconnect battery positive (+) cable 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

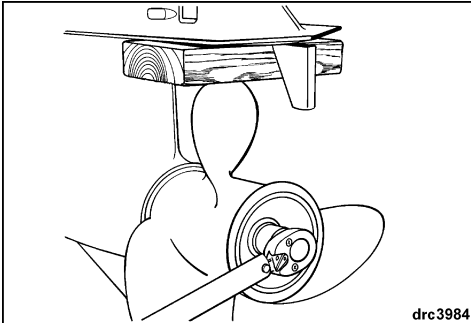
Slide thrust washer onto shaft with shoulder facing aft.

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.

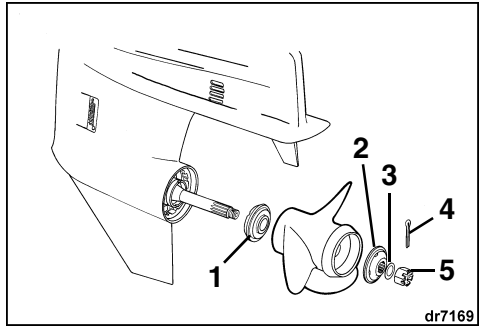
Slide washer onto propeller shaft.

Wedge a block of wood between the propeller blade and the anti-ventilation plate.



Install propeller nut and tighten to a torque of 36 to 43 ft. lbs. (50 to 60 N·m).

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 bushing
2. Spacer
3. Washer
4. Cotter pin
5. Propeller nut

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

Repair

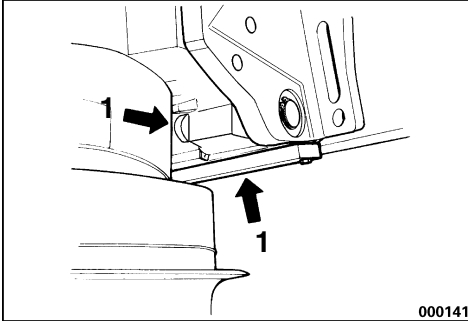
If your propeller hits a solid object, the impact is partially absorbed by the rubber bushing in the hub to help prevent damage to the engine. A strong impact can damage the hub and propeller blades. Damage to blades can cause unusual and excessive vibration. Damage to the hub can cause excessive engine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

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

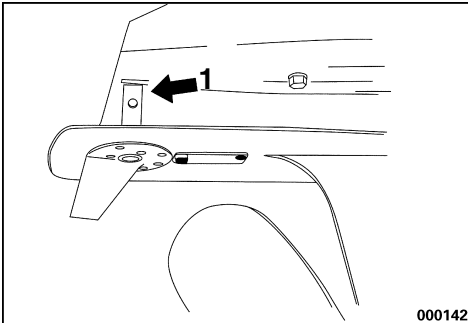
Keep your propeller in good condition. Use a file to smooth slight damage to blade edges. See your Dealer for repair of serious damage.

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.



1. Anode



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
Starter motor will not operate	<ul style="list-style-type: none"> • Shift handle not in NEUTRAL. • Battery and electrical connections loose or corroded. • Fuse blown. Refer to Fuses. • Battery Selector Switch OFF.
Engine will not start	<ul style="list-style-type: none"> • Not following starting instructions. Refer to Engine Starting Section. • Fuel tank empty. • Fuel hose disconnected, kinked. • Fuel system contaminated with water or dirt. • Fuel filter obstructed. • Engine flooded. Raise fast idle lever and crank engine in 10-second periods. • Spark plugs incorrect. Refer to Engine Specifications. • Spark plugs improperly gapped, carboned, burned or wet. • Fuse blown. Refer to Fuses. • Ignition system component failure.
Engine will not idle properly	<ul style="list-style-type: none"> • Motor angle excessive. • Spark plugs damaged or incorrect. Refer to Engine Specifications. • Fuel system contaminated with water or dirt.
Engine loses power	<ul style="list-style-type: none"> • Spark plugs damaged or incorrect. Refer to Engine Specifications. • Fuel filter obstructed. • Fuel system contaminated with water or dirt. • Water intakes obstructed and cooling system not operating correctly. Refer to Engine Overheating. • Oil pressure very low. Refer to Low Oil Pressure Warning.
Engine vibrates excessively	<ul style="list-style-type: none"> • Propeller shaft bent. • Propeller fouled and restricted, blades bent or broken. • Fuel system contaminated with water or dirt. • Engine mount(s) damaged. • <i>S.L.O.W.</i> protection mode activated. Refer to Engine Monitoring.
Engine runs, but makes little or no progress	<ul style="list-style-type: none"> • Propeller hub loose, slipping. • Propeller blades bent or missing. • Propeller shaft bent. • Propeller fouled and restricted.
Warning System Activates	<ul style="list-style-type: none"> • Refer to Engine Monitoring.

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
Mechanical steering, lubricate ⁽¹⁾	7	Every 60 days / Every 30 in Saltwater				
Tilt tube, inspect and lubricate ⁽¹⁾	7	Every 60 days / Every 30 in Saltwater				
Swivel bracket / tilt support bracket, inspect and lubricate ⁽¹⁾	7	Every 60 days / Every 30 in Saltwater				
Throttle and shift linkage, inspect and lubricate ⁽¹⁾	7	Every 60 days / Every 30 in Saltwater				
Remote control cables, lubricate ⁽¹⁾	7	Every 60 days / Every 30 in Saltwater				
Lubrication and corrosion protection for metallic components	4	Every 60 days / Every 30 in Saltwater				
Battery connections and condition, verify	7	O	D			
<i>SystemCheck</i> self-test and warning horn, verify operation		O	D			
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			
Crankcase oil level, check		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 and oil system components, inspect and repair leaks ⁽²⁾			D	D		
Fastener inspection, tighten loosened components			D	D		
Thermostat, inspect and verify operation ⁽²⁾			D		D	
Power tilt/trim fluid, inspect fluid level	6		D		D	
Engine to transom mounting hardware, re-torque			D		D	
Electrical and ignition wires and connections, inspect			D		D	
Gearcase lubricant replace	5		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
Powerhead synchronization and linkage, inspect ⁽²⁾	7		D		D
Breather line, inspect			D		D
Access <i>EMM</i> information, resolve service codes			D		D
Crankcase oil, replace ⁽³⁾	11		D		D
Crankcase oil filter, replace			D		D
Valve tappet clearance, inspect ⁽²⁾			D		D
Gearcase lubricant, inspect fill level and condition of lube	5			D	
Starter pinion shaft, inspect and lubricate ⁽⁴⁾	9			D	
Propeller shaft splines, inspect and lubricate	7				D
Spark plugs, replace ⁽²⁾					D
Decarbonize	10				D
Timing belt, inspect					D
Driveshaft splines, inspect and lubricate	8				D
Water pump, inspect and replace					D
Fuel mixture, check					D
Ignition timing, check					D
Low pressure fuel filter, replace		D	Every 400 hours or biannually		
High pressure fuel filter, replace		D	Every 1000 hours		
Timing belt, replace		D	Every 800 hours or four years		

(1) Also recommended at 10-Hour Inspection

(2) Emission-related component

(3) Replace every 100 hours or annually if *Evinrude/Johnson Ultra* 4-Stroke synthetic blend oil is not used

(4) 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 Molyube* P/N 175356

9 Starter Bendix Lube Only P/N 337016

10 *Evinrude/Johnson* Engine Tuner

11 *Evinrude/Johnson Ultra* 4-Stroke synthetic blend oil

Bombardier 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 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 BMCA 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 _____

000063

AFFIX
STAMP
HERE

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

000064

Bombardier Recreational Products

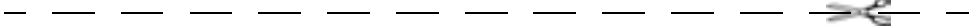
Operator's Guide Confirmation of Receipt

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:	_____

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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