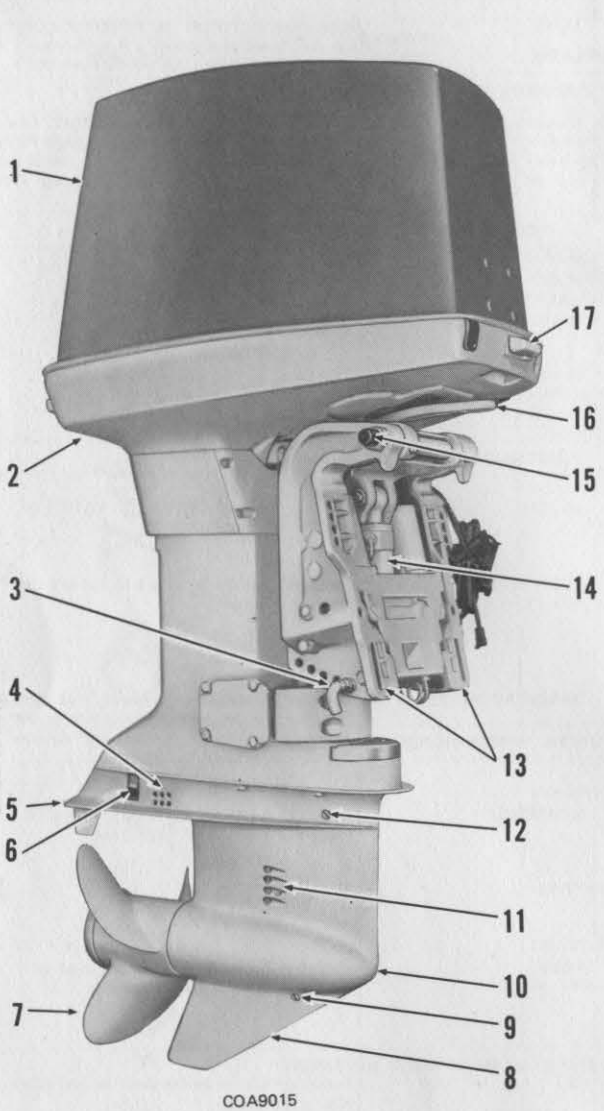
owner's-operator's manual V-6 models J150TLCN, J175TLCN, J200TLCN, J235TLCN, J150TXCN, J175TXCN, J200TXCN, J235TXCN

Johnson
OUTBOARDS



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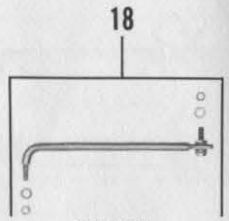

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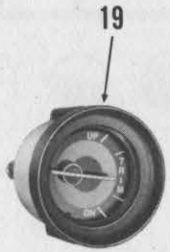
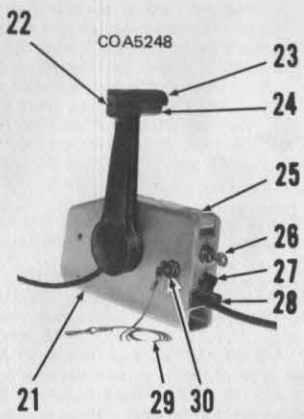


Starboard View - 150 Model Illustrated

1. Motor Cover
2. Overboard Pump Indicator
3. Angle Adjusting Rod Retainer
4. Water Discharge (Port and Starboard)
5. Anti-Ventilation Plate
6. Anti-Corrosion Anode
7. Propeller
8. Skeg
9. Oil Drain/Fill Plug
10. Gearcase
11. Water Intake (Port and Starboard)
12. Oil Level Plug
13. Stern Brackets
14. Power Trim and Tilt Assembly
15. Thru-Tilt Pin Steering
16. Remote Steering Arm
17. Cover Lock Lever - Front
18. Steering Connector Kit
19. Trim Gauge
20. Junction Box and Cable Assembly



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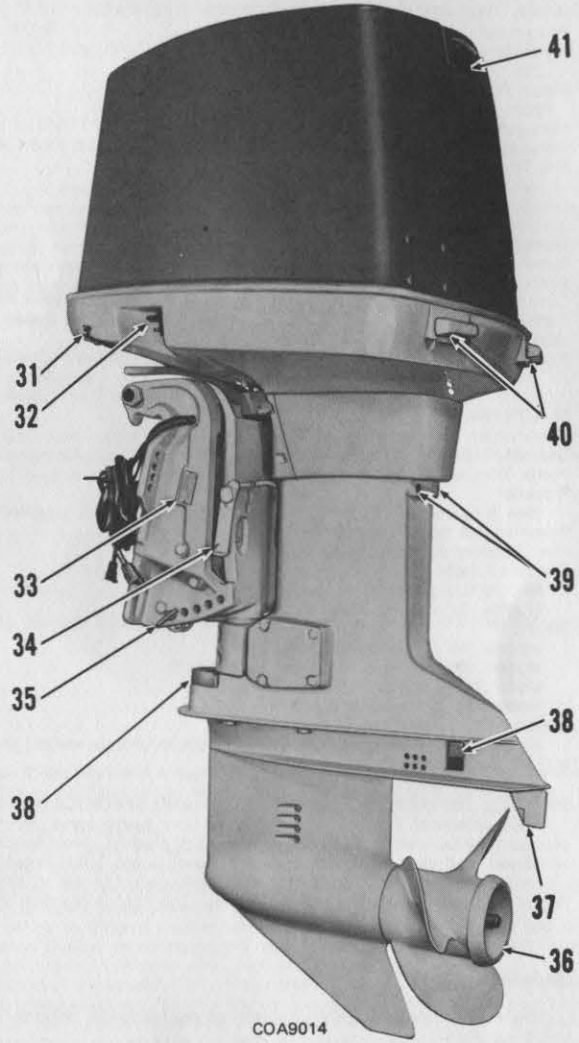

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Port View - 235 Model Illustrated

21. Remote Control and Electric Cable Assembly
22. Trim/Tilt Switch
23. Shift/Throttle Lever
24. Lock-Out Lever
25. Fast Idle Lever
26. Starter/Primer Switch and Key
27. Throttle Friction Adjustment
28. Accessory Plug Connector
29. Lanyard
30. Emergency Ignition Cut-Off Switch
31. Fuel Line Retainer
32. Fuel Connector
33. Model and Serial Number Plate
34. Trail Lock
35. Angle Adjusting Rod
36. Underwater Exhaust Outlet
37. Steering Trim Tab
38. Anti-Corrosion Anode
39. Exhaust Relief
40. Cover Lock Levers, Aft (2)
41. Tilt Grip and Air Inlet

Specifications

Models J150TLCN, J175TLCN, J200TLCN and J235TLCN	(Long Shaft) 20" Transom
Models J150TXCN, J175TXCN, J200TXCN and J235TXCN	(Extra Long Shaft) 25" Transom
Powerhead	Six Cylinder - Two Cycle
Bore and Stroke 150, 175 & 200	3.500" x 2.588" (88.90 x 65.74 mm)
235	3.625" x 2.588" (92.07 x 65.74 mm)
Piston Displacement 150, 175 & 200	149.4 Cubic Inches (2448 cm^3)
235	160.3 Cubic Inches (2627 cm^3)
Horsepower	150 (106.0 kw) and 175 (123.7 kw) Certified Brake H.P. at 5000 RPM
Horsepower	200 (141.4 kW) and 235 (166.1 kW) Certified Brake H.P. at 5250 RPM
Full Throttle Operating Range	150 and 175 4500 to 5500 RPM
	200 and 235 4750 to 5750 RPM
Idle Speed (In Gear With Proper Propeller)	600 to 700 RPM
Ignition	Magneto Breakerless Capacitor Discharge
Spark Plug	Champion UL-77V (Gap is permanent)
Spark Plug Socket Wrench Size	13/16"
Spark Plug Torque	17-1/2 to 20-1/2 ft-lbs (24-27 N•m)
Cooling System	Water Pump - Pressure and Thermostat Controlled
Carburetor	Fixed Low and High Speed Jets - Remote Electric and Manual Primer
Alternator (With Voltage Regulator)	10 Ampere
Fuse	Motor: Littlefuse 1 A.G.-20 AMP or Buss A.G.A. 20 AMP (Located at Port Side of motor in wire terminal area)
	Junction Box: Littlefuse 1 A.G.-30 AMP or Buss A.G.A.-30 AMP
Shift/Throttle Control	Forward-Neutral-Reverse - Remote Control
Gear Ratio	14:26
Gearcase Lubricant Capacity	28.3 fl. ozs. (837 mL)
Power Trim and Tilt Fluid Capacity	25 fl. ozs. (740 mL)
Propeller	Optional
(See Propeller and Steering Connector Selection Guide supplied in Owner's Kit)	
Propeller Nut Socket Wrench Size	1-1/4"
Fuel Capacity (Optional OMC Fuel Tank)	6 U.S. Gallon Tank (22.7 litres)
Transom Height	
Models (Long Shaft)	19-1/2 to 20" (495-508 mm)
Models (Extra Long Shaft)	24-1/2 to 25" (622-635 mm)
Weight:	
Models 150, 175 and 200 (Long Shaft)	381 lbs. (172.8 kg)
Models 150, 175 and 200 (Extra Long Shaft)	386 lbs. (175.1 kg)
Model 235 (Long Shaft)	396 lbs. (179.6 kg)
Model 235 (Extra Long Shaft)	401 lbs. (181.9 kg)
Optional OMC Fuel Tank (Empty)	10 lbs. (4.5 kg)

JOHNSON OUTBOARDS reserves the right to change weight, construction materials, specifications or price without notice and without obligation.

PRODUCT REFERENCES, ILLUSTRATIONS AND SPECIFICATIONS

When reference is made in this manual to a brand name, number, product or specific tool, an equivalent product may be used in place of the referred to product unless specifically stated otherwise. Equivalent products which are used must meet all current U.S. Coast Guard Safety Regulations and ABYC standards to avoid hazards.

All information, illustrations and specifications contained in this manual are based on the latest product information available at the time of printing. The right is reserved to make changes at any time without notice.

Safety

This manual contains certain information related to the personal safety of you the operator, your passengers and bystanders.

The symbol, ⚠, appears next to information important to help prevent you and others from being hurt.

The symbol, ▭, appears next to information important to keep machinery from being damaged.

Observe all notes and safety warnings contained in this manual.

Items of Special Importance

Boating Responsibilities

The operator is responsible for the correct operation of the boat and for the safety of its occupants. Be sure that all operators read this manual before operating boat. Show your passengers the location and use of emergency equipment. Instruct one of your passengers in how to handle your boat in case of emergency. U.S. Coast Guard requirements for personal flotation devices vary, depending on the type of boat. Be sure to comply with the U.S. Coast Guard regulation which applies to your boat.

Learn the waterway rules of the locality in which you are going to operate your boat. Navigable waterways are controlled by Federal regulations while inland lakes and Canadian waters are controlled by local jurisdictions. Obey these regulations to protect yourself, your passengers and fellow boating enthusiasts.

Before boating, obtain the weather forecast for your area. Familiarize yourself with the weather bureau warning system signal and waterway traffic sign information.

Contact your local United States Coast Guard Auxiliary. Take advantage of their seasonal boat inspections and safety classes.

Owner's Identification Card

At the time you purchase your motor, your dealer must fill out a series of cards. One of these cards is a temporary Owner's Identification card which you should carry until you receive your permanent card. Another card will be sent by the dealer to the factory, which will issue your permanent Owner's Identification card. This card will provide proof of ownership, as well as warranty validation, should warranty service be necessary. Please allow approximately six weeks, from purchase date, to receive your Owner's Identification card.

Always carry your Owner's Identification card with you.

Insurance

Insurance on your outboard motor and/or boat should be procured as soon as practicable for protection against loss by fire, theft, etc. Write to Outboard Boating Club of America, 401 North Michigan Avenue, Chicago, Illinois 60611 for further details, or consult your local insurance agent.

Stolen Motors

In case of theft, report Model and Serial Number to local authorities, Insurance agent and the manufacturer.

High Performance Boating

The high performance sport boat, a high speed boat with a high power-to-weight ratio, is popular with certain boaters. It falls somewhere between the family boat and a full racing craft. This type of boat demands:

- The best in equipment.
- Careful, secure assembly of all equipment to the boat.
- Driver knowledge of how the boat will act under all operating conditions.
- Driver skill in anticipating and reacting to changing boat control conditions.

As the operator of a high performance boat, you should also have an understanding of the dangers you may encounter, and what you can do to enhance safety while obtaining full enjoyment of your boat.

The information which follows, should not be considered a substitute for the more detailed assistance and advice available from your local OMC-Johnson Dealer, or a recognized high performance boating expert. Your dealer may be able to recommend such an individual in your area. Seek his advice.

A person who has not been properly trained in the operation of a high performance boat should never attempt to drive such a boat at, or near, its highest speed capability. Never allow passengers or friends to drive your high performance boat unless they are experienced high performance boat drivers. Loss of boat control at high speed can occur suddenly and can result in persons being thrown from the boat. Accidents associated with high speed ejection can be serious, but the chances of injury can be substantially reduced by using the proper safety equipment.

Boats capable of the very high speeds of a racing craft deserve the best racing safety equipment. So, in addition to the safety equipment required by law, the sport boat operator should also have and use the following:

- A quality ignition shut-off device.
- Life jackets approved for use at the speeds your boat is capable of reaching.
- An approved helmet with eye protection.

The performance limits of a high performance sport boat should be approached gradually. Even if you have experience in another high performance boat, this one will probably react differently and you will have to adapt your skills to this new boat/motor combination. Your first few hours of use should be at part throttle and without passengers in the boat. This is the time when you should learn the effects of changes in trim, throttle position and steering. As you gain familiarity and confidence, you can increase your speed in steps---all the while testing the affects of trim changes and sudden throttle directional changes. Always remember: Never Take Your Boat To The Point Where You Do Not Feel In Control!

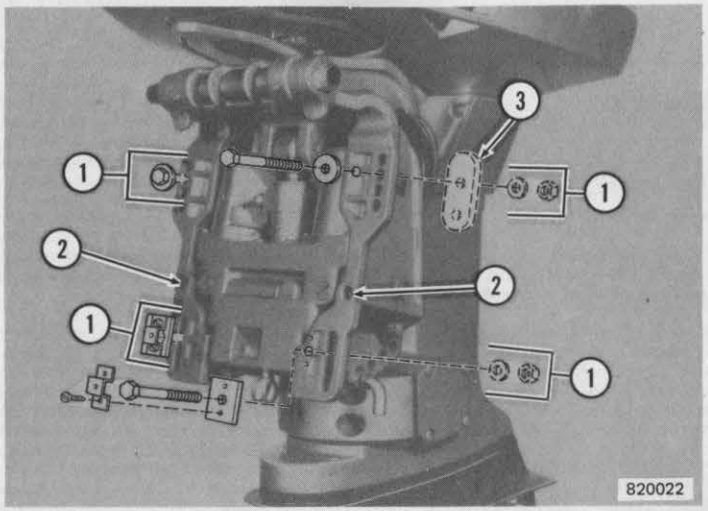
High performance boating is an exciting, exhilarating sport. The sport boater must, however, be considerate of others who may use the same waters. Make sure your pursuit of pleasure does not create a hazard or annoyance to nearby homeowners, fishermen, swimmers, water skiers, sailors, or other powerboaters. Make common sense and courtesy a regular part of your boating routine.

3. Check for any interference between motor and transom mounted remote steering system parts. Undetected interference can result in part breakage or weakening should the motor solidly strike an underwater object and tilt rapidly into the boat.
4. Check for interference between boat transom and stern brackets. Boat molding must not restrict stern brackets from full contact with boat transom. Failure to insure full contact can result in stern brackets breaking with possible loss of motor and control of boat. Contact your DEALER or boat manufacturer for assistance, if necessary.

⚠ **Safety Warning: Failure to perform the above checks may result in sudden unexpected loss of boat control.**

In most instances, the propeller selected earlier will still be correct. However, on light boats a different propeller may be necessary. A full throttle tachometer check will insure that the motor is still operating within the recommended limits. See PROPELLER SELECTION.

1. Primary Locations
2. Alternate Locations
3. Support Plates



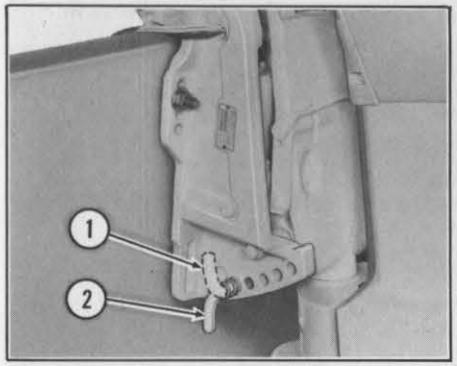
Minimum Trim Angle Position

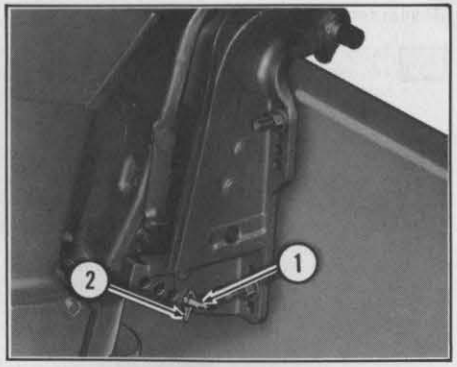
The minimum trim angle is that which results in maximum bow down without causing unexpected changes in direction as a result of "plowing" through the water. This angle must be determined for your particular boat/motor combination.

The stern bracket has five positions (holes) for selecting the minimum trim angle. The Angle Adjusting Rod is shipped in the innermost hole. To determine if this or some other hole gives a satisfactory minimum trim angle for your boat, proceed as follows:

1. Lower motor against adjusting rod. Make a trial run by accelerating gradually to full throttle and noting the boat's performance characteristics.
2. If the maximum bow down position results in too much "plowing" so that directional stability is adversely affected, the adjusting rod should be moved out one hole and the trial run repeated.
3. Before moving adjusting rod, stop motor and tilt it away from transom.
4. Hold the angle adjusting rod facing up and press in against spring pressure to position the retainer in release position. Slide the adjusting rod all the way out and move it to desired position. Make sure rod passes through both stern brackets. Press in against spring pressure, turn adjusting rod handle down, and make sure retainer drops into lock position.
5. Repeat steps 1 and 2.
6. It may be determined during the above tests that the boat is unstable when the rod is in the lower position and yet the boat is difficult or impossible to plane with the rod set at a higher position. It will then be necessary for the operator to avoid running at high throttle settings with the adjusting rod in the lower position in order to facilitate planing the boat.

⚠ **Safety Warning: To prevent sudden unexpected changes in direction with possible loss of boat control, always determine and set the minimum trim angle by proper location of the angle adjusting rod. After adjustment, make sure angle adjusting rod retainer is in "lock" position as shown.**





1. Angle Adjusting Rod and Retainer in Release Position
2. Angle Adjusting Rod and Retainer in Lock Position

Fuel And Lubricant

This is a two cycle engine that requires lubricant to be mixed with gasoline. Follow these instructions.
SEE INSIDE FRONT COVER FOR RECOMMENDED LUBRICANT.

NOTE: Recommended lubricant and gasoline must be properly mixed or serious damage will result to the engine.

If the RECOMMENDED LUBRICANT is not available, another BIA certified TC-W lubricant (oil) may be used at the recommended 50:1 mixing ratio.
SEE INSIDE FRONT COVER FOR RECOMMENDED LUBRICANT.

NOTE: Avoid use of the following, as they will contribute to deterioration of your engine and/or shorten spark plug life:

AVOID USE OF:
- Automotive oils
- Premix fuel of unknown oil quality
- Premix fuel richer than 50:1 ratio
- Oil and Gasoline leaner than the recommended 50:1 mixture ratio

Recommended Gasoline

Automotive gasolines leaded Regular or a leaded Premium meeting the following minimum octane number. Lead-free or Gasohol fuels must not be substituted, regardless of their octane rating.

PUMP POSTED OCTANE NUMBER Number posted on gasoline pumps	88
RESEARCH OCTANE NUMBER Most commonly used in the past	94

NOTE: If the recommended gasoline is not available low octane modification kits are available from your DEALER which will allow the motor to be operated with lower octane fuel.

Fuel Mixture

1 part approved lubricant to 50 parts gasoline.
8 fl. ozs. (236 millilitres) of lubricant to 3 U.S. gallons, 2-1/2 Imperial gallons or 11.4 litres, of gasoline.
16 fl. ozs. (473 millilitres) of lubricant to 6 U.S. gallons, 5 Imperial gallons or 22.7 litres, of gasoline.
20 millilitres of lubricant to 1 litre gasoline.

Optional OMC Portable Fuel Tanks and Fuel Lines

When using portable fuel tanks, we recommend use of the OMC fuel tanks and fuel lines for V-6 models which are designed to provide correct fuel flow for your engine requirements. OMC fuel tank hoses include a primer bulb assembly and a fuel line connector for attachment to your engine. See your DEALER.

NOTE: Do not use fuel tanks supplied with OMC 4 thru 140 models. They will not supply sufficient fuel to operate this motor properly.

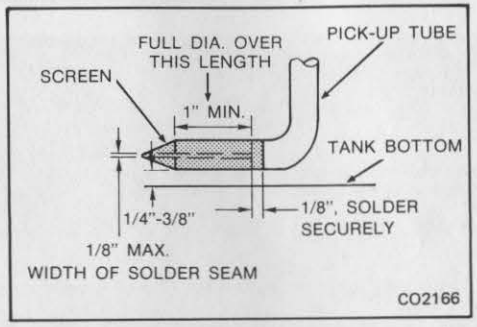
NOTE: Serious engine damage may occur from use of improper portable fuel tanks and/or fuel lines. If portable fuel tanks and fuel lines other than genuine OMC parts are used, they must have equivalent characteristics for correct fuel flow for your engine. Your DEALER can advise you.

Recommendations For Permanently Installed Fuel Systems - Single or Dual Installation

NOTE: Fuel systems with built-in tanks particularly those that include anti-syphon valves, filter/primer units etc, may have restrictions that will not allow the engine fuel pump to deliver the proper amount of fuel under all conditions. This can result in a loss of performance and possible engine damage. Your dealer can help you determine if your boat's fuel system is restrictive and can advise you how to correct it.

NOTE: Built-in fuel systems must be checked for flow restrictions as part of normal motor installation.

1. FUEL TANK PICK-UP TUBE
   Pick-up tube must have a 5/16" inside diameter, 3/8" I.D. is preferred. 3/8" I.D. is required for 200 and 235 model engines. Dual engines require two separate pick-up tubes, one for each engine.
2. FUEL TANK PICK-UP FILTER SCREEN
   Use stainless steel #304 wire cloth, 30 mesh, with wire size 0.010-0.012 inch diameter. A cylindrical screen equal to pick-up tube outside diameter and one inch long will provide a screen with the required flow area. The screen should be horizontal and set slightly above the bottom so that the maximum amount of fuel can be used.



3. FUEL TANK ANTI-SIPHON VALVE
   Anti-siphon protection is required in all fuel systems. The anti-siphon valve prevents fuel spillage in case of a break or leak in the distribution system below the level of fuel in the tank. Anti-siphon protection may also be afforded by keeping all parts of the fuel distribution system above the level of the tank top when the boat is in its normal, unloaded static floating position. If it is not possible to keep all lines above the tank, then an anti-siphon valve is required and each tank pick-up tube must be so equipped.
   Anti-siphon valves must have a flow restriction pressure drop of no more than 35 inches (maximum) of water at a fuel flow rate of 30 gallons per hour. See your DEALER for OMC valves which meet these requirements. If there is any question that an anti-siphon valve is suitable, see your DEALER.
4. FUEL DISTRIBUTION LINES (FROM TANK TO DRY WELL)
   A minimum 5/16" I.D. is required. However 3/8" I.D. is preferred. 3/8" I.D. is required for 200 and 235 models. See your DEALER for OMC hose which meets these requirements.
   All fittings must be a minimum of 1/4" I.D. Lines must be free of kinks or sharp bends. Do not use vinyl hose (OMC fuel tank hose) for permanent installations.
   Dual engines require separate distribution lines and separate pick-up tubes whether single or multiple tanks are used.
5. FUEL FILTER
   If a fuel filter is installed, it should have no more than 5" of water pressure drop at a fuel flow rate of 20 gallons per hour. The filter should have a minimum filter area of 200 square inches. The filter element must be removable for cleaning or replacement without disturbing lines or fittings. See your DEALER for an OMC In-Line Fuel Filter which meets these requirements. One filter must be installed in each fuel line for each engine.
6. FUEL LINE AND CARBURETOR PRIMING
   An OMC primer bulb and fuel connector kit is available for connecting from a bulkhead fitting in the dry well to the engine. The kit provides fuel line and carburetor filling before starting engine.
   An electric primer pump kit is available for the boat fuel system. The kit provides fuel line and carburetor filling from a remote switch before starting engine. One of either kit must be installed for each engine.
   Additionally, we recommend the A.B.Y.C. Standard H-24 be followed for the entire built-in system.

Fuel Mixing Instructions

Use only the RECOMMENDED LUBRICANT or other BIA certified TC-W lubricants at the recommended 50:1 mixing ratio. SEE INSIDE FRONT COVER FOR RECOMMENDED LUBRICANT.

ALWAYS USE FRESH GASOLINE.

Safety Warning: Gasoline is extremely flammable and highly explosive under certain conditions.

- **Always mix fuel outdoors, never indoors.**
- **Never smoke or allow open flames or sparks nearby when mixing or refueling.**
- **Always stop motor before refueling.**
- **Remove portable tanks from boat when refueling.**

ABOVE 32°F. (0°C)

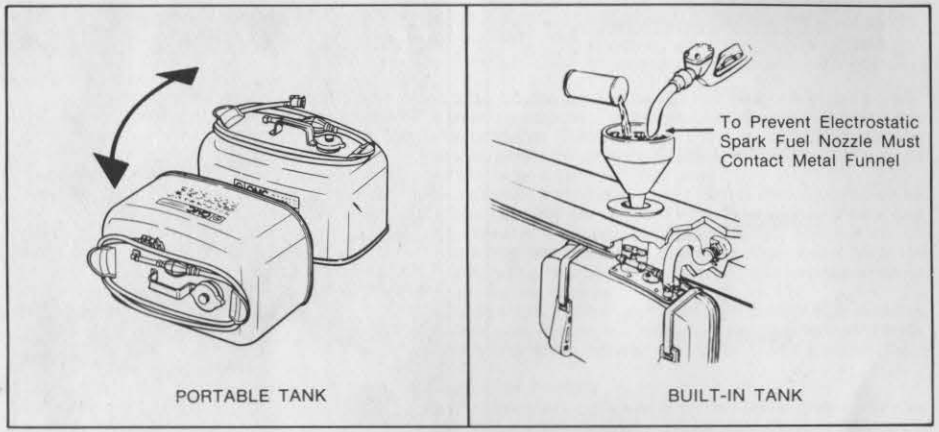
Portable Tank - Pour lubricant into tank, add gasoline. Replace filler cap securely. To mix fuel, tip tank on side as shown and back to upright position.

Built-in Tank - Use large metal funnel with a fine mesh strainer (100 mesh or finer). Pour lubricant slowly with the gasoline as tank is filled.

BELOW 32°F. (0°C)

Portable Tank - Pour approximately one gallon gasoline into tank, add required lubricant. Replace filler cap securely. Thoroughly mix by shaking tank. Add balance of gasoline.

Built-in Tank - In separate container mix all lubricant needed with one gallon or more of gasoline. Use large metal funnel with a fine mesh strainer (100 mesh or finer). Pour this mixture slowly with gasoline as tank is filled.



Break-In Procedure

The 50:1 mixture is used during break-in. Use only the recommended lubricant or other BIA certified TC-W lubricants at the recommended 50:1 mixing ratio.

SEE INSIDE FRONT COVER FOR RECOMMENDED LUBRICANT.

OPERATION (FIRST HOUR): For the first 5-10 minutes, operate engine at a fast idle. Check to see that a steady discharge of water is coming out of the water pump indicator to assure proper water pump operation.

NOTE: With easy planing boats, bring the boat into planing position with full power and then immediately reduce the throttle setting to approximately 3000 rpm (one-half throttle). BE SURE boat maintains planing attitude at this throttle setting.

OPERATION (SECOND HOUR): Bring boat into planing attitude and reduce power to 4000 RPM or three-quarter throttle (approximate) while maintaining planing attitude. At intervals during the second hour, apply full power for periods of one to two minutes, returning throttle to original setting (4000 RPM three-quarter throttle) for a cooling period.

Avoid continuous full throttle operation for extended periods during the next eight hours.

Starting and Operation

Portable Fuel Tank

Place fuel tank in boat so tank will not shift around. Be sure fuel line is not wedged or under tank. Allow fuel line slack to permit steering.

NOTE: Do not operate motor out of water even momentarily without use of a recommended accessory flush kit. Water pump may be damaged or motor may overheat. Turn on water before starting motor.

This engine is equipped with an electrically controlled fuel primer system which injects fuel directly into the intake manifold WHEN ENGINE IS CRANKED OR RUNNING, to provide needed enrichment for starting or as required. This fuel primer replaces the function of the choke and is activated by pushing the key switch IN when it is in the ON or START position and deactivated when the key switch is released.

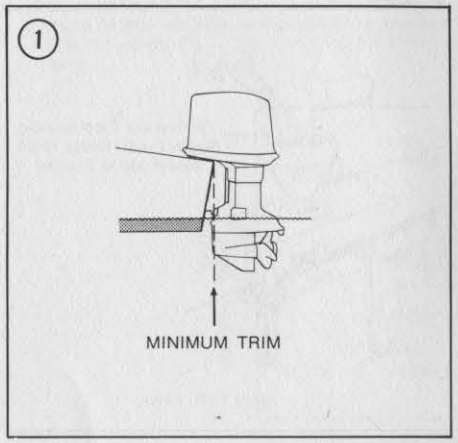
Engine can be started when motor is trimmed out if water conditions prohibit a vertical engine position. Be certain that the water pump intake is below the water surface to avoid damage to water pump and engine.

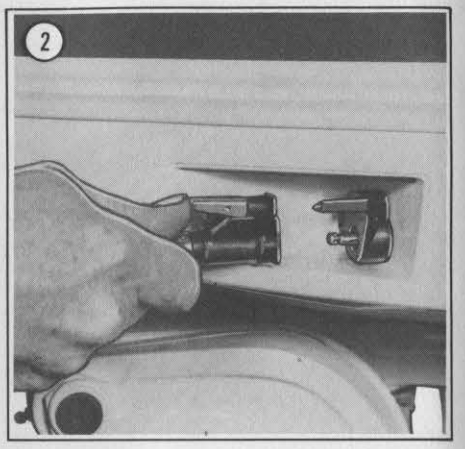
Starting

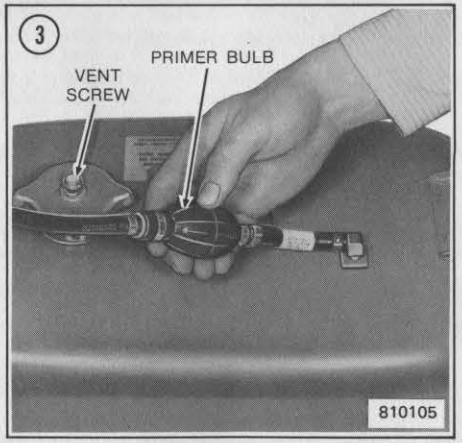
The recommended OMC portable fuel tank and fuel line are used in the following instructions.

1. Be sure motor is in normal running position.
2. Slide fuel line connector onto motor coupling until locking lever snaps into position. Secure fuel line to retainer on lower motor cover to avoid interference with steering system. To disconnect fuel line depress locking lever on fuel line connector and pull off at motor.
3. Open vent screw FULLY on filler cap. Holding the outlet end slightly up, squeeze fuel line primer bulb several times until resistance is felt.

NOTE: Be sure vent screw on filler cap is in the FULLY open position (turn counterclockwise until binding occurs). Failure to open vent screw may cause motor stoppage and permanent damage to motor due to fuel starvation.

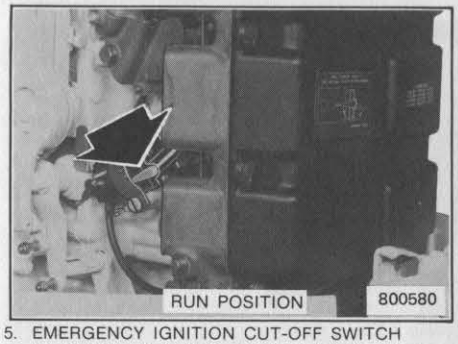


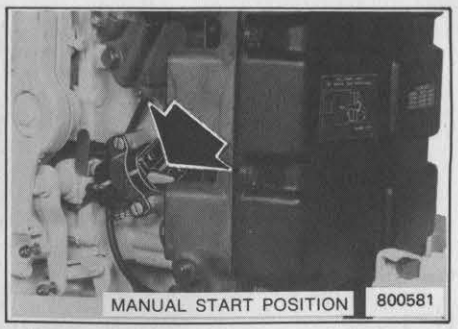




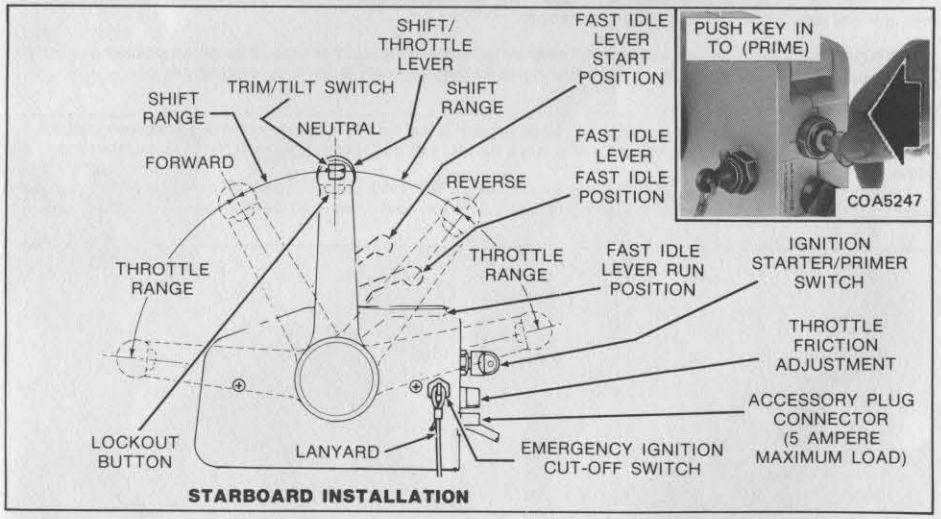
4. MANUAL PRIMER VALVE
The MANUAL PRIMER VALVE, under the motor cover, (See REMOVING MOTOR COVER) can be set at RUN position or MANUAL START position. It will stay in either position it is set. Always set the MANUAL PRIMER VALVE at RUN position for all normal operation. This allows motor to be primed at the remote control.

Safety Warning: Manual primer valve lever must be in "run" position except for emergency starting to prevent fire and explosion. With lever in "manual start" position and fuel tank connected, leakage could occur through propeller exhaust opening due to pressurized fuel system. Always disconnect fuel line while motor is in storage.



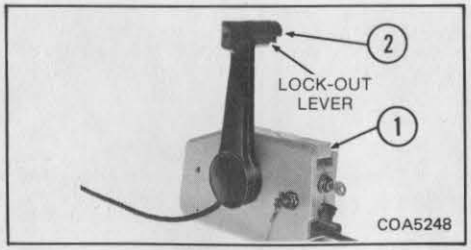


5. EMERGENCY IGNITION CUT-OFF SWITCH
An emergency ignition cut-off switch is a feature of the remote control. Use of this switch is highly recommended on any boat considered to have sensitive steering response. Examples of boats which fall into this category would be smaller runabouts, high performance sports boats and bass boats. In addition, the emergency ignition cut-off switch should be used on any boat where the distance between the driver's seat cushion and the top edge of the boat next to the seat cushion is less than 12" (305 mm).
Attach the lanyard to a secure place on clothing. Do not place the lanyard on any part of clothing that may be torn or will permit the lanyard to pull away rather than stopping the engine. Using the switch is simple and does not interfere with normal operating procedures. However, if the operator leaves the hlm area, the cut-off switch will stop the engine. This action will prevent your boat from becoming a runaway. Care should be taken to avoid knocking or pulling the lanyard off the switch during regular boating operation. Unexpected loss of forward motion could occur allowing occupants to be thrown forward.
6. Move remote control shiftthrottle lever to NEUTRAL position. Neutral start switch in control box prevents starting engine when shift/throttle lever is in gear. Make sure lanyard is attached to cut-off switch on remote control. Removal of lanyard will prevent engine from starting. Move fast idle lever up to START position (Cold motor). Partial advanc (Warm motor).
7. COLD MOTOR - Starting a cold motor requires use of the PRIMER.
Turn starter key clockwise to START position and simultaneously push key in for full prime. Release key as soon as motor starts. If motor does not start do not hold starter and primer on for over 10 seconds. Let go momentarily and then tr again. After starting reduce throttle (AS NECESSARY TO AVOID EXCESSIVE HIGH RPM) by moving fast idle lever toward RUN position. (For quickest motor warm-up, speed should be set between 1000 and 1500 RPM). Additional priming (push key in to prime) may be required until motor warms up, then reduce to idle speed by moving fast idle lever back to RUN position. Check to see that a steady discharge of water is coming out of the water pump indicator to assure proper water pump operation. See COOLING SYSTEM. If motor does not start, see TROUBLE CHECK CHART.



WARM MOTOR
Follow cold motor procedure except warm motor does not normally require PRIMER switch operation. Place fast idle lever in FAST IDLE position to avoid high RPM.

NOTE: NEVER TURN KEY TO START POSITION WHEN MOTOR IS RUNNING. For special starting situations such as starting after long periods of shut-down or after running out of fuel, etc., use primer bulb (fuel to engine), push starter key in and hold for full primer action.



How to Shift and Control Speed

1. Move fast idle lever down to RUN position.

NOTE: Do not shift into FORWARD or REVERSE unless motor is running.

2. To shift into either gear, lift lock-out lever and move shift/throttle lever briskly in the desired direction to the fully shifted position, which requires 30° of lever motion. A shift/throttle lever detent provides a "feel" at the forward idle and reverse idle positions.
   After shifting is completed, continue to move the lever slowly in the desired direction to increase speed.

NOTE: A temperature WARNING HORN located in the REMOTE CONTROL will sound if engine overheats. If horn sounds, stop engine immediately. Check water intake. See COOLING SYSTEM section of this manual.

NOTE: When shifting from FORWARD to REVERSE or REVERSE to FORWARD, always pause at NEUTRAL until motor is at idle speed and boat has slowed, then lift lockout lever and shift into gear.

NOTE: When operating in REVERSE additional care should be exercised as the motor has no automatic tilt protection.

Stopping Motor

Move shift/throttle lever to NEUTRAL. Turn starter key counterclockwise to OFF position to stop motor. Always leave the key in the OFF position when motor is not running, to prevent battery from discharging. Remove key when boat is unattended.

Safety Warning: To help prevent possible fuel leakage, disconnect fuel line from motor when boat is trailered, docked or when motor is tilted for more than a few minutes.

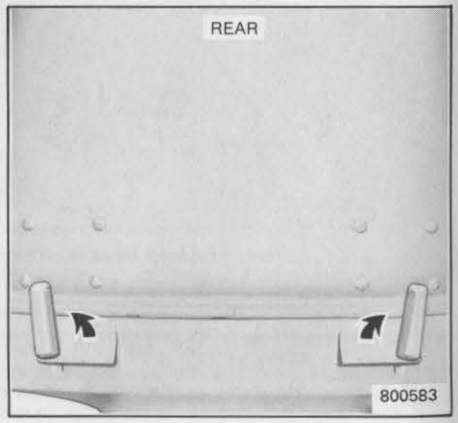
Coil fuel line on top of tank when not in use. This will help protect fuel line and connector from damage and help prevent sand or dirt from entering connector.

NOTE: Whenever engine will not be used for an extended period of time, disconnect positive (+) battery cable to reduce chance of battery running down and damage caused by electrolysis.

Removing Motor Cover

Do not remove or install the motor cover while engine is running. The motor cover is a machinery guard. Its removal exposes the operator to moving parts. Keep hands, hair and clothing away from flywheel, starter and air intake.

To remove motor cover turn front and rear locking levers 90°. Lift cover off. Reinstall cover assembly in reverse order, making certain rubber seal fits properly between cover and lower pan before turning locking levers.



Emergency Starting

SAFETY WARNING: Do not use jumper cables and a booster battery to start engine. Do not charge a battery in the boat with an external charger. Fumes vented during either operation can lead to an explosion. Follow Emergency Starting procedure.

If the battery does not have sufficient charge to operate the electric starter, the motor can be started manually. Be sure motor is in normal running position. See MANUAL OPERATION - TRIM/TILT. Follow steps 1, 2, 3 and 5 under STARTING. Then proceed as follows:

Safety Warning: When using Emergency Starting procedure, the start-in-gear protection system is inoperative. Make sure throttle/shift lever is in neutral position to prevent sudden propulsion when engine starts. If available, someone should be at steering wheel.

COLD MOTOR

1. PLACE starter key in OFF position.
2. Remove motor cover. See REMOVING MOTOR COVER.
3. If using a portable 6-gallon gas tank slowly release filler cap on the 6-gallon tank to relieve the pressure in the tank. Close cap.

Safety Warning: During step 3 gasoline vapors (and possibly liquid fuel if tank is full) will be released. Gasoline is extremely flammable and highly explosive under certain conditions. Do not smoke or allow open flames or spark near the boat when the cap is removed from the fuel tank.

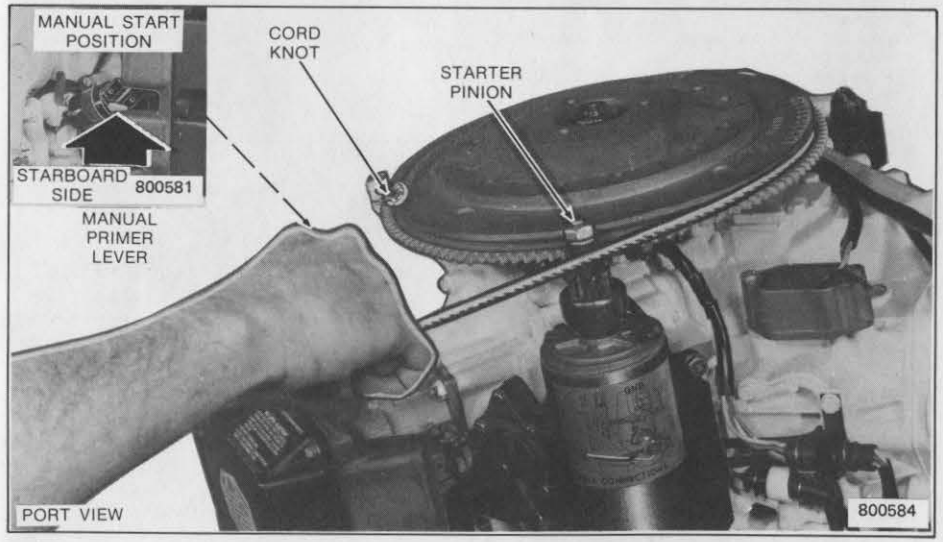
4. Squeeze the fuel line primer bulb to fill carburetors.
5. Rotate the MANUAL PRIMER VALVE to the MANUAL START position.
6. Squeeze the fuel line primer bulb once and release.
7. Rotate the MANUAL PRIMER VALVE lever to the Run Position.
8. Raise the fast idle lever to START position and turn starter key to ON position ONLY to prevent accidental engagement of starter motor. To prevent bodily contact with moving parts, do not turn flywheel by hand. Use starter cord only. Attach lanyard to emergency ignition cut-off switch.
9. Remove emergency starting cord from plastic bag in motor cover. Place the knot on end of cord in the notch of the pulley on top of the flywheel. Wrap cord around pulley clockwise as illustrated, making sure starter cord knot is clear of starter pinion.
10. Pull forcibly on emergency starting cord to start the motor.

Safety Warning: Do not touch high voltage ignition coils or spark plug wires when motor is being started or when running. Shock can cause serious personal injury under certain conditions.

11. After starting, allow cold motor to run 2 minutes (warm-up). Reduce motor speed by moving fast idle lever down to RUN position. (AVOID EXCESSIVE HIGH RPM.)
12. DO NOT attempt to replace motor cover after motor has started. Head to nearest boat landing for service and replace motor cover.

WARM MOTOR

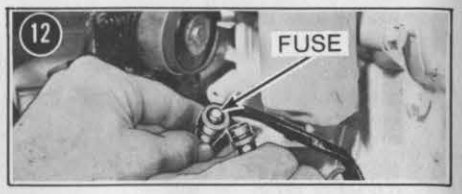
1. If engine is warm, follow the cold motor procedure except delete steps 4, 5, 6 and 7. Place FAST IDLE lever in fast idle position to avoid high RPM. If engine fails to start, repeat cold motor procedure steps 1 through 12.



If your electrical system is in operating order, the alternator should recharge your battery. If not, have the electrical system checked by your DEALER.

Trouble Check Chart

MOTOR WILL NOT START, check for:
1. Shift/Throttle lever in NEUTRAL and fast idle lever in START position. Lanyard attached to cut-off switch.
2. Fuel in tank and vent screw open
3. Fuel line connector properly attached
4. Carburetor primed (squeeze primer bulb)
5. Fuel tank resting on fuel line
6. Fuel line clear and not kinked
7. Cold motor: Engine not primed sufficiently
8. Warm motor: Engine over-primed or flooded. (Do not prime motor, disconnect fuel line at motor, and crank until cleared.)
9. Fuel pump filters obstructed
10. Water in fuel system
11. Check battery and electrical connections
12. Check 20 ampere fuse at terminal strip on port side of motor. Always carry spare fuses. See SPECIFICATIONS
13. No spark:
    A. Loose spark plug leads
    B. Spark plugs carboned, burned or wet
    C. Ignition system (see your DEALER)
    D. Two ignition electrical connectors disconnected. Match connectors (with 2 wires, brown and brown with stripe) and push together.
14. Loose spark plugs, causing poor compression (see SPECIFICATIONS for recommended torque)
15. Recheck starting instructions



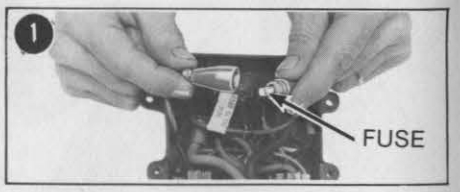
POWER TRIM/TILT INOPERATIVE
1. Check 30 AMP. fuse in junction box. See SPECIFICATIONS.
2. Check fluid level. See LUBRICATION.

MOTOR WILL NOT IDLE PROPERLY, check for:
1. Damaged spark plugs (insulator cracked)
2. Improper fuel mixture

MOTOR LOSES POWER, check for:
1. Damaged spark plugs (insulator cracked)
2. Fuel pump filter partially restricted or fuel contaminated
3. Obstruction at water intake. Cooling system not operating properly
4. Fuel system restricted. See FUEL AND LUBRICANT.

MOTOR VIBRATES EXCESSIVELY, check for:
1. Bent or broken propeller
2. Weeds on propeller

MOTOR RUNS, BUT MAKES LITTLE OR NO PROGRESS, check for:
1. Bent or broken propeller
2. Weeds on propeller



If this does not solve problem, then contact your DEALER.

Power Trim and Tilt Operation

⚠ **Safety Warning: Any malfunction of the power trim/tilt unit could result in a loss of shock absorber protection if an underwater obstruction is hit. Malfunction can also result in loss of reverse thrust capability.**

Power Trim

Power Trim and Tilt feature provides the boat operator with the facility, at the helm, to change the angle of the engine's propeller in relation to the boat bottom.

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ng on the type of boat, load, propeller and operating peed is determined by the operator's use of the Power

IMPORTANT

BE SURE YOU HAVE ENCLOSED YOUR CHECK OR MONEY ORDER TO AVOID UNDUE DELAY. DO NOT SEND CURRENCY OR STAMPS!

If your electrical system is in operating order, the al
electrical system checked by your DEALER.

Trouble Check Chart

MOTOR WILL NOT START, check for:

1. Shift/Throttle lever in NEUTRAL and fast idle leve
   in START position. Lanyard attached to cut-c
   switch.

IMPORTANT

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The Power Trim has a range of 15° and may be operated at any boat speed or at rest. You can trim the boat while underway to improve acceleration, boat speed, and to meet changing water conditions.

To operate the Power Trim, push the Trim/Tilt switch to the desired bow position. Holding the switch in the desired position will activate the motor's trim until the switch is released or the motor reaches its maximum position.

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

Boat performance and trim position will differ depending on the type of boat, load, propeller and operating conditions. The best ride, fuel economy, performance and speed is determined by the operator's use of the Power Trim.

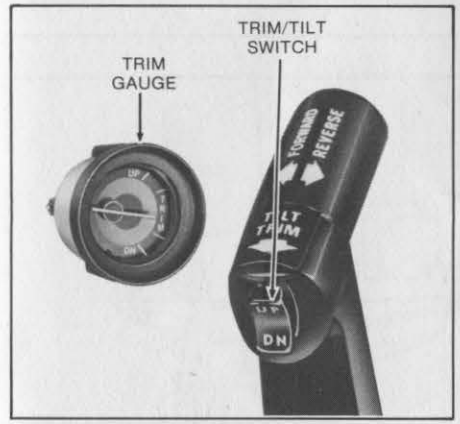
NOTE: If the trim unit is being trimmed in while the motor is operated in reverse, the motor could suddenly change trim position when shifted to forward.

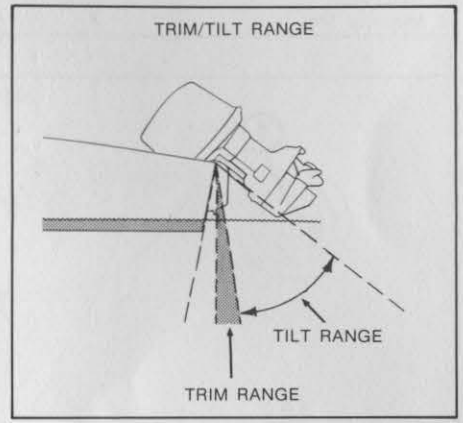
Safety Warning: To prevent sudden unexpected changes in direction with possible loss of boat control, always determine and set the minimum trim angle by proper location of the angle adjusting rod. After adjustment, make sure angle adjusting rod retainer is in "lock" position.

The effect of the maximum "Bow-Up" and "Bow-Down" positions will be relatively the same for most applications, however, the bow position that is best for your operating conditions could be at any trim setting between the maximum "Bow-Up" and "Bow-Down" positions.

The boat will be properly trimmed when the trim angle is adjusted to provide a bow position that results in the best boat performance for your particular operating conditions.

It will be necessary to utilize a speedometer and tachometer to determine boat and motor performance at the different trim positions.





Bow-Down

Actuating the Trim/Tilt switch to the "Down" position results in lowering the boat's bow.

The "Bow-Down" position would achieve 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.

In the "Bow-Down" position the boat may tend to pull to the right. If this condition exists, it should be compensated for with the operator's steering or the trim tab should be adjusted if this is your most commonly used trim position. (See ADJUSTING TRIM TAB.)

If the trim unt is being trimmed to "Bow-Down" position while the motor is operated in reverse, the motor could suddenly change trim position when shifted to forward.

Bow-Up

Actuating the Power Trim Switch to the "Up" position results in raising the boat's bow.

The "Bow-Up" position would achieve the best fuel economy and highest top speed. The "Bow-Up" position is normally used for cruising or running at full speed. In the "Bow-Up" position, the boat may tend to pull to the left. If this condition exists, it should be compensated for with the operator's steering or the trim tab should be adjusted, if this is your most commonly used trim position. (See ADJUSTING TRIM TAB.)

To familiarize yourself with Power Trim, we suggest you make test runs at the various bow positions. Note the time it takes for the boat to plane, the tachometer and speedometer readings, and the ride and action of the boat.

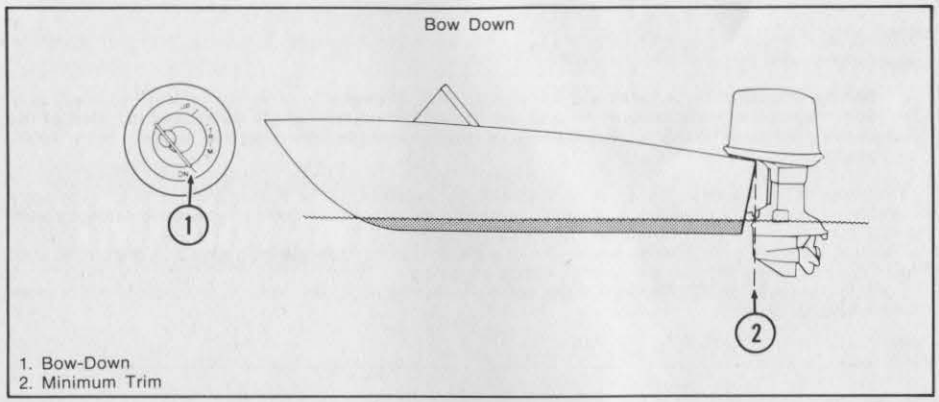
Safety Warning: Some boat/motor/propeller combinations may encounter marginal boat stability and unusually high steering torque when operated at high speed at or near the full bow up trim position. If these conditions occur, throttle back to maintain control. Marginal boat stability and high steering torque can be minimized by applying the information contained in the "REMOTE STEERING SYSTEMS" section of this manual.

Tilting

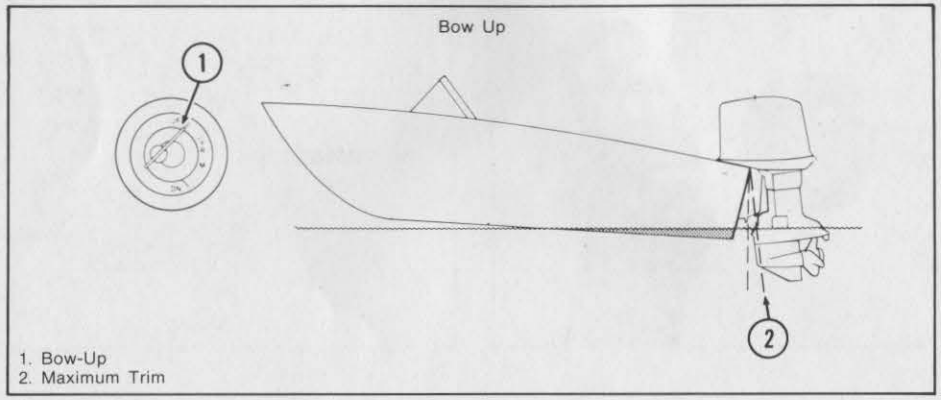
The angle of the motor tilt is also controlled by the Trim/Tilt switch. When the switch is held in the "Bow-Up" position, the motor is tilted up until the switch is released or the motor reaches the maximum tilt position.

The trim gauge will show maximum "Bow-Up" position whenever the motor is in the tilt range which is an additional 50° beyond the trim range.

Tilting is normally used for raising the motor to obtain clearance when beaching, launching from a trailer, or mooring.



1. Bow-Down
2. Minimum Trim



1. Bow-Up
2. Maximum Trim

Cooling System

NOTE: Never run the engine unless a steady stream of water is visible coming from the water pump indicator.

This motor is water cooled. Water enters the gearcase through a screened intake and is pumped through the powerhead and discharged at the rear of the gearcase.

A water indicator is provided and should be discharging a steady stream whenever the engine is running. Make it a habit to watch this indicator particularly when operating in weeds, mud or debris laden water. There is also an overheat warning horn built into your remote control.

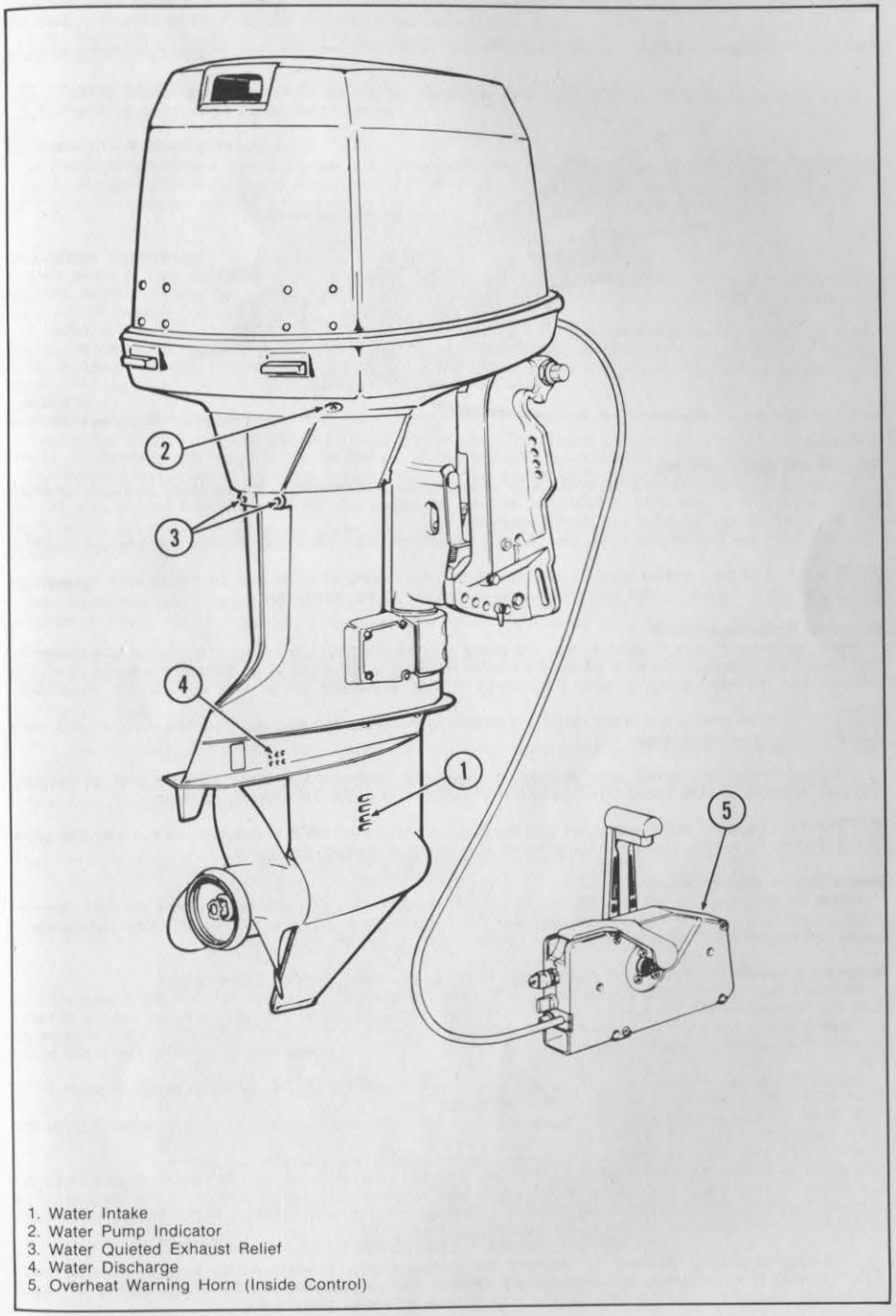
If the water pump indicator stops or becomes intermittent or the horn sounds, stop engine immediately and check for a restricted water intake screen. After cleaning the screen, start the engine at a fast idle and watch the water pump indicator. If it is discharging a steady stream you may have to run up to two minutes in neutral to allow the powerhead to cool down and the horn to stop sounding. If the water pump indicator does not resume a steady stream or if the horn continues to sound after 2 minutes, stop the engine immediately or serious powerhead damage can occur.

A weak or intermittent stream from the overboard water indicator when the intake screen is not restricted, or recurring sounding of the overheat warning horn indicates a worn water pump or other cooling system malfunction. See your DEALER.

Retorquing the cylinder head and exhaust cover screws is recommended anytime the overheat warning horn sounds. See your DEALER.

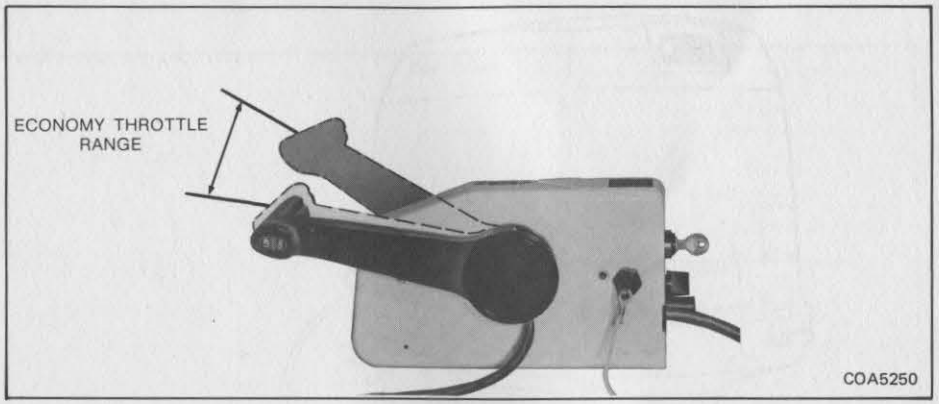
Some water will normally be discharged at the exhaust relief outlet, but the amount varies depending on discharge water temperature and engine speed. It is not a reliable indication of proper cooling system operation.

NOTE: For continuous operation in waters containing excessive amounts of salt, sand or silt, we recommend an OMC accessory chrome plated water pump kit. See your DEALER.



1. Water Intake
2. Water Pump Indicator
3. Water Quieted Exhaust Relief
4. Water Discharge
5. Overheat Warning Horn (Inside Control)

Fuel Economy
The fuel economy throttle range can affect fuel savings depending on boat load and hull design. When boat reaches top speed, back off the throttle from full speed position into the fuel economy range to maintain a comfortable speed.



Dual Motor Maneuvering
When leaving or approaching the dock, or for any other close maneuvering at slow speed, start both engines. Leave the stand-by engine idling in NEUTRAL and use the engine with the control nearest the operator. The use of one control is very effective and more convenient.
In the event that this engine stops, you can immediately go to the other engine which has been on stand-by.

NOTE: Stand-by engine must be running when maneuvering or water may be forced back through the underwater exhaust outlet and cause serious damage to the powerhead.

Shallow Water Operation
When operating in very shallow waters, the motor may be tilted slightly higher than normal trim range and operated at slow speeds. (Be sure the engine's water intake is in the water at all times and water is being discharged from the water pump indicator.) The motor should be lowered immediately when back in deep water.

NOTE: If an obstruction is hit, retard the throttle immediately and stop motor. Check propeller and lower unit for possible damage.

If motor vibrates excessively after striking an underwater obstruction, it may indicate a bent or damaged propeller. Operate at slow speed. Your DEALER is equipped to check for propeller damage.

NOTE: Operating motor with lower unit dragging on bottom will result in propeller wear. It may also cause sand to be forced into water pump which may cause damage to the pump.

Operating in Weedy Water
Weeds on the propeller will cause motor to vibrate. Run at reduced throttle when weeds are thick. Reverse motor periodically to clear weeds from propeller. Stop motor, clear propeller and water intake completely of weeds before resuming speed in clear water. Check water pump indicator at intervals.

Damaging Loads to Motor and Boat From High Speed Underwater Impacts:
Be aware that when boating at speeds above 50 mph you assume risks not present in other modes of transport. Your highway is the waterway. As such it is not always smooth or free of hidden hazards. A stump or heavy log floating low in the water can easily impact damaging loads to your boat and motor. These loads must be resisted by the combined soundness of the motor, the boat, and the installer's care in attaching the motor to the boat.
Should you hit an underwater object at high speed, weakness in any of these elements could result in:
- Breakage or weakening of remote steering system parts.
- Boat transom being torn away or motor attaching hardware breaking; boat may sink or motor may be lost overboard.
- Motor's gearcase may break off with remainder of motor staying on boat's transom.

If gearcase should hit a solid object in the water or while being trailered, stop and examine your motor for damage to transom brackets, steering system parts, and loosening of motor attaching hardware. Retighten any loosened fasteners. Before boating again, take your boat and motor to your DEALER so that he can more closely inspect your motor and boat's transom for possible damage.

Safety Warning: Failure to inspect for damage may contribute to sudden loss of boat control (i.e., steering failure) during normal use or your boat and motor's ability to resist high speed impacts to the motor's gearcase at some later time.

Slow Speed Impacts to Motor When Boat is Moving Backwards:
The outboard's steering system is sometimes called upon to resist very high loads which are caused by the motor being turned forcibly on the transom. Such loading can occur when boat is in the water, or on a trailer, and is accidentally backed into a rigid object such as a stump, pier piling, or garage wall. Keep in mind that a heavy boat, with passengers, slowly drifting backwards with wind can impart heavy loads to the boat's steering system if the boat is stopped suddenly by the motor's contact with a fixed object.
If the motor should receive a rearward impact, examine all steering system parts closely for signs of loosening, weakening, or deformation.

Safety Warning: Failure to inspect for damage may result in sudden unexpected loss of steering control at some later time.

Operating in Freezing Weather
In freezing temperatures, keep the lower unit submerged in the water at all times. This will avoid freezing and possible damage to the water pump or other parts of the motor. When removing the motor from the water, keep the motor in an upright position until water is completely drained from the cooling system.

Salt Water Operation
Your motor is built for operation in either fresh or salt water. Fresh water internal flushing is not normally required, however, it may be desirable after use in especially polluted or brackish water. Your local dealer will assist you in securing the appropriate flushing device.
If motor is to remain on boat during long periods of inoperation, tilt gearcase out of the water (except during freezing temperatures). When removing motor from water, allow cooling system to drain thoroughly, by placing motor in upright position. We recommend that motor exterior be rinsed with fresh water and wiped off with a lightly oiled rag.

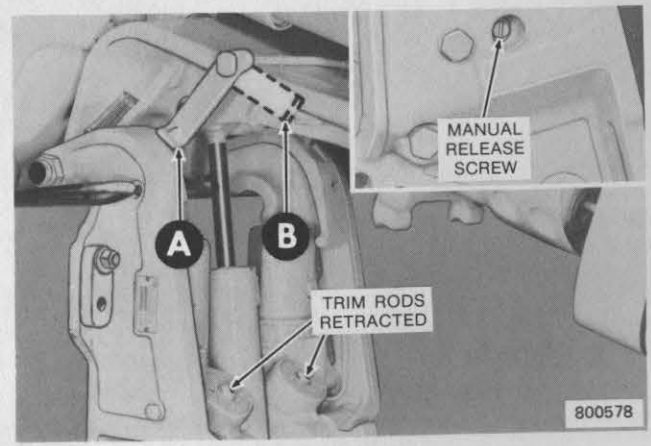
Anti-Corrosion Protection
Your motor is equipped with 2 anti-corrosion zinc anodes. The anodes protect your motor from corrosion. Erosion or disintegration indicates the anodes are performing their function. The anodes should be inspected and/or replaced at intervals or corrosion to motor will increase. See FEATURES for locations of anodes on motor. See your dealer for replacement anodes.

NOTE: Never paint or cover the anodes with any coating. If you do corrosion protection from the anodes will be lost.

Trailering
We recommend your motor be trailed in its normal running position. If trailer does not provide adequate road clearance, a TRAIL LOCK is provided to secure motor in full tilt position for trailering.

NOTE: Do not trail motor in a tilted position unless trail lock is engaged. Failure to engage trail lock while trailering may damage the hydraulic system.

TO ENGAGE TRAIL LOCK:
1. Place motor in full TILT position. See TILTING.
2. Pull trail lock down so it rests on stern brackets. A detent will hold the trail lock in trailering position or in stow position.
3. Lower motor so that trail locks rest against stern brackets. Continue to activate "down" switch until the two trim rods are fully retracted.



A Trail Lock - Engaged B Trail Lock - Stow Position

TO DISENGAGE TRAIL LOCK:
1. Tilt motor to full TILT position.
2. Move trail lock up into stow position. Position motor in full tilt position before launching.

Safety Warning: The power tilt should be used to lift and support the motor before disengaging the trail lock. Loss of oil pressure while on the trail lock could allow the engine to drop suddenly when the trail lock is disengaged.

Manual Operation - Power Trim and Tilt Model

In the event of failure of the boat's electrical system or other problem, it may be necessary to raise or lower the motor manually. Turn manual release screw counterclockwise slowly ONE TURN ONLY - this will allow motor to be pushed down to the outermost trim position.

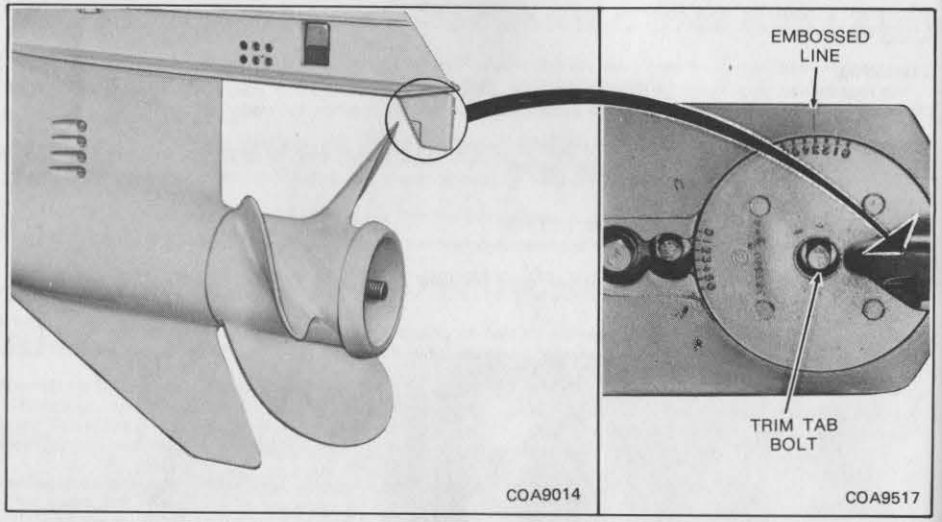
Safety Warning: Keep clear of motor when backing out manual release screw. After the motor is lowered be sure to tighten manual release screw clockwise until it stops. This will reactivate shock absorber protection and reverse thrust capability.

The motor is now in the bow up trim position, and must be operated in a manner suitable for this condition.

Adjustments

Trim Tab Adjustment

Your boat may tend to veer slightly to port or starboard due to steering forces or other reasons. To check this, run boat in a straight line with balanced load, in an area where current and wind will not be a factor. To correct, loosen trim tab bolt and adjust trim tab slightly in same direction in which boat is veering. Reference numbers (0 thru 6) are embossed on the trim tab for ease of adjustment. Align reference number with center of recessed bolt or embossed line.



Safety Warning: Improper trim tab adjustment can cause difficult steering. See your DEALER.

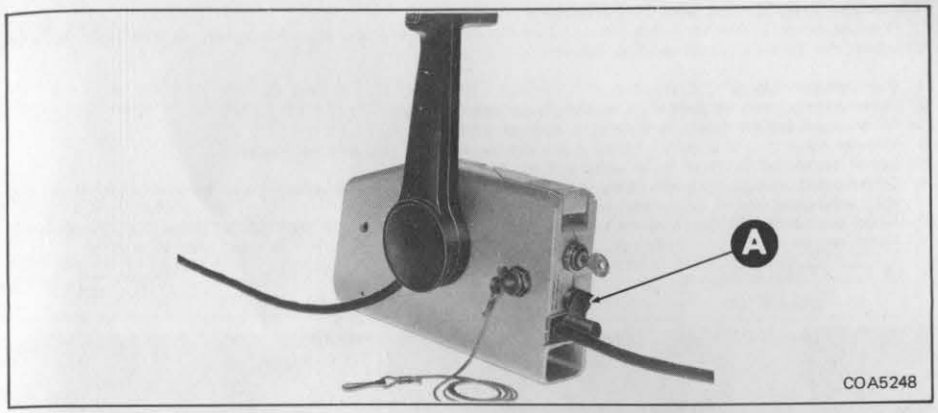
Steering forces are affected by boat trim and by motor angle adjustment. Proper boat trim and correct motor angle adjustment will reduce steering effort. If the motor is not vertical, boat will tend to veer to one side. For example, if motor tilt angle is adjusted too low, boat will veer to the right. If up too high, it will veer to the left. Check for proper trim tab adjustment with motor in vertical position.

Throttle Friction Adjusting Knob (A)

This knob may be adjusted so that throttle setting will not wander while you are underway.

To adjust, start engine, move shift/throttle lever into throttle range and while you are underway turn adjustment knob as required for proper friction adjustment.

The friction device is only effective in the forward throttle range portion.

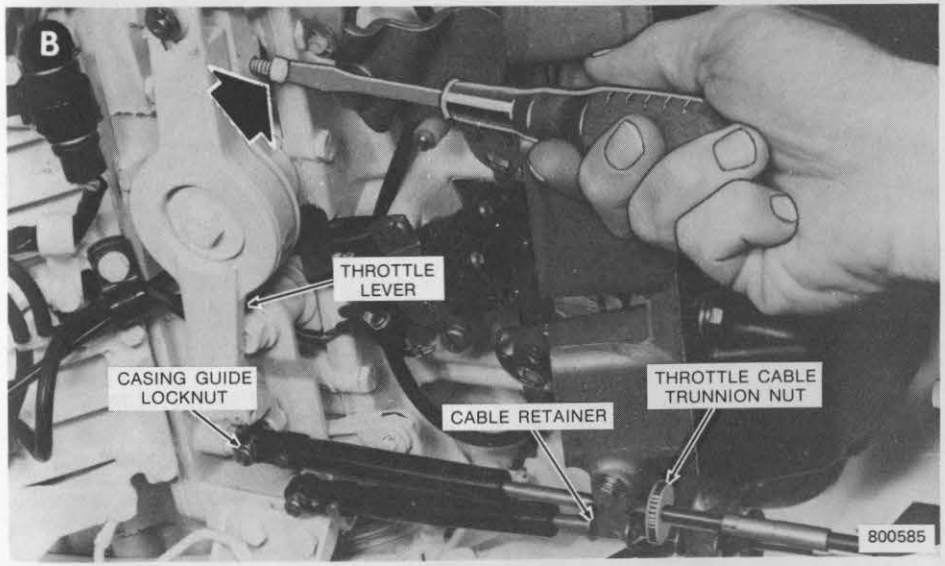


Idle Speed Adjustment (B)

Stop motor and remove motor cover. (See REMOVING MOTOR COVER.) Start motor.

The motor should be at normal operating temperature with the shift/throttle lever in NEUTRAL and fast idle lever in RUN (down) position, before making idle speed adjustment. Turn the screw clockwise to increase idle speed or turn counterclockwise to decrease idle speed (See SPECIFICATIONS for idle speed). Stop motor. Readjust throttle cable trunnion as follows to ensure consistent idle speeds.

1. Remove casing guide from throttle lever.
2. Move fast idle lever from Run to Start position a few times and return to run position.
3. Adjust trunnion nut so casing guide will slip over pin on throttle lever with no effort. (Flat on casing guide must face lever.) Reinstall locknut and washer and check for proper operation before securing casing guide to lever. It may be necessary to remove throttle cable from cable retainer to make this adjustment.
   If cable adjustment is long, the idle speed will tend to be high and inconsistent.
   If the cable is adjusted tight, the controls will be stiff. Replace motor cover.



Carburetor Adjustment

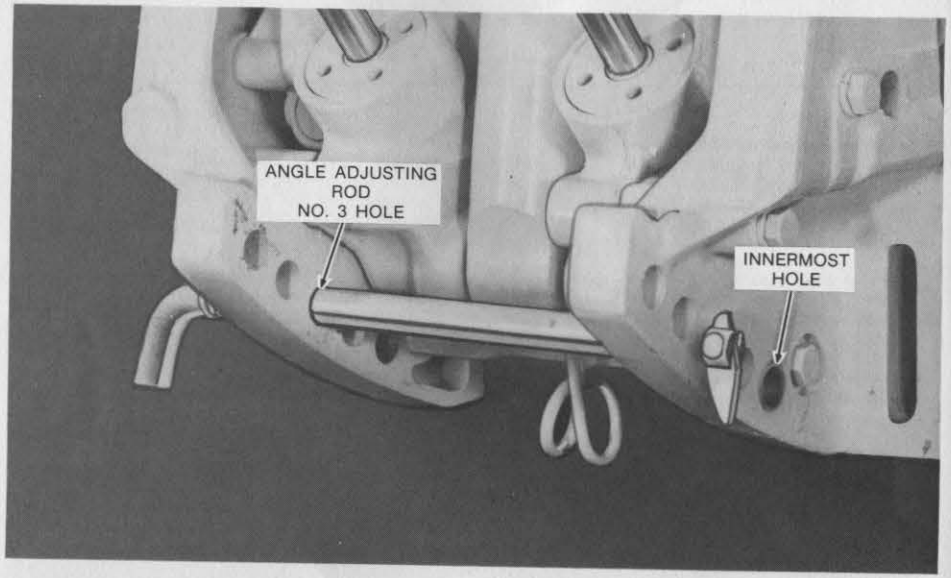
HIGH SPEED AND SLOW SPEED

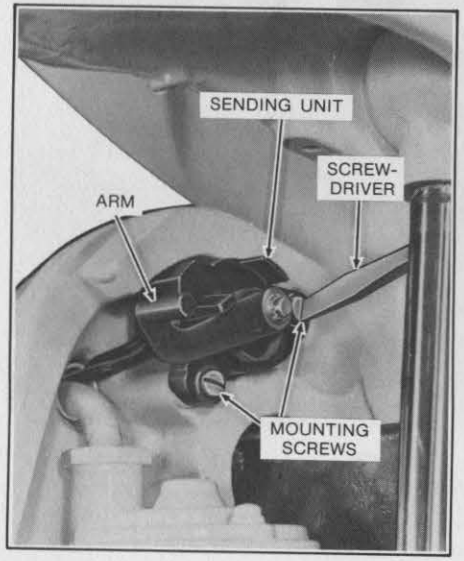
Fuel ratio calibration is maintained through use of fixed jets. No adjustment is required.

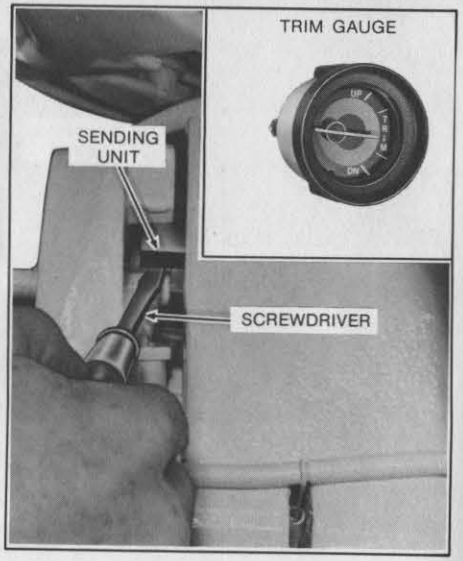
Adjusting Trim Gauge and Sending Unit

In some cases, it may be necessary to adjust the trim sending unit to coincide with the trim gauge at full up trim position. To do this, proceed as follows:

1. Turn ignition key to ON position.
2. Raise engine, with tilt switch, to maximum up trim position.
3. Move angle adjusting rod to number 3 hole as shown.
4. Loosen sending unit screws, slightly but snug, so sending unit can be pivoted.
5. Lower engine all the way down against angle adjusting rod.
6. Observe trim gauge. If needle does not show center position, adjust sending unit by pivoting it up or down with screwdriver, until gauge shows needle in center position.
7. Raise engine and tighten sending unit screws. Lower engine and recheck gauge. (Readjust if necessary.)
8. Raise engine to remove angle adjusting rod and reinsert rod into the hole used prior to step 3.







Lubrication

TYPES OF LUBRICANT		Contact your DEALER for OMC Lubricants.		
OMC TRIPLE-GUARD GREASE		OMC HI-VIS GEARCASE LUBE	LUBRIPLATE 777	OMC POWER TRIM AND TILT FLUID
				
TUBE	GREASE GUN			
A	B	C	D	E
LUBRICATION PICTURE SYMBOLS				

GEARCASE LUBRICATION

With motor in vertical position, remove oil drain/fill and oil level plugs from starboard side of gearcase. Allow lubricant to drain completely.

To refill, place tube of OMC HI-VIS Gearcase Lube in drain/fill hole. Fill until lubricant appears at oil level hole. See SPECIFICATIONS for gearcase capacity.

NOTE: Recommended lubricants which have been formulated to protect against damage to bearings and gears must be used as extensive damage can result from improper lubrication.

Install oil level plug before removing lubricant tube from oil drain/fill hole. Drain/fill plug can then be installed without loss of lubricant. Tighten both plugs securely.

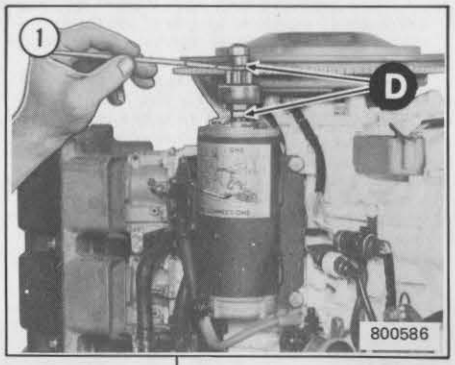
If the proper tube or filler type can is not available, install drain/fill plug. Slowly fill gearcase through oil level hole allowing trapped air to escape. Install oil level plug. Tighten both plugs securely.

Air still trapped inside gearcase will escape after motor is operated or allowed to stand in a vertical position for several hours. Recheck level and refill as required.

LUBRICATION POINTS

1. Starter Pinion Shaft - Coat upper section and screw areas of shaft. Excess grease will be thrown off when starter is engaged.
2. Cover Latches - Front and Rear
3. Swivel Bracket Fitting and Trail Lock
4. Tilt Tube Shaft
5. Carburetor Linkage
6. Control Shaft Bushings, Bearing and Throttle Cam
7. Shift Linkage
8. Power Trim and Tilt Fluid Reservoir: Place motor in full tilt position and engage trail lock. Remove filler plug and check fluid level. If necessary, add OMC Power Trim And Tilt Fluid or equivalent to bring fluid level even with bottom of fill hole. Disengage trail lock and operate unit through several tilt cycles. Recheck fluid level and add fluid if necessary.
9. Gearcase: Change after first 20 hours of operation and check after 50 hours of operation. Add lubricant if necessary. Drain and refill every 100 hours of operation or once each season, whichever occurs first.

9a. Oil Level
9b. Oil Drain/Fill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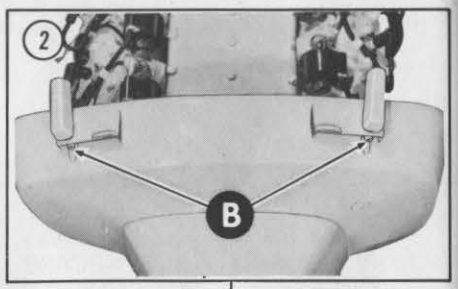
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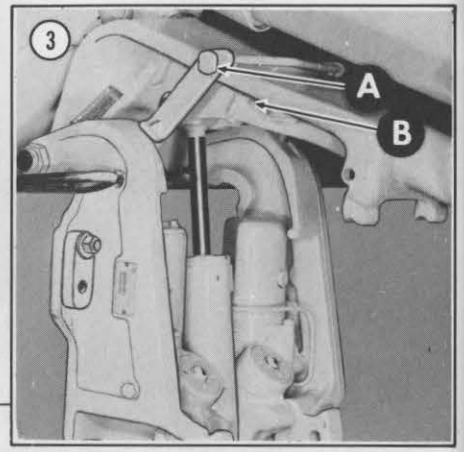
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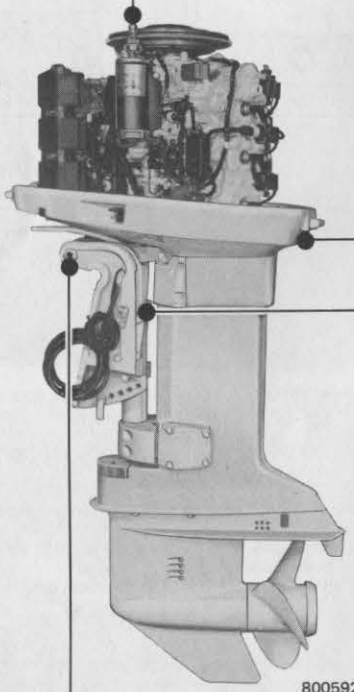
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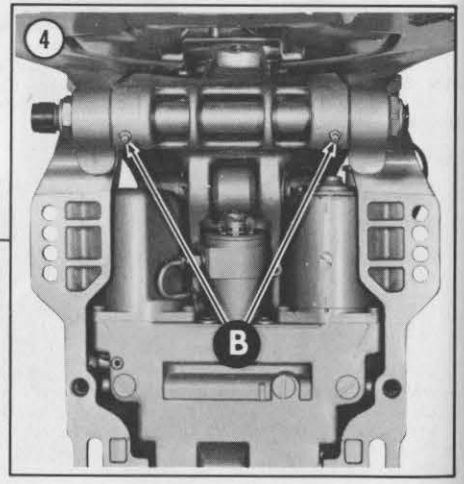
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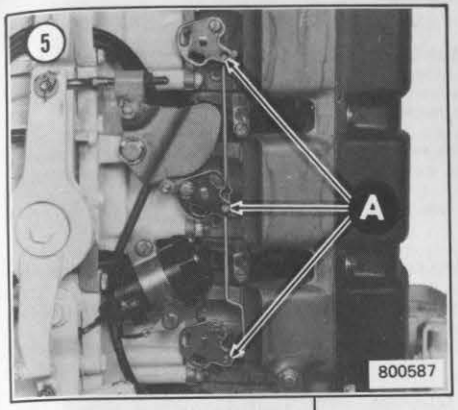
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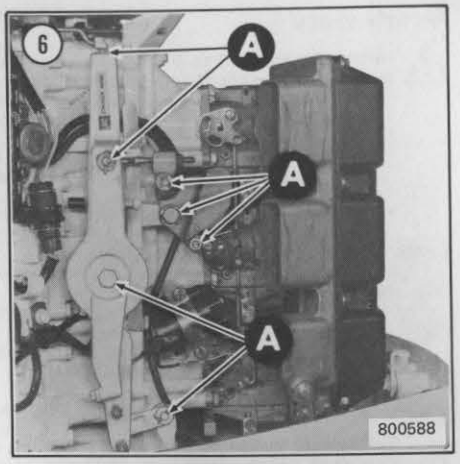
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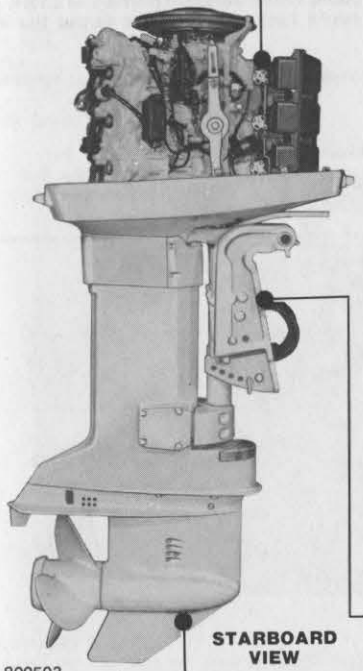
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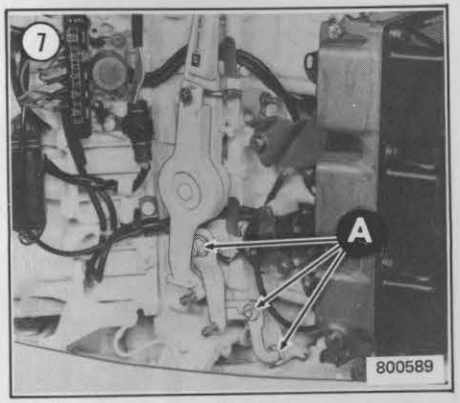
STARBOARD VIEW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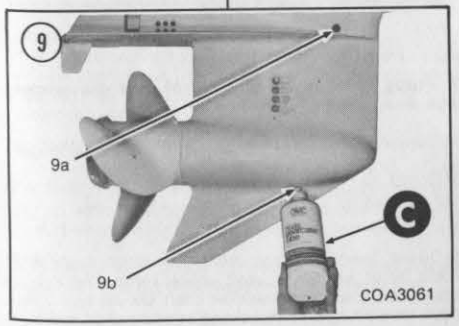
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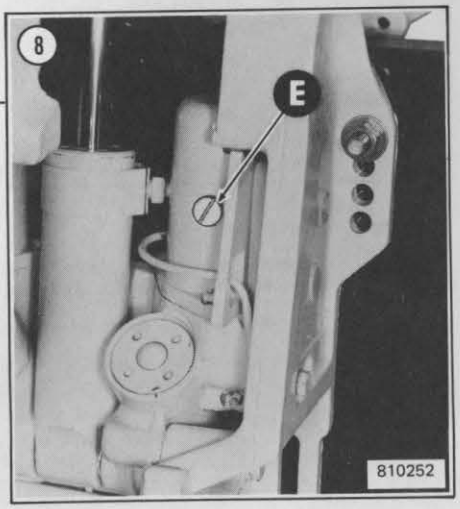
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Submerged Motor

Motor Dropped Overboard (Not Running)

If motor is recovered from water immediately, it must be serviced within 3 hours after recovery. See your DEALER. See PROLONGED SUBMERSION.

Since this motor is provided with needle bearings, it must be serviced within 3 hours after recovery to avoid costly repairs. Both fresh and salt water characteristically will start etching the highly machined bearing surfaces of the crankshaft and connecting rods as well as the bearings once exposed to the surrounding atmosphere.

If service is not readily available, proceed as follows:

1. Remove motor cover and rinse motor with fresh water.
2. Disconnect both electrical connectors between armature plate and power packs, spark plug leads and remove spark plugs.
3. Place motor in horizontal position (spark plug openings down) and work out all of the water by rotating flywheel with emergency starter cord approximately 10 times.
4. Place motor in upright position. Remove six high speed orifice screw plugs from lower sides of carburetors. Drain carburetors.
5. Starters, electrical connectors and electrical equipment on motors that have been submerged should be completely disassembled, cleaned, flushed with fresh water if exposed to salt, and thoroughly dried before assembly.
6. Reassemble parts you removed or disconnected and follow starting instructions. After starting, permit motor to run 1/2 hour or longer.
7. If motor fails to start, remove spark plugs again to see if water is present on electrodes. Blow out any water from electrodes and reinstall or replace with new plugs. If the motor fails to start, HAVE IT SERVICED IMMEDIATELY. Motors which have been submerged must be started or disassembled as soon as possible or expensive repairs will be necessary. To minimize damage, motor must be started or serviced within approximately 3 HOURS after recovery.

NOTE: If motor cannot be started and if service is not readily available, the motor should be re-submerged immediately in fresh water to avoid exposure to the atmosphere. Make arrangements to have it serviced with the least possible delay.

Motor Dropped Overboard (Running)

Follow the same procedure as MOTOR DROPPED OVERBOARD (NOT RUNNING). However, if there is any binding when flywheel is rotated it indicates a bent connecting rod and no attempt should be made to start the motor. HAVE IT SERVICED IMMEDIATELY.

Motor Dropped Overboard (In Salt Water)

Follow same procedure as MOTOR DROPPED OVERBOARD (NOT RUNNING) and (RUNNING) but take the motor to your DEALER as soon as possible, even if it can be started, as salt water can cause excessive corrosion of electrical system and internal parts.

Prolonged Submersion (Fresh or Salt Water)

If motor has been dropped overboard and not recovered immediately, the motor must be serviced within 3 hours after recovery. See your DEALER.

If sand has entered the motor, no attempt at starting should be made. Return it to your DEALER for disassembly and cleaning.

Warranty Service

To make a claim under warranty, contact the authorized Johnson dealer from whom the outboard motor was originally purchased, or the nearest authorized Johnson dealer. Remember, your outboard motor must be delivered to an authorized Johnson dealer within the warranty period, and all warranty work must be performed by an authorized Johnson dealer. Proof of purchase may be required by the Johnson dealer to substantiate any warranty claim. Use your Johnson Owner Identification card to establish proof of purchase.

Examples of Items Not Covered by Warranty

Provisions of the Warranty Will Not Apply to:

Normal service requirements arising during the warranty period, such as carburetor or ignition adjustment or repair, or wear of a piston ring, cylinder, or water pump.

Normal service work over and above the repair and replacement of defective parts.

Outboard motors subject to misuse, neglect, negligence, accident, or used for racing purposes.

Outboard motors that have been altered or modified so as to adversely affect their operation, performance or durability or to change their intended use.

Repairs made necessary by the use of parts or accessories which are either incompatible with the outboard motor or adversely affect its operation, performance or durability.

Outboard motors not operated or maintained in accordance with the instructions in the Johnson Owner's-Operator's Manual.

Twenty-hour check-up, service check-up, tune-up, or diagnosis.

Normal cleaning, adjusting or replacing of spark plugs in the outboard motor.

Periodic checking or adding of oil to the gearcase of the outboard motor.

Expense of returning the outboard motor to the dealer and expense of delivering it back to the owner, removal of the outboard motor from a boat and reinstallation, mechanic's travel time, and in-and-out-of-water charges.

Owner's Obligation and Responsibility

Normal maintenance service and replacement of service items are the responsibility of the owner as such are not considered defects in material or workmanship within the terms of the warranty. Individual operating habits and usage contribute to the need for maintenance service. To assist you in obtaining maximum service and satisfaction from your new Johnson outboard motor, the principal service and replacement items are described as follows:

PROPER MAINTENANCE AND CARE: See your Johnson dealer for proper maintenance and care of your outboard motor. Proper maintenance and care will assist in keeping your overall operating cost at a minimum.

20-HOUR CHECK-UP AT CUSTOMER'S EXPENSE: Any precision piece of mechanical equipment should have an inspection after initial break-in. This inspection will be performed at local Johnson dealer rates and paid for by the owner. This is an opportune time to discuss with your Johnson dealer any questions you may have about your Johnson outboard motor and to establish a routine preventative maintenance schedule. After the 20-hour check-up, your unit should be taken to an authorized Johnson dealer every 6 months or 100 hours of operation, whichever occurs first.

ENGINE TUNE-UP AND MAINTENANCE

LUBRICATION: Grease requirements and oil changes are listed in the Johnson Owner's-Operator's Manual.

FUEL SYSTEM CHECK: Fuel filters should be replaced periodically to clean the fuel properly. Carburetors need periodic adjustment. Both are necessary to obtain peak performance from the engine.

SPARK PLUGS AND IGNITION SYSTEMS: These items are subject to wear and contamination and should be checked periodically.

CARBON DEPOSITS: A degree of carbon build-up is normal in the combustion chamber of any gasoline engine, depending on fuel quality and operating conditions, and should be periodically removed. For best results, follow the gasoline and oil recommendations.

PROPELLERS: Propellers should be serviced, straightened or replaced when necessary for maximum performance. Propellers are subject to various underwater hazards and resulting damage is an owner responsibility.

WATER PUMP PARTS WEAR: These parts are subject to various amounts of wear depending upon water conditions and are normal maintenance service items. Your Johnson dealer will be able to tell you how often these parts need replacing in your area.

CLUTCH WEAR OR CLUTCH DOG WEAR (where applicable): These parts are subject to various amounts of wear depending upon individual operating habits and are therefore an owner responsibility. Where applicable, refer to instructions in your Johnson Owner's-Operator's Manual on shifting.

The OMC Economixer is designed to monitor engine operating information. If for some reason the Economixer is unable to supply lubricant requirements or part of the engine or OMC Economixer systems should fail, the OMC Economixer gauge will indicate a problem and the gauge and engine will react as follows:

Yellow light on.

This indicates low oil level in reservoir.

When yellow light appears there is approximately 1/3 tank capacity left.

Refill reservoir with BIA certified TC-W lubricant.

If you do not carry a reserve supply of oil on board, the remaining oil (when the yellow light appears) will allow some running time. The amount of time will vary due to engine size, single or dual engines, and throttle setting.

With 1/3 reservoir capacity left, the following are approximate running times:

	Cruising (Approx. 85% Throttle)	Fishing (1/3 Cruising 2/3 Trolling)
Single Engine 3-1/2 Gal. Reservoir	5 Hours	15 Hours
Dual Engines 3-1/2 Gal. Reservoir	3 Hours	8 Hours
Single Engine 7 Gal. Reservoir	11 Hours	30 Hours
Dual Engines 7 Gal. Reservoir	5 Hours	16 Hours

Flashing red light and horn and yellow light on - engine stops in 30 seconds.

This indicates a no oil situation and the engine is stopped after a 30 second warning.

The engine can be restarted and run for approximately 30 seconds before the red light and horn come back on. Thirty seconds after the red light and horn come on the engine will stop. The engine can be continuously restarted in this manner, but if the fault remains, the engine will be stopped as explained above. Refill oil reservoir to correct this condition. If refilling oil reservoir does not correct this condition, see your DEALER.

Flashing red light and horn - engine stops in 30 seconds.

The system is not delivering sufficient oil. The engine can be restarted and run for approximately 30 seconds before the red light and horn come back on. Thirty seconds after the red light and horn come on the engine will stop. The engine can be continuously restarted in this manner, but if the fault remains, the engine will be stopped as explained above. See your DEALER to correct this condition.

Flashing red light and horn - engine continues to operate.

The variable ratio is lost and the Economixer provides oil at a constant rate. This will permit engine to run with a rich oil mixture. See your DEALER to correct this condition.

No lights or alarm but engine stops.

This indicates a malfunction in the engine or the Economixer wiring. The engine can be restarted and run at idle. See your DEALER to correct his condition.

In the event the Economixer will not operate and you wish to disconnect the oil injection system, follow these steps.

1. Make certain the engine can be started before following this procedure.
2. Turn ignition switch to the "Off" position.
3. Remove motor cover. See REMOVING MOTOR COVER. Disconnect the **4**-wire electrical connector from the Economixer to the engine, located on the port side of the engine. Replace motor cover.
4. Add BIA certified TC-W oil to gasoline in boat's fuel tank. See FUEL AND LUBRICANT MIXING INSTRUCTIONS.

1. 4-Wire Connector

Warranty

Limited One (1) Year Warranty

Johnson Outboards (Johnson), a product group of Outboard Marine Corporation, warrants for one (1) year each new Johnson gasoline or electric outboard motor according to the following terms.

This warranty commences on the date of first retail purchase and extends to original and subsequent retail purchasers; however, in no event shall the duration of this warranty exceed one (1) year measured from the original retail sale.

Any part of the outboard motor manufactured or supplied by Johnson and found in the reasonable judgment of Johnson to be defective in material or workmanship will be repaired or replaced by an authorized Johnson dealer without charge for parts and labor.

The outboard motor including any defective part must be returned to an authorized Johnson dealer within the warranty period. The expense of returning the outboard motor to the authorized Johnson dealer for warranty service and the expense of returning it back to the owner after repair or replacement will be paid for by the owner. Johnson's responsibility in respect to warranty claims is limited to making the required repairs or replacements, and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any outboard motor.

Proof of purchase will be required by the authorized Johnson dealer to substantiate any warranty claim. One way to provide proof of purchase is to present your dealer with your Johnson Owner Identification card. The presentation of the Owner Identification card is not a prerequisite to warranty service; however, the procedures set up by Johnson for issuing an Owner Identification card to first purchasers meet certain requirements of the Federal Boat Safety Act.

If this outboard motor is used commercially for such purposes as rental or other income-producing activities, then this warranty is limited to six (6) months from the date of original retail purchase.

This warranty does not cover any outboard motor that has been subject to misuse, neglect, negligence, or accident, or that has been operated for racing purposes. The warranty does not apply to any damage to the outboard motor that is the result of improper installation or maintenance, or to any outboard motor that has been operated or maintained in any way contrary to the operating or maintenance instructions as specified in the Johnson Owner's-Operator's Manual. The warranty does not cover any outboard motor that has been altered or modified so as to adversely affect the outboard motor's operation, performance or durability, or that has been altered or modified so as to change its intended use. In addition, the warranty does not extend to repairs made necessary by normal wear, or by the use of parts or accessories which are either incompatible with the outboard motor or adversely affect its operation, performance or durability.

Johnson reserves the right to change or improve the design of any outboard motor without assuming any obligation to modify any outboard motor previously manufactured.

ALL **IMPLIED WARRANTIES** ARE **LIMITED IN DURATION** TO THE APPROPRIATE **ONE (1) YEAR OR SIX (6) MONTH** WARRANTY PERIOD.

ALL IMPLIED WARRANTIES INCLUDING **MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE,** OR OTHERWISE, **ARE DISCLAIMED** IN THEIR ENTIRETY AFTER EXPIRATION OF THE APPROPRIATE ONE (1) YEAR OR SIX (6) MONTH WARRANTY PERIOD.

JOHNSON'S OBLIGATION UNDER THIS WARRANTY IS STRICTLY AND EXCLUSIVELY **LIMITED TO** THE **REPAIR OR REPLACEMENT** OF DEFECTIVE PARTS, AND JOHNSON DOES NOT ASSUME OR AUTHORIZE ANYONE TO ASSUME FOR THEM ANY OTHER OBLIGATION.

SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

JOHNSON ASSUMES NO RESPONSIBILITY FOR INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES INCLUDING, BUT NOT LIMITED TO, EXPENSE FOR GASOLINE, EXPENSE OF RETURNING THE OUTBOARD MOTOR TO AN AUTHORIZED DEALER AND EXPENSE OF RETURNING THE OUTBOARD MOTOR BACK TO THE OWNER, REMOVAL OF THE OUTBOARD MOTOR FROM A BOAT AND REINSTALLATION, MECHANIC'S TRAVEL TIME, IN-AND-OUT-OF-WATER CHARGES, TELEPHONE OR TELEGRAM CHARGES, TRAILERING OR TOWING CHARGES, RENTAL OF A LIKE PRODUCT DURING THE TIME WARRANTY SERVICE IS BEING PERFORMED, TRAVEL, LODGING, LOSS OR DAMAGE TO PERSONAL PROPERTY, LOSS OF REVENUE, LOSS OF USE OF THE OUTBOARD MOTOR, LOSS OF TIME, OR INCONVENIENCE.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

This warranty applies to outboard motors sold in the United States. Any outboard motors sold elsewhere are warranted by the affiliated marketing company of Outboard Marine Corporation.

JOHNSON OUTBOARDS
200 Sea-Horse Drive
Waukegan, Illinois 60085

A Product Group of OUTBOARD MARINE CORPORATION
Waukegan, Illinois 60085