

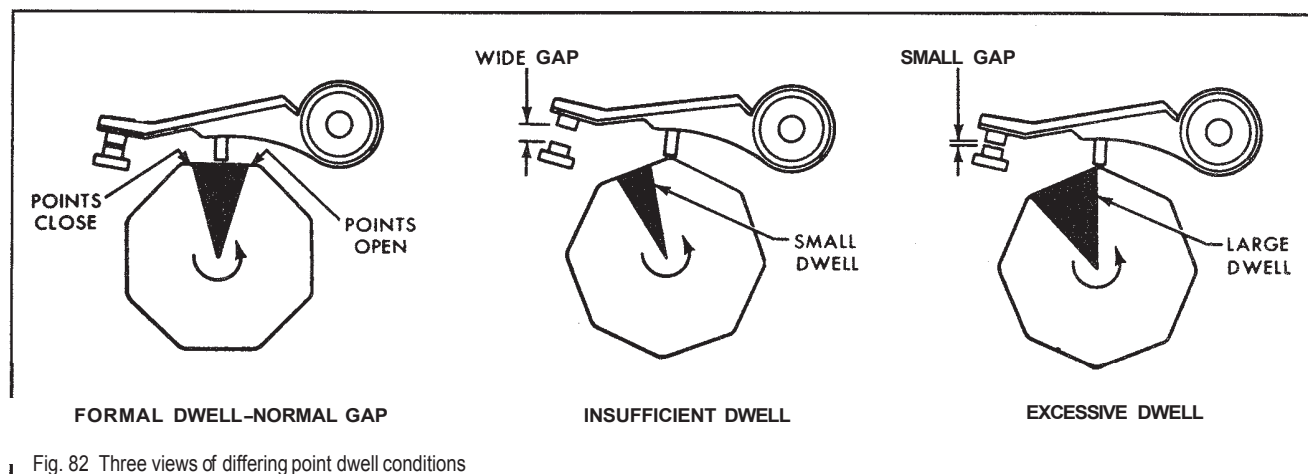


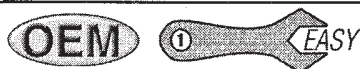
Fig. 82 Three views of differing point dwell conditions

Distributor Air Gap

All models equipped with BID ignition systems require an air gap adjustment between the sensor wheel and the trigger wheel; particularly after the distributor has been removed. It is also a good idea to ensure that the air gap is within specification prior to performing any ignition timing procedures

ADJUSTMENT—BID DISTRIBUTORS ONLY

◆ See Figure 83



1. Open or remove the engine hatches.
2. Remove the distributor cap and pull off the rotor as detailed in the Ignition System section.
3. Connect a remote starter switch as detailed in the manufacturer's instructions.
4. Check the sensor coil, trigger wheel and teeth for signs of wear or other obvious damage. Using the remote starter, crank the engine around until a tooth on the wheel aligns with the contact on the coil.
5. Insert a nonmetallic flat-bladed feeler gauge between the sensor and trigger wheel tooth. The gap should be 0.008 in. (0.20mm).
6. If not within specification, loosen the small screw on the trigger coil slightly and move the coil carefully until the gap is within spec. Tighten the screw securely—but not too tight—and recheck that the gap has not changed.
7. Disconnect the remote starter.
8. Install the rotor and distributor cap.

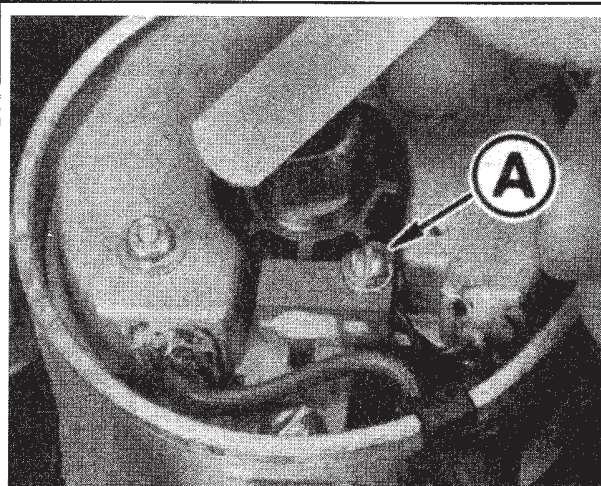
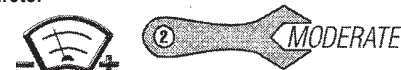


Fig. 83 Checking the distributor air gap

Idle Speed And Mixture

ADJUSTMENT

All Engines W/2bbl Carburetor



◆ See Figures 84 and 85

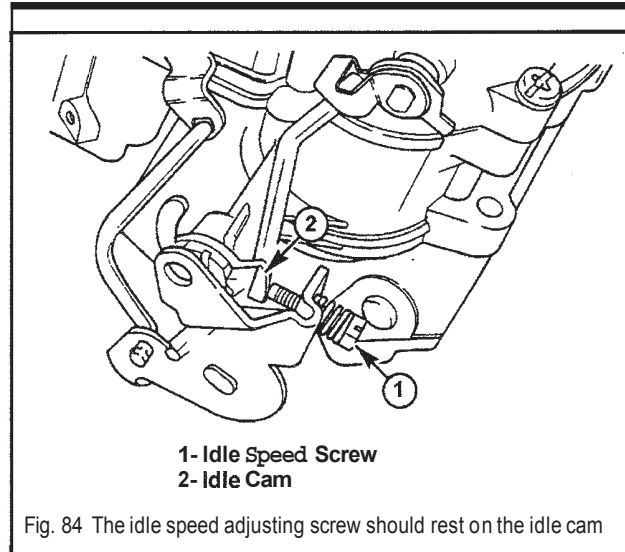
1. Locate the idle speed screw on your carburetor and turn it in or out until it is just resting on the idle cam, but is not moving it. The idle screw is threaded into the throttle linkage on the side of the carburetor and has a spring between the screw head and the linkage.
2. Locate the idle mixture screw on the base of the carburetor and turn it in (clockwise) until it just lightly seats itself and then back it out:
 - 1986-89 2.5L/3.0L engines—2 turns
 - 1986-89 2.3L, 4.3L and 5.0L engines—2 1/2 turns
 - 1988-90 Rochester—2 turns
 - 1988-90 2.3L engines—1 1/2 turns
 - 1988-93 3.0L engines—3 1/4 turns
 - 1988-93 3.0L HO engines—1 turn on starboard screw; 1 1/2 turn on port screw
 - 1994 3.0GL engines—3 1/4 turn
 - 1994-98 3.0GS engines—1 turn on starboard screw; 1 1/2 turn on port screw
 - 1988-94 4.3L engines—5 1/8 turn
 - 1995-98 4.3GL engines—5 1/8 turn
 - 1996-97 4.3GS engines—3 1/4 turn
 - 1988-90 5.0L engines—1 1/2 turns
 - 1991-93 5.0L engines—1 1/8 turns
 - 1990-93 5.0L HO engines—1 turn
 - 1994-96 5.0FL engines—1 turn
 - 1994 5.7GL engines—3 1/4-1 turn
 - 1997-98 5.7GL/GS engines—3 1/4-1 turn

** CAUTION

Be careful not to turn the idle mixture screw in past the seated position or you risk damaging the seat or needle. Both the screw tip and the casting seat can be affected. Replace any screws suspected of damage.

3. Ensure that the flame arrestor is in place and is free of debris and obstructions. A clogged filter will greatly impact this adjustment.
4. Connect a tachometer as per the manufacturer's instructions—do not use the tach on your boat!
5. Start the engine and allow it to run at idle until it reaches normal operating temperature.

2-28 ENGINE AND DRIVE MAINTENANCE

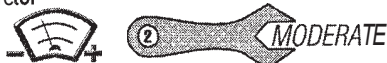


** CAUTION

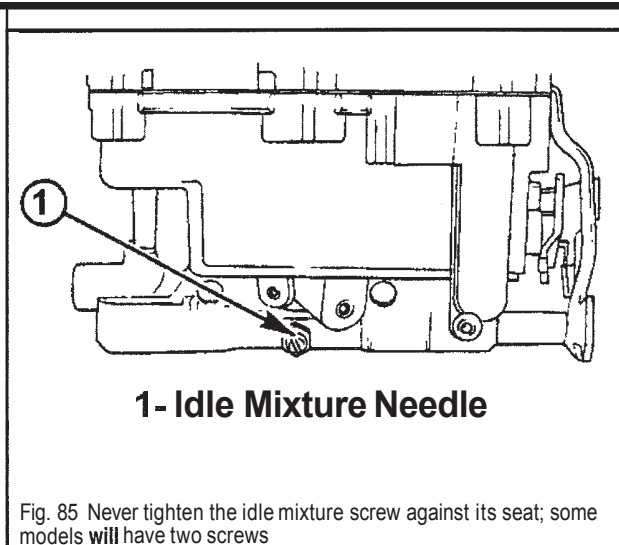
Water must circulate through the lower unit and to the engine anytime the engine is being run. Severe damage could result otherwise. If the boat is not in the water, **make** sure a flushing attachment has been installed properly.

6. You will need to disconnect the throttle cable from the throttle lever before performing the next step because the boat will need to be in gear.
7. With the engine still running and the tach hooked up, move the shift lever into F and turn the mixture screw(s) in (clockwise), carefully and slowly, until the engine speed JUST begins to drop due to a LEAN condition. Jot down the number of turns. If your carburetor has two screws, and it most likely will, there are two schools of thought here—you can adjust them individually or alternately. We prefer the alternating method; that is, turning each screw in a little at a time, the same amount, until you get the LEAN condition. If you go this route, we suggest turning them alternately no more than 118th turn at a time.
8. Now, back the screw(s) out (counterclockwise), evenly and alternately, until you achieve the correct idle speed as detailed in the Tune-Up Specifications chart. If the idle begins to drop before you get to the correct speed (due to a RICH condition this time) then back them down slightly until it runs smooth again.
9. Recheck the idle speed and compare it to the recommended speed in the chart. If adjustment is required, now you can use the idle speed stop screw—turn it, gradually and evenly, until the correct idle is achieved.
10. Turn the engine off and reconnect the throttle cable. Disconnect the tachometer.

All Engines W/4BBL Carburetor



1. Locate the idle speed screw on your carburetor and turn it in or out until it is just resting on the idle cam, but is not moving it. The idle screw is threaded into the throttle linkage on the side of the carburetor and has a spring between the screw head and the linkage.
2. Locate the idle mixture screw on the base of the carburetor and turn it in (clockwise) until it just lightly seats itself and then back it out:
 - 1986 engines—3 3/4 turns
 - 1987-89 engines w/Rochester—3 3/4 turns
 - 1987-89 engines w/Holley—1 1/2 turns
 - 1990-91 4.3L HO engines—3/4 turn
 - 1996-97 4.3GS engines—3/4 turn
 - 1998 4.3GS engines—1 1/8 turns
 - 1990-92 5.7L engines—1/4 turn
 - 1990-91 5.7L LE engines—1 turn
 - 1991-92 5.7L engines—1/2 turn
 - 1997 5.7GS engines—1/2 turn



- 1990 350 engines—1 turn
- 1990 5.8L engines—1 1/2 turns
- 1991-96 5.8L engines—7/8 turn
- 1990 454 engines—1 turn
- 1991-97 7.4L/8.2L engines—1/4 turn
- 1990 460 engines—1 1/2 turns

** CAUTION

Be careful not to turn the idle mixture screw in past the seated position or you risk damaging the seat or needle. Both the screw tip and the casting seat can be affected. Replace any screws suspected of damage.

3. Ensure that the flame arrestor is in place and is free of debris and obstructions. A clogged filter will greatly impact this adjustment.
4. Connect a tachometer as per the manufacturer's instructions—do not use the tach on your boat!
5. Start the engine and allow it to run at idle until it reaches normal operating temperature.

** CAUTION

Water must circulate through the lower unit and to the engine anytime the engine is being run. Severe damage could result otherwise. If the boat is not in the water, **make** sure a flushing attachment has been installed properly.

6. You will need to disconnect the throttle cable from the throttle lever before performing the next step because the boat will need to be in gear.
7. With the engine still running and the tach hooked up, move the shift lever into F and turn the mixture screw(s) in (clockwise), carefully and slowly, until the engine speed JUST begins to drop due to a LEAN condition. Jot down the number of turns. If your carburetor has two screws, and it most likely will, there are two schools of thought here—you can adjust them individually or alternately. We prefer the alternating method; that is, turning each screw in a little at a time, the same amount, until you get the LEAN condition. If you go this route, we suggest turning them alternately no more than 118th turn at a time.
8. Now, back the screw(s) out (counterclockwise), evenly and alternately, until you achieve the correct idle speed as detailed in the Tune-Up Specifications chart. If the idle begins to drop before you get to the correct speed (due to a RICH condition this time) then back them down slightly until it runs smooth again.
9. Recheck the idle speed and compare it to the recommended speed in the chart. If adjustment is required, now you can use the idle speed stop screw—turn it, gradually and evenly, until the correct idle is achieved.
10. Turn the engine off and reconnect the throttle cable. Disconnect the tachometer.

Fuel Injected Engines

Idle speed is constantly monitored by the electronic control module (ECM) and controlled by the idle air control valve (IAC). Idle speed and mixture are not adjustable. Please refer to the Fuel System section for further information on the fuel injection system.

PCV Valve

Many engines are equipped with a positive crankcase ventilation (PCV) circuit that utilizes a PCV valve in the rocker cover in order to ventilate unburned crankcase gases back into the engine via the intake manifold in order that they can be re-burned. The PCV valve should be replaced every boating season or 100 hours of operation.

A PCV system that is malfunctioning can cause rough running or idle, and also increased fuel consumption. Do not attempt to disconnect or bypass the system.

REMOVAL & INSTALLATION

- ◆ See Figure 86



1. Locate the PCV valve in the cylinder head cover—usually the port but it could be either.
2. Carefully wiggle it back and forth while pulling upward on the valve itself until it pops out of the cover.
3. Loosen the clamp (if equipped) and disconnect the breather hose from the valve.
4. Reconnect the hose and press the valve back into the cylinder head.

□ PCV valves are not serviceable. If your valve is clogged or otherwise not working properly, it must be replaced with a new one.

INSPECTION

- ◆ See Figure 87



Start the engine and allow it to reach normal operating temperature. Pop out the PCV valve as detailed above and cover the opening with your thumb. You should be able to feel significant vacuum; if not replace the valve. With the valve still in your fingers, shake it back and forth a few times; you should be able to hear the inside components moving around—a significant clicking sound.

If the valve passes these two tests, it is functioning properly. If it fails either of the tests and there are no leaks in any of the hoses or connections, it will require replacement.

PCV valves are not serviceable. If your valve is clogged or otherwise not working properly, it must be replaced with a new one.

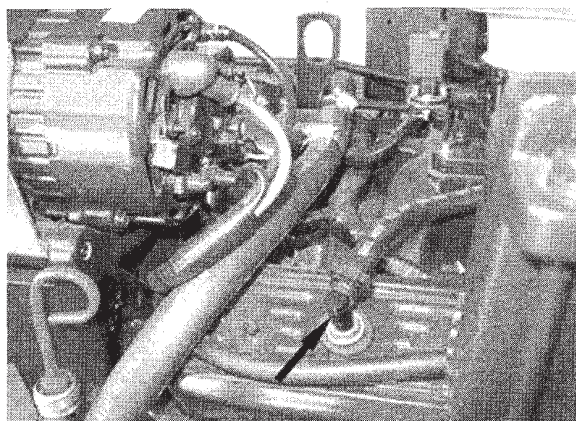


Fig. 86 Typical PCV valve

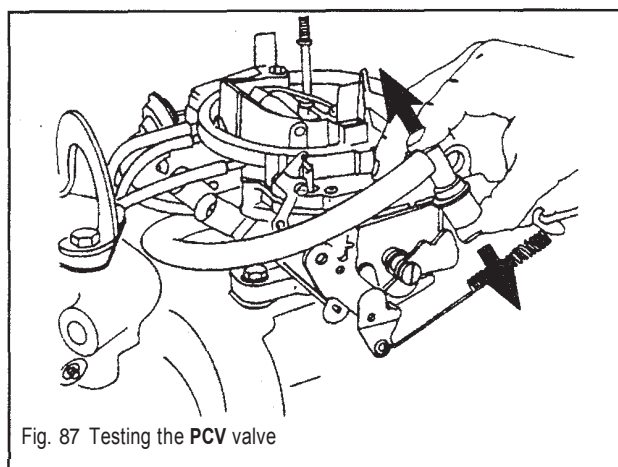


Fig. 87 Testing the PCV valve

Valve Adjustment

All engines covered in this manual are equipped with hydraulic valve lifters and do not require periodic valve adjustment. Adjustment to zero lash is maintained automatically by the hydraulic pressure in the lifters. For initial adjustment procedures after cylinder head work or if a problem is expected, please refer to the appropriate Engine Mechanical section.

FLUIDS AND LUBRICANTS

Fluid Disposal

Used fluids such as engine oil, gear oil, antifreeze and power steering fluid are hazardous waste and must be disposed of properly and responsibly. Before draining any fluids it is always a good idea to check with your local authorities; in many areas there are recycling programs available for easy disposal. Service stations, Parts stores and Marinas also often will accept waste fluids for recycling.

Be sure of your local recyclers' policies before draining any fluids, as many will not accept fluids that have been mixed together.

Fuel And Oil Recommendations

FUEL

All engine covered in this manual are designed to run on unleaded fuel. Never use leaded fuel in your boat's engine. The minimum octane rating of fuel being used for your engine must be at least 86 AKI (outside the US, 90

RON), on early models and 89 AKI (93 RON) on all others, but some engines may require higher octane ratings. OMC actually recommends the use of 89 AKI (93 RON) fuel as the ideal—in fact, anything less than this on many 4.3L, 5.0GL and 5.7L engines will require a change to the ignition timing. Fuel should be selected for the brand and octane that performs best with your engine. Check your owner's manual if in doubt.

The use of a fuel too low in octane (a measure of anti-knock quality) will result in spark knock. Newer systems have the capability to adjust the engine's ignition timing to compensate to some extent, but if persistent knocking occurs, it may be necessary to switch to a higher grade of fuel. Continuous or heavy knocking may result in engine damage.

ENGINE OIL

Nothing affects the performance and durability of an engine more than the engine oil. If inferior oil is used, or if your engine oil is not changed regularly, the risk of piston seizure, piston ring sticking, accelerated wear of the cylinder walls or liners, bearings and other moving components increases significantly.