1974-79 TUNE-UP PROCEDURES
Volvo V6

1976-79 260 Series

ENGINE IDENTIFICATION

Engine may be identified by the number stamped on left side of engine block, just forward of distributor. Number also is found on model plate, located on right front suspension strut mounting.

ENGINE CODES

Application	Code
1977 Models	
Federal	653
Calif.	651
1978 Models	
Federal	653, 659
Calif.	659
1979 Models	
Man. Trans.	498 620
Auto. Trans.	498 621

MODEL IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

Vehicle Identification Number is located on a plate attached to the left windshield pillar. Number also appears on model plate, located on right front suspension strut mounting.

ENGINE COMPRESSION

Warm engine to normal operating temperature. Check compression with spark plugs removed, throttle valve wide open, and engine cranking at 250-300 RPM.

ENGINE COMPRESSION PRESSURE

Application	Pressure
All Models	114-156 psi (8-11 kg/cm²)

VALVE CLEARANCE

NOTE: Crankshaft pulley has 2 notches. When cylinder No. 1 is at TDC, upper notch will align with "0" on timing marker and lower notch will be 150 degrees counterclockwise from upper notch. Second notch is TDC for cylinder No. 6 when aligned with "0" on timing marker.

1) Adjust valves with engine cold. Rotate crankshaft so cylinder No. 1 is at TDC of ignition stroke (both rocker arms for cylinder No. 1 have clearance). See VALVE CLEARANCE ADJUSTMENT SEQUENCE table and adjust valves.
2) Now, rotate crankshaft until second pulley notch aligns with "0" on timing marker. This will set cylinder No. 1 at TDC of exhaust stroke (rocker arms for cylinder No. 1 pivot indicating no clearance). Adjust remaining valves.

VALVE CLEARANCE ADJUSTMENT SEQUENCE [1]

Cylinder No. 1 At	Adjust Valves
Ignition Stroke	Exhaust Valves No. 1, 3, 6
Ignition Stroke	Intake Valves No. 1, 2 , 4
Exhaust Stroke	Exhaust Valves No. 2, 4, 5
Exhaust Stroke	Intake Valves No. 3, 5, 6

[1] - See VALVE CLEARANCE adjustment procedure for complete set of instructions.

VALVE CLEARANCE SPECIFICATIONS

Application	Clearance In. (mm)
Intake	.004-.006 (.10-.15)
Exhaust	.010-.012 (.25-.30)

VALVE ARRANGEMENT

E-I-E-I-E-I - Right bank, front-to-rear.
I-E-I-E-I-E - Left bank, front-to-rear.

NOTE: Intake valves are on inner sides of cylinder heads. Exhaust valves are on outer sides of heads.

SPARK PLUGS

SPARK PLUG SPECIFICATIONS

Application	Specification
Gap	.028-.032" (.70-.80 mm)
Torque	
1976-78 Models	13-15 ft. lbs. (18-20 N.m)
1979 Models	7-10 ft. lbs. (9.5-14 N.m)

SPARK PLUG TYPE

Application	Champion No.
All Models	BN9Y

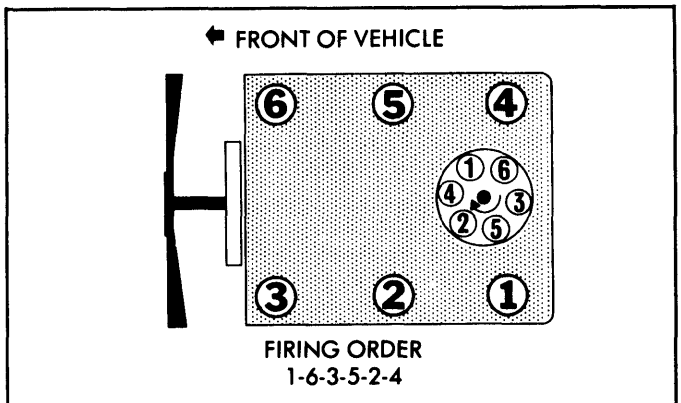

Fig. 1: Firing Order & Distributor Rotation

DISTRIBUTOR

Models are equipped with Bosch electronic ignition system.

IGNITION TIMING

1976-78 Models - Adjust throttle linkage and micro switch (if equipped). See THROTTLE LINKAGE & MICRO SWITCH in this article. Disconnect and plug vacuum hose at distributor. Set idle speed and ignition timing to specifications. Reconnect distributor vacuum hose.

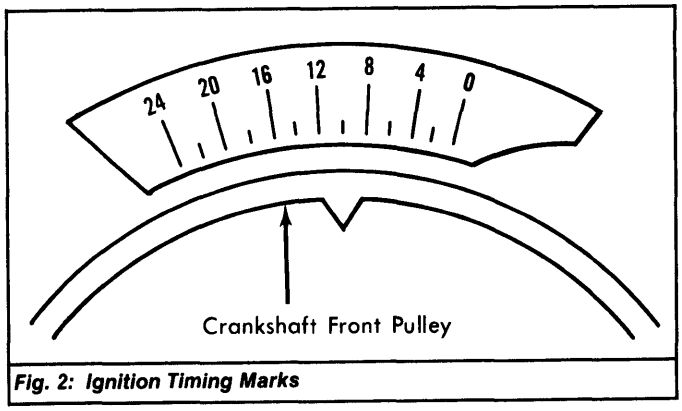

Fig. 2: Ignition Timing Marks

1974-79 TUNE-UP PROCEDURES
Volvo V6 (Cont.)

1979 Models - Connect timing light and tachometer to engine. Disconnect and plug distributor vacuum hose. Use idle air adjusting screw to set idle speed to specifications. Rotate distributor to set timing to specifications. Reconnect distributor vacuum hose.

IGNITION TIMING SPECIFICATIONS

Application	RPM	Timing
All Models	700-800	10°BTDC

IDLE SPEED & MIXTURE

1976-78 Models - 1) Adjust throttle linkage and micro switch (if equipped). See THROTTLE LINKAGE & MICRO SWITCH in this article. Check ignition and adjust if necessary.
2) Stop engine, disconnect oxygen sensor lead (if equipped), and restart engine. Turn air adjustment screw (third screw back) in until it bottoms. Engine speed should drop to 500-600 RPM. Turn screw back out until 900 RPM is reached.
3) Locate idle mixture adjustment screws on boss, behind air sensor and the 2 front balance screws. Adjust idle CO% level to specifications. Access hole must be covered or plugged while checking CO% level. Adjust each bank of engine separately, then check together to ensure correct CO% level.

IDLE SPEED & CO% LEVEL SPECIFICATIONS

Application	RPM	[1] CO%
1976-77 Models	850-950	1.4-2.0
1978-79 Models	850-950	0.7-1.3

[1] - With oxygen sensor connected, CO% level should drop below one percent.

1979 Models - 1) Warm engine to normal operating temperature. Disconnect oxygen sensor lead (if equipped). Remove plugs at front exhaust pipes (one for each cylinder bank). Insert probe from Dual Probe Adapter (9995151) into each pipe.
2) Connect tachometer and exhaust gas analyzer to vehicle. Check idle speed RPM. If necessary, adjust idle speed to 900 RPM by means of air adjusting screw. *See Fig. 3.*
3) Set dual probe adapter valve to center position. In this position, exhaust gases are admitted from both cylinder banks for a total CO% level reading. Note and record CO% level.
4) Install air cleaner (if removed) and connect all hoses. Remove plug and copper washer from CO% level adjustment hose on top of mixture control unit. Insert Wrench (5102) and adjust CO% level to specifications.

NOTE: After each adjustment, the wrench must be removed and the hole covered to prevent a lean mixture while taking CO% level reading.

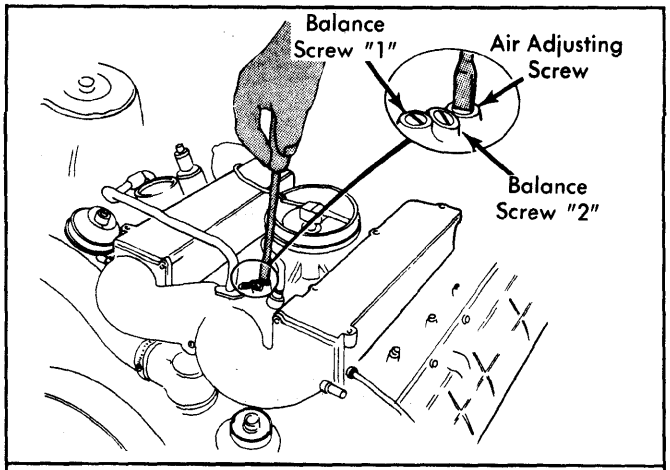

Fig. 3: Idle & Mixture Adjusting Screws

5) To check balance between cylinder banks, turn dual probe adapter valve toward left (right) cylinder bank and check CO% level. If left bank CO% level is incorrect, adjust balance screw "2" (balance screw "1" for right bank). *See Fig. 3.*
6) Recheck CO% level with dual probe adapter valve in center position. If necessary, repeat adjustment procedure. Reconnect oxygen sensor lead (if equipped). Recheck idle speed RPM and correct as necessary. Remove test equipment and install exhaust pipe plugs.

NOTE: The CO% level reading should be equal for both banks and correct for the total system. Left side intake manifold goes to right bank and right side manifold to left bank.

THROTTLE LINKAGE & MICRO SWITCH

1976-78 Models - 1) Warm engine to normal operating temperature. Remove plugs at front exhaust pipes (one for each cylinder bank). Insert probe from Dual Probe Adapter (9995151) into each pipe.
2) Connect tachometer and exhaust gas analyzer to vehicle. Disconnect and plug air hose at air pump. Disconnect and plug vacuum hose at EGR valve. Turn air conditioning off.
3) Disconnect throttle link and cable at throttle pulley. Loosen lock nut and screw out throttle shaft adjusting screw. Turn screw in until it just touches boss, then turn screw one additional turn.
4) Lock screw into place and check that throttle valve does not bind. Ensure that throttle control linkage, from pulley to lever ball, can be attached to lever ball without changing pulley position.
5) Attach throttle cable to pulley. Adjust cable sheath so that cable is snug but does not change pulley position. Depress throttle completely, pulley should touch the full throttle boss.
6) Adjust automatic transmission cable so that cable clip will travel 2" (51 mm) from idle position to full throttle position. At idle there should be .040" (1 mm) clearance between clip and adjusting sheath.
7) On California models, connect test light to micro switch and turn ignition on. Place a .060" (1.5 mm) feeler gauge between throttle screw and boss. Test light should be on. Insert a .080" (2 mm) feeler gauge between throttle screw and boss. Test light should go out.
8) If not, place the .060" (1.5 mm) feeler gauge between throttle screw and boss. Loosen lock nut and screw out micro switch adjusting screw until test light goes out.
9) Turn adjusting screw in until a click is heard from micro switch and test light comes on. Tighten lock nut, disconnect test light, and remove feeler gauge.

FUEL PUMP

FUEL PUMP SPECIFICATIONS

Application	Specification
Pressure	64-74 psi (4.5-5.2 kg/cm²)

EXHAUST EMISSION SYSTEMS

See appropriate articles in EXHAUST EMISSION SYSTEMS section.

IGNITION SYSTEM

DISTRIBUTOR

Models are equipped with Bosch single-point distributors or Bosch electronic ignition system.
Other Data & Specifications - See appropriate Bosch ignition system article in DISTRIBUTORS & IGNITION SYSTEMS section.

FUEL SYSTEM

FUEL INJECTION

Models are equipped with Bosch CIS, Bosch MPC, or Bosch Lambda/CIS fuel injection system.
Other Data & Specifications - See Bosch CIS, Bosch MPC, or Bosch Lambda/CIS Fuel Injection System articles in FUEL SYSTEMS section.