1981 Volvo Diesel 6 Tune-Up

TUNE-UP

GL Diesel

ENGINE IDENTIFICATION

D24 diesel engine identification numbers are stamped on left side of block under vacuum pump.

Engine Code

Application	Code
Man. Trans.	498-704
Auto. Trans.	498-705

COMPRESSION PRESSURE

Disconnect wire at stop valve on injection pump. Remove vacuum pump and pump plunger. Clean fuel delivery pipes, remove pipes, and plug all openings. Remove injectors and heat shields. Place heat shield back in injector opening, followed by adapter 5191. Connect compression gauge and test compression.

Compression Pressure Specifications

Application	Pressure psi (kg/cm²)
Normal (New Engine)	485 (34.0)
Minimum	400 (28.0)
Maximum Variation	70 (5.0)

VALVE CLEARANCE

1) Turn engine using wrench on crankshaft pulley until No. 1 cylinder is at TDC on compression stroke. Remove valve cover. Both cam lobes should point upwards at equal angles.

2) Check valve clearance for No. 1 cylinder. If not correct, turn crankshaft ¼ turn ATDC (so valves will not hit piston top). Depress cam followers with tool 5196. Using pliers (tool 5195), remove disc. Calculate thickness of disc needed, coat with oil, and install.

NOTE – *New discs are available in thicknesses from .130" (3.30 mm) to .167" (4.25 mm) in increments of .002" (.05 mm). New discs should be positioned with marks down.*

3) Check valve clearance on remaining cylinders, proceeding in firing order. Be sure to check valve clearance at TDC and turn ¼ turn after TDC before depressing valves.

Valve Clearance Specifications

Application	Clearance In. (mm)
Checking	
Cold	
Intake	.006-.010 (.15-.25)
Exhaust	.014-.018 (.35-.45)
Warm	
Intake	.008-.012 (.20-.30)
Exhaust	.016-.020 (.40-.50)
Adjustment	
Cold	
Intake	.008 (.20)
Exhaust	.016 (.40)
Warm	
Intake	.010 (.25)
Exhaust	.018 (.45)

VALVE ARRANGEMENT

E-I-E-I-E-I-I-E-I-E-I-E

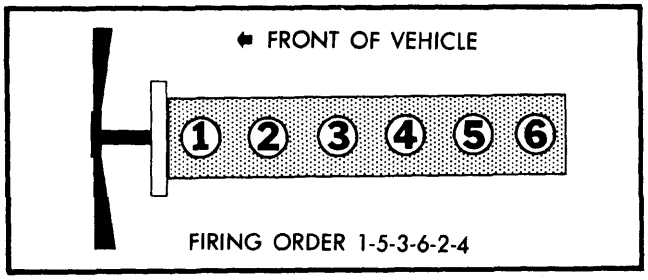

Fig. 1 Firing Order Illustration

GLOW PLUGS

Glow Plug Type

Application	Volvo Part No.
All Models	1257141-0

IDLE SPEED ADJUSTMENT

1) Connect photo-electric tachometer. Warm engine to normal operating temperature. Adjust low idle speed to 750-850 RPM. Check maximum engine speed and adjust if necessary to 5100-5300 RPM. See *Fig. 2*.

2) Stop engine and disconnect link rod at lever on injection pump. Adjust throttle cable by turning cable sheath nut. Cable should be tight but not move pulley. Depress accelerator pedal and ensure that pulley touches full speed stop.

3) On automatic transmission models, depress accelerator to floor. Kickdown cable should move 2.05" (52 mm) between end positions. In idle position, cable should be stretched and clearance between clip and cable sheath should be .01-.04" (.25-1.0 mm)

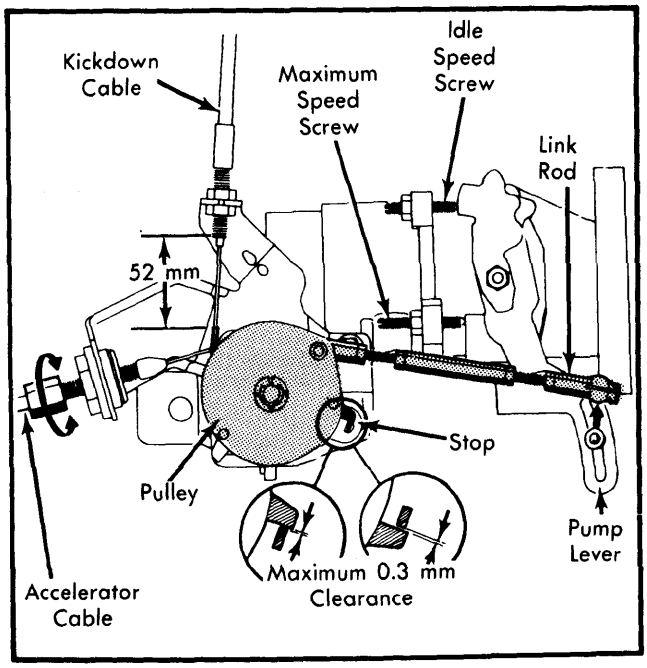

Fig. 2 Adjusting Idle Speed and Throttle Linkage

TUNE-UP (Cont.)

4) Connect link rod to injection pump lever. Turn pulley to maximum throttle position and adjust length of link (by rotating) until lever touches maximum speed screw.

5) Return pulley to idle position and move link rod ball joint in lever slot until lever touches idle adjusting screw. Recheck adjustments and repeat if necessary until idle speed and throttle positions are correct.

NOTE – *A clearance of .012" (.3 mm) is permissible between pulley and stop.*

Idle Speed Specification

Application	Idle RPM	Maximum RPM
All Models	750-850	5100-5300

GENERAL SERVICING

FUEL SYSTEM

FUEL INJECTION

All models use Bosch diesel fuel injection.

ELECTRICAL

BATTERY

Application	Amp. Hr. Rating
All Models	88

Battery Location – Left front of engine compartment.

STARTER

All models are equipped with Bosch starters.

ALTERNATOR

All models are equipped with Bosch alternators.

Application	Rated Amp. Output
All Models	55

ALTERNATOR REGULATOR

All models are equipped with Bosch non-adjustable voltage regulators with operating voltage of 13.9-14.8 volts.

BELT ADJUSTMENT

Adjust belts for deflection of 3/16-3/8" (5-10 mm) when depressed firmly halfway between pulleys.

FILTERS

Filter	Service Interval (Miles)
Oil Filter	①Replace every 15,000
Fuel Filter	Drain every 7500 Replace every 15,000
Air Filter	Replace every 30,000

① – First change at 7500 miles.

CAPACITIES

Application	Quantity
Crankcase (Includes Filter)	7.4 qts.
Cooling System (Includes Heater)	
Man. Trans.	10.0 qts.
Auto. Trans.	9.8 qts.
Man. Trans. (ATF Type F)	2.4 qts.
Auto. Trans. (ATF Type F)	7.3 qts.
Rear Axle (SAE 90)	1.7 qts.
Fuel Tank	15.8 gals.