

1-112 1981 Volkswagen Diesel 4 Tune-Up

TUNE-UP

Dasher
Rabbit
Rabbit Pickup
Vanagon

ENGINE IDENTIFICATION

First 2 letters of engine identification code are used to identify engine models. Code is stamped on cylinder block below No. 3 glow plug and is as follows:

Engine Code

Application	Code
Vanagon	CS
Dasher, Rabbit & Rabbit Pickup	CR

COMPRESSION PRESSURE

Remove electrical wire from fuel shut-off solenoid on injection pump. Insulate wire end and remove injection pipes. Disconnect fuel return hoses. Remove injectors with tool US 2775 (or equivalent). Remove heat shields from injectors and place in cylinder as it is being tested. Install test gauge adapter (VW 1323/2) and test gauge (VW 1323) to glow plug hole, operate starter and read compression. Install new injector heat shields when reinstalling injectors.

Compression Pressure Specifications

Application	Pressure psi (kg/cm)
Normal (New Engine)	500 (34.5)
Minimum	400 (28)
Maximum Variation	70 (5)

VALVE CLEARANCE

CAUTION — When adjusting valves, pistons **MUST NOT** be at TDC. Turn crankshaft ¼ turn past TDC so valves do not hit pistons when tappets are depressed.

CAUTION — When adjusting valves, do not rotate crankshaft by turning camshaft pulley. This will stretch the drive belt. Place vehicle in 4th gear and push to turn crankshaft.

1) Valves must be checked with engine warm, coolant above 95° F (35° C). Check valve clearance in firing order, 1-3-4-2.

2) Measure between cam lobes and adjusting disc, when both lobes to be checked point upward. Adjust clearance to specifications by changing disc thickness. Twenty six discs are available in thicknesses from .118-.167" (3.00-4.25 mm).

3) To remove adjusting discs, use a 10-208 removal tool, while holding cam follower down with special tool VW 546 (10-209).

Valve Clearance Specifications^①

Application	Intake In. (mm)	Exhaust In. (mm)
All Models008-.012 (20-30)	.016-.020 (40-50)

① — Engine warm.

VALVE ARRANGEMENT

All Models — E-I-E-I-E-I-E

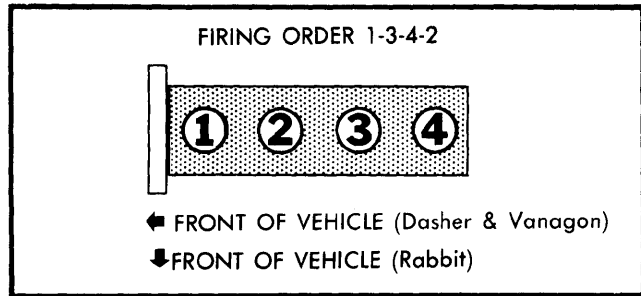


Fig. 1 Diesel Firing Order Illustration

IDLE SPEED ADJUSTMENT

Run engine until warm. Mount tachometer sensor (US 1324) on valve cover and connect to battery. Attach tachometer to sensor and check idle speed. If adjustment is needed, loosen locknut on idle screw. Turn in to increase idle, out to decrease. Apply thread sealer and tighten locknut.

Idle Speed Specifications

Application	Idle RPM
All Models	925-975

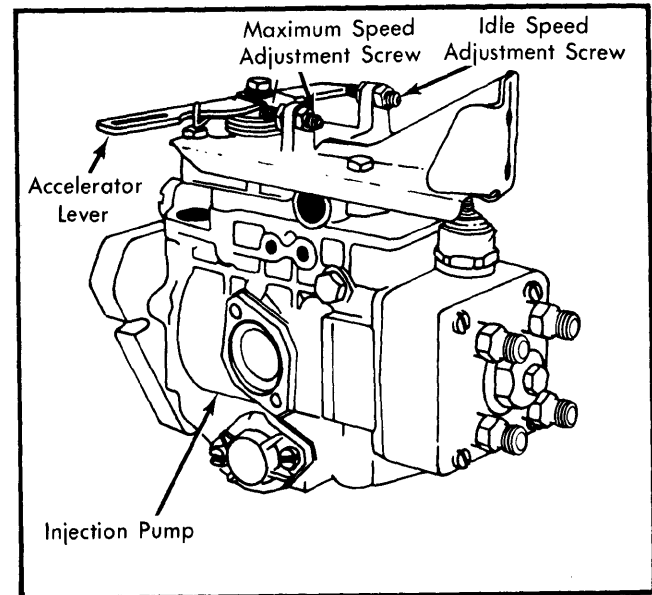


Fig. 2 Idle and Maximum Speed Adjustment

MAXIMUM SPEED ADJUSTMENT

Run engine until warm and install tachometer sensor (US 1324). Connect tachometer and set idle speed. Accelerate

1981 Volkswagen Diesel 4 Tune-Up 1-113

TUNE-UP (Cont.)

engine briefly to full throttle. If maximum speed does not match specifications, loosen speed locknut and adjust. Turning screw out raises speed, turning screw in lowers speed. Apply thread sealer and tighten locknut.

Maximum Speed Specifications	
Application	Maximum RPM
Vanagon	4750-4850
All Other Models	5300-5400

GENERAL SERVICING

FUEL SYSTEMS

FUEL INJECTION

All models use Bosch Diesel Fuel Injection.

ELECTRICAL

BATTERY

Application	Amp. Hr. Rating
All Models	63

Battery Location — Battery is located in engine compartment.

STARTER

All models are equipped with Bosch Starters.

ALTERNATOR

Application	Rated Amp. Output
Vanagon	65
All Other Models	55

ALTERNATOR REGULATOR

Bosch & Motorola — Non-Adjustable; integral with alternator.

BELT ADJUSTMENT

Application	Deflection In. (mm)
All Belts	$\frac{3}{8}$ - $\frac{9}{16}$ (10-15)

① — Measured between longest span and depressed with firm thumb pressure.

FILTERS

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

CAPACITIES

Application	Quantity
Crankcase (Includes Filter)	
Dasher	① 3.7 qts.
Rabbit & Rabbit Pickup	4.7 qts.
Vanagon	4.2 qts.
Cooling System	
Dasher	5.9 qts.
Rabbit & Rabbit Pickup	7.3 qts.
Vanagon	16.9 qts.
Manual Transmission (SAE80W-90)	
4-Speed	3.1 pts.
5-Speed	4.2 pts.
Fuel Tank	
Dasher	11.9 gals.
Rabbit	10.0 gals.
Rabbit Pickup	15.0 gals.
Vanagon	16.0 gals.

① — 3.2 quarts without filter.