

## TUNE-UP

Jetta, Quantum, 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.

#### ENGINE CODE

Application	Code
Vanagon .....	CS
Jetta, Rabbit & Rabbit Pickup .....	CR
Quantum Turbo-Diesel .....	CY

### ENGINE COMPRESSION

1) 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 removal tool (US 2775 or equivalent).

2) Remove heat shields from injectors and place in cylinder 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 SPECIFICATIONS

Compression Ratio .....	23:1
Compression Pressure	
Normal .....	493 psi (34.6 kg/cm <sup>2</sup> )
Minimum .....	406 psi (28.5 kg/cm <sup>2</sup> )
Maximum Variation .....	73 psi (5.1 kg/cm <sup>2</sup> )

### VALVE CLEARANCE

**NOTE:** When adjusting valves, pistons must not be at TDC. Turn crankshaft 1/4 turn past TDC so valves do not hit pistons when tappets are depressed. 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 temperature must be above 95°F (35°C). Check valve clearance in firing order, 1-3-4-2.

2) Measure between cam lobes and adjusting discs, when both lobes to be checked point upward. Adjust clearance 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 special removal tool (10-208), while holding cam follower down with compression tool (VW546 or 10-209).

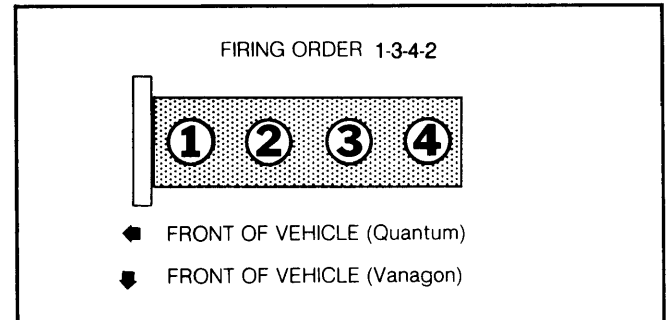
#### VALVE CLEARANCE SPECIFICATIONS

Application	In. (mm)
Intake (Hot) .....	.008-.012 (20-30)
Exhaust (Hot) .....	.016-.020 (40-50)

### VALVE ARRANGEMENT

E-I-E-I-I-E-I-E (Front-to-rear)

Fig. 1: Diesel Firing Order Illustration



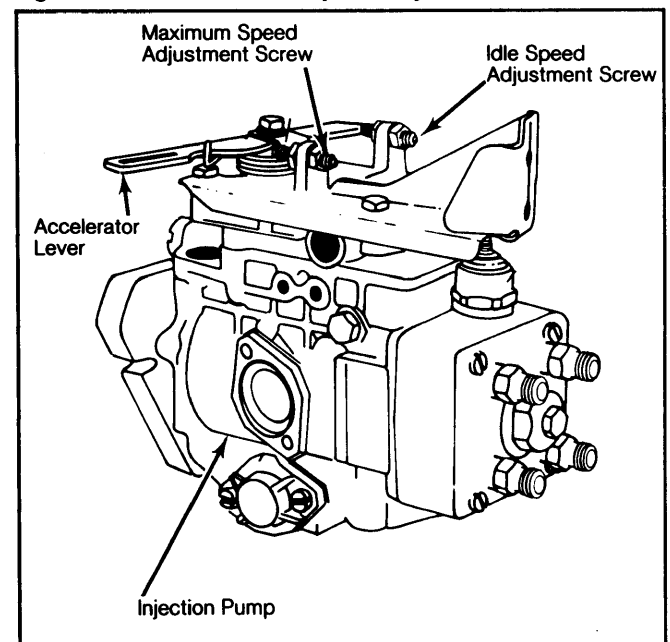
### IDLE SPEED ADJUSTMENT

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 lock nut on idle screw. Turn in to increase idle, out to decrease. Apply thread sealer and tighten lock nut.

#### IDLE SPEED SPECIFICATIONS

Application	Idle RPM
Turbo .....	810-950
All Other Models .....	800-850

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.

# 1982 Volkswagen Diesel 4 Tune-Up

## TUNE UP (Cont.)

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

### MAXIMUM SPEED SPECIFICATIONS

Application	Maximum RPM
Turbo .....	5050-5150
All Other Models .....	4750-4850

## GENERAL SERVICING

### FUEL SYSTEMS

#### FUEL INJECTION

All models use Bosch Diesel Fuel Injection.

### ELECTRICAL

#### BATTERY

#### BATTERY SPECIFICATIONS

Application	Amp. Hr. Rating
All Models .....	63

#### STARTER

All models are equipped with Bosch starters.

#### ALTERNATOR

All models use Bosch or Motorola alternators.

#### ALTERNATOR SPECIFICATIONS

Application	Rated Amp. Output
Jetta	
Without A/C .....	45
With A/C .....	65
Quantum	
Without A/C .....	65
With A/C .....	75
Vanagon .....	65
Rabbit & Rabbit Pickup	
Without A/C .....	55
With A/C .....	65

#### ALTERNATOR REGULATOR

All models use Bosch or Motorola regulators, integral with alternator. Regulators are not adjustable.

## SERVICE SPECIFICATIONS

### BELT ADJUSTMENT

Application	<sup>1</sup> Deflection In. (mm)
All Belts .....	$\frac{3}{8}$ - $\frac{9}{16}$ (10-15)

<sup>1</sup> — Measured in center of longest span and depressed with firm thumb pressure.

### REPLACEMENT INTERVALS

Component	Miles
Oil Filter .....	7500
Air Filter .....	15,000
Fuel Filter .....	15,000

### FLUID CAPACITIES

Application	Quantity
Crankcase (Includes Filter)	
Jetta, Rabbit & Rabbit Pickup .....	4.7 qts. (4.5L)
Quantum .....	3.7 qts. (3.5L)
Vanagon .....	4.3 qts. (4.1L)
Cooling System	
Jetta .....	4.9 qts. (4.7L)
Quantum .....	6.5 qts. (6.2L)
Rabbit & Rabbit Pickup .....	7.3 qts. (7.0L)
Vanagon .....	16.9 qts. (16.0L)
Auto Transaxle (Dexron) .....	6.4 pts. (3.0L)
Manual Transaxle (SAE80W-90)	
4-Speed .....	3.1 pts. (1.5L)
5-Speed .....	4.2 pts. (2.0L)
Fuel Tank	
Jetta .....	10.5 gals. (40.0L)
Quantum .....	15.9 gals. (60.0L)
Rabbit .....	10.0 gals. (38.6L)
Rabbit Pickup .....	15.0 gals. (57.9L)
Vanagon .....	16.0 gals. (61.7L)