

TUNE-UP

4000, 5000, 5000 Turbo, Quattro

ENGINE IDENTIFICATION

Engine number is stamped on left side of block near No. 3 cylinder.

ENGINE CODE

Application	Code
4000 & 5000	WE
5000 Turbo	WK
Quattro	WX

ENGINE COMPRESSION

Check compression with engine warm, all spark plugs removed and throttle wide open. Crank engine through at least 6 compression strokes per cylinder to determine engine compression.

COMPRESSION SPECIFICATIONS

Compression Ratio	
4000	8.2:1
5000	8.0:1
5000 Turbo	7.0:1
Quattro	7.0:1
Compression Pressure	
All Except Turbo	
Normal (New Engine)	131-174 psi (9-12 kg/cm ²)
Minimum	102 psi (7 kg/cm ²)
Turbo	
Normal (New Engine)	100-131 psi (7-9 kg/cm ²)
Minimum	72 psi (5 kg/cm ²)
Max. Variation Between Cylinders	
All Except Turbo	44 psi (3 kg/cm ²)
Turbo	28 psi (2 kg/cm ²)

VALVE CLEARANCE

1) Adjust valves with engine at normal operating temperature. Remove accelerator linkage and cylinder head cover. Clearance adjustments are to be checked and made according to firing order sequence. Rotate crankshaft until cam lobes for No. 1 cylinder valves point upward. Measure valve clearances of No. 1 cylinder.

NOTE: When adjusting valves, turn engine **CLOCKWISE** only to avoid timing belt slippage.

2) If adjustment is necessary, use disc remover (US4476) and tappet depressor (2078) to remove and install adjusting discs. Turn tappet until notches are at 90° to camshaft. Insert depressor (2078) and depress tappet. Using disc remover (US4476), grasp tappet disc and rotate it out from under camshaft.

3) Thickness is stamped on bottom side of disc. Use clearance measurement to choose adjusting disc. Discs are available in .002" (.05 mm) increments from .118-.167" (3.0-4.3 mm). Repeat procedure as required for remaining valves.

VALVE CLEARANCE SPECIFICATIONS

Application	Clearance In. (mm)
Intake	.008-.012 (.2-.3)
Exhaust	.016-.020 (.4-.5)

VALVE ARRANGEMENT

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

SPARK PLUGS

SPARK PLUG TYPE

Application	Bosch	Champion
4000 & 5000		
Federal	W7D	N8Y
Calif.	WR7DS	N8GY
5000 Turbo	WR7DS	N8GY
Quattro	WR5DS	N6GY

SPARK PLUG SPECIFICATIONS

Application	Gap In. (mm)	Torque Ft. Lbs. (N.m)
All Models	.028 (.7)	22 (30)

HIGH TENSION WIRE RESISTANCE

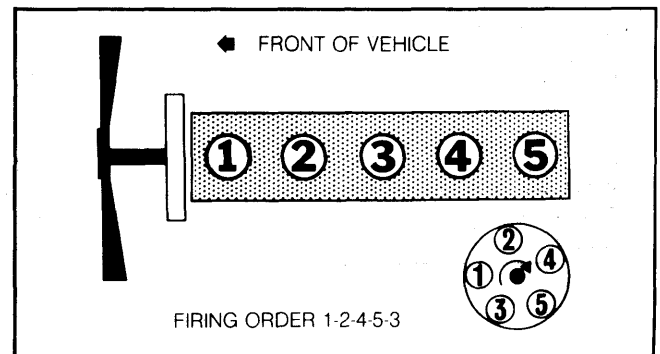
Carefully remove ends of wire from spark plug and distributor. Using an ohmmeter, check resistance of wire while gently twisting wire. If resistance is incorrect or fluctuates from infinity to any value, replace wire.

NOTE: Wire resistance cannot be measured if the wires are marked with this symbol: 

WIRE RESISTANCE

Application	Ohms
Spark Plug Wire Only	800-1400
Spark Plug Wire With Connector	
All Except Quattro	4800-7400
Quattro	4000-6000
Coil Wire	
All Except Quattro	1600-2400
Quattro	800-1200

Fig. 1: Firing Order and Distributor Rotation



1982 Audi 5 Tune-Up

TUNE-UP (Cont.)

DISTRIBUTOR

All models are equipped with an electronic, breakerless ignition system. All California models and Federal Turbo models have an idle stabilizer unit, which adjusts ignition timing to maintain a constant idle speed. Some models without idle stabilizers may be equipped with an impedance transformer (Gray in color) mounted in the location of the idle stabilizer.

The Quattro is equipped with the Hartig Electronic Ignition System which controls both the ignition system and the oxygen sensor system. Centrifugal and mechanical advance mechanisms are not used.

IGNITION TIMING

All Except Turbo

Disconnect 2 plugs at idle stabilizer unit, if equipped, and connect them together. Leave vacuum hoses connected at distributor. With engine idling, adjust ignition timing by turning distributor. Reconnect idle stabilizer unit.

Turbo

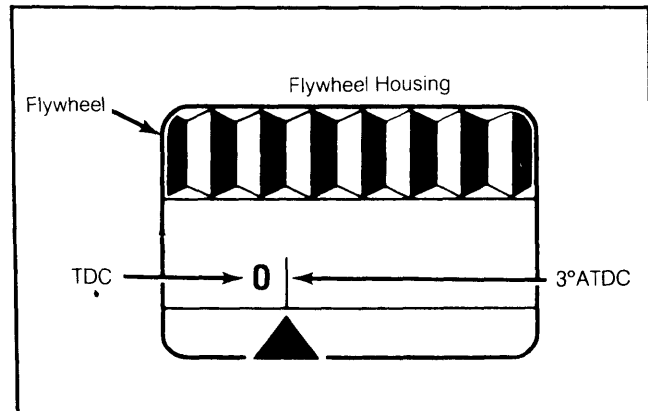
On all except Quattro, disconnect and plug both hoses at distributor. With engine at 3000 RPM, adjust timing by turning distributor. Ignition timing on Quattro is not adjustable.

NOTE: If equipped with impedance transformer in place of idle stabilizer, do not disconnect when checking ignition timing.

IGNITION TIMING (Degress ATDC@RPM)

Application	Timing
4000 & 5000	
Federal	3@800-1000
Calif.	3@880-1000
5000 Turbo	21@3000
Quattro	6@800-900

Fig. 2: Ignition Timing Mark Location



Models 4000 & 5000 shown. Other models similar.

IDLE SPEED & MIXTURE

1) With engine at normal operating temperature, turn all electrical accessories off. With engine stopped, disconnect both plugs from idle stabilizer unit and connect them together. Disconnect and plug PCV valve hose.

2) Check and adjust ignition timing as necessary. Adjust idle speed to specified RPM using adjusting screw on side of throttle valve housing. Be sure that engine cooling fan is not running while adjustments are being made.

3) Remove cap from CO test receptacle on exhaust manifold and connect CO tester hose directly to test receptacle. Connect a dwell meter to frequency valve electrical connector. Zero dwell meter and set it to the 4-cylinder scale.

4) On California models, turn off all electrical sources. On Federal models, turn on the headlight high beams. Disconnect oxygen sensor wire at connector and check dwell meter reading. Race engine briefly before reading meter. Meter reading must be a constant 40-50°.

5) Adjust CO level using hex wrench. Turn adjusting tool clockwise to increase CO and counterclockwise to decrease CO. Always adjust CO level from lean to rich.

NOTE: Do not press down on adjusting tool when adjusting CO level. Do not accelerate engine with tool in place and always remove tool after each adjustment.

6) Reconnect oxygen sensor wire and check dwell meter reading. Meter needle should now vibrate. Reconnect hoses and idle stabilizer. Recheck idle speed.

IDLE SPEED & CO LEVEL

Application	Idle RPM	CO%
4000 & 5000		
Federal	800-1000	0.4-1.2
Calif.	880-1000	0.4-1.2
5000 Turbo	880-1000	0.4-1.2
Quattro	790-910	0.3-1.2

¹ — Set 5000 model to 850-1000 RPM.

FUEL PUMP

FUEL PUMP PERFORMANCE

Application	Pressure psi (kg/cm ²)	Volume in 30 sec. Pints (Liters)
4000 & 5000 ...	65-75 (4.5-5.2)	1.0 (.47)
5000 Turbo & Quattro	72-82 (4.9-5.6)	1.0 (.47)

EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

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GENERAL SERVICING

IGNITION

DISTRIBUTOR

All models are equipped with electronic ignition. California 4000 and 5000 models and all 5000 Turbo models use an idle stabilizer in addition to the Hall Effect ignition system. Some models without the idle stabilizer may have an impedance transformer in its place.

On the Quattro, a digital timing control system is used. Engine speed, manifold pressure, intake air temperature, coolant temperature and throttle position readings are used by a central control unit to adjust ignition timing.

IGNITION COIL

RESISTANCE OHMS@68°F (20°C)

Application	Primary	Secondary
All Models	.52-.76	2400-3500

FUEL SYSTEMS

FUEL INJECTION

All models are equipped with Bosch (CIS) Continuous Injection System.

ELECTRICAL

BATTERY

BATTERY SPECIFICATIONS

Application	Amp. Hr. Rating
All Models	63

STARTER

All models are equipped with Bosch starters.

ALTERNATOR

All models use a Bosch alternator.

ALTERNATOR SPECIFICATIONS

Application	Rated Amp. Output
4000	
Without A/C	55
With A/C	75
5000	75
5000 Turbo & Quattro	90

ALTERNATOR REGULATOR

All models use Bosch, non-adjustable regulators which are integral with the alternator.

ALTERNATOR OPERATING VOLTAGE@80°F (27°C)

Application	Voltage
All Models	12.5-14.5

SERVICE SPECIFICATIONS

BELT ADJUSTMENT

Application	¹ Deflection In. (mm)
All Belts	.3-.5 (10-15 mm)

¹ — With a 20 lb. (9 kg) load applied at the midway point on the belt.

REPLACEMENT INTERVALS

Component	Miles
Oil Filter	¹ 15,000
Air Filter	30,000
Fuel Filter	15,000
PCV Valve	30,000
Oxygen Sensor	30,000
Spark Plugs	30,000

¹ — Turbo models have 2 oil filters. Change both every 15,000 miles.

FLUID CAPACITIES

Application	Quantity
Crankcase (Includes Filter)	
Quattro	4.5 qts. (4.2L)
All Other Models	4.8 qts. (4.5L)
Cooling System (Includes Heater)	
4000 & 5000	8.6 qts. (8.1L)
5000 Turbo & Quattro	10.0 qts. (9.5L)
Man. Trans. (SAE 80W-90)	
4000	1.7 pts. (1.6L)
5000	2.7 pts. (2.5L)
Quattro	3.4 pts. (3.2L)
Auto. Trans. (Dexron)	3.2 pts. (3.0L)
Auto. Trans. Final Drive (SAE 90)	
4000	0.8 pts. (0.7L)
5000 & 5000 Turbo	1.1 pts. (1.0L)
Fuel Tank	
4000	15.9 gals. (63.6L)
5000, 5000 Turbo & Quattro	19.8 gals. (74.8L)