Audi 5000 *turbo diesel*

Supplement to 1982/83 Audi Owner's Manual

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Dear Audi 5000 Turbo-Diesel Owner:

This supplement contains information that applies to the Turbo Diesel engine in your car.

As this Owner's Manual is based on the gasoline engine equipped car, there are certain data that do not apply to your Turbo Diesel engine car, such as Catalytic Converter, Exhaust Gas Recirculation, Emission Control System, Fuel Octane Rating, Engine Oil Grades, Spark Plugs.

Please read this supplement before you drive your Turbo Diesel car, especially the explanations on

- Starting
- Diesel Fuel
- Engine oil

For all other operating instructions for your car, refer to your Owner's Manual. For warranty and service information, consult your Warranty & Maintenance booklet for your Audi 5000 Turbo.

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Glow plug light DIESEL

Turn ignition key to position 2. The glow plug light will light up until the engine is preheated. When the light goes out, start the engine.

The time for pre-glowing varies according to outside temperature.

When the engine is warm, the glow plug light will not come on. You can start the engine immediately.

Starting procedures

Selector lever must be in Neutral or Park.

Starting cold engine

At outside temperatures above freezing – **Do not depress accelerator while starting.**

At outside temperatures below freezing – **Depress accelerator pedal while cranking and, without over-reving, release pedal slowly as engine begins to run.**

- Turn key to PRE-Glow (Position 2). Glow plug light should be on.
- As soon as glow plug light goes out start the engine.

  If engine fires but runs rough, continue to engage starter a few seconds longer until engine runs smoothly.

  Do not accelerate engine excessively immediately after starting before oil pressure can build up.

Do not operate starter longer than 30 seconds. If engine does not start, wait about 1 minute, then pre-glow again and start.

Never leave engine idling unattended. If warning lights should come on to indicate improper operation, they would go unheeded. This could result in overheating or other damage to the car.

Starting warm engine

- **Do not depress accelerator while starting.**
- **The glow plug light will not light up – start engine immediately.**

Stopping engine

- Turn key back to OFF position.

Do not stop engine immediately after hard or extended driving. Keep engine running at increased idle for about two minutes to prevent excessive heat build-up.

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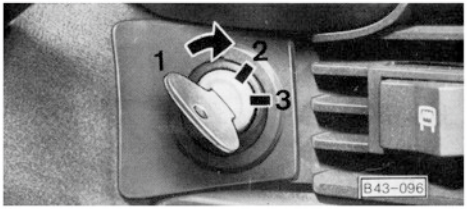
Break- in hints for the first 900 miles or 1,500 kilometers

By observing a few precautions during the first 900 miles or 1,500 kilometers, you help extend the service life and economy of your engine.

- **Avoid full throttle starts and abrupt stops.**
- **Do not overstrain the engine, shift into the next gear before reaching the recommended top speeds.**
- **The maximum speeds listed apply to normal operating conditions only and after the engine has warmed up.**

Driving positions	up to 600 miles	up to 1000 km
D/E	70* mph	115* km/h
2	50 mph	80 km/h
1	28 mph	45 km/h

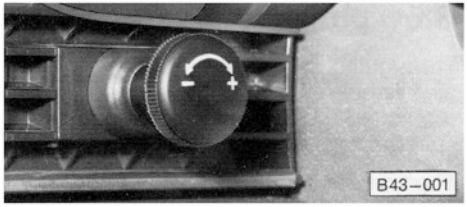
* Always observe all local and national speed limits!



Steering lock/Pre-glow and starter switch

1. OFF – steering locked.
2. PRE-GLOW switch ON – steering free (for towing) and glow plug operation.
3. START engine – after glow plug light has gone out.
   Key returns to Pos. 2 as soon as it is released.

During pre-glowing, other instrument panel lights will also come on. They will go out after the engine has started. If the alternator warning light stays on, the alternator is not charging due to low engine rpm. Rev up the engine momentarily and the alternator warning light should go out. See "Warning/indicator lights" for details.



Idle speed control

The idle speed of the Turbo Diesel engine can be adjusted by turning the control.

Turn to the right to increase speed.
Turn to the left to decrease speed.

Battery

The battery is located under the air cleaner on the right side of the engine compartment, as seen in driving direction.

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Fuel: Diesel Fuel No. 2

Service stations offering Diesel fuel are generally located at truck routes of major highways. Directories of Diesel fuel stations are usually sold at Diesel fuel stations.

Some U.S. states and Canadian provinces require permits to purchase Diesel fuel. Ask your Audi dealer or your State Motor Vehicle Department.

Diesel fuel may not be available outside the continental U.S. and Canada; we recommend you do not take your car to countries where Diesel fuel may not be obtainable.

CAUTION

Your Turbo Diesel engine has been specifically designed to operate on Diesel fuel only. Therefore, do not use home heating oil or regular gasoline.
The properties of these fuels may cause serious damage to the fuel injection system and to the engine. This could lead to additional expense and may also affect your warranty.

Winter operation

At temperatures below 7°F or – 14° C, Diesel Fuel No. 2 looses its fluidity due to wax separation, which may affect normal starting and engine operation. To counteract this effect, Diesel Fuel No. 2 is winterized by fuel suppliers during the cold season.

As cold weather sets in, we suggest you ask your fuel dealer whether Diesel Fuel No. 2 is sufficiently winterized for your area.

If winterized Diesel Fuel No. 2 is not available, ask for Diesel Fuel No. 1 or mix Diesel Fuel No. 2 with up to 25% Kerosene (or with regular leaded or unleaded gasoline, if Kerosene is not available).

DO NOT USE PREMIUM GASOLINE.

Mixing table

Diesel Fuel in tank	Add Kerosene (or gasoline)
Empty	4.9 gal or 18.75 liters
One quarter full	1.2 gal or 4.7 liters
One half full	2.5 gal or 9.4 liters
Three quarters full	3.7 gal or 14.0 liters

If the tank is only partially filled with diesel fuel, determine the amount of gasoline to be added by using the 25%/75% formula.
For example:
1 gallon gasoline/3 gallons diesel fuel or 4 liters gasoline/12 liters diesel fuel.

CAUTION

Mixing Diesel Fuel No. 2 with regular gasoline must be done before wax starts to separate. Later mixing may be effective in the fuel tank but not in the rest of the fuel system.

Always add the correct amount of regular gasoline to the fuel tank first, and then fill up with Diesel Fuel No. 2.

Do not add more regular gasoline than 25 % of total fuel in your tank. Refer to mixing table.

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Do not use "starting assist fluids", they will cause engine damage.

Do not use any fuel additives, such as fuel line anti-freeze offered for gasoline engines.

WARNING

- Any amount of gasoline added to Diesel fuel makes the mixture as flammable as pure gasoline.
- Handle all fuels in well ventilated areas. Do not smoke or have anything in the area that can ignite fuel.
- Never carry additional fuel containers in your vehicle. Such containers, full or empty, may leak, cause an explosion, or result in fire in case of a collision.

It is normal that the engine noise level (dieseling) is louder during the warm-up period in winter. It is also normal that whitish-blue smoke may be emitted from the exhaust after starting and during warm-up. The amount of smoke depends on the outside temperature.

Let your Turbo Diesel engine run briefly at slightly increased idle after a cold start-up to shorten the warm-up period.

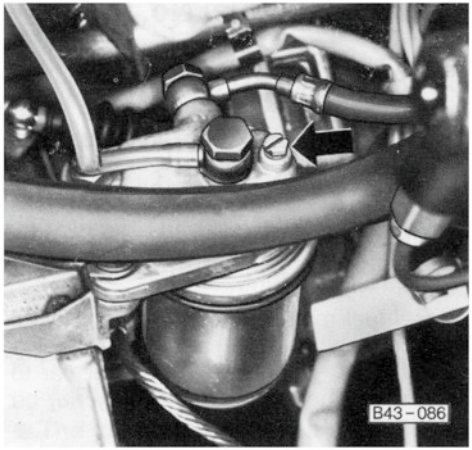
Do-it-yourself Service

A well maintained car will reward you with good performance. Clean fuel and air is important for your **Turbo Diesel Engine.** If neccessary, have the fuel and air filters serviced between regular maintenance services (see Maintenance Schedule).

CAUTION

- **Before checking anything in the engine compartment, let the engine cool down. The fan blades will rotate spontaneously until coolant temperature drops.**
- **Do not let Diesel fuel spill on rubber hoses. Such connecting hoses may develop leaks and cause serious engine damage.**
- **Do not dump Diesel fuel from the old canister on the ground, into open streams or down sewage drains. Should the discarding of Diesel fuel present a problem, we suggest you have fuel filter changes performed by your Audi dealer or at a service station.**

See WARNINGS on page 68 of your Owner's Manual.



Fuel filter

To drain water from fuel filter

- open vent screw (arrow) at top of fuel filter.
- loosen drain plug underneath filter and, using a container, drain about half a cup or until drained fuel is pure.
- tighten drain plug and vent screw.

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To remove fuel filter

- drain filter first to prevent fuel spill.
- loosen filter canister with appropriate wrench.
- unscrew canister by hand and remove.
- discard filter canister.

To reinstall fuel filter

- apply thin film of Diesel fuel to gasket of new filter canister.
- screw canister on by hand. Do not use wrench to tighten.
- crank engine until it starts and accelerate a few times till engine runs smoothly.
- check for leaks.

See WARNINGS on page 68 of your Owner's Manual.

Engine oil changing capacity

without filter change
. . . 5.0 U.S qt/4.5 liters

with filter change
. . . 5.5 U.S. qt/5.0 liters

Changing the oil filter

To replace the oil filter:

- Use oil filter Part No. 069 115 561 or equivalent.
- Apply thin film of engine oil to filter gasket (do not use grease).
- Screw on filter by hand until filter gasket contacts flange firmly all around.
- Tighten filter 3/4 turn. Use filter cap wrench US 4496 or equivalent, wrench extension and standard torque wrench.
- Check dipstick for correct oil level.
- Run engine at various speeds for 3 to 5 minutes.
- Stop engine, use filter cap wrench (center drive socket), extension and torque wrench for final check. Torque must be at least 18 ft lb (2.5 mkg).
- Re-check dipstick for correct oil level, add oil as needed.
- Start engine and check for proper seal at the oil filter gasket.

Follow these instructions carefully. An improperly installed filter may leak and damage your engine.

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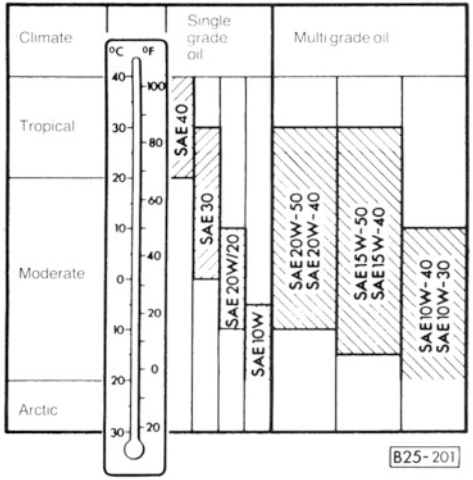

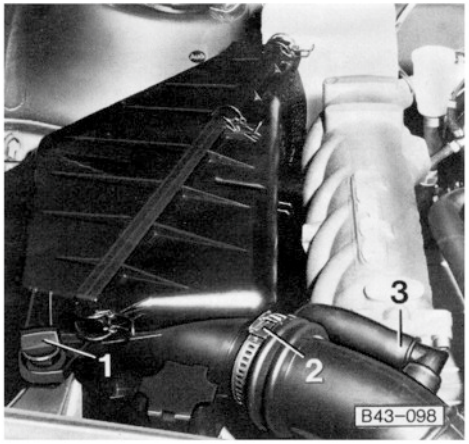

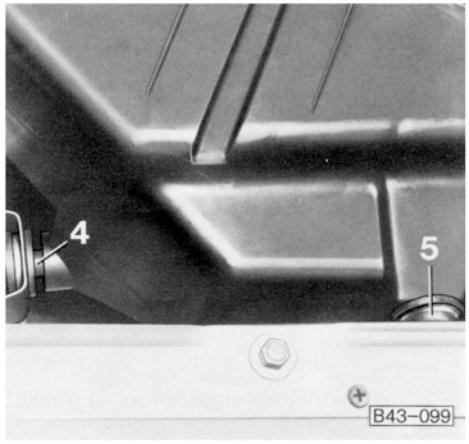

Engine oil grade

For your Turbo Diesel engine, only use single-grade or multi-grade engine oils labeled **"API Service CD".**

The term **CD** must appear on the oil container singly or in combination with other designations, for example "SE/CD" or "SF/CD".

The viscosity SAE number of the oil should be **selected for the lowest anticipated temperature** at which engine starting will be required, and not for the temperature at the time of oil change.

Air cleaner

To clean or replace filter element turn engine off and let it cool down.

- Release knob (1) and lift out.
- Open clip (2) and detach hose.
- Also detach hose (3).
- Pull air cleaner housing free of brackets (4 and 5)
- Lift out housing.
  After opening the 6 clips, remove filter element from housing and clean or renew.

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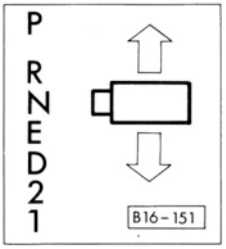
Automatic Transmission

The selector lever has 7 positions:

Park

Reverse
Neutral
Economy
Drive
Low
Low



The Automatic Transmission for Diesel engines has the driving position E in addition to the other forward positions D, 2 and 1.

Position E can be considered the same as driving position D. However, the transmission will disengage (or shift into neutral) whenever the accelerator pedal is completely released.

Upon accelerating the engine, the transmission engages again which, in some cases, may be noticed as a slight thrust.

CAUTIONS

Although the E position should be your preferred driving position for city and highway driving, please keep the following points in mind:

- As the E position does not provide any engine braking effect, use positions D, 2 or 1 when engine braking effect is needed. For example: When driving on mountain roads, and when roads are wet, slippery or icy.
- "Hill-holding" capability is eliminated in the E position. Therefore, always use your foot brakes to hold the vehicle when stopped on inclines.
- Never get out of the driver's seat when the engine is running and the transmission is in the E position. Move the selector lever to P.
- Never have the E position engaged when checking under the hood. Make sure the selector lever is in the P position. Any increase in engine speed, with the transmission in the E position, will cause the transmission to engage automatically, setting the vehicle in motion, even with the parking brake applied.

All other information regarding the automatic transmission as described on pages 47 – 49 also applies.

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Troubleshooting

If you are not fully familiar with proper repair procedures, do not attempt the checks or repairs described on this page. See WARNINGS on page 68 in your Owner's Manual.

Condition	Probable Cause	What to do
B – Engine turns over but will not start. **WARNING: Do not use "starting assist fluids". They will cause engine damage. Do not use any fuel additives, such as "dry gas" offered for gasoline engines.**	1. Improper starting procedure. 2. No fuel in tank. 3. Glow plugs not working (no voltage at glow plugs because plug relay, starter switch, relay plate on fuse panel or glow plugs are malfunctioning).	1. Refer to "Starting". 2. Fill up tank. 3. Check all electrical connections in engine compartment for tightness. If cause cannot be corrected, contact nearest Audi dealer.
C – Warm engine hard to start, or car hard to start in winter	Improper starting.	Refer to "Starting".
G – Engine heats up excessively while driving car, warning light in temperature gauge flashes. **WARNING** **Fan may start unexpectedly even with engine off. Always keep face, fingers, hair or clothing away from fan.**	1. Stop-and-go or mountain driving in hot weather with air conditioning. 2. Insufficient coolant. 3. Failure in radiator fan or thermo switch. 4. Insufficient cooling due to fog lights or insect screens, for example, on top of front bumper.	1. Slow down and turn off air conditioner. Engine temperature should return to normal. If not, check other probable causes. 2. Add if necessary. 3. See your dealer. 4. Remove such accessories.

See also pages 79 through 82 in your Owner's Manual:
Items A and H through M also apply
Items D through F do not apply } to vehicles with Diesel engine

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Emission Control

In the Interest of Clean Air

Pollution of the environment is a problem that is of concern to all of us. We urge you to join us in our efforts for cleaner air and a healthier environment.

Audi has long recognized its responsibilities not only toward its customers but also toward the public in general. Substantial progress has been made in developing emission controls, so that our cars control or reduce those parts of the emission that can be harmful to our environment, such as unburned fuel (hydrocarbons), carbon monoxide and oxides of nitrogen.

The amount of pollutants discharged into the engine crankcase and exhaust system greatly depends on the combustion of the air/fuel mixture. To achieve optimum burning of the air/fuel mixture, emissions from your car are controlled through a combination of engine design, specific engine adjustments and control components.

Audi warrants your new vehicle under the terms and conditions set forth in the Warranty and Maintenance booklet. You, as the owner of the vehicle, have the responsibility to provide regular maintenance service for the vehicle, as specified in the Maintenance Schedule, and to keep a record of all maintenance work performed. Audi dealers have trained mechanics and special tools to offer fast, efficient service.

Controlled Combustion

In your Turbo Diesel engine, air is compressed in the pre-combustion chambers. At the point of maximum compression, fuel is added by the fuel injection pump. The fuel is atomized into fine particles and mixed with the compressed air. Ignition takes place as a result of the high temperature which has been created through compresssion (not through spark plugs as in gasoline burning engines): Combustion at optimum compression in the turbo diesel engine makes it possible to burn the air/fuel mixture almost completely, and thus control emission from the engine.

To ensure clean burning of the air/fuel mixture, it is important that you provide the maintenance and emission control services explained in the Maintenance Schedule.

Crankcase Ventilation System

Through Crankcase Ventilation harmful emissions from the engine crankcase are not permitted to reach the outside atmosphere. These emissions are recirculated to the air cleaner. From here the emissions mix with the intake air and are later burned in the engine. The crankcase ventilation system must be kept clean for good engine performance and durability.

To assure efficient operation

Have your car maintained properly in accordance with the service reommendations listed in the Maintenace Schedule. Lack of proper maintenance, especially of the fuel and injection systems, as well as improper use of the vehicle could lead to damage.

- Do not alter or remove any component of the Emission Control System unless approved by the manufacturer.
- Do not continue to operate your car if you detect engine misfire or other unusual operating conditions.

Parking

WARNING

As with any vehicle, do not park or operate your car in areas where combustible materials, such as dry grass or leaves, can come into contact with a hot exhaust system.

Undercoating

WARNING

Do not apply additional undercoating or rustproofing on or near the exhaust manifold, exhaust pipes or heat shields. During driving, the substance used for undercoating could overheat and cause a fire.

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Technical data

Engine

Turbo-charged four stroke, five cylinders in line, crankshaft with six main bearings, spur-belt overhead camshaft. Water cooling thermostatically-controlled, with electric fan, thermoswitch operated.

Pressure oil feed gear-type pump and full flow filter. Mechanical fuel injection pump, fuel injectors. And pre-combustion chambers.

Paper element air cleaner.

Maximum output SAE net	84 hp at 4500 rpm
Maximum torque SAE net	127 ft lb at 2800 rpm 172 Nm at 2800 rpm
Displacement	121 cu. in./1986 ccm
Stroke	3.402 in./86.4 mm
Bore	3.012 in./76.5 mm
Compression ratio	23 : 1
Fuel	Diesel Fuel No. 2

Automatic Transmission

Additional with driving position "E"

Service (foot) brakes

Front: Disc brakes
Rear: Self-adjusting drum brakes

Electrical system

Battery	88 Ah
V-belt for alternator	9.5 x 800
air conditioner	12.5 x 915
power assisted steering	12.5 x 1030

Tires

Steel belted tires 185/70 SR 14

Wheel rim size

Light alloy wheels 6 J x 14

Tire pressure

unloaded: front and rear 1.9 bar/30 psi
loaded: front and rear 2.1 bar/34 psi

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