

LUBRICATION SYSTEM: EXPLODED VIEW

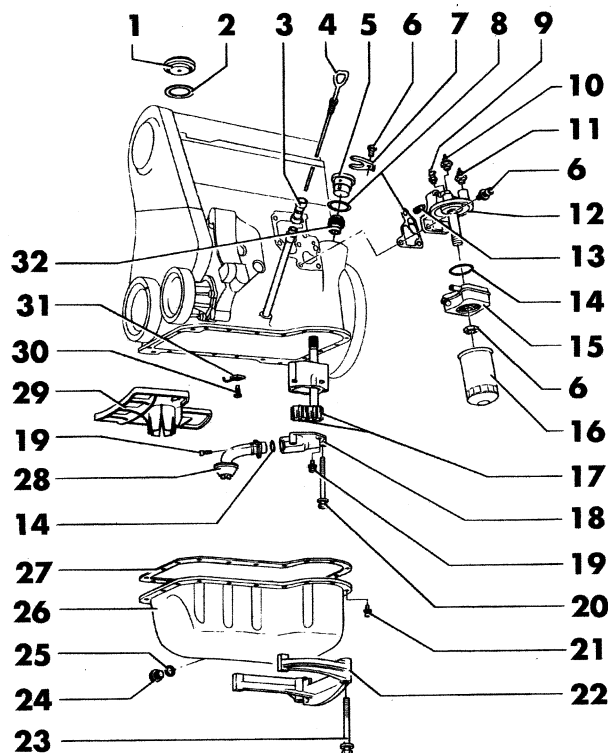
All components can be removed and refitted the engine fitted into the vehicle.

Replace all O-rings.

The oil level must never exceed the mark "MAX" on the dipstick as this could lead to damages to the catalyst.

If, when repairing the engine, metal chips are noticed, the oil cooler should be replaced and the lubrication system conduits thoroughly cleaned to prevent further damage.

The oil pump cannot be repaired; it must be replaced completely.



17BD09

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| <p>1. Plug.</p> <p>2. Gasket. Replace if damaged.</p> <p>3. Nozzle. Withdraw to suck the oil.</p> <p>4. Dipstick.
The oil level must not exceed the "MAX" mark.</p> <p>5. Closing cover.
With free play compensation.</p> <p>6. 25 Nm.</p> <p>7. Attachment flanges.</p> <p>8. Gasket. Replace.</p> <p>9. Oil temperature transmitter. 10 Nm.
For oil temperature indicator.</p> <p>10. Oil pressure switch, 1.8 bar. 25 Nm.
White.
Check with the equipment VAG 1342.
The original gasket cannot be removed for later reuse.
In case of leaks, break the gasket down and fit a new one.</p> | <p>11. Oil-pressure indicating pressure gauge. 25 Nm.
Check.
Incorporates a 0.3 bar oil-pressure break switch inside.
The original gasket cannot be removed for later reuse.
In case of leaks, break the gasket down and fit a new one.</p> <p>12. Oil filter support.</p> <p>13. Non-return valve. 5 Nm.</p> <p>14. Gasket. Replace.</p> <p>15. Oil cooler.
Note the position, relatively far from any other component.</p> <p>16. Oil filter.
Remove using the U-40078 tool or with a universal filter extractor.
Tighten by hand.</p> |
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Engine 17

Lubrication: 2.0 I 16 V engine

LUBRICATION SYSTEM: EXPLODED VIEW

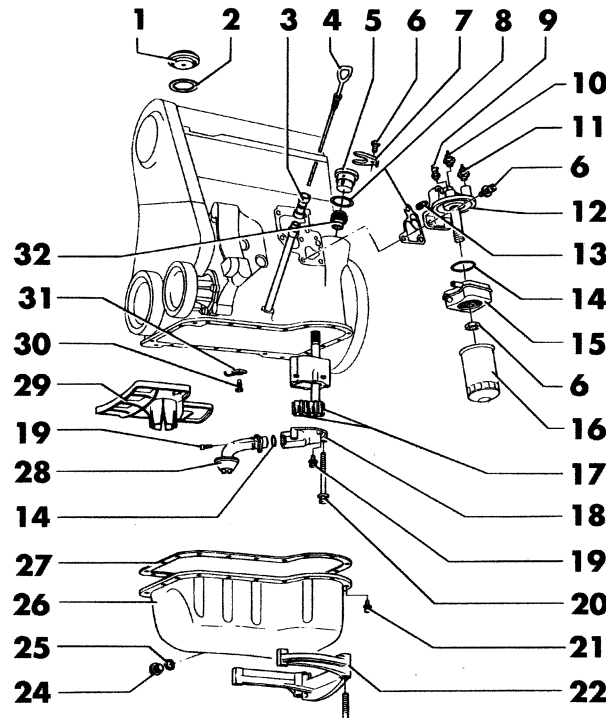
All components can be removed and refitted the engine fitted into the vehicle.

Replace all O-rings.

The oil level must never exceed the mark "MAX" on the dipstick as this could damage the catalyst.

If, when repairing the engine, metal chips are noticed, the oil cooler should be replaced and the lubrication system conduits thoroughly cleaned to prevent further damage.

The oil pump cannot be repaired; it must be replaced completely.



17BD09

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| <p>17. Oil pump gears.
Check the backlash and the axial play.</p> <p>18. Oil pump cover.
The pressure regulating valve is built in the cover.
Valve opening pressure: $5.7 \div 6.7$ bar.</p> <p>19. Fixing bolt. 10 Nm.</p> <p>20. Fixing bolt. 20 Nm.</p> <p>21. Oil sump fixing bolt. 20 Nm.
Use the following tool to remove the bolts on the steering wheel side of the engine:
Allen head bolt: U-40051.
Torx bolts: U-40051/1.
Hex head bolt: U-40051/2.</p> <p>22. Support (according to the version).</p> <p>23. Fixing bolt. 45 Nm.</p> | <p>24. Oil drain plug. 30 Nm.</p> <p>25. Gasket. Replace.</p> <p>26. Oil sump.</p> <p>27. Oil sump gasket.
Replace.
Note the proper mounting position.</p> <p>28. Suction pipe.
Clean the grill if it is dirty.</p> <p>29. Anti-splash plate.
Fit with the oil pump disassembled only.</p> <p>30. Oil injector pressure valve. 27 Nm.
Valve opening pressure: $2.5 \div 3.2$ bar.</p> <p>31. Oil injector for piston cooling.</p> <p>32. Oil pump drive pinion.</p> |
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Engine 17

Lubrication: 2.0 I 16 V engine

ENGINE OIL SPECIFICATIONS

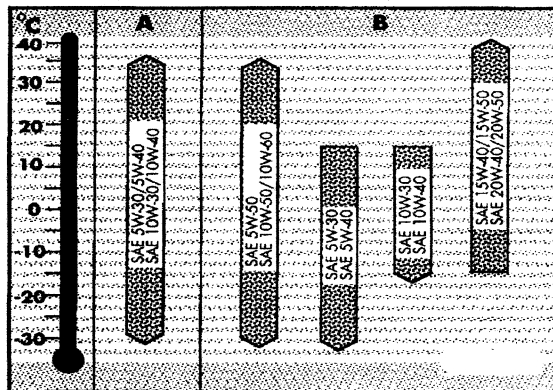
Only use the oil classes listed below:

- Multigrade oils according to the **VW 501 01** standard.
- High performance oils (synthetic multi-grade) as per **VW 500 00** standard.

In exceptional cases only:

- Multigrade oils according to **API-SF** or **SG**.

Temperature range



17BD10

A = Synthetic multigrade oils.
B = Multigrade oils.

Lubrication system: capacity

When the oil filter is changed 4.0 l.

When the oil filter is not changed 3.5 l.

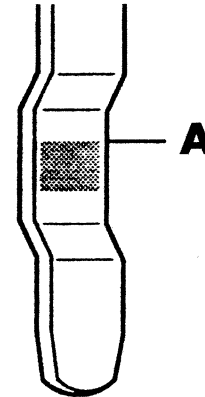
Checking the oil level

The following operations must be carried out to check the oil level:

The vehicle must be on a horizontal surface.

If the engine has been running, it is necessary to wait a few minutes (minimum 3 minutes) so that the oil drains into the sump.

Remove the dip stick, clean it and reinsert it fully.



17AD08

Remove the dip stick and check the level:

The oil level must be within the area marked on the dip stick; it must never exceed the upper mark "A" as this could damage the catalytic converter.

Engine 17

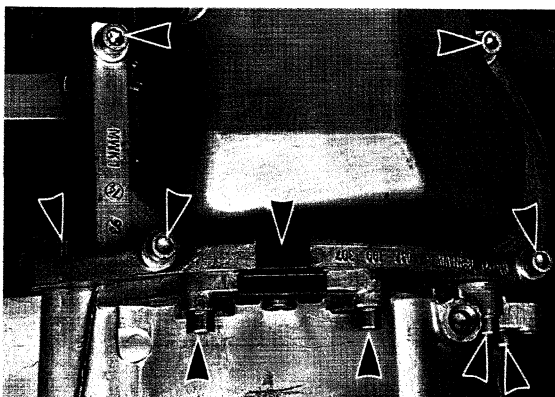
Lubrication: 2.0 I 16 V engine

OIL PUMP Removal and refitting

Removal

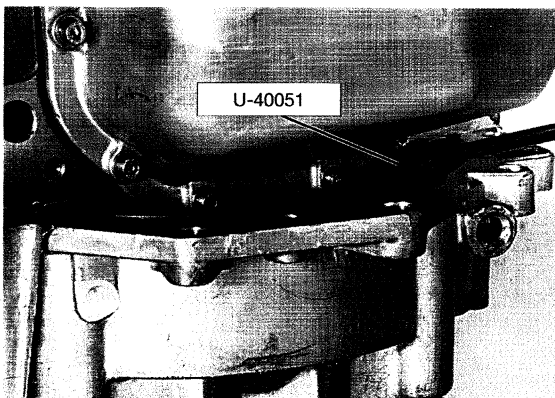
Raise the vehicle.

Drain the oil sump.



17A021

Remove the inertia flywheel cover by removing the bolts fixing it to the engine block and gearbox.



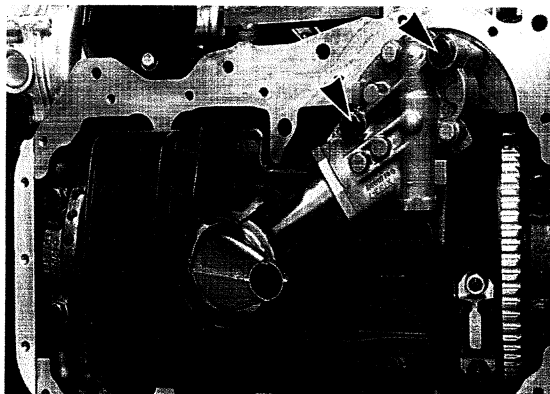
17A022

Remove the oil sump fixing bolts. Use the corresponding spanner to loosen the fixing bolts on the steering wheel side of the engine if necessary:

Allen head bolt: **U-40051**.

Torx bolts: **U-40051/1**.

Hex head bolt: **U-40051/2**.



17A023

Remove the bolts fixing the oil pump and remove the pump together with the suction tube.

Note

The oil pump assembly cannot be repaired; in the case of a fault, it must be replaced completely.

Refitting

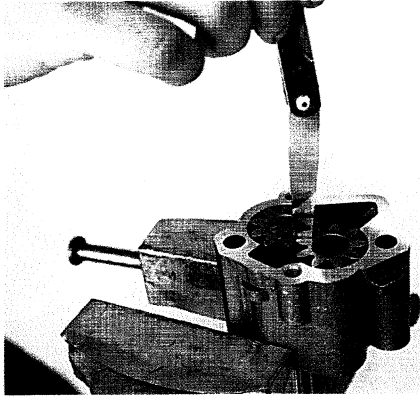
To refit, reverse the above operations taking the following into account:

Replace the oil sump gasket.

Refill the lubrication system with oil.

**BACKLASH
Checking**

To check the oil pump backlash, the oil pump must be removed from the engine.



17A003

Remove the bolts fixing the pump cover to the pump housing.

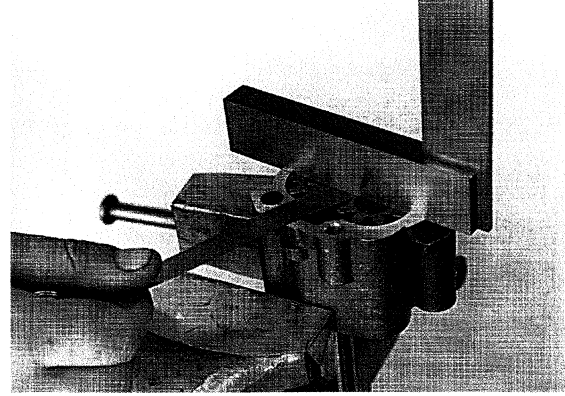
Check the gear backlash using a feeler gauge:

New pump **0.05 mm.**

Maximum allowable wear **0.20 mm.**

**AXIAL PLAY
Checking**

To check the oil pump axial play, the pump must be removed from the engine.



17A004

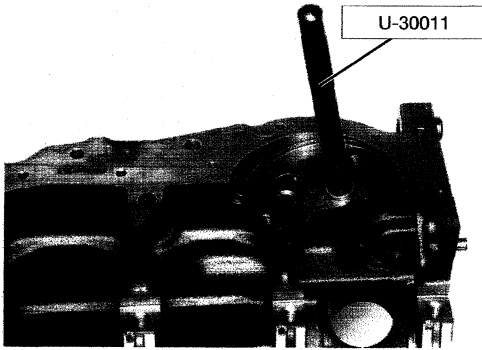
Remove the bolts fixing the pump cover to the pump housing.

Check the axial play using a feeler gauge and a precision rule.

Check that the axial play does not exceed **0.15 mm.**

OIL PUMP DRIVE SHAFT BUSHINGS Replacement

(It is not necessary to remove the crankshaft in order to carry out this operation; it is shown removed in the photograph for better visibility.)



17A024

Remove and refit the oil pump shaft bushings which are located in the cylinder block, using tool **U-30011**.

The oil pump side bushing is removed from the oil pump side.

The intermediate shaft side bushing is removed through the upper part.

When refitting, make sure that the lubrication holes in the bushings match the holes in the cylinder block.

OIL COOLER Replacement

Coolant flows through the oil cooler and maintains the oil temperature within the specified limits.

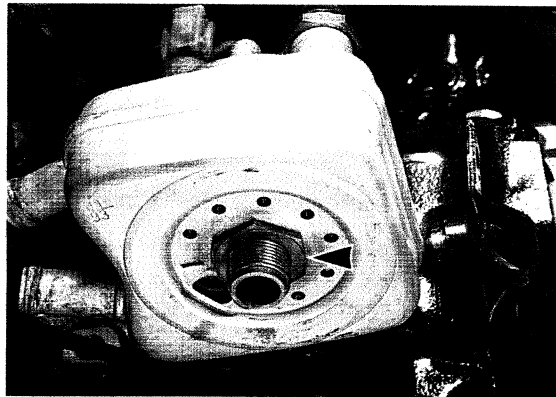
The oil cooler is attached to the oil filter support.

If metal chips are noticed in the engine oil, the oil cooler should be replaced.

To replace the oil cooler, carry out the following operations:

Remove the oil filter with the **U-40078** tool or an universal filter extractor.

Remove the oil cooler, the two coolant liquid hoses (to avoid draining the liquid, it is recommended that the hoses be clamped with the **U-30042** tool).



17A025

Remove the oil cooler fixing nut and remove the oil cooler.

To refit the oil cooler, reverse the above operations taking the following into account:

Apply a proper sealant to the areas in contact with the filter support, to the gasket outside.

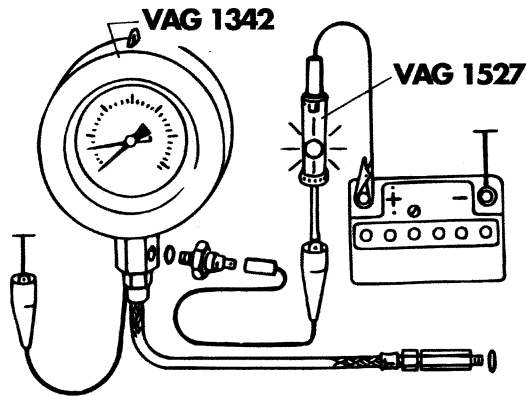
Check the cooling liquid level.

Refill the lubrication system with oil.

OIL PRESSURE SWITCH Checking

In order to check the 1.8 bar switch, it is necessary to use checking apparatus **VAG 1342**, following the steps indicated below:

To make the connections, the measurement cable auxiliary kit **VAG 1594** may be used.



17AD03

Remove the 1.8 bar switch (white insulation) and screw it in the checking equipment.

Screw the adaptor pipe in the 1.8 bar switch housing to apply pressure to the equipment.

Connect to ground the checking equipment brown cable.

Connect diode lamp **VAG 1527** from the positive terminal on the battery to the 1.8 bar pressure switch terminal (white insulation), the diode should not light up.

Start up the engine and slowly increase the speed.

When the checking equipment **VAG 1342** shows a reading between **1.6** and **2.0 bar**, the LED lamp must turn on; otherwise, replace the 1.8 bar switch.

ENGINE OIL PRESSURE Checking

The test equipment **VAG 1342** must be used to check the pressure and the following operations are required:

Remove the **1.8 bar** switch (white insulation) and screw it in the checking equipment.

Screw the adaptor pipe in the **1.8 bar** switch housing to apply pressure to the equipment.

Start up the engine and increase the speed; at 2000 rpm and with the oil at 80 °C, the oil pressure must be **2.0 bar** minimum.

When increasing the speed, the oil pressure must not exceed **7.0 bar**; otherwise, replace the oil pump cover with the pressure regulating valve.

OIL FILTER Replacement

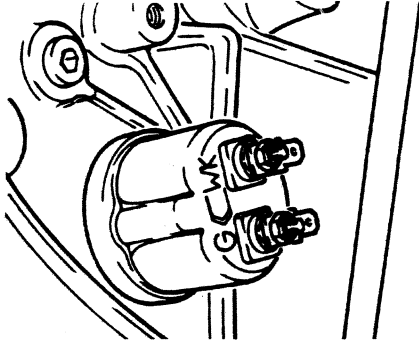
Remove using the **U-40078** tool or a universal filter extractor.

For refitting, note the instructions on the filter.

Tighten the filter by hand.

OIL-PRESSURE GAUGE Checking

In order to carry out this check, the oil level must be in order and the oil temperature must be at least 80 °C.



17BD14

Disconnect **contact** cable **G** from the pressure gauge and connect digital multimeter **VAG 1526** from **contact G** on the pressure gauge to the engine ground.

To make the connections, the measurement cable auxiliary kit **VAG 1594** may be used.

Select measuring range **200 Ω** on the multimeter **VAG 1526**, with the ignition off it should read from **5 to 13 Ω** .

Start the engine and gradually increase the revolutions. The resistance should go up to a **maximum of 210 Ω** .

Next, disconnect **contact** cable **WK** from the pressure gauge and connect digital multimeter **VAG 1526** from **contact WK** on the pressure gauge to the engine ground.

With the engine ticking over the value obtained should be **$\infty \Omega$** .

Following this, turn off the ignition, the value should read from **0 to 0.5 Ω** .

If the values indicated above are not reached, replace the pressure gauge.