

Volkswagen New Beetle
2.0 Liter 4-cyl General, Engine (Engine Code AEG)
17 Engine-Lubrication system (Page GR-17)

- [Lubrication system components, removing and installing](#)
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Volkswagen New Beetle

2.0 Liter 4-cyl General, Engine (Engine Code AEG)

Lubrication system components, removing and installing (Page 17-1)

Notes:

- ◆ *If quantities of metal particles or other material (caused, for example, by crankshaft seizure or connecting rod bearings) are found in the engine oil during repairs, thoroughly clean the oil passages and replace the oil cooler to prevent future damage from occurring later.*
- ◆ *The oil level must not be above the Max. mark - danger of damage to catalyst!*
Marks ⇒ [Page 17-6](#), [Fig. 1](#)

Oil pressure, checking ⇒ [Page 17-10](#)

Oil system capacity1) :

- Without oil filter 3.5 liters (3.7 quarts)
- With oil filter 4.0 liters (4.2 quarts)

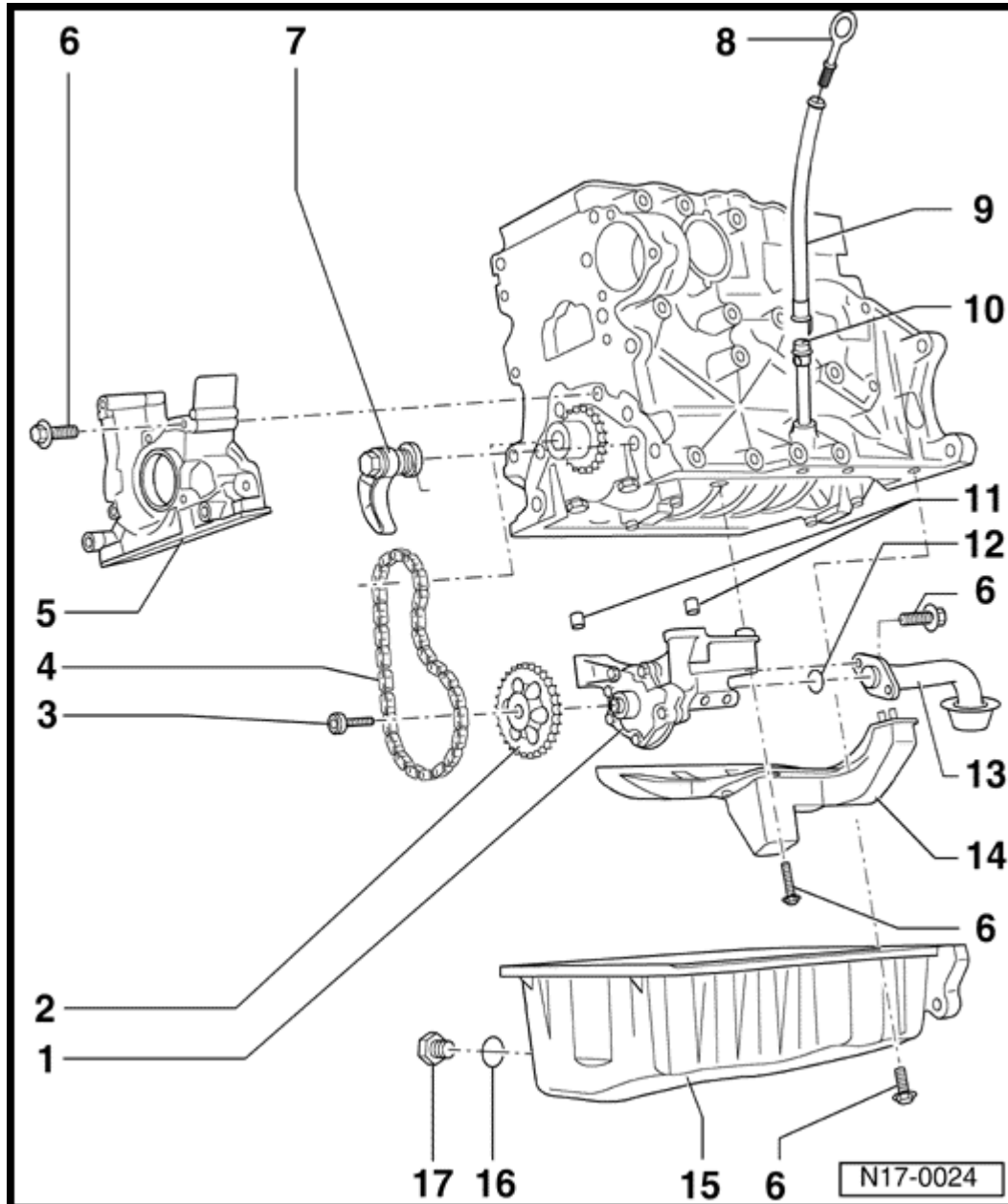
Engine oil specifications:

- ◆ ⇒ Owner's Manual

Volkswagen New Beetle

2.0 Liter 4-cyl General, Engine (Engine Code AEG)

Lubrication system components, removing and installing (Page 17-2)



Part I

Oil filter flange, disassembling ⇒ [Page 17-4](#) , Part II

1 - Oil pump

- ◆ 12 bar (174 psi) pressure relief
- Before installing, ensure that both oil pump/cylinder head centering sleeves are in place
- Replace if running surfaces and/or gears are scored

2 - Chain sprocket

3 - 20 Nm (15 ft lb)

4 - Chain

5 - Sealing flange

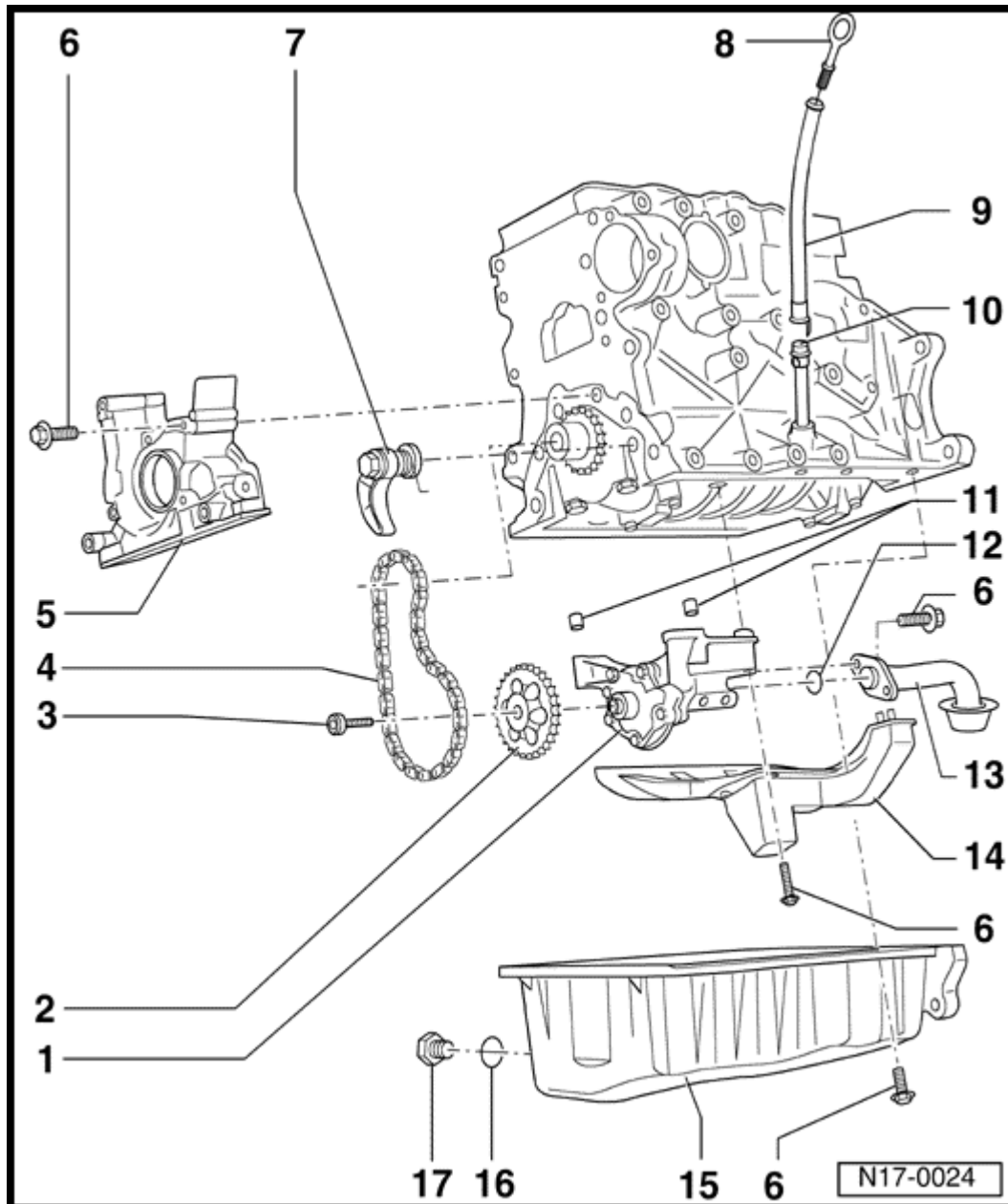
- ◆ Removing and installing: ⇒ [Page 13-25](#)
- Insert with silicone sealant D 176 404 A2 ⇒ [Page 13-25](#)
- ◆ Crankshaft oil seal (pulley side), replacing ⇒ [Page 13-21](#)

6 - 15 Nm (11 ft lb)

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Lubrication system components, removing and installing (Page 17-3)



7 - Chain tensioner (with tensioning rail)

- ◆ 15 Nm (11 ft lb)

- When installing, pretension spring and then install

8 - Dipstick

- ◆ Oil level must NOT be above the Max. mark!
- ◆ Marks: ⇒ [Page 17-6](#) , [Fig. 1](#)

9 - Guide

- Remove to draw oil out

10 - Guide tube

11 - Dowel sleeves

12 - O - ring

- Replace

13 - Suction pipe

- Clean strainer

14 - Baffle plate**15 - Oil pan**

- Clean sealing surface before installing
- Install with silicone sealant D 176 404 A2 ⇒ [Page 17-7](#)

16 - Seal

- Replace

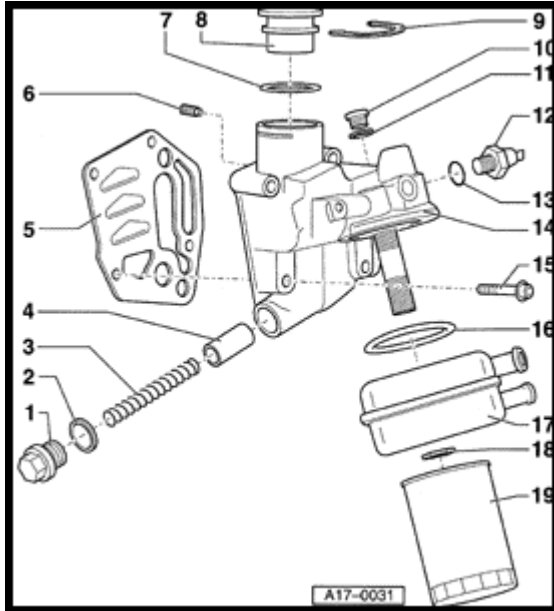
17 - Oil pan drain plug

- ◆ 30 Nm (22 ft lb)

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Lubrication system components, removing and installing (Page 17-4)



Part II

1 - Sealing plug

- ◆ 40 Nm (30 ft lb)

2 - Seal

3 - Spring

- ◆ for pressure relief valve, approx. 4 bar (58 psi)

4 - Piston

- ◆ for pressure relief valve

5 - Gasket

- Replace

6 - Check valve

- ◆ 8 Nm (71 in. lb)

7 - Seal

- Install onto sealing cap shoulder (item 8)

8 - Sealing cap

9 - Retaining clip

10 - Sealing plug

- ◆ 15 Nm (11 ft lb)

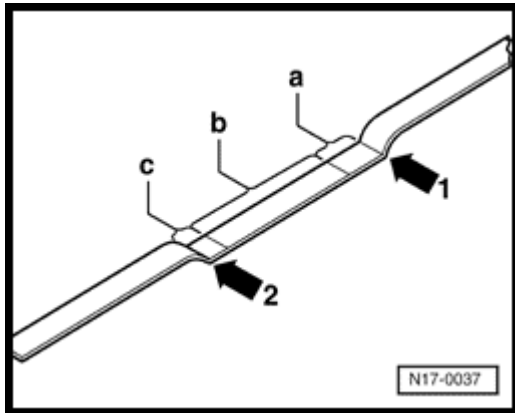
11 - Seal

- If sealing ring is leaking; nip open and replace.

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Lubrication system components, removing and installing (Page 17-6)



A

Fig. 1 Engine oil dipstick, marks

1- Max. mark

2- Min. mark

a- Area above cross - hatched zone up to Max. mark: Do **NOT** top - up with engine oil!

b- Area within cross - hatched zone: **CAN** be topped - up with engine oil

c- Area from Min. mark up to cross - hatched zone: **FILL** with 0.5 liter of engine oil maximum!

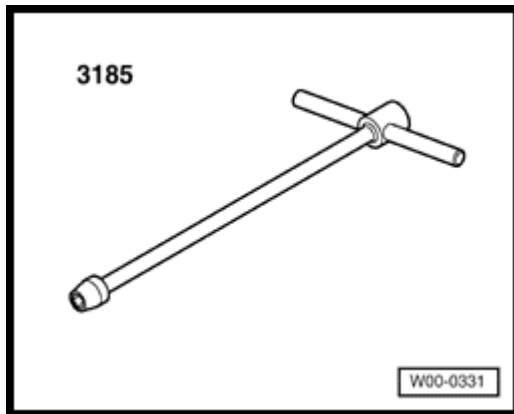
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Lubrication system components, removing and installing (Page 17-7)

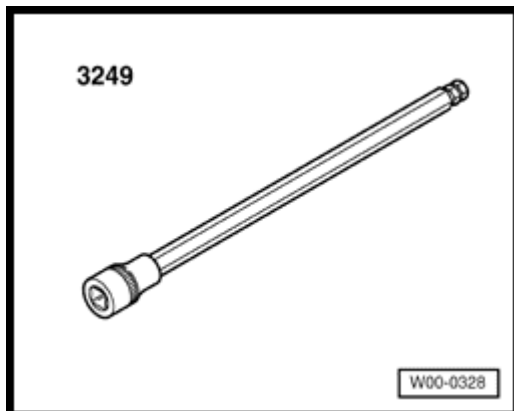
Oil pan, removing and installing

Special tools, workshop equipment, testers, measuring instruments and auxiliary items required



A

- ◆ 3185 Extension socket wrench



A

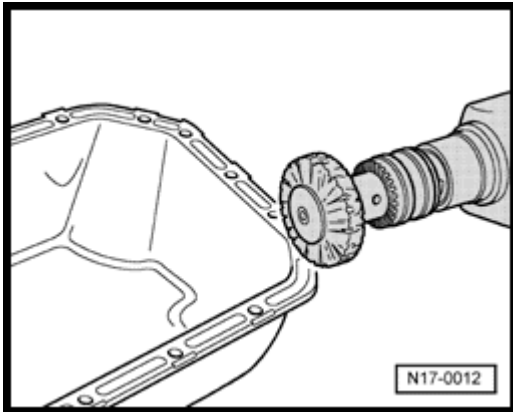
- ◆ 3249 Socket
- ◆ Hand drill with plastic brush
- ◆ D176404 A2 Silicone sealant

Oil pan, removing

- Remove center and right insulation trays:
 - ⇒ General body repairs; Repair group 50
- Drain engine oil.
- Loosen and tighten oil pan bolts using 3185 extension socket wrench, unscrew using 3249 socket.

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Lubrication system components, removing and installing (Page 17-8)

- Remove oil pan, it may be necessary to free it up by tapping it lightly with a rubber hammer.
- Remove sealant residue on engine block with a flat scraper.

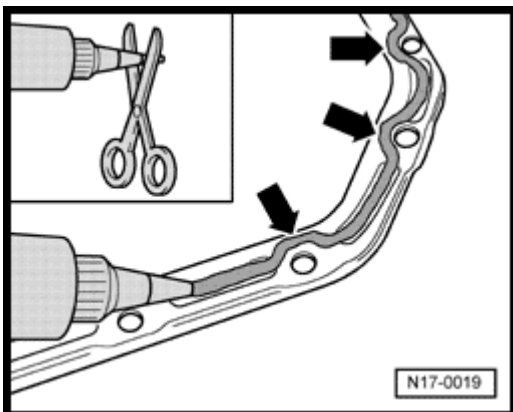


- Remove sealant residue on the oil pan with a rotating brush, e.g. hand drill with a plastic brush (wear protective glasses).
- Clean sealing surface, **MUST** be free of oil and grease.

Oil pan, installing

Notes:

- ◆ Note the "use by" date on the sealant container.
- ◆ Oil pan must be installed within 5 minutes of applying silicone sealing compound.



- Cut - off tube nozzle at forward mark (nozzle approx. 3 mm \varnothing)
- Apply silicone sealing compound, as shown, to clean oil pan sealing surface. Sealing compound bead must be:
 - ◆ 2 to 3 mm thick.
 - ◆ must follow curve on inside of bolt holes - arrows - .

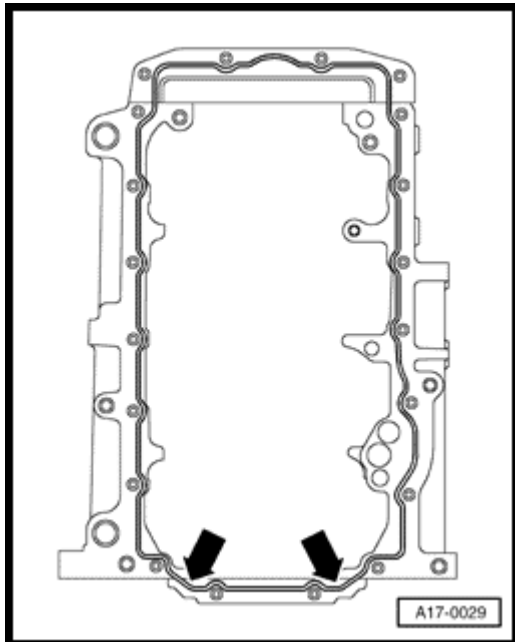
Note:

Sealing compound bead must not be thicker than specified, otherwise excess compound will enter the oil pan and could block the oil suction pipe strainer.

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Lubrication system components, removing and installing (Page 17-9)



- Apply silicone sealing bead as shown to the clean sealing surface of the oil pan. (illustration shows position of sealant bead on engine block).
- Install oil pan immediately and tighten all oil pan bolts lightly.
 - 1- Tighten all bolts oil pan/engine block only lightly cross over
 - 2- Lightly tighten three oil pan/transmission bolts
 - 3- Lightly tighten oil pan/engine block cross over bolts
 - 4- Tighten three oil pan/transmission bolts
 - ◆ 45 Nm (33 ft lb)
 - 5- Tighten all bolts oil pan/engine block cross over
 - ◆ 15 Nm (11 ft lb)

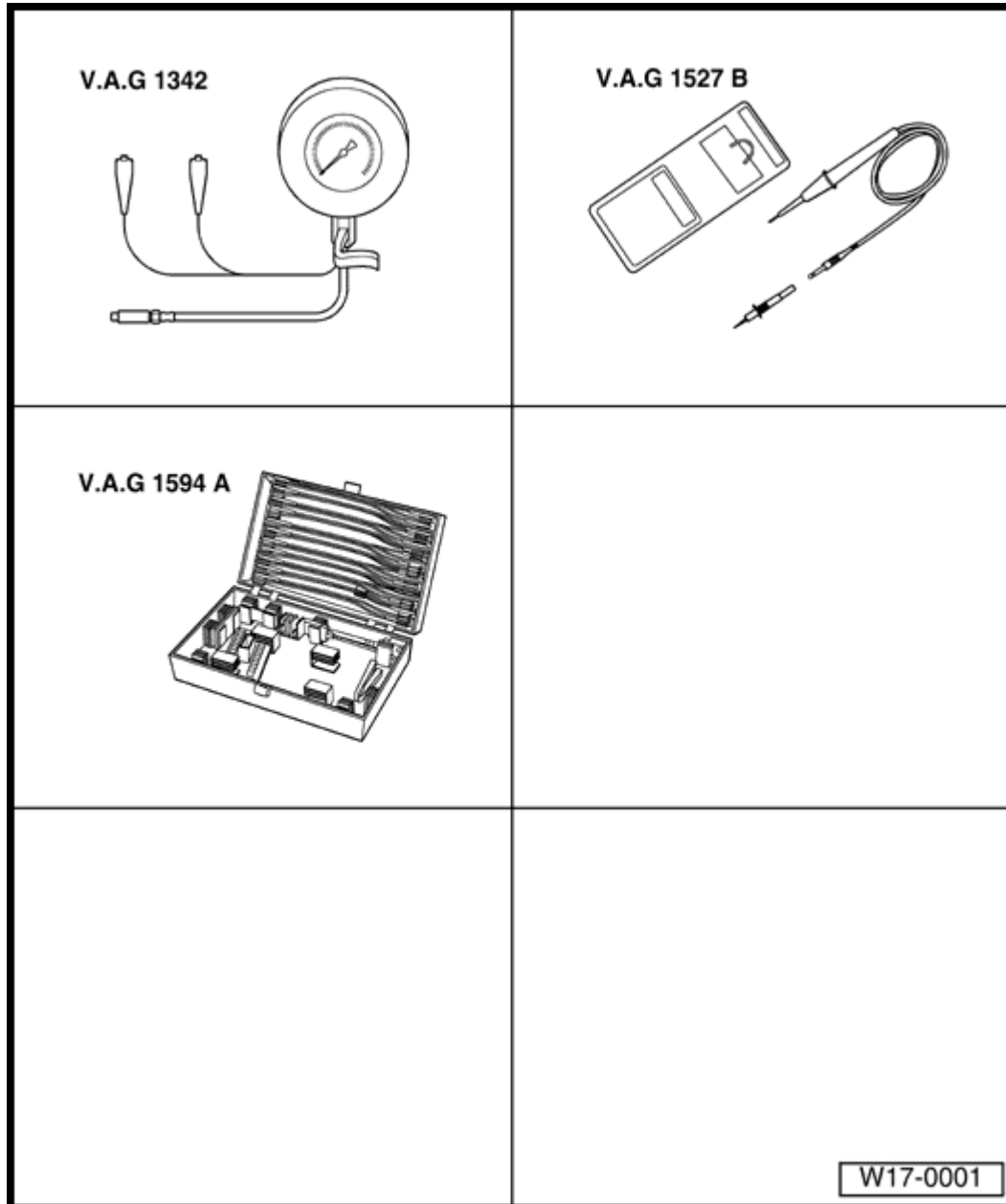
Notes:

- ◆ *When installing the oil pan with the engine removed; Ensure oil pan is flush with engine block on flywheel side.*
- ◆ *After installing oil pan; allow sealant to dry for approx 30 minutes before filling with engine oil.*
- ◆ *Assembly is the reverse of the disassembly procedure.*

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2.0 Liter 4-cyl General, Engine (Engine Code AEG)

Lubrication system components, removing and installing (Page 17-10)



Oil pressure and oil pressure switch, checking

Special tools, workshop equipment, test and measuring appliances and auxiliary items required

- ◆ VAG 1342 Oil pressure tester
- ◆ VAG 1527 B Voltage tester
- ◆ VW 1594 Adaptor kit

Volkswagen New Beetle
2.0 Liter 4-cyl General, Engine (Engine Code AEG)
Dynamic oil pressure warning system, function (Page 17-11)

The oil pressure switch is normally open (engine not running) and closes when minimum dynamic pressure is attained.

Oil pressure warning is activated approx.: 10 seconds after ignition is switched ON (terminal 15 ON)

Oil pressure warning switch ON delay: approx. 3 seconds

Oil pressure warning switch shut OFF delay: approx. 5 seconds.

Oil pressure warning light, checking

After switching ON the ignition (engine not running), the oil pressure warning light (instrument panel) must stay ON for approx. 3 seconds and then switch OFF.

Note:

The check will be aborted if the engine is running.

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Dynamic oil pressure warning system, function (Page 17-12)

Warning criteria

Optical oil pressure warning (oil pressure warning light flashes) and the 3 time buzzer for acoustic warning, will switch ON under the following conditions:

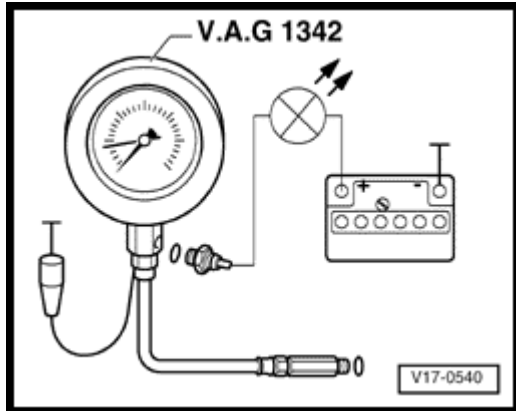
- ◆ Ignition switched ON (engine NOT running) = Oil pressure switch CLOSED
- ◆ Engine RPM greater than 1500 rpm = Oil pressure switch OPEN
- ◆ At engine speeds greater than 5000 rpm, the oil pressure warning is not erased; not even if the oil pressure switch is closed. Oil pressure warning only erases below 5000 rpm.
- ◆ If the oil pressure switch is opened at an engine speed greater than 1500 rpm for anywhere from 0.5 to 3 seconds, it is stored in the instrument panel Control Module. If this condition occurs 3 times during engine running; an oil pressure warning is immediately released and since it is under 1500 rpm will not be erased. Oil pressure warning erasure occurs when the oil pressure switch "over 1500 rpm" is closed for longer than 5 seconds or with the ignition switched OFF.

Test conditions

- Ensure engine oil level OK ⇒ [Page 17-6](#)
- Oil pressure warning light K3 must light up with ignition switched ON for approx. 3 seconds
- Engine oil temperature 80 ° C minimum (Radiator cooling fan must come on at least once)

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Dynamic oil pressure warning system, function (Page 17-13)

Oil pressure switch, checking



A

- Remove oil pressure switch F1 and screw into tester.
- Screw tester into oil filter flange instead of pressure switch.
- Connect brown tester wire to engine Ground.
- Connect VAG 1527 B Voltage tester between battery Plus and oil pressure switch using jumper wires from VW 1594 adaptor kit.
- Start engine and slowly increase speed.
 - At 1.2 to 1.6 bar, LED must light up

If LED does not light up

- Replace oil pressure switch.

Oil pressure switch, checking

- Remove oil pressure switch F1 and screw into tester.
- Screw tester into Oil filter flange instead of pressure switch
- Start engine (engine oil temperature approx. 80° C)
 - ♦ Oil pressure at idle: 2.0 bar minimum
 - ♦ Oil pressure at 2000 rpm: 3.0 to 4.5 bar

If specifications not obtained

- Check oil filter assembly (w/ pressure relief valve) ⇒ [Page 17-5](#) (item 14) or replace oil pump ⇒ [Page 17-2](#) (item 1).