

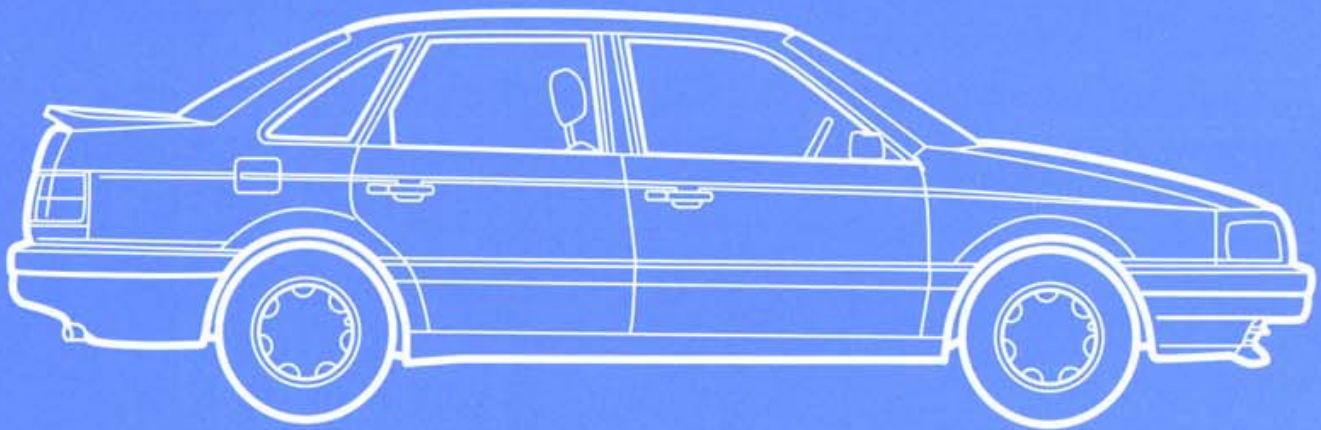


Volkswagen Passat

Official Factory Repair Manual

1990, 1991, 1992, 1993, 1994

4-cylinder (16V, G60, and diesel), 6-cylinder (VR6)
including wagon and Syncro



Bentley Publishers

Contents:

Version 96.01

General, Engine

- 2.0L 16V 4-cylinder (code 9A)
- 2.8L VR6 (code AAA)
- 1.9L Diesel (Canada) (code AAZ)
- 1.8L 4-cylinder G60 (code PG)
- Engine Electrical

Fuel Supply, Turbocharger, Fuel Injection, Exhaust, Ignition

- 2.0L 16V 4-cylinder (CIS-E Motronic)
- 2.8L VR6 (Motronic)
- 1.9L Diesel (Canada)
- 1.8L 4-cylinder G60 Syncro (Canada) (Digifant)

Transmission

- Manual Transmission 02A
- Manual Transmission 02C Syncro (Canada)
- Automatic Transmission 096

Suspension, Brakes, Wheels, Steering

- Suspension-Wheels-Brakes-Steering
- Suspension-Wheels-Brakes-Steering Syncro (Canada)

Body

- Body Exterior
- Body Interior

Heater & Air Conditioning

- Heater-Air Conditioner (R12)
- Air Conditioner (R-134a)

Electrical Equipment

- Radio-Wipers-Lights-Switches-Wiring

Troubleshooting

- Using VAG Diagnostic Testers

Wiring Diagrams

Volkswagen B3 Passat
General-Engine 4 CYL.
17 Engine - Lubrication System (Page GR-17)

Engine oil

- [capacities](#)
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Lubrication system

- [component layout](#)
- [general information](#)

Oil pressure and oil pressure switch

- [checking](#)

Oil pump

- [axial play, checking](#)
- [backlash, checking](#)

Volkswagen B3 Passat

General-Engine 4 CYL.

Engine oil, capacities/specifications; Lubrication system, general information (Page 17-1)

- ◆ If metal powder or fragments are found in the engine oil during repairs, carefully and thoroughly clean the passages of the oil cooler
- ◆ Do not allow the oil level to exceed the Max. mark on the dipstick or catalytic converter damage could result
- ◆ Oil pressure checking, ⇒ [page 17-8](#)

Engine oil capacities

Without filter change: 3.5 liters (3.7 quarts)

With filter change: 4.0 liters (4.3 quarts)

Engine oil specification

Multi-grade oil corresponding to VW standard **501 01**

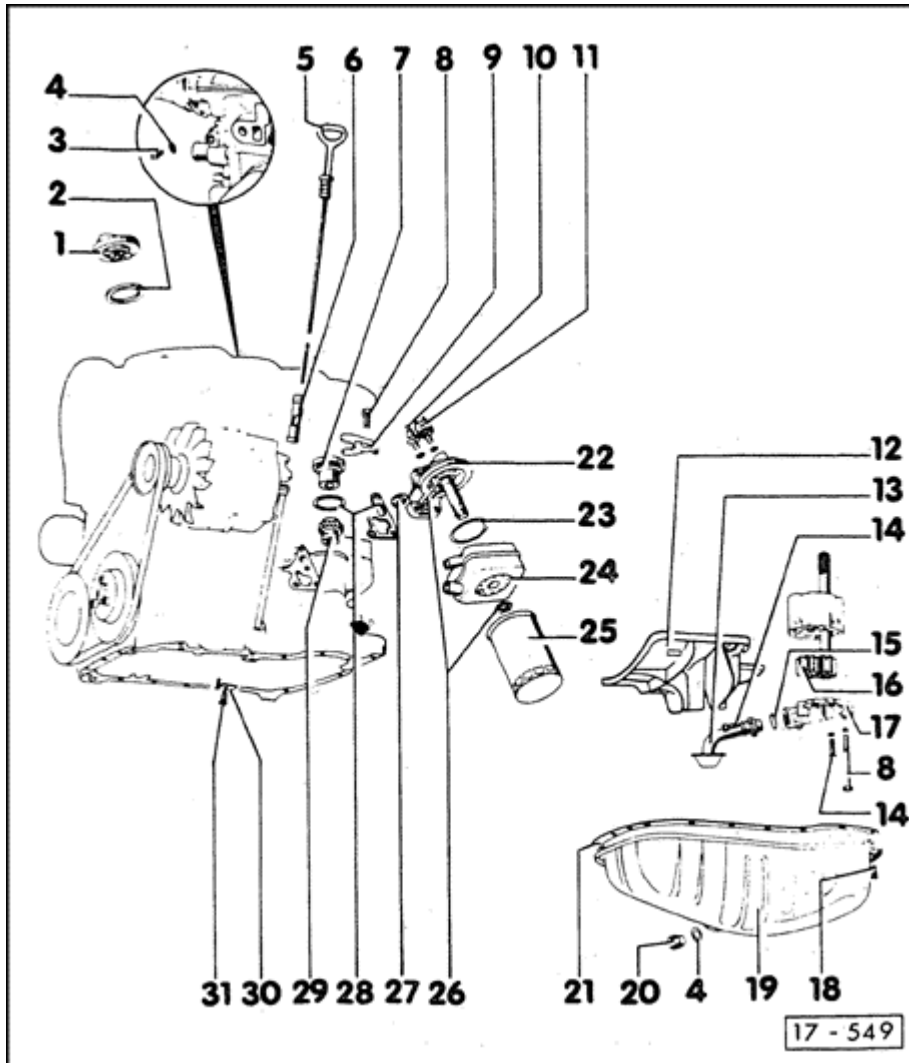
High performance or light duty oil corresponding to VW standard **500 00**

In emergency: multi-grade or single grade oils corresponding to **API-SF** or **SG**.

Volkswagen B3 Passat

General-Engine 4 CYL.

Lubrication system, component layout (Page 17-2)



1 - Oil filler cap

2 - Seal

- ◆ replace if damaged

3 - Oil temperature sensor (G 8)

- ◆ 10 Nm (7 ft lb)
- ◆ for oil temperature display
- ◆ white

4 - Sealing ring

5 - Dipstick for engine oil

- ◆ quantity difference between Min. and Max.: .75 liter (0.8 quarts)
- ◆ oil level must not exceed Max. level

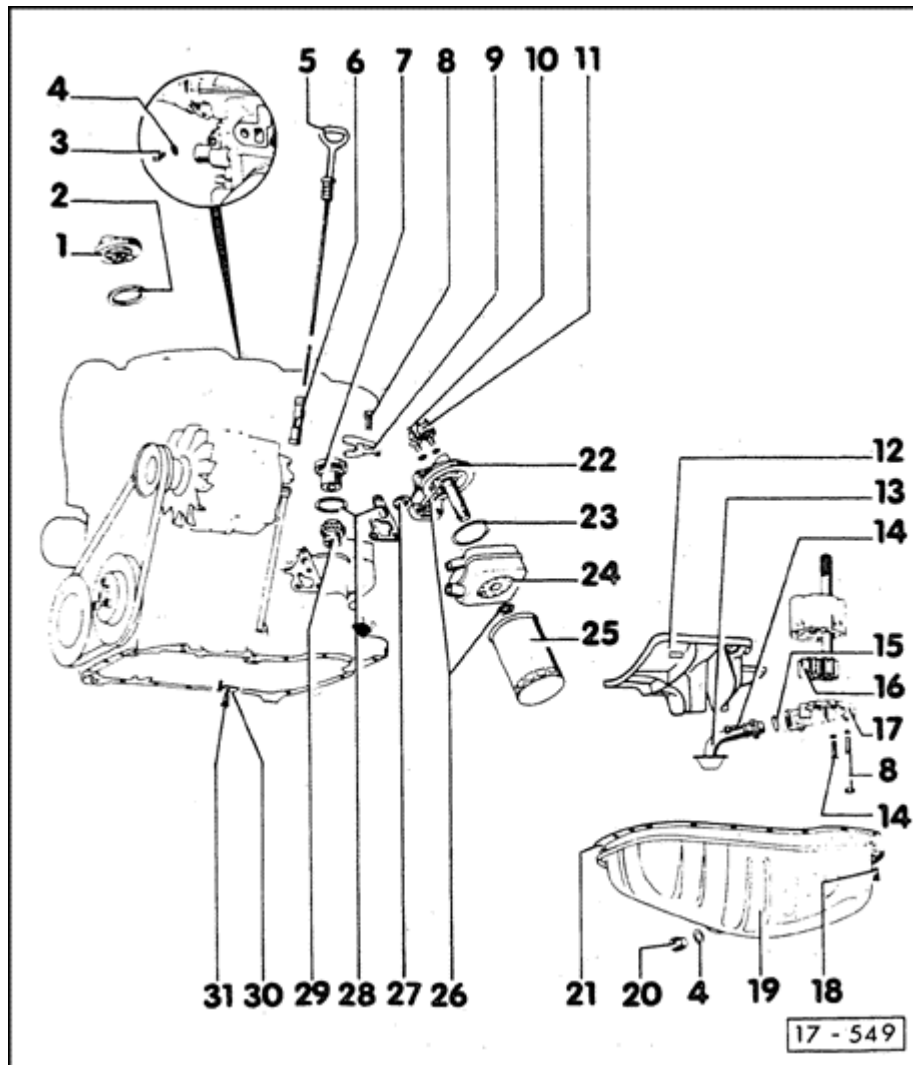
6 - Dipstick guide tube

7 - Cap

♦ with compensation play

8 - 20 Nm (15 ft lb)

Volkswagen B3 Passat
General-Engine 4 CYL.
Lubrication system, component layout (Page 17-3)



9 - Clamp

10 - 0.3 bar oil pressure switch (F 22)

- ◆ 25 Nm (18 ft lb)
- ◆ brown
- ◆ blue/black wire
- ◆ if leaking, replace sealing ring
- ◆ checking, ⇒ [page 17-8](#)

11 - 1.8 bar oil pressure switch (F 1)

- ◆ 25 Nm (18 ft lb)
- ◆ white
- ◆ yellow wire
- ◆ if leaking, replace sealing ring
- ◆

checking, ⇒ [page 17-8](#)

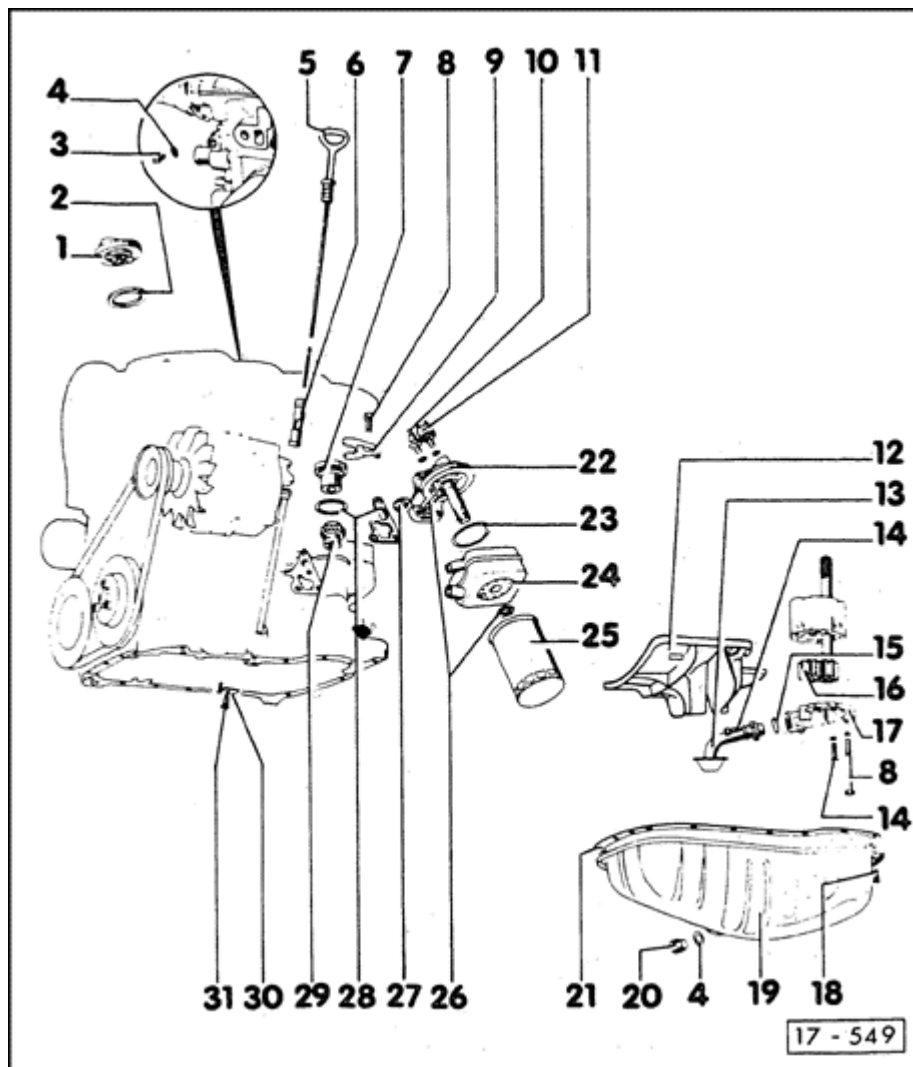
12 - Baffle plate

- ◆ install with oil pump removed

13 - Suction pipe

- ◆ clean strainer if dirty

Volkswagen B3 Passat
General-Engine 4 CYL.
Lubrication system, component layout (Page 17-4)



14 - 10 Nm (7 ft lb)

15 - O-ring

- ◆ replace

16 - Oil pump drive gears

- ◆ backlash checking, ⇒ [Fig. 1](#)
- ◆ axial clearance checking, ⇒ [Fig. 2](#)

17 - Oil pump cover with pressure relief valve

- ◆ opening pressure: 5.7 to 6.7 bar

18 - 20 Nm (15 ft lb)

- ◆ tighten and loosen bolts (on the flywheel end) using tool 3185

19 - Oil pan

- ◆ clean the sealing surfaces before installing

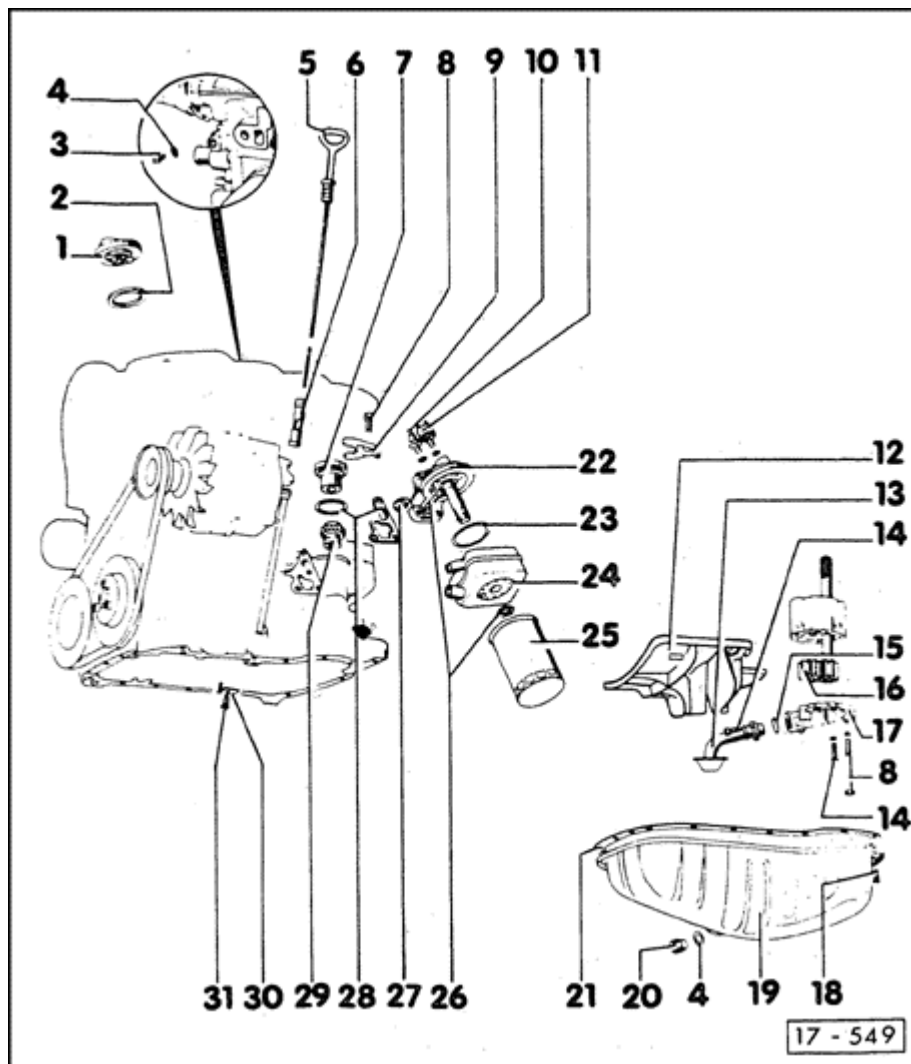
20 - Drain plug

◆ 30 Nm (22 ft lb)

Volkswagen B3 Passat

General-Engine 4 CYL.

Lubrication system, component layout (Page 17-5)



21 - Oil pan gasket

- ♦ replace
- ♦ before installing, coat the contacting surfaces of the oil pan and the cylinder block with D2

22 - Oil filter mounting flange

23 - O-ring

- ♦ replace if damaged

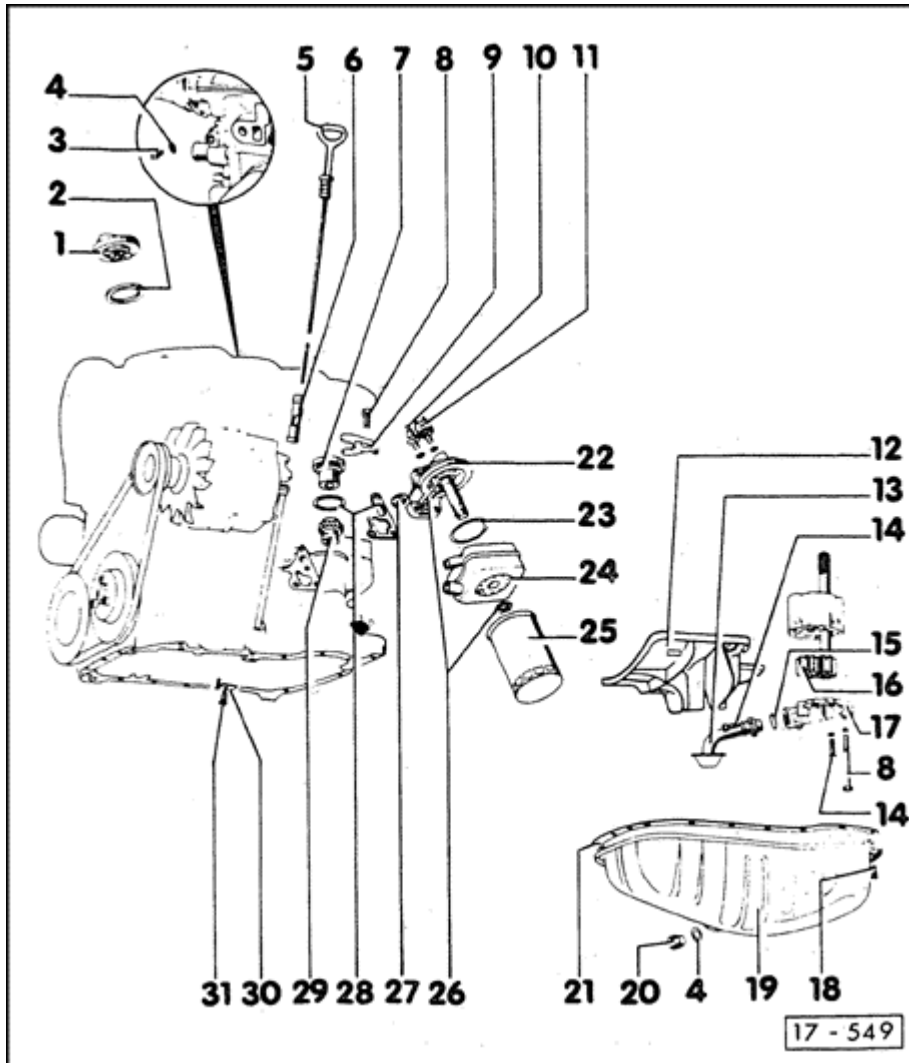
24 - Oil cooler

- ♦ coat the surface with AMV 188 100 02 where it contacts the flange
- ♦ when installing, position such that there is sufficient clearance between adjacent components
- ♦ If metal powder or fragments are found in the engine oil during repairs, carefully and thoroughly clean the passages of the oil cooler

Volkswagen B3 Passat

General-Engine 4 CYL.

Lubrication system, component layout (Page 17-6)



25 - Oil filter

- ◆ loosen with wrench
- ◆ tighten by hand
- ◆ observe installation instructions printed on the filter housing

26 - 25 Nm(18 ft lb)

27 - Check valve

- ◆ 5 Nm (44 in. lb)
- ◆ starting 05-91

28 - Flange gasket

- ◆ replace

29 - Drive gear

- ◆ for oil pump drive

30 - Oil spray jet

- ◆ for piston cooling

31 - Pressure relief valve

- ◆ 27 Nm (31 ft lb)
- ◆ opening pressure: 2.5 to 3.2 bar

Volkswagen B3 Passat
General-Engine 4 CYL.
Oil pump, axial play, checking/backlash, checking (Page 17-7)

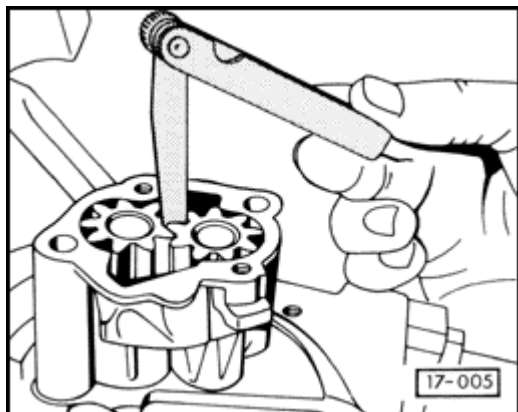


Fig. 1 Oil pump backlash, checking

New: 0.05 mm

Wear limit: 0.20 mm

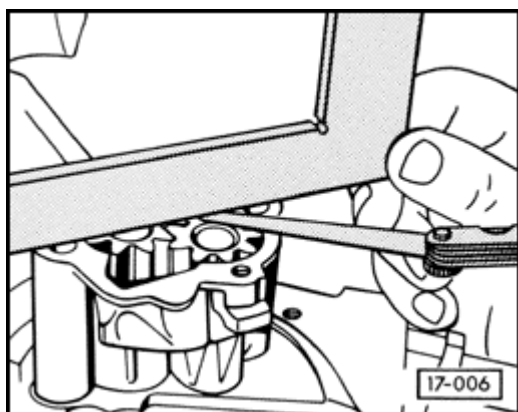
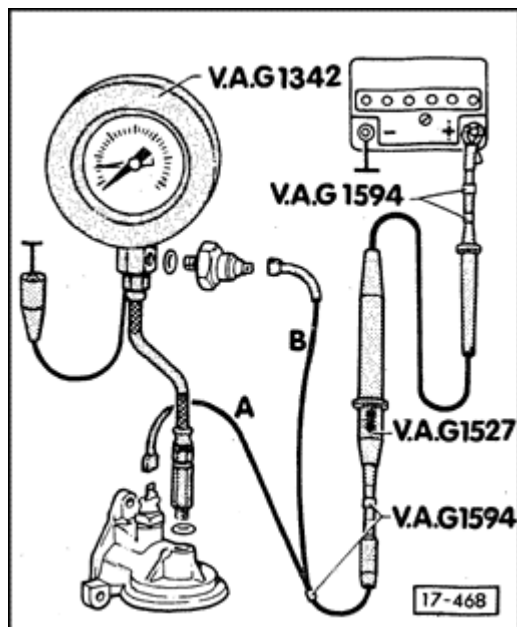


Fig. 2 Oil pump axial play, checking

Wear limit: 0.15 mm

Volkswagen B3 Passat
General-Engine 4 CYL.
Oil pressure and oil pressure switch, checking (Page 17-8)

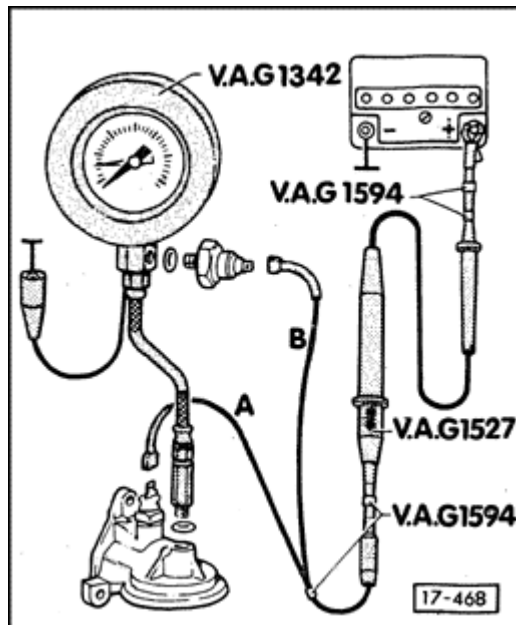


Note

*To functionally check and service the optical and acoustical oil pressure display system,
⇒ Wiring diagrams.*

- Remove the 1.8 bar oil pressure switch (white) and thread it into tester VAG 1342
- Thread the tester into the oil filter flange in place of the removed switch
- Connect the brown wire of the tester to ground
- Connect LED tester VAG 1527 between battery positive and-A-the 0.3 bar oil pressure switch (F 22) using jumper wires from the VW 1594 adaptor kit
 - ♦ the LED tester must light up
- Start the engine and slowly increase engine speed
 - ♦ between 0.15. to 0.45 bar the LED tester must switch off, if not, then replace the 0.3 bar pressure switch

Volkswagen B3 Passat
General-Engine 4 CYL.
Oil pressure and oil pressure switch, checking (Page 17-9)



- Connect LED tester to -B- 1.8 bar oil pressure switch (F 1)
 - ◆ between 1.6 to 2.0 bar the LED tester must light up, if not, then replace the 1.8 bar oil pressure switch
- Increase engine rpm
 - ◆ at an engine speed of 2000 rpm and an oil temperature of 80° C (176° F) the oil pressure must be 2.0 bar minimum