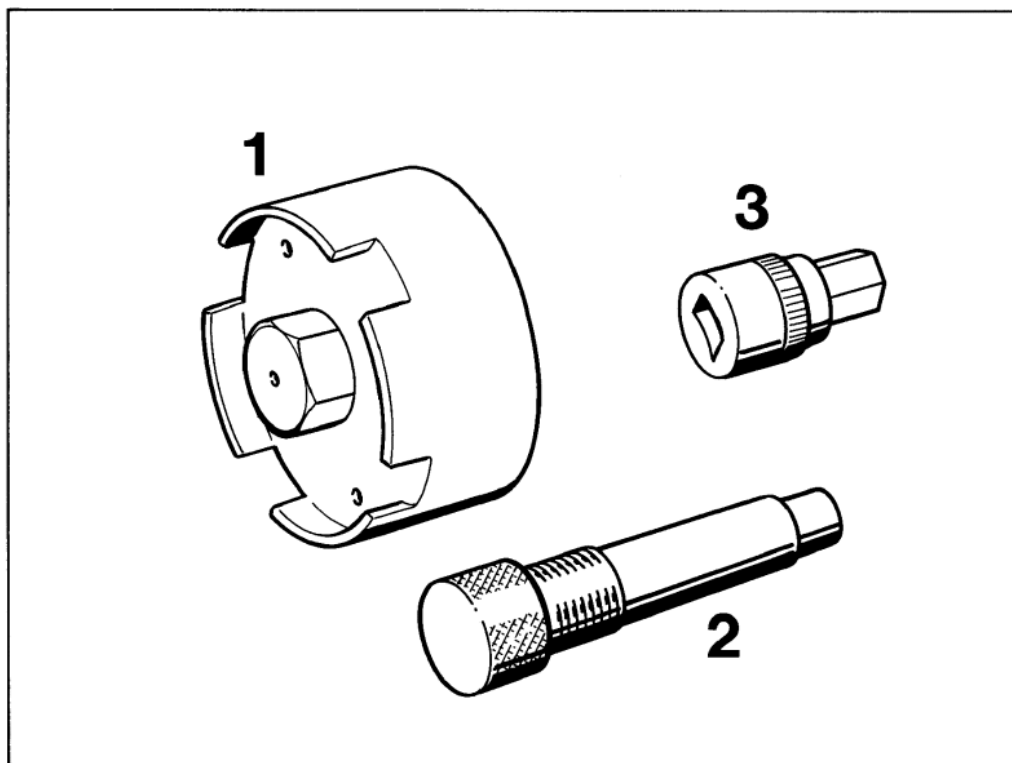


## Lubrication

### Removing and installing lubrication system components

#### Tools



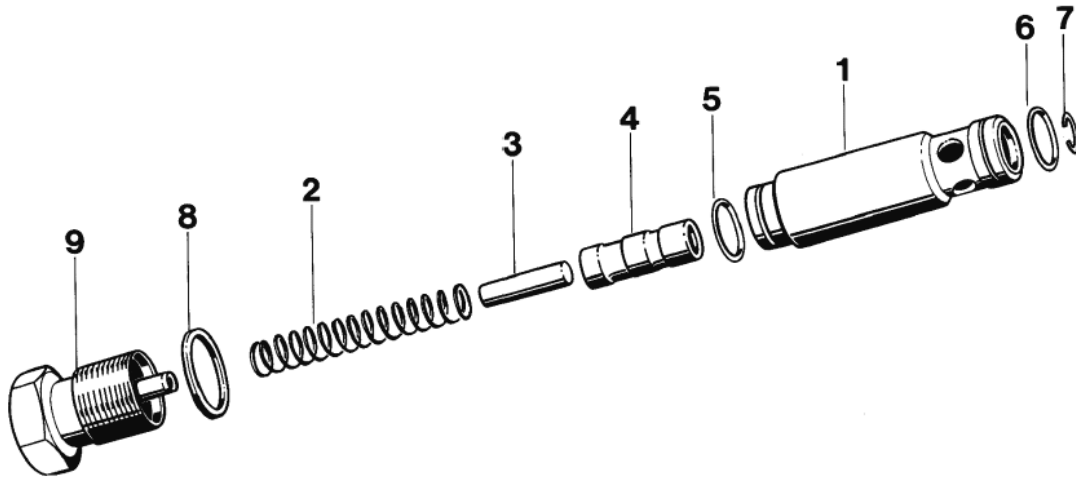
No.	Designation	Special tool	Order number	Explanation
1	Oil filter wrench	9204	000.721.920.40	
2	Assembly pin	9262/1	000.721.926.21	
3	Screwdriver insert for plug / thermostat		985-17	e.g. Hazet, available from tool shops

**Assembly note****Aligning the thermostat housing**

1. Fit preassembled housing to crankcase and tighten hexagon head bolts lightly. Screw in oiled assembly pin 9262/1 manually, center and tighten hexagon head bolts crosswise. If a resistance is felt when the assembly pin is withdrawn, the fitting operation must be repeated.
2. Fit oil pressure release valve with new seal and oiled seals.  
Tightening torque 45 Nm (33 ftlb).

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**Dismantling and assembling oil pressure release valve**



No.	Designation	Qty.	Note:	
			Removal	Installation
1	Slide valve housing	1		
2	Thrust spring	1		
3	Damping plunger	1		
4	Slide plunger	1		
5	O-ring	1		Replace, oil lightly
6	O-ring	1		Replace, oil lightly
7	Snap ring	1	May remain in slide valve housing	Check for correct seating
8	Seal A 20 x 24	1		Always to be replaced
9	Plug with grooved pin	1		Tightening torque 45 Nm (33 ftlb)

## Assembly notes

### Note

Before dismantling the oil pressure release valve, use a suitable tool, e.g. a round wooden or plastic rod, to check if the slide plunger (4) slides smoothly in the slide valve housing (1). If it sticks or binds, the oil pressure release valve must not be fitted anymore.

### Dismantling

1. Tighten oil pressure release valve at hexagon in a vise.
2. Put on protective gloves and pull slide housing out of plug.

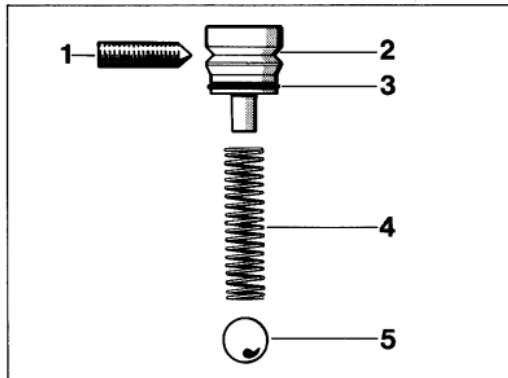
### Note

The slide valve housing (1) can only be pulled off with difficulty since the O-ring (5) must be destroyed in the process. In addition, the valve is spring-loaded.

### Assembly

1. Oil O-ring (5) lightly and fit to slide housing.
2. Coat damping plunger (3) and slide plunger (4) with oil and preassemble them in the slide valve housing.
3. Grease slide valve housing (1) well in O-ring area, e.g. using Optimol Olit 2 EP or TL-VW 735.
4. Fit thrust spring (2), press slide valve housing into plug, using a vise and protecting the housing in a suitable manner (e.g. with a wooden or plastic block etc.).
5. Apply a thin oil coat to O-ring (6) and fit to slide valve housing.

## Removing and installing oil restraining valve



1 – Threaded pin

2 – Spring guide

3 – O-ring

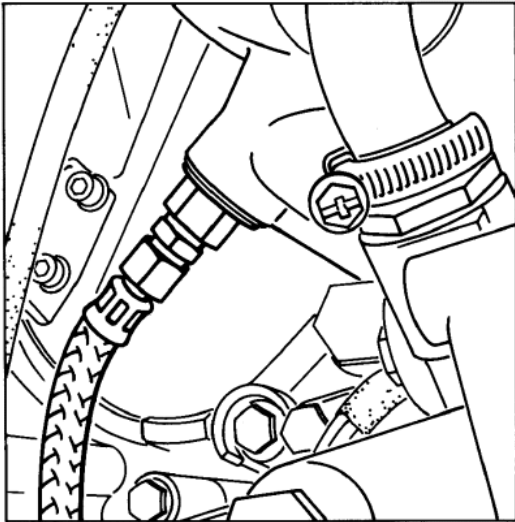
4 – Thrust spring

5 – Ball

1. Remove cylinder head cover. Screw one hexagon head bolt, e.g. M 6 x 40, into spring guide from above. Undo threaded pin by two turns and pull out spring guide in upward direction.
2. Take out thrust spring and ball using a magnet. Clean ball seat, ball, thrust spring and oil duct thoroughly. The ball seat remains in cylinder head and must not be damaged.
3. Replace O-ring before fitting and oil lightly.  
Tightening torque for threaded pin:  
3.5 Nm (3 ftlb).

## Checking oil pressure

1. Remove oil pressure transmitter and screw oil pressure tester VW 1342 together with M 10 x 1 adapter, and M 10 x 1/M 18 x 1.5 adapter, in its place in the oil/water cooler housing.



2. Run engine to operating temperature (80° C oil temperature), checking the temperature with, for example, an oil temperature tester (Special Tool 9122 + 9122/2).
3. At idle speed the oil pressure should be 2.5 bar or more.  
Have a second person accelerate the engine speed to 4000 rpm.  
Read oil pressure from tester. The value should be greater than 4.5 bar.
4. Install oil pressure transmitter with a new A 18 x 24 seal.  
**Tightening torque: 35 Nm.**

## Cleaning the entire engine oil system after an engine failure (bearing failure)

### Note

This cleaning sequence is only intended to give pointers as to where you may find chips. The actual amount of work involved will depend on each individual case of engine damage.

### Replace the following parts:

- Hydraulic valve tappets
- Oil pressure relief valve (crankcase)
- Oil filter

### The following parts must be dismantled, inspected and cleaned thoroughly:

- Oil pump
- Thermostat housing
- Oil restraining valve in cylinder head

The following parts must be cleaned thoroughly and/or rinsed through repeatedly:

### Note:

All oil bores may be rinsed through thoroughly with benzine and a commercially available oil/benzine syringe.

- Oil pan
- Oil intake pipe
- Oil drain pipe
- Crankcase
- Crankshaft
- Cylinder head
- Oil lines
- Oil cooler
- Oil filler neck

**Change oil filter and engine oil after approx. 500 km.**

### Note:

After an engine failure, the entire intake system must be inspected for foreign bodies and/or oil and cleaned before assembly.

## Mixing table

(Average values)

Antifreeze-Coolingwater

Antifreeze protection to	Antifreeze	Water	Antifreeze	Water
- 30° C	45 %	55 %	3.5 liters	4.3 liters
- 35° C	50 %	50 %	3.9 liters	3.9 liters
- 40° C	55 %	45 %	4.3 liters	3.5 liters

## Checking cooling and heating system for tightness

1. Check visually for leaks.
2. Check coolant and heater hoses for proper routing, porosity, cracks and chafing. Replace all damaged hoses.
3. Retighten hose clamps.

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