

46-740 Assembly of power steering pump

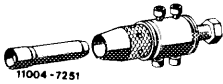
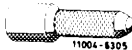


Data

End play of drive shaft	on new pumps	max. 0.7
	on used pumps	max. 1.0

Tightening torques

	Nm
Hex. screws on pump housing	35-40
Hollow screw for fastening supply tank	35-40

Special tools

Puller for radial sealing ring (basic unit)		116 589 24 33 00
Mandrel 33 mm dia. VT 27, VT 49 2nd version, ZF		116 589 14 15 00
Mandrel 30 mm dia. VT 49 1st version		116 589 13 15 00
Assembly mandrel for locking ring		116 589 18 15 00

Self-made tools

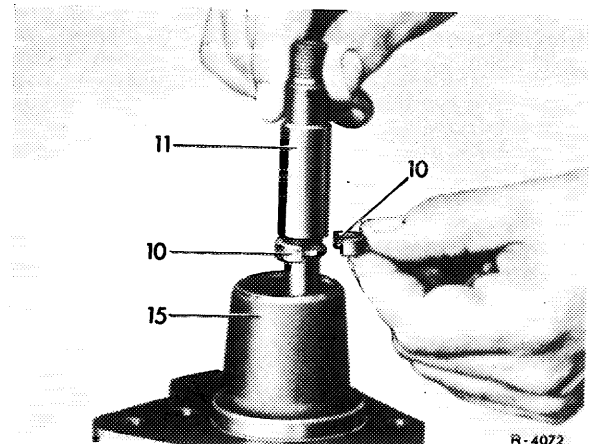
Pressing-in tool for bearing bushing	refer to Fig. item 2, note
Assembly sleeve	refer to section B fig. item 9, note
Assembly mandrel for needle bearing	refer to section B fig. item 2, note
Pressing-in mandrel for radial ball bearing and radial sealing ring	refer to section C fig. item 3, note

A. Vickers power steering pump VT 27

Drive shaft and sealing ring

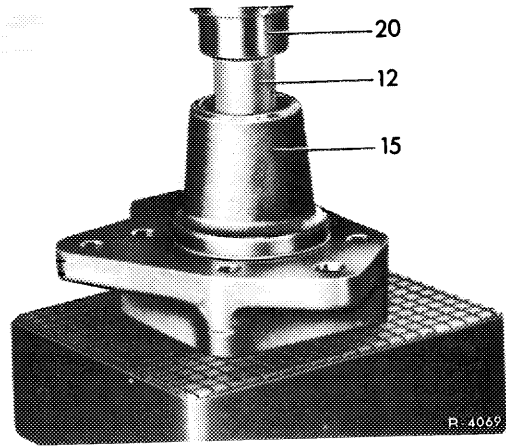
- Place both shell halves (10) on drive shaft (11).

Note: Shell halves determine end play of drive shaft and are contained in repair set "drive shaft".

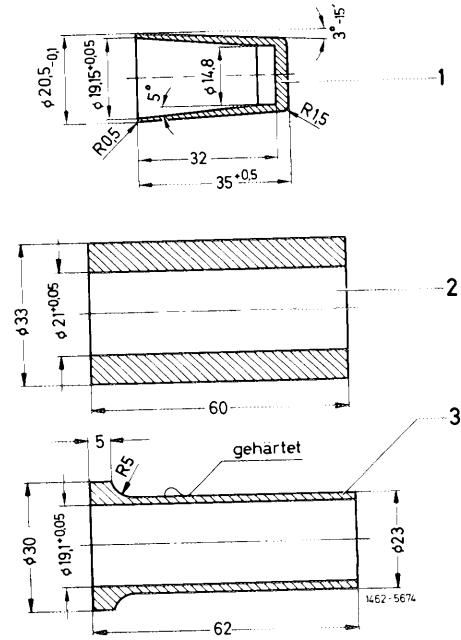


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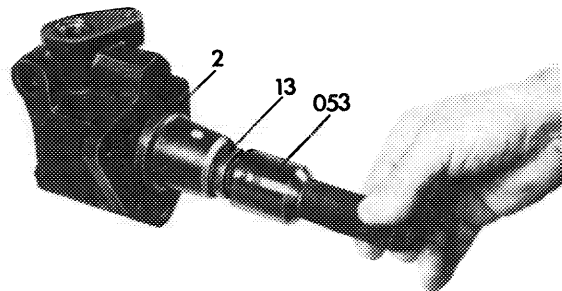
2 Press bearing bushing (12) into housing cover (15) by means of pressing-in tool (20).



Note: The pressing-in tool can be self-made according to specified dimensions.

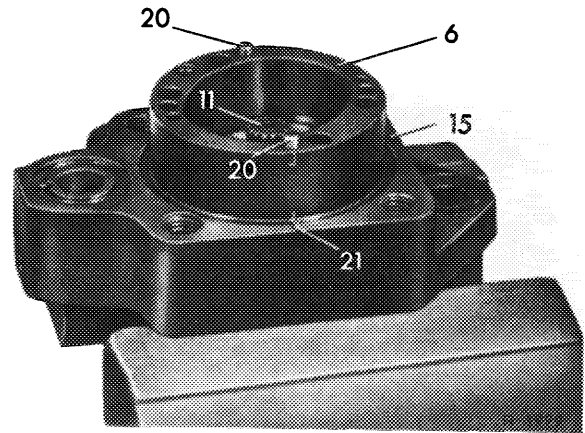


3 Screw guide sleeve from 116 589 24 33 00 on drive shaft and press sealing ring (13) into housing cover (2) by means of mandrel (053).



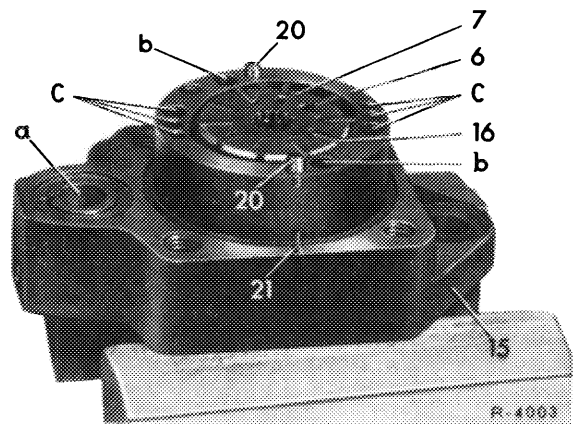
Rotor and cam ring

- 4 Coat all parts with manual transmission oil.
- 5 Plug cam ring (6) on setpins (20) in such a manner that the respective marks (21) on housing cover (15) and on cam ring are in alignment.



- 6 Place rotor (7) on drive shaft (11) in such a manner that the countersunk side of splined bore is facing housing cover.

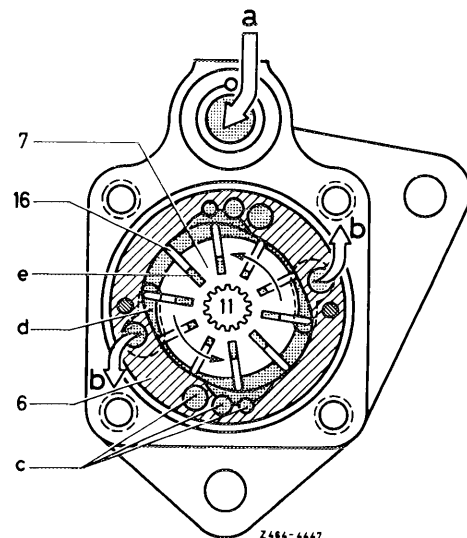
Note: If a new cam ring is installed, position ring in such a manner that the pressure oil bores (b) are exactly above recesses (d) in housing cover.



- 7 Insert pump blades (16) into grooves of rotor (7) in such a manner that the rounded off sides are pointing outwards toward cam ring (6).

- a Oil feed from supply tank
- b Pressure oil outlet from cam ring
- c Intake bores
- d Recess in housing for pressure oil inlet into pressure bore
- e Pressure oil under pump blade

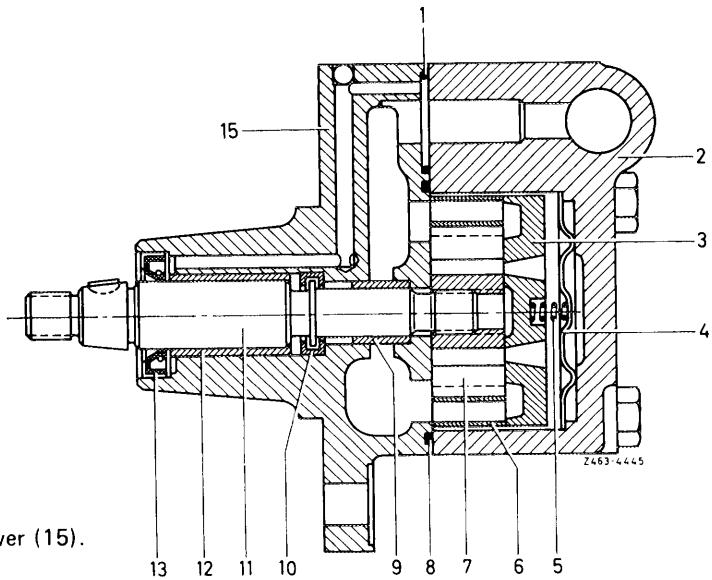
- 6 Cam ring
- 7 Rotor
- 11 Drive shaft
- 16 Pump blade



- 8 Place pressure plate (3) on cam ring (6) and setpins, pay attention to respective mark.

Note: The outlet holes for pressure oil should be above pressure oil bores of cam ring.

- 1 O-ring
- 2 Pump housing
- 3 Pressure plate
- 4 Oil guide plate
- 5 Compression spring
- 6 Cam ring
- 7 Rotor with blade
- 8 O-ring
- 9 Bearing bushing
- 10 Shell haft
- 11 Drive shaft
- 12 Bearing bushing
- 13 Sealing ring
- 15 Housing cover



9 Place both O-rings (1 and 8) on housing cover (15).

10 Insert compression spring (5) into bore of pressure plate (3). If the oil guide plate (4) pressed into pump housing (2) has been removed, put back into housing in such a manner that the recess for the compression spring points toward pump housing.

11 Place pump housing (2) on housing cover (15). Screw in the four hex. head screws and tighten to a torque of 35 to 40 Nm.

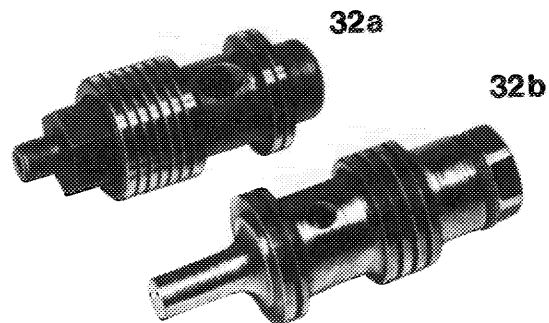
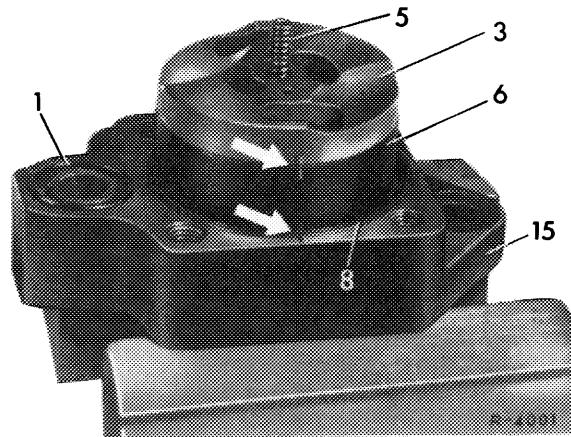
Volume control valve

12 Clean volume control valve prior to assembly, immerse in manual transmission oil and introduce into housing bore. Valve should slide easily in housing bore. Pay attention to manufacturer of volume control valve:

- 32a = Vickers valve
- 32b = ZF valve

Note: When installing a new volume control valve, pay attention to the following:

The pressure relief valve in volume control valve of repair set 000 586 00 46 opens at 65 bar gauge pressure.

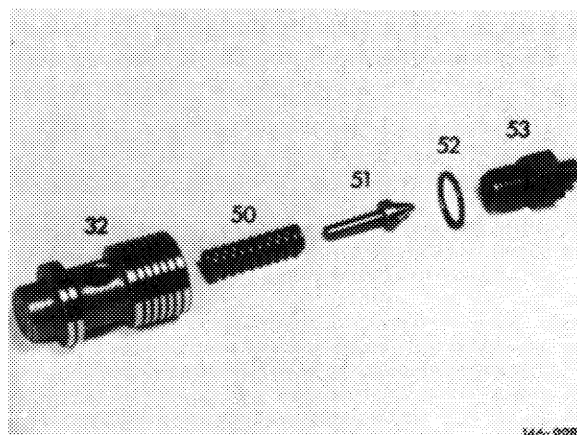


13 Install pressure relief valve into volume control valve. Insert compression spring (50) first, then valve cone (51). Then place spacing washers (52) for adjustment of opening pressure into valve screw (53).

Attention!

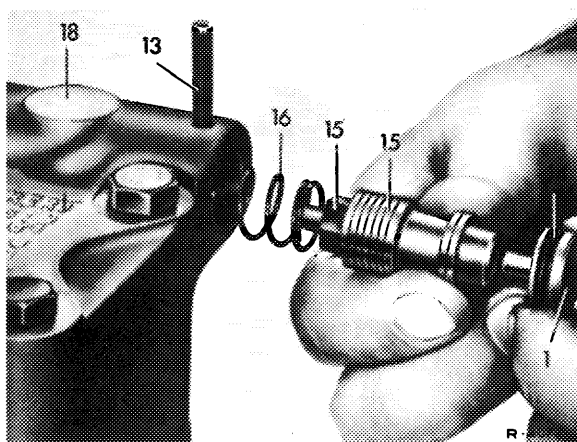
Use the same washers which were previously installed.

14 Clamp volume control valve (32) with its unground part into vise, screw in valve screw (53) and tighten.



15 Insert compression spring (16) into bore of pump housing (18). Flush volume control valve once again, immerse in manual transmission oil and introduce into housing bore in such a manner that the pressure relief valve is pointing inwards.

16 Fit new O-ring (14) to closing cover (1). Force closing cover by means of a bolt inwards into housing bore and secure by knocking-in locking pin (13).

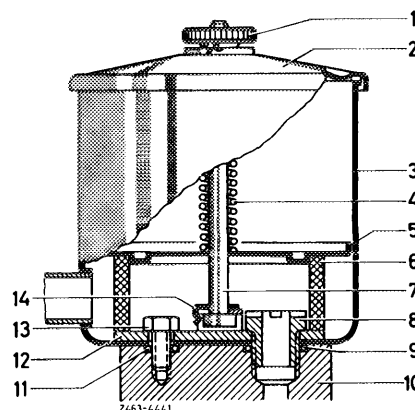


Supply tank

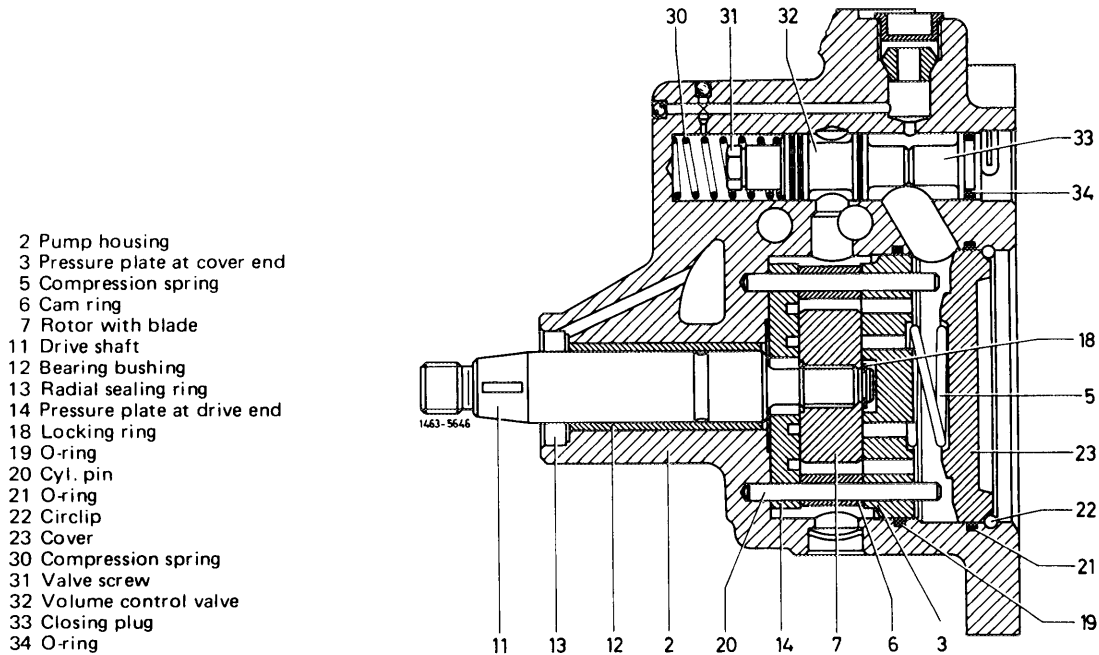
17 Place O-rings (9 and 11) on pump housing (10).

18 Insert reinforcing plate (12) into supply tank. Screw in hollow screw (8) and hex. head screw (13). Insert filter ring (6), steadying plate (5) and compression spring (4). Place cover (2) with paper gasket on supply tank. Screw on knurled nut.

- | | |
|----------------------|----------------------|
| 1 Knurled nut | 8 Hollow screw |
| 2 Closing cover | 9 O-ring |
| 3 Supply tank | 10 Pump housing |
| 4 Compression spring | 11 O-ring |
| 5 Steadying plate | 12 Reinforcing plate |
| 6 Filter ring | 13 Hex. head screw |
| 7 Screw | 14 Lock |



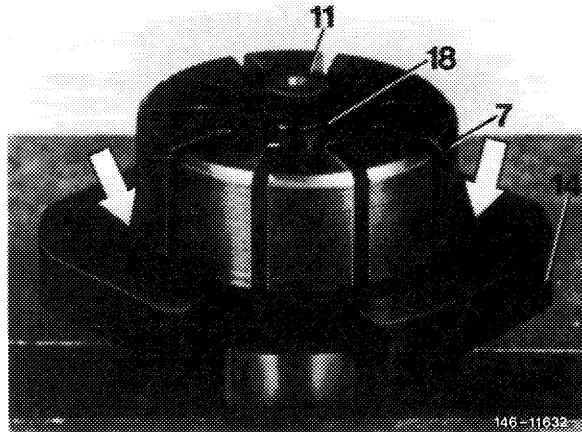
B. Vickers power steering pump VT 49 (grey iron and light alloy version)
ZF power steering pump (light alloy version)



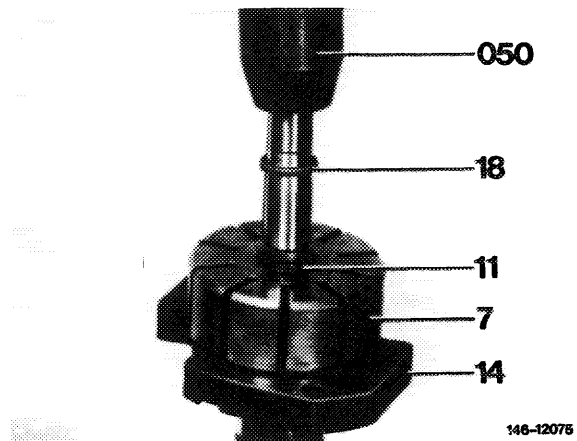
Note

Prior to assembly, coat all parts with manual transmission oil.

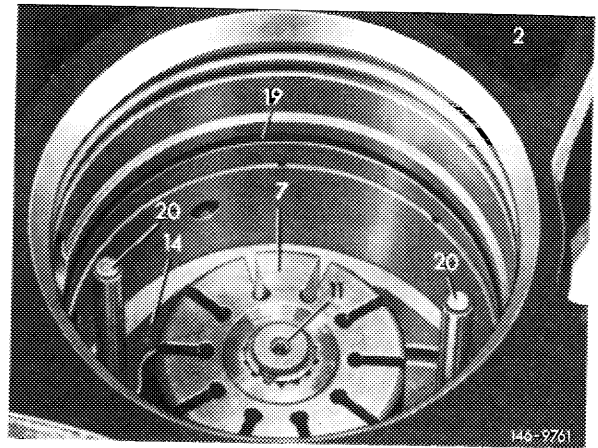
- 1 Place pressure plate at input end (14) with recesses (refer to arrow) toward splining on drive shaft (11). Place rotor (7) on splining of drive shaft (11).



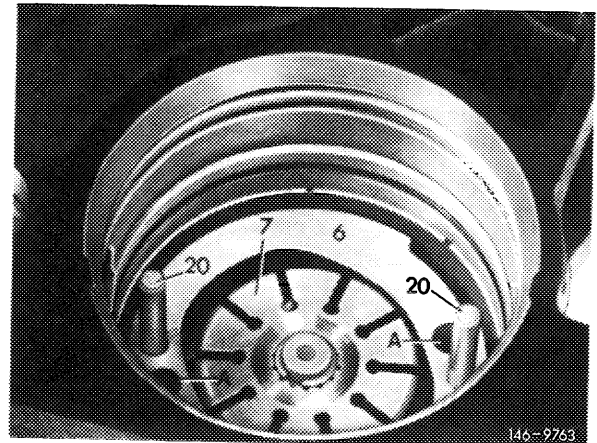
- 2 Insert locking ring (18) into groove of drive shaft (11) by means of assembly mandrel (050).



3 Insert both cyl. pins (20) into pump housing, then insert pre-assembled drive shaft.

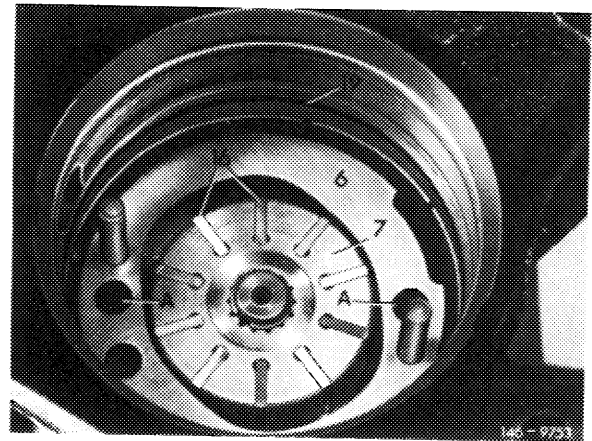


4 Place cam ring (6) with cast-in direction of rotation arrow in upward direction on cyl. pins (20). Pay attention to correct location of cam ring.

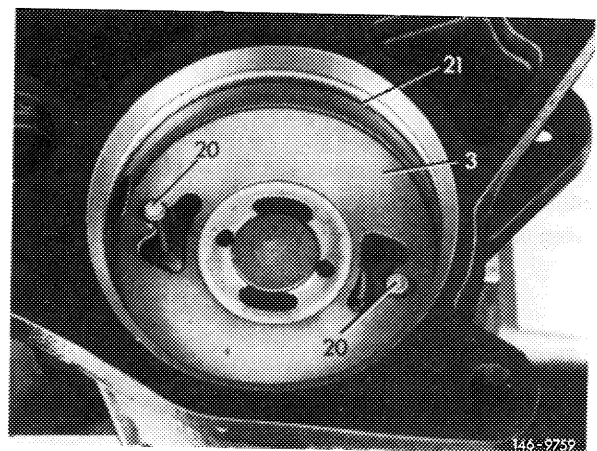


5 Insert blades (16) (10 each) into rotor (7) with rounded-off sides toward cam ring (6).

6 Insert O-ring (19) into housing.

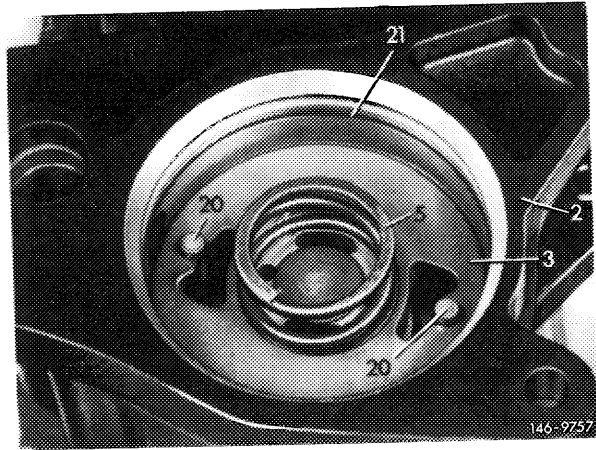


7 Insert pressure plate (3) into housing.

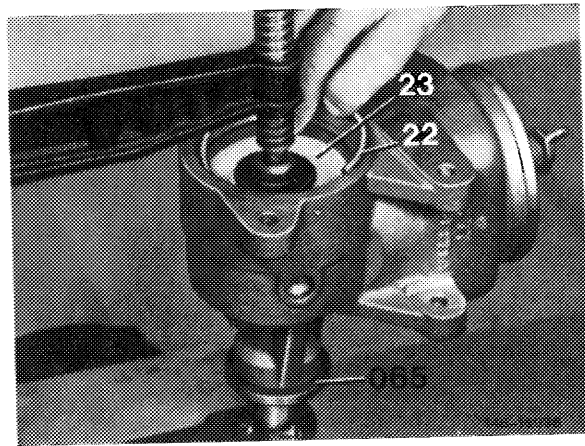


8 Insert O-ring (21) into housing. Place compression spring (5) on pressure plate (3).

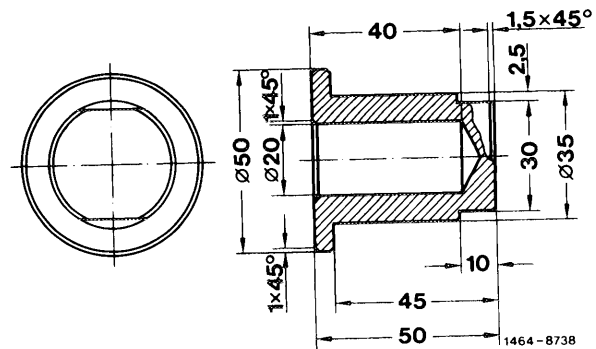
Note: O-ring (19) and (21) have different diameters. The O-ring (19) with the smaller diameter seals pressure plate (3), the larger O-ring (21) seals cover (23) in relation to housing.



9 Place assembly sleeve (065) on power steering pump and mount cover (23). Then press cover slightly into housing by means of a hand press. Insert circlip (22) into groove of housing, pay attention to correct location of ring.



Note: The assembly sleeve is self-made according to specified dimensions.



10 On grey iron pump, insert lower steadying plate (40), filter ring (41), upper steadying plate (42) and compression spring (43) into housing.

11 On grey iron power steering pump 1st version, place washer (48) on stud (46), fasten closing cover (45) together with paper gasket (44) by means of wing nut (47).

