BOMAG

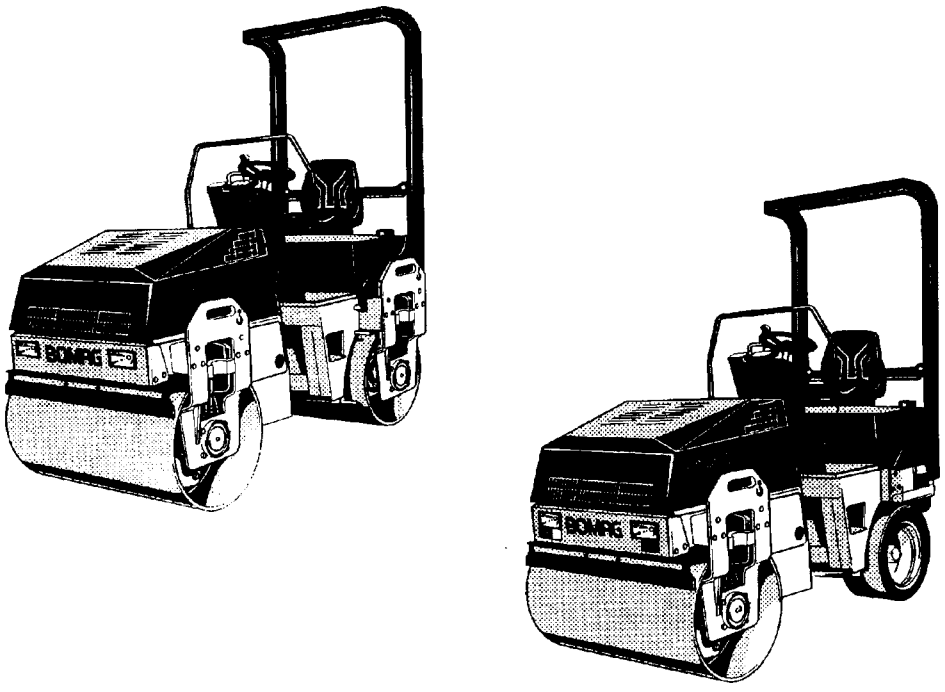
Instructions for repair

This manual is in accordance with product liability laws and safety regulations

BW 100 AD-3 / BW 120 AD-3

BW 100 AC-3 / BW 120 AC-3

S/N 101 150 51 33 47 ›
S/N 101 150 61 10 51 ›
S/N 101 170 51 49 67 ›
S/N 101 170 61 10 32 ›



Tandem vibratory roller

Combination roller

008 193 71

08/2000

General

- Before disconnecting or removing any parts, hoses or components mark such items for easier assembly.
- Before assembly oil or grease all parts, as far as this is necessary.

Hydraulic system

Do not open or repair any hydraulic elements without sufficient training and exact knowledge.

Please note

Cleanliness is of utmost importance. Make sure that no dirt or other contaminating substances can enter into the system.

- Clean fittings, filler covers and the area around such parts before disassembly to avoid entering of dirt.
- Before disconnecting hoses, pipes or similar relieve the system with the engine shut down.
- For repair work close all ports with clean plastic plugs and caps and remove these before reassembly.
- Do not run pumps and motors without oil.
- When cleaning hydraulic parts make sure that fine treated surfaces are not damaged.
- Chemical and rubber soluble cleansing agents may only be used to clean metal parts. Do not let such substances come in contact with sealing material.
- Rinse of cleaned parts thoroughly, dry them with compressed air and apply anti-corrosion oil immediately. Do not install parts showing signs of corrosion.
- Avoid formation of rust on mechanically processed surfaces caused by contact with sweaty hands.
- For assembly grease must not used as a sliding agent. Use hydraulic oil instead.
- Use only lint-free cloths to wipe out or clean hydraulic parts.
- Do not start the engine after draining off the hydraulic oil.
- Use only specified pressure gauges, as otherwise the pressure gauges may be destroyed.
- Ensure strict cleanliness, clean ports and fittings before connecting.
- Check the hydraulic oil level before and after work.
- Use only clean oil according to specification.
- Check the hydraulic system for leaks, find and rectify the cause.
- Fill new hydraulic componments with hydraulic oil before starting to operate.
- After changing a hydraulic component flush and bleed the hydraulic system thoroughly.
- If possible perform all measurements and tests at operating temperature of the hydraulic oil (approx. 40 °C/104 °F).
- After changing a hydraulic component check charge and high pressure and, if necessary, the rotary speeds.
- The operating pressure in the vibration drive depends mainly on the sub-base under the vibrating drum. With firm ground place the drum on rubber tires. Do not activate the vibration on hard, concrete ground, risk of bearing damage!
- Once all work is completed check all connections and fittings for leaks with the system still depressurized.

Before starting operation

- Clean the hydraulic oil tank thoroughly after changing a hydraulic component.
- Fill pumps and motor housing with hydraulic oil.
- Use only hydraulic oil according to the specification in the maintenance instructions.
- After changing a component flush the hydraulic system thoroughly following the instructions, as a measure to avoid subsequent damage.
- Replace the hydraulic oil filter.

Taking into operation

- Bleed the hydraulic system.
- Start the system up without any load.
- Monitor the oil level in the tank, fill up oil if necessary.

After starting operation

- Check pressures and rotary speeds.
- Check fittings and flanges for leaks.
- After each repair check adjustment data, rotary speeds and nominal values in the hydraulic system.
- Do not change the setting of pressure relief and control valves to pressures higher than specified.

		BW 100 AD-3	BW 120 AD-3
Drive			
Engine manufacturer		Deutz	Deutz
Type		F2L 1011 F	F2L 1011 F
Cooling		Air	Air
Number of cylinders		2	2
Rated power ISO 9249	kW	22	22
Rated speed	rpm	2500/3000	2500/3000
Idle speed	rpm	975	975
High idle	rpm	3010	3010
Electric equipment			
Operating voltage	V	12	12
Generator		D.C.	D.C.
Voltage/current	V/A	14/55	14/55
Battery - voltage / capacity	V/Ah	12/88	12/88
Starter - voltage / capacity	V/Ah	12/88	12/88
Travel pump			
Type		Hydromatik A10VG28	Hydromatik A10VG28
System		Axial piston - swash plate	Axial piston - swash plate
Displacement	cm^3	28	28
High pressure limitation	bar	385	385
Charge pressure limitation	bar	20	20
Drum drive motor			
Type		Poclain MK04	Poclain MK04
System		Radial piston motor	Radial piston motor
Displacement	cm^3/rev.	408	408
Vibration pump			
Type		Bosch	Bosch
System		Gear pump	Gear pump
Displacement	cm^3/rev.	11	11
Starting pressure	bar	210	210
Operating pressure	bar	approx. 110	approx. 110
Vibrator shaft brake pressure	bar	110	110
Vibration motor			
Type		Bosch	Bosch
System		Gear pump	Gear pump
Displacement	cm^3/rev.	8	8
Max. leak oil rate (without flushing)	litres/min	approx. 0.5	approx. 0.5

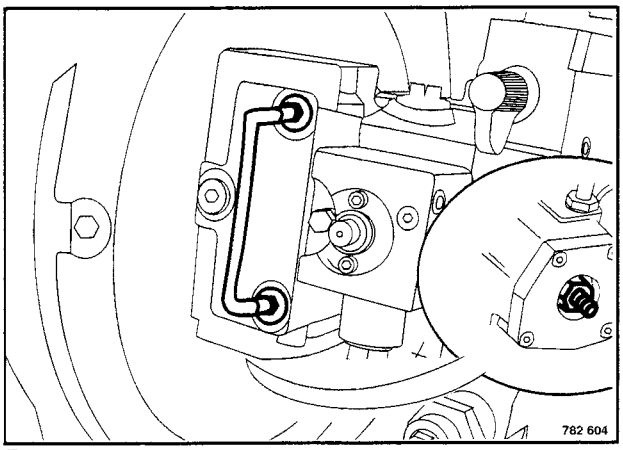


Fig. 5

Mechanical neutral position

1. Connect the control chamber ports X1 and X2 (Fig. 5) with a hose.

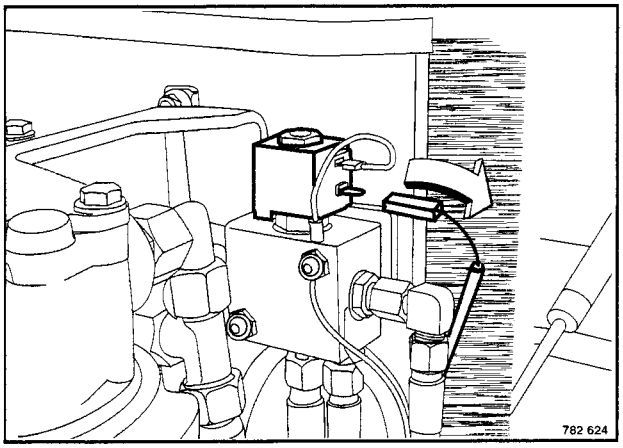


Fig. 6

2. Pull the plug off the brake solenoid valve (Fig. 6).

3. Start the diesel engine and shift the throttle lever to max. speed position.

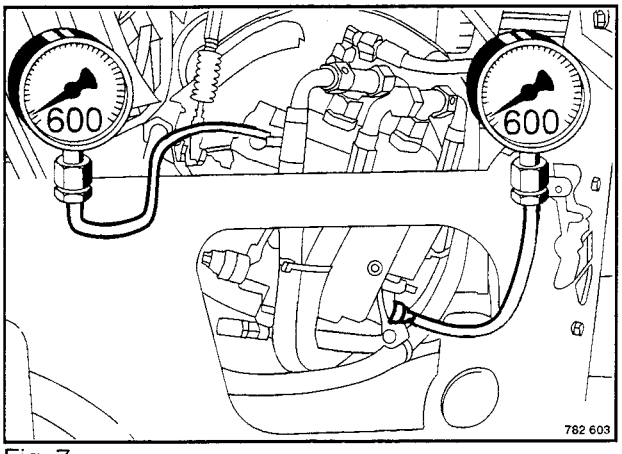


Fig. 7

4. Read the pressure gauges (Fig. 7).

Nominal value:
Both pressure gauges must show identical readings.
If necessary repeat the pressure test with 60 bar pressure gauges, for more accurate readings.

Evaluation of measurement:
If pressure builds up on one side when operating the control lever, adjust the mechanical neutral position (Fig. 8), until the pressures on both pressure gauges are identical.

1 Travel pump
2 Tube connection 16S
3 Reducing fitting 20S - 16S
4 Connecting fitting 20S
5 Drum drive motor, rear
6 Flushing hose 20S - 25S
7 Double end union R1' - 25S
8 Flushing filter
9 Drum drive motor, front
10 Connecting fitting 16S
11 Angular fitting 16S
12 Connecting fitting 20S
13 Reducing fitting 20S - 16S

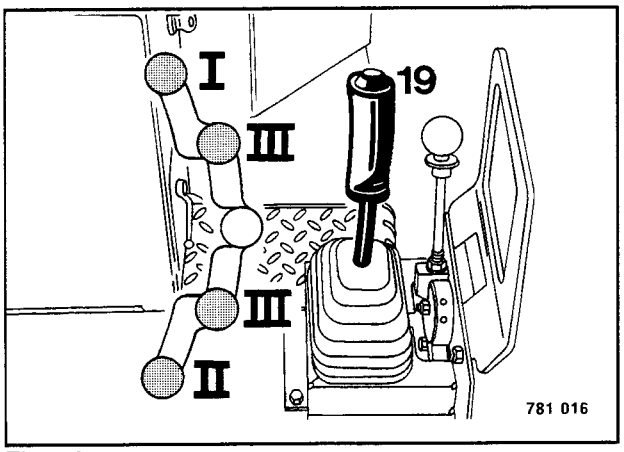


Fig. 18

Flushing the hoses to the rear drum drive motor

1. Run the engine with maximum speed.
2. Move the travel lever 19 (Fig. 18) to full forward position.

Caution

Move the travel lever only to travel direction forward, as otherwise the flushing filter will be subjected to oil flow from the wrong direction.

3. Perform the flushing process at various engine speeds for approx. 10 minutes.
4. Shut the engine down.

Flushing the rear drum drive motor

1. Reconnect the high pressure hoses to the drum drive motor or wheel drive motor (AC-machines).

Danger

Do not lay under the jacked up machine, danger of being squashed!

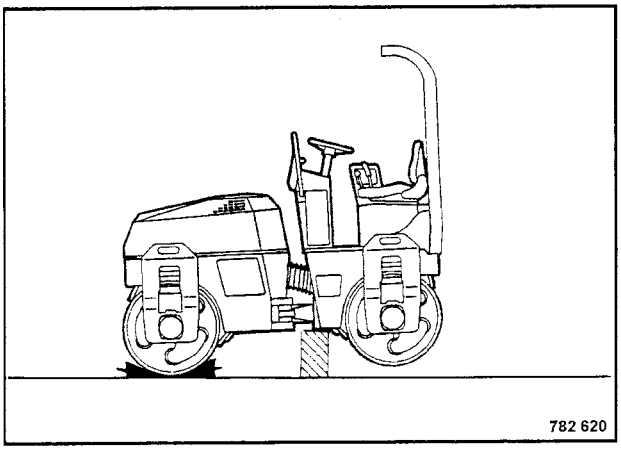


Fig. 19

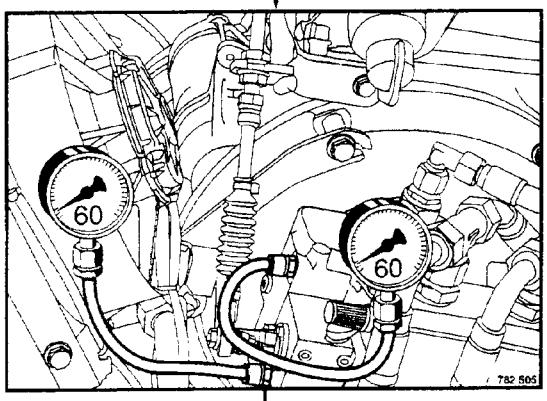
2. Lift or jack the rear of the machine up (Fig. 19), so that the drum / wheels can rotate freely.
3. Block the front drum with suitable chocks.
4. Repeat the bleeding procedure as described above.
5. Start the engine, run it with maximum speed and shift the travel lever to travel direction forward.

Caution

Move the travel lever only to travel direction forward, as otherwise the flushing filter will be subjected to oil flow from the wrong direction.

6. Perform this flushing procedure for approx. 10 minutes.
7. Remove the flushing filter and reconnect the high pressure hoses.

The following work must only be carried out by qualified and trained personnel or by the after sales service of BOMAG.



Check the control chamber pressure

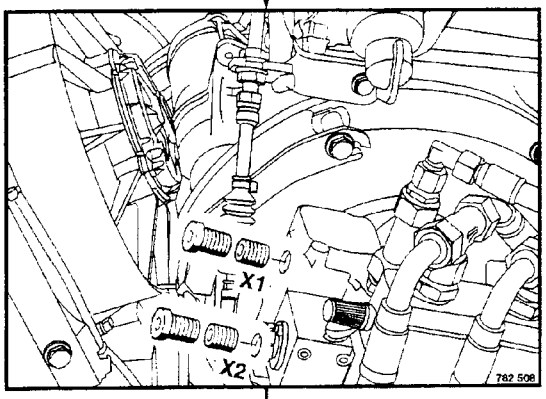
- Install pressure test ports to X1 and X2
- Connect 60 bar pressure gauges
- Run the engine with max. speed
- With the machine brakes shift the travel lever to both directions and read the pressure gauges

Nominal value:
approx. 15 bar

Chamber pressure OK?

yes → Check the servo control (nozzle), clean or replace if necessary

no



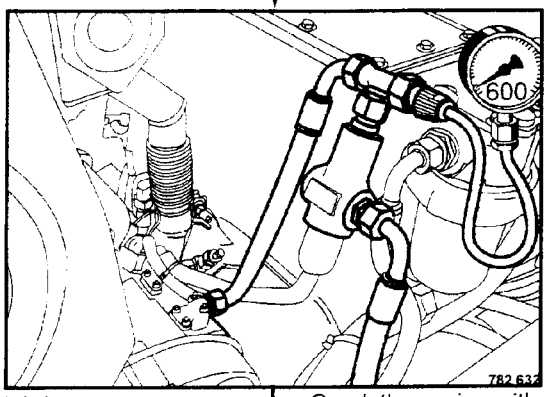
Check the swash time nozzles

- Unscrew plugs and nozzles from the test ports X1 and X2

Nozzles OK?

no → Clean the nozzles

yes



High pressure test vibration pump

- Install a 200 bar pressure relief valve to the outlet of the pump
- Crank the engine with the starter and switch the vibration on

Nominal value:
approx. 200 bar

Pressure OK?

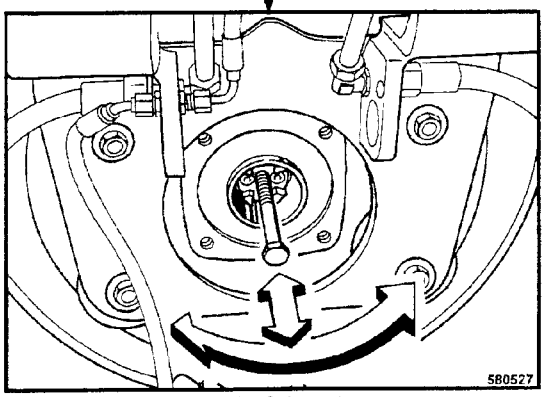
no → Replace the vibration pump

yes → Replace the valve block

Operating pressure

too low → Replace the valve block

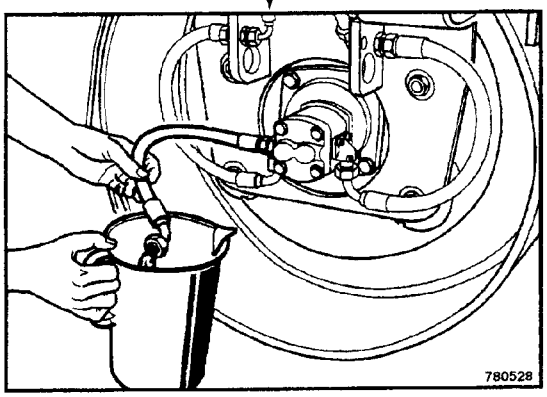
too high



Check the vibrator shaft bearings

- Check axial clearance (end float) and moveabilty of the vibrator shafts

Nominal value:
0,6 ... 1,9 mm



Check the leakage rate of the vibration motors

- Connect a measuring hose to the leak oil port on the motor and check the leakage rate
- Repeat this measurement on the second motor

Nominal value:
max. 0,5 l/min

5.03 Repair overview, drum

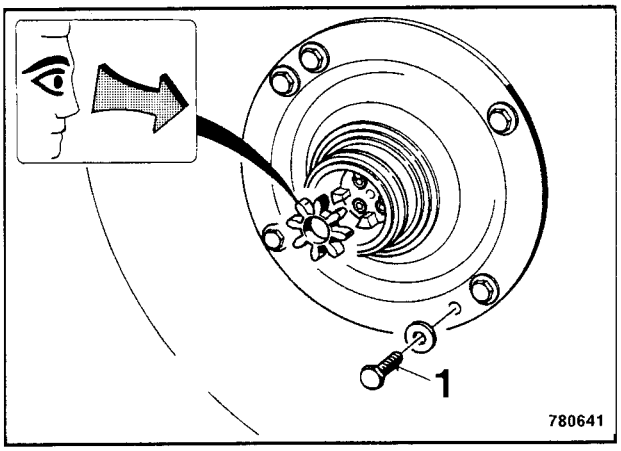


Fig. 9

2. Fasten the bearing housing with the screws 1 (Fig. 9).

3. Insert the elastic coupling into the coupling hub.

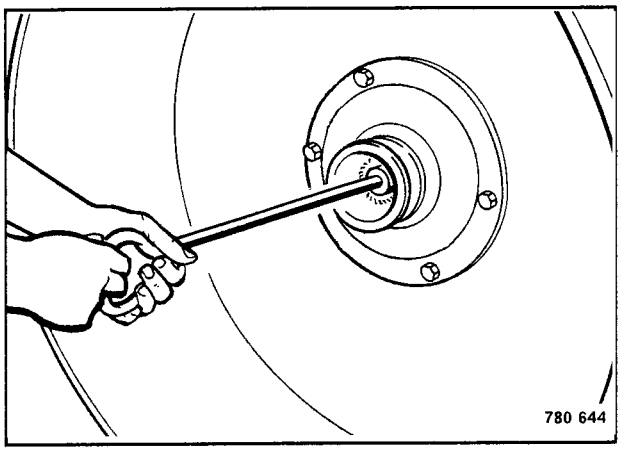


Fig. 10

Measuring the end float

1. Turn an eye bolt (Fig. 10) into the bore in the vibrator shaft to measure the end float.

2. Push the vibrator shaft into the bearing housing against the end stop.

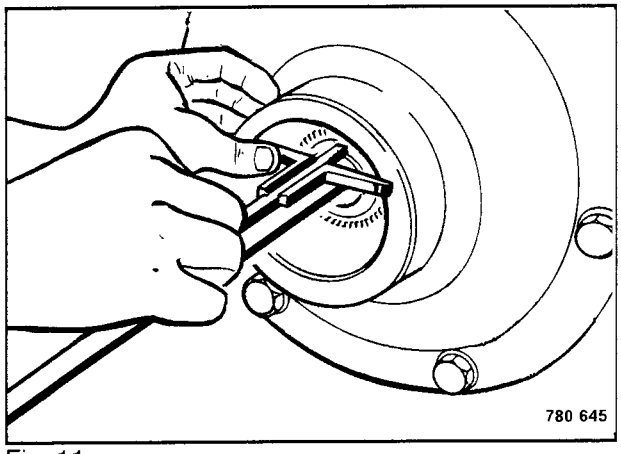


Fig. 11

3. Measure the distance from the coupling to the bearing housing (Fig. 11).

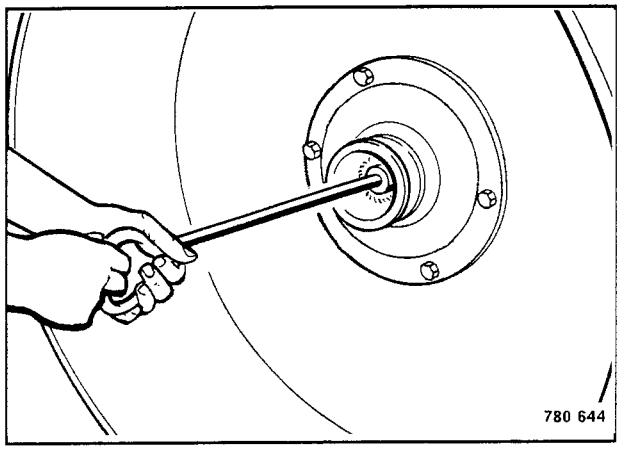


Fig. 12

4. Pull the vibrator shaft out of the bearing housing against the end stop (Fig. 12).

6.03 Repair survey for oscillating articulated joint

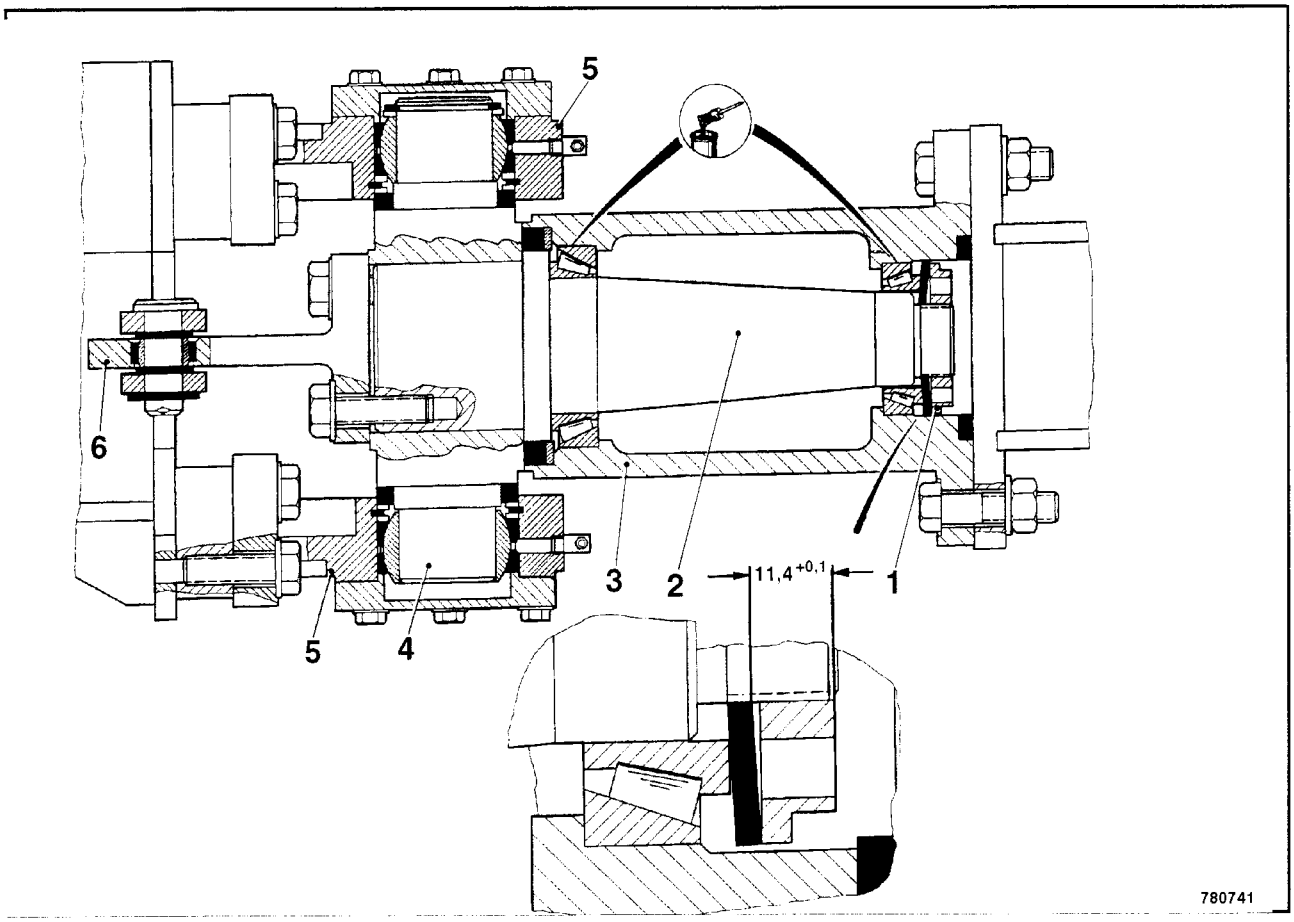
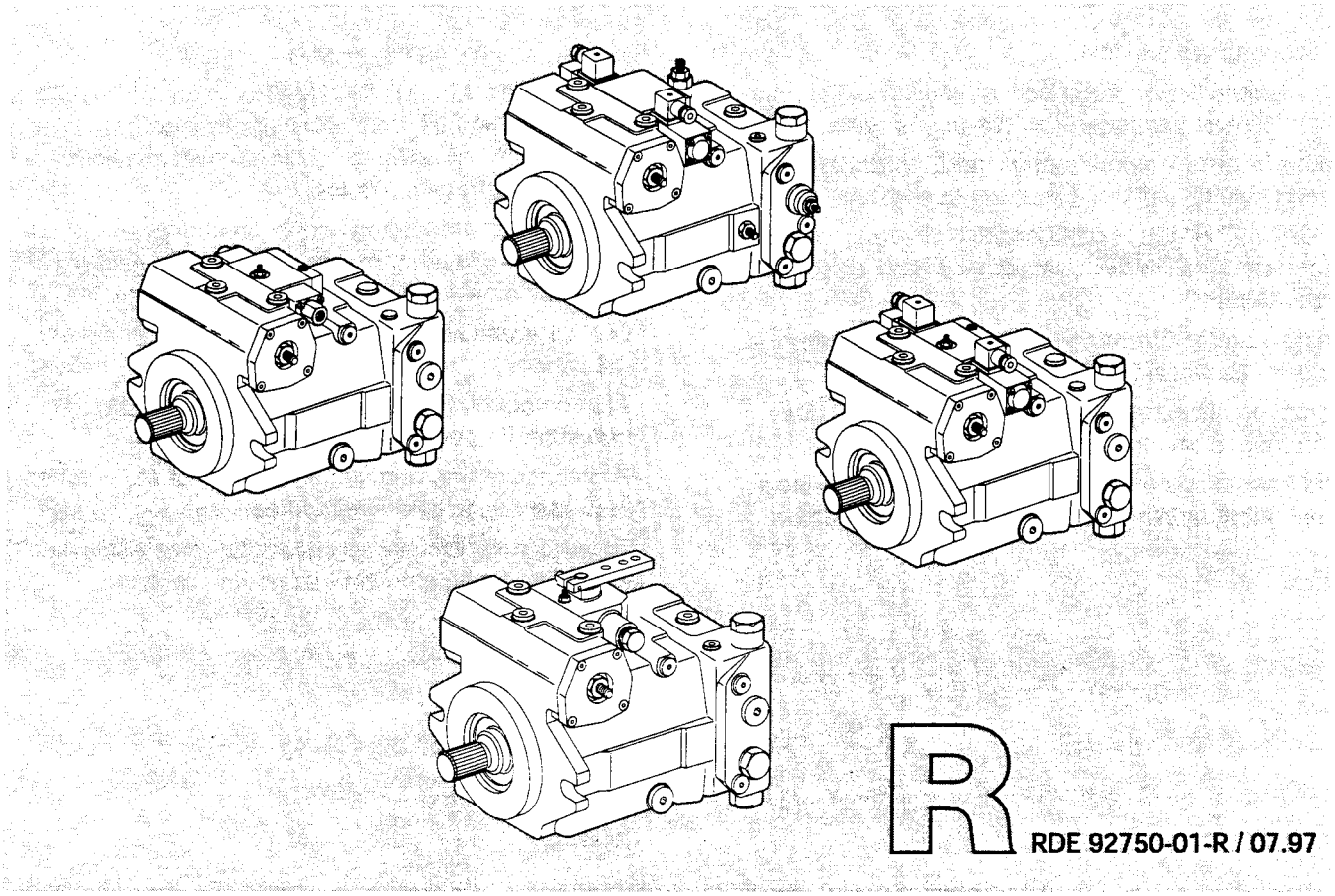


Fig. 1

1 Tensioning nut
2 Oscillation axle
3 Bearing housing
4 Carrier
5 Bearing block
6 Anchor eye for steering cylinder

engineering
mannesmann
Rexroth

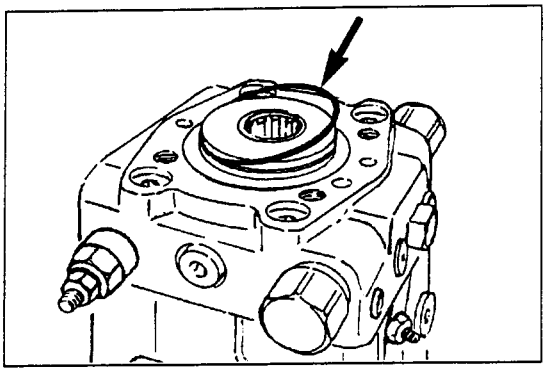


R

RDE 92750-01-R / 07.97

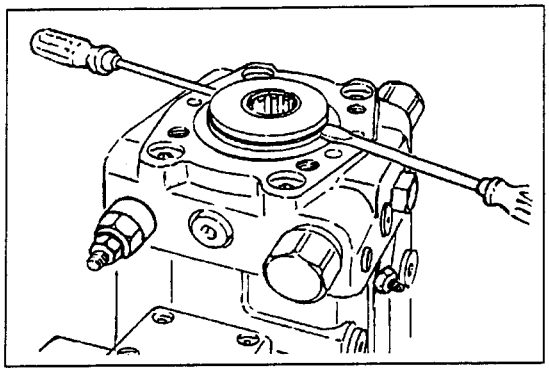
Reparaturanleitung A10VG ... 28 / 45 Baureihe 10
Repair Instructions A10VG ... 28 / 45 Series 10

Brueninghaus
Hydromatik



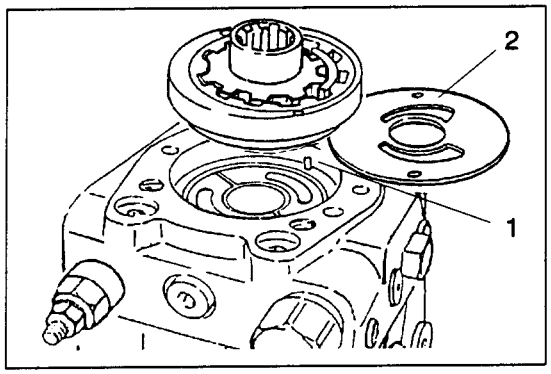
22 O-Ring ausbauen.

Remove O-ring.



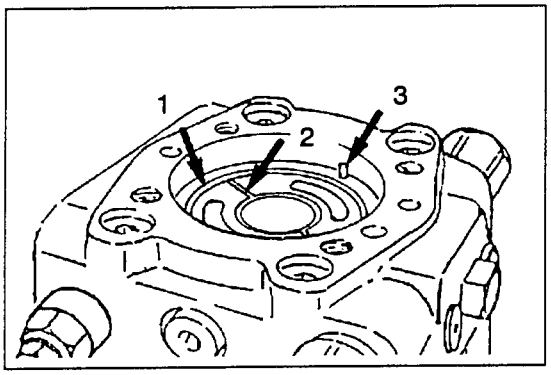
23 Hilfspumpe abdrücken.

Pry off the boost pump.



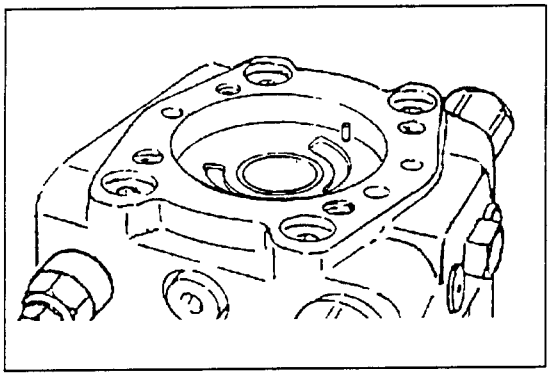
24 1. Verschleißplatte
2. Fixierstift

1. Wear plate
2. Locating pin



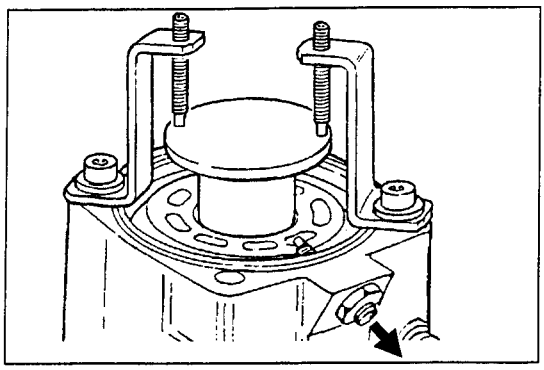
25 1. Kantsil-Ring
2. Entlastungsnut
3. Fixierstift

1. Kantsil-ring
2. Unloading channel
3. Locating pin



26 Verschleißplatte einsetzen.
Drehrichtung beachten!

Fit wear plate taking the direction of rotation account.



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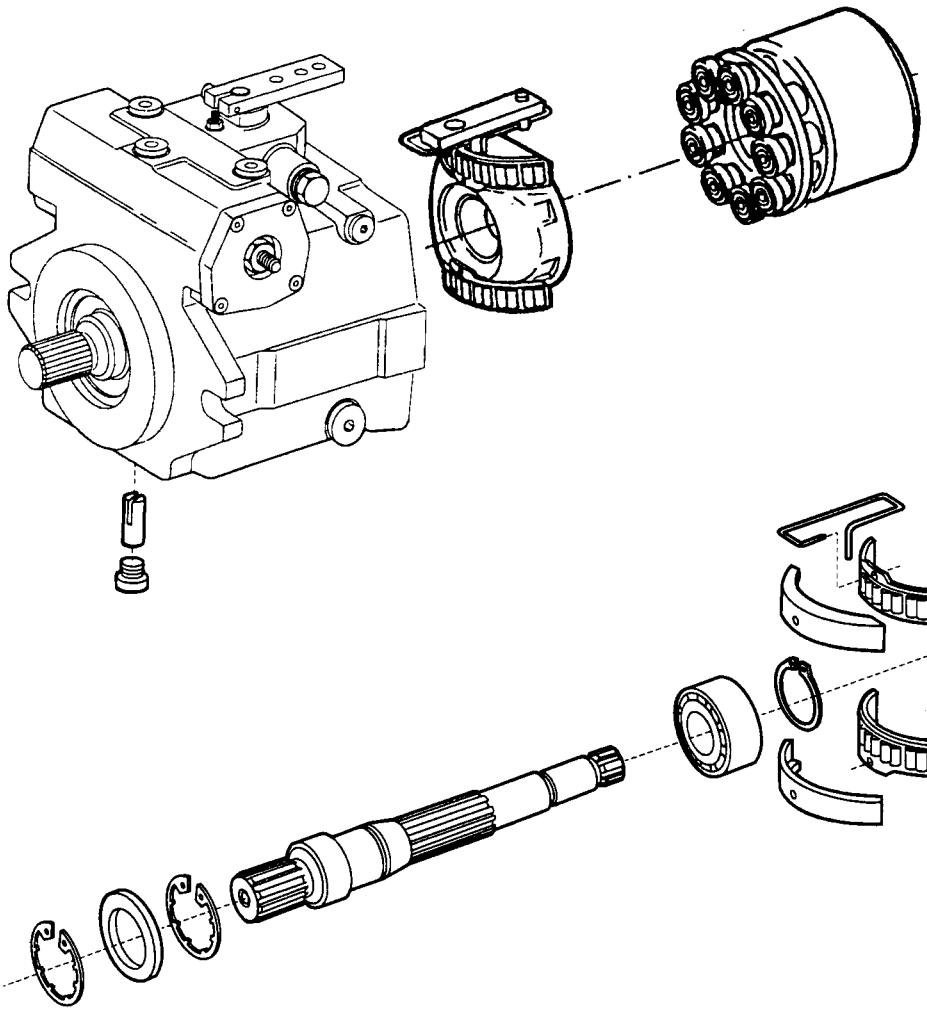
DA-Ausführung
Zylinder nach unten drücken (1).
Verdrillschraube herausdrehen (2).
Triebwerk ausheben (3).

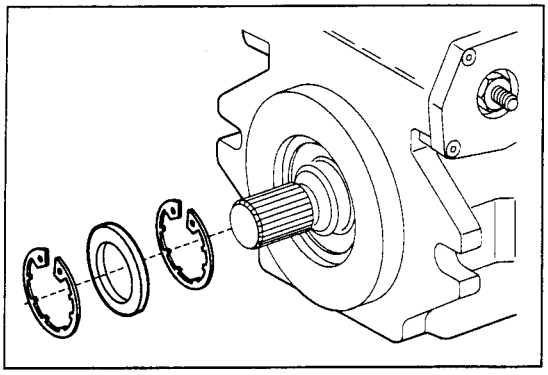
DA- version
Press the cylinder downwards (1).
Remove the eccentric screw (2).
Lift out the rotary group (3).



"Ausbauen"
1. Zylinder
2. Schwenkwiege
3. Gelenkstift

"Remove"
1. Cylinder
2. Swash plate
3. Joint pin

50



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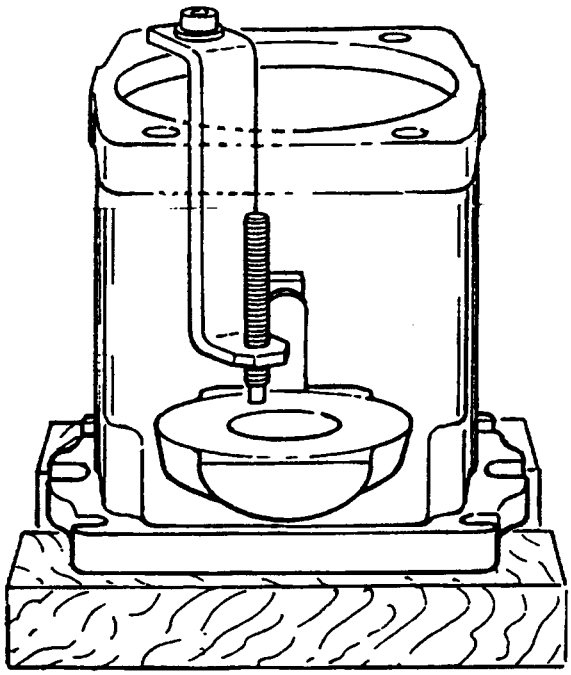
Sicherungsring, WDR ausbauen.

Remove retaining ring, remove drive shaft seal.



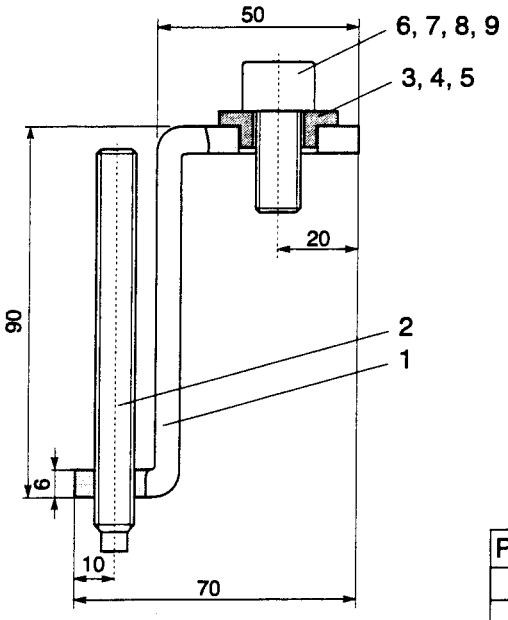
Haltevorrichtung montieren.
Mit Gewindestift Schwenkwiege festhalten.

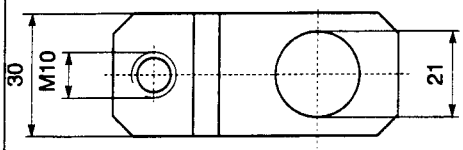
⚠ Keine Gewaltanwendung.

Fit holding device.
Hold swash plate in position utilising the set screw.

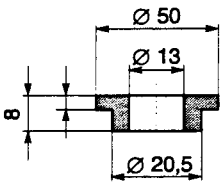
⚠ Do not use force.

Haltevorrichtung "Schwenkwiege" A4V
Holding device "swivel cradle" A4V

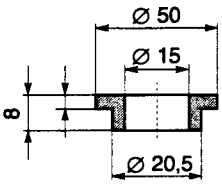




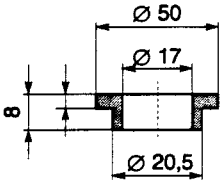
Teil/Part 3



Teil/Part 4



Teil/Part 5



Pos./Item	Benennung/Designation	Stck./Qty.
1	Winkel/Angle	2
2	Gewindestift/Threaded pin	2
3	Scheibe/Shim	2
4	Scheibe/Shim	2
5	Scheibe/Shim	2
6	Zyl. Schraube/Cyl. screw M12 x 25 DIN 912	2
7	Zyl. Schraube/Cyl. screw M14 x 25 DIN 912	2
8	Zyl. Schraube/Cyl. screw M16 x 30 DIN 912	2
9	Zyl. Schraube/Cyl. screw M20 x 35 DIN 912	2

Achtung!
Sicherheitsbestimmungen beachten!

Hinweis:
Nachjustierung nur bei Betriebstemperatur.

Manometer an "G" anschließen.

Achtung!
* Speisedruckeinstellung!
Nenndruck p_H - 18 bar
Höchstdruck p_H - 40 bar
Bei Max.-Drehzahl.

Hinweis:
Einstelldaten nach Werksauftrag.

* bei DA-Ausführung

Attention!
Observe safety regulations!

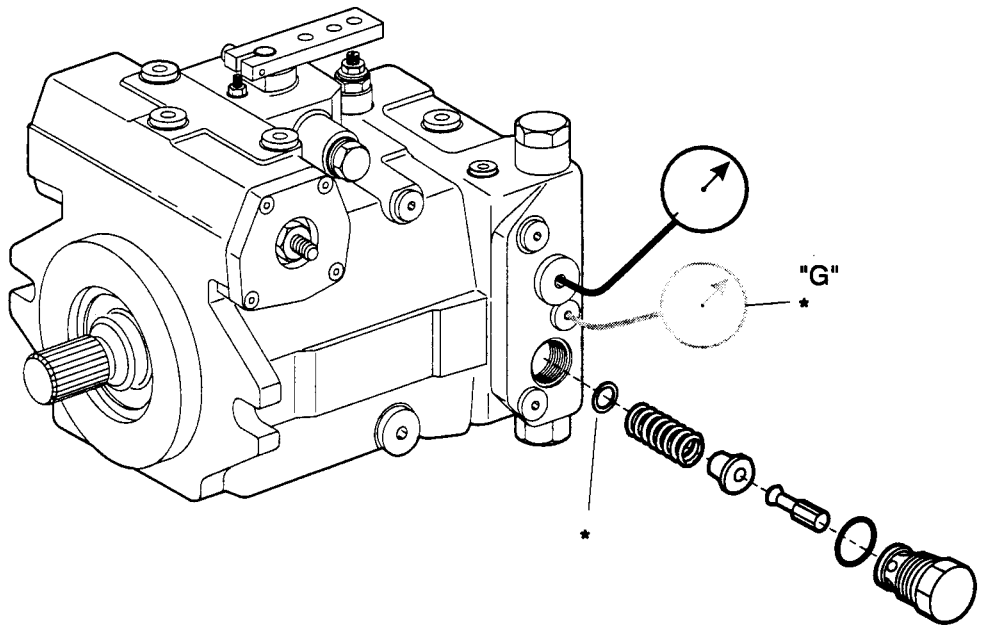
Note:
Readjusting only at operating temperature.

Connect pressure gauge to "G".

Attention!
* Boost pressure setting!
Nominal pressure p_H - 18 bar
Peak pressure p_H - 40 bar
at max. speed.

Note:
Setting data is in accordance to the works order.

* with the DA version



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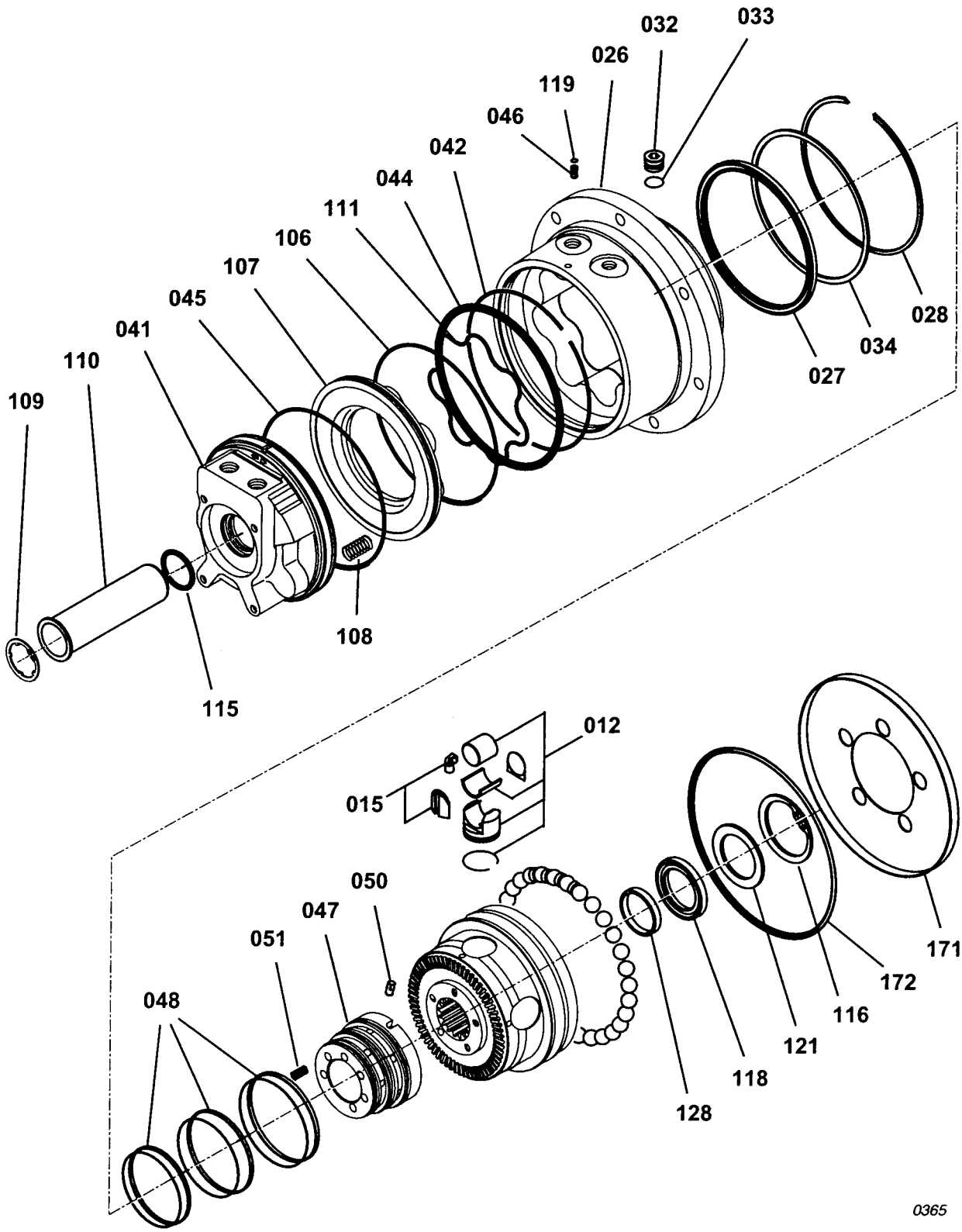
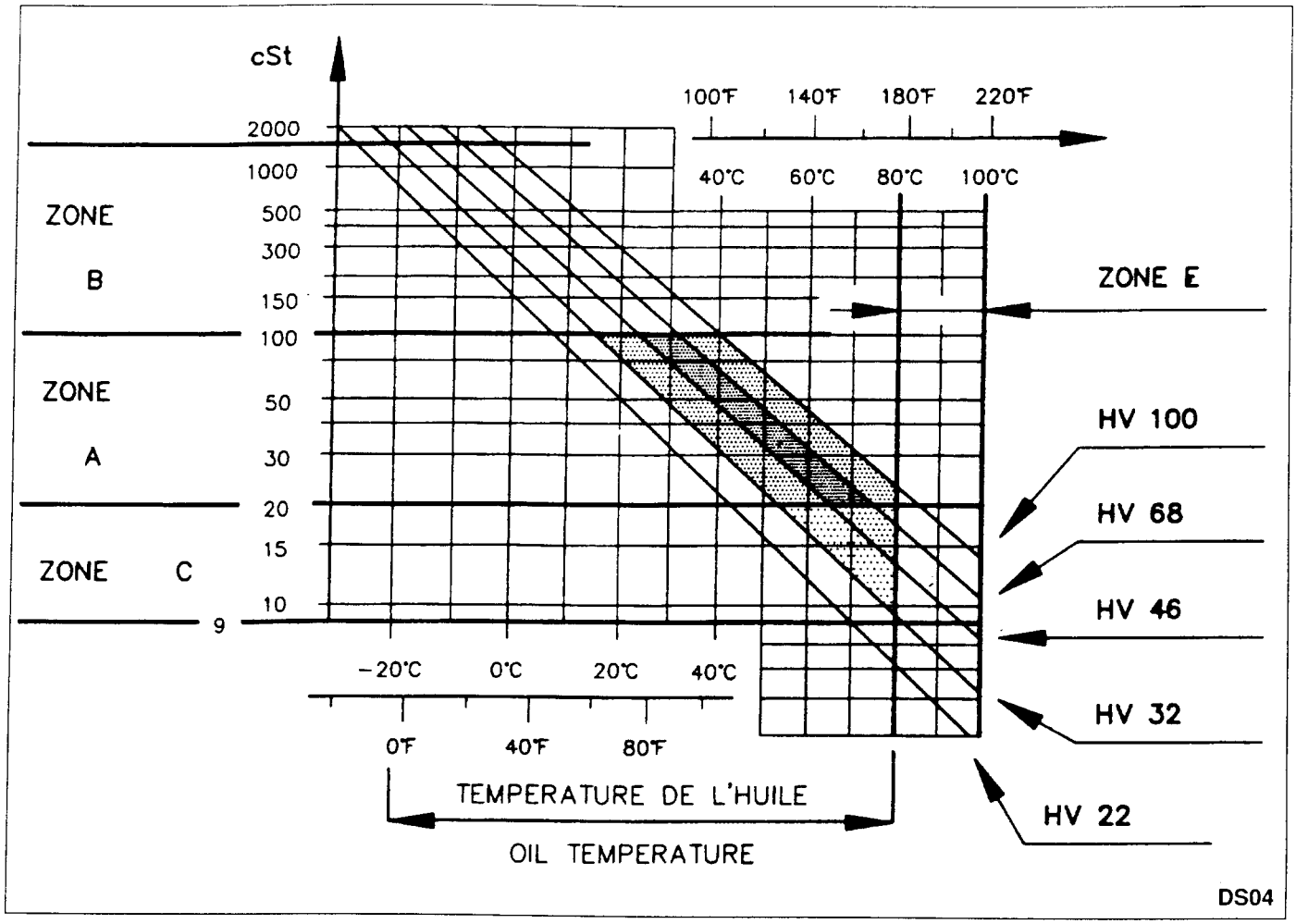
Motor MK04 mit Hohlwelle

Hollow shaft motor MK04





USABLE ZONES

The shaded areas show the best conditions of motor use.

In Zone A

Optimum working area. The motors can operate at the speeds and pressures shown in their technical specifications. The temperature has little effect on efficiency and lifetime.

In Zone B

High speeds may cause vibrations and a lower torque output. The volumetric efficiency is still high and the pressure utilised at the same values as in Zone A.

In Zone C

Maximum usable power is reduced by between 20 to 50% compared to Zone A during continuous operation. It is essential to add efficient anti-wear additives to the oil in these operating conditions.

In Zone E

Between 80 and 100°C. Operation under these conditions is only permitted at very reduced power and for short periods of time. The temperature of the supply circuit must not exceed that in the casing by more than 20°C.

REPAIRS

REPLACEMENT OF DISTRIBUTION SEALS

Disassembly

-Remove the motor.
-Mark the position of the distribution block (041) in relation to the cam (026) and the bearing support (071).

Motor without brake

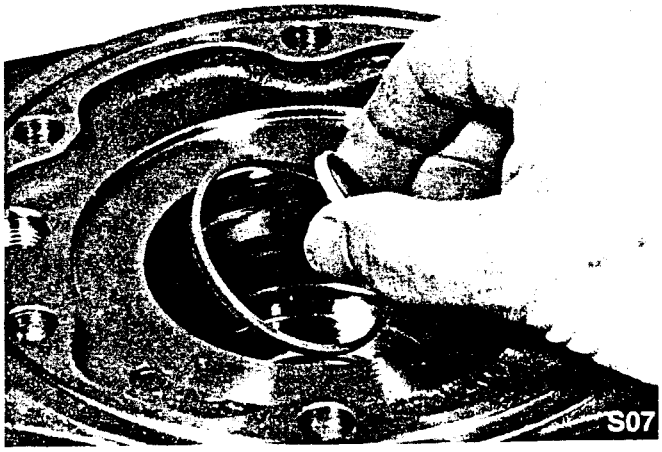
-Stand the motor on the bearing support.
-Remove the screws (042), and remove the distribution block (041). Mark the position of the valving in relation to the cover (dual displacement motor).
-Separate the valving (047) from the cylinder block by levering at the locating lugs or at the collar.
-Extract and discard the seals (048) and (057) (dual displacement motor).

Motor with brake (see DSO6)

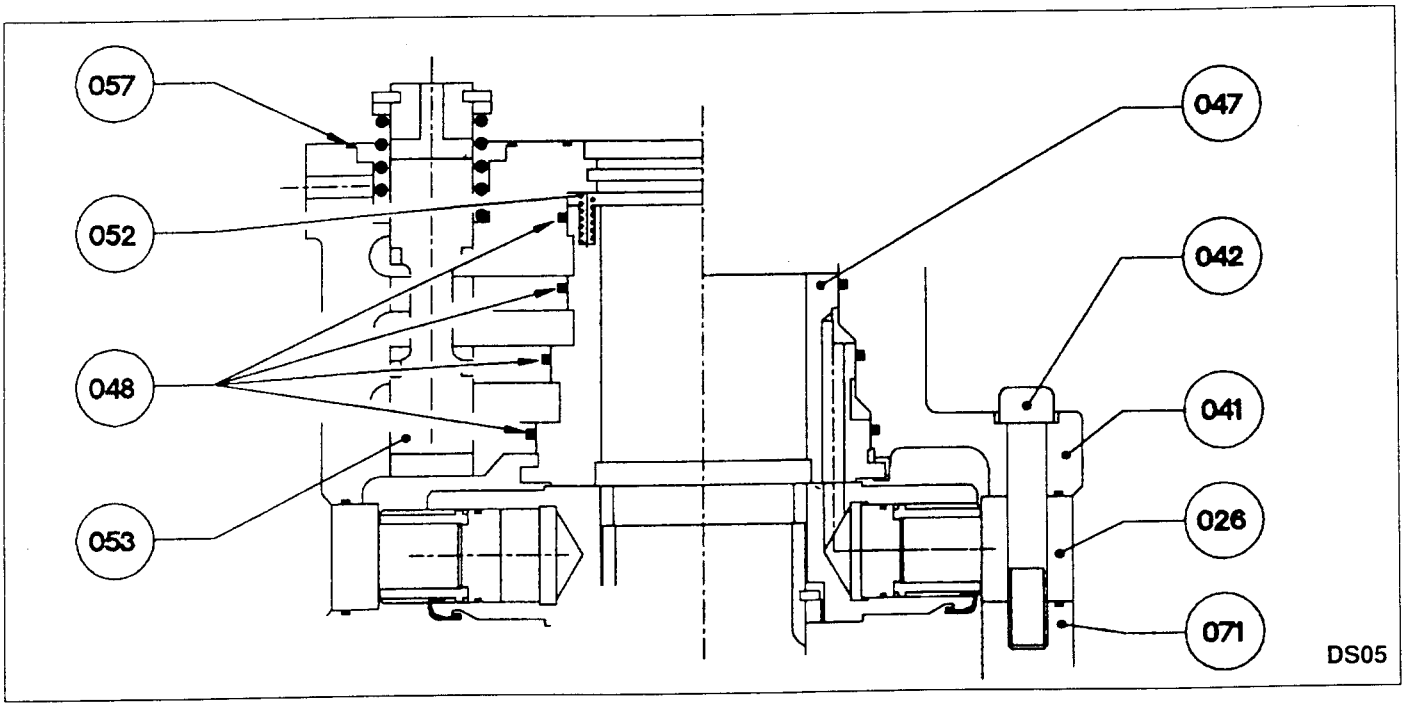
-Stand the motor on the brake.
-Remove the screws (042) then remove the bearing support assembly (071).
-Remove the cam (026).
-Remove the cylinder block (010) from the brake shaft (110). The valving (047) may remain attached to the cylinder block.
-Separate the valving by levering at the locating lugs or at the collar.
-Remove and discard the seals (048).

Reassembly

-Check the condition of the valving mating surface where it meets the cylinder block and at the seal contact surfaces.
-Check the condition of the spool surface (053) and its bore (dual displacement motor).
-Lubricate the seal grooves.
-Install the O-rings and then the back-up rings in their groove, twisting them as little as possible.

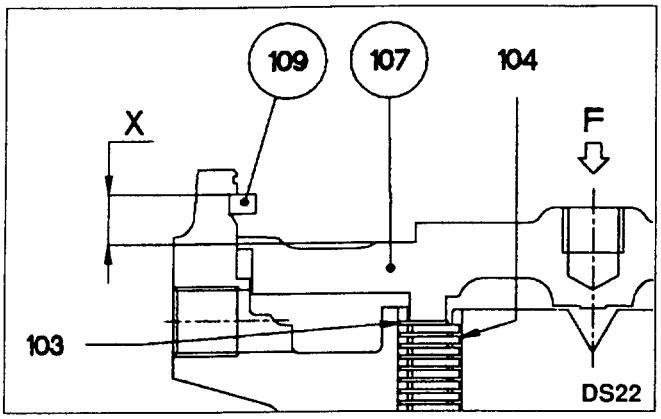


-Fill the spring slots with grease and install the springs (052) in the slots.
-Lubricate the valving seal contact surfaces then install the valving in the distribution block (041), until the locating lugs are engaged (or the pin for MSO2, MSEO2, MSO5 dual displacement) in line with the mark made during disassembly.



I-Install the shims (115) (FO2/MSO2 brake).
-Lubricate the new discs.
-Install alternately one friction disc (104) and one smooth disc (103).
FO2/MSO2 brake: alternately one smooth disc (103) and one friction disc (104).
In all cases the last disc is smooth (103).

-Adjust the brake.
-Install the piston (107) without the seal (106) and then the snap ring (109) (see tools).
-Measure dimension X.
Shimming will be equal to X - X1.



-Remove the snap ring (109).
-Extract the piston (107).
-Place the shims (105) on the last disc, with the thickest shim towards the piston.
-Clean and ensure that the grooves are clean for the snap ring and cover (141) plus the piston groove, the spring washer, the snap ring and the surface condition of the piston seal contact surface.
ALL TRACES OF RUST, MUD, WATER MUST BE REMOVED.
-Coat with anti-oxidizing grease (part number AUTO-TOP 2000 made by AGIP,fluorescent green color), the grooves, the top of the brake piston, the spring washer, the snap ring and the piston seal contact surface in the brake body.
-Install a new O-ring (106) on the piston (107). The ring should be tight on the piston.
-Install the piston. Take care when passing the seal over the snap ring groove.
-Install the spring washer (108).