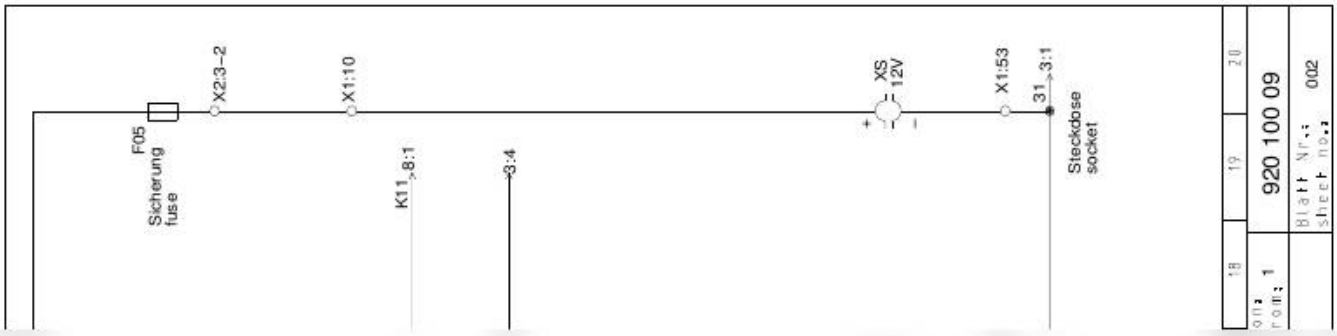


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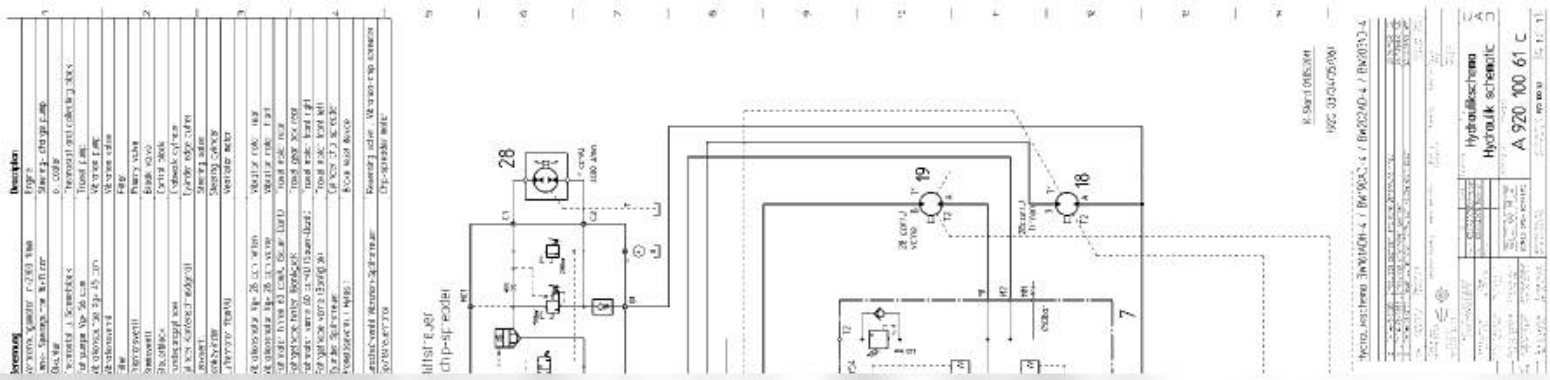
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Error code SERDIA	Component / Location	Description (Error location)	Defined for DCR	Defined for DMV	ID	Blink code	SPN	FMI	Self-curing[1]
11	Air filter condition	Pressure loss above target range with system reaction	●	●	AirFltSysReac	1-3-6	107	0, 11	●
12	Accelerator pedal	Cable break or short circuit, signal implausible compared to signal of idle sensor (analog pedal)	●	●	APP1	2-2-6	91	2, 3, 4, 11	
14	Accelerator pedal	Cable break or short circuit, bad PWM signal range or frequency (digital pedal)	●	●	APPPwm	2-2-2	91	2, 8	●
15	Accelerator pedal	Bad PWM pulse-width repetition rate (digital pedal)	●	●	APPPwmPer	2-2-2	91	8, 11	●
16	ECU internal error	Ambient pressure sensor defective	●	●	APSCD	2-9-2	108	2, 3, 4, 11	●
17	Air heater relay	Cable break or short circuit	●	●	ArHt1	2-6-3	729	3, 4, 5, 11	●
18	Air heater magnetic valve	Cable break or short circuit	●	●	ArHt2	2-6-3	730	3, 4, 5, 11	●
19	Air heater relay	Cable break or wrong connection	●	●	ArHtCD_NoLd	2-6-3	676	4, 11	
20	Air heater relay	Inoperable during shut-off	●	●	ArHtCD_RlyErr	2-6-3	676	2, 5, 11	
22	Battery	Voltage below target range	●	●	BattCD	3-1-8	168	0, 1, 11	●
23	Battery voltage	Above target range with system reaction	●	●	BattCDSysReac	3-1-8	168	2, 11	●
24	Begin of injection period	Outside target range or missing (cylinder 1)		●	BIPCyl1	5-3-1	523561	2	●
25	Begin of injection period	Outside target range or missing (cylinder 2)		●	BIPCyl2	5-3-2	523562	2	●
26	Begin of injection period	Outside target range or missing (cylinder 3)		●	BIPCyl3	5-3-3	523563	2	●
27	Begin of injection period	Outside target range or missing (cylinder 4)		●	BIPCyl4	5-3-4	523564	2	●
28	Begin of injection period	Outside target range or missing (cylinder 5)		●	BIPCyl5	5-3-5	523565	2	●
29	Begin of injection period	Outside target range or missing (cylinder 6)		●	BIPCyl6	5-3-6	523566	2	●
30	Begin of injection period	Outside target range or missing (cylinder 7)		●	BIPCyl7	5-3-7	523567	2	●
31	Begin of injection period	Outside target range or missing (cylinder 8)		●	BIPCyl8	5-3-8	523568	2	●
32	Charge air pressure sensor	Cable break or short circuit	●	●	BPSCD	2-2-3	102	2, 3, 4	●
33	Charge air pressure	Outside target range with system reaction	●	●	BPSCDSysReac	2-2-3	102	2, 11	●
37	Coolant level	Outside target range with system reaction	●	●	CLSCDSysReac	2-3-5	111	1, 11	
38	Single cylinder	Misfire detected (cylinder 1)	●	●	CmbChbMisfire1	2-4-1	1323	11, 12	
39	Single cylinder	Misfire detected (cylinder 2)	●	●	CmbChbMisfire2	2-4-1	1324	11, 12	
40	Single cylinder	Misfire detected (cylinder 3)	●	●	CmbChbMisfire3	2-4-1	1325	11, 12	
41	Single cylinder	Misfire detected (cylinder 4)	●	●	CmbChbMisfire4	2-4-1	1326	11, 12	
42	Single cylinder	Misfire detected (cylinder 5)	●	●	CmbChbMisfire5	2-4-1	1327	11, 12	
43	Single cylinder	Misfire detected (cylinder 6)	●	●	CmbChbMisfire6	2-4-1	1328	11, 12	
44	Single cylinder	Misfire detected (cylinder 7)		●	CmbChbMisfire7	2-4-1	1450	11, 12	
45	Single cylinder	Misfire detected (cylinder 8)		●	CmbChbMisfire8	2-4-1	1451	11, 12	
46	Multiple cylinders	Misfire detected	●	●	CmbChbMisfireMul	2-4-1	1322	11, 12	
47	Misfire	Misfire detected with system reaction	●		CmbChbSysReac	2-4-1	1346	0, 11	

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17.3 Removing and installing the drum

i Note

The procedures for the removal of front and rear drums are identical. The following instructions describe the removal of the front drum, however, the work steps apply also for the removal of the rear drum.

⚠ Danger

Danger of squashing!

Do not stand or work under suspended loads!

Block drum and rubber tires with wheel chocks against rolling!

Do not work in the articulation area of the roller while the engine is running.

⚠ Caution

Do not start the engine during repair work!

Environment

Catch running out hydraulic oil and dispose of environmentally.

Removing the drum

1. Jack the side of the machine up (Fig. 1), until the rubber buffers are relieved.

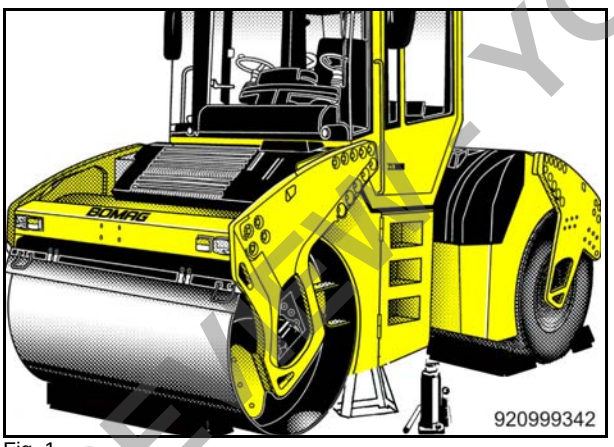


Fig. 1

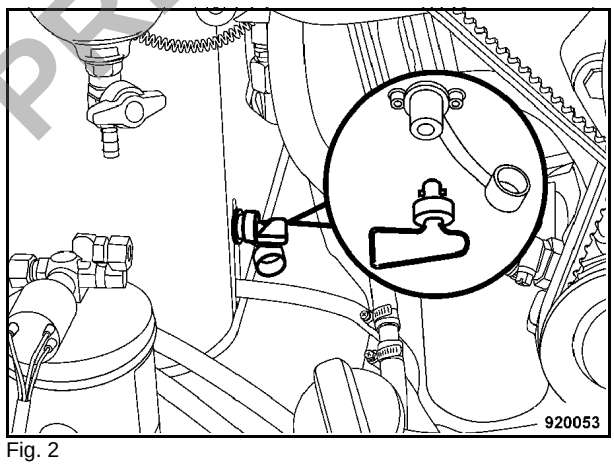


Fig. 2

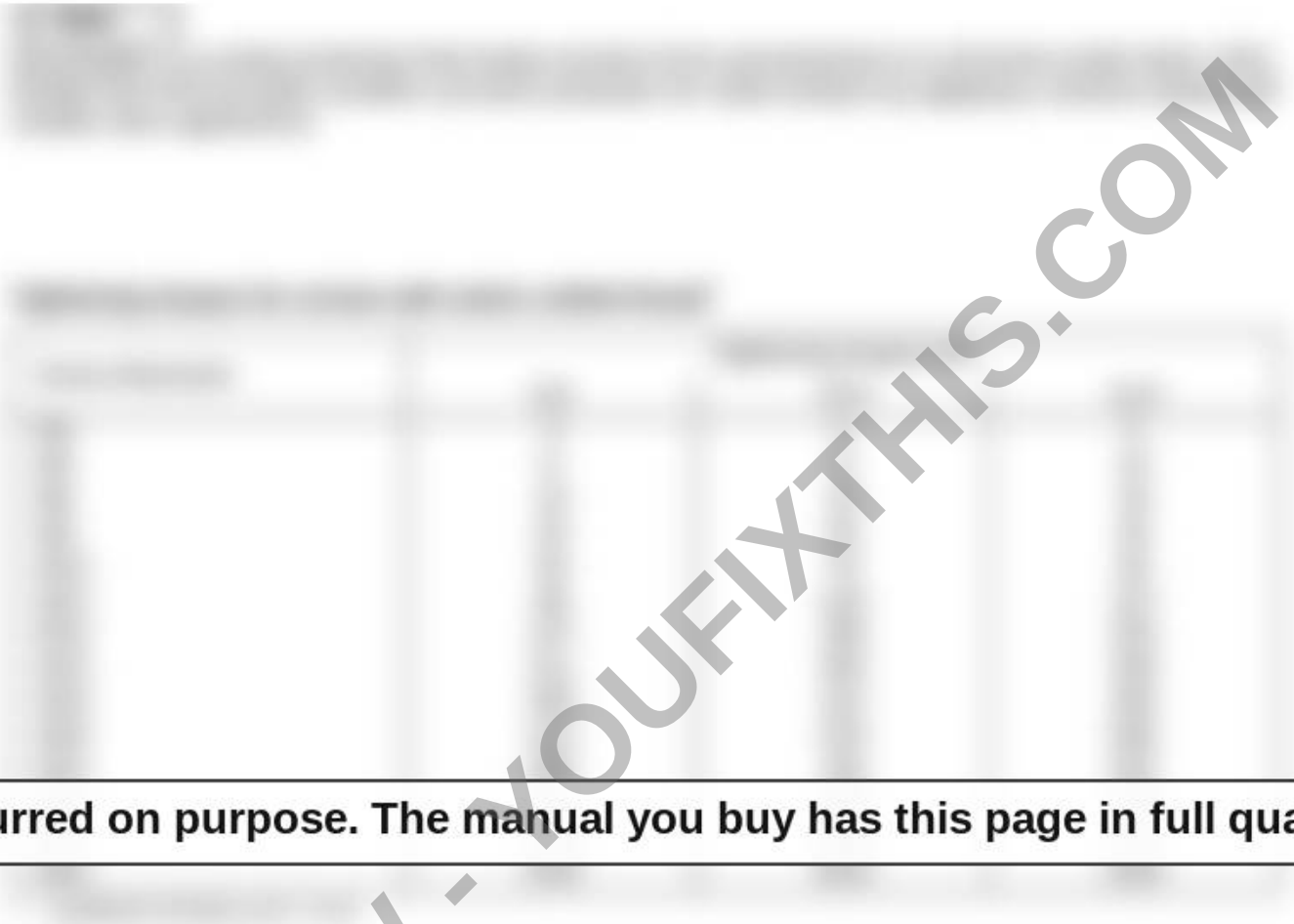
2. Disconnect the main battery switch (Fig. 2).

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The values specified in the table apply for screws:

- black oiled
- with surface protection A4C
- with surface protection DACROMET





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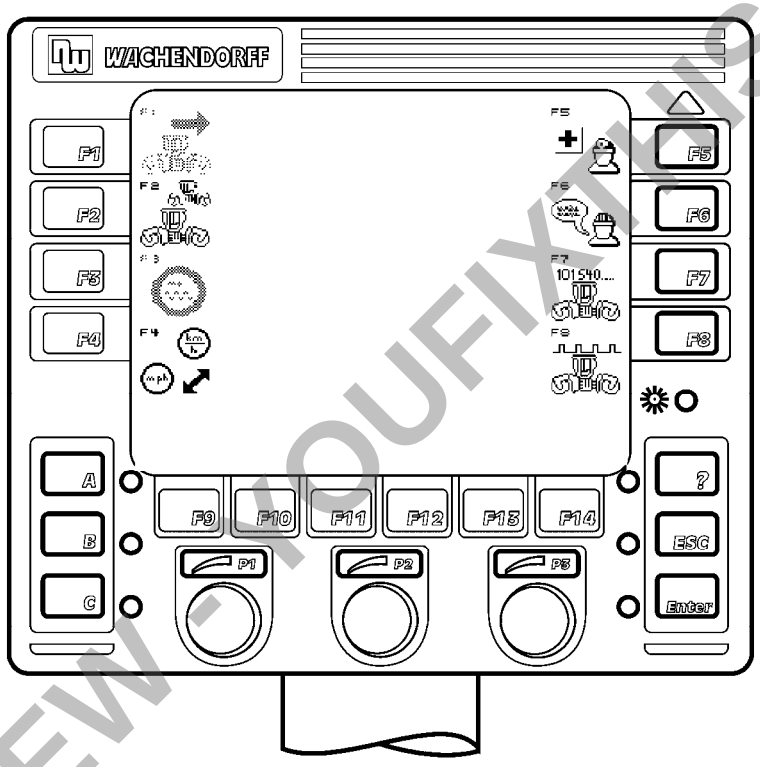
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7.8 Simulation mode

From software version 3.00 it is possible to run the control in a so-called simulation mode. This mode allows to swivel the Vario exciter at standstill and without vibration.

ATTENTION:	**In simulation mode the exciter swivels even with the machine at standstill! Before switching on vibration the machine must therefore be placed on a suitable base (rubber mat, car tires, etc.), as otherwise the base may be damaged!**

- Press key “?” 2 times to open the screen page “MENU”. The following screen is displayed:



- Press key “F5” to open the screen page “Diagnose1”. The following screen is displayed:

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2.4 Engine protection

If a too low engine oil level is detected (ground signal on PIN 13, the LED on PIN 13 lights) while D+ is applied (LED on PIN 14 lights), the engine will be shut down after approx. 12 seconds.



Figure 6: Behaviour in case of a too low oil level

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8.12 Glow plugs

R81 to R84

The engines are equipped with glow plugs for cold starting as standard. These on the one hand ensure reliable cold starting by preheating the glow plugs in the combustion chamber of the engine, and on the other hand after-heating of the glow plugs in the still cold engine to influence the emissions of the diesel engine. (e.g. avoidance of white smoke, noise reduction).

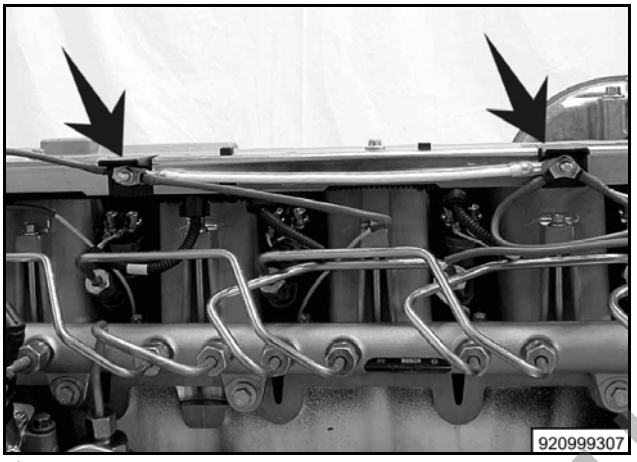


Fig. 1

Pre-heating control light

During cold starting the EMR-control switches (Pin92 ground, Pin29 plus) and the coil of relay (K15) is excited. The switch contact of relay (K15) connects the monitoring board (A15, Pin3) to ground. The preheating control light **c** (Fig. 2) lights up.

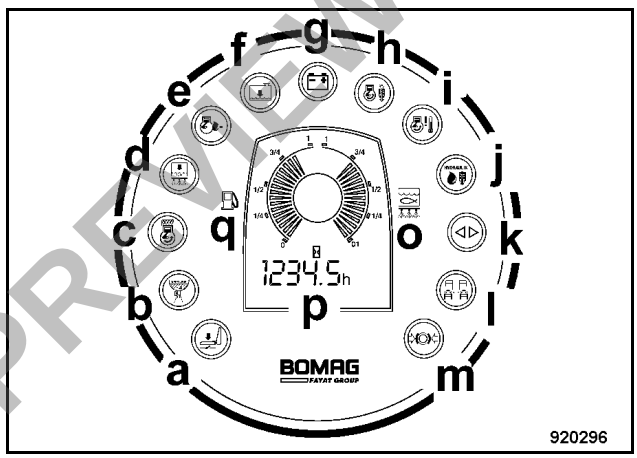


Fig. 2 Monitoring board, A15

c yellow = Pre-heating control light
Lights when temperatures are low (preheating for starting)

Control of the glow plugs

During cold starting the EMR-control switches (Pin24 ground, Pin34 plus) and the coil of relay (K14) is excited. The switching contact of relay (K14) supplies the glow plugs with battery power.

Fuse for glow plugs

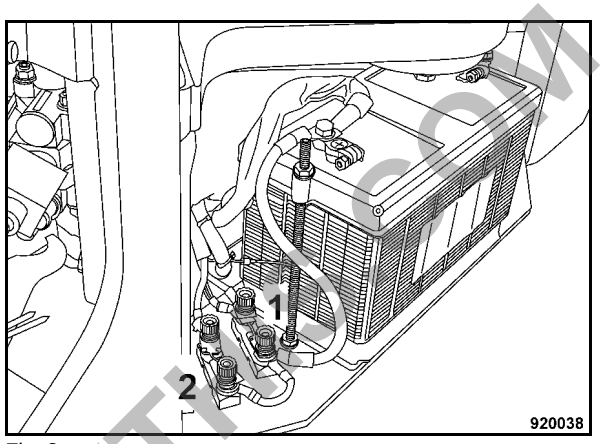


Fig. 3

(1) 125A = (F00) main fuse

(2) 125A = (F48) Fuse for glow plugs

i Note

Both the glow plug fuse and the main fuse are located in the battery box.

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DTC-List
Diagnosis- and Errorcodes

referrenced ECU-Software
P490_: 220, 310, 501
P491_: 220, 310, 400, 501
P492_: 213
P513_: 214, 300

163 / 653 / InjVlvCyl3A

Error description INJECTOR 3
Injector 3: the current drain measured by ECU is above the target range

Error codes
DEUTZ-Errorcode: 163
BlinkCode (short-long-short): 1 - 5 - 6
SPN: 653
possible FMI:
3: Voltage to high or short circuit to +Ubatt
13: out of calibrated range
4: Voltage to low or short circuit to -Ubatt
12. Errormode not identifiable

Errordetection
Errorlamp shows permanent light. Entry in errormemory.

Possible reason for error
Short circuit (cylinder 3), injector defective, connection cable demaged

Take actions for error repair
Check cabling, check injectors and if necessary replace them, check connection cable and if necessary repair or replace it

other error properties
System reaction: Warning, fuel injection failed, shut off wenn the number of active cylinders below minimum
Behaviour error lamp: permanent light
Selfhealing: yes
Signal Priority: 4
Measurement @ errortime: actual value

164 / 653 / InjVlvCyl3B

Error description INJECTOR 3
Injector 3: the current drain measured by ECU is underneath the target range

Error codes
DEUTZ-Errorcode: 164
BlinkCode (short-long-short): 1 - 5 - 6
SPN: 653
possible FMI:
13: out of calibrated range
13: out of calibrated range
5: current to low or broken wire
13: out of calibrated range

Errordetection
Errorlamp shows permanent light. Entry in errormemory.

Possible reason for error
Cable break (cylinder 3), injector defective, connection cable demaged

Take actions for error repair
Check cabling, check injectors and if necessary replace them, check connection cable and if necessary repair or replace it

other error properties
System reaction: Warning, fuel injection failed, shut off wenn the number of active cylinders below minimum
Behaviour error lamp: permanent light
Selfhealing: yes
Signal Priority: 3
Measurement @ errortime: actual value

165 / 654 / InjVlvCyl4A

Error description INJECTOR 4
Injector 4: the current drain measured by ECU is above the target range

Error codes
DEUTZ-Errorcode: 165
BlinkCode (short-long-short): 1 - 6 - 1
SPN: 654
possible FMI:
3: Voltage to high or short circuit to +Ubatt
13: out of calibrated range
4: Voltage to low or short circuit to -Ubatt
12. Errormode not identifiable

Errordetection
Errorlamp shows permanent light. Entry in errormemory.

Possible reason for error
Short circuit (cylinder 4), injector defective, connection cable demaged

Take actions for error repair
Check cabling, check injectors and if necessary replace them, check connection cable and if necessary repair or replace it

other error properties
System reaction: Warning, fuel injection failed, shut off wenn the number of active cylinders below minimum
Behaviour error lamp: permanent light
Selfhealing: yes
Signal Priority: 4
Measurement @ errortime: actual value

When actuating the travel lever the 4/3-way valve moves out of neutral position to the desired direction and guides the pilot oil flow through the pilot oil portioning valve to the corresponding control piston side. The control piston moves to the corresponding direction and operates the swash plate via the swashing lever accordingly.

The feedback lever, which is mounted with its ball head in the pump control shaft, follows the control piston and interrupts the pilot oil flow when the control piston has reached a position corresponding with the displacement of the travel lever. The pump is now able to deliver oil.

The oil from the opposite control chamber flows through the 4/3-way valve as leak oil into the pump housing.

The supply bores to both control chamber sides are fitted with nozzles (swashing time nozzles). These nozzles restrict the pilot oil flow and enable a very sensitive control of the pump.

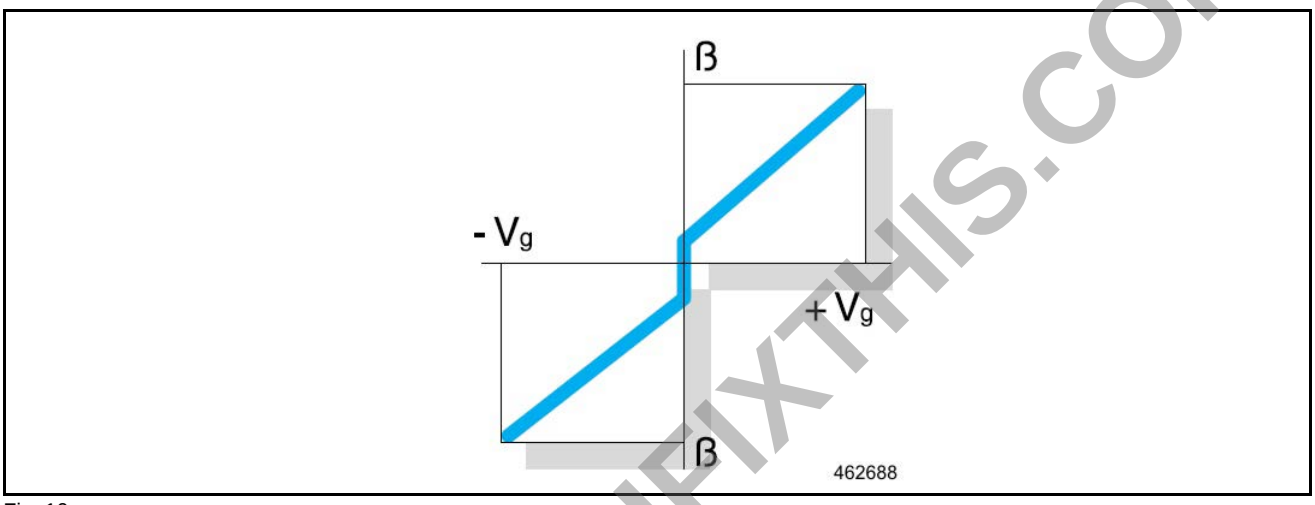


Fig. 10

Swashing angle β on control lever for swashing operation:

Control start at β = 3°

Control end at β = 29° (max. displacement $V_{g\ max}$)

Required torque on control lever max. 170 Ncm.

Spring zero centring

The spring centring facility automatically returns the pump to zero position (Vg = 0) when no torque is applied to the control lever of the HW control unit (irrespective of the actuation).

⚠ Caution

The spring reset is not a safety feature.

Internal contamination – like e.g. contaminated hydraulic fluid, abrasion or dirt residues from system components – can cause blockagein an undefined position.

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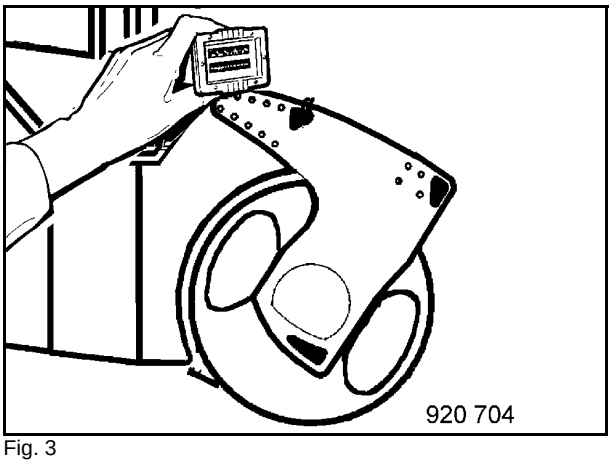


Fig. 3

Checking the exciter shaft speed

1. Switch the vibration on at max. engine speed.
2. Apply the brake.
3. Measure the speed of the vibrator shaft by letting the tester rest on your thumb (Fig. 3).

Nominal value

see technical data.

Evaluation of test

If the nominal value is not reached, perform trouble shooting in the vibration circuit.

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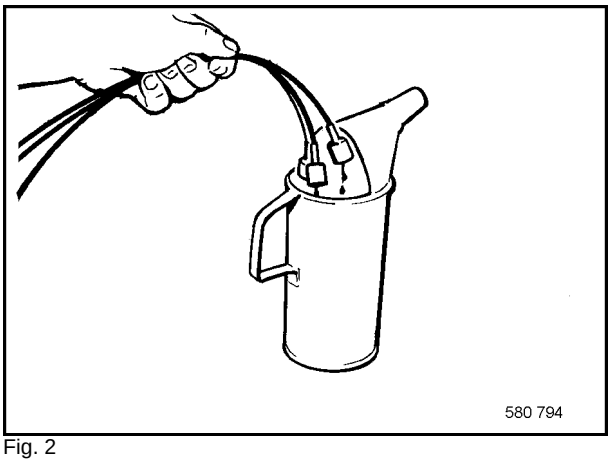


Fig. 2

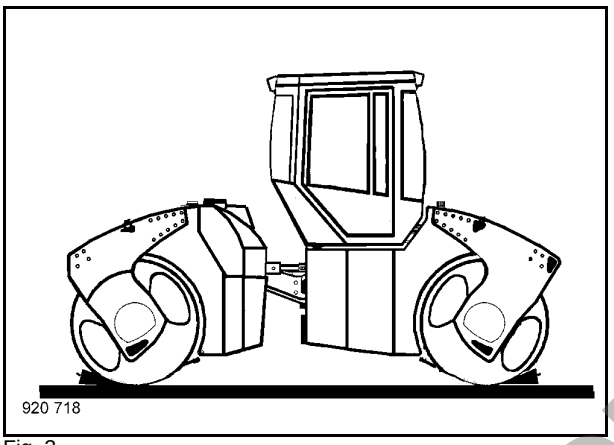


Fig. 3

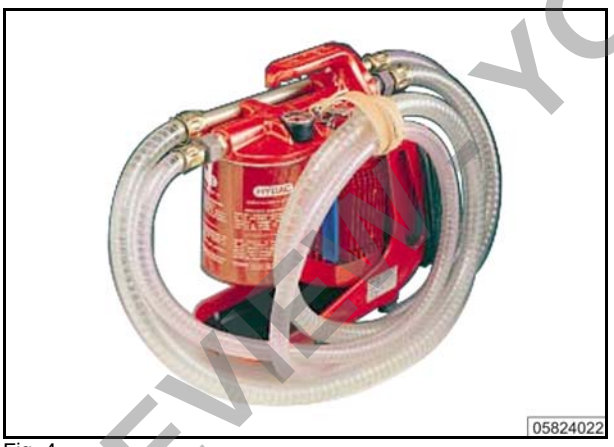


Fig. 4

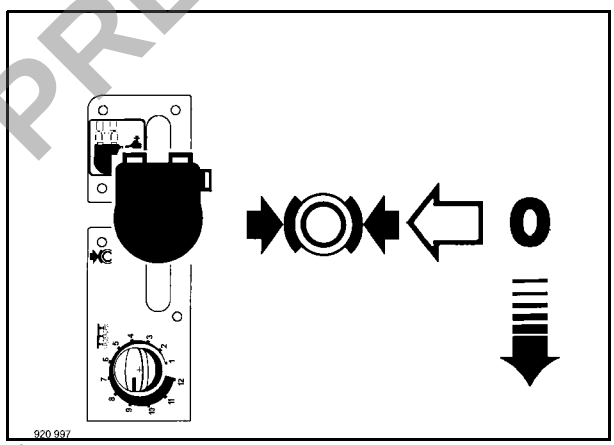


Fig. 5

Bleeding the travel circuit

i

Bleeding the travel circuit, see chapter "Bleeding the travel circuit".

Flushing the rear hoses

5. Block drums and wheels with suitable chocks .

i

Keep circulating the complete tank content with the filling and filtering unit throughout the entire flushing process.

⚠

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

6. Start the engine and shift the travel lever to travel direction reverse.
7. Perform the flushing process at various engine speeds for approx. 10 minutes.
8. Shut down the engine.
9. Reconnect the high pressure hoses to the wheel drive motors.

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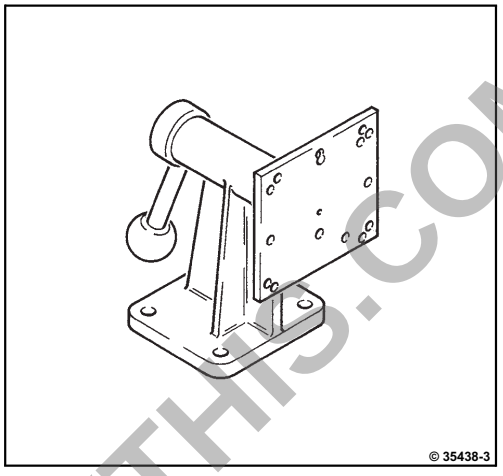
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DEUTZ

TCD 2012 2V Special tools

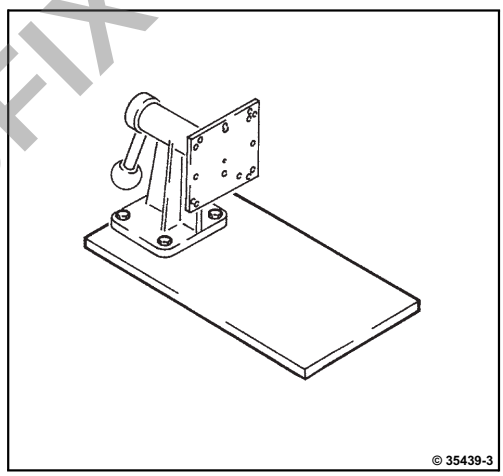
120 900
Support bracket
pivoting
Clamping cylinder head

057 250 90



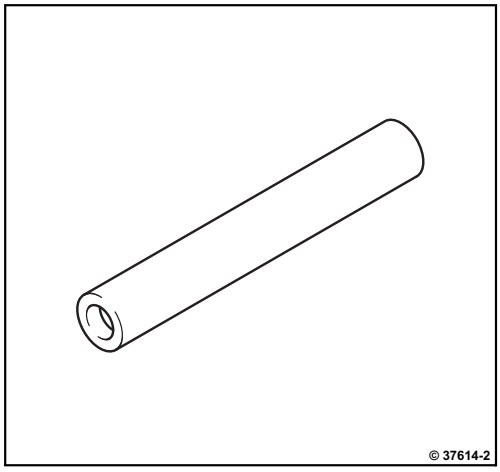
120 910
Base plate for support bracket
(in conjunction with support bracket 120 900 if support bracket is not screwed tightly)

057 250 91



121 410
Assembly tool
Assembling valve stem gaskets

057 250 92



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15.4 Removing and installing the window pane

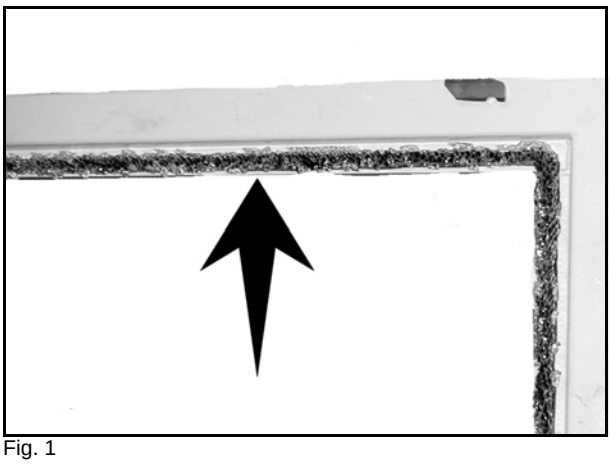


Fig. 1

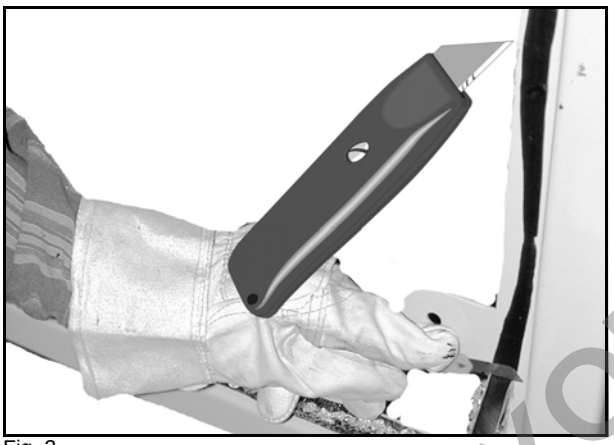


Fig. 2

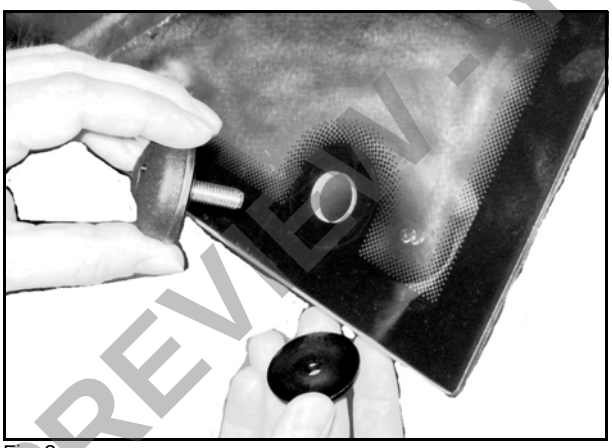


Fig. 3

Environment

Environmental damage

Dispose of glass splinters fro0m machine and cabin or inside cabin in an environmentally friendly way.

Danger

Danger of cutting

Wear safety gloves.

1. Pull large glass rests off the bonding strip (Fig. 1).
2. Clean the sealing surfaces from any adhesive material (Fig. 2).
3. Use a cutter to remove adhesive residues with glass rests.
4. Cover places without adhesive residues with an activator.
5. Insert the fastening element with washer into the bore in the glass pane (Fig. 3).

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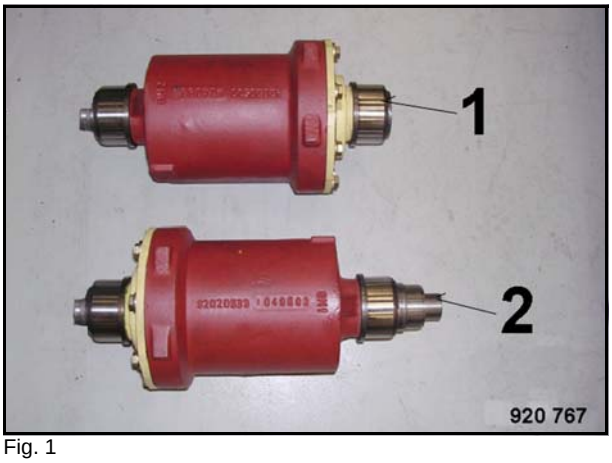


Fig. 1

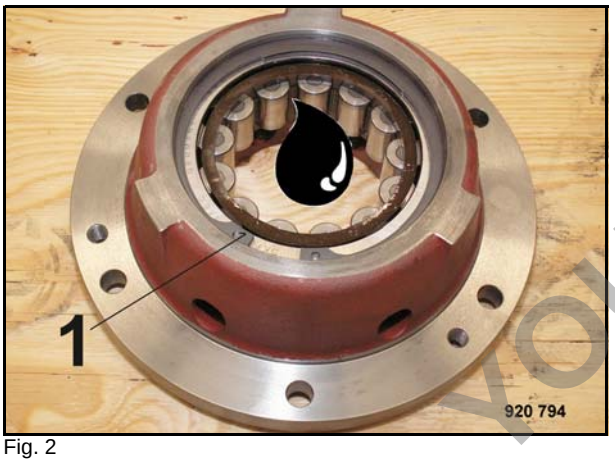


Fig. 2

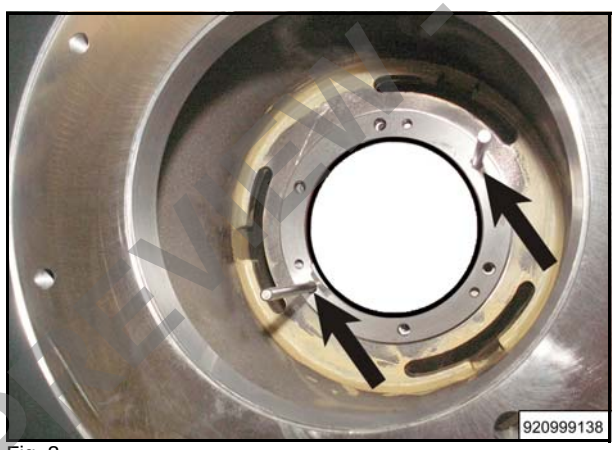


Fig. 3

17.6 Assembling the AD-drum

⚠ Caution

Ensure strict cleanliness.

⚠ Danger

Danger of squashing!

Do not stand or work under suspended loads!

i Note

Exciter unit 1 (Fig. 1) with the shorter shaft is installed in the travel motor side.

Exciter unit (2) with the longer shaft is installed in the vibration motor side.

Assembly (travel motor side)

Assembling the bearing housing

1. Press the cylinder roller bearing fully into the flange and apply a thin coat of oil (Fig. 2).
2. Insert circlip (1) into the groove in the bearing housing .
3. Clean the inner tube in the drum (Fig. 3).
4. Screw in two guide bolts to assist the installation of the bearing housing.

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3.3 Technische Daten

Die technischen Daten der Verstellpumpe finden Sie in der Auftragbestätigung. Ergänzend dazu ist das jeweilige technische Datenblatt. Für die A4VG Verstellpumpe gilt das technische Datenblatt RD 92 003.

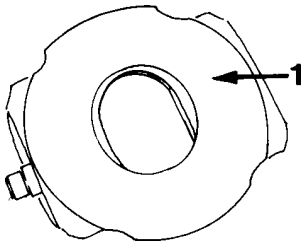
3.3 Technical Data

You can find the technical data for the variable pump in the Confirmation of Order. This is supplemented by the unit‘s data sheet. For the A4VG variable pump, the valid data sheet is RE 92 003.

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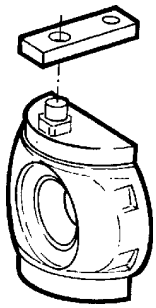
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Überprüfungshinweise
Inspection notes



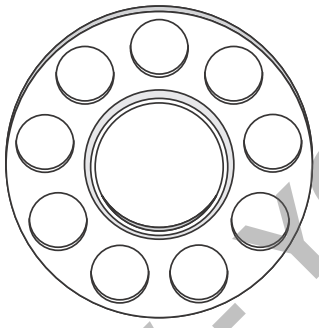
Kontrolle!
Gleitfläche riefenfrei.

Check!
Sliding surface free of grooves.



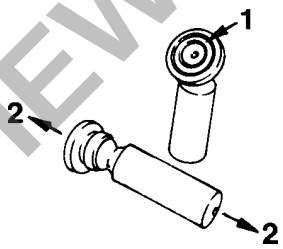
Kontrolle!
Verbindung Gleitstein/Schwenkzapfen spielfrei.

Check!
That the connection of slide ring/swivel pin is free of play.



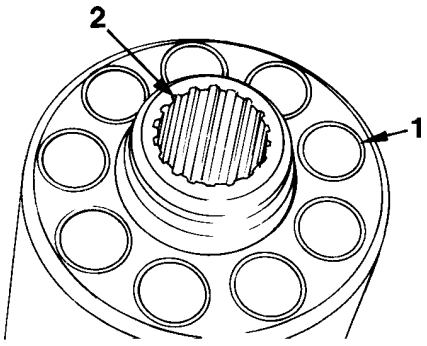
Kontrolle!
Rückzugeinrichtung riefenfrei (1), keine Einlaufspuren (2)
im Gleitschuhbereich.

Check!
That the retaining plate is free of grooves (1) and that there is no wear (2) in the slipper pad area.



Kontrolle!
Lauffläche (1) keine Kratzer, keine Metalleinlagerungen,
kein Axialspiel (2), (Kolben nur satzweise tauschen).

Check!
Check to see that there are no scratches or metal deposits
on the sliding surface (1), and that there is no axial play (2),
(pistons must only be replaced as a set).



Kontrolle!
Zylinderbohrungen (1), Verzahnungen (2).

Check!
Cylinder bores (1), splines (2).

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PROCEDURE (continued)

13. Shut down the prime mover.
14. Connect the external control input signal.
15. Reconnect the machine function if disconnected earlier.
16. Start the prime mover, checking to ensure the pump remains in neutral.
17. Check for forward and reverse machine operation, with the prime mover at normal operating speed.

Charge pressure may decrease slightly during forward or reverse operation.

18. Continue to cycle slowly between forward and reverse for at least five minutes.
19. Shut down prime mover.
20. Remove gauges.
21. Plug the gauge ports.
22. Check reservoir level.
23. Add filtered fluid to the reservoir, if needed.

The motor / transmission is now ready for operation.

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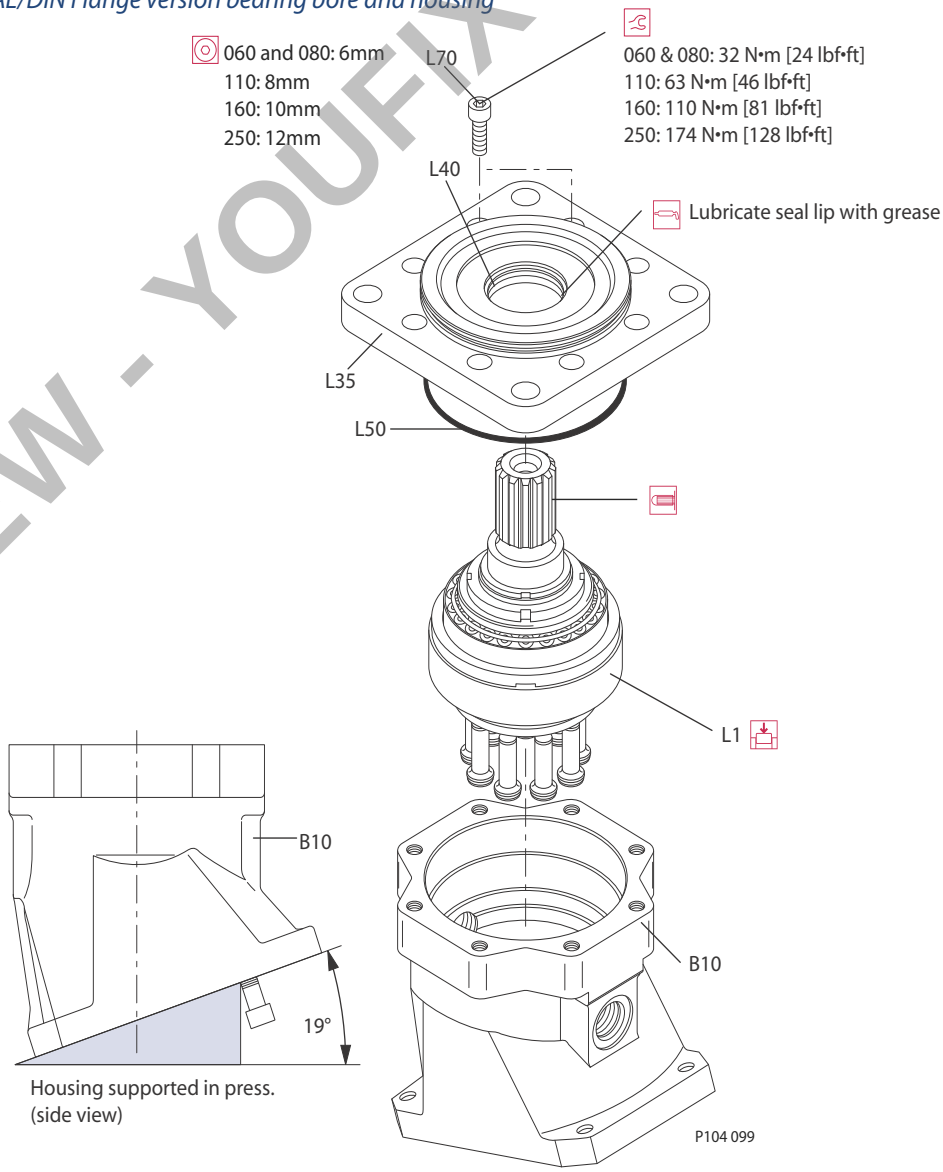
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SHAFT AND MOUNTING FLANGE ASSEMBLY

SAE/DIN flange

1. Support the main housing (B10) so the bearing bore is vertical.
2. Press shaft assembly (L1) into main housing.
3. Install new O-ring (L50) on mounting flange (L35).
4. Install new seal (L40) in flange.
5. Cover the shaft splines with an installation sleeve to protect the seal during assembly. Install flange assembly (L35).
6. Install screws (L70).
7. Torque screws (L70) to value shown in the diagram.

SAE/DIN Flange version bearing bore and housing



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4.9. Dismissione e rottamazione del prodotto

La dismissione del riduttore va effettuata rispettando le seguenti indicazioni:

1. Smontare il riduttore dalla sua sede e svuotare l'olio lubrificante.
2. Smontare completamente il riduttore e rimuovere l'olio e il grasso dai componenti.
3. Avviare i materiali pericolosi e/o inquinanti ai rispettivi centri di smaltimento, come richiesto dalle leggi vigenti in materia.

4.9. Dismantling and Destroying the Product

When dismantling the gearbox follow the indications given below:

1. *Dismount the gearbox from its seating and empty the lubricating oil.*
2. *Completely dismount the gearbox and remove all oil and grease from its parts.*
3. *Send all dangerous and/or polluted parts to the authorised demolishing centres whilst keeping in line with respective local rules and regulations.*

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Installation Instruction for Lip Seal

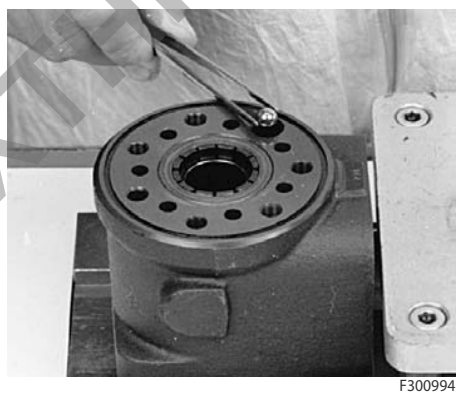
Installation Instructions for Lip Seal

The spool set will push out the assembly tool guide. The o-ring and kin-ring/roto Glyd are now in position.



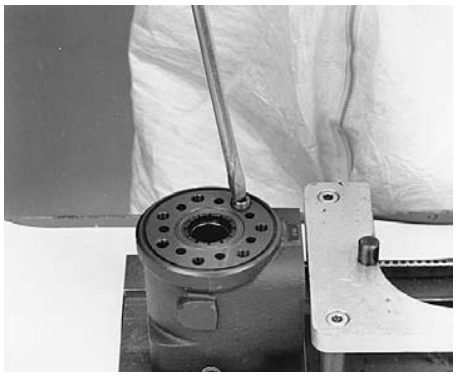
F300993

Turn the stearing unit until the bore is vertical again. Put the check valve ball into the hole indicated by the arrow.



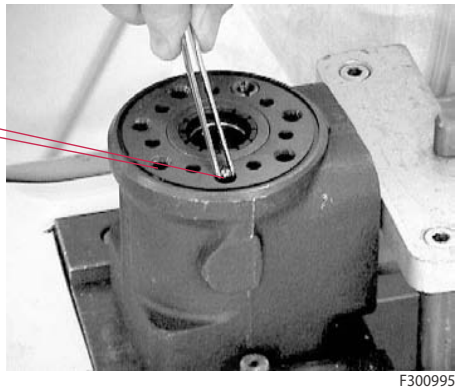
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Screw the threaded bush lightly into the check valve bore. The top of the bush must lie just below the surface of the housing.



F300953

Place a ball in the two holes indicated by the arrows



F300995

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