BOMAG

FAYAT GROUP

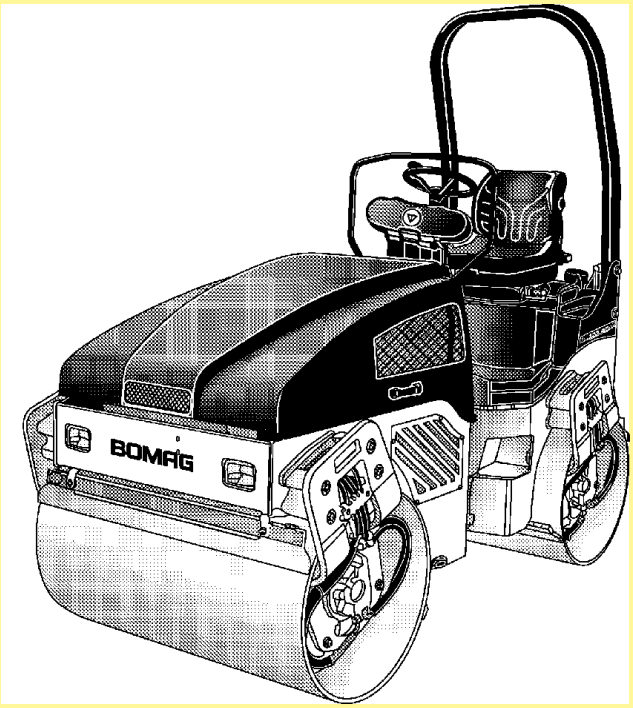
Service - Manual

BW 100 AD-4 / BW 100 AC-4

BW 120 AD-4 / BW 125 AD-4

BW 120 AC-4 / BW 125 AC-4

S/N 101 880 16 .... > / S/N 101 880 17 ....>
S/N 101 880 08 .... > / S/N 101 880 09 ....>
S/N 101 880 10 .... > / S/N 101 880 11 ....>



Tandem Vibratory Roller

Combination Roller

Catalogue number.
008 915 24

07/2010

General

- Before removing or disassembling parts, assemblies, components or hoses mark these parts for easier assembly.
- Before assembling and installing parts, assemblies or components oil or grease all movable parts or surfaces as required and in compliance with the compatibility of materials.

Electrics

General

Due to the fast technical development electric and electronic vehicle systems become more intelligent and more comprehensive day by day, and can hardly be dispensed with in hydraulic and mechanical vehicle systems.

Diagnostics according to plan

Well structured trouble shooting procedures can save time and money.

Random tests have revealed that purely electronic components or control units only very rarely are the actual cause of failures:

- In approx. 10 % of the examined cases the problems were caused by control units.
- In approx. 15 % sensors and actuators were the cause of the problems.

By far the highest proportion of all faults could be traced back to wiring and connections (plugs, etc.).

General:

- Before changing any expensive components, such as control units, you should run a systematic trouble shooting session to eliminate any other possible fault sources. Knowledge in basic electrics is required for this purpose. If a fault was diagnosed without having pulled the plug of the control unit or inspected the wiring, this should be done before changing any parts.
- Check for good cable and ground contacts, therefore keep all mechanical transition points between electric conductors (terminals, plugs) free of oxide and dirt, as far as this is possible.
- Always use the machine related wiring diagram for testing. If one or more faults were detected, these should be corrected immediately.
- Do not disconnect or connect battery or generator while the engine is running.
- Do not operate the main battery switch under load.
- Do not use jump leads after the battery has been removed.
- Sensors and electric actuators on control units must never be connected individually or between external power sources for the purpose of testing, but only in connection with the control unit in question.
- It is not permitted to pull plugs off while the voltage supply is switched on (terminal 15 "ON")! Switch the voltage supply "OFF" first and pull out the plug.
- Even with an existing polarity reversal protection incorrect polarity must be strictly avoided. Incorrect polarity can cause damage to control units!

The values specified in the table apply for screws:

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

i Note

DACROMET is a surface protection that mainly consists of zinc and aluminium in a chromium oxide matrix. DACROMETIZATION provides excellent corrosion protection for metal surfaces by applying a mineral coating with metallic-silver appearance.

Tightening torques for screws with metric unified thread[1]

Screw dimension	Tightening torques Nm		
	8.8	10.9	12.9
M4	3	5	5
M5	6	9	10
M6	10	15	18
M8	25	35	45
M10	50	75	83
M12	88	123	147
M14	137	196	235
M16	211	300	358
M18	290	412	490
M20	412	578	696
M22	560	785	942
M24	711	1000	1200
M27	1050	1480	1774
M30	1420	2010	2400

1 Coefficient of friction μ tot. = 0,14

Tightening torques for screws with metric unified fine thread[1]

Screw dimension	Tightening torques Nm		
	8.8	10.9	12.9
M8 x 1	26	37	48
M10 x 1.25	52	76	88
M12 x 1,25	98	137	126
M12 x 1.5	93	127	152
M14 x 1.5	152	216	255
M16 x 1.5	225	318	383
M18 x 1.5	324	466	554
M20 x 1.5	461	628	775
M22 x 1.5	618	863	1058
M24 x 2	780	1098	1294
M27 x2	1147	1578	1920
M30 x 2	1568	2254	2695

1 Coefficient of friction μ tot. = 0,14

The following noise and vibration data acc. to

- EC Machine Regulation edition 2006/42/EC

- the noise regulation 2000/14/EG, noise protection guideline 2003/10/EC

- Vibration Protection Regulation 2002/44/EC

were determined during conditions typical for this type of equipment and by application of harmonized standards.

During operation these values may vary because of the existing operating conditions.

Noise value

Sound pressure level on the place of the operator:

L_{pA} = 84 dB(A), determined acc. to ISO 11204 and EN 500

Guaranteed sound power level:

L_{WA} = 106 dB(A), determined acc. to ISO 3744 and EN 500

⚠ Danger

Wear your personal noise protection means (ear defenders) before starting operation.

Vibration value

Vibration of the entire body (driver's seat)

The weighted effective acceleration value determined according to ISO 7096 is ≤ 0.5 m/s^2.

Hand-arm vibration values

The weighted effective acceleration value determined according to ISO 5349 is ≤ 2.5 m/s^2.

4 Electrics

4.2 Designation of components in the wiring diagram

The designation of components in the wiring diagram groups several electrical parts of the machine in one group. The components can be identified by the following table.

Component designation	Meaning
A	Interval switch, indicator relay, modules, electronic component
B	Pressure, pressure differential, temperature switches and sensors, transducers
C	Capacitor
E	Headlights, heater, air conditioning condenser
F	Fuses
G	Battery, generator
H	Control lights, warning buzzer, warning light
K	Relays
M	Starter, pumps, motors
P	Operating hour meter, general gauges
R	Transducers, resistors
S	Switches, momentary contact switches
V	Diode
X	Terminal
Y	Solenoid valves

- The cleaner the contacts, the better the current.
- The quality of the ground cable is of the same importance as the supply line.

Unnecessary resistances

Unnecessary resistances are frequently caused by mechanical connections, even clean ones, but mainly soiled and oxidizes terminals, too thin cables, material with poor conductivity or bent open cable lugs.

Bad

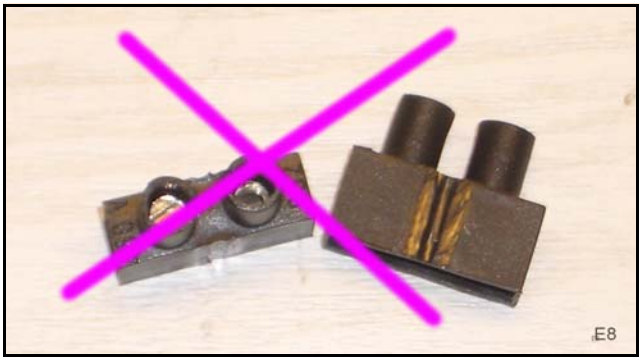


Fig. 1 Screw-type terminals

Copper wires are squashed and thus become faulty.

Better

Fig. 2 Spring clamps

Connecting clamps for flexible conductors

BOMAG No. 057 565 72

Ampacity up to 20 Amp.

Cable cross-section 0.08 to 2.5 qmm

Fig. 3

In many cases it is better to replace the contact. Soiled or oxidized contacts should be cleaned with Ballistol (Fig. 4) and subsequently wetted with copper paste.

Copper paste is a heat resistant grease, which has been mixed with copper powder. The paste protects electric contacts against oxidation. Copper paste keeps water away.

Fig. 4 Balistol oil

4.14 Diodes, relays, fuses

Diodes

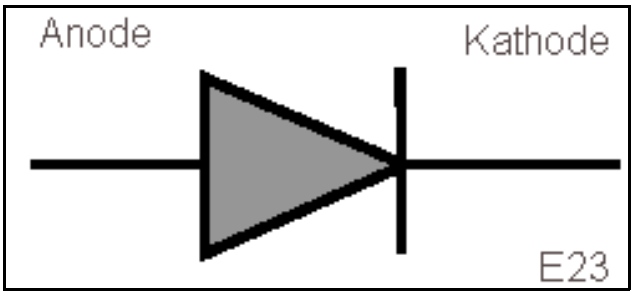


Fig. 1

A diode consists of two different semi-conductors, which are connected by a separating layer. The max. conducting state current must not be exceeded.

Plus-voltage on diode:

- At 0.6 – 0.7 Volt (silicium diode) the diode becomes conductive.

Negative voltage on diode:

- The diode does not allow current to pass through.

Fig. 2 Marking of the cathode

Diodes are used:

- For rectifying A.C. voltage.
- For absorbing voltage peaks (free-wheeling diode).
- For construction of logical circuits.

Diode logics and free-wheeling diode

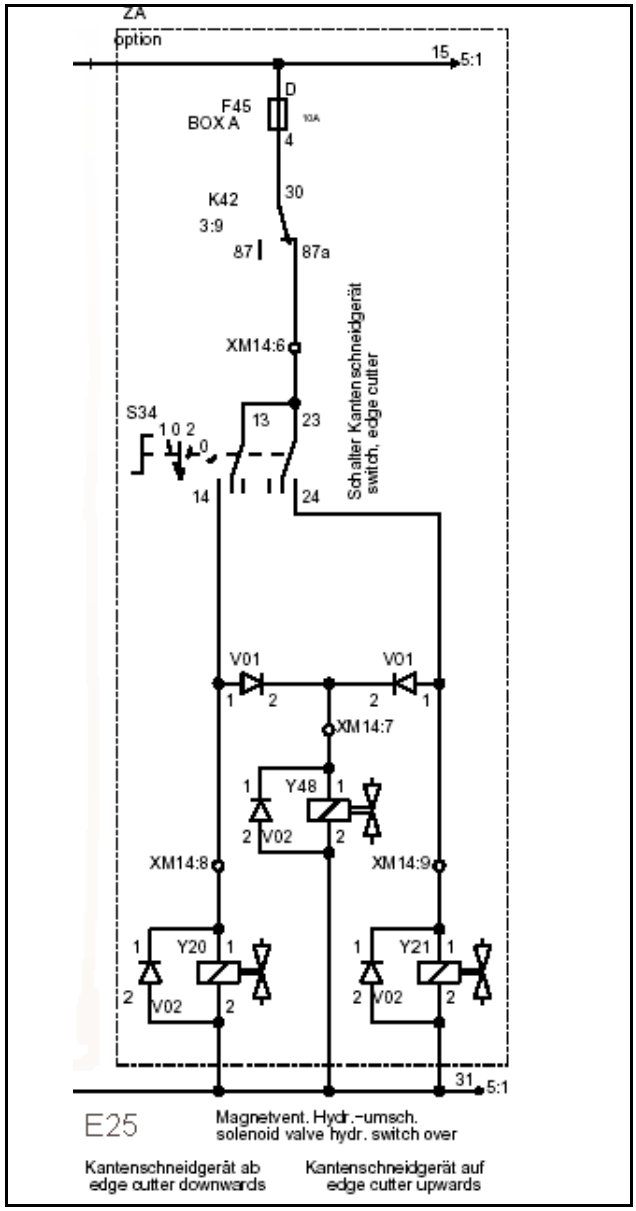


Fig. 3 Diode circuitry

- The solenoid valve Y48 (Fig. 3) is supplied with electric current when switch S34 is switched to position "1" or "2".
- Solenoid valve Y20 is supplied, if the switch is in position "1".
- Solenoid valve Y21 is supplied, if the switch is in position "2".

The three diodes V02 serve as free-wheeling diodes with the function of of eliminating voltage peaks.

Assembly of magnetic coil plugs

These instructions are intended to explain the correct installation of the magnetic coil plug. The objective of the instructions is the correct installation of the plug and to avoid malfunctions in the field caused by moisture and any related corrosion damage.

Fig. 8 Solenoid valve plug with pointed cable

Fig. 9

- Connect the plug with the coil connection and press it firmly onto the connecting housing.

Fig. 10

- Fasten the screw with a suitable screwdriver.

Fig. 11

- Press the plug firmly on again.

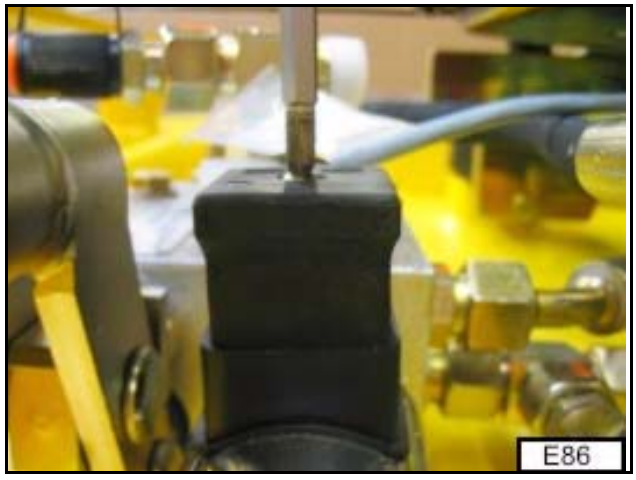


Fig. 12

- Retighten the screw.

X-COM System

The X-COM-SYSTEM, a synthesis of plug connector and series clamp, has grown up to a construction kit for universal system wiring, ever since it was introduced in 1997. All the familiar series clamping functions have thus become pluggable.

X-COM plug clamp

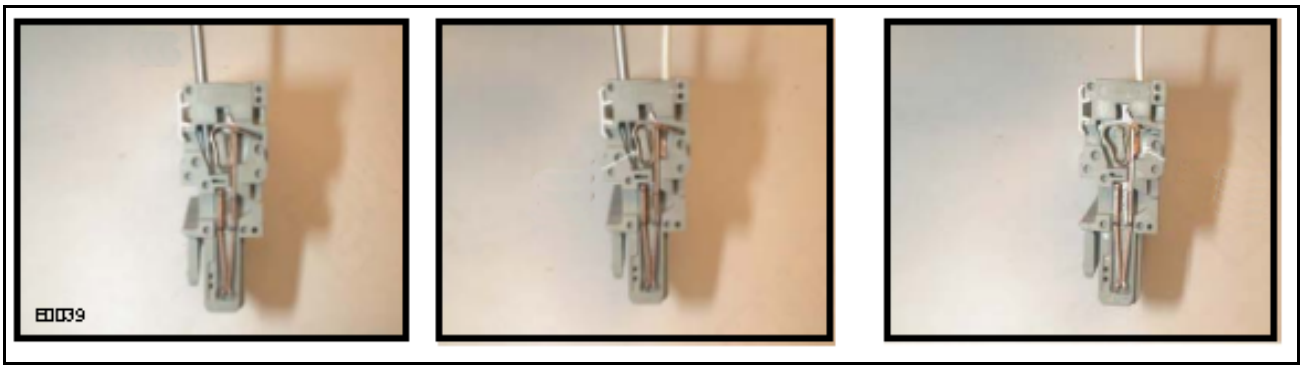


Fig. 5 That's how it works

That's how it works

- Insert a screw driver into the actuating opening until it bottoms.
- Strip 9-10 mm of the lead and insert it into the plug.
- Pull out the screw driver.

⚠ Caution

Perform a pull test on each lead, each of the terminals must withstand a pulling force of 45 N without any difficulties.

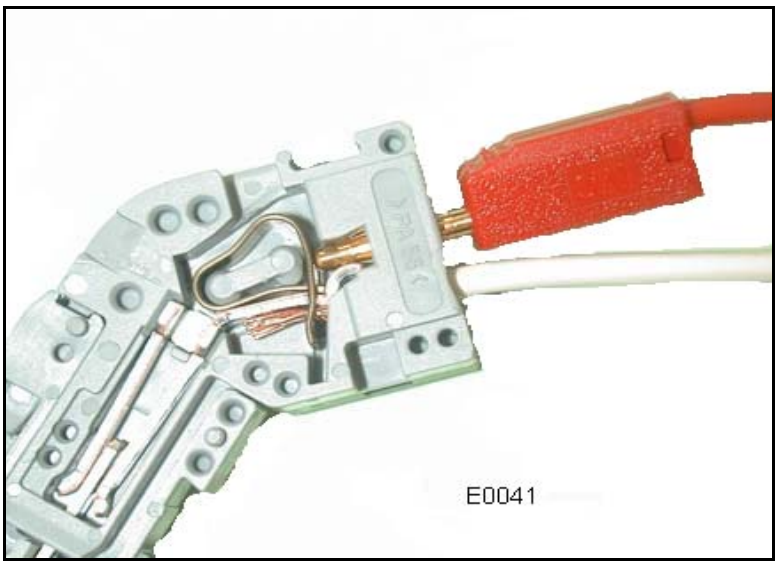


Fig. 6 X-COM plug with measuring cable

- The most reliable measurements on the plug can be made when using the measuring and connecting cable with 2mm plug (see special tools for electrics).

replaced or the following trouble shooting procedure must be performed.

Measuring the charge current

- All plug-and-socket connectors must be free of corrosion and intermittent contact.
- The generator ground connection must be OK.
- During the measurement switch on as many consumers as possible.

1 Attach the clip-on ammeter around the B+ line.

2 Gradually increase the engine speed.

3 The generator current must be at least as high as the total current of all consumers.

Trouble shooting "Starter"

⚠ Caution

So-called jump starting (using an additional external battery) without the battery connected is dangerous. When disconnecting the cables from the poles high inductivities (arcs, voltage peaks) may occur and destroy the electrical installation.

For purposes like e.g. purging the fuel systems, starters may be operated for maximum 1 minute without interruption. Then you should wait for at least 30 minutes (cooling down) until trying again. During the 1 minute starting period this process should not be interrupted.

Starter motors must not be cleaned with high pressure steam cleaning equipment.

The contacts on starter terminals 30, 45, 50 must be protected against unintended shorting (jump protection).

When replacing the starter the ring gear on the engine flywheel must be checked for damage and its number of teeth - if necessary replace the ring gear.

Always disconnect the battery before starting assembly work in the starter area of the engine or on the starter itself.

i Note

The most frequent fault is definitely a fully discharged battery.

If the starter rotates too slowly, either the brushes are partly worn off, or parts of the exciter or armature winding is shorted. In some cases oxidized electric contacts or a soiled ground connection causing extremely high voltage losses in the overall starter system are the cause of problems.

If the starter only emits a clicking sound,- either the magnetic switch is defect / soiled (dismantle and clean))- the main contacts on the magnetic switch are worn off / soiled (scrape off carefully with a file and clean)- the starter motor is defective / soiled (remove armature and clean), cover cleaned, moveable parts with grease.

Frequently a jammed return mechanism is the reason for a starter failure.

Occasionally worn contacts are found on the magnetic return switch

Defects on the actual starter motor including pinion and carbon brushes are very rare.

With a trouble shooting chart the faults in the starter system can be narrowed down. The starter system can only work when many conditions are fulfilled at the same time.

- Immobilizer deactivated?
- Ignition switch OK?
- Travel lever in correct position?
- Emergency stop not actuated?
- Battery sufficiently charged?
- Battery poles OK?
- Main battery fuse OK?
- Main battery switch closed?
- Main starter cable (terminal 30) OK?
- Starter control cable (terminal 50) OK, voltage drop?
- Ground cable OK?
- Switching of magnetic switches OK?

The sequence of these tests is generally of no significance. It mainly depends on:

- the experience of the specialist
- the failure probability of the component to be tested and the testing effort for the respective part.

Only if all criteria mentioned above are OK, the fault must be in the starter itself. In this case it can be repaired or replaced.

4.31 Engine oil pressure monitoring

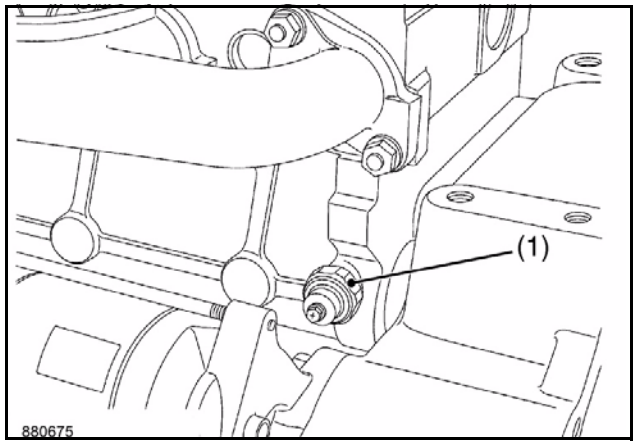


Fig. 1 (1) Oil pressure switch

The control light (c, red) (Fig. 2) flashes when the engine pressure is too low, the engine will be shut down 10 seconds later.

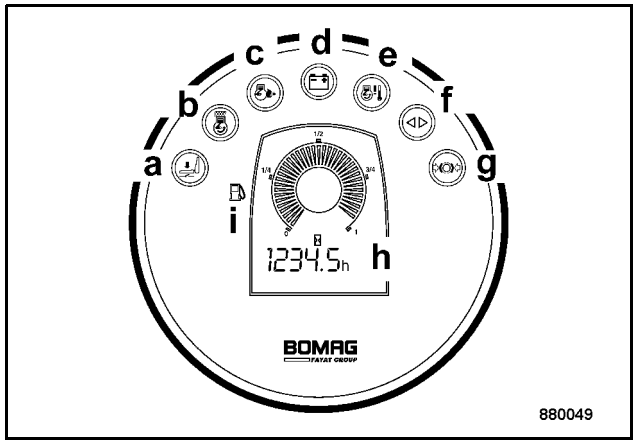


Fig. 2 Instrument cluster

4.32 Coolant temperature monitoring

Fig. 1 Temperature switch

When the coolant temperature is exceeded the warning buzzer will sound, the control lamp (e, red) (Fig. 2) will flash and the engine will be shut down after 2 minutes.

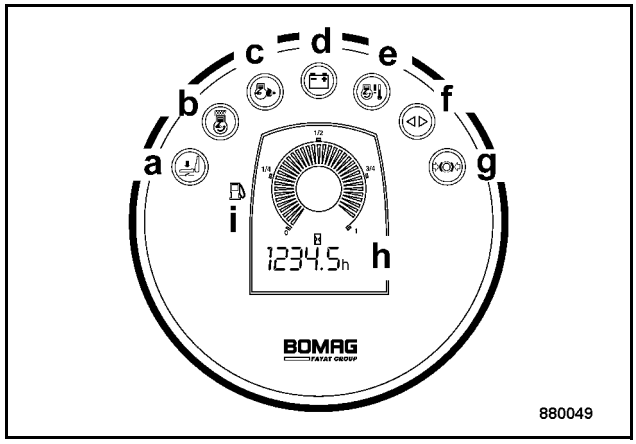


Fig. 2 Instrument cluster

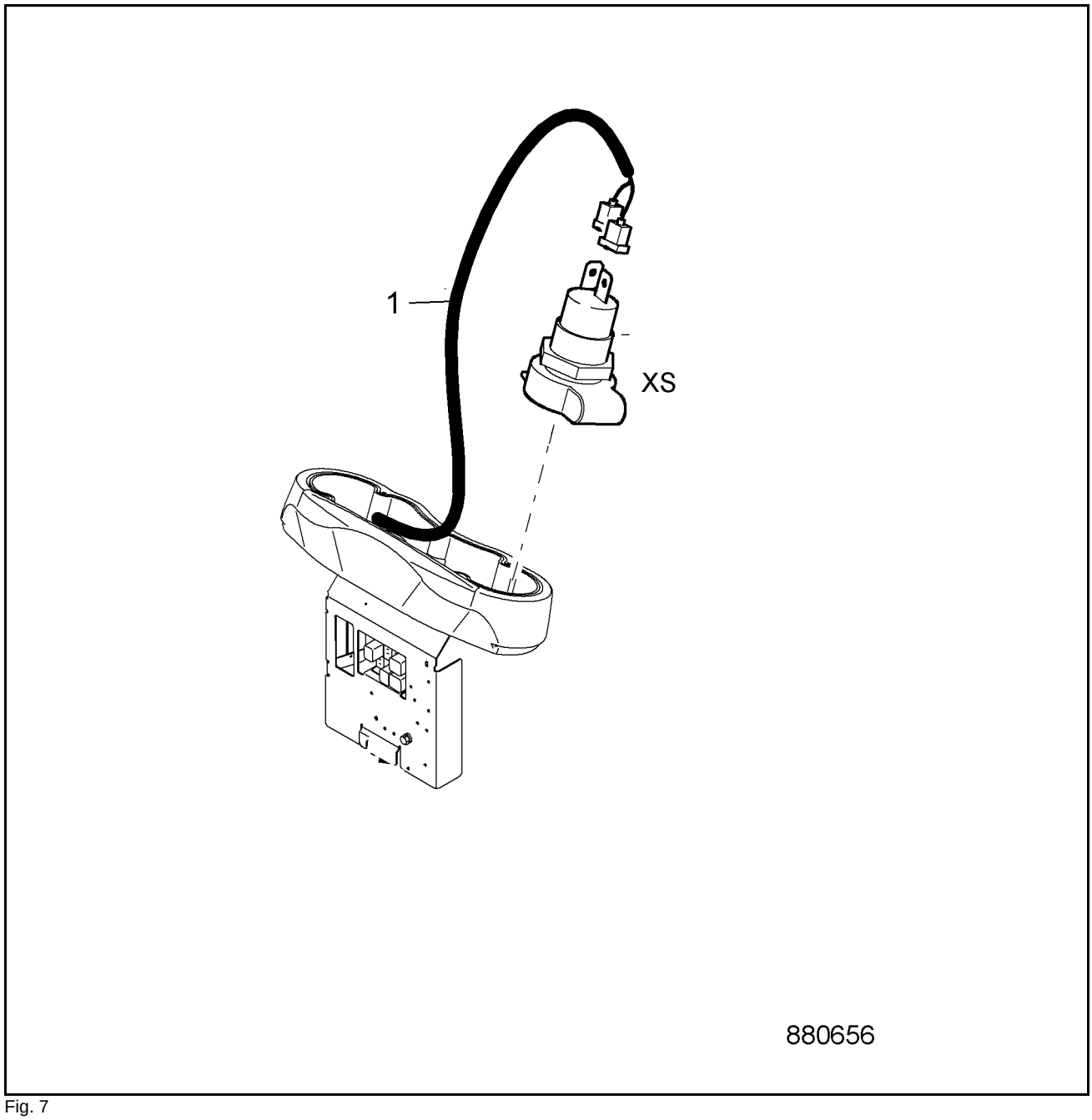


Fig. 7

1 = Wiring loom, socket

XS = Socket

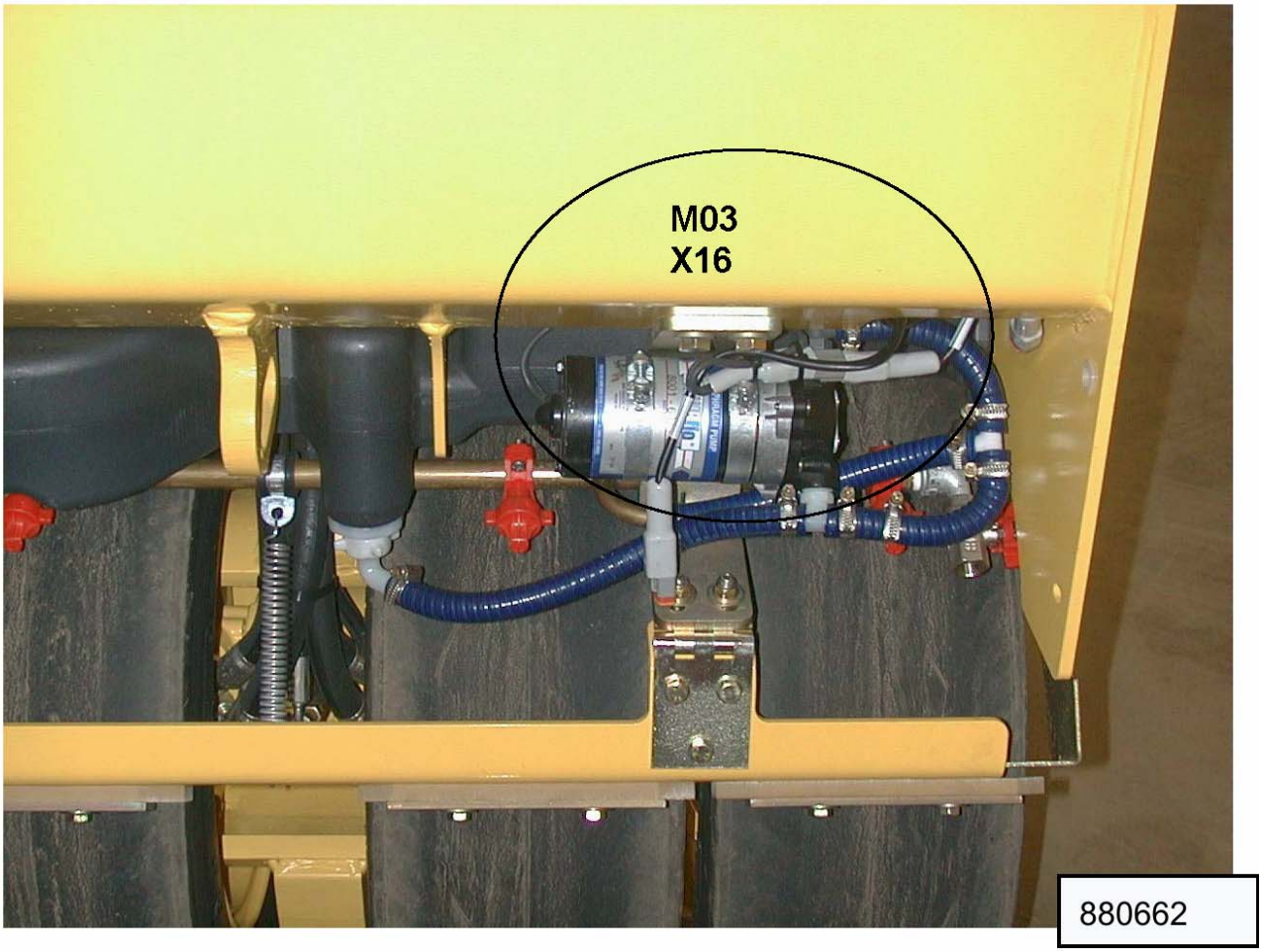
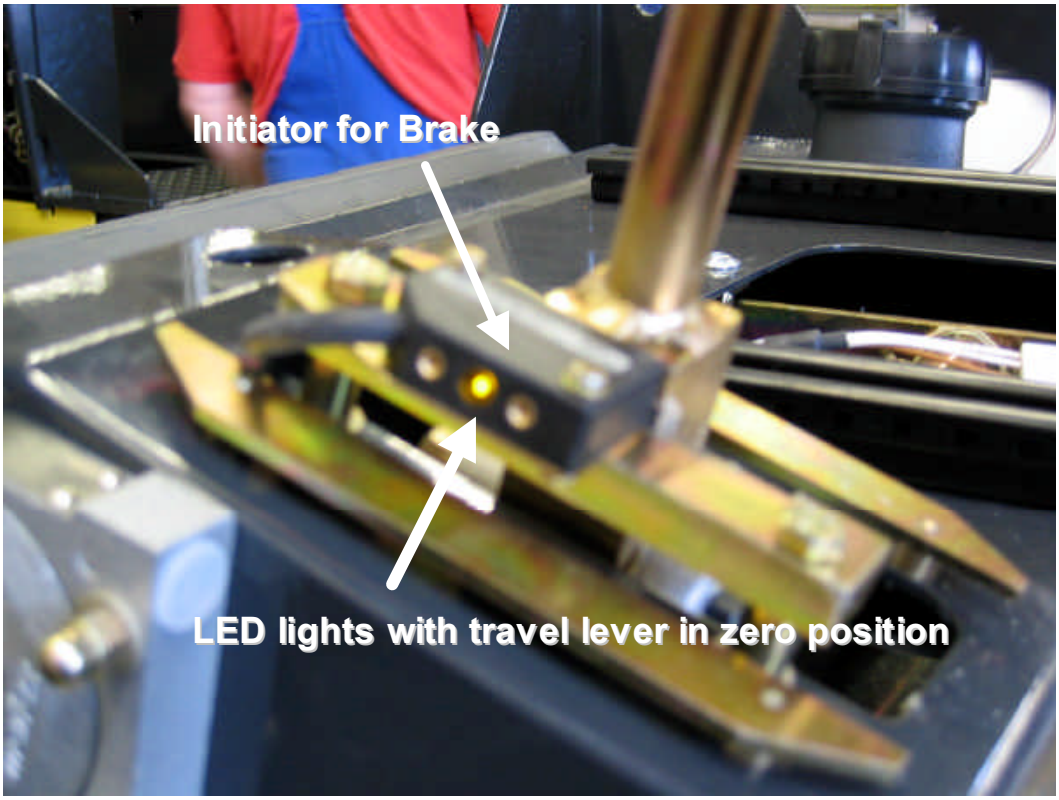


Fig. 7

BOMAG Service Training

Neutral position of angle sensor

The zero point of the angle sensor is automatically adjusted via the module. Once the travel lever is in neutral position the brake initiator (on the travel lever) (Pin 12) is actuated. The zero position is thereby recognized. Should the brake initiator be defective or a cable is broken the last value is set as default for the zero point.
If LED2 (on the module) flashes in intervals of one second and LED3 lights permanently, the zero point is reached.



6 Service Training

BOMAG Service Training

		BW 100/120 AD/AC-4
Travel motor (drums)		
Manufacturer		Poclain
Type		MK 04
Number		2
System		Radial piston motor
Displacement	cm³/rev.	408
Brake		yes

		BW 100/120 AC-4
Travel motor (wheels)		
Manufacturer		Poclain
Type		MSE 02
Number		2
System		Radial piston motor
Displacement	cm³/rev.	255
Brake		yes

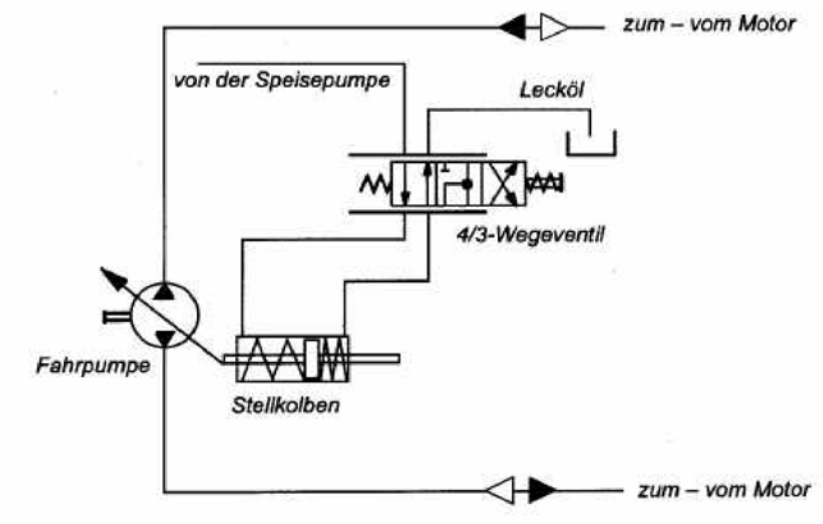
		BW 100/120 AD/AC-4
Vibration pump		
Manufacturer		Bosch
Type		HYZ 11
System		Gear
Displacement	cm³/rev.	11
Starting pressure	bar	210
Operating pressure	bar	100 +/-60 bar (soil dependent)

BOMAG Service Training

Fault	Possible cause	Remedy
Engine does not turn regularly	• Fuel filter clogged or soiled	Replace
	• Air filter clogged	Clean or replace
	• Fuel loss caused by loose locking but on injection line	Tighten nuts
	• Faulty function of injection pump	Repair or replace
	• Incorrect injection valve opening pressure	Adjust
	• Injection nozzle sticking or clogged	Repair or replace
	• Fuel overflow line clogged	Clean
	• Malfunction of regulator	Repair
White or blue exhaust gas	• Too high engine oil level	Correct the oil level
	• Piston ring worn or sticking	Replace
	• Incorrect injection setting	Adjust
	• Insufficient compression	Check compression pressure
	• Cylinder head gasket defective	Repair
Black or dark grey exhaust fumes	• Overload	Reduce the load
	• Poor fuel quality	Use specified fuel
	• Fuel filter clogged	Replace
	• Air filter clogged	Clean or replace
Insufficient power	• Incorrect injection setting	Adjust
	• Moving engine parts possibly seized	Repair or replace
	• Uneven fuel injection	Repair or replace the injection pump
	• Insufficient nozzle injection	Repair or replace the nozzle
	• Loss of compression	Replace cylinder head gasket, tighten cylinder head screws, glow plug and nozzle holder
Excessive lubrication oil consumption	• Oil scraper ring worn or sticking	Replace
	• Piston ring groove worn	Replace piston
	• Valve stem and guide worn	Replace
	• Crankshaft bearing and crank journal bearing worn	Replace
Fuel mixed with lubrication oil	• Injection pump plunger worn	Replace pump elements or pump
Water mixed with lubrication oil	• Cylinder head gasket defective	Replace
	• Cracks in crankcase or cylinder head	Replace
Lubrication oil in coolant	• Cylinder head gasket defective	Replace

BW 100/120 AD Series 4
BW 100/120 AC Series 4 C 9

The feedback lever controls the pilot oil portioning valve so that the swashing angle remains unchanged, until the introduction of a new control command.



Control actuated

When the 4/3-way valve is in neutral position, the pressure values in both control chambers are identical (case pressure = max. 3 bar).

If the solenoid coil is o.k., check the solenoid valve.

> Connect a 60 bar pressure gauge to the pressure test port

> Start the engine and move the travel lever out of neutral.

> Read the pressure gauges.

Nominal value: approx. charge pressure 24 bar

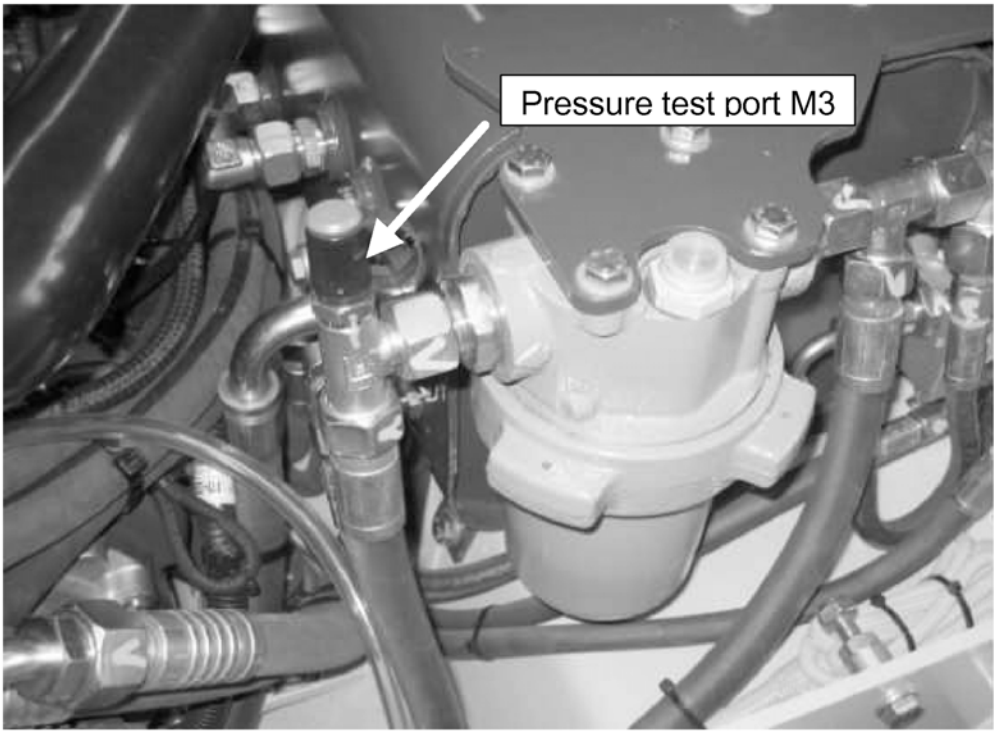


Fig. 2

Insufficient travel power

With this fault the engine speed must be checked first.

Nominal value: **Stage 1 = 2250 rpm**
Stage 2 = 2700 rpm

If the nominal speeds are not reached perform trouble shooting on the engine.

If the speed values are correct check the travel control.

> Detach the control cable

> Shift the pump control lever forward and reverse and check whether the pump swashes to maximum displacement.

> Check whether the travel cable is worn.

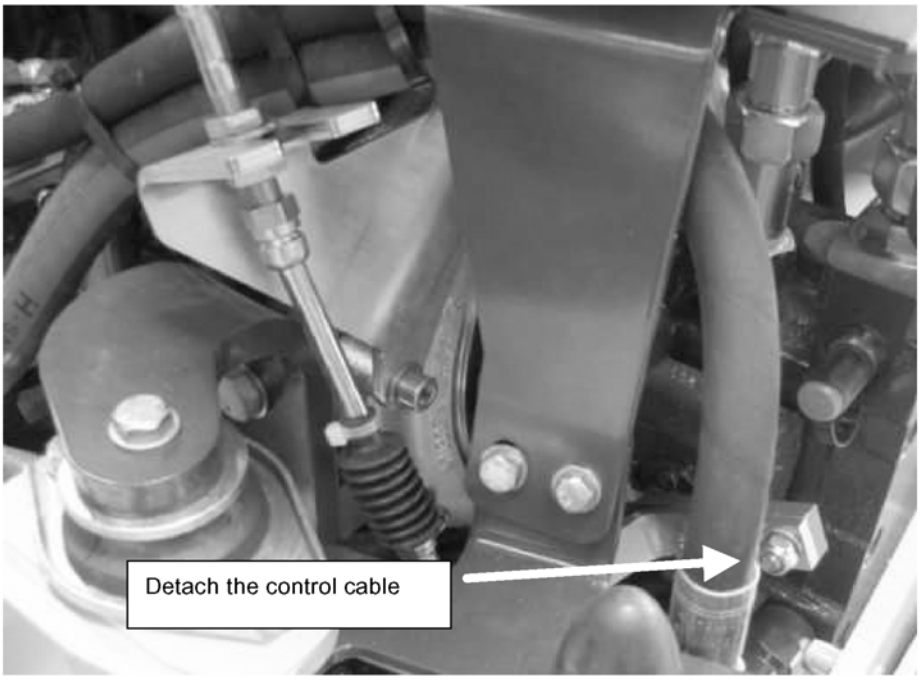


Fig 12:

BOMAG Service Training

Vibration motor

On the machines of series BW 100/120 AD-4 and BW 100/120 AC-4 the exciter shafts inside the drums are directly driven by vibration motors.

These vibration motors are gear motors which are directly connected with the exciter shafts via Bowex couplings.

The design of these vibration motors is almost identical with the design of the vibration pump. A more detailed description of the design is therefore not required.

On the BW 100/120 AD-4 the vibration motors are connected in series.

The standard equipment of the machine includes a shut-off valve for the rear drum vibration. When operating a ball valve the oil flow is directly returned via the control valve block to the tank after the first motor.

BOMAG Service Training

Steering valve

The steering valve block consists mainly of distributor valve, measuring pump, steering pressure relief valve and the shock valves. When turning the steering wheel the oil flow from the pump is directed through the distributor valve to the measuring pump. The measuring pump, in turn, directs the oil flow through the distributor valve to the corresponding side of the steering cylinder. The machine is fitted with a so-called “Open Centre” steering valve, i.e. in neutral position of the valve the incoming oil flows through the tank return bore directly to the charge ports for the closed travel circuit.

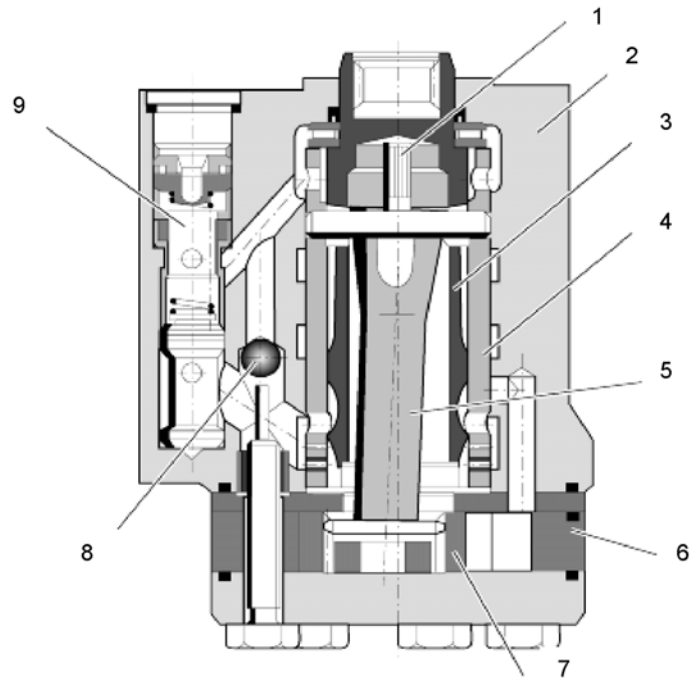


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Fig. 3:

1	Neutral setting springs	2	Housing
3	Inner spool	4	Outer spool
5	Universal shaft	6	Gear ring
7	Gear	8	Check valve
9	Pressure relief valve		

7.2 Flushing - general

Solid particles in the circuit will very quickly cause damage to machine components.

Changing a component

⚠ Caution

Always flush the complete oil circuit after you have replaced a component.

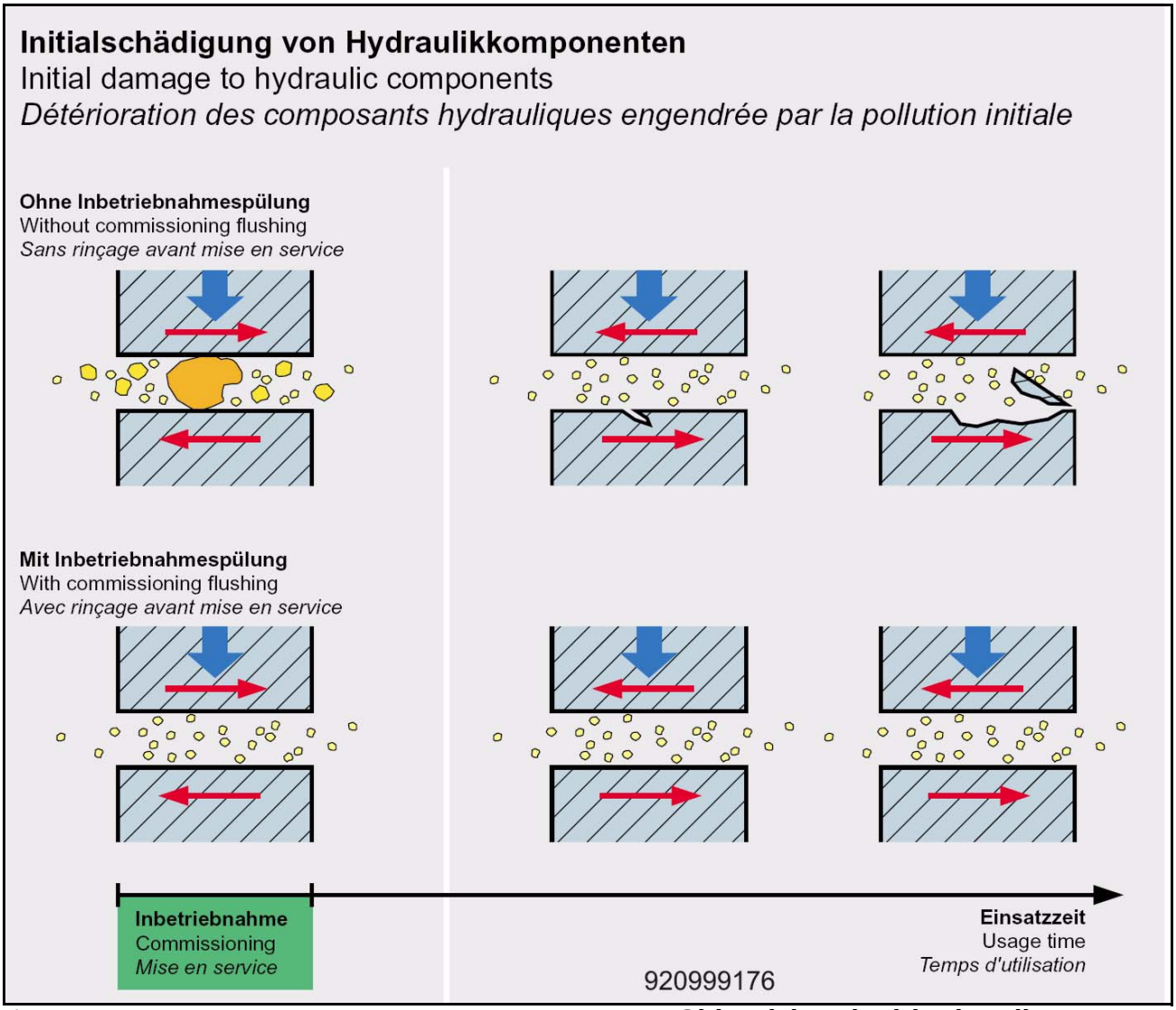


Fig. 1

Effect of contamination

Coarse particles (> 15 µm)

Sudden failure of components.

Fine particle contamination (5 – 15 µm)

Wear of components, internal leaks, inaccurate controlling behaviour, blockage of valves.

Extra fine particle contamination (< 2 – 5 µm)

Silting of oil, accelerated aging of oil, corrosion.

Water in oil

Increased wear, accelerated aging of oil.

Chips (abrasion) in the oil

- Open and clean all components in the oil circuit, replace if necessary.
- Clean all high pressure hoses in the oil circuit, replace if necessary.
- If abrasion is found in the travel circuit you should also flush the vibration circuit.
- If abrasion is found in the vibration circuit you should also flush the travel circuit.

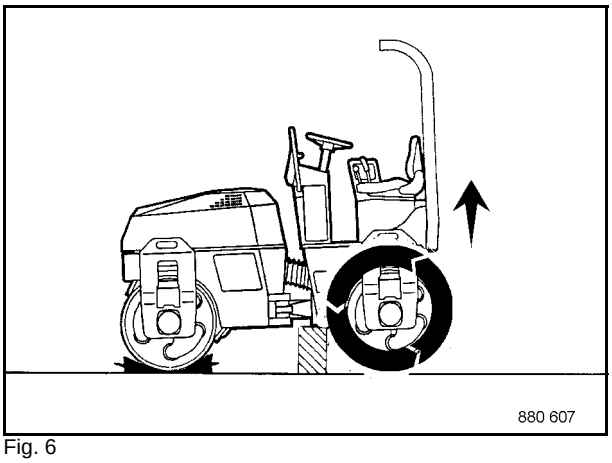


Fig. 6

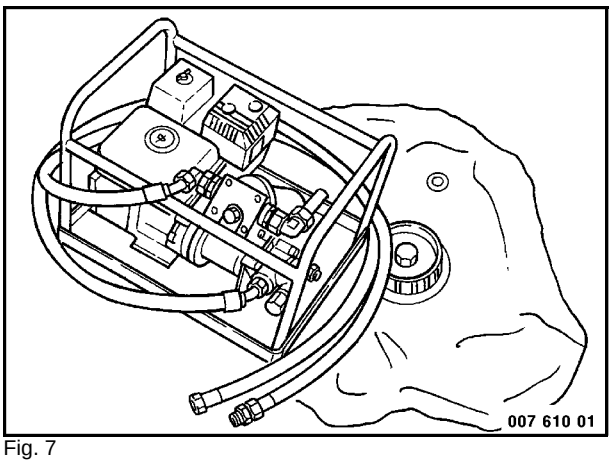


Fig. 7

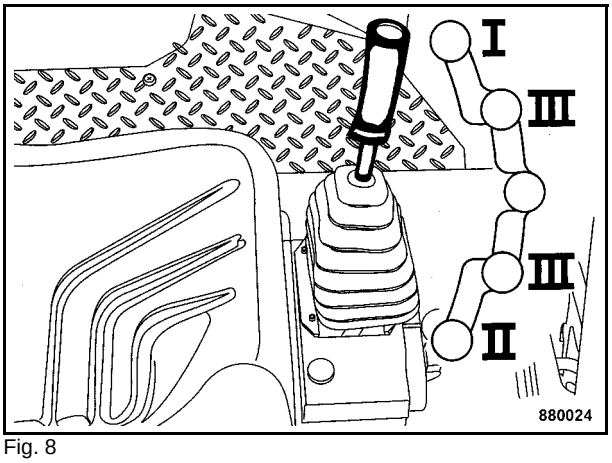


Fig. 8

Flushing the rear drum drive motor

⚠ Danger

Danger of accident!

The drum must rotate freely.

9. Jack up the rear of the machine, so that the drum can rotate freely.
10. Secure the front drum with chocks .

i Note

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

⚠ 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.

11. Start the engine, run it with maximum speed and shift the travel lever to travel direction forward.
12. Run the flushing procedure for approx. 10 minutes. During this process keep changing the pump flow by shifting the travel lever several times between full and halve reverse travel.
13. Shut down the engine.
14. Remove the flushing filter and reconnect the high pressure lines.

Bleeding the travel circuit

i Note

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

Keep circulating the tank content.

15. After completing the bleeding process circulate the tank content with the filling and filtering unit for another 15 minutes.

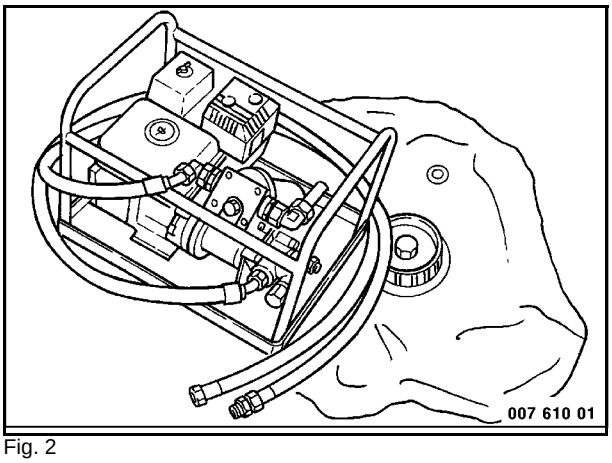


Fig. 2

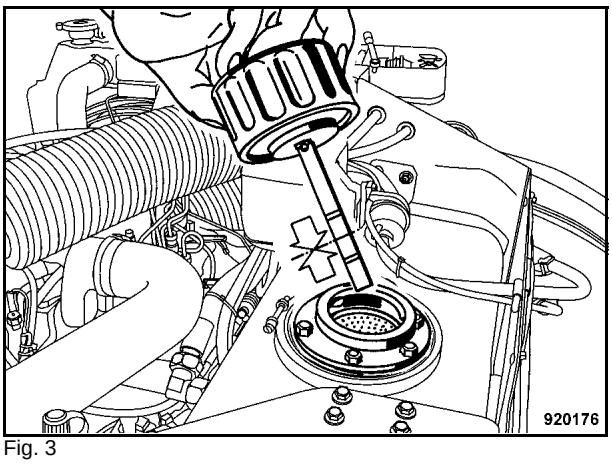


Fig. 3

i Note

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

4. Start the engine and run it with maximum speed.
5. Flush the circuit for approx. 10 minutes, thereby switch the vibration on and off at intervals of approx. 30 seconds.
6. Shut down the engine.
7. Remove the flushing filter and reinstall the vibration motors.

Function test

8. Check the hydraulic oil level in the tank, fill up if necessary.
9. Test drive.
10. Check all ports and connections for leak tightness (visual inspection).

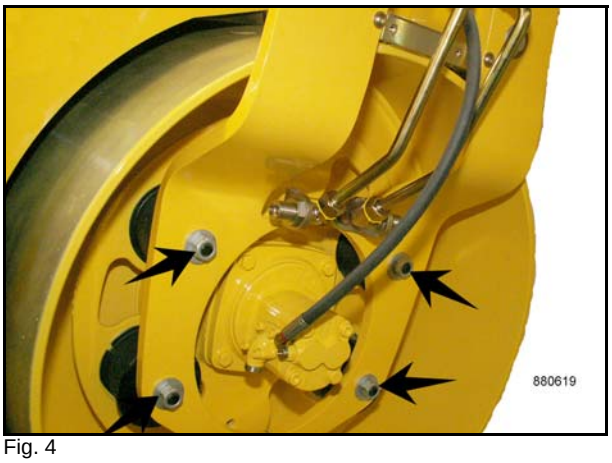


Fig. 4

8. Unscrew the nuts and remove the support leg (Fig. 4).

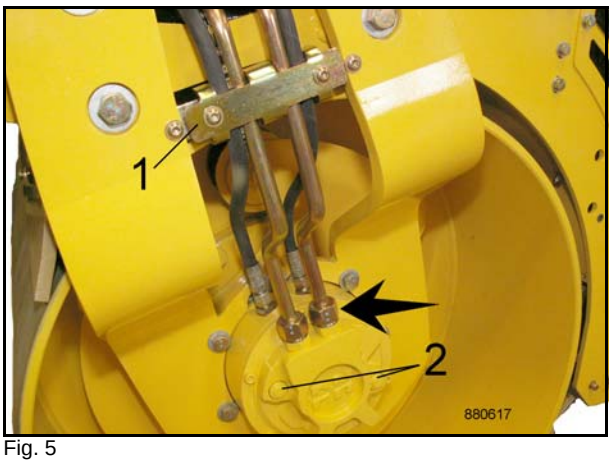


Fig. 5

Travel motor side

9. Disassemble the bracket 1 (Fig. 5).
10. Mark and disassemble hydraulic hoses and pipes from the drum drive motor.

Environment

Catch running out hydraulic oil and dispose of environmentally.

11. Close the connections with plugs.

Releasing the mechanical brake

12. Remove both plugs (2).
13. Compress springs (3) and insert the screws 1 (Fig. 6) into the threaded bore of the brake piston (4), until the screw head touches the valve cover (5).

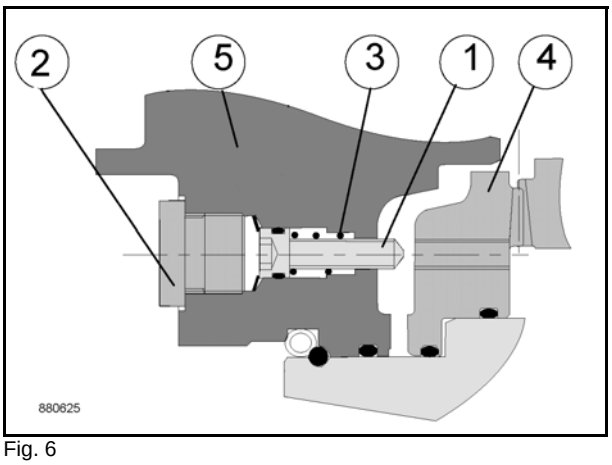


Fig. 6

Note

Tighten both screws (1) alternately and in steps (approx. 2 revolutions).

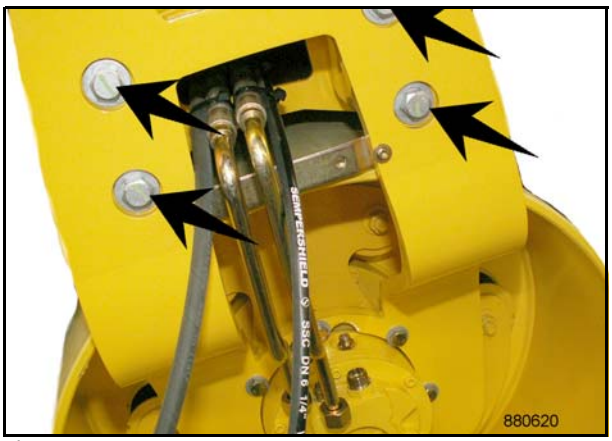


Fig. 7

14. Unscrew the fastening screws (Fig. 7) and roll the drum with travel motor and support leg forward out from the machine.

Note

If necessary raise the machine further at the front, so that the drum can be rolled out.

8.5 Assembling the drum

Installing the bearing cover

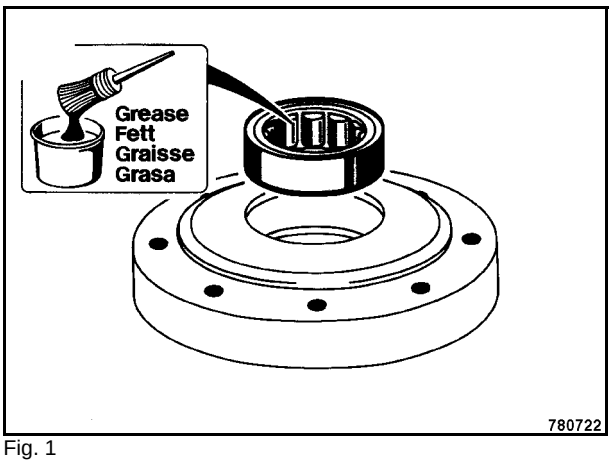


Fig. 1

1. Press the new bearing (Fig. 1) down to full contact.
2. Fill approx. 30g of lithium saponified high pressure grease into the gap between the roller drums and another 30 g into the grease chamber of the bearing cover.

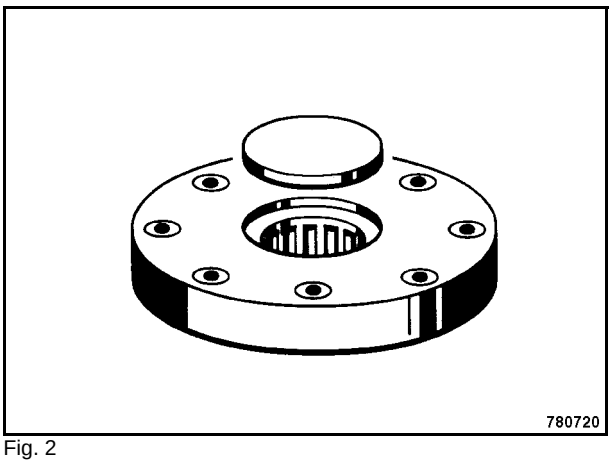


Fig. 2

3. Attach the cap (Fig. 2).

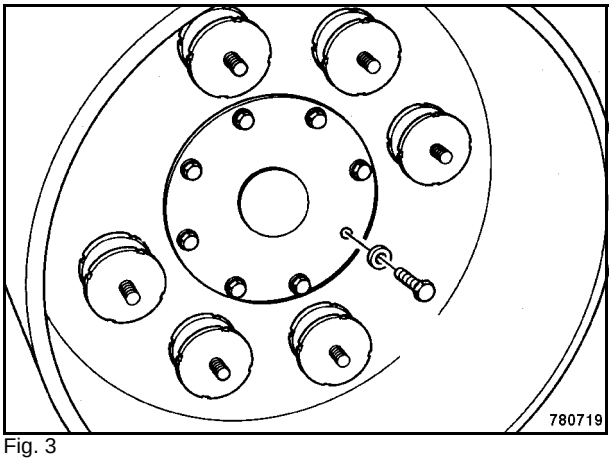


Fig. 3

4. Assemble the bearing cover (Fig. 3).

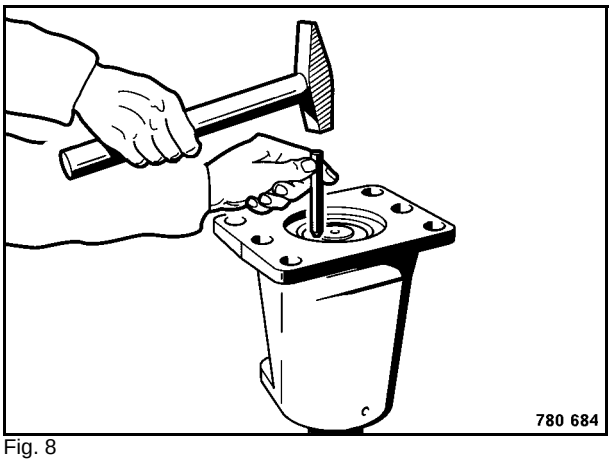


Fig. 8

13. Secure the tensioning nut with two prick-punch locks opposite each other (Fig. 8).

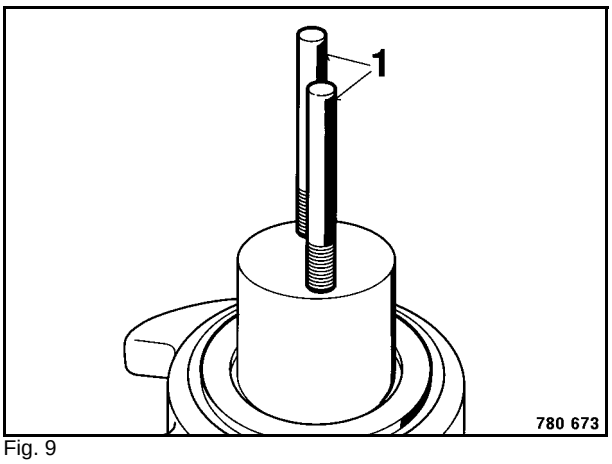


Fig. 9

14. Insert two threaded bars 1 (Fig. 9) M16 x 200 into the oscillating axle.

i Note

The threaded bars are needed to guide the cross member during assembly.

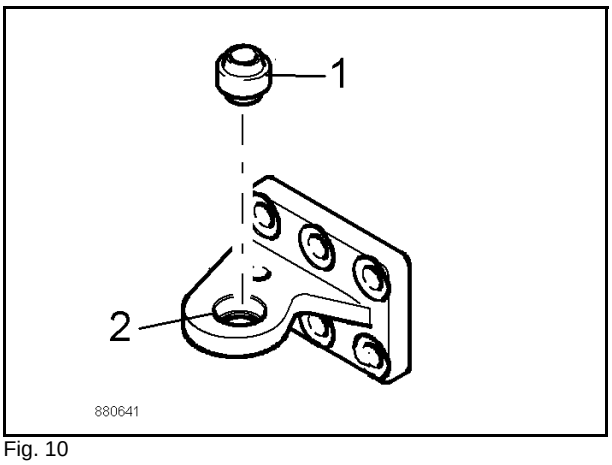


Fig. 10

⚠ Caution

The drift punch should only contact the outer race of the rocker bearing, as otherwise the bearing will be destroyed!

15. Knock the rocker bearing 1 (Fig. 10) into the cylinder eye (2).

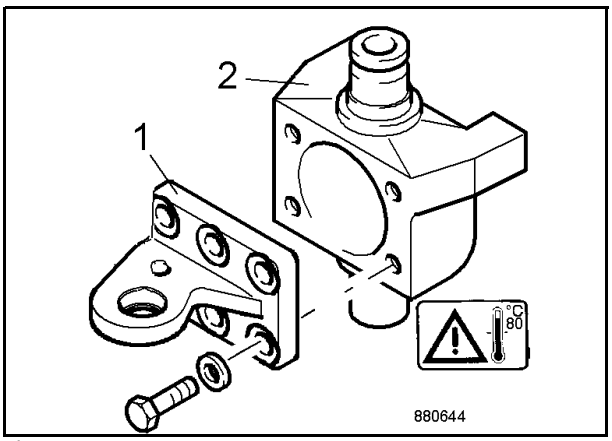


Fig. 11

⚠ Danger

Wear protective gloves.

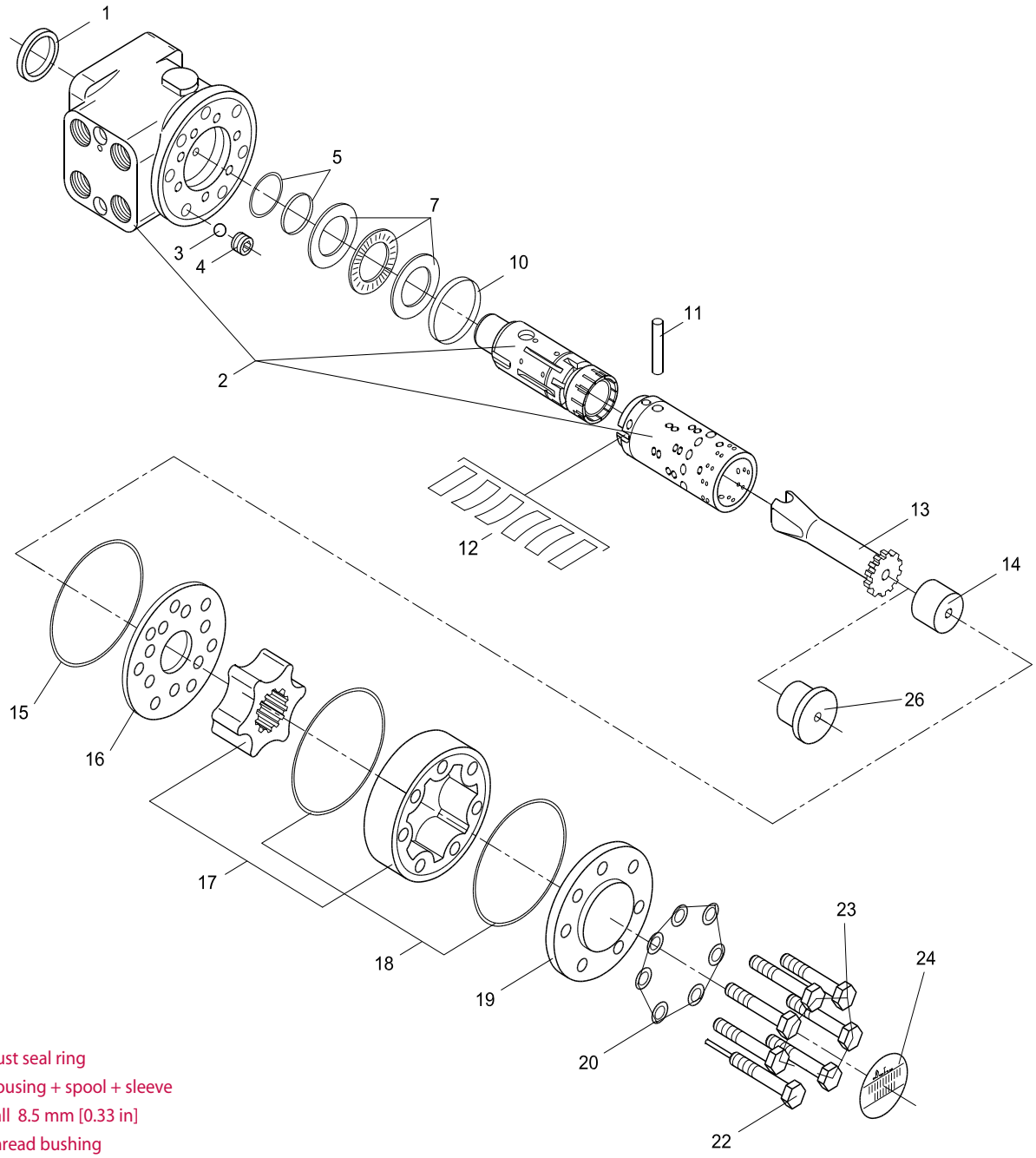
16. Heat the cross member 2 (Fig. 11) up to approx. 80 °C.

i Note

Observe the installation position (see illustration)!

17. Mount the cylinder eye (1) with the four outer screws to the cross member (2).

Exploded View OSPB



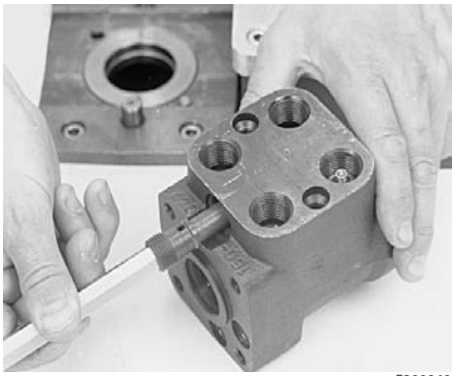
150-385.10

1 Dust seal ring
2 Housing + spool + sleeve
3 Ball 8.5 mm [0.33 in]
4 Thread bushing
5 O-ring with kin-ring or Roto Glyd
7 Bearing assembly
10 Ring for springs
11 Cross pin 6 • 41 mm [0.24 • 1.61 in]
12 Neutral position springs
13 Cardan shaft
14 Spacer
15 O-ring 80,5 • 1,5 mm [3.17 • 0.06 in]
16 Distributor plate
17 Gearwheel
18 O-ring 75.92 • 1,78 mm [2.99 • 0.07 in]
19 End cover
20 Washer 8.2 • 11,9 • 1.0 mm [0.32 • 0.47 • 0.04 in]
22 Special screw
23 Screw
24 Name label
26 Spacer

Dismantling the Pressure Relief Valve (Cartridge)

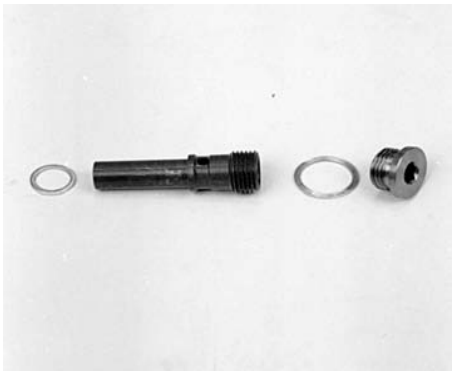
Dismantling the Pressure Relief Valve (Cartridge) for OSPC LS / OSPC LSR

Screw out the pressure relief valve using and 8 mm ⎔ hexagon socket spanner. Remove the seal ring. If the valve is defective it must be replaced.



F300969

The pressure relief valve is now dismantled.

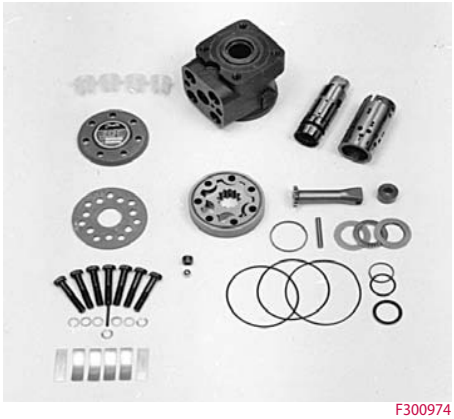


F300970

The steering unit OSPB is now completely dismantled.

F300973

The steering unit OSPB LS is now completely dismantled.



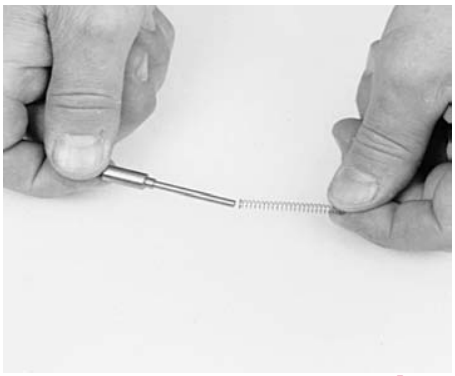
F300974

Installation Instructions for Lip Seal

Place a new pin in the same two holes.

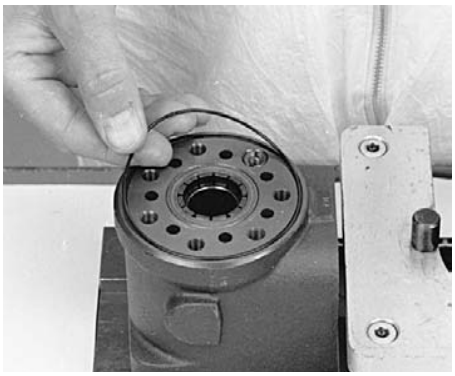
F300996

In some cases a spring has to be fitted (see page 4 pos. 38) on the pin before it is placed in the housing.



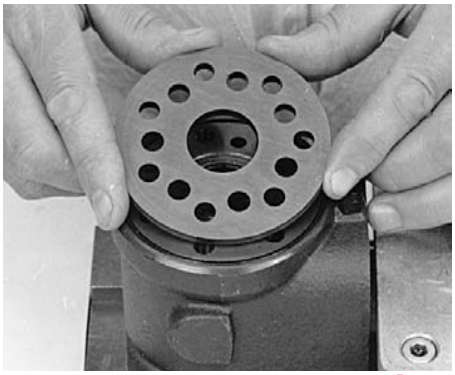
F300997

Grease the o-ring with mineral oil approx. viscosity 500 mm^2/s [SUS] at 20°C [68 °F].



F300998

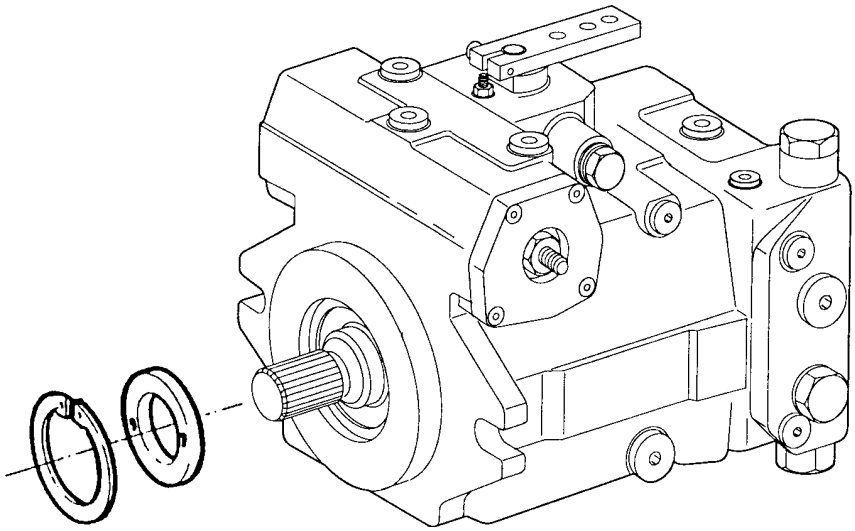
Place the distributor plate so that the channel holes match the holes in the housing.

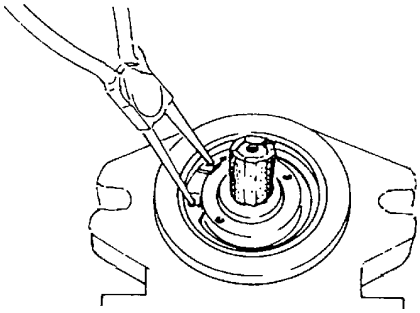


F300999

10.2 Travel pump

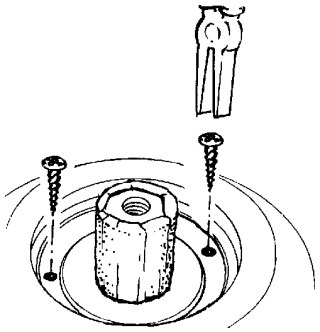
Triebwelle abdichten
Sealing of the drive shaft





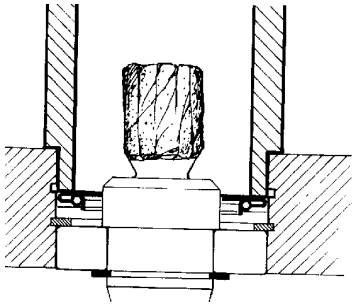
Triebwelle abkleben.
Sicherungsring ausbauen.

Protect the drive shaft (e.g. masking tape).
Remove the retaining ring.



Blechschraube in die mit Gummi gefüllten Löcher eindrehen.
Mit Zange WDR herausziehen.

Screw the metal screws into the holes that are fitted with rubber.
Withdraw the shaft seal using pliers.

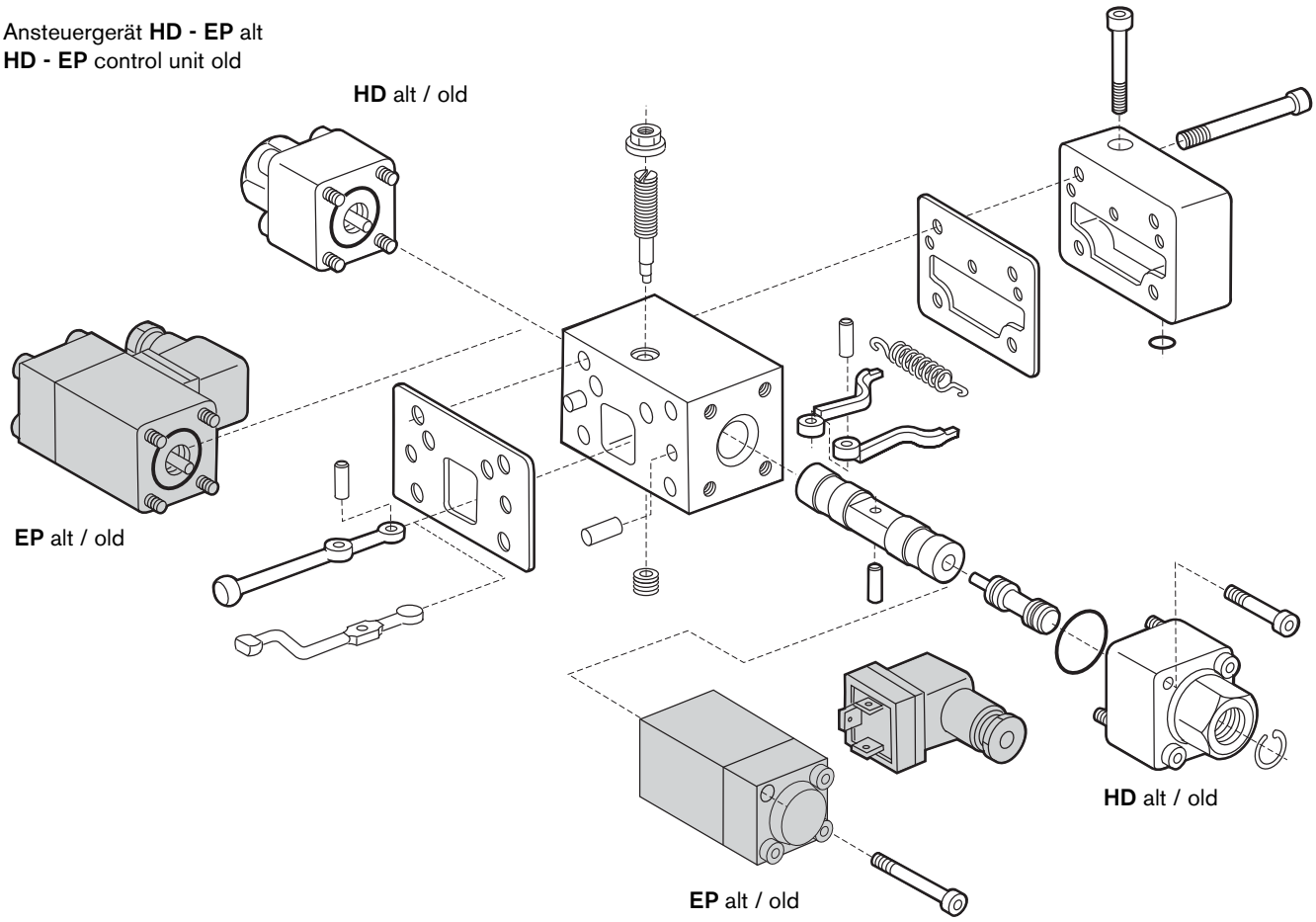


Wellendichtring mit Buchse auf Anschlag einpressen.
Zwischen Dicht- und Staublippe, Wellendichtring leicht einfetten.

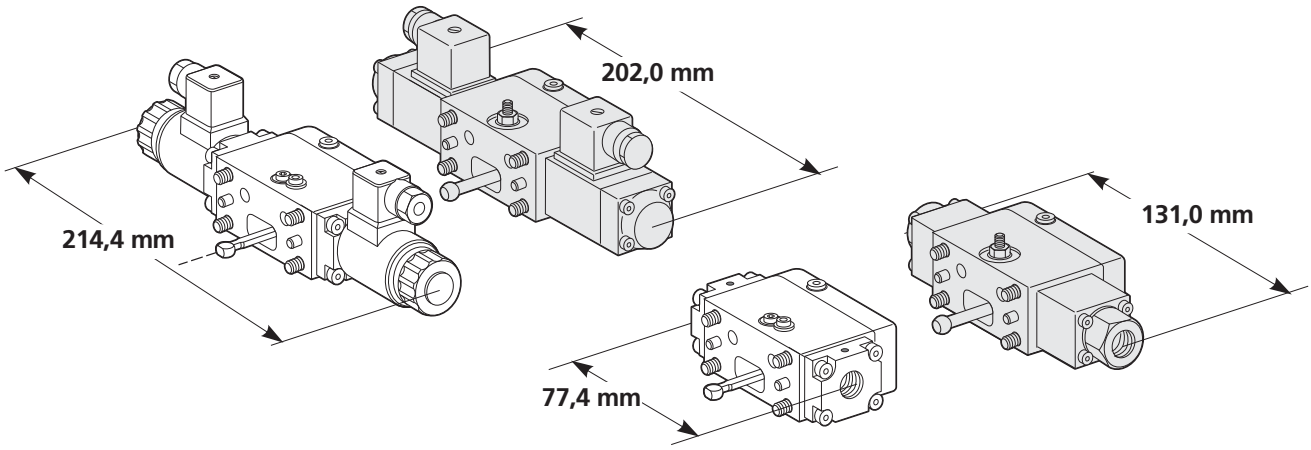
Press-in shaft seal with bush to stop.
Lightly grease the seal, dust lips and shaft seal ring.

Ansteuergeräte
Control units

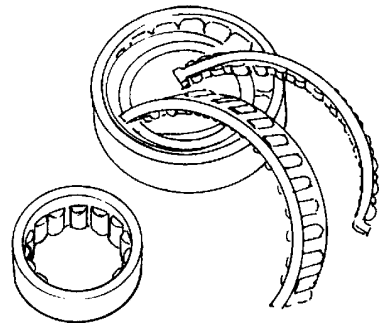
Ansteuergerät **HD - EP** alt
HD - EP control unit old



Neues Ansteuergerät **HD - EP**
New **HD - EP** control unit old

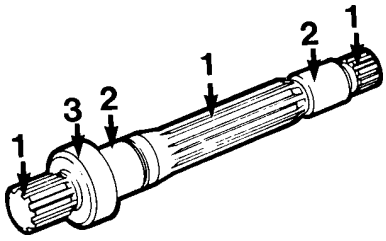


Überprüfungshinweise
Inspection notes



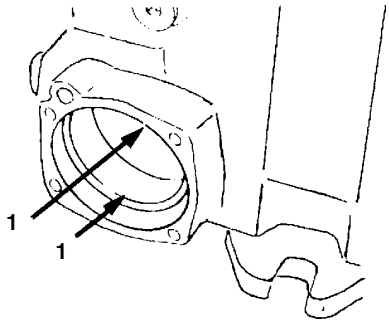
Alle Lager erneuern.

Replace all bearings.



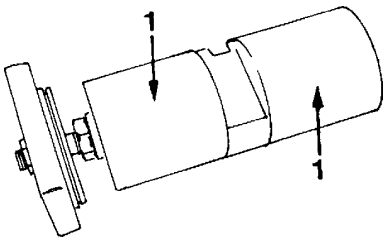
Kontrolle!
1. Verzahnung, ausgeschlagen, Passungsrost.
2. Lauffläche.
3. Einlaufrillen vom Wellendichtring.

Check!
1. Splines, wear steps, corrosion.
2. Running surfaces.
3. Grooves made by the shaft seal.



Stellkolbenlaufbüchse (1) riefenfrei, nicht ausgelaufen.

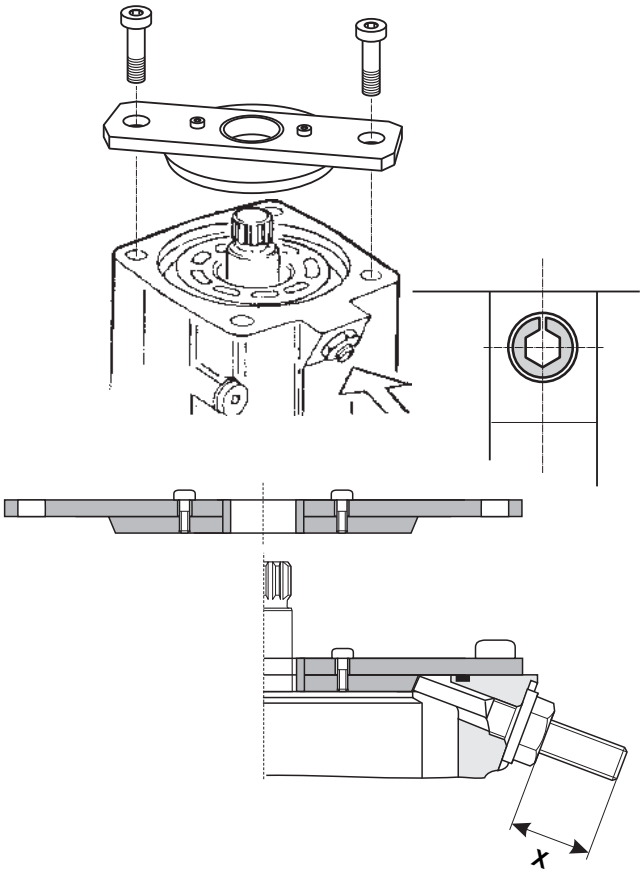
Check that the control piston guide bush (1) is free of grooves and is free of wear.



Kontrolle!
Stellkolben (1) riefenfrei.

Check!
Control piston (1) is not scored.

Triebwerk einbauen DA
Installation of the rotary group DA



Bei Ausführung mit Verdrillschraube:
Zylinder nach unten drücken - Verdrillschraube auf Maß x einschrauben.
* Kerbe in Montageposition.

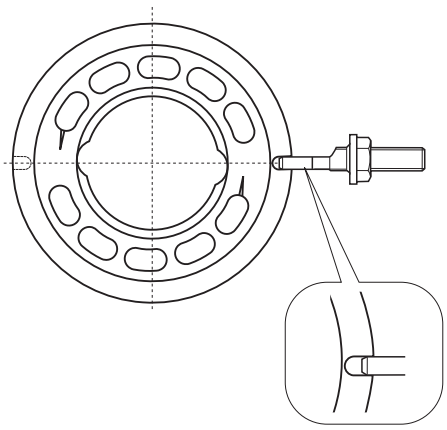
For the version with eccentric screw:
Push the cylinder down - screw in the eccentric screw in the eccentric screw until dimension x is reached.
* groove in assembled position.

⚠ Maß X mit Vorrichtung neu ermitteln.
Zylinder mit Vorrichtung nach unten drücken.
Verdrillschraube bis Anschlag einschrauben - Maß X - Kerbe in Montageposition drehen.

⚠ Re-identify dimension X with device.
Push cylinder down with device.
Screw in eccentric screw till stop - Dimension X - Turn groove in assembly position.

Ident. Nummer Hilfsvorrichtung/
Ident- No. Auxiliary device

NG / Size 28 = I 2 775 075
NG / Size 45 = I 2 774 882
NG / Size 63 = I 2 775 076

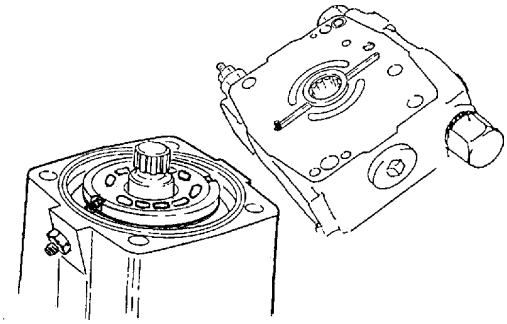


Steuerplatte Rechtslauf mit Verdrillschraube

Control plate, clockwise rotation with eccentric screw

⚠ Max. Einschraubtiefe beachten.
Einstellhinweis beachten

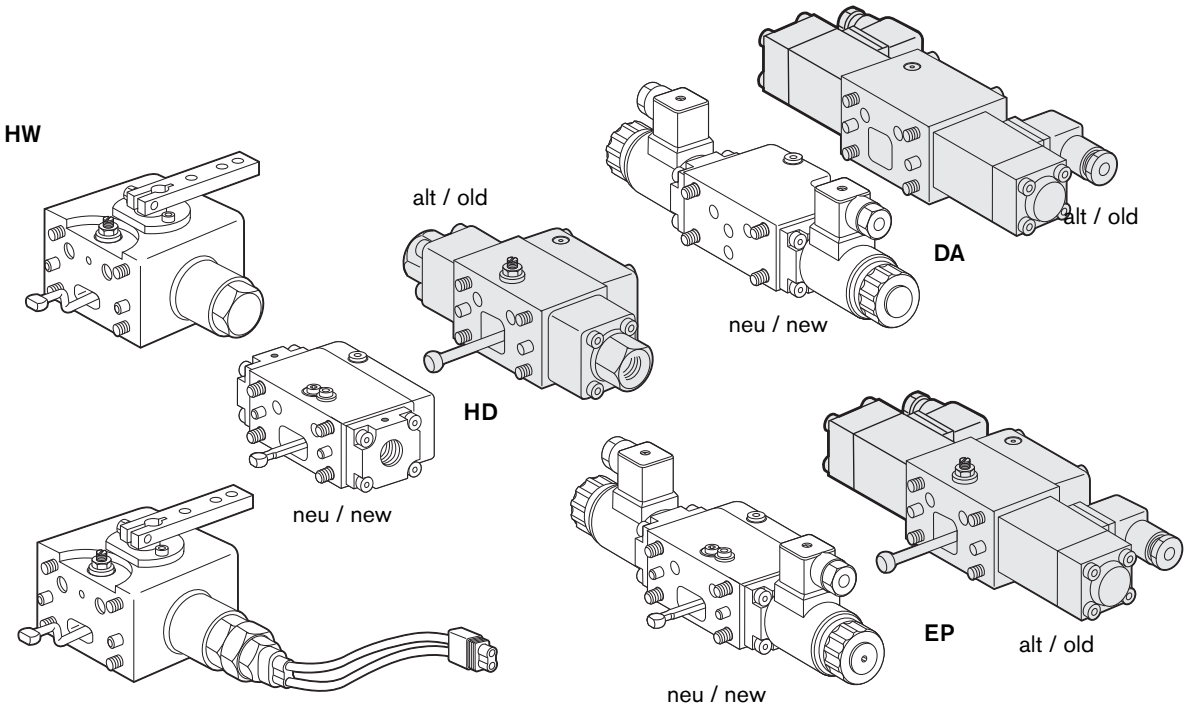
⚠ Max. depth - take into account!



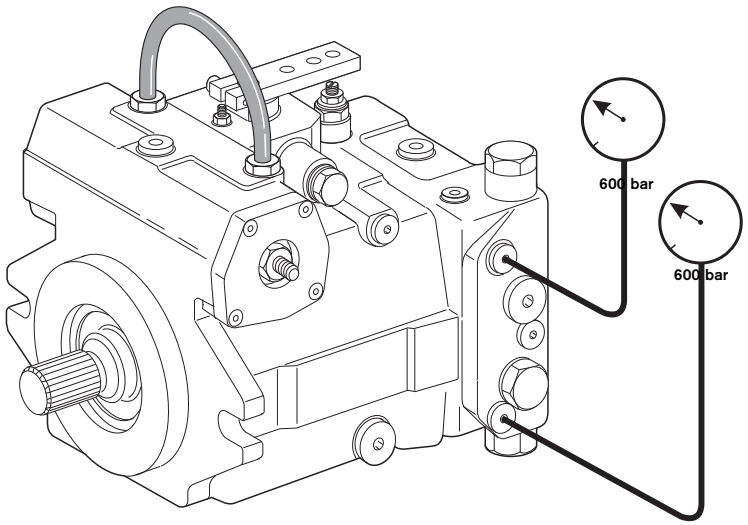
Lagerichtig aufsetzen.
Bei DA Steuerplatte auf Zylinderfläche legen.

Place in correct position.
For the DA version, place control plate on the cylinder surface.

Einstellhinweise - Mechanische "Nullage"
Adjustment instructions - Mechanical "zero position"



HW mit Nullagenschalter
HW with zero position switch



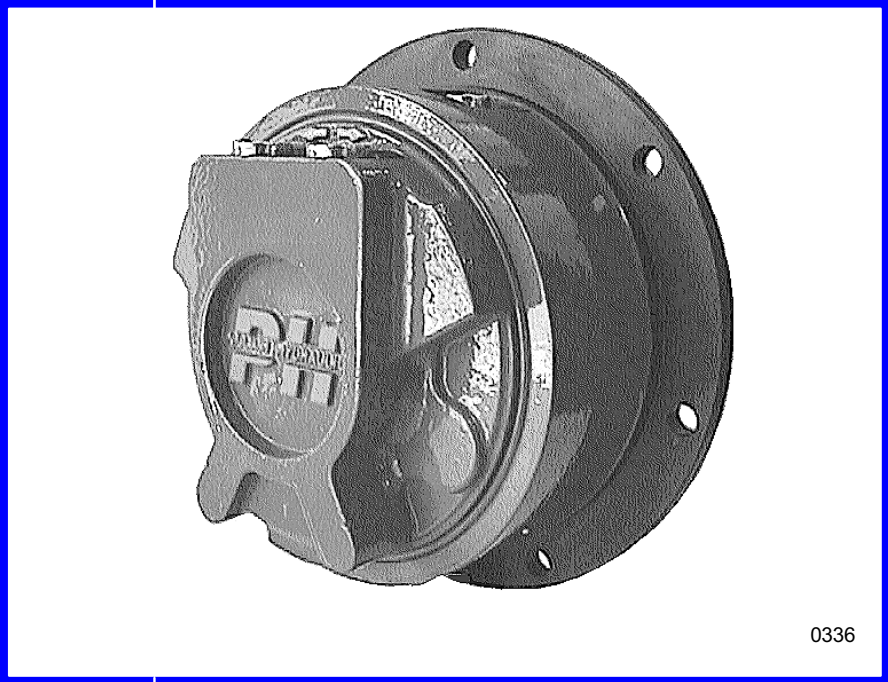
Achtung!
Sicherheitsbestimmungen beachten!
Mit Schlauch NW6 beide Stellkammern verbinden. Vermeidung von Restsignal aus hydraulischer Nullage.
Manometer an M_A und M_B anschließen.
Nullage so einstellen, daß bei blockiertem Antrieb beide Manometer auf gleichem Druckwert stehen.
Hinweis:
Totband der Nullage - vermitteln.

Attention!
Observe safety regulations!
Connect both control chambers with a nominal size 6 hose. Avoidance of residual signals from hydraulic zero position.
Connect pressure gauges to M_A and M_B. Adjust the zero position so that with at blocked drive both pressure gauges indicate the same pressure valve.
Note:
Ascertain the zero position dead band.

Hydraulikmotoren
Hydraulic motors

MK 04

Reparaturen
Repairs



0336

Reparaturen
Repairs

Beschreibung
Description

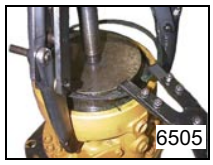
POCLAIN HYDRAULICS
Certifié ISO 9001

Sommaire

Contents

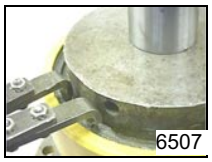
- Démonter l'anneau d'arrêt (109) à l'aide d'une pince à anneaux d'arrêt intérieur.(voir outillage 66)

- *Remove the snap ring (109) using internal snap ring pliers. (see tools 66)*



- Extracteur et pince (fig 6504 et 6505)
- Presse et pince (fig 6506 et 6507)

- *Extractor and pliers (fig 6504 and 6505)*
- *Press and pliers (fig 6506 and 6507)*

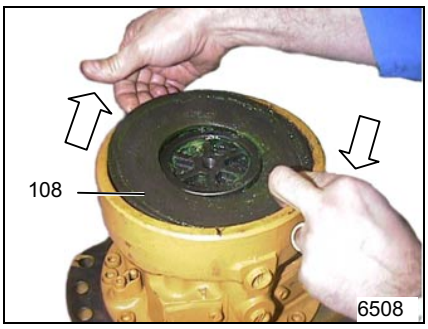


Ne pas mettre le palier en appui sur les goujons lors de la mise sous la presse.

If you use the press do not place the bearing support on the studs.

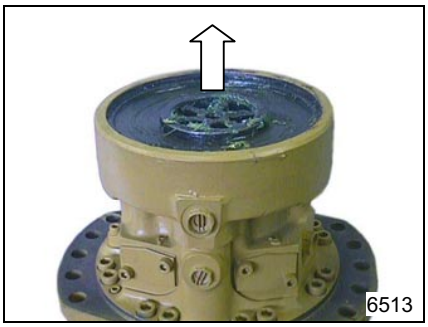
- Extraire la rondelle élastique (108).

- *Extract the spring washer (108).*



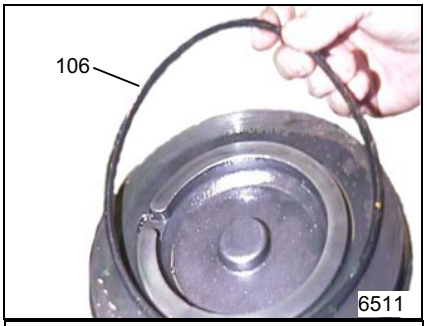
- Extraire le piston de frein (107).

- *Extract the brake piston (107)*



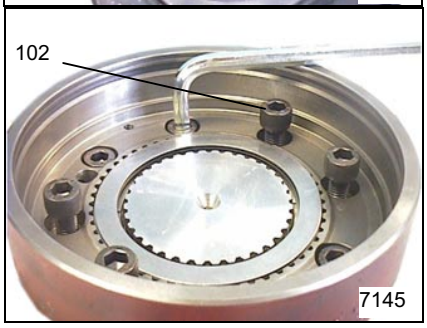
- Eliminer le joint torique (106).

- *Discard the O-ring (106).*



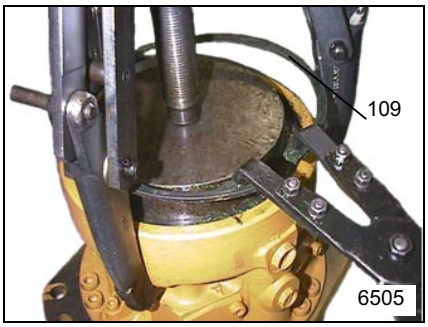
- Démonter et éliminer les vis (102).

- *Remove and discard the screws (102).*



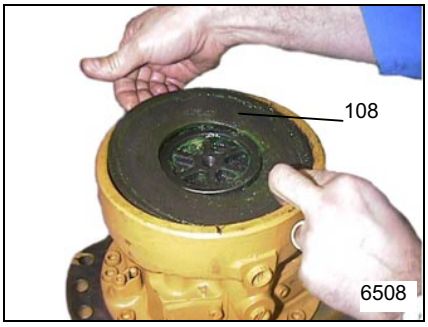
- Appliquer à nouveau l'effort **F** pour dégager l'anneau d'arrêt (109).

- *Reapply the compressive force **F** to remove the snap ring (109).*



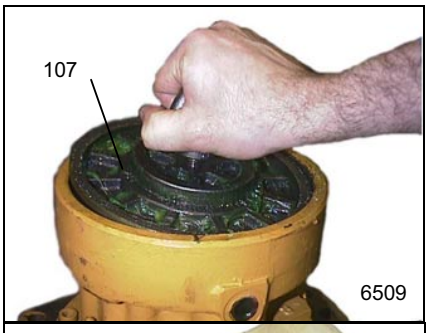
- Démonter la rondelle élastique (108).

- *Remove the spring washer (108).*



- Démonter le piston de frein (107).

- *Remove the brake piston (107).*



- Installer le calage nécessaire (105) sur le dernier disque de frein, **la cale la plus épaisse côté piston de frein.**

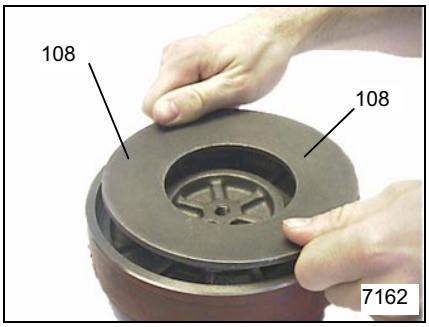
- *Install the proper shimming (105) on the last disc, **the thickest shim towards the brake piston.***

MINIMISER LE NOMBRE DE CALES D'EPAISSEUR 0.2 mm

***MINIMIZE THE NUMBER OF SHIMS OF THICKNESS 0.2** mm [0.0079 inch]*

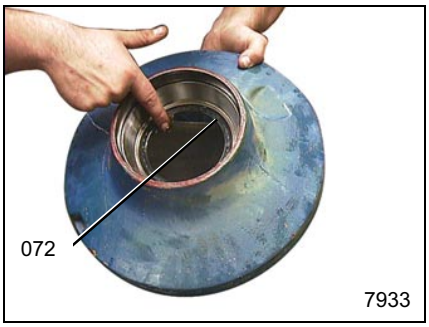
- Remonter le piston de frein (107), la rondelle élastique (108).

- *Reinstall the brake piston (107), the spring washer (108).*



- Enduire de graisse (LG EP2) les lèvres de la bague d'étanchéité (072).

- *Coat with grease (LG EP2) the lips of the lip seal (072).*

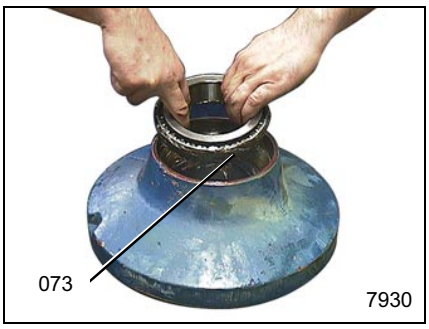


- Enduire de graisse (LG EP2) le roulement (073).

- *Coat with grease (LG EP2) the bearing (073).*

- Monter le roulement (073) (voir outillage page 65) dans sa bague extérieure.

Install the bearing (073) (see tools page 65) inside its external race.

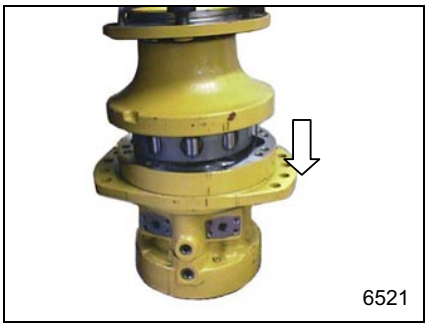


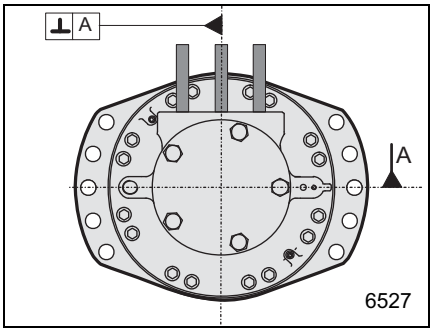
- Monter le palier en utilisant un palan.

Pour les moteurs paliers les orifices doivent être perpendiculaires à l'axe de fixation du moteur. (Fig 6527)

- *Install the bearing support, using a lifting tackle.*

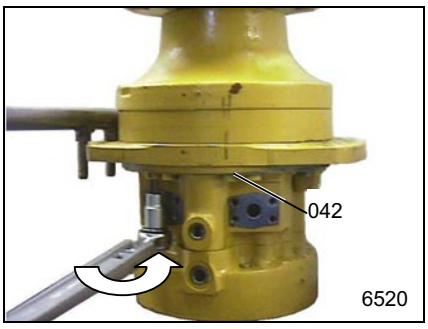
For shaft motors the ports must be perpendicular to the mounting axis of the motor. (Fig 6527)





- Monter et serrer les vis de fixations (042) au couple indiqué. (voir tableau page 71).

- *Install and tighten the mounting screws (042) to the right torque. (see table page 71).*



- Reposer le moteur.

- *Install the motor.*

Remontage

Dépoussiérer l'ensemble, s'assurer de l'étanchéité du cylindre de roue.

Contrôler l'état de la surface de frottement du tambour qui ne doit comporter aucune rayure profonde (supérieure à 0.2 mm) ni d'usure anormale sinon procéder à son remplacement.

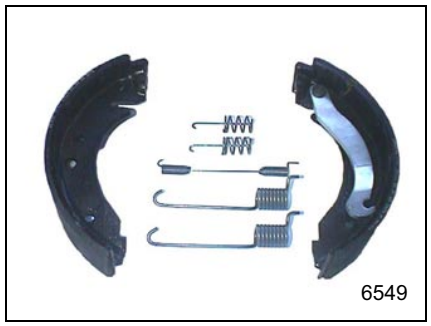
- Monter la mâchoire (154.2), en accrochant le levier de commande sur le câble de frein (098).

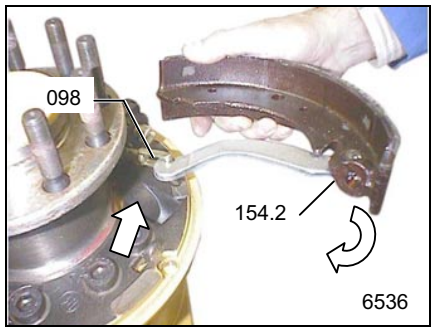
Reassembly

Remove all dust from the whole assembly. Make sure there are no leaks at the wheel cylinder.

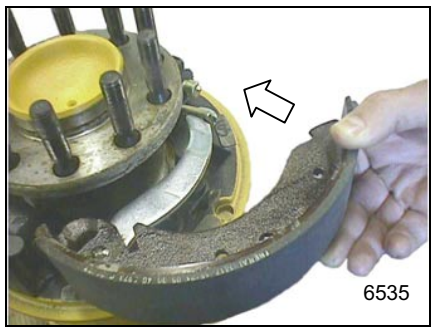
Check the friction surface condition of the drum which should show no deep scratches (deeper than 0.2 mm) [0.0078in] nor abnormal wear. Otherwise, the brake drum should be replaced.

- *Attaching the control lever on the brake cable (098), install the brake shoe (154.2)*


6549



6536

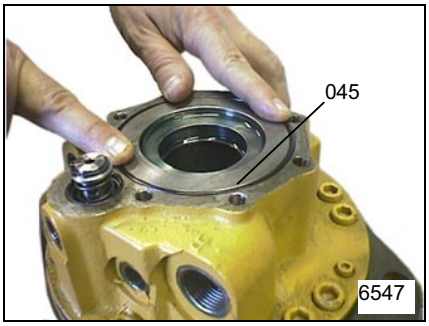

6535

Remontage

- Monter un joint torique (045) neuf.

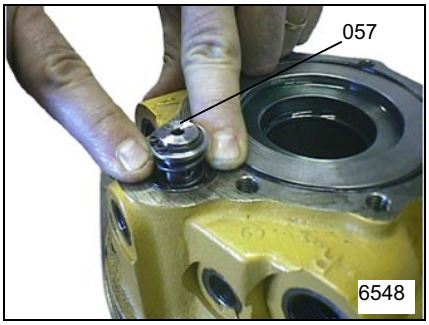
Reassembly

- *Install a new O-ring (045).*



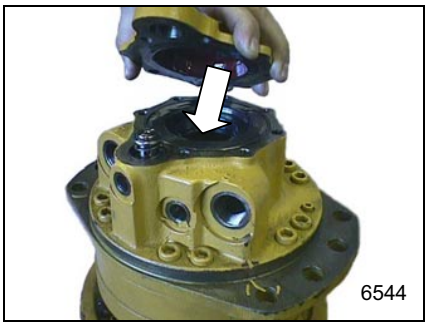
- Monter un joint torique (057) neuf si le moteur est un 2 cylindrées sinon passer à l'étape suivante

- *Install a new O-ring (057) if the motor has 2-displacement. If not go to the next section*



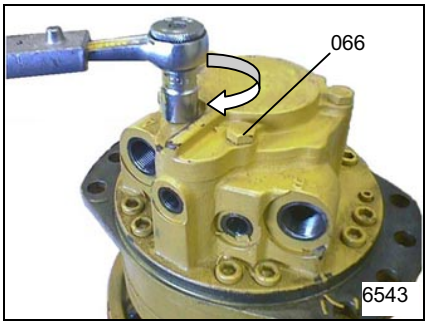
- Monter la plaque de fermeture

- *Install the end cover*



- Monter et serrer les vis (066) au couple correspondant (voir tableau page 71)

- *Install and tighten the screws (066) to the right torque (see table page 71)*



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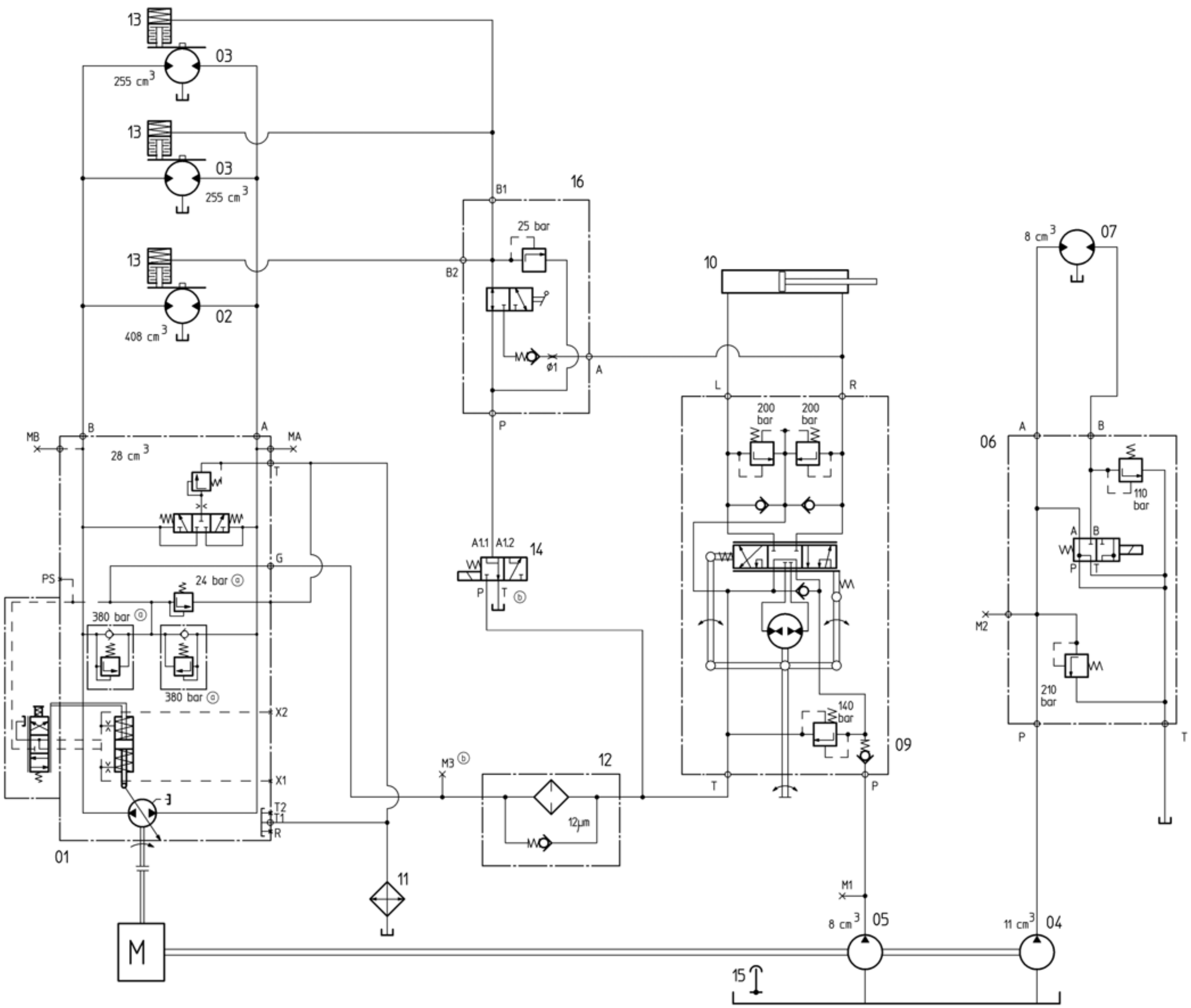


Bez.	Druck (max)
MA	405 bar
MB	405 bar
M1	25 bar ⓐ
M1*	170 bar
M2	220 bar
M3	25 bar

* Lenkung gegen Anschlag

Pos.	Benennung	Discription
01	Verstellpumpe	Variable displacem. pump
02	Fahrmotor vorne	Travel motor front
03	Fahrmotoren hinten	Travel motors rear
04	Zahnradpumpe (Vibr.)	Gear pump (Vibr.)
05	Zahnradpumpe (Einsp.)	Gear pump (Charging)
06	Vibrationsventil	Vibration valve
07	Vibrationsmotor vorne	Vibration motor front
08		
09	Lenkeinheit	Steering unit
10	Lenkzylinder	Steering cylinder
11	Ölkühler	Oil cooler
12	Ölfilter	Oil filter
13	Lamellenbremse	Multi-disc brake
14	Bremsventil	Brake valve
15	Entlüftungsfilter	Vent filter
16	Bremslöseventil	Brake release valve

Index	Änderungs-Nr.	Beschreibung	Datum/Name	Gepr.
b	filw-04-0040	Positionsbezeichnung geändert, Messpunkt M3 hinzu, Zeichnungsüberarbeitung	08.03.04/Ar	Roos
a	filw-04-0013	Zeichnungsüberarbeitung, 24 bar neu, 380 bar war 385 bar, 25 bar w. 30 bar	21.01.04/Ar	Roos

	Datum	Name
Bearb.	08.01.2004	Arend
Gepr.	08.01.2004	Roos

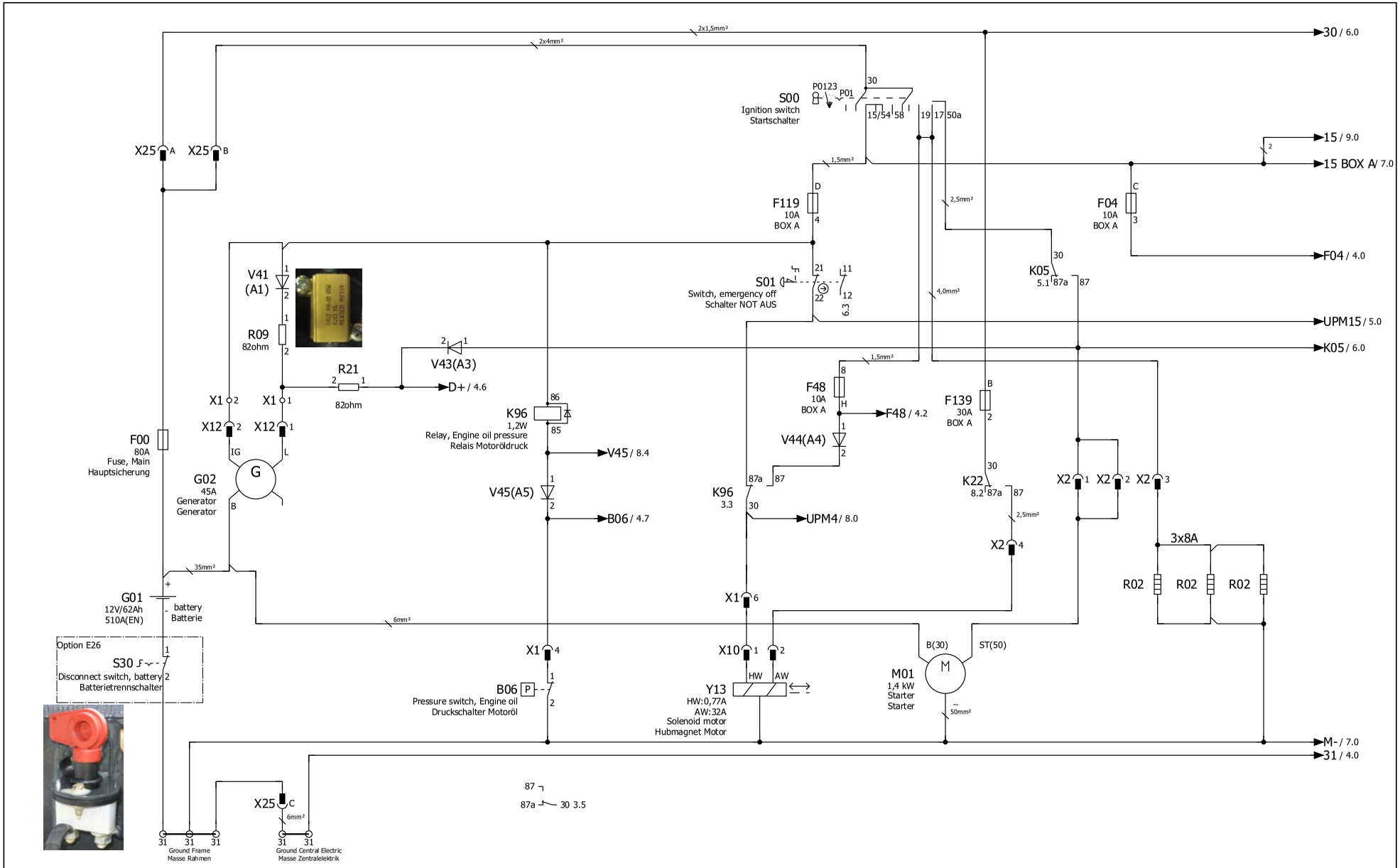
Maßstab: %

Hydraulikschema
Hydraulic schematic

Zeichnungs-Nr. / Drawing-No.: B 880 100 52 b

ähnlich Zeichn.-Nr. / similar Drawing-No.: 781 101 06

Blatt 1 von 1 Bl.



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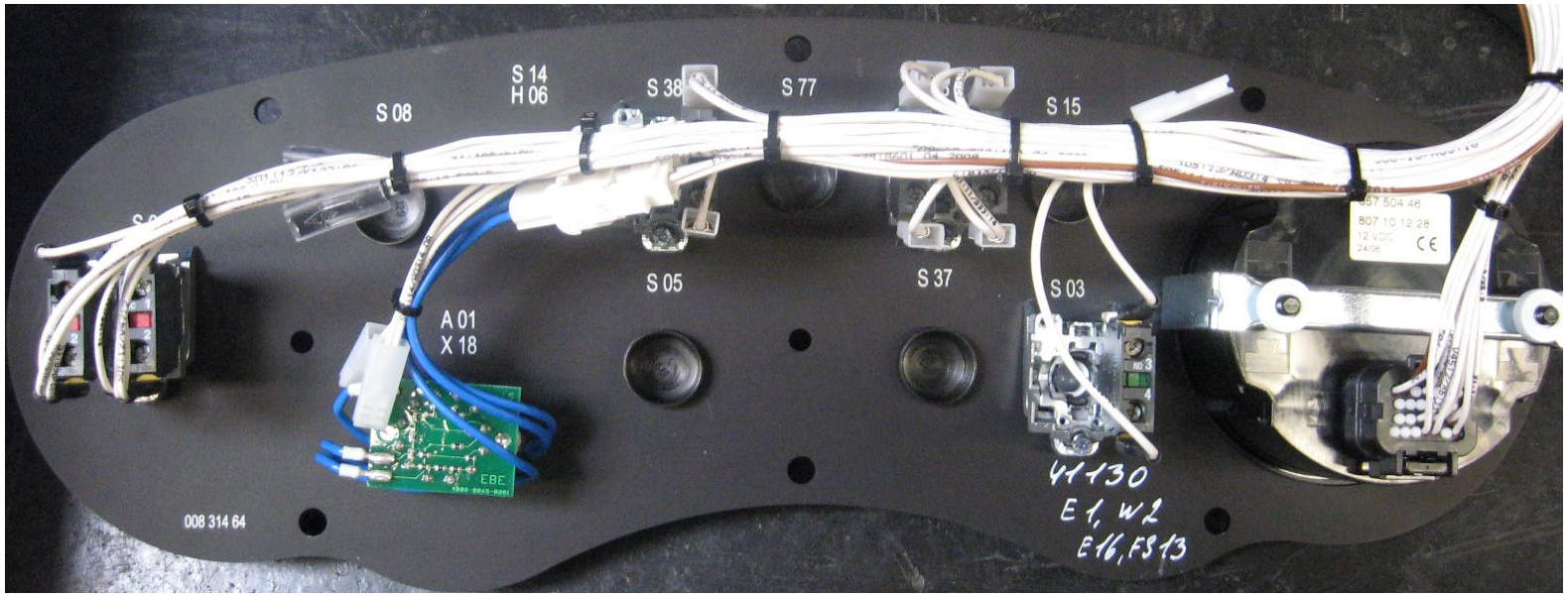
Checked / Geprüft	D.Nallin 29.07.2008								Function / Funktion ==	880 100 63
									Mounting location / Einbauort +	/ /

Device tag list
Betriebsmittelliste

Device tag BMK	Page Blatt	Path Pfad	Mounting location Einbauort	Higher-level function Anlage	Function text	Funktionstext	characteristics Techn.-Kenngrößen
A01	6	1			Interval switch	Intervallschalter	11 steps 11 Stufen
A02	10	1			Flasher	Blinkgeber	4x21W
A03	5	2			Module vibration/sprinkler	Modul Vibration/Berieselung	
A15	4	1			Monitoring-module	Überwachungsmodul	
A66	12	3			Electronic control unit	Elektronik Steuereinheit	
A67	12	6			Keyboard	Tastatur	
A68	8	1			Module seat contact	Modul Sitzkontakt	
B06	3	3			Pressure switch, Engine oil	Druckschalter Motoröl	
B08	5	1			Proximty switch brake	Initiator Bremse	high=1 4mm
B11	7	1			Horn	Horn	50W
B39	5	7			Trancducer travel lever	Aufnehmer Fahrhebel	
B53	4	4			Temperature switch collant	Temperaturschalter Kühlwasser	
E08	10	3			Indicator front left	Blinkleuchte vorne links	21W/2,1A
E09	10	4			Indicator rear left	Blinkleuchte hinten links	21W/2,1A
E10	10	5			Indicator front right	Blinkleuchte vorne rechts	21W/2,1A
E11	10	5			Indicator rear right	Blinkleuchte hinten rechts	21W/2,1A
E12	9	2			Parking light, LH	Parkleuchte links	5W/0,42A
E13	9	2			Tail light, LH	Schlussleuchte links	5W/0,42A
E14	9	3			Parking light, RH	Parkleuchte rechts	5W/0,42A
E15	9	3			Tail light, RH	Schlussleuchte rechts	5W/0,42A
E23	9	5			headlight front left	Arbeitsscheinwerfer vorn links	55W
E25	9	5			headlight front right	Arbeitsscheinwerfer vorn rechts	55W
E27	9	7			headlight rear left	Arbeitsscheinwerfer hinten links	55W
E28	9	8			headlight rear right	Arbeitsscheinwerfer hinten rechts	55W
E32	7	3			Rotary beacon	Rundumkennleuchte	55W Glühlampe 3W Motor
F00	3	1			Fuse, Main	Hauptsicherung	80A
F04	3	8			Fuse	Sicherung	10A BOX A
F05	10	7			Fuse	Sicherung	15A BOX B
F07	10	1			Fuse	Sicherung	15A BOX B
F08	10	2			Fuse	Sicherung	15A BOX B
F09	9	2			Fuse	Sicherung	15A BOX B
F10	9	3			Fuse	Sicherung	15A BOX B
F11	9	2			Fuse	Sicherung	15A BOX B
F12	9	7			Fuse	Sicherung	15A BOX B
F23	7	1			Fuse	Sicherung	10A BOX A
F41	7	3			Fuse	Sicherung	10A BOX B
F45	7	6			Fuse	Sicherung	10A BOX A



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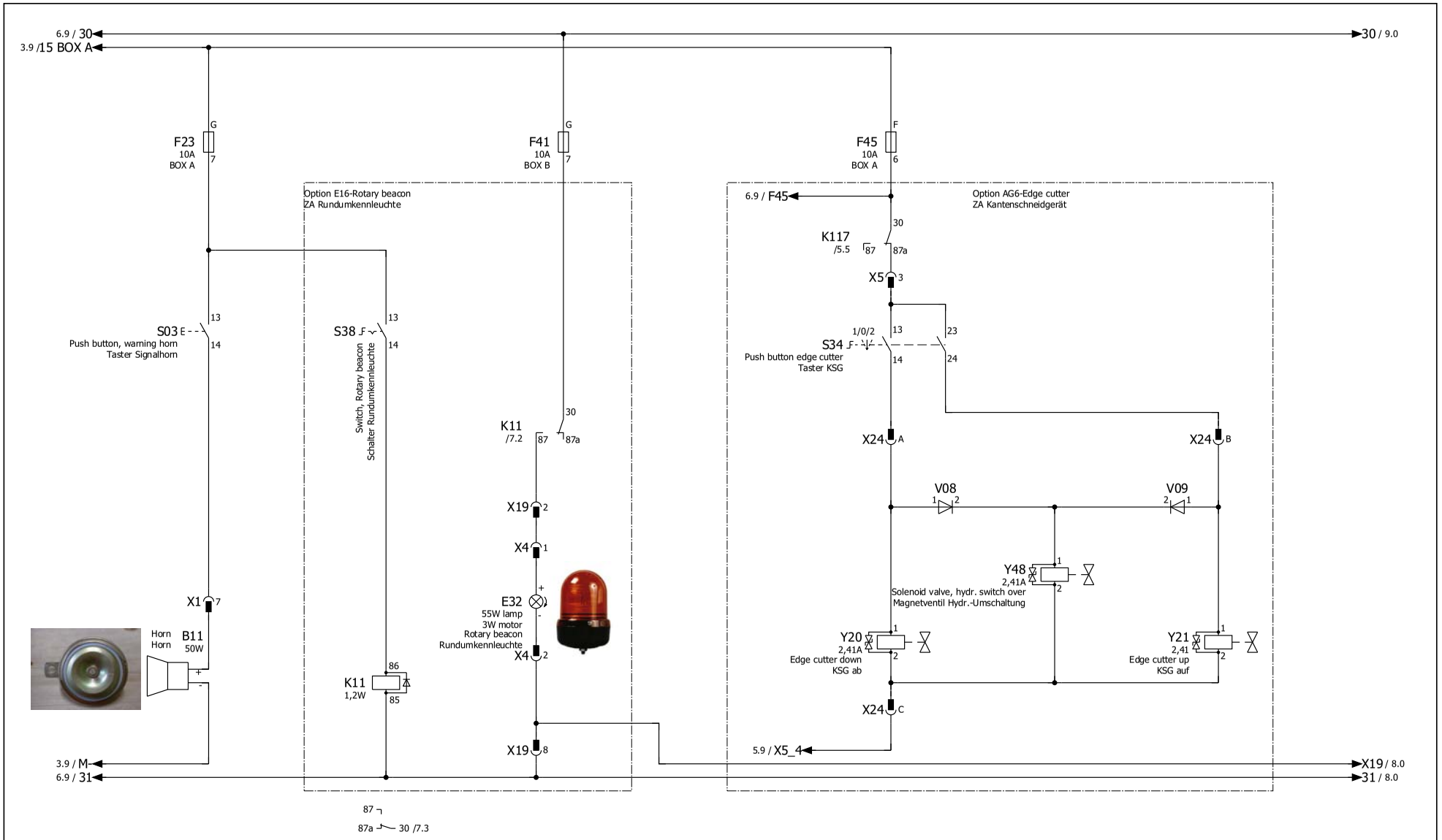
Checked Geprüft	D.Nallin 29.07.2008								Function Funktion ==	880 100 63
									Mounting location Einbauort +	/ /



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Created Erstellt	T.Rau 08.06.2009	BW 100/120/125 AD/AC-4		BOMAG FAYAT GROUP	brake, rotarty beacon, edge cutter Bremse, Horn, Rundumkennleuchte, KSG				Higher-level function Anlage = Function Funktion == Mounting location Einbauort +	Page Blatt 7 from von 24 880 100 64 / /
Checked Geprüft	D.Nallin									

Pin overview
Pin Übersicht

A68			Module seat contact Modul Sitzkontakt		
Pin Kontakt	Page Blatt	Path Pfad	Description Beschreibung	Signal	Signal
:	8	1		Module seat contact	Modul Sitzkontakt
A68 : 1	8	8	DI 1	seat contact	Sitzkontakt
A68 : 2	8	8	DI 2	seat contact	Sitzkontakt
A68 : 3	8	5	DI 3	Brake	Bremse
A68 : 4	8	4	DI 4	Engine oil pressure	Motoröldruck
A68 : 15/54	8	2	DI 15/54	Potential 15	Potential 15
A68 : 30	8	3	Relay contact 30	Ground	Erde
A68 : 87	8	4	Relay contact 87	Solenoid retaining coil	Hubmagnet Haltewicklung
A68 : 87a	8	5	Relay contact 87a	NC contact	Öffner
A68 : BTS	8	2	BTS	Solenoid pullcoil	Hubmagnet Anzugswicklung
A68 : GND	8	3	GND	Ground	Erde