- Sealing compound must be applied thin and evenly on the corresponding surfaces; take care that the compound does not enter into oil galleries or blind threaded bores.
- Examine the contact faces for scratches and burrs, remove these with a fine file or an oilstone; take care that no grinding dust and dirt enters into tapped bores or enclosed components.
- Blow out lines, ducts and gaps with compressed air, replace any O-rings and seals that have been dislodged by the compressed air.

Assembly of radial seals

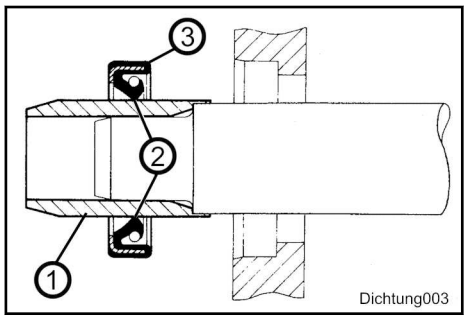


Fig. 30

1. Lubricate sealing lips (2) with clean grease; in case of double seals fill the space between the sealing lips with a generous amount of grease.
2. Slide the seal over the shaft, with the lip facing towards the fluid to be sealed.

NOTICE!

Use an assembly sleeve.

If possible, use an assembly sleeve (1) **to protect the lip from being damaged by sharp edges, threads or splines.** If no assembly sleeve is available, you should use a plastic tube or adhesive tape to prevent the sealing lip from being damaged.

3. Lubricate the outer rim of the seal (3) and press it flat on the housing seat.

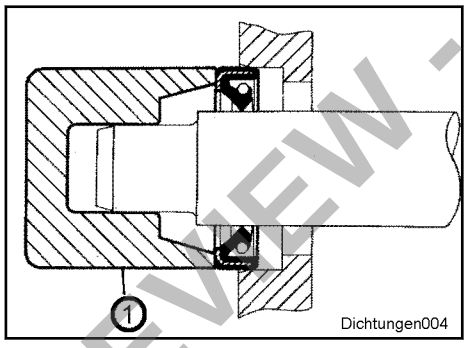


Fig. 31

4. Press or knock the seal into the housing, until it is flush with the housing surface.

NOTICE!

Use an assembly bell.

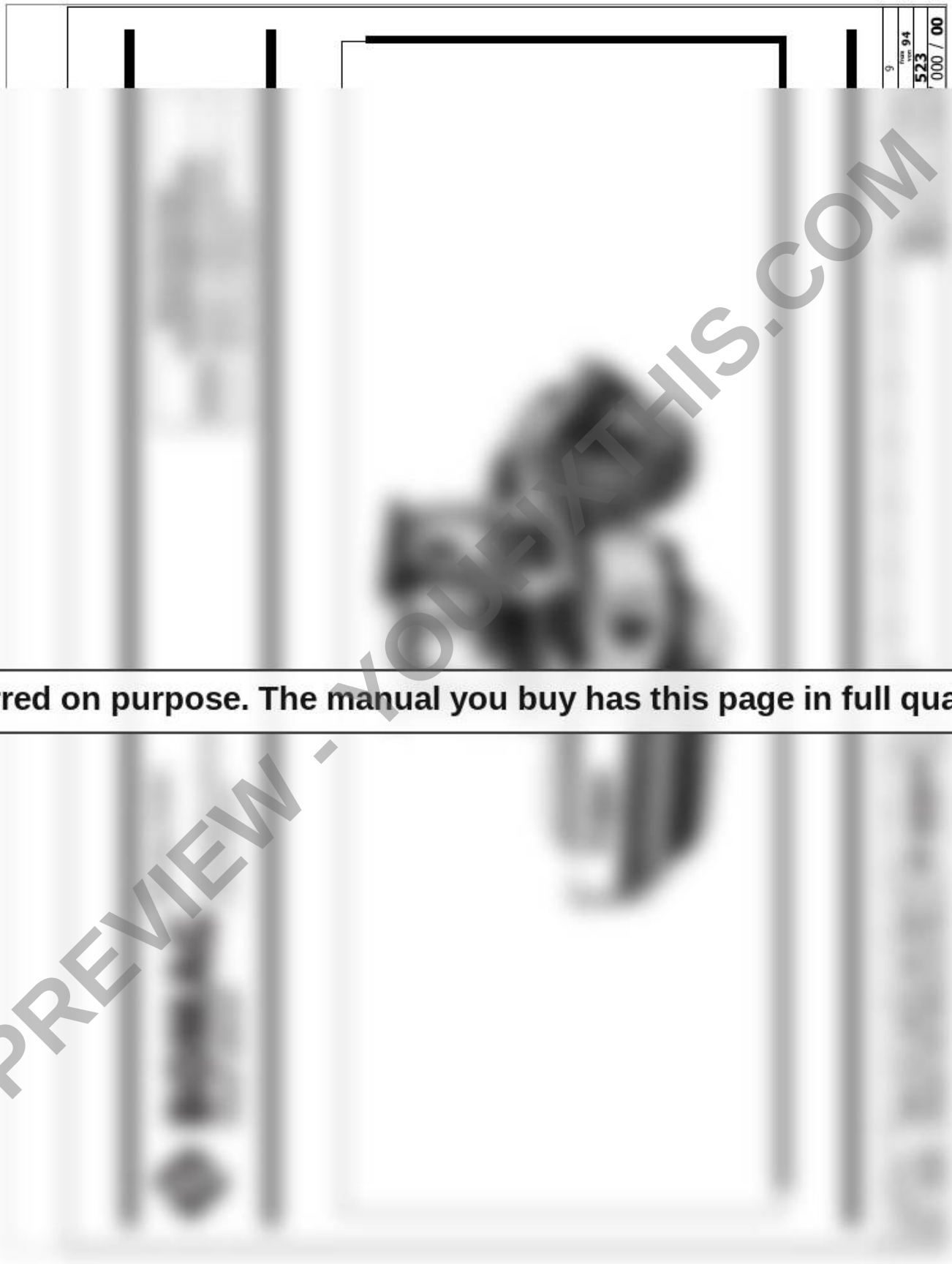
If possible, use an "assembly bell" (1), to make sure **that the seal will not skew.** In some cases it may be advisable to assemble the seal into the housing first, before sliding it over the shaft. Under no circumstances should the full weight of the shaft rest on the seal.

If you have no proper service tools at hand, use a suitable drift punch with a diameter which is about 0.4 mm smaller than the outer diameter of the seal. Use VERY LIGHT blows with the hammer if no press is available.

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Circuit diagrams



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A.2 Hydraulic diagram 479

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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

Deutz-Code / SPN / Fehlername	Seite
11 / 107 / AirFltSysReac	3
12 / 91 / APP1	3
14 / 91 / APPPwm	3
15 / 91 / APPPwmPer	4
16 / 108 / APSCD	4
17 / 729 / ArHt1	4
18 / 730 / ArHt2	5
19 / 676 / ArHtCD_NoLd	5
20 / 676 / ArHtCD_RlyErr	5
22 / 168 / BattCD	6
23 / 168 / BattCDSysReac	6
24 / 523561 / BIPCyl1	6
25 / 523562 / BIPCyl2	7
26 / 523563 / BIPCyl3	7
27 / 523564 / BIPCyl4	7
28 / 523565 / BIPCyl5	8
29 / 523566 / BIPCyl6	8
30 / 523567 / BIPCyl7	8
31 / 523568 / BIPCyl8	9
32 / 102 / BPSCD	9
33 / 102 / BPSCDSysReac	9
37 / 111 / CLSCDSysReac	10
38 / 1323 / CmbChbMisfire1	10
39 / 1324 / CmbChbMisfire2	10
40 / 1325 / CmbChbMisfire3	11
41 / 1326 / CmbChbMisfire4	11
42 / 1327 / CmbChbMisfire5	11
43 / 1328 / CmbChbMisfire6	12
44 / 1450 / CmbChbMisfire7	12
45 / 1451 / CmbChbMisfire8	12
46 / 1322 / CmbChbMisfireMul	13
47 / 1346 / CmbChbSysReac	13
48 / 1109 / CoEngShOffDemIgr	13
52 / 1072 / CRERCD	14
53 / 1081 / CSLpCD	14
54 / 704 / CTLpCD	14
55 / 110 / CTSCD	15
56 / 110 / CTSCDSysReac	15
57 / 701 / Dummy1CD_Max	15
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165 / 654 / InjVlvCyl4A	39

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Tightening torques for screws with metric unified thread

Screw dimension	Tightening torques Nm (Coefficient of friction μ tot. = 0.14)		
	8.8	10.9	12.9

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3.1.3.1 Network structure

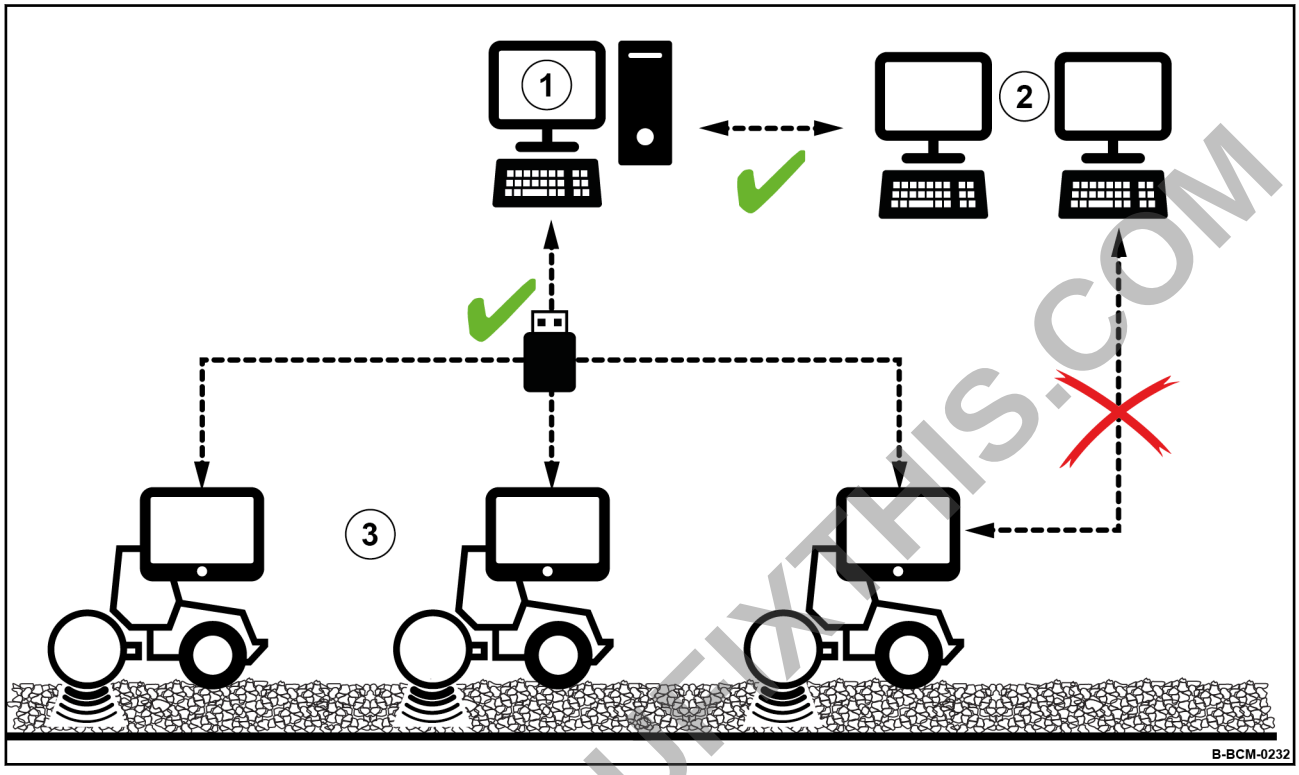


Fig. 61

If more than one machines are working on a project, the measuring data are recorded by various tablet-PCs (3) and then transferred to the Office-PC (1). This PC is the Master-PC of the project.

When using further Office-PCs (2) one must make absolutely sure that the measured data of a project are only transmitted to the Master-PC.

3.1.3.2 Position detection

During a measurement, the measured data are assigned to the corresponding measuring positions on the construction site.

„BCM 05“ works with two different kinds of position detection.

This fundamental difference influences the representation and evaluation of measured data.

Manual position detection for track bound fields

Manual position detection requires a track bound working mode. The construction site is in this case divided into fixed tracks.

The assignment of measured data and measuring positions is accomplished by a distance transducer, which determines the position of the machine within a track.

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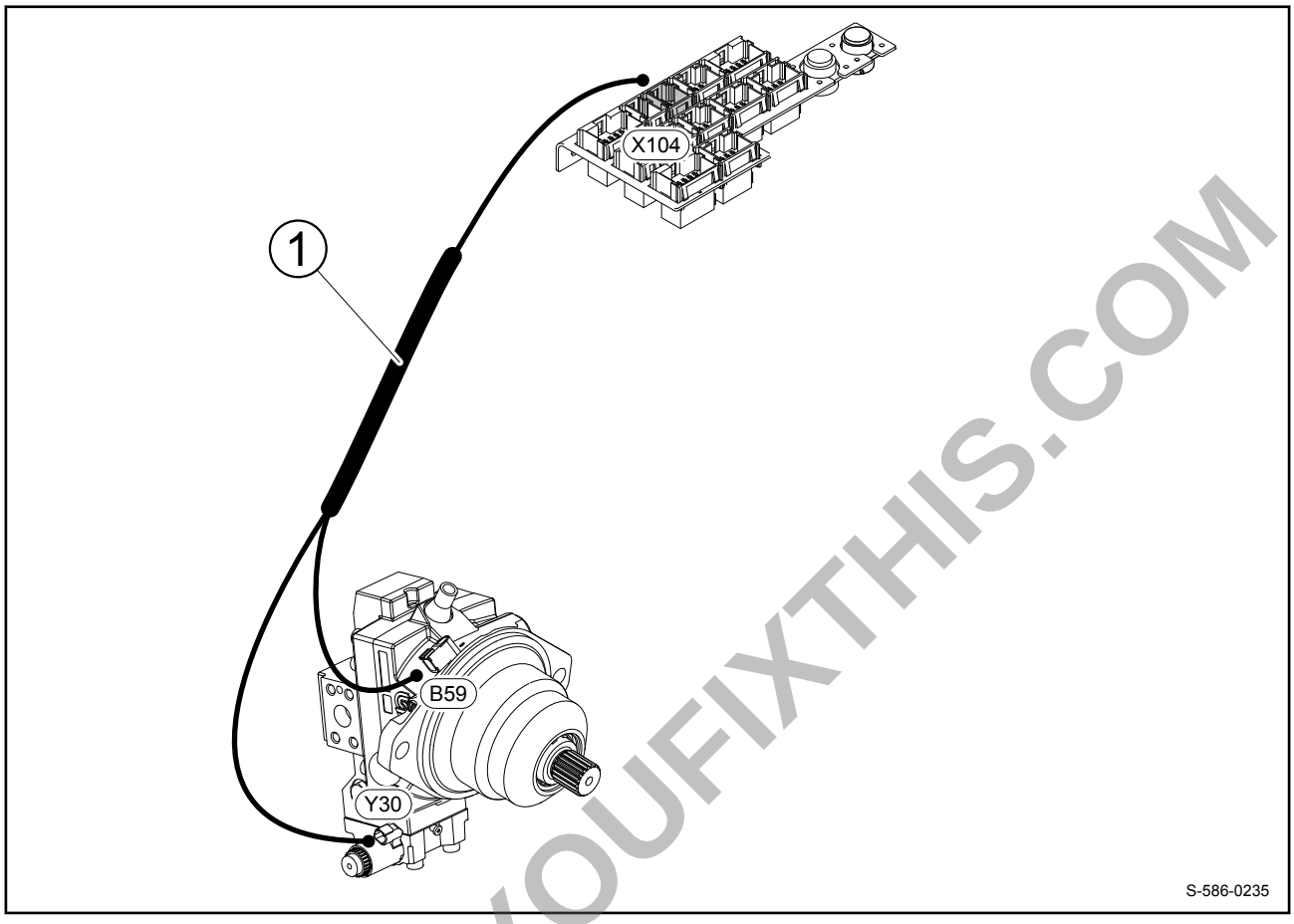


Fig. 120

1 Wiring loom, front frame

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1 Confirmation of changes

1.1 Document

This document applies for all single drum rollers of generation “5”
(BW145-226 D/PD/DH/PDH/BVC/DI/RC).

No.	Date	Description of changes	Resp.
1.00	23/06/2015	**Version 1.00 for single drum rollers -5 created.**	Brand
1.01	22/11/2016	Functional supplements.	Brand

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ESX terminal	Signal description	Nominal values (voltage / current)
X35:42	Output **levelling blade up Y379** or Output **plates up Y122** Digital output (max. 2.5 A) (only on machines with dozer blade or attachment plates)	active, i.e. levelling blade/plates up ☞ approx. 12 V inactive, i.e. levelling blade/plates not up ☞ 0 V
X35:43	Output **levelling blade down Y380** or Output **plates down Y123** Digital output (max. 2.5 A) (only on machines with dozer blade or attachment plates)	active, i.e. levelling blade/plates down ☞ approx. 12 V inactive, i.e. levelling blade/plates not down ☞ 0 V
X35:44	Output **Relay engine speed K114** Digital output (max. 4 A) (only BW177 D/DH/PDH with Tier 3 engines)	active, i.e. max. idle speed ☞ approx. 12 V inactive, i.e. min. idle speed ☞ 0 V
X35:45	Output **floating position of attachment plates 2 Y144** Digital output (max. 2.5 A) (only on machines with dozer blade or attachment plates)	active, i.e. floating position switched on ☞ approx.12 V inactive, i.e. floating position switched off ☞ 0 V
X35:46	Output**travel pump axle forward Y16** PWM power output (max. 4 A)	Forward travel active ☞ 600...1800 mA Forward travel inactive ☞ 0 mA
X35:47	Output**travel pump axle reverse Y17** PWM power output (max. 4 A)	Reverse travel active ☞ 600...1800 mA Reverse travel inactive ☞ 0 mA
X35:48	Output **Amplitude switch-over** Digital output (max. 2.5 A) (not on BVC machines)	active, i.e. high amplitude ☞ approx. 12 V inactive, i.e. low amplitude ☞ 0 V
X35:49	Output **Vibration pump** PWM power output (max. 4 A)	**Ports BW145/177/197 DH/PDH/BVC** Vibration active ☞ 400...1200 mA Vibration inactive ☞ 0 mA **On all machines** Vibration active ☞ 600...1800 mA Vibration inactive ☞ 0 mA
X35:50	Output **plates left Y142** Digital output (max. 5 A) (only on machines with attachment plates)	active, i.e. move plates to the left ☞ approx. 12 V active, i.e. do not move plates to the left ☞ approx. 0 V
X35:51	Output **plates right Y143** Digital output (max. 5 A) (only on machines with attachment plates)	active, i.e. move plates to the right ☞ approx. 12 V active, i.e. do not move plates to the right ☞ approx. 0 V

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Functional System **Input seat contact switch, S06**

Input	Description	Category	ValueRange
1300	Status seat contact switch	1	0 = off, 1 = on

Functional System **Input armrest right, B146**

Input	Description	Category	ValueRange
1330	Status of right armrest	1	1= arm rest up; 2= arm rest down
1331	Status of right armrest	1	Display in V

Functional System **Metrology controller**

Input	Description	Category	ValueRange
3010	Display enable metrology	2	0= Off1 = On
3011	Enable parameter change metrology	2	
3012	Activate metrology	2	
3013	Deactivate metrology	2	
3015	Display enable printer	2	0= Off1 = On
3016	Enable parameter change metrology	2	
3017	Activate printer	2	
3018	Deactivate printer	2	
4020	Release of change to printer language	2	
4021	Printer language - German	2	
4022	Printer language - English	2	
4023	Printer language - French	2	
4024	Printer language - Dutch	2	
4025	Printer language - Danish	2	

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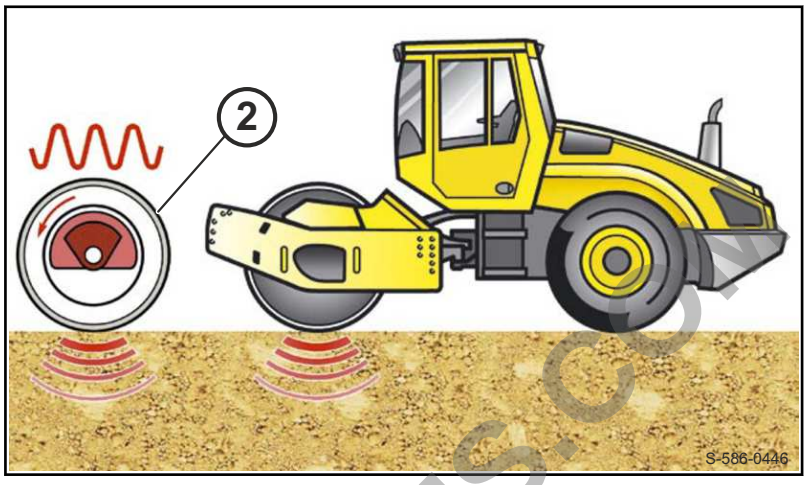


Fig. 187

2 High amplitude

The vibration system is designed in such a way, that the high exciter shaft speed (frequency) is coupled with the low amplitude (1) ↳ Fig. 186 and the low exciter shaft speed (frequency) with the high amplitude (2) ↳ Fig. 187.

The eccentric weights on the exciter shaft are fitted with additional change-over weights. Depending on the sense of rotation of the exciter shaft, these change-over weights are added to or subtracted from the basic weights.

- Basic weight minus change-over weight = low amplitude (1) ↳ Fig. 186
- Basic weight plus change-over weight = high amplitude (2) ↳ Fig. 187

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16 Lubrication oil cooler
17 Crankcase ventilation box
18 Rail
19 Engine suspension
20 Cylinder head cover

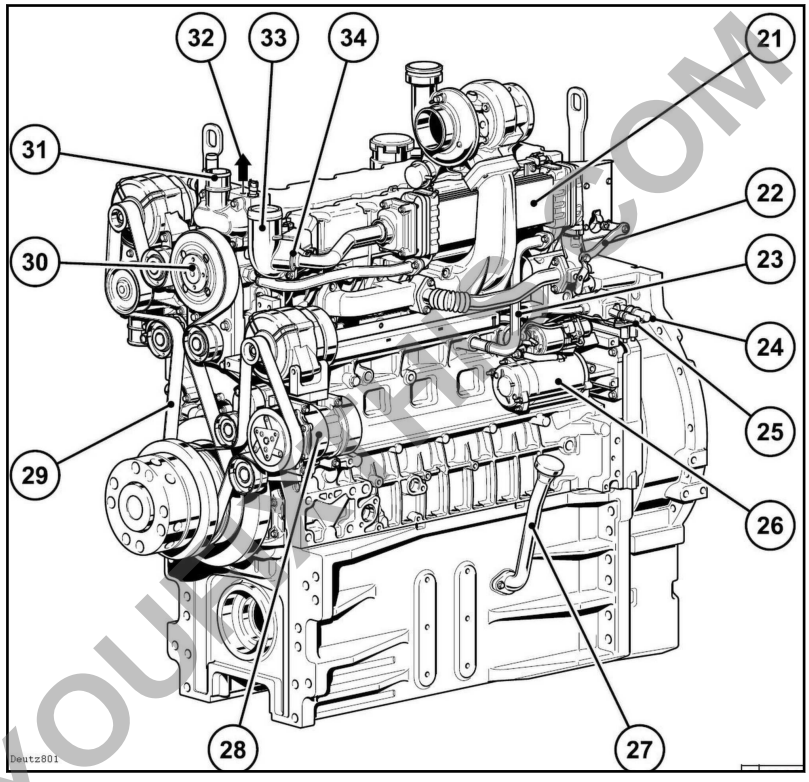


Fig. 256: Deutz diesel engine TCD 2013 4V

21 EGR exhaust gas recirculation system
22 Throttle lever for exhaust gas recirculation system
23 Cooling line to exhaust gas recirculation system
24 Fuel inlet to engine
25 Fuel outlet to fuel tank
26 Starter
27 Lubrication oil filling neck
28 Air conditioning compressor
29 Ribbed V-belt
30 Fan mounting / coolant pump
31 Thermostat housing, coolant outlet to radiator
32 Ventilation line to radiator
33 Charge air flow to intercooler
34 Exhaust gas recirculation from EGR cooler

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	Designation	Note
	Coolant temperature warning light	Lights up when the engine overheats. The engine power is reduced after a short while. Run the engine at idle speed or, if necessary, shut it down and clean the radiator; if necessary, repair the engine.

Removing the temperature sensor



CAUTION!

Health hazard caused by contact with coolant and coolant additives!

– Wear your personal protective equipment (protective gloves, protective clothing).
– Do not inhale any fumes.
– Avoid contact.



CAUTION!

Danger of slipping on spilled coolant!

– Immediately bind spilled coolant with an oil-binding agent.



WARNING!

Danger of scalding by hot fluid!

– Open the coolant compensation tank only after the engine has cooled down.
– Wear your personal protective outfit (protective gloves, protective clothing, goggles).



ENVIRONMENT!

Coolant is an environmentally hazardous substance!

– Always keep coolant and coolant additives in proper containers.
– Immediately bind spilled coolant with an oil-binding agent and dispose of it according to regulations.
– Dispose of coolant according to regulations.

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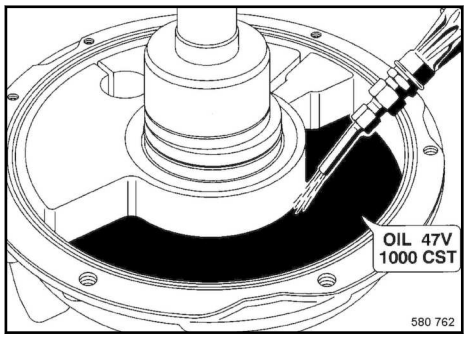


Fig. 412

3. Fill silicon oil 47 V 1000 cst up to the upper edge of the change-over weight (approx. 2.3 litres) into the basic weight.

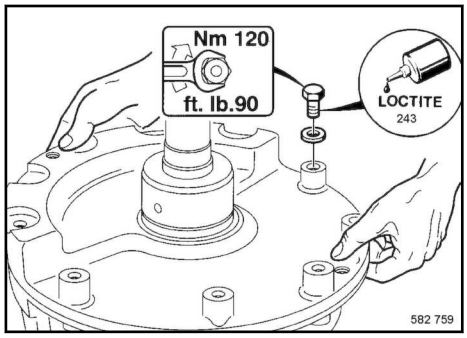


Fig. 413

4. Attach the cover, so that the raised areas are in line.

5. Turn in screws with screw retention agent (e.g. Loctite blue 243) and tighten with 120 Nm.

6. Check the end float of the shaft.

⇨

There must be play.

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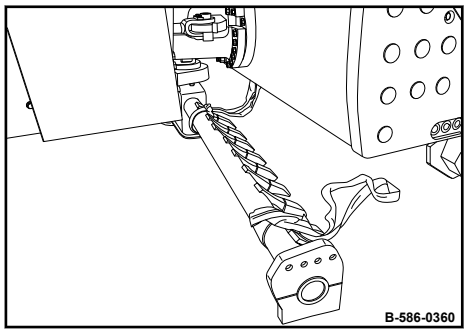


Fig. 555

9. Position the scraper in front of the drum.

10.

NOTICE!

Components may get damaged!

- Make sure no components of the driver's stand get damaged.
- Particularly in the case of machines with cabs, make sure that the windows do not get damaged.
  If necessary, protect the window (e.g. with a board).

Attach the lifting tackle to the rear scraper as perpendicularly as possible and secure with suitable lifting tackle.

11. Carefully lift the scraper until it is in the upper half shells.

12. Attach the lower half shells and secure with bolts.

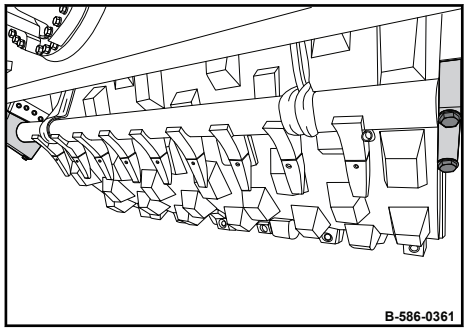


Fig. 556

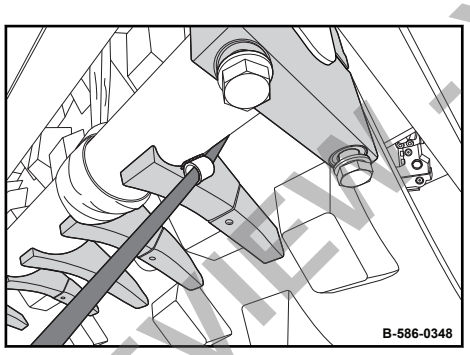


Fig. 557

13. Slide the scraper onto the drum leaving approx. 25 mm (1 in).

14. Tighten the bolts on the half shells using tightening torque: 463 Nm (341 ft·lbf).

6.2.8.2 Removing the padfoot shells

6.2.8.2.1 Preliminary remarks and safety notes

Loads are only to be attached and hoisted by an expert/qualified person.

Do not use lifting points that are damaged or impaired in any other way.

Only use lifting and lashing tackle with sufficient load bearing capacity for the weight to be loaded.

Always use appropriate lifting and lashing tackle at the lifting and lashing points.

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It is common practice to evacuate the refrigeration system to a final vacuum of 1 Torr, i.e. 1.33 mbar.An exact time for evacuation and drying cannot be predicted. It can only be determined by means of a vacuum meter. However, if there is no vacuum meter at hand it is generally better to evacuate 1 hour longer than 1 hour too less.

Function drying:

Under normal ambient pressure (1.013 mbar) evaporates absolute at 100° C. If the pressure is reduced, water will already evaporate, e.g. under a pressure of 10 mbar, at an ambient temperature of almost 7°C, but the water will not evaporate all at once. Since it is very difficult to separate the steam from the vacuum in the system, the evacuation process is supported by the co-called vacuum breaking (filling the circuit with dried nitrogen). With vacuum breaking the filled in dried nitrogen absorbs the moisture in the refrigerant circuit, which can then be easily discharged together with the nitrogen.

6.5.11 Filling instructions

Filling of refrigerant into the dried, vented and oil filed machines takes place under various conditions.

In most large series production facilities highly complicated equipment is available for this purpose, whereas individual machines at the place of installation must be filled directly from the refrigerant container.

Liquid refrigerant is only used to pre-fill the pressure side of the evacuated refrigeration system (protective filling).

After switching the refrigeration system on and watching the inspection glass, gaseous refrigerant can be filled into the system while the engine is running, if the refrigerant level is found to be too low (gas bubbles in the inspection glass).

NOTICE!

Liquid refrigerant in the suction side of the compressor should generally be avoided during filling and operation of the refrigeration system, since this could damage the compressor..

When filling the air conditioning system directly from the refrigerant bottle care must be taken not to overfill the system. As an additional control and for statistical purposes, e.g. for refilling, it is important to write down the weight of the filled in refrigerant.

With correct operation of the air conditioning the refrigerant container should be about 1/3 filled with liquid refrigerant, the evaporator should be maximally filled at the calculated evaporation temperature, i.e. the suction line should only be a few degrees warmer than the evaporation temperature indicated by the pressure gauge.

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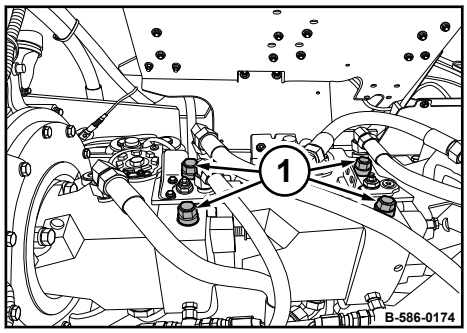


Fig. 713

2. Retighten the high pressure limiting valves (1) on both travel pumps again, tightening torque: 70 Nm (52 ft·lbf).

3. Return the cross-member to the installation position.

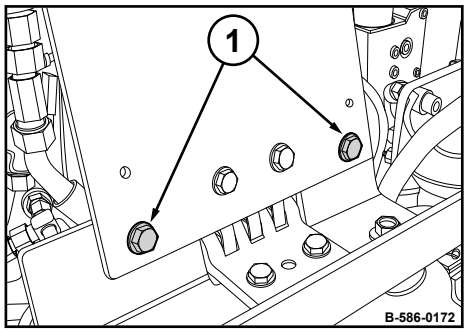


Fig. 714

4. Tighten the two outer screws (1) on the right side of the cross-member.

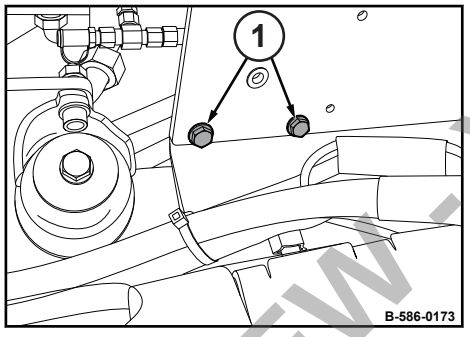


Fig. 715

5. Tighten the two screws (1) on the left side of the cross-member.

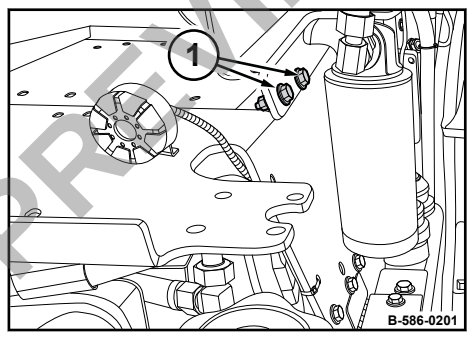


Fig. 716

6. Attach the engine oil filter bracket in the installation position and tighten both screws (1).

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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

83 / 975 / FanCD

Error description FAN ACTUATOR
Fan power stage: the current drain measured by ECU is out of the target range or the maximum permissible temperature of the ECU component for power supply of the actuator is exceeded

Error codes
DEUTZ-Errorcode: 83
BlinkCode (short-long-short): 2 - 3 - 8
SPN: 975
possible FMI:
3: Voltage to high or short circuit to +Ubatt
4: Voltage to low or short circuit to -Ubatt
5: current to low or broken wire
2: data stream is defective

Errordetection
Errorlamp shows permanent light. Entry in errormemory.

Possible reason for error
cable break or short circuit, sensor defective, connection cable demaged

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

other error properties
System reaction: Warning, shutoff output
Behaviour error lamp: permanent light
Selfhealing: no
Signal Priority: 2
Measurement @ errortime: Sollwert

85 / 1639 / FanCDEval

Error description
Fan speed sensor: the current drain measured by ECU is out of the target range

Error codes
DEUTZ-Errorcode: 85
BlinkCode (short-long-short): 2 - 3 - 8
SPN: 1639
possible FMI:
3: Voltage to high or short circuit to +Ubatt
4: Voltage to low or short circuit to -Ubatt
12. Errormode not identifiable
12. Errormode not identifiable

Errordetection
Errorlamp shows permanent light. Entry in errormemory.

Possible reason for error
Sensor defective, connection cable demaged, fan speed outside the target range

Take actions for error repair
Check sensor and if necessary replace it, check connectionn cable and if necessary repair or replace it, check fan

other error properties
System reaction:
Behaviour error lamp: permanent light
Selfhealing: yes
Signal Priority: 2
Measurement @ errortime: actual value

86 / 523602 / FanCDSysReac

Error description FAN SPEED
Fan speed: the fan speed calculated by ECU is above the target range; the ECU activates a system reaction

Error codes
DEUTZ-Errorcode: 86
BlinkCode (short-long-short): 2 - 3 - 8
SPN: 523602
possible FMI:
2: data stream is defective
2: data stream is defective
12. Errormode not identifiable
12. Errormode not identifiable

Errordetection
Errorlamp shows permanent light. Entry in errormemory.

Possible reason for error
Above target range with system reaction

Take actions for error repair

other error properties
System reaction:
Behaviour error lamp: permanent light
Selfhealing: yes
Signal Priority: 3
Measurement @ errortime: actual value

7.5.2 Troubleshooting axial piston pumps

The following table should be of help when performing trouble-shooting. This table is by no means complete. In practice, other problems may occur that have not been listed here.

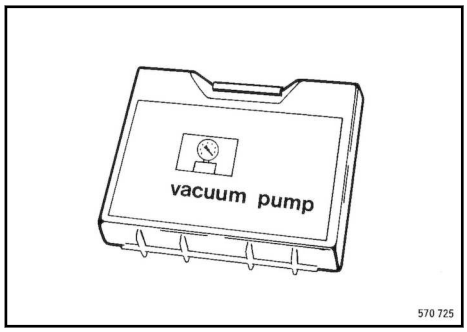
Procedure:

1. Always proceed systematically, even under time pressure. Indiscriminate, ill-considered disassembly and changing of settings can lead to a situation in which the original cause of a fault can no longer be detected.
2. Get an overview of the function of the product in connection with the overall system.
3. Try to clarify whether the product was able to deliver the required function within the overall system before the fault occurred.
4. Develop a clear understanding of the troubleshooting process. If necessary ask the direct operator or machine driver.
5. Have conditions or area of application of the product been changed?
6. Were changes (e.g. changeovers) or repairs made to the overall system (machine/plant, electrics, control) or to the product? If yes: What kind?
7. Has the product or the machine been operated as intended?
8. How does the fault manifest itself?

Fault description	Cause	Remedy
Unusual noises	Insufficient suction conditions, e.g. air in the suction line, inadequate diameter of the suction line, excessive viscosity of the pressure fluid, extreme suction height, too low suction pressure, foreign bodies in the suction line.	Machine or system manufacturer (e.g. optimize feed conditions, use suitable pressure fluid). Completely purge the axial piston unit, fill the suction line with pressure fluid. Remove foreign bodies from inside the suction line.
	Inappropriate fastening of the axial piston unit.	Check the fastening of the axial piston unit as specified by the machine or plant manufacturer. Observe the tightening torques.
	Inappropriate fastening of attachment parts, e.g. coupling and hydraulic lines.	Fasten attachment parts as specified by the coupling or fittings manufacturer.
	Pressure limiting valves of the axial piston unit (charge pressure, high pressure, pressure override valve).	Purge the axial piston unit, check the viscosity of the pressure fluid, consult the service department. Consult the service department.
	Mechanical damage to the axial piston unit.	Replace the axial piston unit, consult the service department.

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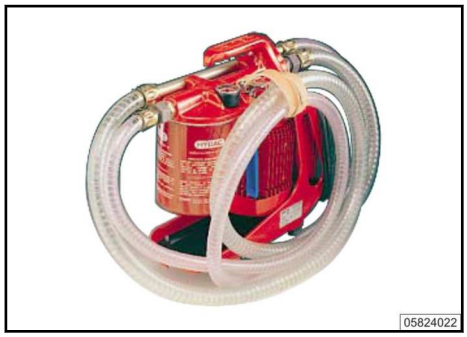
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- Vacuum pump for hydraulic oil tank
- **BOMAG part-no.: 007 610 04 (12 Volt)**
- **BOMAG part-no.: 007 610 24 (24 Volt)**

Fig. 766

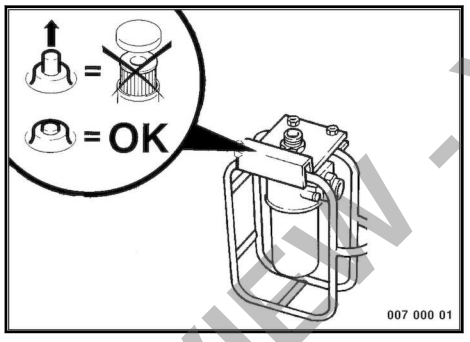
8.2.2 Special tools for flushing



The following list informs about special tools for flushing. You should choose the corresponding tool for the work to be carried out.

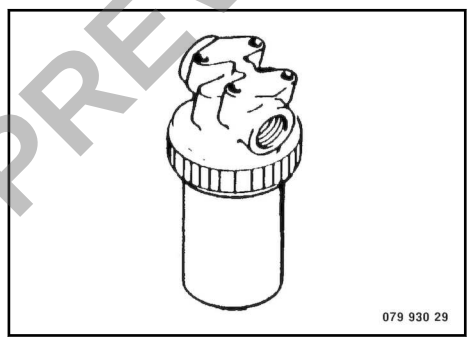
- Filling and filtering unit
- **BOMAG part no.: 058 240 22**

Fig. 767



- Flushing filter (S connection)
- **BOMAG part no.: 007 000 01**
- Filter element 1µ
- **BOMAG part no.: 079 930 52**
- Flushing hose 20S - 25S (2 pieces)
- **BOMAG part no.: 055 509 19**
- Screw socket R1“ - 25S (2 pieces)
- **BOMAG part no.: 055 400 52**

Fig. 768



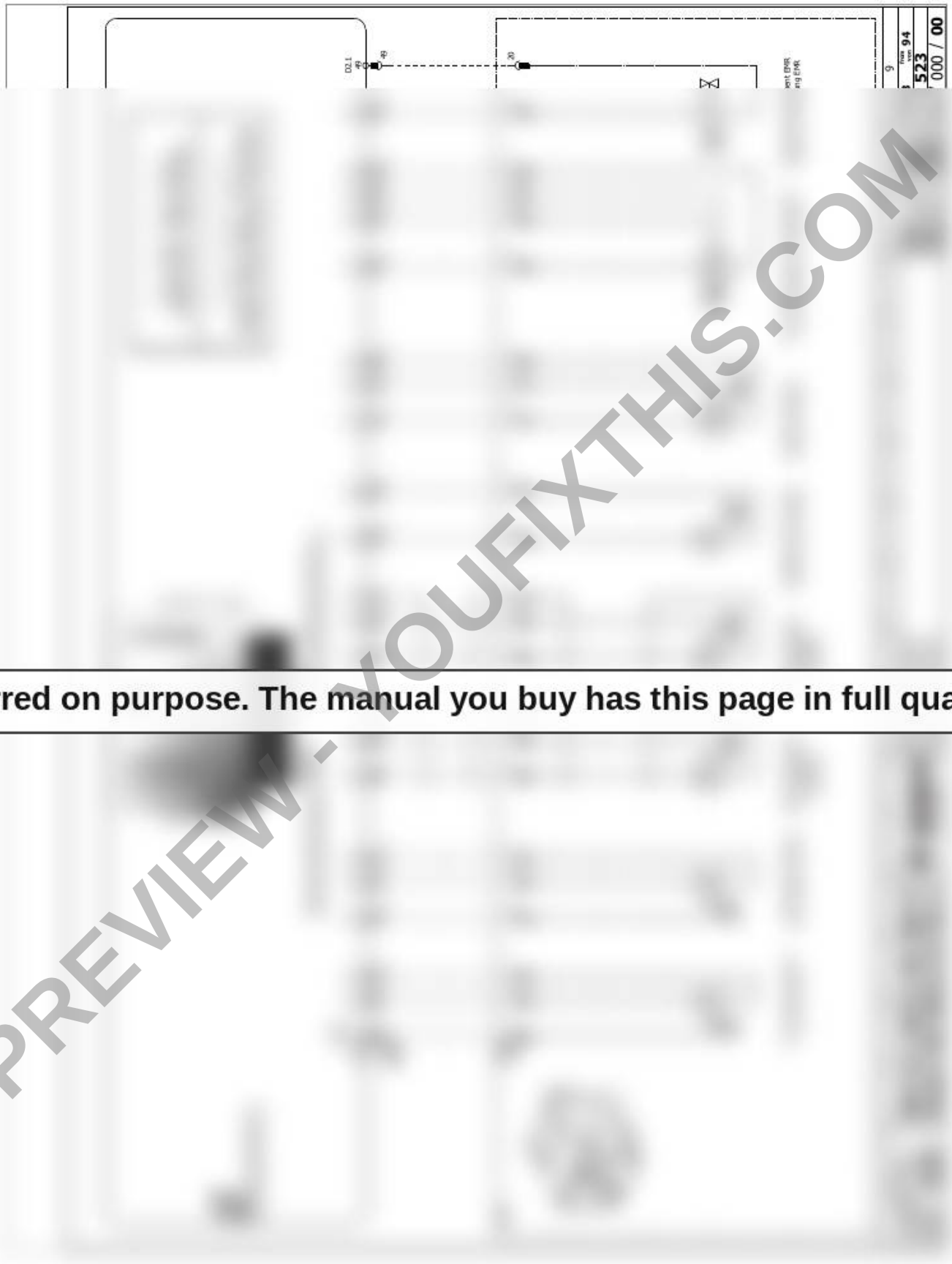
- Flushing filter (L connection)
- **BOMAG part no.: 079 390 29**
- Filter element
- **BOMAG part no.: 079 390 14**
- Flushing hose 15L (2 pieces)
- **BOMAG part no.: 055 510 09**
- Screw socket R3/4“ -- 15L (2 pieces)
- **BOMAG part no.: 055 400 89**

Fig. 769

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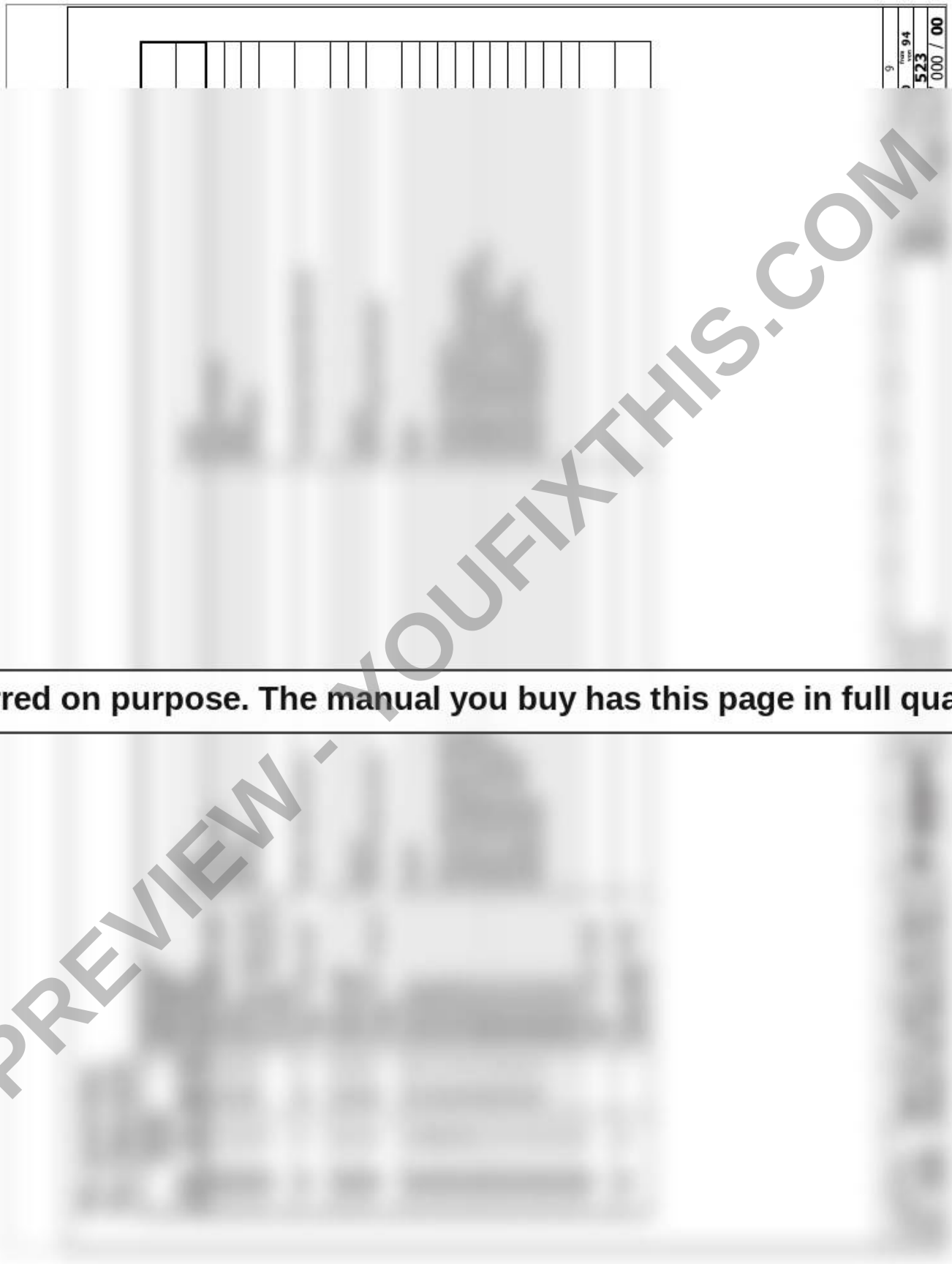
Circuit diagrams



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