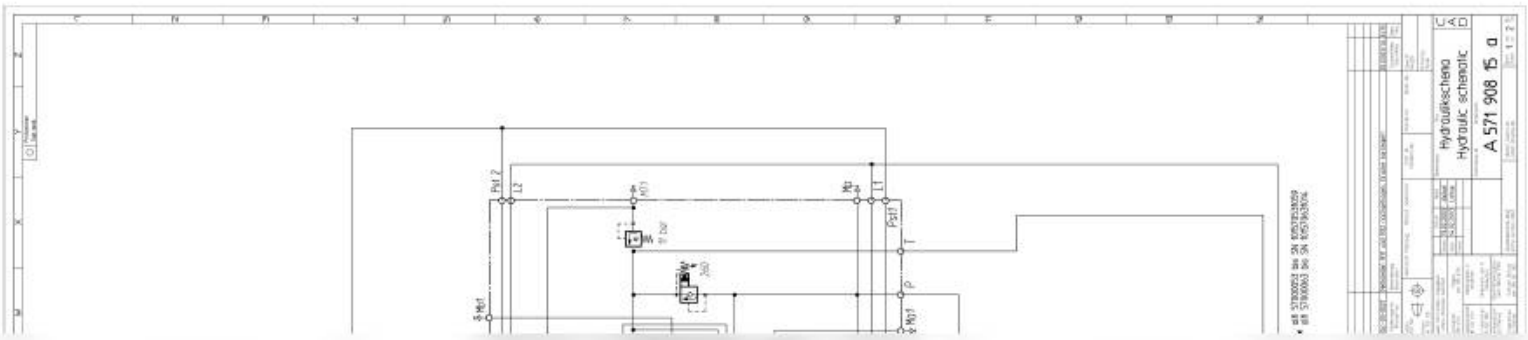
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Error code SERDIA	Component / Location	Description (Error location)	Defined for DCR	Defined for DMV	ID	Blink code	SPN	FMI	Self-curing[1]
11	Air filter condition	Pressure loss above target range with system reaction	●	●	AirFltSysReac	1-3-6	107	0, 11	●
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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9.1 Removing the belt tensioner (Deutz 2015 V6 & V8)

Removing the V-belt drive

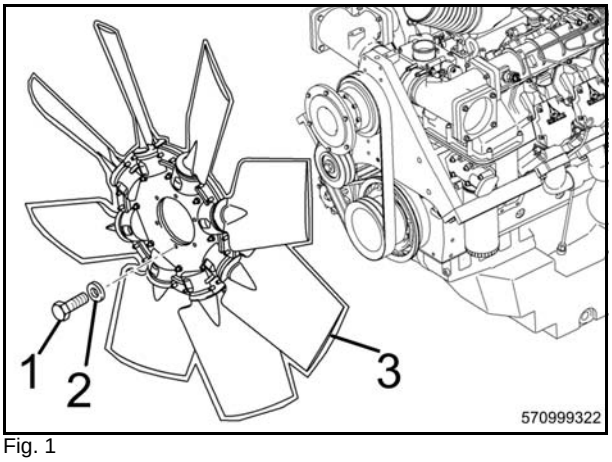


Fig. 1

56. Unscrew screws (1), remove washers (2) and fan (3) from the engine (Fig. 1).



Fig. 2

57. Loosen hexagon nuts (1) and screw (5) (Fig. 2).
58. Take off the V-belt (4).
59. Remove screw (5) and screws (3).
60. Remove the mechanical belt tensioner (2) and the tensioning lever with idler pulley (6).

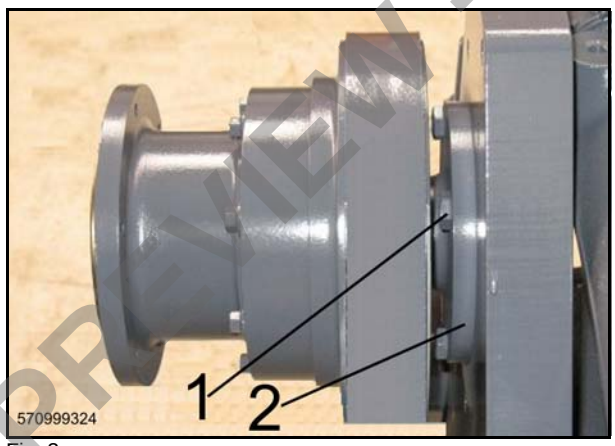


Fig. 3

61. Check the idler pulley bearings (6) (Fig. 2) and the bearings in the fan bearing block (2) (Fig. 3) manually, replace the bearings if necessary.

i Note

In case of noticeable play and/or noise during rotation the bearings are defective!

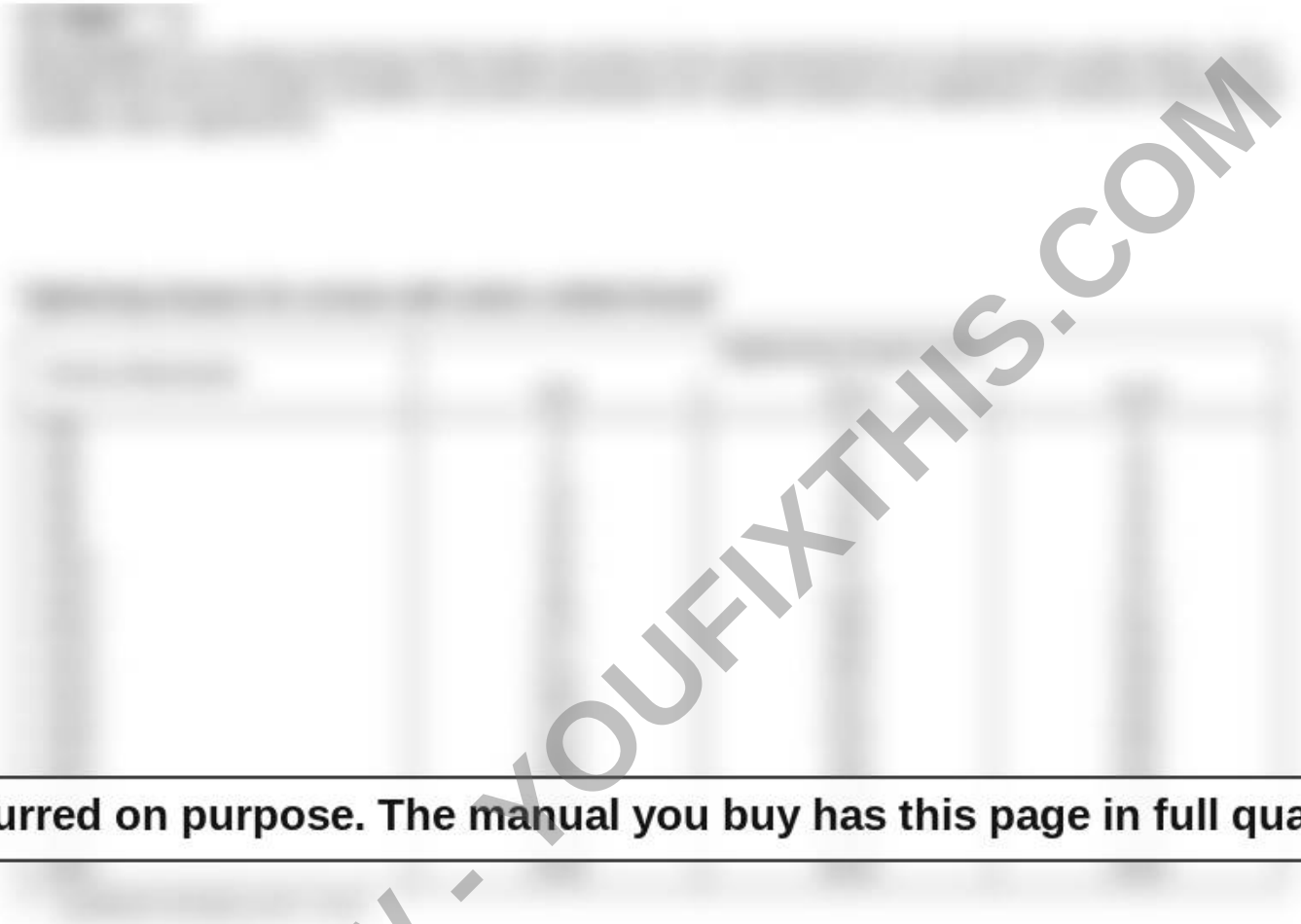
62. Remove hexagon screws (1) and fan bearing block (2) together with the fan spacer.

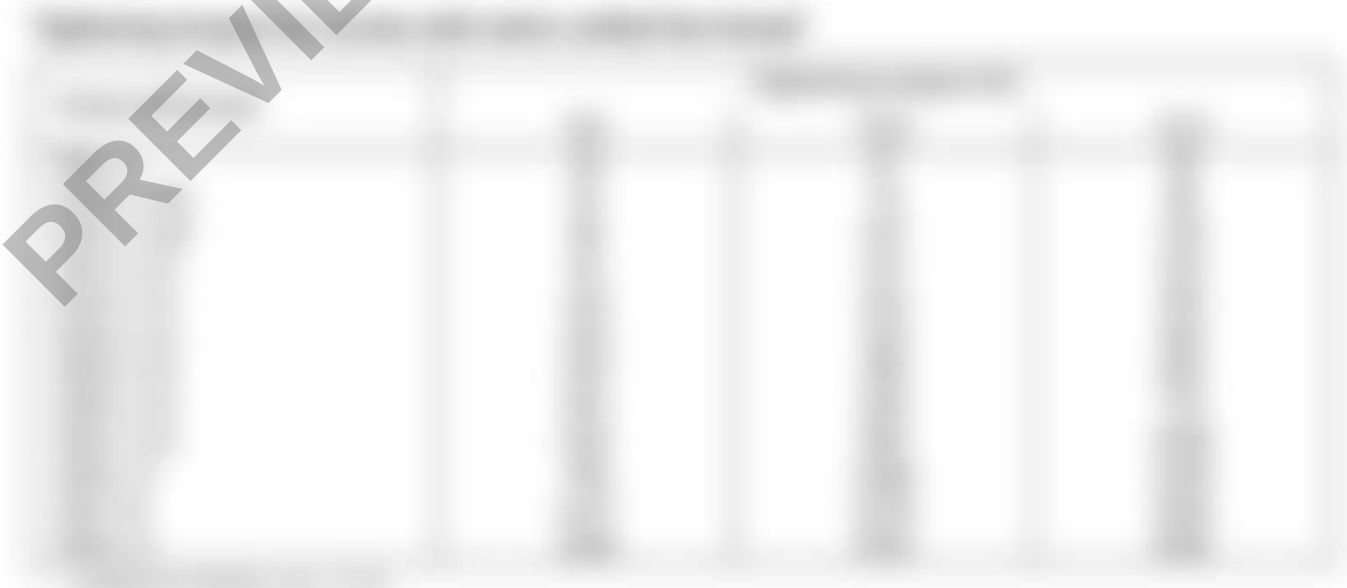
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The values specified in the table apply for screws:

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





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- The polygonal disc wheels from BOMAG are the most important tools of the refuse compactor. They crush, knead and compact the refuse and ensure stability and excellent traction of the machine. These wheels have proved successful of decades and achieve by far the best compaction results.
- In order to maintain the depth effect of the wheels over the entire lifetime of the refuse compactor one must tackle the unavoidable application related wear of teeth in an optimal way. With BOMAG you can choose from forged teeth as basic version and highly wear resistant PREMIUM teeth for extremely long tooth utilization times without reconditioning. With the PREMIUM teeth a tooth utilization period of at least 10.000 operating hours can be guaranteed when working under normal application conditions on domestic refuse.



Fig. 18 Guaranteed tooth life of at least 10.000 operating with BOMAG PREMIUM composite casting teeth.

- For the standard machine class (28 to 37 t) the basic forged teeth are designed as replaceable teeth in form of exchangeable caps mounted on the basic body. The forged teeth of the large BOMAG refuse compactor class (46 to 55 t) and all PREMIUM versions are welded on, but can also be renewed by simply cutting them off.



Fig. 19 Adjustable scrapers and BOMAG exchangeable caps preserve maximum compaction power over the entire life of the machine.

- The scrapers ensure full effectiveness of the BOMAG wheel system. Each wheel is equipped with two scraper beams, which are welded to the frame. The solid, adjustable scrapers reach in between the polygonal discs and thereby reliably prevent blockage of the compactor wheel. This maintains full functionality of the wheel, even under extreme conditions.

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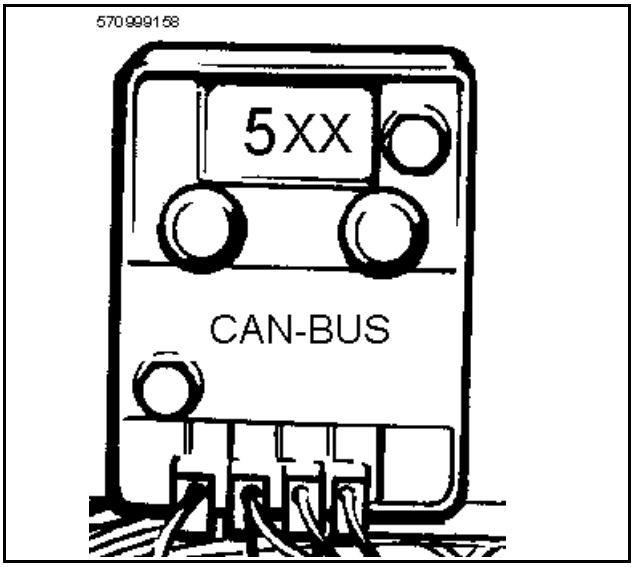


Fig. 2 Display module in central electrics

Warning lamp for differential pressure switches, B21, B22, B121 and B122

The switch contacts connect the monitoring board (A15, terminal X1:119) to ground. The differential pressure switch warning lamp **o** lights.

Warning light for differential pressure switch, B42

The switch contact connects the monitoring board (A15, terminal X1:120) to ground. The differential pressure switch warning lamp **p** lights.

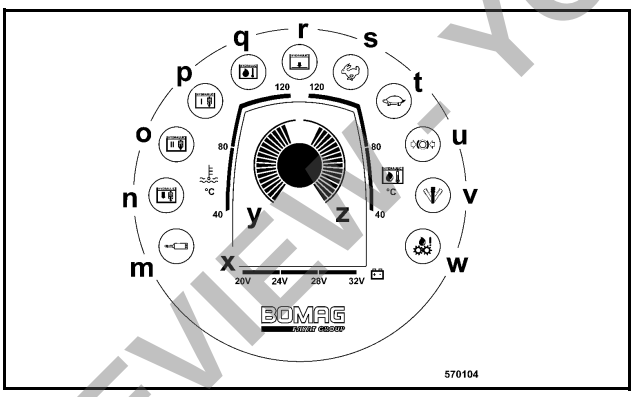


Fig. 3 Monitoring module

Pressure switch in return flow filter block, B25

Pressure switch 1(Fig. 4) is set to $3.5^{\pm 0,5}$ bar and reports excessive dynamic pressure before the primary filter.

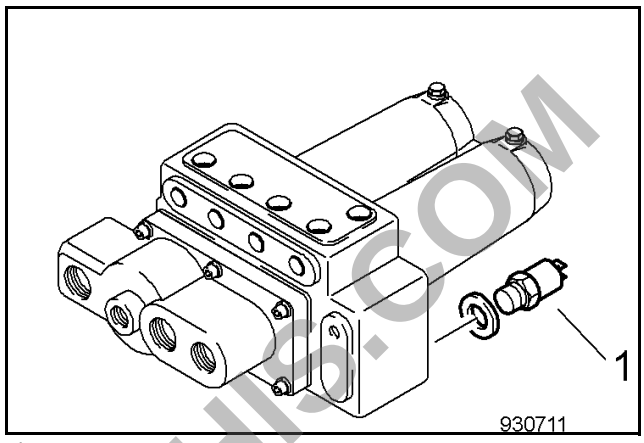


Fig. 4

Monitoring by ESX-control

i Note

The signals are evaluated by the ESX-control with a delay of 120 seconds (timing relay K113) and displayed 10 seconds later in the display module (Fig. 5) with code "580". The warning buzzer is activated at the same time.

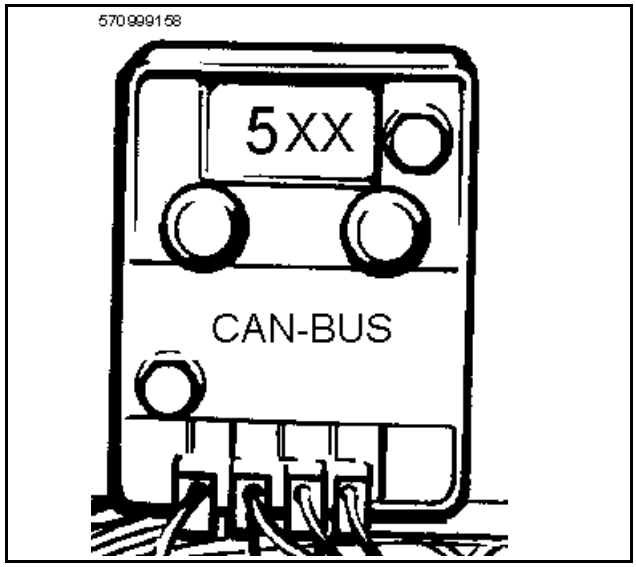


Fig. 5

Warning lamp for return flow filter block, B25

The timer relay (K113) is activated via the switch contact (ground switching).

The monitoring board (A15, terminal X1:118) is connected to ground 120 seconds later. The return flow filter warning lamp **n** lights.

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3 Known faults

Despite the fault monitoring of inputs and outputs on the ESX control, the ESX control is not able to detect all faults. The following list contains a selection of known fault reactions of the control, which mostly have a different cause to the one described in this documentation.

Behaviour of machine	Possible cause
The ESX control detects several faults of engine and hydraulic system monitoring at the same time (**524, 526, 570,...**). However, the corresponding control lamps in the two fault indicators do not light. The lamp test of the fault indicators is also out of function.	Fault indicators without voltage supply (F24 tripped). The ESX inputs are drawn to ground through the LEDs of the fault indicators. For the control this is the same as when a sensor (e.g. oil pressure) delivers a ground signal. ☞ Check the voltage supply for the fault indicators.
The control detects line breakage on all 4 wheel drive motors (**100, 105, 110, 115**) (only on BC972). Steering is very jerky, but no fault is detected.	Missing / poor ground connection on ESX housing. ☞ Check ground connection, renew if necessary.
All control lamps in both fault indicators are permanently on. The engine can be started, but the machine will not move. The fault display of the central electrics does not show a fault code.	Terminal 15 signal for control and override relay missing: ☞ Check fuse F25
The fault code **514** (input engine speed: no pulses from the rotary encoder, even though the engine is running) is already displayed while the engine is at rest.	Voltage is applied to input MD+ (PIN 36) on the ESX control, even though the engine is not running. This may occur when the link between generator and central electrics is interrupted, because in this case the potential at input MD+ will be raised to +24V through the resistor R10 or the coil K61. The control then assumes that the engine is running and thus expects pulses from the speed sensor.
Machine is in override state and indicates fault **934**.	Up to software version 2.01 this fault was additionally displayed to fault code **514** (see above). This means, that the machine has switched to override state when a fault occurred at the rotary encoder. This fault is a software fault, that has been eliminated with version 3.00.
Machine is in override state and indicates fault **960, 962**.	Intermittent contact on Pin 20, 42 or 43 Fault has been eliminated with software version 4.03

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Fault in engine control unit

Fault code	Description of fault	Possible cause	Terminal on ESX	Inputcode for diag-nose	Fault reaction
140	General fault warning	An engine fault has occurred	CAN		1
141	Engine stop signal	Severe engine fault	CAN		1
142	Rotary speed potentiometer (only constant throttle retrofit machines)		CAN		1
143	Command value fault	Wrong command value from travel control	CAN		1
144	Engine oil level	Level too low	CAN		1
145	Oil pressure	Pressure too low	CAN		1
146	Oil pressure sensor	Device fault	CAN		1
147	Charge air pressure	Fault	CAN		1
148	Charge air pressure sensor	Device fault	CAN		1
149	Charge air temperature	Temperature too high	CAN		1
150	Charge air temperature sensor	Device fault	CAN		1
151	Ambient air pressure	Pressure too high	CAN		1
152	Coolant	Temperature too high	CAN		1
153	Coolant temperature sensor	Device fault	CAN		1
154	Diesel temperature	Temperature too high	CAN		1

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14.11 Parameter change

Input code	Description of display function	Display values
1 5 1	Enable parameter change function "Travel pedal connection type" (see Travel pedal connection type" page 16)	Display value **1 5 1**
1 5 2	"Travel pedal connection type": Throttle pedal potentiometer directly connected to engine control unit (0...5 V)	see setting instructions on page 16!
1 5 3	"Travel pedal connection type": Throttle pedal potentiometer directly connected to ESX (0..8.5 V)	see setting instructions on page 16!
2 5 6	Enable parameter change function "Use of arm rest switch" (see Use of arm rest switch" page 20)	Display value **2 5 6**
2 5 7	Switch off "Use of arm rest switch" (no arm rest switch)	see setting instructions on page 20!
2 5 8	Activate "Use of arm rest switch"	see setting instructions on page 20!
6 4 0	Activates function "parameter input steering"	Display value **6 4 0**
6 4 1	Activation of option "steering joystick"	see setting instructions on page 15!
6 4 2	Deactivation of option "steering joystick"	see setting instructions on page 15!
6 4 3	Activation of option "steering wheel"	see setting instructions on page 15!
6 4 4	Deactivation of option "steering wheel"	see setting instructions on page 15!
6 4 5	Activation of the arm rest initiator	see setting instructions on page 15!
6 4 6	Deactivation of the arm rest initiator	see setting instructions on page 15!
6 4 7	Deactivation of mechanical end position damping	see setting instructions on page 15!
6 4 8	Activation of mechanical end position damping	see setting instructions on page 15!
6 4 9	Deactivation of electronic end position damping	see setting instructions on page 15!
6 5 0	Switch on function "parameter input setting dozer blade function" (only EB machines).	Display value **6 5 0**
6 5 1	Activation "characteristic 1 (slightly progressive)"	see setting instructions on page 17!
6 5 2	Activation "characteristic 2 (more progressive)"	see setting instructions on page 17!
6 5 3	Activation "characteristic 3 (highly progressive)"	see setting instructions on page 17!
6 5 4	Activation "no characteristic 1"	see setting instructions on page 17!
6 6 0	Activates "parameter input 2nd speed range" (only BC972)	Display value **6 6 0**
6 6 1	Activation "slow speed" for 2nd speed range (only BC972).	see setting instructions on page 14!
6 6 2	Activation "medium speed" for 2nd speed range (only BC972).	see setting instructions on page 14!
6 6 3	Activation "high speed" for 2nd speed range (only BC972).	see setting instructions on page 14!

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

18 / 730 / ArHt2

Error description AIR HEATER VALVE
Air heater magnet valve: the current drain measured by ECU is out of the target range

Error codes
DEUTZ-Errorcode: 18
BlinkCode (short-long-short): 2 - 6 - 3
SPN: 730
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
12. Errormode not identifiable

Errordetection
Errorlamp shows permanent light. Entry in errormemory.

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

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

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

19 / 676 / ArHtCD_NoLd

Error description AIR HEATER
Air heater relay: the ECU detects no switching operation at the input of a readback process

Error codes
DEUTZ-Errorcode: 19
BlinkCode (short-long-short): 2 - 6 - 3
SPN: 676
possible FMI:
12. Errormode not identifiable
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
Relay energized, but no feedback on sense line, relay defective or wrong wired, preheat component defective, connection cable demaged

Take actions for error repair
Check cabling of preheat component, if relay not working,check relay and if necessary replace it, check preheat component and if necessary replace it, check connection cable and if necessary repair or replace it

other error properties
System reaction: Warning
Behaviour error lamp: permanent light
Selfhealing: no
Signal Priority: 3
Measurement @ errortime: setpoint for output status

20 / 676 / ArHtCD_RlyErr

Error description AIR HEATER
Air heater relay: the ECU detects an implausible signal at the input of a readback process

Error codes
DEUTZ-Errorcode: 20
BlinkCode (short-long-short): 2 - 6 - 3
SPN: 676
possible FMI:
5: current to low or broken wire
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
Relay not energized, but working voltage on sense line, relay defective (can not disconnect or switch off), preheat component defective, connection cable demaged

Take actions for error repair
Check cabling of preheat component, if relay not working,check relay and if necessary replace it, check preheat component and if necessary replace it, check connection cable and if necessary repair or replace it

other error properties
System reaction: Warning
Behaviour error lamp: permanent light
Selfhealing: no
Signal Priority: 3
Measurement @ errortime: setpoint for output status

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169 / 656 / InjVlvCyl6A

Error description INJECTOR 6
Injector 6: the current drain measured by ECU is above the target range

Error codes
DEUTZ-Errorcode: 169
BlinkCode (short-long-short): 1 - 6 - 3
SPN: 656
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 6), 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

170 / 656 / InjVlvCyl6B

Error description INJECTOR 6
Injector 6: the current drain measured by ECU is underneath the target range

Error codes
DEUTZ-Errorcode: 170
BlinkCode (short-long-short): 1 - 6 - 3
SPN: 656
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 6), 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

171 / 657 / InjVlvCyl7A

Error description INJECTOR 7
Injector 7: the current drain measured by ECU is above the target range

Error codes
DEUTZ-Errorcode: 171
BlinkCode (short-long-short): 1 - 6 - 4
SPN: 657
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 7), 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

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Removing and installing the temperature sensor

Environment

Catch running out fluids in a suitable vessel and dispose of environmentally.

Note

Follow the corresponding documentation in the operating instructions to drain and fill the cooling system.

Removing the temperature sensor

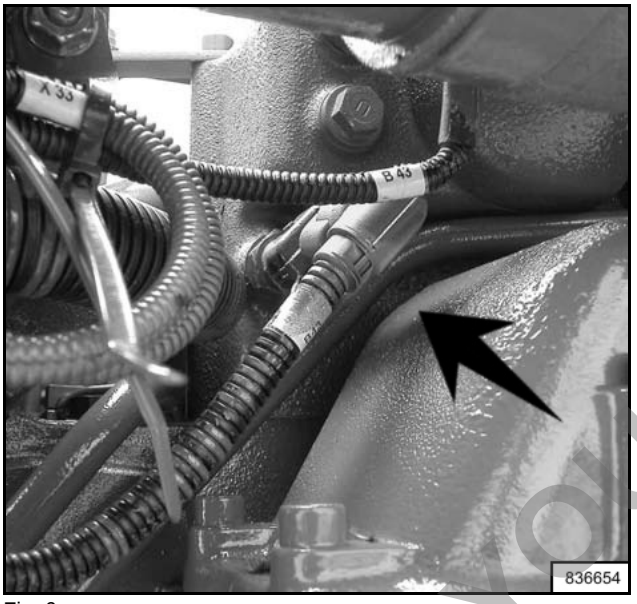


Fig. 6

- Unlock and pull out the cable plug (Fig. 6).

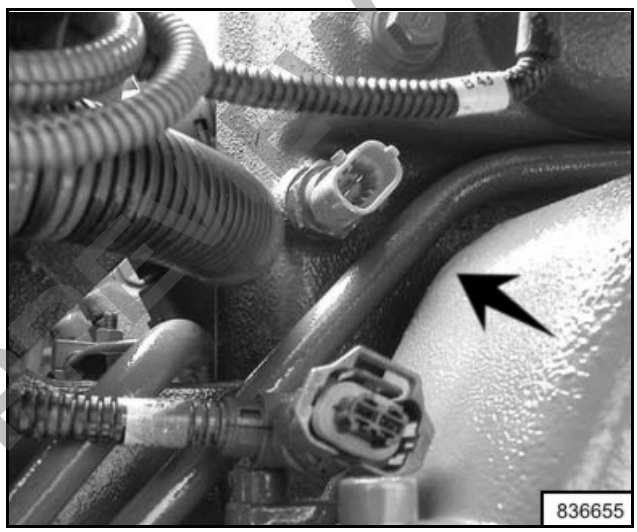


Fig. 7

- Unscrew the coolant temperature sensor (Fig. 7).
- Check the component visually.

Installing the temperature sensor

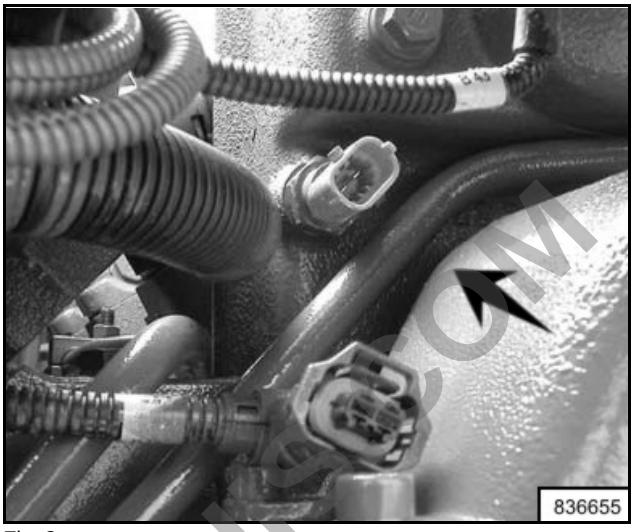


Fig. 8

- Tighten the coolant temperature sensor (Fig. 8).

Note

Make sure that the seal rings are present .

Tightening torque: $22^{\pm 2}$ Nm.

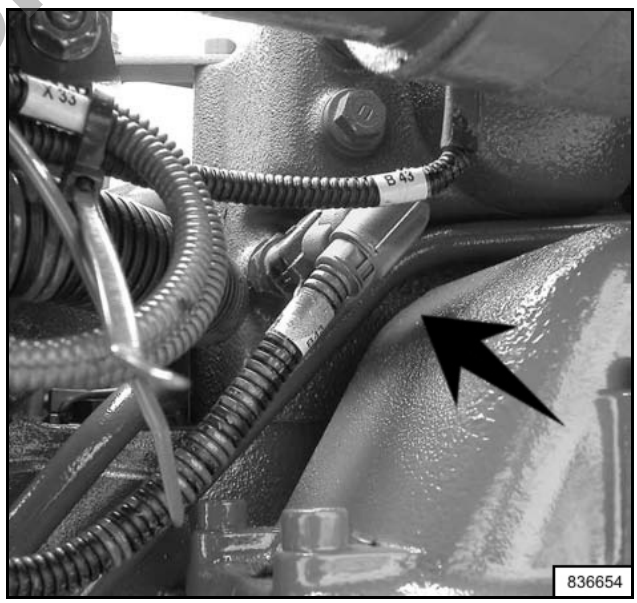


Fig. 9

- Push on the cable plug (Fig. 9).

Note

Delete the fault entry in the fault log of the engine control unit.

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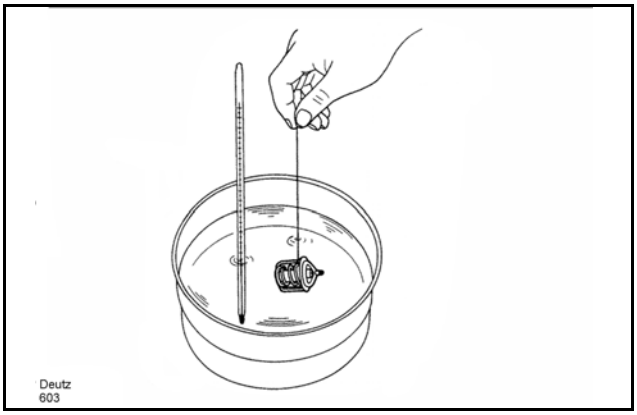


Fig. 3

- Warm up the thermostat in a water bath (Fig. 3).

i Note

In order to determine the exact start of opening the temperature should be measured as close to the thermostat as possible, but without touching it.

The water must thereby be stirred continuously, to ensure even temperature distribution.

The temperature increase should not exceed 1°C/ min, as otherwise the start of opening will be delayed accordingly.

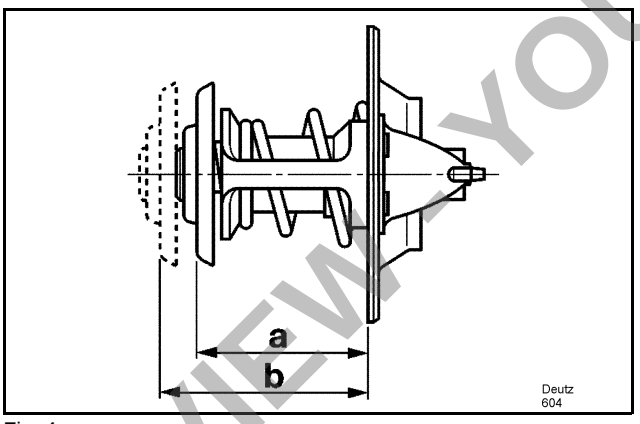


Fig. 4

- Measure and write down the measurement "b" on the thermostat . (Fig. 4).
- Calculate the stroke.

Stroke = b - a

i Note

Stroke length min. 8 mm.

8.18 Servicing the fan V-belt

⚠ Danger

Danger of injury!

Work on the fan V-belt must only be performed with the engine shut down.

Checking the fan V-belt

⚠ Caution

A belt tension meter is required to check the V-belt tension.

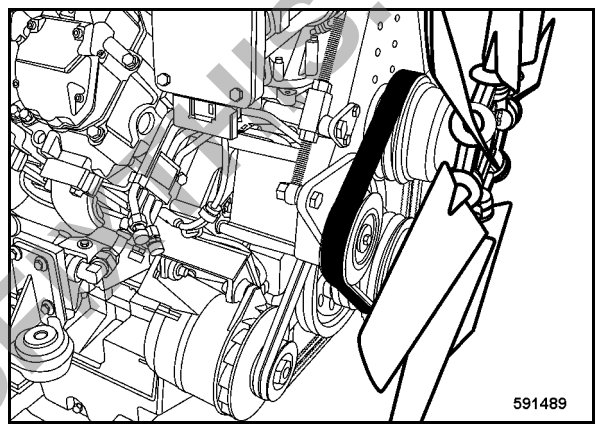


Fig. 5

- Inspect the entire circumference of the V-belt (Fig. 5) visually for damage and cracks.
- Replace damaged or cracked V-belts.

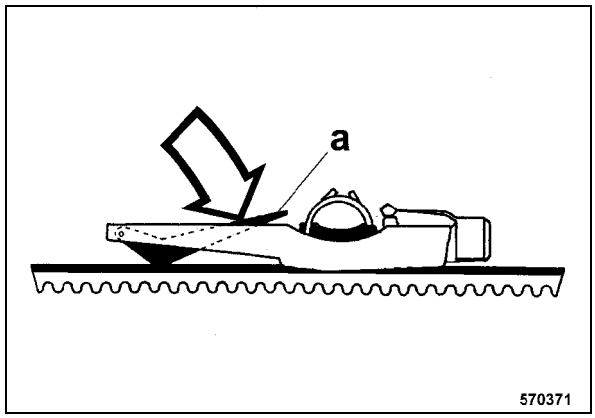


Fig. 6

- Press the indicator arm (a) of the tester (Fig. 6) into the gap of the measuring scale.
- Place the meter in the middle between the V-belt pulleys on the back of the fan V-belt.

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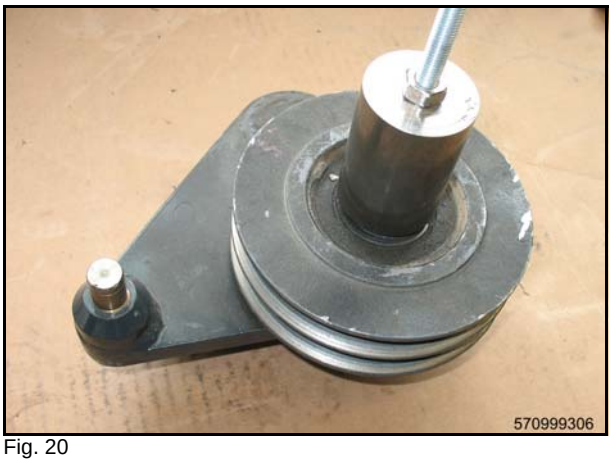


Fig. 20

25. Assemble the used V-belt pulley to the **new** tensioning lever (No. 57002269) using the assembly aid (Fig. 20).

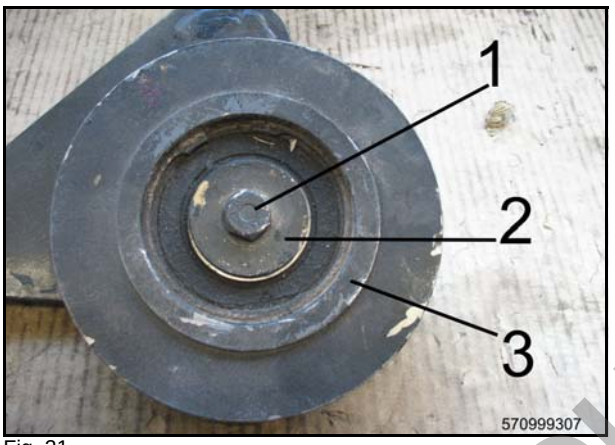


Fig. 21

26. Fasten the V-belt pulley (3) again with washer (2) and screw (1) (Fig. 21).



Fig. 22

27. Lubricate the new tensioning lever with oil and insert it into the bearing location of the mounting plate (Fig. 22).

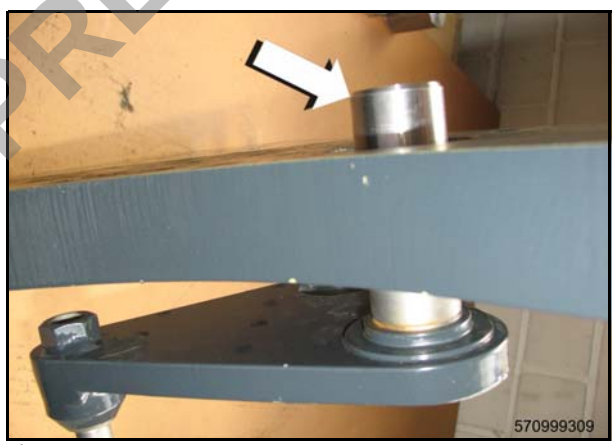


Fig. 23

28. Insert the small bushing of the assembly aid on the opposite side (Fig. 23).

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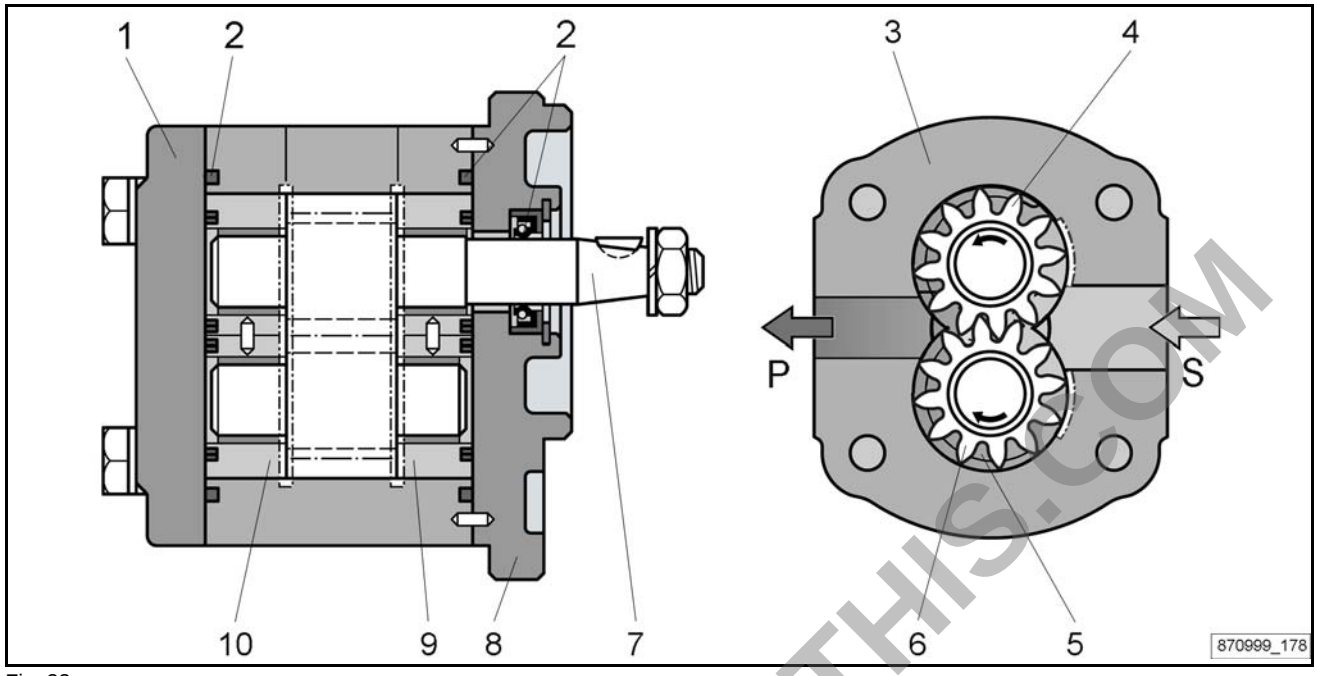


Fig. 33

1	Cover	6	Gear (driven)
2	Seals and gaskets	7	Shaft
3	Housing	8	Flange
4	Gear (driving)	9	Bearing plate
5	Displacement chamber	10	Bearing plate

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Removing the control block

- Shut down the engine and operate all valves in the control block to end position in order to relieve pressure.
- Place a collecting vessel under the control block to catch escaping pressure fluid.
- Lower all loads.

i Note

The control block still contains pressure fluid!

- Remove the control block from the machine.
- Place the removed control block on a clean, stable and safe base.
- Protect open bores and ports of the block elements against dirt, or close them with plastic plugs.

Replacing control block components

- Place the control block in a clean pan to catch pressure fluid residues.

i Note

The following elements may be exchanged.

1. Seals and gaskets

2. Pressure valves

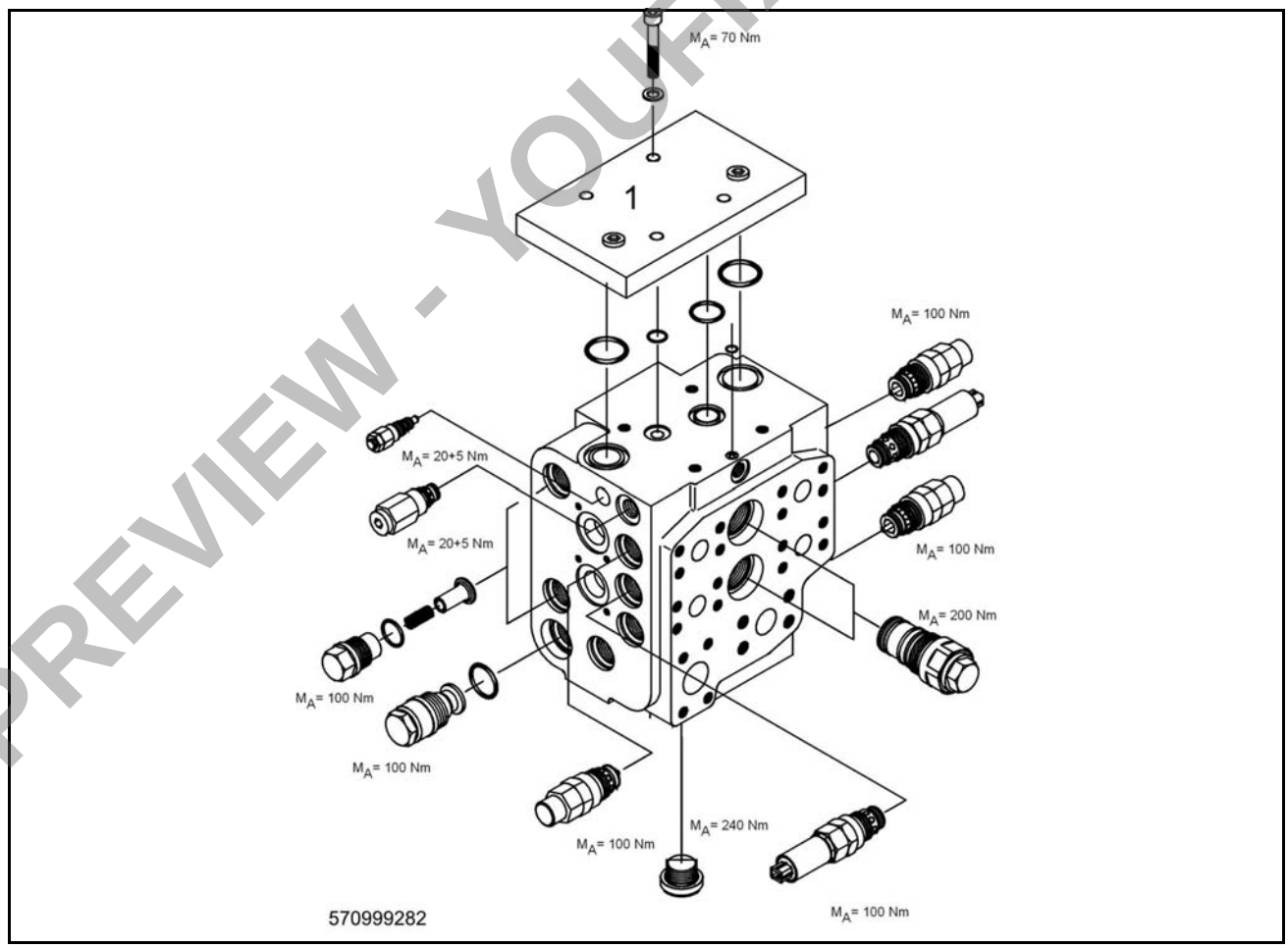


Fig. 17

- Loosen the socket head cap screws and remove plate (1).

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i Note

The gap should be 0.4 to 0.8 mm.

- Take off the drive V-belt and rotate the V-belt pulley by hand while the magnetic clutch is disengaged.

i Note

In case of excessive flatness faults or deviations the magnetic clutch needs to be replaced.

Cross-section of magnetic clutch

Fig. 3 shows a cross-section of the magnetic clutch. If the coil (7) is not supplied with operating voltage, there is no contact between the front plate of the clutch (1) and the V-belt pulley (2). A spring presses the front plate away from the belt pulley. The V-belt pulley rotates with the bearing (3) in idle speed, the compressor does not work. When the coil is supplied with operating voltage (12 or 24 V), a magnetic field is generated and pulls the front plate of the clutch. Both front plate and compressor shaft (8) are then driven by the V-belt pulley, the compressor works.

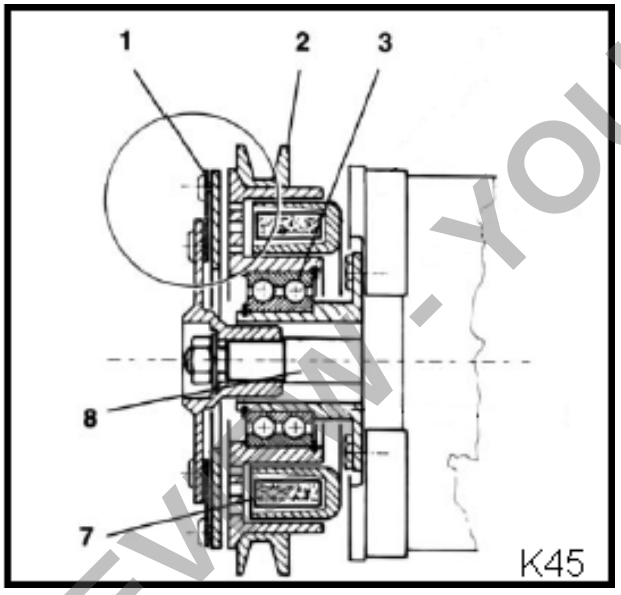


Fig. 3 Cross-section of magnetic clutch

11.11Inspection and maintenance work

- Visual inspection of the complete system for damage.
- Check the compressor mounting bracket on the vehicle engine for tight fit and damage.
- Check the condition, alignment and tightness of the V-belt.
- Check the routing of refrigerant hoses and cables in the area of the vehicle engine and transmission, as well as on the chassis for chafing and rectify any detected faults. Ensure sufficient clearance to hot parts, such as the exhaust; install a protective shield, if necessary.
- Check the routing of hoses and hoses on the attachment box or in the cabin.
- Check all hose and screw fittings for leaks.
- Check the fastening of the condenser unit.
- Clean the condenser fins, replace the condenser block if damaged fins are found.
- Check the fastening of the evaporator unit.
- Check the function of evaporator and condenser fans.
- Check the electric control panel. If discolorations on conductors are found, these should be replaced and possibly also the corresponding relays.
- Switch on the cooling system and check the refrigerant level.
- Filter/dryer and filter/dryer/fluid container combinations must always be replaced after opening the refrigerant circuit. If these are in service for more than 1 year, there is a risk that they may be clogged by excessive absorption of moisture! The filter/dryer should be replaced in regular intervals.
- Measure the temperature on the evaporator: Measure the intake air temperature - Measure the blow out air temperature - The temperature difference should be at least 8-10 K.
- Measuring the pressure in the refrigerant circuit

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Duty cycle I (Fig. 16)

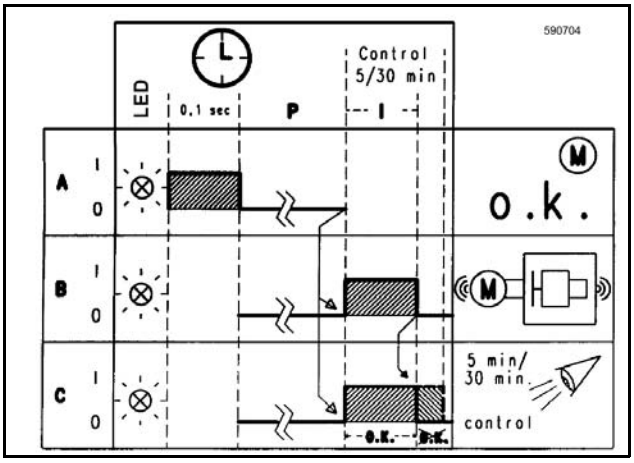


Fig. 16 Sequence of a lubrication cycle

A Monitoring of motor and control light
B Sequence of time
C Sequence of monitoring time
I Duty cycle
P Pause

The duty cycle A(Fig. 16) is approx. 45 seconds. It depends on the grease used for lubrication and the operating temperature. It is monitored by a piston detector mounted to the sub-distributor. The piston detector (initiator, B52 (Fig. 17)) terminates the duty time after all pistons in the sub-distributors have ejected their quantity of grease. The duty cycle is indicated by the control light in the cabin lighting up.

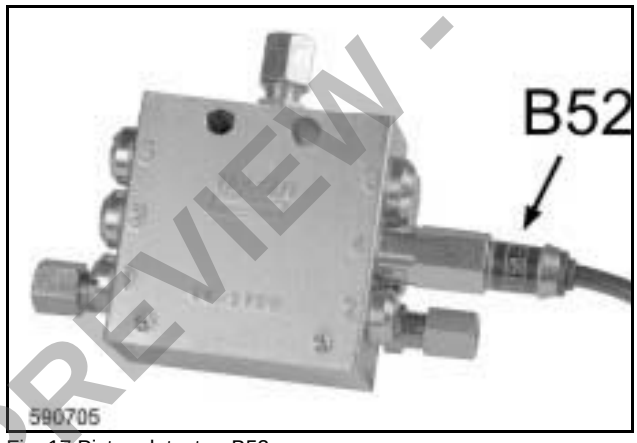


Fig. 17 Piston detector, B52

If the duty time is interrupted by switching of the ignition switch, it will be eresrated from the beginning when switched on again.

Monitoring time C (Fig. 18)

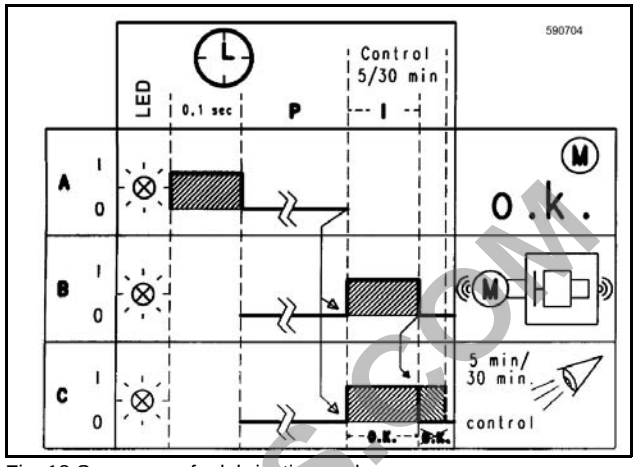


Fig. 18 Sequence of a lubrication cycle

A Monitoring of motor and control light
B Sequence of time
C Sequence of monitoring time
I Duty cycle
P Pause

A fixed monitoring time of max. 5 or 30 minutes (depending on jumper setting) runs parallel to the duty time (Fig. 19).

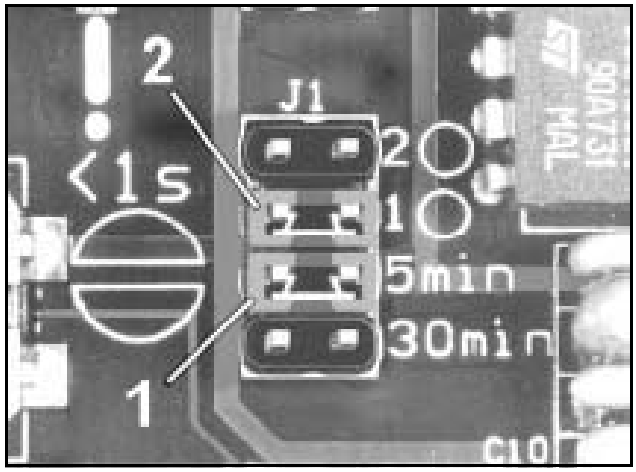


Fig. 19 Jumper for monitoring ranges

1 - Jumper for monitoring time, 5 minutes (5min) or 30 minutes (30min).

2 - Jumper for 1st lubrication circuit (1 O) or for 2nd lubrication circuit (2 O).

i Note

The monitoring time normally ends with the end of the duty time.

- If no shut-down signal from the piston detector (initiator, B52) is received by the control board within 5 or 30 minutes, a fault message will be displayed.

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15.1 Steering/working pump

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3. Teileliste • *3. Parts List*

01.02.2008 Teileliste / Parts List

Matnr./Material No : 16218391
Auftrag/Order :
Produkt/Product : GFT 110 R3 9279 i=83,0 KDN-K
Zeichnungs-Nr./Drawing No : 0 6158/1279 3

Menge Quantity	Pos. Item	Benennung Designation
1,000	001	Tragachse GFT 110 R3 9279 Spindle
1,000	002	Stuetzring GFT 110 R3 9279 Supporting ring
1,000	003	Mitnehmer GFT 110 Coupler
1,000	004	Planetensteg 1wg GFT 110 Planet carrier
1,000	005	Lagerring * GFT 80/110 Bearing ring
3,000	006	Sicherungsring 135x4 Snap ring DIN 472
1,000	007	Verschlussstopfen KAS00119 (D=180) Cap plug
1,000	008	Sprengring SP 150 Snap ring DIN 5417
1,000	010	Zwischenring GFT 102 R2** Spacer ring
5,000	011	Planetenrad GFT 110 Planet gear
10,000	012	Zylinderrollenlager RSL 183013 Cylindrical roller bearing DIN 5412
10,000	013	Anlaufscheibe F 91809 Locating ring
5,000	014	Sicherungsring 95x3 Snap ring DIN 472
1,000	015	Gleitringdichtung 265x293x38 A Face seal 76.97H-26NB60

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Gefahren können insbesondere dann auftreten:
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- wenn das Produkt zu nicht bestimmungsgemäßem Gebrauch eingesetzt wird.

Alle Personen, die mit dem Betrieb der Anlage oder des Produktes befaßt sind, müssen:
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- mit Abschaltprozeduren, z.B. "NOT-AUS", der ganzen Anlage oder den für die jeweilige Tätigkeit wichtigen Teilen der Anlage vertraut sein,
- technisch ausreichend ausgebildet und zu der jeweiligen Tätigkeit befugt sein,
- ihre Aufgaben und Befugnisse kennen.

Sie müssen unbedingt:
- alle Handlungen unterlassen, die Gefahren für Körper und Gesundheit, Gefahren für das Produkt oder Gefahren für andere Werte bedeuten könnten,
- alle an dem Produkt vorgenommenen Veränderungen dem zuständigen Vorgesetzten oder Betreiber mitteilen,
- alle Veränderungen beim Betrieb des Produkts, z.B. unübliche Laufgeräusche, dem zuständigen Vorgesetzten oder Betreiber mitteilen.

An dem Produkt dürfen keine Veränderungen vorgenommen werden, die nicht zuvor von LOHMANN+STOLTERFOHT genehmigt worden sind.

Der Anwender verpflichtet sich:
- am und um das Produkt für Sauberkeit und Ordnung zu sorgen,
- das Produkt nur in einwandfreiem Zustand zu betreiben,
- das Produkt nur zum bestimmungsgemäßen Gebrauch einzusetzen,
- das Produkt nur im Rahmen der unter 2.5 aufgeführten technischen Daten einzusetzen,
- umlaufende Teile durch geeignete Schutzvorrichtungen abzusichern,
- das Personal soweit wie nötig zum Tragen von Schutzkleidung zu verpflichten,
- dem zuständigen Personal diese Betriebsanleitung auszuhändigen.

In particular, hazards may occur:
- if insufficiently trained personnel manipulates the product,
- if the product is inexpertly installed, operated and serviced,
- if the product is used for other than the intended purposes.

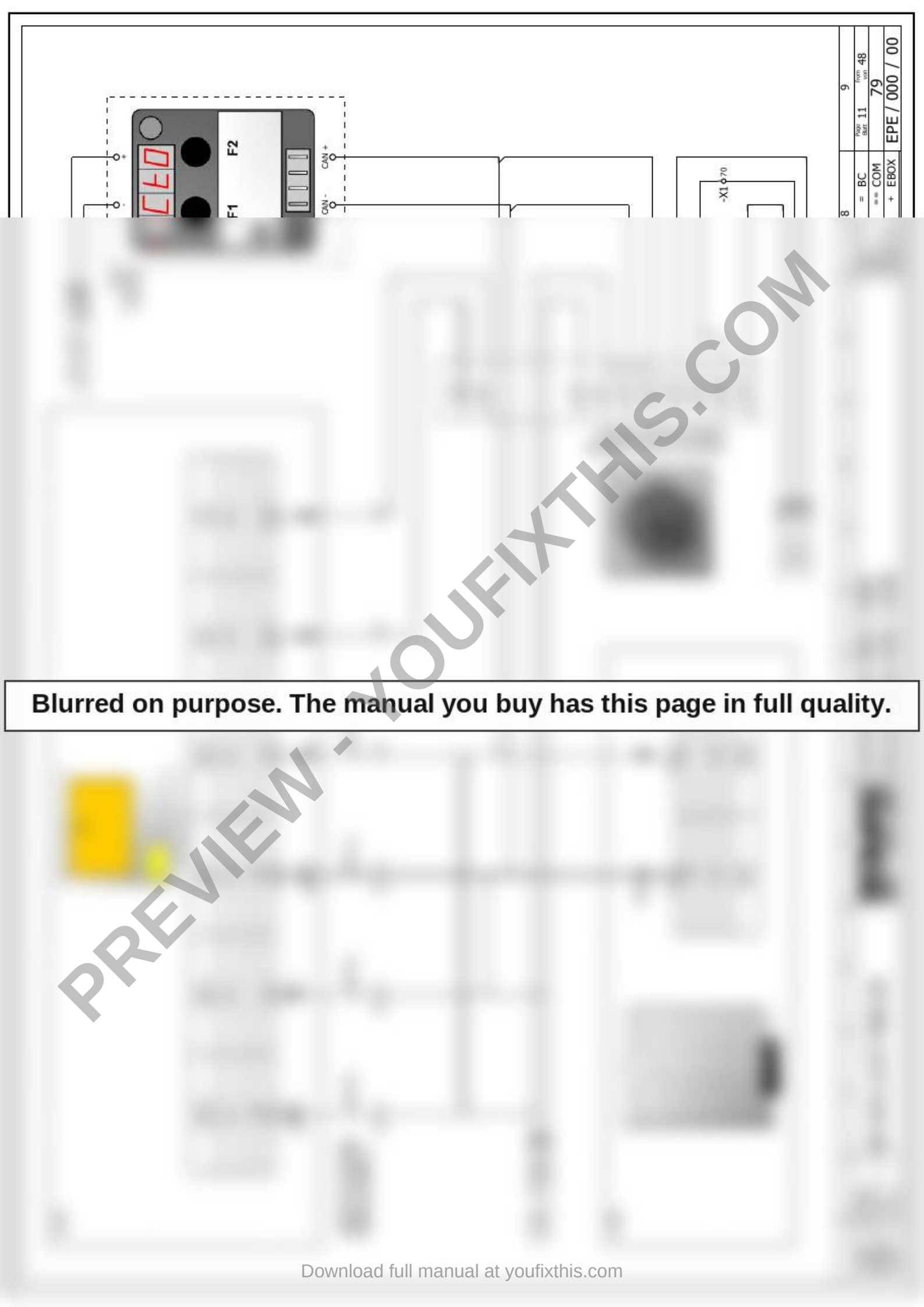
All persons responsible for the operation of the plant or product must:
- have definitely read and understood the chapter "Notes on Safety"
- know these Operating Instructions or at least be familiar with those parts where the respective *activity and* associated dangers are described,
- be familiar with shut-down procedures, e.g. "Emergency-OFF", relating to the entire plant or to plant items important to the relevant activity,
- have adequate technical qualifications and be authorized to perform the relevant activity,
- know their specific duties and authority.

Moreover, it is mandatory that these persons:
- refrain from doing anything that might cause bodily harm or constitute a danger to health, the product or other assets,
- inform their superiors in charge or the Operator of any modifications made to the product,
- inform their superiors in charge or the Operator of any changes detected in the operational behaviour of the product, e.g. unusual running noise.

No modifications to the product are permitted unless the prior approval of LOHMANN+STOLTERFOHT has been obtained.

The User shall undertake to:
- ensure that the product and its surroundings are kept clean and in good order,
- operate the product only when in perfect condition,
- use the product exclusively for the intended purpose,
- use the product only in the framework of the technical characteristics listed under 2.5,
- safeguard rotating parts by means of suitable protective systems,
- instruct the personnel to wear protective clothing, to the extent deemed necessary,
- distribute these operating instructions among the personnel in charge.

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