1.1 Introduction

General

This manual:

- addresses the BOMAG Customer Service and professionally trained personnel.
- provides support for repair work or maintenance procedures on the machine.

This manual described the deinstallation, dismantling , assembly, installation as well as the repair of components and assembly groups as far as this makes sense with respect to tools and spare parts supply.

Index

The index is a reference register that will help you to find information in this Service Manual. The index lists keywords in alphabetical order. Cross references (keywords related to page numbers) enable quick and convenient search/navigation.

Keywords concerning the following subjects are listed in the index:

- Electrical operating means
- Plug designations
- Overviews
- Fault codes
- Troubleshooting
- ...

Documentation

For the BOMAG machines described in this manual the following documentation is additionally available:

- Operating and maintenance instructions
- Spare parts catalogue
- Service information (if necessary)

Genuine BOMAG spare parts

Use only genuine BOMAG spare parts.

Spare parts needed for repairs can be taken from the spare parts catalogue for the machine.

Updating service

This manual is not subject of an updating service. For this reason we would like to draw your attention to the additionally published service informations.

In case of a new release all necessary changes will be included.

In the course of technical development we reserve the right for technical modifications without prior notification.

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2.1 BW 100 AD-5

2.1.1 Technical data

Dimensions

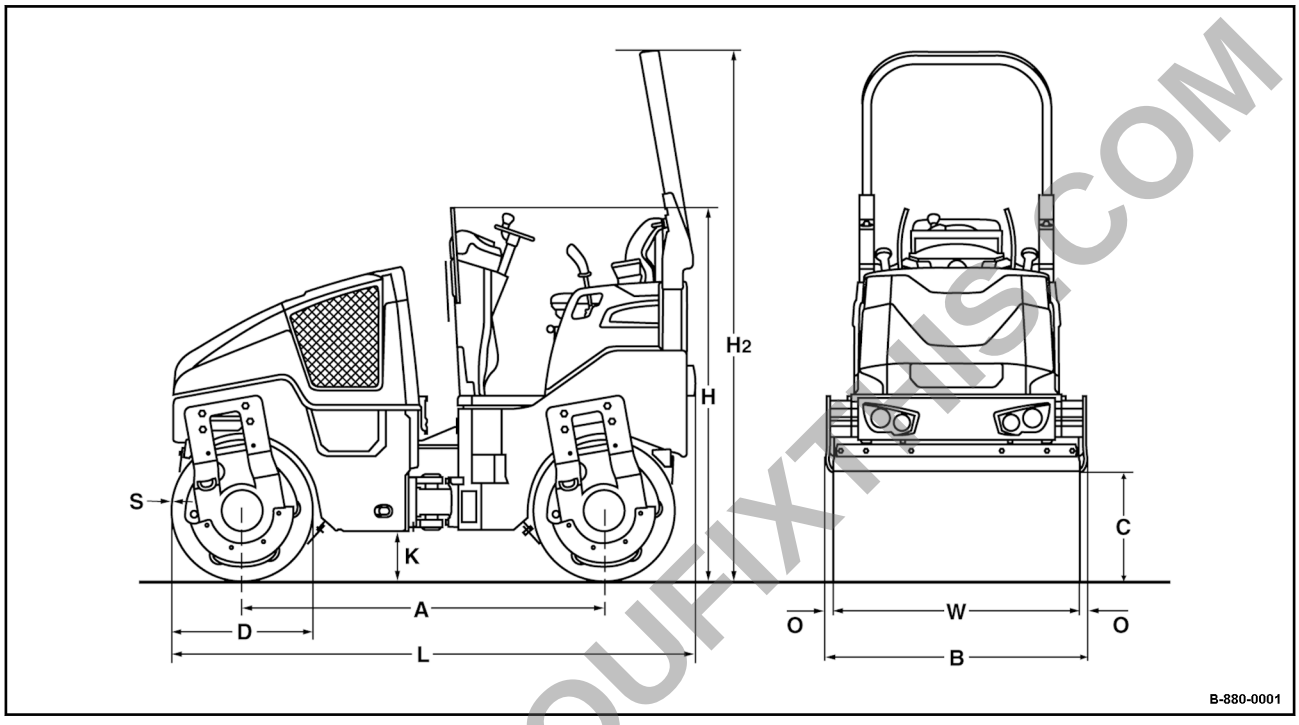


Fig. 29

A	B	C	D	H	H_2
1752 (69)	1072 (42)	523 (20.6)	700 (27.6)	1808 (71)	2568 (101)
Dimensions in millimetre (Dimensions in inch)					

K	L	O	S	W
254 (10.0)	2529 (100)	36 (1.4)	13 (0.5)	1000 (39)
Dimensions in millimetre (Dimensions in inch)				

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Fig. 33: with edge cutter

1 Drums
2 Articulated joint
3 Diesel engine
4 Water tank
5 Edge cutter

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4.1 Overview of electric system

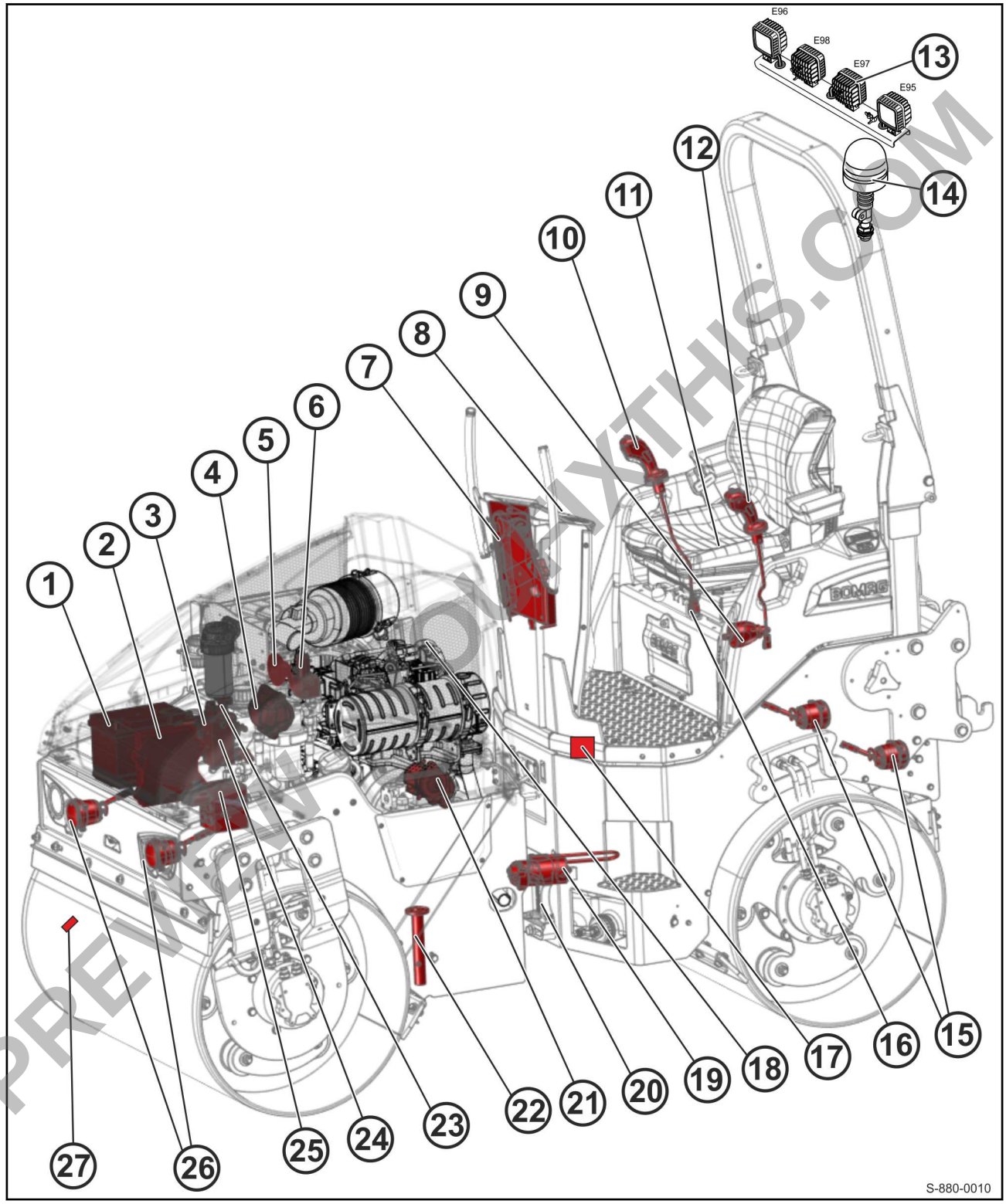
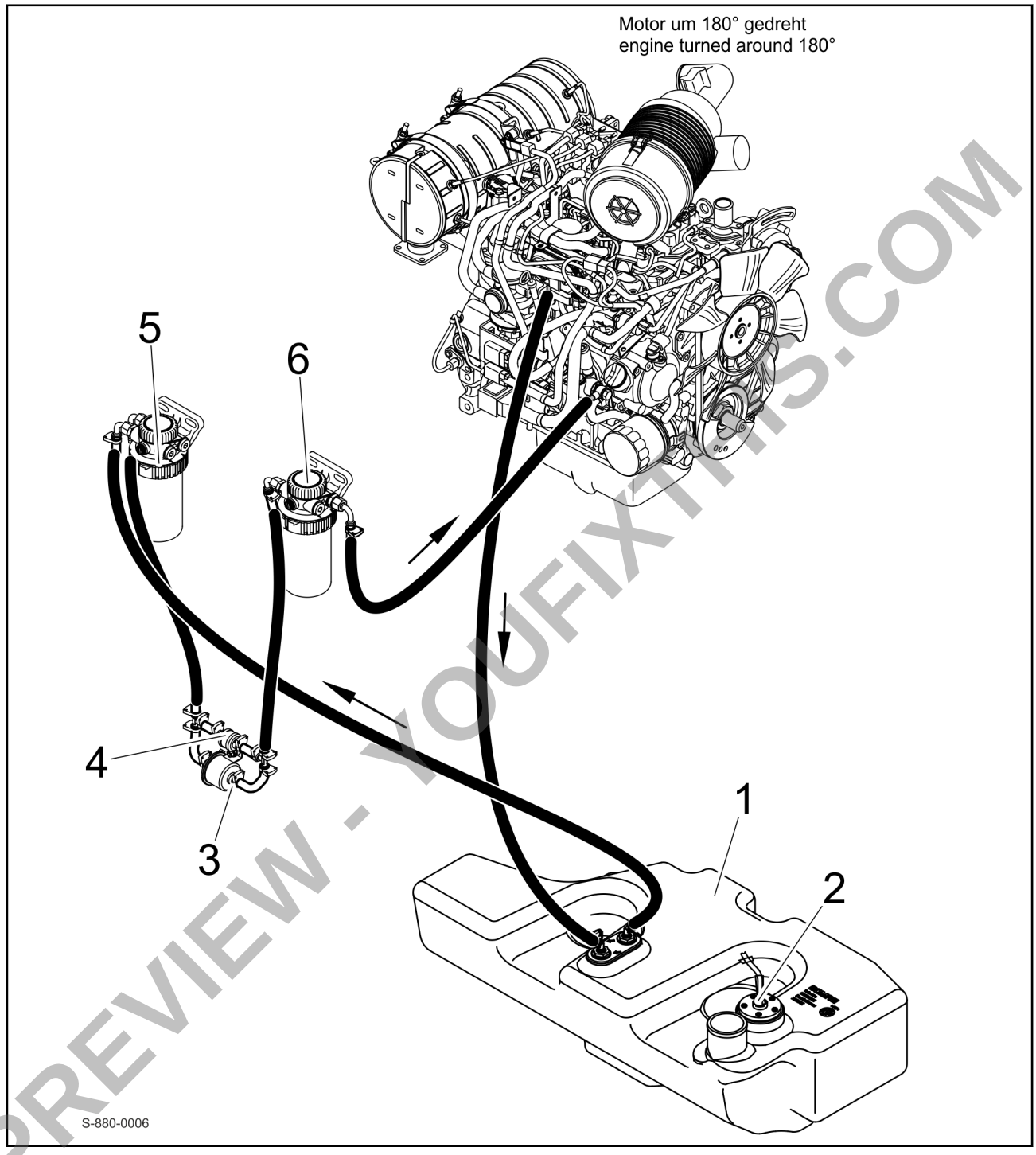


Fig. 45

1 Battery (G01) & main battery switch (S30)
2 Engine control unit (A48), only for machines with exhaust classification Tier4f

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Fig. 137

1 Fuel tank
2 Level sensor (R03)
3 Electric fuel pump (M23)
4 Check valve
5 Fuel pre-cleaner
6 Fuel filter

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2 Front vibration motor
3 Hydraulic oil tank
4 Solenoid valve for chip spreader (Y94), solenoid valve for edge cutters (Y20, Y21, Y240 & Y241) and solenoid valve for hydraulic change-over (Y48)
5 High pressure filter vibration circuit
6 Solenoid valve brake (Y04)
7 Flow divider
8 Steering valve
9 Rear vibration motor
10 Rear travel motor
11 Steering cylinder
12 Travel pump with flushing valve
13 Steering/charge pump & vibration pump
14 Charge circuit filter
15 Solenoid valve vibration (Y54 & Y55)
16 Front travel motor

The travel pump (2) is directly driven by the flywheel of the diesel engine via an elastic coupling, the pump speed is therefore identical with the engine speed.

The tandem gear pump (3 & 4) is driven by the auxiliary drive of the diesel engine.

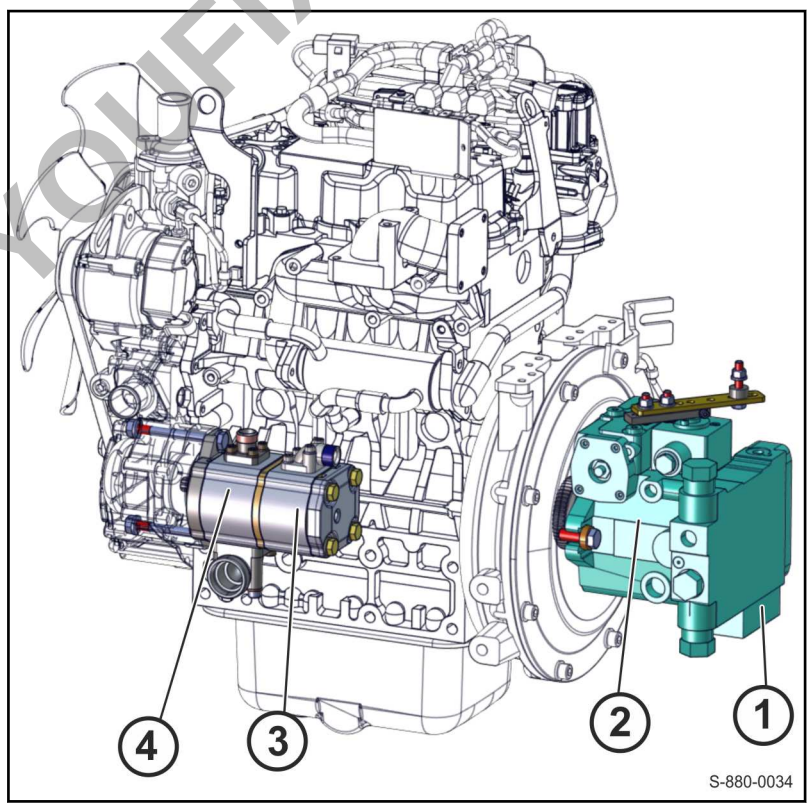


Fig. 226: Pump assembly

1 Flushing valve
2 Travel pump
3 Steering/charge pump
4 Vibration pump

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7.1 Edge cutter

7.1.1 Edge cutter

7.1.1.1 Mounting the tool

1. Park the machine in secured condition ↳ *Chapter 1.2.5 „Parking the machine in secured condition“ on page 23*.

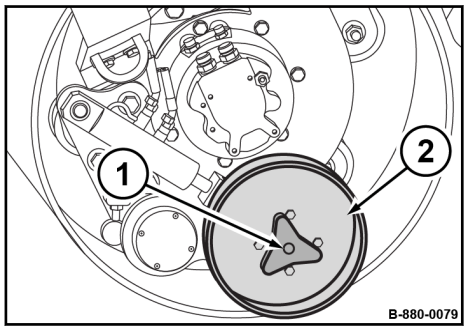


Fig. 363

2. Mount the tool (2) using the star handle screw (1) on the edge cutter.

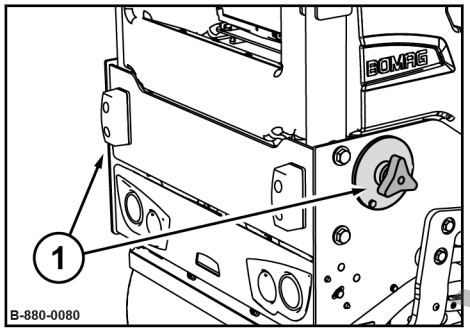


Fig. 364

3. Mount the unused tool to the brackets (1).

7.1.1.2 Lifting / lowering the edge cutter

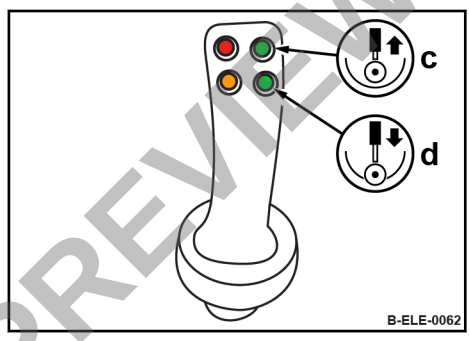


Fig. 365

1. Press button (c) on the travel lever right to lift the right edge cutter.

2. **WARNING!**

   Danger of crushing when lowering the edge cutter!

   – Make sure that no persons are in the danger area.

   Press button (d) to lower the right edge cutter.

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8.1 Inspection and maintenance work

8.1.1 Maintenance Table

No.	Maintenance works	Page
	Checks prior to start up	
8.1.2.1	*Checking wheels and tyres*	*346*

8.1.2 Checks prior to start up

8.1.2.1 Checking wheels and tyres

WARNING!

Danger of being injured by bursting tyres!

- Wear your personal protective equipment (safety shoes, gloves, goggles, hard hat).
- When checking the tyre pressure stand in the extended path of the tyre track.
- Use an air hose with a length of min. 6 meters.
- Never exceed the permitted maximum pressure.

Protective equipment:

- Safety shoes
- Protective gloves
- Safety goggles
- Hard hat

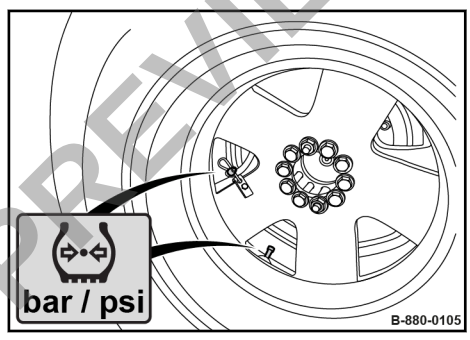


Fig. 421

1. Check the tyres for cuts, bulges, damaged rims, missing wheel studs or nuts.
2. Have damaged wheels or tyres replaced immediately.
3. Unscrew the valve caps and check the front and rear tyre pressure, correct if necessary.

   Ensure equal pressure in all tyres.

   Tyre pressure, nominal value *Chapter 2 „Technical data“ on page 59*
4. Screw the valve caps back on again.

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10.1 Overview oscillating articulated joint

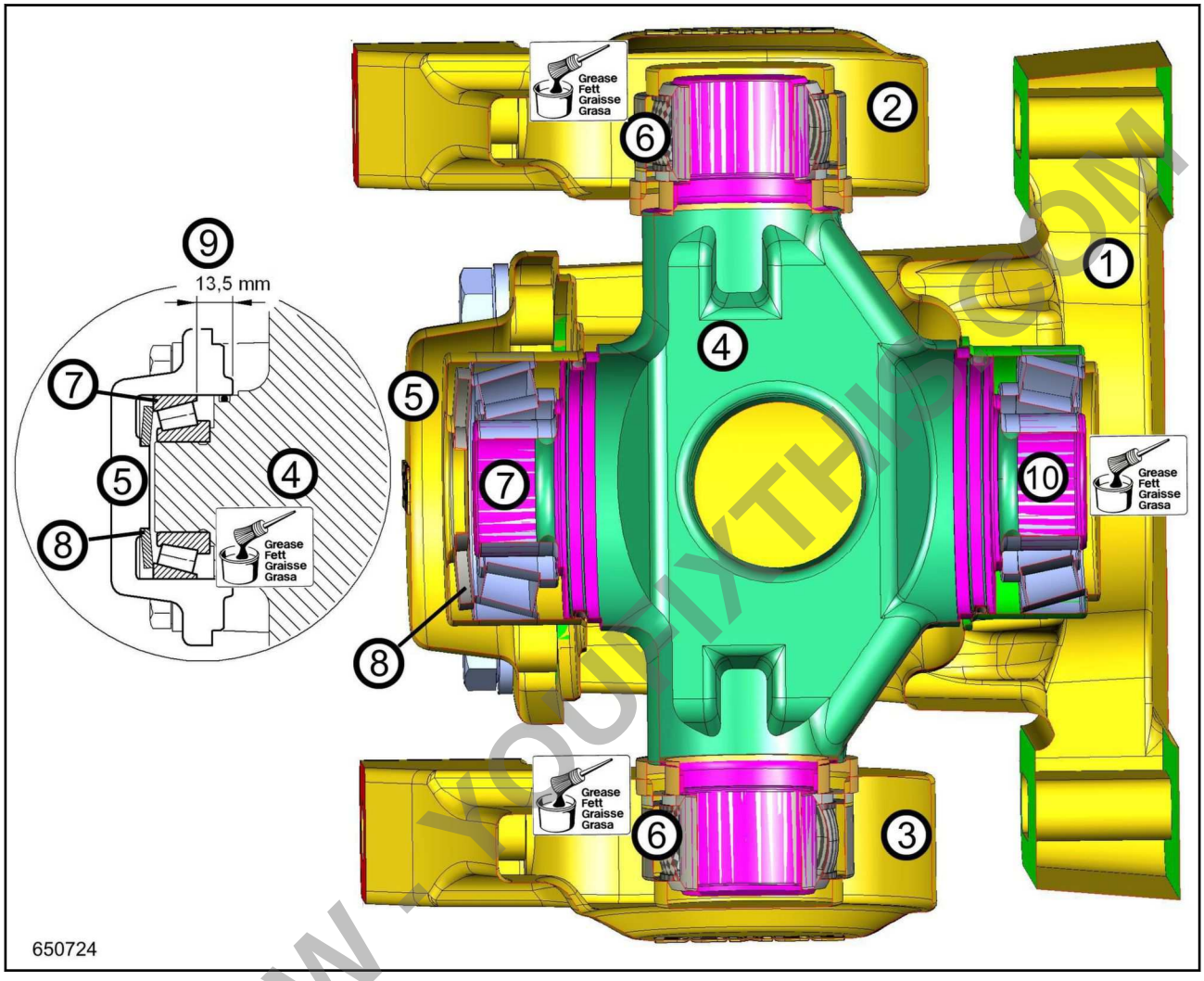


Fig. 424

1 Housing
2 Bearing block, top
3 Bearing block, bottom
4 Joint cross
5 Bearing cover
6 Rocker bearing
7 Tapered roller bearing
8 Spring collar
9 Control measurement
10 Tapered roller bearing

Press the outer race of the taper roller bearing (7) into the bearing cover only so far, that the Belleville spring (8) touches.

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11.2 What to do in events of emergency

11.2.1 Actuating the emergency stop switch

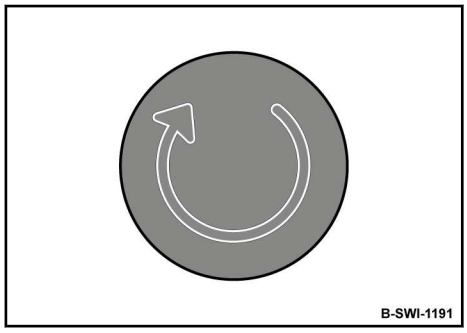


Fig. 449

1. In events of emergency and in case of danger actuate the emergency stop switch immediately.
   ⇨ The engine is shut down and the parking brake is closed.

11.2.2 Disconnecting the battery

In order to be able to disconnect the battery quickly in case of danger, e.g. cable fire, the minus terminal has been designed as a quick release pole clamp.

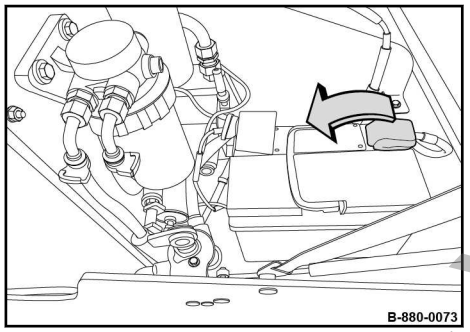


Fig. 450

1. Pull up the cap from the minus pole.
   ⇨ The pole clamp comes off the minus pole.
2. Disconnect the pole clamp from the minus pole of the battery and lay it to the side.

11.2.3 Towing the machine

Tow the machine only in a case of emergency or to avoid an accident.

You should generally use a tow bar.

Towing distance: only out of the direct danger zone, towing speed: 1 km/h (0.6 mph).

Before towing make sure that:

- the tractor vehicle has sufficient traction and braking power for the unbraked towed load,
- tow bar and fastening means are able to withstand the load and are fastened at the points provided for this purpose.

The machine cannot be steered.

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11.3 Troubleshooting, electrical systems

11.3.1 Preliminary remarks

Malfunctions are frequently caused by incorrect operation of the machine or insufficient maintenance. Whenever a fault occurs you should therefore thoroughly read these instructions on correct operation and maintenance.

If you cannot locate the cause of a fault or rectify it yourself by following the trouble shooting chart, you should contact our customer service department.

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.

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11.4 Trouble shooting, hydraulics

11.4.1 Insufficient hydraulic power

Trouble shooting charge pressure, example travel circuit

If the charge pressure is not inside the nominal range, no high pressure can be built up in the system.

Diesel engine running, travel lever position "0"

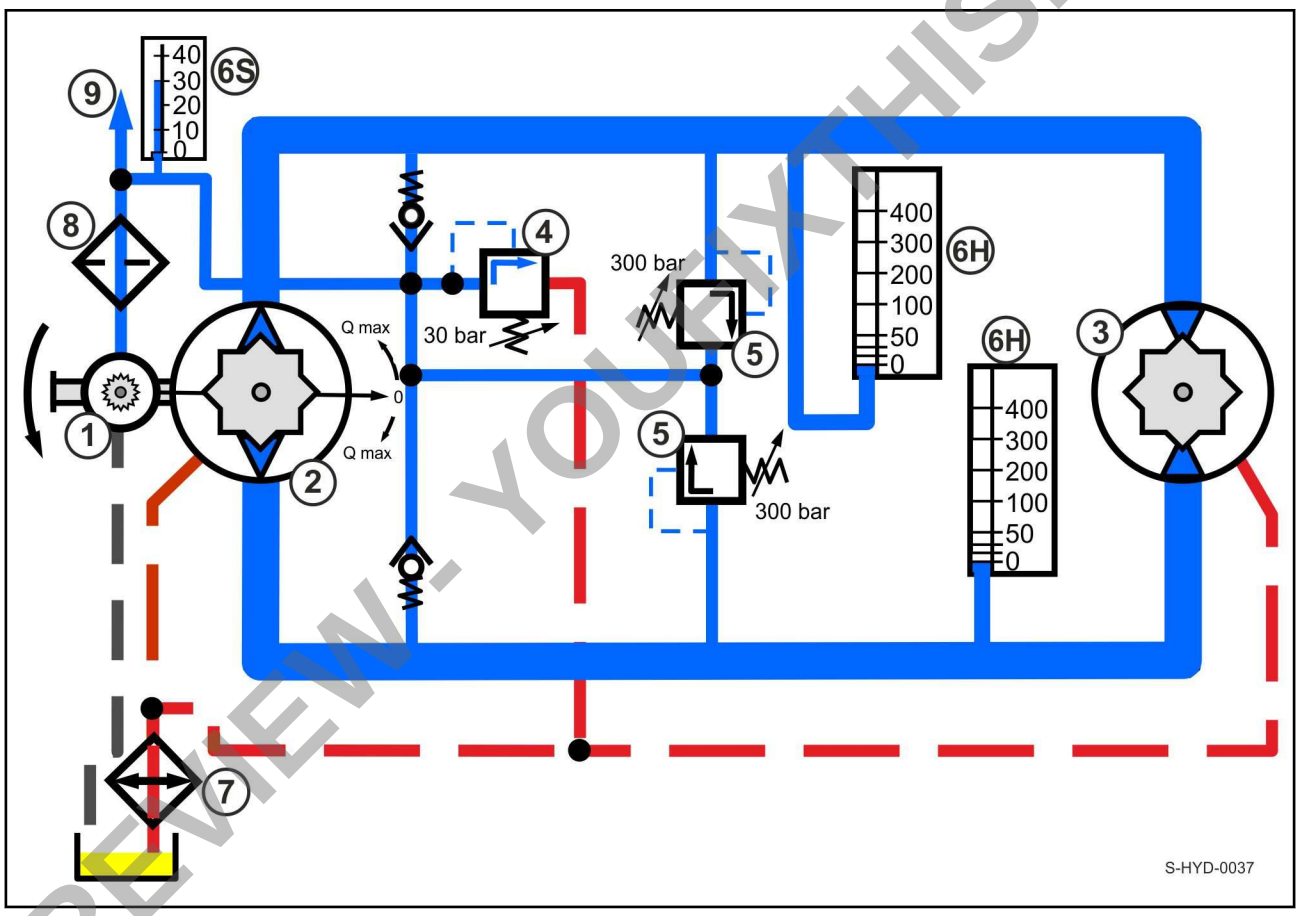


Fig. 515: Charge pressure (6S) present

1 Charge pump
2 Variable displacement pump
3 Hydraulic motor
4 Charge pressure relief valve (example 30 bar)
5 Pressure relief valve (example 300 bar)
6 Pressure gauge, (6S) charge pressure, (6H) high pressure
7 Cooler (optional)
8 Filter
9 Connection for pump control

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11.5 Trouble shooting, diesel engine

11.5.1 Fault code display

Engine control fault codes

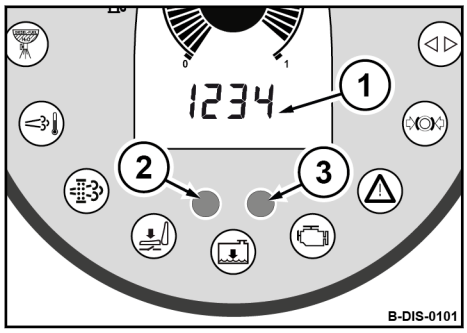


Fig. 526: Fault code display (example)

Active engine faults (J1939-73- SPN) ↳ *Chapter 11.5.2 „Diagnostics manual“ on page 413* are displayed by the instrument cluster.

1. Press the INFO 1-button (2).
   ⇨ The first fault code is displayed in the display field (1).

   If no fault code is present, the display will show "No Error".

2. Press the INFO 2-button (3).
   ⇨ Each pressing of the button displays the next fault code.
3. Press the INFO-1-button again to exit the fault code display.

11.5.2 Diagnostics manual

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12.1 Final shut-down of machine

If the machine can no longer be used and needs to be finally shut down you must carry out the following work and have the machine disassembled by an officially recognized specialist workshop.

WARNING!

Health hazard caused by fuels and lubricants!

– Safety regulations and environmental protection regulations when handling fuels and lubricants must be followed ↳ *Chapter 1.2.4 „Handling fuels and lubricants“ on page 17*.

Protective equipment:
- Working clothes
- Safety shoes
- Protective gloves
- Safety goggles

1. Remove the batteries and dispose of in compliance with legal regulations.
2. Empty the fuel tank.
3. Drain the hydraulic oil tank.
4. Drain coolant from cooling system and engine.
5. Drain off engine oil.

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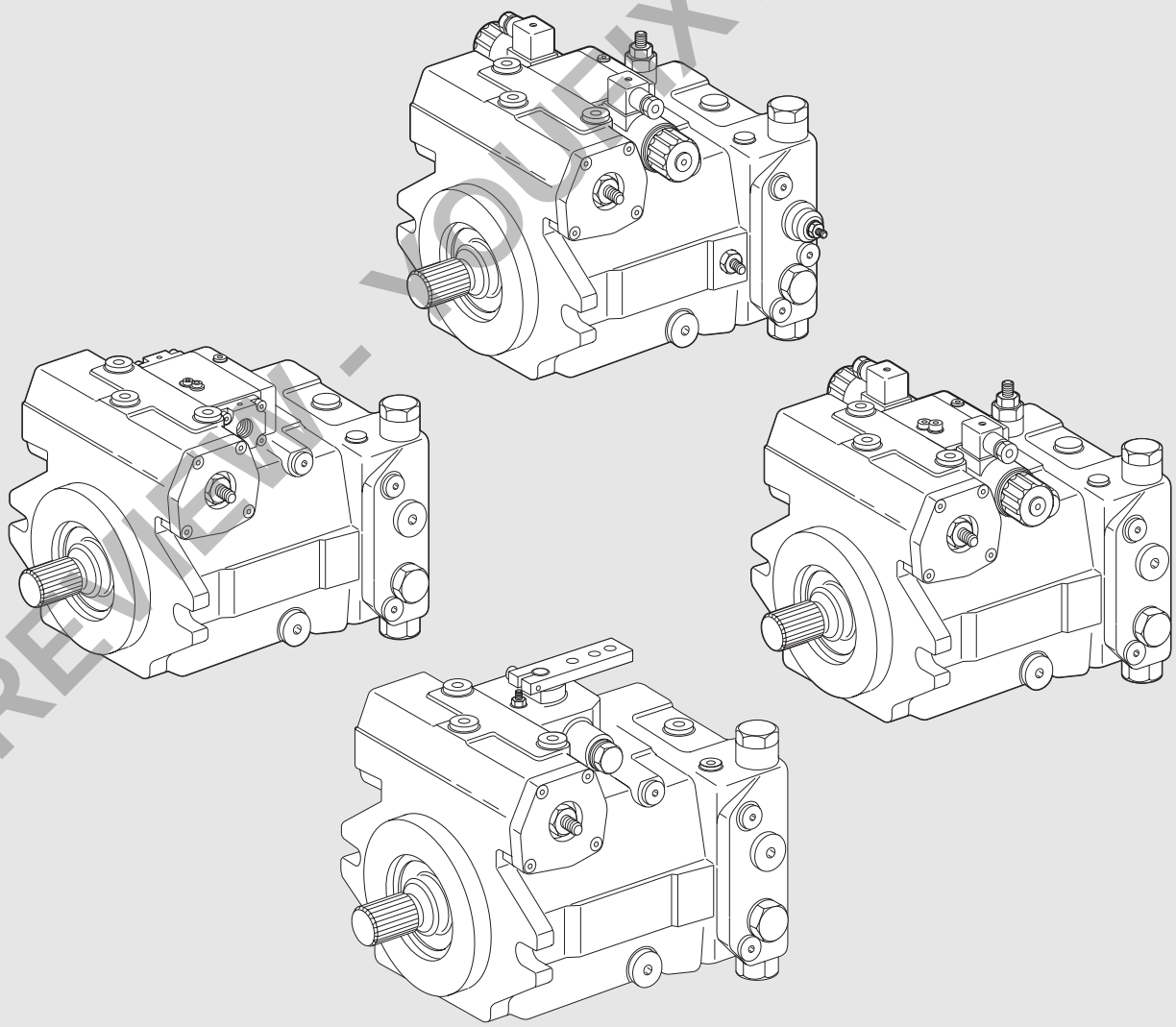
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Rexroth
Bosch Group

Verstellpumpe A10VG 28/63
Variable Pump A10VG 28/63
Baureihe/Series 10

RDE 92 750-01-R/03.03
ersetzt/replaces 10.02

Reparaturanleitung / Repair Instructions



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Moteurs hydrauliques
Hydraulics motors

MK

Réparations
Repairs

	04
MK	■
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Dépannage
Trouble shooting

Opérations de base
Basic operations

Réparations
Repairs

Pièces de rechange
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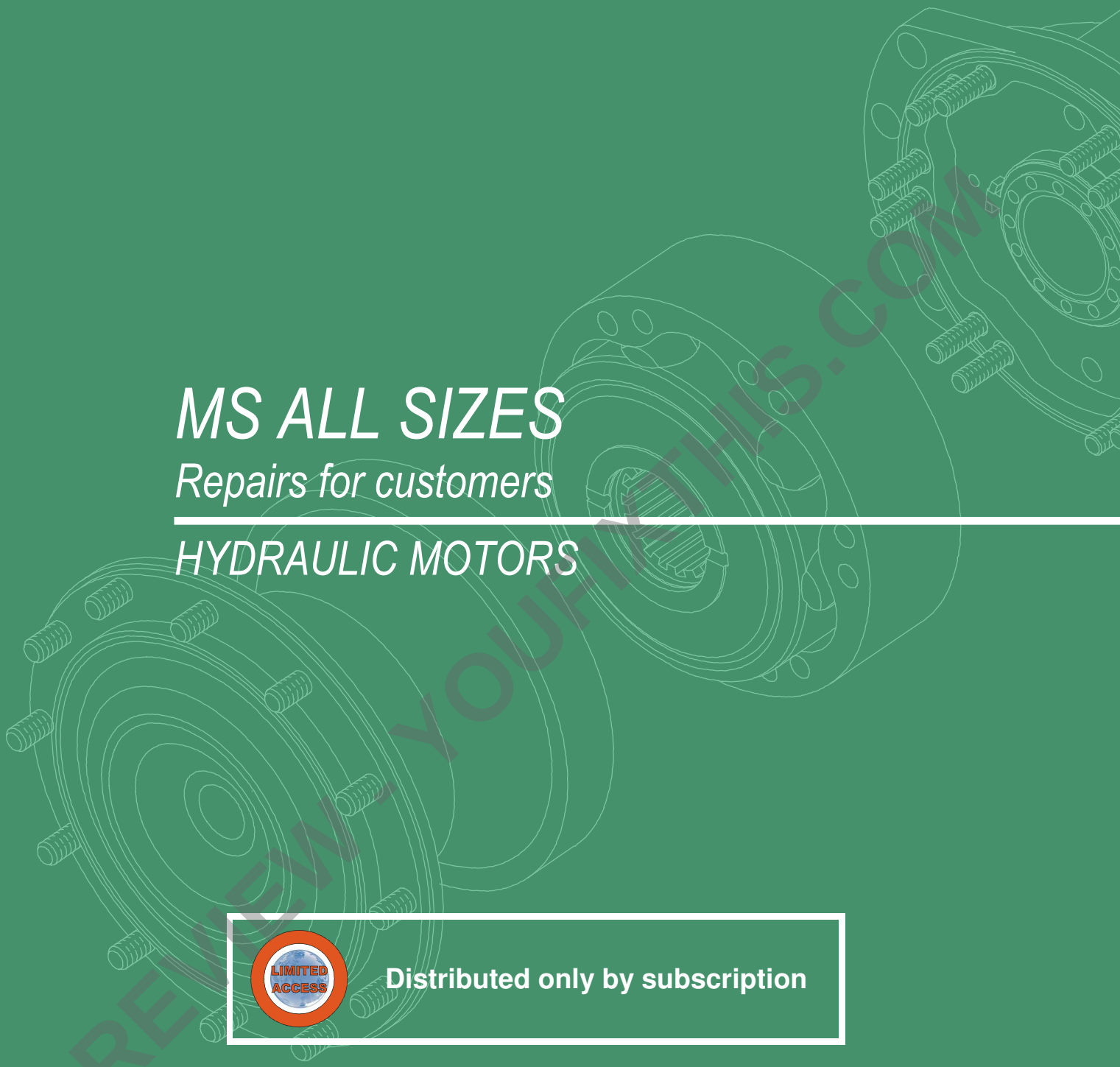
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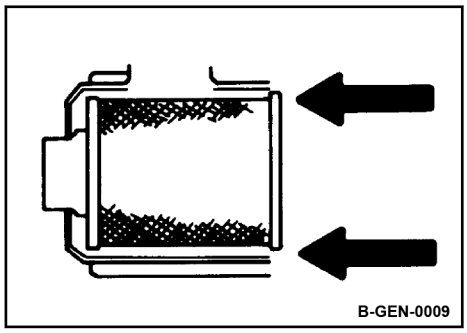


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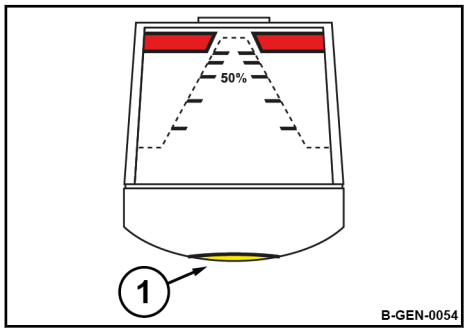


Fig. 223

9. Slide the air filter carefully into the housing.

NOTICE!
Danger of engine damage!
- The dust discharge valve must point vertically downwards.
- Make sure that the cover locks engage correctly.

10. Reassemble the housing cover.

11. Press the reset button (1) for the yellow piston on the maintenance indicator.

5.12.9.1.1 Replacing the safety element

NOTICE!
Danger of engine damage!
The safety element must not be cleaned and should not be used again after it has been removed.

The safety element must be replaced:
- if the air filter is damaged.
- at the latest after one year.
- if the air filter warning light comes on again after the air filter has been cleaned.

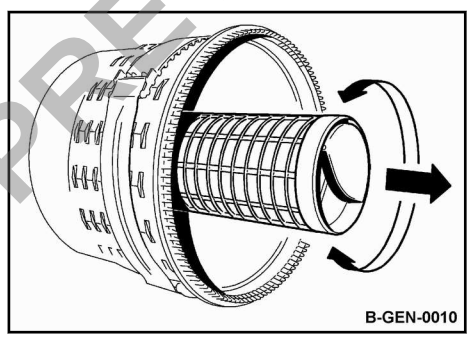


Fig. 224

1. Remove the housing cover and pull the air filter element off.

2. Pull the safety element out by turning it lightly.

3. Push in a new safety element.

4. Insert the air filter and reassemble the housing cover.

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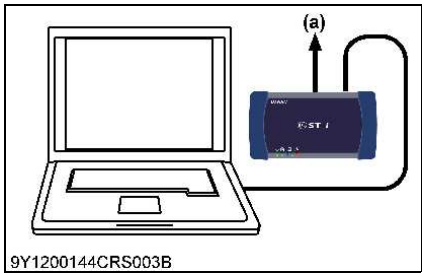
Malfunction Cause		Malfunction Cause															
		Control System							Engine Electrical System					Intake System			
		Boost pressure sensor		Rail pressure sensor		SCV malfunction	Main relay malfunction	EGR valve fault	Battery		Charging system malfunction	Air cleaner clogging	Starter relay malfunction	Intake system components	Glow system		Turbocharge malfunction
		No signal output	False signal output	No signal output	False signal output				Does not charge	Does not discharge				Leak	Faulty relay	Glow heater fault	
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2	Engine Does Not Start			❍	❍	❍	❍		❍	❍	❍		❍		❍	❍	
3	Takes A Long Time Before Engine Starts			❍	❍	❍				❍			❍		❍	❍	
4	Idle Failure			❍	❍	❍											
5	Engine Noise			❍	❍	❍								❍			❍
6	High Fuel Consumption			❍	❍	❍						❍		❍			❍
7	Poor Acceleration (Insufficient Output)	❍	❍	❍	❍	❍						❍		❍			❍
8	Black Smoke Emitted			❍	❍	❍		❍				❍		❍			❍
9	White Smoke Emitted		❍	❍	❍	❍		❍				❍		❍	❍		❍
10	Engine Stalls On Deceleration					❍						❍					

*1: When pressure doesn't hang to the boost pressure sensor, it is likely to light.

9Y1200209CRS0435US0

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9Y1200144CRS003B

2. Check the Exhaust Gas Temperature

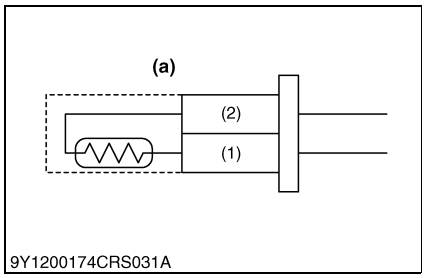
1. Place the key switch in the OFF position, and attach the diagnosis tool to the CAN1 connector.
2. Turn the key switch to the ON position and select the "Exhaust Gas Temperature Sensor 0", "Exhaust Gas Temperature Sensor 1" and "Exhaust Gas Temperature Sensor 2" on the data monitor function.
3. If the exhaust gas temperature is above 300 °C (572 °F), wait till the temperature decreases below 300 °C (572 °F).

Factory specification	The actual exhaust gas temperature and monitoring exhaust gas temperature should be approximately the same.

OK	Go to "4. Check the DTC".
NG	Go to "3. Check the Exhaust Gas Temperature Sensors (Refer to items P0543, P0546 and P242C)".

(a) CAN1 Connector

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9Y1200174CRS031A

3. Check the Exhaust Gas Temperature Sensors (Refer to items P0543, P0546 and P242C)

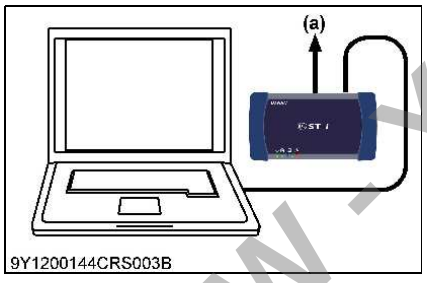
1. Check the exhaust gas temperature sensors (T0, T1 and T2).

OK	Go to "4. Check the DTC".
NG	Replace the exhaust gas temperature sensor or engine combustion main parts. (Follow the diagnostic procedure of items P0543, P0546 and P242C)

(1) Terminal Ground
(2) Terminal Signal

(a) Exhaust Gas Temperature Sensor (T0, T1 and T2)

9Y1200209CRS0323US0



9Y1200144CRS003B

4. Check the DTC

1. Check the engine noise and vibration after starting up the engine. Check whether turbo has abnormality. (sound and externals)
2. Check whether the other DTC is output or not by operating the engine in the normal condition.
3. If it is OK, restart and operate the engine for 10 minutes with the engine in the no-load maximum speed status.
   Check whether the DTC is output or not.

Factory specification	No DTC is output.

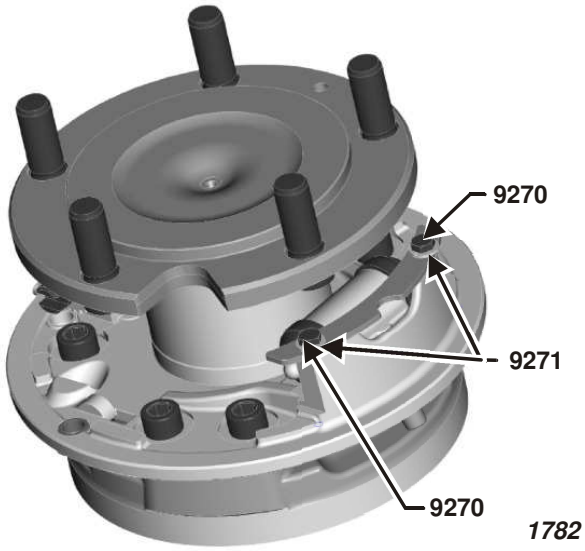
OK	Normal.
NG	Replace the DPF assembly.

(a) CAN1 Connector

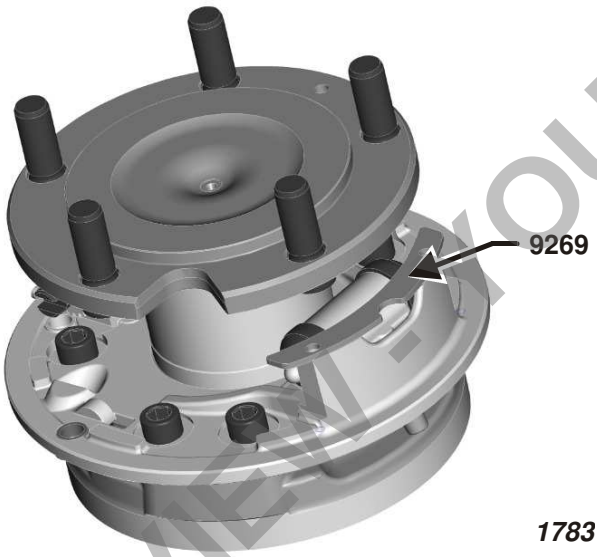
9Y1200209CRS0324US0

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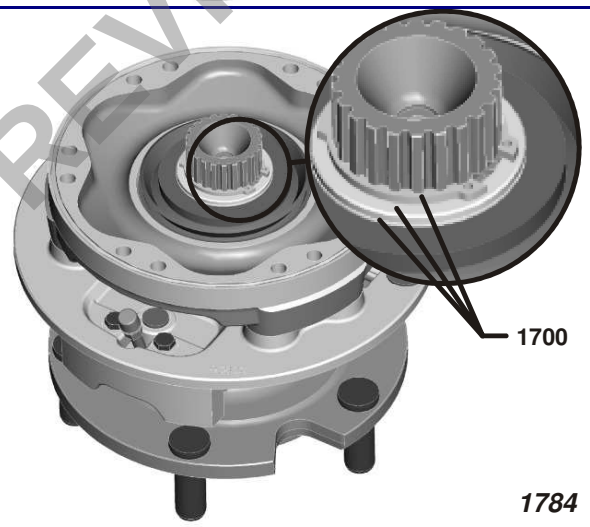
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- Release and remove both screws (9270).
- Remove both washers (9271).



- Remove the retaining plate (9269).



- Under press remove the shimming kit (1700).

Ref.: MS-RE-BS-KH-EN,
Bearing shimming kit removal and installation.

See the force Fmax values,
Ref.: MS-RE-BS-VU-EN,
Table of values for bearing support repair.

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