2 Specifications

2.1 Models and trade names

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3.5 Maintenance plan

Daily maintenance (user)	
Inspection work (Check the following engine/machine fluids, check the oil levels after a test run and add oil if necessary)	Page
Check the engine/machine fluids (engine oil, engine coolant, hydraulic oil)	*3-27*, *3-32*, *3-49*
Check the radiator and hydraulic oil cooler for dirt, clean them if necessary	*3-35*
Lubricate the machine according to the lubrication plan	*3-61*
Check the dirt indicator on the air filter [1]	*3-37*
Check the water separator and fuel filter: drain water if necessary (see sight glass)	*3-23*, *3-24*, *3-23*
Check the track tension and retighten if necessary	*3-57*
Check the engine air intake	*3-39*
Check pin lock	--
Check line fixtures	--
Check indicator lights for correct function	*1-17*
Check the hydraulic couplings for dirt	--
Check the threaded fittings of the protective structures (canopy, for example) for tightness	--
Option	
Adjust the mirrors correctly, clean them and check them for damage, check the fastening screws and tighten them if necessary	--
Leakage check	
Check for tightness, leaks and chafing: pipes, flexible lines and threaded fittings of the following assemblies and components. Repair if necessary	Page
Engine and hydraulic system	--
Travelling drive	--
Cooling systems, heating and hoses (visual check)	--
Option	
Hydraulic quickhitch system and Powertilt (hoses, valve)	--
Visual check	
Correct function, deformation, damage, superficial cracks, wear and corrosion	Page
Check the exhaust system for damage	--
Check the insulating mats in the engine compartment for damage	--
Check the canopy and protective structures for damage (FOPS, for example)	--
Check the tracks for cracks and cuts	--
Check the travel gear for damage (track roller, insert rolling bearings, for example)	--
Check the piston rods of the rams for damage	--
Check the seat belt for damage	--
Daily maintenance	
Option	
Check the load hook, joint rod and lifting eye	*3-59*
Check hydraulic quickhitch for damage	--
Check the Powertilt for damage	--

1. Air filter replacement according to the dirt indicator, every 1000 s/h or once a year at the latest. (Replace after 50 s/h when in extensive use in environments with acidic air, such as acid production facilities, steel and aluminium mills, chemical plants and other nonferrous-metal plants, independently of the dirt indicator)

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Changing engine oil

Danger!

Hot engine oil –

Risk of scalding!

☞ *Wear protective equipment.*

☞ *No smoking, no fire!*



Fig. 55: Changing the engine oil

- Let the engine run until it reaches its operating temperature (oil temperature about 80 °C/176 °F).

☞ *Stop and park the machine. Stop the engine – see Preparing lubrication on page 3-60.*

☞ *Open the engine cover.*

☞ *Raise the operator seat.*

☞ *Place a suitable container under oil drain plug **C**.*

☞ *Unscrew oil drain plug **C**.*

☞ If the machine is equipped withe service valve option, install the drain hose (supplied with the machine).

☞ *Completely drain the oil.*

☞ *Screw oil drain plug **C** back on again.*

☞ *Raise the operator seat.*

☞ *Clean the area around the oil filler cap with a lint-free cloth.*

☞ *Open filler cap **B**.*

☞ *Add fresh engine oil.*

☞ *Close filler cap **B**.*

☞ *Start the engine and let it run briefly at low engine speed.*

☞ *Stop the engine.*

☞ *Wait about 5 minutes until all the oil has run into the oil sump.*

☞ *Check the oil level and add engine oil if necessary.*

☞ *Completely remove all oil spills from the engine.*

☞ *Close and lock the engine cover.*

☞ *Lock the operator seat.*

Environment!

Use a suitable container to collect engine/machine fluids as they flow out and dispose of them in an environmentally friendly manner.

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2.19 Tightening torques

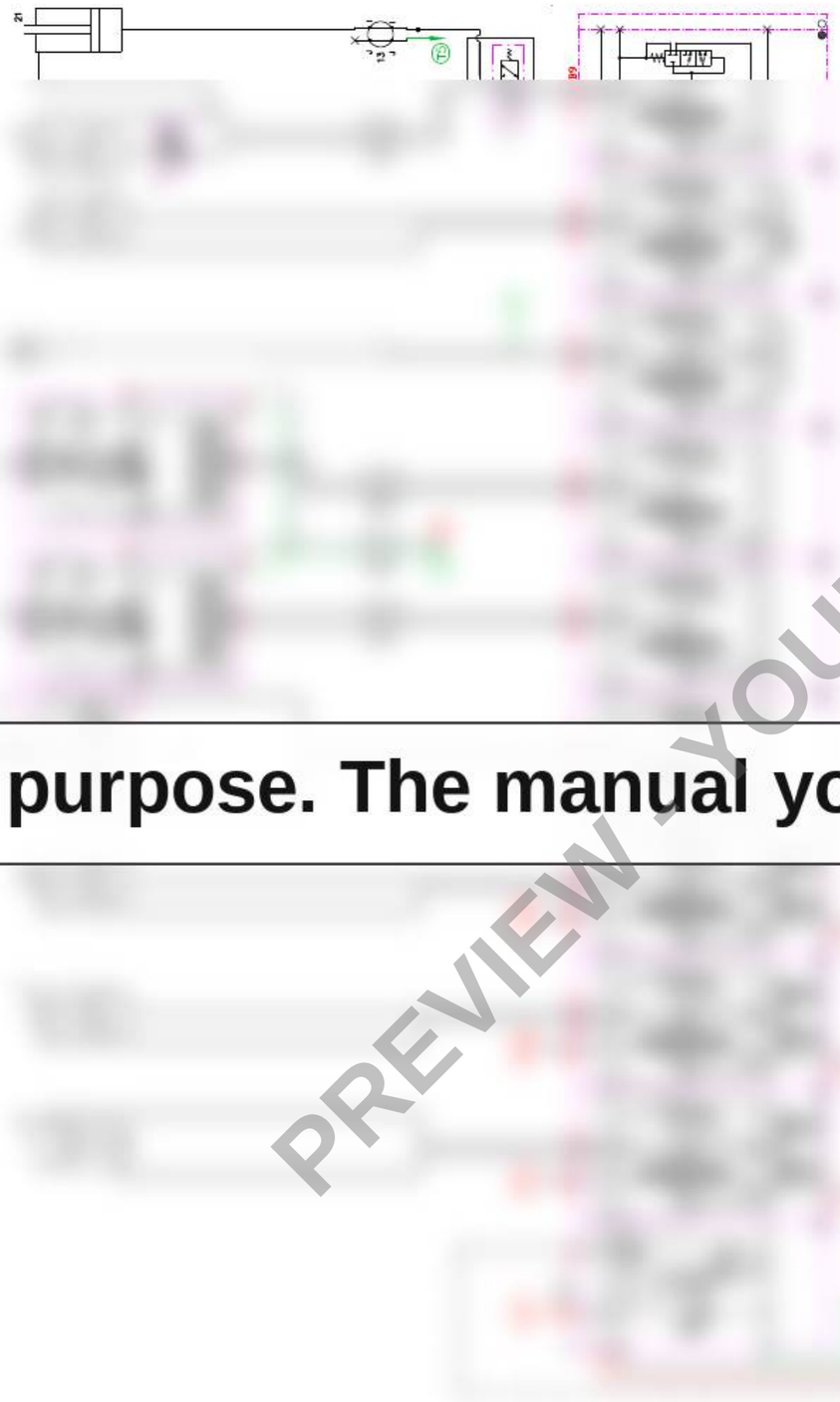
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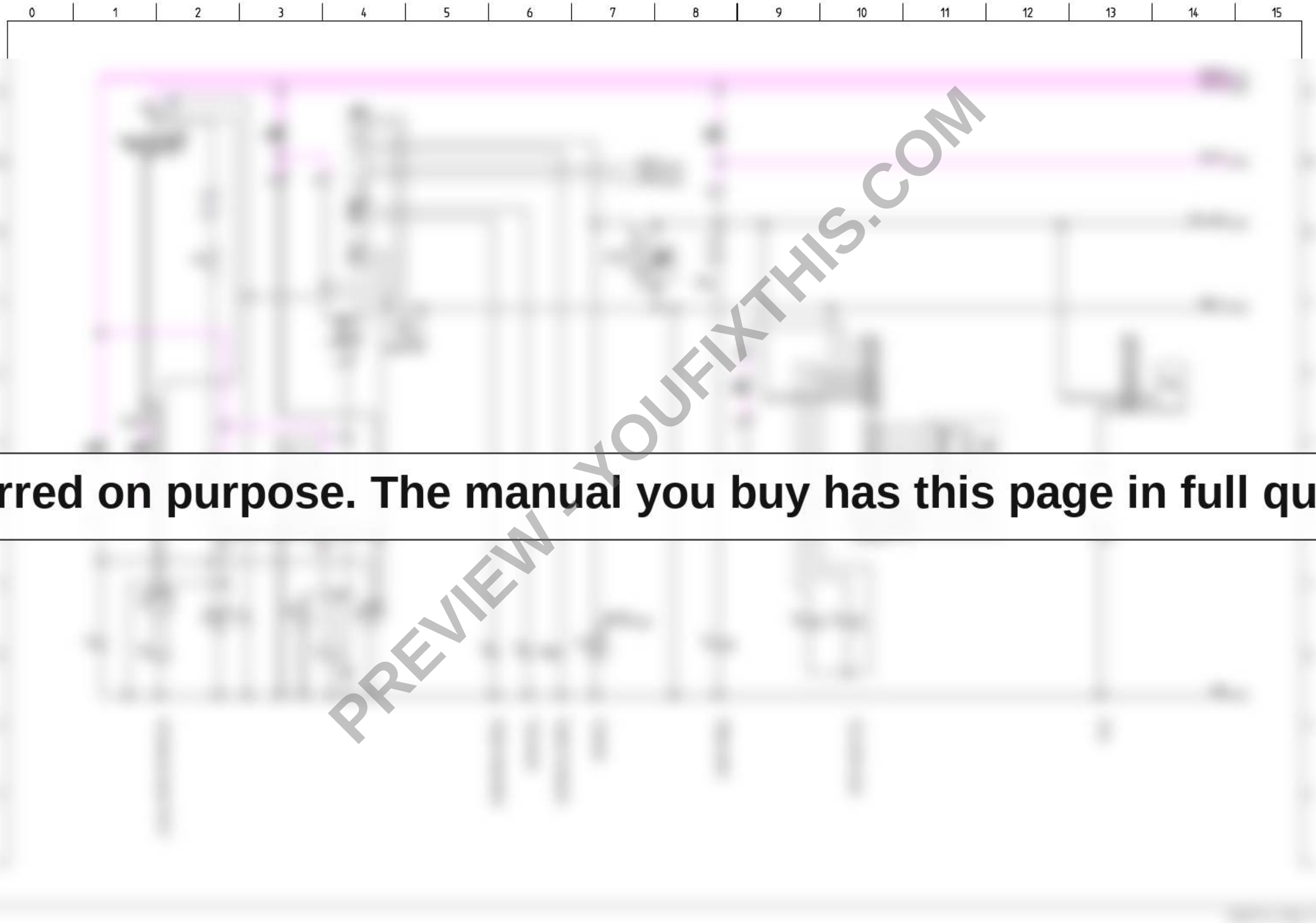
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7.2 Hydraulics diagram



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7.10 Wiring diagram part 1



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4.20 Engine trouble

Problem	Possible causes
Engine does not start or is not easy to start	Wrong SAE grade of engine lubrication oil
	Fuel grade does not comply with specifications
	Malfunctioning or flat battery
	Loose or oxidized cable connections in starter circuit
	Malfunctioning starter, or pinion does not engage
	Wrong valve clearance
	Malfunctioning fuel injector
	Malfunctioning starting relay
	Malfunctioning glow plug
	Malfunctioning solenoid switch
	Malfunctioning fuse
	Dirty fuel filter
	Very dirty air filter
	Cutoff solenoid does not attract
	High pressure created immediately in the hydraulic system
	Air in fuel system
Engine starts, but does not run smoothly or faultless	Fuel grade does not comply with specifications
	Wrong valve clearance
	Injection line leaks
	Malfunctioning fuel injector
	Dirty fuel filter
	Air in fuel system
Engine overheats. Temperature warning system responds	Lube oil level too low
	Lube oil level too high
	Dirty air filter
	Dirty radiator fins
	Malfunctioning fan, torn or loose V-belt
	Resistance in cooling system too high, flow capacity too low
	Malfunctioning fuel injector
	Not enough coolant
	Malfunctioning coolant pump
	Cooling system leaks

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Every 1000 service hours or once a year (authorized service centre)	
Hydraulic oil replacement	*3-52*
Replacement of hydraulic oil tank breather filter	--
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Replacement of air filter elements [1]	*3-38*
Check the pilot control filter for dirt, clean it if necessary	*3-55*
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All steps for maintenance once a day and once a week (and all steps for maintenance at 500 service hours)	*3-10*
Option	
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1. Air filter replacement according to the dirt indicator, every 1000 s/h or once a year at the latest. (Replace after 50 s/h when in extensive use in environments with acidic air, such as acid production facilities, steel and aluminium mills, chemical plants and other nonferrous-metal plants, independently of the dirt indicator)

Every 1500 service hours (authorized service centre)	
Check the injection nozzles and clean and test them if necessary	*4-9*, *4-29*
All steps for maintenance once a day and once a week (and all steps for maintenance at 250 and 500 service hours)	*3-10*

Every 2000 service hours or every 2 years (authorized service centre)	
Coolant replacement	*3-34*
Check the bladder type accumulator	
All steps for maintenance once a day and once a week (and all steps for maintenance at 500 and 1000 service hours)	*3-10*, *3-11*

Notice!

Maintenance work with the note **authorized service centre** must only be performed by the trained and qualified personnel of an **authorized service centre**.

Notice!

The maintenance meter starts at 500.0 hours. It counts down to 0.0 hours. A wrench symbol flashes as soon as the maintenance meter reaches this value.

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Replacing the seals

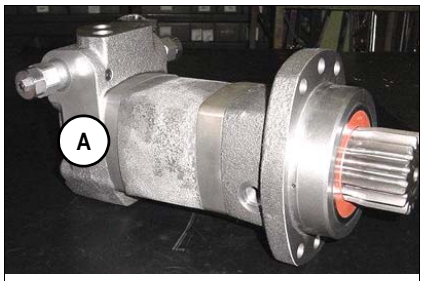


Fig. 179: Gerotor



Fig. 180: Component parts

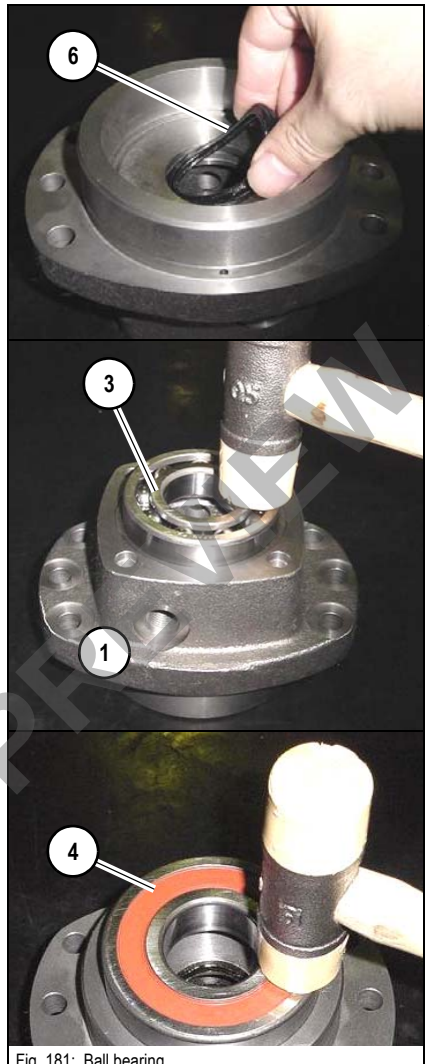


Fig. 181: Ball bearing

Notice!

Remove or dismantle only the components of the gear motor that are required under all circumstances!

➥ Apply **utmost care** to springs **16** and pins **18** as you remove the valve housing – *see Swivel unit overview* on page 5-17!

➥ Stop the motor so that valve housing **A** shows upward

☞ *Check all contact surfaces*

☞ *Replace all parts with traces of scratches, burrs or damage, otherwise this can cause leaks*

☞ *Clean all metal parts with solvent and dry them with compressed air*

☞ *Clean only with a lint-free cloth*

☞ *Do not grind any parts*

Notice!

Replace old seals by new ones and apply petroleum or vaseline to them before assembly.

☞ *Insert X-ring **6** in bearing housing **1**.*

☞ *Install both ball bearings **3** and **4** in bearing housing **1***

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