Service Manual

Dumper

1001



Machine model	**1001**
Edition	**1.1**
Language	**English**
Item no.	**1000144662**

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2 Specifications

2.1 Chassis

Sturdy steel sheet chassis, rubber-mounted engine

2.2 Engine

Engine	Up to BB001360	From AB100001H
Product	Yanmar diesel engine	Yanmar diesel engine
Model	3TNE74-NSR3	3TNV76-XNSV
Design	Water-cooled 4 stroke diesel engine	Water-cooled 4-stroke diesel engine, EPA2
No. of cylinders	3	3
Fuel injection system	Direct injection	Indirect injection
Aspiration	Natural aspiration	Natural aspiration
Cooling system	Water-cooled	Water-cooled/aspirating fan
Lubrication system	Force-feed lubrication with trochoidal pump	Force-feed lubrication with trochoidal pump
Displacement	1006 cm³ (61.4in^3)	1116 cm³ (68.1 in^3)
Nominal bore and stroke	74 x 78 mm (2.9" x 3.1")	76 x 82 mm (3.0" x 3.2")
Output	12.1 kW (16.2 hp) at 2200 rpm	17 kW (22.8 hp)
Max. torque	63 Nm (46.5 lbf ft)	65.8 Nm (48.5 lbf ft) at 1600 rpm
Max. engine speed without load	2000 rpm	3000 rpm
Idling speed	~860 rpm	1100 ± 25 rpm
Valve tip clearance (intake = outlet)	0.15 – 0.25 mm / 0.0059 – 0.0098"(cold)	0.15 – 0.25 mm / 0.0059 – 0.0098"(cold)
Compression	23 : 1	23.5 : 1
Compression: specified value	35 ± 1 bar (508 ± 14.5 psi) at 250 rpm	35 bar (508 psi) at 250 rpm
Compression: threshold value	27 bar (392 psi) bei 250 rpm	28 bar (406 psi) at 250 rpm
Engine oil pressure under full load	3 – 4 bar (43.5 - 58.0 psi)	0.3 – 0.45 bar (4.4 - 6.5 psi)
Pressure switch for engine oil pump	0.5 ± 0.1 bar (7.3 ± 1.5 psi)	0.5 ± 0.1 bar (7.3 ± 1.5 psi)
Thermostat opens at	69.5 – 72.5 °C (157.1 – 162.5 °F)	69.5 – 72.5 °C (157.1 – 162.5 °F)
Thermal switch	107 – 113 °C (224.6 – 235.4 °F)	107 – 113 °C (224.6 – 235.4 °F)
Firing order	1 – 3 – 2	1 – 3 – 2
Direction of rotation	Counterclockwise (as seen from the flywheel)	Counterclockwise (as seen from the flywheel)
Starting aid	Glow plug (preheating time 10 – 15 seconds)	Glow plugs (preheating time 4 seconds)
Max. inclined position (engine no longer supplied with oil):	25° / 45% in all directions	25° / 46 % in all directions 30° / 58 % for 3 minutes Observe the machine's climbing ability (30° / 58 %)!
Specific fuel consumption	279 g/kWh (0.459 lb/hph)	272 g/kWh (0.447 lb/hph)
Exhaust values according to	97/68/EC	EPA Tier II

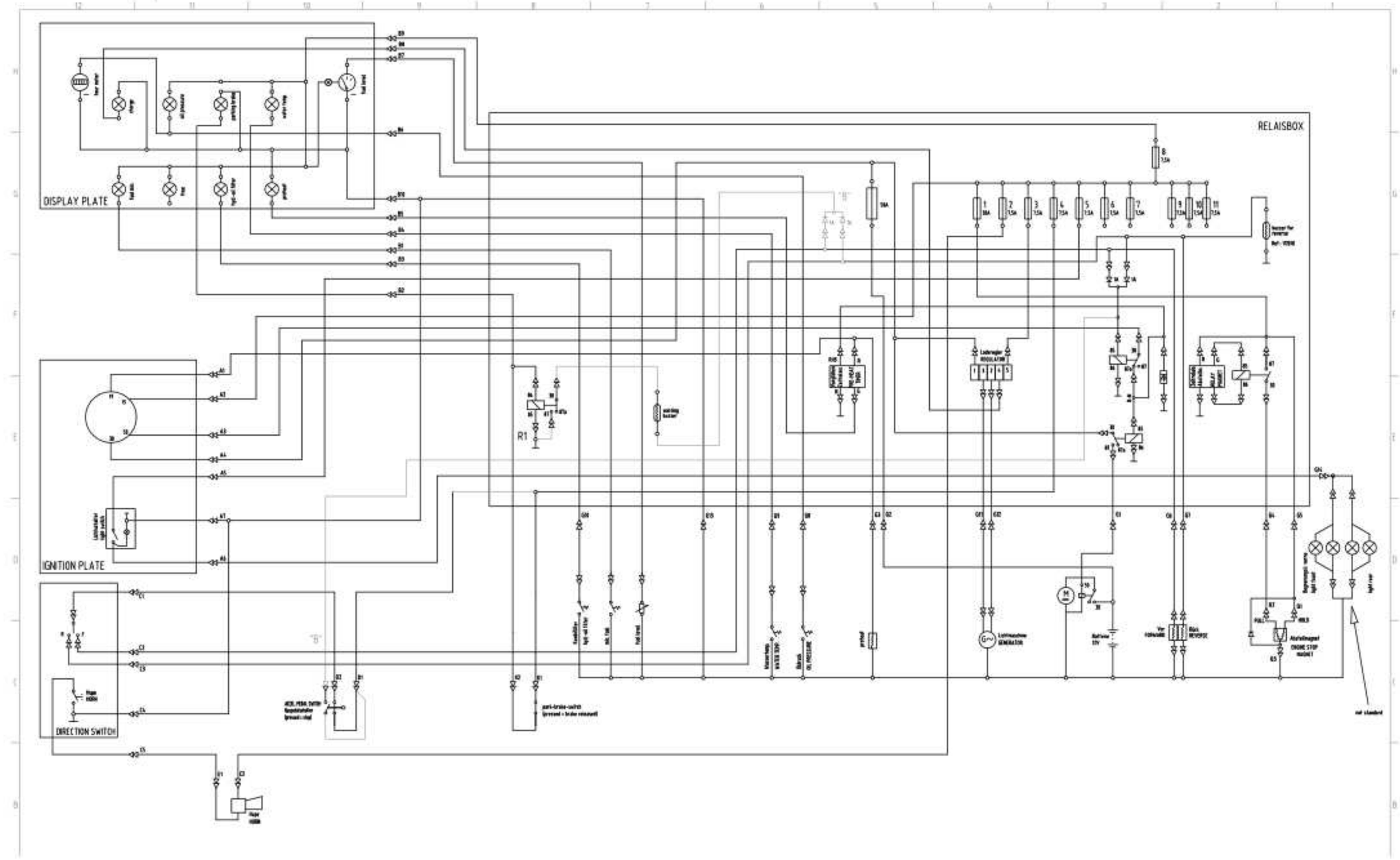
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4.17 Engine trouble

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
	Defective or flat battery
	Loose or oxidised cable connections in starter circuit
	Defective starter, or pinion does not engage
	Wrong valve tip clearance
	Defective fuel injector
	Defective starting relay
	Defective glow plug/defective intake-air preheating
	Defective solenoid switch
	Cutoff solenoid does not attract
	Cutoff solenoid without current
	Clogged filter
	Defective fuel pump
	Air in fuel system
	Defective cutoff solenoid, timer or relay
	High pressure created immediately in the hydraulic system
Engine starts, but does not run smoothly or faultless	Fuel grade does not comply with specifications
	Wrong valve tip clearance
	Air in fuel system
	Injection line leaks
	Defective fuel injector
Engine overheats. Temperature warning system responds	Oil level too low
	Oil level too high
	Dirty air filter
	Dirty oil cooler fins
	Defective fan, torn or loose V-belt
	Resistance in cooling system too high, flow capacity too low
	Damaged seal on radiator
	Coolant level too low
	Defective fuel injector

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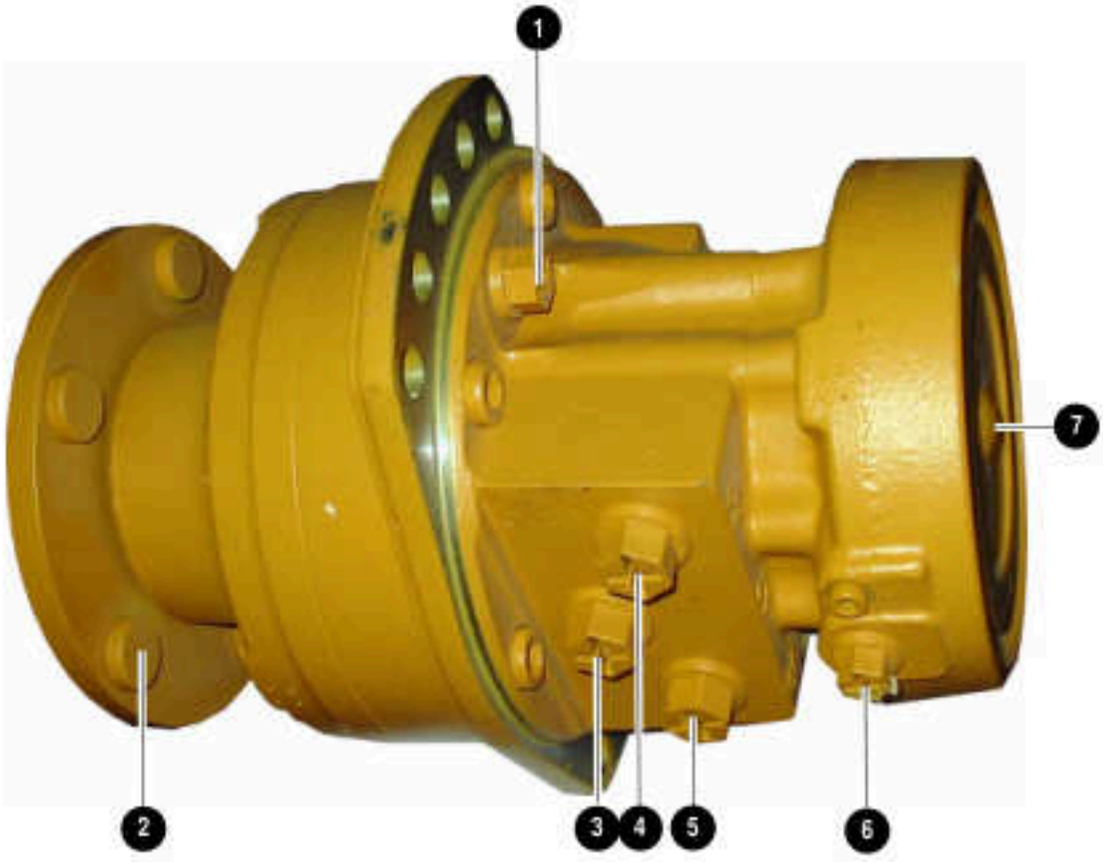
9.20 Wiring diagram A3 from serial no. AB100001H



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5.3 Rear hydraulic motor



Pos.	Description
1	Leak oil port
2	Wheel screws
3	Forwards high pressure supply (right-hand side hydraulic motor A2/left-hand side hydraulic motor R)
4	A1 front hydraulic motor serial line
5	Reverse high pressure supply (right-hand side hydraulic motor R/left-hand side hydraulic motor A2)
6	X parking brake connection
7	Parking brake release M12

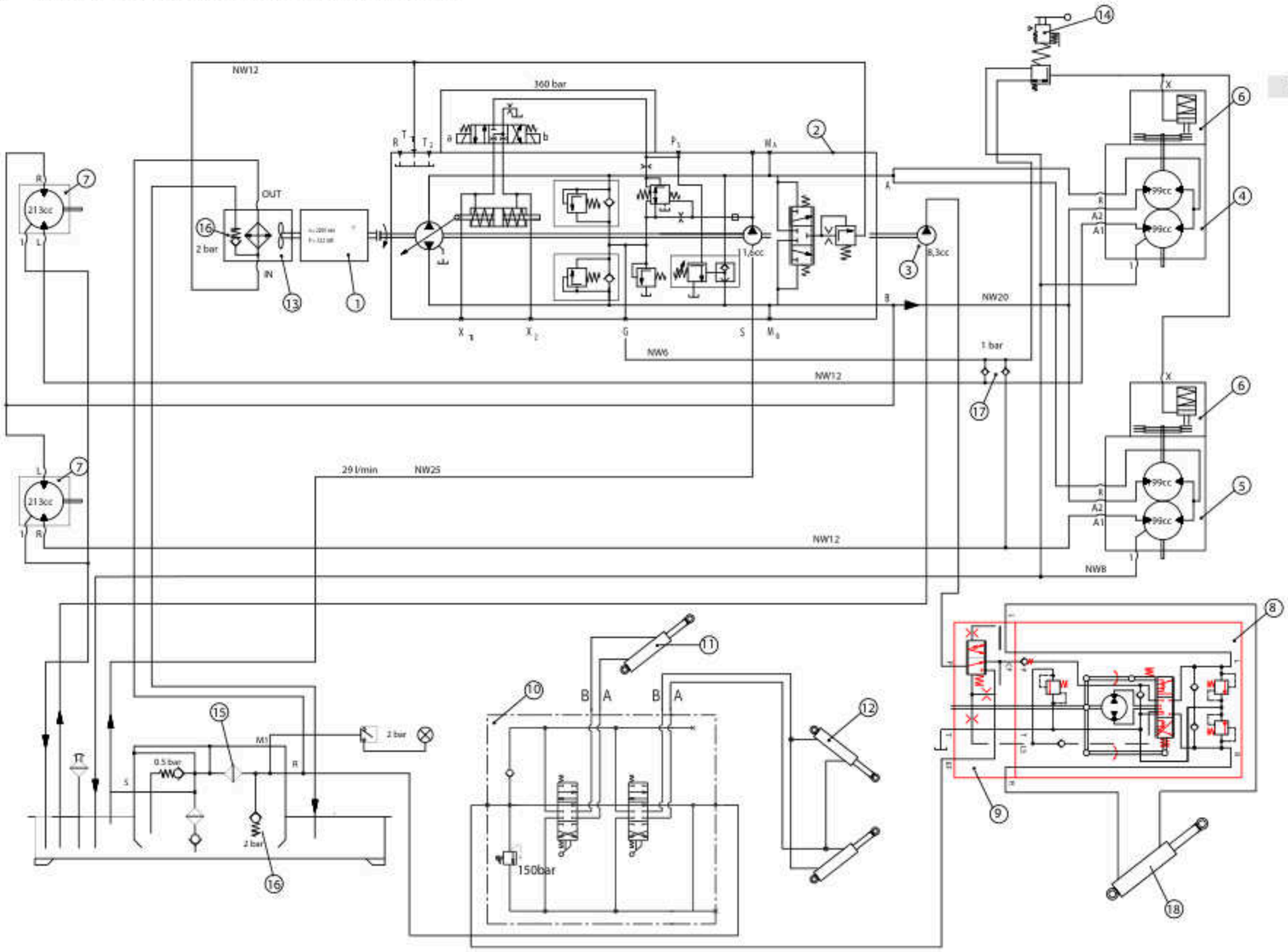
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1.6 Operating equipment: overview



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8.7 Hydraulics diagram A3 up to serial no. BB001360



Pos.	Description
1	Diesel engine
2	Variable displacement pump with flush valve
3	Work pump (gear pump)
4	Rear right hydraulic motor
5	Rear left hydraulic motor
6	Hydraulic motor parking brake
7	Front hydraulic motors
8	Steering unit
9	Steering unit priority valve
10	Spool
11	Tilt ram
12	Lift ram
13	Combined oil/water radiator
14	Parking brake valve
15	Combined filter
16	Non-return valve 2 bar / 29 psi
17	Non-return valve 1 bar / 14.5 psi

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