Service Manual

Track excavator

6003



Machine model	**6003**
Edition	**2.0**
Language	**English**
Article number	**1000129840**

MidWestTech | Wacker Neuson 6003 Track Excavator Service Manual | Publication 1000129840

Order the manual at mid-west-tech.com >

Table of contents

Operation

Important information on this service manual ... 1-1
Identification of warnings and dangers ... 1-2
Designated use and exemption from liability ... 1-3
Type labels and component numbers ... 1-4
Machine overview ... 1-6
Cab overview ... 1-7
Up to serial no.: AD07210 ... 1-7
From serial no.: AH00645 ... 1-8
Cab (legend) ... 1-9
Instrument panel up to serial no. AC02888: overview ... 1-10
Instrument panel up to serial no. AC02888: legend ... 1-11
Instrument panel from serial no. AC02890 to AD07210: overview ... 1-12
Instrument panel from serial no. AC02890 to AD07210: legend ... 1-13
Instrument panel from serial no. AH00645: overview ... 1-14
Instrument panel from serial no. AH00645: legend ... 1-15
Engine compartment up to serial no. AD07210: overview ... 1-16
Engine compartment from serial no. AD00611: overview ... 1-17
Chassis overview ... 1-18
Tilting the cab ... 1-19
Summer/winter operation ... 1-21
Preheated fresh air ... 1-21
Auxiliary hydraulics/boom swivel pedal ... 1-22
Battery master switch ... 1-22

Specifications

Chassis ... 2-1
Engine ... 2-1
Fuel injection pump ... 2-2
Capacities ... 2-2
Tightening torques ... 2-2
Hydraulic system ... 2-3
Auxiliary hydraulics oil flow* ... 2-4
Screwable hose burst valve ... 2-4
Undercarriage and swivel unit ... 2-4
Stabiliser blade ... 2-4
Electric system ... 2-4
Fuse box on the instrument panel up to serial no. AD07210 ... 2-5
Main fuse box with relays under the cab up to serial no. AD07210 ... 2-5
Relays up to serial no. AD07210 ... 2-5
Fuse box on the instrument panel from serial no. AH00645 ... 2-6
Main fuse box with relays from serial no. AH00645 ... 2-6
Noise levels ... 2-7
Vibration ... 2-7
Coolant compound table ... 2-7
Model-specific tightening torques ... 2-8
General tightening torques ... 2-8
Tightening torques for hydraulic screw connections (dry assembly) ... 2-8
Tightening torques for high-resistance screw connections ... 2-10
Dimensions model 6003 ... 2-11
Lift capacity table 6003 ... 2-12
Lift capacity table 6003 with long stick option ... 2-13
Lift capacity table 6003 with counterweight option ... 2-14
Lift capacity table 6003 with long stick and counterweight ... 2-15
Lift capacity table 6003 Vario ... 2-16

MidWestTech | Wacker Neuson 6003 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

Kinematics 2-17
Attachments 2-18

Maintenance

Fluids and lubricants 3-1
Additional oil change and filter replacement (hydraulics) 3-2
Maintenance label 3-3
Explanation of symbols on the maintenance label 3-3
Maintenance plan (overview) 3-5
Service package 3-8
Up to serial no. AD07210 3-8
From serial no. AH00645 3-8
Introduction 3-8
Fuel system 3-9
Specific safety instructions 3-9
Refuelling 3-9
Stationary fuel pumps 3-10
Diesel fuel specification 3-10
Bleeding the fuel system 3-10
Emptying the fuel tank 3-11
Fuel prefilter with water separator 3-11
Replacing the fuel filter 3-12
Engine lubrication system 3-13
Checking the oil level 3-13
Filling up engine oil 3-14
Changing engine oil 3-15
Replacing the engine oil filter cartridge 3-16
Cooling system 3-17
Specific safety instructions 3-17
Checking/filling up coolant 3-18
Draining coolant 3-19
Air filter 3-20
Replacing the filter 3-21
Functional check once a week of the dust valve 3-22
V-belt 3-23
Checking V-belt tension 3-23
Retightening the V-belt 3-24
Checking the V-belt of the air conditioning system 3-25
Tightening the V-belt of the air conditioning system 3-25
Pressure check 3-26
General 3-26
Checking pilot control pressure 3-26
Pressure check of variable displacement pump P1 3-27
Pressure check of variable displacement pump P2 3-28
Pressure check of gear pump P3 3-29
Secondary pressure limiting valve of the gear motor 3-30
Measuring ports: overview 3-30
Primary pressure limiting valves 3-30
Test report 3-31
Hydraulic system 3-34
Specific safety instructions 3-34
Checking the hydraulic oil level 3-35
Filling up hydraulic oil 3-36
Changing hydraulic oil 3-37
Monitoring the hydraulic oil reflux filter 3-37
Checking hydraulic pressure lines 3-38

MidWestTech | Wacker Neuson 6003 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

Travelling drive ... 3-38
Checking the oil level and filling up oil ... 3-39
Draining oil ... 3-39
Chains ... 3-40
Checking chain tension ... 3-40
Setting the chains ... 3-41
Lubrication work ... 3-42
Stabiliser blade ... 3-42
Lubrication points on the swivelling console ... 3-42
Boom lubrication points ... 3-43
Lubrication points on the stick ... 3-43
Lubrication strip ... 3-44
Maintenance of attachments ... 3-44
Electric system ... 3-45
Specific safety instructions ... 3-45
Service and maintenance work at regular intervals ... 3-45
Instructions concerning specific components ... 3-46
Alternator ... 3-46
Battery ... 3-47
Jump-starting the engine ... 3-47
Cab ... 3-48
Replacing the cab filter ... 3-48
General maintenance work ... 3-49
Cleaning ... 3-49
General instructions for all areas of the machine ... 3-49
Inside the cab ... 3-50
Exterior of the machine ... 3-50
Engine compartment ... 3-50
Screw connections and attachments ... 3-50
Pivots and hinges ... 3-50

Engine

Engine 4TNV98-VNS (Tier 2 up to serial no. AD07210) ... 4-1
Fuel system ... 4-3
Removing the valve cover ... 4-4
Checking and adjusting valve clearance ... 4-4
Checking valve clearance ... 4-4
Setting zero play of the valve bridge ... 4-5
Setting valve clearance ... 4-5
Tightening order for cylinder head bolts ... 4-6
Checking the injection nozzles ... 4-7
Pressure check ... 4-7
Checking the nozzle jet ... 4-7
Injection time ... 4-8
Checking injection time ... 4-8
Setting injection time ... 4-8
Replacement of fuel injection pump ... 4-9
Adjusting engine revs ... 4-10
Compression ... 4-10
Checking the coolant thermostat ... 4-11
Checking the thermal switch ... 4-11
Oil pressure switch ... 4-12
Checking the coolant circuit ... 4-12
Engine 4TNV98-ZVNS from serial no. AH00645 ... 4-13
Fuel system ... 4-15
Removing the valve cover ... 4-16

MidWestTech | Wacker Neuson 6003 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

2.12 Dimensions model 6003

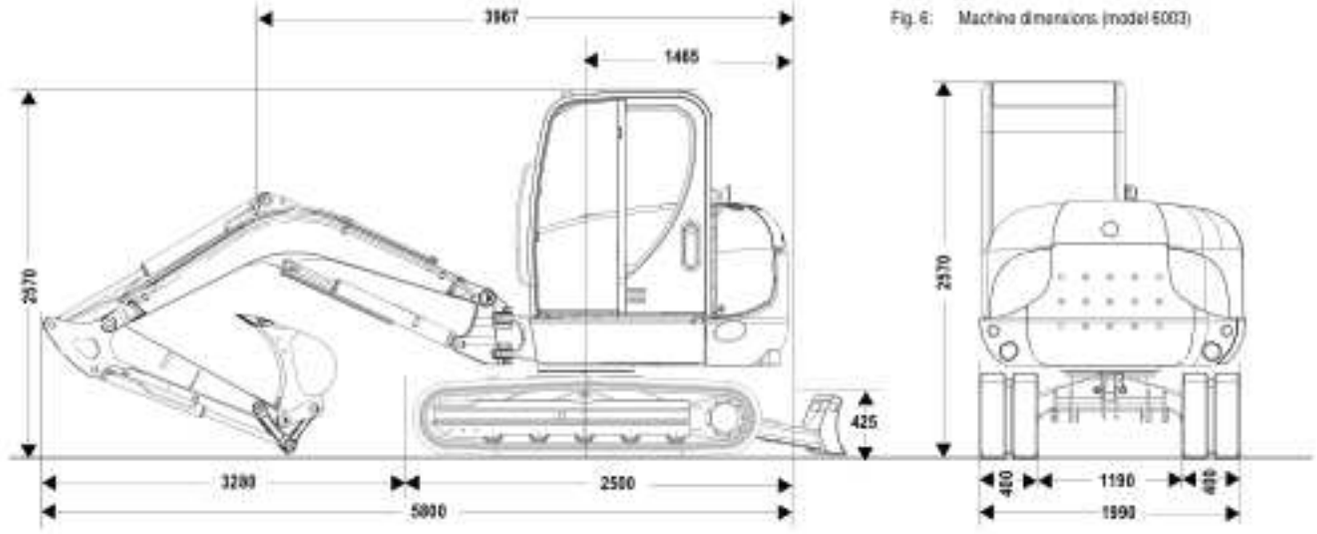
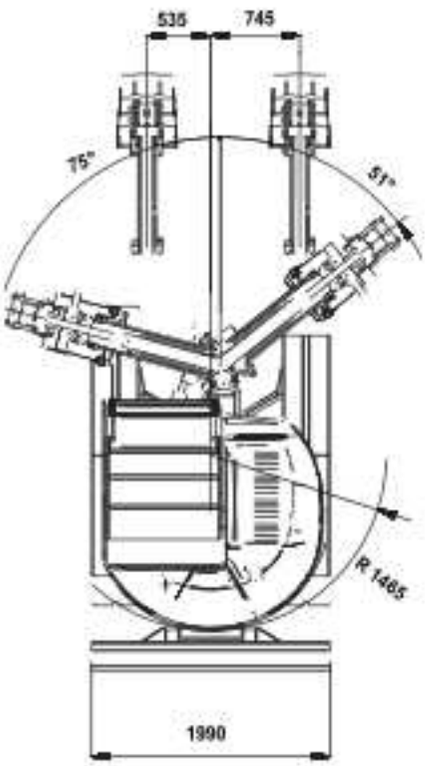


Fig. 6: Machine dimensions (model 6003)



Main data	Model 6003	Vario
Service weight	5500 kg (12125 lb)	5965 kg (13151 lb)
Height	2570 mm (8'5")	2684 mm (8'10")
Width	1990 mm (6'6")	1990 mm (6'6")
Transport length	5800 mm (19')	5800 mm (19')
Max. digging depth	3845 mm (12'7")	3736 mm (12'3")
Stick length (standard)	1685 mm (5'6")	1685 mm (5'6")
Stick length (long version)	1985 mm (6'6")	1985 mm (6'6")
Max. digging depth for long stick (+ 300 mm/11.8")	4140 mm (13'7")	4036 mm (13'3")
Max. vertical digging depth	2855 mm (9'4")	2735 mm (8'11")
Max. vertical digging depth (long stick)	3135 mm (10'3")	3014 mm (9'11")
Max. digging height	5660 mm (18'7")	5778 mm (18'11")
Max. digging height (long stick)	5850 mm (19'2")	5967 mm (19'7")
Max. dump height	3995 mm (13'1")	4109 mm (13'6")
Max. dump height (long stick)	4185 mm (13'9")	4298 mm (14'1")
Max. digging radius	6210 mm (20'4")	5960/6460 mm (19'7"/21'2")
Max. digging radius (long stick)	6490 mm (21'4")	6240/6740 mm (20'6"/22'1")
Max. reach at ground level	6090 mm (19'11")	5840/6340 mm (19'2"/20'10")
Max. reach at ground level (long stick)	6380 mm (20'11")	6130/6630 mm (20'1"/21'9")
Max. breakout force at bucket tooth	39.70 kN (8925 lbf)	39.70 kN (8925 lbf)
Max. tearout force (standard stick)	28.10 kN (6317 lbf)	28.10 kN (6317 lbf)
Max. tearout force (long stick)	25.10 kN (5643 lbf)	25.10 kN (5643 lbf)
Min. tail end slewing radius	1465 mm (4'10")	1465 mm (4'10")
Max. tail end lateral projection over chains	470 mm (1'6")	220/720 mm (8.7"/2'4")
Max. boom displacement to bucket centre (right-hand side)	745 mm (2'5")	995 mm (3'3")
Max. boom displacement to bucket centre (left-hand side)	535 mm (1'9")	785 mm (2'7")

MidWestTech | Wacker Neuson 6003 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

Flash code 2-3 – power supply voltage

(1) P0562/1: power supply voltage error (voltage too low)

DTC	P0562/1	Power supply voltage error (voltage too low)

DTC detection conditions

1 – Prerequisite; 2 – Detection condition(s); 3 – Flash code in error display	Check points
1. Engine runs.	Battery
2. E-ECU supply voltage below 10 [V]	Alternator
3. 2 flash pulses followed by 3 flash pulses.	Wiring harness

Troubleshooting

Error mode	[Operation is resumed]: The system lets the engine run without any restrictions after the error has been detected.
Operation restrictions?	No.
Recovery conditions	Yes: This error is automatically reset if a normal supply voltage (10 to 16 [V]) is applied.
Remarks	

Possible error cause/condition

- Bad battery condition.
- Wrong battery connection.
- Alternator defect.
- Wiring harness disconnected or short-circuited.
- Defect in internal E-ECU circuit.

Diagnosis description

1) Initial diagnosis with the diagnosis tool	• Check the error display. • Check the battery voltage.
2) Engine inspection	• Switch off ignition to stop the engine. • Check battery voltage with a multimeter. • Inspect the charging system of the engine. • Switch on ignition after a short time to check whether a DTC has been detected.
	*Refer to the Service Manual ("Engine") for a description of the engine inspection and how to carry it out.
3) Error diagnosis	• Check whether the battery connections are OK and whether the cable insulation is undamaged.

MidWestTech | Wacker Neuson 6003 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

NG	Replace the preheating relay.
OK	With the preheating relay and the wiring harness connected, check the relay coil resistance. -> Next: [2. Check the relay coil resistance value (relay + wiring harness side):]

2. Check the relay coil resistance value (relay + wiring harness side):

- Connect the preheating relay onto the wiring harness.
- Disconnect the E-ECU from the wiring harness.
- Measure the resistance between E-ECU connectors E44 and B00 with a multimeter.

*See above, "Coil resistance value of standard Yanmar preheating relay".

NG	Check the wiring harness for continuity. -> Next: [3. Check the wiring harness for continuity:]
OK	Check the movement of the preheating relay with the diagnosis tool. -> Next: [4. Check the relay for movement:]

3. Check the wiring harness for continuity:

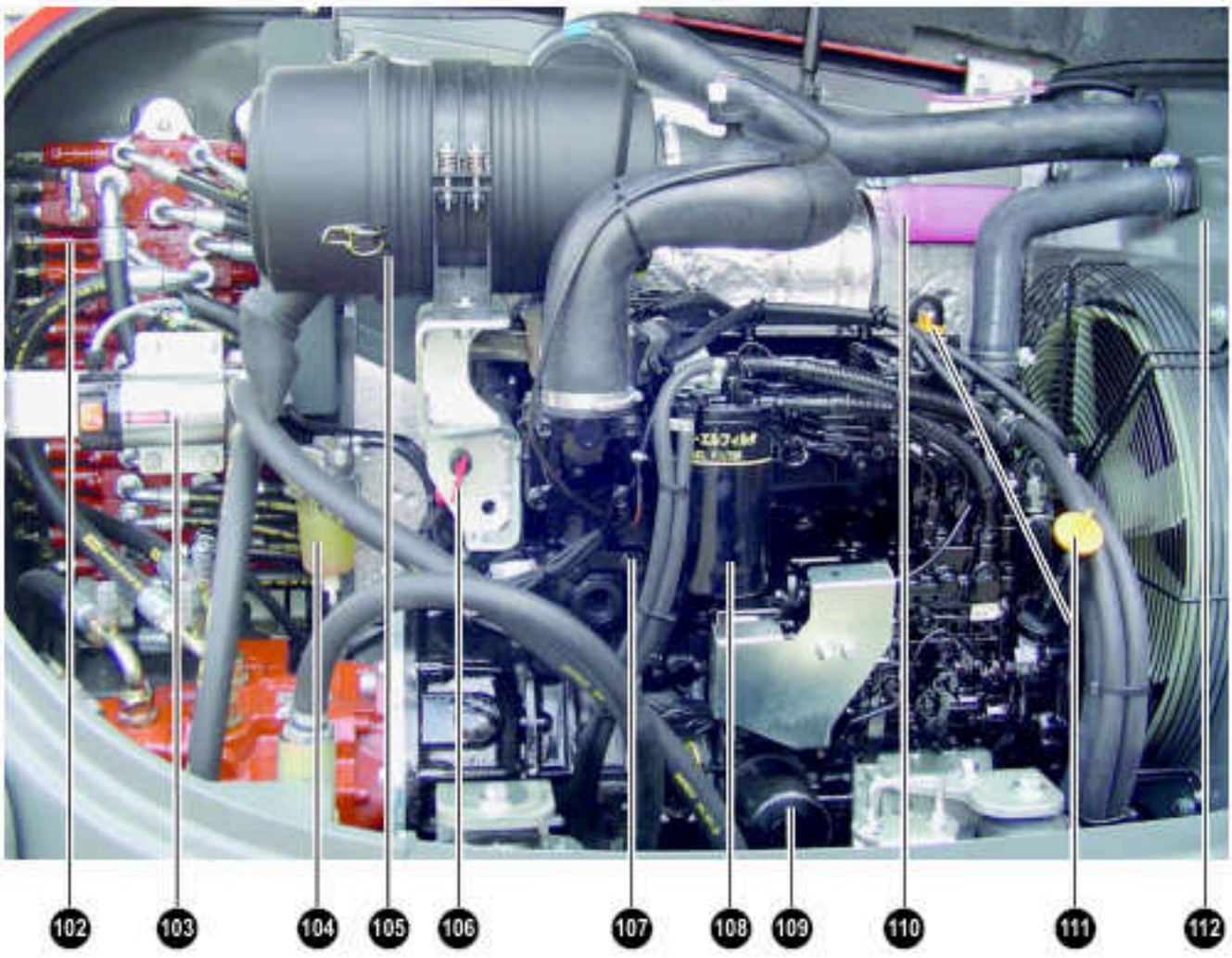
- Disconnect the preheating relay and the E-ECU from the wiring harness.
- Check the wiring harness for continuity by means of a multimeter.

Terminal	Continuity	Status
Relay coil (input side) E44 [between E-ECU and sensor connector]	Yes	OK: normal
	No	NG: open wiring harness
Relay coil (output side) B00 [between E-ECU and sensor connector]	Yes	OK: normal
	No	NG: open wiring harness
Between E33 and GND/E28/E45/E47	No	OK: normal
	Yes	NG: wiring harness short-circuited to GND
Between E44 and E43/E48	No	OK: normal
	Yes	NG: wiring harness short-circuited with power supply

NG	• Check whether the wiring harness is damaged, or whether the wiring is correct. • Replace the wiring harness.
OK	Check the movement of the proportional solenoid relay of the injection pump with the diagnosis tool. -> Next: [4. Check the relay for movement:]

MidWestTech | Wacker Neuson 6003 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

1.15 Engine compartment from serial no. AD00611: overview

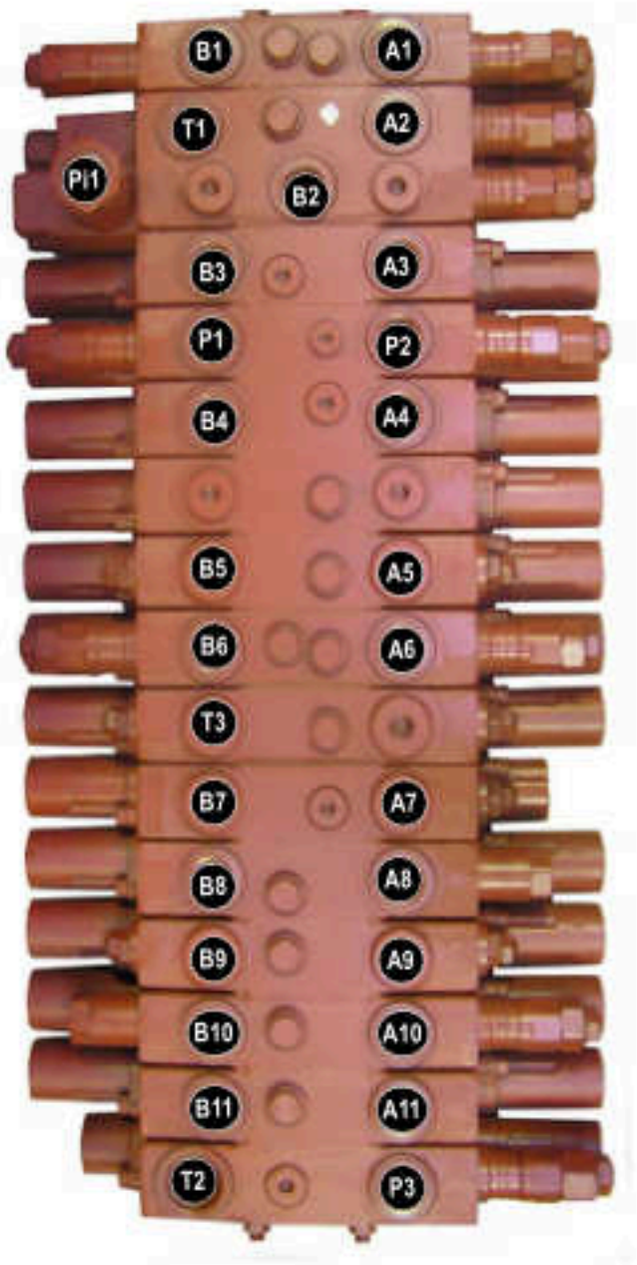


Pos.	Description	For more information see page
102	Main valve block	5-6
103	Fuel-filling pump	7-17
104	Fuel prefilter	3-11
105	Air filter	3-20
106	Battery master switch	1-22
107	Engine	4-13
108	Fuel filter	3-12
109	Engine oil filter	3-16
110	Coolant tank	3-18
111	Oil filler openings	3-13
112	Oil/water radiator	3-19

MidWestTech | Wacker Neuson 6003 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

5.2 Main valve block with 3rd control circuit and triple articulation boom

Ports



Bucket

Boom

Left-hand side drive

Input P1 P2

Right-hand side drive

Boom 2

Stick

Auxiliary hydraulics

Auxiliary hydraulics flow rate adjustment

Swivel boom

3rd control circuit/triple articulation boom

Stabiliser blade

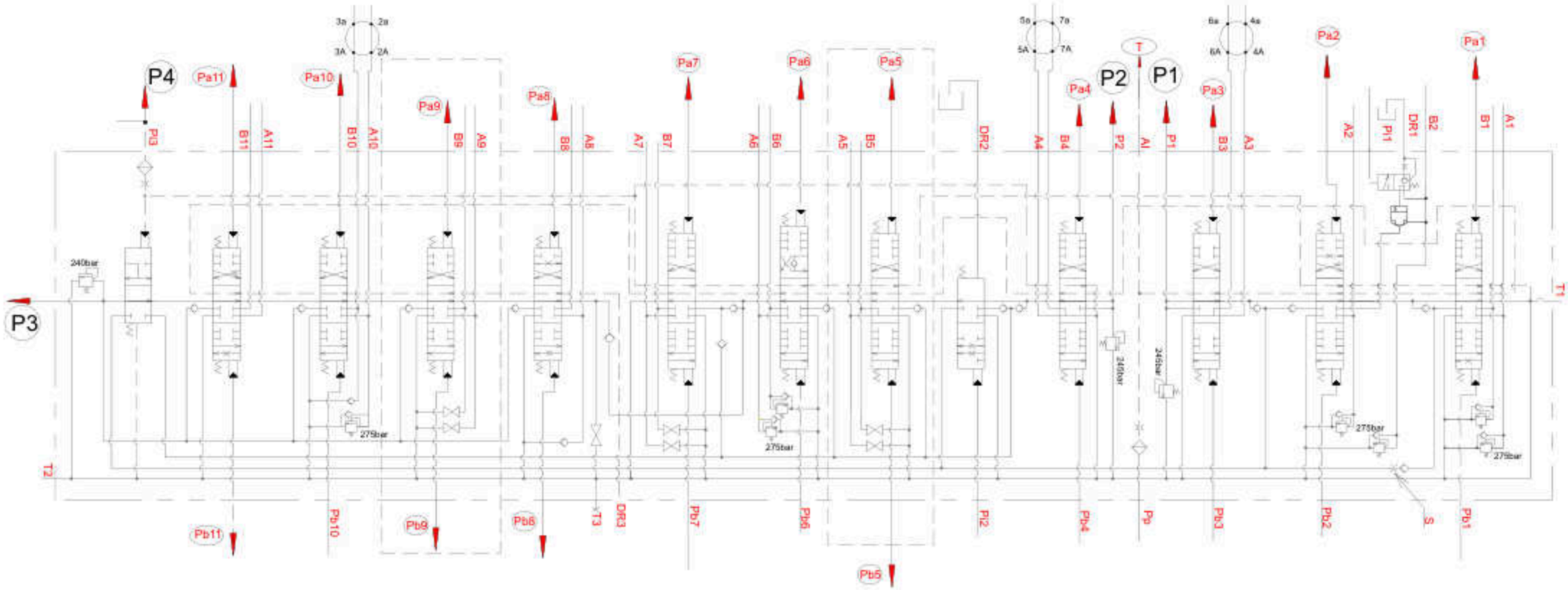
Rotating the upper carriage

Straight-ahead driving

Input P3 output T2

MidWestTech | Wacker Neuson 6003 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

5.21 Main valve block A3 diagram



Pilot control lines

Port	Legend	Controlled via
Pa1, Pb1	Bucket control	Joystick (left)
Pa2, Pb2	Boom control	Joystick (left)
Pa3, Pb3	Left-hand side drive control	Drive pedal (left)
Pa4, Pb4	Right-hand side drive control	Drive pedal (right)
Pa5, Pb5	Triple articulation boom control	– *see chapter 7.15 Triple articulation boom* on page 7-31
Pa6, Pb6	Stick control	Joystick (left)
Pa7, Pb7	Auxiliary hydraulics control	Auxiliary hydraulics pedal
Pa8, Pb8	Swivel control	Stabiliser blade pedal
Pa9, Pb9	3rd control circuit (control)	– *see chapter 7.14 3rd control circuit* on page 7-29
Pi1 Pi2	Boom summation control	Joystick (right)

Main control lines

Port	Legend
A1, B1	Bucket ram
A2, B2	Boom ram
A3, B3	Drive unit (left) via swivel joint
A4, B4	Drive unit (right) via swivel joint
A5, B5	Stick ram
A6, B6	Auxiliary hydraulics
A7, B7	Offset ram
A8, B8	Stabiliser blade ram
A9, B9	Gear motor

Pump/tank lines

Port	Legend
P1	Pump 1 port
P2	Pump 2 port
P3	Pump 3 port
P4	Pump 4 port
T1	Tank line via non-return valve and filter in tank
T2	Tank line via oil cooler and filter in tank
DR1, DR2	Tank lines for boom summation

S: bucket pre-tension – *see S: bucket pre-tension* on page 5-7

MidWestTech | Wacker Neuson 6003 Track Excavator Service Manual | Publication 1000129840

Order the manual at mid-west-tech.com >