Service Manual

Track excavator

50Z3



Machine model	**50Z3**
Edition	**2.0**
Language	**English**
Item no.	**1000129833**

MidWestTech | Wacker Neuson 50z3 Track Excavator Service Manual | Publication 1000129833

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
Cab (legend) 1-8
Instrument panel up to serial no. AC02877: overview 1-9
Instrument panel up to serial no. AC02877: legend 1-10
Instrument panel from serial no. AC02893 to serial no. AD07125: overview 1-11
Instrument panel from serial no. AC02893 to serial no. AD07125: legend 1-12
Control elements 50Z3 (from serial no. AH00579) 1-13
Engine compartment up to serial no. AD07125: overview 1-15
Engine compartment (from serial no. AH00579): overview 1-16
Chassis overview 1-17
Tilting the cab 1-18
Summer/winter operation 1-20
Preheated fresh air 1-20
Turning the auxiliary hydraulics/boom swivel pedal around 1-21

Specifications

Chassis 2-1
Engine 2-1
Fuel injection pump 2-2
Engine capacities 2-2
Engine tightening torques 2-2
Hydraulic system 2-3
Auxiliary hydraulics oil flow 2-3
Screwable hose burst valve 2-4
Undercarriage and swivel unit 2-4
Stabiliser blade 2-4
Electric system 2-4
Fuse box in instrument panel 2-5
Main fuse box with relays underneath the cab 2-5
Relays 2-5
Noise levels 2-6
Vibration 2-6
Coolant compound table 2-6
Model-specific tightening torques 2-7
General tightening torques 2-7
Tightening torques for hydraulic screw connections (dry assembly) 2-7
Tightening torques for high-resistance screw connections 2-9
Dimensions model 50Z3 2-10
Lift capacity table 50Z3 2-11
Lift capacity table 50Z**3** with long stick 2-12
Lift capacity table 50Z**3** with counterweight 2-13
Lift capacity table 50Z**3** with long stick and counterweight 2-14
Kinematics 2-15
Attachments 2-16

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

MidWestTech | Wacker Neuson 50z3 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

Maintenance plan (overview) 3-5
Service package 3-8
Up to serial no.: AD07125 3-8
From serial no.: AH00579 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 3-26
Pressure check 3-27
General 3-27
Checking pilot control pressure 3-27
Pressure check of variable displacement pump P1 3-28
Pressure check of variable displacement pump P2 3-29
Pressure check of gear pump P3 3-30
Secondary pressure limiting valve of the gear motor 3-30
Measuring ports: overview 3-31
Primary pressure limiting valves 3-31
Test report 3-32
Hydraulic system 3-35
Specific safety instructions 3-35
Checking the hydraulic oil level 3-36
Filling up hydraulic oil 3-37
Changing hydraulic oil 3-37
Monitoring the hydraulic oil reflux filter 3-38
Checking hydraulic pressure lines 3-39
Travelling drive 3-40
Checking the oil level and filling up oil 3-40
Draining oil 3-40
Chains 3-41
Checking chain tension 3-41
Setting the chains 3-42
Lubrication work 3-43
Stabiliser blade 3-43
Lubrication points on the swivelling console 3-43

MidWestTech | Wacker Neuson 50z3 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

Boom lubrication points ... 3-44
Lubrication points on the stick ... 3-44
Lubrication strip ... 3-45
Maintenance of attachments ... 3-45
Electric system ... 3-46
Specific safety instructions ... 3-46
Service and maintenance work at regular intervals ... 3-46
Instructions concerning specific components ... 3-47
Alternator ... 3-47
Battery ... 3-48
Cab ... 3-49
Replacing the cab filter ... 3-49
General maintenance work ... 3-50
Cleaning ... 3-50
General instructions for all areas of the machine ... 3-50
Inside the cab ... 3-51
Exterior of the machine ... 3-51
Engine compartment ... 3-51
Screw connections and attachments ... 3-51
Pivots and hinges ... 3-51

Engine

Engine 4TNV88-PNS (up to serial no. AD07125): overview ... 4-1
Fuel system ... 4-3
Checking and adjusting valve clearance ... 4-4
Tightening order for cylinder head bolts ... 4-5
Checking the injection nozzles ... 4-6
Pressure check ... 4-6
Checking the nozzle jet ... 4-6
Injection time ... 4-7
Checking injection time ... 4-7
Setting injection time ... 4-7
Replacement of fuel injection pump ... 4-8
Adjusting engine revs ... 4-9
Compression ... 4-9
Checking the coolant thermostat ... 4-9
Checking the thermal switch ... 4-10
Oil pressure switch ... 4-10
Checking the coolant circuit ... 4-11
Engine 4TNV88-PNS (from serial no. AH00579): overview ... 4-12
Fuel system ... 4-14
Removing the valve cover ... 4-15
Checking and adjusting valve clearance ... 4-15
Tightening order for cylinder head bolts ... 4-16
Checking the injection nozzles ... 4-17
Pressure check ... 4-17
Checking the nozzle jet ... 4-17
Injection time ... 4-18
Checking injection time ... 4-18
Setting injection time ... 4-19
Replacement of fuel injection pump ... 4-20
Adjusting engine revs ... 4-21
Compression ... 4-21
Checking the coolant thermostat ... 4-21
Checking the thermal switch ... 4-22
Oil pressure switch ... 4-22
Checking the coolant circuit ... 4-23
Engine trouble ... 4-23

MidWestTech | Wacker Neuson 50z3 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

2.13 Lift capacity table 50Z3

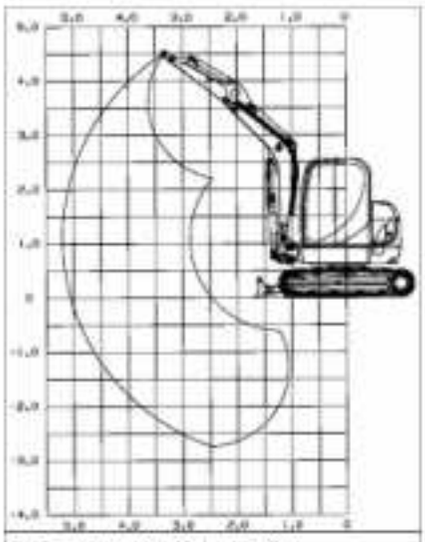
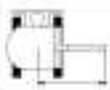


Fig. 5: Lift capacity table (model 50Z3)

All table indications in kg (lb) and horizontal position on firm ground without bucket.

A	max		4.0 m (13'1")		3.0 m (9'10")		2.0 m (6'7")	
B								
4.0 m (13'1")	1060* (2337*)	810 (1786)						
3.0 m (9'10")	1025* (2260*)	585 (1290)	1010* (2227*)	780 (1720)				
2.0 m (6'7")	1045* (2304*)	490 (1080)	1185* (2612*)	730 (1609)	1580* (3483*)	1150 (2535)		
1.0 m (3'3")	1090* (2403*)	455 (1003)	1415* (3120*)	670 (1477)	2225* (4905*)	990 (2183)		
0.0 m (0'0")	1145* (2524*)	460 (1014)	1555* (3428*)	625 (1378)	2435* (5368*)	920 (2028)		
-1.0 m (-3'3")	1210* (2668*)	515 (1135)	1510* (3329*)	610 (1345)	2290* (5049*)	915 (2017)	4070* (8973)	1790 (3946)
-2.0 m (-6'7")	1255* (2767*)	705 (1554)			1780* (3924*)	950 (2094)	3000* (6614*)	1860 (4101)

max	Admissible load on extended stick
A	Reach from live ring centre
B	Load hook height
*	Lift capacity limited by hydraulics

	With the stabiliser blade in driving direction
	Without the stabiliser blade, 90° to driving direction

If equipped with a bucket or other attachments, lift capacity or tilt load is reduced by bucket or attachment dead weight.

Calculation basis: according to ISO 10567

The track excavator's lift capacity is restricted by the settings of the pressure limiting valves and the hydraulic system's stabilising features.

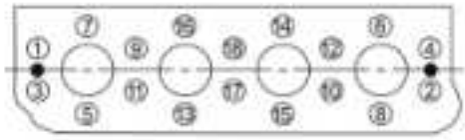
Neither 75 % of the static tilt load nor 87 % of the hydraulic lift capacity is exceeded.

MidWestTech | Wacker Neuson 50z3 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

4.4 Tightening order for cylinder head bolts

☞ *Order for removing the cylinder-head bolts*

Flywheel



Fan

Important!

Always carry out work on the cylinder head on a cold engine!

☞ *Mount the cylinder-head bolts*

➥ Tightening torques:

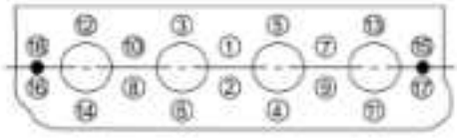
- 1st pass **41.1 – 46.9 Nm (30.3 – 34.6 lbf ft)**
- 2nd pass **85.3 – 91.1 Nm (62.9 – 67.2 lbf ft)**

Caution!

Bear in the mind the order for tightening the cylinder-head bolts!

☞ *See figure*

Flywheel



Fan

Oil the threads and the contact surfaces of the cylinder-head bolts before mounting them!

MidWestTech | Wacker Neuson 50z3 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

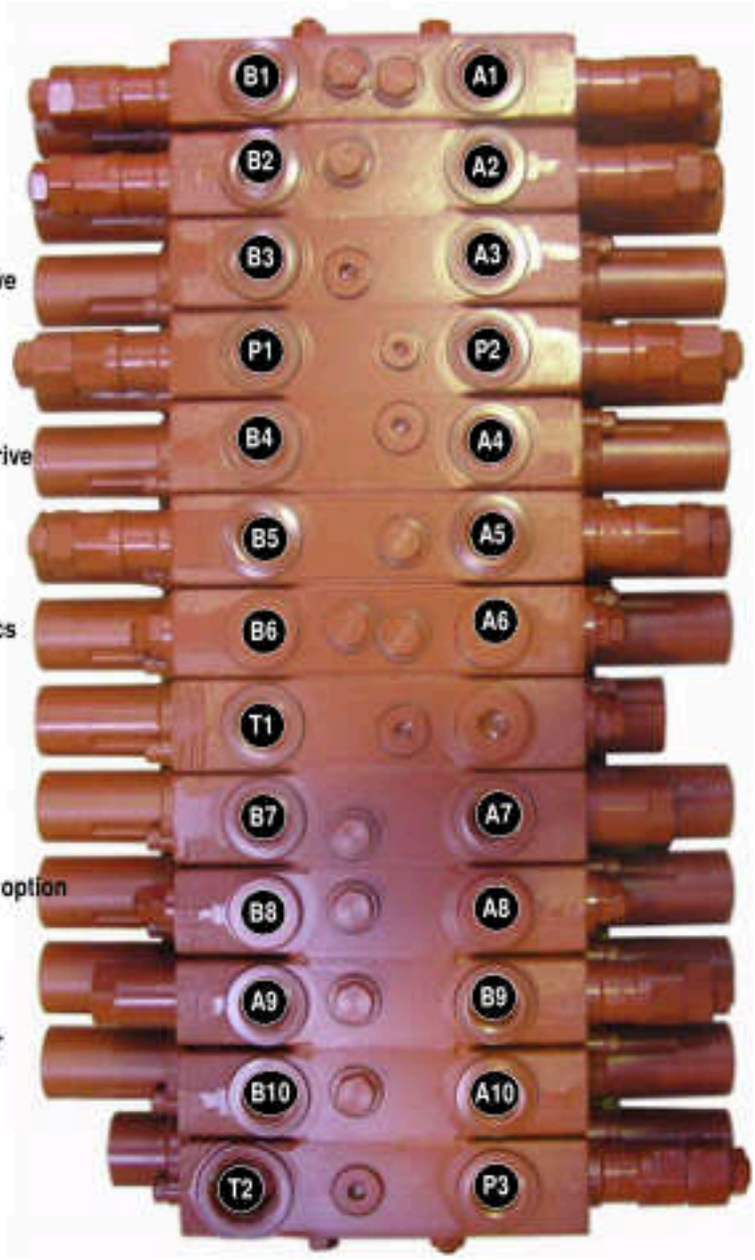
Wiring harnesses: overview

Wiring diagrams include all options.

MidWestTech | Wacker Neuson 50z3 Track Excavator Service Manual | Publication 1000129833
Order the manual at mid-west-tech.com >

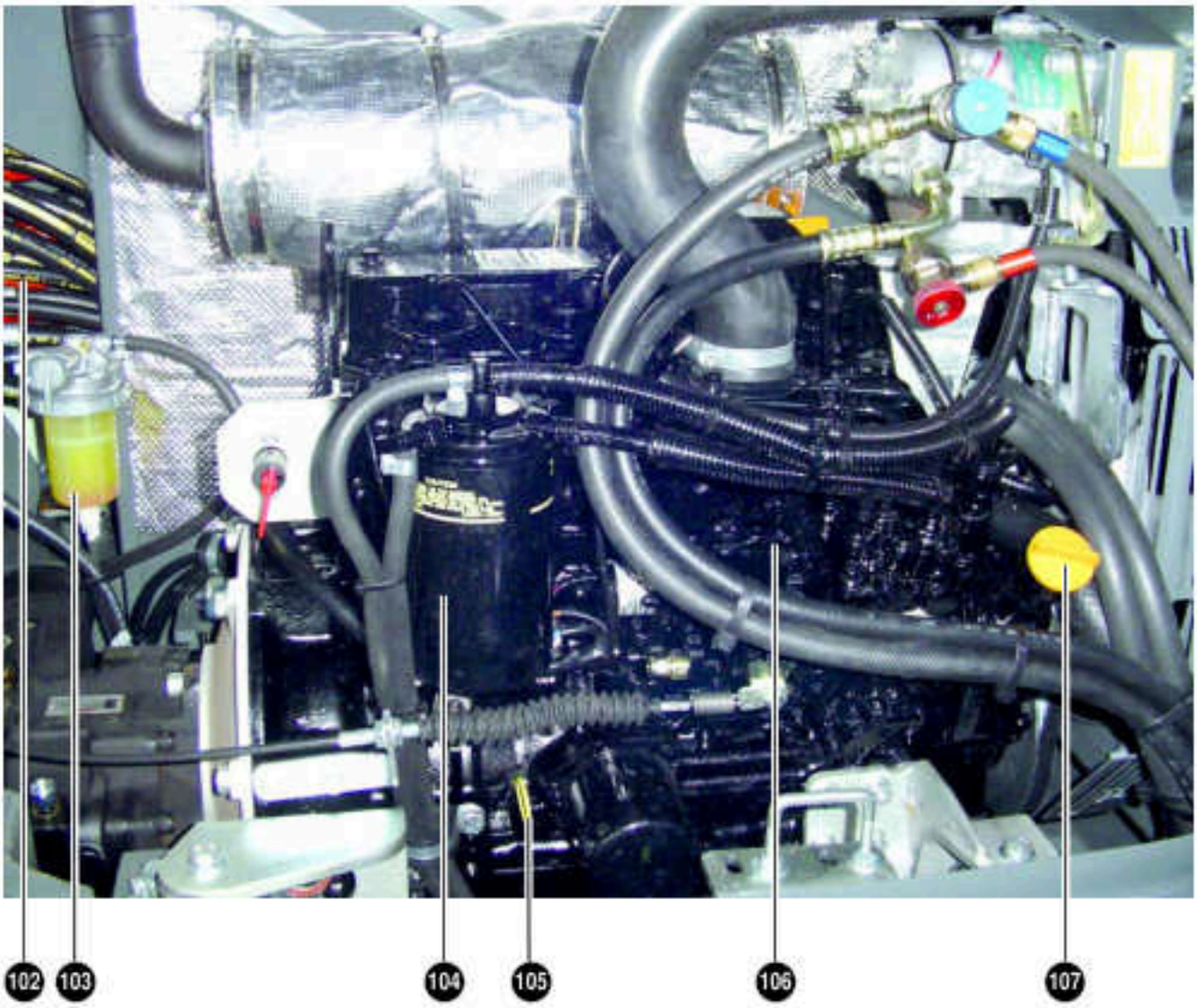
5.2 Main valve block

Ports



MidWestTech | Wacker Neuson 50z3 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

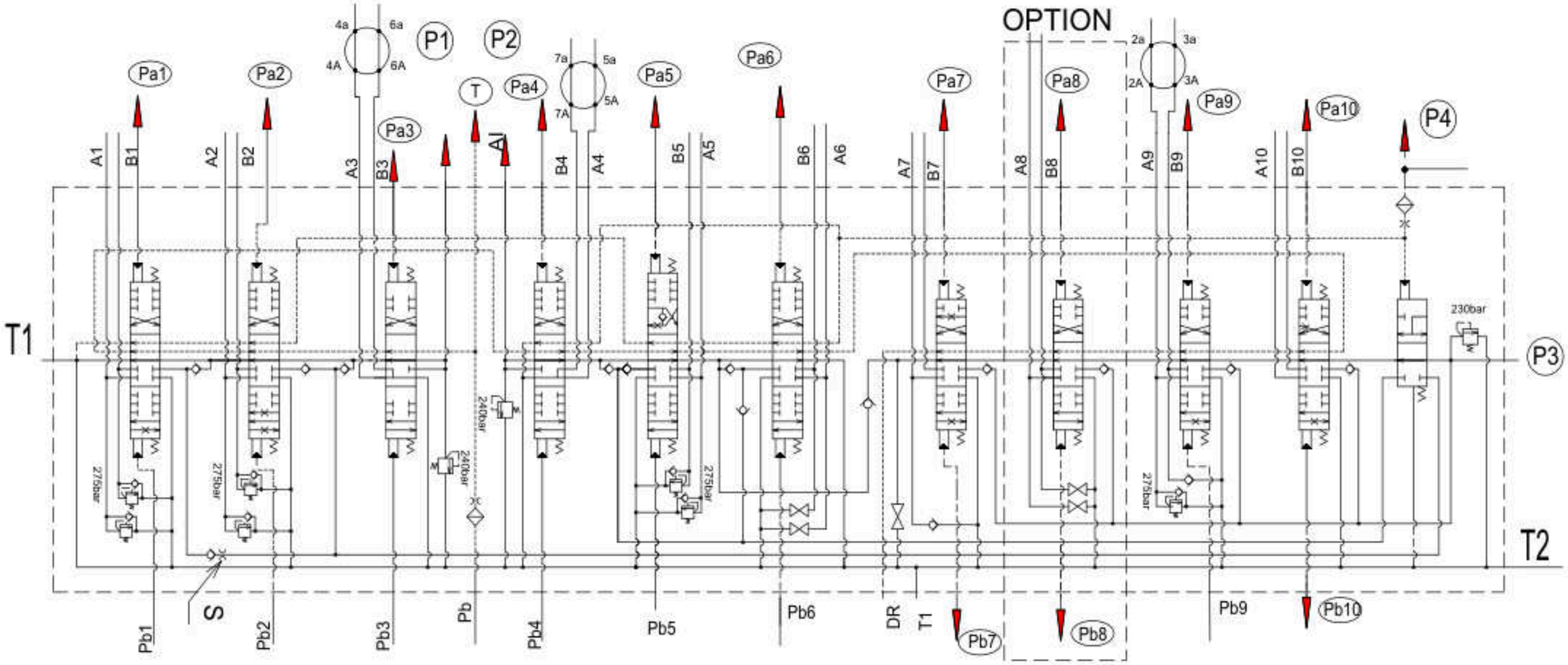
1.14 Engine compartment (from serial no. AH00579): overview



Pos.	Description	For more information see page
102	Main valve block	5-6
103	Fuel prefilter	3-11
104	Fuel filter (new)	3-12
105	Oil dipstick	4-1/4-12
106	Engine (Tier III)	4-12
107	Oil filler neck	4-1/4-12

MidWestTech | Wacker Neuson 50z3 Track Excavator Service Manual | Publication 10... Order the manual at mid-west-tech.com >

5.19 Main valve block diagram 50Z3 A3



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	Stick control	Joystick (right)
Pa6, Pb6	Auxiliary hydraulics control	Auxiliary hydraulics pedal
Pa7, Pb7	Swivel control	Auxiliary hydraulics pedal
Pa8, Pb8	3rd control circuit (control)	4/3 directional valve
Pa9, Pb9	Stabiliser blade control	Stabiliser blade pedal
Pa10, Pb10	Rotation control	Joystick (left)

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	3rd control circuit
A9, B9	Stabiliser blade ram
A10, B10	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

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

MidWestTech | Wacker Neuson 50z3 Track Excavator Service Manual | Publication 1000129833

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