VEBM600101

SHOP MANUAL

WA200-6
WA200PZ-6

KOMATSU®

MACHINE MODEL	SERIAL NUMBER
WA200-6	75001 and up
WA200PZ-6	70136 and up H00051 and up

- This shop manual may contain attachments and optional equipment that are not available in your area. Please consult your local Komatsu distributor for those items you may require. Materials and specifications are subject to change without notice.

- WA200-6 and WA200PZ-6 mounts the SAA4D107E-1 engine.

MidWestTech | Komatsu WA200-6, WA200PZ-6 Wheel Loader Service Manual | Publication VEBM600101
Order the manual at mid-west-tech.com >

Table of contents

00 Index and foreword
100 Index SEN03871-01
Composition of shop manual ... 2
Table of contents ... 4
200 Foreword and general information SEN03872-00
Safety notice ... 2
How to read the shop manual ... 7
Explanation of terms for maintenance standard ... 9
Handling of electric equipment and hydraulic component ... 11
Handling of connectors newly used for engines ... 20
How to read electric wire code ... 23
Precautions when carrying out operation ... 26
Method of disassembling and connecting push-pull type coupler ... 29
Standard tightening torque table ... 32
Conversion table ... 36

01 Specification
100 Specification and technical data SEN03873-00
Specification dimension drawing ... 3
Specifications ... 4
Weight table ... 8
Table of fuel, coolant and lubricants ... 10

10 Structure, function and maintenance standard
100 Engine and cooling system SEN03874-00
Engine mount and transfer mount ... 2
Damper ... 3
Cooling system ... 4
Cooling system hydraulic piping diagram ... 5
Cooling fan motor ... 7
200 Power train SEN03875-00
Power train ... 3
Power train system diagram ... 4
Drive shaft ... 6
HST hydraulic piping diagram ... 7
HST pump ... 8
HST motor ... 16
Transfer ... 22
Clutch solenoid valve ... 33
Axle ... 34
Differential ... 36
Torque proportioning differential ... 41
Limited slip differential ... 44
Final drive ... 48
300 Steering system SEN03876-00
Steering piping diagram ... 3
Steering column ... 4
Priority valve ... 5
Orbit-roll valve ... 8
2-way restrictor valve ... 16
Cushion valve ... 17
Steering cylinder ... 18
Emergency steering piping diagram ... 20
Emergency steering valve ... 21
Steering relief valve ... 24

MidWestTech | Komatsu WA200-6, WA200PZ-6 Wheel Loader Service Manual | Publi... Order the manual at mid-west-tech.com >

400 Brake system SEN03877-00
Brake piping diagram ... 3
Charge valve ... 4
Brake valve ... 8
Inching valve ... 12
Accumulator (for brake) ... 13
Slack adjuster ... 14
Brake ... 16
Parking brake control ... 21
Parking brake ... 22
500 Undercarriage and frame SEN03878-00
Axle mount and center hinge pin ... 2
Tires ... 7
600 Hydraulic system SEN03879-00
Work equipment hydraulic piping diagram ... 2
Work equipment control lever linkage ... 6
Hydraulic tank ... 10
4-gear pump ... 12
Work equipment control valve ... 15
PPC valve ... 39
Lock valve ... 54
Accumulator (for PPC circuit) ... 55
Bypass valve ... 56
Quick coupler solenoid valve ... 59
ECSS valve ... 60
Accumulator (for ECSS) ... 62
700 Work equipment SEN03880-00
Work equipment linkage ... 2
Bucket ... 6
Bucket positioner and boom kick-out ... 10
Work equipment cylinder ... 23
800 Cab and its attachments SEN03881-00
Cab ... 3
Air conditioner ... 4
910 Electrical system, Part 1 SEN03882-00
Machine monitor system ... 2
Machine monitor ... 6
920 Electrical system, Part 2 SEN03883-00
Electrical system (HST controller system) ... 2
HST controller ... 18
ECSS system ... 20
KOMTRAX system ... 22
Engine starting circuit ... 24
Engine stopping circuit ... 26
Preheating circuit ... 27
Engine output derating function ... 28
Automatic warm-up function ... 28
Parking brake circuit ... 29
Coupler plunger control system ... 32
Multi-function knob ... 33
Max. traction switch ... 34
Sensor ... 35

20 Standard value table
100 Standard service value table SEN03884-00
Standard service value table for engine ... 2
Standard service value table for chassis ... 3

MidWestTech | Komatsu WA200-6, WA200PZ-6 Wheel Loader Service Manual | Publi... Order the manual at mid-west-tech.com >

30 Testing and adjusting

110 Testing and adjusting, Part 1 SEN03885-00
Tools for testing, adjusting, and troubleshooting ... 2
Measuring engine speed ... 7
Measuring exhaust gas color ... 9
Adjusting valve clearance ... 11
Measuring compression pressure ... 13
Measuring blow-by pressure ... 16
Testing engine oil pressure ... 17
Measuring intake air (boost) pressure ... 18
Handling fuel system equipment ... 20
Releasing residual pressure in fuel system ... 20
Measuring fuel pressure ... 21
Measuring fuel return rate and leakage ... 23
Bleeding air from fuel circuit ... 27
Testing leakage in fuel system ... 28
Handling reduced cylinder mode operation ... 29
Handling no-injection cranking operation ... 29
Handling controller voltage circuit ... 30
Check of muffler and muffler stack for looseness and damage ... 30
Check of muffler function ... 31
Check of installed condition of cylinder head and manifolds ... 31
Check of engine piping for damage and looseness ... 32
Testing and adjusting air conditioner compressor belt tension ... 32
Replacing alternator belt ... 33
120 Testing and adjusting, Part 2 SEN03886-00
Checking operating force of accelerator pedal ... 3
Checking directional lever ... 4
Testing and adjusting HST oil pressure ... 5
Testing clutch control pressure ... 9
Testing and adjusting steering wheel ... 10
Testing and adjusting steering oil pressure ... 12
Bleeding air from steering circuit ... 14
Testing hydraulic fan ... 15
Measuring brake pedal ... 17
Testing and adjusting brake pedal linkage ... 18
Measuring brake performance ... 19
Testing and adjusting accumulator charge pressure ... 20
Testing wheel brake oil pressure ... 22
Testing wear of brake disc ... 25
Bleeding air from wheel brake circuit ... 26
Releasing residual pressure in brake accumulator circuit ... 27
Testing parking brake performance ... 28
Testing and adjusting parking brake control cable ... 29
Measuring and adjusting work equipment control lever ... 30
Testing and adjusting work equipment hydraulic pressure ... 31
Testing work equipment PPC oil pressure ... 32
Bleeding air from hydraulic circuit ... 34
Releasing remaining pressure in hydraulic circuit ... 35
Testing and adjusting bucket positioner ... 36
Testing and adjusting of boom kick-out switch ... 38
Checking proximity switch operation pilot lamp ... 39
Procedure for testing diodes ... 40
Preparation work for troubleshooting for electric system ... 42
Starting KOMTRAX terminal operations ... 46
Indicator lamps of KOMTRAX terminal ... 50

MidWestTech | Komatsu WA200-6, WA200PZ-6 Wheel Loader Service Manual | Publi... Order the manual at mid-west-tech.com >

Releasing remaining pressure in hydraulic circuit

Releasing remaining pressure between each hydraulic cylinder and control valve

★ If the piping between the hydraulic cylinder and the control valve is to be disconnected, release the remaining pressure from the circuit as follows.

1. Lower the work equipment to the ground, and stop the engine.
2. Loosen the oil filler cap slowly to release the pressure inside the tank.
3. Operate the control levers.
   ★ When the levers are operated 5 – 6 times to release all the remaining pressure.

Releasing remaining pressure in brake accumulator circuit

★ If the piping between the ACC charge valve and brake accumulator, between the ACC charge valve and parking brake valve, and between the accumulator and brake valve is to be disconnected, release the remaining pressure from the circuit as follows.

1. Stop the engine.
2. Depress the brake pedal at least 100 times to release the pressure inside the brake accumulator circuit.

Releasing remaining pressure in PPC accumulator circuit

★ If the piping between the PPC accumulator and PPC valve is to be disconnected, release the remaining pressure from the circuit as follows.

1. Lower the work equipment to the ground, and stop the engine.
2. Operate the control lever 5 – 6 times to release all the remaining pressure from the circuit.

MidWestTech | Komatsu WA200-6, WA200PZ-6 Wheel Loader Service Manual | Publi... Order the manual at mid-west-tech.com >

Pm clinic inspection chart

WA200-6 Serial No. 70001 and up

Machine serial No.	
Engine serial No.	SAA4D107E-1 #

	Hours inspection

Work order No.	Date of execution	Service Meter	Serviceman
	Year: Month: Day:	h	

Questions asked to operator, walk around inspection

Was there any abnormality before inspection started?	Ambient temperature Max. °C
	Min. °C
	Altitude m

Max. coolant temp. (During operation)								Max. HST oil temp. (During operation)							
Segment color	W 1	G 2	G 3	G 4	G 5	R 6	R 7	Segment color	G 1	G 2	G 3	G 4	G 5	R 6	R 7

★ If the machine is cold, warm it up fully. <>: Reference value

	Item	Conditions		Unit	Standard value for new machine	Service limit value	Measurement results	Pass	Fail
Engine	Engine speed	Low idle		rpm	775 – 850	775 – 850			
		High idle			2,175 – 2,295	2,175 – 2,295			
		HST stall			2,080 – 2,280	1,980 – 2,295			
		Hydraulic stall			1,970 – 2,170	1,870 – 2,270			
		Full stall (HST stall + hydraulic stall)			1,860 – 2,170	1,760 – 2,270			
	Blow-by pressure	At rated output		kPa (mmH_2O)	Max. 0.98 {Max. 100}	1.96 {200}			
	Oil pressure	SAE15W-40	High idle	MPa (kg/cm^2)	Min. 0.29 {Min. 3.0}	0.25 {2.5}			
			Low idle		Min. 0.10 {Min. 1.0}	0.07 {0.7}			

★ Before starting the inspection, check that the machine does not move when the directional lever is placed in position.

⚠ When measuring the transfer clutch control pressure, carry out the measurement at a place where the machine can travel safety at a speed of more than 10 km/h.

	Item	Conditions		Unit	Standard value for new machine	Service limit value	Measurement results	Pass	Fail
HST	High-pressure cut-off pressure	• Engine: Full throttle • Hydraulic oil temp.: 45 – 55°C	Directional lever: F Speed selector switch: 2nd Traction control switch: ON	MPa (kg/cm^2)	44.6 – 46.6 {455 – 475}	43.1 – 46.6 {440 – 475}			
	Low-pressure relief pressure (work equipment PPC circuit basic pressure)		Directional lever: N		2.5 – 2.7 {25.5 – 27.5}	2.4 – 2.7 {24.5 – 27.5}			
	Servo piston control pressure		Directional lever: N Brake: released		2.5 – 2.7 {25.5 – 27.5}	2.4 – 2.7 {24.5 – 27.5}			
			Directional lever: N Brake: pressed		Max. 0.6 {Max. 6}	Max. 0.6 {Max. 6}			
	Servo piston actuation pressure		Directional lever: Forward and reverse Gear speed selector switch: 1st Travel speed control dial: Min. side Measure while driving at full throttle (Approx. 5 km/h).		2.5 – 2.7 {25.5 – 27.5}	2.3 – 2.7 {23.5 – 27.5}			
	Transfer clutch control pressure	Hydraulic oil temp.: 45 – 55°C	Directional lever: F Speed selector switch: 3rd or 4th		2.5 – 2.7 {25.5 – 27.5}	2.4 – 2.7 {24.5 – 27.5}			

MidWestTech | Komatsu WA200-6, WA200PZ-6 Wheel Loader Service Manual | Publi... Order the manual at mid-west-tech.com >

Failure code [DLT3KX] Travel speed sensor B: Abnormality

Action code	Failure code	Trouble	Travel speed sensor B: Abnormality (HST controller system)
E03	DLT3KX		
Contents of trouble	• While machine was traveling at speed above about 4 km/h, input signal of travel speed sensor B was lost.		
Action of controller	• Recognizes travel speed by input signal of travel speed sensor A. • Turns the centralized warning lamp and alarm buzzer ON.		
Problem that appears on machine	• None in particular.		
Related information	• If failure code [DLT3KX] and [DLT4KX] (Travel speed sensor A: Abnormality) are turned ON simultaneously, see causes 6 and after.		

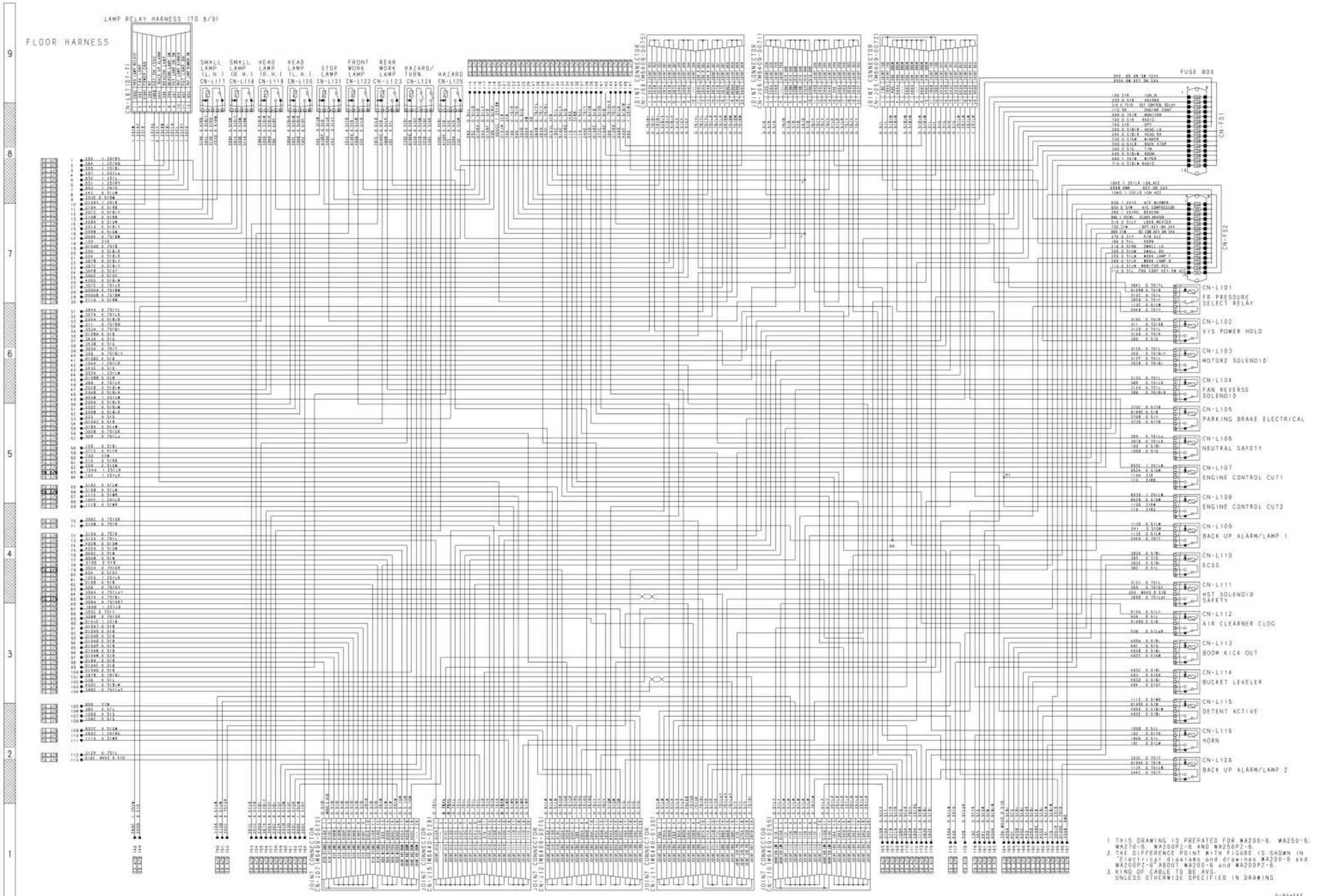
	Causes		Standard value in normal state/Remarks on troubleshooting		
Possible causes and standard value in normal state	1	Defective travel speed sensor (Internal defect)	★ Prepare with starting switch OFF, then start engine (but do not travel) and carry out troubleshooting.		
			T09	Voltage	
			Between (1) – (2)	4.7 – 5.3 V	
			Between (2) – ground	Max. 1 V	
			★ Prepare with starting switch OFF, then start engine, travel at constant speed, and carry out troubleshooting.		
			T09	Voltage	
			Between (4) – (2)	Below 1 V – Above 4 V (Changes at regular intervals)	
	2	Disconnection in wiring harness (Disconnection in wiring or defective contact in connector)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.		
			Wiring harness between HST (female) (36) – T09 (female) (4)	Resistance	Max. 1 Ω
	3	Ground fault in wiring harness (Contact with GND circuit)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.		
			Between wiring harness HST (female) (36) – T09 (female) (4) and ground	Resistance	Min. 1 MΩ
			★ Prepare with starting switch OFF, then start engine, travel at constant speed, and carry out troubleshooting.		
			Between wiring harness HST (36) – T09 (4) and ground	Voltage	Below 1 V – Above 4 V (Changes at regular intervals)
	4	Hot short (Contact with 24V circuit) in wiring harness	★ Prepare with starting switch OFF, then start engine, travel at constant speed, and carry out troubleshooting.		
			Between wiring harness HST (36) – T09 (4) and ground	Voltage	Below 1 V – Above 4 V (Changes at regular intervals)

MidWestTech | Komatsu WA200-6, WA200PZ-6 Wheel Loader Service Manual | Publi... Order the manual at mid-west-tech.com >

Electrical circuit diagram (1/9)

Common to WA200-6, WA250-6, WA270-6, WA200PZ-6 and WA250PZ-6

★ This figure covers the equipment and devices that are unavailable as optional items in some areas.



MidWestTech | Komatsu WA200-6, WA200PZ-6 Wheel Loader Service Manual | Publication VEBM600101
Order the manual at mid-west-tech.com >