SEN02034-13

Shop Manual

WHEEL LOADER

WA800-3E0
WA900-3E0

SERIAL NUMBERS WA800-70001 and up
WA900-60001

KOMATSU®

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Table of contents

00 Index and foreword
Index SEN02036-13
Composition of shop manual 2
Table of contents 4

Foreword and general information SEN02037-04
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
Specification and technical data SEN02039-02
General assembly drawing 2
Specifications 4
Weight table 7
Table of fuel, coolant and lubricants 10

10 Structure, function and maintenance standard
Engine and cooling system SEN02351-01
Engine mount 2
Transmission mount 3
Damper 4
Radiator, oil cooler, aftercooler 6
Fuel system 9
Power train, Part 1 SEN02352-01
Power train 2
Power train system 4
Torque converter 6
Torque converter regulator valve 14
Transmission 16
Transfer 28
Transmission control valve 31
Power train, Part 2 SEN02470-02
Torque converter oil cooler 2
Drive shaft 4
Center support 6
Axle 8
Differential 10
Final drive 16
Steering system SEN02353-01
Steering piping 2
AJSS lever linkage 4
EPC valve 5
Steering column 6
Rotary valve 7
Steering control valve 10
Steering unit (orbit-roll valve) 22

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Steering pump ... 25
Steering cylinder ... 27
Slow return valve ... 29
Emergency steering piping ... 30
Diverter valve ... 31
Emergency steering pump ... 37
Brake system SEN02354-01
Brake piping ... 2
Brake ... 3
Brake valve ... 6
Accumulator charge valve ... 14
PPC relief valve ... 18
Accumulator (for brake) ... 20
Slack adjuster ... 21
Parking brake ... 23
Parking brake caliper ... 25
Spring cylinder ... 26
Parking brake solenoid ... 27
Brake cooling system (if equipped) ... 28
Brake cooling system (55°C specification) (If equipped) ... 36
Undercarriage and frame SEN02355-00
Axle mount ... 2
Center hinge pin ... 5
Tire and wheel ... 7
Jack up point ... 8
Hydraulic system, Part 1 SEN02356-00
Hydraulic piping ... 2
Work equipment lever linkage ... 3
Hydraulic tank ... 4
Torque converter charging, PPC and brake pump ... 8
Hydraulic system, Part 2 SEN02471-00
Main control valve ... 2
Accumulator (For PPC valve) ... 17
Main piston pump ... 18
Main piston pump cut-off solenoid valve ... 29
PPC valve ... 30
PPC relief valve ... 35
Switch pump ... 36
Control pump ... 45
Work equipment SEN02357-00
Work equipment linkage ... 2
Bucket positioner and lift arm kick-out ... 6
Remote lift arm positioner ... 8
Auto greasing system ... 9
Hydraulic cylinder ... 10
Cab and its attachments SEN02358-00
ROPS cab ... 2
Air conditioner ... 3
Electrical system, Part 1 SEN02359-00
Machine monitor system ... 2
Main monitor ... 4
Maintenance monitor ... 8
Electrical system, Part 2 SEN02360-02
Work equipment control system ... 2
Remote position, joystick steering controller ... 5
Active power maximizing electrical circuit ... 6
Automatic transmission system (ATM) ... 13

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Electrical system, Part 3 SEN02361-03
Engine starting/stopping circuit 2
Parking brake circuit 4
Preheating circuit 10
Emergency engine stop 12
Hydraulic oil level sensor 14
Battery and starting motor disconnector switch and starting aid connector 16
Sensor 18

20 Standard value table
Standard service value table SEN02154-02
Standard value table for engine 2
Standard value table for chassis 3
Standard value table for electrical system 7

30 Testing and adjusting
Testing and adjusting, Part 1 SEN02155-04
Tools for testing, adjusting, and troubleshooting 3
Measuring engine speed 8
Measuring intake air (boost) pressure 10
Measuring exhaust gas color 11
Measuring exhaust temperature 12
Adjusting valve clearance 14
Measuring compression pressure 15
Measuring blow-by pressure 17
Measuring engine oil pressure 19
Handling fuel system equipment 20
Releasing residual pressure in fuel system 20
Testing fuel pressure 21
Measuring fuel return rate and leakage 22
Bleeding air from fuel circuit 25
Testing leakage in fuel system 27
Handling reduced cylinder mode operation 28
Handling no-injection cranking operation 28
Handling controller voltage circuit 29
Adjusting speed sensor 29
Testing and adjusting alternator belt tension 30
Testing and adjusting belt tension for air conditioner compressor 31
Testing and adjusting power train oil pressure 32
Procedure for operating emergency steering spool when transmission valve fails 37
Testing and adjusting, Part 2 SEN02156-03
Measuring operating effort of AJSS lever (AJSS specification) 3
Testing and adjusting AJSS lever angle sensor and frame angle sensor (AJSS specification) 4
Testing and adjusting steering stopper bolt (AJSS specification) 6
Testing and adjusting steering stop valve 8
Measuring steering oil pressure 9
Testing and adjusting emergency steering oil pressure 10
Bleeding air from steering circuit 12
Measuring brake pedal 13
Measuring brake performance 14
Testing and adjusting accumulator charge pressure 15
Measuring wheel brake oil pressure reduction 17
Measuring wear of wheel brake disc 19
Bleeding air from wheel brake circuit 20
Releasing residual pressure in brake accumulator circuit 21
Testing parking brake performance 22
Measuring parking brake solenoid oil pressure 23

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Tools for testing, adjusting, and troubleshooting

Testing/Adjusting item	Symbol		Part No.	Part name	Q'ty	Remarks
Testing exhaust gas color	A	1	799-201-9001	Handy smoke checker	1	Bosch index: 0 – 9
		2	Commercially available	Smoke meter	1	
Measuring exhaust temperature	B		799-101-1502	Digital thermometer	1	–99.9 – 1,299°C
Adjusting valve clearance	C		Commercially available	Clearance gauge	1	Intake: 0.35 mm Exhaust: 0.57 mm
Measuring compression pressure	D	1	795-502-1590	Compression gauge	1	0 – 7 MPa {0 – 70 kg/cm²}
		2	795-471-1330	Adapter	1	For 140E-3, 5
			6261-71-6150	Gasket	1	
Measuring blow-by pressure	E	1	799-201-1590	Gauge	1	0 – 10 kPa {0 – 1,000 mmH₂O}
			799-201-1504	Blow-by checker	2	
		2	799-201-1450	• Adapter	2	
		3	799-201-1151	• Nozzle	2	
		4	799-201-1571	• Tube	1	
Measuring engine oil pressure	F	1	799-101-5002	Hydraulic tester	1	Pressure gauge: 2.5, 6, 40, 60 MPa {25, 60, 400, 600 kg/cm²}
			790-261-1204	Digital hydraulic tester	1	Pressure gauge: 60 MPa {600 kg/cm²}
			799-101-5160	• Nipple	1	PT1/8
			790-301-1210	• Joint	1	14 × 1.5 (male) – PT1/8 (female)
			or 799-101-5230	Nipple	1	Size: 14 × 1.5 mm
			07002-11423	• O-ring	1	
		2	799-401-2320	Gauge	1	Pressure gauge: 1 MPa {10 kg/cm²}
Measuring intake air pressure	G		799-201-2202	Boost gauge kit	1	–101 – 200kPa {–760 – 1,500 mmHg}
			799-401-2220	Hose	1	I-coupler type (if necessary)
Measuring fuel pressure	H	1	799-101-5002	Hydraulic tester	1	Pressure gauge: 2.5, 6, 40, 60 MPa {25, 60, 400, 600 kg/cm²}
			790-261-1204	Digital hydraulic tester	1	Pressure gauge: 60 MPa {600 kg/cm²}
			799-101-5160	• Nipple	1	PT1/8
		2	Under setting	Adapter	1	8 × 1.25 (male) – PT1/8 (female)
		3	07002-10823	• O-ring	1	
		4	799-401-2320	Gauge	1	Pressure gauge: 1 MPa {10 kg/cm²}
Measuring pressure limiter leakage and injector return rate	J	1	6151-51-8490	Spacer	1	ϕ14
		2	6141-71-1710	Joint	1	ϕ10
		3	Commercially available	Hose	1	Inside diameter: Approx. 11 mm
		4	Commercially available	Hose	1	Inside diameter: Approx. 17 mm
		5	Commercially available	Measuring cylinder	1	
		6	Commercially available	Stopwatch	1	
		7	07376-70315	Plug	1	Size: 03

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Related circuit diagram

This is the excerpted circuit diagram related to troubleshooting.
- Connector No.: Indicates (model – number of pins) (color)
- Arrow (⟷): Indicates the approximate mounting place on machine

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S-7 Exhaust smoke is black (incomplete combustion)

General causes why exhaust smoke is black

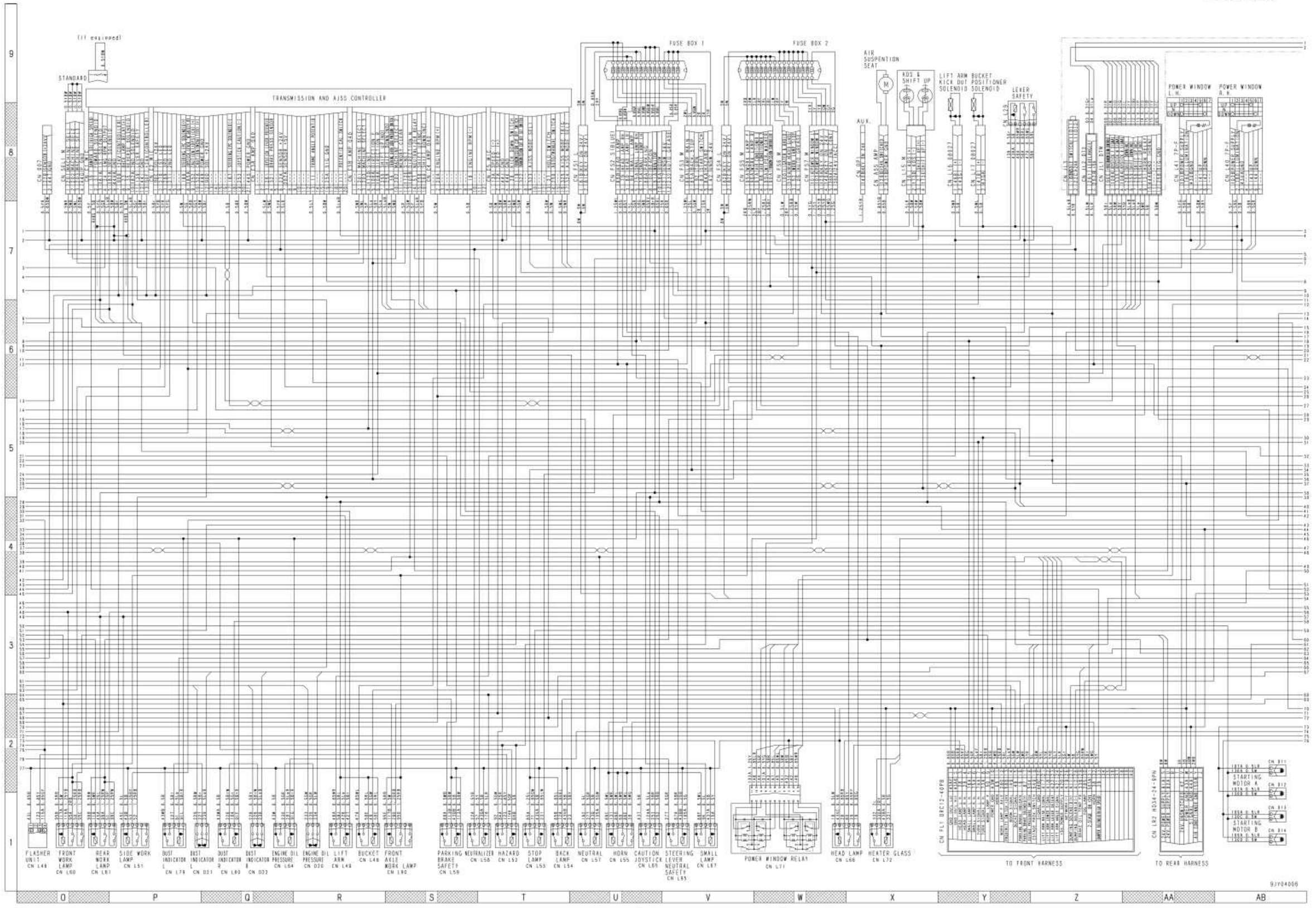
- Insufficient intake of air
- Excessive injection of fuel
- Defective spray condition of fuel
- Improper selection of fuel
- Overheat
  → See "S-14 Coolant temperature becomes too high (Overheating)"
- Controller is controlling in derate mode (limiting injection rate (output) because of an error in electrical system)

			Causes														
			Clogged air cleaner element	Seized turbocharger or interference of turbocharger	Defective contact of valve and valve seat	Improper valve clearance	Leakage of air between turbocharger and cylinder head	Crushed or clogged muffler	Worn piston ring and/or cylinder liner	Stuck or seized supply pump plunger	Clogged or seized injector	Abnormally worn injector	Clogged fuel spill piping (on cylinder head side)	Improper injection timing	Improper fuel injection pressure	Defective coolant temperature sensor or wiring harness
Questions	Confirm recent repair history															
	Degree of machine operation	Operated for long period	△		△				△		△					
	Color of exhaust gas	Suddenly became black		○						○	○	○				
		Gradually became black	○				○				○					
		Blue under light load							○							
	Non-specified fuel is being used									○	○					
	Oil replenished more frequently								○							
	Power was lost	Suddenly		○				○		○	○					
		Gradually	○		○		○		○							
Check items	Dust indicator is red (if indicator is installed)		○													
	Muffler is crushed							○								
	Air leaks between turbocharger and cylinder head, and clamp is loosened						○									
	Engine is operated in low-temperature mode at normal temperature													□	□	□
	When exhaust manifold is touched immediately after starting engine, temperature of some cylinders is low									○	○					
	When engine is cranked, interference sound is emitted from around turbocharger		○													
	When engine is cranked, abnormal sound is generated around cylinder head					○										
	Torque converter stall speed or pump relief speed is high (Fuel is injected excessively)											□	○			
	Exhaust noise is abnormal			□				○			○					
	Engine does not pick up smoothly and combustion is irregular			○		○	○	○		○	○					
	Blow-by gas is excessive								○							
	If spill hose from injector is disconnected, abnormally much fuel spills											○				
Troubleshooting	Inspect air cleaner directly		●													
	When turbocharger is rotated by hand, it is fount to be heavy			●												
	When compression pressure is measured, it is found to be low				●				●							
	Inspect valve clearance directly					●										
	When muffler is removed, exhaust sound improves							●								
	Carry out troubleshooting of failure code for "No-pressure feed by supply pump error (*1)"									●		●				
	When a cylinder is cut out for reduced cylinder mode operation, engine speed does not change on some cylinder										●					
	Inspect fuel spill piping (on cylinder head side) directly												●			●
	Carry out troubleshooting of failure code for "Abnormality in coolant temperature sensor error (*2)"															
		Remedy	Clean	Replace	Correct	Adjusting	Correct	Replace	Replace	Replace	Replace	Replace	Correct	Adjusting	Adjusting	Replace

*1: Failure code [**CA559**], [**CB559**] and failure code [**CA2249**], [**CB2249**]
*2: Failure code [**CA144**] and failure code[**CA145**]

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Electrical circuit diagram (2/8)



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