

# SHOP MANUAL

# WA380-6

MACHINE MODEL

SERIAL NUMBER

**WA380-6**

**H60051 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.
- WA380-6 mounts the SAA6D107E-1 engine.



---

# **WHEEL LOADER**

## **WA380-6**

<b>Machine model</b>	<b>Serial number</b>
WA380-6	H60051 and up

---

## **00 Index and foreword**

### **Index**

---

---

Composition of shop manual.....	2
Table of contents .....	4

## Composition of shop manual

The contents of this shop manual are shown together with Form No. in a list.

Note 1: Always keep the latest version of this manual in accordance with this list and utilize accordingly.

The marks shown to the right of Form No. denote the following:

○: New issue (to be filed additionally) ●: Revision (to be replaced for each Form No.)

Note 2: This shop manual can be supplied for each Form No.

Note 3: To file this shop manual in the special binder for management, handle it as follows:

- Place a divider on the top of each section in the file after matching the Tub No. with No. indicated next to each Section Name shown in the table below:
- File overview and other materials in sections in the order shown below and utilize them accordingly.

Section Title	Form Number
Shop Manual, contents binder, binder label and tabs	VEBM440101
00 Index and foreword	SEN01011-04
Index	SEN01019-04 ●
Foreword and general information	SEN01020-01 ●
01 Specification	SEN01012-00
Specification and technical data	SEN01021-00
10 Structure, function and maintenance standard	SEN01013-01
Engine and cooling system	SEN01040-00
Power train	SEN01041-00
Steering system	SEN01042-00
Brake system	SEN01043-00
Undercarriage and frame	SEN01044-00
Hydraulic system, Part 1	SEN01045-00
Hydraulic system, Part 2	SEN01046-00
Work equipment	SEN01047-00
Cab and its attachments	SEN01048-00
Electrical system, Part 1	SEN01049-00
Electrical system, Part 2	SEN01050-00
Electrical system, Part 3	SEN01051-00
20 Standard value table	SEN01014-01
Standard service value table	SEN01024-01
30 Testing and adjusting	SEN01015-01
Testing and adjusting, Part 1	SEN01025-01
Testing and adjusting, Part 2	SEN01026-01
Testing and adjusting, Part 3	SEN01027-01
40 Troubleshooting	SEN01016-00
General information on troubleshooting	SEN01212-00
Troubleshooting by failure code (Display of code), Part 1	SEN01213-00
Troubleshooting by failure code (Display of code), Part 2	SEN01214-00
Troubleshooting by failure code (Display of code), Part 3	SEN01215-00
Troubleshooting by failure code (Display of code), Part 4	SEN01216-00

---

Troubleshooting by failure code (Display of code), Part 5	SEN01217-00
Troubleshooting by failure code (Display of code), Part 6	SEN01218-00
Troubleshooting by failure code (Display of code), Part 7	SEN01219-00
Troubleshooting by failure code (Display of code), Part 8	SEN01220-00
Troubleshooting by failure code (Display of code), Part 9	SEN01221-00
Troubleshooting by failure code (Display of code), Part 10	SEN01222-00
Troubleshooting of electrical system (E-mode)	SEN01223-00
Troubleshooting of hydraulic and mechanical system (H-mode)	SEN01224-00
Troubleshooting of engine (S-mode)	SEN01225-00
50 Disassembly and assembly	SEN01017-00
General information on disassembly and assembly	SEN01461-00
Engine and cooling system	SEN01462-00
Power train	SEN01463-00
Steering system	SEN01464-00
Brake system	SEN01465-00
Undercarriage and frame	SEN01466-00
Hydraulic system	SEN01467-00
Work equipment	SEN01468-00
Cab and its attachments	SEN01469-00
Electrical system	SEN01470-00
90 Diagrams and drawings	SEN01018-02
Hydraulic diagrams and drawings	SEN01022-00
Electrical diagrams and drawings	SEN01023-01 ●

## Table of contents

00 Index and foreword	
Index	SEN01019-04
Composition of shop manual .....	2
Table of contents.....	4
Foreword and general information	SEN01020-01
Safety notice .....	2
How to read the shop manual .....	7
Explanation of terms for maintenance standard .....	9
Handling electric equipment and hydraulic component .....	11
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	SEN01021-00
Specification and technical data .....	3
Specification dimension drawing.....	3
Specifications .....	4
Weight table .....	8
Table of fuel, coolant and lubricants .....	10
10 Structure, function and maintenance standard	
Engine and cooling system	SEN01040-00
Engine and cooling system .....	2
Engine mount and transmission mount .....	2
Cooling system .....	3
Cooling fan pump.....	4
Cooling fan motor .....	12
Power train	SEN01041-00
Power train .....	3
Power train.....	3
Power train system diagram .....	4
Drive shaft.....	6
Power train piping diagram .....	7
Torque converter.....	8
Transmission.....	16
Flow control valve .....	33
Valve assembly.....	34
ECMV .....	35
Main relief valve and torque converter relief valve .....	42
Axle.....	44
Front axle.....	44
Rear axle .....	45
Differential.....	46
Front differential .....	46
Rear differential .....	47
Limited slip differential .....	51
Final drive .....	58

Steering system	SEN01042-00
Steering system.....	2
Steering piping diagram.....	2
Steering column.....	3
Steering pump.....	4
Steering valve.....	15
Orbit-roll valve.....	30
Stop valve.....	34
Steering relief valve.....	35
Steering cylinder.....	36
Emergency steering motor.....	38
Emergency steering pump.....	39
Brake system	SEN01043-00
Brake system.....	2
Brake piping diagram.....	2
Charge valve.....	3
Brake valve.....	10
Accumulator (for brake).....	15
Brake.....	16
Parking brake control.....	21
Parking brake.....	22
Parking brake solenoid valve.....	24
Emergency parking brake release valve.....	26
Undercarriage and frame	SEN01044-00
Undercarriage and frame.....	2
Axle mount and center hinge pin.....	2
Tires.....	6
Hydraulic system, Part 1	SEN01045-00
Hydraulic system, Part 1.....	2
Hydraulic piping diagram.....	2
Work equipment control lever linkage.....	5
Hydraulic tank.....	6
Breather.....	7
Power train pump.....	8
Work equipment pump.....	9
Work equipment control valve.....	20
CLSS.....	34
Outline of CLSS.....	34
Basic principle.....	35
Each function and operation of each valve.....	38
Hydraulic circuit diagram and names of valves.....	38
Area ratio of pressure compensation valve.....	48
Hydraulic system, Part 2	SEN01046-00
Hydraulic system, Part 2.....	2
PPC valve.....	2
Stabilizer valve.....	8
Accumulator (for PPC circuit).....	13
Accumulator (for ECSS).....	14
Work equipment	SEN01047-00
Work equipment.....	2
Work equipment linkage.....	2
Bucket.....	4
Bucket positioner and boom kick-out.....	5
Work equipment cylinder.....	11

Cab and its attachments	SEN01048-00
Cab and its attachments .....	3
Cab .....	3
Air conditioner .....	4
Air conditioner piping diagram .....	4
Air conditioner unit .....	7
Blower and intake unit .....	9
Compressor .....	10
Condenser .....	11
Receiver .....	12
Air conditioner panel .....	14
Electrical system, Part 1	SEN01049-00
Electrical system, Part 1 .....	2
Machine monitor system .....	2
Machine monitor .....	7
Electrical system, Part 2	SEN01050-00
Electrical system, Part 2 .....	2
Electrical system (Transmission controller system) .....	2
Transmission controller .....	36
Electrical system, Part 3	SEN01051-00
Electrical system, Part 3 .....	2
Electric transmission control .....	2
Kickdown switch and hold switch .....	6
KOMTRAX terminal system .....	8
Engine starting circuit .....	10
Engine stopping circuit .....	12
Preheating circuit .....	13
Engine power mode selector circuit .....	14
Engine output derating function .....	15
Automatic warm-up function .....	15
Parking brake circuit .....	16
Sensor .....	18
20 Standard value table	
Standard service value table	SEN01024-01
Standard service value table .....	2
Standard service value table for engine .....	2
Standard service value table for chassis .....	3
30 Testing and adjusting	
Testing and adjusting, Part 1	SEN01025-01
Testing and adjusting, Part 1 .....	3
Tools for testing, adjusting, and troubleshooting .....	3
Measuring engine speed .....	6
Measuring exhaust gas color .....	8
Adjusting valve clearance .....	10
Measuring compression pressure .....	12
Measuring blow-by pressure .....	15
Measuring engine oil pressure .....	16
Measuring intake air (boost) pressure .....	17
Handling fuel system equipment .....	18
Releasing residual pressure in fuel system .....	18
Measuring fuel pressure .....	19
Measuring fuel return rate and leakage .....	21
Bleeding air from fuel circuit .....	24
Testing leakage in fuel system .....	26



Handling reduced cylinder mode operation .....	27
Handling no-injection cranking operation .....	27
Handling controller voltage circuit.....	28
Testing and adjusting air conditioner compressor belt tension .....	29
Adjusting transmission speed sensor .....	30
Measuring directional lever.....	31
Measuring and adjusting power train oil pressure .....	32
Procedure for flushing torque converter and transmission hydraulic circuit .....	47
Method of moving machine when transmission valve is broken.....	48
Testing and adjusting steering stop valve .....	50
Testing and adjusting steering wheel.....	52
Testing steering oil pressure .....	54
Bleeding air from steering circuit .....	57
Testing and adjusting, Part 2 .....	SEN01026-01
Testing and adjusting, Part 2.....	3
Testing hydraulic drive fan .....	3
Bleeding air from hydraulic drive fan circuit.....	5
Measuring brake pedal .....	7
Measuring brake performance.....	8
Testing and adjusting accumulator charge pressure .....	9
Testing wheel brake oil pressure .....	10
Measuring wear of wheel brake disc .....	12
Bleeding air from wheel brake circuit.....	13
Releasing residual pressure in brake accumulator circuit .....	14
Testing parking brake performance .....	15
Measuring parking brake oil pressure .....	16
Testing wear of parking brake disc .....	18
Method of releasing parking brake manually .....	19
Measuring and adjusting work equipment control lever .....	20
Measuring and adjusting work equipment PPC oil pressure .....	21
Measuring and adjusting work equipment oil pressure .....	24
Bleeding air from work equipment circuit.....	28
Releasing residual pressure in work equipment circuit .....	29
Testing and adjusting bucket positioner.....	30
Testing and adjusting boom kick-out .....	32
Checking proximity switch operation pilot lamp .....	33
Procedure for testing diodes.....	34
Preparation work for troubleshooting for electric system.....	35
How to start operation of KOMTRAX terminal .....	40
Lamp display of KOMTRAX terminal.....	45
Adjusting machine monitor .....	48
Adjusting replaced, reassembled or added sensor, controller, etc. with machine monitor .....	49
Testing and adjusting, Part 3 .....	SEN01027-01
Testing and adjusting, Part 3.....	2
Special functions of machine monitor (EMMS).....	2
Pm-click inspection table .....	61
40 Troubleshooting .....	
General information on troubleshooting .....	SEN01212-00
General information on troubleshooting .....	2
Points to remember when troubleshooting .....	2
Sequence of events in troubleshooting .....	3
Testing before troubleshooting .....	4
Classification and procedures of troubleshooting.....	5
Connection table for connector pin numbers .....	8
T-branch box and T-branch adapter table .....	31

Troubleshooting by failure code (Display of code), Part 1	SEN01213-00
Troubleshooting by failure code (Display of code), Part 1	3
Failure codes list	3
Before carrying out troubleshooting for electrical system	10
Information contained troubleshooting table	13
Failure code [1500L0] (TORQFLOW transmission: Double meshing)	15
Failure code [15SAL1] (ECMV F clutch: When command current is OFF, fill signal is ON)	16
Failure code [15SALH] (ECMV F clutch: When command current is ON, fill signal is OFF)	18
Failure code [15SBL1] (ECMV R clutch: When command current is OFF, fill signal is ON)	20
Failure code [15SBLH] (ECMV R clutch: When command current is ON, fill signal is OFF)	22
Failure code [15SEL1] (ECMV 1st clutch: When command current is OFF, fill signal is ON)	24
Failure code [15SELH] (ECMV 1st clutch: When command current is ON, fill signal is OFF)	26
Failure code [15SFL1] (ECMV 2nd clutch: When command current is OFF, fill signal is ON)	28
Failure code [15SFLH] (ECMV 2nd clutch: When command current is ON, fill signal is OFF)	30
Failure code [15SGL1] (ECMV 3rd clutch: When command current is OFF, fill signal is ON)	32
Failure code [15SGLH] (ECMV 3rd clutch: When command current is ON, fill signal is OFF)	34
Failure code [15SHL1] (ECMV 4th clutch: When command current is OFF, fill signal is ON)	36
Failure code [15SHLH] (ECMV 4th clutch: When command current is ON, fill signal is OFF)	38
Failure code [2F00MA] (Parking brake: Malfunction)	40
Troubleshooting by failure code (Display of code), Part 2	SEN01214-00
Troubleshooting by failure code (Display of code), Part 2	4
Failure code [2G43ZG] (Accumulator: Low oil pressure)	4
Failure code [AA1ANX] (Air cleaner: Clogging)	6
Failure code [AB00L6] (Alternator: Signal disagrees with operating state of engine)	8
Failure code [AB00MA] (Alternator: Malfunction)	10
Failure code [B@BAZG] (Rotation derating by low engine oil pressure)	12
Failure code [B@BAZK] (Engine oil: Low level)	13
Failure code [B@BCNS] (Coolant: Overheating)	14
Failure code [B@BCZK] (Coolant: Low level)	16
Failure code [B@C7NS] (Brake oil: Overheating)	18
Failure code [b@CENS] (Torque converter oil: Overheating)	20
Failure code [B@CENS] (Torque converter oil: Overheating)	22
Failure code [B@HANS] (Hydraulic oil: Overheating)	24
Failure code [CA111] (Abnormality in engine controller)	26
Failure code [CA115] (Engine Ne or Bkup speed sensor error)	27
Failure code [CA122] (Charge pressure sensor high error)	28
Failure code [CA123] (Charge pressure sensor low error)	30
Failure code [CA131] (Throttle sensor high error)	32
Failure code [CA132] (Throttle sensor low error)	34
Failure code [CA144] (Coolant sensor high error)	36
Failure code [CA145] (Coolant sensor low error)	38
Failure code [CA153] (Charge temperature sensor high error)	40
Failure code [CA154] (Charge temperature sensor low error)	42
Failure code [CA155] (Derating of speed by abnormally high charge temperature)	44
Failure code [CA187] (Sensor power supply 2 low error)	46
Failure code [CA221] (Atmospheric pressure sensor high error)	48
Failure code [CA222] (Atmospheric sensor low error)	50
Failure code [CA227] (Sensor power supply 2 high error)	52
Troubleshooting by failure code (Display of code), Part 3	SEN01215-00
Troubleshooting by failure code (Display of code), Part 3	3
Failure code [CA234] (Engine overspeed)	3
Failure code [CA238] (Ne speed sensor power supply error)	4
Failure code [CA271] (PCV1 Short circuit)	5
Failure code [CA272] (PCV1 Disconnection)	6
Failure code [CA322] (Injector #1 (L/B #1) open/short error)	8
Failure code [CA323] (Injector #5 (L/B #5) open/short error)	10
Failure code [CA324] (Injector #3 (L/B #3) open/short error)	12

Failure code [CA325] (Injector #6 (L/B #6) open/short error) .....	14
Failure code [CA331] (Injector #2 (L/B #2) open/short error) .....	16
Failure code [CA332] (Injector #4 (L/B #4) open/short error) .....	18
Failure code [CA342] (Calibration code inconsistency) .....	20
Failure code [CA351] (Injectors drive circuit error) .....	21
Failure code [CA352] (Sensor power supply 1 low error) .....	23
Failure code [CA386] (Sensor power supply 1 high error) .....	25
Failure code [CA428] (Abnormally high level in water sensor) .....	26
Failure code [CA429] (Abnormally low level in water sensor) .....	28
Failure code [CA431] (Idle validation switch error) .....	30
Failure code [CA432] (Idle validation action error) .....	32
Failure code [CA435] (Engine oil pressure switch error) .....	34
Failure code [CA441] (Battery voltage low error) .....	35
Failure code [CA442] (Battery voltage high error) .....	38
Failure code [CA449] Common rail pressure high error 2 .....	40
Failure code [CA451] (Common rail pressure sensor high error) .....	41
Failure code [CA452] (Common rail pressure sensor low error) .....	43
Failure code [CA488] (Derating of torque by abnormally high charge temperature) .....	45
Failure code [CA553] (Common rail pressure high error 1) .....	46
Failure code [CA559] (Supply pump pressure very low error) .....	47
Failure code [CA689] (Engine Ne speed sensor error) .....	48
Failure code [CA731] (Engine Bkup speed sensor phase error) .....	50
Failure code [CA757] (All continuous data lost error) .....	51
Failure code [CA778] (Engine Bkup speed sensor error) .....	54
Failure code [CA1117] (Partial engine controller data loss error) .....	56
Failure code [CA1633] (KOMNET datalink timeout error) .....	59
Troubleshooting by failure code (Display of code), Part 4 .....	SEN01216-00
Troubleshooting by failure code (Display of code), Part 4 .....	3
Failure code [CA2185] (Throttle sensor supply voltage high error) .....	3
Failure code [CA2186] (Throttle sensor power supply low error) .....	4
Failure code [CA2249] (Supply pump pressure very low error 2) .....	5
Failure code [CA2311] (Abnormality in IMV solenoid) .....	6
Failure code [CA2555] (Intake heater relay disconnection error) .....	8
Failure code [CA2556] (Intake heater relay short circuit error) .....	10
Failure code [D150KA] (Emergency steering relay: Disconnection) .....	12
Failure code [D150KB] (Emergency steering relay: Short circuit) .....	14
Failure code [D150KY] (Emergency steering relay: Short circuit with power supply line) .....	16
Failure code [D160KA] (Backup lamp relay: Disconnection) .....	18
Failure code [D160KB] (Backup lamp relay: Short circuit) .....	20
Failure code [D191KA] (Joystick steering neutral safety relay: Disconnection) .....	22
Failure code [D191KB] (Joystick steering neutral safety relay: Short circuit) .....	24
Failure code [D191KY] (Joystick steering neutral safety relay: Short circuit with power supply line) .....	26
Failure code [D192KA] (ECSS solenoid: Disconnection) .....	28
Failure code [D192KB] (ECSS solenoid: Short circuit) .....	29
Failure code [D192KY] (ECSS solenoid: Short circuit with power supply line) .....	30
Failure code [D5ZHKA] (Terminal C signal: Disconnection) .....	31
Failure code [D5ZHKB] (Terminal C signal: Short circuit) .....	35
Failure code [D5ZHL6] (Terminal C signal: Signal does not match engine running or stopped state) .....	39
Failure code [DA80L4] (Auto grease controller: ON/OFF signals disagree) .....	42
Failure code [DAF3KK] (Machine monitor: Low source voltage (input)) .....	44
Failure code [DAF5KP] (Machine monitor: Low output voltage) .....	46
Failure code [DAFRKR] (CAN communication with machine monitor: Defective communication (Abnormality in target component system)) .....	49
Failure code [DAQ0KK] (Transmission controller: Low source voltage) .....	51
Failure code [DAQ0KT] (Transmission controller: Abnormality in controller) .....	53

Failure code [DAQ2KK] (Transmission controller load power supply line: Low source voltage (input)) .....	54
Failure code [DAQ9KQ] (Transmission controller model selection: Disagreement of model selection signals).....	56
Troubleshooting by failure code (Display of code), Part 5	SEN01217-00
Troubleshooting by failure code (Display of code), Part 5.....	3
Failure code [DAQRKR] (CAN communication with transmission controller: Defective communication (Abnormality in target component system)).....	3
Failure code [DAQRMA] (Transmission controller option setting: Malfunction).....	5
Failure code [DB2RKR] (CAN communication with engine controller: Defective communication (Abnormality in target component system)).....	6
Failure code [DB99KQ] (Work equipment controller model selection: Disagreement in model selection signals).....	9
Failure code [DB9RKR] CAN communication with work equipment controller: Defective communication (Abnormality in target component system)).....	10
Failure code [DB9RMA] (Work equipment controller option setting: Malfunction).....	12
Failure code [DD15LD] ■ switch (Panel switch 1): Switch is kept pressed for long time .....	14
Failure code [DD16LD] ◇ switch (Panel switch 2): Switch is kept pressed for long time .....	16
Failure code [DD17LD] < switch (Panel switch 3): Switch is kept pressed for long time .....	18
Failure code [DD18LD] > switch (Panel switch 4): Switch is kept pressed for long time .....	20
Failure code [DD1CLD] Load meter subtotal switch: Switch is kept pressed for long time .....	22
Failure code [DD1FLD] Load meter mode selector switch (A/B): Switch is kept pressed for long time .....	24
Failure code [DD1GLD] Load meter mode selector switch (+/-): Switch is kept pressed for long time .....	26
Failure code [DD1HLD] (Load meter display selector switch: Switch is kept pressed for long time).....	28
Failure code [DD1NLD] (Fan reverse switch: Switch is kept pressed for long time) .....	30
Failure code [DD1NL4] (Fan automatic reverse switch: Switch is kept pressed for long time) .....	32
Failure code [DDB6L4] (Parking brake switch (Neutralizer): ON/OFF signals disagree) .....	34
Troubleshooting by failure code (Display of code), Part 6	SEN01218-00
Troubleshooting by failure code (Display of code), Part 6.....	4
Failure code [DDK3KA] (Right FNR switch: Disconnection).....	4
Failure code [DDK6KA] (FNR lever switch: Disconnection) .....	7
Failure code [DDK6KB] (FNR lever switch: Short circuit).....	10
Failure code [DDT0L4] (Shift mode selector switch: ON/OFF signals disagree).....	12
Failure code [DDT4LD] (Transmission cut-off set switch: Switch is kept pressed for long time).....	14
Failure code [DDW9LD] (Kick-down switch: Switch is kept pressed for long time) .....	16
Failure code [DDWLLD] (Hold switch: Switch is kept pressed for long time) .....	18
Failure code [DDY0LD] (Load meter cancel switch: Switch is kept pressed for long time) .....	20
Failure code [DF10KA] (Transmission shift lever switch: Disconnected).....	22
Failure code [DF10KB] (Transmission shift lever switch: Short circuit) .....	26
Failure code [DGF1KA] (Transmission oil temperature sensor: Disconnected) .....	28
Failure code [DGF1KB] (Transmission oil temperature sensor: Short circuit) .....	30
Failure code [DGH2KX] (Hydraulic oil temperature sensor: Out of input signal range).....	32
Failure code [DGR2KA] (Rear brake oil temperature sensor: Disconnected) .....	34
Failure code [DGR2KX] (Rear brake oil temperature sensor: Out of input signal range) .....	36
Failure code [DGT1KX] (Torque converter oil temperature sensor: Out of input signal range) .....	38
Troubleshooting by failure code (Display of code), Part 7	SEN01219-00
Troubleshooting by failure code (Display of code), Part 7.....	2
Failure code [DHPCKX] (Lift arm cylinder bottom pressure sensor: Out of input signal range) .....	2
Failure code [DHPDKX] (Lift arm cylinder head pressure sensor: Out of input signal range) .....	4
Failure code [DHT1KX] (Transmission cut-off pressure sensor: Out of input signal range) .....	6
Failure code [DHT8KA] (Steering pump pressure sensor: Disconnection).....	8
Failure code [DHT8KB] (Steering pump pressure sensor: Short circuit) .....	10

Troubleshooting by failure code (Display of code), Part 8	SEN01220-00
Troubleshooting by failure code (Display of code), Part 8.....	2
Failure code [DLT3KA] (Transmission output shaft speed sensor: Disconnection).....	2
Failure code [DLT3LC] (Transmission output shaft speed sensor: Out of input signal range).....	4
Failure code [DT20KB] (Transmission cut-off indicator lamp: Short circuit).....	6
Failure code [DV00KB] (Alarm buzzer: Short circuit).....	8
Troubleshooting by failure code (Display of code), Part 9	SEN01221-00
Troubleshooting by failure code (Display of code), Part 9.....	2
Failure code [DW7BKA] (Fan reverse solenoid: Disconnection).....	2
Failure code [DW7BKB] (Fan reverse solenoid: Short circuit).....	3
Failure code [DW7BKY] (Fan reverse solenoid: Short circuit with power supply line).....	4
Failure code [DX16KA] (Fan pump EPC solenoid: Disconnection).....	6
Failure code [DX16KB] (Fan pump EPC solenoid: Short circuit).....	7
Failure code [DX16KY] (Fan pump EPC solenoid: Short circuit with power supply line).....	8
Failure code [DXH1KA] (Lockup ECMV solenoid: Disconnection).....	10
Failure code [DXH1KB] (Lockup ECMV solenoid: Short circuit).....	12
Failure code [DXH1KY] (Lockup ECMV solenoid: Short circuit with power supply line).....	14
Failure code [DXH4KA] (1st clutch ECMV solenoid: Disconnection).....	16
Failure code [DXH4KB] (1st clutch ECMV solenoid: Short circuit).....	18
Troubleshooting by failure code (Display of code), Part 10	SEN01222-00
Troubleshooting by failure code (Display of code), Part 10.....	4
Failure code [DXH4KY] (1st clutch ECMV solenoid: Short circuit with power supply line).....	4
Failure code [DXH5KA] (2nd clutch ECMV solenoid: Disconnection).....	6
Failure code [DXH5KB] (2nd clutch ECMV solenoid: Short circuit).....	8
Failure code [DXH5KY] (2nd clutch ECMV solenoid: Short circuit with power supply line).....	10
Failure code [DXH6KA] (3rd clutch ECMV solenoid: Disconnection).....	12
Failure code [DXH6KB] (3rd clutch ECMV solenoid: Short circuit).....	14
Failure code [DXH6KY] (3rd clutch ECMV solenoid: Short circuit with power supply line).....	16
Failure code [DXH7KA] (R clutch ECMV solenoid: Disconnection).....	18
Failure code [DXH7KB] (R clutch ECMV solenoid: Short circuit).....	20
Failure code [DXH7KY] (R clutch ECMV solenoid: Short circuit with power supply line).....	22
Failure code [DXH8KA] (F clutch ECMV solenoid: Disconnection).....	24
Failure code [DXH8KB] (F clutch ECMV solenoid: Short circuit).....	26
Failure code [DXH8KY] (F clutch ECMV solenoid: Short circuit with power supply line).....	28
Failure code [DXHHKA] (4th clutch ECMV solenoid: Disconnection).....	30
Failure code [DXHHKB] (4th clutch ECMV solenoid: Short circuit).....	32
Failure code [DXHHKY] (4th clutch ECMV solenoid: Short circuit with power supply line).....	34
Troubleshooting of electrical system (E-mode)	SEN01223-00
Troubleshooting of electrical system (E-mode).....	3
Before carrying out troubleshooting for electrical system.....	3
Information in troubleshooting table.....	6
E-1 Engine does not start.....	7
E-2 Wiper does not operate.....	14
E-3 Windshield washer does not operate.....	18
E-4 Headlamp, clearance lamp, tail lamp, and license lamp do not light up or go off.....	22
E-5 Working lamp does not light up or go off.....	30
E-6 Turn signal lamp and hazard lamp do not light up or go off.....	35
E-7 Brake lamp does not light or it keeps lighting up.....	41
E-8 Backup lamp does not light or it keeps lighting up.....	43
E-9 Backup buzzer does not sound or it keeps sounding.....	45
E-10 Horn does not sound or it keeps sounding.....	47
E-11 Alarm buzzer does not sound or it keeps sounding.....	50
E-12 Air conditioner does not operate or stop.....	52
E-13 The KOMTRAX system does not work properly.....	55
Troubleshooting of hydraulic and mechanical system (H-mode)	SEN01224-00
Troubleshooting of hydraulic and mechanical system (H-mode).....	3
Method of using troubleshooting chart.....	3

Table of failure modes and causes .....	6
H-1 The machine does not start .....	10
H-2 Torque converter lockup is not switched off (engine stalls) [Machine with lockup clutch (if equipped)].....	12
H-3 Torque converter lockup is not switched on [Machine with lockup clutch (if equipped)] ...	13
H-4 The travel speed is slow, the thrusting force is weak, the uphill traveling power is weak, and the gear is not shifted .....	14
H-5 Shocks are large at the times of starting and shifting gear .....	16
H-6 Time lag is large at the times of starting and shifting gear .....	18
H-7 The torque converter oil temperature is high .....	20
H-8 Steering does not turn.....	21
H-9 Steering does not turn [Machine with joystick steering (if equipped)] .....	22
H-10 Steering response is low .....	23
H-11 Turning, response of steering is poor [machine with joystick steering (if equipped)] .....	24
H-12 Steering is heavy.....	25
H-13 When machine turns, it shakes or makes large shocks.....	26
H-14 When machine turns, it shakes or makes large shocks [machine with joystick steering (if equipped)] .....	27
H-15 The wheel brake does not work or does not work well .....	28
H-16 The wheel brake is not released or it drags .....	29
H-17 The parking brake does not work or does not work well.....	30
H-18 The parking brake is not released or it drags (including emergency release system) ....	31
H-19 Lift arm does not rise .....	32
H-20 Lift arm speed is low or rising force of lift arm is insufficient .....	33
H-21 When rising, the lift arm comes to move slowly at specific height .....	34
H-22 The lift arm cylinder cannot hold down the bucket (Bucket floats).....	34
H-23 Hydraulic drifts of the lift arm is large .....	34
H-24 The lift arm wobbles during operation.....	34
H-25 Bucket does not tilt back .....	35
H-26 Bucket speed is low or tilting back force is insufficient .....	36
H-27 The bucket comes to operate slowly in the midst of tilting-back .....	37
H-28 The bucket cylinder cannot hold down the bucket.....	37
H-29 Hydraulic drifts of the bucket is large .....	37
H-30 The bucket wobbles during travel with cargo (The work equipment valve is set to "HOLD") .....	37
H-31 Lift arm and bucket control levers do not move smoothly and are heavy .....	38
H-32 During operation of the machine, engine speed lowers remarkably or engine stalls .....	39
H-33 Large shock is made when work equipment starts and stops.....	39
H-34 When work equipment circuit is relieved singly, other work equipment moves .....	39
H-35 ECSS does not operate, and pitching, bouncing occur .....	40
Troubleshooting of engine (S-mode) .....	SEN01225-00
Troubleshooting of engine (S-mode).....	3
Method of using troubleshooting chart.....	3
S-1 Engine does not start easily. ....	6
S-2 Engine does not start .....	7
S-3 Engine does not pick up smoothly .....	10
S-4 Engine stops during operations.....	11
S-5 Engine does not rotate smoothly.....	12
S-6 Engine lacks output (or lacks power) .....	13
S-7 Exhaust smoke is black (Incomplete combustion) .....	14
S-8 Oil consumption is excessive (or exhaust smoke is blue).....	15
S-9 Engine oil becomes contaminated quickly .....	16
S-10 Fuel consumption is excessive .....	17
S-11 Coolant contains oil (blows back or reduces).....	18
S-12 Oil pressure drops.....	19
S-13 Oil level rises (Water, fuel in oil).....	20
S-14 Coolant temperature rises too high (Overheating).....	21
S-15 Abnormal noise is made.....	22

S-16 Vibration is excessive .....	23
50 Disassembly and assembly	
General information on disassembly and assembly	SEN01461-00
General information on disassembly and assembly.....	2
How to read this manual.....	2
Coating materials list .....	4
Special tools list.....	7
Engine and cooling system	SEN01462-00
Engine and cooling system .....	2
Removal and installation of fuel supply pump assembly .....	2
Removal and installation of fuel injector assembly.....	4
Removal and installation of cylinder head assembly.....	9
Removal and installation of engine hood.....	18
Removal and installation of radiator assembly .....	20
Removal and installation of air aftercooler.....	22
Removal and installation of hydraulic oil cooler assembly .....	24
Removal and installation of engine assembly .....	26
Removal and installation of cooling fan and fan motor assembly.....	31
Removal and installation of fuel tank assembly.....	34
Power train	SEN01463-00
Power train.....	2
Removal and installation of torque converter and transmission assembly .....	2
Disassembly and assembly of torque converter assembly (Standard specification) .....	8
Disassembly and assembly of torque converter assembly (Lockup specification).....	12
Disassembly and assembly of transmission assembly.....	18
Disassembly and assembly of transmission clutch pack assembly.....	33
Disassembly and assembly of parking brake assembly .....	49
Removal and installation of front axle assembly .....	54
Removal and installation of rear axle assembly .....	56
Disassembly and assembly of axle housing.....	59
Disassembly and assembly of differential assembly .....	68
Steering system	SEN01464-00
Steering system.....	2
Removal and installation of steering demand valve assembly .....	2
Brake system	SEN01465-00
Brake system .....	2
Removal and installation of parking brake discs and plates.....	2
Undercarriage and frame	SEN01466-00
Undercarriage and frame .....	2
Removal and installation of center hinge pin.....	2
Removal and installation of counterweight.....	10
Hydraulic system	SEN01467-00
Hydraulic system.....	2
Removal and installation of work equipment control valve assembly.....	2
Removal and installation of power train pump and work equipment pump assembly .....	4
Removal and installation of steering pump and cooling fan pump assembly .....	5
Removal and installation of hydraulic tank assembly .....	6
Work equipment	SEN01468-00
Work equipment.....	2
Removal and installation of work equipment assembly.....	2
Disassembly and assembly of hydraulic cylinder assembly .....	6
Cab and its attachments	SEN01469-00
Cab and its attachments.....	2
Removal and installation of operator's cab and floor frame assembly .....	2

Removal and installation of operator's cab glass (stuck glass) .....	5
Removal and installation of air conditioner unit assembly .....	13
Electrical system .....	SEN01470-00
Electrical system .....	2
Removal and installation of engine controller assembly .....	2
90 Diagrams and drawings	
Hydraulic diagrams and drawings .....	SEN01022-00
Hydraulic diagrams and drawings .....	2
Power train hydraulic circuit diagram .....	2
Hydraulic circuit diagram .....	5
Electrical diagrams and drawings .....	SEN01023-01
Electrical diagrams and drawings .....	3
Electrical circuit diagram (1/2) .....	3
Electrical circuit diagram (2/2) .....	5
Connector arrangement diagram .....	7



---

# WHEEL LOADER

## WA380-6

Machine model	Serial number
WA380-6	H60051 and up

---

## 00 Index and foreword

### Foreword and general information

---

Safety notice .....	2
How to read the shop manual .....	7
Explanation of terms for maintenance standard .....	9
Handling electric equipment and hydraulic component .....	11
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

## Safety notice

(Rev. 2006/09)

### Important safety notice

Proper service and repair are extremely important for safe machine operation. The service and repair techniques recommended by Komatsu and described in this manual are both effective and safe. Some of these techniques require the use of tools specially designed by Komatsu for the specific purpose.

To prevent injury to workers, the symbol **▲** is used to mark safety precautions in this manual. The cautions accompanying these symbols should always be followed carefully. If any dangerous situation arises or may possibly arise, first consider safety, and take the necessary actions to deal with the situation.

### 1. General precautions

**▲ Mistakes in operation are extremely dangerous. Read the Operation and Maintenance Manual carefully before operating the machine.**

- 1) Before carrying out any greasing or repairs, read all the safety plates stuck to the machine. For the locations of the safety plates and detailed explanation of precautions, see the Operation and Maintenance Manual.
- 2) Decide a place in the repair workshop to keep tools and removed parts. Always keep the tools and parts in their correct places. Always keep the work area clean and make sure that there is no dirt, water, or oil on the floor. Smoke only in the areas provided for smoking. Never smoke while working.
- 3) When carrying out any operation, always wear safety shoes and helmet. Do not wear loose work clothes, or clothes with buttons missing.
  - Always wear safety glasses when hitting parts with a hammer.
  - Always wear safety glasses when grinding parts with a grinder, etc.
- 4) When carrying out any operation with 2 or more workers, always agree on the operating procedure before starting. Always inform your fellow workers before starting any step of the operation. Before starting work, hang UNDER REPAIR warning signs in the operator's compartment.
- 5) Only qualified workers must carry out work and operation which require license or qualification.
- 6) Keep all tools in good condition, learn the correct way to use them, and use the proper ones of them. Before starting work, thoroughly check the tools, machine, fork-lift, service car, etc.
- 7) If welding repairs are needed, always have a trained and experienced welder carry out the work. When carrying out welding work, always wear welding gloves, apron, shielding goggles, cap and other clothes suited for welding work.
- 8) Before starting work, warm up your body thoroughly to start work under good condition.

### Safety points

1	Good arrangement
2	Correct work clothes
3	Following work standard
4	Making and checking signs
5	Prohibition of operation and handling by unlicensed workers
6	Safety check before starting work
7	Wearing protective goggles (for cleaning or grinding work)
8	Wearing shielding goggles and protectors (for welding work)
9	Good physical condition and preparation
10	Precautions against work which you are not used to or you are used to too much

### 2. Preparations for work

- 1) Before adding oil or making any repairs, park the machine on hard and level ground, and apply the parking brake and block the wheels or tracks to prevent the machine from moving.
- 2) Before starting work, lower the work equipment (blade, ripper, bucket, etc.) to the ground. If this is not possible, insert the lock pin or use blocks to prevent the work equipment from falling. In addition, be sure to lock all the control levers and hang warning signs on them.

- 3) When disassembling or assembling, support the machine with blocks, jacks, or stands before starting work.
- 4) Remove all mud and oil from the steps or other places used to get on and off the machine. Always use the handrails, ladders or steps when getting on or off the machine. Never jump on or off the machine. If it is impossible to use the handrails, ladders or steps, use a stand to provide safe footing.

### 3. Precautions during work

- 1) Before disconnecting or removing components of the oil, water, or air circuits, first release the pressure completely from the circuit. When removing the oil filler cap, a drain plug, or an oil pressure pickup plug, loosen it slowly to prevent the oil from spurting out.
- 2) The coolant and oil in the circuits are hot when the engine is stopped, so be careful not to get scalded. Wait for the oil and coolant to cool before carrying out any work on the oil or water circuits.
- 3) Before starting work, stop the engine. When working on or around a rotating part, in particular, stop the engine. When checking the machine without stopping the engine (measuring oil pressure, revolving speed, temperature, etc.), take extreme care not to get rolled or caught in rotating parts or moving parts.
- 4) Before starting work, remove the leads from the battery. Always remove the lead from the negative (–) terminal first.
- 5) When raising a heavy component (heavier than 25 kg), use a hoist or crane. Before starting work, check that the slings (wire ropes, chains, and hooks) are free from damage. Always use slings which have ample capacity and install them to proper places. Operate the hoist or crane slowly to prevent the component from hitting any other part. Do not work with any part still raised by the hoist or crane.
- 6) When removing a cover which is under internal pressure or under pressure from a spring, always leave 2 bolts in diagonal positions. Loosen those bolts gradually and alternately to release the pressure, and then remove the cover.
- 7) When removing components, be careful not to break or damage the electrical wiring. Damaged wiring may cause electrical fires.
- 8) When removing piping, stop the fuel or oil from spilling out. If any fuel or oil drips onto the floor, wipe it up immediately. Fuel or oil on the floor can cause you to slip and can even start fires.
- 9) As a general rule, do not use gasoline to wash parts. Do not use it to clean electrical parts, in particular.
- 10) Be sure to assemble all parts again in their original places. Replace any damaged parts and parts which must not be reused with new parts. When installing hoses and wires, be sure that they will not be damaged by contact with other parts when the machine is operated.
- 11) When installing high pressure hoses, make sure that they are not twisted. Damaged tubes are dangerous, so be extremely careful when installing tubes for high pressure circuits. In addition, check that connecting parts are correctly installed.
- 12) When assembling or installing parts, always tighten them to the specified torques. When installing protective parts such as guards, or parts which vibrate violently or rotate at high speed, be particularly careful to check that they are installed correctly.
- 13) When aligning 2 holes, never insert your fingers or hand. Be careful not to get your fingers caught in a hole.
- 14) When measuring hydraulic pressure, check that the measuring tools are correctly assembled.
- 15) Take care when removing or installing the tracks of track-type machines. When removing the track, the track separates suddenly, so never let anyone stand at either end of the track.
- 16) If the engine is operated for a long time in a place which is not ventilated well, you may suffer from gas poisoning. Accordingly, open the windows and doors to ventilate well.

#### 4. Precautions for sling work and making signs

1) Only one appointed worker must make signs and co-workers must communicate with each other frequently. The appointed sign maker must make specified signs clearly at a place where he is seen well from the operator's seat and where he can see the working condition easily. The sign maker must always stand in front of the load and guide the operator safely.

- Do not stand under the load.
- Do not step on the load.

2) Check the slings before starting sling work.

3) Keep putting on gloves during sling work. (Put on leather gloves, if available.)

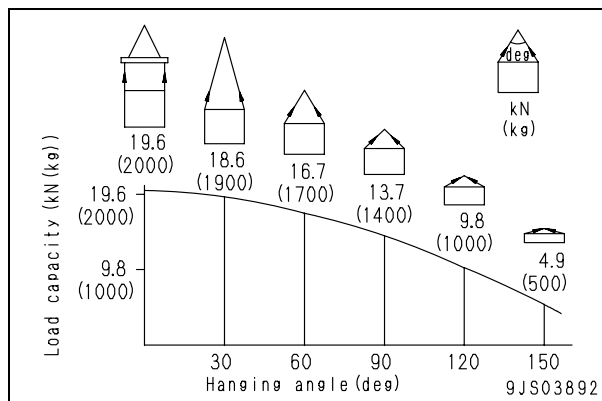
4) Measure the weight of the load by the eye and check its center of gravity.

5) Use proper sling according to the weight of the load and method of slinging. If too thick wire ropes are used to sling a light load, the load may slip and fall.

6) Do not sling a load with 1 wire rope alone. If it is slung so, it may rotate and may slip out of the rope. Install 2 or more wire ropes symmetrically.

**⚠ Slings with 1 rope may cause turning of the load during hoisting, untwisting of the rope, or slipping of the rope from its original winding position on the load, which can result in a dangerous accident.**

7) Limit the hanging angle to 60°, as a rule. Do not sling a heavy load with ropes forming a wide hanging angle from the hook. When hoisting a load with 2 or more ropes, the force subjected to each rope will increase with the hanging angle. The table below shows the variation of allowable load in kN {kg} when hoisting is made with 2 ropes, each of which is allowed to sling up to 9.8 kN {1,000 kg} vertically, at various hanging angles. When the 2 ropes sling a load vertically, up to 19.6 kN {2,000 kg} of total weight can be suspended. This weight is reduced to 9.8 kN {1,000 kg} when the 2 ropes make a hanging angle of 120°. If the 2 ropes sling a 19.6 kN {2,000 kg} load at a lifting angle of 150°, each of them is subjected to a force as large as 39.2 kN {4,000 kg}.

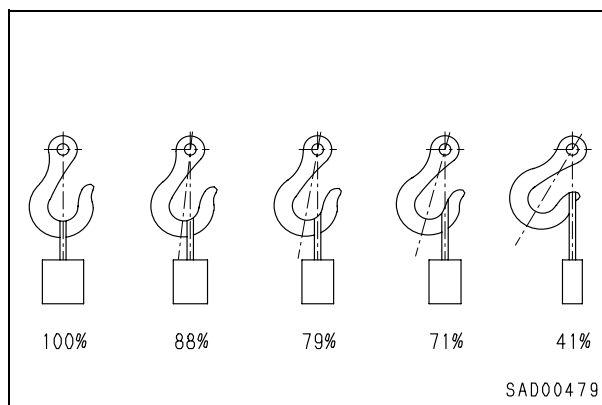


8) When installing wire ropes to an angular load, apply pads to protect the wire ropes. If the load is slippery, apply proper material to prevent the wire rope from slipping.

9) Use the specified eyebolts and fix wire ropes, chains, etc. to them with shackles, etc.

10) Apply wire ropes to the middle portion of the hook.

- Slings near the tip of the hook may cause the rope to slip off the hook during hoisting. The hook has the maximum strength at the middle portion.



11) Do not use twisted or kinked wire ropes.

12) When lifting up a load, observe the following.

- Wind in the crane slowly until wire ropes are stretched. When settling the wire ropes with the hand, do not grasp them but press them from above. If you grasp them, your fingers may be caught.
- After the wire ropes are stretched, stop the crane and check the condition of the slung load, wire ropes, and pads.