Shop Manual

VEBM500100

WA500-3H

WHEEL LOADER

SERIAL NUMBER WA500H20051 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.

- WA500-3H mount the SA6D140E-3 engine.

  For details of this engine, see the 140-3 Series Engine Shop Manual

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METHOD OF USING MATRIX TROUBLESHOOTING TABLES

The troubleshooting tables use the same method as for other troubleshooting table (YES/NO type) to locate the causes of failures in the machine. The troubleshooting tables are divided broadly into categories for the main components, such as the steering system and work equipment hydraulic system. Follow the procedure given below and carry out troubleshooting to locate the problems accurately and swiftly.

Step 1. Questioning the operator
The questions to ask the operator are given below the failure symptom. If the answers to the questions match the information given, follow the arrow to reach the probable cause of the failure.
Consider the contents of the questions and consult the table while proceeding to Steps 2 and 3 to grasp the true cause.

Step 2. Checks before troubleshooting
Before starting the main troubleshooting and measuring the hydraulic pressure, first check the Checks before Starting items, and check for oil leaks and loose bolts. These checks may avoid time wasted on unnecessary troubleshooting.
The items given under Checks before Starting are items which must be considered particularly for that symptom before starting troubleshooting.

Step 3. Using cross-reference table

A. Operate the machine to carry out the checks in the troubleshooting item column.
Mark the items where the results match the symptom.
★ It is not necessary to follow the troubleshooting checks in order; follow an order which is easiest to carry out troubleshooting.

B. Find the appropriate cause from the cause column. If the symptom appears, the O, marks on that line indicate the possible causes. (For item No. 2 in the table on the right, the possible causes are **c** or **e**.)

If there is only one O:
Carry out the other troubleshooting items (where the same cause is marked with check if the symptom appears, then repair.

If there are two O:
Go on to Step 3) to narrow down the possible causes.

1. Steering does not work ← Symptom [Example]

Ask the operator about the following points.
- Did the steering suddenly stop working? ← Breakage in steering equipment
- Did the steering gradually become heavy? ← Internal wear of steering equipment, defective seal.

Checks before starting [Example]
- Is the oil level in the hydraulic tank correct?
- Is the type of oil correct?
- Are there any oil leaks from the steering control valve?
- Has the safety bar been removed from the frame?

[Example 1]

No.	Problem / Remedy
1	Steering does work to the left or right.
2	Same as item 1, but abnormality in actuation of work equipment.
3	Steering can only be operated to one side.
4	Steering wheel is heavy and cannot be turned.

[Example 2]

Problems \ Causes / Remedy	a	b	c	d	e
	X	C	X	A	X
1	O	O	O	O	
2			●		●
3		O		O	
4	O			O	
5		O			O

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INSPECTION AREAS

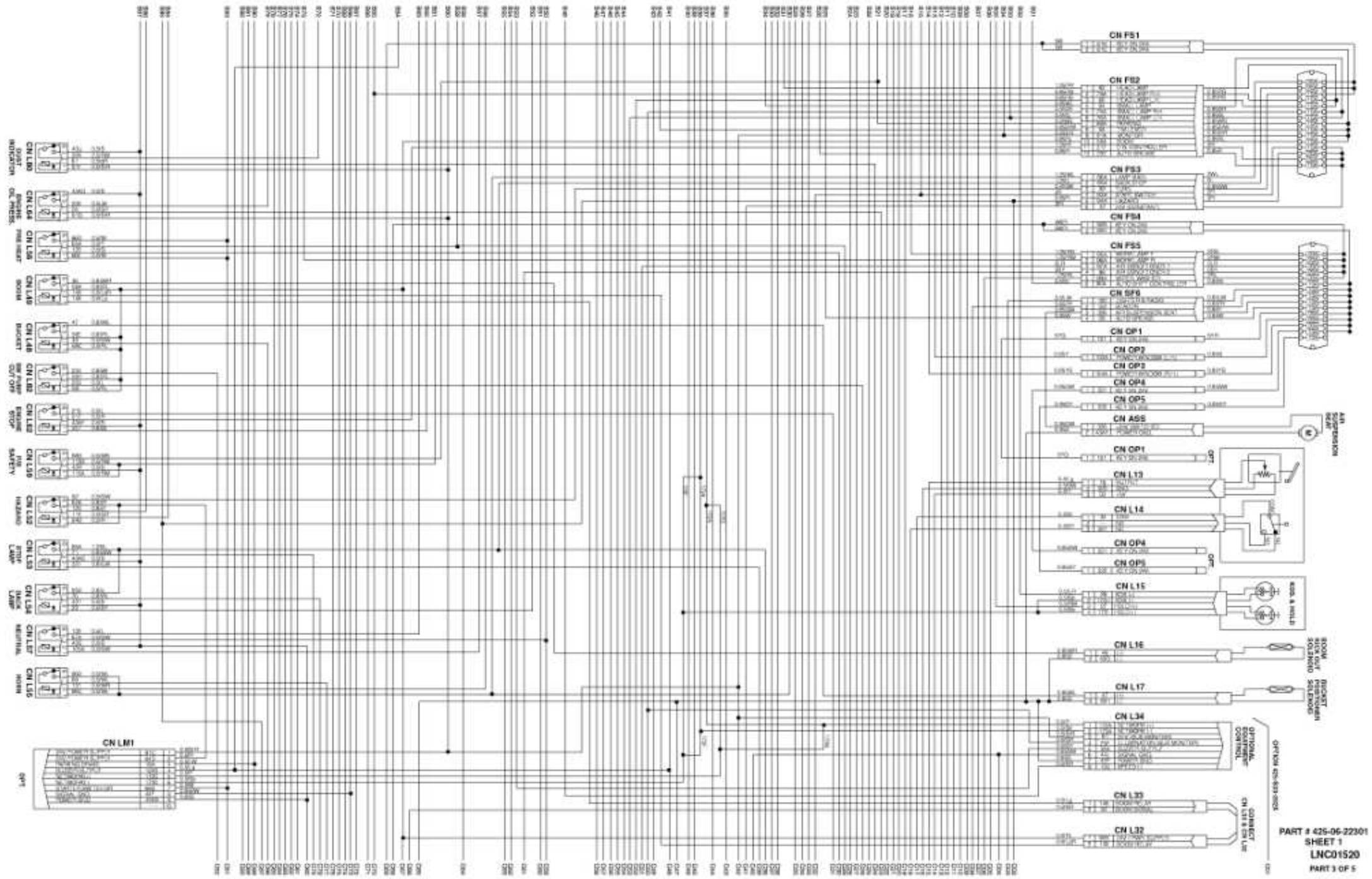
No.	Problem	Main inspection areas						
		Fuse	Connectors	Wire harness	Body ground	Servomotors	Sensor circuit	Other inspection items
1	Fuse blows easily.	X	X	X	X			
2	No blower operation.	X	X	X	X			Heater relay, blower motor, blower resistor, blower switch.
3	Blower speed does not change.	X	X	X	X			Blower resistor, blower switch.
4	No compressor operation.	X	X	X	X			Magnetic clutch and relay, compressor, heater relay, A/C switch, A/C amplifier.
5	A/C lamp does not light.	X	X	X				Engine speed signal lines, A/C amplifier, A/C switch.
6	A/C lamp flashes (only for compressor with lock sensor).	X	X	X		X	X	Compressor, drive belt, A/C amplifier, magnetic clutch.
7	No A/C operation (cooled air does not come out).	X	X	X	X	X		
8	Cab temperature does not decrease (insufficient cooling).	X	X	X	X	X	X	Water temperature switch (for variable compressor type) A/C amplifier.
9	Warm air does not come out.					X		Engine coolant volume, A/C temperature control, heater radiator.
10	No condenser fan operation.	X	X	X	X		X	Relays (for condenser fan, radiator fan), condenser fan motor, condenser fuse.
11	No engine idle speed increase when A/C switch is turned on.		X	X	X			Idle-up actuator, vacuum hose line, air conditioner amplifier.

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No	Check item		Criteria					Remedy
		Cylinder	Standard size	Tolerance		Standard clearance	Clearance limit	
				Shaft	Hole			
1	Clearance between rod and bushing	Steering	55 mm (2.165 in)	-0.030 mm -0.076 mm (-0.001 in -0.003 in)	+0.151 mm +0.006 mm (+0.006 in +0.0002 in)	0.036 mm 0.227 mm (0.001 in 0.009 in)	0.327 mm (0.013 in)	Replace
		Boom	110 mm (4.331 in)	-0.036 mm -0.090 mm (-0.001 in -0.004 in)	+0.274 mm +0.060 mm (+0.010 in +0.002 in)	0.096 mm 0.364 mm (0.004 in 0.014 in)	0.469 mm (0.018 in)	
		Bucket	120 mm (4.724 in)	-0.043 mm -0.106 mm (-0.002 in -0.004 in)	+0.203 mm +0.048 mm (+0.008 in +0.002 in)	0.091 mm 0.309 mm (0.004 in 0.012 in)	0.469 mm (0.018 in)	
2	Clearance between piston rod mounting pin and diameter of hole	Steering	60 mm (2.362 in)	-0.074 mm (-0.003 in)	+0.174 mm +0.100 mm (+0.007 in +0.004 in)	0.100 mm 0.248 mm (0.004 in 0.010 in)	1.0 mm (0.039 in)	
		Boom	120 mm (4.724 in)	-	+0.100 mm (+0.004 in)	-	-	
		Bucket	120 mm (4.724 in)	-	+0.307 mm +0.220 mm (+0.012 in +0.009 in)	-	-	
3	Clearance between cylinder bottom mounting pin and bushing	Steering	60 mm (2.362 in)	-0.074 mm (-0.003 in)	+0.174 mm +0.100 mm	0.100 mm 0.248 mm (0.004 in 0.010 in)	1.0 mm (0.039 in)	
		Boom	120 mm (4.724 in)	-	+0.307 mm +0.220 mm (+0.012 in +0.009 in)	-	-	
		Bucket	120 mm (4.724 in)	-	+0.307 mm +0.220 mm (+0.012 in +0.009 in)	-	-	
			Standard size		Tolerance		Repair limit	
4	Cylinder bore	Steering	110 mm (4.331 in)		+0.150 (+0.006 in)		-	
		Boom	200 mm (7.874 in)		+0.200 (+0.008 in)		-	
		Bucket	225 mm (7.874 in)		+0.200 (+0.008 in)		-	

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ELECTRICAL CIRCUIT DIAGRAM (SHEET 1) (PART 3 of 5)



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