CEBMW19071

Shop Manual

KOMATSU®

WA320-3

WHEEL LOADER

SERIAL NUMBERS **WA320-3LE - A30001** and up

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DESCRIPTION	FORM NUMBER
PARTS BOOK - PAPER:	
Engine and Chassis	BEPBW19070
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Engine and Chassis	BEPMW19070
OPERATION & MAINTENANCE MANUAL:	
Engine and Chassis	CEAMW19070
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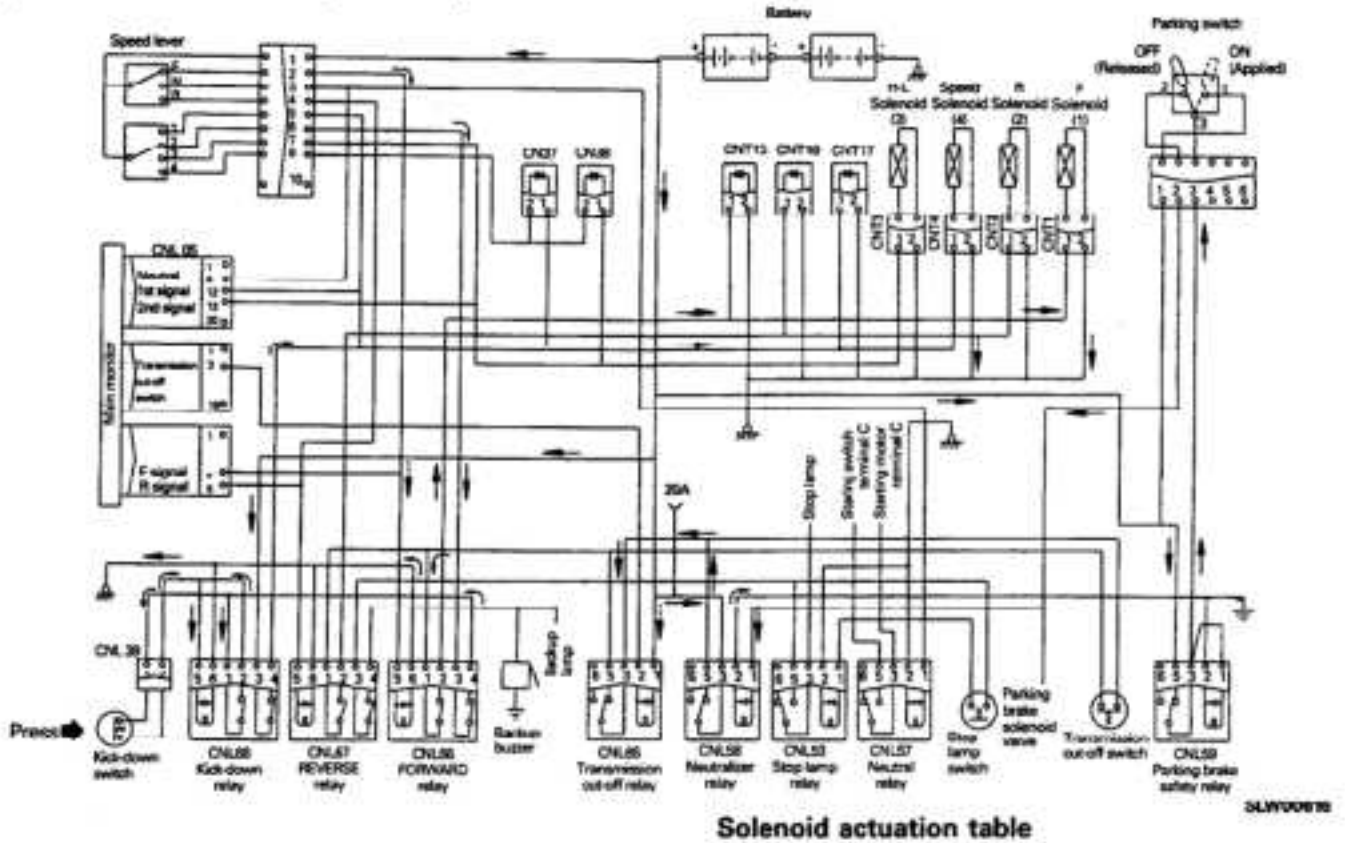
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	Machine model	**WA320-3**
	Serial number	**A30001 and up**
Steering system	Type	Articulated type
	Structure	Fully hydraulic power steering
Hydraulic system	Hydraulic pump type (Hydraulic+Steering+Switch+PPC pump)	Gear type
	Delivery	165+77+77+49 ℓ/min
	Control valve: Set pressure for work equipment	Spool type 20.59 Mpa (210 kg/cm²)
	Control valve: Set pressure for steering	Orbit-roll valve type 20.59 Mpa 210 kg/cm²)
	Cylinder: Boom cylinder qty. - bore x stroke	Reciprocating piston 2-140 x 703
	Cylinder: Bucket cylinder qty. - bore x stroke	Reciprocating piston 1-160 x 489
	Cylinder: Steering cylinder qty. - bore x stroke	Reciprocating piston 2 - 70 x 460
Work equipment	Linkage type	Z-bar linkage
	Bucket edge type	Flat edge with bolt on cutting edge

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Kick-down switch operated
(When operating or traveling in F2)
(When kick-down switch is pressed ON)



Solenoid actuation table

Solenoid		F1	F2	F3	F4	N	R1	R2	R3	R4
FORWARD	(1)	●	○	○	○					
REVERSE	(2)						○	○	○	○
H-L select	(3)			○	○				○	○
Speed select	(4)	●			○		○			○

- When the kick-down switch is pressed, electric current flows from the battery (+) → speed lever 2 → FORWARD relay terminal 3 - 4 → kick-down switch → kick-down relay terminal 5 - 6 → ground.
  As a result, the kick-down is actuated, and kick-down relay terminals 1 and 2 and terminals 3 and 4 are closed. A circuit from kick-down relay terminal 1 - 2 → kick-down relay terminal 5 - 6 → ground is formed, so the kick-down relay continues to be actuated even if the kick-down switch is returned. (Self-hold circuit of kick-down relay)
- When the kick-down relay is actuated and terminals 3 and 4 → are closed, electric current flows from the battery (+) → kick-down relay terminal 3 - 4 → solenoid 4 → ground, and solenoid (4) is actuated. Solenoids (1) and (4) are actuated, so the transmission is set to **F1**.

In this way, if the kick-down switch is pressed when the speed lever is at **F2**, the transmission will shift to **F1**. At the same time, it will be held in **F1** by the self-hold function of the kick-down relay even when the kick-down switch is released. However many times the kick-down switch is pressed, the transmission will stay in **F1**.

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POINTS TO REMEMBER WHEN TROUBLESHOOTING

⚠ Stop the machine in a level place, and check that the safety pin, blocks, and parking brake are securely fitted.

⚠ When carrying out the operation with two or more workers, keep strictly to the agreed signals, and do not allow any unauthorized person to come near.

⚠ If the radiator cap is removed when the engine is hot, hot water may spurt out and cause burns, so wait for the engine to cool down before starting troubleshooting.

⚠ Be extremely careful not to touch any hot parts or to get caught in any rotating parts.

⚠ When disconnecting wiring, always disconnect the negative (-) terminal of the battery first.

⚠ When removing the plug or cap from a location which is under pressure from oil, water, or air, always release the internal pressure first. When installing measuring equipment, be sure to connect it properly.

The aim of troubleshooting is to pinpoint the basic cause of the failure, to carry out repairs swiftly, and to prevent reoccurrence of the failure.
When carrying out troubleshooting, and important point is of course to understand the structure and function. However, a short cut to effective troubleshooting is to ask the operator various questions to form some idea of possible causes of the failure that would produce the reported symptoms.

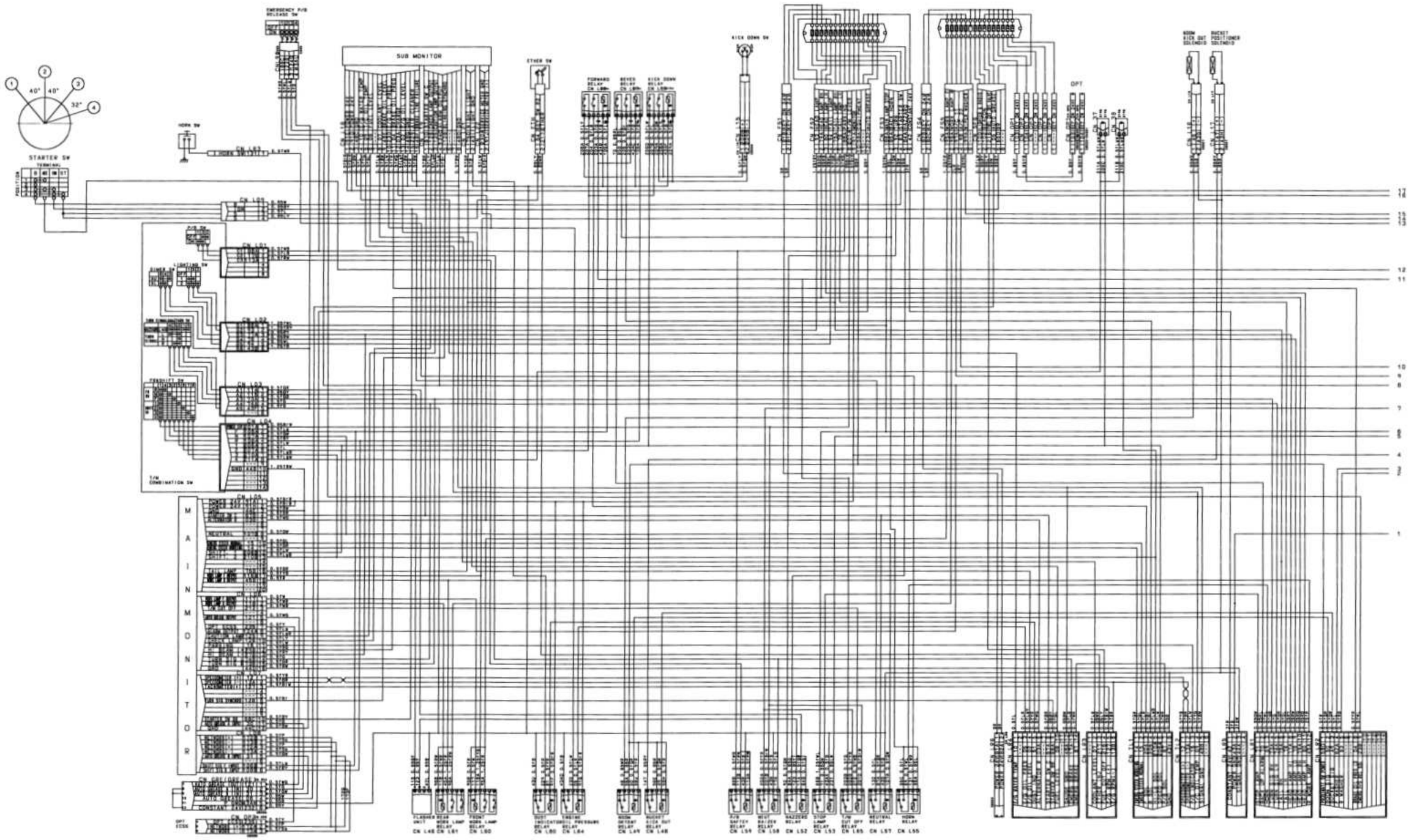
1. When carrying out troubleshooting, do not hurry to disassemble the components.
   If components are disassembled immediately any failure occurs:
   - Parts that have no connection with the failure or other unnecessary parts will be disassembled.
   - It will become impossible to find the cause of the failure.

   It will also cause a waste of manhours, parts, or oil or grease, and at the same time, will also lose the confidence of the user or operator.
   For this reason, when carrying out troubleshooting, it is necessary to carry out thorough prior investigation and to carry out troubleshooting in accordance with the fixed procedure.
2. Points to ask user or operator
   1) Have any other problems occurred apart from the problem that has been reported?
   2) Was there anything strange about the machine before the failure occurred?
   3) Did the failure occur suddenly, or were there problems with the machine condition before this?
   4) Under what conditions did the failure occur?
   5) Had any repairs been carried out before the failure?
      When were these repairs carried out?
   6) Has the same kind of failure occurred before?
3. Check before troubleshooting
   1) Check the oil level
   2) Check for any external leakage of oil from the piping or hydraulic equipment.
   3) Check the travel of the control levers.
   4) Check the stroke of the control valve spool.
   5) Other maintenance items can be checked externally, so check any item that is considered to be necessary.
4. Confirming failure
   - Confirm the extent of the failure yourself, and judge whether to handle it as a real failure or as a problem with the method of operation, etc.
     ★ When operating the machine to reenact the troubleshooting symptoms, do not carry out any investigation or measurement that may make the problem worse.
5. Troubleshooting
   - Use the results of the investigation and inspection in Items 2 – 4 to narrow down the causes of failure, then use the troubleshooting flowchart to locate the position of the failure exactly.
     ★ The basic procedure for troubleshooting is as follows.
       1) Start from the simple points.
       2) Start from the most likely points.
       3) Investigate other related parts or information.
6. Measures to remove root cause of failure
   - Even if the failure is repaired, if the root cause of the failure is not repaired, the same failure will occur again.
     To prevent this, always investigate why the problem occurred. Then, remove the root cause.

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FOLDOUT 10-146
ELECTRIC CIRCUIT DIAGRAM (1/4)



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