CEBM002002

Shop Manual

WA120-3
WA120L-3

WHEEL LOADER

SERIAL NUMBERS WA120-3L -A30001 and up
WA120L-3 -54001 - 54103

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Front tire inflation pressure	294 kPa (3.0 kg/cm²) (43 psi)
Rear tire inflation pressure	294 kPa (3.0 kg/cm²) (43 psi)
BRAKES	
Main brakes	Front/rear wheel independent wet-type sealed disc brakes with hydraulic booster
Parking brake	Thrust shaft (transmission shaft) braking, wet-type disc brake, mechanical type
STEERING SYSTEM	
Type	Articulated type
Structure	Fully hydraulic power steering
HYDRAULIC SYSTEM	
Hydraulic pump type Delivery	Gear pump 115 ℓ/min.
Control valves: Set pressure for work equipment Set pressure for steering	 Spool type 20.59 MPa (210 kg/cm²) (2986 psi) Spool type 18.64 MPa (190 kg/cm²) (2704 psi)
Cylinders: Boom - qty. - bore x stroke Bucket - qty. - bore x stroke Steering - qty. - bore x stroke	Reciprocating piston 2 - 100 x 606 1 - 100 x 424 2 - 60 x 340
WORK EQUIPMENT	
Linkage type	Single link (Z-bar linkage)
Bucket edge type	Flat edge with bolt on cutting edge

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Outline

- The hydraulic system consists of the work equipment circuit and the steering circuit. The work equipment circuit controls the operation of the boom, bucket, or other attachments.
- The oil from the hydraulic tank (4) is sent from the hydraulic and steering pump (6) to the priority valve (5). The amount of oil flow is controlled and sent to main control valve (7). If the bucket and boom spools of main control valve are at neutral, the oil passes through the drain circuit of the main control valve, is filtered by the filter inside hydraulic tank (4), and returns to the tank.
- When the work equipment control lever is operated, the bucket or boom spool of main control valve (7) move, oil flows from main control valve (7) to the boom cylinders (2) and (8) or to bucket cylinder (1), and operates the boom or bucket.
- The maximum pressure of the hydraulic circuit is controlled by priority valve (5) and the relief valve inside the main control valve. A safety valve (with suction) is installed in the bucket cylinder circuit to protect the circuit.

- The hydraulic tank (4) is sealed and pressurized. A combination breather and relief valve allows outside air to enter through a filter to prevent a vacuum from occurring inside the tank and causing the pumps to cavitate. The relief valve limits the buildup of tank pressure to a nominal level.

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4. 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 leakage 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

1) 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.

2) Find the appropriate cause from the cause column.

If the symptom appears, the ○', 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 ○:

Carry out the other troubleshooting items (where the same cause is marked with check if the symptom appears, then repair.

If there are two ○ s:

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 • Had the steering gradually been becoming heavy? Internal wear of steering equipment, defective seal.

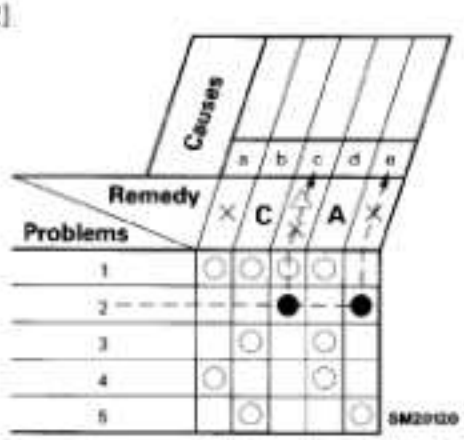
Checks efore starting [Example]

• Is the oil level and type of oil in the hydraulic tank correct? • Is there any leakage of oil from the steering control valve?

[Example 1]

No.	Problems \ Remedy
1	Steering does not 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]



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