ZL50G 轮式装载机

ZL50G WHEEL LOADER

维修手册

SERVICE MANUAL

	Weight	To show the weight of machine component or working system. Care should be taken when selecting hoisting ropes and operation methods.
	Fastening Torque	To show that the required fastening torque should be applied during the assembly.
	Coating	To show the area or points that need to be coated with sealing globe or grease.
	Water and oil	To show the working system that needs to be replenish with oil, water or fuel.
	Drainage	To show that water drainage or water drainage must be made at some parts of the machine.

1.3 Hoisting Instruction

The heavy components (25kg plus) must be hoisted with crane machine. In thchapter of "Dismounting And Assembly", explicit marks are given for the machine parts with weight of 25kg or 25kg plus.

1. Hoisting

If a part of the machine could not be removed away by using a crane hook, then make the following checks:

(1) Check to see if all the mounting bolts on the part have been removed away.

(2) Check to see if there is any conflict between the part which is being removed away and other machine parts.

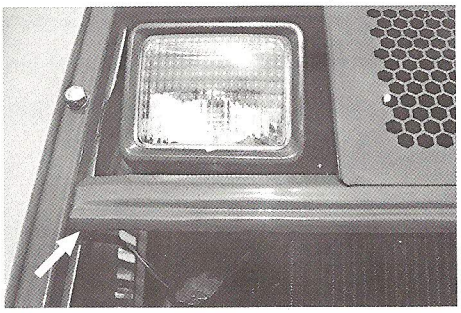
2. Steel Ropes

(1) According to the weight of the part which needs to be hoisted, select the proper steel ropes.

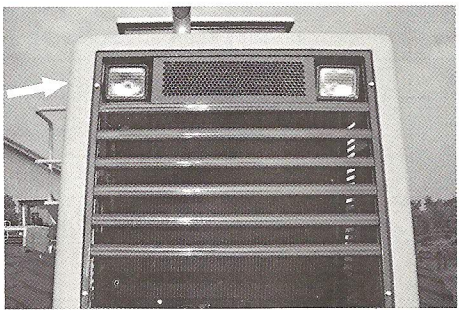
Steel Ropes (standard S-shape steel rope)	
Steel ropes diameter (mm)	Allowable loading capacity (t)
10	1.0
14	2.2
16	2.8
18	3.6
20	4.4
30	10.0
40	18.0
50	28.0
60	40.0

Model		ZL50G
Engine	Model: Type: Number of cylinders- inner diameter X stroke(mm): Displacement (L):	Cummins 6CTAA8.3-C 4-stroke water cooling direct injection, pressurized, air-to-air intercooling 6-114mm × 135mm 8.3
	Horsepower of flywheel (KW(PS)/rpm): Max. torque /rotate speed (N.m(kgm)/rpm): Rating fuel consumption (g/KW.h): High idle speed (rpm): Low idle speed (rpm):	153(205)/2 200 991(101)/1 400 ≤241 g/kW.h 2 460 850
	Start motor : AC generator: Storage battery:	24V 7.5KW 24V 50A 12V 120Ahx2
Power train	Torque converter: Gearbox: Type of main reducer: Type of hub reducer:	Single-stage, single-phase three-element Fixed shaft electro-hydraulic gear shifting spiral bevel gear single-stage reducing single-stage planetary reducing
Drive axleand wheels	Driving type: Front axle: Rear axle: Tyre: Inflating pressure: Front wheel (KPa) Rear wheel (KPa)	4-wheel driving Fixed with the machine body Swing type 23.5-25-16PR(L-3) No inner tube 23.5-25-20PR 310-340 280-310
Brake	Foot pedal: Parking brake: Brake pressure (KPa):	Single pedal, air pushing oil, clamp disc brake. Soft shaft control, energy is accumulated through spring, inner expanding shoe type. The brake is controlled though pushing the brake button. 686~784
Steering system	Type:	Articulated fully hydraulic flow amplified steering

(2) Loose the nut for fixing the rear light, and then take down the rear large light;

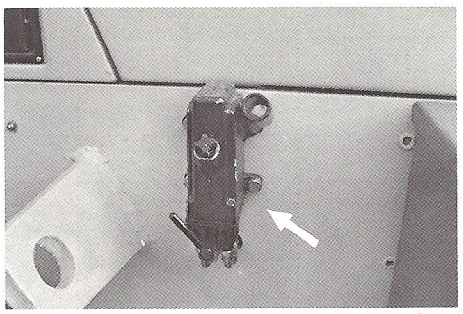


(3) Take down the assembling bolts and then the rear blocking hood.

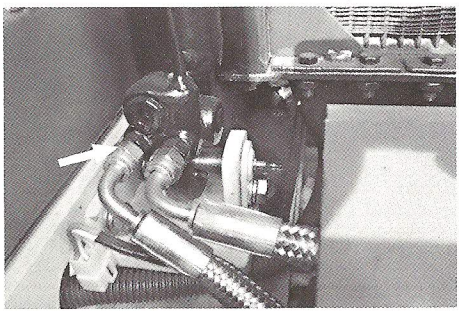


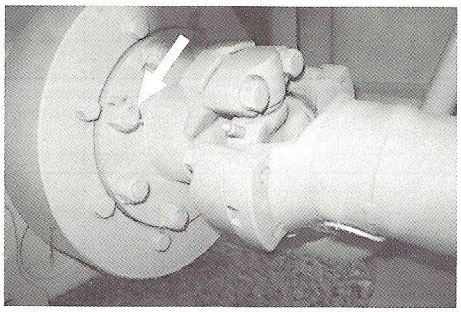
2. Lift device

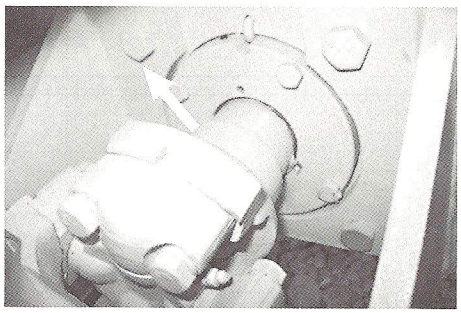
(1) Put the direction control handle of oil pump at ↓ and take down the two hoses which connected with oil pump. Drain out all the hydraulic oil in oil pump and pipes.



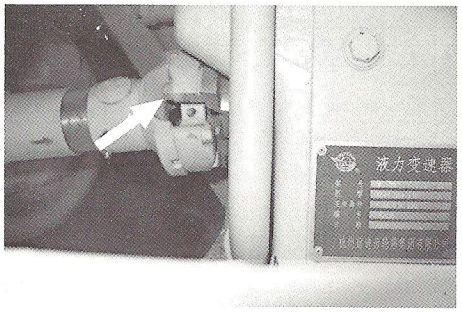
(2) Take down the two hoses connected with lift cylinder.







Loose the bolts for connecting the rear transmission shaft, the rear axle and the gearbox, and then take down the front and rear transmission shafts;



△ Make matching signs to indicate the assembly position.

Kg Front transmission shaft unit (front and middle transmission shafts): 70kg.

Kg Rear transmission shaft: 21kg.

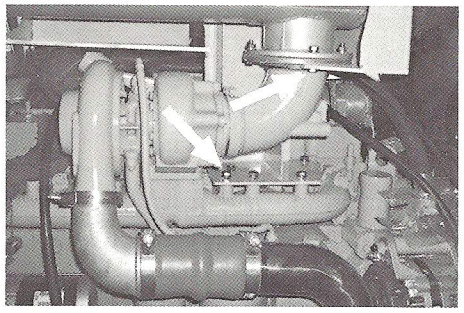
9. Air filter unit

Take down the air filter unit.

Please refer to the section of "Dismounting of the front hood" for details

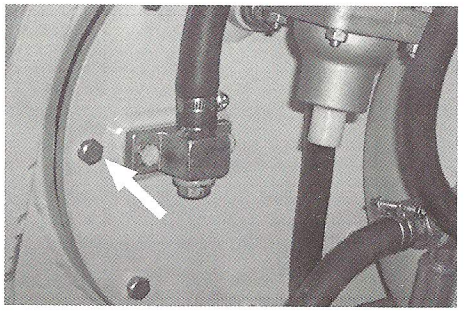
10. Silencer unit

Take down the hoop and bolts for connecting with the turbocharger, and then lift up the silencer.

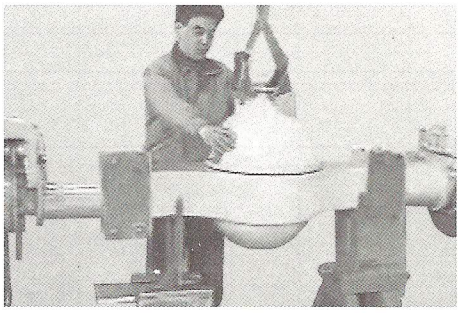


11. Oil draining pipeline of engine

Take down the bolts for fixing the connector of oil draining pipeline of engine.



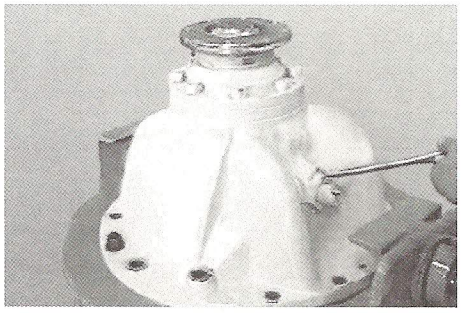
(2) Take down the main reducer by suitable rope or clamp.



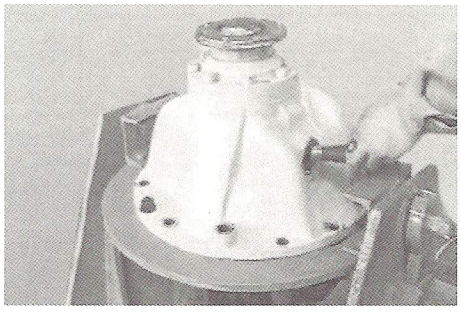
1.4 Dismounting of the main reducer

1.4.1 Dismounting of the differentia

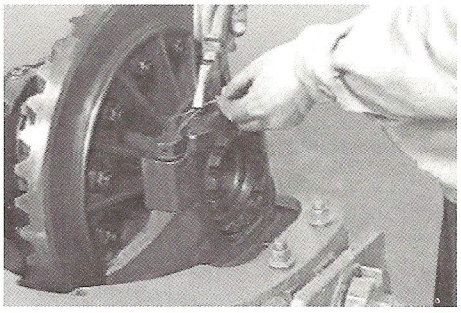
(1) Open the safety of lock plate on the back-stopping bolt by hammer and screw.



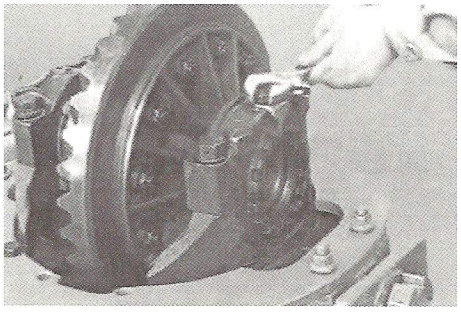
(2) Unscrew the back-stopping bolt.



(3) Take down the iron wire on the cover of main reducer by pliers

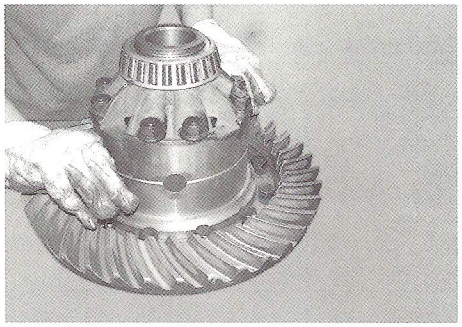


(4) Take down the lock plate for cover.



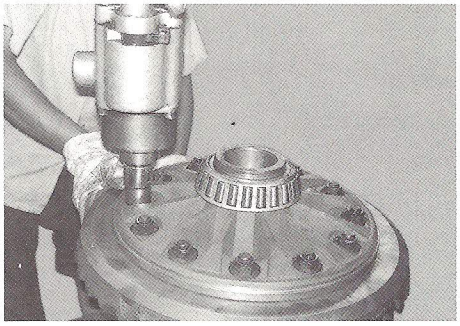
3) Screw into the nut. The fastening torque is 206~245Nm.

4) Check the rotation of half shaft gear and planetary gear. The half shaft gear and planetary gear can be turned freely.



(5) Install the big spiral bevel, lock bolt an nut.

1) Align the big spiral taper gear to the bolt hole of differential big shell, ensure the assembly is firm.



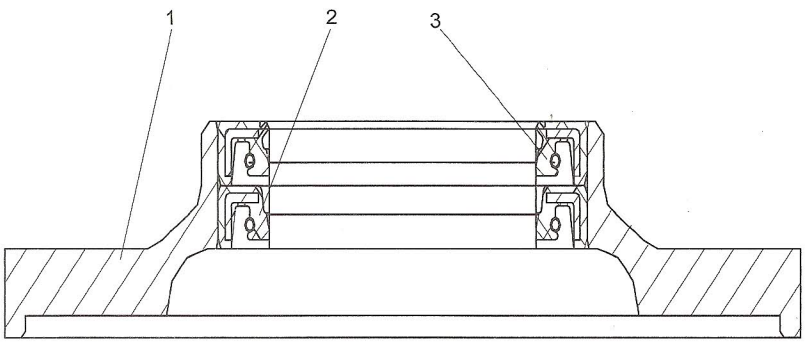
2) Daub glue onto the screw, screw the nut 19 and fasten it. The fastening torque is 150~180Nm.

2.4.2 Assembly if gear ring supporter and bearing

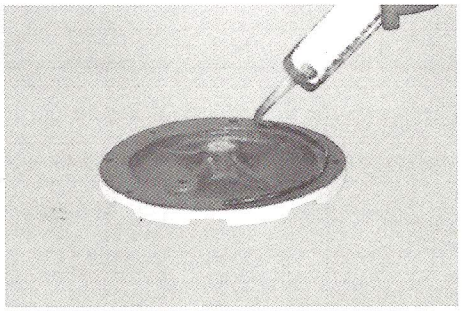
Daub a thin layer of grease on the outer ring of oil seal 2 and 3. install the oil seal 2 and 3 into the hole of oil seal cover, make the slot downwards.

Note:

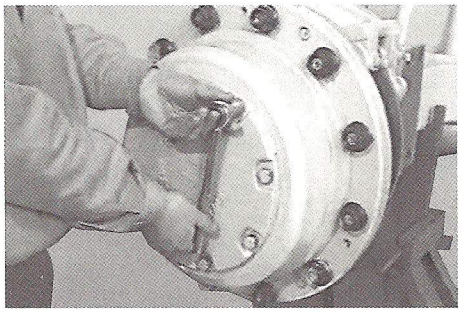
Daub 3# lithium base grease onto the lip of oil seal, fill enough grease between two oil seals.



(3) Apply sealant to the end cover evenly and continuously.



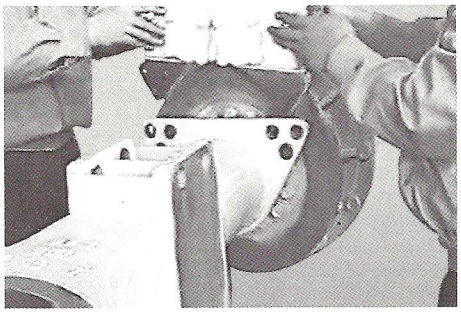
(4) Secure the end cover on the planetary wheel carrier using washer for bolt by cross and symmetric turning. Tightening torque for M12 is 63~84N.m and 40~47N.m for M10.



(5) Turn the wheel hub 2 or more full turns by hand. The wheel hub shall be turned freely and easily without seizure.

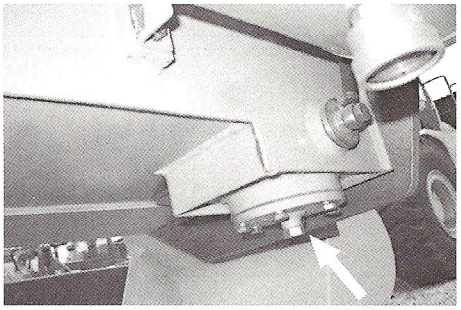
2.9 Mout the braking caliper

(1) Have the right and left braking caliper hoisted. After putting in the friction plate, assemble the braking caliper on the braking disc. Make sure the inlet hole on the braking caliper is in line with the breather on the axle housing. The lifting device and slings shall be reliable. Maintain stability during hoisting operation.



1. Drain away the oil

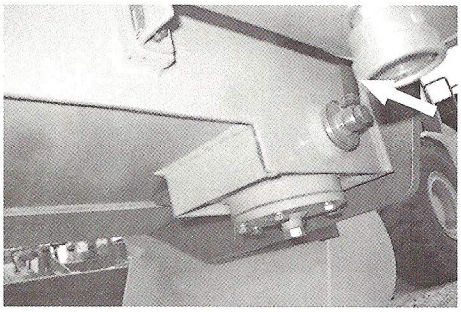
Loose the drainage plug to drain away the fuel.

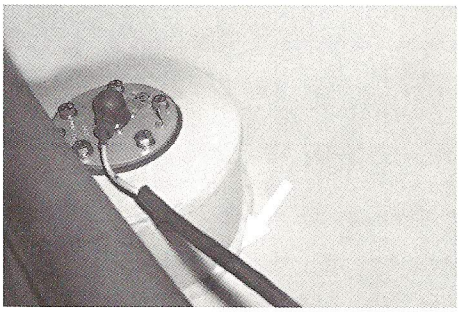


2. Fuel hose and wire

(1) Disconnect the fuel hose from the tank;

(2) Disconnect the wire to the fuel level sensor.





Dismounting of the counterweight

(1) Lift up the fuel tank, take down the assembly bolts and then put it down slowly;

△ Place a plane carriage under the fuel tank. Put the fuel tank on the plane carriage slowly and keep it in balance.

Kg Fuel tank: 205kg (empty).

(2) Pull the fuel tank out from the rear framework of the loader.

Assembling of the fuel tank unit

Adopt the opposite sequences of dismounting for assembling.

Dismounting of the left trestle

⚠ Stop the loader on a horizontal ground, lower the bucket to the ground and stop the engine. Use the parking brake and place a wedge behind the wheels to prevent the machine from moving.

Dismounting of the multi-path steering valve

⚠ Stop the loader on a horizontal ground, connect the locking rod of the framework, lower the bucket to the ground and stop the engine. Use the parking brake and place a wedge behind the wheels to prevent the machine from moving.

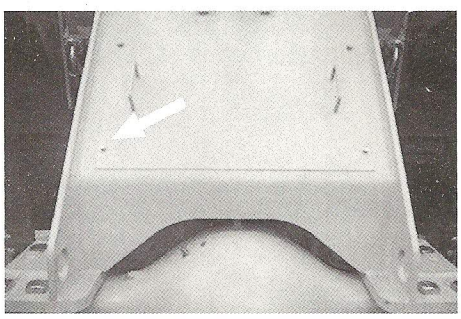
⚠ Release the remnant pressure inside of the pipelines.

Turn the filler cap of the hydraulic oil tank slowly to release the inside pressure. Then operating the knob for several times to release the remnant pressure in the hydraulic pipelines.

⚠ Cut off the power from the negative pole of the battery cell.

1. Lift up the boom, and place a support under the boom, then take down the assembling face plate of the front framework.

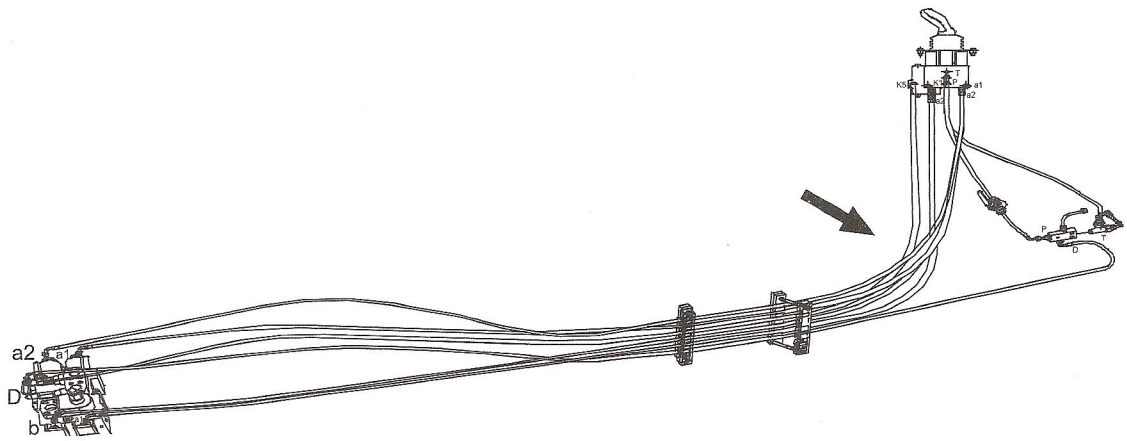
⚠ Place the support firmly.



2. Hydraulic pipelines

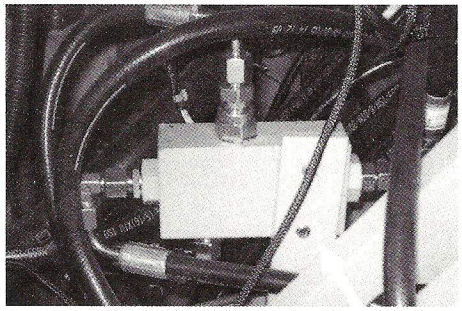
Disconnect the following hydraulic pipelines from the multi-path steering valve:

Pipelines between the multi-path steering valve and the leading valve, 5 pieces in total.



3. Select valve

Loose the assembling bolts for connecting the select valve with the rear framework, then take down the select valve.



Assembling of the select valve

Adopt the opposite sequences of dismounting for assembling.

△ Place the O-ring into the slot firmly and be careful not to lock it when assembling.

△ Do not twist or enwind the hoses when assembling.

Re-fill with oil

Re-fill the hydraulic oil through the filler to the required level.

△ Run the engine to circulate the oil in the system and then check the oil level again.

Dismounting of the leading valve

⚠ Stop the loader on a horizontal ground, connect the locking rod of the framework, lower the bucket to the ground and stop the engine. Use the parking brake and place a wedge behind the wheels to prevent the machine from moving.

⚠ Release the remnant pressure inside of the pipelines.

Turn the filler cap of the hydraulic oil tank slowly to release the inside pressure. Then operating the knob for several times to release the remnant pressure in the hydraulic pipelines.

⚠ Cut off the power from the negative pole of the battery cell.

1. Open the side door of the controlling box in the cab

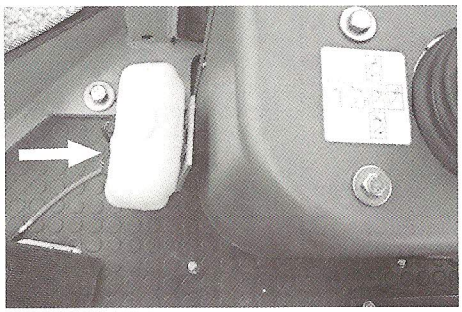
2. Hydraulic pipelines

Disconnect the following hydraulic pipelines from the leading valve:

Pipelines between the leading valve and the multi-path steering valve, 5 pieces in total.

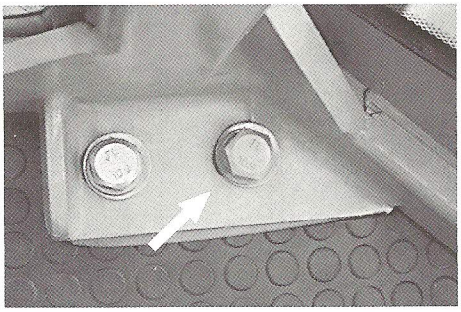
2. Spray kettle

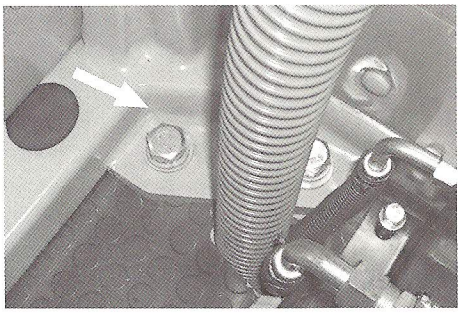
Disconnect the wires and water pipe connector between front and rear rain wiper and spray kettle.



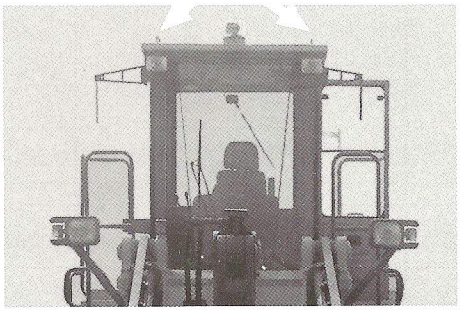
3. Driver's cab

(1) Take down the assembling bolts for connecting the cab with the framework;





(2) Lift up the cab horizontally with lifting tools crossing the four lifting bolts at the top of the cab and then lift it away from the machine slowly.



4. Seat

Loose the bolts for assembling the seat and the cab base, then take down the seat.

2) Insert one end of G1 into the engine emission tube, and at the same time have the engine accelerated suddenly. Then operate the control handle of G1 to have the engine's exhaust gas collected in the filtering paper.

3) Remove off the filtering paper and compare it with the standard industrial emission color sample.

(2) Measure with smoke-tester G2 (Please see Fig. 05-05, 05-06)

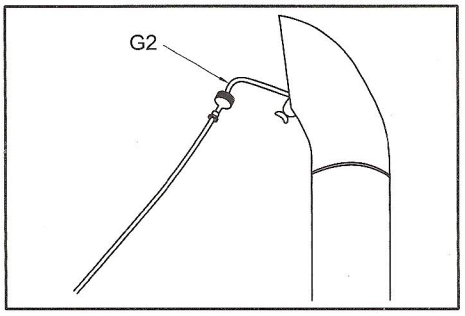


Fig. 05–05

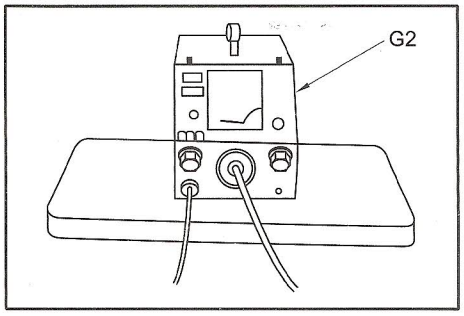


Fig. 05–06

1) Insert G2 into the emission tube, and clamp it tightly with a clip onto the discharging tube.

2) Connect the air hoses and plugs onto G2.

⚠ Air pressure should be less than 1.5MPa (15kg/cm^2).

3) Connect power switch to AC power socket.

⚠ When making electrical connection, firstly check if the switch of G2 has been turned off.

4) Unfasten the nuts on the cover of suction pump and then insert the filtering paper.

⚠ Make sure the filtering paper is securely installed, so as to avoid air leakage.

5) Switch on the power switch of G2.

6) Speed-up engine's rotation speed, and at the same time, step down the acceleration pedal of G2 to suck in the emission air onto the filtering paper.

7) Take out the filtering paper, and compare it with other unused paper (at least 10 pieces of paper). Then write down the display data.

Measure Emission Temperature

- Install a temperature sensor onto the discharging tube. Before starting to install the temperature sensor, wait a while to let the discharging tube cool down.

△ Before making such measurement, warm up the coolant temperature to its normal working temperature range.

1. Method for Measuring Operation Force for Brake Pedal

(1) Fix the force-gauge (1) onto the operator's foot (See Fig. 05-28).

△ Get the centers of both the force-gauge and the brake pedal be in alignment.

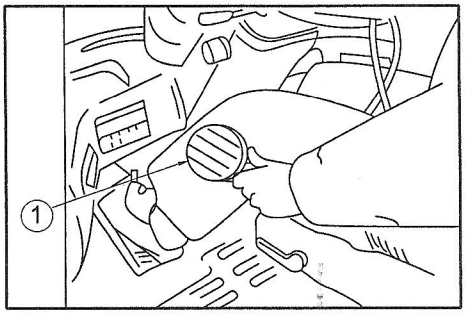


Fig. 05–28

(2) Start up the engine and let it run at low idle speed. And measure the operation force when you stepping down the pedal.

2. Method for Measuring Brake Pedal Travel Limit

(1) Fix the force-gauge (1) onto the operator's foot.

△ Get the centers of both the force-gauge and the brake pedal be in alignment.

(2) Start the engine, and measure the angle α_1 when the engine is running at low idle speed; and measure the angle α_2 when you step down the pedal with the force of 30kg.

△ When making such measurement, install the angle-rule (2) onto the brake pedal (See Fig. 05-30).

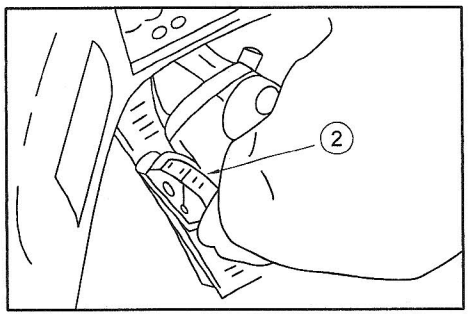


Fig. 05–29

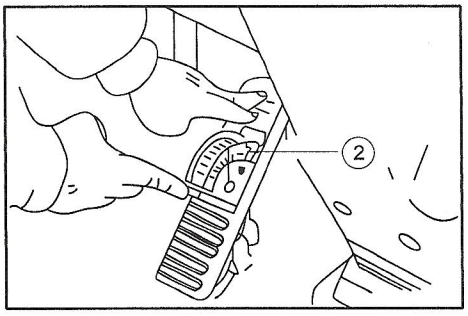


Fig. 05–30

3. Brake Pedal Clearance

(1) Start up the engine.

(2) Push slightly, with hands, the brake pedal. And measure the angle α_3 when you just feel it gets heavy to push the pedal (See Fig. 05-31).

Preface

As the wheel loaders are frequently used under very complicated and tough working condition, with very tough environment. So after a wheel loader being used for a certain period of time of driving and working, the machine status will be gradually deteriorated as time goes on, which will subsequently cause the machine power decreased, economic value lowered, working performance and reliability down-graded. When such phenomena gets worse, the machine will definitely have breakdown. This is the normal procedure for a machine. However, if the machine operator or service people could make in-time diagnosis to the machine trouble, find the trouble causes and give earlier maintenance and service to the machine according to corresponding troubles phenomena, then it will helpful to eliminate the machine troubles, prolong the machine service life, reduce overhaul repair frequency and decrease repair cost, all of which will definitely improve the machine economy.

Therefore, this chapter gives the detailed description on the wheel loader troubles phenomena, troubles causes as well as the general process and methods for finding out troubles causes and troubles shooting, which will give very helpful reference to the machine operator or service people when they do service work on the machine.

6.1 Troubles Phenomena And Troubles Causes

6.1.1 Troubles Phenomena

Wheel Loaders Driving Performance Getting Poor

The down-grading driving performance of a wheel loader is mainly shown on the machine traction force decreasing and/or the difficulty to raise machine bucket , which is always contributed to the gear pump getting worn out, the multi-valve distributor with too much clearance, or the hydraulic sealing rings getting worn out or damaged in the hydraulic system of the wheel loader. And if the torque converter or gear pump inside the gear box gets worn out, then it will cause the machine could not move or move very hard. Further more, if the engine piston and piston ring get worn, then it will cause the engine could not suction in enough air, which will decrease the engine output power. Therefore, when the operator or service people finds that the driving capability of the machine gets poor, then it means that the machine system has something wrong, so you must give enough care to such trouble phenomena.

Performance Reliability And Safety Performance Getting Poor

The braking performance of a wheel loader depends upon how properly the braking valve, energy reservoir and braking mechanism function. If all these braking apparatuses get wore out, then the machine braking performance also gets poor. And the engine itself will also encounter the problems, such as: be very hard to be started or totally not be started at all, due to the engine components also getting worn out. As for hydraulic system, possibly due to the hydraulic oil being polluted or the oil leakage in the steering cylinder, so you will find that the machine could not make steering effectively or there is no steering at all even you turn the steering wheel. All of these problems on the machine will lead machine breakdown frequently and

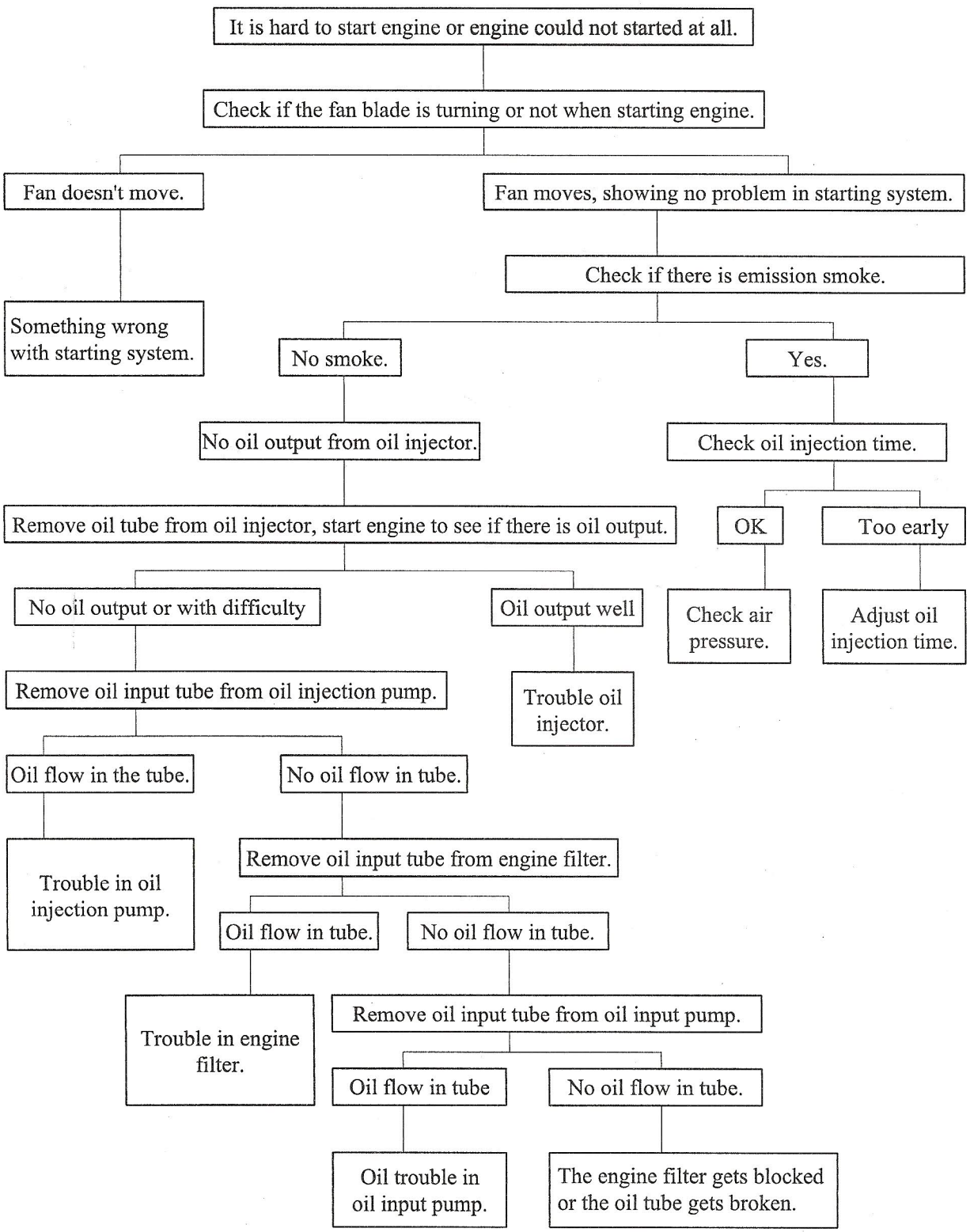


Fig. 06-02 Problem analysis process chart for the problem of starting engine with difficult

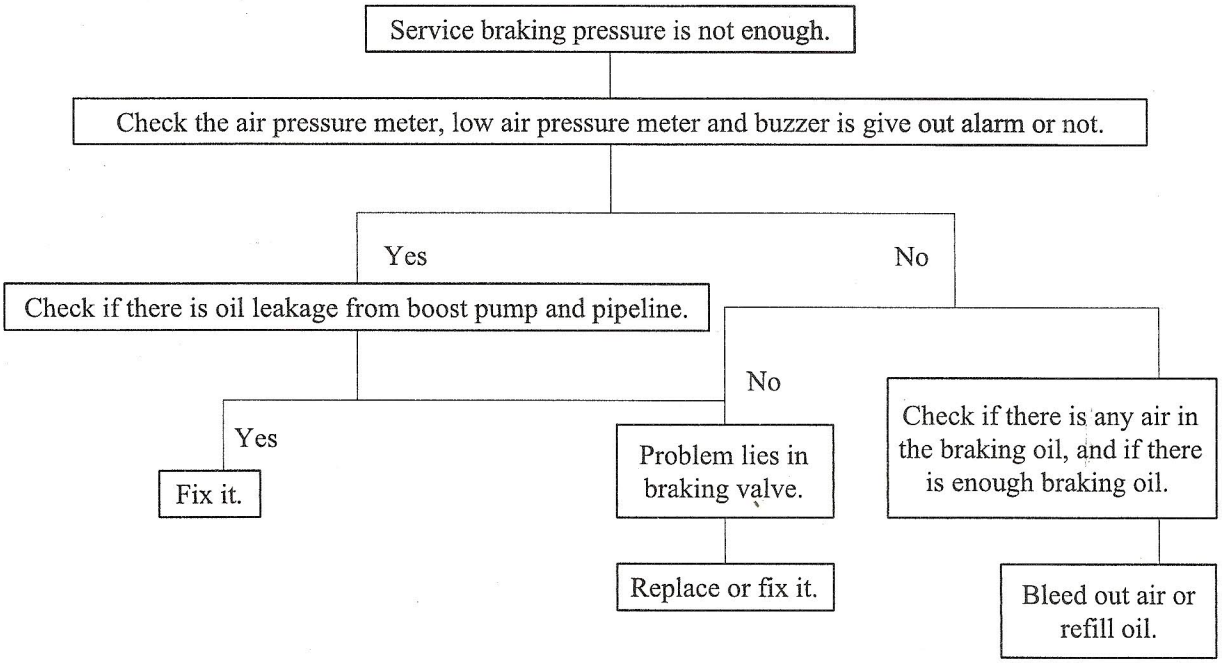


Fig. 06-06 Diagnosis process chart for the problem of insufficient braking pressure

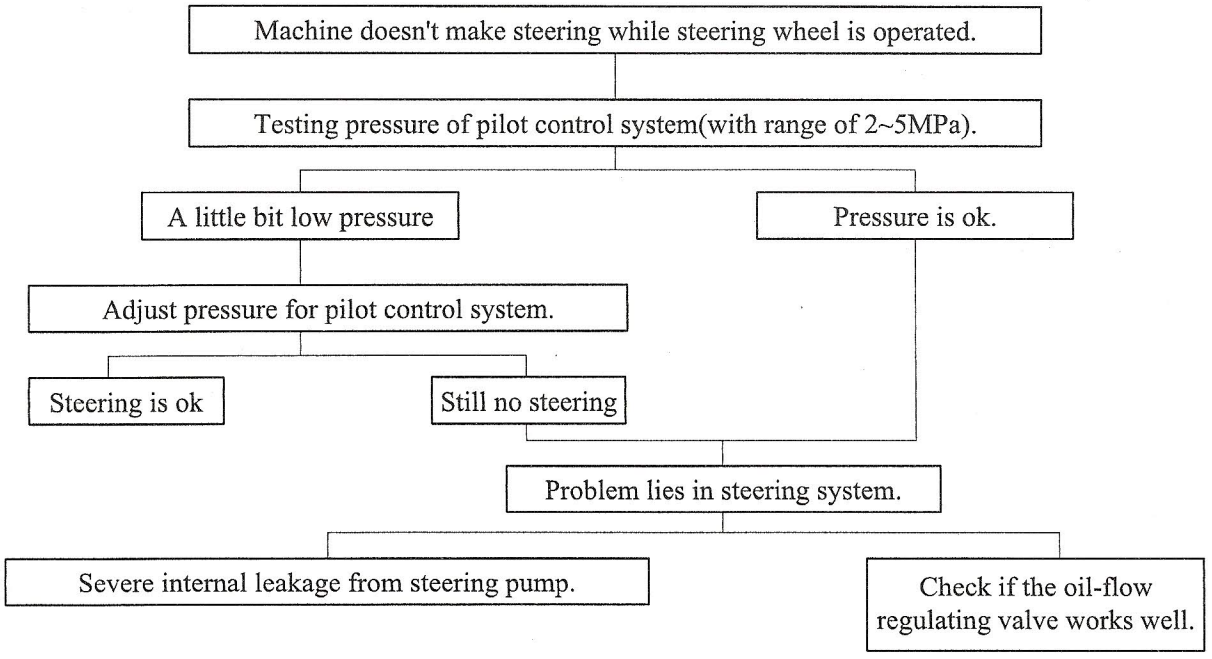


Fig. 06-07 Diagnosis process chart for the problem that the machine doesn't make steering while the steering-wheel is operated

Trouble symptoms	Causes	Remedies
7. No steering at all.	1. Oil flow-amplifying valve fails to work. 2. Oil leakage from over-flow valve. 3. Breakdown of the pilot pump or steering pump. 4. Piston of steering cylinder fall off. 5. Breakdown of dual-way overflow valve. 6. The steering pin gets broken.	1. Check, repair or replace. 2. Check, repair or replace. 3. Replace. 4. Check, repair or replace. 5. Check, repair or replace. 6. Check, repair or replace.
8. Self-steering.	1. Breakdown of oil flow-amplifying valve .	1. Check, repair or replace.
9. Steering-wheel turns by itself.	1. Steering valve sleeve gets jammed. 2. The steering spring is broken.	1. Get rid of foreign staffs from the valve. 2. Replace.
10. During the high-speed driving, steering is too fast.	1. The valve-bar of the Oil flow-amplifying valve can't move flexibly. 2. The measuring ports at two ends of the valve bar are blocked.	1.Check, repair or replace. 2.Clean or replace valve bar.
11. Too much noise from steering pump, and steering cylinder piston moves too slow.	1. Air comes into steering system pipelines. 2. Oil viscosity of steering pump is too thin. 3. Insufficient hydraulic oil. 4. Internal leakage from steering cylinder.	1. Make a better sealing for the steering pump. 2. Check, repair or replace. 3. Fill in oil to desired level. 4. Replace sealing ring.
12. Machine driving can not be in alignment or machine swings to both sides during driving.	1. Unequal pressure of tires. 2. Load on machine inclines to one side. 3. Steering spring fails to work. 4. Dual-way overflow valve fails to work. 5. Air comes into hydraulic steering system.	1. Inflate tires to desired pressure. 2. Centralize loads upon the machine. 3. Replace. 4. Replace. 5. Check and fix it.

7.1 Instruction on Maintenance

In order to maintain the good performance of a wheel loader, prevent hazards happening, reduce repair cost and prolong the machine service life, it is a "must" to use machine properly, carry out periodical maintenance and make in-time trouble-shooting to the machine. So in this chapter, you will find informative description on the maintenance procedure and measures for the machine under the normal working condition. As for the maintenance practices for the key parts and working system of the machine which is used under extreme environment, please see the specific two sections: "Maintenance Instruction for Hydraulic System" and " Maintenance Instruction for Electrical System".

7.1.1 Maintenance Instruction for Hydraulic System

The often-seen problems that happen in the hydraulic system of the wheel loader are usually caused due to the contamination (foreign material) in the hydraulic return-loop. Therefore, special care must be paid to keep the fine cleanness of the hydraulic units during replenishing hydraulic oil or dismounting/installing hydraulic units.

(1) Working Environment

To avoid refilling hydraulic oil, replacing hydraulic filters and repairing the machine in an area with raining, strong wind or much dust.

(2) When dismounting or serving the machine outdoor

If you dismount or serve a wheel loader outdoor, then there will be risk of having foreign dirt penetrating into the working system of the machine. So, only simple maintenance work can be executed outdoor, such as: parts replacement. While, to dismount or to serve the hydraulic system of a machine should be done in a special repair-shop, where it is very clean, without dust, and there are special testing devices available to make it possible to test the machine performance after such maintenance work finished.

(3) Get the Open-Ports Sealed

After dismounting a hydraulic unit or hose, bear it in mind to keep all the open ports be well sealed with blocking plugs or other plastic staffs, so as to prevent foreign material or dust getting into those open-ports. It is not allowed to leave those ports open or seal them with only dirty cloth, as such way of doings will easily get the hydraulic parts be polluted with foreign material penetrating into them or get the working area be polluted with oil leakage. In addition, don't reject the drained oil onto the ground anywhere. What you should do is to collect the drained oil and treat it properly and environment-friendly.

3) Maintenance for every 250 working hours (at the same time, do the maintenance jobs for every 50 and 100 working hours)

Only after the first 250 working hours can the following maintenance jobs be done: to replace the fuel filter core, to replace the gear-box filter core, and to check and adjust the engine throttle.

a. Clean the engine filter, and replace the filter core if necessary.

b. Clean the oil-pan and the filter core of the gear-box.

c. Clean the oil tanks (or oil-pans)for engine oil, fuel, gearbox oil, hydraulic oil and their filter as well.

d. Check if there is any cracking loosening parts on the working mechanism, front and rear axles and the rear axle support. And fasten the mounting screws on the hubs.

e. Check the wearing status of the parking brake.

f. Check the belts tension of the engine fan and generator belt. If necessary, adjust them.

4) Maintenance for every 500 working hours (at the same time, do the maintenance jobs for every 50, 100 and 250 working hours)

a. Replace the gearbox oil, and clean the oil-pan and the filter of the gearbox.

b. Fasten the mounting bolts on the machine frame, particularly on the articulated joints. And fasten the screws on the rear axle support.

c. Check and adjust the clearance for the hand brake.

d. Replace the engine oil.

5) Maintenance for every 1000 working hours (at the same time, do the maintenance jobs for every 50, 100, 250 and 500 working hours)

a. Replace the gear oil in both front and rear axles.

b. Replace the hydraulic oil, and clean the filter of the hydraulic oil tank; and clean ventilation ports of the gearbox and torque converter.

c. Replace the braking oil, and raise the machine frame and turn the machine tires to check the machine braking performance.

d. Clean the engine's oil-pan, engine oil tank and its filter. And replace the engine oil and diesel oil.

e. Adjust the clearance between the turbo-supercharger blades, and fasten the mounting bolts and screws on the turbo-supercharger.

6) Maintenance for every 2000 working hours (at the same time, do the maintenance jobs for every 50,100, 250, 500 and 1000 working hours)

a. Make maintenance to the engine according to what is stated in the specific engine manual.

b. Check and serve the gearbox and torque converter (please refer to the specific manual of the gearbox).

c. Disassemble and check the differentials of both front and rear axles and hub reducer.

d. Disassemble the steering system and calibrate steering angle.

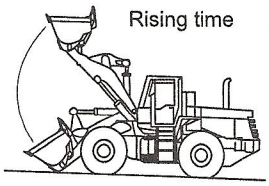
e. Check the sealing status of valves and cylinders by observing cylinder pistons lowering-down.

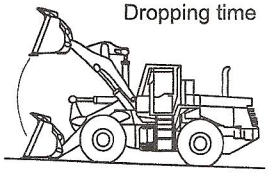
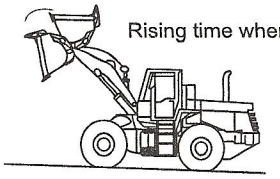
7.4 Maintenance for Wheel Loader Under Special Environment

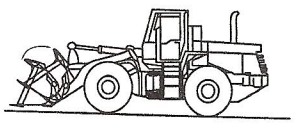
(Please see the table 07-01)

Ambient condition	Precaution Points for Maintenance
Muddy ground, or weather with much raining or snowing	Before machine operation: check to see if all the plugs and drainage plugs are securely screwed. After machine operation: Clean the machine body and check if all the bolts or nuts get broken, damaged, loosening or missing. Grease all the necessary parts without any delay.
Near the seashore	Before machine operation: check to see if all the plugs and drainage plugs are securely screwed. After the machine operation: Wash the machine body with fresh water to keep the machine free of salty water. More maintenance should be often made to the electrical system parts, so as to prevent corrosion.
In the air with much dust and sand	Air filter: Clean the filter core in short intervals Radiator: Clean timely the hood of the radiator to prevent the radiator being blocked. Fuel system: Clean the filter core and filter mesh in short intervals. Electrical system: Clean the electrical parts to keep them free of dust, particularly keep the wiring connection end of the AC generator and the starter clean.
Terrain with much stones	Tires: Drive the machine carefully. And often check the tires appearance and their rims to see if there is any breaking or missing nuts or bolts. If necessary, install a tire-protection chain. Attachments at the front of the machine: When the machine shoveling material at a terrain with much stones, the standard bucket could be not enough to endure such tough working condition and could be damaged very soon. So it is recommended to use hard bucket or stone-type bucket. In addition, according to different machine application and working condition, please select suitable and applicable working attachment.

Standard for operation speed and for sensor switches clearances

<table>
<tr><th colspan="3">Description</th><th>Testing Condition</th><th>Unit</th><th>Standard Data on a New Machine</th><th>Allowable limits</th></tr>
<tr><td rowspan="2">Boom speed</td><td colspan="2">Raising</td><td rowspan="2">● Engine speed: high idle
● Hydraulic speed: 45-55℃
● Engine water temperature: within its working temperature range.
● Without being loaded.
● Articulated joint is in alignment.
● The bucket is lowered down to ground . (How long it needs to raise the bucket from its lowest position to the highest position).
 

 
</td><td>s</td><td>6.5 ± 0.5</td><td>8.0</td></tr>
<tr><td colspan="2">Lowering</td><td>s</td><td>4.0 ± 0.5</td><td>5.1</td></tr>
<tr><td rowspan="3">Bucket speed</td><td rowspan="2">Tilting forward</td><td>Full travel</td><td rowspan="3">● Engine speed: high idle
● Hydraulic speed: 45-55℃
● Engine water temperature: within its working temperature range.
● Without being loaded.
 

 
</td><td>s</td><td>1.2 ± 0.3</td><td>2.1</td></tr>
<tr><td rowspan="2">Tilting backward</td><td>Full travel</td><td>s</td><td>2.2 ± 0.3</td><td>2.8</td></tr>
<tr><td>Bucket being in leveling position</td><td>s</td><td>1.4 ± 0.3</td><td>1.8</td></tr>
</table>

2) Other distortion working tools (such as clamp and side tilt etc.), as accessories of the machine, are not listed in Table 08-01 and Table 08-02.

3) Customers can select proper bucket accessories based on material density (For this machine).

4) Important reminding: operation with improper accessories like bucket and boom etc. may cause severe damage to the front structure of the machine such as pull-rod, rocker and hydraulic cylinder.

The following lists provide maintainers and customers with easy-worn parts at every maintenance stage as detailed as possible (but in real situation of operation and maintenance, contents in Table 08-03 to 08-06 may not be all-sided, so please contact your local dealer of XCMG or Xugong Science & Technology Co., Ltd. when you need any technical support).

8.4 Table 08-03: List of Easy-worn Parts Within 500 hr (including 500 hr) (Unit: piece/set)

No.	Description	Code	Quantity	Remarks
1	Air filter	AH19227-C	1	Cummins C8.3 engine
2	Air filter	KLB-14-000	1	Shangchai 6121 engine
3	O-ring 70 × 3	0634 306 287	1	ZF gearbox
4	O-ring 25 × 3	0634 313 260	1	ZF gearbox
5	O-ring 35 × 2	0634 306 525	1	ZF gearbox
6	O-ring 23 × 2	0634 303 233	1	ZF gearbox
7	O-ring 57 × 3	0634 313 529	1	ZF gearbox
8	O-ring 49 × 3	0634 313 536	1	ZF gearbox
9	O-ring 48 × 4	0634 303 466	2	ZF gearbox
10	O-ring 27 × 2.5	0634 303 283	2	ZF gearbox
11	Piston sealing ring	0634 402 025	1	ZF gearbox
12	Piston sealing ring	0734 401 078	1	ZF gearbox
13	Piston sealing ring	0734 317 252	1	ZF gearbox
14	Piston packing	0734 401 106	9	ZF gearbox
15	Piston packing	0750 112 139	6	ZF gearbox
16	Piston packing	0750 112 140	6	ZF gearbox
17	V-ring AV 55	0630 531 346	6	ZF gearbox
18	Filter	0750 131 053	1	ZF gearbox
19	O-ring	932041	4	VOLVO front and rear axle hub
20	HMS4 Oil seal 150 × 180 × 15	53500009	2	Meritor front and rear axle
21	HMSA7 Oil seal 80 × 180 × 10	53500007	1	Meritor front and rear axle
22	HMS4 Oil seal 80 × 180 × 10	53500008	1	Meritor front and rear axle
23	O-ring	83000810	2	Meritor front and rear axle