FORWOED

This operational manual gives a detailed introduction to the regulation for using the machine safety and efficiently. It should be taken with the machine and be read at regular time. If it is missing or spoiled to any unintelligibility, the user should buy a corresponding one in SHANTUI company or in its appointed agencies. If the loader is transferred, this manual should be transferred correspondingly.

Some specific details may be not shown in this manual because of the continual improvement or updating on machine, so users should consult our company or agencies when meeting some unconformities in using the manual. The manual may also include the accessory which can't be bought you stay, and please consult our company or agencies.

This type has multiple choice, the books only comes down to ordinary maintenance and operation. Detailed content of the drive axles , gear-box , engine and so on, you should read accessary materials.

SHANTUI company can't foresee all the operating rules and maintenance may cause danger, so this manual can't content all details about security. Please make sure the safety of yourself and the machine if use any unconformity operation. If there are still questions, please contact franchisers of SHANTUI.

⚠ Caution

- Any improper operation or maintenance may cause danger or leads to casualty accidents.
- The operator or maintainer should peruse this manual before working.
- Any violation against the regulated operation or maintenance rule may cause severe accidents.
- All the operation rules and attentions introduced in this manual serve for the regulated use of the machine. When it is operated beyond its use range, please make sure the safety of the driver and others around. Never try to do any operation interdicted which proclaimed in writing.
- The instruction for safe operation can be referred to Safety *Instruction* and Safety Rules .

Please read, understand and obey all the notes and warnings that presented in the manual and on the machine!

The following signal words are used for identifying safety information in this manual.

⚠ Danger

Used for the occasion that may cause danger or death without notice highly.

⚠ Warning

Used for the occasion that also may cause danger or death without notice possibly.

⚠ Caution

Used for the occasion that also may cause moderate danger to users or the machine without notice possibly.

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SAFETY RULES

⚠ Caution

Read and follow all the safety instructions to avoid severe casualty accidents.
The safety rules include some operation and the attentions of other optional working

1.The universal safety rules

Safety instructions

Most accidents derive from the violation of basic operation and maintenance rules. In order to avoid accidents, user should peruse, understand and follow the regulations in this manual, attentions and Caution labeled on the machine before operating or maintaining.

safety rules

- Anyone who operates or maintains the loader should be trained or authorized.
- Obey the following safety rules, attentions and the instructions when operating or maintaining the machine.
- In order to avoid accidents caused by misjudgments, don't operate the loader under the conditions of sickness; after taking medicines that cause sleepiness or being drunk.
- Make sure that the traffic staff and the other staffs understand each other's habitual hand language when they work together.
- Follow the relevant safety rules.

safety features

- Make sure all the shields are in the correct position and repair timely after the damage. Correct position: refer to "2.4.1.1circuit inspection "
- Use the safety equipments correctly, such as safety lockup and seat belt.
- Don't dismantle any safety equipment and keep them in good condition.
- Any misuse of the safety equipments will cause severe casualty accidents.

Clothes and other safety protection items

- Take care that the clothes, jewelry or long hair will fall on the control rod or other moving parts and cause severe casualty.
- Don't wear oily polluted flammable clothes.
- Put on solid safety helmet, guard glasses, safety shoes, mask and gloves when

operating or maintaining. Put on Goggles, safety helmet and gloves to protect from the hurt of the metal fragments and other grains when striking the pegs or washing the air cleaner core with compressed air.

- Make sure they are in good condition before using the above-mentioned clothes and equipments.

Unauthorized modification

Without the consent of the producer, any modification on the machine will cause safety problem. That is, consulting with the producer for any modification is necessary. And the producer will refuse any responsibility for the hurt caused by unauthorized modification.

Safety lockup should be locked when leaving the driver seat.

- Before leaving the seat, put the stop switch on brake position, for the working equipment will be moved if the control rod is touched by chance and accident will occur.
- Before leaving the loader, lower the whole working equipments to the ground, put the stop switch on brake position, extinguish engine, lockup all the equipments and keep keys with you.
- The condition of the working equipment---refer to "2.3.13 stop".

  Lock up---refer to "2.3.17, lockup".

Ascending and descending the loader

- To avoid unexpected hurt, don't jump on or off the loader especially when driving.
- When ascending or descending, the operator should face the loader and make sure the three points (two hands and one foot or two feet and one hand) be touched with the stairs or treadle.
- When ascending or descending, don't hand the control rod.
- Before ascending or descending, make sure no oil, grease or mud left on the stairs or treadle. If any, clean them. Repair the impaired parts timely and screw down the loose bolts.

Guard against inflammation of fuel and lubricant

- Fuel, lubricant, antifreeze and glass detergent are tinder, especially the fuel.
- Keep all the tinderes far away from fire source.
- Extinguish engine, don't smoke when refilling the fuel.
- Screw down the lid of fuel tank and sump.
- Refill fuel and lubricant in a drafty place.
- Keep the fuel and lubricant in a drafty place and lock them against the irrelevant persons.
- Fuel, lubricant, antifreeze and glass detergent are tinder which tanks should not be welded privately without permission. Consult the producer for the damages. When welded by the technician, the tank should be dismantled from the loader, and moved to a drafty place drafty. Make sure no tinder on the tank, it should be ventilated both inside and outside and the

exhaust gas of the tinder in the tank should be expelled.

Attentions when operating in high temperature

- When the operation is stopped, fuel and lubricant are in high temperature and pressure. Any action of unscrewing the lid to eject oil and water or replace the air cleaner core will cause severe burn.
- To avoid the spurting of the hot water, extinguish the engine first. When the water inside is cool, loosen the lid of water tank a little to release the pressure and then unscrew the lid completely. When testing if the water is cool, put your hand in front of the radiator to test the air emperature around it. Take care not to touch the radiator.
- To avoid the hot oil spurting, the engine should be extinguished first. When the oil inside is cool, the lid of oil tank can be loosened a little to release the pressure and then unscrew the lid completely.
- When testing if the oil is cool, put the hand in front of the sump to test the air temperature around it. Take care not to touch the sump.

Harm of the asbestos powder

It is harm for people's health when inhaling the asbestos powder.

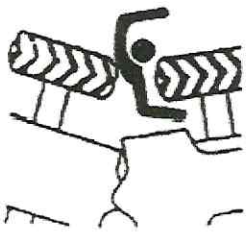
Follow the following rules when dealing with the substances containing asbestos fiber:

- Don't wash with compressed air.
- Use clear water to wash down the powder.
- Don't wash them in drafty places.
- Use shield when necessary.

Avoid being squeezed or cut

Don't put hand, arm or the other parts of the body into to the clearance between two moving parts (working equipments, oil tank or loader body and working equipments), for the clearance between two parts will change when they are working cause severe injury or casualty.





Fire extinguisher and primarily auxiliary tools

- Make sure the fire extinguisher is ready and know how to operate it.
- Make sure the primarily auxiliary tools are prepared.
- Know how to cope with conflagration.
- Remember the telephone number of the relevant person when urgency occurs.

Remarks on using the anti-collapse equipment

• The loader should not be operated after the anti-collapse equipment is dismantled, if it is equipped with one.

• The equipment of the anti-collapse equipment is installed to protect operator when the loader is collapsed, it can not only support the load but also relieve the colliding pressure.

• Our anti-collapse equipment is in line with the international specification and standard. Its safeguard function will be weakened if damaged in the collapsing accident or by the falling object. Hereof, contact the authorized agency to repair.

• Even if the anti-collapse equipment is equipped, the driver is still required to tie the seat belt (spare equipment) well so as to make full use of its safeguard function.

Some explanation of the annexed equipments

• Read the instruction of the annexed equipments when installing the optional annexed equipments.

•Only the annexed equipments permitted by the authorized agency can be installed. The unauthorized one will cause safety problem or influence the normal operation of loader, even shorten its lifespan.

•The producer will refuse any responsibility for injury, accident or product damages caused by the unauthorized annexed equipments.

The ventilation in closed area

• If having to start the engine or using fuel, lubricant or dope in closed or ill-drafty area, make sure the door and windows are open for ventilation, in case of gas toxicosis.

• Installed Ventilation fun when opening door and windows does not help.

Viewfinder, windows and lamps

•The surfaces of every lamp and window should be kept clean for clear view.

•Adjust the direction of the viewfinder on the side of the loader to have a clear view on the driving seat. Keep the surface of the viewfinder clean and replace it if broken.

•Check if the headlamp and indicator lights are working well.

2. Attentions for working

2.1 Before starting the engine

the safety of the working place

• Make a full check for any abnormal conditions that will cause danger before working.

• Check the terrace condition and soil quality, and then choose the optimal operating method.

• When working on the road, arrange signalers and set barriers to ensure the safety of the passing vehicles and passengers.

• When working in the places where water pipes, oil pipes and high voltage cables are laid, contact the relevant section to make sure the specific location. Take care not to damage these pipes or cables when working.

• When working in the water or passing

through the sand bank, check the soil condition, water depth and current velocity first, make sure not to surpass the permitted water depth.

The permitted water depth ---- refer to "2.4.11 Attentions for working",

check before starting the engine

The following check should be carried out every day before starting the engine to avoid severe injure.

- Clear away the timber scraps, fallen leaves, papers and other tinder on the engine or on the storage battery. Check if fuel, lubricant or hydraulic pressure systems are leaking, and repair them if any. Wipe off all the spattered fuel, lubricant or other tinder and put away all the fuel containers. Then take out all the fittings and tools from driver's cab, and wipe off the smear on the viewfinder, handrail and treadle.

Check points --- refer to " 2.3. 1.1 circuit check".

- Check the level of coolant, fuel and lubricant. Check if the air cleaner is blocked, wires are impaired.

Check before starting--- refer to "2.3.1.2 check before starting".

- Adjust the seat to the proper operating position, check if the seat belt is tied well or it is impaired.

Adjusting seat --- refer to "2.4.1.3 check before starting"..

Disposing seat belt --- refer to "2.3.1.3 check before starting",.

- Check if the meter works well, control rod is in the stop position.

Method on checking the meter --- refer to "2.3.1.4 check before starting the engine".

- Wipe off the dirt on the window and lamp to have a clear view.
- Adjust the direction of the viewfinder to have a clear view on the driving seat. Keep the surface of the viewfinder clean and replace it if broken.
- Check if the headlamp and indicator lights are working well. Repair them if any.
- Check if the lockup rod is in the locked position before starting the engine.
- Prepare fire extinguisher on the spot and know how to use it.
- Don't operate the machine near any fire source.

start the engine

- Look around before ascending and check if any person or other objects are in the way.
- Don't start engine when the control rod is labeled with Caution signs.
- Ring the klaxon to warn before starting the engine.
- Operate the loader only when sitting on the driver's seat.
- only the operator is permitted to drive. No one is permitted to stand on the loader after starting the engine in the driver's

cab

- Don't put the spare parts into the driver's cab in case of impairing the control rod or switch.
- Keep the driver's cab clean. Make sure no smear such as lubricant, lubricating grease, fallen snow or mud on the cab's ground, control rod, treadle or handrail.

• Check of the safety belt, belt buckle and safety helmet are equipped well. Repair or replace them immediately for the impaired.

2.2 Check after starting the engine

After the engine is started, any injury on human body or impairment on the machine will occur if incorrect checking steps are carried out. The checking step should be carried out in open area without barrier, and other persons are prohibited to be near the loader.

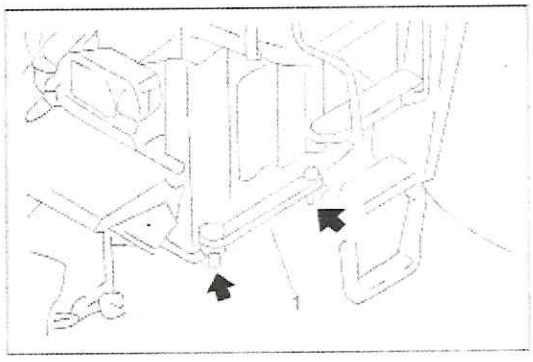
• Check the working conditions of every meter, working equipment, hydraulic pressure system, brake system, stepping system and lubricating system.

• Check if there are any abnormal phenomenon of the sound, vibration, temperature and odor of the loader. Check if there is any leaking of the gas, lubricant or fuel.

• Repair them if they are in abnormal condition.

Severe impairment on the machine will occur if the loader works in abnormal condition.

• Check if the lockup rod is in unlocked condition before operating and working.



Attentions before driving

•Check again if there are persons or other barriers around the loader before driving.

•Ring the klaxon to warn before driving.

•Operate the loader only when sitting on the driver's seat.

•Fasten the seat belt.

•Other persons in the loader should sit on the side seat in the driver's cab, if there's no side seat, only the operator is permitted to drive. No one is permitted to stand on the loader before driving.

•Check if the reversing alarm works well.

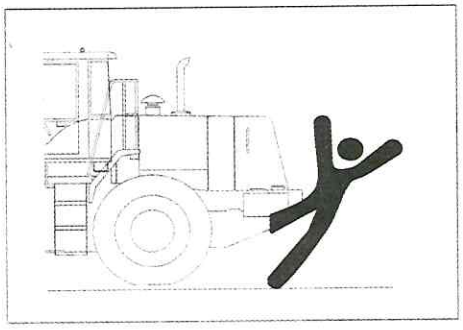
Check for steering in driving

To avoid any casualty accident, the user should obey the following operating rules when driving the loader or using its working equipments.

• Ring the klaxon to warn.

• Check if there are persons around the loader, especially its rear area where is hard to see on the driving seat.

• Have the traffic road directed if there are



potential dangers or weak vision on the working site.

• Other persons except the working staff should not be near the loader when it is working or steering.

• The user should follow these rules even if the loader is equipped with alarm device and

viewfinder.

Attentions on driving

• Don't make the engine extinguished when driving. If so, steering will be very heavy which is dangerous. If the engine is extinguished, stop with the brake immediately.

•Operate with all attention.

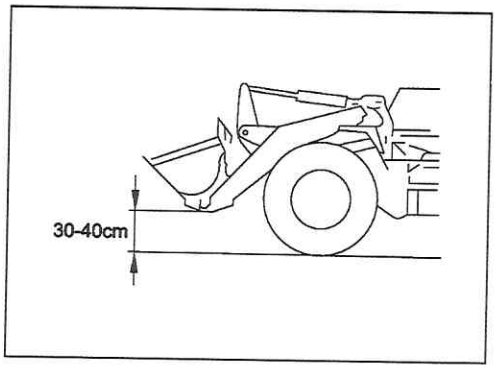
•It is dangerous to drive in an excessive high speed, start abruptly, stop suddenly, turn sharply or zigzag.

•When driving the loader to work, if any abnormal phenomenon (noise, vibration, odor or meter) or leaking of gas or oil occurs, stop the l

•oader immediately to a safe place to check and find out reasons.

•When driving on the road, make sure the bucket in the transporting position, 30-40cm above the ground.

• Don't operate the control rod of



working equipment when driving. If necessary, stop first.

• Don't operate the steering wheel abruptly in case of the collision into the ground. If so, the working equipment will lose its balance and cause the loader or other facilities around damaged.

• Drive in a low speed on uneven road, and don't steer abruptly.

• Avoid passing through the barriers. If necessary, lower the working equipment near to the ground and drive in a low speed.

• When working, keep some distances away other machines to avoid collision.

• Don't make it work in excessive deep water.

Water depth permitted---refer to "2.3.11 attentions on working".

• When passing bridges or other buildings, make it clear first whether the bridge or the building can support the loader weight. When passing road, contact with the relevant section and obey the regulations.

• Obey the traffic rules when driving on the road. Since its speed is lower than other motor vehicles, please drive on the roadside to give way to other vehicles.

• Long time and continuous running will make the loader tyre overheated and produce high pressure in it. This will cause the tyre blast, and the destructive power from the blast will cause severe accidents.

• If having to make it run continuously, please consult the agents.

Running on the slopes

•Running on the slopes will make the machine overturn or slip to the side.

•When running on the slopes, make the bucket 20-30cm above the ground. When in danger, lower the bucket to the ground immediately to help stop.

•Don't steer on the slope or pass through it. Operate so after driving the loader to even places.

•Don't drive on the grassland, fallen leaves or damp steel plates. Even slight slope will make the loader slip, please drive in a low

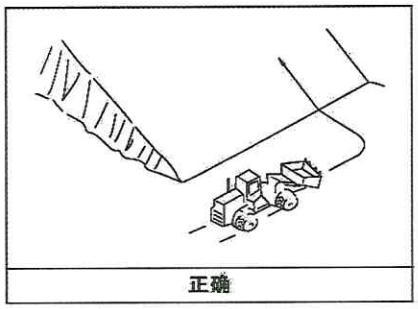
speed and make sure the loader run straight up and down on the slope.

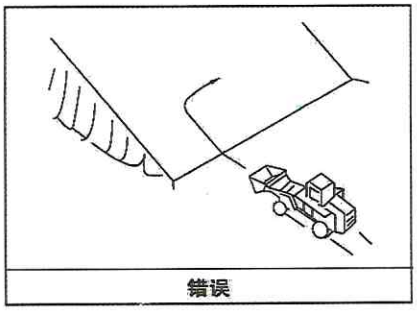
●Don't change gears or put the gearlever in the neutral position when driving down the slope. It is dangerous not to use the loader brake power. Put the gearlever in the low speed position before driving down the slope.

●Use the loader brake power to make the loader run in a low speed when driving down the slope. If necessary, use both the brake power and brake pedal to slow down the speed. If the engine extinguishes on the slope, please step down the brake pedal to the bottom, lower the bucket onto the ground and apply stop brake to stop the loader in its place.

●Make the direction of the bucket upward to the slope when driving up or down on the slope with load (use advance gear when driving up, and the reverse gear when driving down.)

●If making the direction of the bucket downward when driving up on the slope with load, it will cause loader overturn.


正确


错误

Attentions

Make sure not to overload the rating weight in case of overturn or working equipment damage.

Attentions when operating

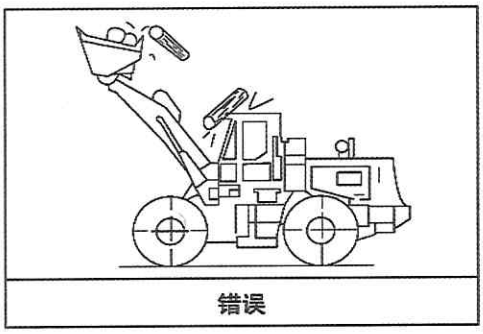
●Don't approach the cliff edge.

●When embanking, filling or unloading materials down to the cliff, unload one heap first and then use the following heap to push the previous one.

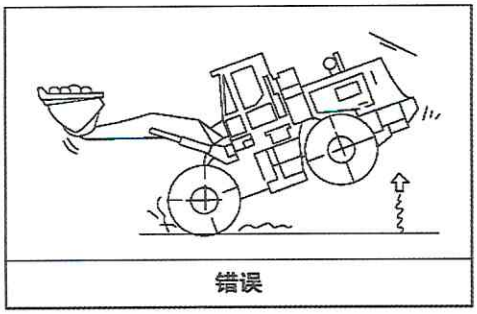
●After unloading or reaching the top end of the slope, the decreasing of the load will speedup the machine. Please gear down to avoid danger.

●Don't start, steer or stop abruptly when the bucket is fully loaded.

●The unstable materials in circle, column or piece form will fall onto the driver's cab when lifting the working equipment, and will cause severe injure.

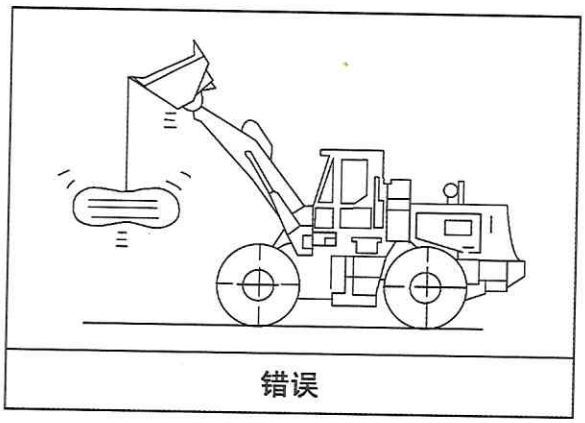

错误

●When loading these unstable materials, don't lift the working equipment or turn the bucket in large angle.


错误

●The sudden stop falling of the working equipment will cause the loader overturn. Operate the working equipment with great care when the machine is heavily loaded.

●Don't use bucket or kinetic arm as lifter.



错误

●Don't use the loader beyond its permission. Other operation will cause severe accidents.

Permitted operation --- refer to "2.3.10 wheel loader operation".

in order to having a clear visibility, please obey the following rules.

●Turn on the indicator light and the headlamp when working in dark places. If necessary, install spotlight on the working site.

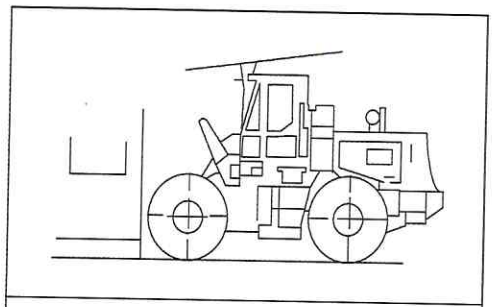
●Don't work in the fog, snow or heavy rain or work with weak invisibility. Wait until the weather becomes fine and has clear visibility.

●Obey the following rules to avoid colliding into other objects.

●When working in tunnels, under the bridge, high-volt wires or other height-limited areas, avoid the bucket collides with other objects.

●When unloading into the truck, check if any person is around and avoid the bucket collides with the truck's cab.

●Especially when working in narrow area, inside the building or with other machines, drive in safe speed to avoid colliding with other objects and cause accidents.



错误

Away from high-volt wires

Keep a certain distance between loader and high-volt wires to avoid electric shock.

Obey the following working requirement to avoid accidents:

●When working on the sites near to high-volt wires, consult with the power company to make clear the relevant laws and regulations and adopt corresponding safety measures.

●Put on rubber shoes, gloves and put rubber mat on the driver seat, avoid body contacting with any part of the loader frame.

●The signaler should direct the handling if the loader is very near to the cables.

●Driver should leave driver's cab if the equipments contact with the cables.

●Keep other persons away the loader when working near the high-volt wires.

Check the voltage of the high-volt wires with the power company before working.

	voltage	min. safety distance
low voltage	100.200V	2m
	6600V	2m
super high voltage	22000V	3m
	66000V	4m
	154000V	5m
	187000V	6m
	275000V	7m
	500000V	11m

Ensure good visibility

●Working lamp and spotlight should be installed when working in dark areas.

●Don't work in the fog, snow or heavy rain or work with weak invisibility. Wait until the weather turns fine and it has clear visibility.

Take care when working on snow surface.

●When working on snowy or icy surface, even a slight slope will make the loader slip away. Please drive in low speed, don't start, steer or stop abruptly. It is liable to slip when driving up or down the slope.

●The icy road will become soft in high temperature; this will result in unstable driving. You shoud Take care of this condition.

●The road edge and the objects on the roadside will be covered after snowing and hard to see. Clear the snow away before working.

●Tyre chain should be equipped when driving on the snow-covered road.

●When driving on the snow-covered slope, don't brake abruptly. Lower the speed and brake with engine as help and use foot brake intermittently. If necessary, lower the bucket to the ground to help stop.

●Road is slippery in snow day, adjust the load to avoid slipping.

Don't collide working equipment

When working in tunnels, under the bridge, high-volt wires or other height-limited areas, handle carefully to avoid collision with other objects.

How to use brake

●Tread on the brake pedal only when necessary.

●Tread on the brake pedal repeatedly only when necessary.

●Apply foot brake pedal when driving down the slope. Use engine to help brake when necessary.

Working on soft areas

●Don't work on the soft areas, it is hard to drive the loader out in these areas.

●Avoid approaching the loader to the edge of cliff or ditch. These places will sink under the weight of the loader or vibration and cause falling or overturn, resulting in severe casualty accidents.

Note: The soil is liable to loosen after heavy rain, blast or earthquake.

●The soil near the ditch is also liable to loosen, the weight or the vibration will cause the loader overturn.

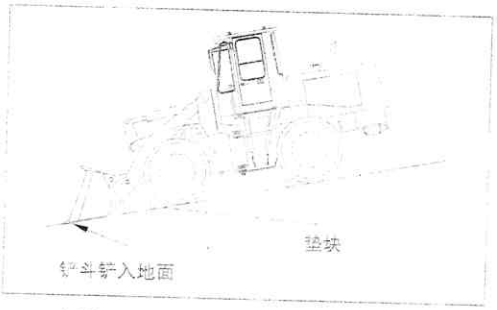
●FOPS should be equipped when working in dangerous areas where stones or rocks are liable to fall off.

●Overturn-defend protecting fittings should be equipped and seat belt fastened when working in dangerous areas where the stones are liable to fall off or the loader is liable to overturn.

STOP

•Stop the machine on the even road where the rocks will not fall off, slid down or where it is too low to accumulate rainwater. Then lower the working equipment onto the ground.

•When having to stop the loader on the slope, put trigs under the tyres to avoid moving back, and then shovel the working machine into the ground.



•When stopping on the road, please lay protecting fence, indicator plate, banner or signal lamp to arouse the attention of the passing vehicles. Don't make the loader, protecting fence, indicator banner etc. block the traffic when stopping.

Steps of stopping --- refer to :2.3.11 stopping".

•When leaving the machine, lower the bucket onto the ground, put the brake switch in the brake position, extinguish the engine, lockup all the working equipments. Take away all the keys and keep them with you.

The condition of the working equipments --- refer to "2.3.11 stopping".

Precaution in cold areas

•After finishing, remove all the accumulated water, snow or mud stuck to the wiring harness, plug, switch, or sensor and then cover all these parts. Then open the water valve, release all the cooling water in the equipment to avoid freezing.

Refer to "2.5.1.2 cooling liquids" about how to refill antifreeze into the cooling water.

Freezing will result in machine fault for next use and cause contingency.

•Warm it up completely. Otherwise it will react sluggishly before safe warming up, and handling control rod at that time will cause contingency.

•Handle control rod to release the hydraulic pressure (until it surpasses the rating hydraulic pressure to make the hydraulic oil back to tank), to warm the oil in the hydraulic system. This will make the loader react quickly and avoid fault.

•Don't charge or start engine with other energy resources if the electrolyte is frozen. Otherwise, the storage battery will catch fire. Check if the battery is leaking and thaw it before charging or starting the engine with other energy resources.

Charging speed of the battery --- refer to "2.5.1.3 storage battery".

2.3 transportation

loading and unloading

•Watch out the potential dangers when loading and unloading.

•Drive in low speed to ensure the motor run in a low speed when loading and unloading.

•Keep a certain distance from the roadside when loading and unloading in solid and level places.

•Put trigs under slanting ladder and the tyres of transportation vehicle before loading and unloading.

●The slanting ladder used should be long, strong and wide enough to ensure a safe loading slope.

●Fix the ladders well and make sure the surfaces of the two ladders are level.

●Make sure the surface of the ladders clean, no oil, grease, ice or other loose materials.

Remove the smear on the surface of the loader tyres.

●Don't steer on the slanting ladders. If necessary, drive down the ladder and drive up after the adjustment.

●After loading, put the trigs under the loader tyres and fix the machine with ropes.

Loading and unloading --- refer to "2.4 Transportation".

Fix with ropes --- refer to "2.4. Transportation".

transportation

●Obey the state or local rules of the weight, length, width etc. about transporting cargo when transporting machine with tray truck. Obey the corresponding traffic rules.

●Take the width, height, and weight of the machine into consideration when deciding transportation routes.

Width, height, and weight of the machine --- refer to "2.4.4 Attentions of transportation".

●Check if the buildings can support the loader weight before passing bridges or buildings on the land. Contact with the relevant sections and obey their rules when driving on the road.

●The machine can be transported after disassembly into parts. The authorized agencies should be consulted to help with disassembly before transporting.

2.4 Storage battery

Safe handling of the storage battery

There is sulphuric acid in the electrolyte and the battery can produce hydrogen, misoperation will result in injury or fire, please pay attention to the following remarks.

●Don't put the lit cigarette or fire source near the battery.

●Put on goggle and rubber gloves when disposing the battery.

●Rinse repeatedly with clear water if spilling the acid on clothes or skin by chance.

●The sulphuric acid spattered into eyes will result in blindness. Rinse repeatedly with clear water and ask for the doctor if spattering it into eyes.

●Drink large amount of water, milk, liquid egg or vegetable seeds oil if drinking the electrolyte by chance. And then telephone doctor or poison treating center.

●Extinguish the engine and switch off the power when disposing the battery.

●Take care not to make accidental short circuit with metal tools or other metal parts between the two electrodes (anode and cathode).

●Connect anode first when fixing the battery; take off the cathode first when unfixing it.

●Check its anode and cathode when unfixing and fixing the battery, then fasten the nut.

Refill distilled water when the battery liquid is close to the lowest liquid level. And the level

of distilled water should not surpass the highest liquid level.

•Wipe the battery surface with cloth instead of gasoline, thinner, organic solvent or detergent.

Screw down the lid.

•Don't charge or start engine with other energy resources if the electrolyte is frozen. Otherwise, the storage battery will catch fire.

•Check if the battery is leaking and thaw it before charging or starting engine with other energy resources.

•Take off the battery from the rack when charging.

Start engine with auxiliary battery line

Misoperation will cause fire when connecting the auxiliary line. Please obey the following instructions.

•Start the loader with another person (one sitting on the driver seat).

•Connect with another machine when using it to help with starting.

•Switch off power on both machines (the one with fault and the one without) when connecting the battery line.

•Connect with anode first when using battery line; unfix earth or cathode cables first when finishing using.

•The last earth connection is that the fault machine's engine connects with earth. And this operation will produce sparkles. Keep away from the battery at this time. When unfixing the auxiliary cable, avoid the connection pieces touch each other or touch with the machine.

Charging storage battery

Misoperation in charging will make the battery blast. Operation should be based on the instructions of how to dispose the storage battery and how to charge it.

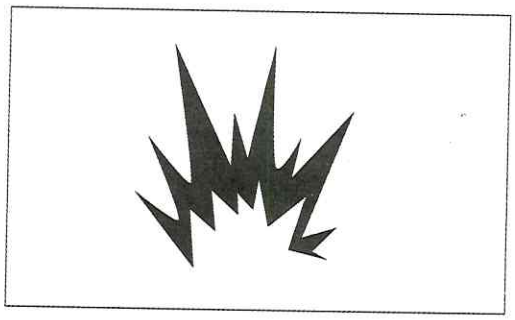
•Remove the lid to let out the hydrogen when charging it in drafty places. This will avoid blast.

•The voltage of the charger should be matched with that of the battery. Otherwise, it will cause the battery overheat and result in blast.

•Connect the anode of the charger with that of the battery and cathode with cathode. Fasten the connection on the both electrodes.

•When battery voltage is 1/10 lower than the rating value, adopt quick charging method by setting a value lower than the rating value.

•Overcharging will make the battery liquid leak or vaporize. And this will cause fire or blast.



2.5 dragging the machine

Casualty accident will happen if using unsuitable ropes or dragging in incorrect way. Please obey the following operation.

•Apply the method introduced in the manual only.

•Put on leather gloves when disposing the ropes.

•Make the signal meanings consistent when working with others to make dragging

preparations.

●Contact the authorized agent for repair when the fault machine cannot start or its brake system has fault.

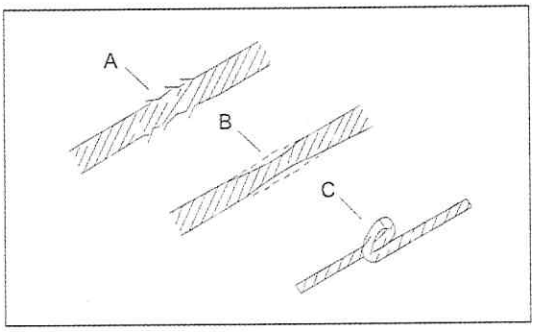
●It is dangerous to drag machine on slopes. Please try to choose a slight slope or adopt some measures to relieve the slope.

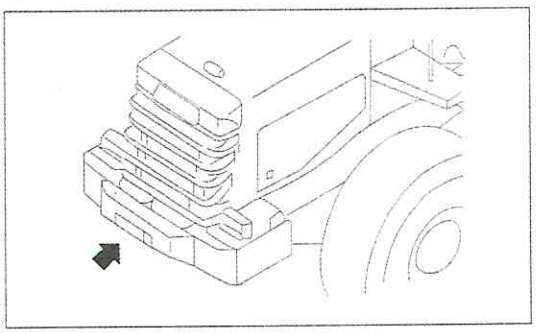
●The dragging rope used should be strong enough to support the weight of the fault machine when using another machine to drag it.

●Don't use crooked ropes with burr or uneven thickness to drag the machine.

●Make sure nobody is in the area between the tractor and the dragged machine when connecting with the dragged machine.

●The tractor and the dragged machine should be in one line.





3.Attentions of vehicle maintenance

3.1 Before maintenance

Fault Caution:

If the maintenance is not conducted according to the manual provided by the producer, accidents will occur. In this case, please contact with the relevant agencies for repair.

Caution signs

●If the engine or control rod is started when maintaining or refilling lubricant, , serious injuries will occur.

●Hang the Caution signs on the control rod, Caution that the machine is under maintenance. Hang the Caution signs on the loader all around if necessary.

Cleaning before the check and maintenance

●Before the check and maintenance, clean the machine to get rid of dirt, thus ensure the maintenance is conducted safely.

●If the machine is still very dirty when it is checked and maintained, it will be difficult to detect where the fault is, besides, the dirt will get into the eyes, resulting in the injuries of the maintainers.

●Follow these methods when cleaning.

—Put the shoes of special type to prevent slipping on the wet floor

— Put on the protective clothes when cleaning the machine with high-pressure water to prevent being injured by the spattered water or dirt.

— Don't splash the water on electric systems in case that the machines cannot be operated.

Keep the working place clean and neat.

•Don't litter sinkers or other tools on the ground of working place. Wipe off the lubricant and any other substance that can cause slip.

•Keep the working place clean and dry to ensure safe operation.

•If the working place is not clean or dry, slip may be caused.

If the maintenance work is done by a group of personnel, there should be a person in command of the work.

•When maintaining, dismantling or installing working equipments, there should be a person in command of the work, and his orders should be abided by.

•The misunderstanding among workers will result in serious accidents.

The water level of water tank

•When checking the level of water tank, extinguish engine and resume the check after the engine and water tank is cooled down. Check the water level of auxiliary water tank. Usually the lid of the water tank should not be taken off.

•If there's not auxiliary water tank, take off the lid of water tank and follow these instructions.

•Don't check the water level until the temperature of water tank drops. (Put your hand close to the engine and water tank to feel the air temperature around. Don't touch them directly with your hand.)

•Loosen the lid of water tank first to release the pressure inside it, then take it off slowly.

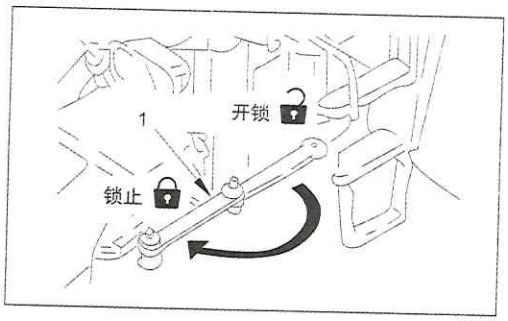
Extinguish the engine before checking and maintaining.

•Before maintaining, stop the machine on even road, where rocks will not fall off where it is too low to accumulate rainwater. Then lower the working equipment onto the ground and extinguish the engine.

•After extinguishing the engine, move the control rod up and down for several times to release the pressure.

•Place the brake switch at where it is to work, and lay trig under tyre.

•Lock the front and back rack with safety lockup



•Be careful when doing the maintenance work. Don't touch any part of machine in case of being locked.

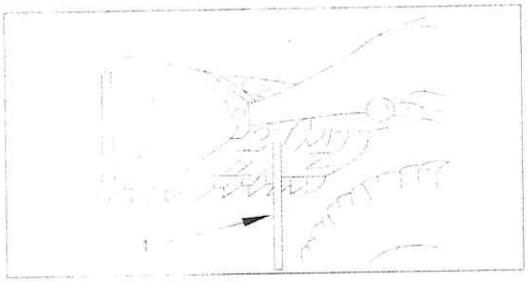
The prop of the working equipments

When lifting the bucket for check and maintenance, prop up kinetic arm with bracket to prevent the working equipments falling down.

Place the control rod of working equipments at neutral gear.

⚠ Warning

if there has a piece,you should use it to lock the control rob for safe





Use proper tools

Use tools suitable to the relevant work. Using any worn, improper tool of low quality will cause injury.

Replace the important safety parts regularly.

●Important parts such as tube and fuel system, hydraulic pressure system, brake system should be replaced regularly to ensure safety.

●The replacement of the important parts requires special technique, consult with the agencies for replacement.

●The parts should be replaced regularly no matter whether they are impaired.

●These parts will metamorphose after long time using, which will result in fire for the fault of working equipments or oil leaking.

●If any of the parts are impaired, replace it immediately even though it is not the time for the replacement.

The use of spotlight

●When checking the fuel, oil, or lotion for windows-cleansing, use the explosion proof lights.

●Working in the dark will easily cause injury, thus install proper spotlights.

●Don't use lighter or torch in the dark as the substitute of spotlight in case of fire. (Once some special gas is ignited, explosion will take place.)

●When using loading machine as the electrical source for lights, follow the instructions in the manual.

the prevention of fire

During the maintenance, fuel and gas in the storage battery may catch fire. Pay attention to the following Caution during maintenance.

●Put the containers of fuel, lubricant, grease and other tinder far away from fire.

●Clean the parts with the lotions that are not combustible. Don't use diesel oil or gasoline as lotions for they can cause fire.

●Don't smoke during the check or maintenance. Smoke at where it is allowed.

●When checking fuel, oil of hydraulic pressure, or gas in storage battery, use explosion proof lights instead of lighter or match.

●When burnishing or jointing, put all the tinder at safe place.

●There should be fire extinguisher where check or maintenance is to be done.

3.2 maintenance process

The responsibility of maintainers

Only authorized personnel can check or maintain machine. People who are not permitted cannot enter the maintenance place.

Take care when using sledgehammer to

burnish or joint.

Accessories

●Before installing or dismantling accessories, appoint a person take command.

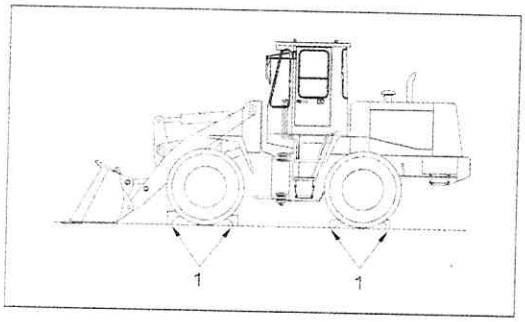
●Forbid anyone to approach machines or accessories except for the personnel responsible for the work.

●Put the disassembled accessories in a safe place in case that they are lost. Enclose the accessory equipments. Attach the "Staff Only" label to the enclosure to forbid personnel who are not permitted to enter

Working under the machine

●Before the maintenance under machine is started, put the machine on the solid and level ground and lower all the working equipments to the ground.

●Prop up the tyre with trig





●If propping up the tyre with some working equipment only, the maintenance under machine will be in danger.

●Don't work under the machine which is not propped up firmly.

Start the maintenance when the vehicle rack is lifted.

●Lock the front and back racks of vehicle after they are raised, fix the control rod at neutral gear, put the safety rod at lockup position, and prop up the working equipments and racks firmly.

●When lifting, prop up tyre in the opposite direction; lay the trig under the vehicle after lifting.

maintaining at the top of loading machine,

When maintaining at the top of loading machine, stand at the place free of barriers. Pay attention to the following Caution. Prevent falling down

●Prevent the lubricant and grease spattering out.

●Don't litter tools on the ground.

●Pay attention to your step when walking.

●Don't jump upon the machine or jump down from it. Descend and ascend with ladders or pedals, keeping the three parts of body in contact with the machine. (two feet and a hand or two hands and a foot)

●Use protective equipments when necessary

Do the maintenance work when the engine is running

For the safety of your body, don't do the maintenance work when the engine is operating. If necessary, there should be at least two workers doing it and follow these instructions.

●There should be one worker sitting on the

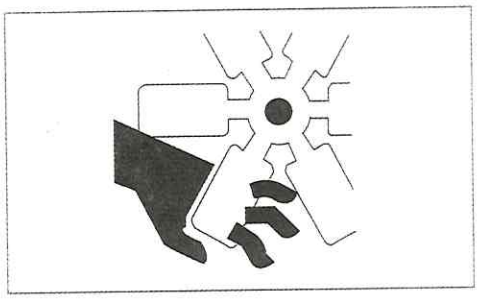
chair, ready for stopping the engine at any time. All the workers must keep contact with one another.

•Take care not to be hitched when working near the revolving parts.

•Switch on the brake when cleaning the inside of water tank.

•Don't touch any control rod. If necessary, signal to other workers to hide in safe place.

•Don't touch the vanes or straps of fan with tool or any part of your body, for it will result in serious injuries.



•Prevent any tool or accessory falling into the machine.

•When opening the checking window and oil tank to check, be careful that no

nut, bolt or any other tools fall into the machine. Once these parts fall into the machine, the machine will be damaged. Make sure to take out these parts as soon as they fall into the machine.

•When checking, don't keep unnecessary tools or fittings in the pocket.

Caution for the use of hammer

Put on guard glasses, safety helmet and exposure suit when striking the parts with hammer. Place a copper stick between the hammer and the object to be stroke. When striking the pegs, bearings or other solid parts, fragment stroke out may get into the eyes, which will result in injuries.

The work of jointing maintenance

The work of jointing should be done by a qualified welder at a place which is well equipped. During the process of jointing, some gas may give out, fire can be caught and electric shock may happen, thus personnel who are not permitted should not do the jointing work.

For the qualified welder, these instructions should be followed.

•Cut the electrode of the battery to prevent explosion.

•Remove the paint oil on the jointing parts to prevent gas giving out.

•If the system of hydraulic pressure, pipeline or things near them are heated, some combustible gas may give out, which will cause fire. Thus don't heat these parts.

•If high quality of heat is transmitted to the soft or hard pipes with high pressure, explosion will be caused. Thus cover them with fire-proofing plates.

•Wear exposure suit.

•Remove all the tinder away and ensure that there are fire extinguishers at working place.

Caution for the use of storage battery

When maintaining the electric equipments or doing electric welding, cut the battery cathode to nterdict the electric current.

When something unusual happens

•If something unusual is found during the checking, repair it immediately. Anything unusual of brake system or working

equipments will result in severe accidents.

•Ask agent to repair according to the fault types.

Refill fuel or lubricant

Fuel, lubricant, antifreeze, lotion are tinder, pay attention to the following points:

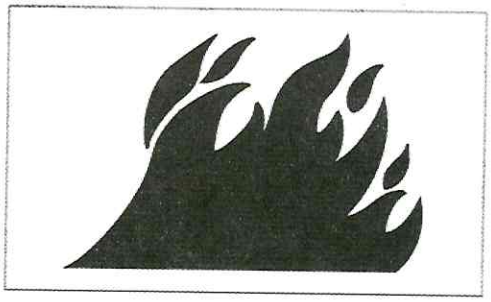
•Don't smoke.

•Wipe off the spilt fuel, lubricant, antifreeze or lotion immediately.

•Screw down the container lids of fuel, machine oil, antifreeze and lotion.

•Refill fuel, machine oil, antifreeze or lotion in drafty place.







Handling the high-pressure soft pipes

•Don't strike oil pipe with crooked high-pressure soft pipe or firm objects. Don't use crooked or creviced high-pressure pipe, soft or solid, in case of explosion.

•Repair the oil pipe that is loose or ruptured immediately for the oil leaked from it will cause fire.

Several attentions about the hydraulic oil

•Attention: the oil groove of the equipment is always in high-pressure state.

•Don't add oil, discharge oil, inspect and maintain before the inner pressure is released entirely.

•If the hydraulic oil spurts out of the ventage, the liquid may hurt the skin and eyes. So please put on protecting glasses and gloves, and check if there is any oil leaking with cardboard or wood board.

•If someone is hurt by hydraulic oil, go to the hospital immediately.

Attentions for maintenance in high-temperature and high-pressure state

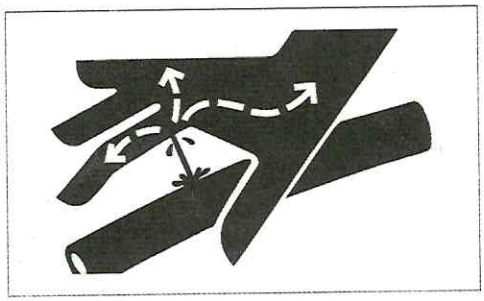
•Shortly after the machine stops, the coolant in motor and oil in each part is all in high-temperature and high-pressure state. In this condition, the following actions such as opening the tank cover and discharging water or oil, or replacing the sieving net, may cause burn or other hurts. First wait till the temperature of the oil or water declines, then check and maintain according to the procedures specified in the maintenance manual.

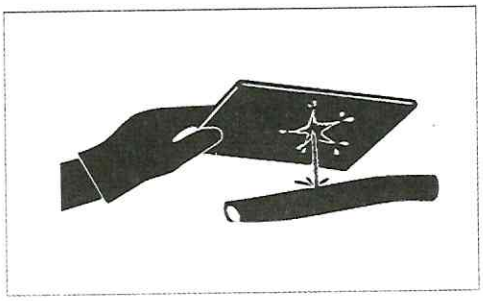
Clean the internal parts of the system and the refrigeration system, check the line of lubricant, and add oil -----refer to "3.5.2 Maintenance when necessary"

Check the line of coolant, lubricant and diesel oil, adding oil or water----refer to "3.5.3. Inspection before start-up."

Check the line of the hydraulic oil, and add oil-------- refer to "3.5.5.Every 100 hours' maintenance."

Change oil and replace purolator-----refer to "3.5.9 Every 2000 hours' maintenance."





Maintenance of the tyres

The disassembly.maintenance and installation of the tyres requires special apparatus and technology, so the tyres should be maintained in specialized maintenance shops.

Inspection after maintenance

Unless there is comprehensive inspection and maintenance, and all-around function check of each maintenance part, it may cause unexpected problems, even casualties, so pay attention to the following inspections:

●Inspection when the engine flameout

— — Have all the items which need inspection and maintenance been inspected and maintained?

— — Have all the items which need inspection and maintenance been completed correctly?

——Is there any tool fell into the machine? It is very dangerous if these tools lock the control rod.

——Have all the parts which leak water or oil been restored?

● Inspection for engines in operation

— — Inspection for engines in operation-------- refers to "The universal safety rules——3.2 Maintenance process ----maintain when the engine is running " and pay special attention to safety.

— — Have all maintenance parts been running normally?

— — Is there any oil leaking when increasing the speed of the motor or raising hydraulic pressures?

Disposal of the scraps

●Never pour down the waste oil into sewers or rivers.

●Pipe the waste oil into containers; never pipe them to ground directly.

●The disposal of injurant such as oil, fuel, coolant, impregnant, the core of the filter and accumulator, etc, should abide by relevant laws and rules.

3.3 Tyre

The disposal of the tyres

If the tyre and rim of the wheel are not properly disposed, the tyre may explode and the rim may break into pieces.

For sake of safety, pay attention to the following things:

●The disassembly.maintenance of the tyres require special apparatus and technology, so the above activities should be operated by professionals at specialized shops.

●Use specified tyre and charge to specified pressure.

●As for proper pressure, please refer to "2.4.18. The disposal of the tyres."

●On the inflation tube, there should be a pipe clip which can be fixed to the valve when charging, and no one is allowed to enter the working place.

●Check the air pressure of the tyre continually when charging, so as to avoid the pressure becoming too high.

●If the rim of the wheel is not properly fixed, the rim may explode when charging. For the sake of safety, a guard rail should be set around the work place for charging. And when charging, staff should stand by the side of tyre figure, other than the flank of the tyre.

●The abnormity of the speed decline of the pressure in the tyre or abnormity of the rim are symptoms of problems of the tyre and rim. In this condition, maintenance by the professionals of the specialized station is needed.

●Adjust the pressure of the tyre after high speed steering or heavy work.

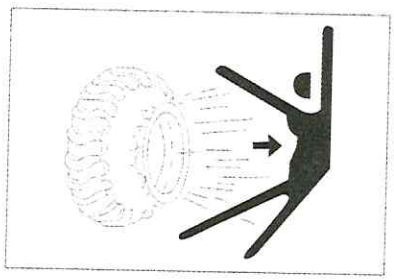
●Don't heat or weld the rim installed on the tyre. Don't put the tyre near the fire.

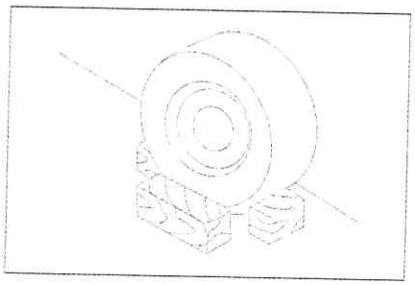
Storage of the tyre

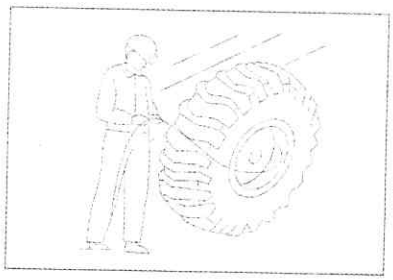
●Generally, tyre should be stored in the storehouse; other persons are forbidden to enter the place without permission.

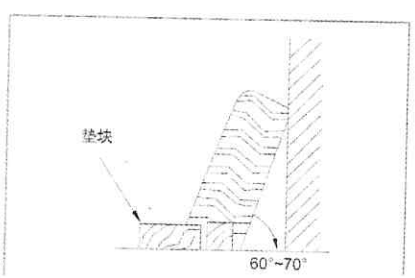
If the tyres have to be stored outdoors, set barriers around the tyres and notify "no entrance"

●Tyres should be placed upright, and supported with the wood block around, so as to avoid the tyres rolling and tumbling. Laying flat makes the tyres become plane, and decrease the quality of them. If the tyre falls down, stand aside as soon as possible, because the tyre used in engineering and machine is very heavy, the attempt to buttress usually causes serious hurt.









4. Safety signs

（1）The scutcheon of radiator



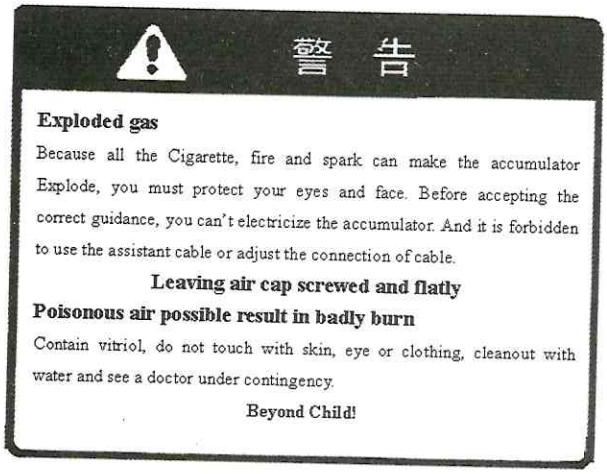
2）The scutcheon of water tank



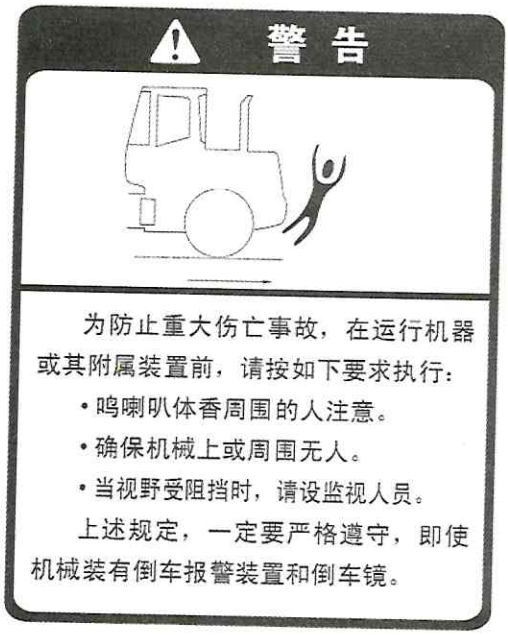
3）The scutcheon of work oil tank



4）The scutcheon of accumulator

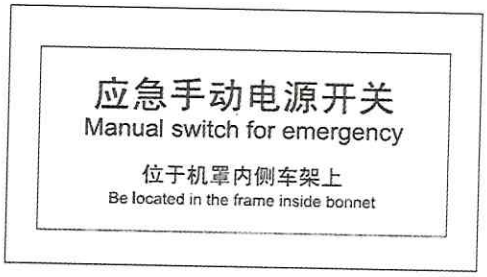


5）The scutcheon of reverse



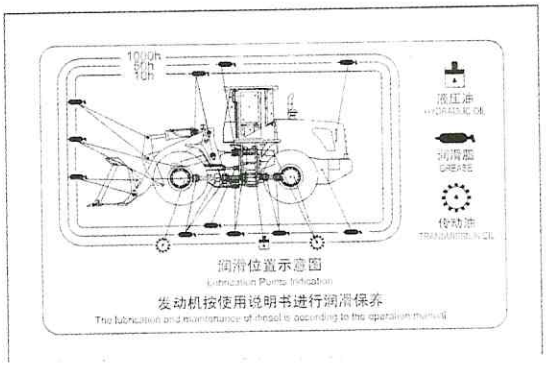
6）The scutcheon of emergency power source switch

In special cases,when you must cut off the power switch, you may open the door of the engin hood(or the battery box cover), cut off the power switch.

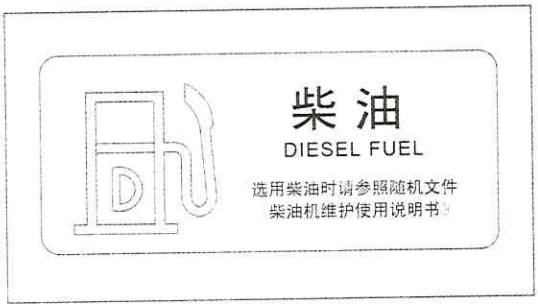


7）The scutcheon of the lubricting position

this scutcheon show lubricting position,maintenance time and lubricating oil types, be sure to follow.



8）The scutcheon of fuel oil



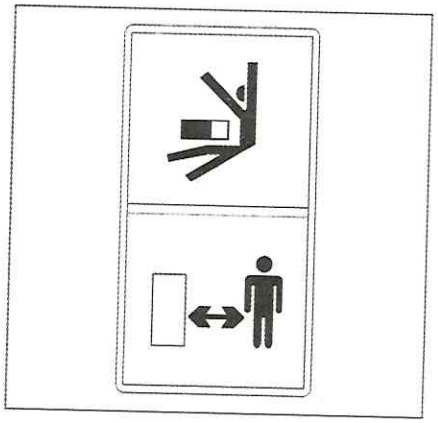
9）The scutcheon of hydraulic fluid



10）The scutcheon of avoiding risk

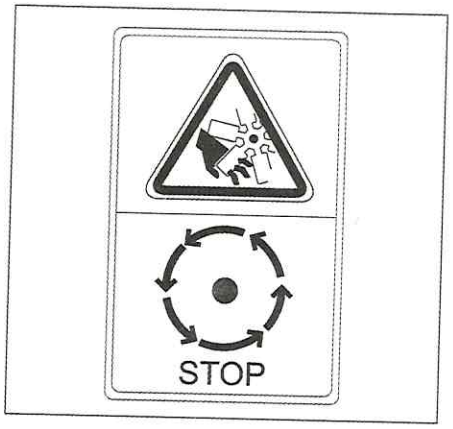


11) The scutcheon of away from the machine

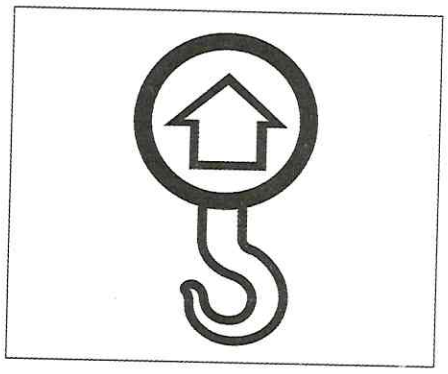


13) The scutcheon of being cut

When the fan of the engin is rotating, in order to avoid danger, you don't approach it to maintain ,

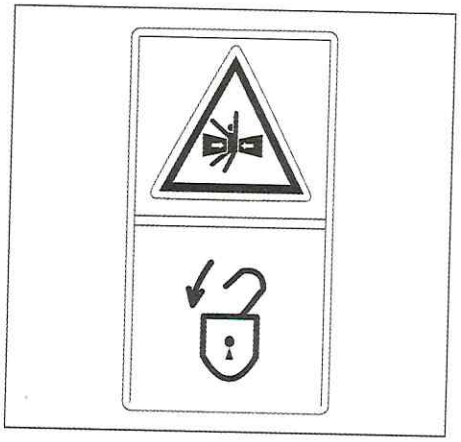


14) The lifting point identification



15) The scutcheon of locking device

During transportation, Lock the front and back rack with safety lockup



Chapter One Introduction and the Performance Parameters of the Loader

1.1 Brief Introduction

1.1.1 Prescribed use of the machine

wheel loader is generally used in the following tasks:

(1) Tasks of excavating

(2) Tasks of leveling ground

(3) Tasks of clearing and grading land

(4) Tasks of loading

For specific process, refer to "2.4.10 the use of loader"

1.1.2 Characters of the loader

(1) The whole machine adopts optimized design with computers, with advanced pe rformance
and beautiful outlines.

(2) For the use of flexible carriage in the middle, it is flexible and agility, and takes smaller room when it turns around, and convenient to work in narrow field.

(3) The adoption of hydraulic and mechanic drive makes it available for the loader to change gears according to resistance. Thus it makes full use of the power of the machine, increases the flexibility of the whole machine, predigests the operation of the loader, and protects the driving components and engine.

(4) The adoption of hydraulic pressure in turning around, dynamic gear change, and hydraulic
operation in devices, makes the machine agility and stable.

(5) It adopts foot brake system, air stake and urgency brake system, and it has safe and reliable brake performance.

(6) The no-bar cab, with advanced structure, good pressurized and shock absorption performance, wide visual field, and is available to install air condition system and warm breeze system, is very comfortable for the driver.

(7) It adopts cross-country tyre with low pressure, broad base, and swinging back axle shaft, and has excellent cross-country and tracking performance.

(8) Perfect protection system can prevent mud spattering to the body.

1.1.3 Running-in of the new loader

The loader has been checked and tested comprehensively before leaving factory. But if it works in the abominable surroundings at the beginning, it will shorten life of machine

obviously.

The first 100 hours use of the new loader should be running-in time. In the process of:

(1) Empty loader for test-running (8 hours)

1) After getting the machine started, first run five minutes at lower speed, and then gradually increase to the maximal speed and run for ten minutes.

2) Manipulate the work devices, let the movable arm go up and down, lean and draw in the bucket, totally for about 15 minutes.

3) The running of empty loader, both forward and backward should be done from lower speed to higher speed gradually. During the process, the turning and braking should be done steadily.

After 8 hours of test running, do the following work:

The state of bolts and nuts of all parts, especially bolts of cylinder covers, bolts of discharging pipes, set bolts of front and back axle shafts, the nuts of the rim of wheel, joint bolts of transmission shafts and set bolts of steering wheel should be checked comprehensively.

- Clean the lubricant filter and the core of fuel oil filter.
- Check tightness of fan straps
- Check the specific weight of electrolyte in accumulator, screw down the bolts of accumulator cable; check the power supply of the engine, lighting and direction signal
- Check the oil amount in gear box. When the engine runs at idle speed, the oil level should be in the center of oil scale.
- Check the tightness of hydraulic system and brake system.
- Check the connection and fixation of each control arm and throttling components
- Check the air condition system and warm braw system

（2）Test running (24 hours)

Test running should be done according to the process in 'operation', and loading should be added gradually.

（3）In the process of test running, pay attention to the following things:

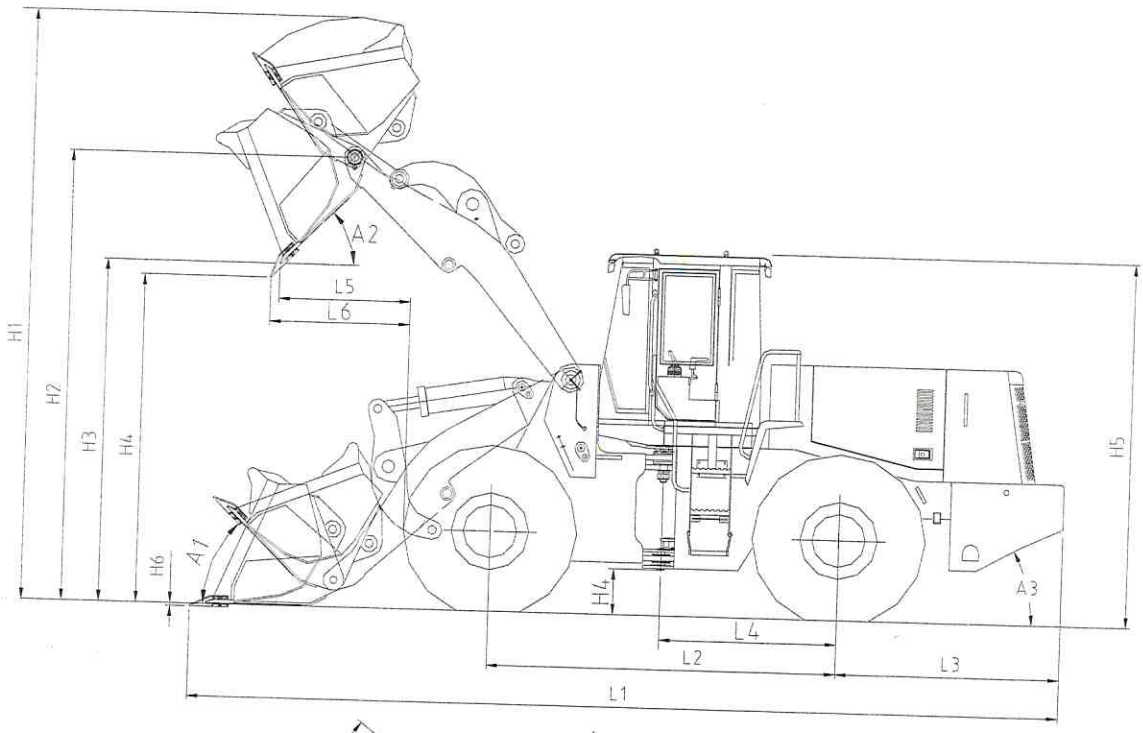
- Are the bolts and nuts in connection parts loosing?
- Is there abnormal noise in each rotating parts?
- s the numerical reading of the instrument board normal?
- Is there any oil, water or gas leaking in each system?
- Is the turning and brake flexible and trouble-free?
- Is the performance of the devices normal?
- Except for urgency, avoid starting up, turning and brake suddenly.
- Pay attention to the lubrication of the loader, change or add lubrication or grease in specified period.

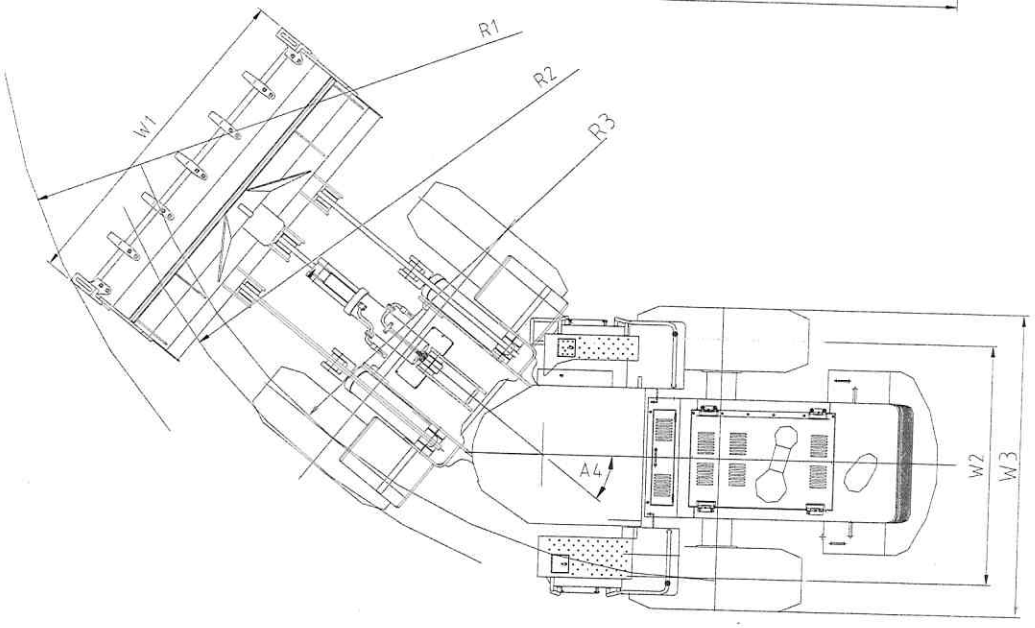
- Check the temperature of gear box, torque converter, front and back axle shafts, Wheel hub and brake, brake drum. If the temperature is too high, users should find out the reasons and eliminate them.
- Avoid overloading in high temperature

(4) In the running-in process of a new loader, users should do the following work:

- Check and tighten the blots of each connection part.
- Clean filter screen and oil tank in hydraulic system of transmission, turning and working devices, and change new oil.
- Change lubricant for the engine.

All the matters need attention concerning running, maintenance and safety processes in this manual are only applicable for the operation of specified use. If users exceed the specified scope, the manufacturer does not take safety responsibilities.


H1
H2
H3
H4
H6
A1
A2
L5
L6
H5
H4
A3
L4
L2
L3
L1


R1
R2
R3
W1
A4
W2
W3

1.2 Performance parameters of the loader (one)

	Technical parameter			Values			
				SL50w	SL50w-2	SL50w-3	SL50w-5
L1	Overall length		Standard arm	7995			
			Long arm	8110			
			Longer arm	8490			
W3	Width of the outside of the tyre, (mm)			2845			
W1	bucket width (mm)			3026			
H5	Height of the machine (mm)			3410			
L2	Distance between axes (mm)			3250			3200
W2	Distance between wheels (mm)			2250			
H2	Height to hinge pin ,fully raised		Standard arm	4190			
			Long arm	4360			
			Longer arm	4650			
H4	ground clearance (mm)			430			
	Given loading capacity (kg)			5000			
	Given bucket capacity (m^3)			3			
	Operating mass (kg)		Standard arm	16650			
			Long arm	16650			
			Longer arm	17800			
	Velocity of each gear (Km/h)	Go forward	First gear	0～13		0~7	0～8
			Second gear	0～38		0~12	0～15
			Third gear			0~25	0～24
			Fourth gear			0~35	0～38
		Go backward	First gear	0～17		0~7	0～8
			Second gear			0~12	0～15
			Third gear			0~25	0～24
			Fourth gear				0～38

No	Technical parameter		Values			
			SL50w	SL50w-2	SL50w-3	SL50w-5
	Maximal traction (t)		16			16.2
	Breakout force (kN)		185			
A3	Maximal climbing capacity		30°			
H3	dump height (mm)	Standard arm	3195			
		Long arm	3370			
		Longer arm	3700			
L5	reach fully raised (mm)	Standard arm	1155			
		Long arm	1115			
		Longer arm	1175			
A2	dump angle		45°			
A1	Maximum rollback at ground		45°			
	Automatic lying down function of the bucket		have			
	digging depth (mm)		45			
	Raising time (s)		6			
	The Sum of three action's Time (s)		10.5			11.6
	turning radius		6290			6195
	Minimum turning radius with bucket in carry position		7210			7130
	Turning angle of the body		±35°			
	Swinging angle of back axle shaft		±12°			
	torque converter		4WY315			YJ375
	Style of gear box		planetary type		WG180	fixed-spindle
	Bridge type		Double deceleration type			

Performance parameters of the loader (two)

No	Technical parameter			Values	
				SL50WA	SL50WN
L1	Overall length		Standard arm	7700	8005
			Long arm	7976	8135
			Longer arm	8216	8450
W3	Width of the outside of the tyre, (mm)			2845	
W1	bucket width (mm)			3026	3026
H5	Height of the machine (mm)			3500	3410
L2	Distance between axes (mm)			2920	3250
W2	Distance between wheels (mm)			2250	2250
H2	Height to hinge pin ,fully raised		Standard arm	4065	4185
			Long arm	4380	4320
			Longer arm	4575	4650
H4	ground clearance (mm)			525	430
	Given loading capacity (kg)			5000	5000
	Given bucket capacity (m^3)			3.0	3.0
	Operating mass (kg)			16450	17100
				16500	17180
				16600	17900
	Velocity of each gear (Km/h)	Go forward	First gear	0~13	0~13
			Second gear	0~38	0~38
		Go backward	First gear	0~17	0~17
	Maximal traction (t)			15	16
A3	Maximal climbing capacity			30°	30°
H3	dump height (mm)		Standard arm	3050	3200
			Long arm	3417	3450
			Longer arm	3600	3700

No	Technical parameter		Values	
			SL50WA	SL50WN
L5	reach fully raised (mm)	Standard arm	1148	1230
		Long arm	1050	1200
		Longer arm	1120	1270
A2	dump angle		45°	45°
A1	Maximum rollback at ground		45°	45°
	Automatic lying down function of the bucket		have	
	Breakout force (kN)		155	185
	digging depth (mm)		44	40
	Raising time (s)		5.7	5.6
	The Sum of three action's Time (s)		10.2	10.6
	turning radius		5905	6290
	Minimum turning radius with bucket in carry position		6970	7090
	Turning angle of the body		±35°	±35°
	Swinging angle of back axle shaft		±12°	±12°
	Style of gear box		BYD2115-3	planetary type
	Bridge type		Double deceleration type	

1.3 engine parameter

Loader type	SL50W SL50W-2 SL50W-3	SL50W-5	SL50WA	SL50WN
Type	WD10G220E23 SC11CB220G2B1 6CT A 8.3-C215	WD10G220GE22	WD10G220E23	WD10G220E23 SC11CB220G2B1 6CT A 8.3-C215
Style	straight hydrocooling four-stroke			
Rate dpower (KW)	162 162 160	162	162	162 162 160
Rated speed (r/min)	2000 2200 2200	2100	2000	2000 2200 2200
maximum torque (N.m)	900 843 908	920	890	900 843 908
minimum specific fuel consumption (g/Kw.h)	215 230 202	215	215	215 230 202
gas displacement (L)	9.73 10.45 8.3	9.73	9.73	9.73 10.45 8.3
weight(kg)	1000 960 617	1000	1000	1000 960 617

Chapter Two Operation Specification

2.1 The outline diagram of the loader

Directions of left, right, front and back accord with the diagram.

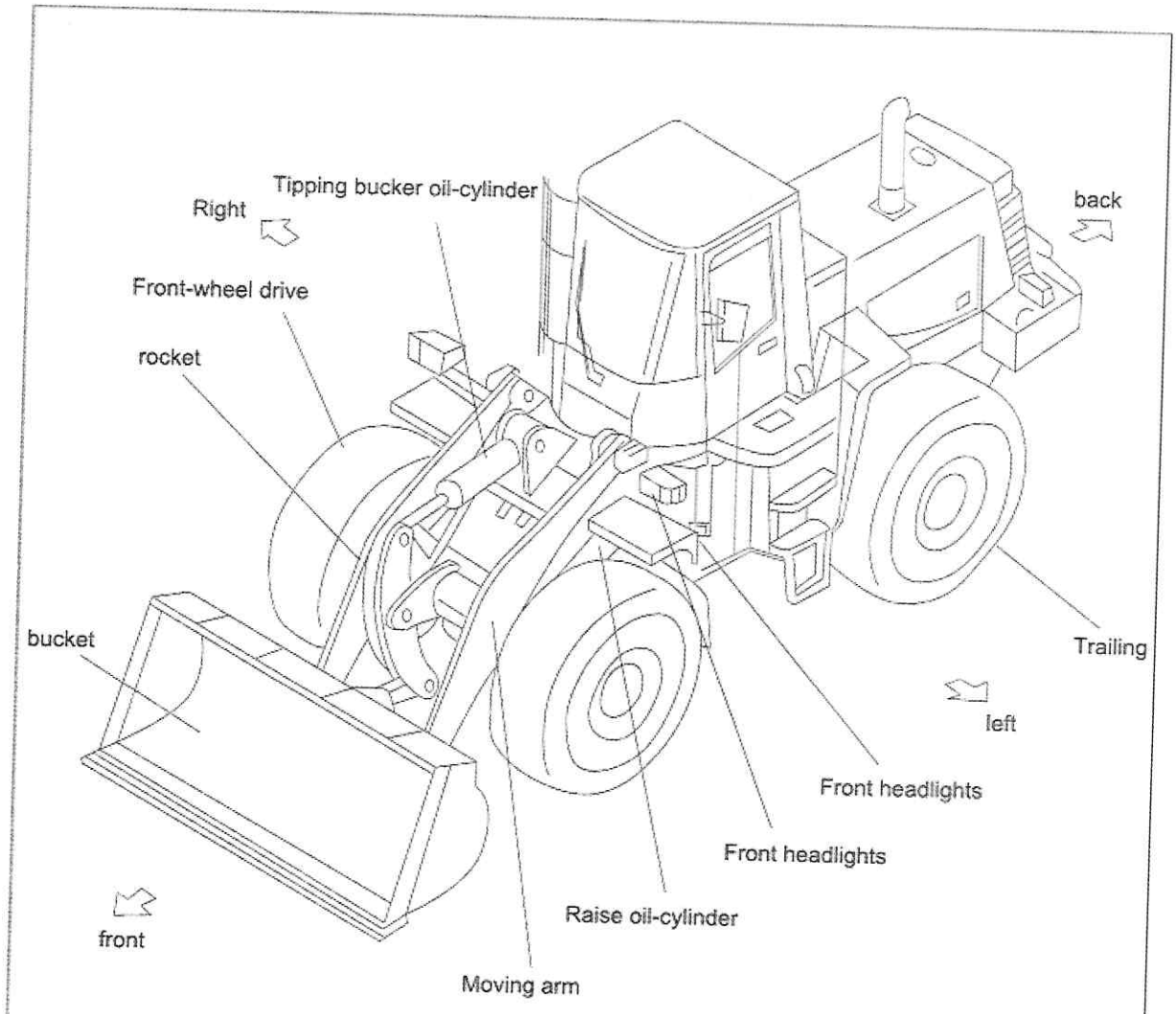


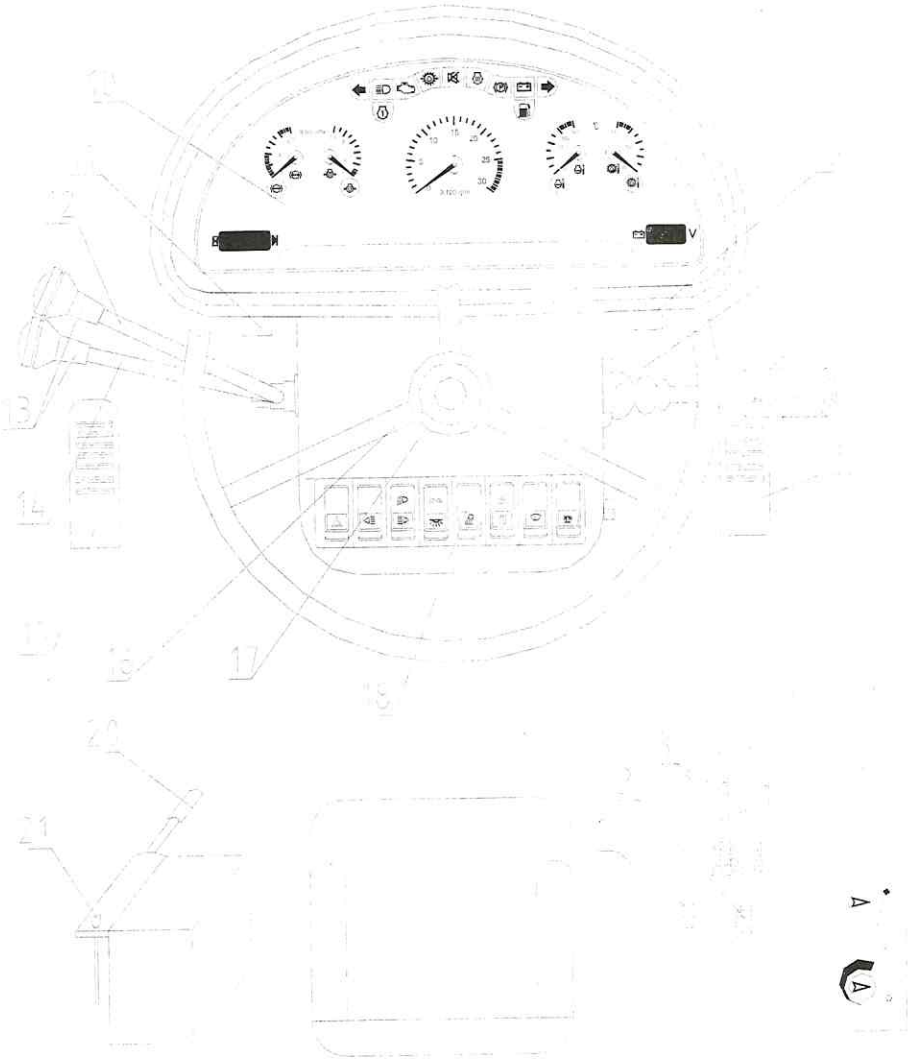
Diagram 2.1

2.2 The operation framework and the instruments

2.2.1 diagram of the operational handle and meters

All the operational handle and meters are installed in the cab, the loader is different, the operational handle and meters are different, its position are also . The motion and function of all switches, meters, lights and Control lever are under depiction .

Directions of front, back, left and right accord with drawing.



No	Name	motion and function	notes
1	Handle for Brake	Pull the handle, the loader is braken. When the air pressure of the system is lower than 0.35mpa, the handle springs up, and the brake begins to work automatically.	Apply to parking braking
2	Control lever for high and low speed	Push the lever, it is high speed; pull the lever, it is low speed; and the position between them are free positions.	Apply to SL50W-5 loader
3	Control lever for movable arm and bucket	Pull the lever, the arm rises; push the lever, the arm declines; push further, the arm fluctuates; Pull inside, the bucket draws in; push outside , the bucket unload	you may choose the monolever or two levers
4	Control lever for pivoted-bucket	Push the lever, the bucket leans and turns; pull the lever, the bucket draws in; and at the positions between them, the bucket keeps still.	
5	Moving arm lever	Pull the lever, the arm rises; push the lever, the arm declines; push further, the arm fluctuates, and the middle positions are free positions, which lock the moving arm.	
6	Accelerator pedal	Control the oil supply of the motor.	
7	Turn signal switch	Push the lever, right Turn signal flicker ,pull it ,left. Turn signal flicker.	
8	Disaster box of six pipes	Protect the electro-devices, and prevent the burning of circuitry.	If the fuse is burnt, find out the reasons, and never replace with copper wire.
9	Switch of electric switch lock	Insert the key,clockwise rotation, that is pluging in, starting the engine in turn; contrarotate, preheating the engine, but going out for the SC11CB220G2B1 engine.	①SL50WA doesn't go out; ②preheating also Applys the 6CT A 8.3-C215 engine
10	instrument board	It checks a lot of data	
11	ready outlet	It applys power to illume in maintenance	

No	Name	motion and function	notes
12	Control lever for going forward or falling back	Push the lever,the loader goes forward; pull it , the loader goes back. And. middle positions are free positions.	Apply to the SL50W-5 loader
13	Control lever for changing speed.	Push the lever, it is the first and second speed; pull, it can go back. And. middle positions are free positions.	Apply to flexible shaft control
	electric control Speed lever	Push the lever,the loader goes forward; pull it , the loader goes back; turn it inverted hour, that is the first , second third and fourth speed in turn , but reverse gear has three velocities.	details as 2.2.2 section
14	Speed Control lever	Push the lever, it is the first speed; pull, it is second speed	Apply to the SL50W-5 loader
15	Brake pedal	Step on the pedal, it brakes, and the indicator light turns on.	
16	Steering wheel	Control the moving directions of the loader.	
17	Button for horn	Control the horn.	
18	switchgroup	It controls many device to work.	
19	air condition control panel	It controls air volume and refrigerating output	
20	Control handle for flameout	Pull the handle, the engine stops working.	Apply to the SL50WA loader
21	Manual brake	Pull the handle, the brake, the brake is working	Apply to the SL50WA loader

2.2.2 electric control Speed lever



Before starting vehicle engine, put the handle of gear slector at neutral 'N' position, or the engine cannot be stared. If it is the first time to operate the selector after being electrified, the handle should also be put at neutral position first and then moved to required gear, or not ,the computer will have no signal output.

a) push or pull handle horizontally to change moving direction , including F(forward), N(nectral)and R(reversal);rotate the handle to change gears,anti-clockwise for gearing-up and clockwise for gearing-up and clockwise for gearing down,the operation force needs not too big. Numbers 1,2,3 and 4 on the handle indicate positions for four gears, among which gear 1 is slowest and 4 fastest.

b) This controller has the function of foreed gear-down :when selector is at gear 2 in forward or backward, press the handle forward once, the gear will be change to 1,at the same time light HI will flash. The function is invalid in other gears other than 2. It can be relieved by taking any of following measures:(1) press the handle again;(2)tum the handle to change gear; (3)take reversal operation; (4)change to neutral.

c) During the vehicle running at gear 1 or 2, in case of foot braking and emergent braking, signals output from ECU are identical to that of corresponding neutral position. Releasing the braking switch, original gear will be back to immediately . however , if in gear 3 or 4 , raking in invalid.

d) When the vehicle paking, put the handle of gear selector an neutral 'N' position.

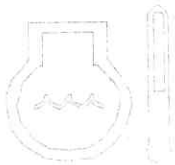
e) If alarm occurs during vehicle running (the vehicle does not run; light H2 flashes and ECU ticks), shift the handle to neutral (N), if the alarm is eliminated , continue to normal operate; if not, it means there are troubles in wiring. Cut off power supply and check thoroughly. Reconnect power after removing the troubles.

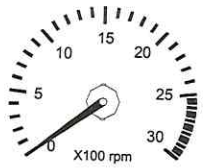
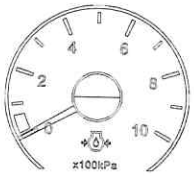
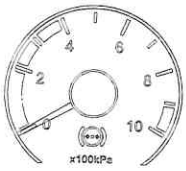
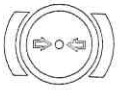
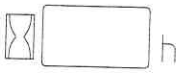
2.2.3 the introduction of the meter and indicator light

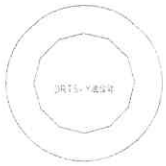
the loader is different, the indicator light and meters are different, its position are also .

the new combined instrument board has two-stage alarm, the first-level alarm, include water temperature, torque converter oil temperature, shift gears pressure, voltage, if relevant meter's hand points to red sector, the meter's alarm lamp is bright . secondary alarm, include engine oil pressure, air pressure, if relevant meter's hand points to red sector, the meter's alarm lamp is bright and buzzer makes a noise.

mark	name	function
V 	voltmeter	Indicate voltage of the battery

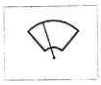
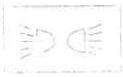
	alarm lamp of the torque converter oil temperature	When the temperature exceeds 120℃, the lamp is bright
	Oil temperature gauge of torque converter	Indicate oil temperature of torque converter, When in ordinary state, the temperature is between 80℃ to 100℃; and the maximal temperature should not exceed 120℃.
	Water temperature alarm lamp	When the temperature exceeds 100℃, the lamp is bright
	Water temperature gauge of engine	Indicate the temperature of water in the engine. When in ordinary state, the temperature is between 75℃ to 95℃; and when it exceeds 100℃, stop the loader.
	fuel alarm lamp	useless
	Indicator light for turning right	When the light is on, it means to turn right.
	Indicator light for electrification	When the light is on, the battery is charged by the generator. If the light goes out, it means that the battery is full
	Indicator light for stopping brake	When the light is on, the loader is parking.
	Indicator light for preheating the engine	When the light is on, the engine is being preheated. It Applys the 6CT A 8.3-C215 engine
	Indicator light for loudspeaker mute	When the light is on,. Alertors don't send out sound

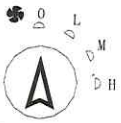
	engine speed indicator	It indicats speed of the engine
	gear-box oil pressure Indicator light	When gear-box oil pressure is under 0.04Mpa，the light is on。
	Fault alarm light	When some sensors get out of order, the light flickers。
	Indicator light of front headlights	It is on when the front headlights are on
	Indicator light for turning left	When the light is on, it means to turn left.
	engine Fault alarm light	It doesn't work
	Engine oil pressure indicator	It displays Engine oil pressure
	Engine oil pressure indicator light	When gear-box oil pressure is under 0.07Mpa，the light is on。
	Barometer	Indicate the brake system to store air pressure.
	Air pressure indicator light	When air pressure is under 0.4Mpa，the light is on。
	Man-haur list	Indicate the working hours of the machine.

	DRTS-Y level gauge	It indicates liquid natural gas level Apply to the SL50W-LNG loader
	Fuel gauge	It indicates fuel level Apply to the SL50WN loader

2. 2. 4 the introduction of the electric switch

the loader is different, the electric combination switches are different, its position are also .

符 号	名 称	功 能	备 注
	caution light Switch	It contorls the caution light on the cab	Select and load
	Switch of the windscreen wiper	It contorls the windscreen wiper 。	
	Switch of the fan	It contorls power source of the fan	
	Switch of the warm braw or air conditioning	It contorls thre warm braw or the air conditioning	
	work light Switch	It contorls work light	
	Clearance lamp switch	It contorls Clearance lamp	
	overhead light Switch	knob down the swith, the overhead light is on	
	dipped headlight Switch	It contorls headlight's short-distance beam	
	Switch of the frontal high beam	It contorls headlight's far beam	
	Switch of the back high beam	It contorls tail lamp's far beam.	

	danger alarm Switch	knob down the swith, the turn lights , Indicator turnning light and flash apparatus are on together	
	Switch of the air conditioning's air volume	Turn it clockwise, air volume augments in turn	Select and load
	Switch of the air conditioning's refrigerating output	Turn it clockwise, refrigerating output augments in turn	Select and load
	loudspeaker mute switch	Engine oil pressure is low before the Engine is started, the buzzer sounds, knob down this swith, the buzzer does not sound.	

⚠ Caution

1. **cut off the battery main switch**

when the loader is parked for three days, you shoud cut off the battery main switch in the cell box(or nearside of the engine)to avoid creepage.

2. **cut off the switch for circling hot water**

after it is getting warmmer ,you shoud cut off the switch for circling hot water near the engine towards the heater unit.

2.3 Operation

2.3.1 Check before starting up the engine

1. Patrol inspections

Warning

The oil leakage or pileup of combustible materials around high temperature components (such as muffle or turbocharger) is likely to cause a fire. So check carefully, and if there is anything abnormal, repair it or connect the agents or dealers immediately.

Before starting up the engine, check whether there are loose bolts, oil leakage or water leakage around or under the loader; check the working condition of the devices and hydraulic system..

Check whether circuitry looses or there is clearance among them, and whether dust piles up around high temperature areas.

Before everyday startup,according to under figure check the following items:

（1）Check whether there is damage or clearance of the working devices, oil cylinder, connection rod and tube.

Check whether there is crack, over abrasion or clearance of the working devices, oil cylinder, connection rod and tube. If any part is abnormal, repair it immediately.

（2） Dust the engine, battery cell and radiator.

Check whether there is dust pileup around the engine and radiator. Check whether there are combustible materials (such as leaves and branches, etc.) around the battery cell, engine, and high temperature components (such as muffle of the engine or turbocharger), dust them or remove the combustible materials.

（3）Check whether there is water leakage or oil leakage around the engine.

Check whether engine leaks oil, and whether cooling system leaks water. If there is anything abnormal, repair it immediately.

（4） Check whether there is oil leakage in gear-box, hydraulic oil tank, tube and junction.

（5） Check whether there is oil leakage. If there is anything abnormal, repair it immediately.

Check whether the brake pipeline leaks oil or gas.

Check whether there is oil leakage. If there is anything abnormal, repair it immediately.

（6） Check whether the tyre is abraded or damaged, and whether the assembly bolts are loose.

Check whether there are cracks, nicks or abrasions of the tyre. Tighten the loose nuts. If there is anything abnormal, repair it immediately.

If the bonnet is lost, change another one immediately.

（7） Check whether the ladder and pedal are damaged, whether the bolts are loose.

Check the damaged parts, and tighten the nuts.

（8） Check whether the meter is damaged, whether the bolts are loose.

Check whether the meters and monitors in the cab are damaged. If there is anything abnormal, change the components, and clean the surface.

（9） Check whether the assembly bolts of the filter are loose.

Check whether the bolts are loose, tighten them if necessary.

（10）Check loose polar plate of the battery cell.

Tighten the loose polar plate.

（11）Check the seat belt and establishment (such as complements)

⚠ Caution

Even all the things run right, the seat belt should be replaced every three years.

Remarks:

The position of the manufacture date of the safety bolt refers to the arrowhead in the right drawing.

Check the assembly bolts of the safety belts, tighten them when necessary.

If there is damage or corrugation on the safety belt, or the bracket of safety belt is damaged, or the belt distorts, change a new one.

（12）Check the bolts of dumping protector (such as complements)

Check whether the bolts are loose or damaged; when they are loose, tighten them.If the bolts are damaged, change immediately.

（13）Clean out the glasses

Clean out the glasses to keep a good visibility.

（14）Inspection of the tyre

⚠ Warning

The use of abraded or damaged tyre may cause sudden explosion, even great casualties. For sake of safety, never use the following tyre:

Abrasion

- The slot of veins is 15% lower than the original veins slot.
- The abrasion is greatly asymmetry, or the abrasion is staged.
- Damaged
- The damage reaches the intertexture layer, or that layer breaks.
- The intertexture layer is cut off or pulled out.
- The surface layer is breakaway.
- The flange is damaged.
- No inner tube, leakage of the tube or incorrect repair.
- Deterioration, distortion and abnormal damage

（15）Check the rim of the wheel

Warning

- Check whether the rim of the wheel and the ring of the lock distort, erode or crack..
- Check the outside of flange, the ring of the lock and flange of the wheel rim.

2 .Inspection before start-up

Before start-up every day, finish checking the following items.

(1) Check of gauge panel

1) Insert the key, rotate clockwise to turn on power supply.

2) The switch of ammeter finger on the gauge panel indicates that the power supply is turned on. Meanwhile check whether the meters, switches and lights are in good state.

3) Press the horn button, and check the electricity amount according to the voice of the horn. The start-up checking concludes inspections of the gauge panel, as well as routine maintenance items.

(2) Check the line of coolant, and add cooling water.

Warning

Never open the cover of the water tank immediately, wait till the engine cools down, and then check the water line.

1) Open the water tank in back of the loader to check the water level, if the level is too low, add water.

2) After adding water, screw down the tank cover.

3) If there is no water in the tank, check whether it leaks, and then add water.

(3) Check the level of fuel, and add fuel.

Warning

When adding fuel, avoid overflowing and prevent fires. If the fuel is spilled, rub-up utterly.

1) After the flameout of the engine, open the right door of the engine cover, and observe the oil level through the oil level indicator.

2) Top up the oil tank through the mouth of oil adding.

3) After adding oil, screw down the tank cover.

(4) Check the oil line in the engine, and add oil.

1) Open the side door of the engine and check the position of oil staff gauge.

2) Take out the oil staff gauge, and run-up the oil with cloth.

3) Insert the oil staff gauge into the oil-adding pipe completely, and then take out.

4) The oil line on the oil staff gauge should be between the superscript and subscript.

5) If the oil position is above the superscript, discharge extra oil from plug screw. And if the oil level is under the subscript, add oil through the refill opening.

6) If the oil position is all right, screw down the cover of the dipstick.

7) Close the side door of the engine.

Caution

- Fifteen minutes after the flameout of the engine, check the oil line.
- If the loader body is not balanced, first balance it.

(5) Check the circuitry of electric appliance.

Warning

- If the fuse blows frequently, or there is short circuit, find the reasons and repair them.
- The pileup of combustibles around the battery cell is likely to cause a fire, thus remove the combustibles frequently.
- Keep the top of the battery cell clean, check the breathing hole on the battery cover. And if it is chocked by dusts, clean them.

Check whether any fuse blows in the circuitry, whether the capacitance of the fuse is correct, whether there is short circuit, and whether the post head is loose.

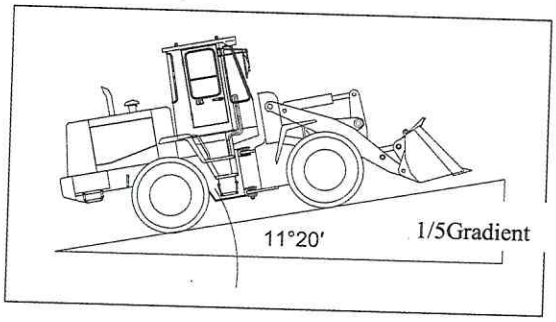
Check the circuitry of the battery cell, engine and alternator carefully.

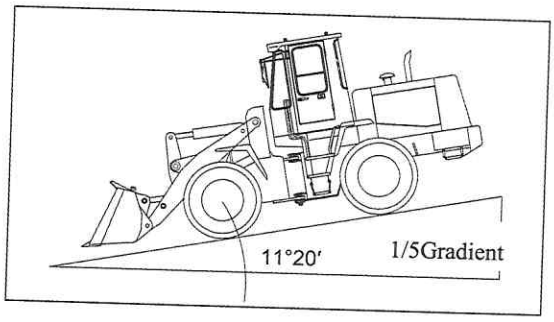
Before the patrol inspection or the startup of the engine, check whether there are combustibles around the battery cell and remove the combustibles.

(6) Check the brake performance of shutdown valve.

Conditions for measurement

- Inflation pressure of the tyre: rated pressure
- Road surface: dry and paving, gradient of 1/5（11°20′）
- Vehicles: working conditions





Measurement techniques

1) Start up the engine, steer forward, and climb gradient of 1/5 with no-load.

2) Step on the brake pedal, stop the machine, when reversing rod returns to mid position, stop the engine.

3) Pull the brake switch to decelerating position, release the brake pedal slowly, and check whether the loader remains at the position.

(7) Check the brake performance

Steer the loader on the dry and paving road at the speed of 20km/h, check whether the braking length is less than 9 m.

(8) Check the horn and back-up alarm

Check the lights and whether there is dust or damage.

(9) Check the color and voice of the exhaust.

(10) Check the operation of the meters

(11) Check the turning operation and clearance of the steering wheel.

(12) Check the direction of the reference mirror, and turning operation.

(13) Check the direction of the reference mirror, and whether there is dust or damage.

(14) Check the charge of the tyre.

Before the tyre becomes heat, measure the inflation pressure with tyre manometer .

Inflation pressure of tyre: 0.28~0.32Mpa，vacuum tyre：0.35Mpa.

(15) Check whether the tyre (tyre specification: 23.5-25) and the rim of the wheel are damaged.

(16) Check whether the nuts (bolts) of wheel hub are loose.

3. Adjustments made before the vehicle functions.

⚠ Warning

- While adjusting the driver's seat, one should park the vehicle at a safe place and make the engine stop working.
- Adjust the seat before starting working or before charging the driver.
- When the driver leans on the back of the seat, he can step on the brake treadle completely.
- The back dip angle of the seat's backcan not adjusted too much in case of the back touching the glass.

For the idiographic adjustments of a seat, please refer to its corresponding directions.

4. Check before starting the engine

⚠ Warning

- If anyone touches the econtrolling lever by accident, the working equipment will move abruptly, so anyone is forbidden to touch the operation lever of the working equipment.
- Before starting the engine, rub away the dirt heaped up on the surface of the storage battery, starting electrical machinery and the alternating current generator with the wet cloth.

(1) Check whether the direction changing operating lever, speed changing operating lever and high and low speed operating lever are in the middle place (that is the blank gear). If they are not in the middle place, then one cannot start the engine.

(2) Check whether the operating lever of the functioning equipment is in the middle place.

(3) Check whether the working hydraulic pressure machine oil is full or not.

(4) Insert the starting key.turn the key to the opening position and check whether the indicator

light brighten up or not.

2.3.2 Start the engine

⚠ Warning

Check whether there are people or any other obstacles. Then press the horn and start the engine.

⚠ Caution

The starting engine cannot keep turning over fifteen seconds. If one discovers that the engine cannot start, he should start the engine again after a break of thirty or forty seconds. If the engine cannot start for three times continuously, one should check the reasons and start the engine again. One should read The Use Directions of the Diesel Engine carefully before starting the engine.

2.3.3 After starting the engine, do not begin working at once. Complete the following operation and examinations first.

⚠ Caution

- Do not speed up abruptly before the engine has worked for five to ten minutes at a lower speed.
- The engine should not function at a low speed continuously or at a high-speed withour any loading for over twenty minutes.
- If it is necessary, let the engine work without any loading, then add loading step by step and make the engine function at a middle speed.

(1) Step on the accelerator treadle gently. Let the engine keep working at a middle speed without any loading for about five minutes.

(2) Heat the hydraulic pressure oil only in cold areas. The method is as follows: in the course of heating, check whether the engine functions smoothly. Pull in/ out the operating lever to the recept dipper place so as to make the temperature of the hydraulic pressure go up.
The releasing time limits of the recept dipper place should be within ten seconds.
In the course of this operation, hydraulic oil reaches the safe pressure. This can make the temperature of the hydraulic pressure oil go up at a quicker speed

(3) After completing the preheating operation, check whether the instruction of each instrument is normal or not.

(4) Let the engine with low loading until the temperature of the water in the engine and the etmperature of the oil in the moment changing instrument reaches the normal standard.

(5) Check whether the colour, sound and vibration of the exhaust is normal or not. If it is

abnormal, repair it in time.

(6) Check whether each operating handle is flexible or not.

(7) Check whether the steering wheel is loosened or not.

(8) Check whether the brake is dependable.

(9) Check whether the working equipments work normally.

2.3.4 Start the vehicle

⚠ Warning

- Check whether the place around the vehicle is safe or not before starting a vehicle. After the check, press the horn before starting. Forbid any person to stand behind the vehicle. Because there is a blind observation zone at the back of the vehicle, the driver must be very careful while driving.
- While starting a vehicle on a slope, one should step on the brake treadle, at the same time, step on the accelerator treadle and loosen the brake treasle gradually, thus the vehicle starts.

(1) Make sure that the speed changing operating lever is placed in the middle place and the stop working brake handle is placed in the braking location.

(2) Insert the key into the power supply switch. Revolve it corresponding to the direction watch hands go until to the connecting place.

(3) Press the starting push button and accelerate slightly. Then the vehicle starts.

(4) The starting engine cannot keep turning above fifteen seconds. If one discovers that the engine cannot start, and then he should start the engine again aftera break of thirty or forty seconds. If the engine cannot start for three times continuously, one should check the reasons and start the engine again.

(5) After starting, when the engine keeps functioning without any loading at a low speed for five minutes, the number of each meter should be normal.

(6) Pack the forklift dipper up and lift it to the transporting location. (The height between the dipper and the ground is about for hundred and fifty mm)

(7) Step on the brake treadle. Pull in the stalling brake handle and remove the brake. (The atmospheric pressure of the barometer should be above four kgf/ cn2)

(8) Remove the direction changing operating lever to the necessary place.

(9) Put the speed changing operating lever and high and low speed operating lever to the necessary place. Loosen the brake treadle. Step on the accelerator treadle. Then start the vehicle. The machine can drive at once.

2.3.5 Change the gear

⚠ Warning

operating lever when the driver leaves the drivers cab.

- Step on the brake treadle continuously before pulling the stalling brake handle to the brake place, thus in order to avoid damage.

(1) Let loose the accelerator treadle and step on the brake treadle. Stop the vehicle.

(2) Remove the direction changing lever and speed changing lever to the middle place (that is the blank gear).

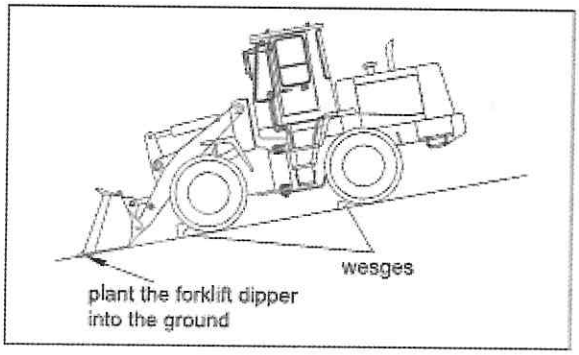
(3) Pull the stalling brake handle to the brake place, thus brake is effective.

⚠ Caution

Do not use stalling brake handle while driving the vehicle unless in the urgent conditions. This handle is used only after the vehicle stops.

2.3.9 Operate the working installations

Operate the moving arm and forklift dipper by use of their operating lever according to the following ways.



Moving arm operating lever.

Pull the operating lever back, the moving arm goes up; on the contrary, push the operating lever forward, the moving arm goes down, then further push the operating lever forward, the moving arm becomes floating. Blank gear lies in the middle place, which locks the moving arm.

The forklift dipper operating lever.

Push the operating lever forward, the dipper turns over; on the contrary, pulls the operating lever back, it takes back the dipper. While the operating lever is in the middle, the dipper doesnot move.

2.3.10 Functioning of the wheeled loading machine

1. shoveling and digging

⚠ Warning

While shoveling and digging, make sure that the obverse side of the body of the loading machine faces the front. Do not put it in a location of turning.

⚠ Caution

- When the vehicle is driving at a high speed, do not chacnge the gear. While changing the gear, change it after slowing down by use of brake.
- When the vehicle is driving,firstly step on the brake treadle. And while the vehicle has been stoped, take the high-low arm to the high or low gear quickly.

2.3.6 Change directions

⚠ Caution

- While the driver wants to change to the front /back, he should check whether it is safe in the new advancing direction. There is a blind observation zone at the back of the vehicle, so while driving back, the driver should pay special attention.
- While driving at a high speed, do not change the front /back direction.
- While changing the front/back direction, the driver can slow the vehicle down by use of brake until the vehicle stops, after that, he can change the driving direction.

2.3.7 Swerve

⚠ Warning

- It is very dangerous to change directions while the vehicle is driving at a high speed or to change directiond on a slope.
- Do not change directions if the engine stops working whenthe vehicle is driving.

To change directions on a slope is very dangerous; so in the course of driving, do not let the engine stop working. If the engine stops working, stop the vehicle and park it at a comparatively safe place at once.

During driving, change directions by use of the steering wheel.

The front frame and the back one of SL50W.SL50W-2 loading machine is joined together by the central hinge. The front and back frames are bent at this joint. While the vehicle is turning, the back wheel follows the track of the front one.

Turn the steering wheel gently, thus makes the vehivle body turn. While turning the steering wheel, pay attention not to exceed terminal of the journey.

2.3.8 Stop the vehicle

⚠ Warning

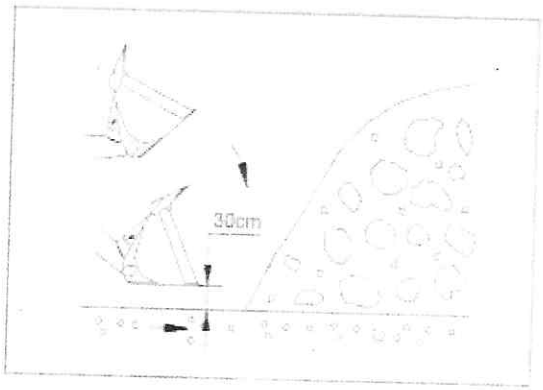
- Try to avoid stopping the vehicle abruptly. While stopping the vehicle, leave appropriate brake distance.
- Do not stop the vehiocle on a slope. If the driver has to stop the vehicle on a lope, he should let the obverse side of the vehicle turn towards the down slope. Let the forklift dipper shovel into the earth.
- Put the wedge under the wheel in case of the vehicle moves. Try to avoid touching the

Sliding of the tyre will reduce its service life, so one should ry to avoid making the tyre slide during its functioning.

In case of cutting off the tyre caused by the tyres sliding, so while loading earth or the crushed stones, one should pay attention to the following several points:

- Keep the working place smooth and remove the droped stones.
- While loading the loose materials, let the vehicle work with the first and second gear. While loading the comparatively heavier materials, let the vehicle work with the first gear.

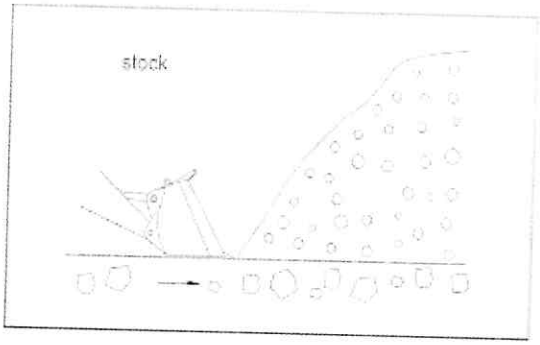
1) Drive and lower the forklift dipper. Park it at the place that is thirty cm higher to the ground, and then let it fall slowly.



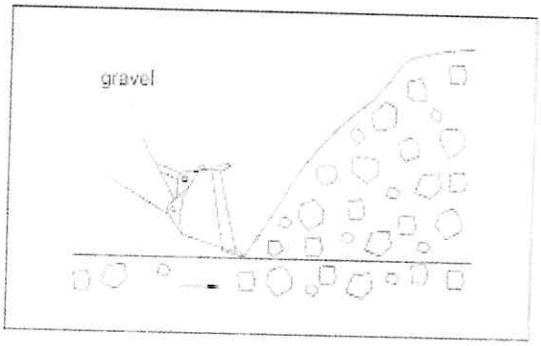
Notes:

If the forklift dipper strikes the ground, the front wheel will leave the ground thus causes the esliding of the tyre.

2) Change gear before approaching the materials. After changing gear, step on th eaccelerator treadle and plant the forklift dipper into the materials.



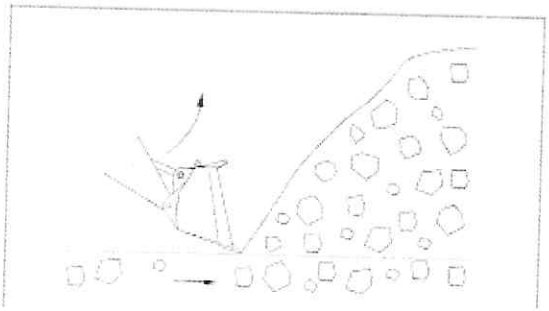
3) If th ematerials are loose, then put the dipper flat; but if they are crushed stones, then turn the forklift dipper downward sli



⚠ Caution

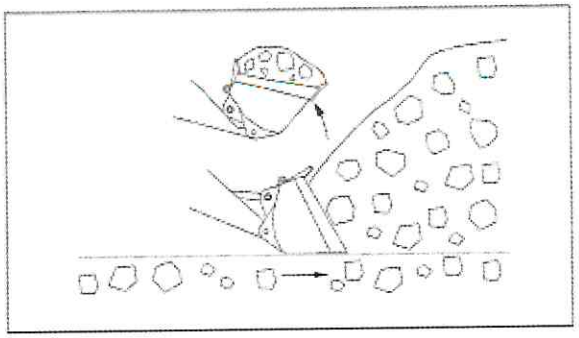
Make sure that there are no crushed stones under the dipper in case of causing the front wheel leaving the ground and sliding.

Try to put the loaded materials at the center of the dipper. If the loaded materials are on one side of the dipper, then it will lose its balance.



4) While planting the forklift dipper into the materials, lift the moving arms in case of palnting the dipper too deep. While lifting the moving arms,

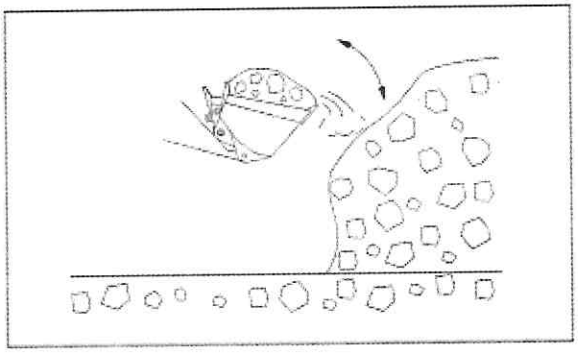
th efront wheel will produce enough pulling force.



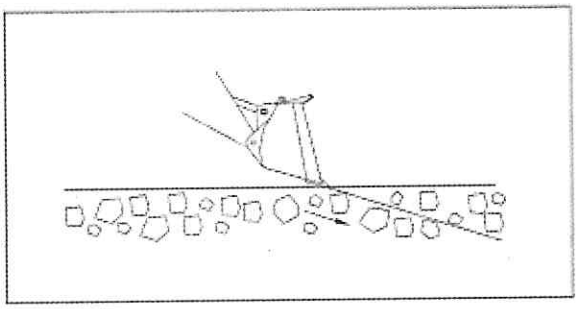
5) Check whether it has shoveled enough materials. Operate the operating lever. Take back the dipper in order to fill the forklift dipper full.

Notes:

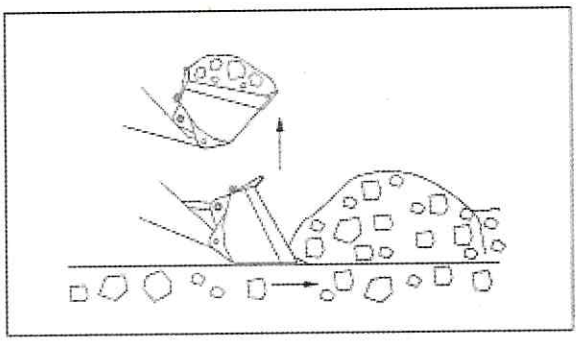
While lowering the forklift dipper for shoveling, the front wheel will leave the ground thus causes sliding of the tyre.



6) If there are too many materials, then take back the dipper quickly. Turn it over in order to shake the superfluous loadings off. Thus doing can avoid any material shaking out of the vehicle while being transported.



(7) While shoveling and loading on the smooth ground, put the edge of the dipperdownward slightly (see the diagram) and drive the loading machine. Try to avoid the loaded materials inclining to either side of the dipper and causes the vehicle losing its balance. This operation is done at the first gear.



1) Put the edge of the dipper downward slightly.

2) Drive the loading machine forward and push the moving arm operating lever forward. While digging the earth, penetrate into one thin layer each time.

3) Operate the moving arm controlling lever up and down gently in order to lessen the obstruction the loading machine suffered while driving forward. While shoveling by use of the forklift dipper, try to avoid putting all the shoveling force on either side of the forklift dipper.

2. Working on the ground

⚠ Caution

Drive the loading machine with reverse gear while working on the ground. If the vehicle has to work with the advancing gear on the ground, then the returning dipper angle should be over 20 degree.

(1) Shovel the earth into the dipper and drive the loading machine with reverse gear in order to shake the earth out of the dipper evenly.

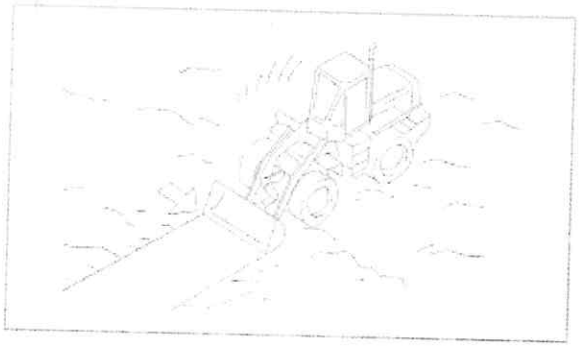
(2) Let the tram gears pressing close to the ground. Lay the earth out evenly by use of the traction force.

(3) While the forklift dipper shoveling the earth again, the moving arms float; the forklift dipper approaches the ground. Move the loading machine back and work on the ground.

3 Pushing materials operation

⚠ Caution

While doing the pushing materials operation,do not put the forklift dipper at an unloadimg place, but make the bottom of the dipper parallel with the ground.



4 Loading and transporting loadings operation

⚠ Caution

While transporting loadimgs, drop the forklift dipper in order to lower the center of gravity in transporting.

Methods of loading and transporting of the wheeled loading machine contain the folowing circuiting processes: Shovel- transport- load (dump into the dip truk, mouth of the stove, etc). Offer the transporting route a good maintainance.

It has a comparatively higher efficiency while transporting loadings within a distance of 100 meters. The driving speed is determined according to the circumstance of the road. In the course of transporting, lifting the moving arms with loadings is forbidden, especially, when driving on the rugged and uneven road.

While loading and turning, please refer to "2.2.12 Di...

5 Loading operation

Choosing proper operation methods in order to reduce turning frequencies and distance of travel and raise the efficiency.

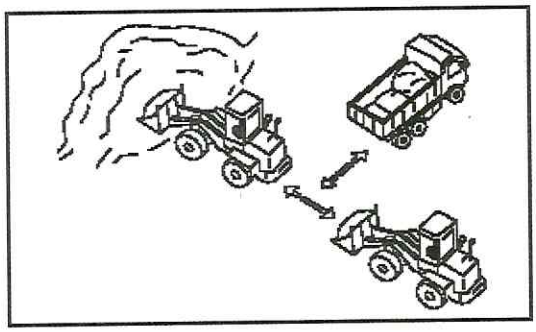
⚠ Warning

- Keep the working place smooth. While transporting heavy loadings, try to avoid abrupt turning or stop.
- Planting thr forklift dipper in the slanting pile or crushed stone pile is forbidden while the vehicle is driving at a high speed.

⚠ Caution

Sliding of the tyre will reduce its service life, so one should ry to avoid making the tyre slide during its functioning.

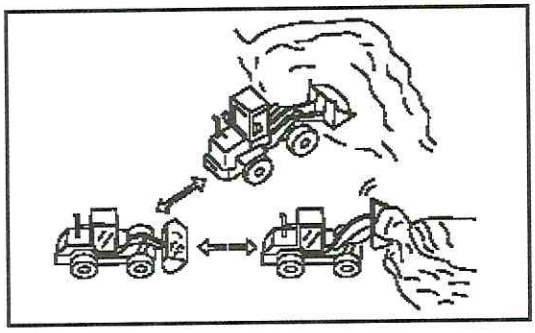
(1) Right angle loading



Let the obverse side of the loading machine face directly at the materials pile. After shoveling the materials, drive the vehicle along a straight line with reverse gear. After doing so, drive the dump truck to the place between loading machine and the materials pile.

This method is used between loadinf machine and the materials dump. !t needs a short time for loading and shortens the working circuiting time efficiently.

(2) V-type loading



Park the dump truck at the right place, making the distance between loading machine and the materials dump and the distance between dump truck and the materials dump forms an angle of 60 degree. After filling the forklift dipper full, drive the loading machine with reverse gear and change the direction, making its obverse side face the dump truck. The loading machine drives forward and pours the loadings into the dump truck.

This kind of loading has a turning angle with small degree and it is highly efficient.

First vibrate the forklift dipper when it is filled full and wants to take it back or when it islifted to the highest place in order to make the load smooth and steady.

⚠ Caution

While doing the stacking operation, pay attention to avoid making the latter installed heavy iron tough the ground.

6 Unloading operation

After the loading machine driving near to the unloading spot, lift the forklift dipper to its necessary height. Push the operating lever forward in order to make the forklift dipper lean forward to unload the materials. While loading the vehicle, lift the forklift dipper to the unloading height at the place with a certain distance to the vehicle box. Drive to the vehicle box slowly to unload. While unloading, pay attention to act gently in order to reduce the impact that the loading exerted on the vehicle. When the loadings are stuck to the walls, operating the controlling lever back and forth to make the forklift dipper shake thus can unload the materials completely.

7 Other operations

This machine can be use din such operations as bulldozing, smoothing, digging and towing. It can also be used in many other operations like catching timbers, pushing snow, etc, after we replace it with corresponding working equipments.

⚠ Caution

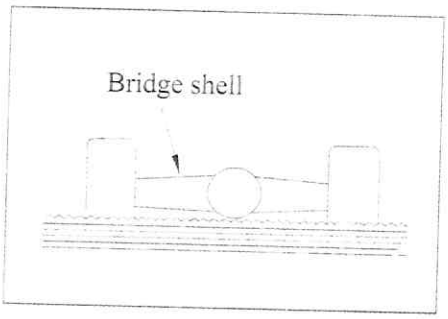
Equiping the working apparatus must be done under the permission of the SHANTUI or franchisers of SHANTUI. This also has to be done under their guidance.

2.3.11 Attention while operating

1. The permitted depth of water

While the machine is operating in the places with accumulated water or in the swamp, the depth of water must not exceed the bottom of the bridge shell.

After having done the operation, clean it and check the lubrating points.



2. Brake of the wheel loses efficiency

If after steping in the brake treadle, the vehicle does not stop, then use the stalling brake to stop.

⚠ Caution

After usin gth estallin gbrake to stop contingently, one should contact with the SHANTUI or franchisers of SHANTUI Check whether rthere is anything wrong with the machine.

3. Pay attention while going up /down the slope

(1) Lower the center of gravity while turning.

First lower the center of gravity of the working equipments while turning on a slope. Put the forklift diper at the transprotinf place in case of danger while turning.

(2) Step on the brake while going down a slope

The working equipments may be overhot, thus it's easy to be damaged. So in order to avoid such problems, drive with lower speed while going down a slope, thus full use the brrrraking power of the engine.

While braking, use the brake treadle.

If the speed changing goperating lever is not in a proper place, the temperature of the oil in the moment changing machine will be overhotting. In this case, one should lower the gear in order to reduce the temperature of the oil.

If after reducing to the first gear, the temperature of the oil shown on the temperature instructing meter has not recovered to the normal range, stop the vehicle at once. Put it at the zero gear. Let the engine work at the middle speed until the temperature of the oil recovered to the normal range.

(3) Flameout of the engine.

If the engine stops working on a slope, step on the brake treadle completely. Afterwards, lower the working equipment to the ground and use the stalling brake. Place the direction changing speed changing operating lever at the middle place (the blank gear), and start the engine again.

4. Pay attention while driving the vehicle

While driving the vehicle at a high speed for a long distance, the tyre will be overhot, thus can cause the tear and wear of the tyre, so try to avoid such cases. If it is necessary to drive the vehicle for a long distance, pay attention to the following points:

- Abide by the driving rules of the vehicle. While driving, the driver must be cautiously.
- Check carefully before starting the engine
- Inquire at the SHANTUI or franchisers of SHANTUI. Choose proper pressure for the tyre, appropriate driving speed and specifications of the tyre according to the conditions of the road.
- Standard gas filling pressure is as follows: gas filling pressure of the tyre: 0.28 to 0.32 Mpa.
- Check the pressure of the heat diverging tyre before starting the engine.
- After driving for 1 hour, stop the vehicle for 30 minutes. Check whether there is any damage of the tyre or other parts. Check the level of the oil and the cooled hydraulic level.
- Drive the vehicle without loadings

2.3.12 Adjust the location of the functioning equipments



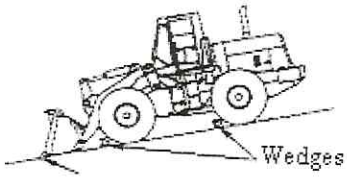
- Park the vehicle on the smooth road. Put the wedges on the front and back gears.
- Use the stalling brake.
- Lock the front and back frame by use of the safety lever.
- Any person is forbidden standing the working equipments after the moving arms have been lifted.

Put the forklift dipper flat. The instructing surveyor's rod is mainly used to mark the length that the skip oil tank can stretch out and draw back, that is, to mark the upward turning angle of the forklift dipper at each location so that th edriver can determine the unloading angle of the forklift dipper at th ehighest place and whether rit has been placed smoothly at th elowest place.

2.3.13 Stop the vehicle

⚠ Warning

- Try to avoid stopping the vehicle abtuptly. Leave enough brake distance.
- Try to avoid stopping the vehicle on a slope. If it is necessary to do so, let the obverse side of the machine facing downward. Plant the forklift dipper into the earth. Place wedges under them tyre in order to avoid sliding.
- Before pulling the stalling brake handle to the braking place, step on the brake treadle continuously in order to avoid danger.



Plant the forklift dipper into the ground

⚠ Caution

Forbid using the stalling brake handle while driving unless in the urgent situations. This handle is used only after the vehicle stops.

(1) Valve treadle. Step on the brake treadle and stop the vehicle.

(2.) Place the direction changing operating lever at the middle (th eblank gear).

(3.) Pull the stalling brake handle to the braking place and carry out the stalling brake.

(4) Operate the moving arms controlling lever in order to lower the forklift dipper to the ground.

2.3.14 Check after the operation

Temperature of the water in the engine during the operation should not be above 100-centigrade degrees. Temperature of the oil in the moment changing machine should not be above 120-centigrade degrees. Observe temperature of the water in the engine and temperature

of the oil in the moment changing machine by use of meter and instructing lamp during the operation. If the engine is over hot, do not stop abruptly. Let it work at a middle speed and after it has cooled down, then stop the engine.

2.3.15 Flameout of the engine

⚠ Caution

To stop the engine abruptly before it has cooled down will affect the life span of the engine greatly, so try to avoid such things unless in the urgent cases, especially when the engine is over hot. At this time, let it work at a middle speed and after it has cooled down, then stop the engine.

(1) Let the engine work at a lower speed for 5 minutes, so that it can cool down.

(2) Pull the stalling handle in order to stop the engine.

(3) Cut off the power suplyswitch and take out the key.

2.3.16 Check after the engine stops working

⚠ Caution

Temperature of the water and oil is very high after the operation of the loading machine, so carry out the checking operation after the machine has cooled down.

(1) Cast one's eyes around the vehicle. Check the working equipments, vehicle body and its bottom. Check whether it leaks oil, water or gas. If discovers anything abnormal, repair it in time.

(2) Clean then waste apper and leaves out o fthe engine's cover.

(3) Clean the mud stuck on the bottom.

(4) Check the amount of oil in the oil tank.

(5) Check whether the oil surface of the engine's bottom is normal or not.

(6) Check whether the transmission system and each turning part are over hot or not.

(7) Check whether the position board of the rim of a wheel, transmission shaft, screw belt and each bolt shaft is loosened or not.

(8) Check whether the appearance and pressure of the tyre is normal.

(9) Lubricate grease onto each turning part according to its specifications.

(10) Let the cooled water out of the water tank (including the warm wind system) and the engine (except when it has lubricated cold-free fluid) completely in cold reasons.

2.3.17 Locks

Lock the following parts

(1) Cover of the burning oil tank

(2) Side cover of the engine

(3) Vehicle door, vehicle window

(4) Cover of the storage battery box

2.3.18 Deal with the tyre

1. Pay attention while daeling with the tyre

⚠ Caution

If the tyre reaches the following service limit, it may explode and cause disaster, so change the newtyre in time for case of safety.

- Limit for tear and wear

The depth of the veins trough in the tyre is less than fifteen percent of the original depth of the veins trough.

The extent of tear and wear is extremely unaverage or the tear and wear appears to be ladder shaped or th etyr has any other abnormal tear and wear, or its weaving layer is exposed.

- Limit for damage

The outer damage extends to the weaving layer or the layer itself is exploded.

The weaving layer is cut off or pulled out.

The tyre is exploded into layers.

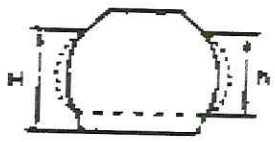
Edge of the wheel is damaged.

While replacing a tyre, contact with the DEGONG or franchisers of DEGONG. It is very dangerous to ajck up a vehicle under such conditions as with no preparation.

2 . Pressure of the tyre

Check pressur of the tyre carefully before starting the engine.

If pressure of the tyre is too low, over loadin gphenonnmenon may occure; on the contrary, if pressure of the tyre is too high, it may cause the tyré being cut or the tyre may shake, explode. In order to avoid such problems, adjust the pressure for gas filling according to the needs of pressure for gas filling into a tyre: .028 to 0.32 Mpa.



$$\text{Ratio of deformation} = \frac{H-h}{h} \times 100$$

Ratio of deformation of tyre (deformation /free height) can be tested by eye:

While transporting normal loadings: about 15 to 25 percent

While doing the digging and shoveling operation: 25 to 35 percent

While checking the pressure of the tyre, check whether there is any scratch on the tyre at the same time, because nail and iron all have the possibility to penetrate the tyre.

Such doings as cleaning dropped stones on the working place, maintenance of the working road will raise service life of the tyre greatly.

Pay attention while loading or transporting.

When it is necessary to load or transport continuously, choose proper tyre according to the working conditions or choose proper working conditions according to the tyre, otherwise, it will cause damage of the tyre. So, it is necessary to contact with DEGONG or franchisers of DEGONGor the tyre retail merchants and choose proper tyre to use.

method of gas filling of tyre (eg, assembly)

Put the gas filling soft tube assembled with the vehicle to the gas hole, and fill the tyre with gas.

⚠ Caution

Let the engine work at a low speed while using the gas pressing machine (to fill the tyre with gas)

2.4 Transportation

2.4.1 Load and unload the vehicle

⚠ Caution

- Oblique plane board should be long ,wide and thick enough so as to ensure the security while loading the loading machine.
- While loading or unloading the vehicle, park the tray truck on the smooth and hard road. Let the loading machine depart from the road's edge for certain distance.
- Remove the mud stuck on the tyre in case that the loading machine slide to either side of the oblique plane board.
- Forbid changing the driving direction on the oblique plane board. If it's necessary to change the direction, leave the board first. After having changed the direction, drive onto the oblique plane board again.

Use an oblique plane board or smooth board while loading or unloading the vehicle. Operate according to the following methods.

(1) Let the tray truck brake, and put wedges under the wheel in case of sliding. The installed position of the oblique plane board should face the center of the tray truck and loading machine. Make sure that two sides have the same height. If the oblique plane board sinks obviously in the course of loading or unloading, use wedges to tighten it.

(2) After determining the direction of the oblique plane board, then load or unload the vehicle slowly.

(3) Install loading machine directly at the appointed place of the tray truck.

2.4.2 Pay attention while loading the vehicle

Complete the following works after loading the vehicle:

(1) Lower the working equipments slowly.

(2) First stop the engine, and put the switch of power supply at the closing place, then take out the key.

(3) Lock the front and back frames by use of the safety locking lever.

(4) Put wedges under the front and back of the wheel, and fix them by use of chain or frope while transporting.

2.4.3 Lift the loading machine

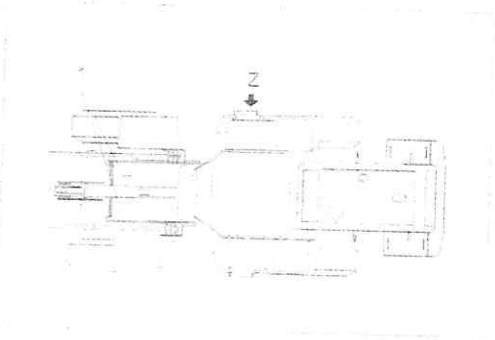
⚠ Danger

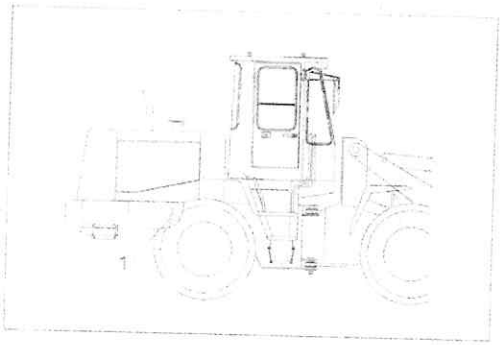
- Serious accidents may occure if the grope is not fixed correctly and let the loading machine slide down in the course of being lifted.
- Stop the engine before lifting, and lock the brake and lock the front and back frames by use of the safety locking lever.

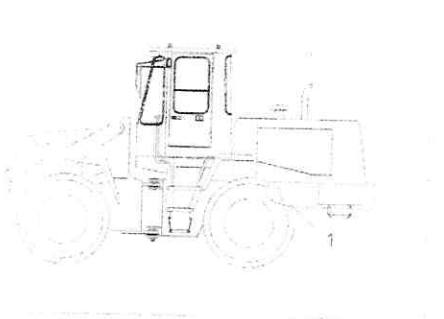
⚠ Caution

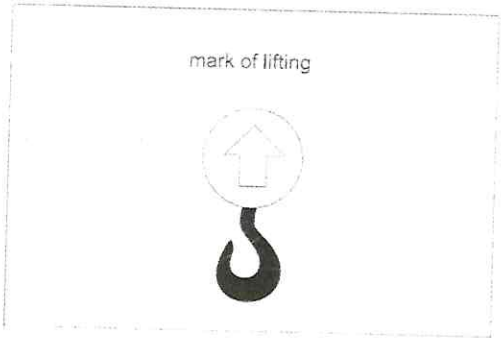
- Driver of the crane must be qualified while using crane to lift the loading machine.
- Any person is forbidden staying in the loading machine while it is being lifted.
- The lifting grope must have enough strength corresponding to the weight of the vehicle body.
- Lift the loading machine according to the lifted position specified by the following diagram.

2.4.3.1 position that can stuck the mark of safety for lifting positions









2.4.3.2 procedures for lifting

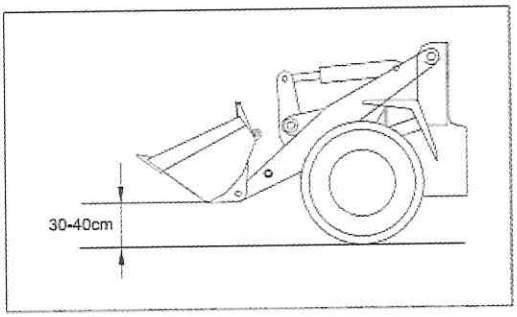
Forbid lifting the vehicles without lifting marks. Park the loading machine on the smooth road before lift it.

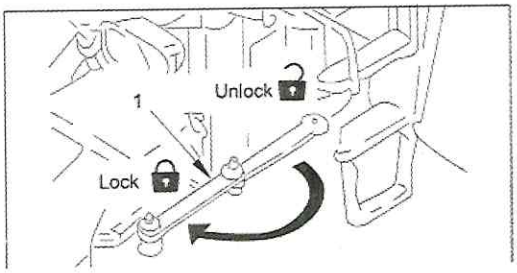
1) Start the engine. Keep the vehicle body smooth, then remove the working equipments to the transporting place.

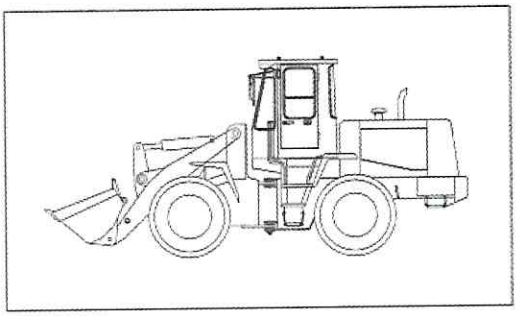
2) Stop the engine. Check whether it's safe around the driver's cab. Lock the safety locking lever so as to make the front and back frames can't turn.

3) Install the lifting equipment on the lift hook lying between the front frame's front part and the back frame's back part (Mark it with the lifting mark.).

4)After the vehicle body leaves the ground, further lift after the body stabilizes.







2.4.4 Pay attention while transporting

⚠ Caution

Decide route of the transporting vehicles according to the vehicles' height, width and weight. Abide by all the transporting rules according to the loadings' weight, width and length.

2.5 Operation in low temperature

2.5.1. Pay attention at low temperature

It is more difficult to start the engine when the temperature goes down. The frostbite preventive fluid may be frozen, so pay attention to the following items:

1 . burning oil and lubricating oil

Change into the burning oil and lubricating oil suits for starting at low temperature.

2. Coolant fluid

⚠ Caution

The frostbite fluid should be far from fire.

(1) Forbid using such frostbite fluid as methyl alcohol, ethyl alcohol and acetone resin.

(2) Forbid using leaking prevent fluid. (No matter it's used separately or in blend with frostbite fluid)

(3) Forbid using frostbite fluid of different tablets in blend.

Refer to The Diesel Use Directions or inquire at the engine producing factory while changing or using coolant fluid.

3. The storage battery

⚠ Caution

The storage battery should be far away from fire in case of explosion.

The electrolysis fluid of the storage battery is dangerous. If it spills into eye or on the skin, wash with large amount of water or inquire the doctor.

The electrolysis fluid is easy to be frozen when temperature of the surrounding goes down. Amount of electricity in the storage battery will go down, too. So try to make the storage battery be full of electricity and pay attention to protect it so that it is much easier to start the next morning.

Remark:

Refer to the following transforming diagrams, and calculate the amount of electricity according to the surveyed specific gravity.

Temperature of the electrolysis fluid..Charge. amount	20℃	0℃	-10℃	-20℃	-30℃
100%	1.28	1.29	1.30	1.31	1.32
90%	1.26	1.27	1.28	1.29	1.30
80%	1.24	1.25	1.26	1.27	1.28
75%	1.23	1.24	1.25	1.26	1.27

2.5.2 Protection after the operation

Pay attention to the following protection measures in case that mud on the bottom is frozen and makes it difficult to start the next morning.

(1) Clean mud on the vehicle body completely in case that mud or other dirty things go into the sealed parts and make them frozen and cause damage.

(2) Park the vehicle on the hard and dry road. If there is no such road, park on a board, thus can protect the wheels frozen on the muddy road and make it difficult to start the next morning.

(3) If there is no frostbite fluid in the coolant fluid, then open the water releasing valve and let water out of the cooled system in case of freezing.

(4) Starting capacity of the storage battery goes down obviously at low temperature, so cover the storage battery well or disassemble it and assemble it again the next morning.

(5) It is better not to park the loading machine in the open air in the cold areas.

2.5.3 When it turns warm

When it turns warm after the cold climate, operate according to the following directions:

(1) Change oil of each part according to its different needs for sticky degree.

(2) If it does not need to use permanent frostbite fluid bur to use season type (in winter) one or does not need any frostbite fluid, let water in the cooled system (including the warm wind system) out completely. Then add fresh water in it.

2.6 Long term deposit

2.6.1 before deposit

Operate according to the following directions while deposit a vehicle for a long term.

(1) Park the vehicle in a dry room after having cleaned and dry each part. Do not put it in the open air. If it has to be parked in the open air, park it on the cement road that can release water well. Meanwhile, cover the vehicle body with canvas.

(2) Fill full burning oil, lubricating oil and change the machine oil before deposit.

(3) Smear a thin layer of oil on the iron surface of the piston rod.

(4) Cut the (-) connecting wire of the storage battery. Cover it or disassemble it and deposit it separately.

(5) Put frostbite fluid into the coolant fluid if temperature of the soundings may reduce to 0 centigrade degree.

(6) Lock each locking place and operate the stalling operation.

2.6.2 During the deposit

⚠ Caution

It is very important to do the rust-resistant operation if one choose to deposit the vehicle in a room. So, open the window in order to let in more wind in case of being poisoned by gas.

Start the engine and drive the vehicle for a short distance once every month. Make the moving parts cover a thin layer of oil. At the same time, charge the storage battery.

Wipe off the oil on the piston rod before operation.

If an air-conditioner is installed, operate it for 3-5 minutes every month. Lubricate each part of the compressor. At this time, let the vehicle work at a low speed. Furthermore, check the hydraulic level of refrigerant every year.

2.6.3 After the deposit

⚠ Caution

Please inquire the sales agents if one does not do the rust-resistant operation after depositing the machine.

Do the following operations before reusing the machine after it has been long deposited.

(1) Wipe off oil on the piston rod.

(2) Add oil or fat on each part

2.7 Fault reasons and solutions

2.7.1 System of the engine

According to reasons for the obstacles and solving methods of the engine, please refer to its directions equipped with the engine.

2.7.2 System of transmission

1. Pressure for changing speed of each gear is low.

The general characteristics of the obstacles	Solving methods
1. Oil level in the speed changing tank is too low. 2. The main oil tank leaks oil. 3. Oil absorbing filter net of the speed changing machine is blocked. 4. Speed changing oil pump is damaged. 5. The adjustment of the pressure valve is not appropriate.	1. Add oil to the specified oil level. 2. Check and repair. 3. Clean or change the filter net. 4. Check and repair or change an oil pump Adjust according to the specifications.

2. Pressure of a certain gear is low.

General characteristics of the obstacles	Solving methods
1. Sealed ring of the gear's piston is damaged. 2. Sealed ring of this oil road is damaged. 3. Oil route of this gear leaks oil.	1. Change the sealed ring. 2. Change the sealed ring. 3. Check and solve the problem.

3. Temperature of oil in the moment changing machine is too high

General characteristics of the obstacles	Solving methods
1. Oil level of the speed changing tank is too low. 2. Oil level of the speed changing tank is too high. 3. The heat scattering machine of machine oil is blocked. 4. The clutch slides. 5. Work for too long a time.	1. Add oil to the specified oil level. 2. Release oil to the specified oil level. 3.Clean or change the heat scattering machine. 4.Check and adjust the pressure for changing speed. 5. Stop the vehicle and let it cool down.

4. Cannot drive after starting the vehicle.

General characteristics of the obstacles	Solving methods
1. Do not put the gear. 2. After cutting off, the speed changing valve cannot return to its original place. 3. Pressure of the moment changing machine is low. 4. Pressure for changing speed is low.	1. Put to the proper gear . 2. Disassemble and check the speed changing valve. Solve the problems. 3. Adjust overflowing valve of the moment changing machine. 4. Refer to 2.7.2.1 and 2.7.2.2

5 .The driving force is not enough.

General characteristics of the obstacles	Solving methods
1. Pressure of changing speed is low. 2. Temperature of oil in the moment changing machine is too high. 3. Vane wheel of the moment changing machine is damaged. 4. Output power of the engine is not enough. 5. While driving or stopping a vehicle, the brake does not loosen.	1. Refer to 2.7.2.1 and 2.7.2.2 2. Refer to 2.7.2.3 3. Disassemble and check the moment changing machine. Change its vane wheel. 4. Check and repair the engine. 5. Check and repair the brake system.

2.7.3 The brake system.

1. The brake force of working vehicle is not enough

General characteristics of the obstacles	Solving methods
1. The brake machine leaks oil. 2. There is gas in the braking hydraulic pressure tube. 3. Pressure of the gas tube system is not enough. 4. Leather bowl of the thrust augmentation. 5. There is oil on the scratching part. 6. Tear and wear of the scratching part reaches its limit.	1. Change the sealed parts. 2. Exhausting according to the exhausting procedures. 3. Check the sealing capacity of the empty pressure machine, gas storage tank and the tubes. 4. Change the leather bowl. 5. Check the reasons and repair. 6. Change the new equipments.

2. Cannot put into gear after the vehicle stops

General characteristics of the obstacles	Solving methods
1. The brake valve cannot return to its original place. 2. Gas valve rod of the speed changing valve	1. Disassemble, check and recover. 2. Disassemble, check and recover.

is blocked. 3. Pressure of the back cavity of the speed changing cutting valve rod.	3. Check and repair the tube system.

3. The brake treadle can not loosen normally

General characteristics of the obstacles	Solving methods
1. Pushing lever of the brake treadle is not in place or piston rod is blocked and the returning spring loses its efficiency. 2. The thrust augmentation cannot return to its original place. 3. Piston of the brake pincers cannot return to its original place.	1. Check, adjust or change the damaged parts. 2. Check, clean and repel. 3. Clean or change rectangle sealed ring.

4. Pressure of the gas storage tank will go down quickly after the vehicle stops

General characteristics of the obstacles	Solving methods
1. Inlet of the brake valve is blocked or damaged. 2. Connecting joint of a tube is loosened or the tubes are broken. 3. The unloading valve is not sealed.	1. Brake several times continuously and blow off the dirt or change a new valve. 2. Tighten the connecting joint or change the tubes. 3. Check the reasons. If it is necessary, change it.

5. The pressure goes up slowly after starting the engine

General characteristics of the obstacles	Solving methods
1. Empty pressure machine does not work normally 2. connecting joint of a tube is loosened 3. The braking valve or unloading valve is not sealed	1. Check the working state of the compressor 2. Screw the joints 3. Put it in order and replace it

6. Off tracking when braking

General characteristics of the obstacles	Solving methods
1. The left force moment unequal to the right one 2. Air pressure in the left wheel unequal to the one in the right one	1. Check the pipelines and the brake 2. Gas loading as specific pressure

7. Deficiency in the brake force

General characteristics of the obstacles	Solving methods
1. An over-wide gap between the braking hub and the brake block 2. Oil existed on the brake block	1.Readjust as request 2.Clean it clearly

2.7.4 Operating device and hydraulic pressure system

1. Lifting arms and rotating-bucket act slowly or not work

General characteristics of the obstacles	Solving methods
1. The oil seal of the oil cylinder is damaged	1. Replace the oil seal
2. The oil is leaking in the pipeline system	2. Check and reparation
3. Severe inside leakage of working oil pump	3. Repair and replace with a new pump
4. Improper adjusting of safety valve, and the system pressure is low	4. Adjust the operating pressure of the system to a specific value
5. Leaking in the oil suction tube of the working oil pump or block in oil filter	5. Clean the oil filter or replace the oil suction tube
6. An over-wide gap of hydraulic pressure valve	6. Check or replace hydraulic pressure valve

2. Oil shortage in oil pump or bubbling in oil

General characteristics of the obstacles	Solving methods
1. A low oil surface	1. Refill oil to the specific position
2. Block in oil filter	2. Clean the oil filter
3. Damage of oil pump	3. Check or replace a new pump
4. Leakage of oil suction pipe or damage of the seal of oil pump	4. Check or replace damaged parts
5. An ill oil use or oil turning bad	5. Replace new oil referred to prescript

3. An over-heated oil temperature

General characteristics of the obstacles	Solving methods
1. An over-long time working at a full load operation	1. Stop and cool-down
2. An over-high pressure of system	2. Adjust pressure as request
3. Shortage of oil position	3. Refill oil as request
4. Damage of oil pump	4. Check or replace a new pump
5. Block in pipeline or filter screen	5. Check, clean or replace
6. A small volume of engine blower	6. Adjust belt tightening as request

4. The failure of reset

General characteristics of the obstacles	Solving methods
1. Distortion of resetting spring in guiding valve	1. Replace a new product
2. Dirt existed between the pressure bar and the assorting hole of the guiding valve	2. Clean parts
3. Distortion of resetting spring of multiple unit valve	3. Replace a new product
4. Dirt among the valve handles	4. Clean parts

5. Unstable allocating of guiding valve

General characteristics of the obstacles	Solving methods
1. The magnetic force shortage of the magnetic plug	1. Replace a new product
2. Dust on the contact surface of the magnetic plug and the spring base	2. Clean parts
3. The gap between the rocker panel and pressure bar is not adjusted as requested	3. Adjust as request

6. Failure to controlling guiding valve

General characteristics of the obstacles	Solving methods
1. The spool of measuring valve jammed or moves ineffectively 2. Distortion of measuring spring 3. Shortage of controlling flux or pressure 4. Master valve acts dumb	1. Check the cleanliness of oil, clean the spool and the valve opening 2. Replace a spring 3. Check if the guiding oil supply system operates normally 4. Clean the valve body and the valve handle

2.7.5 Steering system

1 .steer inflexibly

1） Slow-rotating steering wheel is normal, fast-rotating steering wheel is inflexible

General characteristics of the obstacles	Solving methods
1. Shortage of oil supply in oil pump 2. Priority valve spool act inflexibly 3. Over-low of the controlling pressure of priority valve 4. Over-low of the controlling pressure of priority valve	1. Repair or replace oil pump 2. Eliminate the reason leading to the inflexibility of the spool of the priority spool 3. Upward the controlling pressure of the priority valve 4. The deflecting roller is moved to the margin position by rotating steering wheel. Then, continue to do that, which forces the steering security valve open to release the air.

2） Foam in the oil, irregular sounds given out by the oil, oil cylinder moves at times with steering wheel rotating

General characteristics of the obstacles	Solving methods
1. Air exit in steering system	1. Check the height of the oil surface, refilling the oil in the oil basin. Check if the inlet line is leaked and eliminating it. Release air inside the system

3） Light without any load, and heavy with load

General characteristics of the obstacles	Solving methods
1. The specified pressure value of the steering security valve lower than operating pressure	1. Readjust the pressure of the steering security valve
2. Steering security valve jammed	2. Clean out the waste
3. An over-high viscosity of the oil	3. Replace suitable oil

4） steering heavily with a small gas, operate normally with an increasing gas

General characteristics of the obstacles	Solving methods
1. A low efficiency of the volume of the oil pump	1. Replace the oil pump
2. An over-wide gap between the spool and the body of the priority valve	2. Replace the priority valve

2. No sense of the terminal

1） Rotating steering wheel still light when steering wheel reaching the margin position

General characteristics of the obstacles	Solving methods
1. The specified pressure of the bi-direction cushion valve in the valve block mounting on the surface of the port of the redirector lower than the specified one of the steering security valve	1. Readjust the bi-direction cushion valve to make the opening pressure not less than one and a quarter times of the specified pressure value of the steering rotating valve
2. A severe abrasion or an over-wide gap among the valve body, valve pocket and spool, or between rotor and stator	2. Replace the worn parts or redirector

3. Failure to steering

1） Steering wheel not back to middle position automatically, and the differential pressure of the middle position increases

General characteristics of the obstacles	Solving methods
1. The spring is broken down	1. Replace the damaged spring

2） The pressure differentia increased explicitly, and even not rotated

General characteristics of the obstacles	Solving methods
1. The aperture of the pin removal or universal driving shaft broken down or distorted	1. Replace the pin removal or universal driving shaft

2.7.6 Electrical system

1. The generator not generate electricity or the voltage of the generator too low

General characteristics of the obstacles	Solving methods
1. Drive belt slipped	1. Adjust feed belt
2. Oil soil or abrasion exist in the commutator	2. Use a piece of clean pudding with gasoline to scour or use a piece of tenuous
3. An ineffective contact between the electric	

brush and the commutator 4. Excitation coil shutdown 5. Remnant magnetism disappear	abrasive paper to planish 3. Check and reparation 4. Check wiring of the outside magnetic field and check the excitation loop with a bulb 5. Charge magnetism or replace a generator

2. Accumulator no charge or a small current

General characteristics of the obstacles	Solving methods
1. Voltage regulator damaged 2. A poor contact of the wires or a shutdown of the wires	1. Check or replacement 2. Check the circuit between the generator and the accumulator

3. A large spark between the electric brush and the commutator of the generator

General characteristics of the obstacles	Solving methods
1.A severe abrasion of the commutator	1.Clean the commutator to remove the impurity among the rectifier blocks

4 . An overheat of the generator

General characteristics of the obstacles	Solving methods
1. An over-high regulated voltage of the regulator 2. Mechanical bearing worn or short of lubricant oil 3. Cutting-out of the commutator or inside the armature coil	1. Adjust the voltage of the regulator 2. Replace the mechanical bearing or Refill lubricant oil 3. Dismantlement or replacement

5. The generator starting hard

General characteristics of the obstacles	Solving methods
1. Shortage of the voltage or the accumulator damaged 2. on-off damaged 3. A poor contact of the circuit or shutdown 4. Air exit inside the inlet line of the engine	1. Recharge or replace a new accumulator 2. Check or replacement 3. Check and reparation 4. Release the air inside the pipeline

2.7.7 Air conditioner system

1. Not able to produce cool air

General characteristics of the obstacles	Solving methods
1. The driving belt too loose or breakdown 2. The fuse burn out, the connector break or the line is broken, the on-off of the cool air damaged, or air-blast machine not operating 3. The compressor not rotate, belt slip on the belt roller	1. Strain the belt or replace the belt 2. Replace fuse, repair the wire, on-off and the air-blast machine

4. For wrong operation of the compressor, a slight change of the differential value between the high- and low-pressure with the change of the rotating velocity of the engine	3. Dismantle the compressor, repair or replace it 4. Repair or replace the valve plate of the compressor
5. The pipeline of refrigeration system cracked, or refrigerating medium leak out, the values of high-pressure table and low-pressure table equal to zero	5. Repair the pipe, checking the leakage of the system, vacuum-pumping to fill Fluorine Gas
6. The desiccators for the storage liquid or expansion valve blocked	6. Dismantle to repair or to replace

2 .shortage of the volume of cool air

General characteristics of the obstacles	Solving methods
1. Shortage of air inside the air channel, leak air at the linker of the air channels	1. Clean or replace the air filter, and remove the obstacle inside the duct, reconnect the ducts
2. Poor operation of the air–blast machine	2. Repair or replace the air-blow machine (fan)
3. Electric magnetic clutch slipped	3. Repair or replace the electric magnetic clutch
4. A low efficiency of the compressor	4. Repair or replace the compressor
5. Air exit inside the refrigeration system, an over-high value of high-pressure, zero statement in the observing liquid glass	5. Release the air, vacuum pumping, fill Fluorine Gas
6. Short of refrigerating medium, bubble exist in the observing liquid glass, an over-low value on the high-pressure table	6. Refill refrigerating medium until the bubbles disappear
7. poor air circulation around the condenser apparatus, an over-high value on the high-pressure table	7. Clean the condensing apparatus and the water tank of the engine, or mount another condensing fan

3 .Refrigeration system works discontinuously

General characteristics of the obstacles	Solving methods
1. Idle speed adjuster, temperature controller out of control	1. Readjust and repair
2. Electric magnetic clutch slipped	2. Dismantle the bracket or replace it
3. The coil of the electric magnetic clutch gets loose or has a poor ground connection	3. Dismantle to repair or to replace
4. Moisture existed in the refrigeration leads to discontinuous water block of the expansion valve	4. Replace the desiccators of storage liquid

4. noiseincreased

General characteristics of the obstacles	Solving methods
1. Driving belt got loose or worn severely	1. Strain the belt or replace the belt
2. The mounting bracket of the compressor gets loose	2. Tighten the fixing screws for the bracket
3. The engine of the air-blast machine got loose or worn	3. Repair the engine or replace it
4. The electric magnetic clutch slipped to give off noise	4. Dismantle to repair or replace
5. Parts inside the compressor worn	5. Repair the compressor or replace it

2.7.7.5 A poor efficiency of generating heat

General characteristics of the obstacles	Solving methods
1. Oil through valve damaged	1. Check or replace the oil through valve
2. Oil through pipe folded to block	2. Put the oil through pipe in order or replace it

2.7.7.6 A normal flux but poor efficiency of generating heat

General characteristics of the obstacles	Solving methods
1. Hot-water valve damaged	1. Check or replace hot-water valve
2. The cycle water pipe frozen	2. Defreeze
3. The cycle water pipe folded to block or leak water	3. Replace a new pipe

Chapter Three Maintenance

3.1 Guide for maintenance

Please check and maintain the equipment referring to the rules in the manual.

The Check and maintenance should be on a smooth space.

Except for other rules, the equipment should be under the following state before maintenance:

(1) Lower the equipment to the ground;

(2) All the joy sticks should be put on the neutral-position;

(3) Pull the hand brake out;

(4) Put trig in front and back of tyres.

(5) Lock the front and back frames by using security lock bars.

3.1.1 Using the matching parts of DEGONGt

All the original matching parts illuminated in the drawing book are interchangeable parts.

3.1.2 Using clean DEGONG hydraulic oil and lubricate grease all the time

Use clean DEGONG hydraulic oil and lubricate grease, and maintain the container pure. Don't be interfused with impurity.

3.1.3 Keep the equipment clean

Keeping the machine cleanly, especially the cleanliness of the respirator helps find out the parts leading to malfunction.

3.1.4 Be cautious with hot water and hot oil

Releasing water and removing the filter soon after stop causes easily hurt to body, so that all the operations should be done after the equipment cooling-down. If it needs to release the oil at a low temperature, it should be rose to a proper temperature, about 20 ~ 40 °C.

3.1.5 Checking if there is impurity in the oil released or on the filter

During the replacement of the oil or the filter, the user should check whether there are some prills or impurity in the oil or on the filter. If any, please contact with the manufacturer or the dealer.

3.1.6 Fuel screen

If a fuel screen is mounted on the machine, please don't remove it as refilling oil

3.1.7 The replacement of the oil

The process of checking and replacing hydraulic oil should be operated in a place with less dust.

3.1.8 Caution label

Please hang out a Caution label at a proper position on the starting button or operating arm during the operation of maintenance in order to prevent others to start the equipment.

3.1.9 Abide by the security instruction

The security instruction on the safety label of the machine should be abided by during the operation.

3.1.10 Noting as welding

(1) Shut down the power switch of the supply;

(2) The voltage should not always beyond 200v;

(3) The distance between the earth point and the welding position is over 1m.

(4) In the area of welding and ground connection, no parts such as seals or mechanical bearings are permitted.

(5) No welding operation should be performed to the pipeline filled with oil.

3.1.11 Frie defending

Please use a rag made of nonflammable material or clean oil and it should be far from the fire source or a lit cigarette.

3.1.12 Sealing face

The sealing face should be cleaned as the "O" type ring and pad is dismantled and they should be replaced. Don't forget to replace the "O" type ring and pad during the installation.

3.1.13 Things in the pocket

Incompact things don't be taken in your pocket lest those slip out into parts of the machine occasionally, especially necessary to operate in the machine with a bowing state.

3.1.14 Checking the frame

When operating in the rocky area, the user should check whether the chassis is damaged, such as bolts and nuts loose, cracked, worn and damaged or not.

3.1.15 Wanings during the cleaning process of the machine

(1) Don't let stream contact the cooling fins directly.

(2) NO WATER should be spattered down to any electric appliance parts.

3.1.16 Check before and after the operation

Check if plug screws and valves are tightened before the operation on muddy or sandy ground, or operating in rainy or snowy day, and clean them after operation to prevent parts from getting rusty.

The lubricating times should be increased more than those in normal times. If the operating device should be dipped into water, pin rolls should be lubricated everyday.

During the process of the operation with a heavy load, maintenance period should be shortened, and the lubricating times should be increased.

3.1.17 Dustiy operating areas

Operating in dusty areas, it should be noticed as follows:

(1) Check the air filter blocked or not, and shorten the cleaning period of the air filter.

(2) Frequently clean the inside core of water tank to prevent it from being blocked.

(3) Frequently clean, and replace the fuel oil filtering core.

(4) Clean the dust on the electric appliances, especially on the starter and the engine.

3.1.18 Prevent the blending use of the oils

Don't mix oils with different brands. If the brand of oil is not the same as that in the machine, don't drop into the oil tank directly until the oil in the oil tank is released.

3.2 Outline of Maintenance

(1) Use DEGONG parts

(2) Don't mix oils with different brands during the process of refilling oil or replacing oil.

(3) According to the temperature of environment ,use the fuel.coolant and grease

oiling position	ambient temperature	Appropriate oil	Capacity L		Period to add or change oil		
					Every shift	Every week	Every season
fuel tank	≥0℃	0# light diesel fuel	SL50W	230	√		
	-10～0℃	-10#	SL50W-2				
	-20～-10℃	-20#	SL50W-3				
	-35～-20℃	-35#	SL50WA	193			
			SL50WN	220			
Motor lubricant	≥ -20℃	CD/ 15W/40	28			√	250h
	< -20℃	CD/ 5W/40					
hydraulic fluid tank	≥-5℃	L-HM46	SL50W	170		√	1000h
			SL50W-2				
			SL50W-3				
	<-5℃	L-HV46	SL50WN				
			SL50WA	193			
gear-box and torque converter		L-HM46	45			√	1000h
assistor	Dry braking driving axle	DOT3	4			√	1000h
	wet braking driving axle	L-HM46	8				
Dry braking bridge	≥-15℃	GL-5 85W-90	27 ×2			√	1000h
	<-15℃	GL-5 80W/90					
wet braking bridge		Mobil black overlord LS 80W/90	27 ×2			√	
Midst bearing block, transmission shaft and articulated pin roll	≥-20℃	1# EP lithium grease	q.s.			√	
	<-20℃	3# EP lithium grease					
water tank	≥-20℃	-25#antifreezing water	80		√		
	-35～-20℃	-35# antifreezing water					
	<-35℃	-50# antifreezing water					

13	Steering tube (redirector ~ the pump)	1	
14	Braking tube (gas operating valve ~ air cylinder)	1	
15	Braking tube (gas operating valve ~ cut-off valve)	1	
16	Braking tube (gas operating valve ~ the front assistor)	1	
17	Braking tube (gas operating valve ~ the back assistor)	1	
18	Braking tube (air cylinder ~ hand control valve)	1	
19	Braking tube (hand control valve ~ gas control cut-off triple-valve)	1	
20	Braking tube (gas control cut-off triple-valve ~ stop and braking gas cell)	1	
21	Braking tube (cut-off valve ~ gear box)	1	
22	Braking tube (the front assistor ~ three channel panel)	1	
23	Braking tube (the back assistor ~ three channel panel)	1	
24	Fan belt	1	Every one year

3.4 Maintenance period table

Service item
The initial 250th hour
Replace filter core of fuel oil
Replace filter core of gear box
Replace filter core of oil tank
Check, adjust the gap of valve
Check the brake fluid
Maintain when necessary
Check.clean.replace filter core
Clean out the inside of cooling system
Check oil of gear-box and refuel
Check axle oil and refuel
Check axle tube inspirator
Clean radiator fin
Replace the cutting teeth
Check the air-conditioning
Check the air-conditioned compressor
Lubricate the manually operated valve connection of work device

(3) Don't dismantle any electric part in the machine.

(4) Not permit to mount any additional electric part except for allowance of the manufacturer.

(5) Don't splash water down to electric system in rainy day or during the process of cleaning the machine.

(6) Maintain electric system clean to protect from corrupting when operating in sandy areas.

(7) Additional power supply should not be connected with fuse, starting on-off and relay.

3.3 Relacing critical security parts regularly

To ensure the security of the machine during the process of operating and ride, the user should maintain timely. In addition, in order to improve its security, the user should replace timely some of the parts according to what are illustrated in the following table so as to ensure the security of parts and prevent fire.

With the time going, the materials of these parts will be easily worn and deteriorated. However, their states are hardly estimated, so it is necessary to replace them timely to ensure their good states.

Given that some abnormal parts are found out before timely replacement, they should be replaced immediately.

If some deterioration phenomena such as deformation or cracking are found out to the pipe clips of tubes, the tubes and clips should be replaced correspondingly.

During the replacement of tubes, "O" loops, pads or other parts alike should be replaced correspondingly.

Dealers help to replace critical security parts, please.

Critical Security Parts

Number	timely replacement critical security parts	Amount	Replacement period
1	Tube (fuel oil tank ~ injection pump)	1	Every two years or 4,000 working hours, specified as the first arrival.
2	Oil returning tube (injection pump ~ fuel oil tank)	1	
3	Oil returning tube (injection pump ~ fuel oil tank)	1	
4	Tube (injection pump ~ fuel oil filter)	1	
5	Tube (fuel oil filter~ injection pump)	1	
6	Fuel oil flooding pipe (between fuel injection nozzles)	5	
7	Fuel oil flooding pipe lid	1	
8	Steering tube (redirector ~ steering oil tank)	2	
9	Steering tube (left redirector ~ right steering oil tank)	2	
10	Steering tube (redirector ~ priority valve)	2	
11	Steering tube (priority valve ~ the joint of oil tank)	1	
12	Steering tube (redirector ~ the joint of oil tank)	1	

engine use and maintenance manual.

(3) Antifreeze is flammable, so it should be far from sparkle or fire source.

(4) The ratio of antifreeze to water is different with the temperature. More details about the proportion of mixture should refer to the descriptions in compression-ignition engine use and maintenance manual.

(5)If the engine is over-heated, it should be cooled before being refilled cooling liquid.

(6)A too low liquid position of cooling liquid will the over-heated phenomenon, and it will occur failure because of air corrosion inside the cooling liquid.

4 .Lubricating Grease

(1)The grease is used to prevent jointing places from distortion and noise.

(2)The places becoming rigid after long time work is needed to refill grease to lubricate.

(3) Clean out the old grease before refilling new lubricating grease, especially the one mixed with mud and sand to prevent wearing the rotating members.

5. The Storage of Hydraulic Oil and Fuel Oil

(1)It should store indoors so as not to mix with water, dirt or other impurities.

(2)When oil needs to be stored in barrels for a long time, please side lay barrels and make the oil filler lie in the side to prevent it from absorbing the air. If it has to be stored outdoors, waterproof materials or other protection methods should be taken.

(3)To prevent the oil after long time storage from deteriorating, the rule of using oil should abide as the principle of first-in first-out, that is, the old oil should be used firstly.

6. Filter

(1)The filter is an important security part, which is used to prevent impurities in oil or gas circuit from entering important parts leading to malfunction.

Replace all the filter cores timely. More details refer to 3.4 Inventory of replacement parts.

Under bad operating conditions, the period of replacement should be shortened with respect to the state of the employed oil.

(2) Don't use filter core after cleaning, and it should replace a new one.

(3)Check whether there are prills in filter in the process of replacing filter. Please consult to the manufacturer or dealers if prills exist in it.

(4)The package of filter core can be unwrapped only when it is replaced.

(5)Be sure to use DEGONG filter core all the time.

3.2.2 Electric system

(1)If wires are moistened or insulating layer is damaged, it will lead to electricity leakage of the circuit system and severe malfunction.

(2) The relevant items about electric system include:

① Check the tensity of belts;

② Check the damage or abrasion of belts;

③ Check the liquid level of electrolyte of the battery jar.

3.2.1 Hydraulic oil, fuel oil, cooling liquid, lubricating grease

1. Hydraulic Oil

(1) It can be used in the engine system and the operating hydraulic system under bad conditions such as high temperature and high air pressure, but it will become degenerative after a certain time.

Please use the proper hydraulic oil according to the oil grade and temperature range specified in the maintenance manual. Though the oil doesn't become dirty, it should be replaced after the specified time.

(2)The oil should be stored and refilled with much care, don't mix it with impurities, such as water, prills, dirt, which will lead to failure of the machine.

(3) Don't mix the oils with different brands.

(4)Refill oil according to specified number because over-amount oil or under-amount oil will affect the normal operation of the machine.

(5) If the oil in the working device is not clear, it may be mixed with water and air. Please consult to the manufacturer or dealers.

(6) While the oil is replaced, the oil filter should be replaced correspondingly.

(7)We advise to analyze the oil periodically to check the state of the machine. Please consult with the manufacturer or dealers if this kind of service is necessary.

2. Fuel Oil

(1) Because the fuel oil pump is a precise part, use with fuel oil containing water or dirt will affect the normal work of the fuel oil pump.

(2) Special attention should be paid not to mix impurities during the process of the oil storage or that of refilling oil.

(3) Only the fuel oil specified by the use and maintenance manual should be used.

With the change of temperature, the fuel oil may be frozen, especially under -15℃, so the user should select a proper kind of fuel oil according to the temperature.

To prevent vapor in the air from condensing into water drops inside the oil tank, the work of refilling oil to the oil tank should be performed after a day's operation.

(4)The water or settlement should be released before the start of the machine, or 10 minutes after finishing refilling oil.

(5)The air inside the pipeline must be released while the fuel oil of the starter is exhausted or the filter is replaced.

3. Cooling Liquid

(1)Because river water contains a great amount of Calcium and other impurities, scale deposit will accumulate around the wall of the engine and the water block, which will cause a poor radiation and over heat.

NOT use non-drinking water as cooling liquid.

(2)When using antifreeze, the user should refer to the instructions in compression-ignition

Replace damaged fuse
Tire sampling check
Check the brake fluid
Check before start-up
Check Caution instrument
Check the liquid level of coolant, water
Check fuel-oil level and refuel
Check the oil level of oil sump and refuel
Check electric wiring
Drain water from the air cylinder (if it is equipped)
Check stop braking effect
Check braking effect
Check the klaxon and reversing light
Check headlamp brightness.whether soiled or damaged
Check the color and sound of exhausting system
Check the work state of instrument
Check the rotation and turning of steering wheel
Check whether back mirror is spoiled or damaged or not
Check tire inflation pressure
Maintenance every 50 hours
Drain water and deposit sediment from the fuel tank
Lubricate each pin.fan shaft and transmission shaft of work device
Lubricate the central strut of transmission shaft
Lubricate frame hinge pin.swing-frame strut pin.turning cylinder pin
Maintenance every 100 hours
Check oil level of hydraulic oil tank, and then refuel
Clean the filter of air-conditioning
Service every 250 hours
Replace engine oil and filter element
Check tightness of fan belt and dynamo belt to make adjustment
Check and fasten rim bolt
Clean the filter of air-conditioning
Check and adjust the compressor belt of air-conditioning
Check electro-hydraulic liquid level
Check the brake fluid

Service every 500 hours
Replace fuel filter element
Replace filter element of gear-box
Lubricate multiple spline of final drive shaft
Service every 1000 hours
Replace gear-box oil and clean filter gauze
Clean tank inspirator
Check fastening state of supercharger
Check rotor clearance of supercharger
Replace hydraulic oil and filter element
Replace oil for axle
Replace the brake fluid
Service every 2000 hours
Replace filter element of oil-tank inspirator
Check the worn condition of brake wheel
Check electric generator.start-up motor
Check and adjust valve clearance
Check absorber
Check whether the filter of air-conditioning needs to be replaced or not
Clean and check supercharger
Check up the accuracy of brake system pressure gauge
Service every 2400 hours
Check compressed water pump and other parts

3.5 Service procedure

3.5.1 Maintenance in the early 250 hours

Maintenance that is as follows must be made after the machine is used for 250 hours:

(1) Replace fuel filter element

(2) Replace filter element of gear-box

(3) Replace filter element of hydraulic oil tank

(4) Check and adjust valve clearance

More detailed information about the method of replacement and maintenance can be found in " service every 500 hours" in "Service every 2000 hours".

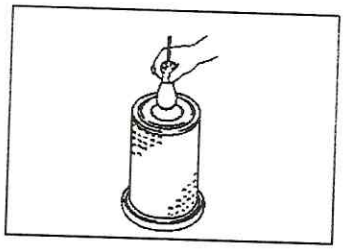
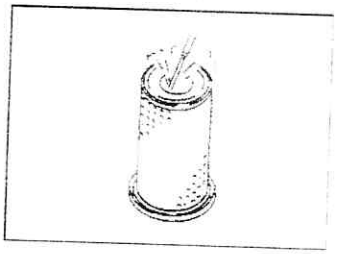
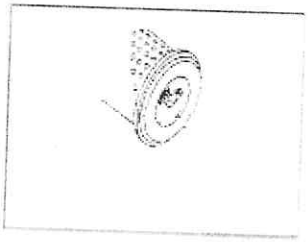
(5) please check if the oil leak from the brake syetem, you can also check if the brake fluid is enough ,please add if necessary.

3.5.2 Make maintenance when necessary

1. Check、clean or replace filter

⚠ Caution

- Do not clean or replace filter when engine is running
- Make sure that wear glasses or goggles to protect eyes when cleaning component by compressed-air

Check:

If filter is blocked, clean it.

Clean or replace outer core.

1) Dismantle nut and lid, then the outer core.

2) Clean the inside of filter.

3) Use dried compressed air to blow the filter-element from inside (to outside) along the groove directly, then blast from outside (to inside) along the groove directly. At last, blast compressed air from inside to outside.

① When cleaning outer filter-element, Dismantle a seal ring from the outer press cake.

② Rinse the outer core 6 times repeatedly or replace it after using 2 months, replace the inner core at the same time.

③ If it does not reach the clean-out requirements after cleaning, inner core and outer core should be replaced(even if outer core cleaning under 6 times).

④ Check whether inner core assembling bolt is loose or not, fasten it when necessary.

⑤ Seal washer or butterfly nut should be replaced in time when it is damaged.

⚠ Caution

- Use electronic induction stopper to detect outer filter element after it is cleaned and dried. If aperture or thinned part is discovered, filter element should be replaced.
- Avoid collision when cleaning filter element.
- Do not use groove、gasket or damaged seal ring of filter element.

Replace inner core

1) Dismantle outer core firstly, then inner core.

2) Use clean cloth or adhesive tape to cover over air adapter(the outside) to prevent dust.

3) Clean the inside of filter, and then tear the adhesive tape covered over air adapter

4) Assemble new inner core with the joint and fasten with nut.

5) Assemble outer core.

Fitting is required when cleaning by methods which are as follows.

Use water

Use running water (<0.29Mpa) to wash along the groove from inside to outside, and then from outside to inside, from inside to outside again finally. Check after dried.

Use detergent

Use tepid solution of neutral detergent to clean oily soil and dirt on filter element, then rinse in clean water, air dry.

Use dried compressed air to blast to dry fleetly (<0.69Mpa).

Heating filter element is forbidden.

Warm water (about 40℃) is more effective than suds.

2. Cleaning of the inside of cooling system

⚠ Warning

Antifreeze is combustible that should be kept away from fire source.

(1) Use permanent antifreeze liquid.

（2） Clean the inside of cooling system according to the following requirements, replace coolant liquid.

The type of coolant liquid	Clean the inside of cooling system and replace coolant.
Permanent type antifreeze	Every year (autumn) or every 2000 hours, newly-bought vehicle
Impermanent type antifreeze (including ethylene glycol) (winter, quarter type)	Every 6 months (spring、autumn) (let the antifreeze liquid off in spring, infuse in autumn)
When antifreeze is not used	Every 6 months, or 1000 hours, newly-bought vehicle

(3) Antifreeze ratio and usage see Engine Use & Maintenance Manuals or consult engine producer.

(4) It is recommended to use antifreeze densitometer to control the ratio.

⚠ Warning

•When engine is just extinguished, the water temperature is very high. Let water off after cooling. •It is very dangerous to lie under the vehicle to make cleanout due to the vehicle may whip when engine is under operation. Therefore, it is strictly forbidden to lie under the vehicle when engine functions.

•It is strictly forbidden to dismantle the radiator cap in engine operation temperature. At this time, boiled water and steam spilt from the radiator shall cause personal injury because of great pressure of coolant. Wait until engine is cooling, screw the water box cover slowly to release pressure.

1) Engine extinguished.

2) Wait until engine is cooling down, screw the water box cover slowly to release pressure, then unbolt slowly.

3) Preparing container for filling cold water, then unbolt water drain valve(underside of radiator) and drainage plug screw(flank of cylinder body) to let cooling water off.

4) After releasing cooling water, shut off valve and plug screw and infuse running water.

5) After refilling running water, start engine and operate it idly.

Unbolt water drain valve and plug screw and operate engine idly to make the cooling water flow inside system for 10 minutes. At the same time, adjust the speed of water intake and drainage to fill the radiator with water all the time.

When cooling water flows inside the system, examine carefully and pay attention to not protrude the water intake tube from the radiator filler.

6) After the cooling water circulate in system, unbolt water drain valve and plug screw to release water completely, and then shut them off.

7) After cleaning, unbolt water drain valve and plug screw to release water entirely. Shut off the water drain valve and plug screw and infuse clean water slowly.

8) When water level approaches the intake, unbolt the water drain valve and plug screw. Operate engine idly to make the cooling water go on flowing and cleaning inside system thoroughly until colorless clean water flows out.

At the same time, adjust the speed of water intake and drainage to fill the radiator with water all the while.

9) After water is cleaned thoroughly, extinguish engine out shut the water drain valve and plug screw off.

10) Fill up cooling water until overflow from the water intake.

11) Operate engine idly for 5 minute for releasing the air in cooling water, then run up without load for 5 minutes.

12) Release the cooling water in water tank and clean the inside of water tank. Then fill up coolant until its level reaches between the upper limit and lower limit.

13) When engine is extinguished, wait for about 3 minutes. Fill up cooling water until the water level approaches the water intake, and then cover the tank cap tightly.

Owing to different engine in the same mode of loader, it is recommended to refer to the use & maintenance manual for specific engine or consult the engine producer when using and maintaining.

3 .Check the oil level of gear box and refuel

⚠ Caution

- Take parking brake when checking the oil level. Furthermore, use safety pole and pin to lock the front-frame and back-frame.
- After the loader operated, the oil temperature is very high. Above all, wait for cooling down the oil temperature before checking it.
- If there is smear on the shell of gear box, finish the following check:

(1) Start up the engine and operate at least 5 minutes.

(2) Observe the oil scale carefully to make the oil lever lie between the upper limit and lower limit of oil scale.

(3) If the oil level is under the lowest limit, fill oil through oil filler.

(4) if the oil lever is above upper limit, let off redundant oil by drain plug. Re-check the oil level.

4. Check bridge oil level and refuel

⚠ Caution

- Take parking brake when checking the oil level. Furthermore, use safety rod and pin to lock the front-frame and back-frame.
- After the loader is operated, the oil temperature is very high. Above all, wait for cooling down the oil temperature before checking it.
- If there is smear on the axle tube, finish the following check:
- Make check on the flat pavement.(If the pavement is a slope, it is invalid to check the oil level)

(1) Check whether oil leak when engine is extinguished.

(2) After oil leak is confirmed, refuel to the former oil level or consult the producerr of the bridge.

5. Clean the axle tube inspirator

⚠ Caution

- Take parking brake when checking the oil level. Furthermore, use safety rod and pin to lock the front-frame and back-frame

Brush off the clay around inspirator.

Clean inspirator from its front and back position.

6 .Clean radiator

If clay adheres to the radiator, clean it with the following method.

(1) Dismantle the bolt, then carry down the back protecting wire net from the back of vehicle. At the same time, Dismantle the back working light splice.

(2) Clean up the clay and leaves and so on by compressed air, as well as steam and water instead.

(3) In the mean time, check the rubber hose. If there is crack or age hardening on the rubber hose, replace a new one. In addition, make tight with the loose perkins joint.

7. Replace the cutting teeth

⚠ Caution

- It is very dangerous to adjust or replace the cutting teeth if work device shifts.
- Set the work device at a stable place, make the engine extinguished.

If the cutting teeth are worn, replace it according the following method.

(1) Lift the bucket at the convenient height, placed sprag under bucket to prevent bucket from falling.

(2) Screw nut of fixed cutting teeth, unbolt the bolt and nut, and then carry down the cutting teeth.

(3) Clean the assembling facet of cutting teeth.

(4) Assemble new cutting teeth and insert adjusting shim at the same time to make zero clearance between cutting teeth and upper-surface of bucket. If the assembling facet is worn, repair it before assemblage.

(5) Clamp the nut and bolt together, then dab the top surface of bucket lip by hammer.

(6) After operating a few hours, clamp the assembling bolt again.

8. Check the air conditioning system

Check the refrigerant (gaseity)

Check two times a year (in spring、 autumn).

⚠ Caution

- If the liquid refrigerant spatters inside eyes or hand that will result in blindness or frostbite, it is strictly forbidden to unclamp the parts of refrigerant pipeline.
- In counter-season, make engine operated idly 3-5 minutes every month for lubricating every parts of compressor.
- It is forbidden to clean condenser with stream cleaner, otherwise the condenser will break off by heating.
- If clay and dust adhere to the condenser of air-conditioning, clean it with water.
- If the hydraulic pressure is over-high, it may cause deformation to radiator. Keep appropriate distance from the current when clean the radiator with high pressure cleaning machine.

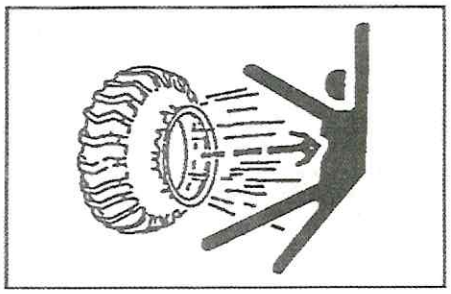
The other detecting、cleanout and notice of the air-conditioner system refer to the attached air-conditioner use & maintenance manual for the loader.

9 .Choose and detect tire

⚠ Caution

If there is any improper treatment to tire or wheel spoke, serious injury will be resulted from blowout or damage of tire、 break and outburst of wheel spoke.

- The maintenance、disassembly、repair、assembly of tire and wheel spoke require special tool and technique.
- It is forbidden to heat and weld the wheel spoke assembled which should be kept from fire source.



(1) Choose tire

⚠ Caution

Choose tire according to operating conditions and accessories that are chosen. Only appointed tire is used and regulation of air pressure must be complied with.

Choose tire according to operating conditions and accessories that are chosen.

The size of tire affects the speed of vehicle as well, please consult the producerr or market office to choose tire.

(2) Check the inflation pressure of tire and charge.

⚠ Caution

- Make sure no people enter into workspace when tire is inflating. Use adapter socket with perkins joint to make it fix to air valve. Check the inflation pressure to avoid overpressure when inflating. If the tire fitting is improper, it may break and burst out. Protecting wire net should be assembled around the tire for providing safety, further more, it is proper to work at a flank of the wheel tread but not facing the wheel spoke.
- Improper inflation pressure dropping and improper wheel spoke assembly all may cause an accident. Please ask professional to maintain.
- Inflation pressure must comply with regulation.

(3) Check

Before it begins to work, use the tire pressure gage to measure air pressure when tire does not heat.

(4) Tire inflation

Use adapter socket that can be assembled at the air valve when adjusting inflation pressure.

It is forbidden to face the wheel spoke but work at a flank of the wheel tread.

The following is the proper inflation pressure.

Inflation pressure of reference tire (front wheel and back wheel)

Specifications of tire: 23.5-25

Tire inflation pressure: 0.28~0.32Mpa

pressure of the Vacuum tyre: 0.35Mpa

10 .Check the brake fluid

please check if the oil leak from the brake syetem, you can also check if the brake fluid is enough ,please add if necessary.

3.5.3 Check before starting-up

Refer to "2.3.1.2 check before starting-up."

3.5.4 Maintenance in 50 hours

Let off water and impurity from fuel tank

Unbolt the oil drain bolt at the bottom of tank to let off water、impurity and fuel oil.

3.5.5 Maintenance in every 100 hours

In the mean time, complete the 50 hours maintenance content

1. Check the oil level of hydraulic oil tank, and refuel

⚠ Caution

- Oil liquid may spill when tank cap is dismantled. Therefore, screw the oil-tank cap slowly to release built-in pressure after engine is extinguished until oil temperature cools down, Dismantle the oil cap afterwards.
- Make sure that the oil level is above the upper limit mark. Make engine extinguished until the oil temperature cool down, then release redundant oil by drain plug.

(1) Make the bucket down to lay on the ground flatly. Observe oil level through spy hole to make sure the oil level is between upper limit and lower limit after engine is extinguished for 5 minutes.

(2) If the oil level is below the lower limit, open the observing cap on the stairs and refuel through the oil filler.

2. Clean the inner ventilating filtered element of air-conditioning

⚠ Caution

Please wear safety glasses and other safety precaution security when cleaning by compressed air.

Clean the filter after air-conditioning is used.

Stop air-conditioning operating before filter gauze is cleaned.

Take off filter gauze and clean it by using dried compressed air to blow the filter element from inside to outside along the groove directly and then blast from outside to inside along the groove directly. At last, blast compressed air from inside to outside.

Remark: Refer to the air-conditioner use & maintenance manual for the loader.

3.5.6 Every 250 hours maintenance

At the same time, 50、100 hours maintenance should be completed.

1. Replace engine oil in oil sump, replace filtering cylinder

⚠ Caution

The oil temperature is very high after operation, replace it after cooling.

Preparations:

(1) Oil vessel: Minimum capacity of 28L

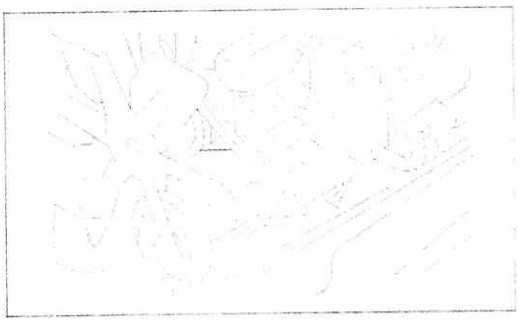
(2) Oil-filter wrench

Replace engine oil in oil sump and more detailed information about replacing filtering cylinder refer to《Use & Maintenance manual of engine》. If there is too many metal grains and impurity in liquor let-off, consult the producer or market office. Fill engine oil through oil filler until oil level mark on oil scale lies between its upper limit and lower limit after filtering replaced. Make the engine operated idly in a short time, and then make it extinguished and check whether the oil level mark on oil scale lies between its upper limit and lower limit. More information about above-mentioned can be found "2.3.1.2 check before starting-up".

Filtering cylinder must be replaced after loader operated for 6 months even less than 250 hours. As well, filtering cylinder must be replaced after loader operated for 250 hours even less than 6 months.

2 .Check the tensile pull of fan belt, alternating current generator fan and make adjustment

At the midpoint of fan pulley and generator pulley, the deformation of belt is about 10-15mm when pushing down the belt with about 39N force.



Adjustment

(1) Unbolt screw bolt and nut.

(2) Use knee to displace alternating current generator, make the deformation of belt is about 10-15mm when pushing down the belt with about 39N force.

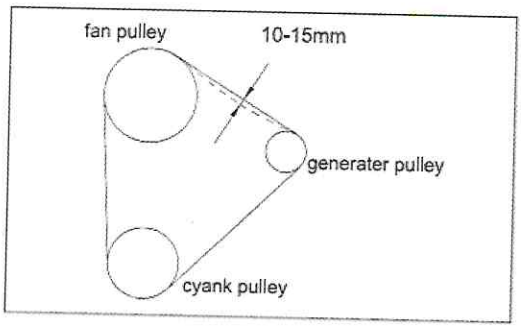
(3) Fasten the bolt and nut to make the alternating current generator fixed to its place.

(4) Check if the belt pulley is damaged, also check the wear of groove and belt. Make sure that the belt does not contact with the bottom of groove.

(5) Replace the belt if the belt is over-tensed without adjusted space, cut or cracked

(6) Re-adjust the tensile pull of belt after V watch band replaced also worked for an hour.

(7) Or refer to the use & maintenance manual for engine assembled to make adjustment.

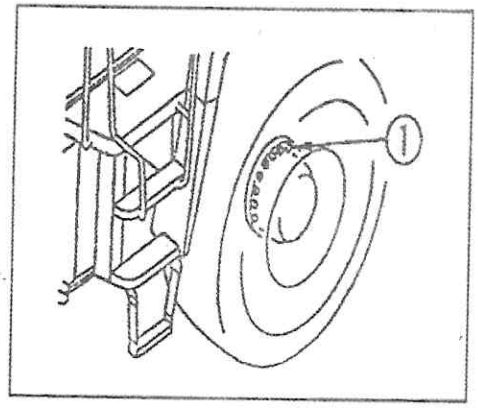


3. Check whether hub nut is loose or not and fasten those that are loose.

It will lead to accident if hub nut is loose that will increase the wear of tire.

(1) Check whether nut is loose, fasten it when necessary. Twist nut at its fastened direction to check whether it is loose or not.

(2) If there is any broken double-threaded bolt, replace all the double-threaded bolt of the hub nut.



4. Clean air cleaner gauze for recirculation of air-conditioning

Refer to use & maintenance instruction for air-conditioning.

5. Check and adjust tensile pull of air-conditioned compressor belt

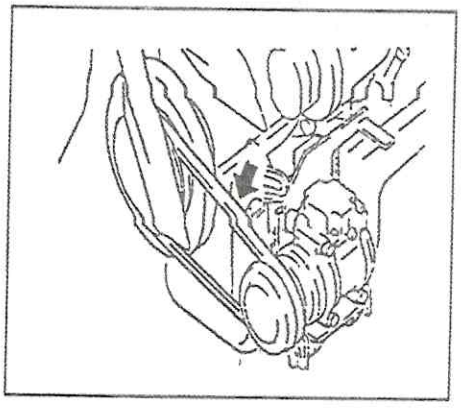
Adjustment

Unbolt the bolt and displace the compressor to adjust the tensile pull of belt.

Check whether belt pulley is damaged or not, the wear of V-form groove and V-form belt. Make sure that the V-form belt does not come into contact with the bottom of V-form groove.

Replace the belt if the V-form belt is cut, cracked or over-tensed without adjusted space.

It is forbidden to use knee to push the compressor directly but spanner when adjusting V-form belt.



⚠ Caution

Refer to use & maintenance instruction for air-conditioning when checking and adjusting

6 .Check electrolyt level of battery cell

⚠ Caution

- Keep the power source far from fire source or spark to avoid air explosion.
- Electrolyte is hazardous, if it spattered on eye or skin, clean with a lot of water and consult doctor.

Finish the following check before operation:

(1) Open the cap of battery cell.

There are two battery cell cases which are located at the both sides of the back of vehicle body.

(2) Check whether electrolyte get to the upper liquid level line. If the liquid level is lower, fill up with distilled water.

After watering, liquid level should not be above upper liquid level line for fear that electrolyte leakage cause fire accident.

(3) In case of filling up a storage battery unit with distilled water, fill up other storage battery units correspondingly.

(4) Clean up the air vent on cell cover, and then twist the cover tightly to keep upper-surface of cell clean.

⚠ Caution

Filling up with distilled water in cold days before it starts operating to prevent distilled water frozen.

7. Lubrication

⚠ Caution

- Take parking brake and lock the front-frame and back-frame.
- Set work device to settling position, and then make engine extinguished.

Use lubricating screw to fill up consistent grease to every oil site of the loader which specific position can be found by referring to maintenance diagram(on the gasoline tank).

3.5.7 Every 500 hours maintenance

In the mean time, complete 50、100 and 250 hour maintenance.

1 . Replace fuel oil filter

⚠ Caution

- The temperature of engine is very to high after operating, wait until engine is cooling down and make replacement.
- Fuel oil must be kept far away from fire source or spark.

(1) Open side cover of engine bonnet.

(2) Oil vessel is put under oil filter.

(3) Turn oil filter widdershins by using oil-filter wrench and unbolt it.

(4) Clean the bracket and fill the new oil filter with clean fuel oil; Wipe engine oil at the sealing surface of oil filter, and then assemble it on the bracket.

(5) Keep on screwing about 2/3 circle after upper sealing surface of oil filter contacts with grease sealing surface when assembling. If oil filter is screwed too tight, grease seal will be damaged and thereby leading to oil leak. If oil filter is screwed too loose, oil also leak at the grease seal. Therefore, it must be screwed properly.

(6) Unclamp releasing plug after oil filter is replaced.

(7) Unclamp feed pump, displace the pump from the top down until bleed plug screw stop.

(8) Fasten releasing plug and the knob of feed pump after air bleed.

(9) Wind the key to power-on position and press start switch to make engine started up after oil strainer replaced, the engine is started and air is released in few seconds. Afterwards, check whether there is oil leak on the oil sealing surface of oil filter. If any, check and fasten filtering cylinder. If there is still oil leak after filtering cylinder fastened, carry it down and check its sealing surface. If there is already damage to grease seal or dust on its surface, replace it and re-assemble.

⚠ Danger

Make sure it is safe all around when starting engine.

2. Replace filter gauze of gear-box

Prepare oil vessel for storage

(1) Put the oil vessel under oil filter.

(2) Take out oil drain plug-screw at the bottom of oil-filter shell to drain the oil. Fasten it after oil drain.

(3) Hold the shell in palm, unbolt and carry down the shell.

(4) Carry out the drainer screen and clean the inside of the shell.

(5) Replace oil-filter gasket.

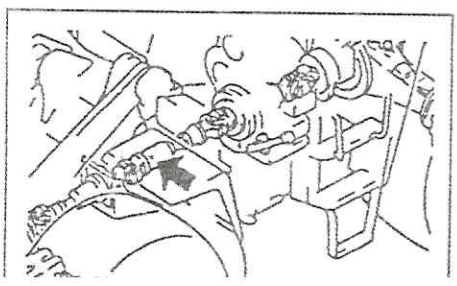
(6) Assemble new filter gauze into the shell, afterward assemble the bolt.

(7) Operate the engine idly in a short time and check the oil level.

3 . Lubricate second motion shaft spline (1 place)

⚠ Caution

- Take parking brake and lock the front-frame and back-frame.
- Set work device to settling position, and then make engine extinguished.



(1) Use lubricating screw to fill up consistent grease to oil site arrowed.

(2) Erase waste consistent grease extruded after lubricating.

Remark: Take the same steps to vehicle equipped with automatic lubrication system.

in addition，the first 500 hours addes below maintenance:

1） Replace gear-box oil.

2) Replace driving axle oil.

3.5.8 Every 1000 hours maintenance

In the mean time, complete 50、100、250 and 500 hours maintenance.

1. Replace oil in gear-box and clean the filter gauze.

⚠ Caution

The oil temperature is very high after operation, replace it after cooling.

Oil vessel: Minimum capacity of 45L

Re-filled oil volume: 45L

(1) Put the oil vessel under oil-filter plug screw and then unbolt the bolt to drain the oil. For preventing oil outflow suddenly, unclamp the bolt and carry it off gradually.

(2) After oil drain, assemble bolt and screw it down.

(3) Put oil vessel under gear-box oil filter.

(4) Take off the oil drain plug screw of gear-box, screw it down after oil is drained.

(5) Take off bolt, cap and filter gauze.

(6) Clean out soil adhering to filter gauze, and then clean up with diesel oil or cleaning oil. If the filter gauze is damaged, replace it.

(7) Reassemble filter gauze.

(8) Infuse a certain quantity diesel oil through oil filler.

(9) Check the oil level while refueling.

(10) Check whether gear-box and oil-filter leak oil or not.

2 . Clean gear-box inspirator

Clean out dust around the inspirator and take it off. Put it into cleaning liquid to make cleanout. Pay attention to dust entering into hydraulic fluid connection when carrying off the inspirator.

3. Lubricating

⚠ Caution

- Take parking brake and lock the front-frame and back-frame.
- Set work device to settling position, and then make engine extinguished.

(1) Use lubricating screw to fill up consistent grease to each oil site which specific position can be found by referring to maintenance diagram(on the gasoline tank).

(2) Erase waste consistent grease extruded after grease is filled.

The oil sites must be paid attention to are:

1) Final drive shaft (2 places).

2) Front drive shaft (2 places).

3) Intermediate support of drive shaft (1 place).

4) Second motion shaft (2 places).

5) Back drive shaft (2 places).

6) Engine blower (1 place).

7) In addition, oil sites are each pin of work device、hinge pin of front-frame and back-frame、swing-frame pin and so on as also.

8) Integrity of centralized lubricating system should be checked if it is centralized lubrication. If there is not enough grease in tube, it should be filled.

4 . Check turbocharger fastener

Contact the manufacturer or marketing office to check fastened part

Check rotor clearance of turbocharger.

5. Replace hydraulic oil and filter element.

⚠ Caution

The oil temperature is very high after operating, replace it after its temperature fallen. Turn the oil tank cap slowly to release built-in pressure and then take down the oil cap.

Preparations:

Oil vessel: Minimum capacity of 300L

Re-filled oil volume: 300L

(1) Make the bucket down to lay on the ground flatly，and extinguish engine to take braking to standstill.

(2) Screw down the bolt.

(3) Dismantle filler cap.

(4) Put vessel under drain plug.

(5) Dismantle the drain plug.

(6) Open the release valve slowly to drain the oil.

(7) Close the release valve and screw up drain plug after oil draining.

(8) Screw down 2 assembly bolt on oil-filler cap locate at the side of oil-tank and then Dismantle the cap. Press the cap when dismantling bolt due to it may flurr as a result of spring.

(9) Dismantle the spring and then filter element.

(10) Check whether there is other substance in the oil-tank before cleaning.

(11) Assemble new filter element、spring and cap.

(12) Press the cap and fasten the bolt equably when assembling bolt on the cap.

(13) Fill with engine oil through oil-filler to specific oil level and then assemble cap.

(14) Check whether hydraulic oil is at its specific oil-level, more information about this refer to "3.5.5. Every 100 hours maintenance".

(15) Operate engine idly, flex、turn tipping bucket and radius oil-cylinder 4-5 times, be careful of preventing oil-cylinder from its travel-head(stop at 100mm in front of travel-head).

⚠ Caution

If engine is running up immediately or oil-cylinder is flexed to its travel-head, seal packing will be damaged by air inside the cylinder.

(16) Subsequently, operate turning、tipping bucket and radius oil-cylinder to its travel-head 3-4 times. Unclamp airbleed plug to bleed air in hydraulic oil-tank whereafter screw up the plug. Operate engine idly when bleeding air.

(17) Check oil-level and refuel to the specific oil-level. Please refer to "3.5.5 Every 100 hours maintenance".

(18) Increase the engine speed, repeat step 16 and bleed air. Repeat it until no air is bled.

(19) Fasten plug screw after air is let off.

(20) Check whether the oil level in oil-tank is normal, more detailed information can be found in "3.5.5 Every 100 hours maintenance".

(21) Check whether there is oil leak at the assembly position of oil-filter cap.

6 . Replace driving axle oil.

⚠ Caution

Wait until oil temperature is cooling down to replace due to the oil temperature is very high after the machine operated.

Preparations for replacing oil

(1) Use vessel with more than 80L capacity to fill with oil let off.

(2) Refill front axle and back axle with 40L oil respectively.

1) Put vessel under the drain plug to fill with oil let out.

2) Dismantle fore and back oil filler plug, and then dismantle the drain plug to drain oil.

3) After oil drained, wipe up the drain plug and then screw it down.

4) Refill driving axle with oil.

Refer to "3.2 Outline of Maintenance ",for choosing fuel oil, hydraulic oil, lubricating oil about oil liquid recommended.

5) Check whether oil level is at the specified position or not after refueling.

⚠ Caution

lubricating oil of the wet braking driving axle is Mobil black overlord LS 80W/90, it is be different from the Dry braking driving axle.

7. Replace the brake fluid

(1) clean the assistor's screen and riser vent , Replace the brake fluid.

(2) you should exhaust after maintaining. Step on the brake pedal many times, then tramp the brake pedal fixdly ,loosen the deflating valve on the brake disk to exhaust until the brake fluid doesn't have air ,then close the deflating valve, ,loosen the brake pedal, finally fill the brake fluid in the oil cup.

⚠ Warning

the brake fluid of the wet braking driving axle is L-HM46, it is be different from the Dry braking driving axle .

3.5.9 Every 2000 hour maintenance

In the mean time, complete 50、100、250、500 and 1000 hours maintenance.

1. Replace filter element of hydraulic oil-tank inspirator

⚠ Caution

The oil temperature is very high after operating, replace it after its temperature fallen. Turn the oil tank cap slowly to release built-in pressure and then take down the oil cap.

(1) Screw down the joint bolt for inspirator and fuel oil tank.

(2) Dismantle inspirator and filter element.

(3) Replace filter element and mount the joint bolt for inspirator and fuel oil tank.

(4) Screw up filler cap.

⚠ Caution

Be careful not to screw over tight when mounting inspirator.

2. Check the worn condition of brake disk

Ask the agent for help to check and repair brake disk.

3. Check adjuster、start-up motor

Electric brush may be worn out or a lack of lubrication for bearing, please ask the agent for help to make check and maintenance.

If engine is started up frequently, check it every 1000 hours.

4. Check valve clearance and adjust

Technical instruments are required to make disassembly and adjustment, please ask the agent for help to make maintenance.

5. Check shock pad

Check whether there is rent and peeling on external surface of rubber.

If there is what mentioned above, please ask the agent to make

6. Replace circulating filter element and air-change filter element of air-conditioning

Referring to the requirements in use & maintenance instruction for air-conditioning, replace filtering element and filter gauze of air-conditioning or consult its manufacturer.

7. Clean up and check turbocharger

If there is carbon deposition and sludge on impeller, the turbocharger performance will be reduced thus cause damage. Please ask the agent to assist to make cleanout.

3.5.10 Every 2400 hours maintenance

1. Check water pump

Check whether there is clearance in belt pulley wheel or not, whether there is oil leak, water leak, blockage in oil draining hole. Please ask the agent to help repair or replace.

2. Main driver of riving bridge and wheel-rim decelerator disassembly check

3. Gear-box、torque-converter disassembly check.

3.5.10.4 Deflector disassembly check

3.5.10.5 Work distributing valve check、oil cylinder disassembly check.

3.5.10.6 Check the front vehicle frame and back vehicle frame、deformation damage of work device each several part.

3.5.10.7 Disassemble transmission shaft respectively for checking，clean and replace oil.

3.5.10.8 Engine should be maintained according to its operation instruction.