

**Operation and maintenance instructions**



**original instructions**

# GG1900

## Wheel Loader



**Warning: Unsafe use of this machine may cause serious injury or death. Operation and maintenance personnel must read this manual before operating and maintaining this machine. This manual should be placed near the machine for timely reference and all personnel related with this machine should consult this manual regularly.**

# Preface

Thank you for choosing our brand telescopic multi-function machine. In order to correctly operate and maintain the machine, we hereby make this manual.

This manual is coincide with the multi-function machine

This manual helps user operate the machine safely and efficiently, when resell or rent the machine, it must be handed over at the same time

This manual reports the information instructions and whatever is considered necessary for the knowledge, the good use and normal maintenance of the multi-function machine the.

The contents in the following paragraph are neither a complete description of the various components nor a detailed explanation of their operativeness. The user will find what is considered useful for a good maintenance of the machine and working in safe conditions. The operativeness and duration of the machine depend on the observance of the instruction in this manual.

The manual is the basic tool for the operator to achieve various tasks. For example:

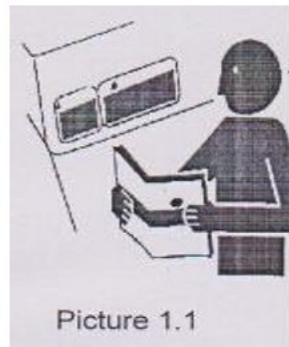
- Transfer or move the machine
- Operate the machine
- Maintain the machine

# SECTION 1

## Safe operating instructions and precaution

### 1.1 Safe operating instructions

Read carefully this manual, especially the parts involved with safety rules must be read with extreme care. The buyer will train the workman to correctly use and periodically maintain the machine. Be familiar with operators' safety device and precaution for general accidents.



Pay attention to the triangular symbol, it indicates a certain danger, see picture 1.1

- It is forbidden to use the machine or any attachments before read and have a good understanding of this manual
- The manufacturer is irresponsible for any damage due to non-observance or ignorance of the instructions in this manual
- The manufacture is irresponsible for any possible damage caused by misunderstanding this manual.
- The manual is an indispensable part of the machine, which should be equipped all the time. The manual must be put on a safe and well known place of the machine.

-In the whole lifetime of the machine, the user must keep the manual in good condition and accept its update

-In case the manual was lost or damaged, the user should ask the manufacture for a copy.

-Due to the continuous improvement and development of the manufacturer, the specification and performance of your machine may be different with what described in this manual.

## **1.2 SAFETY NORMS**

### **1.2.1 SAFETY RULES**

1. The machine must be operated by qualified or authorized person. It is absolutely forbidden to have the machine operated by inexperienced person in bad psychological conditions.
2. When operate or maintain the machine, all the safety rules and precautions must be observed.
3. It is strictly forbidden to transport persons. Using the boom to lift persons or objects is also forbidden. And it is forbidden to stand under the boom when it was lifted.
4. The operator must have a good eyeshot in the seat, if it was not clear enough the lights should be turned on.
5. Often clean the control board, joysticks, steering wheel, operator's seat, etc. to avoid difficulty while operating. Do not get on or off the machine while it's running.
6. All the operations must be taken in the operator's seat. Always keep head, hands, body and feet within the cabin to reduce to the least possibility of injuries.
7. Do not keep the engine on in closed spaces. Gas emissions are noxious and can be lethal.
8. Do not get on/off the machine when the engine is on. Do turn off the engine when get off.
9. Keep the labels and instructions of used products. In case of ingestion of fuel, insecticide, chemical substances, contact the emergency center immediately and got ready the relative

labels and instructions.

10. Replace the exhaust pipe of the engine if worn out or noise is excessive.
11. Respect the laws of the country in which the machine was used, relatively to use and disposal of the products employed for cleaning and maintenance of the machine.
12. The attachments closed may cause different bearings on the telescopic arm and axes. It is strictly forbidden to load exceed the max loading capacity marked in this manual.
13. The road-holding, braking and steering ability may be influenced by the attachments adopted.
14. Only use the attachments authorized by the manufacture.
15. Always travel with the load in a horizontal position
16. Cleaning, lubricating or maintenance are forbidden while the machine is in operation, if needed the above actions must be done after the machine was stopped, engine off and ignition key taken away.
17. Invalid touching the running parts of the machine.
18. If the machine is believed to be insecure, ask for the intervention of qualified personnel.
19. Drive the machine on secure grounds; on inclined, wet and slippery grounds proceed with extreme caution.
20. When in operation in proximity of electrical lines, it is recommended to maintain the machine in a safe distance.
21. Keep under control your operating area, keep off persons and animals.
22. The acids of the battery is extremely dangerous. Use gloves and protective masks for eyes.

23. The instruction manual must be read, memorized and kept all the time, in case of resale and until the machine is dismantled. Should the manual be lost or damaged, immediately ask for a copy from the manufacture.

24. Before operating the machine, tighten the safety belt and close the door.

### **1.2.2 KEEP ALARM OF FIRE**

1. The fuel or engine oil can be ignited by open fire, specially the fuel is extremely flammable, keep the fuel or other flammable liquid far away from open fire.

2. The oil tank, pipelines or other flammable parts may get worn out or broken, so it is forbidden to smoke or light fire around the above mentioned parts.

3. Turn off the engine when add oil.

4. To stock or other oils should at an area with good ventilation.

5. If fuel and all the lubrication are flammable, so it is forbidden to weld the pipelines with fuel or lubrication.

6. The fuel and all the lubrication are flammable, so it is forbidden to weld the pipelines with fuel or lubrication.

7. Fuel and lubricants can be flammable, explosive, toxic and corrosive; hence stock them in their original boxes out of reach of non-qualified personnel.

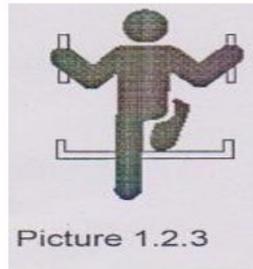
8. If the hot parts of machine touch some relative solid, liquid or gas, may cause fire, burnt, distortion or explode, therefore relative precautions should be taken.

### **1.2.3 GET ON/OFF THE MACHINE**

1. Do not jump on/off the machine while it is running. Use the handle and the step to get on the machine, it is forbidden to grab any joysticks while getting on the machine.

2. Keep the machine and the step without dust or oil stain.

3. Check every day the fasten bolts, fasten the loose ones and replace the broken ones.
4. Do not keep anything movable in the cabin, in case it will hook the control rod and cause severe accidents.
5. Before get off the machine, low down the boom, apply the brake, turn off the engine and take away the ignition key.

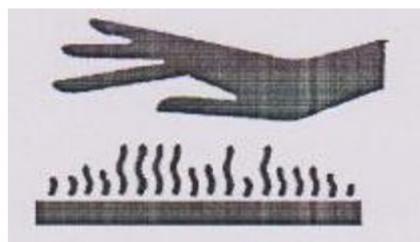


#### 1.2.4 LEAVE THE MACHINE

1. Before leave the machine, make the telescopic arm retract, low down the working arm and let the attachments down to ground.
2. Turn off the engine, lock all relative parts and take away the keys.

#### 1.2.5 SAFETY PRECAUTIONS UNDER HIGH TEMPERATURE

1. After long time working, when it need to change the engine oil, hydraulic oil and filters, first let the machine temperature down to avoid injury from high temperature or pressure oil.
2. To prevent hot oil or water pour out, turn off the engine, make the oil and water cool down, then loosen the cap gradually to release the pressure, at last open the cap. (To judge the actual water temperature, you can put your hands near the radiator and feel the air temperature, but do not put your hands directly on the radiator)



Picture1.2.5

3. Do not touch any heating parts after several hours' work

### 1.2.6 AVOID EXTRUSION DANGER

1. It is forbidden to stand under the working arm.

2. Do not let any parts of your body between parts which have relative motion to avoid injury.

3. It is forbidden to repair while the machine is in operation.

4. If it is required to lift the boom when repair, use the cylinder support rod to support the lifted boom, otherwise the boom may down suddenly and cause severe accidents.



Picture 1.2.6

### 1.2.7 TRAVELLING SAFE

1. Do not take off the keys while the machine is running.

2. It is dangerous to start, stop or turn suddenly, moving too fast and go in "Z" way.

3. If there's anything unusual happened (such as noise, vibration, smell or unusual indicating), immediately drive the machine to a safe place and check.

4. Do not use any control rod during the travel, if needed please enable slowly.

5. If you need to travel on a rough ground, use low speed and do not turn.

6. Try your best to avoid pass over obstacles, if you need to do this, please make the working arm close to the ground and use low speed, the incline of the machine should no more than 5°

7. Pay great attention when travel on slope to avoid tipping or slipping.

8. Keep the buckets (or other attachments adopted) 20-30cm upper the ground, if there's anything emergency low down it and stop the machine.
9. Avoid turning or travel horizontal on slope, only on smooth ground can be done.
10. If the engine was off on a slope, the emergency braking should be used and the working arm should be down.
11. When the machine cannot move on muddy soft ground, you can try the way to increase the accelerator, step down the travel pedal gradually and low the speed.

### 1.2.8 TRANSPORT SAFE

- 1.840 multifunction machine can be transported by truck or similar trailers, Before proceeding with the operation of load, check if your means of transport has a appropriate loading capacity. The platform on which the machine is loaded must be flat to avoid movement.
2. The machine can be loaded or unloaded with the proper load ramps. Make sure the ramps are strong enough and, if necessary, strengthen them with blocks. Proceed slowly on the ramps; keep the machine to the center of the platform. The angle of the ramps must not exceed 25°.
3. The machine is endowed with hydrostatic traction and cannot move when the engine is off. Therefore the must be driven to a certain position.
4. After loading the machine, prevent the possible steering of the machine by applying the articulation locking rod.
5. The load and unload must be made on level ground and at a safe distance from ditches and road edges.

6. After loading the machine, stop it by applying brake blocks to the wheel and the hand brake. Immobilize it with ropes and chains anchored to the special unctions (two frontal and two back).
7. After the transport it is recommended to verify the position of the machine do not constitute a danger before removing the rops, the brake blocks and downloading the machine.

## SECTION 2

### General characteristics and technical specifications

#### 2.1 WARRANTY



ATTENTION

The non-observance of what is described in this manual, incorrect operation or wrongly use the machine and the execution of non-authorized workers, will cause the exclusion of warranty.

The manufacture declines every and any liabilities for direct and indirect damages due to the above mentioned points.

For reparations and revisions involving works of a certain complexity (motor, hydraulic plant), it is necessary to turn to the authorized Assistance Center with specialized personnel or directly to the manufacture, which is available to assure a ready and accurate technical support to restore the full efficiency of the machine.

## 2.2 WARRANTY TERMS

1. For the new machine, within determined limits, the manufacture guarantees for a period of 12 months after bought or 200 working hours (whichever comes first).
2. The warranty includes reparation or replace the parts for free which were proved to be defective in origin by the technical department of the manufacture.
3. The reparation or replacement for the parts should not exceed the warranty period.
4. The warranty is valid on the condition of all the terms listed in the contract was observed.
5. If any claims happened, the adjudgement place should be Qingzhou City, Shandong Province, China.

### 2.2.1 EXCLUSIONS FROM WARRANTY

1. Electric, electronics and all those parts replaced due to normal wear are not covered and any consequent damage, all transport, works and storage costs are excluded from the warranty too.
2. The warranty will invalidate
  - if accidents occur due to operator's fault;
  - if the damage was caused by insufficient maintenance;
  - if the machine should suffer vibration or damage after works operated by the user without the authorization of the manufacture or following the fitting of non-original parts;
  - if operation do not follow the instructions in this manual;
  - in exceptional events.
3. Damages caused by negligence or incorrectly use the machine are not covered by warranty



4. Remove of the safety device will make the warranty invalidate, and non-liability of the manufacturer.

5. The replaced parts do not have warranty.

6. The machine or parts of it, returned even under warranty, will be sent EXW.

7. Other exclusion of warranty

-tires;

-rims;

-brakes;

-chassis

-parts of chassis more likely to be damaged;

-muffler;

-battery;

-buttons and joysticks;

-seat;

-steering wheel;

-gaskets of cylinder;

-all accessories.

### 2.3 MACHINE IDENTIFICATION

1. Check whether the machine is entire and complete after receipt.

2. Possible claims must be forwarded writing within 8(eight) days from receipt.

3. Each machine has an identification plate. The data identifying the machine must be copied in the back cover of the manual and must be quoted every time spare parts or assistance works are requested.

The machine is delivered along with:

- The operator's manual;
- Manual of instructions for the use and maintenance of the engine;

#### 2.4 DESCRIPTION AND USE OF THE MACHINE

The the multifunction machine are a "CE"marked machine.The machine described in this manual is projected to be commanded by a single operator from the driving seat.The structure of the machine is made of a front chassis and back chassis both connected to a central articulation.The machine has four independent traction wheels making it particularly strong and stable.

On the front chassis there is a lifting arm fixed though a pivot,an interchangeable attachment plate,hydraulic outlets,and a power supply of 12v for the equipments with electric commands.

A diesel engine,positioned in the back,which operates a pump that through a hydraulic circuit enables all the functions of the machine,transmits the motion.

The adoption of innovative materials and high quality solutions allow the use of all the potentialities of the machine.

The machine is convinced to be used in agriculture,green spaces,horticulture and gardening.



The machine is for professional use and the operator must be qualified and able to read and understand the contents in this manual.Besides the machine must use the machine keeping in mind the current regulations in the prevention of accidents,conditions of use and characteristics of this machine.

The multifunction machine 840 described in this manual is a machine conceived to be used for operations in agricultural fields, green spaces, construction sites and road yards.

It is absolutely prohibited to use the machine on roads if it does not have type-approval confirming to the legislation in force in the country of use.

The multifunction machine 830/840 must not be used as a mean of transport and/or towing, or with non-original equipments.



The use of the machine is forbidden in environments in which vapors of mixtures of inflammable or explosive gas can be developed. The user must verify that the equipments can be properly attached to the machine and in compliance with current legislation.



Every other use not contemplated in this manual will relieve the manufacturer of every and any responsibility for damages to persons, animals or things.

#### **2.4.1 INTERCHANGEABLE EQUIPMENTS**

Corresponding interchangeable equipments can be fixed on the machine's interchangeable attachment plate. For the recommended interchangeable equipments please contact the local dealer.



The manufacture is available for further explanations and for the assembly of further equipment.



Each attachment refers to its norms of product. The tipping moment generated by the equipment installed on the machine must be lower than the one produced by the loads stated in the chart. The weight of the equipment installed on the machine must be considered as an applied tool.

#### 2.4.2 NOISE RISK



The machine may produce high noise when operated, so the use of soundproof protection tools to avoid damages to the auditory system is obligatory.

#### 2.4.3 LOAD DIAGRAMS

The tipping load is limited to the possibility of inclination of the machine. The load diagrams represented in picture 2.4.3 illustrate the inclination of load and the maximum weight of lifting in different positions of the arm and with different distance from the machine.

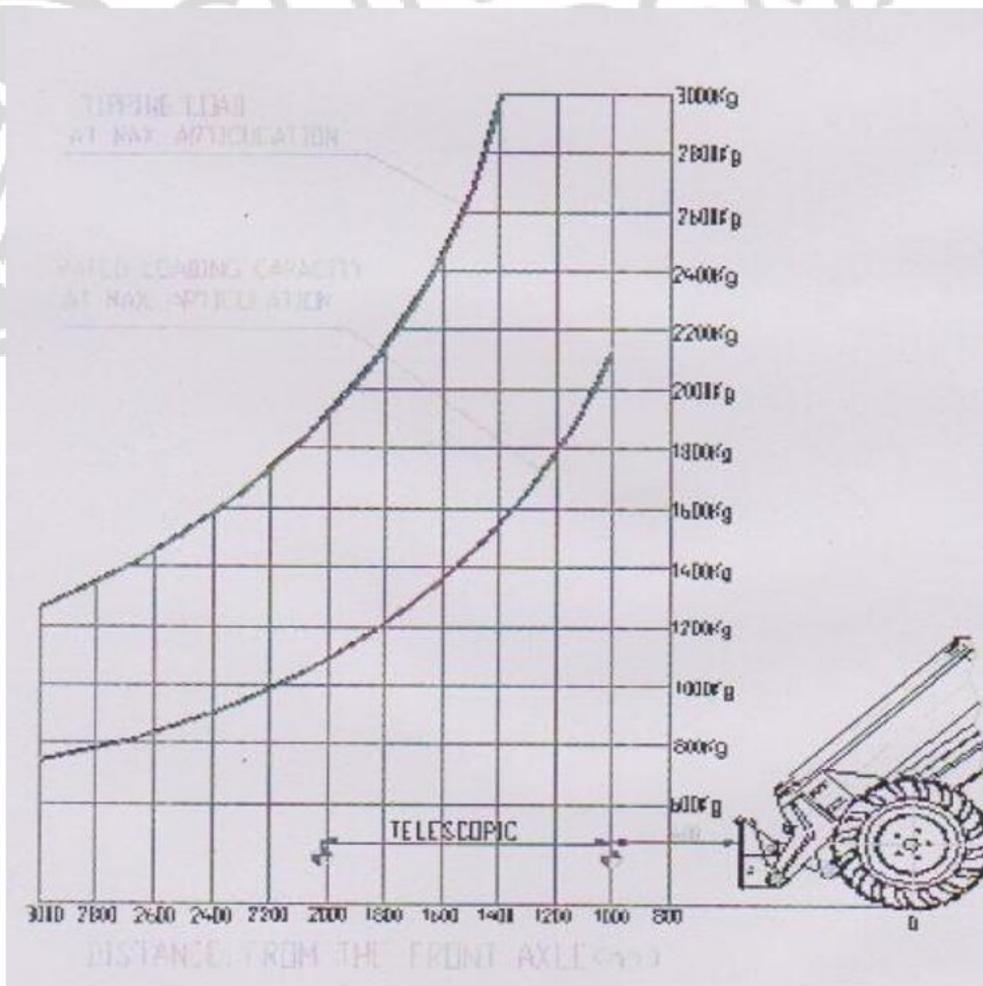
The load diagrams refer to the machine in still position and set on a solid and plain surface with an operator of 85kg in the driving seat. Any shift in the center of gravity of the load produces a change in the machine's loading capacity.

The stated lifting capacity is inclusive of the weight of the accessory used, the net lifting is therefore given by the value shown on the graph less the weight of accessory.

In the diagram, the center of gravity of the load is located at 400mm from the attachment coupling plate, according to ISO14397-1 rules. While moving the arm, the load center moves from the starting position and consequently the loading capacity of the machine is different. As shown in picture 2.4.3, the machine is in a position of maximum articulation. While the center of the front and back chassis are not at the same beeline, the loading capacity will correspondingly less.

The upper curve in this diagram indicates when the machine is at maximum articulation, the corresponding rated loading capacity with different distance from the gravity of the load to the front wheel.

The lower curve in this diagram indicates corresponding tipping load with different distance from the gravity of the load to the front wheel.



## SECTION 3

### USE OF THE MACHINE



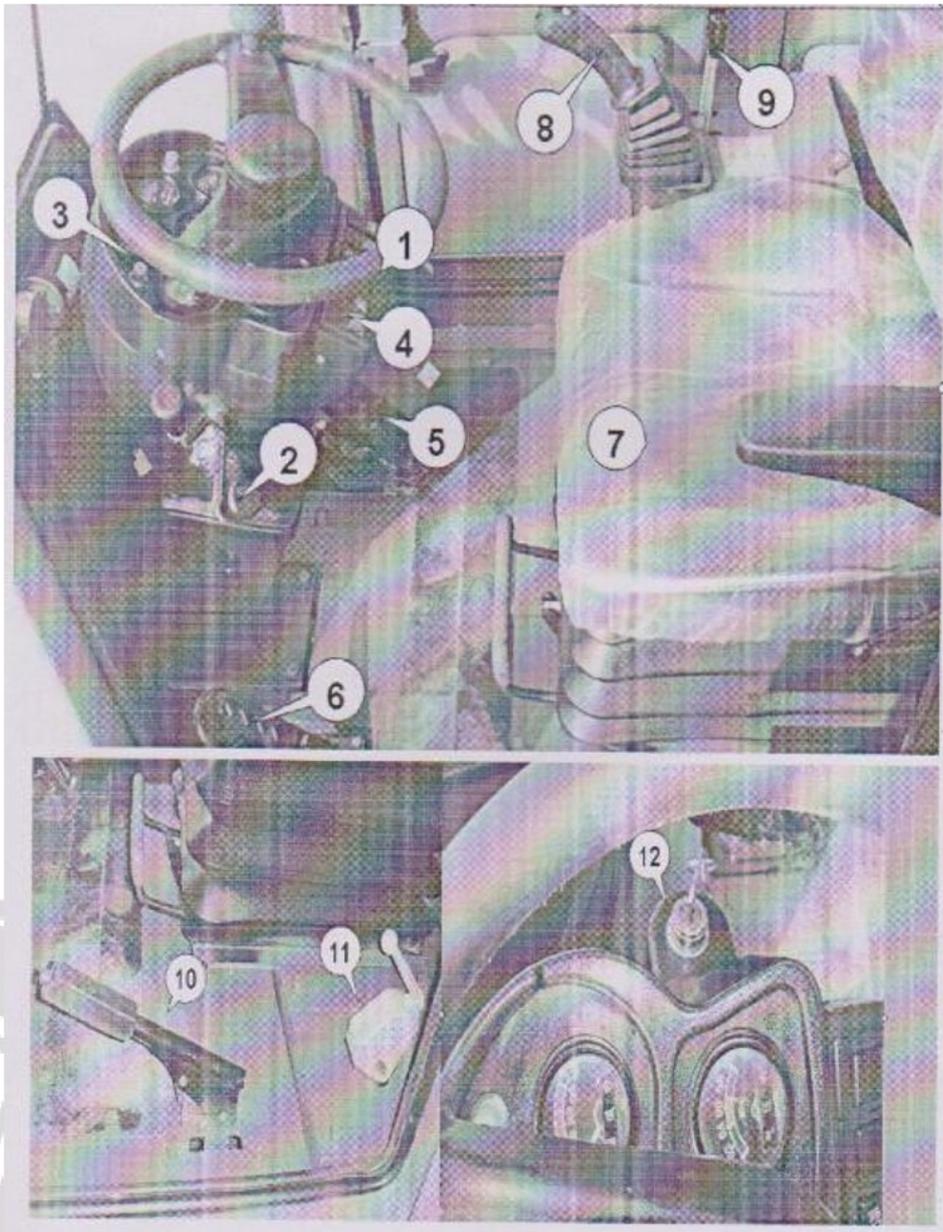
Before operating the machine, verify that everything is in order, that the protections and the bonnet are installed and that all the elements subject to wear and deterioration are fully efficient.

#### 3.1 COMMANDS AND CONTROLS

The diagram for the various commands and control devices as below:



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1. Steering wheel.
2. Forward/reverse and high/low speed lever
3. Combined instrument.
4. Rocker switch.
5. Accelerator pedal.
6. Brake pedal.
7. Driving seat.
8. Boom up and bucket tipping joystick.

9. Boom telescopic and quick hitch.

10. Parking brake.

11. Electric power switch.

12. Ignition key

The function of the various commands and control devices as below:

### **3.1.1 STEERING WHEEL**

Turn the steering wheel the machine can turn right or left.

### **3.1.2 FORWARD/REVERSE AND HIGH/LOW SPEED LEVER**

The forward/reverse lever is the inside one, push it forward, the machine moves forward, pull backward, the machine reverse, mid position is neutral.

The high/low speed lever is the outside one, push forward engage the high speed, pull backward engage the low speed, mid position is neutral.

### **3.1.3 COMBINED INSTRUMENT**

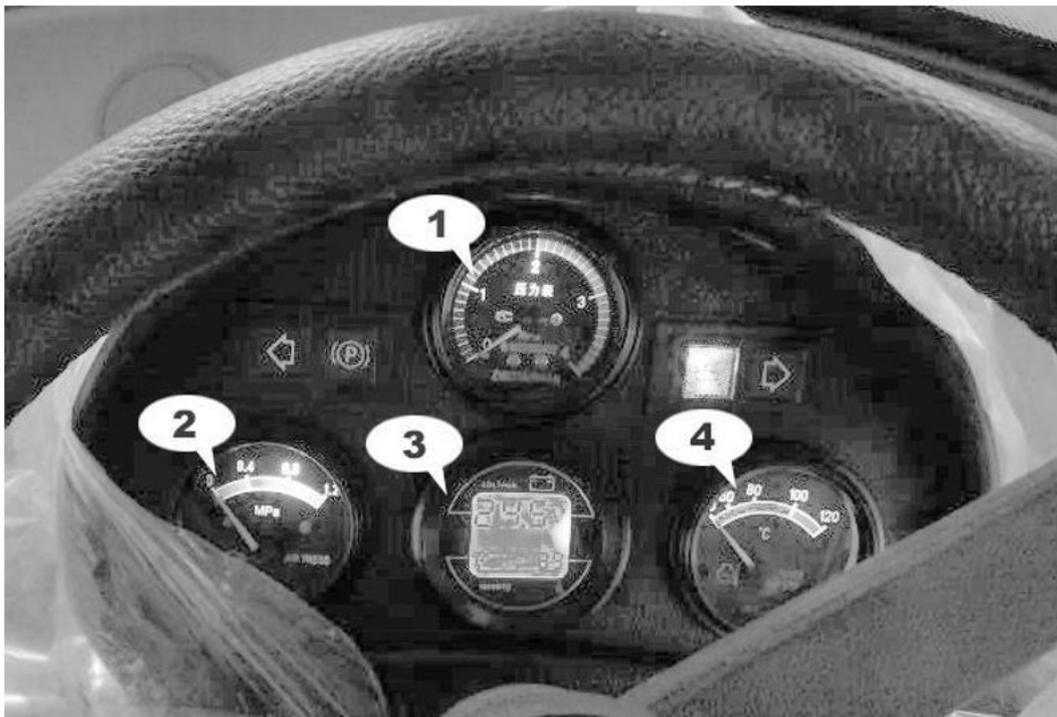
The combined instrument can tell the working condition of the engine and the hydraulic converter.

1. Hydraulic converter pressure

2. Air pressure

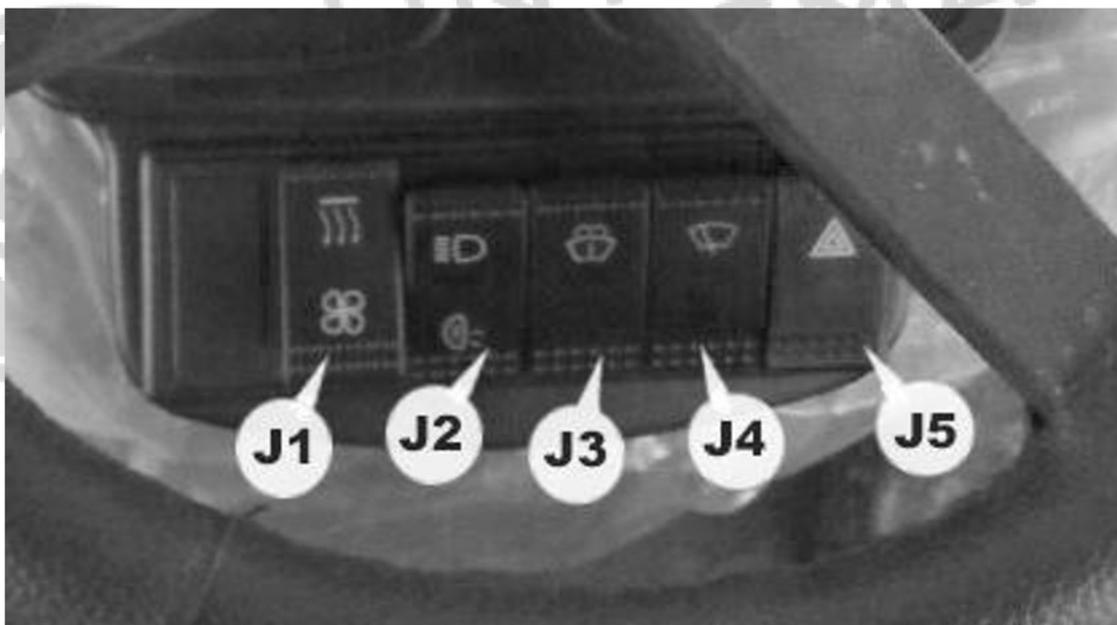
3. Electricity gauge and

4. Water temperature gauge



### 3.14 ROCKER SWITCH

The function of the switches as below:



J1.Fan and heater switch

J2.Alarm light switch

J3.Water switch

J4.Wiper switch

J5.Blinking lamp switch

### 3.1.5 ACCELERATOR PEDAL

When pressed, the engine speed gradually increases, when it is fully free, the engine speed is at the lowest point.

### 3.1.6 BRAKE PEDAL

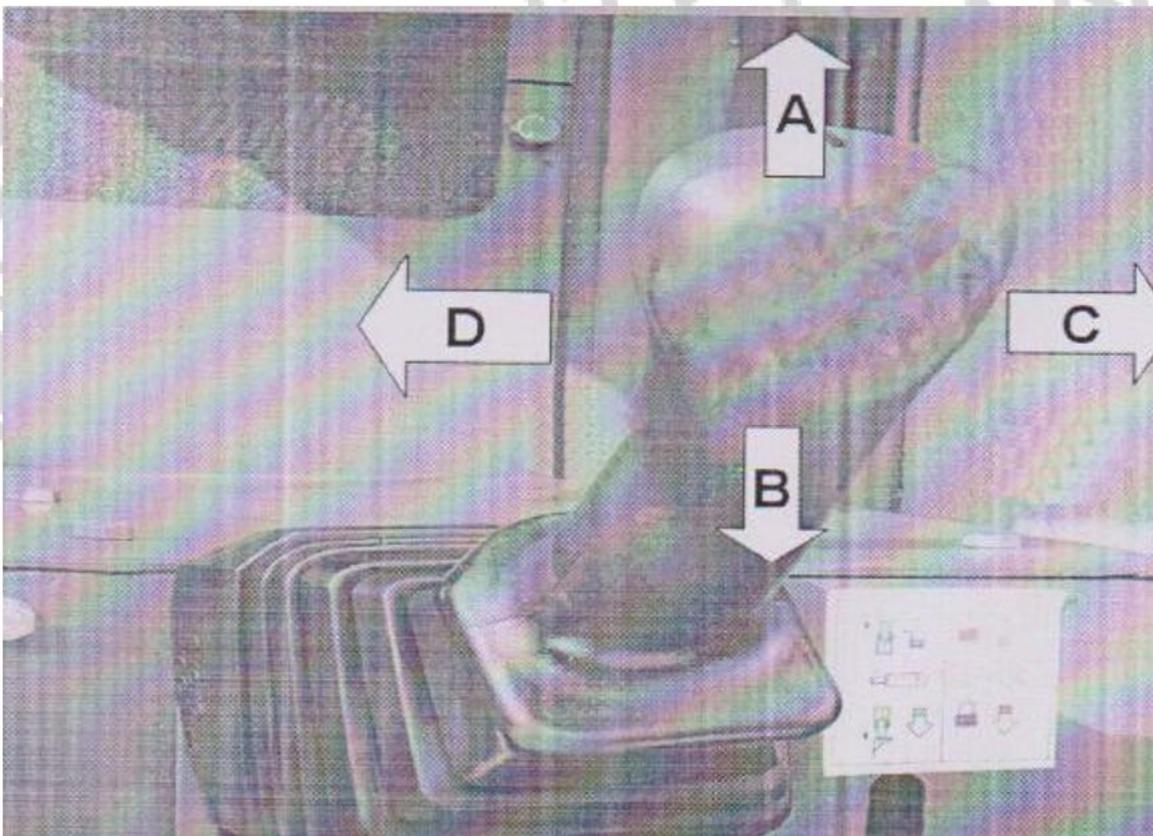
Engage it when need to stop the machine.

### 3.1.7 DRIVING SEAT

The driving seat can be adjusted forward and backward, and can also adjust the strength of the spring, and choose the most comfortable condition according to operator's weight.

The seat is equipped with foldable armrest and safe belt.

### 3.1.8 BOOM UP AND BUCKET TIPPING JOYSTICK



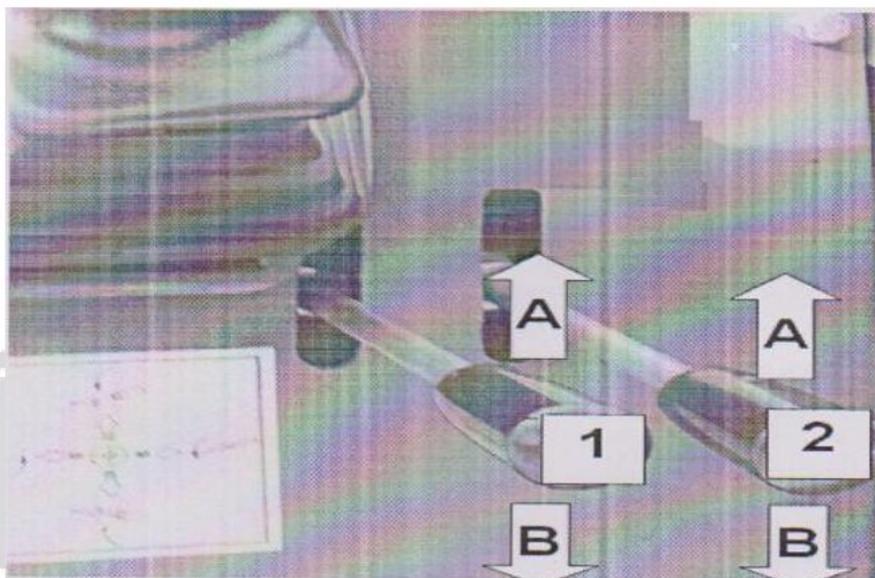
1. Push the joystick forward to <<A>>, the arm drops.
2. Pushing the joystick back to <<B>>, the arm rises.
3. Pushing the joystick to the right <<C>>, the attachment plate bends over.

4. Pushing the joystick to the left <<D>>, the attachment plate bends upwards.



When finish the action of the quick coupling plate, make sure that the joystick is at neutral position.

### 3.1.9 BOOM TELESCOPIC AND HYDRAULIC OUTPUT CONTROL LEVER



1. Boom telescopic lever. Push forward to A, the boom extended; pull backward to B, the boom retracted. Quick Hitch. Push forward to A, cylinder pin of the quick coupling plate extended outside; pull backward to B, the cylinder pin retracted inside.

### 3.1.10 PARKING BRAKE

When the machine has been stopped, engage the parking brake to ensure the machine does not move. Before leaving the seat, make sure the parking brake lever is in the braking position.

Park the loader on the flattest surface possible, lower and level the work equipment. This also applies when parking the machine overnight or for extended periods of non-use. Release the parking brake before starting the machine.

### 3.1.11 ELECTRIC POWER SWITCH

Push down this switch to offer electric power for the machine, when leave the machine, pull up this switch.

### 3.1.12 IGNITION KEY

Rotating the key to the right turns on the power supply, a second click to the right turns on the engine. Once the machine is on, release the key. To turn the machine off, turn the key to the left.

## 3.2 BEFORE USE



- Familiarize with the devices of command and their functions.
- Make sure all protections and covers are correctly installed.

#### **Before starting the machine:**

- Check the battery condition, if necessary, try to charge the battery or change it.
- Check the level of fuel (see the indicator 1-picture 9).
- Check the oil level of the hydraulic circuit. A correct level should not lower than the checking window of the indicator. If the oil level is lower than the red line, then refill it, that is the indicator should be full of hydraulic oil. When machine and attachments with cylinders or hydraulic motors are used, the oil level decreases.

## 3.3 SWITCHING ON THE MACHINE

Before operating the machine, tighten the safety belt and close the door. Be careful while starting the machine for the first time; keep the engine at low speed.

After all the checks, start the machine by:

- Sitting in the driver's seat;
- Turning the ignition key to the right activates electric power. A second click to the right starts the engine;
- Once the engine starts, release the key and let the engine warm up;
- Should the engine fail to start, wait some seconds and retry;
- The original anti freezing mixture allows use of the machine to minus 20°;
- If the external temperature is below 0° and the radiator is not supplied with anti freezing mixture, discharge the water and charge the radiator with proper anti freezing mixture;
- While the machine is operation, the operator must sit in the driving seat.



BEFORE GETTING DOWN FROM THE MACHINE, THE OPERATOR MUST LOWER THE LIFTING ARM AND THE ATTACHED EQUIPMENT, STOP THE ENGINE AND APPLY THE HAND BRAKE, STOP THE ENGINE AND REMOVE THE IGNITION KEY.

### 3.4 SWITCHING OFF THE MACHINE

To stop the machine:

- Make sure the ground where you want to stop the machine is flat;
- Shift the various controls to neutral;
- Free set the accelerator pedal, turn the key to off position and remove it.

Never leave the machine while in operation.

-Apply the parking brake and stop the engine;

### 3.5 ATTACHMENT PLATE

The machine has been designed to operate with various attachments that can be installed on the front arm of the machine and hooked on the attachment plate (picture 3.5A). The hydraulic outlets are located in the front arm.



Picture 3.5A



Before hooking, unhooking or using attachments, it is necessary to consult the relative instructions manual, lay down the accessories and stop the engine.

The attachments must have proper protection.

To assemble the equipment follow these steps:

-Drive the machine close to the equipment;

-Gradually draw near to the equipment, turn the attachment plate, make the two plates are parallel.

- Hook the two pins of the plate to the two upper points of the attachment;
- Slightly lift the arm by shifting the joystick to (B),push forward the hydraulic output control,then press the hydraulic output lever to neutral position.
- Connect the hydraulic pipelines to the designated quick couplers,and follow the instructions of the attachments manual.
- To detach or replace the attachments,follow the "attachment instructions"backwards.



Do not leave the machine with the arm lifted and loaded,but lay the arm down after discharged.

## **DON'T USE THE MACHINE ON UNEVEN AND LEANING GROUND**

### **SECTION 4 MAINTENANCE**

#### **4.1 GENERAL INSTRUCTIONS**



- The operating of maintenance and settings must be down when the machine is switch off.
- Before proceeding with any operation,make sure the machine is no flat ground and apply brake block to prevent any movement.
- Keep the machine clean,it will help in spotting damaged parts.
- Clean the machine avoiding direct high pressure water jets on the radiator,the heat exchanger and the engine compartment.

-Before injecting lubricating grease in the grease nipples,it is necessary to clean the nipples to prevent mud,dust and foreign bodies from contaminating the grease and making lubrication poor or absent.

-Lubricate and grease every point.

-In restoring or changing the oil,use the same type of recommended oil.



SHOULD WORK BE NECESSARY WHILE THE ARM OF THE MACHINE IS LIFTED,IT IS OBLIGATORY TO NISERT THE LOCK,LOCATED ON THE BACK,TO THE LIFTING CULINDER IN ORDER TO WORK IN SAFETY

#### 4.2 ENGINE

Regarding the maintenance works of the engine,carefully follow the instructions of the engine's manual.

#### 4.3 AIR FILTER

Clean periodically the air filter(picture 16)

-Remove the filter cap,releasing it from its housing.

-Clean by using a dry air jet with a pressure up to 3kg/cm<sup>2</sup>,directing the air jet along the whole inside surface of the filtering cartridge until the dust is completely removed.If pressed air is not available,it's sufficient to beat the cartridge on the palm of the hand.If the cartridge has greasy spots,wash with warm water and soft detergent;then rinse with water going from the inside to the outside(pressure up to 2.8 bar).Let the cartridge drain and dry at ambient temperature.Before reassembling the filter,check the conditions of the cartridge.If lacerated or worm,it must be replaced.The cartridge must be replaced after 5-6 cleaning operations and,in any case,every 12 months,or 200 hours.

#### 4.4 COOLING CIRCUIT

Weekly check the liquid level of the radiator. The level must be little below the cap located under the bonnet.

The liquid a mixture of water and coolant, suitable for temperature to  $-25^{\circ}\text{C}$ . In case of Urgency use only water to top up the mixture level until it becomes possible to restore the original proportions of water and coolant.

Periodically check the fins of the radiator are clean (if necessary clean with a jet air).

#### 4.5 TYPES

Weekly check the pressure and the state of water of the tires, if worn or broken, replace them.

-Before inflating the tires, always check the condition of the rims and the external conditions of the type to discover the presence of bruises, cuts, lacerations or other defects.

-Never go beyond the pressure level indicated for the single types of tires and always check that the pressure of the right and left type are the same

#### 4.6 HYDRAULIC CIRCUIT

To check the oil level of the hydraulic circuit, lift the loader arm.



Weekly check the oil level.

Every 50 working hours change the oil.

-Position an appropriate container under the lower cap on the back of the tank, remove the cap and let the content flow.

-Clean and put back the lower cap.

-Fill up the tank with new oil.

-Start the engine for some minutes,then turn it off and check the oil level,add oil if necessary.

-Screw in the upper cap.

Never start the engine with an empty tank.

For the type of oil to use,see the chart: RECOMMENDED LUBRICANTS.

#### **4.7 ELECTRIC CRICUIT**

The machine has an electric wiring scheme that must be checked before any work on the wiring.

##### **4.7.1 BATTERY**

-It is located on the back both sides under the engine compartment bonnet.

-Check periodically that the level of the electrolyte is 10-15mm over the upper edge of the plates(for batteries with maintenance).Otherwise, restore the level with distilled water.

-Never use acids that may damage the battery, but only use distilled water. Keep the battery dry and clean to avoid harmful dispersions of electricity.

-If the machine remains unused for a long time,take the battery to a dry place and recharge it every month.



The battery contains corrosive acid. Avoid the contact with skin,eyes and suits. In case of contact, abundantly wash with water.

In case of contact with eyes, wash with a lot of water and turn to the first aid.

In case of substitution of a battery, make sure the poles are correct .A wrong connection could cause serious damages to the electric plants.

When the electrical system is being repaired, disconnect the batteries with the special key to interrupt the flow of electricity

-Disconnect both battery and alternator, when welding on the machine is necessary.

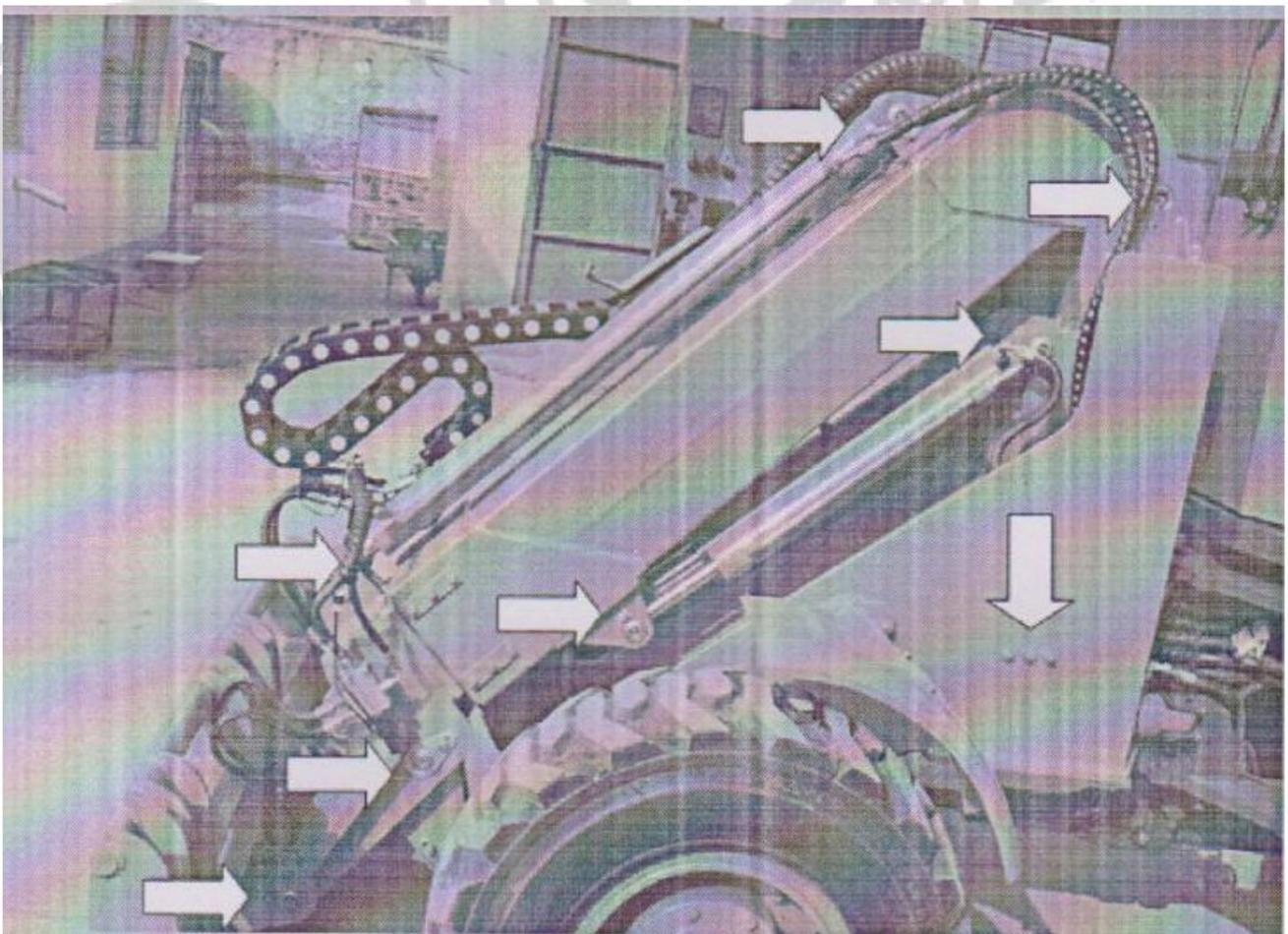
#### 4.7.2 FUSES

The electric circuit is protected by a series of fuses located at one side of the instrument platform. For various protections, check the electric wiring.

#### 4.8 LUBRICATION

##### 4.8.1 GREASING

The points of greasing is illustrated in the below picture.



Picture 4.8.1A

The greasing points showed in picture 4.8.1A(the telescopic boom and the front chassis) should be weekly greasing



Picture 4.8.1B

The greasing points showed in picture 4.8.1B(the turning cylinder and the articulation)should be weekly greasing.

#### 4.8.2 RECOMMENDED LUBRICANTS

Hydraulic plants: PAKELO HYDRAULIC EP EXTRA S-AL46

Cooling circuit: PAKELO RED ANTIFREEZE LONG LIFE

#### 4.9 SUMMARY TABLE MAINTENANCE

	Every day	Every week	Every 50 hours	Every 100 hours	Every 200 hours	Every year
<b>MACHINE</b>						
Clean the machine	O					
Check the tires/tightening the wheel nuts		X				
Check the battery		X				
Check the level of hydraulic oil		X				
Change the filter of hydraulic oil			X		X	
Change the hydraulic oil					X	
Check the tightening of bolts, wrappers, etc.			X		X	
Check the pressure of hydraulic system			O		X	X
Set the pressure of hydraulic system			O		O	O
Grease joints, lubricators	O	X				
<b>ENGINE</b>						
Check the level of engine oil	X					
Replace the engine oil		X			X	X
Clean the air filter		X			X	
Substitution of cartridge					X	X
Substitution of fuel filter						
Check tension of the belt				X		
Check water level of the radiator		X				
Replace the coolant						X
Clean the radiator		O				

X=Operations of maintenance

O=Only when necessary

For further information, turn to the assistance center of the manufacturer.

#### 4.10 PRESSURE TESTING CONNECTOR

The pressure testing connector is up the right rear tire, see photo 4.10, it is used to test the working pressure of the machine, the setting pressure is 200bar.



Picture 4.10

## **SECTION 5**

### **SPARE PARTS**

#### **5.1 SPARE PARTS**

Spare parts' orders must be made to your provider or directly to the manufacturer, and must contain the following information:

- Model, code and serial number of the machine noticeable in the plate attached to each equipment.
- Code number of the spare parts noticeable in the spare part book.
- Further description and quantity needed.
- Spare parts transports are to the charge of the clients and travel at client's risk.