

## *GG010G* Hydraulic loader



**WARNING:** Using this machine in violation of the operating instructions may result in serious injury or death. Operators 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 to this machine should regularly consult this manual.

## Preamble

This manual systematically describes the structure and application of each component of this model, inspection and adjustment, dismantling and installation of the machine maintenance standards and other technical requirements for the maintenance of the use of personnel to fully understand the product, the machine troubleshooting the machine to improve the quality of maintenance and other aspects of the provision of the necessary theoretical knowledge.

Dear users:

Thank you for your trust and love to our company, our company's production of GG010G loader is a kind of small loading machinery mainly for loading. With clever design structure, strong power, good stability and high cost performance, it can meet the loading requirements under different operating conditions such as plains and forests, and is suitable for housing, river, construction, construction site, dredging and road construction. It can reduce the labor intensity of workers, speed up the work progress, improve the working efficiency and mechanization level, which is the most ideal main force for farm work and small projects.

In order to enable the user to correctly grasp the use of the machine, adjustment, maintenance, maintenance and other aspects of knowledge, please read this operation and maintenance manual, the effective implementation of the provisions of this manual, the use of matching engines and maintenance, please refer to the matching Gunter Grossmann to prepare the "engine instruction manual".

**The operating section** is a technical reference for the operator to use the machine, during which the operator is instructed in the correct procedures for checking, starting, operating and stopping the machine using illustrations and text. The operating techniques outlined in the manual are the basis on which the operator can improve his or her own techniques and skills by gaining knowledge of the machine and its functions.

**The maintenance section** is a guide for the user to carry out the maintenance of the whole machine. The specific maintenance of the machine according to the different working hours of the machinery on the

maintenance program respectively, in poor, dusty or rainy working conditions, according to the machine operation to increase the number of lubrication in moderation.

Before using or repairing the machine, the information should be approved and, if necessary, the Technical Service Department of our company can be contacted. When purchasing parts, please state the model's Gunter Grossmann date and number.

In order to facilitate your use, if in the warranty period, you buy our company this model in the correct use of the quality problems, please users promptly contact the maintenance service personnel in the region.

As the technology of our products is constantly being revolutionized, we reserve the right to modify all interpretations of this manual.

If the actual product differs from the pictures in this manual, the actual product shall prevail.

### Safety Precautions

In the maintenance and overhaul of the machine, it is important to pay attention to safety at all times, which is very important for the occurrence of personal accidents and to ensure the quality of maintenance of the machine, for this reason, the maintenance personnel should read carefully the safety matters mentioned in the "Instruction Manual" of the machine, and must comply with the following safety matters.

#### Preparatory work safety matters

Read the model's: "Instruction Manual" carefully before starting the machine.

Wear coveralls and helmets when performing any operation. Wear protective eyewear when cutting with a cutter.

When welding treatment is required, it is to be performed by a trained welder.

When disassembling or assembling, support the machine securely with jacks or stands.

When operating underneath a vehicle, hang a "Repair Underneath" sign on top of the vehicle.

## Precautions at work

1. Before starting work, remove the battery terminal and the (-) negative terminal first.

2. Disassemble the fuel cap, drain plug, antifreeze filling port, and drain port. First, slowly loosen them to relieve internal pressure to prevent oil and water from splashing out or hot oil from injuring people.

When removing the lid under internal pressure or spring pressure, leave two screws in opposite positions, slowly release the internal pressure, and then remove it.

When disassembling and assembling components, be careful not to break or damage the wires, as damaged wires may cause electrical sparks.

5. When disassembling and assembling seals, do not damage or damage the seals (O-rings, oil seals) and sealing surfaces.

6. It is not allowed to use a hammer to directly strike bearings, shaft sleeves, etc. for disassembly.

When installing hoses and wires, pay attention to the position of these parts during machine operation, and do not collide or rub with other parts to avoid damage.

8. When installing high-pressure hoses, be very careful not to twist them, and ensure that the connecting parts are installed correctly.

When dismantling the tracks, one should be careful not to harm others.

10. When lifting parts, try lifting them first and never operate under the lifted object. Clean the ground and oil stains at all times to prevent people from scratching and falling.

Guidelines for safe operation of loaders and precautions for their use

The correct operating steps for a loader:

Correct operating procedures for the loader

I. Inspection of vehicles:

1. Check the condition of fuel, cooling water and lubricating oil.
2. Check the reliability of the running and parking brakes.
3. Check the operation of the bucket system when empty.

II. Getting started:

1. Before starting, look around and make sure there are no obstacles to safe driving, then sound the horn before starting.

2. Brake air pressure gauge reads the required value before starting.
3. Do not accelerate suddenly when starting, but start smoothly.

### III. Driving:

1. Remove the cab key before traveling and keep it in a safe place.
2. When traveling on a ramp, the tow start lever should be in the on position and the tow start must be in the forward direction.
3. Changing the direction of travel and changing the drive lever must be done after the vehicle has come to a stop

When carrying materials, the lower hinge point of the boom should be kept at least 400mm above the ground. Do not lift the bucket to the highest position to transport materials.5.

It is advisable to avoid driving laterally on slopes and shoveling materials as much as possible.

### IV. Loading and unloading operations:

1. Engine water temperature and lubricating oil temperature to reach the prescribed value before full load, load operation, when the water temperature, oil temperature more than 363K (90 °C) should be stopped, look for the cause, to be the water temperature is lower than 363K (90 °C) before the operation, otherwise it will damage the engine.
2. It is prohibited to shovel loads when the front and rear bodies are at an angle. Before picking up a load, make the front and rear bodies form a straight line, aligned and close to the pile, while making the bucket parallel to the ground, and then pick up the load.
3. No pickups are allowed in high speed gear except for walking.
4. Do not lift the bucket while driving.
5. Bucket loading should be balanced, and the bucket is not allowed to load the goods with partial weight.
6. Loaders are vehicles used for loading and short-distance transportation of bulk materials, and digging operations with buckets are prohibited.
7. Before the driver leaves the vehicle, the bucket should be placed on the ground, and it is prohibited for the driver to leave the vehicle while the bucket is suspended.

8. Do not allow people to stand or carry out maintenance work underneath the raised bucket. If the vehicle must be serviced while the bucket is raised, the bucket should be supported and secured.

9. It is prohibited to use the bucket to lift personnel to work at heights.

10. It is prohibited to shovel material directly from a vessel on the dock shore.

11. When working under overhead pipelines, the bucket should be lifted without touching the obstacles above, and when working under high-voltage transmission lines, the bucket should also keep a sufficient safety distance from the transmission lines.

12. When dumping materials for loaded vehicles, the bucket shall not touch the vehicle when it is turned forward, and the unloading action shall be gentle. During the unloading operation, care should be taken that the bucket does not scrape against the wagon. In pushing or scraping operation, should always observe the operation situation, found that the vehicle forward is blocked, should be prudent operation, shall not force forward.

13. The reversing lever should be placed in the center position after parking and the front and rear body safety coupling bars should be installed.

#### V. Notes:

##### 1. General safety precautions:

① Drivers and relevant personnel must carefully read the user and maintenance manual or operation and maintenance manual provided by the manufacturing enterprise before using the loader, and follow the instructions specified in the data. Otherwise, it will bring serious consequences and unnecessary losses.

② Drivers should wear clothing that meets safety requirements and carry necessary protective equipment.

③ If the scope of the work area is small or dangerous, warning signs must be displayed within its range or dangerous points.

④ Drivers are strictly prohibited from driving under the influence of alcohol or excessive fatigue during work.

⑤ When carrying out maintenance or inspection work in the central hinge area, a "Do Not Operate Machine" should be installed to prevent personnel injury caused by serious consequences due to vehicle start-up.

⑥ After the loader comes to a complete stop, step on the tracks and grab the driver's cab handle to get up and down the loader. Do not jump up or down while operating or walking on the loader.

⑦ When repairing a loader, it is necessary to lift the boom and firmly pad it to ensure that the boom will never fall off in any maintenance situation.

## 2. Safety precautions before starting the engine:

① Check and ensure that all lighting fixtures and display lights are functioning properly. Special attention should be paid to checking the normal display of the turn signal and brake indicator lights.

② Check and ensure that no one is working under the vehicle or near the loader when starting the engine to ensure that their own or others' safety is not endangered in the event of an accident.

③ The variable speed control lever of the loader should be turned to neutral before starting.

④ For braking systems without emergency braking, the handbrake lever should be placed in the parking position.

⑤ The engine can only be started or operated in places with good air flow. When operating indoors, the exhaust port of the engine should be connected to or facing outdoors.

## 3. Safety precautions during engine start-up and operation:

① After starting the engine, wait for the brake pressure to reach the safe pressure before preparing to start to ensure braking safety during driving. For those with emergency braking, press the button for the emergency and parking brake valves (the button can only be pressed when the air pressure reaches the allowable starting air pressure, otherwise it will automatically jump up) to release the emergency and parking brakes before shifting to gear I for starting. For those without emergency braking, simply lower the parking brake lever and release the parking brake to start.

② Clear the faulty objects of the loader on the walking road, paying special attention to obstacles such as iron blocks and ditches to avoid cutting the tires.

③ Adjust the rearview mirror so that the driver can have the best visual effect after sitting down.

④ Ensure that the horn, reverse signal light, and all safety devices of the loader are functioning properly.

⑤ When about to start or when checking whether the steering is flexible enough, the horn should be honked first to warn surrounding personnel to pay attention to safety.

⑥ Before starting to walk, all control handles, pedals, and steering wheels should be tested once to ensure that they are in normal condition before starting the operation. Pay special attention to checking whether the steering and braking are intact. Make sure that the steering and braking are completely normal before starting to operate.

⑦ When moving, place the bucket at a height of about 400mm above the ground. When working on slopes in mountainous areas or crossing obstacles such as ditches, one should slow down, make small turns, and be careful to avoid tipping over. When the loading surface starts sliding to one side on a steep slope, it must be unloaded immediately to prevent further sliding down.

⑧ Try to avoid excessive tires and skidding during homework; Try to avoid two wheels hanging in the air and do not allow only two wheels to land and continue working.

⑨ When operating a tractor, it is only allowed to be attached to the towing device. No one is allowed to stand between the towed object and the loader, and a certain safety distance must be maintained to prevent safety accidents.

#### 4. Safety precautions during shutdown:

① The loader should be parked on flat ground and the bucket should be placed flat on the ground. After the engine is turned off, it is necessary to repeatedly turn the operating handle of the working device to ensure that each hydraulic cylinder is in a non pressure rest state. When the loader can only stop on a slope, the tires should be firmly padded.

- ② Place various handles in neutral or neutral position.
- ③ First, remove the electric lock key, then turn off the main power switch, and finally close the doors and windows.
- ④ Do not park in areas with open flames or high temperatures to prevent tire explosions caused by heat and accidents.
- ⑤ When inflating tires using combination valves or air storage tanks, people must not stand in front of the tires to prevent explosions and injuries.



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## Chapter 1 Safety Precautions and Safety Signs

It is your responsibility to follow the relevant departmental safety codes and laws and to operate check and maintain the machine in accordance with the manufacturer's requirements. Virtually all accidents are caused by failure to observe basic safety regulations and precautions. Most accidents can be avoided by identifying potentially dangerous situations in advance.

Please read and understand all safety information that describes how to prevent accidents from occurring. Misoperate the machine until you are sure you understand how to properly operate, inspect and maintain the machine.

Since construction machinery is a special vehicle, the operator should receive training and guidance from the manufacturer, have a full understanding of the structure and performance of the machine, and gain a certain degree of experience in operation and maintenance before operating the machine. The "Product Operation Manual" provided by the manufacturer is the necessary information for the operator to operate the equipment. Before operating the machine, be sure to read the "Operation Manual" and operate and maintain it according to the requirements.

Pay attention to the working load during the break-in period, half of the working load during the break-in period should not exceed 60% of the rated working load, and to arrange suitable workload to prevent the occurrence of overheating caused by the machine's long-time continuous operation. Pay attention to the frequent observation of the instrument indication, abnormalities should be promptly stopped to be eliminated, in the cause is not found, the fault is not eliminated before the operation should be stopped.

Pay attention to frequently check the oil, hydraulic oil, coolant, brake fluid and fuel oil (water) level and quality, and pay attention to check the sealing of the whole machine. Excessive lack of oil and water found during inspection should be analyzed for cause. At the same time, the lubrication of each lubrication point should be strengthened, and it

is recommended that the lubrication point should be filled with grease every time during the break-in period (except for special requirements).

Keep the machine clean, adjust and tighten the loose parts in time to prevent the loose parts from increasing the wear and tear of the parts or leading to the loss of parts.

General safety precautions:

① Drivers and relevant personnel must carefully read the user and maintenance manual or operation and maintenance manual provided by the manufacturing enterprise before using the loader, and follow the instructions specified in the data. Otherwise, it will bring serious consequences and unnecessary losses

② Drivers should wear clothing that meets safety requirements and wear necessary protective equipment

③ If the scope of the work area is small or dangerous, warning signs must be displayed within its range or dangerous points.

④ Drivers are strictly prohibited from driving under the influence of alcohol or excessive fatigue during work.

⑤ When carrying out maintenance or inspection work in the internal area of the frame, an "anti rotation rod" should be installed to prevent relative rotation of the upper and lower frames.

⑥ After the loader comes to a complete stop, it should be loaded up and down. Do not jump up or down while operating or walking on the loader.

⑦ When repairing a loader, it is necessary to lift the boom, and the raised boom must be firmly cushioned to ensure that the boom will never fall off in any maintenance situation.

### Inspection before starting the engine

Before starting the engine during daily work, the following checks should be performed:

1. Wipe off the dust on the surface of the window glass to ensure good visibility.

2. Wipe off the dust on the front and work light lenses and check if they are functioning properly.

3. Check the coolant level, fuel level, and engine oil level in the oil pan, check for clogged air filters, and inspect for damaged wires.

4. Adjust the operator's seat to an easy to operate position. And check whether the seat belt or fixing clip is damaged or worn.

5. Check if the instrument panel is working properly, check the angle between the lights and work lights, and check if all control levers are in the center position.

6. Before starting the engine, check if the safety lock lever is in the locked position.

7. Adjust the rearview mirror so that the rear of the machine can be clearly seen from the driver's seat.

8. Check that there are no personnel or obstacles above, below, or in the surrounding area of the machine.

#### **Safety rules for starting the engine:**

1. When starting the engine, sound the horn as a warning  
2. Only allowed to start or operate the machine while sitting in the seat.

3. No one is allowed to sit on the machine except for the operator.

4. Do not start the engine by short circuiting the starter motor circuit, as this is not only dangerous but can also cause damage to the equipment.

5. When starting the engine in cold weather, it is necessary to thoroughly preheat it. If the machine is not fully preheated before operating the control lever, it will react slowly, which can lead to accidents.

6. If the electrolyte of the battery freezes, do not charge the battery or start the engine with a different power source, as there is only a risk of battery ignition. Before charging or starting the engine with different power sources, the battery electrolyte should be melted, and the battery electrolyte should be checked for freezing before starting.

#### **Safety precautions before starting the engine:**

1. Check and ensure that all lighting fixtures and display lights are functioning properly. Special attention should be paid to checking the normal display of the turn signal and brake indicator lights.

2. Check and ensure that no one is working under the vehicle or near the loader when starting the engine to ensure that their own or others' safety is not endangered in the event of an accident.

3. The variable speed control lever of the loader should be turned to neutral before starting.

4. For braking systems without emergency braking, the handbrake lever should be pulled to the parking position.

5. The engine can only be started or operated in places with good air flow. When operating indoors, the exhaust port of the engine should be connected to or facing outdoors.

6. Be sure to fasten your seat belt

7. Check if the actions of the machine are consistent with the display on the control mode card. If not, immediately replace it with the correct control mode card.

8. Check the operation of instruments and equipment, and inspect the operation of the bucket, boom, boom, walking system, slewing system, and steering system.

9. Check the sound, vibration, heating, odor or instrument of the machine for any abnormalities, and check for oil or fuel leaks.

10. If any abnormalities are found, they should be dealt with immediately.

#### **Safety precautions during engine start-up and operation:**

1. After starting the engine, wait for the vehicle to be in a safe state around before preparing to start to ensure braking safety during driving. Emergency and parking brake must be released before shifting gears and starting. For those without emergency braking, simply lower the parking brake lever and the parking brake will start

2. Clear the faulty objects of the loader on the walking road, paying special attention to obstacles such as iron blocks and ditches to avoid cutting the tires.

3. Adjust the rearview mirror so that the driver can have the best visual effect after sitting down.

4. Ensure that the horn, reverse signal light, and all safety devices of the loader are functioning properly.

5. When about to start or when checking whether the steering is flexible enough, the horn should be honked first to warn surrounding personnel to pay attention to safety.

6. Before starting to walk, all control handles, pedals, and steering wheels should be tested once to ensure that they are in normal condition before starting the operation. Pay special attention to checking whether the steering and braking are intact. Make sure that the steering and braking are completely normal before starting to operate.

7. When moving, place the bucket at a height of about 400mm above the ground. When working on slopes in mountainous areas or crossing obstacles such as ditches, one should slow down, make small turns, and be careful to avoid tipping over. When the loading surface starts sliding to one side on a steep slope, it must be unloaded immediately to prevent further sliding down

8. Try to avoid the tracks hanging in the air during homework, and it is not allowed to continue working with only the front part on the ground.

9. When operating a tractor, it is only allowed to be attached to the towing device. No one is allowed to stand between the towed object and the loader, and a certain safety distance must be maintained to prevent safety accidents.

#### **Safety precautions during shutdown:**

1. The loader should be parked on flat ground and the bucket should be placed flat on the ground. After the engine is turned off, it is necessary to repeatedly turn the operating handle of the working device to ensure that each hydraulic cylinder is in a pressure free resting state. When the loader can only stop on a slope, the tracks should be firmly padded.

2. Place the handle in neutral or middle position

3. First, remove the electric lock key, then turn off the main power switch, and finally close the doors and windows.

4. Do not park in areas with open flames or high temperatures to prevent tire explosions caused by heat and accidents.

5. When inflating tires using combination valves or air storage tanks, people must not stand in front of the tires to prevent explosions and injuries.

## Driving precautions and operating essentials for loaders:

### One. Start

#### (1) Steps

1. Raise the boom and rotate the bucket upwards, so that the lower hinge point of the boom is 40 to 50 centimeters off the ground.
2. Hold the walking handle with your left hand and place the operating handle in the desired gear with your right hand.
3. Observe the surroundings of the machinery and sound the horn.
4. Release the handbrake lever.
5. Gradually step on the accelerator pedal to make the loader start smoothly

#### (2) Operating essentials of loader

When starting, listen to the engine sound. If the engine speed decreases, continue to press the accelerator pedal to increase the engine speed and facilitate starting.

### Two. Shift gears

#### (1) Steps

##### 1. Acceleration

Gradually increase the throttle to raise the vehicle speed to a certain level.

##### 2. Slow down

Release the accelerator pedal and reduce the driving speed.

The forward and reverse interchange of the loader should be stopped.

#### (2) Operation essentials

When accelerating, press the accelerator pedal quickly. In addition to slowing down the engine, the foot brake can also be used in conjunction with deceleration. When accelerating or decelerating, keep both eyes fixed on the front, maintain the correct driving posture, and do not look down at the operating handle; At the same time, it is important to master the steering wheel and avoid causing the loader to deviate due to acceleration or deceleration, in order to prevent accidents.

### Three. Turn around

#### (1) Steps1.

1. Hold the left joystick with one hand and turn on the turn signal switch

with the other hand.

2. Grasp the operating handle with both hands and adjust the driving direction according to the driving needs.

3. Turn off the turn signal switch.

#### (2) Operation essentials1.

1. Before turning, reduce the driving speed depending on the road conditions and switch to a lower speed if necessary.

2. When correcting the direction of travel while driving in a straight line, it is necessary to slightly turn back and turn back in a timely manner. Avoid hitting and turning back forcefully, which may cause the loader to travel in a "dragon like" manner. When turning, turn the operating handle significantly according to the curvature of the road, so that the front guide wheel can travel along the curve. When the current wheel approaches a new direction, it begins to rotate at a speed suitable for the curve.

3. The turn signal switch should be used correctly to prevent it from only turning on and not turning off.

#### Four. Braking

The braking methods can be divided into anticipatory braking and emergency braking. The operator should be selected correctly during driving to ensure driving safety.

##### (1) Predictive braking

During the operation of a loader, the operator intentionally takes deceleration or stopping measures in response to changes in terrain, pedestrians, vehicles, and other traffic conditions that have been discovered, or anticipates possible complex situations, which is called anticipatory braking. Proactive braking not only ensures driving safety, but also avoids damage to components and tires. Therefore, this is the best and most commonly used braking method.

There are two methods of predictive braking operation:

1. Deceleration braking; It is mainly used to reduce the engine speed and limit the driving speed of the loader when the joystick is in the working position. It is generally used before parking, when going downhill, and when passing through uneven terrain. The method is: After discovering the situation, first release the accelerator pedal, use the low-speed

engine to control the driving speed, slow down the loader, and continuously or intermittently lightly press the oil pedal according to the situation to further reduce the speed of the loader.

2. Parking brake: used when parking. The method is to release the accelerator pedal, and when the speed of the loader decreases to a certain extent, make the loader stop smoothly.

(2) Emergency braking When the loader encounters an emergency situation while driving, the operator quickly applies the brake to stop the loader within the shortest distance to avoid accidents, which is called emergency braking.

Emergency braking can cause significant damage to the components and tracks of the loader, and often due to inconsistent braking torque between the left and right tracks, or differences in adhesion between the left and right wheels and the road surface, the loader can deviate, slide, and lose direction control. Therefore, emergency braking can only be used when absolutely necessary. The operation method is: Grasp the handle firmly, quickly release the accelerator pedal, and at the same time close the pilot control lever to fully exert the maximum braking force of the brake, causing the loader to stop immediately. When emergency braking is used on a loader, the rear wheels often slip, causing severe rotation and vibration.

In severe cases, the loader can be turned around, especially on roads with poor adhesion (such as ice, snow, muddy roads, etc.), which is more common and obvious. To prevent and reduce rear wheel slip, loader training suggests the following measures can be taken:

Adopting the operation method of "interval braking" to minimize or prevent the wheels from locking up as much as possible. The specific operation method is: at the moment of starting to lock up, immediately reduce the force acting on the pedal (not completely releasing the brake pedal) to prevent the wheels from locking up or sliding sideways; Then, press the brake pedal firmly, striving to lock the wheels in a short period of time, and then reduce the force acting on the pedal. By repeatedly operating in this way, the loader can achieve better braking effect and reduce sideslip.

When sideslip is detected, braking should be stopped immediately; And turn the operating handle in the direction of sliding towards the wheel side. After adjusting the position of the loader, smoothly turn the steering wheel to the normal driving position.

#### Five. Parking

1. Release the accelerator pedal to slow down the loader.
2. Gently lift the accelerator pedal according to the parking distance to park the loader at the designated location.
3. Place the joystick in neutral.
4. Pull the handle brake lever to the braking position.
5. Lower the boom to place the bucket on the ground.

#### Six. Reverse the car

Reverse should be performed after the loader has come to a complete stop, and the starting, steering, and braking operations during reverse are the same as those during forward movement.

##### (1) Driving posture

When reversing, observe the situation behind the machine in a timely manner, and the following positions can be used:

1. Watching the reverse from the rear window: Use the upper edge of the left handshake handle to control the direction, turn the upper body to the right, tilt the lower body slightly, rest the right arm on the upper end of the backrest, turn the head, and focus on the target behind with both eyes.

2. Reverse by looking at the rearview mirror: This is an indirect method of looking at the target, that is, observing the distance between the rear of the car and the target from inside the rearview mirror to determine how much the steering wheel has turned. Generally used when rearview observation is inconvenient.

##### (2) Target selection

Looking at the reverse from the rearview mirror, you can select the garage door, buildings or trees near the parking lot, and look at the center or two corners of the rear of the car to reverse.

##### (3) Operation essentials

When reversing, first observe the surrounding terrain, vehicles, and

pedestrians. If necessary, get off the car to check, issue a reverse signal, and sound the horn to warn pedestrians; Then, gently pull the handle backwards and use the forward starting method to tilt backwards. When reversing, the speed should not be too fast, the pedal should be kept steady, and the speed should not be too fast or too slow to prevent accidents caused by engine stalling or excessive reversing.

When reversing, if you want to turn the rear of the car to the left, turn the handle to the left as well; On the contrary, turn to the right. Quick turn, slow turn, slow turn, slow turn. To master the operation essentials of "slow driving, fast turning", it is necessary to pay special attention to whether the front and outer wheels and working devices collide with other objects or obstacles while taking care of the direction, as the driving radius of the outer front wheel track is larger than that of the rear wheel when reversing and turning.

#### Precautions for operating in cold weather

If the temperature is too low, it will make it difficult to start the engine and the coolant will freeze, so the following requirements should be followed.

#### Cooling system antifreeze

**Warning:** Antifreeze is toxic, be careful not to let it splash into your eyes or skin. Rinse with plenty of clean water and seek medical attention immediately.

Antifreeze is toxic, so special attention should be paid when handling it. When replacing coolant containing antifreeze, or when repairing a radiator with antifreeze, please consult with your dealer or local antifreeze seller, and be careful not to let the liquid flow into the sewer or spill on the ground.

Antifreeze is flammable, so do not approach any sources of fire. When handling antifreeze, do not smoke.

#### Be careful:

Do not use methanol, ethanol, or propanol based antifreeze

Absolutely avoid using any leak proof agents, whether used alone or mixed with antifreeze.

Do not mix different brands of antifreeze for use.

**Remarks:**

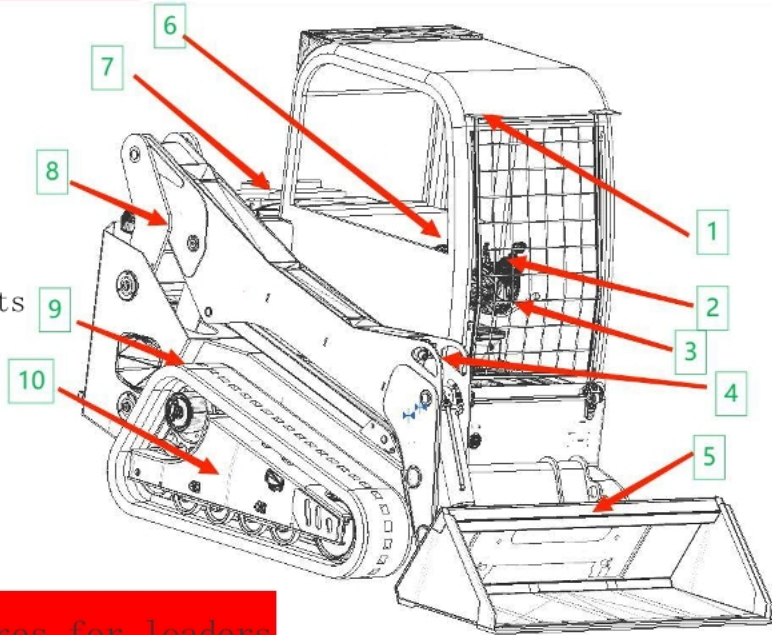
When permanent antifreeze is not available, only ethylene glycol antifreeze without preservatives can be used in cold seasons. In this case, the cooling system needs to be cleaned twice a year (in spring and autumn). When adding coolant to the cooling system, antifreeze should be added in autumn instead of spring.



## Chapter 2 Operation and Use

### Main structure of loader:

1. Driver's cab
2. Operating handle
3. Pilot lock
4. Moving arm
5. Bucket
6. Shock absorber seats
7. Heat sink
8. Swing arm
9. Track
10. Lower plate



### Operating procedures for loaders

1. Before driving and operating, operators should be familiar with the various performance, structure, technical maintenance, and operation methods of the loader, and follow the regulations. Except for the driver, passengers are strictly prohibited in other parts of the machine.

2. When unloading into the vehicle, the bucket must be lifted to a height that will not touch the car's compartment baffle, to prevent the bucket from touching the car's compartment. It is strictly prohibited to cross the bucket from the top of the car's cab.

3. When going downhill, use automatic deceleration and do not step on the accelerator pedal to prevent serious accidents caused by overturning due to acceleration power.

4. After the loader is submerged in water, it should be stopped immediately for inspection. If it is found that the brake fails due to water immersion, continuous braking should be carried out to use heat to remove the moisture in the brake pads, in order to restore the brake to normal as soon as possible.

When the loader is working, no one is allowed to stand in front of it, and the bucket is not allowed to carry people during the driving

process.

6. During work, it is strictly prohibited to stand under the boom, and unrelated personnel and other machinery are not allowed to work or pass through here.

7. It is strictly prohibited to use high-speed throttle gear for operation.

When the operator leaves the driving position, they must land the bucket, turn off the engine, and cut off the power

8. Strictly prevent the bucket from touching the car compartment, and strictly prohibit the bucket from crossing over from the top of the car cab.

9. Do not step on the accelerator pedal to prevent collision accidents caused by movement force.

10. It was found that the brake failure was caused by immersion in water. Continuous braking was carried out, and heat was used to remove moisture from the brake pads, restoring the brake to normal.

11. No one is allowed to stand directly in front, and during the driving process, the bucket is not allowed to carry people.

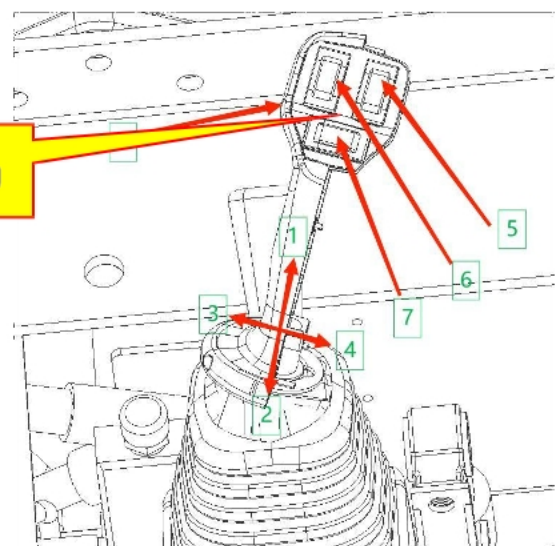
12. Keep the machine clean and tighten loose parts to prevent further wear or loss of parts due to looseness.

13. If any abnormalities occur, the vehicle should be stopped in a timely manner for troubleshooting. Work should be stopped until the cause is identified and the fault is resolved.

### Left joystick usage

- 1.——Forward gears
- 2.——Reverse gear
- 3.——Rotate left gear
- 4.——Rotate to the right
- 5.High and low speed gears  
Forward——High speed gear  
Backward——Low speed gear
- 6.——Backup gear
- 7.Turn signal gear

**Left operating**



Left—Left turn signal light

Medium—Lights off

Right—Right turn signal

8. Lower part of handle—Pull gear

The right operating handle is used

- 1.--Falling arm
- 2.--Lift the movable arm
- 3.--Retracting Bucket
- 4.--Drop bucket
- 5.--Reserve gear
- 6.--Float position switch
- 7.--Forward and reverse oil circuit
- 8.Flow roller size control knob

Toggle up - 25% incremental increase in flow rate

Toggle up - 50% incremental increase in flow rate

Toggle up - 75% flow rate increase

Toggle up - 100% flow rate increments

Up to four times and vice versa in decreasing order of dialing backward.

Toggle the wheel up and hold for three seconds to increase the flow rate by 100%.

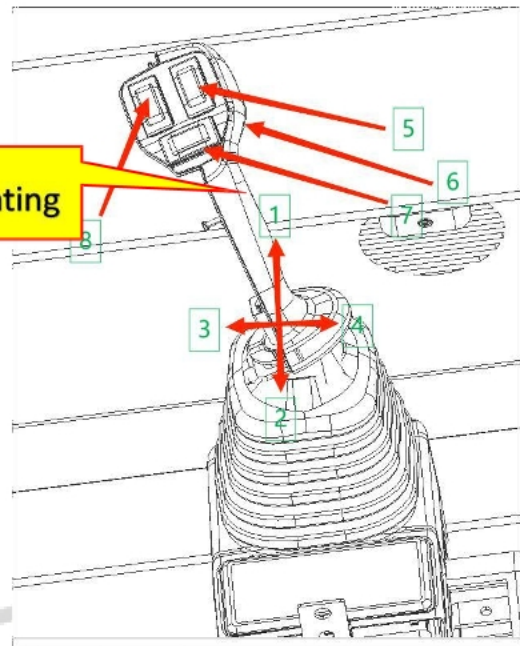
Instrument Panel Display

Program change password: 291819

- 1.--Machine operating time display
- 2.--Water temperature thermometer
- 3.--Fuel level display
- 4.--Battery level display
- 5.--Engine speed
- 6.-Time
- 7.--Date
- 8.--Oil pressure

Seat instructions

- 1.--Seat belts
  - 2.--Seat front and rear angle adjustment buttons
- Adjustment switch - rearward - to adjust the seat position distance
- Adjustment switch - return to the right -

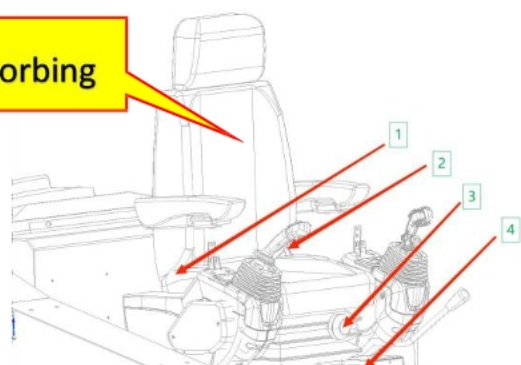


Right operating



Right operation

Shock-absorbing



seat fixing

3.--Seat up/down adjustment button

Adjustment switch - right - seat rise height

Adjustment switch - to the left - seat lowering height

4.--Seat fore and aft adjustment buttons

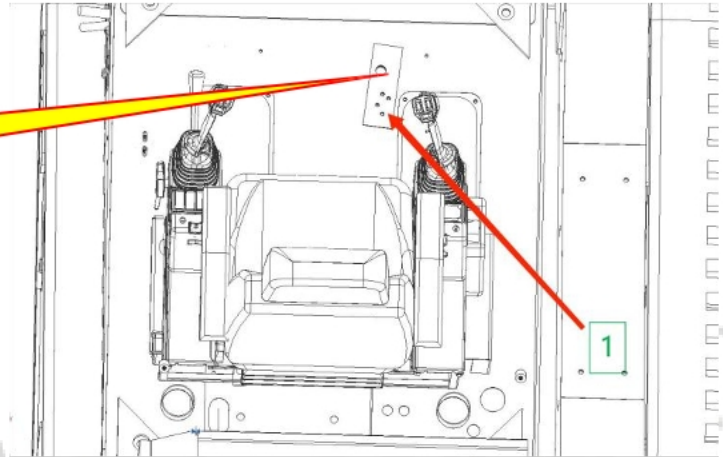
Adjustment switch - up - seat fore and aft adjustment.

Adjustment switch - down - seat fixed position.

### Pedal operating instructions

1 Gas pedal

Gas pedal



Main switch

### Operating instructions for the main power switch

Operational Steps:

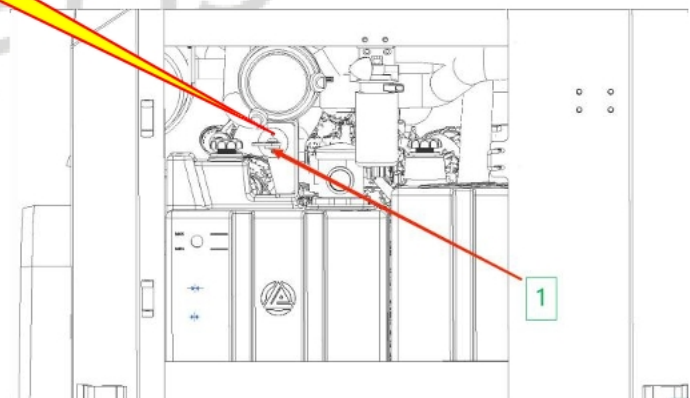
The handbrake is in the lowered position when in working order, as shown in the top side picture.

As shown in the picture above and the picture on the lower side, when the working condition stops, the handbrake is pulled up and is in a braking state, and the vehicle does not move, preventing the vehicle from skidding and causing unpredictable consequences.

Main switch for power supply

Rotate 90 degrees to the left - power off

Rotate 90 degrees to the right - power on



Operation steps:

1. First, open the tailgate, ready to operate the loader, in general, as shown in the figure above, the power master switch in the rear of the body, the upper direction of the hydraulic tank, find the parts shown in the illustration, the parallel state is in the power on state.

2. Turn on the main power switch.

3. Turn the power master switch on in parallel as shown above, in the position shown in the illustration, the power is turned on, power is supplied to the body and all wiring is energized .

4. Turn the main power switch off, you need to turn the button down 90 degrees, the power is off and the car is disconnected. All lines are disconnected.

#### Instructions for using the operation buttons.

1. Light button

First down - low beam

Second down - high beams

2. Arm lighting

3 - Wiper switch

4 - Starting key

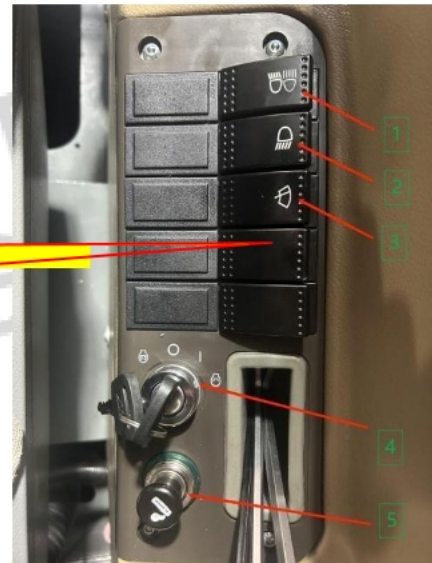
Rotate left for the warm-up button.

Rotate right for start button

Turn the key to the right for 30 seconds for the vehicle to start.

5. --Cigarette lighter button

Operation button

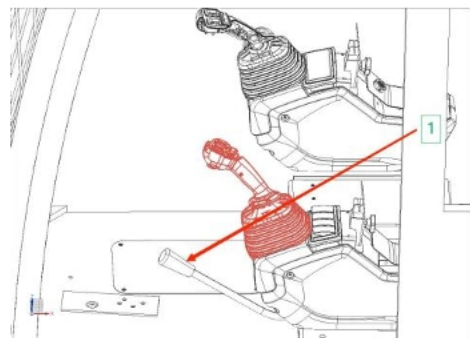


#### Instructions for use of pilot locks

1. Pilot Lock Button

Disconnect the oil line by closing the pilot lock downward before boarding the vehicle.

Get in the car. Lift the pilot lock upward to open the oil line. The vehicle can only be started. The oil hose line can be supplied with oil, and the machine operating handle action can be executed before the operation.



## Air conditioning system button operating instructions

1. Air conditioning temperature knob

Knob Left - Minimum Temperature  
Knob type right side - maximum temperature

2. Front air vents blowing air  
Front windshield air conditioning vents blowing

3. Air Conditioning Cold Air Conditioning Air Vent Operation Button

Rounded pointer is the close button

Rotate a little to the right - one level of air out

Rotate two times to the right - secondary air outlet

Rotate three times to the right - three levels of airflow

4. Air Conditioning Warm Air Conditioning Air Vent Operation Buttons  
Rounded pointer is the close button

Rotate a little to the right - one level of air out

Rotate two times to the right - secondary air outlet

Rotate three times to the right - three levels of airflow



Air conditioner

## Cab Bracing Instructions

### Internal inspection of the frame

When performing inspections and maintenance inside the frame, keep the engine open with the support bar.

1. Insert the key and release the seat cover lock.

2. Then open the tools inside the lower tool box of the seat, locate the jack support rod, insert the support rod into the designated position, and then hand crank the jack up to support the cab to the designated position before entering the interior of the frame to access the machine.

3. After checking the machine, take out the jack support bar and turn on the unloading button of the jack, the cab will slowly drop and land in the designated position.

### Attention:

Always keep the jack cylinders locked except when opening the cab. The open or locked position of the cylinder can be checked by looking at the direction of the slot in the jack cylinder.

### Remarks:

The cab cannot be moved when the jack cylinder brace is locked.

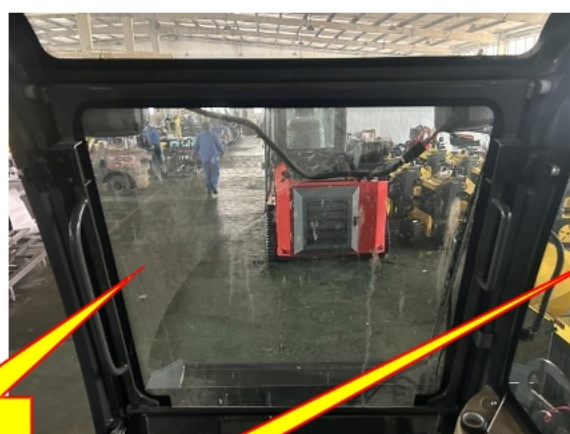
### Cab windshield

1. When opening or closing the front window or door, place the safety locking lever in the locked position.
2. Failure to lock the joystick and accidentally touching it can result in a serious accident.
3. When opening the front window, hold the handle firmly with both hands and push upward, do not let go until the automatic latch locks.
4. The windows are in danger of falling. So be sure to lock the window with the locking pins on the left and right sides.



5. When closing the front window, the window moves faster under its own weight. So hold the handle firmly with both hands.

It is possible to place (stack upwards) the front window the cab.



## Open a window

1. Park the machine on a level surface, drop the work unit completely to the ground, and turn off the engine.
2. Place the locking lever of the work unit joystick securely in the locking mechanism.

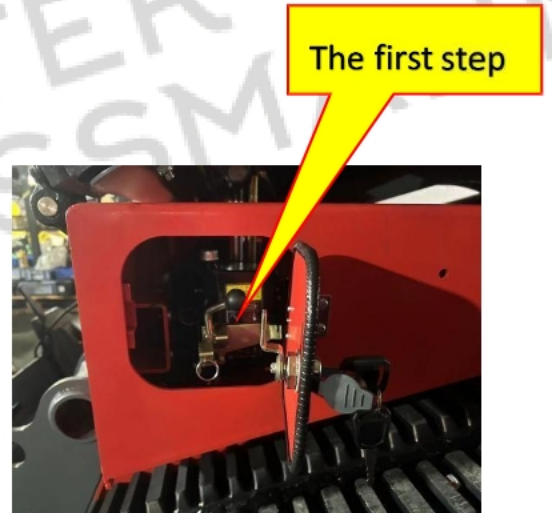
## Driver's cabin door

1. Open the door and take care to secure the switch latch to the rear side to avoid touching the cab when operating the machine.
2. Note the door retaining latch, in the left position, press the latch button down to release the driver's door. Close the door.



## Cab Bracing Instructions

1. Use the key to latch the lift cylinder. Insert the key. Open the latch.
2. Return the lift cylinder to its proper position.
3. Using the tool box tool, insert it into the special hole for lifting, press down on the tool, reciprocate, and prop the cab up.



## Instructions for cab descent

1. Pull out the pressing tool.
2. Latch the lift cylinder switch, open, and pull the ring open.
3. Return the cab to its original position.

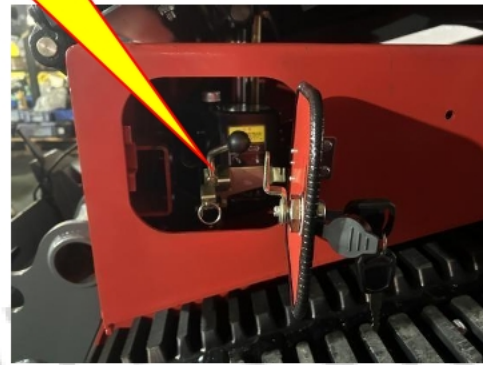
The first step



The second step



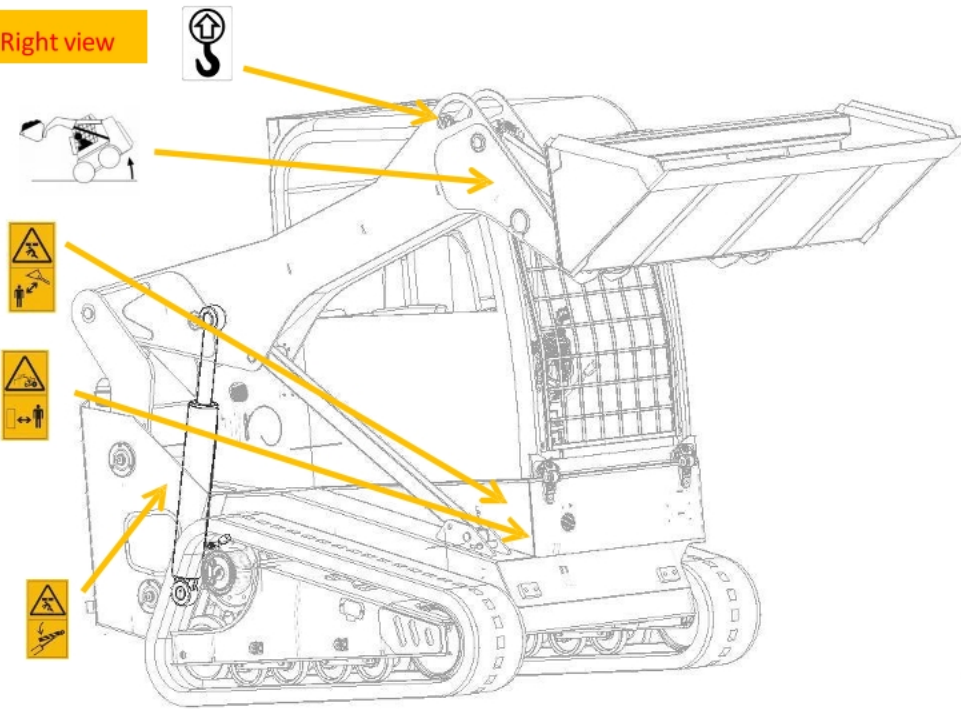
The third step



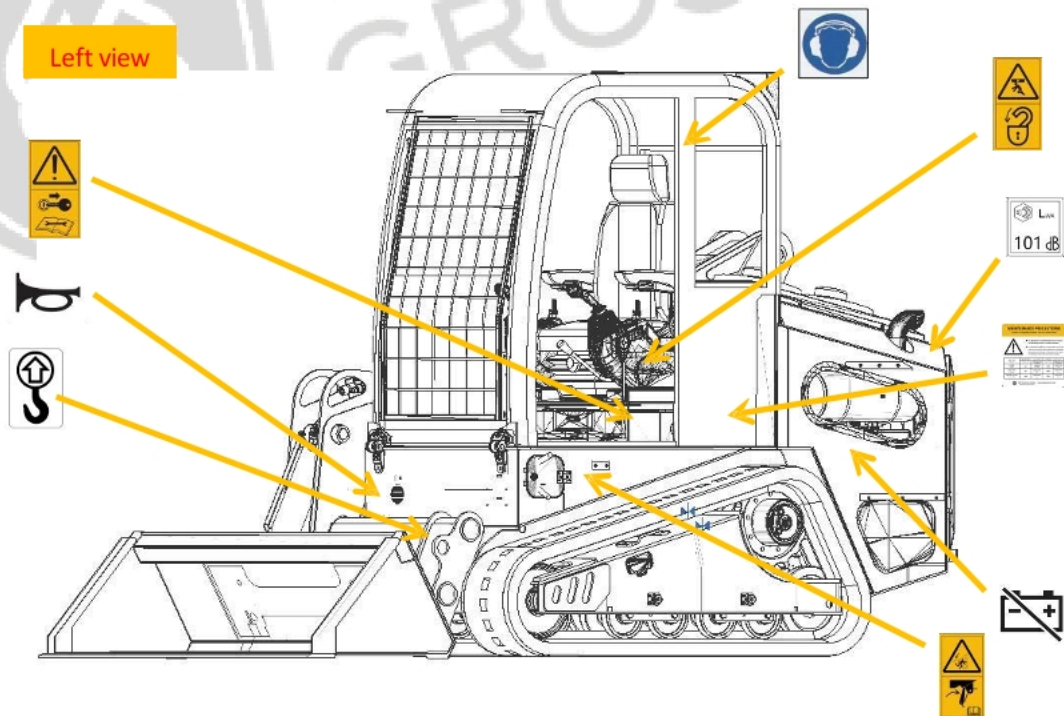
GUNT  
GROSSMANN

# Car Sticker Schematic

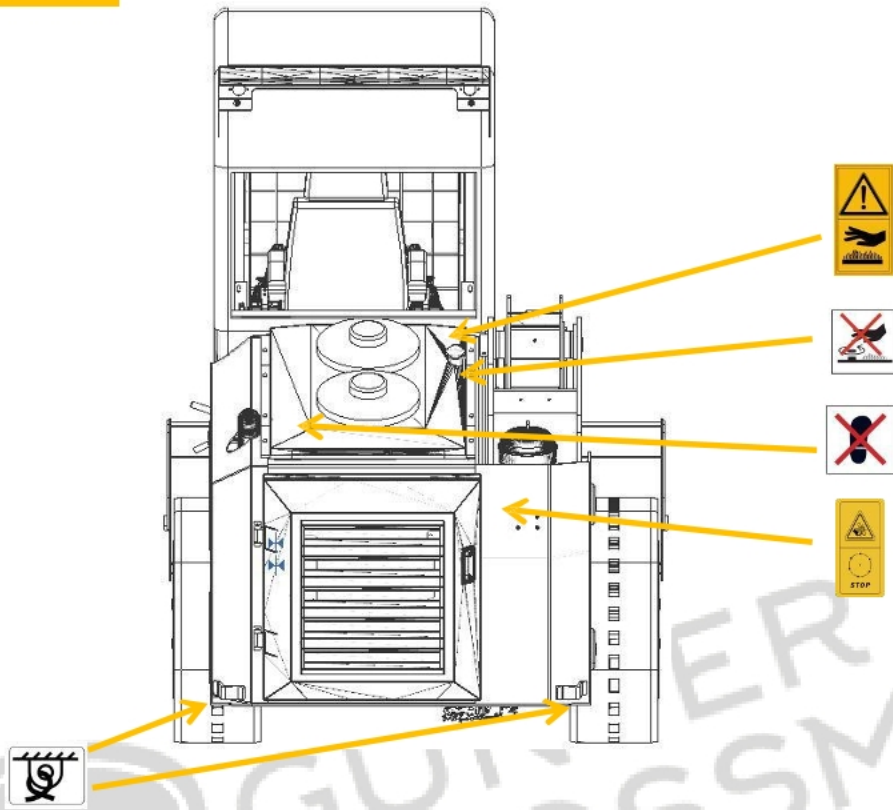
Right view



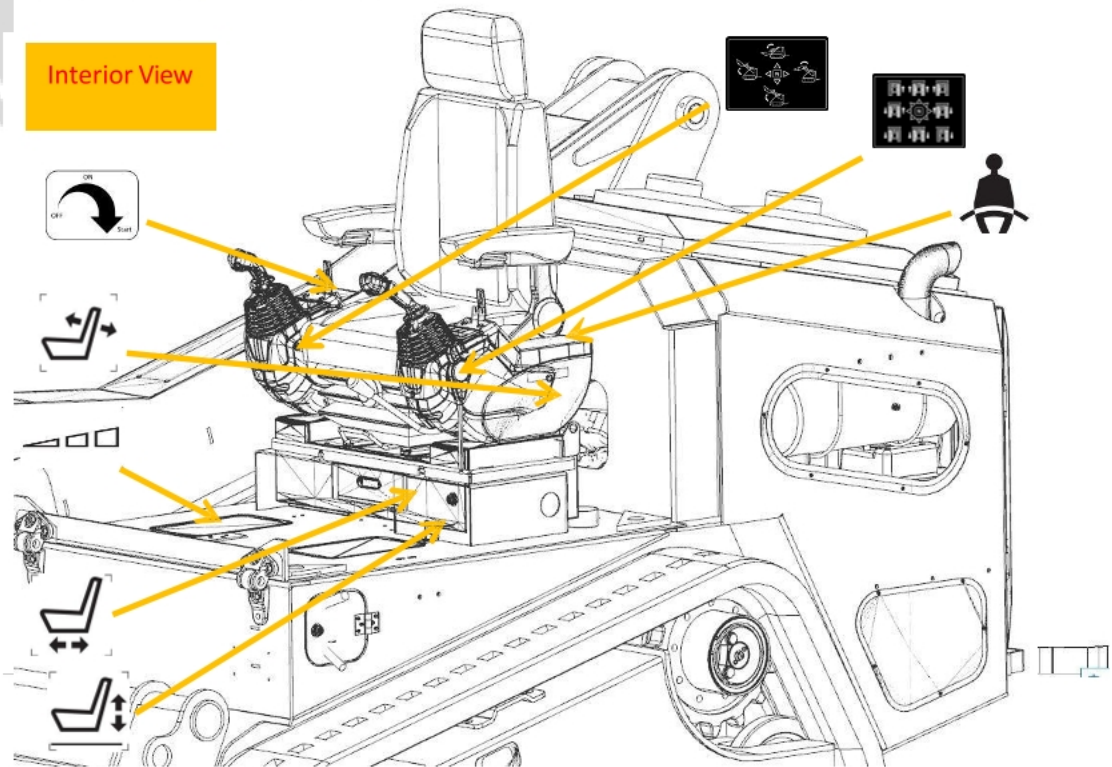
Left view

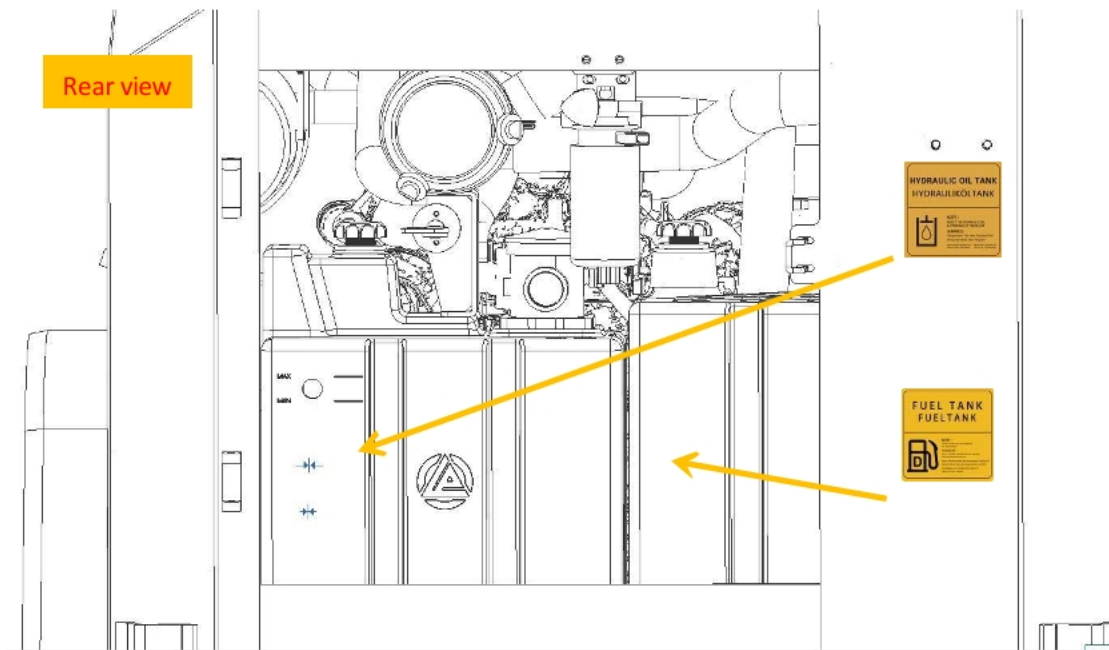


Rear view



Interior View





(1) Prohibit touching the engine fan blades to avoid touching severed hands or fingers.



**CAUTION:** Engine fan blades are not to be touched to avoid personal injury.

(2) Maintain a safe distance between the loader lifting arm and bucket. Avoid squeezing the whole body.



**CAUTION:** When the loader arm is lifting, no one is allowed to stand on both sides of the arm to avoid serious personal injury.

(3) Cylinder danger, keep your distance from the cylinder.



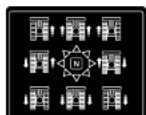
**CAUTION:** Avoid operating the machine under the cylinder moving arm when maneuvering the machine, lock the cylinder with the cylinder locking device. Avoid danger.

(4) Wire hazards, keep your distance from wire hazards.



**CAUTION:** Avoid operating under high voltage lines when maneuvering the machine to prevent electric shock.

(5) Schematic diagram of the loader's left-side maneuvering handle



**CAUTION:** Perform the basic operation of the loader machine according to the diagram above. It is strictly forbidden to operate the loader without following the signs.

(6) It is prohibited to open the antifreeze cap filler port under high temperature operation.



**CAUTION:** It is forbidden to open the filling port when the vehicle is running to avoid burns.

(7) Fuel tank filler



**CAUTION:** Fuel is filled to the specified level.

(8) Hydraulic oil tank



**CAUTION:** Fill hydraulic fluid as specified.

(9) Warning about burning hands



**CAUTION:** Avoid burning your hands on fuel lines or machine parts.

(10) Schematic diagram of the loader's right-side maneuvering handle



**CAUTION:** Perform the basic operation of the loader according to the diagram above. It is strictly forbidden to operate the loader without following the signs.

(11) Prohibition of Trampling



**CAUTION:** Locations with markings are not to be stepped on.

(12) Maintenance Precautions



**CAUTION:** Maintain the machine for the time required as shown.

(13) Lifting position marking diagram



**CAUTION:** Specify the location lifting position. Tearing of the sticker is prohibited.

(14) Pilot lock opening is prohibited. Misoperation of the movable arm injures a person



**CAUTION:** The pilot lock must be open end to end when operating under the movable arm.

(15) Lanyard position



Note: Can use a sling for lifting position within the labeled position.

(16) Noise decibels



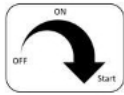
Note: The noise decibel level of the exhaust is 101

(17) Pay attention to protection



Note: Take precautions

(18) Starting key



Note: Take precautions

(19) Seat tilts back and forth



(20) Seat forward and backward movement adjustment



(21) Seat up/down adjustment



(22) Horns



(23) Mechanical Throttle Marking



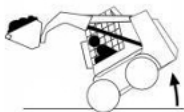
(24) Battery disconnection and shutdown



(25) Fasten your seat belts



(26) It is prohibited for machines to be overloaded with goods. Forward leaning risk.



(27) When servicing and operating the machine, read the operation manual first.



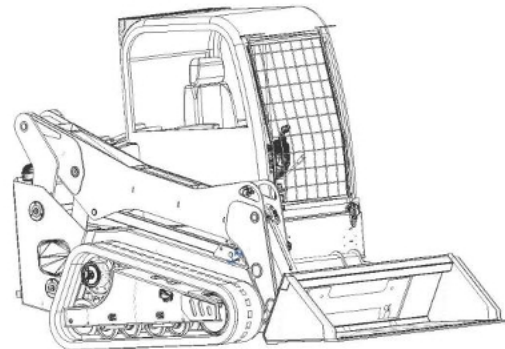
(28) When operating under the movable arm, the self-locking device must be opened to secure the arm.



## Instructions for parking the vehicle when going uphill

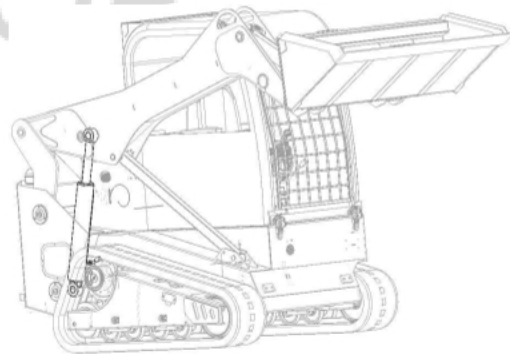
Caveats:

1. When the vehicle is running empty uphill, the front bucket unit, which must raise the big arm, which must be raised above the height of the incline, is required to raise the front bucket to avoid a collision, as shown in the figure above.



2. Note that when the vehicle is running heavy, the front bucket, as in the above picture, needs to be operated, and the movable arm needs to be lifted to prevent the front bucket device from working when the vehicle's center of gravity is unstable, leading to serious consequences of rollover. In an emergency, the work unit can be quickly lowered to the ground to help stop the machine.

3. When the vehicle is in the uphill parking state, you need to operate the steps, release the gas pedal - lower the pilot lock to prevent the vehicle from skidding and avoid danger. When traveling uphill, always check the hardness of the ground in front of the machine. To drop the work unit for better balance, keep the work unit 20 to 30 CM off the ground and walk at a low speed.

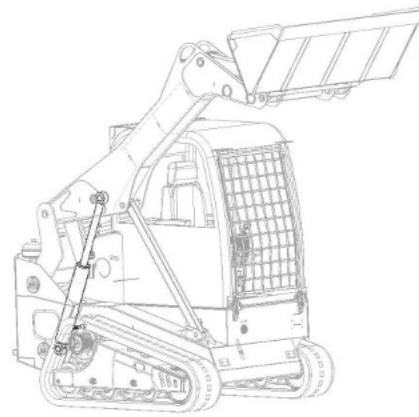


4. When the vehicle is working uphill, pay attention to the maximum shoveling weight of the front bucket, when working, must ensure that the parameters of the vehicle limit, to ensure that the vehicle is working in a controllable range, prohibit overloading overweight, resulting in the occurrence of serious consequences.

5. When the vehicle has finished its work. When going downhill, the front bucket is retracted and the front boom is lifted and retracted, pay

attention to the length of the rear bucket of the vehicle body to avoid collision, which will lead to serious consequences of overturning.

6. When the vehicle is in a downhill condition. Pay attention to the length of the car body to avoid collision, resulting in serious



consequences of overturning with a low-speed gear downhill, and then gently step on the gas pedal, the vehicle slowly downward running, prohibit Use high speed gear downhill, resulting in excessive speed, resulting in the phenomenon of overturning. When going downhill, reduce engine speed, keep the travel lever near the neutral position, and travel at a low speed.

7. Braking distance is within two meters when the vehicle is driving on a smooth surface. After the vehicle starts, there is a buffer distance, and the brake pedal braking within two meters is qualified. When the vehicle is traveling on a smooth roadway to a stop, the brake pedal and gas pedal must be pressed at the same time when coming to an emergency stop. Pull up the handbrake to prevent skidding, which could have serious consequences.

**Caution:**

Walk straight up and down on slopes; it is very dangerous to swerve on or across slopes.

Do not turn on or cross slopes. Be sure to go down to a flat area to change the position of the machine and then up the ramp.

Always travel at low speeds over grass, fallen leaves or wet steel plates as there is a danger of the machine skidding even on very small gradients.

If the engine stalls while the machine is traveling on a slope, immediately move the lever to the neutral position and restart the engine.

## **Snow day operation**

Snow-covered or frozen surfaces are very slippery. When walking or operating the machine, take special care not to operate the joystick suddenly. Even very small slopes can be a slippery machine. Therefore, special care should be taken when working on slopes.

For frozen ground, which softens when the temperature rises, this can cause the machine to tip over.

If the machine enters deep snow, there is a danger of it tipping over or being buried in the snow. Be careful not to leave the shoulder of the road or get caught in the snow.

When clearing snow, objects on the shoulder and near the road are buried in the snow and cannot be seen, so there is a danger of the machine tipping over or hitting buried objects.

## **Parking the machine**

Park the machine on solid, level ground.

Choose a place to park the machine where there is no danger of falling rocks or landslides or, if the ground is low, no danger of flooding.

Lower the work unit completely to the ground.

When leaving the machine, turn the safety lockout lever back to the designated position. Then turn off the engine.

To prevent unauthorized persons from moving the machine, close the cab door and lock all devices with the key, which is to be removed, kept with the machine and placed in the required place.

If the machine must be parked on a slope, do so by observing the following, adjusting the bucket to the downhill side and inserting the bucket into the ground. Place pads under the tracks to prevent the machine from moving.

## **Transportation Notes:**

Transport the machine in compliance with all relevant laws and regulations and in a safe manner.

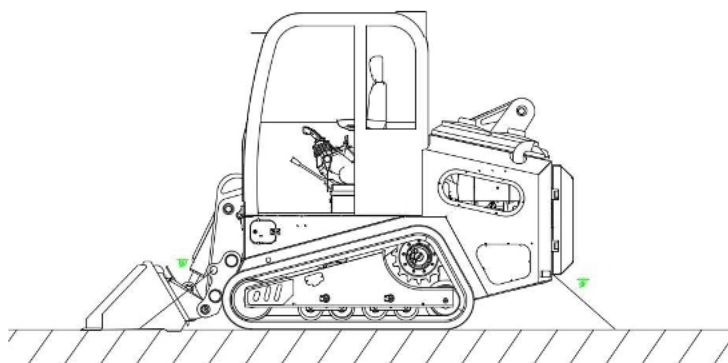
Loading and unloading

## **Warning:**

Travel at low speeds during loading and unloading operations and operate the machine slowly while loading and unloading.

When loading or unloading the machine, choose a solid and level ground. Keep a safe distance from the edge of the road.

To use ramps with adequate width, length, thickness, and strength and install slopes up to 15 degrees.



When push-up slopes are utilized, compact the push-up completely and take measures to prevent collapse of the broken surface.

To prevent the machine from slipping on the ramp, remove all mud and dirt from the tracks before starting.

Be sure the ramp surface is clean and free of water, snow, ice, grease or oil.

Do not correct the steering on ramps or there is a danger of the machine tipping over.

If necessary, drive off the ramp and correct your direction before entering the ramp.

Do not perform loading and unloading operations with the working device, as this is dangerous.



Do not operate any joystick other than the travel joystick when on a ramp.

At the point of contact between the ramp and the trailer, the center of gravity of the machine can change suddenly and there is a danger of the machine losing its balance, so walk slowly when crossing this area.

When turning the upper body in the trailer, the trailer is unstable, so to retract, the work unit and turn back slowly.

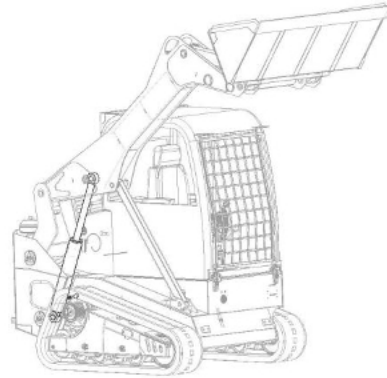
## Loading

1. Loading and unloading should only be carried out on firm, level ground, at a safe distance from the edge of the road.

2. Operate the travel pedal slowly.

3. The work unit is as low as possible.

4. Secure the machine in the specified position on the trailer.



## Fixed machine Pay attention to

Retract the radio antenna.

To prevent damage to the cylinder during transportation, pad the quick-change end with wooden spacers to prevent it from touching the base plate.

1. Drop the bucket.

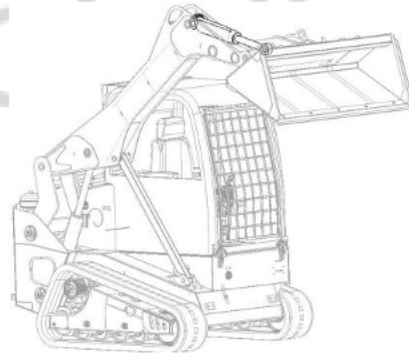
2. Fully extend the bucket cylinders and then slowly drop them.

3. Turn off the engine and remove the key from the starter switch.

4. Turn off the main power switch

5. Lock the joystick securely with the safety locking joystick.

6. Place pads under the ends of the tracks to prevent the machine from moving during transportation. And tie the machine securely with a chain or wire rope of suitable strength. Take special care to secure the machine firmly so that it does not slide to one side.



## unload a truck

1. Load and unload only on firm, intact ground, keeping a safe distance from the edge of the road.

2. Apply the brakes and drop pads on the tires to ensure the vehicle does not move.

3. Remove the chain or wire rope holding the machine in place.

4. Turn on the main power switch and insert the key

5. Start the engine.

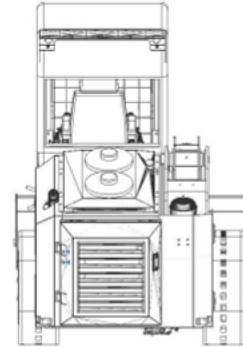
6. Do not step on the walking accelerator pedal.

7. Lift the work unit and the work unit off the ground.

8. Lift the bucket.

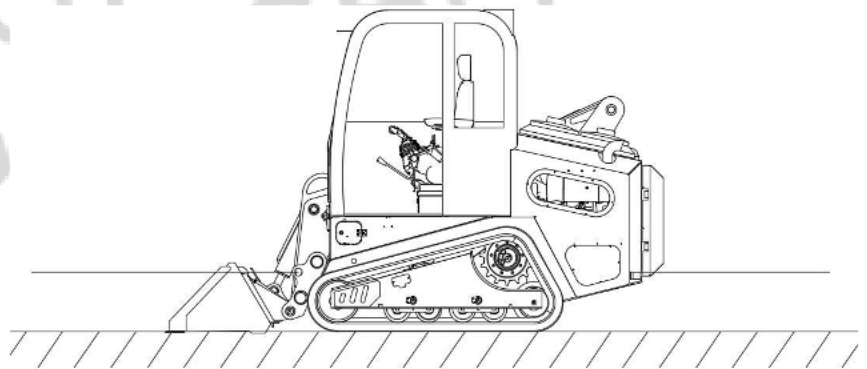
9. The machine travels slowly.

10. Keep the working device as low as possible without touching the ground or other objects.



### Precautions for parking loaders during rainy season

During the rainy season when clearing soil and eliminating risks in narrow or gully areas, the cooperation of excavators is essential. Because excavators are much stronger at exploring deep water or unclear road



conditions than loaders. The loader must not be rushed straight up to avoid danger. There should also be relevant risk personnel observing and commanding nearby to ensure personal safety. After the excavator finds a safe and suitable location, let the excavator dig the soil to the appropriate position first, and the loader will remove it. Alternatively, the excavator can be directly poured into the loader bucket for shoveling. When encountering a stuck road surface, it is important to focus on driving and maintain a steady speed with a low throttle. Do not suddenly refuel or brake, as emergency braking on wet and slippery roads can easily cause

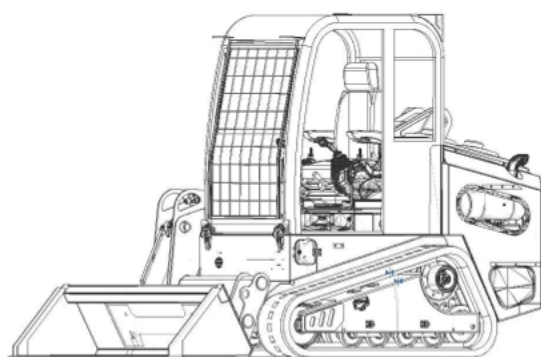
the loader to lose control of its direction and make the entire vehicle sway dangerously. Do not raise the boom too high, which may cause instability of the center of gravity. When encountering excessive tilting or deviation of the wheels, immediately remove the soil and return it to repair the road surface before starting work.

During the rainy season, when using a loader as a tractor, it is essential to ensure the safety of the loader. Only by ensuring one's own safety can one rescue others. Especially when towing on a downhill slope, it is important to carefully observe the road conditions. If there is too much mud, it is best to remove the soil first.

If possible, it is best to park in the garage and avoid storing indoors in excessively humid environments. If rust prevention is important, it is best to park in the garage and avoid storing indoors in excessively humid environments. Rust prevention operation is very important. If parked for a long time, the machine should be started and driven once a month to charge the battery. After long-term storage of the machine, the grease on the piston rod should be wiped dry, and lubricating grease should be added to each component. When parking the machine, it is necessary to keep the working device dry and clean, and not to let water in to avoid rusting and making the machine operation inconvenient.

### **Keep the undercarriage clean**

Be sure to clean the loader floor after rainy season operations, and maintain and refuel the necessary areas to prevent rust and corrosion. Check each oil drain screw for looseness. The machine is found to have water accumulation should be removed in time to

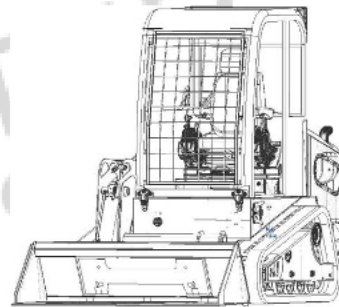


avoid the occurrence of rust and corrosion affecting the spirit of the machine. When parked in the open air, pay attention to check whether the fuel tank and hydraulic oil tank cover is tightly covered to avoid rainwater seeping into the fuel tank causing unnecessary trouble.

Pay attention to checking the filter element of the loader air filter on rainy days to prevent rainwater from entering. When the paper filter element deteriorates and becomes clogged, it should be replaced and maintained in a timely manner. In addition, attention should be paid to the wear of the sealing ring on the engine oil dipstick to prevent rainwater from seeping into the oil. The oil filling port should also be checked. When parked outdoors, it is necessary to put a plastic bag on it to ensure that there is no permanent damage. Check the use of the starting machine line head to see if it is loose or rusted.

### **Safety Precautions When Parking**

① The loader should be parked on level ground with the bucket flat on the ground. When the engine is turned off, it is necessary to repeatedly trigger the work device manipulation handle several times to ensure that the hydraulic cylinders are in a no-pressure rest state. When the loader can only be parked on a ramp pad the tires firmly. Step on the brake pedal to stop the loader pull the hand brake lever to put the gearshift lever in neutral to level the bucket to the ground; gradually reduce the engine speed to idle for a few minutes after pulling the ignition off button to make the engine shut down and then disconnect the power switch; parking on the ramp should be in the back (or front) side of the tire wedge pads on the skidding material



- ② Place various handles in neutral or center position
- ③ Remove the electric lock key first, then turn off the power main switch, and finally close the doors and windows.
- ④ Don't park in the area with open fire or high temperature to prevent the tires from exploding due to heat, which may cause accidents.
- ⑤ When inflating tires using a combination valve or storage tank, people shall not stand on the front side of the tire to prevent explosion and injury.

## Lifting machines

Do not raise the machine when there are people on it.

Make sure that the wire rope used to lift the machine is strong enough to carry the weight of the machine.

Do not raise the machine in any position other than those provided in the following steps.

Otherwise there will be a machine out of balance.

Do not lift the machine with the upper body turned to the side and lower the work unit before raising it.

When lifting, keep the machine level.

When lifting, it is dangerous to walk under the machine.

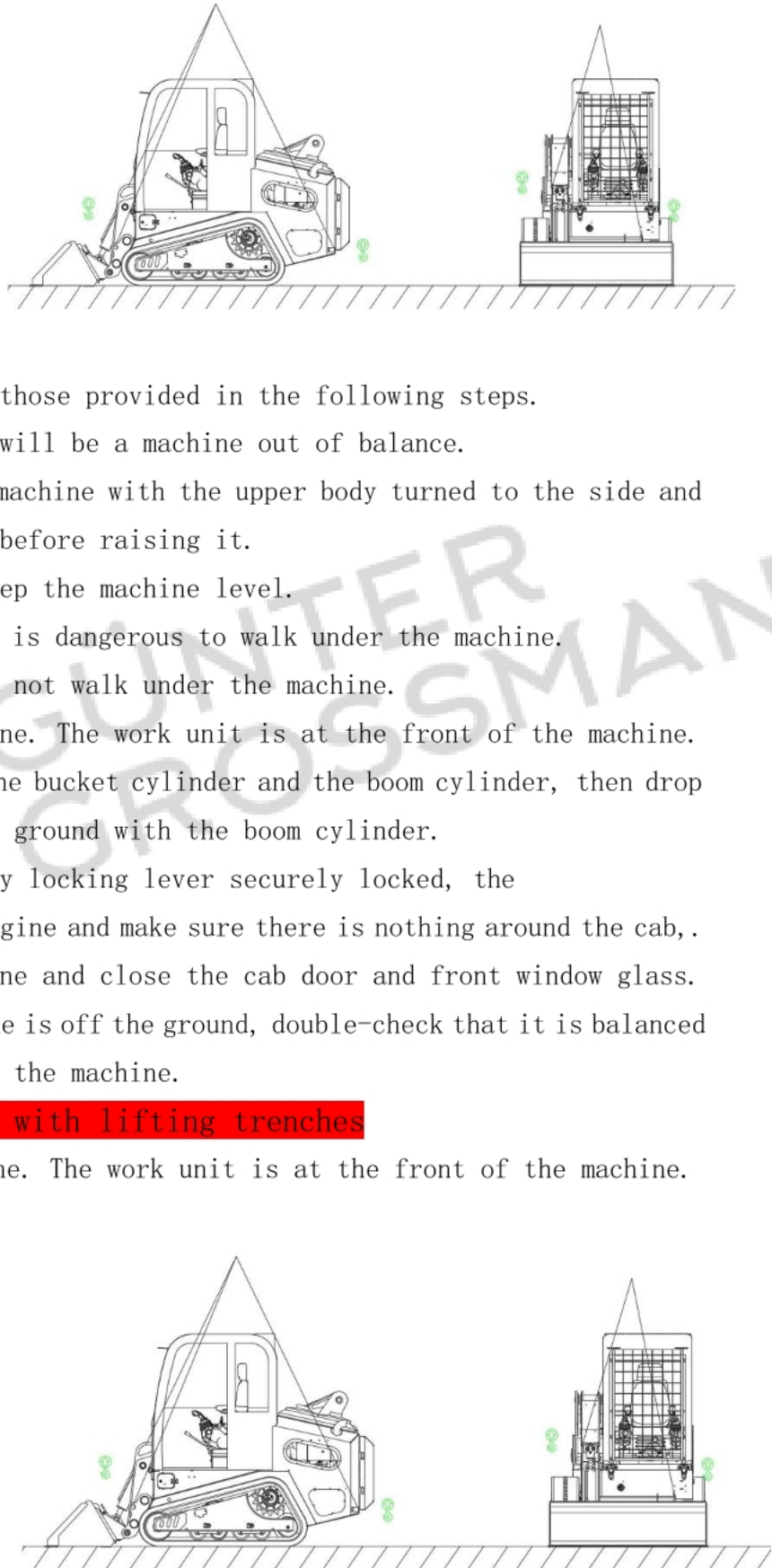
In this case, do not walk under the machine.

1. Start the engine. The work unit is at the front of the machine.
  2. Fully extend the bucket cylinder and the boom cylinder, then drop the work unit to the ground with the boom cylinder.
  3. With the safety locking lever securely locked, the
  4. Turn off the engine and make sure there is nothing around the cab, .
- Then leave the machine and close the cab door and front window glass.
5. Once the machine is off the ground, double-check that it is balanced and then slowly lift the machine.

## Machines equipped with lifting trenches

1. Start the engine. The work unit is at the front of the machine.

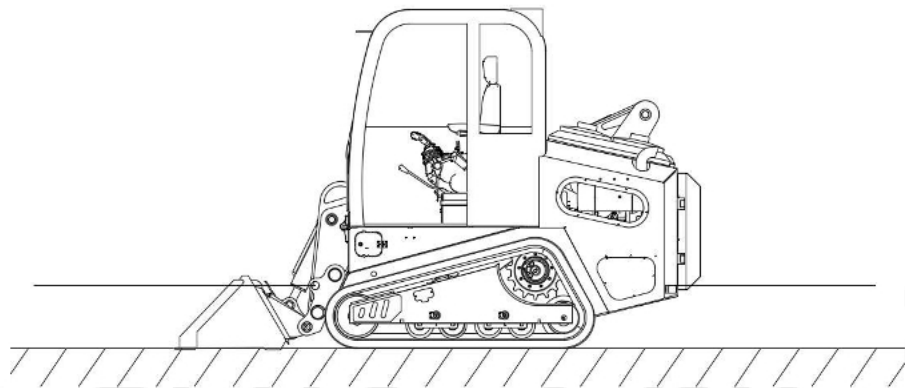
2. Fully extend the bucket cylinder and boom cylinder, and then drop the work unit to the ground with the boom cylinder.



3. With the safety locking lever securely locked, the
4. When lifting, check that a leak in the hydraulic line at the top of the movable arm cylinder does not cause a change in posture.
5. When the machine leaves the ground, stop for a few moments and wait for the machine to stabilize before slowly continuing the lifting operation.

### Traction operation Instructions for use

To ensure personal and equipment safety, drivers should observe the following precautions



1. A person who has been trained and holds a driver's license may drive the vehicle.
2. Before starting, the vehicle should be routinely inspected
3. When traveling, start, steer, drive, brake and stop smoothly. Slow down early when driving or steering on wet or slippery surfaces.
4. Attention should be paid to pedestrians, obstacles and potholes while driving.
5. Do not allow people to stand on the towed goods. No maneuvering the vehicle from a position other than the driver's seat.
6. Do not haul unfastened or loosely stacked goods
7. When refueling, turn off the engine.
8. Stay away from smoke and fire when checking battery or fuel tank levels. (Hydrogen gas is generated in the battery and can explode in case of fire)
9. when collecting the car, the gearshift should be put in neutral, the engine off, tighten the hand brake, cut off the power supply. When

stopping on a ramp (stop in neutral on an uphill ramp, stop in forward on a downhill ramp) and pad the wheels with pads.

10. WARNING: Pull the machine using a wire rope of sufficient strength to withstand the weight of the machine being pulled.

11. Do not apply sudden loads with the wire rope.

If the machine is stuck in the mud and cannot be driven out by its own power, put wooden blocks between the wire rope and the body to prevent damage to the wire rope and the body.

12. When working with wire rope, wear leather gloves.

13. Secure the wire rope to the frame.

14. Do not stand between the hauling machine and the machine being hauled during the hauling process.

15. Do not tow the machine on a slope.

16. Do not use wire rope with broken strands, reduced diameter, or kinked wire rope. There is a danger of this wire rope breaking during hauling.

### Light duty towing hooks

Warning: Hook and loop must be used so that the wire rope is horizontally square to the track frame.

## II. Operating procedures

1. Before driving every day, check the oil level, fuel level, and coolant level. If they are insufficient, add them, and if they deteriorate, replace them; Check for loose or detached external bolts and nuts; Check if the tire pressure is normal; Check if the free travel of the steering wheel, clutch pedal, and brake pedal is normal; Are the lights and speakers working properly; Is the accelerator pedal flexible and normal; Check for any signs of leakage under the car; If there are any abnormal repairs or reports.

Note: If there is any malfunction or failure of the tractor, do not start the vehicle until it is repaired.

2. When starting the engine normally, you should put the gearshift in neutral, step on the gas pedal, and then turn the ignition switch to the start position. Immediately after starting, the key should be released so that the automatic reset to the ignition position, each start time shall

not exceed five seconds, the interval between two starts should be ten seconds, three consecutive times can not be started, should check the oil supply system and other systems whether there is a failure, after eliminating the start again. After the engine is started, the accelerator pedal is lifted to 1/3, so that the engine is run at low speed for a number of hours to allow the water temperature to rise to 60–70 ° C before the tractor can start driving.

**Attention:** When the ambient temperature is low, the key should be turned counterclockwise to the end to warm up, and start only after 20 seconds of warming up.

3. Just drive driving, should be experimented and ensure that the foot brake and hand brake system performance is good and reliable.

4. During traveling, you should always pay attention to the readings of each instrument and whether the warning light is normal.

5. The car travels steadily when unloaded.

6. Tractor-trailer towing trailers should avoid sharp stops, sharp starts or sharp turns.

7. Do not place your foot on the clutch pedal when the tractor is in normal operation.

8. Tractor-trailer driving can not be emergency braking, step on the brake pedal should not be too fierce, a tire drag slip caused by accidents.

9. Tractor-trailer driving process, should pay attention to listen to any abnormal sound, if necessary, should be stopped to check and exclude.

10. Parking, the transmission handle should be placed in neutral position, to be stopped after the car should still make the engine idle run a little time to turn off the engine, turn off the engine will be tightened after the hand brake.

11. Every day after parking to drop the power switch, cut off the entire vehicle circuit.

12. When the cold season, the tractor using antifreeze or parked in a warm garage, one side of the freeze cracked engine block, cylinder head. If you do not have a warm garage, you should put in cooling water, and long-lasting antifreeze is not allowed to be drained. If the temperature

is below  $-30^{\circ}$  C, the electrolyte should also be protected from freezing.

To repossess the vehicle, put the shifter in neutral, turn off the engine, tighten the hand brake and disconnect the power supply. When stopping on a ramp, you should be in the appropriate gear (forward on uphill ramps and reverse on downhill ramps) and use pads to cushion the wheels.

### Security rules

No other person is allowed to stand on the tractor, towing pins or trailer while the vehicle is in motion

Large turning radius must be required when towing a large number of trailers

Ensure that the tie-downs are securely positioned on the trailer and take extra care when traveling in poor road conditions

Avoid rapid descents and hard braking to avoid falling or overturning  
Do not drive in reverse until the tractor has come to a complete stop.  
And vice versa.

When traveling downhill, use the engine brake, do not operate the speed control handle, and use the brake pedal if the tractor is out of gear speed range

Towing must not exceed its own weight 1.5 times.

Use your own weight when towing.

### Lift objects with a bucket

1. Do not perform lifting operations on slopes, loose ground, or other areas where the machine is unstable.

2. To use wire rope that meets the required standards

3. Do not exceed the fixed lifting load

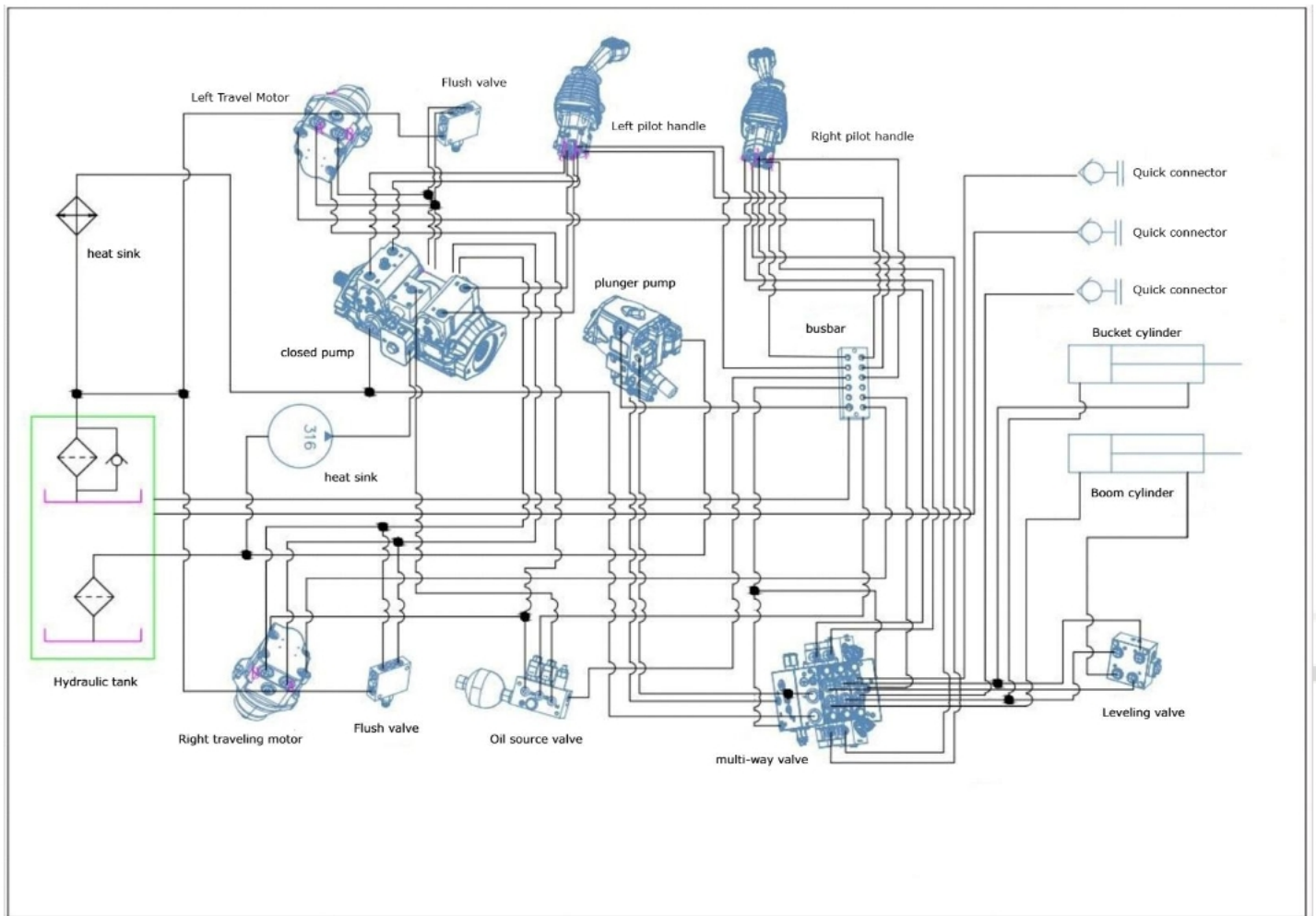
4. It is dangerous if the load hits people or buildings, double check that the surrounding area is safe before the machine turns.

5. Do not start, turn or stop the machine suddenly, as there is a danger of the lifted load swinging.

6. Do not pull the load sideways or toward the machine.

7. Do not leave the operator's seat when lifting loads.

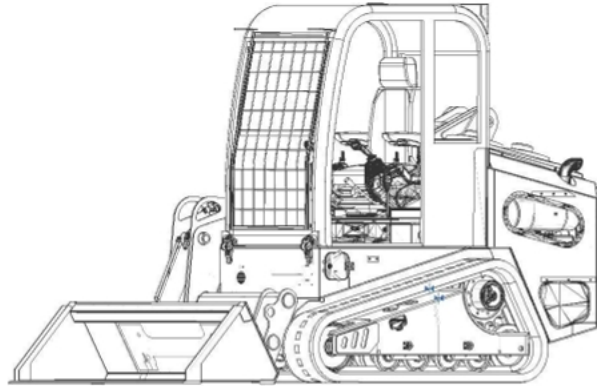
## 10. Hydraulic schematic



## Chapter 3 Prohibited Behavior in Homework

### 1. Blast the gas right off the bat.

When the engine is just started, the body temperature is low, the oil viscosity is large, the fluidity is poor, and the oil can not flow smoothly to each lubrication point in a short time. If the throttle is blown at



this time, it will lead to an instantaneous increase in engine speed, although the oil pump oil supply and pressure will increase, but instantly can not meet the requirements of the lubricant volume and oil pressure of the moving parts, the moving parts can not establish a good lubricating oil film, resulting in instantaneous dry friction, resulting in severe wear. Poor lubrication of the moving parts, the operating resistance will increase, if the throttle, piston, connecting rod, crankshaft will produce violent impact, accelerate the damage to the machine parts. In addition, for diesel engines equipped with turbochargers, it is very easy to destroy the oil seals due to poor lubrication, leading to turbocharger failure and reducing the power of the diesel engine. Therefore, after the loader is started, it should run smoothly at low speed (about 500-700r/min), and it is forbidden to blow the throttle.

### 2. Direct operation without warming up after startup.

Due to the low temperature of the fuselage, the oil viscosity is large, which will make the oil pump supply insufficient oil, resulting in a short period of time the moving parts do not get good lubrication, and the wear is aggravated. At large loads, even accidents such as cylinder pulling and tile holding can occur. In winter, the hydraulic hose is brittle and easy to burst when working directly, which will cause a large amount of hydraulic oil to leak out. Therefore, after the loader is started, it

should be idled to warm up, and test run each mechanism, and wait for the oil temperature and oil pressure to reach normal before operation.

3. Direct coolant replenishment during operation

4. Insufficient coolant will cause the diesel engine to overheat from lack of water.

5. Direct coolant replenishment at high diesel engine temperatures.

The whole cooling system will instantly produce a large temperature difference, so that the cylinder head, cylinder liner, cylinder block, etc. instantly brittle cracks, resulting in micro-cracks, and gradually leakage of cooling water, so as to leakage of oil, air leakage. Therefore, when the diesel engine temperature is too high, it should be run at a slightly higher speed with no load, and then turn off the engine when the water temperature drops to about 50 °C, loosen the radiator cap, discharge the water vapor, and slowly inject coolant.

6. Prolonged idling

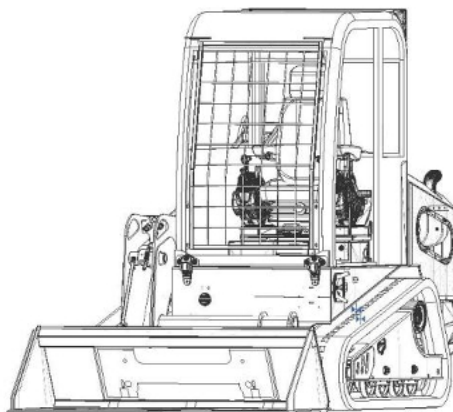
Especially in the winter field operation, the weather is cold, not easy to start, many drivers are used to the loader does not work to let it idle for a long time. Prolonged idling oil pump will be insufficient to pump oil, oil pressure is low, the demand for lubrication of the moving parts of the oil volume and oil pressure can not meet the requirements, frictional resistance increases, wear and tear, especially the piston, cylinder liner wear, easy to cause gas; sometimes also lead to valve and piston ring jamming. In addition, prolonged idling with poor diesel atomization and incomplete combustion will result in prolonged stagnation, serious carbon buildup, and rough work. Therefore, the loader can not be idled for a long time, idling time is generally about 5min.

7. Warming up the engine with a pilot light when it is difficult to start

When the loader is not easy to start, some drivers use an open flame placed in the air intake or air intake branch pipe and the air pump air pipe interface, start the diesel engine, forced combustion diesel engine. This practice will not only make the air filter burned, and will lead to ignition incorrectly, the diesel engine early or lagging ignition, rough work, cylinder liner, piston, engine and other stressed parts are subject to severe impact, uneven force, damage to the parts. Therefore, it is strictly forbidden to set fire to the car when it is difficult to start.

8. Shutdown with load or immediately after operation

When the loader stops with a load or immediately after operation, the cooling system then stops working and the heat dissipation capacity decreases sharply. Work generated by a large amount of heat accumulated near the



heat source can not be distributed in a timely manner, so that the cylinder head, cylinder liner, cylinder block and other heated parts of the cooling water boiling, overheating of machine parts, high temperature ablation. It also deteriorates the oil that adheres to its surface, making it difficult to start the next time. In addition, if the engine stops suddenly, it will cause the supercharger to heat up to about 600° C, which will easily cause damage to the sealing ring. Therefore, the loader should be unloaded before the flameout and run no-load for 3 to 5min, so that the machine temperature drops to below 40°C and the water temperature drops to below 50°C before stopping.

#### 9. Blow the throttle before you stop the plane.

Many drivers mistakenly believe that before stopping to slam the throttle a few feet, so that the excess unburned diesel fuel to stay in the cylinder, in order to facilitate the next start. In fact, this will cause incomplete combustion, black smoke, carbon deposits increase; at the same time, a few feet of throttle will make the moving parts of the inertia force suddenly increased, exacerbating the wear and tear of the moving parts; secondly, not burned out of the fuel will be flowing down the cylinder wall into the oil sump to dilute the oil, shortening the oil use cycle. Therefore, the correct operation is to stop the machine after smooth operation at low and medium speeds under no load.

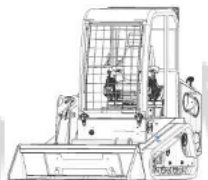
#### 10. Sliding into the shovel during travel

In loading operations, many drivers are accustomed to the inertia of the machine at high speeds to the pile of materials, natural deceleration,

followed by shoveling materials. Using the driving inertia to rush to the pile will make the whole machine suffer from violent impacts, uneven force on all parts, which is very harmful to the whole body. This will cause deformation of the bucket, moving arm, front frame, etc., cracks, due to violent force, torque increase, easy to slip and twisted deformation; transmission components are also very easy to damage. The correct operation is to drive the loader head-on to the pile at a low speed before shoveling, slowly insert the loader into the pile at a constant speed, and gradually increase the throttle for shoveling.



## Chapter 4 Basic parameters

Slip loader GG010G parameters				
Basic performance parameters	Overall quality of the machine (kg)	4150		
	Rated bucket capacity (m <sup>3</sup> )	0.4		
	Maximum travel speed (km/h)	9		
	Climbing capacity (%)	25		
	Rated loading mass (kg)	1250		
	Maximum loading mass (kg)	2100		
	Maximum discharge height (mm)	2250		
	Discharge distance (mm)	1360		
	Bucket lift time full load (s)	5.6		
	Bucket lowering time (s)	4.5		
Yangma engine	Engine Model	4TNV98C-PLYS		
	Rated speed (r/min)	2400		
	Rated power (kw)	49.9		
	Displacement (L)	3.319		
	Number of cylinders	4		
	Cooling method	Water cooling+oil cooling		
	Engine oil change (L)	7		
	Fuel type	diesel fuel		
Fuel grade	0 号/-10 号			
shoes and belt	Track type (width x pitch x number of sections)	320×84×52		
oil tank	Hydraulic oil tank (L)	45		
	Fuel tank (L)	56		
Hydraulic system	Traveling pumps (closed piston pumps)	model number	HP21VG45	
		branding	Hengli	
		Rated pressure (MPa)	35	
		Rated flow rate (L/min)	112.5+112.5	
	Work pumps (open piston pumps)	model number	LX10V045LADS	
		branding	Lezhuo	
		Rated pressure (MPa)	25	
		Rated flow rate (L/min)	112.5	

Work valve (3-way hydraulically operated float valve)	model number	LX12SL
	branding	Lezhuo
	Rated pressure (MPa)	22.5
Travel motor (cycloid motor)	model number	LX21VE45
	branding	Lezhuo
	Rated pressure (MPa)	30
	Rated displacement (ml/r)	45*2
speed reducer	model number	TFT7T2-32.3A
	branding	Lezhuo
	gear ratio	32.3
Vehicle data	Overall dimensions (mm)	3820*1800*2460
	Length of belt bucket (mm)	3820
	Length without bucket (mm)	3040
	Maximum lifting height (mm)	3760
	Bucket width (mm)	1800
	Minimum Ground Clearance (mm)	230
	Movable arm length (mm)	2900

## Chapter 5 Troubleshooting

common breakdown	Reason for failure	prescription
Weakness and slow movement of the machine	Clogged fuel line or tightening leaks	Disassemble to clean or tighten fuel lines
	Damage to closed pump	Replacement of closed pumps
	Clogged oil pump inlet pipe	Clean or replace the oil feed tube
	engine trouble	Contact the Gunter Grossmann to have the engine serviced
The machine does not move.	Damage to piston pump	Replacement of piston pumps
	Damaged shaft coupling	Replacement of couplings
	Tilting of the fuselage causes the hydraulic fluid to veer to one side	Add hydraulic fluid or level the machine
The machine can't walk.	Travel motor oil hose disconnected or damaged	Install the oil line in place or replace the travel motor
	Fuse blown and damaged	Replace the corresponding fuse
The engine smokes and is weak.	Overfilling of oil	Adjust the oil level according to the upper and lower limits of the oil dipstick
	engine trouble	Contact the Gunter Grossmann to have the engine serviced
The steering wheel won't turn.	Clogged steering gear	Clean or replace the steering gear
	Clogged steering gear or no internal lubrication	Lubricate or replace steering gear
The engine won't start.	Water in diesel fuel	Drain the oil and refill
Engine Holding	Engine speed too low	Adjust engine speed to rpm

	Relief valve	Trimming relief valves
	adjustment too tight	
The engine won't fire.	Insufficient battery voltage	Charging or charging with an external battery fire
	Diesel fueling with dry gasoline leads to air in the line	Unplug the diesel hose from the engine to drain the air and install it again or press the hand pump to drain the air.
	Diesel Freeze	Choose the right grade of diesel fuel according to the local temperature
	engine trouble	Contact the Gunter Grossmann to have the engine serviced
	Clogged injector nozzles	Replacement of fuel injectors
	Clogged cartridge	Replacement of filter cartridges
	Damaged oil-water separator	Replacement of oil-water separator
	Low temperatures cause the oil to thicken	Change to the right grade of oil
Engine Throttle Up and Down	Poor fuel supply due to broken diesel fuel line	Check the diesel fuel line and adjust the direction to ensure a smooth fuel supply
Throttle continues to increase	Engine throttle ferrule too tight	Loosen the engine throttle ferrule
Can't get the throttle up.	Throttle cable ferrule is loose	Tighten the throttle cable ferrule
common breakdown	Reason for failure	prescription
Headlights don't come on, or the display doesn't work	Line plug disconnected	Check the wiring plugs for dislodged or loose
	Damaged fuses	Replacement of fuses
Battery not	Generator damage	Check the engine generator.

charging	Damaged fuses	Replacement of fuses
	Damage to wires	Replacement of wires
	battery damage	Replacement of battery
High engine temperatures	Lack of antifreeze	Add antifreeze
	Clogged radiator holes in water tank	Clean out the radiator holes in the water tank
	Damaged sensors	Replacement of sensors
	Highland climate impacts	Replacement of suitable antifreeze
	engine trouble	Contact the Gunter Grossmann to have the engine serviced
Oil pressure alarm	Lack of oil	Add oil
	overheating of the engine	Check coolant
	Damaged sensors	Replacement of sensors
	line fault	Line checking



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## Chapter 6 Maintenance and repair

### Engine Maintenance

As the most important power system of the model – the engine needs to be maintained in accordance with the "engine instruction manual" carried with the vehicle, in strict accordance with the engine instruction manual in the content of the maintenance of the engine can effectively improve the engine life, reduce the occurrence of failures.

The main maintenance consists of the following components:

1. Engine break-in care requires maintenance after 250 hours of first use.

2. Oil change intervals. (Oil will be used with the machine, slow consumption, so you need to regularly check the amount of oil, not a refill and wait until the next time to replace the refill, the oil is insufficient need to be supplemented in a timely manner, otherwise it will lead to serious consequences such as pulling the cylinder, due to the lack of oil caused by the engine damage manufacturers do not warranty)

3. Oil Filter, Diesel Filter Replacement Intervals

4. Air Filter Replacement Intervals

Inspection or maintenance of the machine could result in serious injury if an unauthorized person starts the engine or touches the control handle.

Before performing maintenance, turn off the engine, remove the key and keep it with you.

Do not use damaged or deteriorated tools or tools designed for other uses.

Use tools appropriate to the operation in question.

Slip GG010G Maintenance Catalog						
Cartridge Name	inaugural		conventional (weapons)		model numbe r	note
	timi ng	Maintenance	tim ing	Maintenance		
Oil Filter	50H	change (one's address etc)	100 H	change (one's address etc)	/	

air filter	50H	clear up	100 H	change (one's address etc)	/	For harsh operating environments, cleaning and replacement intervals will be shortened (air blown, not water washed).
Diesel Filter	50H	change (one's address etc)	200 H	change (one's address etc)	/	Filled with qualified fuel according to local standards
Oil return filter element	100H	change (one's address etc)	300 H	change (one's address etc)	/	
Hydraulic oil filter element	100H	change (one's address etc)	300 H	change (one's address etc)	/	
Oil Name	inaugural		conventional (weapons)		model number	note
	tim ing	Maintenance	tim ing	Maintenance		
oil	50H	change (one's address etc)	200 H	change (one's address etc)	/	Use the right type of oil for the local temperature environment
antifreeze	every day	Check (additional )	1 yea r	change (one's address etc)	/	No water mixing, no water substitution (Use the appropriate type of antifreeze for your local temperature environment)
diesel fuel	every day	raise the stakes	/	/	/	Use fuel from a regular gas station, poor quality diesel can cause damage to vital components (use the right type of fuel for contemporary temperatures)
hydraulic oil	200H	change (one's address etc)	400 H	change (one's address etc)	/	No water mixing, no use of water instead of (Use the appropriate type of hydraulic fluid according to the local temperature environment)

grease	new airp ort	raise the stakes	8H	replenishme nt	/	
Water tank radiator	50H	clear up	50H	clear up	/	Air blowing or high pressure water gun flushing
Important Inspection Areas	timi ng	Maintenance	tim ing	Maintenance		note
Traveling motor fixing bolts	50H	probe	100 H	change (one's address etc)		If loose, tighten bolts immediately
Reducer fixing bolts	50H	probe	100 H	change (one's address etc)		If loose, tighten bolts immediately
Engine mounting bolts	50H	probe	100 H	/		If loose, tighten bolts immediately
Closed pump fixing bolts	atel iers	probe	ate lie rs	change (one's address etc)		If loose, tighten bolts immediately
Plunger pump mounting bolts	atel iers	probe	ate lie rs	replenishme nt		If loose, tighten the bolts immediately.
<p>Note:</p> <ol style="list-style-type: none"> <li>1. Please follow the maintenance cycle, regular maintenance, maintenance is not timely or not maintenance caused by equipment failure, the manufacturer will not repair.</li> <li>2. Please use genuine products for maintenance. Inferior parts or oils may cause drastic wear and tear or serious malfunction of the machine and equipment.</li> <li>3. Failure to regularly check the travel motor fixing bolts, lower disk fixing bolts, and engine fixing bolts may result in accidents such as the travel motor gears beating teeth, broken flanges, broken engine fan blades, and leaking water from the water tank, etc., and resulting damage to the parts will not be repaired by the manufacturer.</li> </ol>						

To ensure that the machine can be used safely over a long period of time, it should be regularly refueled and inspected and maintained. To enhance safety, please replace safety-critical parts such as fuel lines and seat belts regularly.

“Periodically replaced safety-critical components” means components that age, wear and deteriorate in function through repeated use and whose

performance changes over time. These characteristics of such parts make them capable of causing serious mechanical damage or personal injury, and it is difficult to judge their remaining useful life based on visual inspection or operating feel alone.

Replace the "Periodic Replacement of Safety Critical Parts" if any damage is found during visual inspection, even if the specified replacement interval has not yet been reached.

Replace the fuel line regularly. Fuel lines can become increasingly worn over time, even if they do not yet show any symptoms of wear. Replace at the first sign of wear, regardless of the replacement schedule.

When checking fuel, lubricating oil, coolant or battery electrolyte, use an explosion-proof lamp to prevent fire or explosion. Otherwise, an explosion may occur, causing serious injury or death.



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serial number	Safety-critical components that are regularly replaced	quantities	replacement cycle
1	Fuel hose (fuel tank - injection pump)	1	Every 2 years or 3000 hours whichever comes first
2	Fuel hose (fuel filter - injection pump)	1	
3	Overflow hose (nozzle - fuel tank)	1	
4	Hydraulic hoses (main pump discharge)	1	
5	Hydraulic hose (pump discharge)	1	
6	Hydraulic hose (main pump suction)	1	
7	Hydraulic hoses (boom cylinders - control valves)	2	
8	Hydraulic hoses (bucket cylinders - control valves)	2	
9	Hydraulic hoses (pilot operated multi-way valves - control valves)	18	
10	Hydraulic hoses (piston pumps - control valves)	4	
11	Hydraulic hoses (closed pumps - control valves)	8	
12	Antifreeze hose (engine - control valve)	4	
13	seat belts	1	Every 3 years

Before maintenance, the machine should be cleaned

Turn the engine off before cleaning the machine. Cover electrical parts to prevent water ingress. Water ingress into electrical parts may cause a short circuit or malfunction. Do not clean the battery, electronic control components, sensors, connectors or cab with water or steam.

Turn off the engine before maintenance

Avoid lubricating or mechanically adjusting the machine when it is running, or when the machine is not running but the engine is running.

If maintenance must be performed while the engine is running, two people should work as a team and stay in communication with each other.

A person must be seated in the driver's seat so that the engine can be turned off immediately if necessary. This person must take special care not to touch the control levers and pedals, except when required.

The other person performing the maintenance shall ensure that his/her body or clothing is kept away from the moving parts of the machine. If tools or other objects are thrown or inserted into the fan, they will be blown or shredded. Do not drop or insert anything into the fan.

### waste

To prevent contamination, special attention should be paid to the way waste is disposed of.

1. Keep the oil discharged from the machine in a container and do not discharge it directly onto the ground or pour it into sewers, rivers, oceans and lakes.

2. When handling hazardous materials, fuel, coolants, solvents, cartridges and batteries, comply with the relevant laws and regulations.

### Maintenance of air conditioners

If the air conditioner refrigerant gets in your eyes, it can cause blindness, and if the refrigerant comes in contact with your skin, it can cause frostbite.

### compressed air

1. When cleaning with compressed air, there is a risk of injury or damage from flying particles.

2. When using compressed air to clean filter elements or radiators, wear goggles, dust masks, gloves and other protective gear.

### Fueling Precautions

There shall be no smoking or open flames while refueling or in the vicinity of the refueling point.

Do not remove the gas cap or refuel while the engine is running or has not cooled down. Do not spread fuel on hot surfaces of the machine.



Fill the fuel tank in a well-ventilated area

Do not fill the fuel tank. There should be room for oil expansion. Spilled fuel should be wiped up immediately.

Securely tighten the fuel tank. If the gas cap is missing, replace it with the original. Use of an unauthorized, poorly vented fuel cap can create internal pressure in the fuel tank. Select the appropriate fuel, lubricant and grease according to the temperature. Whether or not the designation has been reached. If the oil becomes too dirty or rancid, change it. When refueling, do not mix different brands of oil. If you are changing brands, replace all fuel/lubricants.

### Fueling port description

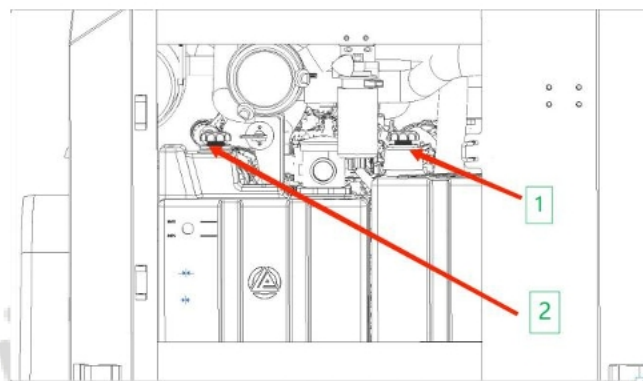
Diesel fuel should meet the following standards, and this table lists several fuel specifications in force in the world.

Fuel Specification	place	Diesel fuel specifications	place
GB252	sino	BS2869-A1 or A2	United Kingdom of Great Britain and Northern Ireland
ASTM D975 No. 1-D, S15	United States of America	ISO 8217DMX	global
biodiesel Biodiesel blends are B5 ASTM D6751, D7467	Canadian		
EN 590:96	EU	JIS K2204	Japanese
biodiesel Biodiesel blends are B5 eni4214, en590		Grade 2	

Fuel tank/capacity	Maximum filling volume
Hydraulic oil tank/45L	45L
Fuel tank/56L	55L

### Cautions.:

1. Diesel fuel tank filling port, filling diesel fuel, pay attention to the first right side of the body diesel fuel tank cover unscrewed, use the funnel and the fuel tank filling



port connection, and then use the fuel tank bucket filling diesel fuel, pay attention to open the power switch, pay attention to the meter shows the filling position of the fuel tank, to prevent overfilling, resulting in the fuel tank cover can not be covered, resulting in serious consequences.

- Fuel tank capacity: 56 liters

- When the tank is full, the dashboard shows 100%.

2、加油后，顺时针拧紧油箱盖。

### Precautions when refueling

1. Check the fuel filler neck for dirt and grime, and if so, clean it promptly.
2. Do not use oil other than the specified oil.
3. The amount of refueling is to be tested when the engine is stopped or when it is idling.
4. Always check that the container for refueling is clean and in use.

## Fuel Filter – Replacement

Check for old seals stuck to the cartridge seat, which can cause oil leaks if they are stuck.

Warning:

1. After the engine has been operated, the components are in a hot state. Wait for all parts to cool down before replacing the filter.

2. Keep open flames away from fuel.

Prepare a cartridge wrench and a container to catch the oil.

1. Place a container for fuel under the cartridge.

2. Using the cartridge wrench turn the cartridge counterclockwise to remove it.

3. Clean the cartridge holder, add clean fuel to the new cartridge, coat the sealing surfaces with oil, and install it into the cartridge holder.

4. Once the sealing surface of the cartridge is in contact with the sealing surface of the cartridge holder, tighten it further 2/3 turn. If you tighten the cartridge too much. It can damage seals and cause fuel leaks.

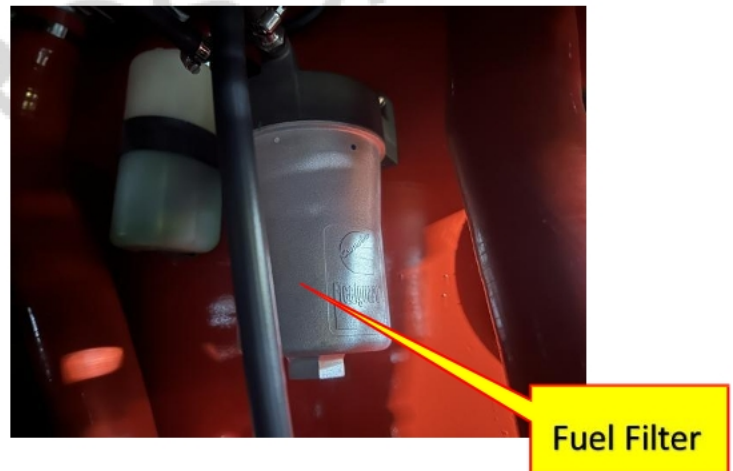
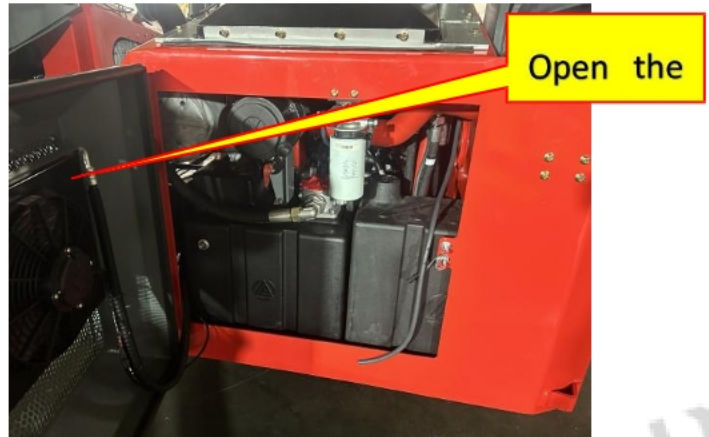
If you tighten it too loosely, fuel will also leak from the seal, so tighten it to the right amount.

5. After replacing the fuel filter element, exhaust the air from the system in the following manner and method.

6. Add oil to the fuel tank.

7. After replacing the cartridge, loosen the exhaust screw plug.

8. Release the fuel delivery pump button and press it repeatedly by hand forward and backward to allow fuel to flow out until there are no more bubbles of fuel coming out of the exhaust screw plug.



9. Tighten the exhaust screw plug.

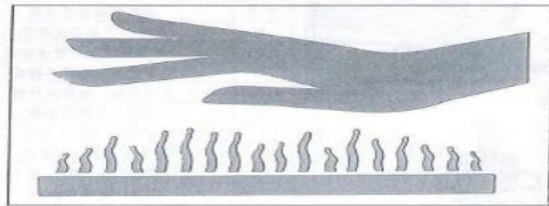
Always use the original cartridge.

After replacing the cartridge, start the engine and check the cartridge sealing surfaces for oil leaks.

NOTE: If the machine runs out of fuel, use the same method to operate the transfer pump and vent it.

1. Hydraulic oil tank filling port, filling of hydraulic oil, pay attention to the left side of the body first hydraulic oil tank cover unscrewed, the use of funnels and oil tank filling port connection, and then use the tank bucket filling

of hydraulic oil, pay attention to observe the hydraulic oil window, pay attention to the oil window of the filling position,



when the hydraulic oil more than the oil window, the hydraulic oil to immediately stop filling, prohibit overfilling, resulting in the tank cover can not be capped, resulting in severe consequences

Hydraulic oil tank capacity: 45 liters

Hydraulic oil window is filled Hydraulic oil filling can be stopped when the hydraulic oil window is filled.

2. After refueling, tighten the fuel tank cap clockwise

Be careful when handling hot and pressurized parts

Turn off the engine and wait for the machine to cool down before performing maintenance.

The engine, exhaust, radiator, hydraulic hoses, muffler and many other parts of the machine are hot when the engine is first turned off. Touching these parts can cause burns.



Engine coolants, hydraulic fluids and other oils are also exposed to high temperatures and pressures.

Be careful not to touch the hydraulic fluid when loosening the cover or plug. Operating the machine in this condition can result in burns or injuries due to hot oil spray.

Before working on the hydraulic system, it should be relieved of pressure.

Hydraulic fluid may spray out if the cap or filter is removed or piping is disconnected before the hydraulic system is pressurized. Slowly loosen the tank cap to relieve tank pressure.

When removing plugs or screws or disconnecting hoses, stand to one side and slowly loosen them to gradually relieve internal pressure before removing them.

Oil or oil plugs may spray out due to pressure in the travel motor oil tank. Slowly release the oil plug to relieve the internal pressure.

### **Battery cables**

Disconnect the battery cable before working on the electronic system or welding. First disconnect the positive (+) battery wire. When reconnecting, connect the negative (-) battery wire last.

Be careful when handling batteries. Batteries contain sulfuric acid, which can damage eyes or skin if touched inadvertently.

If inadvertent eye contact occurs, flush immediately with water and seek medical attention promptly. If accidentally swallowed, drink plenty of water or milk and seek immediate medical attention.

If sulfuric acid touches skin or clothing, wash it off immediately with plenty of water. Goggles and gloves should be worn when handling the battery. The battery can generate flammable hydrogen gas, which may cause an explosion. Keep away from sources of ignition such as open flames, sparks or lit cigarettes.

Use a flashlight when checking the electrolyte level. Before checking or disposing of the battery, be sure to turn the starter switch off to turn the engine off.

Be careful not to allow metal tools or any metal objects to touch the electrodes and cause a short circuit. Electrical sparks are generated when the electrodes are loose. Be sure to tighten it. Make sure the battery

cap is securely fastened. Do not use the battery when the level is below the lower limit. Otherwise, it will accelerate the internal deterioration of the battery and shorten its life. It can also lead to rupture (explosion).

Do not refill distilled water above the upper limit. Otherwise the electrolyte will leak out. Contact with this liquid can damage skin or corrode machine parts.

Clean the area around the electrolyte level line with a damp cloth and check the level. Do not clean with a dry cloth, as this can lead to static buildup and combustion or explosion. If the fuse blows frequently or there are signs of a short circuit in the circuit, find out the cause and repair it right away or contact after-sales personnel for repairs.

Keep the upper surface of the battery clean, check the vent holes on the battery cover, if the vent holes are clogged with dirt or dust, flush the battery cover and clean the vent holes out.

Check for damaged fuses; use of fuses of specified capacity; signs of breaks or shorts in electrical wiring and damage to cladding. Also check for loose terminals. If there's screwing them up.

Also when checking the battery, engine starter motor and AC power generation, special attention should be paid to the electrical wiring.

Be sure to check for any flammable buildup around the battery. If flammable materials have accumulated, remove them as soon as possible.

### Accumulators

**Warning:** The battery produces flammable gases, so do not allow fire or sparks near the battery.

Battery electrolyte is dangerous. If electrolyte gets in your eyes or on your skin, flush it out with plenty of water and seek immediate medical attention.

The battery electrolyte dissolves the paint. If the electrolyte is spilled on the body, clean it immediately with water.

If the electrolyte freezes, do not charge the battery or start the engine from a different power source, as doing so runs the risk of causing the battery to explode.

When the ambient temperature drops, the capacity of the battery will also drop, and if the battery charge rate is low, the electrolyte of the battery will freeze, keep the battery charged as close to 100% as possible and insulate the battery from cold temperatures so that the machine can be started easily the next morning.

#### note

Measure the specific gravity of the electrolyte and calculate the charge rate from the following conversion table

Charge rate temperatur	Liquid 20°C	0°C	-10°C	-20°C
100	1.28	1.29	1.30	1.31
90	1.26	1.27	1.28	1.29
80	1.24	1.25	1.26	1.27
75	1.23	1.24	1.25	1.26

Since the battery is prone to drop significantly at low temperatures, wrap the battery or remove it from the room and place it in a warm place, and install it on the machine the following morning.

If the electrolyte level is low, add distilled water in the morning before starting work, not after the daily work to prevent the liquid in the battery from freezing at night.

#### Battery electrolyte level - checking

1. Do not use the battery if the battery electrolyte ground level is below the low line. Otherwise, the internal deterioration of the battery will be accelerated and the service life of the battery will be shortened. In addition, it can cause an explosion.

2. The battery produces flammable gases and poses an explosion hazard. Therefore do not use an open flame near the battery.

3 Battery electrolyte is dangerous, if splashed in the eyes or on the skin, flush with plenty of clean water and seek immediate medical attention.

4. When adding distilled water to the battery, do not raise the battery electrolyte ground = above the high line. If the electrolyte ground level is too high, leakage may occur, causing damage to painted surfaces or corrosion of other parts.

NOTE: When adding distilled water on a cold day, add it in the morning before starting operation to prevent the electrolyte from freezing.

Check the electrolyte level at least once a month and observe basic safety measures.

**Check the electrolyte level from the side of the battery**

1. Remove the battery guard

2. Clean around the electrolyte level with a damp cloth to check the electrolyte level. If you wipe the battery with a dry cloth, static electricity can cause a fire or explosion.

**When the electrolyte level can be checked with an indicator**

If the electrolyte level can be checked with an indicator, follow the instructions given.

Please appoint our service agent for welding repair

When welding must be performed, it must be done by qualified personnel in a fully equipped workplace. To prevent damage to any part of the machine caused by excessive current or electrical sparks, observe the following.

Disconnect the battery wiring before performing welding.

Do not apply 200V or more continuously.

The grounding point shall be connected within 1 meter of the welded part. Do not connect the ground terminal near the electrical controls/meter or connector.

Ensure that there are no seals or bearings between the welded part and the grounded end do not.

Do not connect the grounding end around pins or hydraulic cylinders of the work unit.

To perform welding work on the body, disconnect the connector of the electronic control unit before working.

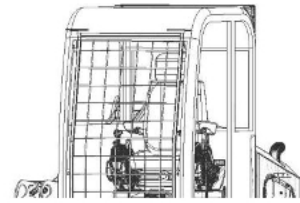
**Disposal of hazardous chemicals**

Direct exposure to harmful chemicals can cause serious injury.

Hazardous chemicals used in this machine include grease, battery electrolyte, coolants, paints and adhesives.

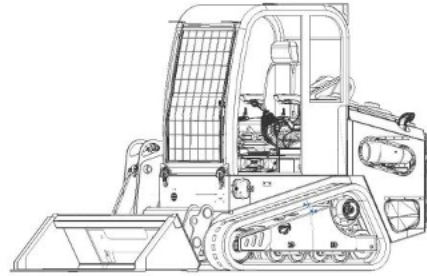
Please handle hazardous chemicals carefully and properly.

## Saline or seaside work



Caveats:

1. When working on salty land or seashore, the salt-containing adherents on the piston rod need to be cleaned or wiped off in time after the completion of each day's work.



2. To protect the machine, it is best to park the machine after each day's work by dropping the boom and dropping the bucket.

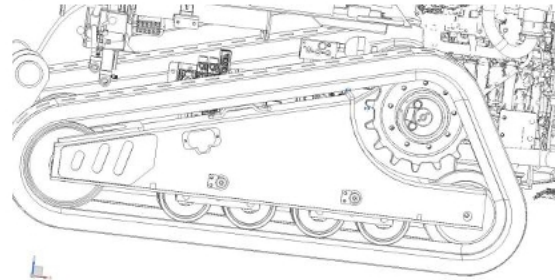
## 恶劣工作条件

When digging in water, if the work unit mounting pins are submerged, grease the bucket for each operation. Grease lubricate the bucket with grease for each operation.

When performing heavy-duty digging and deep digging operations, grease the bucket cylinder linkage before operation; after greasing, operate the bucket several times and then grease it.

## Grease Filling Precautions:

1. Pay attention to filling the grease when filling the grease in bad wind and sandy weather, pay attention to gently press the grease gun a few times first to prevent the wind and sand from blocking the grease nipple,



and avoid the pipe from entering the wind and sand, which will lead to the damage of the machine when you use it.

2. Pay attention to the filling of grease in good weather conditions when filling the grease, pay attention to the first two gently press the grease gun to prevent dust will be grease nozzle blocking, use to avoid the grease pipe into the dust, resulting in wear and damage to machine parts.

3. Grease is pressed into the track tensioning system under high pressure, and when adjustments are made, the grease drain plug can fly out and cause serious injury or property damage if prescribed maintenance

procedures are not followed.

4. When loosening the grease drain plug to relieve track tension, do not loosen the drain plug more than one turn, but loosen the grease drain plug slowly.

5. Do not bring face, hands, feet, or other body parts near the grease drain plug.

### Oil change method

#### Oil Change Precautions

1. Oil changes must be done with the engine stopped.

2. During the oil change process and after draining the oil before adding new oil, it is prohibited to start the standby machine when the temperature reaches 80 degrees, and then stop the machine.

3. An oil fill level close to but not exceeding the upper limit of the dipstick is optimal.

4. Put the oil catch pan underneath the diesel engine oil drain and unscrew the oil drain bolt to protect the environment.

5. WARNING: Be careful of hot oil burns and dispose of old oil properly.

6. Pay attention to the type of oil used.

7. Replace with new oil, taking care to check the dipstick level.

NOTE: The added oil must wait five minutes before checking the level of the oil.

If the diesel engine is ready to stop using for a long time, it should be drained while it is still hot, coolant, fuel, clean the engine oil sump and oil filter.

Oil/Capacity	Maximum filling volume
8L	7.5L

### Engine Replacement - Oil

With the engine off, the parts and oil are still hot and can cause serious burns. Wait for the temperature to drop before starting maintenance.

1. Container for discharging oil: Minimum 10L
2. Prepare a cartridge wrench.
3. Place the oil catch container under the drain screw plug inside the machine.
4. Slowly remove the drain screw plug to avoid splashing oil and drain the oil.
5. Check the discharged oil and contact your dealer if there are excessive metal shavings or contaminants.
6. Install the discharge screw plug.

### **Oil Filter**

7. Open the tailgate hood and, using an element wrench, turn the element counterclockwise and remove it.

8. Clean the cartridge seat, then apply clean oil (or a thin coat of grease) to the threads and seals of the new cartridge and replace it.

NOTE: Check for old seals staining the cartridge holder. If it is stained with old seals, it can cause oil leaks.

9. Tighten 1/2 turn after the sealing surface of the cartridge contacts the sealing surface of the cartridge holder.

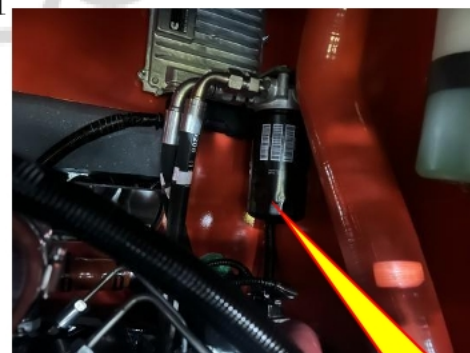
10. After replacing the filter element, fill with oil through the oil filler port until the arrow on the oil level gauge is at the between the marks.

11. Idle the engine for a while, then turn it off and make sure the oil level is normal.

### **Antifreeze replacement method**

1. The engine requires the use of antifreeze and the use of water as coolant is prohibited.
2. Prohibit the use of poor quality antifreeze or mixing different

Open the



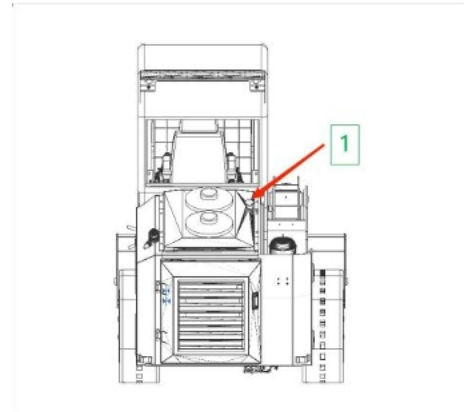
Oil Filter

models of antifreeze and antirust fluid to avoid corrosion of body parts.

3. Fill with the appropriate antifreeze according to the local ambient temperature.

In the cold season and region, the vehicle well do not open parking, otherwise start, the coolant must be heated to preheat the body, then the diesel engine can start.

Note: The radiator's fan is working when it is first started, the fan starts to energize and work, wait until the machine stops to turn off and stop the machine. The fan cuts off automatically.



(Friendly reminder: It is recommended that when the temperature is too high, please wait until the machine stops, the engine stops running, and the temperature drops before replacing it, and only when the machine has to stop operating)

#### Cooling system – cleaning/replacement

With the engine off, the coolant is at a high temperature and the radiator still has high internal pressure.

If you remove the cap to drain the antifreeze under these conditions, there is a risk of scalding. Before removing, wait for the temperature to drop, then slowly turn the cover to release the pressure.

To clean with the engine running, set the safety locking lever to the locked position when standing up or leaving the driver's seat.

If the shroud is removed, there is a danger of touching the fan.

Do not enter the rear of the machine when the engine is running.

Clean the inside of the cooling system and replace the coolant according to the table below.

Coolant Type	Clean the inside of the system and replace the coolant	Addition of anti-floating KI
Permanent type antifreeze (all-season type)	Annually (fall) or every 2,000 hours, whichever comes first	Every 1000 hours and when cleaning the cooling system Internally and when replacing antifreeze
Non-permanent antifreeze containing ethylene glycol (winter, one-season type)	Every 6 months (spring, fall) Drain antifreeze in spring, refill antifreeze in fall	
When not using antifreeze	Every 6 months or every 1000 hours whichever comes first	

When cleaning or changing antifreeze, park the machine on a level surface and use permanent type antifreeze.

If for some reason you can't use permanent antifreeze, use antifreeze that contains ethylene glycol.

Advanced Coolant (AF-ACL) has both corrosion and freeze protection.

#### Coolant for cooling system

River water contains a lot of calcium and other impurities. If river water is used, scale will adhere to the engine and radiator, causing thermal cross failure and overheating. Do not use water that is not suitable for citation.

1. When using antifreeze, be sure to observe the precautions in the Operation and Maintenance Manual.

2. Antifreeze is flammable, so take special care to keep it away from open flames.

3. If the engine is overheating, wait for the engine to cool before adding antifreeze.

4. In addition to overheating the engine when there is not enough cooling water, there is also corrosion in the cooling system due to the ingress of air.

## Clean and inspect radiator pads, oil cooler pads and condenser pads

Warning: Danger of serious injury if compressed air, pressurized water or steam strikes the body directly or if they are used to blow away dust and dirt. Always use goggles, dust masks or other protective gear.

1. Use compressed air to blow away any dirt, dust or leaves clogging the radiator pads and oil cooler. Also, clean the screen guard in front of the oil cooler. For machines with air conditioners, also clean the condenser pads. Where compressed air is used, steam or water may be used.

2. Check the rubber hose and replace it with a new hose if you find that it is cracked or has hardened due to aging. Also, check for loose hose clamps.

## Replacement of Additional – Fuel Filter

WARNING:

1. After the machine has been working and the engine temperature is still high, wait for the engine to cool down before changing the oil filter.

2. Smoke and fire are strictly prohibited in the vicinity of the fuel.

Note: Preparation – Cartridge wrench – Oil container.

3. Place the container under the cartridge to catch the oil.

4. A cartridge wrench is used. Turn the cartridge counterclockwise to remove him.

5. Clean the cartridge holder, clean the new cartridge with clean fuel and coat the bonding surface with engine oil. Then install it on the cartridge holder.

6. To install, tighten until the sealing surface touches the sealing surface of the cartridge holder, then tighten 1/2 turn.

If the cartridge is tightened too tightly, the mating surfaces will be damaged, which will result in fuel leakage. If the cartridge is too loose, fuel will leak from the mating surfaces, so it should be tightened properly.

7. Exhaust after replacing the additional fuel filter.

## Replacement-Hydraulic Oil Filter

### WARNING:

1. After shutting down the engine, parts and oil are still hot and can cause severe burns. Wait for the temperature to drop before cleaning the hydraulic oil screen.

2 When removing the oil filler cap, oil will spray out, so turn the cap slowly to release the internal pressure, then carefully remove it.

3. Drainage container, minimum 60L capacity

4. Oil filling capacity 56L

Open the back



## Filter cartridge

## Oil Return Filter

5. Prepare the machine to remove the oil return filter using a wrench, remove the oil return filter, wrap a clean cloth or object around it, and place the oil return filter with dust.

6. Lock the safety locking lever and turn off the engine.

7. Place the oil catch container under the discharge screw plug located at the bottom of the tank, remove the discharge screw plug with an allen wrench and drain the oil, check the square ring fitted to the discharge screw plug and replace it if it is damaged, and after draining the oil, tighten the discharge screw plug. When removing the drain plug, be careful not to splash oil on your body.

8. Reach inside the hydraulic tank and remove the hydraulic oil filter element counterclockwise.

9. Get out the dirt on the cartridge and then clean the cartridge with diesel or cleaning oil.

10. If the cartridge is damaged, replace it with a new one.



11. Reinstall the hydraulic oil filter element by screwing it into the raised portion inside the tank through the designated location inside the filter element.

12. Bolt the oil return filter in place, check the combination pads fitted to the bolts and replace them if damaged.

13. After installation is complete, add the specified amount of new hydraulic fluid, (for the hydraulic system), through the oil fill port.

14. After changing the hydraulic oil and cleaning or replacing the filter element and screen, exhaust the air from the oil circuit.

### Replacement of antifreeze

1. Shut down the engine.

2. After the machine has rested for 30 minutes, slowly open the radiator cap and pop it open.

3. Then place a container for the coolant mixture under the drain valve and drain plug.

4. Open the drain valve at the bottom of the radiator to drain the coolant. Then open the drain screw plug on the block and drain the coolant.

5. After draining the coolant, close the drain valve and drain screw plug and refill the coolant. When filling the radiator, start the engine and run it at low idle speed to allow the temperature to rise to at least 90° C, then continue to run it for about 10 minutes.

Antifreeze/Capacity	Maximum filling volume
20L	19L

### Lubricant and fuel storage.

1. Keep it indoors to keep water, dust and other debris out.

2. When storing oil drums for long periods of time, place the drum on its side so that the oil filler is on the side (to prevent moisture from being drawn in).

3. To prevent oil from deteriorating when stored for long periods of time, be sure to use it in the first-in-last-out order (use the fuel or oil that has been stored the longest first)



## Filter cartridge

The filter element is a very important safety component. They can prevent impurities in the oil and gas circuits from entering important equipment and causing vehicle malfunctions.

## Parking machines

1. Avoid sudden stops and flow out as much space as possible when parking the machine.

2. When parking the machine, choose level and solid ground, avoid dangerous locations, and if the machine must be parked on a slope, place pads under the tracks as an additional safety measure, and insert the bucket into the ground.

3. If the work unit lever is accidentally touched and the work unit or machine suddenly moves, this can cause a serious accident. Always place the safety locking lever firmly in the locked position before leaving the cab.

## Checking after completing assignments

Check engine water temperature, oil pressure and fuel level on the machine monitor.

## Lock up

To lock these parts.

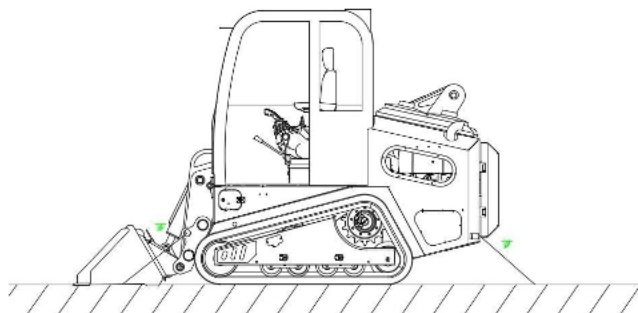
1. The driver's door. Don't forget to close the windows and doors.
2. Cab jack unit.
3. Hood

## Long term storage

pre-storage

Pay attention to:

When storing the machine (for a month or more), hold the machine in the position shown in the diagram below to protect the cylinder piston rod. (To prevent the cylinder piston rod from rusting) When placing the machine in storage for a long



period of time (more than one month), do the following.

- To clean and rinse all parts, then put the machine inside. If you have to store the machine outside, choose a flat surface and cover the machine with a cover cloth.

- Fill up the fuel tank so you can place moisture buildup.

Lubricate and change the oil before storage.

- Apply a layer of grease to the metal surface of the hydraulic cylinder piston rod.

- Disconnect the battery terminals and cover the battery or remove the battery from the machine and store it separately.

Depository period

When the machine is indoors, if rustproofing operations must be performed, open windows and doors to promote air circulation to prevent gas poisoning. During storage, the machine should be operated and moved a short distance once a month to attach a fresh film of oil to the surfaces of the moving parts. Also, charge the battery.

after storage

Note:

If the machine has been stored without the monthly anti-rust operation, please contact the after-sales personnel before using the machine.

When using a machine that has been stored for a long period of time, follow these steps before using it:

- Wipe some grease applied to the surface of the cylinder piston rod.
- Fill all parts with oil and grease.
- When the machine is stored for a long period of time, moisture from the atmosphere can get into the oil. Before starting the engine or after starting the engine, check the oil in all parts and change all the oil if there is water in it.

### Starting the engine after long term storage

When storing a started engine for an extended period of time, perform a warm-up preheat operation.

### Upon completion of daily work

#### Warning:

Track idling is dangerous, so stay away from the tracks.

At the end of the operation, fill the fuel tank to prevent water from forming due to condensation of moisture in the air when the temperature drops.

To prevent mud and water from freezing on the sump and preventing the machine from being moved the next morning, observe the following

### Precautions.

1. It is important to thoroughly remove mud and water from the body, this is to prevent damage to the seal due to mud and dirt getting inside the seal along with water droplets.
2. Always park the machine on a hard, dry surface.
3. If this is not possible to park the machine on a board.
4. The boards prevent the tracks from freezing into the soil, allowing the machine to start the next morning.
5. Open the drain valve to remove water that has collected in the fuel system to prevent freezing.
6. After operating in water or mud, remove water from the sump as described below to extend the life of the sump.
7. Drop the big arm. Bucket unloading status.
8. Use the bucket to jack up the machine so that the tracks are lifted slightly off the ground, rotate the tracks with an empty load, and repeat this operation with a single rotation on the left and right sides.

### After the cold season

When the seasons change. When the weather gets warmer. Follow the steps below to do so.

Replace all parts of the fuel and oil with oil of the specified viscosity.

Liquid Charge rate temperature	20° C	0° C	-10° C	-20° C
	100	1.28	1.29	1.30
90	1.26	1.27	1.28	1.29
80	1.24	1.25	1.26	1.27
75	1.23	1.24	1.25	1.26

## Maintenance engine instructions

1. Park the machine on solid, level ground.
2. Drop the work unit completely to the ground and turn off the engine.
3. Bring the safety locking lever to the locked position.
4. Place pads under the tracks to prevent the machine from moving.

## Maintenance precautions while the engine is running

To prevent injury, do not perform maintenance while the engine is running, or if you must, do not perform maintenance while the engine is running. If maintenance must be performed with the engine running, operate with at least two people and follow the rules below.

1. One person must always be seated in the operator's seat and ready to shut off the engine. All personnel must remain in contact with each other.

2. Trigger the safety lock lever to the locked position.

3. When operating close to fans, fan belts or other rotating parts, there is a danger of getting caught in the parts, so take special care.

4. Do not touch any levers, and if you must operate a particular lever, signal the others and warn them to move to a safe place.

5. Do not drop or insert tools and other objects into the fan or fan belt. Failure to do so can cause parts to break or fly out.

## It takes two people to perform maintenance while the engine is running..

To prevent injury, do not perform maintenance while the engine is running, and if maintenance must be performed with the engine running, do so with at least two people present and as specified below.

1. One person must always be seated in the operator's seat and ready to shut down the engine, and all personnel must remain in contact with each other.

2. Move the safety locking device to the designated position.

3. When operating close to fans, fan belts or other rotating parts, there is a danger of getting caught in the parts, so take special care.

4. Do not touch any levers, and if you must operate a particular joystick, signal the others and warn them to move to a safe place.

5. Do not drop or insert tools or other objects into the fan or fan belt. Failure to do so can cause parts to break or fly out.

### **Suitable tools**

Use only proper tools and use them correctly; the use of damaged, inferior, defective, makeshift tools or incorrect use of tools can cause serious injury.

### **Working underneath the machine**

1. If it is necessary to go under the machine or work unit for maintenance, securely support the work unit and machine with pads and braces strong enough to support the weight of the work unit and machine.

2. It is very dangerous to work under the machine if the track plate is off the ground and the machine is supported only by the work unit.

If the joystick is touched by mistake or the hydraulic line is in danger, the work unit or machine can suddenly fall, which is very dangerous. Do not work under the machine without properly supporting it with pads or braces.

### **The noise**

If the machine is too noisy, it can cause temporary or permanent hearing problems.

When performing engine maintenance and being exposed to noise for extended periods of time, wear ear muffs and ear plugs while working.

Prevents dropping things inside the machine

1. When opening the inspection window or tank filler for inspection, be careful not to drop bolts, nuts or tools inside the machine.

2. Don't carry anything unnecessary in your shirt pockets, only what you need to conduct the inspection.

### **Dusty work sites**

When working on a dusty job site, follow these steps.

1. Always check the air filter for clogging with a dust indicator, and replace the frequently cleaned air filter element.

2. Clean the radiator core frequently to avoid clogging.

3. Clean and replace the fuel filter frequently.

4. Clean electrical parts, especially the starter motor and alternator, to avoid dust buildup dirt.

5. When checking or changing the oil, move the machine to a dust-free area to prevent dust from getting into the oil.

### **Avoid mixing lubricants**

Do not mix different grades of oil together. If you need to add a different grade of oil, drain the old oil and replace it with a new grade.

### **Code of practice for the safe operation of hydraulic fluids**

There is always pressure inside the hydraulic system, when checking or replacing lines and hoses, always check that the pressure inside the hydraulic lines has been released. If there is still pressure in the oil line, serious injury or damage can result, so do the following.

1. Do not perform inspection or replacement work when there is pressure in the hydraulic system.

2. If there are any leaks in the lines or hoses, the surrounding area is wet, so check the lines and hoses for ruptures and the hoses for expansion. When conducting inspections, wear goggles and leather gloves.

3. High-pressure oil leaking from small holes can seep into the skin and pose a risk of blindness if it comes into direct contact with the eyes. If the high-pressure oil stream strikes the skin or eyes and they are injured, flush with clean water and contact a doctor immediately for treatment.

### **Waste**

To prevent contamination, special attention should be paid to the way waste is disposed of.

1. Keep the oil discharged from the machine in a container and do not discharge the oil directly onto the ground or into sewers, rivers, oceans or lakes.

2. When handling hazardous materials such as oil, fuel, coolant, solvents, cartridges and batteries, comply with the relevant laws and regulations.

### **Inspection and maintenance work after**

If you forget to do this after inspection and maintenance, unexpected breakdowns can occur that can lead to serious injury or property damage, follow the steps below.

1. Have you forgotten any inspection and maintenance areas.

2. Have all inspections and maintenance programs been performed correctly.

3. Have tools or parts fallen inside the machine? It is dangerous if parts fall inside the machine and get stuck in the connecting rod mechanism.

4. Are there water and oil leaks? Are all bolts tightened.

### Check when operating the engine

1. Check and maintain items for proper functioning.

2. Is there an oil leak when the engine speed is increased and a load is applied?

### Air filter element - Cleaning cartridges

1. Open the hood at the rear of the machine, remove the country fixed bracket nut, take out the air filter and turn it counterclockwise to remove the element.

2. To keep dust and dirt out, cover the air connector side inside the air filter with a clean cloth and dab in tape.

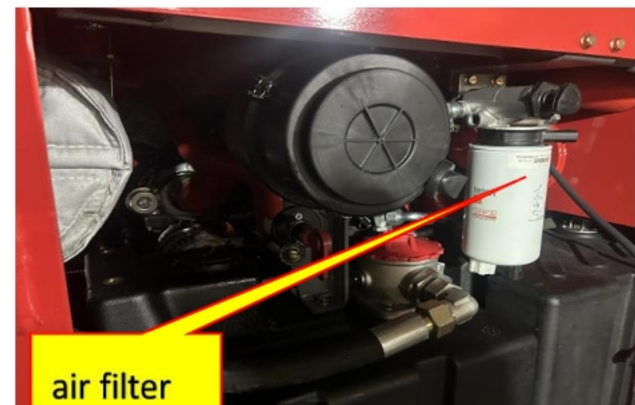
3. Blow with dry compressed air from the inside along the pleats of the cartridge to the outside, then from the outside along the pleats of the cartridge and again from the inside to the outside.

4. Replace cartridges that have been re-cleaned six times or have been in use for a year.

5. When cleaning the cartridge, replace it by shining a light through

it and if you find small holes in the cartridge, or thinner sections.

CAUTION: When cleaning the cartridge, do not touch or knock the cartridge. Do not use cartridges with damaged pleats or seals. Wrap and



store unused cartridges in a dry place.

### Replacement of filter cartridges

1. Open the hood at the rear of the machine, remove the retaining bracket nut, take out the air filter and turn it counterclockwise to remove the element.

2. To keep dust and dirt out, cover the air connector side inside the air filter with a clean cloth and dab in tape.

3. Install new cartridge and secure with nuts.

### Track tension - check - adjust

Wear on pins and pins in the undercarriage section varies with operation and soil type. To maintain standard tension, check the track tension frequently. When performing inspections and maintenance, park the machine on solid, level ground.

### probe

1. Run the engine at low idle, move the machine forward a distance equal to the length of the tracks on the ground, and stop the machine.

2. Select a piece of matting to reach the guide wheel and place it on top of the track.

3. Measure the maximum droop between the upper surface of the track and the bottom surface of the pad.

standardized verticality

The droop should be 10~30mm

If the track does not reach the standard value, adjust it as follows.

### Adjust the

There is a danger of the bolt flying out under the grease. Be sure not to loosen the bolt more than one turn.

Do not loosen any parts other than the bolt plugs and do not face the direction in which the bolts are installed.

If track tension cannot be loosened using the methods provided here, contact your dealer.

### When increasing track tension

Prepare a butter gun.

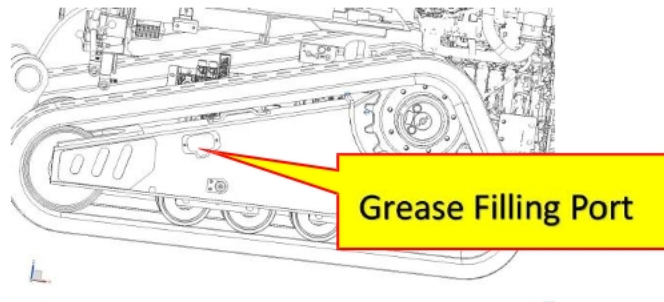
1. Use a grease gun to inject grease through the grease nipple.

2. To check track tension, run the engine at low idle, move the machine

forward a distance equal to the length of the track on the ground, and stop the machine.

3. Check the track tension again and if the tension is not right, adjust it in.

4. Continue to fill with grease and if the tension remains slack, the pin and pin bushing may be excessively worn. So perform an inversion or replacement. Contact your dealer for repair.



### When relaxing the track tension

#### WARNING:

It is dangerous to release grease by any method other than those provided below. If the track tension cannot be relaxed by this method, contact your dealer for repair.

1. Gradually loosen the bolt to drain the grease.
2. When the screw plug is loosened, make a maximum of one revolution.
3. If the grease does not come out smoothly, move the machine forward or backward a short distance.
4. Tighten the screw plug.
5. To check for proper track tension, run the engine at low idle, move the machine forward a distance equal to the length of the tracks on the ground, and stop the machine.
6. Recheck the track tension and if the tension is right, make adjustments while you're at it.

### Rubber tracks - use - replacement prohibition on operations

Do not perform the following types of assignments

1. Operating and steering on gravel, extremely rough hard rock, sharp corners of I-beams, iron filings or steel plates can cause damage to the rubber tracks.

2. In places such as rivers with large numbers of small and large pebbles, stones can squeeze into and damage the rubber tracks or dislodge them. If shoveling operations are performed when the tracks are slippery,

the life of the rubber tracks will be shortened.

3. Be careful not to use oil, fuel or chemical solvents that get on the rubber. If this substance gets on the tracks, remove it immediately and, in addition, do not walk on oily surfaces.

4. When storing the machine for an extended period of time (longer than three months), store the machine indoors to protect it from sun and rain.

5. Do not use the machine in hot areas, such as where there is burning wood, on top of exposed steel plates or where asphalt has been laid.

6. Do not move the machine with one side of the tracks lifted by the working device, as this can damage the rubber tracks and can dislodge them.

7. When the rubber parts of the road liner are worn or damaged. or when the mounting bolts are scratched. To replace the tracks, immediately. If the bolt breaks, it will be difficult to remove.

#### **Extended service life**

1. Avoid turning in place on concrete roads.

2. Avoid sudden changes in the direction of travel, which can prematurely wear or damage the rubber tracks.

3. Avoid operating the steering when traversing places with large drop-offs, and when crossing obstacles or places with large drop-offs, keep the machine going straight over the obstacle to prevent the tracks from falling off.

4. If the machine has been lifted with the bucket, drop it slowly.

5. Avoid working with materials that produce oil when squeezed (beans, grains or vegetables containing oil); or rinse the machine after use.

6. Avoid working with substances that break the adhesion of steel parts, such as salt, ammonium sulfate, potassium chloride, potassium sulfate, or calcium superphosphate, or cleaning the machine after use.

7. Salt can damage the adhesion of steel parts, so avoid working in beach areas.

8. Do not perform work that involves shoveling walls or concrete embankments.

9. On snowy and icy ground, rubber tracks are extremely prone to slipping, so be careful not to slip when walking or working on slopes.

10. When operating in extremely cold locations, the characteristics

of the rubber track plate change, which can shorten the life of the rubber track.

11. Due to the nature of rubber, to be used at 25° C - 55° C (-13° F - 131° F) the use of rubber tracks in the range of 25° C to 55° C (-13° F to 131° F)

12. When operating the bucket, take care that the rubber tracks are not damaged by the bucket.

13. Be sure to keep the rubber tracks at the proper tension to prevent peeling.

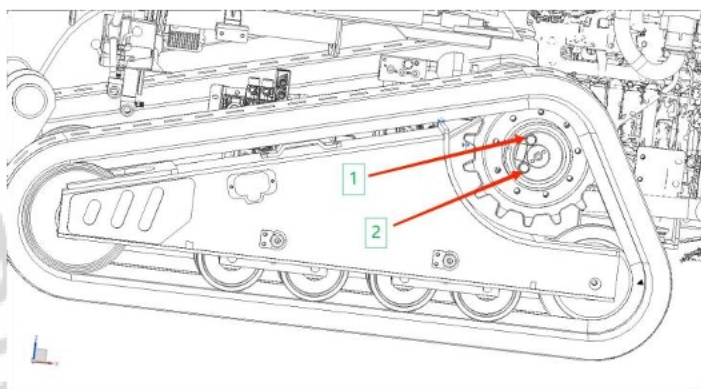
### Reduction gears Gear Oil Filling Instructions

Reducer gear oil filling quantity: 2L

1. filler neck

2. oil drain

3. Note: Make it clear that the top end of the reducer is the oil inlet when the nameplate is on the front end in the vertical downward position. The lower end is a drain port.



Parts List		
serial number	Part Name	quantities
1	Cummins engine	1
2	Traveling motor	2
3	speed reducer	2
4	Oil return filter	1
5	oil level meter	1
6	silencers	1
7	Silencer flexible connection	1
8	car radiator	1
9	shock-absorbing seats	1
10	Electronic gas pedal	1
11	operating handle	2
12	headlights	2
13	tail light (on vehicle)	2
14	shoes and belt	2
15	Closed pumps	1
16	piston pump	1
17	oil supply valve	1
18	Pilot Operated Multiway Valves	1
19	coupling	1
20	gear pumps	1
21	air filter	1
22	leveling valve	1
23	Flushing valve	2
24	bell-shaped hood	1
25	cabs	1
26	prefilter	1
27	horn (automobile etc)	1
28	batteries	1
29	fuel tank	1
30	Hydraulic oil tank	1

Notes:

1. Where this instruction manual does not correspond to the original model, please refer to the physical description.

2. If the actual product is different from the pictures in this manual, the actual product shall prevail

