

No	Connecting pin or butter eyes
1	Boom, the upper frame connecting pin
2	Boom cylinder, the upper frame connecting pin
3	Boom cylinder, boom connection pin
4	Stick cylinder, boom connection pin
5	Boom, stick connecting pin
6	Arm cylinder, arm connecting pin
7	Bucket cylinder, bucket connecting pin
8	Arm cylinder, rocker, connecting rod connecting rod
9	Connecting rod, bucket connecting pin
10	Stick, rocker connecting pin
11	Rocker, bucket connecting pin
12	Bulldozer cylinder fixed pin and the lower frame connecting pin

lubrication chart:



# Maintenance precautions

## Engine maintenance

As the main power system of excavator, the engine needs to be maintained according to the "Engine Operation Manual" carried with the vehicle, and the maintenance and maintenance can be carried out strictly according to the provisions in the engine operation manual to effectively improve the service life and reduce the occurrence of the fault.

The main maintenance includes the following main parts:

1. engine conditioner care.
- 2 oil replacement cycle, and added. (The oil will be consumed slowly with the machine, so you need to check the amount of oil regularly, rather than adding the oil until the next replacement of oil, when it is lack of oil, you need to add the oil timely, otherwise it will cause serious effects such as cylinder score, the manufacturer will not provide warranty for motor if it is damaged due to lack of oil)
3. Oil filter, diesel filter replacement cycle
4. Air filter replacement cycle

## Mark "do not operate" warning message

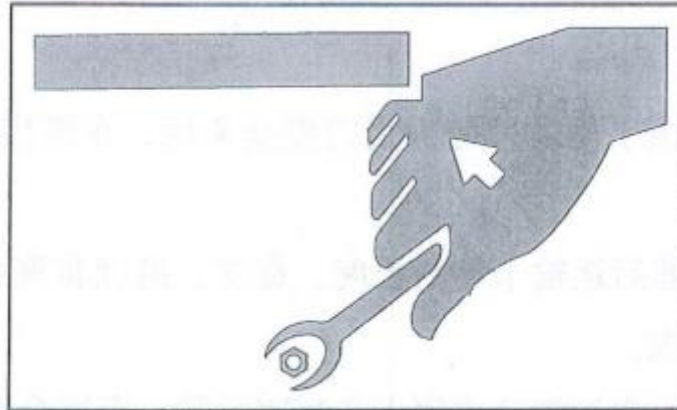
When inspecting or maintaining the machine, serious injury may result if an unauthorized person starts the engine or encounters controls.

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



Mark the "Do Not Simulate" warning message in a conspicuous place where starting switch or lever.

Use the correct tool



Do not use damaged or deteriorated tools or tools designed for other uses. Use the appropriate job related tools.

Regular replacement of safety critical components:

To ensure that the machine can be safely used for a longer period of time, it should be refueled regularly and inspected and maintained. To improve safety, Regularly replace safety-critical parts such as hoses and safety belts.

"Safety-critical parts replaced on a regular basis" refer to parts that have been aged, worn and functionally degraded after repeated use, and the performance of such parts may change over time. These features of these components make it possible to cause serious mechanical damage or personal injury, but by visual inspection or operating feel, it is difficult to judge the remaining life.

Visual inspection of the appearance of any damage found, replace the "regularly replaced safety critical components," even if the specified replacement interval has not yet reached. Change the fuel hose regularly. Fuel hoses wear out over time, even though no signs of wear have been shown.

Whenever a symptom of wear is found, it is replaced, no matter how the schedule is changed.

To use the machine safely, perform regular inspections and maintenance. The following safety critical components must be replaced on a regular basis to enhance safety.

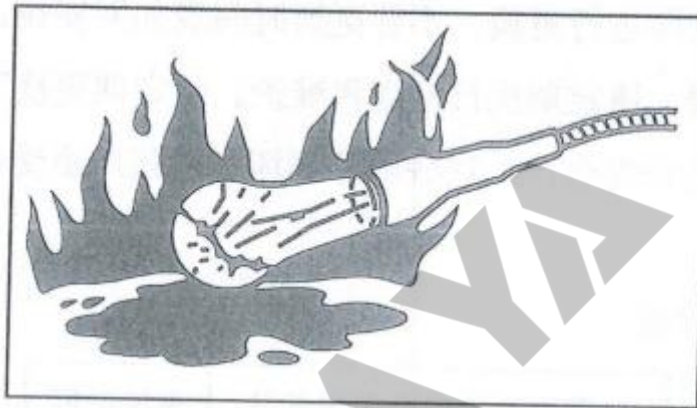
Damage to these parts can cause serious injury or fire.

Safety Critical Parts List:

Excavator	Regular replacement of the safety critical components		Replacement time
Fuel system	Fuel pipe		Every 2years
	Fuel filler cap on the lid		
Hydraulic system	Machine body	Hydraulic pipe (pump outlet)	Every 2 years
		Hydraulic pipe (pump suction port)	
		Hydraulic pipe (swing motor)	
		Hydraulic pipe (travel motor)	

	Working equipment	Hydraulic pipe (boom cylinder line)	
		Hydraulic pipe (stick cylinder line)	
		Hydraulic pipe (bucket cylinder line)	
		Hydraulic pipe (swing cylinder)	
		Hydraulic pipe (dozer cylinder)	
		Hydraulic pipe (pilot valve)	
		Hydraulic pipe (auxiliary pipe)	

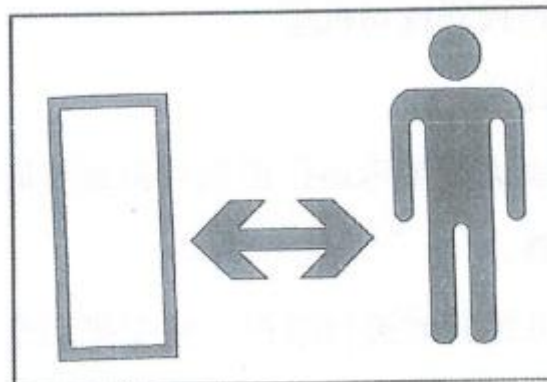
Explosion-proof lighting:



When inspecting fuel, lubricating oil, coolant or battery electrolyte, use an explosion-proof light to prevent a fire or explosion.

Otherwise, an explosion may occur, causing serious casualties.

It is strictly forbidden to let unauthorized personnel enter:



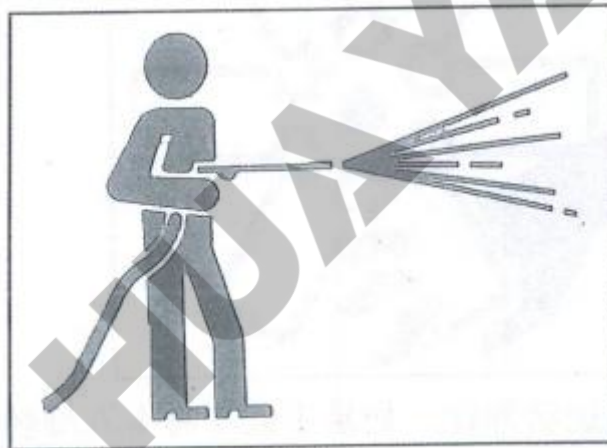
During work, do not allow unauthorized personnel to enter the work area. Be careful when grinding, welding or using a hammer. You may be injured by flying debris from the machine.

Preparation of work area:

Choose a stable work area. Ensure that there are suitable lighting conditions, such as indoor work, ventilation should be guaranteed.

Remove obstacles and dangerous goods. Eliminate easy-to-slip areas.

Always keep the machine clean:



Before maintenance, the machine should be cleaned.

Turn off the engine before cleaning the machine. Cover electrical components to prevent water ingress. Electrical parts may cause short circuits or malfunctions when they enter water. Do not clean the battery, electronics, sensors, connectors, or cab with water or steam.

Turn off the engine before maintenance.



When the machine is running, or the machine is not running but the engine is running, avoid the machine

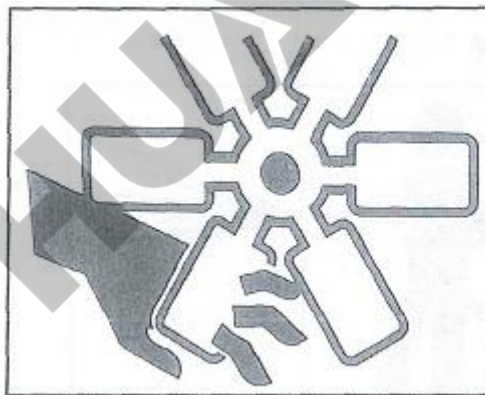
Lubricate or mechanically adjust.

If maintenance must be done while the engine is running, two people should be scheduled to work in teams and stay in touch.

A person must sit on 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 levers and pedals unless required.

Another person performing maintenance should ensure that their body or clothing is kept away from moving parts of the machine.

Keep away from moving parts



Keep away from all rotating and moving parts. If a hand or a tool gets stuck in a rotating or moving part, it can cause serious injury or even death.

If you throw tools or other objects in or insert the fan or fan straps, these objects can be crushed or shredded. Do not throw or insert anything into the fan or fan straps.

Firmly secure the machine or any parts that may fall.



Before performing any maintenance or repair under the machine, lower all movable work units to the floor or to the lowest level.

#### **Fixed track**

If you have to work on a raised machine or equipment, always use a wooden pad, jack, or other sturdy support. Do not get under the machine or working device until it is firmly supported. This procedure is especially important when working on hydraulic rams.

#### **Stable work device**

When carrying out repair or replacement of teeth or side teeth, the work equipment should be fixed firmly to prevent accidental movement of the machine.

#### **Stabilize the hood or lid when opening it**

Be sure to secure the engine cover or cover before working inside the machine. Windy weather or when the machine is parked on a slope, keep the bonnet or lid closed.

#### **Place heavy objects in a stable position**





During the process of dismantling or installing, if you need to temporarily put heavy objects or accessories on the ground, be sure to put them in a stable place. Do not allow unauthorized persons to approach such places.

### **Refueling precautions**



Do not smoke or there should be no open flames near or near refueling points.

Do not remove the lid or refuel the engine while it is running or not yet cooled. Do not scatter the fuel on the hot surfaces of the machine.

Fuel the fuel tank in a well-ventilated area.

**Do not fill the fuel tank. Should be left space for oil expansion.**

Spilled fuel should be immediately wiped clean.

Tighten the fuel tank firmly. If the fuel cap is missing, replace it with the original one. Using an unpermitted and poorly ventilated fuel tank cap creates internal pressure in the tank.

### **Prevent dust from entering**

When installing and removing parts, they should be carried out in a dust-free place, clean the work area and clean the parts to prevent dust from entering.

### **Clean the mounting surface**

When installing and removing parts, make sure that the contact surfaces of the parts are clean. If the sealing surface of the contact surface is damaged, contact your sales or service representative for repair or release.

### **Sealing ring and cotter pins**

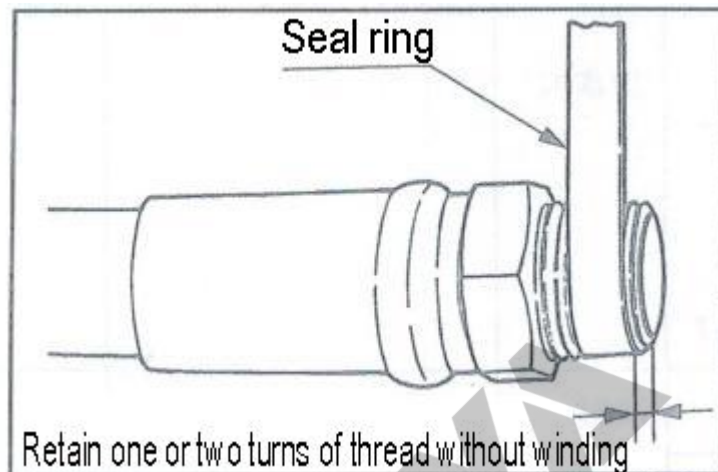
Be sure to replace all the removed seals and cotters with new ones.

When installing, be careful not to damage or distort the seal.

### **Sealing ring**

When winding the plug with the tape, clean the thread of the old gasket and clean the thread.

Tighten the thread with a seal, taking care to leave 1 or 2 at the end of the plug.



**Do not use fuel for cleaning!**

Fuel and lubricants require the correct fuel grade for the season.

Please refer to the following table, according to the temperature to choose the right fuel, lubricating oil and grease. Whether or not it has reached the designated time, replace the oil if it becomes too dirty or has deteriorated.

When refueling, do not mix different brands of oil. If you want to change the brand of oil, please replace all the fuel / lubricating oil.

**Fuel oil**

Diesel should meet the following conditions, the table lists the world's current several diesel specifications.

<b>Fuel oil specification</b>	<b>Area</b>	<b>Fuel oil specification</b>	<b>Area</b>
<b>GB252</b>	<b>China</b>	<b>BS2869-A1 or A2</b>	<b>UK</b>
<b>ASTM D975</b> <b>Number: 1-D,S15</b>	<b>USA/ Canada</b>	<b>ISO 8217DMX</b>	<b>International</b>
<b>Biodiesel</b> <b>Biodiesel mixture is</b> <b>B5</b> <b>ASTM D6751,D7467</b>			
<b>EN590:96</b>	<b>EU</b>	<b>JIS K2204 Grade</b> <b>II</b>	<b>Japan</b>
<b>Biodiesel</b> <b>Biodiesel mixture is</b> <b>B5</b> <b>ENI4214, EN590</b>			

### **Fuel oil tank**

In order to maintain engine performance and service life, always use clean, high-quality fuel.

To prevent icing in cold weather, select diesel that is could still usable when the expected minimum outdoor temperature is at least 12 °C below the actual temperature.

Please use a diesel that burns 45# or more. When used in high altitude or high altitudes, higher fuel burn is required.

Sulfur content of less than 0.05 ~ 0.0015% by volume of fuel. (In the United States or Canada, ULSI should be used.) Using sulfur-rich fuels may cause sulfuric acid corrosion of the engine cylinders.

Do not use of kerosene. Do not mix kerosene, used lubricant or residual fuel with diesel.

Poor quality fuel can degrade engine performance or cause engine damage. Not recommended for fuel additives. Certain fuel additives cause engine performance to drop.

Metal contents, such as zinc, sodium, fuels, silicon and aluminum, shall be limited to (1 mass ppm) or less.

The safety precautions when using bio diesel, the engine manufacturer's warranty, are not valid for machines that do not meet standard or deteriorated bio diesel.