

KOHLER POWERED MINI EXCAVATOR



⚠ WARNING



- Please read and understand the product manual completely before assembly
- Check against the parts list to make sure all parts are received
- Wear proper safety goggles or other protective gears while in assembly
- Do not return the product to dealer. They are not equipped to handle your requests.

Missing parts or have questions on assembly?

Please call: 1-877-761-2819 or email: cs@tmgindustrial.com

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General

Read and understand the Operator's Manual and all safety signs before using, maintaining, adjusting, or cleaning the Mini Excavator.

Your Safety

YOU are responsible for the SAFE operation and maintenance of your TMG Mini Excavator. YOU must ensure that you and anyone else who is going to use, maintain or work around the Mini Excavator be familiar with the using and maintenance procedures and related SAFETY information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be used while using the Mini Excavator.

Remember, YOU are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that EVERYONE using this equipment is familiar with the recommended using and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

1. Mini Excavator owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually thereafter.
2. The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. Most accidents can be avoided.
3. A person who has not read and understood all using and safety instructions is not qualified to use the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.
4. Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
5. Think SAFETY! Work SAFELY!

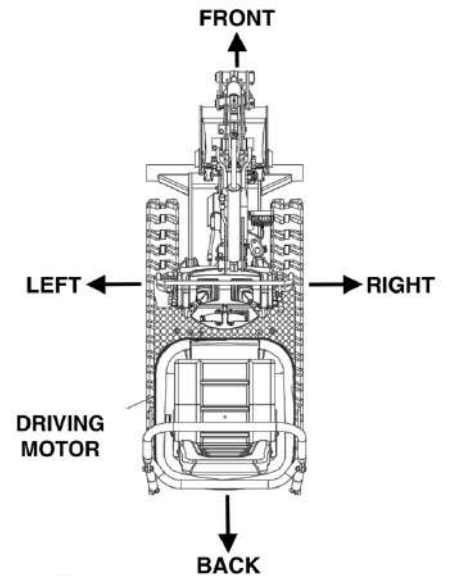
Safety Training

1. Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator or bystander.
2. In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of this equipment.
3. It has been said, "The best safety feature is an informed, careful operator." We ask you to be that kind of an operator. It is the operator's responsibility to read and understand ALL Safety and Using instructions in the manual and to follow these. Accidents can be avoided.
4. the machine. If this machine is used by any person other than yourself, or is loaned or rented, it is the machine owner's responsibility to make certain that the operator, prior to using:
 - a. Reads and understands the operator's manuals.
 - b. Is instructed in safe and proper use.
5. Know your controls and how to stop the mini excavator quickly in an emergency.
6. Train all new personnel and review instructions frequently with existing workers. Be certain only a properly trained and physically able person will use the machinery. A person who has not read and understood all using and safety instructions is not qualified to use the machine. An untrained operator exposes himself and bystanders to possible serious injury or death. If the elderly is assisting with the work, their physical limitations need to be recognized and accommodated.

Direction

The direction described in this manual is the direction of which the travel motor is on the rear.

The direction of the travelling machinery is the same as the front and rear, the right and left direction of the operation crews.



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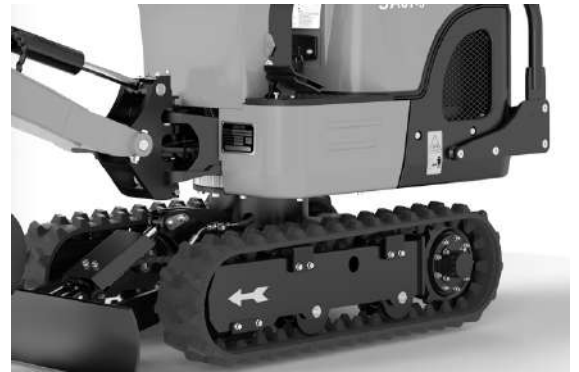
Body and engine identification marks

Identification number

Please let us know the following contents if the parts or the machinery disagrees with your order.

Identification number

The Identification number is located on the right lower corner of the cab.



Engine number

The engine number is located on the nameplate of the engine.



Symbol

- ▲ Emphasize the secure prompt.
- ★ Specify the useful information to operation crews.

IMPORTANT SAFETY INFORMATION

General Safety

▲ Warning: For the sake of the safety, please comply with following safety notices.

▲ Warning: Failed comply with following safety measures may lead to serious accident.

1. Comply with safety regulations

- Read all safety nameplates carefully and comply with those safety nameplates as well as all contents related to the safety in this manual.
- Maintain and replace the safety nameplates when necessary.
- If the safety nameplates or this manual is damaged or lost, please place an order to the specified dealer for replacement in the same way of ordering other parts (the model number and the serial No. of the machine shall be specified).
- The machinery and the controller shall be operated correctly and safely.
- The machinery can only be operated by the qualified and well trained person.
- Do not operate the machinery when you feel strange or take the medicament which may lead to the sleeping or drunk. The operation of the machinery under such circumstances may influence your judgment and lead to the accident.
- It shall be guaranteed that all persons can understand the hand signal used when working together with other operation crews or the person who takes the responsibility of traffic command.
- Keep the machinery under the suitable working condition.
- The unauthorized modification on the machinery may have negative influence on the function and the security and shorten the service life of the machine. TMG takes no responsibility for the injury and damage caused by any unauthorized modification.
- The safety instruction in the "Safety" section is the basic safety regulations of the machine. However, these relevant safety instructions can not cover all hazardous conditions. Please ask for instructions from your headman before the operation and maintenance of the machinery if there are any problems.

2. Precautions against emergency situation

Take precautions against the fire or accident.

- Arrange the first aid case at hand, maintain and replace the fire extinguisher periodically.
- Read and understand the instruction on the fire extinguisher carefully and use the fire extinguisher correctly.
- In order to guarantee the normal operation of the fire extinguisher under emergency situation all the time, the fire extinguisher shall be inspected and maintained as per the recommended maintain interval specified in the fire extinguisher manual.
- Establish the emergency guide against the fire and accident.
- Paste the phone numbers of the doctor, the ambulance car, the hospital and fire company near the telephone.



3. Take on the protective clothing

- Dress maillot straitjacket and safety commodity suitable for operation.

The loose coverall, the ornament or other commodity may catch the operating lever or wear other mechanical parts. Never let the coverall be caught by the parts projected from the excavator. It is forbidden to close the ignition source with oil soaked coverall; it may lead to the fire.

- Put on the suitable helmet and safety shoes and coverall. The ocular glass, the breathing mask, muffler, the ear-plug or other arm shall be put on if the operation site is dangerous.



4. Acoustics insulation

- The auditory sense may be damaged or lost if the operator is in the environment with large noise for a long time.



- Put on proper hearing conservation device, such as the ear cap or the ear-plug to prevent the harmful or uncomfortable large noise.
5. Inspect machinery
 - In order to avoid the injury to person, the machinery shall be patrol inspected carefully daily or per shift before starting the machinery.
 - All items stated in section "Inspection before start" of the operation crews manual shall be inspected during the patrol inspection.
 6. General matters need attention of operation
 - Eliminate the mud and oil stain on the boot before on the set. The foot may slip off the pedal when operating the pedal and other controller if there are the mud or oil stain at the bottom of the operating boot and lead to the personal injury.
 - Do not put the part and the tool around the operating seat, store those in the specified place.
 - Do not put the transparent bottle in the cab. Do not hang any kinds of transparent ornament on the windowsill. For it may focus the sunlight and lead to the fire.
 - Do not listen to the radio or use the earphone, the mobile telephone when operating the machinery.
 - Do not place any flammable explosive substance in the cab.
 - Close the ash pan cover all the time to extinguish the match or the cigarette end.
 - Do not left the lighter in the cab for it may explode when the temperature of the cab is increased.
 7. The machine must be locked before leaving the set.
 - The pilot cutoff valve lever must be set on the perpendicular state and the operating handles of each working equipment must be set on the middle position when the driver leaves the seat. Otherwise the working equipment may operate abruptly and thereby lead to serious injury or damage if you touch the operating lever by chance.
 - Lower the working equipment on the ground completely and shut down the engine until the engine is stopped when leaving the machinery. Extract the start key and turn off inspect and repair switching power supply. Use the key to lock all devices. The key shall be kept all the time.
 8. Use the handrail and the footstep.
 - The falling is one of the prime reasons of person injury.
 - Always keep three points contacting with the footstep and the handrail and face to the machinery when climbing up or down the machinery.
 - Do not take any operating handle as the handrail.
 - Neither jump on or out of the machinery nor climb up or down the moving machinery.
 - Pay attention to the skid of the platform, the footstep and the handrail when leaving the machinery.



9. Prevent the hazard of the asbestos dust
It is dangerous of breathing the asbestos dust.

Following instructions shall be followed when handling the material with asbestos fiber.

- Do not use the compressed air to clear the contamination.
- Use the water to clear the dirt to prevent the mill dust from flying all about.
- Back to the wind direction as far as possible during the operation.
- Use the qualified respirator when necessary.

10. Avoid being squeezed or cut

Do not put the hand, the arm and other part of the body into or between the active components, such as the working equipment and the cylinder, the frame and the working equipment, etc.. The clearance will be changed when the machinery is running thereby it can lead to the serious damage or injury to persons.



11. Matters need attention in relation to accessories

- Read the utilization instruction manual and related content in this manual at first when installing and using the optional accessories.
- Do not use the accessories which are not approved by TMG or TMG dealer. The unauthorized accessories used may lead to the safety problem and the normal operation and service life of the machine may be influenced.
- TMG does not take any responsibility of the injury, accident and mechanical failure caused by the unauthorized accessories used.

12. Matters need attention in utilization of driver guard cab (optional)

- The driver guard device for the cab is optional and this device complies with codes and standards of all nations but the damage caused by falling body may reduce the strength and it dose not satisfy the design requirements any longer.
- Please contact the TMG dealer for maintenance under such circumstances. This device cannot protect the driver even when the driver guard is installed if the driver dose not uses the safety belt correctly. So the safety belt must be buckle up all the time during the operation.

During machine operation

▲ Warning: For the sake of the safety, Please comply with following safety notices.

▲ Warning: Failed comply with following safety measures may lead to serious accident.

1. Before starting operation

1) Investigate worksite beforehand

There is the possibility of overturn and it may lead to the severe fatalities when operating on the limes margins or shoulder of road.

- Investigate the landform and ground state of worksite beforehand to prevent the overturn of the machinery or the collapse of the ground, stockpile and the riverside.
- Establish the operation plan and use the machinery correctly suitable for the operation or the worksite.
- Strengthen the ground, the limes margins and the road shoulder as required; keep the machinery at a distance from the limes margins and the road shoulder.
- Use the signaler as required when carrying out the operation on the slope or the road shoulder.
- Strengthen the ground before operation when the foundation is soft.
- Pay special attention to the operation on the frost ground. The foundation may be soft and slip when the ambient temperature is increased.
- Pay attention to the fire possibility when operating the machinery near the hay and other inflammable material.

2) Pay attention to the falling stone and broken stone.

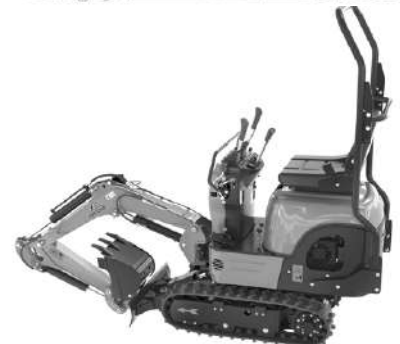
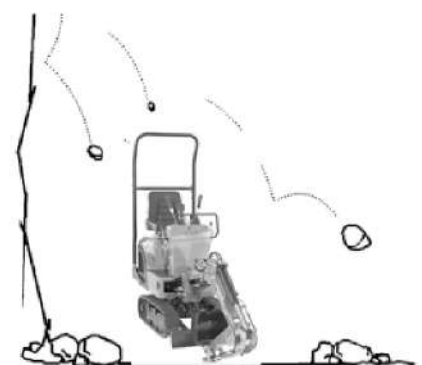
Make sure that the machinery is provided with the driver guard when carrying out the operation on a place which has stone block or possibility of falling broken stone.

3) Confirm the travelling direction of the machine

- Wrong operation of the travel pedal/lever may lead to severe casualty accident.
- Make sure the positional relationship of the lower travel rack and the operator before driving the machinery. If the travel motor is located in the front of the cab, the machinery will move backwards when push the pedal/lever forward.

4) Send the signal for multimachine operation

Use the signal known to all operating persons under multimachine operation. Specify one signaler to organize the operation to make sure that all operating persons submit the command of the signaler.



5) Inspection of oil level

- Inspect fuel level and lubricating oil level as well as the cooling water level. It is strictly forbidden to smoke when inspecting or filling the oil. Inspect the radiator cap and each oil filler cap or oil filler hole plug to sure whether they are tightened or not.
- Inspect the fuel system, the lubricating oil system and the hydraulic system for leakage and repair any leakage, remove all superfluous oil or other inflammable liquid.

6) Adjust seat

The seat unfit for the operator will lead to the fatigue of the operator soon and lead to the operating failure.

- The seat shall be adjusted every time of changing the machine operator.
- The pedal can be pedaled down to the end when the operator rest his back on the seat back and the operating lever can be operated correctly.
- The seat shall be moved fore and after until the operation mentioned above can be down well.



7) Buckle up safety belt

In the event of roll-over accident, the operator may be injured or throw-out of the cab, or squeezed by the tipping machine, which leads to severe casualty accident.

- Inspect the belt, the buckle and the fastener of the safety belt carefully before operating the machine. The damaged or worn safety belt or its parts shall be replaced before the operation.
- The operator shall sit on the seat and buckle up safety belt well all the time during the operation when the machine is running to decrease the possibility of the injury caused by the accident to the minimum.
- The safety belt shall be replaced every three years regardless of its conditions.



8) Only start the machine when sitting on the operating seat

Incorrect engine start procedures may bring about the machine is out of control and lead to the severe casualty accident.

- Only start the engine when sitting on the seat in the cab.
- Never start the engine when standing on the caterpillar or the ground.
- Do not start the engine by short-circuiting the terminal of the starter.
- Make sure that all operating levers are on the mid positions before starting the engine.



2. After starting engine

- Make sure that functions of all instrument and warning device are normal and the meter readings are within the specified range.
- Operate the working equipment and make sure that the function of it is normal.
- Drive the excavator slowly and listen to the engine and traveling mechanism carefully for abnormal noise.
- Operate the travel pedal/lever and make sure that the function of the move forward and move backward as well as the running speed are normal.
- Select secure place. Turn the excavator to the left and right to make sure whether the function of the steering gear is normal or not.
- Please contact the person who is responsible for the excavator and the excavator can only be operated with the permission of the person if there are any troubles even if it is very trivial.

3. In operation

1) Move and operate machine safely

Person around the machine may be run down

- Be careful not to run down the surrounding person. Confirm the position of the surrounding person before moving, rotating or operating the machine.
- Always keep travel alarm device and horn under operating mode. Those devices can warn the person around when the machine begin to move.
- Please get the help of the signaler and the hand signal shall be coordinated when travelling on the narrow area and rotating or operating the machine.



2) Jump start

The gas from the accumulator may explode and lead to the severe casualty accident.

- Take care to do follow the procedures described in section "operating engine" if the engine must be started by using the jump start method.
- The operator must sit on the operating seat to control the machine when starting the engine. Accordingly, the jump start must be done by two persons.
- Never use frozen accumulator.
- The accumulator may explode or the machine may be out of control if the correct jump start procedures are not followed.



3) Do not let the machine carry the passenger

The passenger on the machine may be hurt easily, for example, being hit by the foreign matter or dropped from the machine.

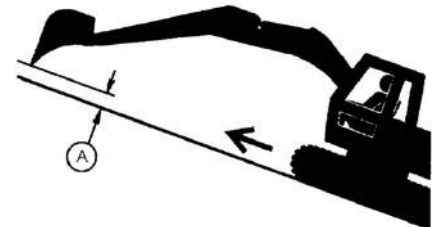
- Only the operator is permitted on the machine.
- The passenger can also block the sight line of the operator and the operation may be not safe.



4) Drive the machine safely

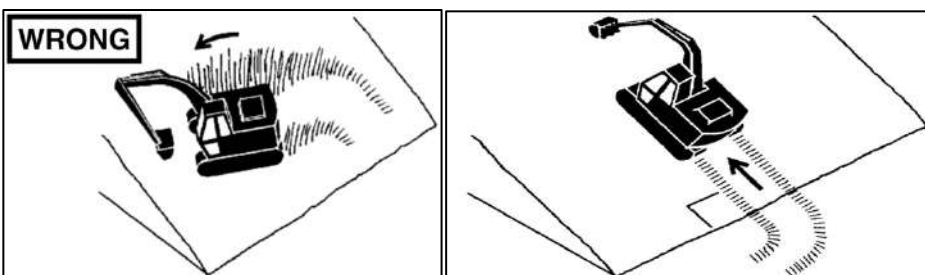
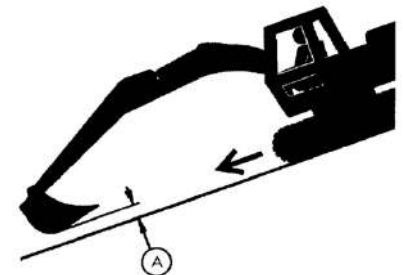
Make sure of the traveling direction of the machine when you operate the travel controlling lever before operating the machine.

- Never fail to detour any obstructions.
- Do not drive the machine over the obstruction. There may be the clod, the stone block and metal article around the machine. Do not let the person stay near the machine when the machine is running.



The machine may slip or overturn and lead to the serious injury or death when the machine is running on the sloping field.

- The bucket shall be placed to the traveling direction and the distance from the bucket to the ground is of about 0.5 to 1.0m (A) when climbing up or down the slope.
- The bucket must be lowered immediately if the machine begins to slip or becomes instable.
- There is the danger of side slipping or the overturn when traversing or changing the direction on the slope. The machine shall be driven to the level ground and then change the direction.



5) Avoid injury accident in reverse and rotation.

The person near the machine may be hit or overtaken and it may lead to the severe fatalities if there is anybody near the machine when the machine is running in reverse direction, or the upper structure is rotated.

In order to avoid injury accident in reverse and rotation:

- Always look round before reversal and rotation to sure whether there is person around the machine or not.
- Keep the alarm device on active state. Watch out constantly for anyone coming into the work area. Use the horn or other signal to warn other people before moving the machine.
- Use the signaler if your sight line is blocked in reversal. Always keep the signaler in your vision field.
- Use the hand signal which complies with local rules when the working condition requires the signaler.
- The machine can only be moved when the signaler and the operator understand the signal distinctly.
- Understand the meaning of all flags, signals and marks which are used for operation and confirm who is responsible for the signal.
- Keep the cleanness and good conditions of the window, the reflector, and the lights.
- The dust, heavy rain and the mist, etc. will decrease the visual visibility range. Slow down the speed and use adequate illumination when the visual visibility range is lowered.

6) Avoid the damage caused by the machine which is out of control.

The severe casualty accident may happen if someone try to climb up or shield off the moving machine.

In order to avoid losing control of the machine:

- Select level ground as far as possible when parking the machine.
- Do not park the machine on the slope.
- Lower the bucket and/or other tools on the ground.
- Tune out the automatic low speed switch.
- Run the engine with no-load at idling speed for 5 minutes to cool the engine.
- Stop the engine and take the key out of the key switch.
- Pull the pilot cut-off valve controlling lever to the LOCK position.
- The caterpillar on both sides shall be blocked by the blocks and the bucket shall be lowered and cut into the ground if the machine must be parked on the slope.
- Fix the machine to prevent the rolling.
- Park the machine at a place which is away from other machine for an appropriate distance.



7) Refuse the person to enter the work area.

The person may be bumped by the rotating front end device or squeezed by other body and it may lead to the severe casualty accident.

- Keep all personnel away from the operating and running area of the machine.
- Set up the enclosure at lateral and rearward of the swinging radius of the bucket to prevent the person from entering the work area before operating the machine.

8) Never put the bucket on the upper site of anybody.

Never lift, move or rotate the bucket across the upper site of anybody or truck cab.

The falling material from the bucket or the bucket may lead to the severe casualties or the machine breakdown.

9) Avoid undercut

In order to pull out from the limes margins in case of the collapse of the foundation, the travel motor shall be always set on the rear and the machine shall be parked while the lower body is perpendicular to the limes margins.

Do not lose your head when the foundation begins to collapse but the machine cannot be pulled out. Generally, the machine can be fixed if the front end device is lowered at the time.



10) Avoid overturn

- ▲ Warning: Do not try to jump out of the machine which is off-balance, otherwise the serious or fatal bruise.
- ▲ The overturn speed of the machine is quicker than your speed.
- ▲ Buckle up safety belt.

There is the overturn danger of the machine when operating the machine on the slope and it may lead to the severe casualty accident.

In order to avoid overturn:

It shall be especially careful when operating the machine on the slope.

- Planish the operational zone of the machine.
- Lower the bucket to the ground and keep this state and approach the machine.
- Decrease the operating speed to prevent the overturn or slide.
- Avoid direction change when driving the machine on the slope.
- Never try to traverse the slope of which the gradient exceeds 15 degrees if the slope traverse is inevitable.
- Decrease the rotational speed according to the situation when rotating the load.
- ▲ It shall be careful when operating the machine on the frozen ground.
- The temperature increment will make the ground soft and the travel of the machine on the ground is unsteady.

11) Never undercut the high bank

The high bank undercut may lead to the collapse of the edge or the landslide and it may lead to the severe casualty accident.

12) Keep clear of powerline

The casualty accident may happen if the safe distance from the machine or the front end device to the electric wire is not kept.

- When operating the machine near the electric wire, never move any part or load of the machine into the range of which the radius is 3m to the electric wire plus 2 times of the insulation block length. The operating safety zone is listed in the following table:

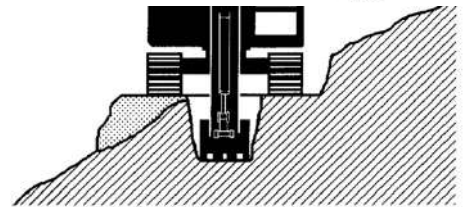
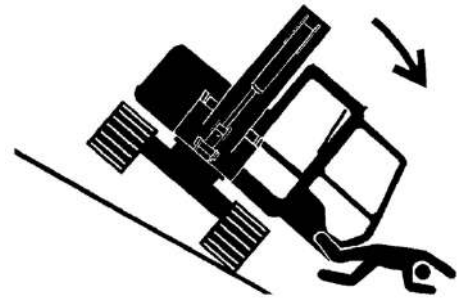
Voltage value of high voltage cable	Minimum safe distance from high voltage cable
6.6kv	3m
33.0kv	4m
66.0kv	5m
154.0kv	8m
275.0kv	10m

- Verify and comply with all applicative local regulations.
- Once the machine touch the electric wire, sit on the seat and do not move and do not touch the machine and guarantee the safety of other person on the ground until the power supply is switched off. The operator can jump out of the machine under emergency situation but do not touch the machine.
- The wet land may enlarge the range which may electric shock the person, keep the surrounding person away from the operational zone.

13) Be careful in excavation

The explosion, the fire or the serious casualty accident may happen if the underground cable or gas pipe is cut off by accident.

- Inspect the positions of the cable, the gas pipe and the water pipe before excavation.
- Keep at least legal minimum range from the cable, the gas pipe and the water pipe.



- Do not see the end of the fiber optic cable or the eye may be seriously bruised if the fiber optic cable is cut off by accident.
- If there are the "Excavation hot lines" on the district where you carry out the operation, please contact them, or contact the local utility company directly to get the positions of all underground cables and pipelines.



14) Pay attention to operation

If the front end device or other parts of the machine bump against the overbridged and other overhead creel objects, all of them may be damaged, which may lead to the person injury.

It shall be careful to prevent the boom or the arm knocking the overhead creel objects.



15) Lift and move body

If the suspensory body fall, the surrounding person may be hit and pressed, which leads to the severe casualty accident.

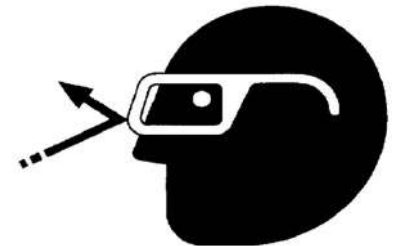
- Be sure to comply with all local regulations before using the machine for hoisting operation.
- Do not use the chain, the wire rope, the hoisting ring or the steel rope with defect.
- Locate the upper rotating body and set the travel motor on the rear before lifting.
- Move the body slowly and carefully, never move it abruptly.
- Keep all personnel away from the body lifted.
- Never move the body across the head of the person.
- Keep anybody away from the body lifted until the body is put on the supporting shoe or the ground safely and firmly.
- Never hang the hoisting ring or chain on the bucket teeth. Otherwise the bucket teeth may slough and the body lifted will fall.



16) Protection against fly fragment

The fly fragment come into the eye or any other part of the human body may lead to the severe injury.

- Use the goggles or safe glassed to protect against the injury caused by the flappy sheet-metal or other fragment.
- Prevent other people from entering the working space when knocking the body.



4. Parking

1) Park machine safely

In order to prevent an accident:

- Park the machine on the level ground.
- Lower the bucket on the ground.
- Turn off the automatic low speed switch.
- Run the engine with no-load at idling speed for 5 minutes to cool the engine.
- Stop the engine and take the key out of the key switch.
- Pull the pilot cut-off valve controlling lever to the LOCK position.
- Turn off the front window, the side window and the cab door.
- Lock all access door and box room.



2) Disposal liquid safely .Prevent fire

Disposal the fuel carefully for it is very inflammable. The explosion and fire will occur and it may lead to the personal injury if the fuel is ignited.

- Do not fill the fuel into the machine when smoking or near the naked flame or spark.
- Never fail to stop the engine when filling the fuel.
- Fill the fuel tank outdoors.

All fuel, most of lubricant and some coolant are inflammable.

- Store the inflammable liquid in a place which has no fire danger.
- Do not fire or puncture the pressure vessel.
- Do not store the oil-bearing rag for it can be ignited or self-ignited.
- Tighten the fuel filler cap and oil filler cap.

During repair and maintenance

1. Carry out safety maintenance

In order to prevent an accident:

- Understand maintenance instructions before operation.
- Keep cleanness and dryness of operational zone.
- Do not spray water or steam in cab.
- Do not add oil or carry out the maintenance when moving the machine.
- Prevent the hands, the feet and the clothes from contacting the driving part.



Before maintaining machine:

- 1) Park the machine on the level ground.
- 2) Lower the bucket on the ground.
- 3) Turn off the automatic low speed switch.
- 4) Run the engine with no-load at idling speed for 5 minutes.
- 5) Rotate the key switch to OFF and stop the engine.
- 6) Release the pressure of the hydraulic system by moving the controlling lever for several times.
- 7) Take off the key from the key switch.
- 8) Hang a nameplate of "please don't operate" on the controlling lever.
- 9) Pull the pilot cut-off valve controlling lever to the LOCK position.
- 10) Cool engine.



- There must be an operator on the machine if the maintenance operation must be done while the engine is running.
- The angle between the boom and the arm shall be kept 90 to 110 degrees to support any parts of the machine lifted if the machine must be lifted during the maintenance.
- Never carry out operation under the machine with uplifted boom.
- Periodically inspect some parts and carry out repairing or replacing operation as required. Refer to related content in section "maintenance" of this manual.
- Keep all parts under favorable working condition and make sure that all parts are installed correctly.
- Handle damaged parts in time and replace worn or cracked parts. Clear away any accumulated grease, oil or crumb.
- Always use washing oil with uninflammability and never use the fuel, the gasoline and other oil with high flammability to wash the parts or surfaces.
- The minus earth cable of the accumulator must be disconnected before carrying out the adjustment of the electrical system or the weld operation on the machine.



- Provide sufficient illumination on the operational field and use the maintenance working lamp when working under or in the machine.
- Always use the working lamp with shield. Otherwise the broken bulb may ignite the fuel, oil, the anti-freeze liquid and the window washing liquid spilled.

2. Warn other people that the machine is under maintenance.

The movement of machine beyond contemplation may lead to severe injury. Hang a nameplate of "please don't operate" on the controlling lever before carrying out any operation on machine.



3. Support machine correctly.

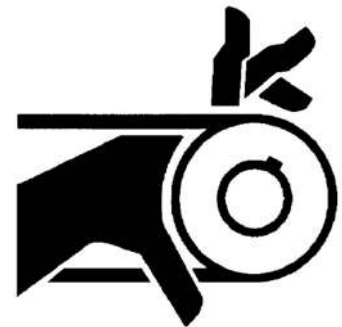
Never carry out the repair and maintenance operation before supporting the machine well.

- Always lower the front end device on the ground before carrying out the repair and maintenance operation on the machine.
- The machine or the front end device must be supported firmly if the machine or the front end device must be uplifted to carry out the repair and maintenance operation. Do not use the slag brick, the air core tire or the rack stand to support the machine for they may collapse under continuous load, do not work under the machine supported by single jack.



4. Keep away from rotating member

Involved by the rotating member may lead to severe injury. It shall be careful to prevent the hands, the feet, the clothes, the ornaments and the hairs from being caught by the rotating member when working near the rotating member.



5. Prevent the part from fling off

The grease in the adjuster of caterpillar is under high pressure, the severe injury, the sightlessness or casualty accident may happen if following matters need attention are not complied with.

- Do not remove the grease nipple or valve part.
- The body and face must be away from the valve body for the part may fly off.

There is the pressure in the travel retarder.

- The body and face must be away from the air release cock to prevent the injury for the part may fly off. The gear oil is hot.
- Loosen the air release cock gradually to release pressure after the gear oil was cooled.



6. Store spare parts safely.

Spare parts stored, such as the bucket, hydraulic hammer and the plain shovel, may fall and lead to the severe casualty accident.

Store spare parts and instrument safely to prevent falling. Keep children and other persons away from the storage area.



7. Prevent heat injury

Liquid ejected with high temperature:

- The engine cooling water is hot and with pressure after operation. There are the hot water and steam in the engine, the radiator and the heater tube, and the severe heat injury may be caused if the skin contacts the hot water or steam spilled.
- Prevent the scald caused by hot water ejected. Do not open the cap of the radiator before the engine is cooled. Rotate the cap to the end slowly at first and take off the cap after the pressure was released completely when opening the cap.
- There is the internal pressure in the hydraulic oil tank and the internal pressure shall be released before removing the cap.



Liquid and surfaces with high temperature:

- The engine oil, the gear oil and the hydraulic oil will be heated during the operation and the engine, the hose, the pipeline and other parts are heated too.
- The inspection or maintenance work can only be done after the oil and components were cooled.



8. Periodically replace the rubber hose

The rubber hose containing the flammable liquid may crack under pressure for the weathering, the fatigue and worn. The weathering and worn extent of the rubber hose cannot be judged by the inspection only.

- The rubber hose shall be replaced periodically. (Refer to "Periodically replace parts" in operation crews manual)
- The Rubber hose replaced irregularly may lead to the accident of fire, the liquid injecting into the skin or the front end device hitting the surrounding person, and the serious scald, mortification or other injuries and deaths.

9. Take care of the liquid with high pressure

The diesel fuel, the hydraulic oil and other liquid ejected under pressure may penetrate the skin or inject into the eye and lead to the severe injury, sightlessness, or death.

- Release pressure before disconnecting the hydraulic pressure pipeline or other pipeline to avoid this danger.
- Tighten all connections before pressurization.
- Use the cardboard to find out the leakage, pay attention to protect your hand and body from contacting the liquid with high pressure. Pull on the face shield or goggles to protect eyes.
- In the event of accident, please see the traumatic doctor who is familiar with this type traumatic for treatment. The liquid come into the skin must be eliminated in few hours; otherwise it may lead to the mortification.

10. Prevent fire

Inspect oil leakage:

The leakage of the fuel, the hydraulic oil and the grease may lead to the fire.

- Inspect the loss of the holder, the twist of the hose, the mutual friction of the pipeline and the damage to the oil cooler as well as the relaxation of the flange bolts on the oil cooler to prevent the oil leakage.
- Tighten, repair or replace any loss, loose or damaged holders, pipeline, hose, oil coolers and flange bolts on the oil coolers.
- Do not bend or knock high pressure line.
- Do not install the bending or damaged pipeline, pipe or hose.

Inspect short circuit:

Short circuit may lead to the fire:

- Clean up and tighten all electrical connections.

- Inspect the looseness, twist, hardening or burst of the cable and the electric wire before each shift or after an operation of 8 to 10 hours.
- Inspect loss or damage to the terminal covers before each shift or after an operation of 8 to 10 hours.
- Do not operate the machine if the cable or electric wire is loose or twisted.

Clear away the inflammable material:

- The fuel, the hydraulic oil, the ant freezing agent, the window washing liquid, the garbage, the grease, the crumb, the accumulated breeze and other inflammable material may lead to the fire.
- Daily inspect and clean up the machine and eliminate the inflammable article sprinkled and accumulated to prevent fire.

Inspect key switch:

The fire behavior will be aggravated and it is not good for fire fighting if the engine cannot be stopped when fire occurs.

Daily inspect the function of the key switch before operating the machine:

- Start the engine and run the engine at low speed with no-load.
- Switch the key switch to OFF position to see whether the engine can be stopped or not.
- Any abnormality found must be eliminated before operating the machine.

Inspect thermal shroud:

- The damaged or lost thermal shroud may lead to the fire.
- If the damaged or lost thermal shroud is found, the new one shall be installed before operating the machine.

11. Pull out when fire

Pull out from the machine according to method below if fire occurs:

- Switch the key switch to OFF position to see whether the engine can be stopped or not if possible.
- Use the fire extinguisher to fight fire if possible.
- Pull out from the machine.



12. Be cautious to exhaust smoke

- The exhaust gas of the engine may lead to the disease or death, take care to prevent the asphyxia.
- The sufficient ventilation must be guaranteed if the machine must be operated in the building. Use the lengthened exhaust pipe to discharge the smoke or open the door window to lead sufficient surrounding air into the work area.



13. Matters need attention in weld and grind

- The welding operation will generate gas and flame.
- The welding operation must be done in a place with well ventilation and sufficient preparation. The combustible material must be placed at safety location before welding.
- The welding work can only be done by qualified and trained person.
- The grinding machine will generate the spark. The combustible material must be placed at a safety location before grinding.
- Inspect welded peripheral zone again for abnormal phenomena such as smoke after welding and grinding.

14. Do not heat the vicinity of the pressure fluid pipe.

- The inflammable mist spray will be generated by the heat near the pressure pipe and it may lead to the serious burn to the person nearby.
- Do not carry out the welding or autogenous cutting operation near the pressure fluid pipe or other flammable materials.
- The pressure fluid pipe may be cut at any time when the heat exceeds the direct firing area. The temporary fire prevention sleeve shall be set up to protect hose or other material when carrying out the welding operation.

15. Do not heat the pipe with inflammable liquid

- Do not weld or autogenous cut the pipe or hose with inflammable liquid.
- Use the non inflammable solvent to clear away the inflammable liquid in the pipe thoroughly before welding or autogenous cutting the pipe.

16. Eliminate paint before welding or heating

The paint will let out noxious gas when it is heated during the welding or autogenous cutting.

- The gas inhaled may lead to the nausea.
- Eliminate the toxic gas and mill dust.
- Carry out the paint eliminating operation in outdoors or a place with well ventilation; handle the paint and the solvent correctly.

Eliminate paint before welding or heating:

- Take measures to prevent the mill dust from inhaling when using the abrasive paper and abrasive wheel to eliminate the paint. Put on the qualified respirator.
- If the solvent or varnish remover is used: The varnish remover shall be washed away by the water and the soap and the solvent or varnish remover container and other combustible material in the working space must be eliminated. The evaporable gas must be dropped away at least for 15 minutes before welding or heating.

17. Prevent explosion of accumulator

The gas from the accumulator may explode.

- Do not let the spark, the live match as well as flame approach the top of the accumulator.
- Do not inspect the electrical quantity of the accumulator by short-circuiting the terminals of the accumulator, the voltmeter or the gravimeter shall be used.
- Do not charge the frozen accumulator, or the accumulator will explode. Heat the accumulator to 16°C.
- Do not use the accumulator or charge the accumulator when the electrolyte level is lower than the specified level, otherwise the accumulator may explode.
- The looseness of the terminal may generate the spark, please tighten all terminals.

The electrolyte of the accumulator is harmful. The electrolyte of the accumulator may splash into the eyes when the accumulator explodes and it may lead to the sightlessness.

- Take care to put on the goggles when inspecting the specific gravity of the electrolyte.

18. Handle chemicals safely

The direct contact with the noxious chemicals may lead to the serious injury to the human body.

The chemicals, such as the lubricant, the coolant, the paint and the bonding agent used in this machine may be harmful.



19. Handle waste correctly

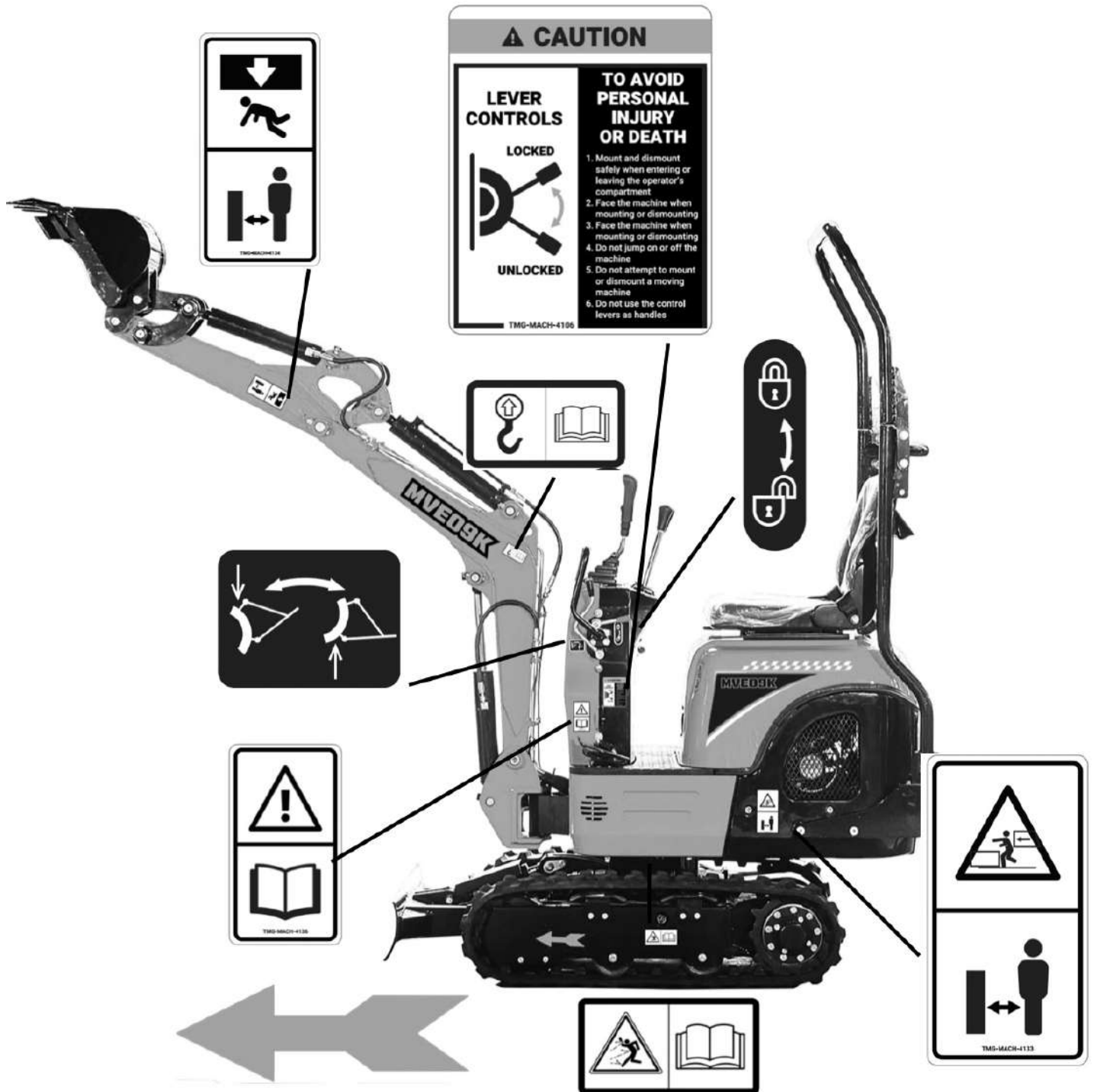
The garbage handled inappropriately will lead to the hazard to the ecology. The potential hazardous waste in TMG equipment is oil, coolant, brake fluid, filter and accumulator, etc.

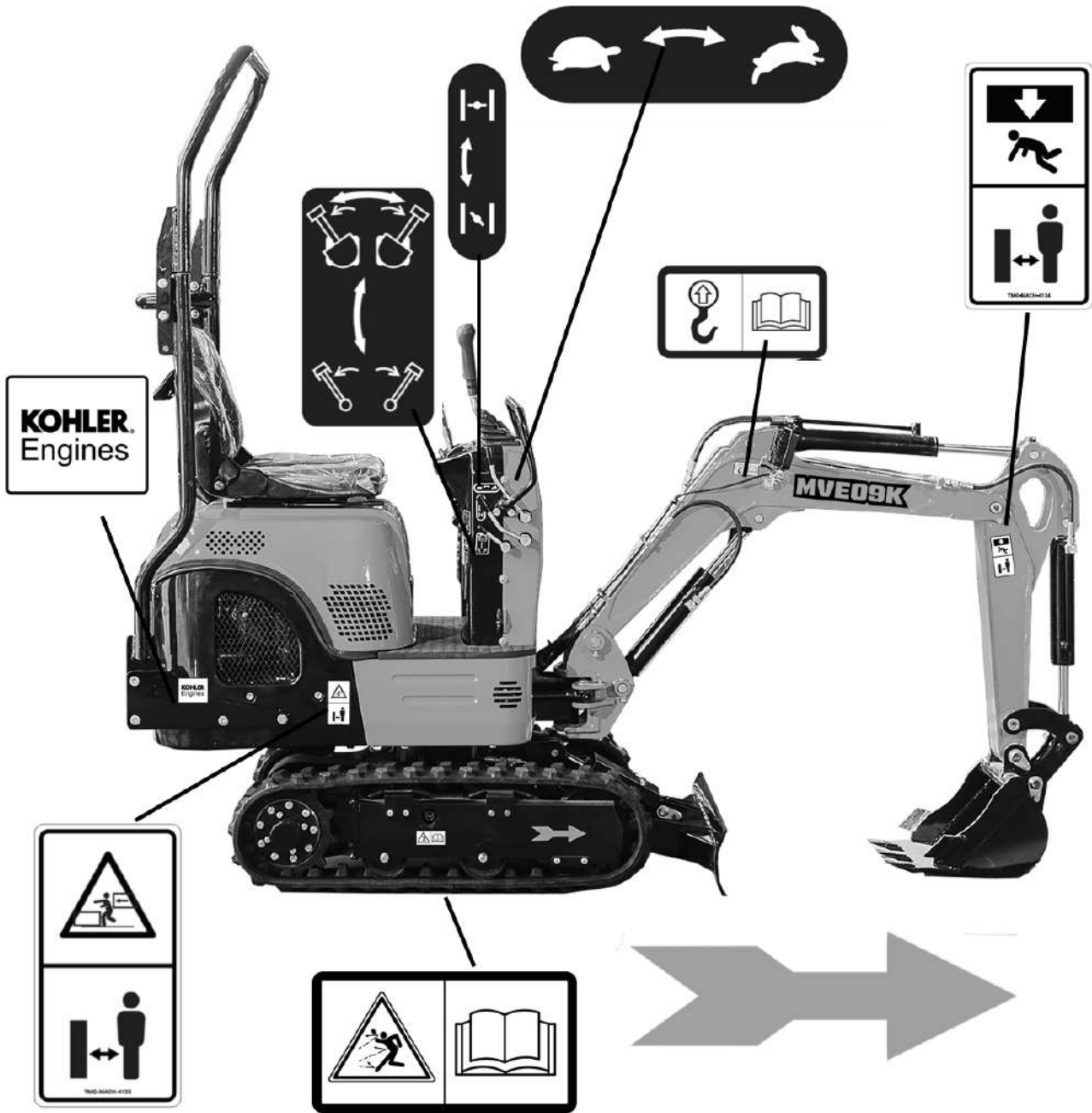
- Use leak proof container when draining the liquid. Do not use the food product or beverage container, for it may lead to the people to drink that material by mistake.
- Do not dump the waste liquid on the ground, into the sewerage or any water source.
- The refrigerant agent of the air conditioner leaked into the atmosphere may damage the aerosphere of the earth.
- Inquire the local environmental protection center or recovery center or your specified dealer for correct recovery or waste handling method.

Safety Signs

1. Always keep safety signs clean and legible.
2. Replace safety signs that are missing or have become illegible.
3. Replaced parts that displayed a safety sign should also display the current sign.
4. Safety signs have a part number in the lower righthand corner. Use this part number when ordering replacement parts.
5. Safety signs are available from your authorized Distributor or Dealer Parts Department or the factory.

Safety Decals





⚠ CAUTION!

VERY HOT!

TMG-MACH-4138

CAUTION

TO AVOID PERSONAL INJURY OR DEATH

Do not open the engine hood before stopping the engine. Only when the engine does not stop by key, open the engine hood and push the stop lever back and hold it until the engine stops.

TMG-MACH-4104



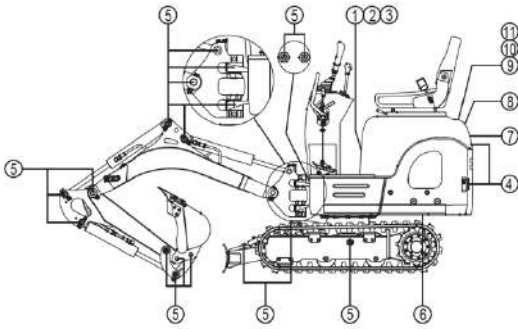
CAUTION

TO AVOID PERSONAL INJURY OR DEATH

1. Read and understand the operator's manual before attempting to start or operate the excavator
2. Before starting the engine, make sure all control levers are in neutral, and the operating area is clear of all bystanders
3. Never allow passengers on any part of the excavator while operating it
4. Know your work area before operating the excavator
5. Check underground lines and cables, and check overhead clearance for electric wires
6. Stay off slopes that are too steep for safe operation
7. Check for hidden holes, obstacles, drop-offs, and overhangs
8. Make sure all shields are in place and securely fastened
9. Before dismounting from the excavator, lower all attachments to the ground, stop the engine, and remove the key

TMG-MACH-4102

MAINTENANCE AND LUBRICATION CHART



- ◆ Check
- ▲ Check, Clean
- Check, Raise
- Change

No.	Check points	Operating hours(o/h)								Oil symbol	Capacity (L)	Number of maintenance places	
		Daily	First 5	50	100	200	300	500	1000				2000
1	Fuel	■									GAS	6.8	1
2	Engine oil	◆	●		●						EO	1.1	1
3	Air filter element				▲		●						1
4	Hydraulic oil	◆						●			HO	13	1
5	Lubrication points	◆		■							PGL	19	1
6	Radiator	◆				▲							1
7	Battery condition					◆							1
8	Electrical lines	◆											1
9	Hydraulic return filter element							●					1
10	Hydraulic suction filter element								▲				1
11	Breather filter element							●					1

Note

1. Oil symbol
 -EO: Lubricant 10W-30
 -HO: Hydraulic oil ISO VG46 (SAE 10W)
 -PGL: Composite lithium-based lubricating grease ZL-2H (or ZL-3H)
 -GAS: Gasoline (see manual)
2. Refer to the operation manual for use.
3. Stop the machine when filling and avoid open flames.
4. When opening the cover, proceed slowly to release the pressure.
5. For other details, refer to the maintenance manual.

Notice

- The following main components must be maintained during the 50-hour running-in period of the new machine and every 250 hours:
1. Engine fixing bolts are tightened
 2. Tighten the fixing bolts of the hydraulic pump
 3. Tighten the fixing bolts of the swing motor
 4. Tighten the slewing bearing fixing bolts
 5. Tighten the fixing bolts of the driving wheel
 6. Tighten the counterweight bolts
 7. Bolt tightening of other important parts.

TMG-MVE09K

WARNING!

TO AVOID PERSONAL INJURY OR DEATH

Before moving the excavator, know the location of the dozer blade. The excavator will travel in the direction of the dozer blade when steering levers are moved away from the operator.

TRAVELING DIRECTION

STEERING LEVER

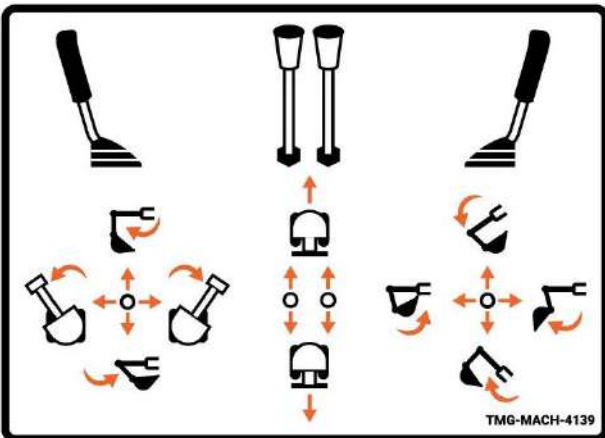
DOZER BLADE

TMG-MACH-4110

WARNING!

Maximum continuous operation time: 120 minutes
 Ambient temperature: -10°C

TMG-MACH-4111



1. Pay attention to working equipment

This mark indicates the danger of being hit by the operating instrument of the machinery, so keep away from the machinery under operation.



2. It is forbidden to enter rotation range

This mark indicates that there is the danger of being squeezed by the upper rotating body, so keep away from the rotation range of the machinery.



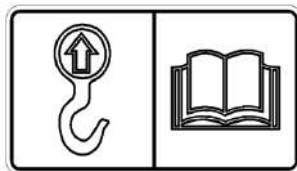
3. Pay attention to both sides

This mark indicates that there is the danger of being crushed by the machinery, so keep away from the machinery under operation.



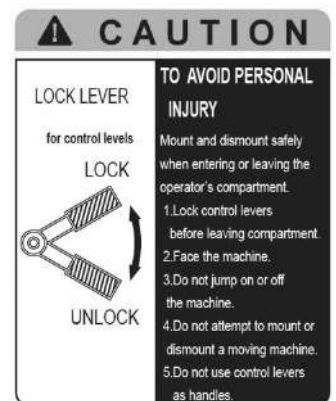
4. Lift symbol

This mark indicates that the machine shall be lifted at this location.



5. Operation of safety lock rod

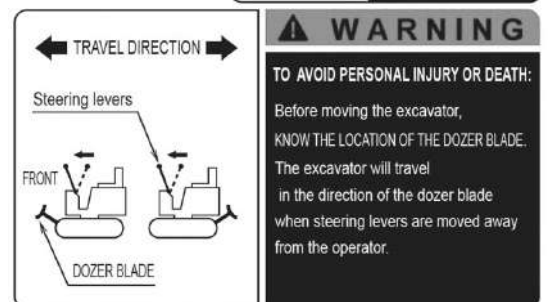
The pilot cut-off valve operating lever shall be set on the erected position when leaving the cab or stopping the machine.



6. Travel direction

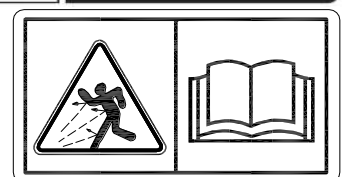
Before moving the excavator, KNOW THE LOCATION OF THE DOZER BLADE.

The excavator will travel in the direction of the dozer blade when steering levers are moved away from the operator.



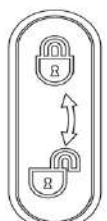
7. Grease the cylinder for tightening caterpillar

This mark indicates that there is the danger of being got hurt by the high pressure grease when filling grease or releasing the caterpillar.



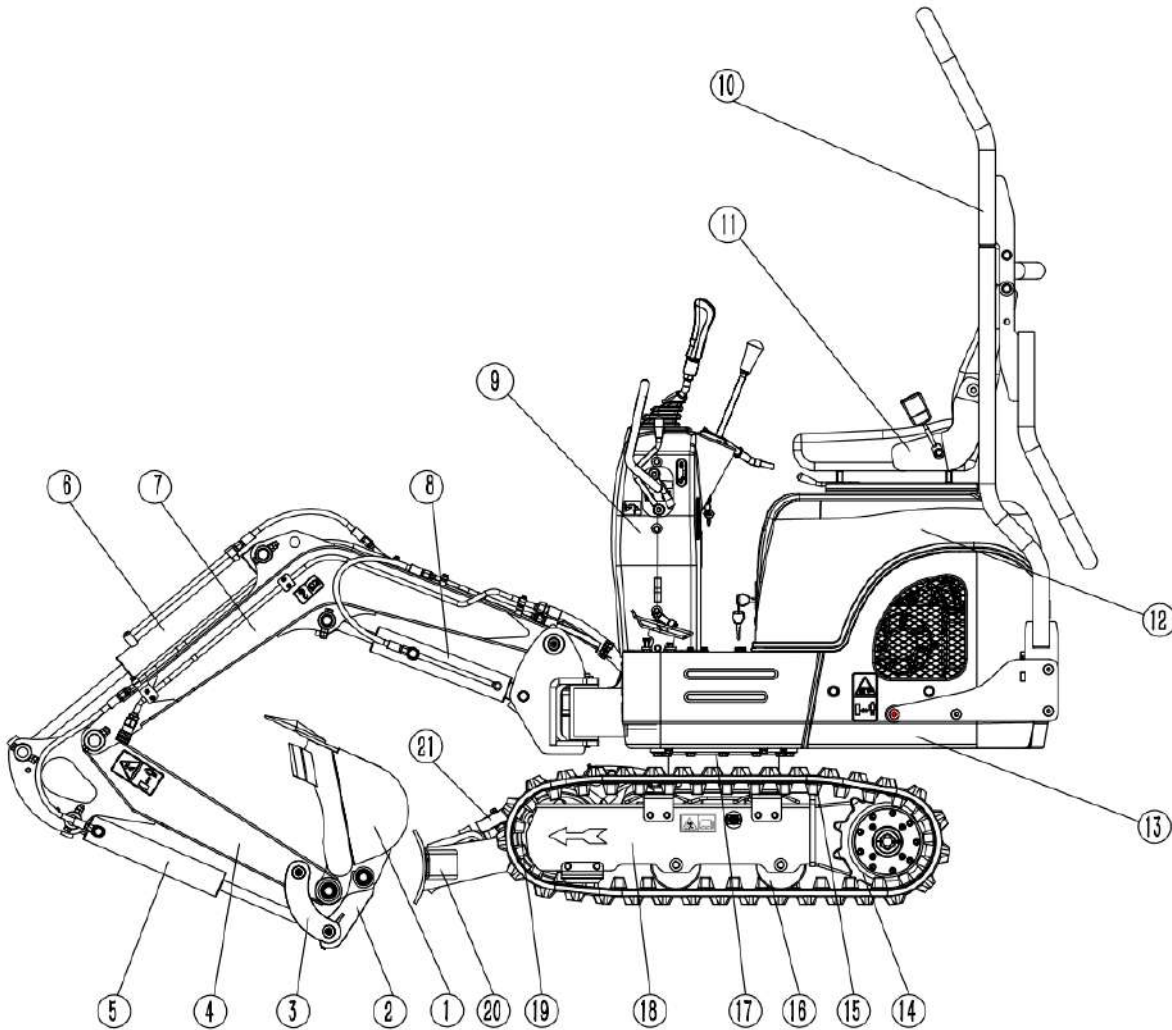
8. Safety lock rod

The pilot cut-off valve operating lever shall be set on the erected position when leaving the cab or stopping the machine.



Performance Parameters

Major components

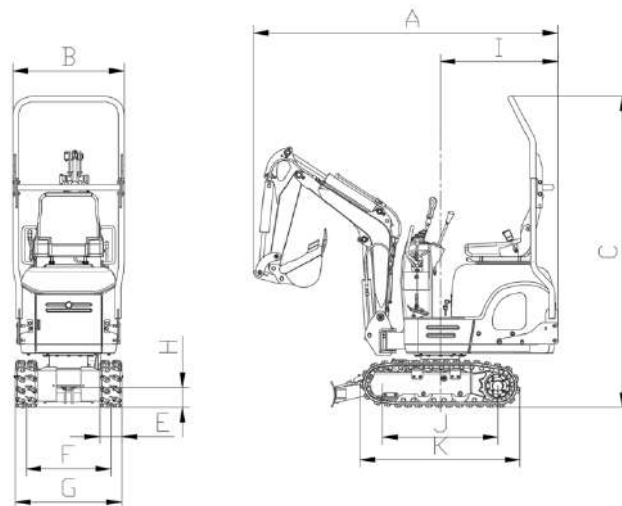


- | | | |
|---------------------------------------|--------------------------------------|-------------------------------|
| 1. Bucket | 2. Connecting rod | 3. Rocker arm |
| 4. Dipper Stick | 5. Bucket cylinder | 6. Dipper Stick cylinder |
| 7. Boom | 8. Boom cylinder | 9. Operation platform |
| 10. Rollover protection device | 11. Seat | 12. Top cover |
| 13. Get on the vehicle | 14. Driving wheels and driving motor | 15. Tracks |
| 16. Support wheel | 17. Slewing bearing | 18. Lower frame |
| 19. Guide wheel and tensioning device | 20. Bulldozing board | 21. Bulldozing board cylinder |

Specification

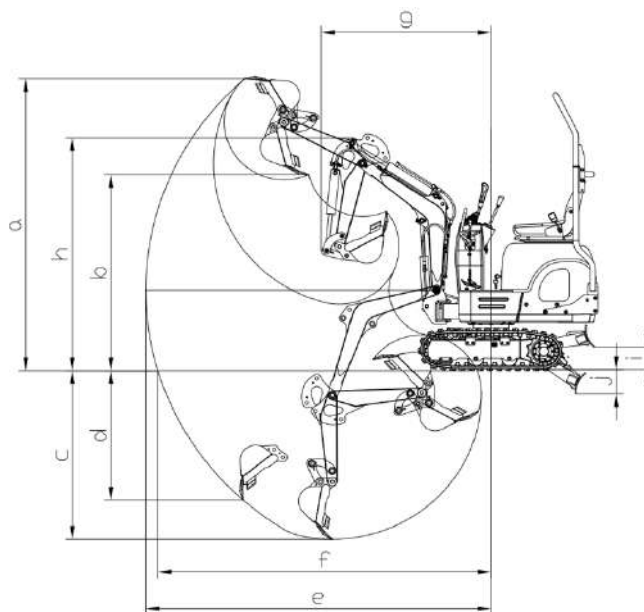
Machine operation weight (including driver weight 75KG)	855KG
Bucket size	280mm
Engine model (9.5 HP)	Kohler CH395
Gasoline Engine exhaust	16.9 in3
Gasoline engine Emission standard	EPA Phase 3
Gasoline tank volume	6.8L/7.19qt
Oil capacity	1.1L/1.16US qt
Working speed	1.6km/h
Max climbing angle	25°
Ground pressure	4 PSI
Bucket digging force	7.1kN/1.6kip
Bucket arm digging force	4.8kN/1.08kip
Track material	Rubber
Track width	6"

Machine size	
A. Total length (in transportation)	2080mm
B. Total width (in transportation)	760mm
C. Total height (in transportation)	2158mm
D. Dozer plate height	180mm
E. Standard Track width	150mm
F. Track gauge	580mm
G. Chassis width	730mm
H. Minimum clearance from ground	137mm
I. Counter weight turning radius	804mm
J. Track grounding length	788mm
K. Track total length	1092mm



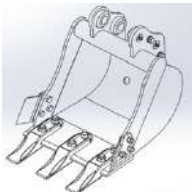
Operating range

Operation range	
a. Max digging height	2190mm
b. Max dumping height	1450mm
c. Max digging depth	1308mm
d. Max vertical digging depth	1005mm
e. Max digging distance	2590mm
f. Max horizontal distance	2500mm
g. Min turning radius	1276mm
h. Max height at min radius of rotation	1809mm
i. Max lift of dozer	175mm
j. Max depth of dozer	189mm





Bucket shopping guide

1. Standard bucket

★ Standard bucket	Model	Width	Weight	Bucket tooth quantity
	280 Bucket	280mm	20 kg	3

2. Other bucket

Other bucket	Bucket size	Width	Weight	Bucket tooth quantity
	150 Bucket	150mm	13.8 kg	2
	500 Bucket	500mm	20.5 kg	0

Chassis

1. Caterpillar

"X" type travel rack is the box type frame welded and reinforced integrally, including the caterpillar, the carrier roller, the track roller, the guide wheel, the driving wheel, the tighten damping device and the three teeth track link .

2. Quantity of side wheel and track link at each side

Item	Quantity
Carrier roller	2
Track roller	2
Track link	33

3. Working conditions of rubber tracks

This kind of caterpillar can not be used to travel on the harden and stony ground with bigger obstruction such as pebble round stone or tree root.

Drive the machine at low speed if it is inevitable to pass the obstructions.

Performance parameters of major components

1. Engine

Item	Technical specifications
Model	Kohler CH395
Type	4 stroke gasoline engine
Cooling method	Air-cooled
No. and arrangement of cylinders	Single cylinder
Fuel injection type	Direct injection
Cylinder diameter x stroke	78x58mm
Piston displacement	277cc
Compression ratio	8.5: 1
Total power	7.1KW/3600rpm
Maximum torque	18.8N.m/2800rpm
Engine oil capacity	1.3L
Engine fuel capacity	7L
Engine net weight	27.9kg
alternator	12V-10A
Battery	12Vx20Ah

2. Double pump

Item	Technical specifications
Type	Double gear pump
Displacement	2x2.5cc/rev
Rated pressure	200kgf/cm ²
Rated flow rate	2x9L/min
Rated speed	3600rpm

3. Main control valve

Item	Technical specifications
Type	8 pieces valve lever
Operating method	Mechanical control
Pressure of main safety valve	160kgf/cm ²
Pressure of overload overflow valve	200kgf/cm ²

4. Rotary motor

Item	Technical specifications
Type	Cycloid motor
Displacement	125cc/rev

5. Driving motor

Item	Technical specifications
Type	Cycloid motor
Displacement	252cc/rev

Recommended oil

Oil listed in following table or oil with equivalent trademark can be used.

Do not blend oils with different trademarks.

Application	Category	Capacity (L)	Ambient temperature ° C (° F)					
			-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)
Engine Oil pan	Engine	1.1	SAE 30					
			SAE 10W					
			SAE 10W-30					
			SAE 15W-40					
Rotation support	SH/T0380-1992	As required	ZL-3H (or ZL-2H)					
Grease nipple	Complex lithium grease							
Hydraulic oil tank	Hydraulic oil	13	ISO VG 32					
			ISO VG 46					
			ISO VG 68					
Fuel tank	Gasoline	6.8	REGULAR					

SAE: United States Society of Automotive Engineer

ISO: International standards organization

Control Device

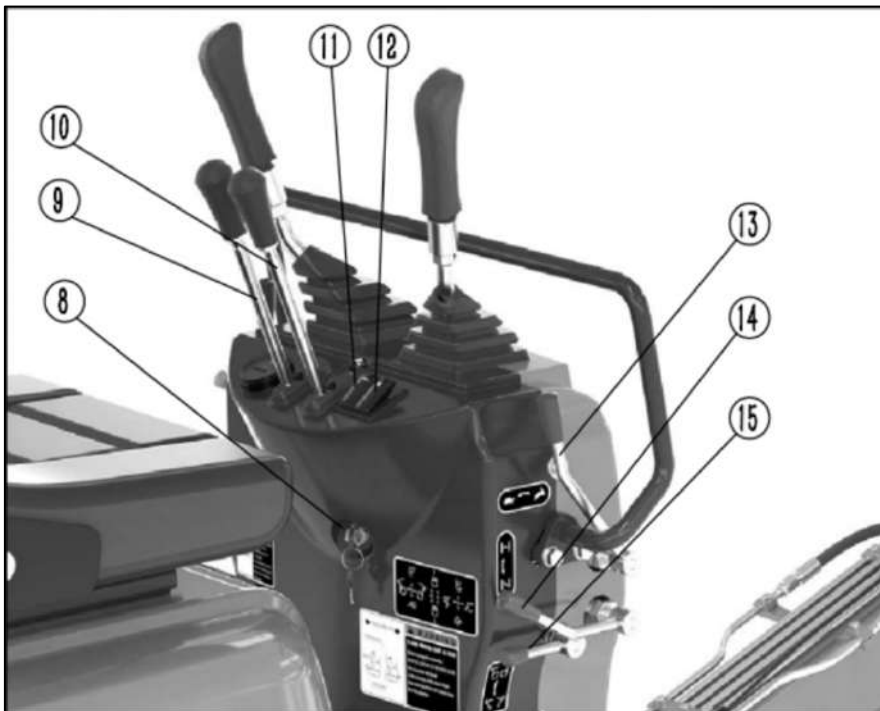
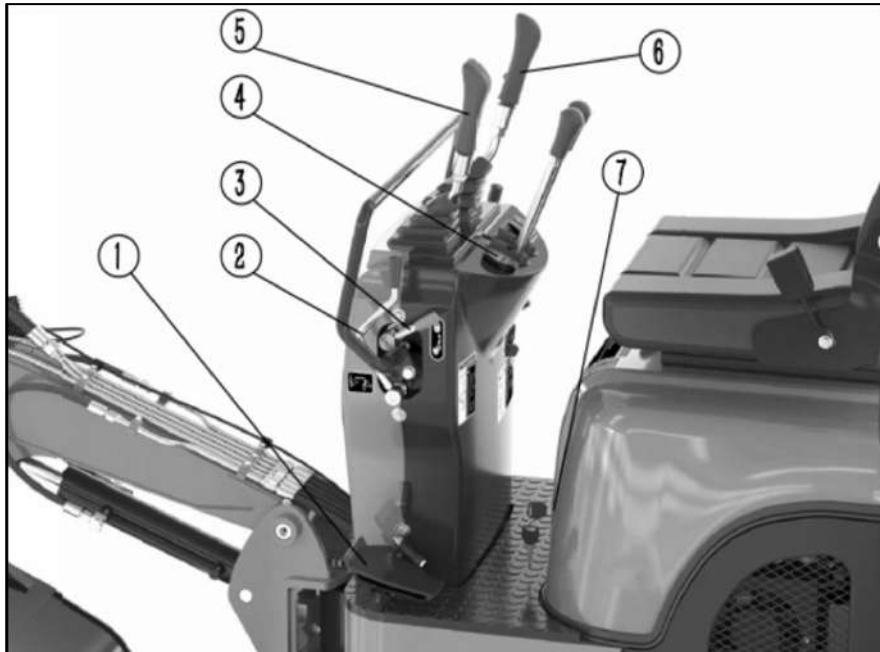
Operation Control

The instrument console and the suspension seat designed according to the ergonomics are comfortable for the operation of the driver.

The console is centrally arranged with timers, electric horn switches, and boom light switches.

The gasoline engine key switch is arranged on the right side of the console to remotely control the air door and remote control the throttle.

The hydraulic joystick lock structure prevents error operation.



1. Breaker control pedal

4. Timer

7. Top cover lock

10. Right walking joystick

13. Accelerator lever

2. Dozer blade control lever

5. Left joystick

8. Start switch

11. Horn switch

14. Damper lever

3. Safety lock lever

6. Right joystick

9. Left walking lever

12. Work light switch

15. Rotation/left and right yaw switching lever

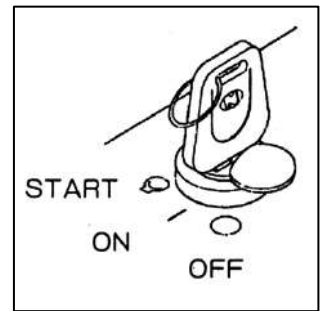
Key switch

1. Turn the switch

(1) Three positions: "OFF", "ON" and "START".

- OFF: The electrical circuit does not work.;
- ON: All electrical appliances of the machine can be operated.;
- START: It is used to start the engine and release the key immediately after starting.;

★ When the engine is running, the start key is placed in the ON position to maintain the normal electrical and hydraulic functions and prevent serious machine damage.



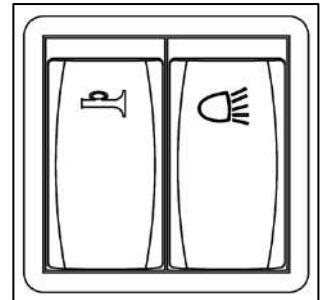
2. Double switch

Left side is the horn switch.

The switch is used to control the horn, press the switch, and the horn rings. Release the switch and the horn will not sound.

Right side is the light switch

The switch is used to control the light, press the switch forward, the working light is on, press the switch backwards, and the working light is off.



3. Timer

Show the engine running time.



Joystick and pedal

1. Left operation handle

- (1) The operation handle controls the rotation and rod movements.
- (2) It is located on the upper left side of the console.
- (3) See page 36 for details.

2. Right operation handle

- (1) The right handle controls the arm and bucket.
- (2) It is located on the upper right side of the operating table.
- (3) See page 36 for details.



3. Safety lock lever

- (1) If you push the safety lever (pictured position), all the left and right control handles will not work.

★ When leaving the cab seat, be sure to pull this lever to a safe position.

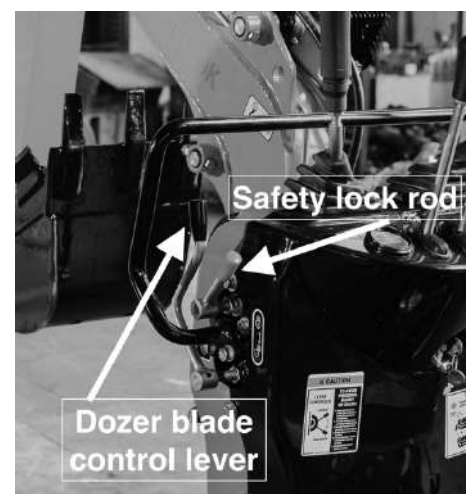
- (2) After pressing this safety lever, it can be operated.
- (3) It is located on the left side of the console.

4. Dozer blade control lever

(1) The dozer blade control lever controls the lifting and lowering of the bulldozer.

★ See [page 34](#) for details.

- (2) It is located on the left side of the console.



5. Walking joystick

(1) The walking joystick operates the machine forward and backward.

★ See [page 33](#) for details.

(2) It is located in the middle of the upper part of the operating table.



6. Accelerator lever

(1) The accelerator lever controls the size of the engine throttle. This position is the minimum position of the throttle, push forward, and the accelerator is large.

★ For details, please refer to [page 34](#).

(2) It is located on the upper right side of the console.

7. Damper lever

(1) The damper lever controls the size of the engine valve.

★ For details, please refer to [page 34](#)

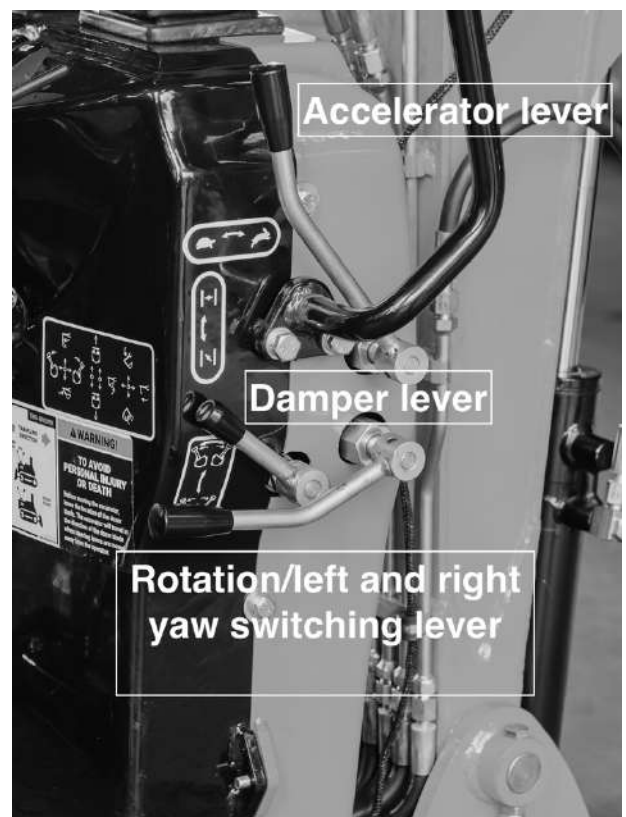
(2) It is located in the middle of the right side of the console.

8. Rotation/left and right yaw switching lever

(1) Rotor left and right deflection switch lever control rotation and left and right deflection function switching.

★ For details, please refer to [page 34](#).

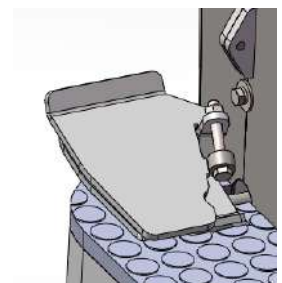
(2) It is located below the right side of the console.



9. Broken control pedal

(1) The crushing control pedal controls the auxiliary hydraulic output.

(2) It is located at the bottom of the left side of the console.



Operation

To the New Operator or Owner

Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders, and the area around the worksite. Untrained operators are not qualified to operate the machine.

Many features incorporated into this machine are the result of suggestions made by customers like you. Read this manual carefully to learn how to use the machine safely and how to set it to provide maximum field efficiency. By following the using instructions in conjunction with a good maintenance program, your Mini Excavator will provide many years of trouble- free service.

The excavator can't operation when the ambient temperature lower than -10°C , and the machine can't operate continuously more than 2 hours.

Breaking in your new machine

Each machine is carefully adjusted and tested before shipment. However, a new machine requires careful operation during the first 100 hours to break in the various parts.

The performance of the new excavator will be decreased quickly and the service life will be shortened if the new excavator is operated under overload at the early stage, so the new excavator must be operated carefully and the following items shall be paid special attention to:

- Run the engine at idle speed for 5 minutes after the engine was started to make the engine warm-up and then put the engine into the actual work.
- The heavy duty or high speed operation shall be avoided.
- Rapid start, acceleration, unnecessary rapid brake and rapid turning shall be avoided.
- The cooling system of the excavator shall be washed by large numbers of clear water and then fill up the cooling system with cooling water if the water tank on the excavator you received has no cooling water.
- ◇ The cleanliness shall be guaranteed when inspect, add or replace the cooling water, the fuel or the lubricating oil.
- ◇ The oil filter cartridge or the filter cylinder shall be inspected for foreign body and dust when replace them. If there are much foreign body, the reason of which shall be found out before the operation.

The operation, maintain and preventive measures of the safety operation specifications given in this manual are only applicable to the specified application of this machine. TMG takes no safety responsibility if the machinery is used for other applications which are not listed in this manual and the consumer takes full safety responsibility of such operation.

The operation prohibited in this manual can not be carried out under any circumstances.

Suggestions for new machines

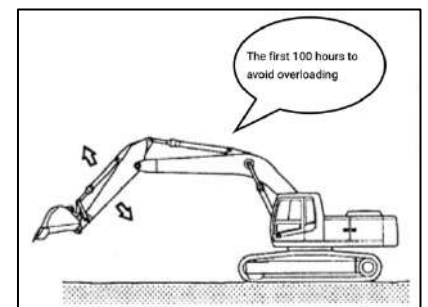
1. New machines need to run for 100 hours to achieve design performance.
2. Follow the following three steps within the first 100 hours to avoid overloading.

Operating hours	Load
Within 50 hours	About 60%
Within 100 hours	About 80%
After 100 hours	All

★ Overloading will damage the potential performance of the machine and shorten its life.

3. Please be sure to pay attention to the following points within the first 100 hours:

- (1) Check the oil level and leakage of engine oil, hydraulic oil and fuel every day.
- (2) Check the lubrication regularly. Grease all lubrication points daily.
- (3) Tighten the bolts.
- (4) The machine should be fully preheated before operation.
- (5) If any abnormality is found during operation, the machine should be stopped for inspection.



4. After 50 hours of operation, replace the following items.

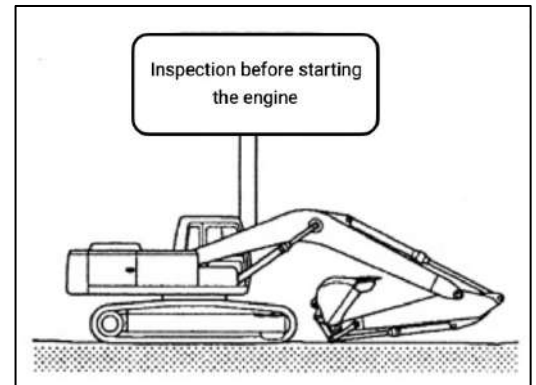
Check item	Maintenance
Engine oil	Replace
Oil filter element	
Hydraulic oil return filter element	

Inspection before starting the engine

1. Go around and under the machine to check whether there are loose bolts and nuts, whether there are leaks of hydraulic oil, fuel and cooling water, and the status of the hydraulic system and working devices. Also check for loose wires and stolen objects that may cause high temperatures.

★ Refer to Chapter Maintenance for daily inspection items.

2. Adjust the seat for comfortable operation



Starting and stopping the engine

1. Check the joystick

Check that all operating handles are in neutral position.

Check that the safety lock lever is in the locked position.

2. Start the machine (normal temperature)

★ Check whether there is anyone or anything else near the machine, and sound the horn to alert others.

1) Press the damper lever all the way down to open the damper to the maximum;

2) Pull the accelerator lever all the way back to open the accelerator to the minimum;

3) Turn the start switch to the "START" position to start the machine.

★ If the machine fails to start, allow the starter motor to cool down for 1 minute before starting again.

4) Release the key immediately after starting the engine to avoid damage to the starter motor.

5) Push the damper up to the end to close the damper;

6) Push the accelerator forward to the maximum limit;

★ When starting at low temperature, wait 3-5 seconds for the engine to warm up before increasing the throttle.

3. Inspection after starting the engine

After starting the machine, check and confirm the following:

Is the hydraulic oil level normal?

Is there an oil leak?

Are the engine sounds and exhaust gas color normal?

Are the sounds and vibrations normal?

★ It is not allowed to increase the engine speed immediately after starting, otherwise the engine will be damaged.

4. Preheating operation

★ The most suitable temperature of hydraulic oil is 50° C. If the hydraulic oil temperature is lower than 25° C, sudden operation may cause serious damage to the hydraulic system. Before starting work, the hydraulic oil temperature must rise to at least 25° C.

1) Run the engine at idle speed for 5 minutes

2) Increase the RPM to run the engine in the medium speed range.

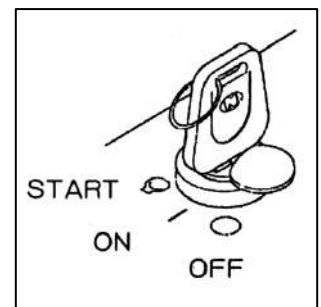
3) Operate the bucket handle for 5 minutes.

4) Do not operate any handle other than the bucket handle.

5) Run the engine at high speed and operate the bucket and stick for 5 to 10 minutes.

★ Only the bucket handle and stick handle can be operated.

6) After operating all the cylinders several times and performing walking and rotating movements, the warm-up operation ends.



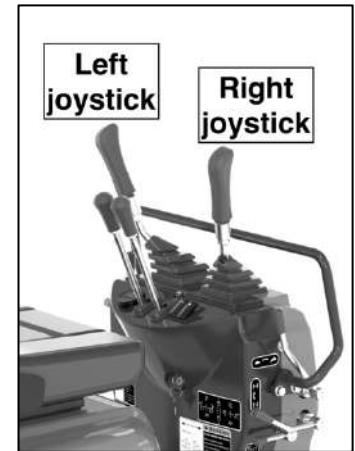
★ ★ Increase warm-up time in winter.

5. Shutdown

★ If the engine is stopped suddenly before cooling, the engine life may be greatly shortened. Therefore, do not shut down suddenly except in emergencies.

★ Especially if the engine is overheated, do not stop it suddenly. Run it at medium speed and let it cool down gradually before stopping it.

- 1) Lower the bucket to the ground and place all handles in the neutral position.
- 2) Let the engine run at low idle speed for approximately 5 minutes.
- 3) Turn the starter key to the "OFF " position.
- 4) Remove the key to prevent others from using the machine and lock the safety lock lever.

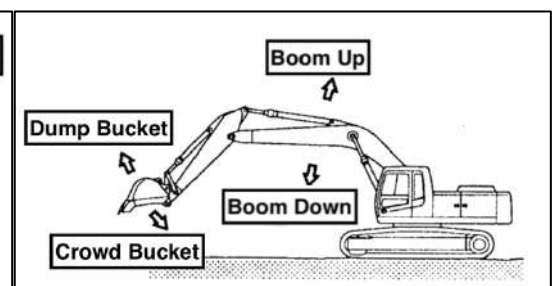
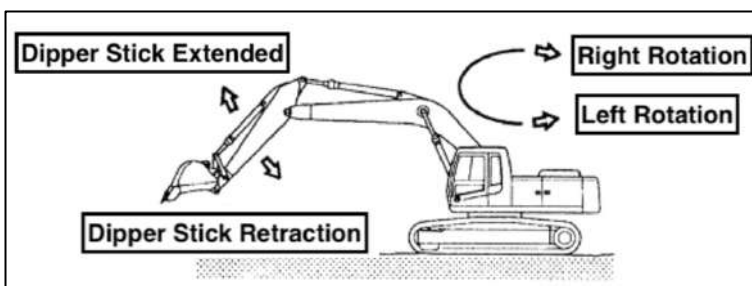
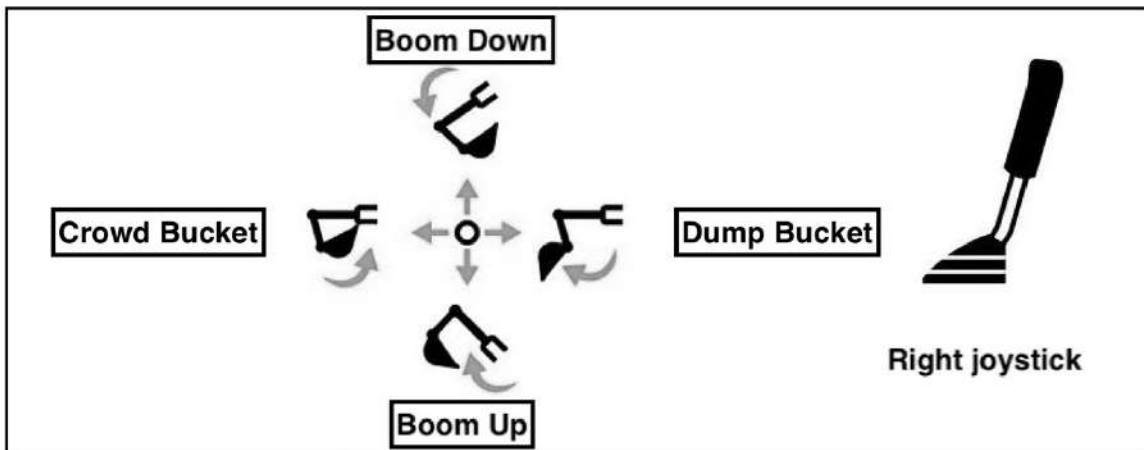
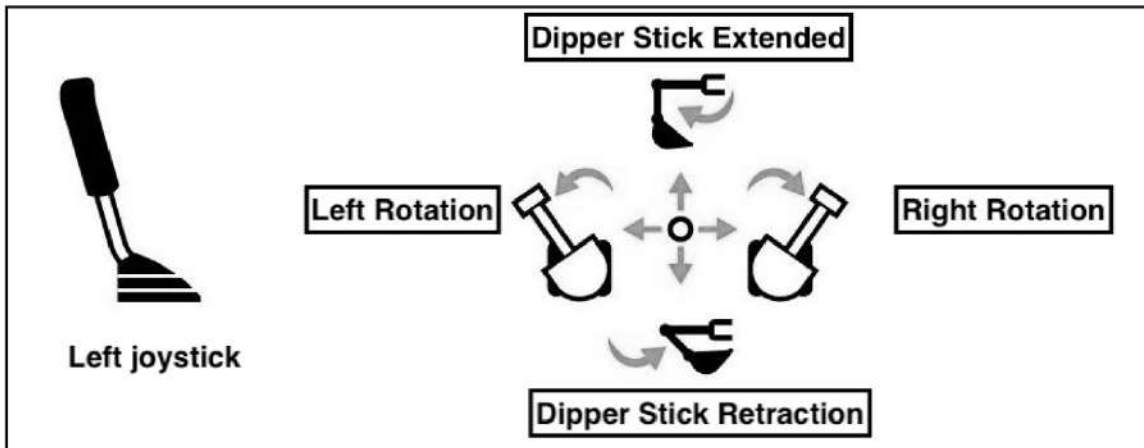


Operation description

★ Confirm the relationship between the control handle operation and the action of the operation device.

- 1) The left joystick controls the stick and rotation.
- 2) The right control handle controls the boom and bucket.

★ When operating rotational movements, consider rotational inertia.



Machine travel

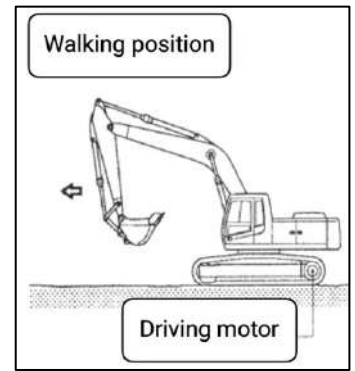
Basic operations

1. Walking position

When the machine is in the traveling position, the driving motor is at the rear and the working device is at the front.

▲ When the whole machine is rotated 180°, pay attention to the opposite direction of travel.

▲ Make sure the dozer blade is in the raised position.

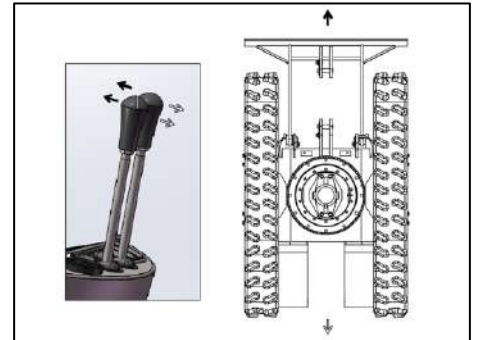


2. Walking operation

Walking can be controlled by operating the walking handle.

★ Do not walk continuously for a long time.

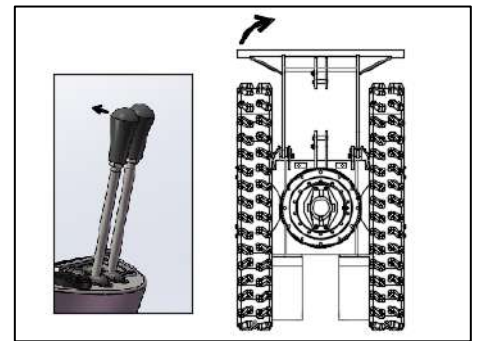
★ When walking on uneven ground, reduce the engine speed and walk at a low speed



3. Walking forward and backward

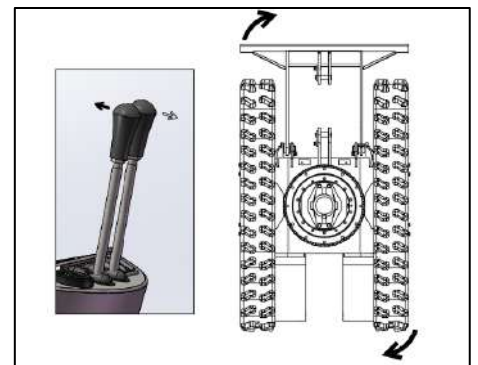
When the left and right traveling handles are pushed at the same time, the machine will move forward or backward.

★ The walking speed is controlled by the stroke of the operating handle, and the change of walking direction is controlled by the difference in the stroke of the handle.



4. Turn around the fulcrum

You can only operate the handle on one side and complete the steering through the movement of one side of the track.



5. Rotate in place

Change the direction in place through the movement of the left and right crawlers. The handles on both sides operate in opposite directions at the same time.

Driving on slopes

1. Make sure that the travel motor is in the correct position and ensure that the travel handle is operated correctly.

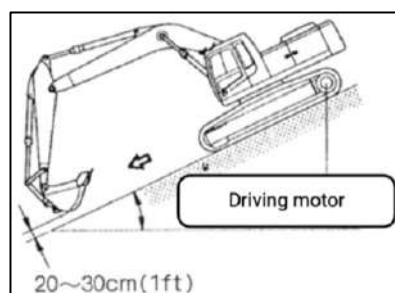
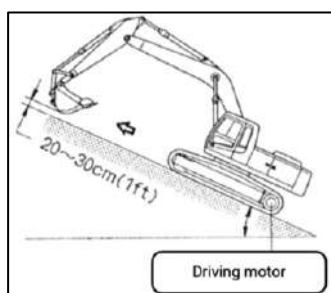
2. Lower the bucket to 20 to 30cm above the ground. It can be used for braking in emergency situations.

3. If the machine begins to slip or become unstable, immediately lower the bucket to brake the machine.

4. When parking on a slope, use a bucket as a brake and place a piece behind the track to prevent slipping.

★ When the hydraulic oil temperature is low, the machine cannot drive effectively on a slope. When the machine is going to drive on a slope, it needs to be warmed up.

▲ Be especially careful when working on slopes otherwise the machine may lose balance or flip over.

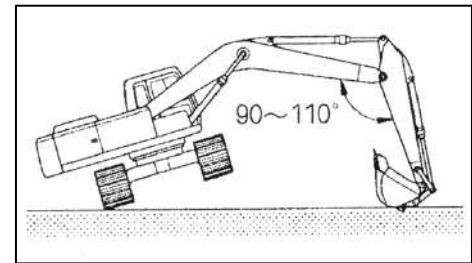


Driving in wetlands

★ If possible, avoid operating the machine in wet areas.

1. Where possible, try to move the machine forward.
2. When operating in wetlands, be careful not to exceed the depth that can be towed.
3. When it cannot travel, lower the bucket and use the boom and dipper stick to push the machine.

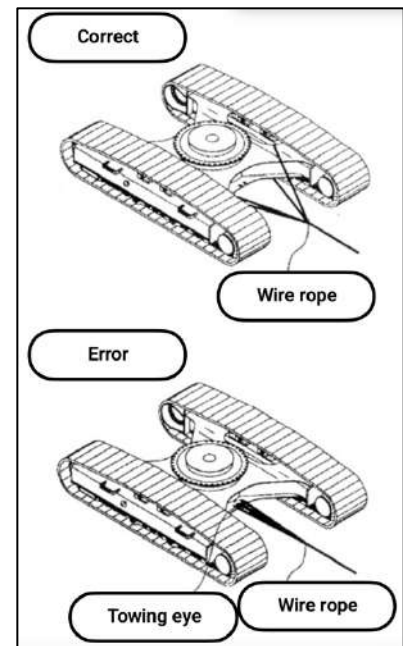
Operate the boom, dipper stick and travel handle at the same time to prevent the machine from sinking.



Tow the machine

When the machine cannot move by itself, tow the machine as follows:

1. Correctly tie the wire rope to the frame as shown in the figure and then tow it with another machine.
 2. When tying the wire rope to the frame, place a support at the contact point between the wire rope and the frame to avoid damaging the machine.
- ★ Do not tow the machine with just the towing eye as it may break.
▲ Make sure no one is standing near the towing rope.



Bulldozer operation

1. Bulldozer lifted

Pull the bulldozer control handle backward to raise the bulldozer.

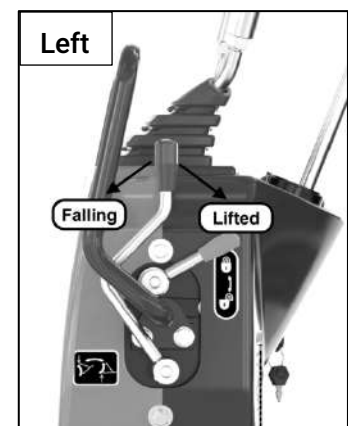
▲ When the machine is running normally, make sure the bulldozer is in the raised position.

2. Bulldozer falling

Move the bulldozer control handle forward to lower the bulldozer.

When bulldozing operations are required, the bulldozing board needs to be lowered and the machine moves forward.

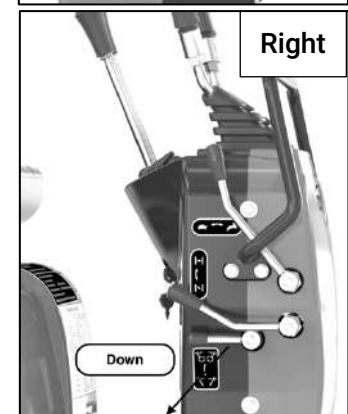
▲ During normal excavation and unloading operations, the bulldozer needs to be lowered to the ground to increase stability during operations.



Left and right yaw operation

1. Press down the rotation left and right yaw switching joystick

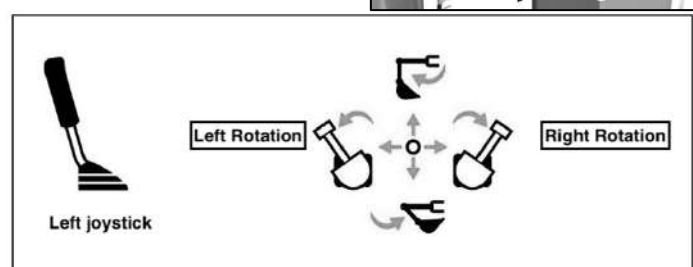
When the left and right swing switching joystick is pressed, the swing operation function of the left operating handle is converted into left and right swing of the working device.



2. Operate the left operating handle

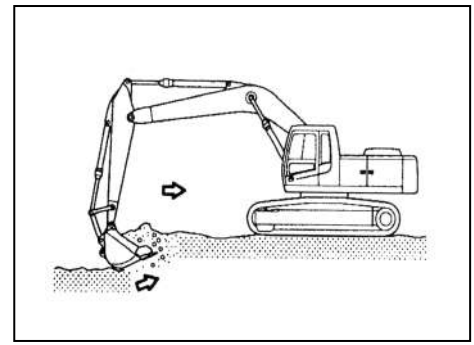
Turn right is right deflection

Turn left is left deflection



3 Lift the left and right swing switching joystick

When the left and right yaw switching joystick is lifted, the left and right yaw operation function of the working device of the left operating handle switches to the rotary operation function.



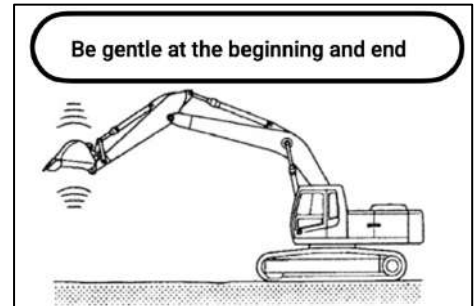
Effective working methods

1 Digging with a dipper stick

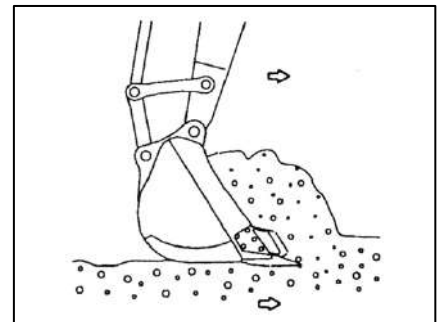
Use the pulling force of the dipper stick to excavate, combined with the digging force of the bucket if necessary.

2 When lowering and raising the boom, be gentle at the beginning and end.

Sudden stops, especially when the boom is lowered, can damage the machine.

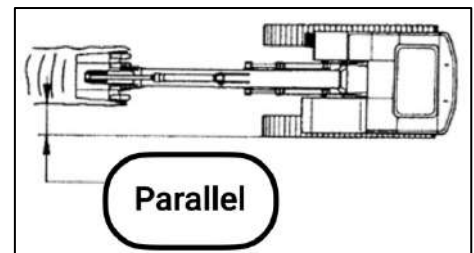


3 Aligning the top of the shovel teeth with the digging direction can reduce digging resistance and wear of the shovel teeth.

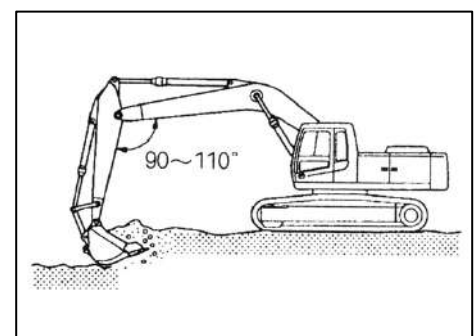


4 When digging a trench, keep the crawler tracks parallel to the trench.

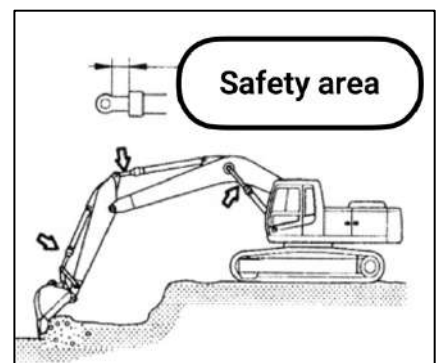
Do not rotate while digging.



5 When digging, keep the angle between the boom and the dipper stick at 90 to 110 degrees, so as to obtain the maximum digging force.



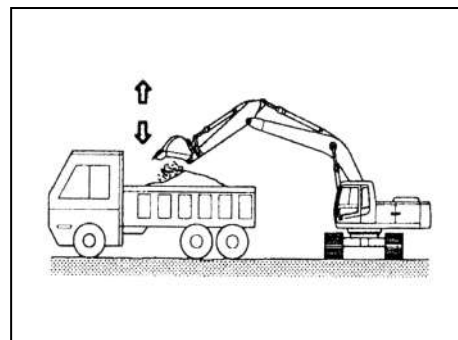
6 When the machine is working, leave a small safety area at both ends of the cylinder stroke.



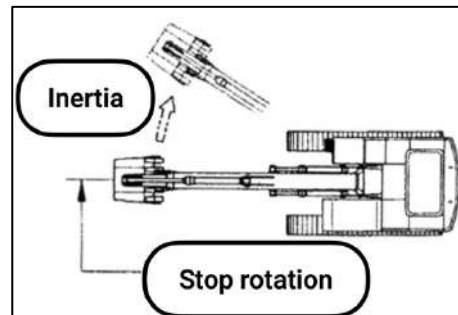
7 When unloading soil from the bucket, bring the bucket to the dumping position and the bucket arm level.

When dumping is difficult, operate the bucket handle 2 to 3 times.

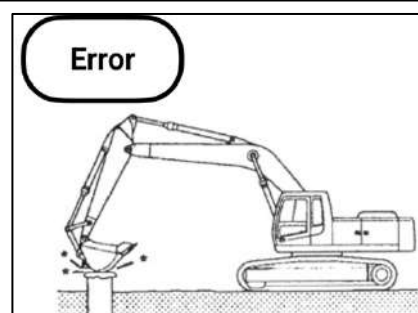
★ Do not use bucket teeth to impact when dumping.



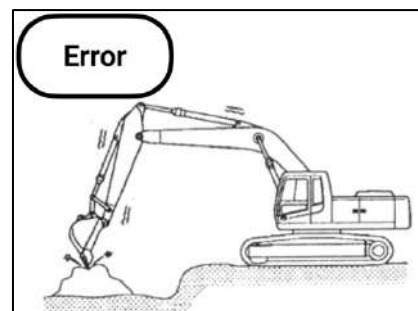
8 When the rotation stops, the rotation slip distance caused by inertia after the handle returns to the neutral position must be considered.



9 Do not use the work equipment used for excavation to hit other objects. The force of the impact may cause damage to the machine.



10 Do not use the bucket to break hard objects such as concrete or stone. This could break the tooth pin or bend the boom.



11 Do not perform overload operation

Overload operation may cause accidents.

Lifting operations must be within limits.

Do not walk while lifting.

If you need to install an overload warning device, please contact the manufacturer or agent.

12 Bucket with hook

Hooks are required when performing lifting operations.

The following operations are not allowed.

- Wrap the wire rope around the shovel teeth.
- Wrap a wire rope around the boom or bucket.

Hooks must be used safely during lifting operations.

During lifting operations, do not lift or lower people.

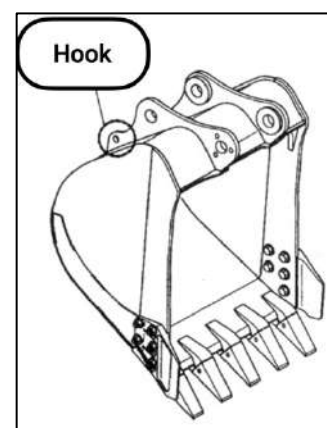
During lifting operations, the operator must be designated and no one should be standing in the work area.

Complete work tasks according to designated operator instructions.

Implements operating methods and procedures under the direction of designated operating personnel.

• Choose one person to be responsible for commanding the signal, and the operation will only follow that person's signal command.

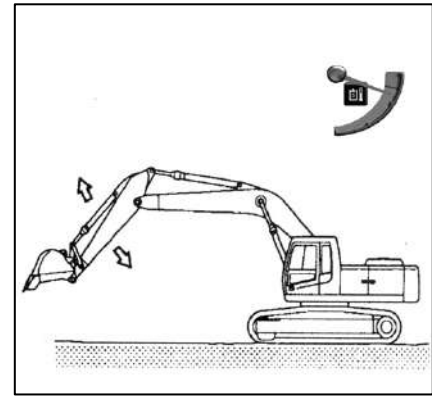
The driver cannot leave his seat during lifting operations.



Operation in special workplaces

1 Operation of the machine in cold climates

- (1) Please choose the correct engine oil and fuel.
 - (2) Start the engine and increase the warm-up time by referring to the method of starting the machine in cold climates.
 - (3) Fully charge the battery.
- ★ Uncharged batteries are more likely to freeze than charged batteries.
- (4) Keep the machine clean and park it on a wooden board.



2 Working in a workplace with dust and dust

- (1) Check the air filter element frequently.
- ★ Replace the filter element after cleaning 6 times.
- (2) Prevent sand or dust from entering the fuel tank when filling fuel or hydraulic oil.
 - (3) Tighten the breather plug of the hydraulic tank to prevent sand or dust from entering the hydraulic system.
 - (4) Keep lubricated parts such as pins and bushings clean.

3 Beach operations

- (1) Tighten the plugs, valves and bolts of each part to prevent salt from entering.
- (2) Rinse the machine after operation to remove salt residue. Pay special attention to preventing corrosion of electrical components and hydraulic cylinders.
- (3) The machine must be inspected and lubricated more frequently.

Add enough butter to the bearings and working device sleeves to replace the butter that has been soaked in water for a long time.

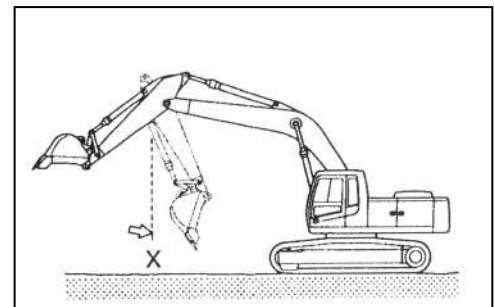
Normal operation of excavator

Due to the characteristics of the excavator, the following phenomena may occur during operation:

- 1) When the dipper stick is retracted, the movement of the dipper stick may stop for a moment at the "×" point as shown in the figure. After passing the "×" point, the movement speed returns to the normal state.

This phenomenon occurs because the weight of the dipper stick moves faster than the oil can flow into the cylinder.

- 2) When lowering the boom, a continuous sound can be heard. This is caused by the flow of oil within the valve.
- 3) When overloaded, the safety valve will open and make a sound. This protects the hydraulic system.



Lowering of working equipment (engine shut down)

Within two minutes after the engine is stopped, operate the control handle to the boom lowering position, and the boom will drop under its own weight. At this time, the start switch should be in the "ON" position and the safety lock lever should be in working condition.

After the engine is stopped, place the safety lock lever in the locked state.

- ▲ When lowering the boom, make sure there is no one near or under the working device.

Storage

When storing the machine for more than 1 month, please maintain the machine according to the following requirements.

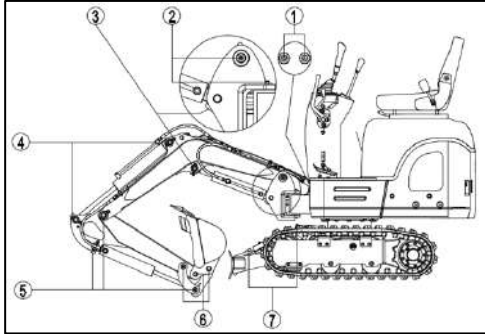
1 Clean the machine

Clean the machine and inspect and adjust the tracks. Add butter to each lubricated area.

2 Replace the lubricating grease at the lubrication points of each part.

★ Be especially careful when reusing the machine. Oil may become thinner during storage.

Carry out anti-corrosion lubrication on the exposed parts of the cylinder piston rod and parts of the machine that are prone to rust.

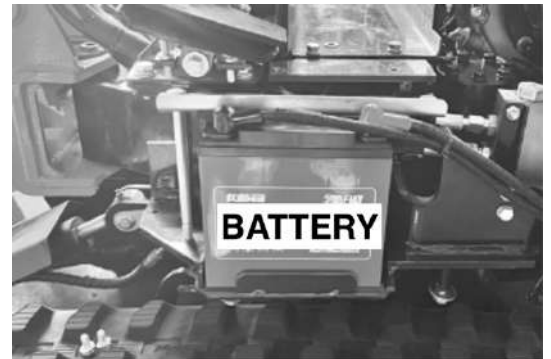


1. Lubrication of the slewing bearing and swing cylinder root (2 places)
2. Lubricate the yaw joint and boom installation pin (2 places)
3. Boom cylinder pin (2 places)
4. Dipper stick cylinder pin (2 places)
5. Bucket cylinder and dipper stick pin (3 places)
6. Bucket connecting rod and rocker arm installation pins (3 places)
7. Bulldozer cylinder pin (2 places)

3. Start the machine and use up or drain all the fuel.

4. Battery

When storing the machine, disconnect the positive and negative connectors of the battery.



5 Protect from dust and moisture

Keep the machine dry and place wooden blocks on the ground when storing the machine.

★ Cover the exposed part of the piston rod.

★ Lower the bucket to the ground and place supports under the tracks.

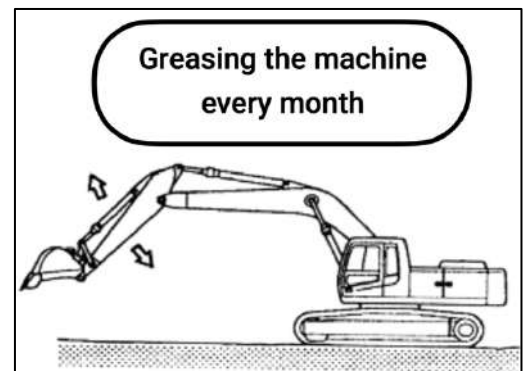
6 Storage process

Start the machine once a month and move the machine and work equipment several times. Butter all parts.

★ Check the engine oil and coolant levels as required before starting. If insufficient, replenish the oil levels.

★ Remove the preservative from the exposed parts of the cylinder piston rod.

★ Make the machine travel, rotate and operate the working device to ensure that each functional component is fully lubricated.



Transportation

Preparation before transportation

- 1 When transporting the machine, comply with various traffic rules, road transport vehicle laws, vehicle restrictions, etc.
- 2 Select the appropriate farm trailer based on the weight and size.

Loading of the machine

- 1 Load and unload the machine on a flat surface.
 - 2 Select a suitable forklift and place the machine into the agricultural trailer.
 - 3 After the position is determined, slowly lower the working device.
- ★ Place a rectangular wooden block under the bucket cylinder to prevent damage to it during transportation.
 - ▲ When loading and unloading the machine, avoid using working equipment to avoid danger.
 - ▲ Do not operate any other devices while loading.

Fixing of machine

- 1 Lower the work equipment onto the trailer's loading platform. Place the safety handle in the locked position.
- 2 Turn off all switches and take away the keys.
- 3 Lock the engine hood.
- 4 Place wooden blocks under the crawler tracks and secure the machine with wire ropes to prevent it from moving forward, backward, left or right.

Use a crane to load and unload the machine

- 1 When you want to lift the machine, first check the width, length, height and weight of the machine as required in Chapter 2.
 - 2 Use long steel wire ropes and support columns to keep the ropes at a certain distance from the machine to avoid damaging the machine.
 - 3 Place a rubber block between the wire rope and the machine to prevent damage to the machine.
 - 4 Place the crane in the correct position.
 - 5 Install the wire rope.
- ▲ Determine whether the wire rope specifications are appropriate.
 - ▲ Place the safety handle in the locking position to prevent the machine from moving when lifting.
 - ▲ Incorrect lifting methods and wire rope installation methods may cause movement of the machine.
 - ▲ Incorrect lifting methods and wire rope installation methods may cause damage to the machine.
 - ▲ Avoid lifting the machine suddenly.
 - ▲ No one is allowed to stand in the loading and unloading area.

Maintenance

Illustrate

1 Maintenance cycle

- (1) Inspection and maintenance must be carried out according to the working hours displayed on the instrument panel.
- (2) When upgrading at intervals, all inspections and maintenance must be performed.

For example: do 100 hours of maintenance, and do all maintenance at the same time (100 hours, 50 hours and daily maintenance).

2 Safety precautions

- (1) Start maintenance work only after fully understanding the machine.
- (2) The monitor on the machine does not necessarily guarantee the condition of the machine. Daily inspection must be carried out according to the maintenance content.
- (3) Engine and hydraulic components are adjusted at the factory. Non-professionals must not tamper with it.
- (4) If you have any questions, please consult your local supplier or TMG .
- (5) Put the used oil and coolant into the container and handle it according to the relevant regulations on industrial waste liquids in various countries and regions.

3 Proper maintenance

(1) Parts replacement and repair

Wearing parts and consumable parts must be replaced frequently, such as bucket teeth, side blades, filter elements, etc.

Timely replacement of damaged and worn parts can ensure the working performance of the machine

- (2) Use genuine accessories.
 - (3) Use recommended oil.
 - (4) Before refueling, remove dust and water around the oil filling port.
 - (5) The oil should be drained when it is warm.
 - (6) Do not perform any maintenance work while the machine is running.
 - (7) Before repairing the hydraulic system, open the tank breather plug to release the pressure in the hydraulic system.
 - (8) After the maintenance work is completed, all instruments should be kept working normally.
 - (9) For more details about maintenance, you can contact your local supplier.
- ★ Pay special attention to the fact that you can only start maintenance work after fully understanding the safety tips.

4 Release of hydraulic system pressure

★ Once the machine is started, the machine and hydraulic oil are under high pressure.

If the cap or tube is loosened at this time, the sprayed oil may cause injury.

Before servicing the machine, confirm that the system hydraulic oil pressure has been released.

- (1) Place the machine at a parking location and turn off the engine.
 - (2) Put down the safety locking lever and operate the pilot handle and pedal several times forward, backward, left and right to release the pressure in the control system.
- ★ These actions cannot completely release the pressure, so when inspecting hydraulic components, you should slowly loosen the joints and move away to prevent oil from spraying out.

(3) Loosen the breather plug and release the pressure in the fuel tank

5 Safety precautions when installing hydraulic oil pipes

- (1) Be very careful not to damage the oil pipe joints and functional parts to avoid contamination.
- (2) Clean oil pipes and joints before assembly.
- (3) Use genuine accessories.
- (4) The oil pipe should be installed to avoid twisting and bending radius that is too small.
- (5) Tighten according to the specified tightening torque.

6 Regularly replace safety-related parts

- (1) To ensure the safety and longevity of the machine, the machine must be maintained regularly. Moreover, the required regular replacement of safety-related parts is not only related to safety, but also related to maintaining good working condition.
- (2) As the machine is operated and over time the quality of these parts weakens and wear, dilution and fatigue occur, potentially damaging life and property.
- (3) Even if these parts are abnormal before the recommended replacement cycle, they must be repaired or replaced in time.

Safety parts replacement intervals			Interval
Hydraulic system	Main circuit	Main pump suction pipe	Every 2 years
		Main pump oil pipe	
		Rotary oil pipe	
	Working equipment	Boom cylinder oil pipe	Every 2 years
		Dipper stick cylinder oil pipe	
		Bucket cylinder oil pipe	

- ★ 1. When replacing the oil pipe, replace the O-ring and sealing gasket at the same time
- 2. When inspecting and replacing oil pipes, replace them immediately if the clamp is found to be broken.

Tightening torque

Unmarked tightening torques are as shown in the table below.

1. Bolts and nuts

Bolt size (coarse teeth)	Level 8.8	Level 10.9	Bolt size (fine teeth)	Level 8.8	Level 10.9
	kgf·m	kgf·m		kgf·m	kgf·m
M6×1.0	0.9~1.2	1.3~1.6			
M8×1.25	2.2~3.1	3.1~3.7	M8×1.0	2.2~3.4	3.0~4.4
M10×1.5	4.6~6.0	6.6~8.0	M10×1.0	4.5~6.7	5.9~8.9
M12×1.75	8.0~10.6	11.2~13.2	M12×1.25	7.8~11.6	10.6~16.0
M14×2.0	12.7~16.8	18.4~21.4	M14×1.5	13.3~18.1	17.9~24.1
M16×2.0	19.7~26.2	28.6~33.6	M16×1.5	19.9~26.9	26.6~36.0
M18×2.0	27.0~36.1	38.8~46.0	M18×1.5	28.6~43.6	38.4~52.0
M20×2.5	38.4~51.2	55.1~66.3	M20×1.5	40.0~54.0	53.4~72.2
M22×2.5	52.2~69.7	75.5~89.8	M22×1.5	52.7~71.3	70.7~95.7
M24×3.0	66.4~88.6	95.9~114.2	M24×2.0	67.9~91.9	90.9~123
M30×3.0	132~176	174~204	M30×2.0	137~185	182~248
M36×4.0	231~307	286~342	M36×3.0	192~260	262~354

2. Joints, hard pipes and hoses

THREAD	TORQUE	THREAD	TORQUE
M12*1.5	10-20	G1/8	11-14
M14*1.5	20-35	G1/4	25-28
M16*1.5	25-40	G3/8	41-48
M18*1.5	30-45	G1/2	72-82
M22*1.5	40-70	G5/8	96-110
M24*1.5	40-70	G3/4	124-137
M27*1.5	60-100	G1	151-165
M30*1.5	80-120	G1-1/4	192-206

Technical specifications for fuel, coolant and lubricants

1 New machine

New machines use and fill with the following lubricants.

Content	Technical specifications
Engine lubricant	SAE 15W-40
Hydraulic oil	ISO VG 46
Grease	Lithium complex grease ZL-3H (or ZL-2H)
Fuel	Gasoline REGULAR

SAE: Society of Automotive Engineers

ISO: International Standards Organization

2 Lubricating fluid is recommended

Only listed oils or their equivalents may be used

Do not mix different brands of oil. [Refer to Page 26](#) for recommended oil

Maintenance checklist

1. Daily maintenance before start-up

Check item	Maintain	Page
Visual inspection		
Fuel level	Check to add	47
Hydraulic oil level	Check and refuel	45
Engine oil level	Check and refuel	44

2. Maintenance every 50 hours

Check item	Maintain	Page
Gasoline engine air filter coarse filter element	Clean or replace	45
Track tension	Check and adjust	48
Slewing bearing	Lubricating	50
Pin and bushing lubrication	Lubricating	50
<ul style="list-style-type: none"> ● Boom cylinder end ● Boom bottom ● Boom cylinder rod end ● Bottom of arm cylinder ● Dipper stick cylinder rod end ● Boom and dipper stick connection part ● Bucket cylinder bottom ● Bucket cylinder rod end ● Dipper stick and bucket connection part ● The connecting part of the dipper stick, connecting rod and rocker ● Bucket and connecting rod 		

★ Maintenance intervals should be shortened appropriately in working environments with serious dust, such as quarries, cement plants, etc.

3. First 50 hours of maintenance on new machines

Check item	Maintain	Page
Bolts and Nuts	Check and tighten	41
<ul style="list-style-type: none"> ● Sprocket fixing bolt ● Travel motor fixing bolt ● Rotary motor fixing bolt ● Slewing bearing fixing bolts ● engine fixing bolts ● Counterweight fixing bolt ● Rotary joint fixing bolts ● Main pump fixing bolts 		

4.Maintenance every 100 hours

Check item	Maintain	Page
★ Hydraulic oil return filter	replace	48
★ Hydraulic tank breather plug filter element	replace	48
engine oil	examine	44
Air filter main element	check, clean	45

★ Only after continuous use of the hydraulic breaker, replace the 2 filter elements.

5.Maintenance every 200 hours

Check item	Maintain	Page
Air filter main filter element	Replace	45
Battery	Examine	50
Fan	Check, clean	45

6.Maintenance every 500 hours

Check item	Maintain	Page
Hydraulic oil return filter	Replace	48
Hydraulic tank breather filter element	Replace	48

7.Maintenance every 1000 hours

Check item	Maintain	Page
Hydraulic oil	Change oil	46

8.Maintenance every 2000 hours

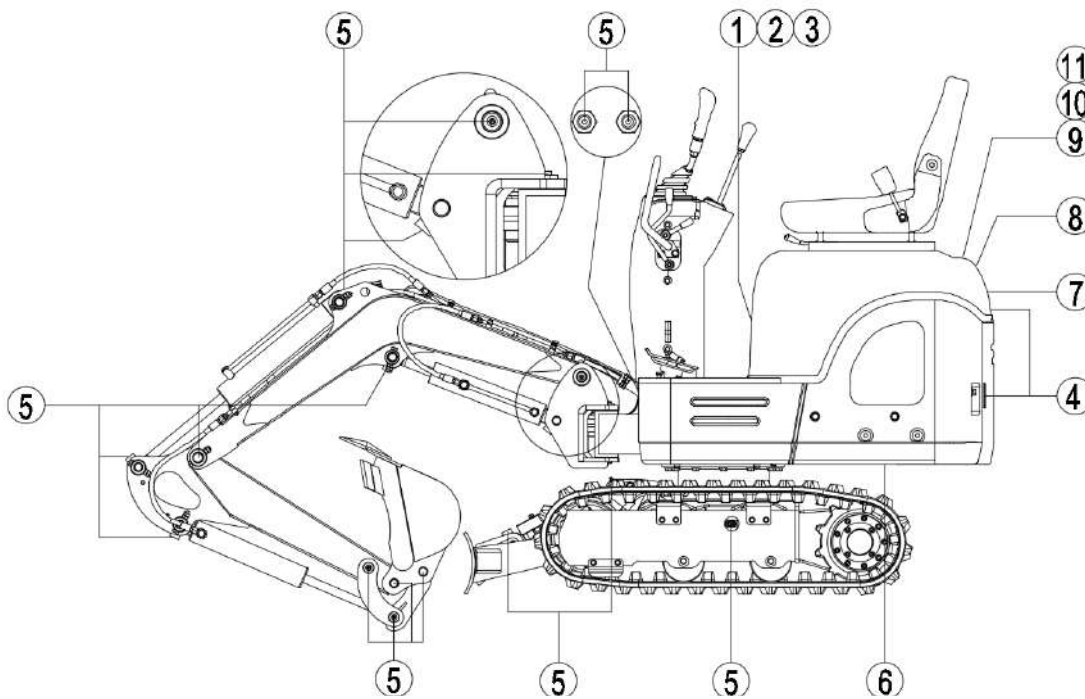
Check item	Maintain	Page
Hydraulic tank		
● Oil suction filter	Change oil	46

9.When needed

Whenever there is a problem with a machine, the related items should be maintained.

Check item	Maintain	Page
Fuel System		
● Fuel tank	Drain or clean	46
Engine lubrication system		
● Engine lubricant	Change oil	44
Engine air intake system		
● Air filter	Clean or replace	45
Hydraulic system		
● Hydraulic oil	Refuel or change oil	47
● Hydraulic oil return filter	Replace	48
● Breathable plug filter element	Replace	48
● Oil suction filter	Clean	48
Chassis		
● Track tension	Check and adjust	48
Bucket		
● Shovel teeth	Replace	49
● Side edge	Replace	49
● Link	Adjustment	49
Bucket assembly	Replace	49

Maintenance chart



NO.	Check points	Operating hours(o/h)								Oil symbol	Capacity (L)	Number of maintenance places
		Daily	First 5	50	100	200	500	1000	2000			
1	Fuel	■								GAS	6.8	1
2	Engine oil	◆	●		●					EO	1.1	1
3	Air filter element				▲	●						1
4	Hydraulic oil	◆						●		HO	13	1
5	Lubrication points	◆		■						PGL		18
6	Radiator	◆				▲						1
7	Battery condition					◆						1
8	Electrical lines	◆										1
9	Hydraulic return filter element							●				1
10	Hydraulic suction filter element								▲			1
11	Breather filter element							●				1

◆ Check

▲ Check, Clean

■ Check, Raise

● Change

Notice:

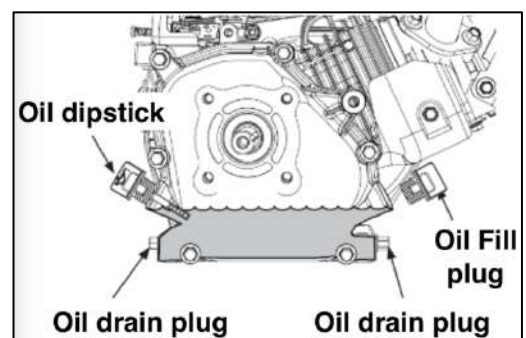
1. Maintenance intervals depend on the reading on the operating hour meter.
2. Each number represents a lubrication point on the machine.
3. Stop the machine when refueling and avoid open flames.
4. For other details, see the maintenance manual.

Maintenance instructions

1 Check engine oil level

Place the machine on flat ground and check the oil level before driving.

- (1) Take out the oil dipstick and wipe it with a clean cloth.
- (2) Insert the oil dipstick completely into the hole and then remove it to check the oil dipstick.
- (3) If the oil level is too low, add oil and check again.



- ★ If the engine oil is contaminated or thin, the oil must be changed regardless of the oil change interval.
- ★ Check the oil dipstick after stopping the machine for 5 minutes.
- ▲ If the engine oil level is not in the correct position, do not start the engine.

2 Engine oil replacement

(1) Warm up the engine

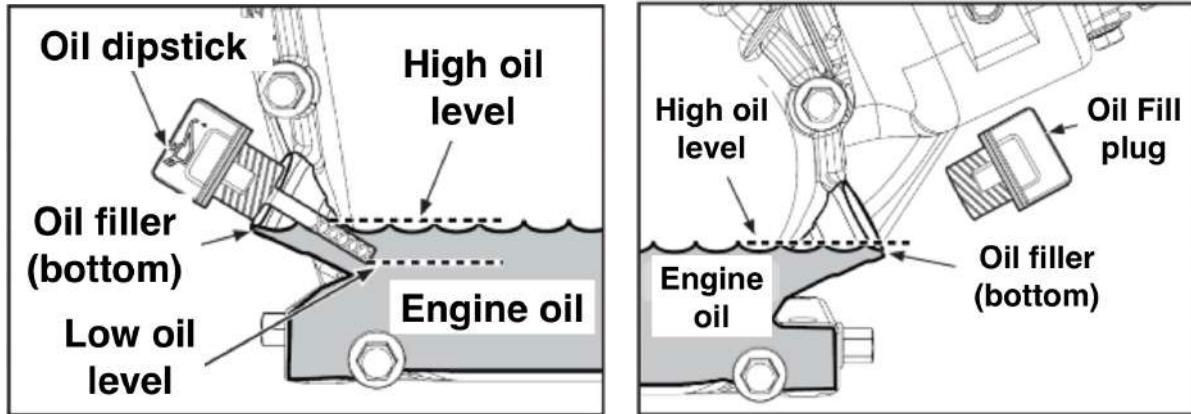
(2) Remove the screw plug and oil dipstick/fill plug. There must be enough time to drain the oil until it is completely clean.

★ Use a basin with a capacity of 1.1 liters to catch the oil.

Reinstall the oil drain plug, tightening torque is 23Nm.

3 Add pure engine oil to the appropriate oil level in the engine.

- Quantity: 1.1L



4 Idle the engine at low speed to check whether the oil dipstick/fill plug and drain plug are leaking.

Turn off the engine and check the engine oil level with the dipstick.

Wait 15 minutes before checking.

5 Inspection of cooling fan

▲ Fan blades may cause personal injury. Do not pull or pry the fan, as this may damage the fan blades and cause an accident.

★ Use the engine gear plate to turn the crankshaft.

★ Visually inspect the cooling fan every day to check whether the blades are cracked, twisted, loose, or have loose rivets.

Make sure the fan is secure and secure, tightening the screws if necessary. Damaged fans must be replaced.

6 Cleaning of air filter element

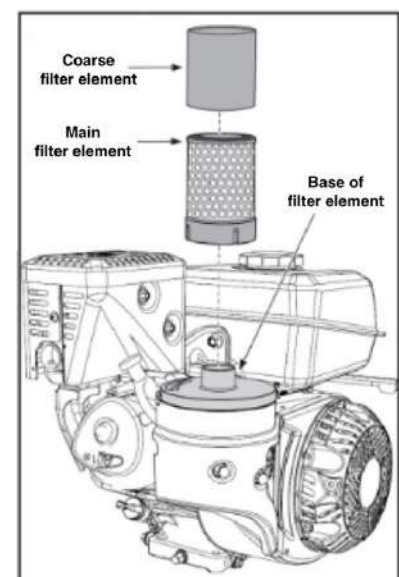
The gasoline engine is equipped with a replaceable, high-density filter paper air main filter element, and an oil-immersed foam coarse filter element is installed outside the main filter element.

Check the air filter assembly every day or every time you start the engine. Check for accumulation of dust and debris. Make sure these areas are clean. Also check whether parts are loose or damaged. Replace any bent or damaged air cleaner components.

Note: When the air filter parts are loose or damaged, running the engine will easily allow unfiltered air to enter the body, causing early wear and failure.

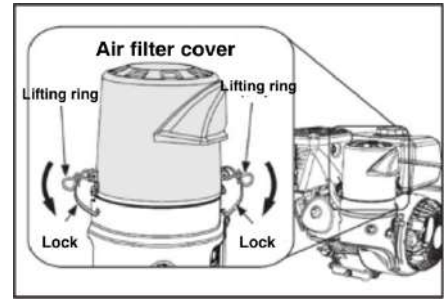
(1) Maintenance of coarse filter element

- Remove the air filter cover.

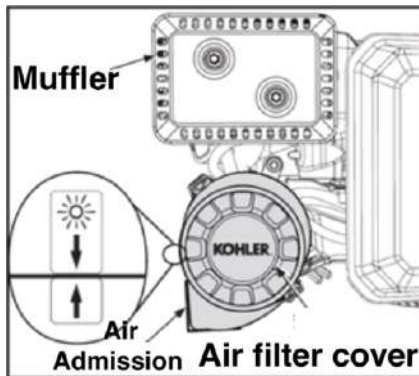


Pull down the fixing lifting ring, and then remove the lock from the flange of the air cleaner seat. Lift and remove the air cleaner cover from the air cleaner holder.

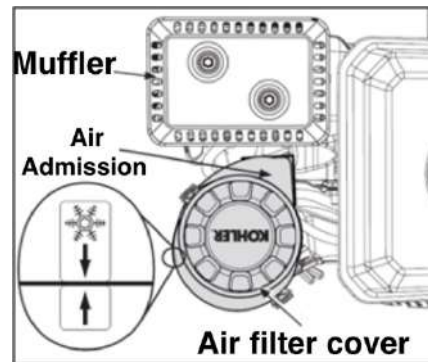
- Remove the foam coarse filter element from the paper main filter element.
- Wash in warm water with detergent. Rinse the coarse filter element thoroughly until all the cleaning agent is removed. Squeeze out excess water by hand (without shaking it off) and let the coarse filter air dry.
- Put some fresh engine oil in the coarse filter element. Squeeze off the excess oil slightly with your hands.



- Reinstall the coarse filter element on the paper main filter element. Slowly install the coarse filter element and paper main filter element into the air cleaner seat.
- Reinstall the air cleaner cover.



a. For "normal use"



b. For "cold weather use" conditions

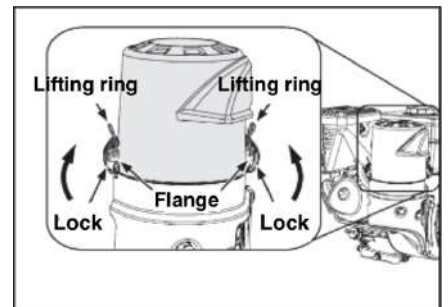
Note: "cold weather use" mode under normal operating conditions will damage the engine.

- Reinstall and secure the air cleaner cover. Align the air cleaner cover latch with the flange on the air filter seat, then lock the latch under the flange, and then lift the lifting ring plate up to lock the latch.

(2) Paper main filter element maintenance

Every 200 hours of operation, the paper main filter element must be replaced (in the case of very much mud or dust, the replacement cycle will be shorter).

- Remove the air cleaner cover. Pull down the fixing lifting ring, and then remove the latch from the flange on the air cleaner base. Lift and remove the air cleaner cover from the air cleaner holder. Separate the foam coarse filter element from the paper main filter element and follow the coarse filter element care instructions above.
- Do not clean the paper filter element with water, and do not use compressed air to blow it, as this will damage the filter element.
- Please replace dirty, deformed or damaged filter elements with original Kohler filter elements. Carefully handle the paper main filter element; if the sealing surface of the filter element is bent or damaged, it cannot be used again.
- When doing air filter maintenance, you need to check the air filter base to make sure it is firmly installed and not damaged. Of course, also
- Check the air cleaner cover for damage or incorrect installation. All damaged air filter parts must be replaced.
- Slowly install the coarse filter element and paper main filter element onto the air filter base.
- Reinstall the air cleaner cover.
- Reinstall and secure the air cleaner cover. Align the air cleaner cover latch with the flange on the air cleaner seat, then lock the latch under the flange, and then pull up the lifting ring to lock the latch.



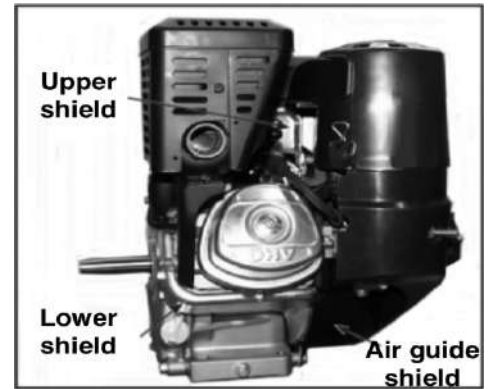
7. Clean air intake/cooling area

To ensure proper cooling, make sure your engine's hood, fins and other exterior surfaces are always clean. Must be inspected before each use.

Every time the engine runs for 100 hours (the replacement period is shorter if there is a lot of mud or dust), remove the air guide and other cooling shields.

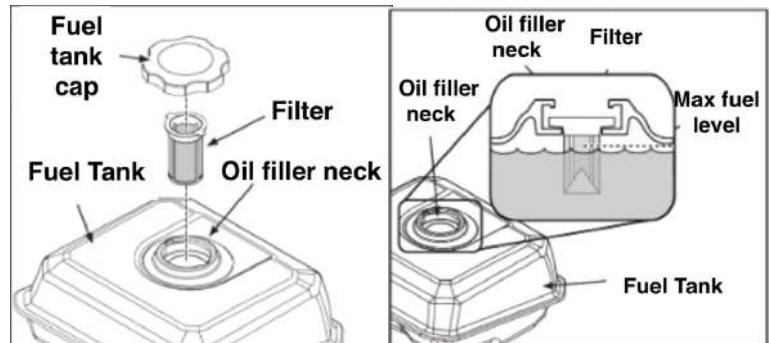
Clean heat sinks and other exterior surfaces, if necessary. Then install the cooling shield.

Note: Running the engine when the grass cover is clogged, the radiator fins are dusty and dirty, or when the radiator cover is removed can easily cause the engine to overheat and be damaged.



8. Fuel inspection

- (1) Open the fuel tank cap and take out the filter.
 - (2) Clean the filter with solvent. If it is damaged, please replace it with a new one.
 - (3) Wipe the filter clean, and then insert it into the oil filler neck.
 - (4) Add fuel and tighten the fuel tank cap.
- ※ Make sure the fuel tank cap is tightly closed.
- ▲ When refueling, stop the engine; when refueling, keep away from all fires.



Do not overfill the fuel tank, leaving room for the gasoline to expand.

9. Fuel leakage

▲ Carefully wipe away oil leaks from fuel pipes, fuel injection pumps, fuel filters and other connecting parts, otherwise it may cause fire.

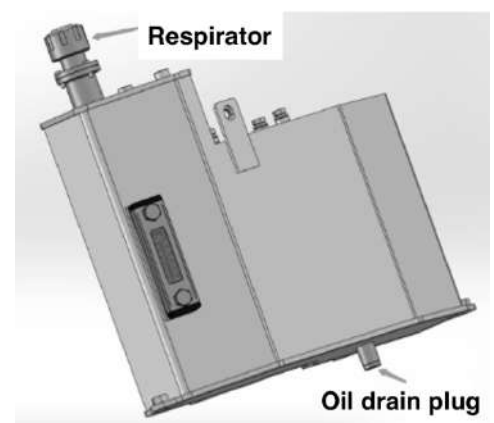
10. Fill hydraulic oil

- (1) Park the machine and turn off the engine as you did when checking the fluid level.
 - (2) Loosen the upper cover of the respirator to relieve pressure.
- ★ After starting the engine, the hydraulic oil is at high temperature. After cooling, unscrew the breather plug cap.
- (3) Add oil to the specified liquid level.
 - (4) After refueling, start the engine and operate the working device 5-10 times.
 - (5) After stopping the machine, check the oil level at the liquid level inspection position and install the breather.



11. Change hydraulic oil

- ★ After starting the engine, the hydraulic oil is at high temperature. After cooling, unscrew the breather plug cap.
- (1) Lower the bucket to the ground and fully retract the bucket rod and bucket cylinder.
 - (2) Loosen the breather plug on the top of the hydraulic tank to relieve pressure.
 - (3) Remove the cover on the top of the hydraulic tank.
 - (4) Preparation—Only suitable containers.
 - (5) Open the oil drain plug at the bottom of the oil tank to drain the oil.
 - (6) Add appropriate amount of hydraulic oil.



(7) Install the vent plug cover.

(8) Start the engine and run continuously, and operate each control lever to its full range several times to discharge the air.

12. Clean the oil suction filter

★ After starting the engine, the hydraulic oil is at a high temperature. After cooling, unscrew the breather plug cap.

When cleaning the oil suction filter when refueling, follow the guidelines below.

(1) Remove the bolt 1 and take out the oil suction filter element holder 2.

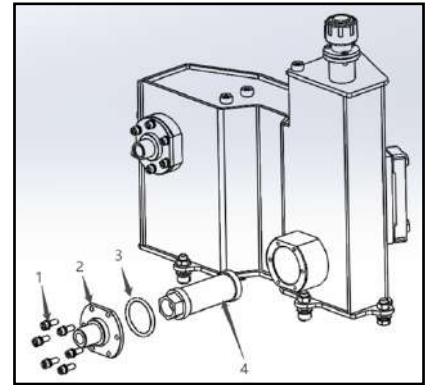
(2) Remove the oil suction filter element 4.

(3) Use gasoline or cleaning oil to clean the outside of the filter element.

(4) The filter should be replaced if damaged.

(5) Install according to the reverse procedure of disassembly. Make sure to replace O-ring 3 with a new one before putting it in the fuel tank.

★ Be slow when loosening the cover bolts, as the spring may cause the cover to pop out during removal.



13. Cleaning and replacing oil return filter

★ After starting the engine, the hydraulic oil is at high temperature. After cooling, unscrew the breather plug cap.

Replace as follows and take care when doing so:

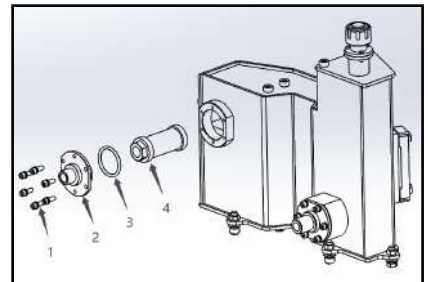
(1) Remove the bolt 1 and take out the oil return filter element holder 2.

(2) Take out the O-ring 3 and return oil filter 4.

(3) Replace with a new filter element and new O-ring. Please clean the spring before installation.

(4) Install in reverse order of disassembly.

★ Be slow when loosening the cover bolts, as the spring may cause the cover to pop out during removal.



14. Cleaning and replacement of hydraulic tank air filter

★ After starting the engine, the hydraulic oil is at high temperature. After cooling, unscrew the breather plug cap.

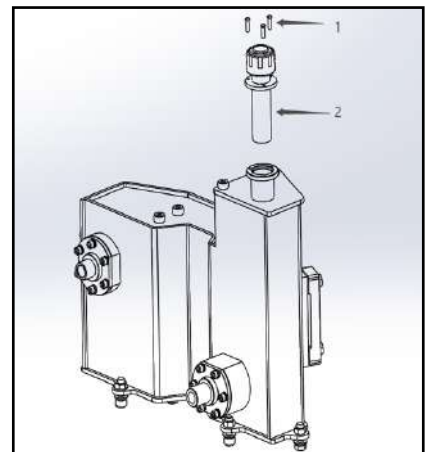
(1) Loosen the breather plug cap to release the fuel tank pressure.

(2) Unscrew the vent plug cover and remove the vent plug fastening bolt 1.

(3) Take out the filter 2.

(4) Wash it with gasoline or cleaning oil, and replace the filter if it is damaged.

(5) Install in reverse order of disassembly.



15. Lubrication of slewing bearings

(1) Inject butter from the outer grease nozzle.

★ Lubricate every 50 hours.



16. Adjust track tension

★ Correctly adjusting the track tension has a great influence on the life of the track and running gear.

(1) Use the boom and dipper stick to lift the chassis.

(2) Measure the distance L from the bottom of the track frame to the track shoe.

★ Mud should be removed before measurement.

(3) If it is too tight, release the butter from the grease nipple; if it is too loose, add butter.



▲ When loosening the grease nipple, do not make it larger than one circle. Because the high-pressure butter inside will spray out from the grease nozzle.

★ After the butter is released, gently move the crawler track back and forth.

If the grease is still too loose after adding enough butter, replace the pin and bushing as they are severely worn.

17. Bucket replacement

▲ When assembling the pin with a hammer, metal fragments may fly and injure people, so please wear gloves, glasses and other protective equipment.

★ After removing the bucket, place it on a flat ground.

★ Pay attention to safety when assembling and disassembling.

(1) Place the bucket on the ground as shown in the picture on the right.

(2) Put the safety lock lever into the locked position and shut down the machine.

(3) First remove the bolts (1) and nuts (2), then remove the pins (3, 4), then remove the bucket and remove the O-ring.

★ When removing the pin, keep the bucket in slight contact with the ground.

★ The contact between the bucket and the ground should not be too heavy, otherwise the friction will increase and it will be very difficult to remove the pin.

★ After the pin is removed, there should be no dust on the surface. The seals on both sides of the shaft sleeve cannot be damaged.

(4) Level the hole (A) of the dipper stick and the hole (B) of the connecting rod, apply butter, and then assemble the pins (3, 4).

When installing the bucket, the O-ring is easily damaged, so when assembling the O-ring, the O-ring should be installed on the bucket seat as shown in the figure. After the pin is installed, install the O-ring into the groove.

(5) Assemble the bolts (1) and nuts (2), and then add grease.

18 Replacement of bucket teeth

1) Replacement time

Check the wear and tear, and replace the shovel tooth sleeve once it reaches the root of the shovel teeth.

(2) Replacement Guide

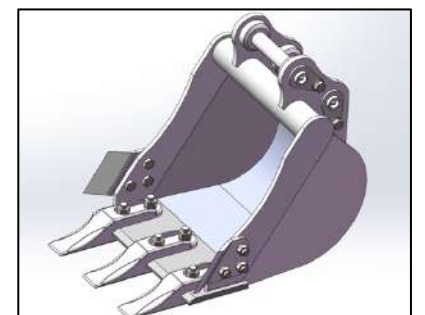
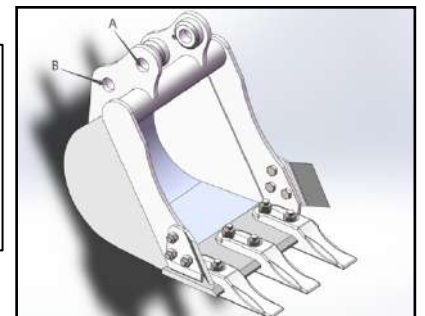
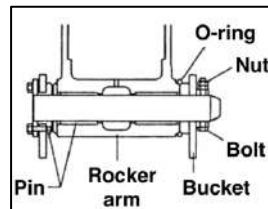
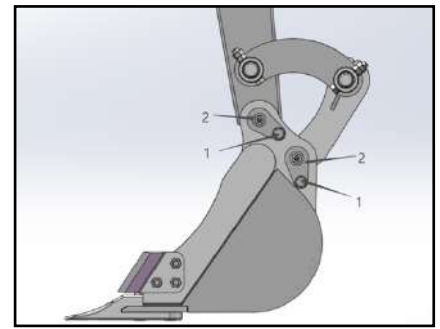
① Use a knife to remove the soil on the shovel tooth seat.

③ Remove the nuts and bolts and remove the shovel teeth.

④ Replace the shovel teeth with new ones and tighten the bolts and nuts.

▲ Be aware that falling bucket may cause personal injury.

▲ Raise the bucket before replacing the teeth or side edges.

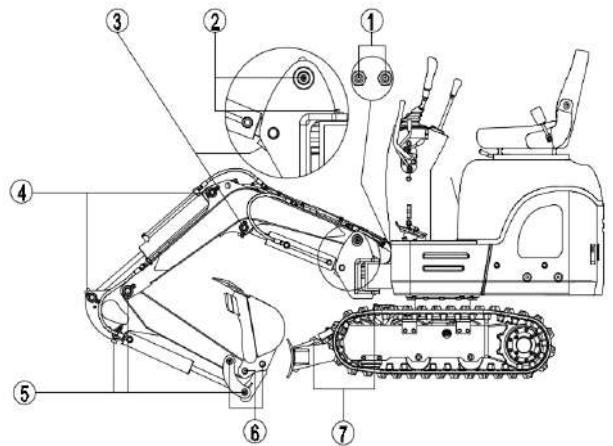


19 Lubrication of pins and bushings

(1) Lubricate the pins of each working device

Fill the grease nozzle with grease according to the lubrication interval.

Serial number	Project	Points
1	Lubrication of slewing bearing and swing cylinder root	2
2	Lubricating the yaw joint and boom mounting pin	2
3	Boom cylinder pin	2
4	Dipper stick cylinder pin	2
5	Bucket cylinder and dipper stick pin	3
6	Bucket connecting rod and rocker arm mounting pin	3
7	Bulldozer cylinder pin	2



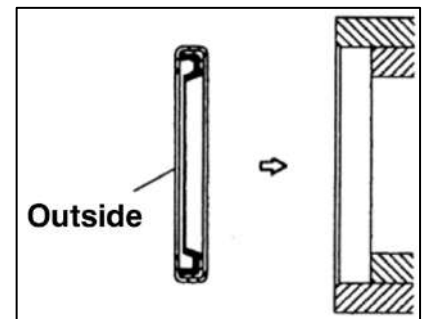
★ If water vapor and dust are severe, shorten the lubrication interval.

(2) The rotating parts of the working device are equipped with dust rings to extend the lubrication interval.

★ When replacing the dust seal, the lip should face outward.

★ If installed in the wrong direction, the wear of the shaft and bushing will be accelerated during operation, resulting in noise and vibration.

★ Install as shown in the diagram and use a plastic hammer when replacing.



Electrical System

1 Wires and instruments

Check regularly and repair any gauges found to be loose or malfunctioning.

2 Battery

(1) Inspection and repair

① Check whether the battery surface is loose or deformed. If there is serious deformation, it must be replaced.

② If the terminal is contaminated, clean it with hot water and apply an appropriate amount of butter.

★ Keep the battery away from fire and sparks.

▲ Do not touch the battery with wet hands

③ Quickly idle to fully charge the dead battery.

▲ Flammable gas will be generated when using electricity or charging. Keep away from ignition and sparks.

★ Charge with good ventilation.

★ When charging, the machine should be parked on the dirt or cement floor, not on the steel plate.

★ When using a trunk line, do not short-circuit the positive (+) and negative (-) poles, as this will cause a short circuit.

(2) Welding repair

Follow the following procedures before welding repairs

① Turn off the engine and take out the key.

② Disconnect the ground wire and take it away to avoid short circuit

③ Disconnect the generator circuit

▲ Do not start welding work before completing the above work.

Otherwise, the electronic control system will be seriously damaged.

Fault Analysis Guide

Engine

The following table lists some common faults.

Fault	Repair	Remark
The engine can crank but cannot start.	<ul style="list-style-type: none"> • Add engine oil to the specified oil level. • The fuel tank is empty, add fuel. • The fuel shut-off valve is closed. • Poor quality fuel, dust or water enters the fuel system. • The wire is loose, check the wire. • The fuel pipe is blocked. • Ignition coil failure. 	
The engine will start but will not run continuously.	<ul style="list-style-type: none"> • The fuel tank filler port is clogged. • Poor quality fuel, dust or water enters the fuel system. • Incorrect choke or throttle control adjustment. • The wire is loose and the flameout end of the ignition module is grounded. • The engine oil level is low. • Leakage in the system. • Carburetor failure. 	
The engine has difficulty starting.	<ul style="list-style-type: none"> • The double pump is faulty or the suction port is blocked. • Poor quality fuel, dust or water enters the fuel system. • The fuel pipe is clogged. • Loose or incorrect wiring. • Incorrect choke or throttle control adjustment. • The spark plug is faulty or the spark is too weak. • The engine is overheated and the air circulation is not smooth. • Leakage in the air intake system. 	
Engine runs but power is reduced	<ul style="list-style-type: none"> • Poor quality fuel, dust or water enters the fuel system. • The spark plug wire is loose. • The spark plug is faulty or fouled. • The flameout end of the ignition module is suddenly grounded. • The engine is overheated. • The exhaust system is leaking and the air inlet cannot suck fresh air. • The carburetor adjustment is incorrect. • The exhaust system is blocked or the back pressure is too high. 	
The engine cannot idle	<ul style="list-style-type: none"> • Dust or water has entered the fuel system. • Deteriorated and old fuel or grease accumulates in the carburetor. • Spark plug failure. • Insufficient fuel supply. • The minimum position of the throttle control lever is improperly set. • The throttle flexible shaft is faulty. • The idle fuel adjustment needle is improperly set. • The engine is overheated . • There is a problem with the cooling system or air circulation. 	
Engine overheating	<ul style="list-style-type: none"> • The air intake pipe, grass cover, heat sink or air guide cover is blocked. • The engine load is too large. • The crankcase oil level is low. • The oil level in the crankcase is high. • Carburetor failure. • The fuel-air mixture is too lean. 	
Engine oil consumption is too high	<ul style="list-style-type: none"> • Incorrect oil viscosity or type. • The respirator is clogged, damaged or inoperative. • Piston rings are worn or damaged. 	

	<ul style="list-style-type: none"> • Cylinder wear. • The valve seat or valve guide is worn. • Too much oil is added to the crankcase. • The cylinder head gasket is damaged; overheating. 	
Engine oil leaks from oil seals and gaskets	<ul style="list-style-type: none"> • The respirator is clogged, damaged or inoperative. • Fasteners are tightened or installed incorrectly. • Piston leakage or valve leakage. • Poor exhaust. 	
The burning sound is sometimes unusual.	<ul style="list-style-type: none"> • Check the fuel injector. 	
The engine sound is abnormal.	<ul style="list-style-type: none"> • Check whether the fuel used meets the requirements. • Check for overheating. • Replace the silencer. • Adjust the valve clearance. 	

Electrical system

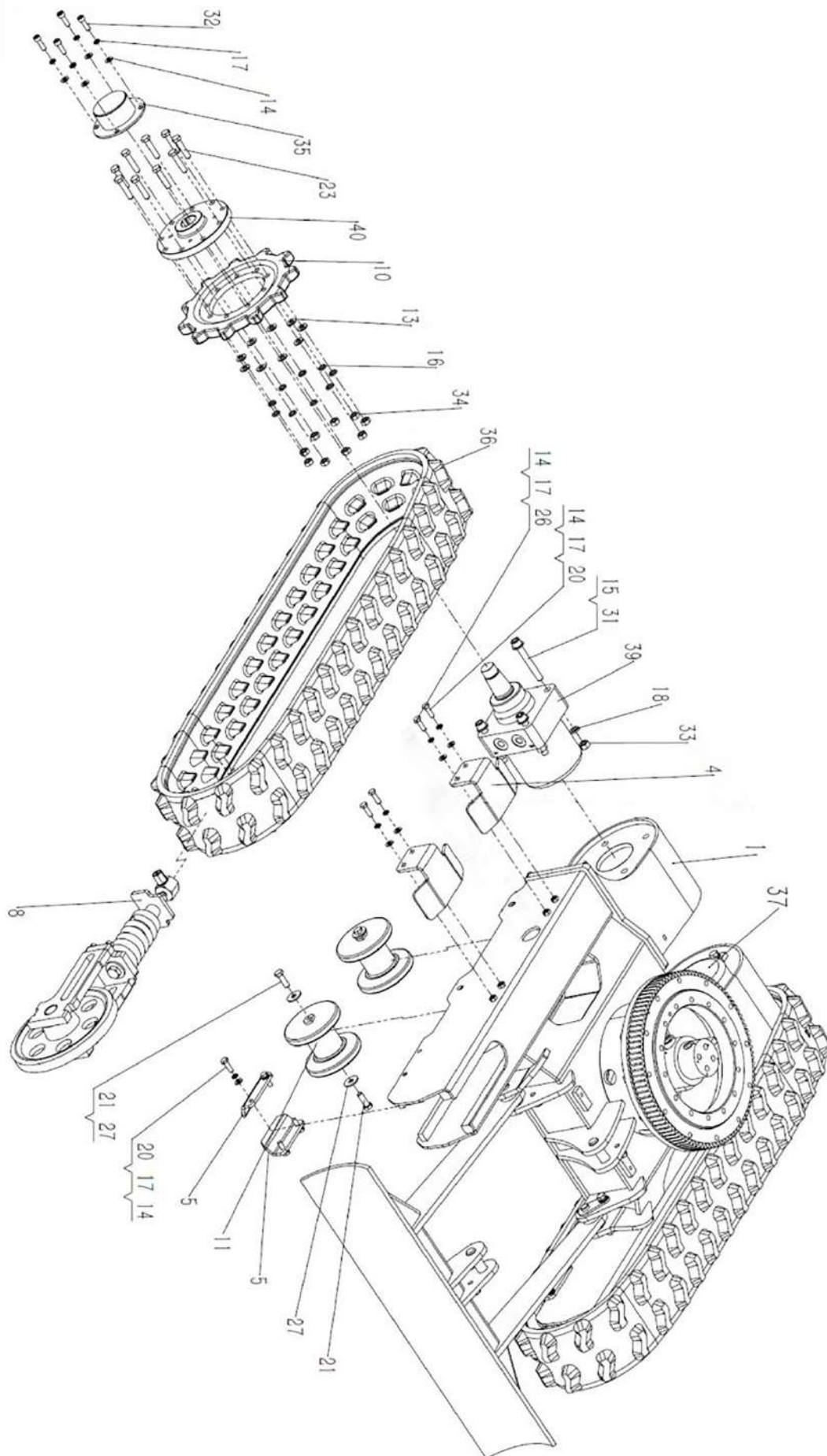
Fault	repair	Remark
The battery cannot be charged.	<ul style="list-style-type: none"> • Check the generator. • Check the wires. • Check the battery. 	
The generator makes unusual noises.	<ul style="list-style-type: none"> • Check the generator. 	
The starter motor does not rotate when the key switch is turned to the "Start" position.	<ul style="list-style-type: none"> • Inspect and repair relevant wires. • Charge the battery. • Check the starter motor. • Check the safety breaker. 	
The starter motor gear is not functioning properly.	<ul style="list-style-type: none"> • Charge the battery. • Check the safety relay. 	
The starter motor doesn't start the engine easily.	<ul style="list-style-type: none"> • Charge the battery. • Check the starter motor. 	
The starter motor is released before starting the engine.	<ul style="list-style-type: none"> • Inspect and repair relevant wires. • Charge the battery. 	

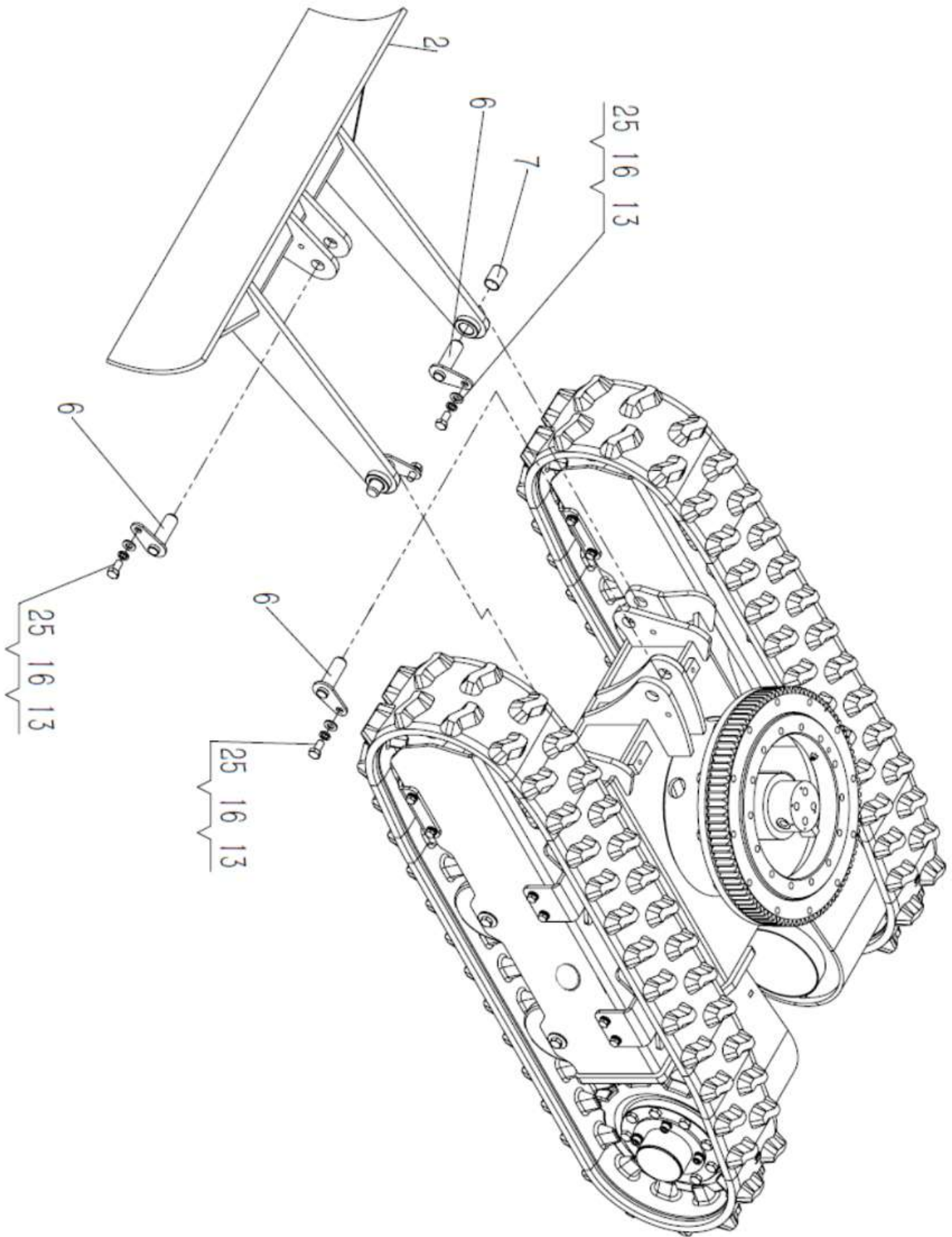
Others

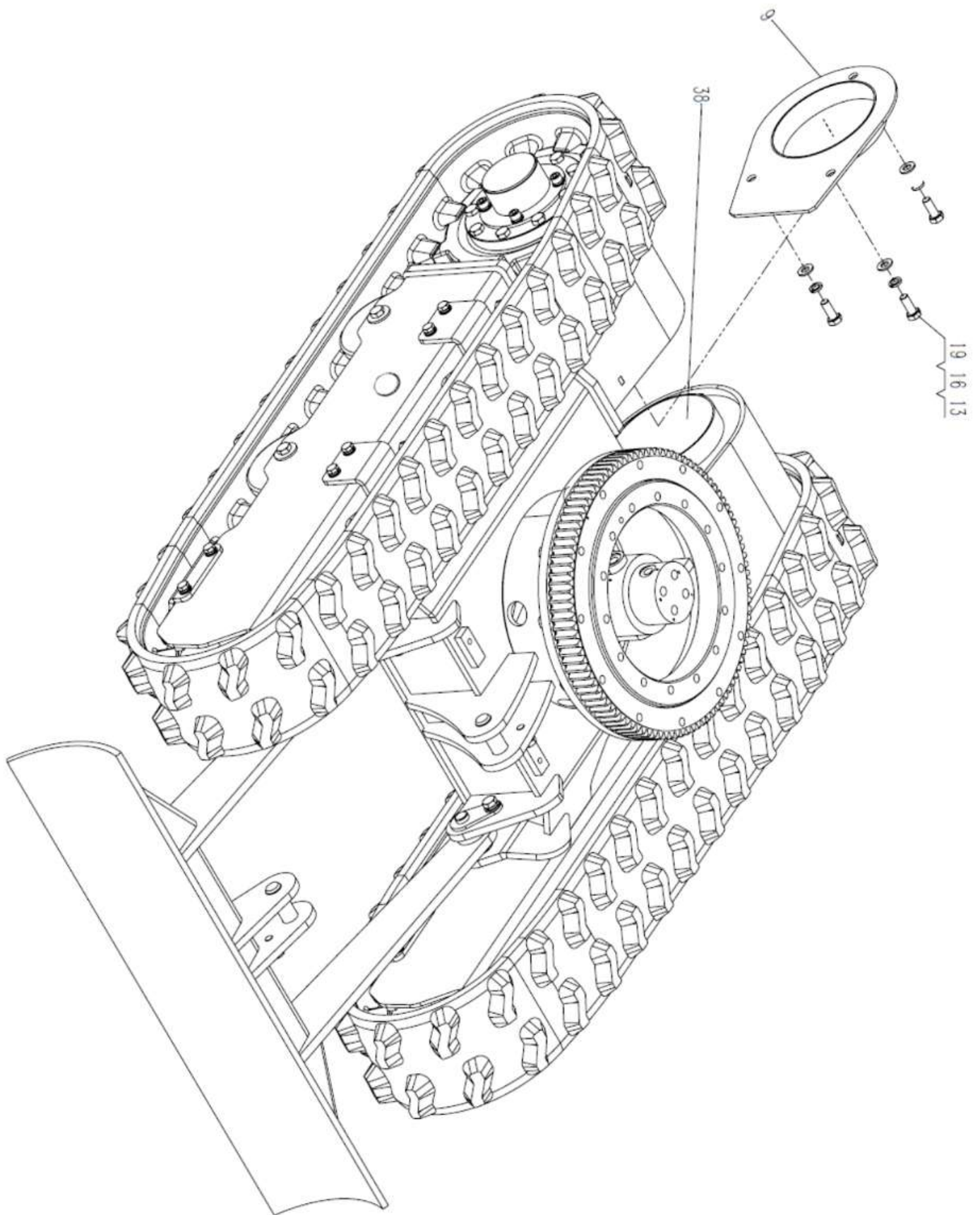
Fault	repair	Remark
Excessive wear on the drive wheels. The track tension is not enough.	<ul style="list-style-type: none"> • Adjust track tension. 	
The bucket rises slowly or does not move.	<ul style="list-style-type: none"> • Add hydraulic oil to the specified position. 	
Walking, rotating, boom, dipper stick and The bucket moves slowly.	<ul style="list-style-type: none"> • Add hydraulic oil to the specified position. 	
Unusual sounds are coming from the pump.	<ul style="list-style-type: none"> • Clean the hydraulic oil tank filter. • Check the oil suction line. 	
Unable to dig	<ul style="list-style-type: none"> • Check the accelerator control structure and adjust the accelerator opening to the maximum. • Check the system pressure and adjust the relief pressure of the multi-way valve. • Check the engine. • Check the shovel teeth. • Check the internal leakage of the oil cylinder. 	

Parts List

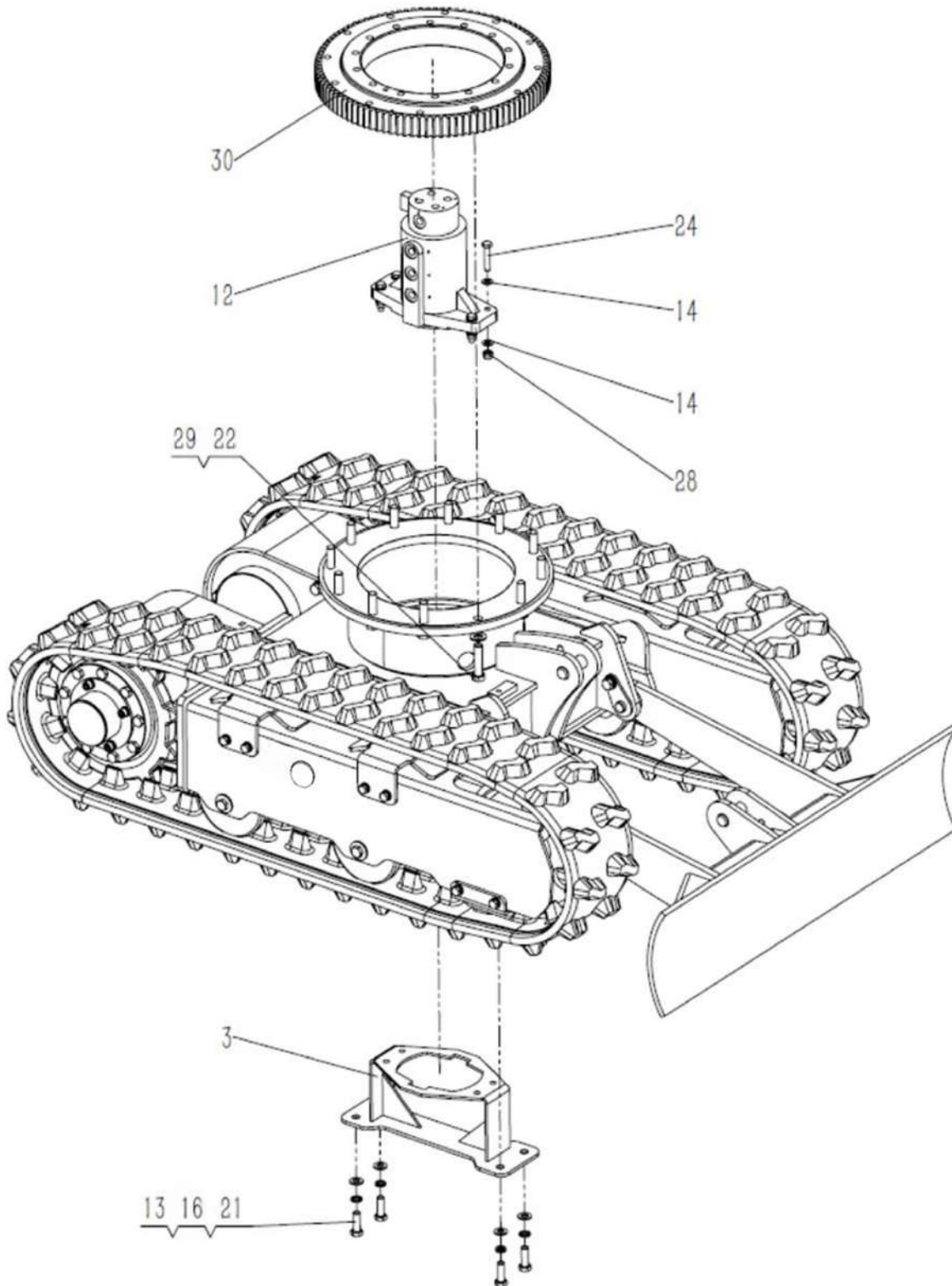
A01 Lower Frame Assembly







A01 Lower Frame Assembly

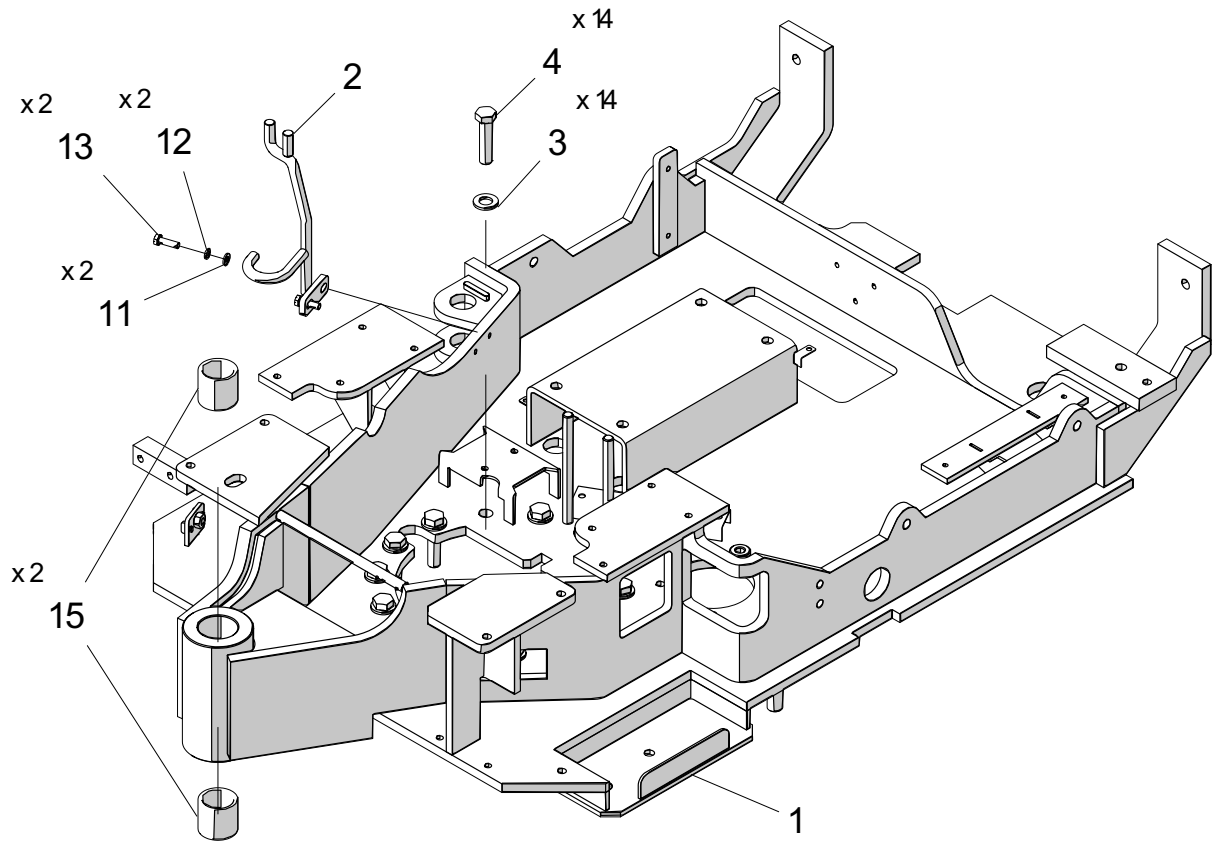


Part No.	Ref.	Part Description	QTY
A1	ZH065.1.1A	Off-Car Welding Parts	1
A2	ZH07.1.2A	Bulldozer Blade Welding Parts	1
A3	ZH07.1.3	Central Swivel Joint Mounting Plate Welding Parts	1
A4	ZH07.1.5	Support Plate	4
A5	ZH07.1.6	Track Guards	4

A01 Lower Frame Assembly

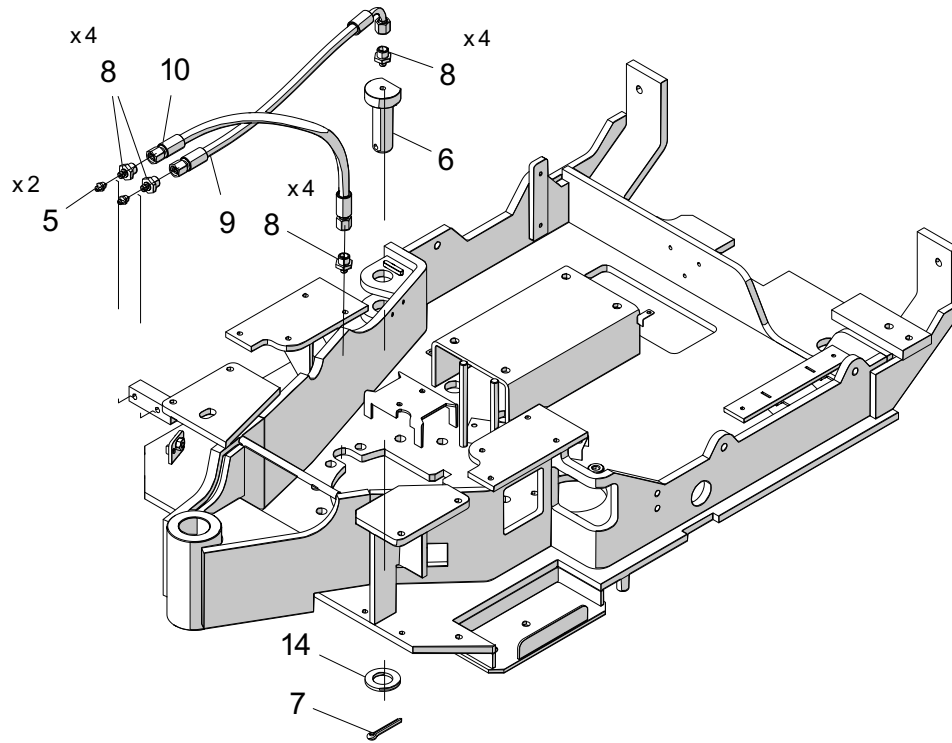
Part No.	Ref.	Part Description	QTY
A6	ZH065.1.7	Dozer Blade Connecting Pin Welding Parts	4
A7	SF-2X2030	Boundary Lubricated Bearings 2030	2
A8	YQC06-010200	Guide Wheel And Tensioning Device (Right)	1
A9	ZH065.1.11	Right Motor Guard Welding	1
A10	YQZH06-010001A	Driving Wheel	2
A11	YQC06-0103000	Support Wheel Assembly	4
A12	RSZH8Z6L-A00	Central Swivel Joint	1
A13	GB/T 97.1	Washer 10	32
A14	GB/T 97.1	Washer 8	36
A15	GB/T 97.1	Washer 12	8
A16	GB/T 93	Washer 10	32
A17	GB/T 93	Washer 8	28
A18	GB/T 93	Washer 12	8
A19	GB/T 5783	Bolt M10*25	6
A20	GB/T 5783	Bolt M8*25	16
A21	GB/T 5783	Bolt M10*30	12
A22	GB/T 5783	Bolt M12*50-10.9	12
A23	GB/T 5783	Bolt M10*45	18
A24	GB/T 5783	Bolt M8*40	4
A25	GB/T 5783	Bolt M10*20	4
A26	GB/T 5783	Bolt M8*16	4
A27	GB/T 96	Washer 10	8
A28	GB/T 889.1	Nut M8	4
A29	GB/T 1230	Washer 12	12
A30	011.16.276.001-00	Support Assembly	1
A31	GB/T 70.1	Screw M12*90	8
A32	GB/T 70.1	Screw M8*25	8
A33	GB/T 6170	Nut M12	8
A34	GB/T 6170	Nut M10	18
A35	ZH07.1.9	Walking Motor Guard Welding Parts	2
A36	150*72*33ME	Rubber Tracks	2
A37	MCDL252_606AG088A	Travel Motor	1
A38	ZH065.1.10	Left Motor Guard Welding	1
A39	MCDL252_636AG103A	Travel Motor	1
A40	ZH065.1-8A	Drive Wheel Mounting	2

B01 Upper Frame Components



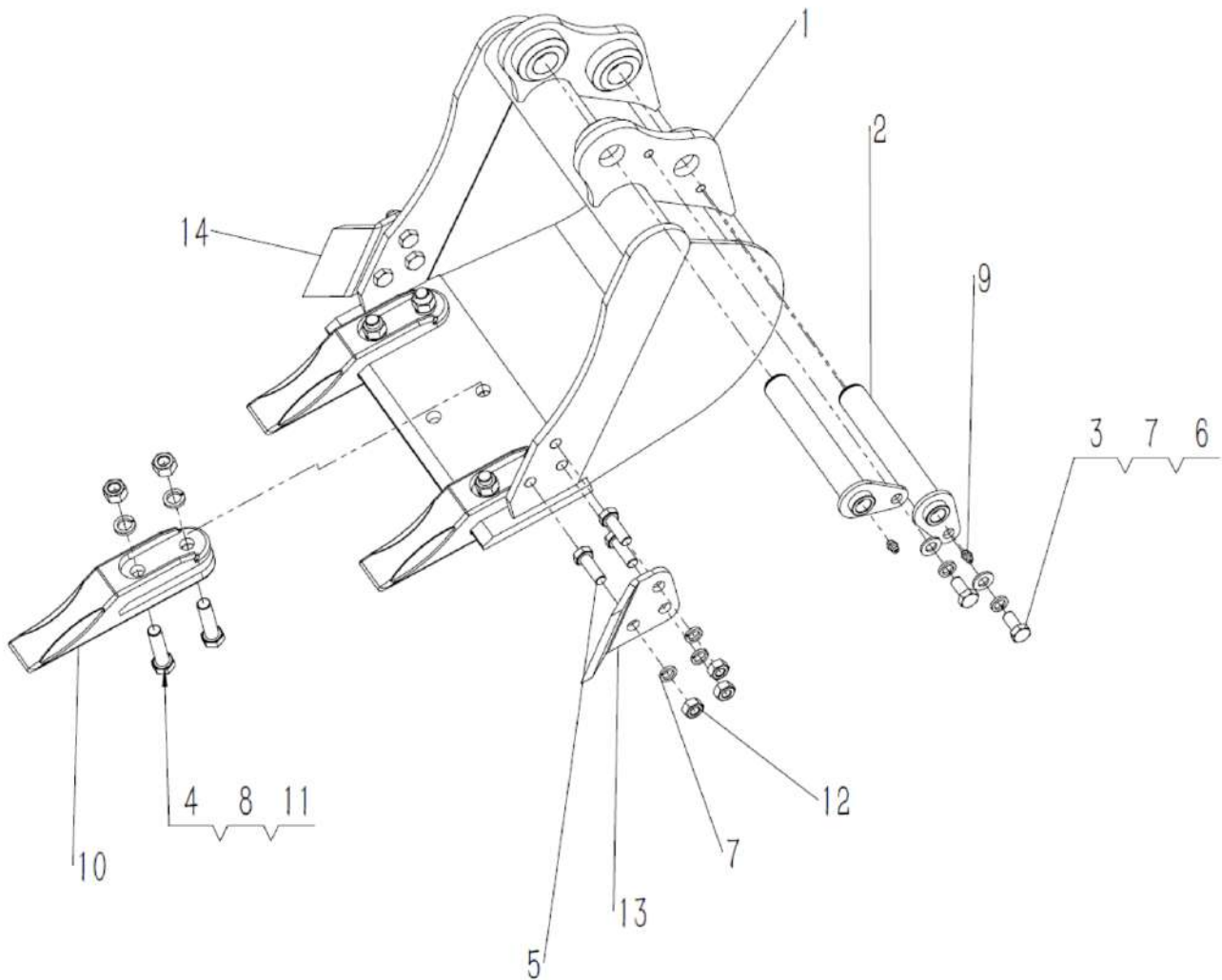
Part No.	Ref.	Part Description	QTY
B1	ZH065.2.1	Car Welding Parts	1
B2	ZH07.2.2	Support Plate Welding Parts	1
B3	B-G012300-12	Washer 12	14
B4	B-G057830-12*50A	Bolt M12*50-10.9	14
B11	B-G00097A-6	Washer 6	2
B12	B-G000930-6	Washer 6	2
B13	B-G057830-6*20	Bolt M6*20	2
B15	W-06-JDB-1-3035	Solid Lubricated Bearing JDB-1-38*30*35	2

B01 Upper Frame Components

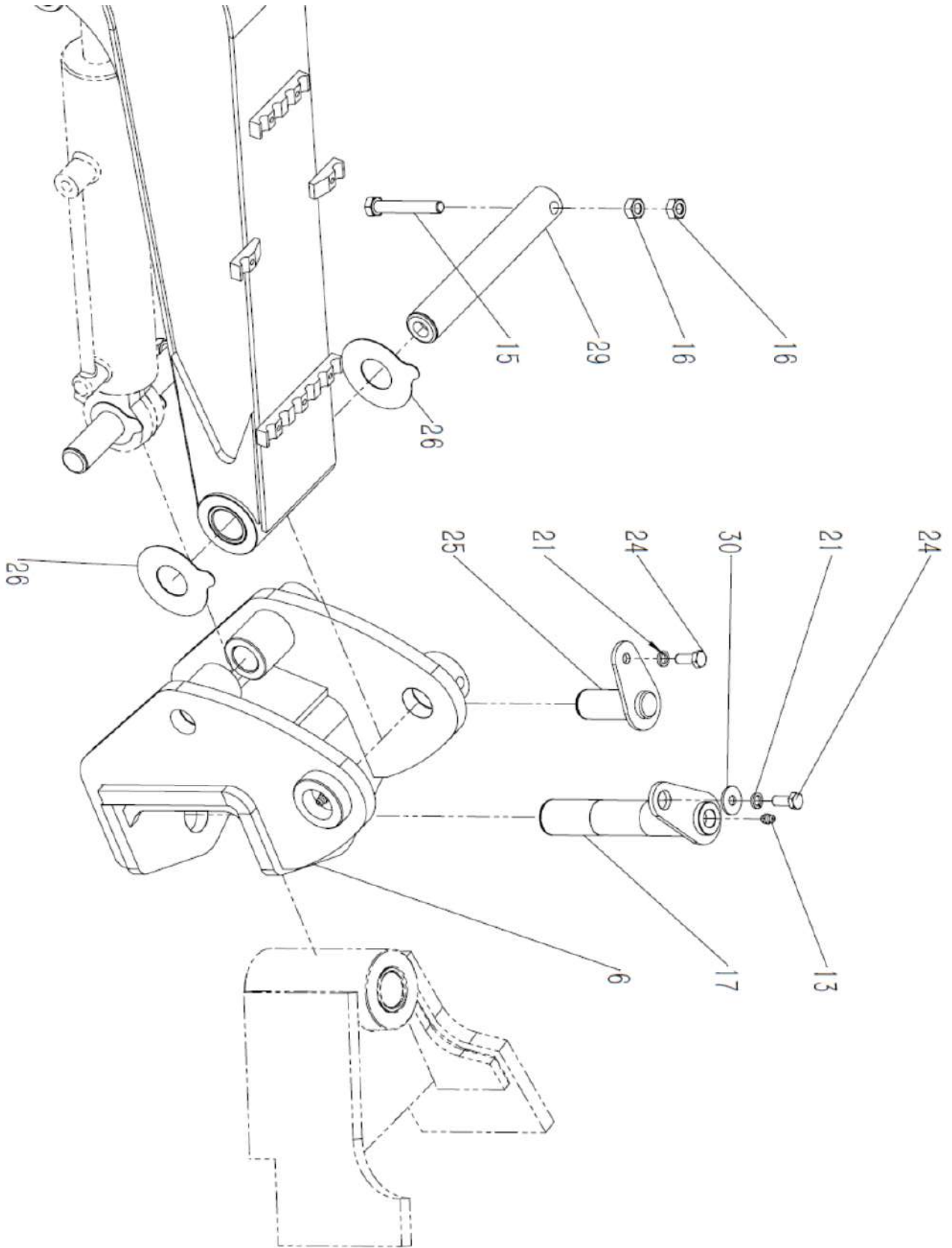


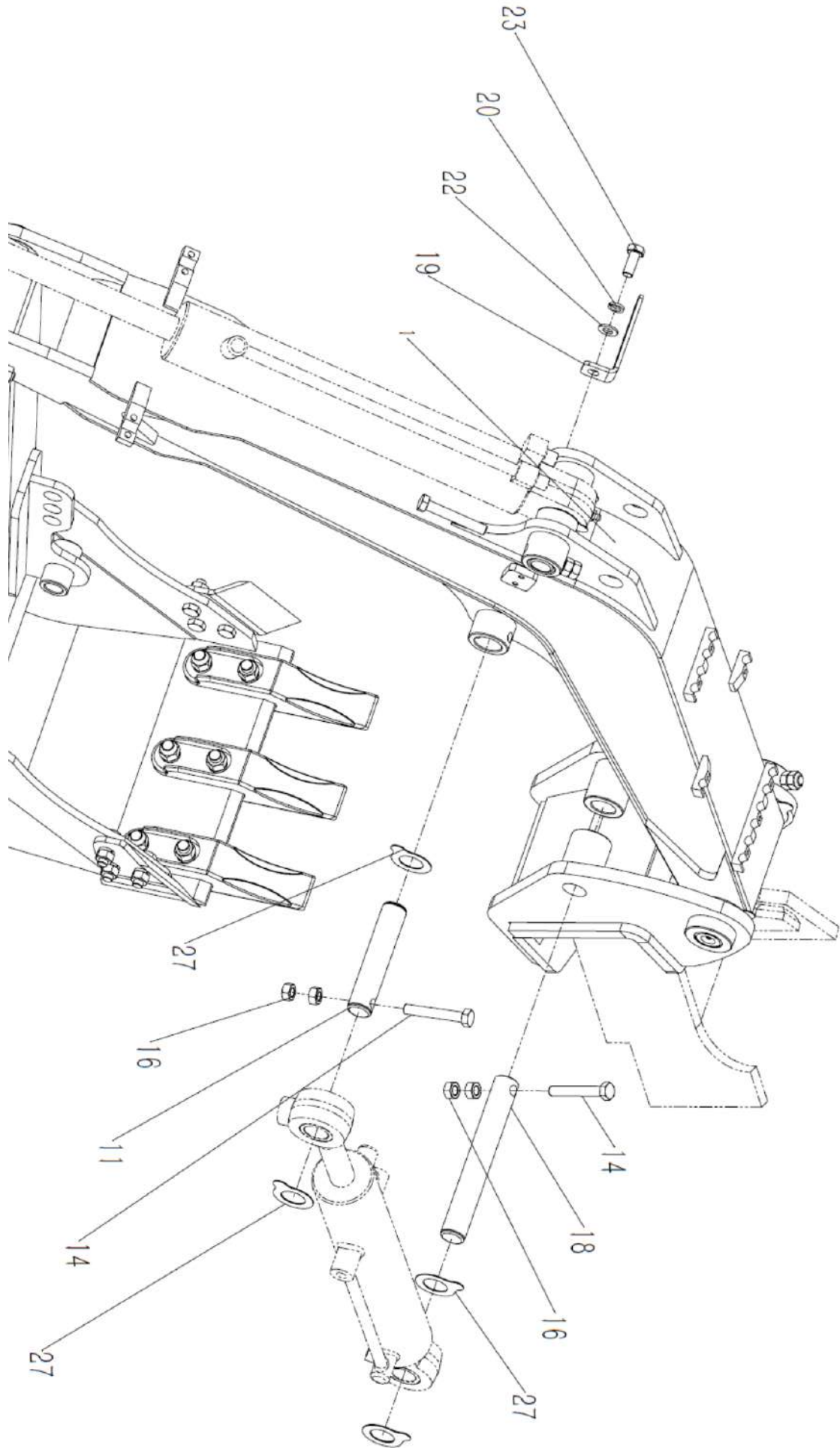
Part No.	Ref.	Part Description	QTY
B5	B-J07940A-08*1	Oil Cup M8*1	2
B6	ZH07.2-4	Deflection Oil Pipe Tail Pin	1
B7	B-G000910-6.3*40	Cotter Pin 6.3×40	1
B8	ZH07.2-5	Grease Pipe Joint M14*1.5-M8*1	4
B9	ZH07.2-6	Deflection Cylinder Butter Tube	1
B10	ZH07.2-7	Slewing Bearing Butter Tube	1
B14	B-G00097A-24	Washer 24	1

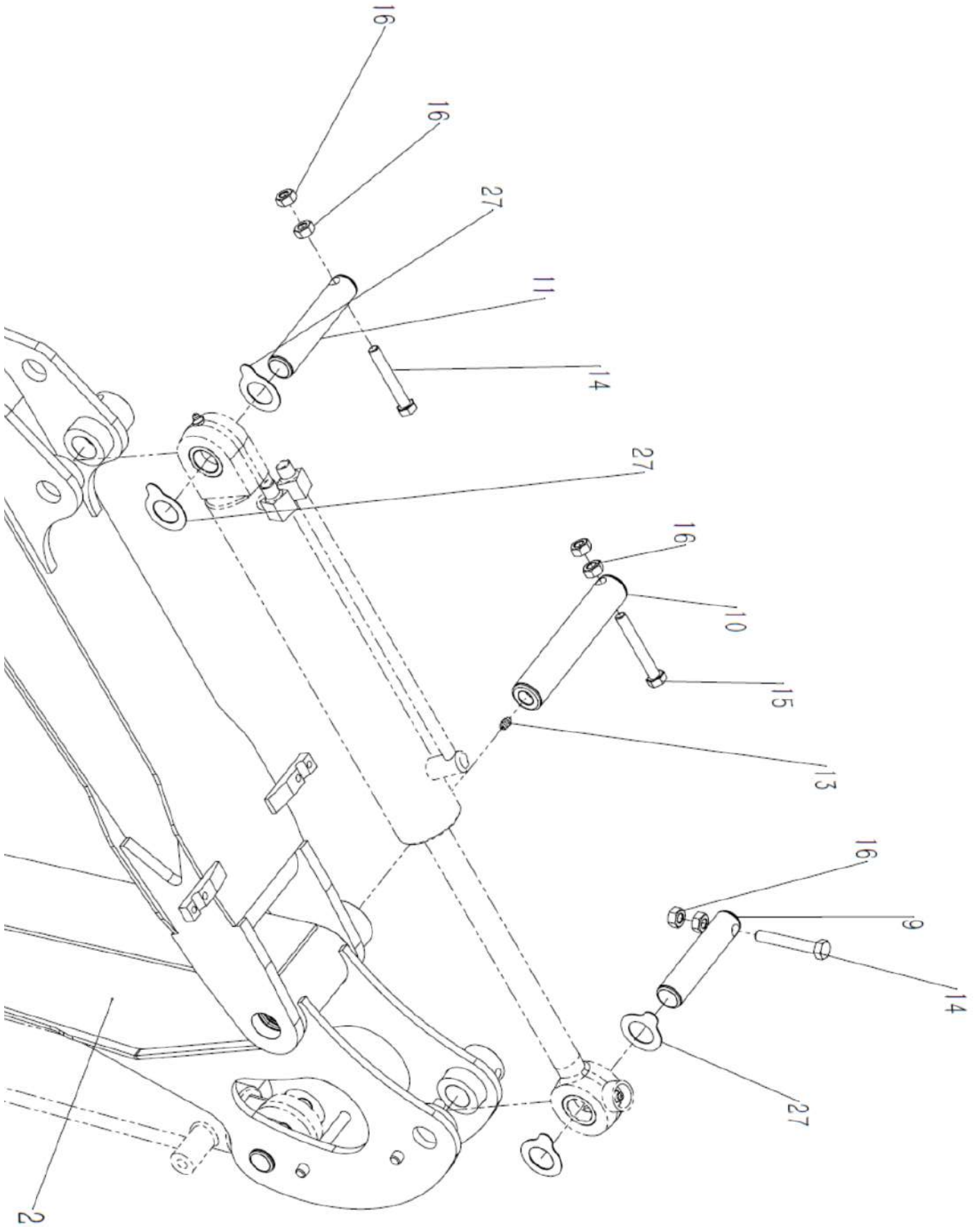
C01 Bucket Assembly

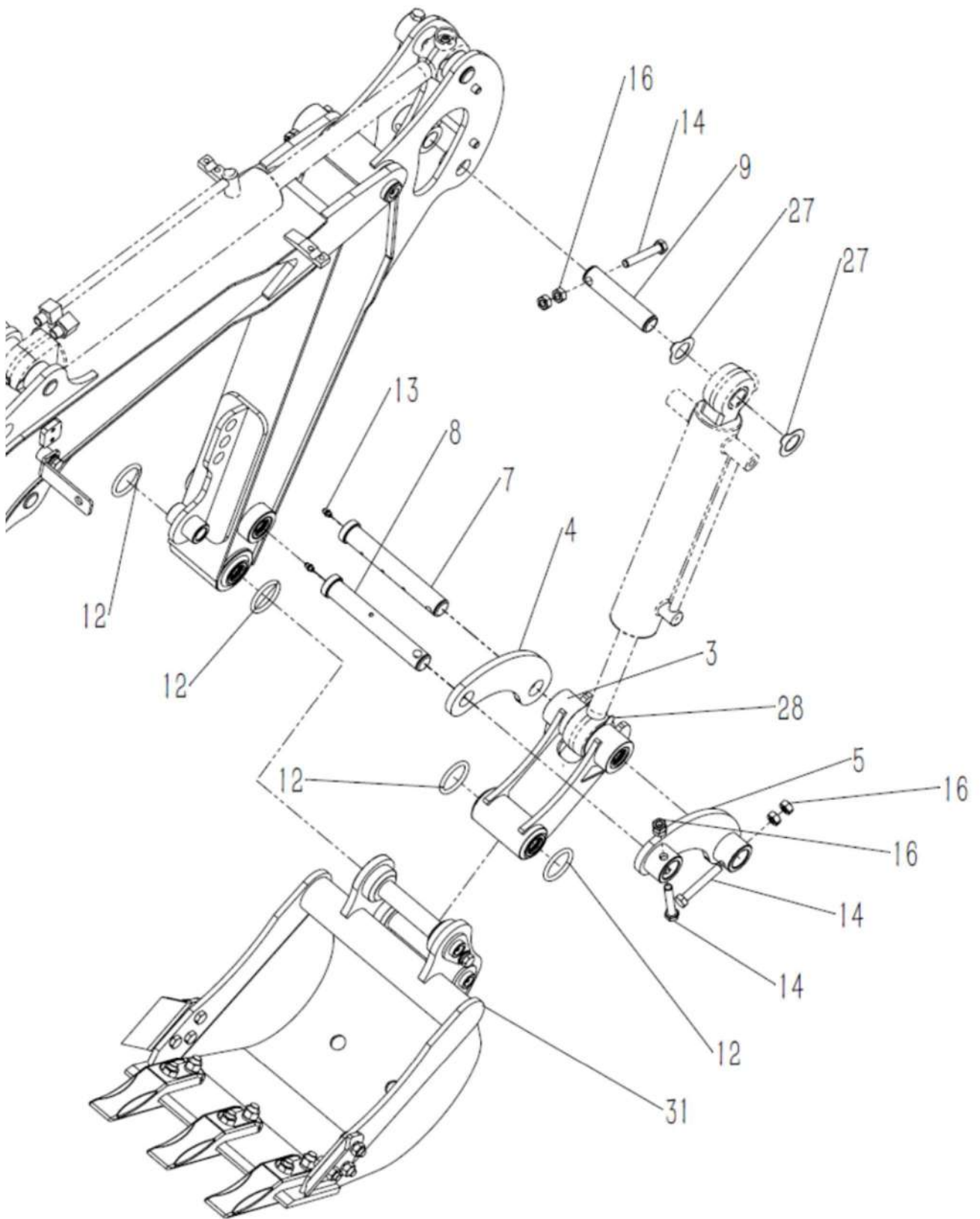


Part No.	Ref.	Part Description	QTY
C1	ZH065.3.1A	Bucket Welding Parts	1
C2	ZH07.4.6	Bucket Pin Welding Parts	2
C3	GB/T 5783	Bolt M10*20	2
C4	GB/T 5783	Bolt M12*45	6
C5	GB/T 5783	Bolt M10*30	6
C6	GB/T 97.1	Washer 10	2
C7	GB/T 93	Washer 10	8
C8	GB/T 93	Washer 12	6
C9	JB/T 7940.1	Oil Cup M6	2
C10	ZH07.3-4	Blade	3
C11	GB/T 6170	Nut M12	6
C12	GB/T 6170	Nut M10	6
C13	ZH07.3-2	Teeth On The Right Side Of The Bucket	1
C14	ZH07.3.3	Teeth On The Left Side Of The Bucket	1





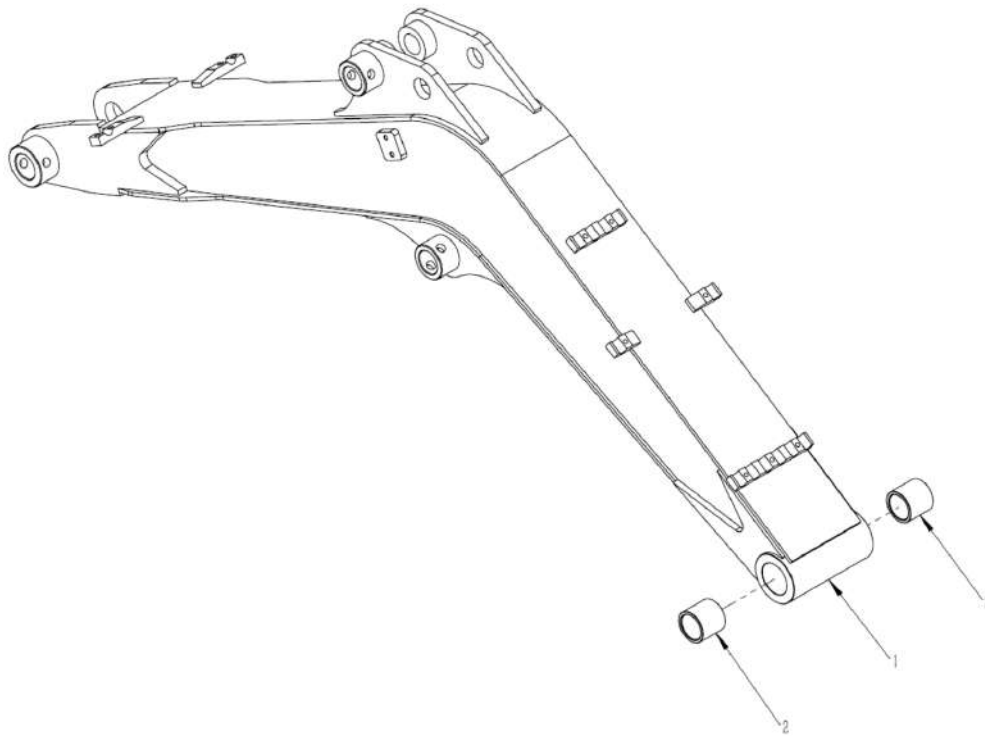




D01 Working Device

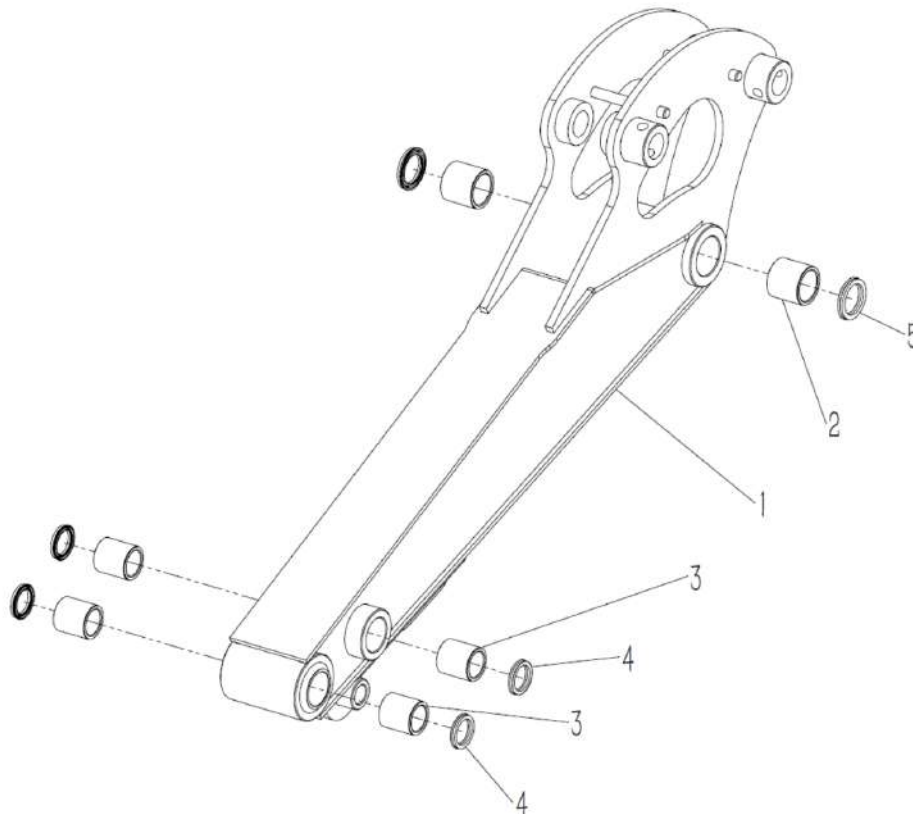
Part No.	Ref.	Part Description	QTY
D1	ZH065.4.1	Boom Weldment Components	1
D2	ZH065.4.2	Stick Components	1
D3	ZH065.4.3	Connecting Rod Assembly	1
D4	ZH07.4-4	Rocker Arm Connecting Plate	1
D5	ZH07.4.5	Rocker Arm Welding Parts 2	1
D6	ZH065.4.6	Yaw Joint Welding Parts	1
D7	ZH065.4-7	Rocker Arm Connecting Rod Pin	1
D8	ZH065.4-8	Rocker Arm Stick Pin	1
D9	ZH065.4-9	Bucket Cylinder Bottom Pin	2
D10	ZH065.4-10	Boom Stick Pin	1
D11	ZH07.4-11	Stick Cylinder Bottom Pin	2
D12	GB/T3452.1	O- Ring $\Phi 40 \times 5.3$	4
D13	JB/T 7940.1	Oil Cup M6	5
D14	GB/T 5782	Bolt M10*65	7
D15	GB/T 5782	Bolt M10*70	2
D16	GB/T 6170	Nut M10	18
D17	ZH065.4.18	Welding Parts Between Upper Carriage And Yaw Pin	1
D18	ZH065.4-19	Joint And Boom Cylinder Pin	1
D19	ZH065.4-20	Light Connection Board	1
D20	GB/T 93	Washer 10	1
D21	GB/T 93	Washer 8	2
D22	GB/T 97.1	Washer 10	1
D23	GB/T 5783	Bolt M10*25	1
D24	GB/T 5783	Bolt M8*20	2
D25	ZH065.4.21	Swing Cylinder Pin Welding Parts	1
D26	ZH07.4-22	Adjustment Shim 01	2
D27	ZH07.4-24	Adjustment Shim 03	10
D28	ZH07.4-25	Adjustment Shim 04	2
D29	ZH065.4-26	Joint Boom Pin	1
D30	GB/T 96	Washer 8	1
D31	ZH065.3A	Bucket Components	1

D02 Working Device - Boom Assembly



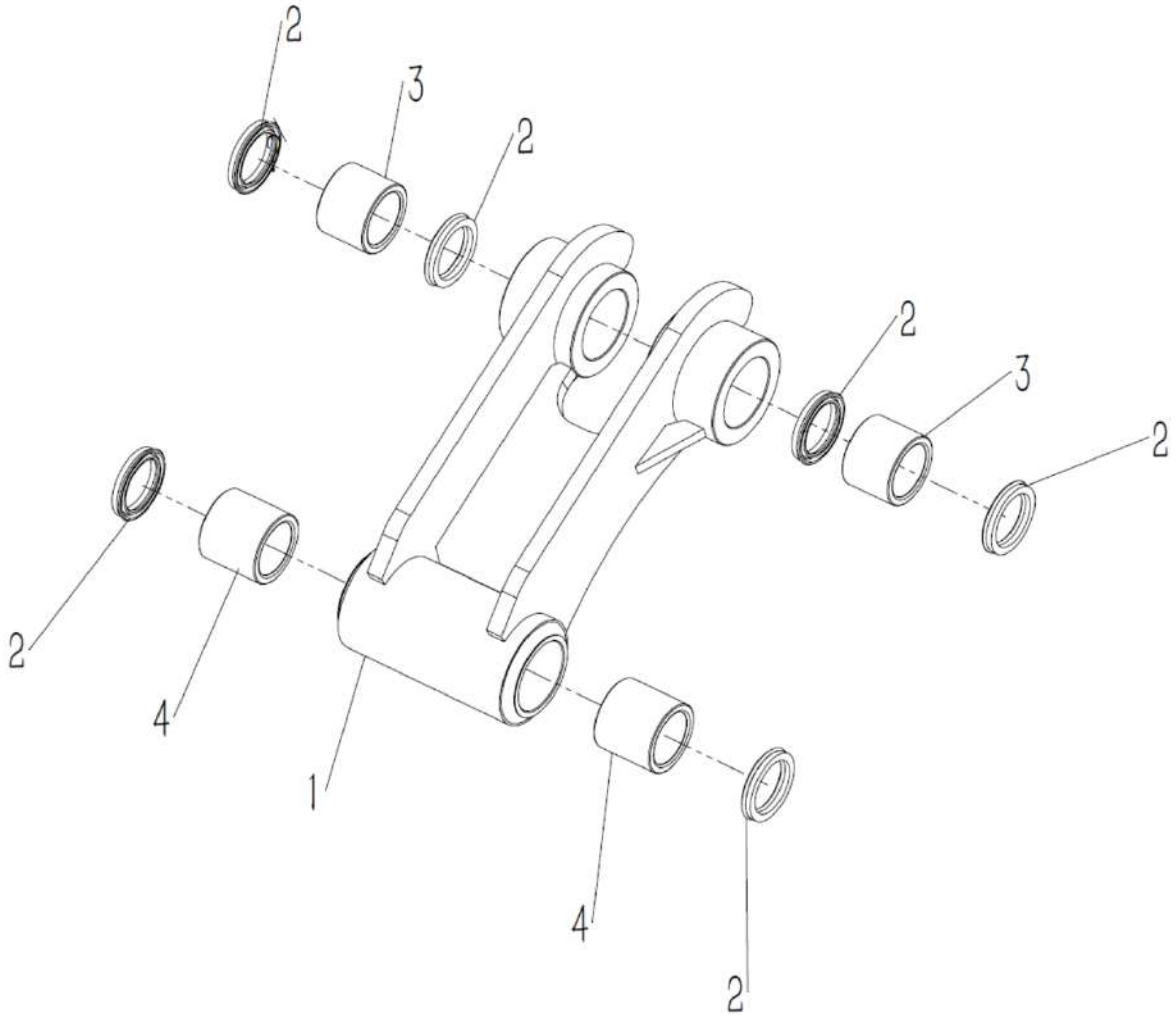
Part No.	Ref.	Part Description	QTY
D1	ZH065.4.1.1A	Boom Welding Parts	1
D2	JDB-1-3035	Solid Lubricated Bearing JDB-1-38*30*35	2

D03 Working Device – Dipper Stick Assembly



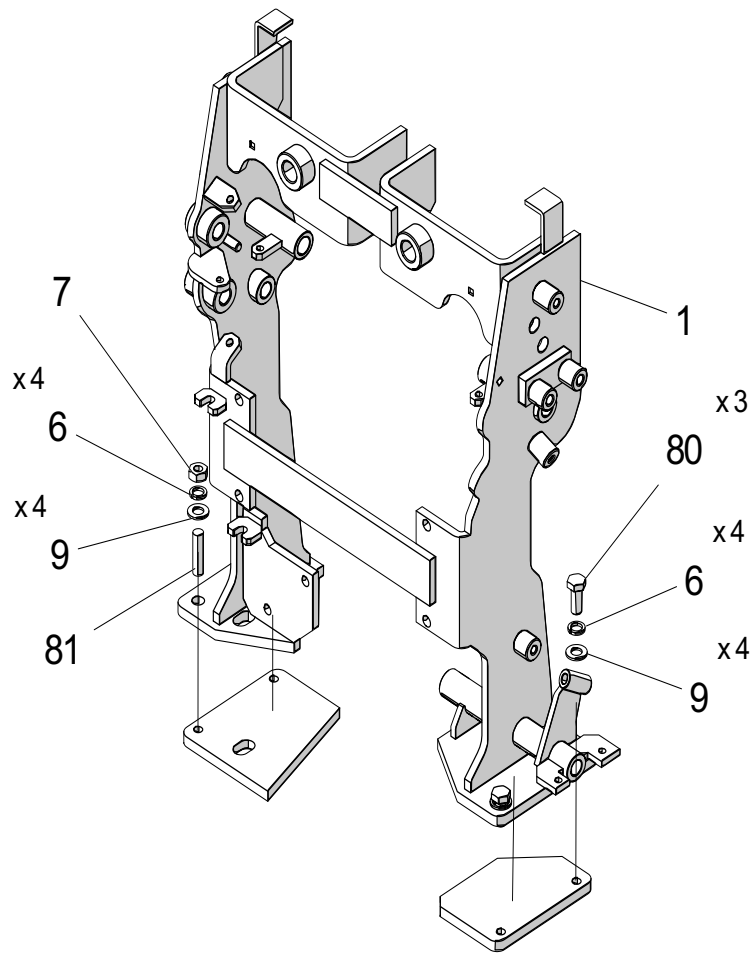
Part No.	Ref.	Part Description	QTY
D1	ZH065.4.2.2A	Stick Welding Parts	1
D2	JDB-1-3035	Solid Lubricated Bearing JDB-1-38*30*35	2
D3	JDB-1-2535	Solid Lubricated Bearing JDB-1-33*25*35	4
D4	GB/T 10708.1	Y- Shaped Sealing Ring 25*33*5	4
D5	GB/T 10708.1	Y- Shaped Sealing Ring 30*40*6	2

D04 Working Device - Connecting Rod Assembly



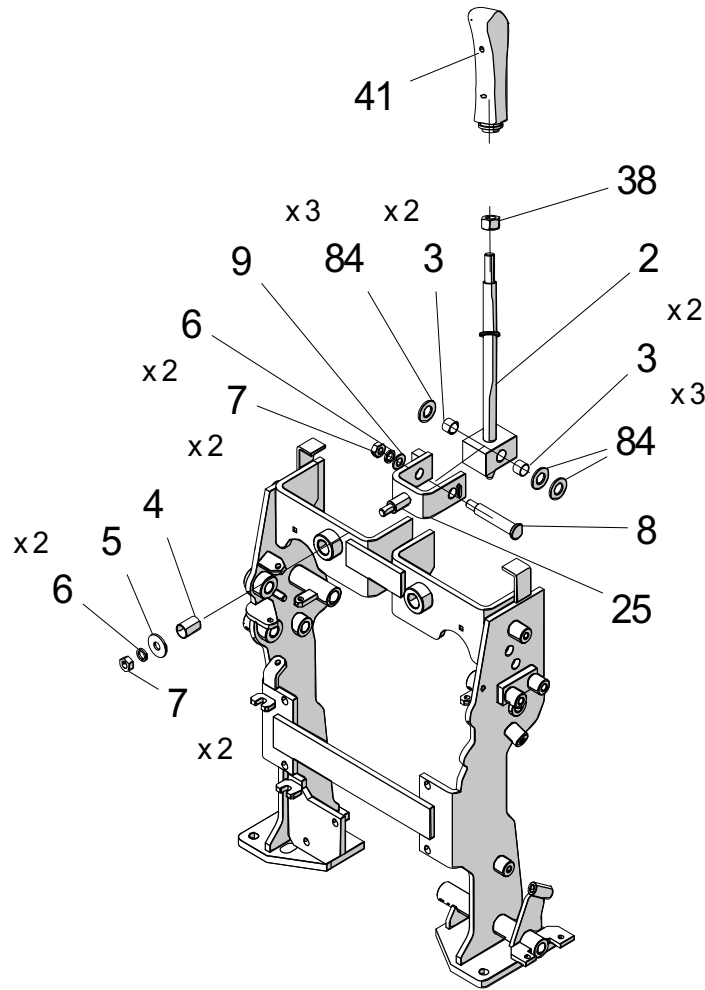
Part No.	Ref.	Part Description	QTY
D1	ZH065.4.3.1	Connecting Rod Welding Parts	1
D2	GB/T 10708.1	Y- Shaped Sealing Ring 25*33*5	6
D3	JDB-1-2525	Solid Lubricated Bearing JDB-1-33*25*25	2
D4	JDB-1-2530	Solid Lubricated Bearing JDB-1-33*25*30	2

E01 Control Device Welding Parts



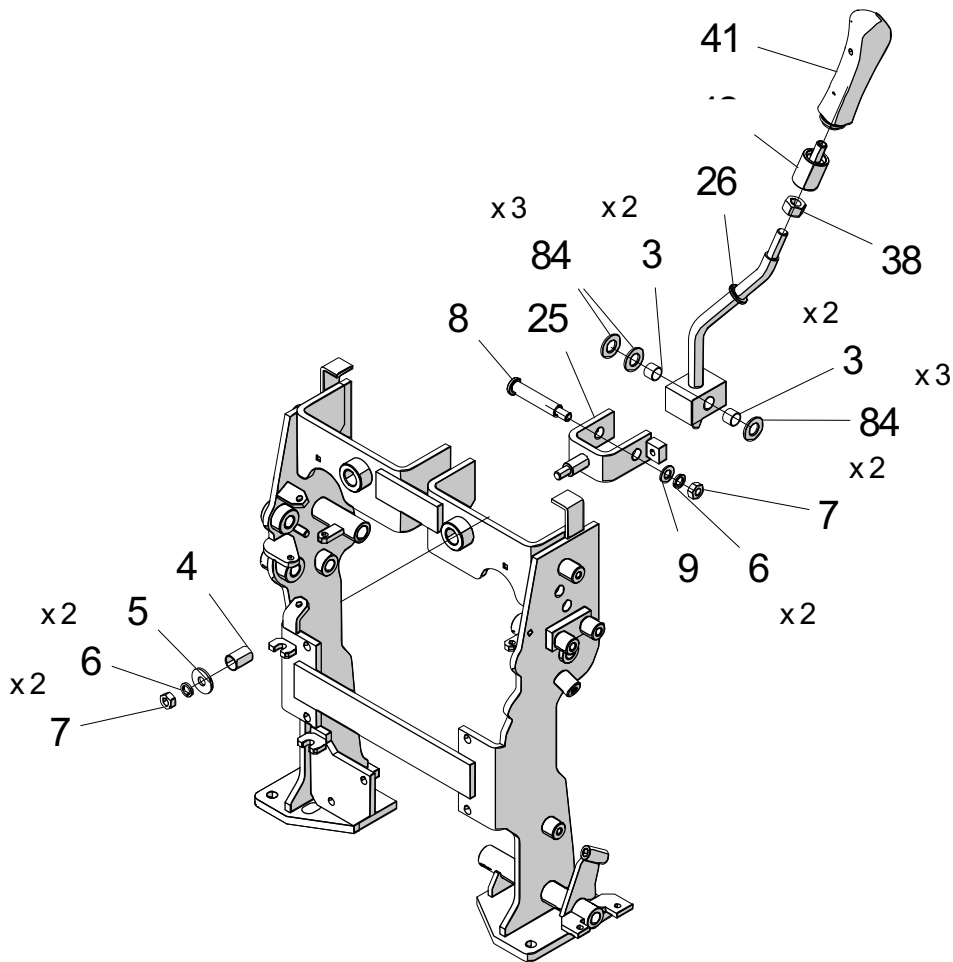
Part No.	Ref.	Part Description	QTY
E1	ZH07.5.1	Support Frame Welding Parts	1
E6	B-G000930-10	Washer 10	12
E7	B-G061700-10	Nut M10	5
E9	B-G00097A-10	Washer 10	10
E80	B-G057830-10*25	Bolt M10*25	3
E81	B-G009010-10*40	Stud M10*40	1

E02 Right Joystick Welding Part



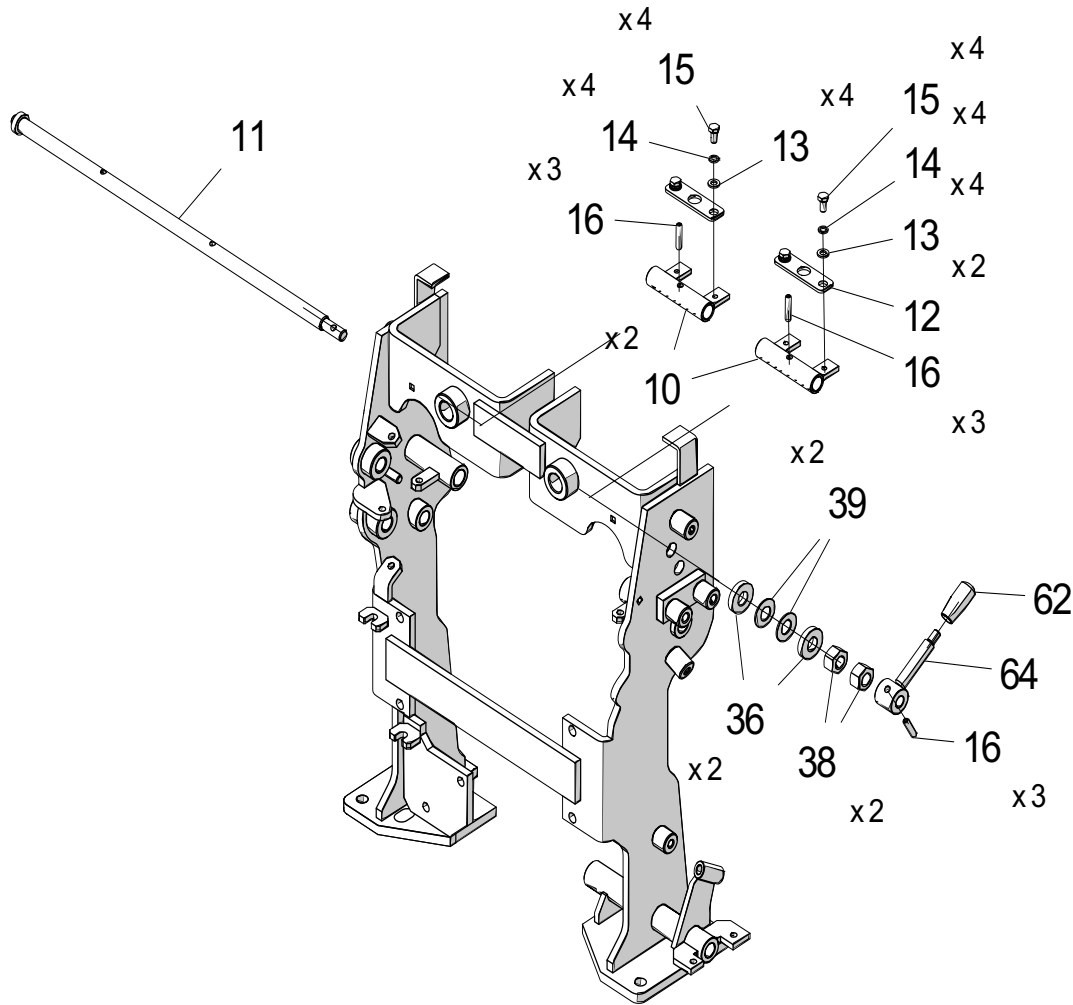
Part No.	Ref.	Part Description	QTY
E2	ZH07.5.2	Right Joystick Welding Part	1
E3	W-06-SF-2-1412	Bearing 1412	16
E4	W-06-SF-2-1625	Bearing 1625	1
E5	B-G000960-10	Washer 10	2
E6	B-G000930-10	Washer 10	12
E7	B-G061700-10	Nut M10	5
E8	ZH07.5-3	Front And Rear Control Pins	2
E9	B-G00097A-10	Washer 10	10
E25	ZH07.5.10	Manipulation Of Rotating Welded Parts	2
E38	B-G061700-14	Nut M14	9
E41	ZH07.5-24	Control Handle Glue	2
E84	B-G00097A-14	Washer 14	6

E03 Left Joystick Welding Part

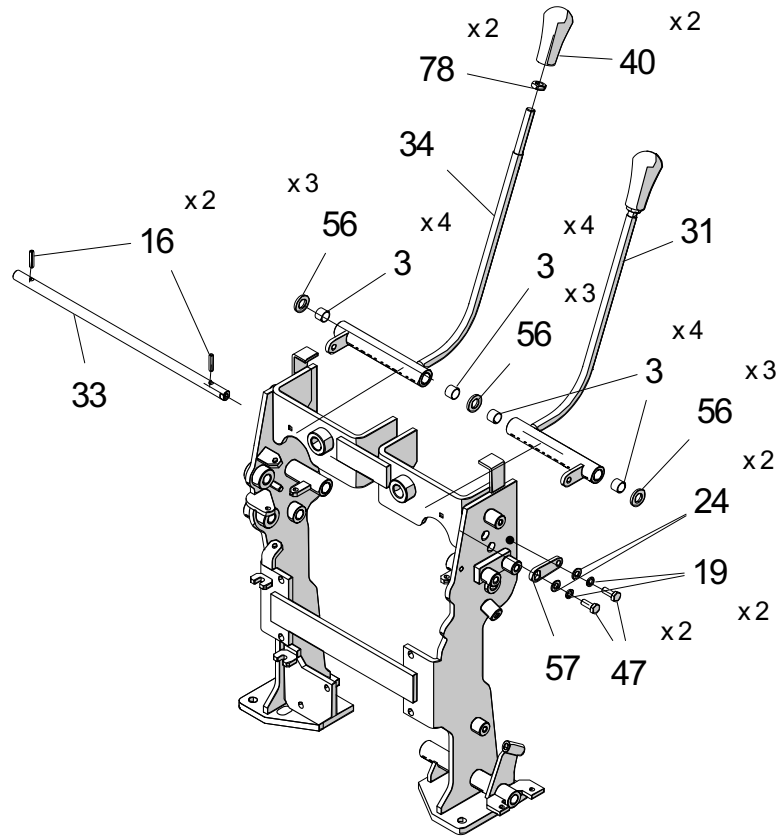


Part No.	Ref.	Part Description	QTY
E3	W-06-SF-2-1412	Bearing 1412	16
E4	W-06-SF-2-1625	Bearing 1625	1
E5	B-G000960-10	Washer 10	2
E6	B-G000930-10	Washer 10	12
E7	B-G061700-10	Nut M10	5
E8	ZH07.5-3	Front And Rear Control Pins	2
E9	B-G00097A-10	Washer 10	10
E25	ZH07.5.10	Manipulation Of Rotating Welded Parts	2
E26	ZH07.5.11	Left Joystick Welding Part	1
E38	B-G061700-14	Nut M14	9
E41	ZH07.5-24	Control Handle Glue	2
E84	B-G00097A-14	Washer 14	6

E04 Mechanical Locking Shaft Welding Parts

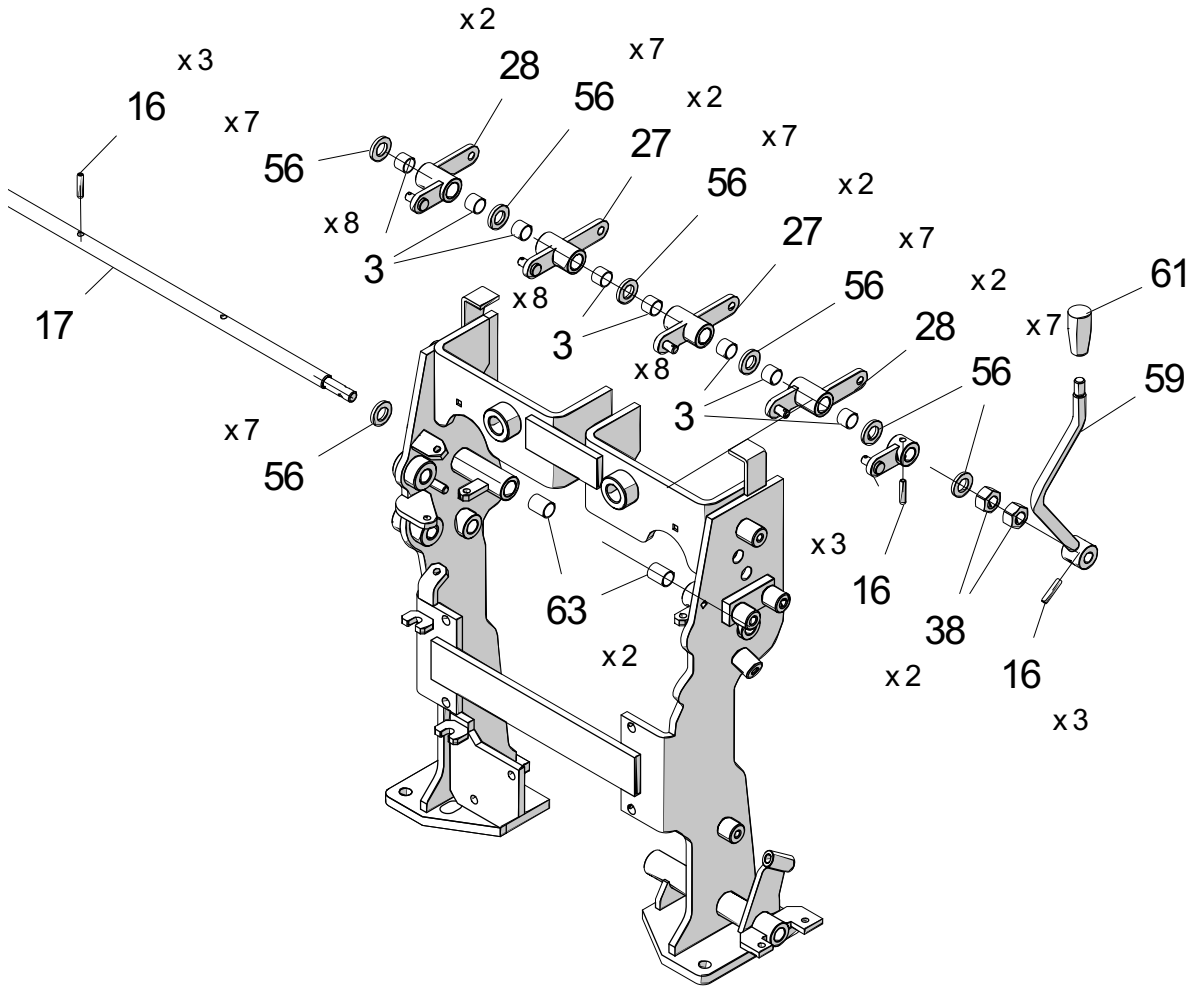


Part No.	Ref.	Part Description	QTY
E10	ZH07.5.4	Positioning Sleeve Welding Parts	2
E11	ZH07.5.5	Mechanical Locking Shaft Welding Parts	1
E12	ZH07.5-6	Mechanical Lock Plate	2
E13	B-G00097A-6	Washer 6	4
E14	B-G000930-6	Washer 6	4
E15	B-G057830-6*12	Bolt M6*12	4
E16	B-G00879B-6*26	Key 6*26	13
E36	ZH07.5-21	Throttle Washer	4
E38	B-G061700-14	Nut M14	9
E39	B-G019720-28	Disc Spring A28	6
E62	ZH07.5-40	Mechanical Lock Handle Handle Cover	1
E64	ZH07.5.41	Mechanical Lock Lever Welding Parts	1



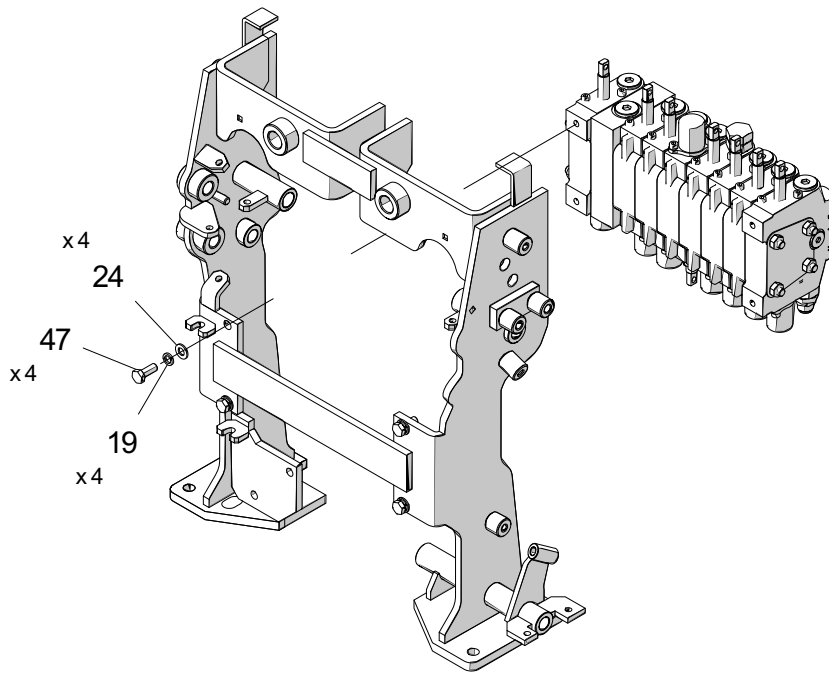
Part No.	Ref.	Part Description	QTY
E3	W-06-SF-2-1412	Bearing 1412	16
E16	B-G00879B-6*26	Key 6*26	13
E19	B-G000930-8	Washer 8	20
E24	B-G00097A-8	Washer 8	13
E31	ZH07.5.16	Left Traveling Connecting Sleeve Welding Parts	1
E33	ZH07.5-18	Travel Fixed Pin	1
E34	ZH07.5.19	Right Traveling Connecting Sleeve Welded Parts	1
E40	ZH07.5-23	Travel Joystick	2
E47	B-G057830-8*20	Bolt M8*20	9
E56	ZH07.5-35	Copper Washer	14
E57	ZH07.5-36	Walking End Fixing Plate	1
E78	B-G061720-12	Nut M12	2

E06 Traveling Connecting Sleeve Welded Parts



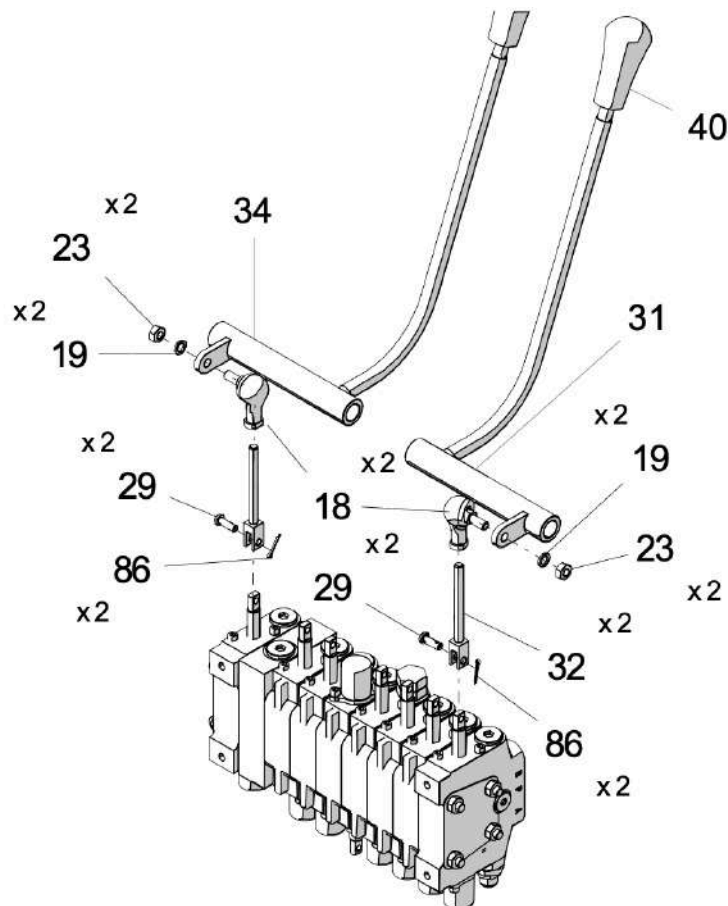
Part No.	Ref.	Part Description	QTY
E3	W-06-SF-2-1412	Bearing 1412	16
E16	B-G00879B-6*26	Key 6*26	13
E17	ZH07.5.7	Dozer Connecting Rod Shaft Welding Parts	1
E27	ZH07.5.12	Stick Connecting Sleeve Welding Parts	2
E28	ZH07.5.13	Rotary Connection Sleeve Welding Parts	2
E30	ZH07.5.15	Dozer Connecting Sleeve Welding Parts	1
E38	B-G061700-14	Nut M14	9
E56	ZH07.5-35	Copper Washer	14
E59	ZH07.5.37	Bulldozer Handle Welding Parts	1
E61	ZH07.5-39	Bulldozing Handle Handle Cover	3
E63	W-06-SF-2-1420	Bearing 1420	2

E07 Installation Of Multi-Way Valve



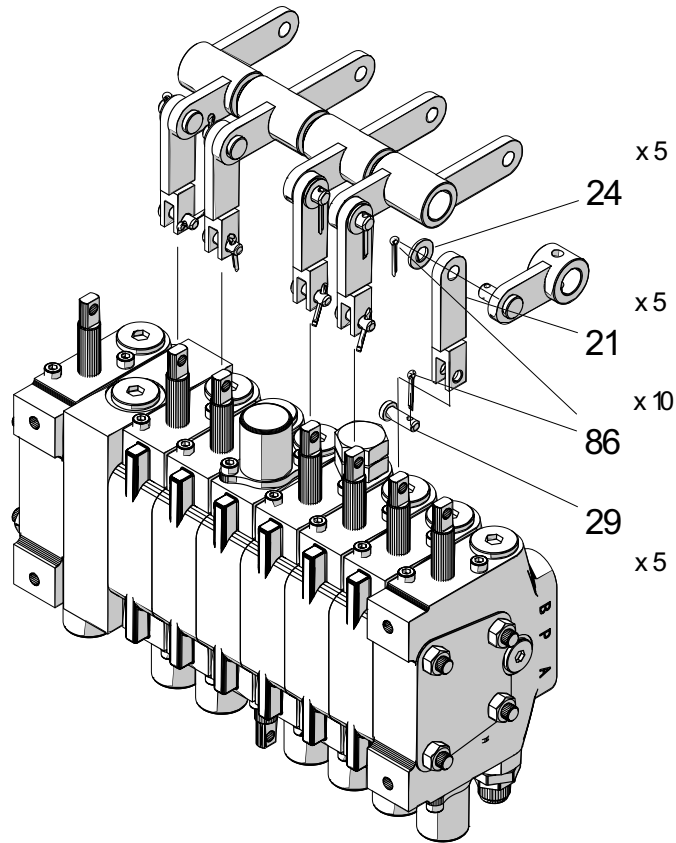
Part No.	Ref.	Part Description	QTY
E19	B-G000930-8	Washer 8	20
E24	B-G00097A-8	Washer 8	13
E47	B-G057830-8*20	Bolt M8*20	9

E08 Installation Multi-Way Valve

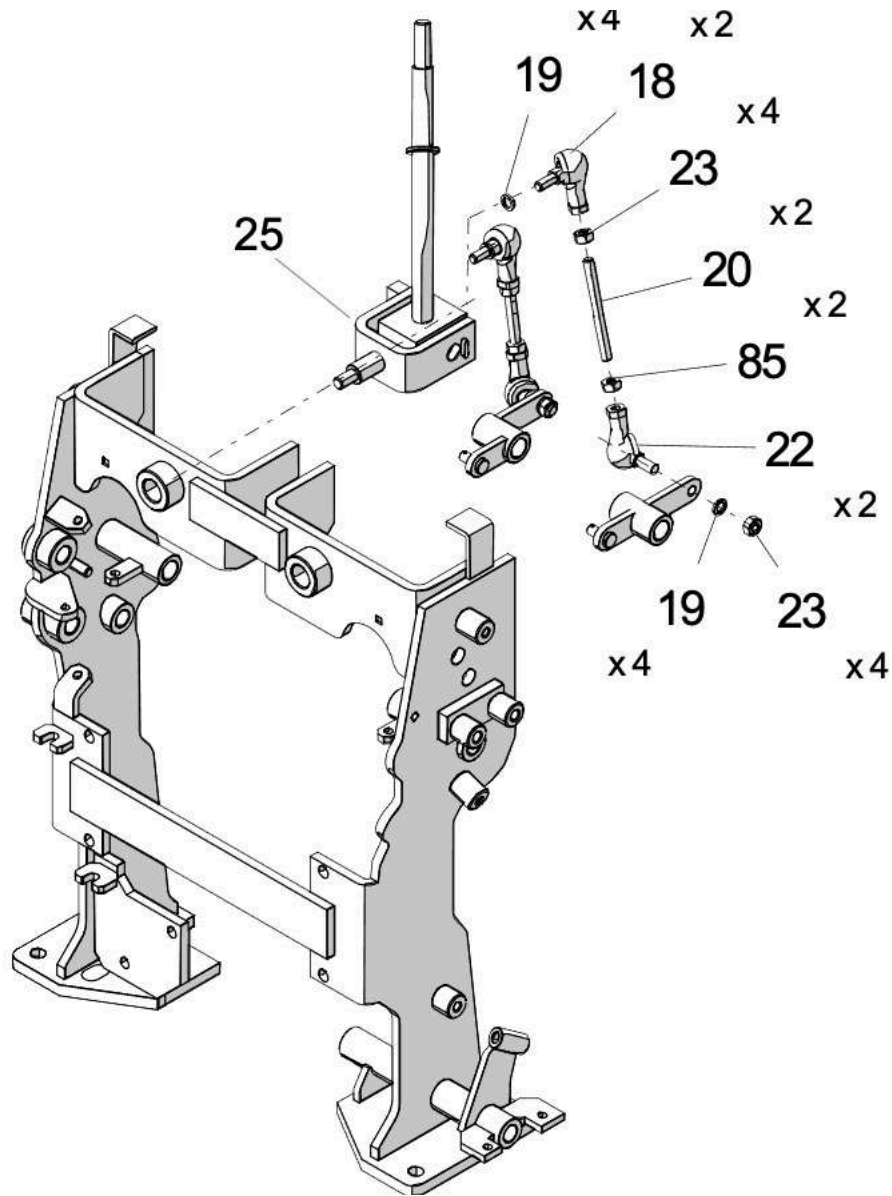


Part No.	Ref.	Part Description	QTY
E18	B-J05306R-SQ8C-RS	Spherical Bearing SQ8C-RS Right-Hand	7
E19	B-G000930-8	Washer 8	20
E23	B-G061700-8	Nut M8	21
E29	ZH07.5-14	Multi-Way Valve Connecting Pin	11
E31	ZH07.5.16	Left Traveling Connecting Sleeve Welding Parts	1
E32	ZH07.5.17	Welded Cross Forks	2
E34	ZH07.5.19	Right Traveling Connecting Sleeve Welded Parts	1
E40	ZH07.5-23	Travel Joystick	2
E86	B-G000910-2.5*16	Cotter Pin 2.5×16	17

E09 Installation And Control Of Cross Fork Welding Parts

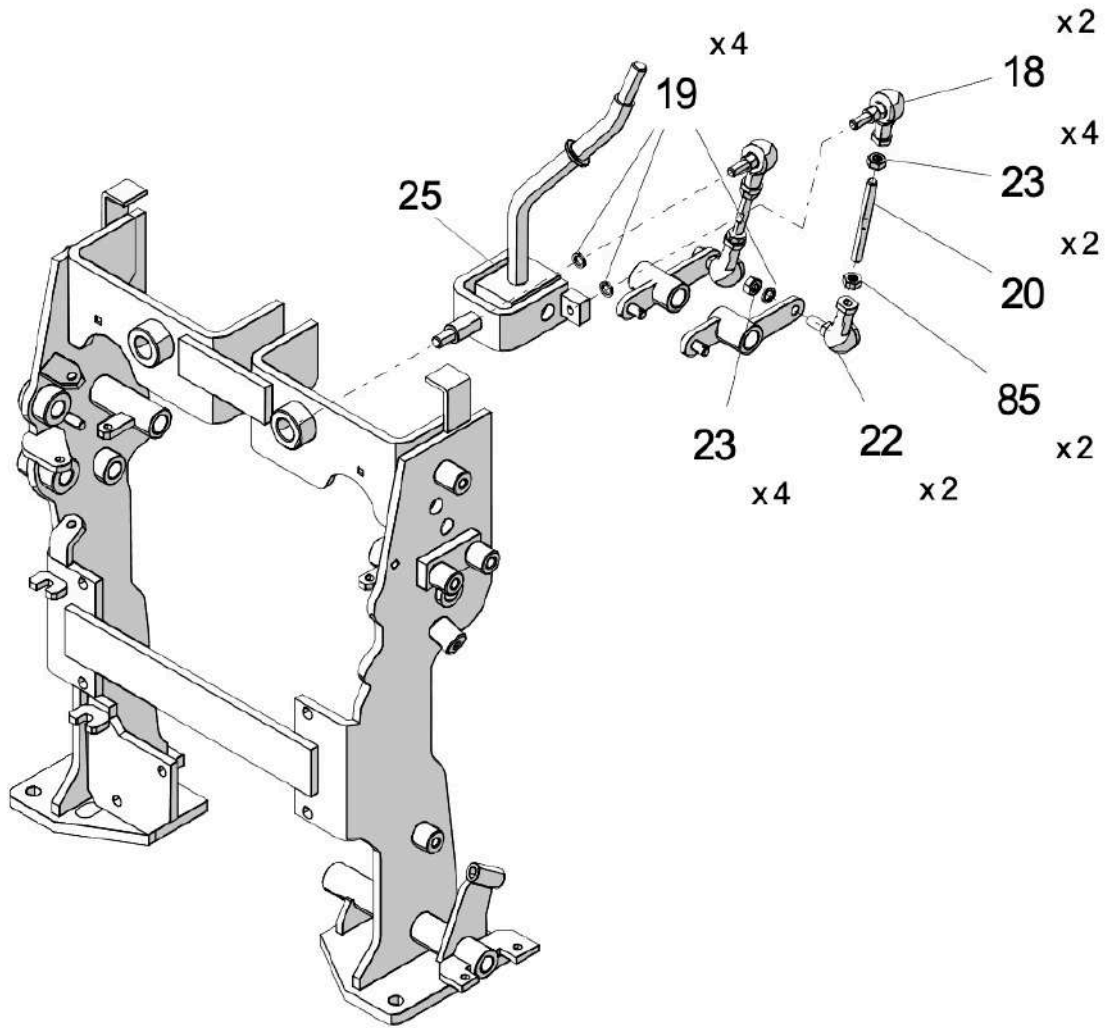


Part No.	Ref.	Part Description	QTY
E21	ZH07.5.9	Cross Fork Welding Parts	5
E24	B-G00097A-8	Washer 8	13
E29	ZH07.5-14	Multi-Way Valve Connecting Pin	11
E86	B-G000910-2.5*16	Cotter Pin 2.5×16	17



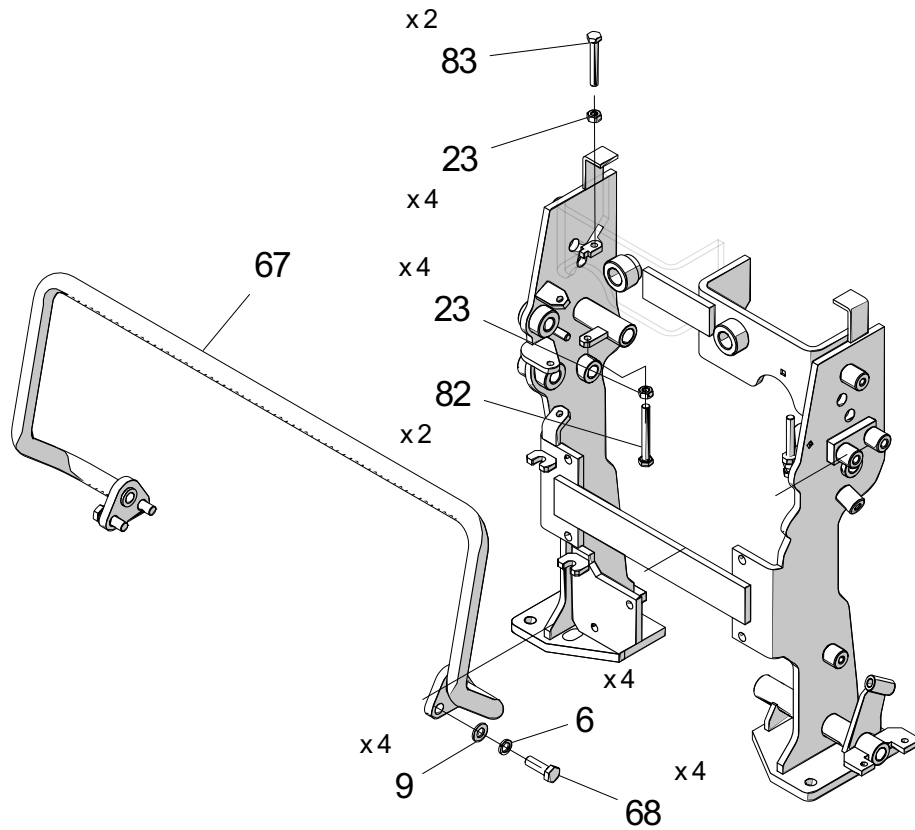
Part No.	Ref.	Part Description	QTY
E18	B-J05306R-SQ8C-RS	Spherical Bearing SQ8C-RS Right-Hand	7
E19	B-G000930-8	Washer 8	20
E20	ZH07.5-8	Bearing Connecting Rod	4
E22	B-J05306L-SQ8C-RS	Spherical Bearing SQ8C-RS Left-Hand	4
E23	B-G061700-8	Nut M8	21
E25	ZH07.5.10	Manipulation Of Rotating Welded Parts	2
E85	B-G061700-8-L	Nut M8 Left-Hand	4

E11 Left Joystick Link



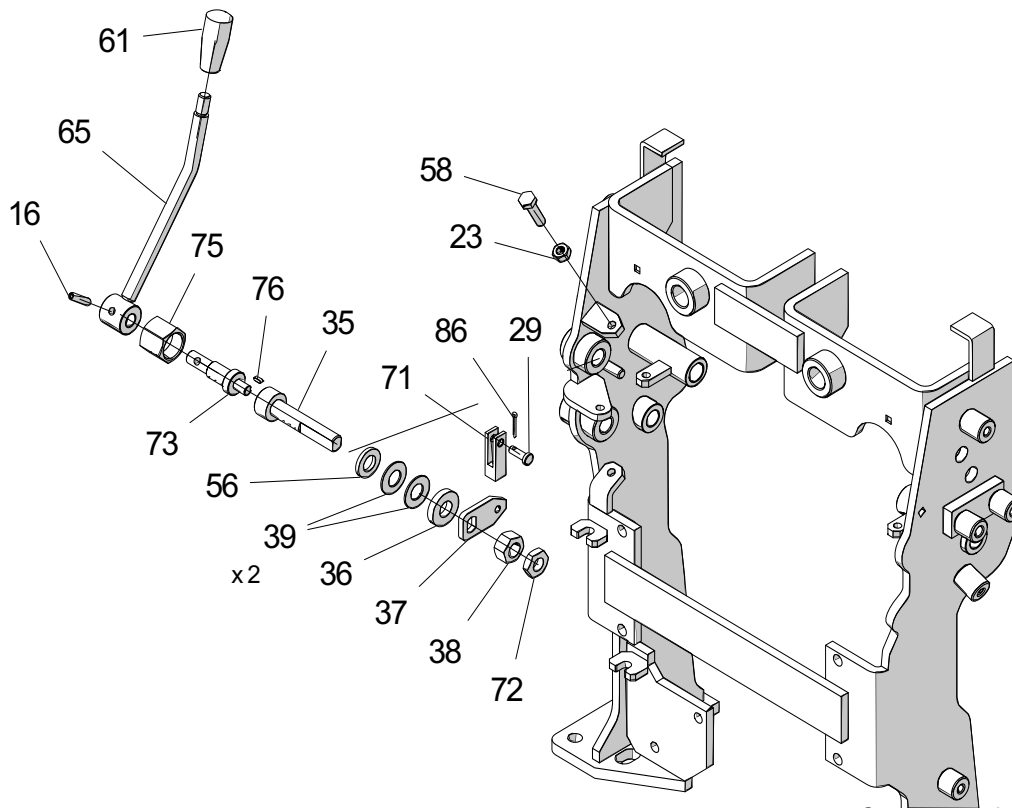
Part No.	Ref.	Part Description	QTY
E18	B-J05306R-SQ8C-RS	Spherical Bearing SQ8C-RS Right-Hand	7
E19	B-G000930-8	Washer 8	20
E20	ZH07.5-8	Bearing Connecting Rod	4
E22	B-J05306L-SQ8C-RS	Spherical Bearing SQ8C-RS Left-Hand	4
E23	B-G061700-8	Nut M8	21
E25	ZH07.5.10	Manipulation Of Rotating Welded Parts	2
E85	B-G061700-8-L	Nut M8 Left-Hand	4

E12 Hand-hand control components



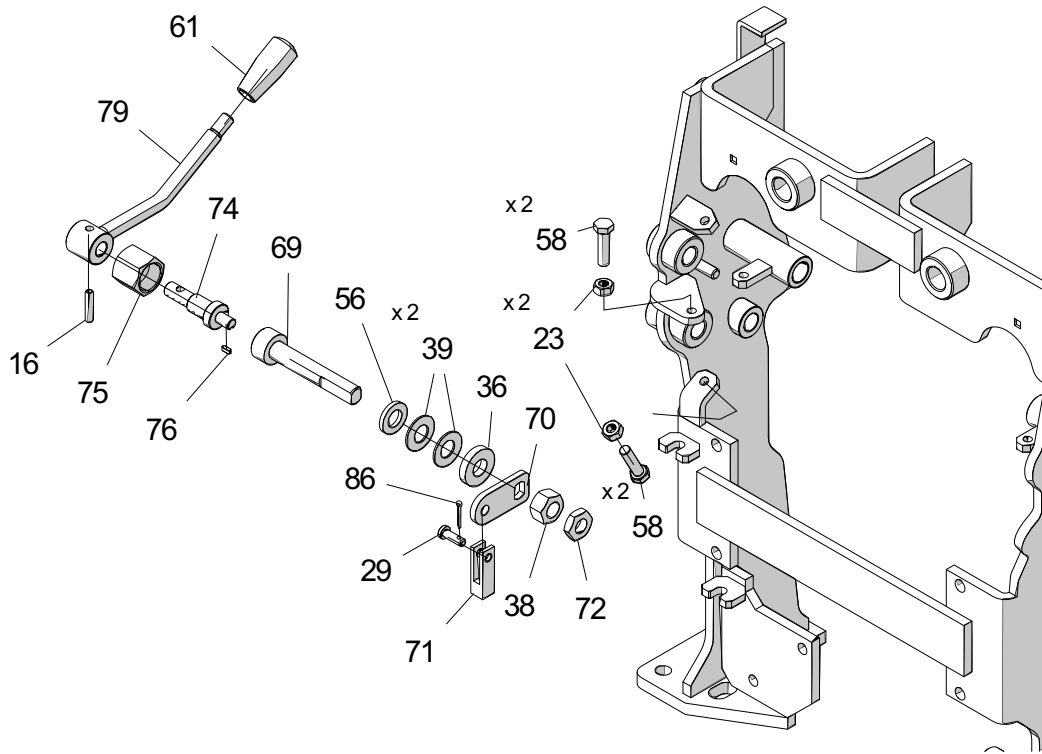
Part No.	Ref.	Part Description	QTY
E6	B-G000930-10	Washer 10	12
E9	B-G00097A-10	Washer 10	10
E23	B-G061700-8	Nut M8	21
E67	ZH07.5.44	Handlebar Welding Parts	1
E68	B-G057830-10*30	Bolt M10*30	4
E82	B-G057830-8*65	Bolt M8*65	2
E83	B-G057830-8*55	Bolt M8*55	2

E13 Throttle Lever



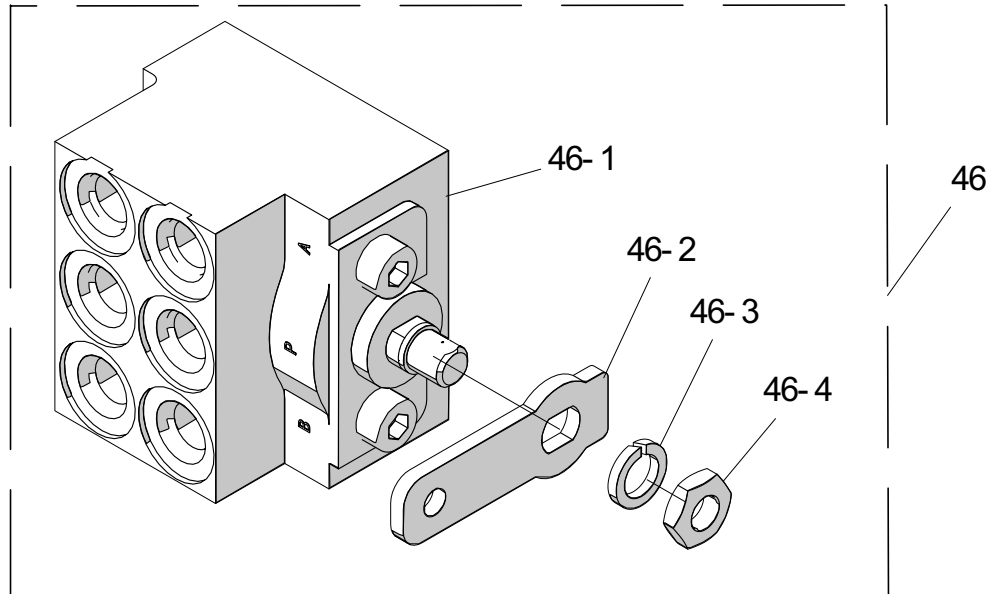
Part No.	Ref.	Part Description	QTY
E16	B-G00879B-6*26	Key 6*26	13
E23	B-G061700-8	Nut M8	21
E29	ZH07.5-14	Multi-Way Valve Connecting Pin	11
E35	ZH07.5-20	Throttle Shaft 01	1
E36	ZH07.5-21	Throttle Washer	4
E37	ZH07.5-22	Flexible Shaft Connecting Plate	1
E38	B-G061700-14	Nut M14	9
E39	B-G019720-28	Disc Spring A28	6
E56	ZH07.5-35	Copper Washer	14
E58	B-G057830-8*30	Bolt M8*30	3
E61	ZH07.5-39	Bulldozing Handle Handle Cover	3
E65	ZH07.5.42	Throttle Cable Lever Welding Parts	1
E71	ZH07.5-47	Cable Horizontal Clip	2
E72	B-G061720-14	Nut M14	4
E73	ZH07.5-48	Throttle Shaft 02	1
E75	ZH07.5-50	Throttle Damper Lock Nut	2
E76	B-G010960-3*8	Key 3*8	2
E86	B-G000910-2.5*16	Cotter Pin 2.5×16	17

E14 Damper Lever



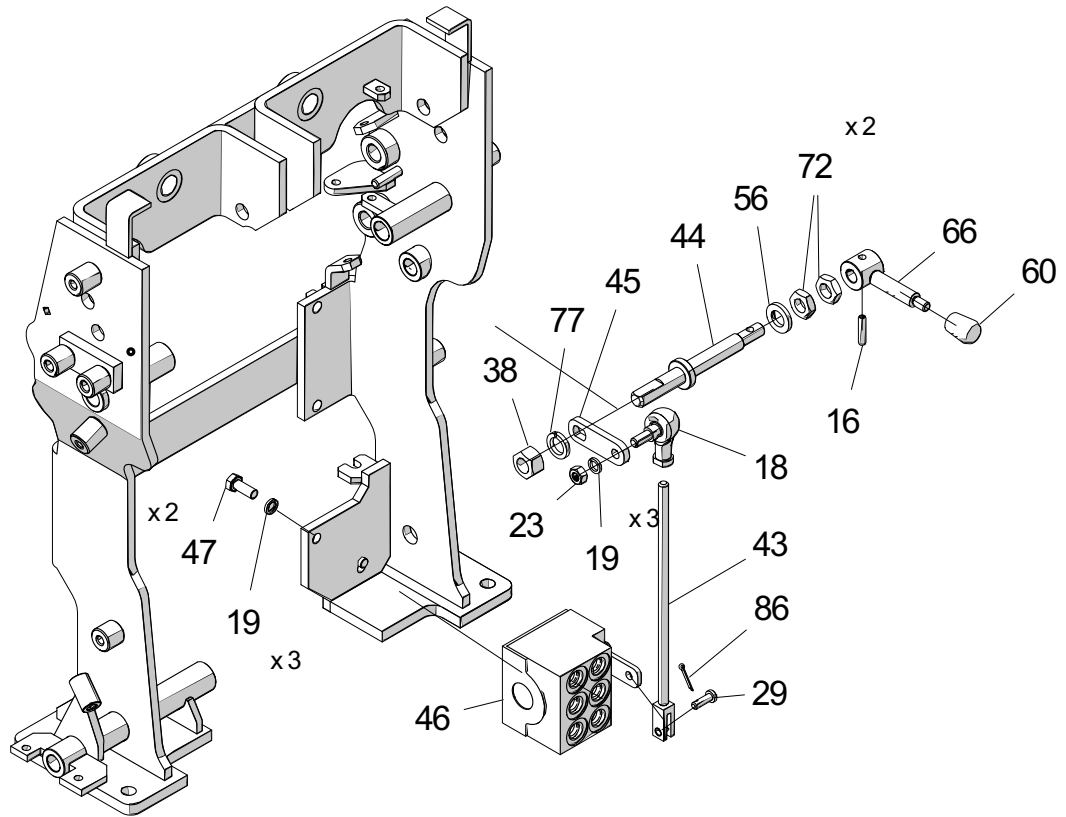
Part No.	Ref.	Part Description	QTY
E16	B-G00879B-6*26	Key 6*26	13
E23	B-G061700-8	Nut M8	21
E29	ZH07.5-14	Multi-Way Valve Connecting Pin	11
E36	ZH07.5-21	Throttle Washer	4
E38	B-G061700-14	Nut M14	9
E39	B-G019720-28	Disc Spring A28	6
E56	ZH07.5-35	Copper Washer	14
E58	B-G057830-8*30	Bolt M8*30	3
E61	ZH07.5-39	Bulldozing Handle Handle Cover	3
E69	ZH07.5-45	Damper Shaft 01	1
E70	ZH07.5-46	Damper Connecting Plate	1
E71	ZH07.5-47	Cable Horizontal Clip	2
E72	B-G061720-14	Nut M14	4
E74	ZH07.5-49	Damper Shaft 02	1
E75	ZH07.5-50	Throttle Damper Lock Nut	2
E76	B-G010960-3*8	Key 3*8	2
E79	ZH07.5.51	Damper Lever Welding Parts	1
E86	B-G000910-2.5*16	Cotter Pin 2.5×16	17

E15 Switching Valve Assembly



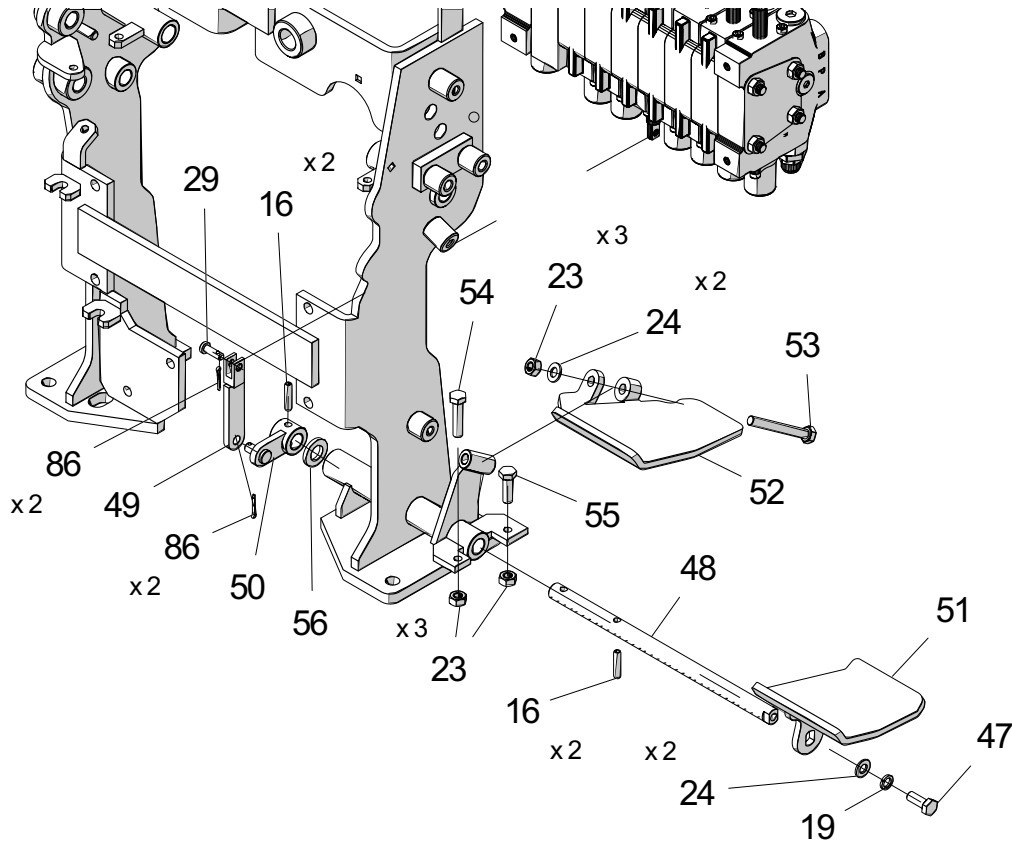
Part No.	Ref.	Part Description	QTY
E46	ZH07.5.29	Switching Valve Assembly	1
E46-1	W-05-KQHF26-25-315	Switching Valve 02	1
E46-2	ZH07.5.29-1	Switching Valve Stem	1
E46-3	B-G000930-10	Washer 10	1
E46-4	B-G061720-10	Nut M10	1

E16 Switching Valve Joystick



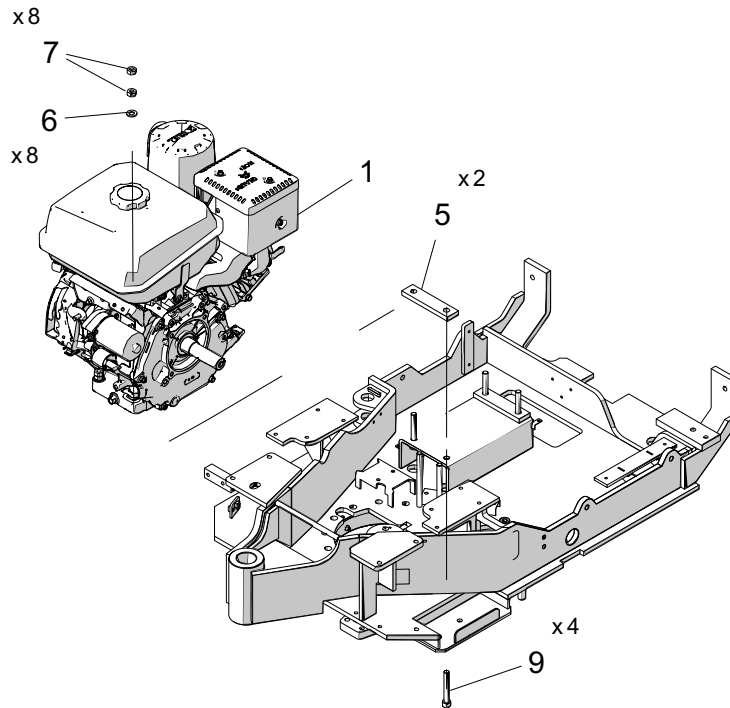
Part No.	Ref.	Part Description	QTY
E16	B-G00879B-6*26	Key 6*26	13
E18	B-J05306R-SQ8C-RS	Spherical Bearing SQ8C-RS Right-Hand	7
E19	B-G000930-8	Washer 8	20
E23	B-G061700-8	Nut M8	21
E29	ZH07.5-14	Multi-Way Valve Connecting Pin	11
E38	B-G061700-14	Nut M14	9
E43	ZH07.5.26	Switch Welding Fork Weldment	1
E44	ZH07.5-27	Switching Valve Pin	1
E45	ZH07.5-28	Switching Valve Connecting Plate	1
E46	ZH07.5.29	Switching Valve Assembly	1
E47	B-G057830-8*20	Bolt M8*20	9
E56	ZH07.5-35	Copper Washer	14
E60	ZH07.5-38	Switch Handle Grip Cover	1
E66	ZH07.5.43	Switching Valve Handle Welding Parts	1
E72	B-G061720-14	Nut M14	4
E77	B-G000930-14	Washer 14	1
E86	B-G000910-2.5*16	Cotter Pin 2.5×16	17

E17 Broken Joystick



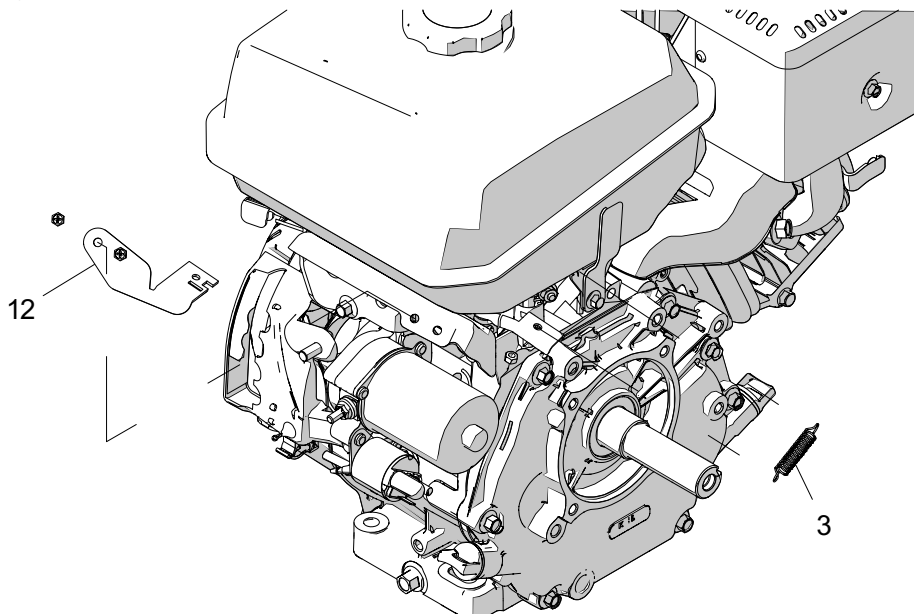
Part No.	Ref.	Part Description	QTY
E16	B-G00879B-6*26	Key 6*26	13
E19	B-G000930-8	Washer 8	20
E23	B-G061700-8	Nut M8	21
E24	B-G00097A-8	Washer 8	13
E29	ZH07.5-14	Multi-Way Valve Connecting Pin	11
E47	B-G057830-8*20	Bolt M8*20	9
E48	ZH07.5-30	Broken Connecting Shaft	1
E49	ZH07.5.31	Crushed Welding Cross Fork Welding Parts	1
E50	ZH07.5.32	Broken Connection Sleeve Welding Parts	1
E51	ZH07.5.33	Broken Pedal Welding Parts	1
E52	ZH07.5.34	Broken Pedal Cover Welding Parts	1
E53	B-G057830-8*60	Bolt M8*60	1
E54	B-G057830-8*35	Bolt M8*35	1
E55	B-G057830-8*25	Bolt M8*25	1
E56	ZH07.5-35	Copper Washer	14
E86	B-G000910-2.5*16	Cotter Pin 2.5×16	17

F01 Gasoline Engine



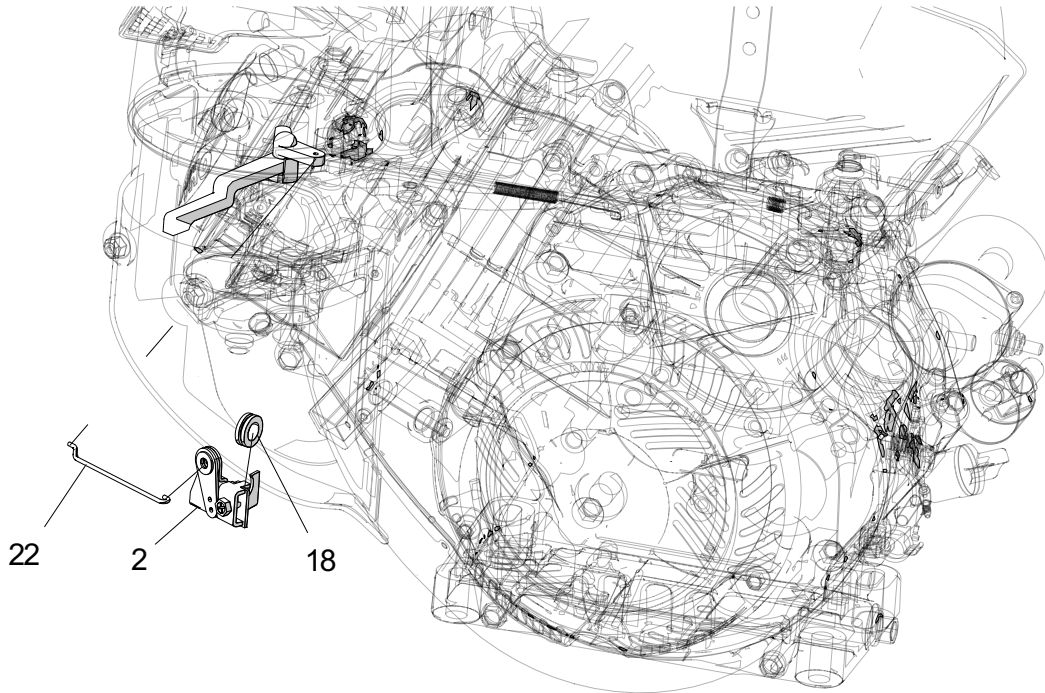
Part No.	Ref.	Part Description	QTY
F1	W-03-PA-CH395-3031	Gasoline Engine	1
F5	ZH07.6-2	Gasoline Engine Rubber Gasket	2
F6	B-G00097A-10	Washer 10	8
F7	B-G061700-10	Nut M10	8
F9	B-G00070A-10*70	Screw M10*70	4

F02 Return Spring



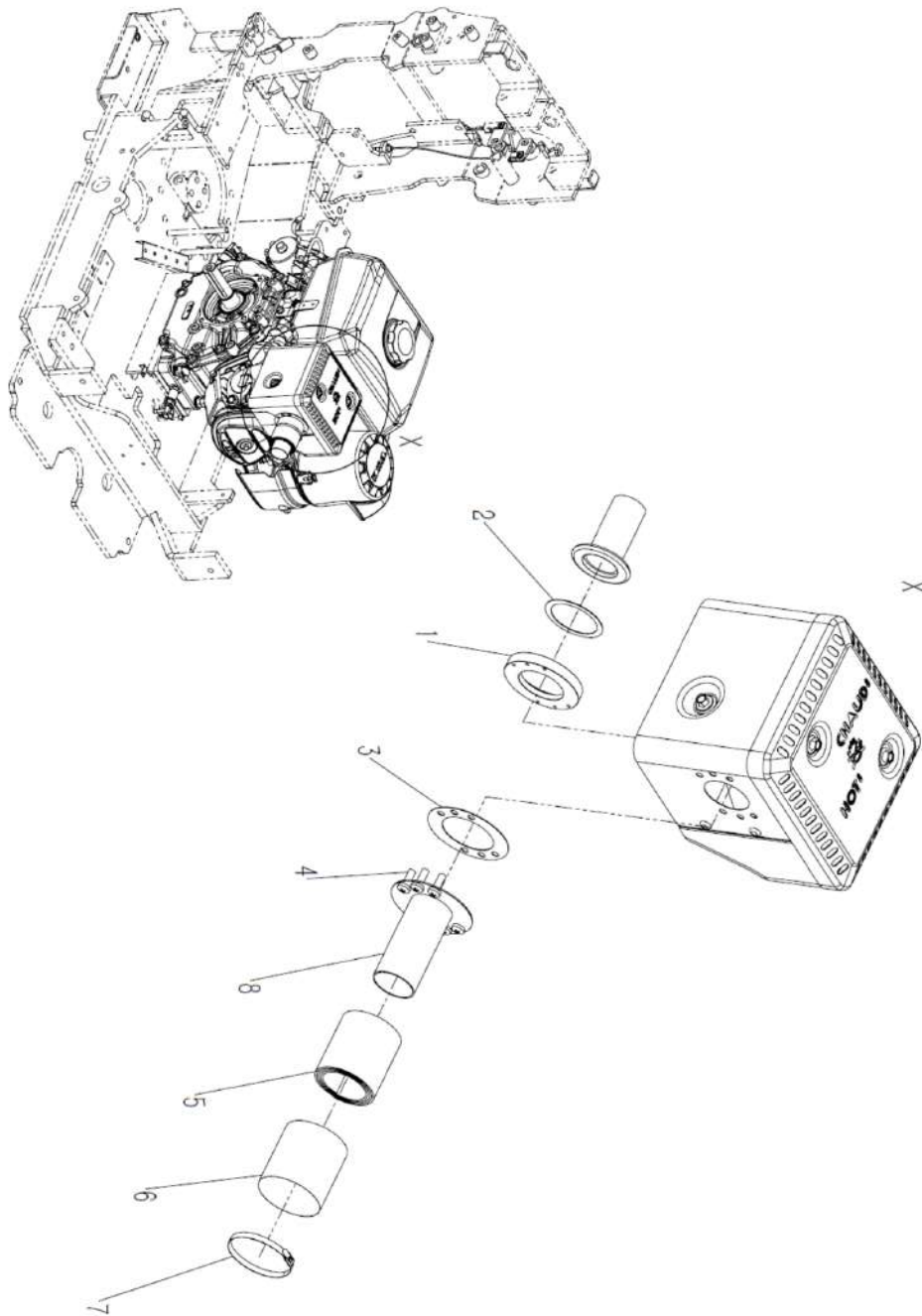
Part No.	Ref.	Part Description	QTY
F3	W-03-17089-101-S	Return Spring	1
F12	ZH07.6.9A	Wire Fixing Plate Welding Parts	1

F03 Some Accessories Of Gasoline Engine



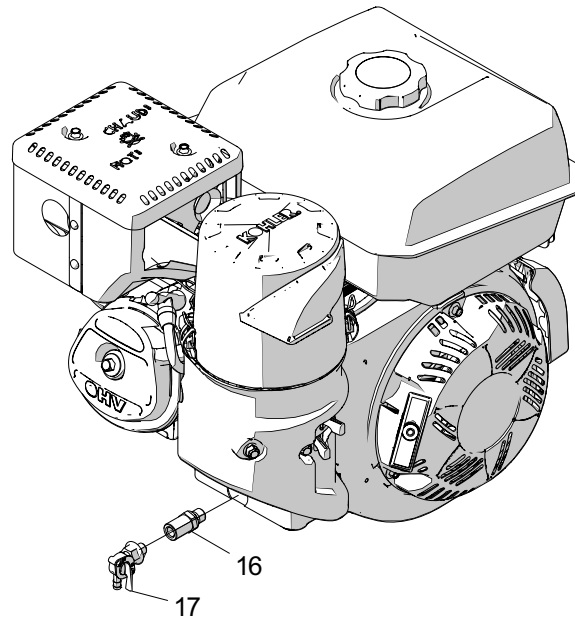
Part No.	Ref.	Part Description	QTY
F2	W-03-17126-293-S	Automatic Choke Bracket Assembly	1
F18	W-03-17313-16-S	Locking Ring	1
F22	W-03-17079-39-S	Choke Lever	1

F04 Exhaust Pipe Welding Parts



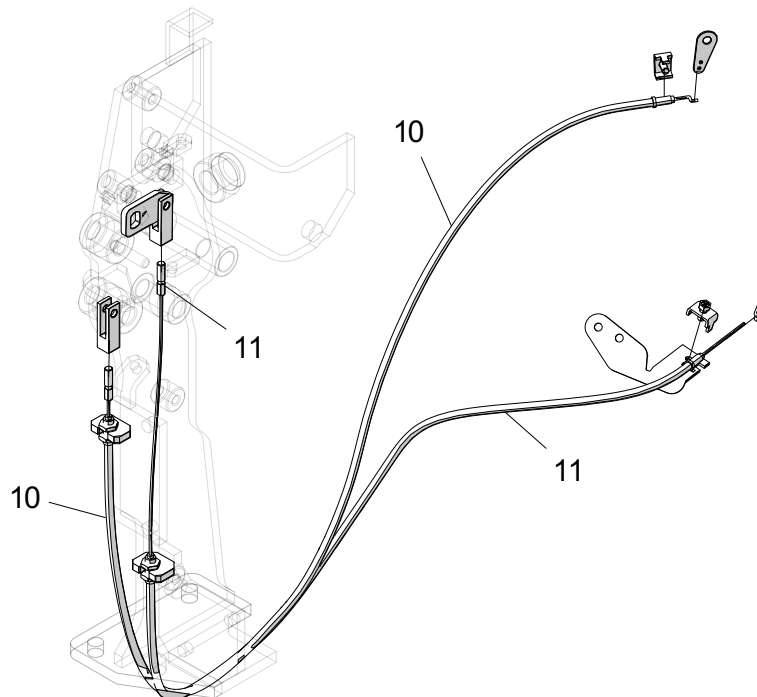
Part No.	Ref.	Part Description	QTY
F1	ZH065.6-3	Silencer Spacer	1
F2	ZH065.6-4	Silencer High Temperature Gasket 01	1
F3	ZH065.6-5	Silencer High Temperature Gasket 02	1
F4	GB/T 818	Cross Recessed Pan Head Screw M5X14	6
F5	ZH07.6-10	Exhaust Pipe Insulation Tape	1
F6	ZH07.6-11	High Temperature Resistant Tape	1
F7	ZH07.6-12	Stainless Steel Rolled Strip 30 Cm	1
F8	ZH07.6.1A	Exhaust Pipe Welding Parts	1

F05 Oil Switch



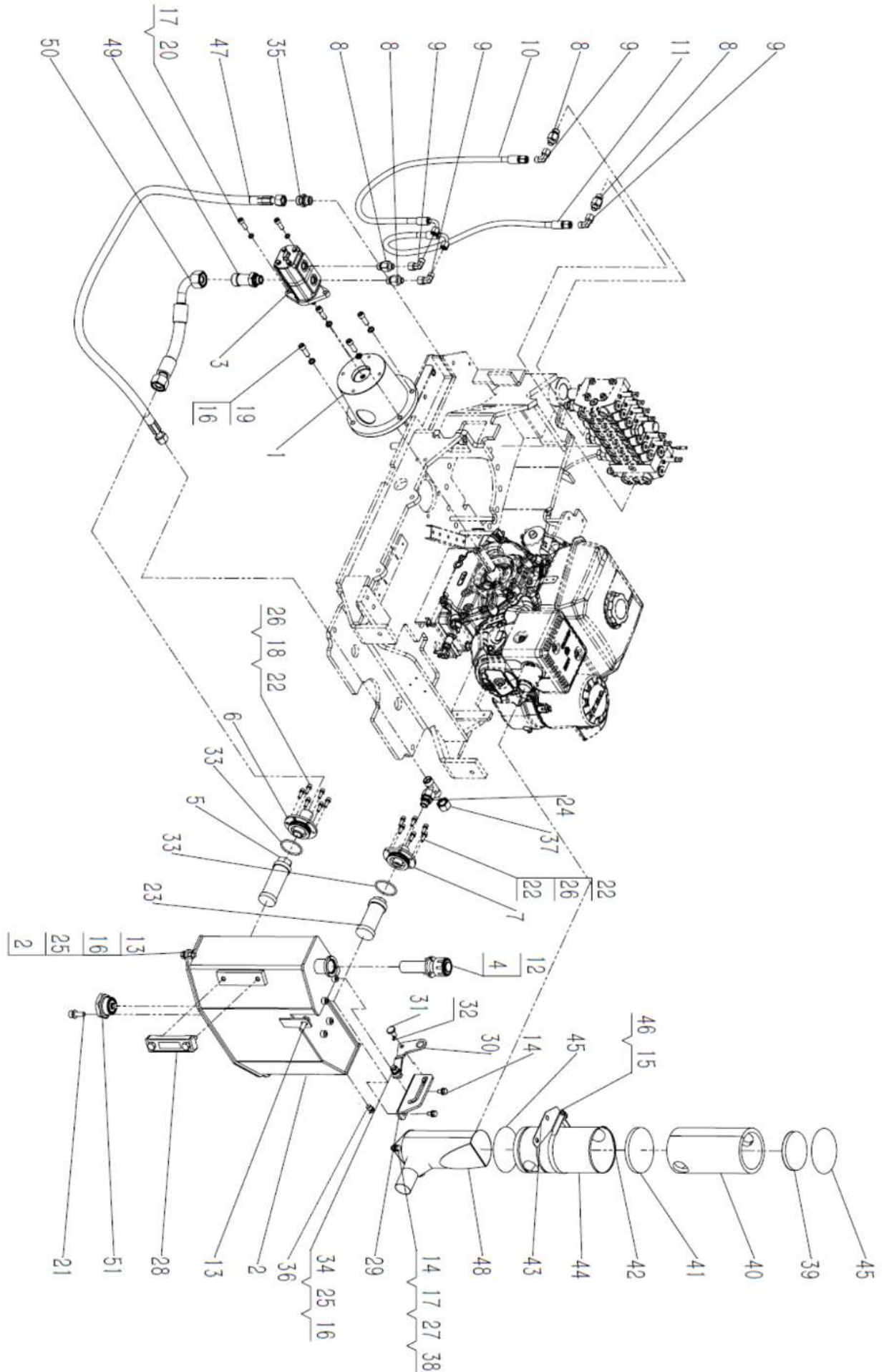
Part No.	Ref.	Part Description	QTY
F16	ZH07.6-13	Oil Switch Connector	1
F17	ZH07.6-14	Oil Switch	1

F06 Throttle Cable / Air Valve Push-Pull Flexible Shaft



Part No.	Ref.	Part Description	QTY
F10	ZH07.6-7	Air Door Push-Pull Flexible Shaft	1
F11	ZH07.6-8	Throttle Cable	1

G01 Pump And Fuel Tank Assembly

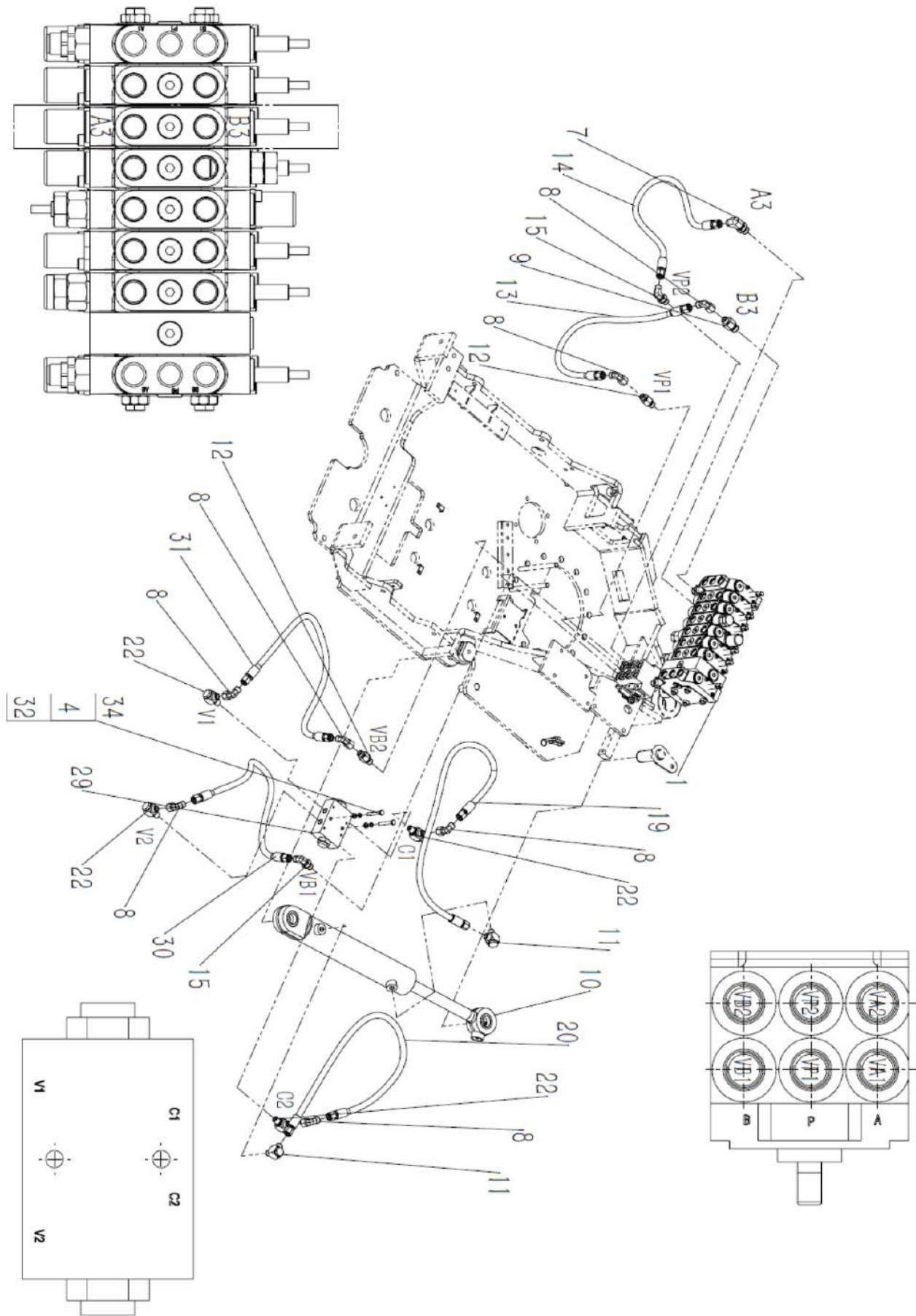


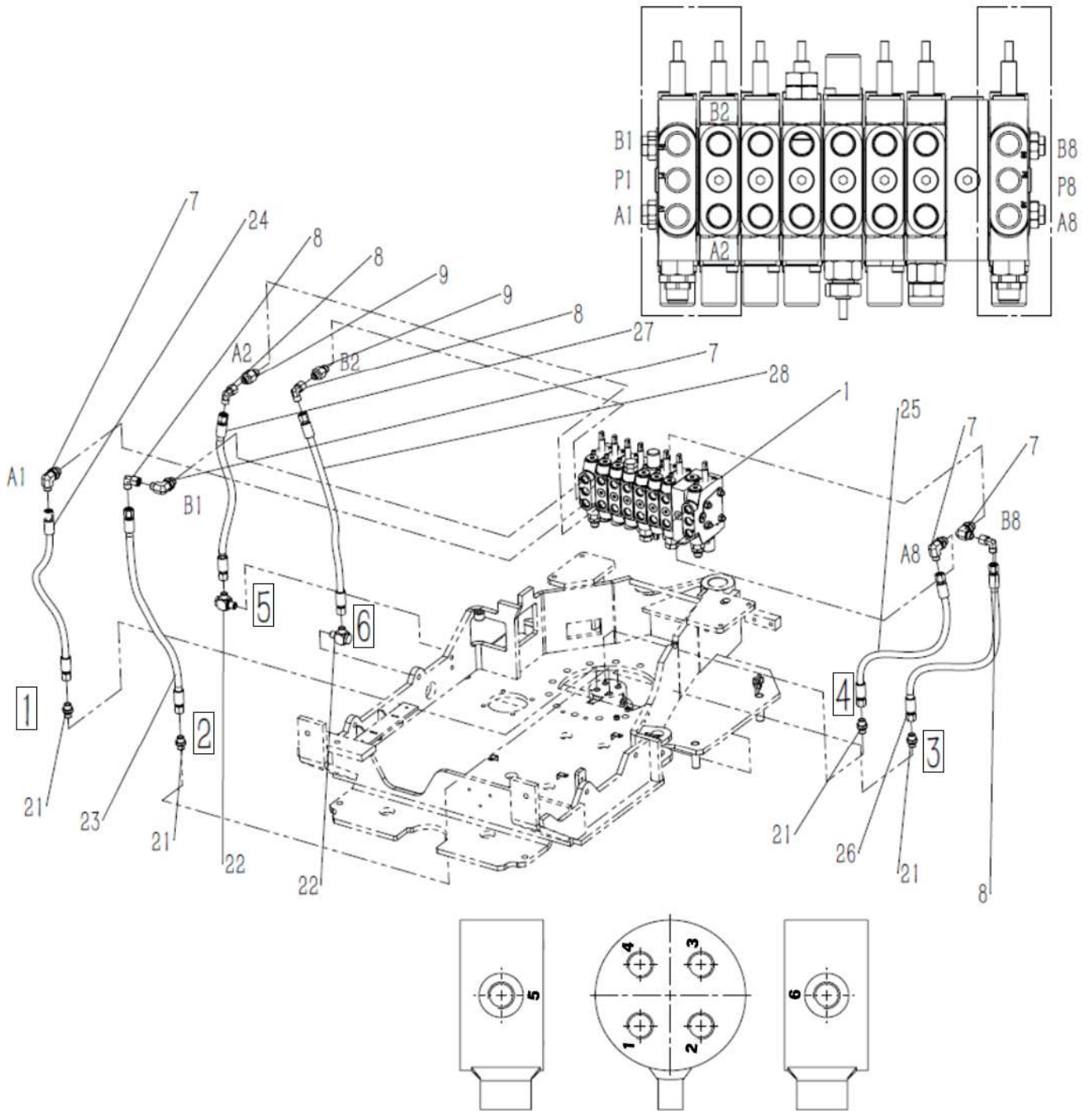
G01 Pump And Fuel Tank Assembly

PART NO.	REF.	DESCRIPTION	QTY
G1	ZH07.7-1	Engine Powertrain	1
G2	ZH065.7.2A	Fuel Tank Welding Parts	1
G3	CBELD-E2.5/E2.5- ALΦ	Duplex Gear Pump	1
G4	QUQ1-10*1.0	Air Filter	1
G5	WU-40X180-J	Oil Suction Filter	1
G6	ZH07.7.3A	Oil Suction Port Welding Parts	1
G7	ZH07.7.4	Oil Return Port Welding Parts	1
G8	ZH07.7-7	Multi-Way Valve Middle Joint	4
G9	EW08LOMD	Connector M14*1.5-M14*1.5	4
G10	ZH07.7-8	Pump Oil Pipe 01	1
G11	ZH07.7-9	Pump Oil Pipe 02	1
G12	GB/T 5783	Bolt M4*16	3
G13	GB/T 5783	Bolt M10*30	4
G14	GB/T 5783	Bolt M8*16	5
G15	GB/T 5783	Bolt M6*20	1
G16	GB/T 93	Washer 10	10
G17	GB/T 93	Washer 8	7
G18	GB/T 93	Washer 6	12
G19	ANSI B18.3	Hexagon Socket Screw 3/8- 16*1.125*1.125	4
G20	GB/T 70.1	Screw M8*25	2
G21	GB/T 70.1	Screw M10*30	2
G22	GB/T 70.1	Screw M6*20	12
G23	ZH07.7-12	Return Oil Filter	1
G24	EVT15LMOMD	Connector 2- M22X1.5- M18X1.5	1
G25	GB/T 97.1	Washer 10	8
G26	GB/T 97.1	Washer 6	12
G27	GB/T 97.1	Washer 8	5
G28	YWZ-100T	Liquid Level Gauge	1
G29	ZH07.7-16A	Limit Connecting Plate	1
G30	ZH07.7-17A	Flip Connecting Rod	1

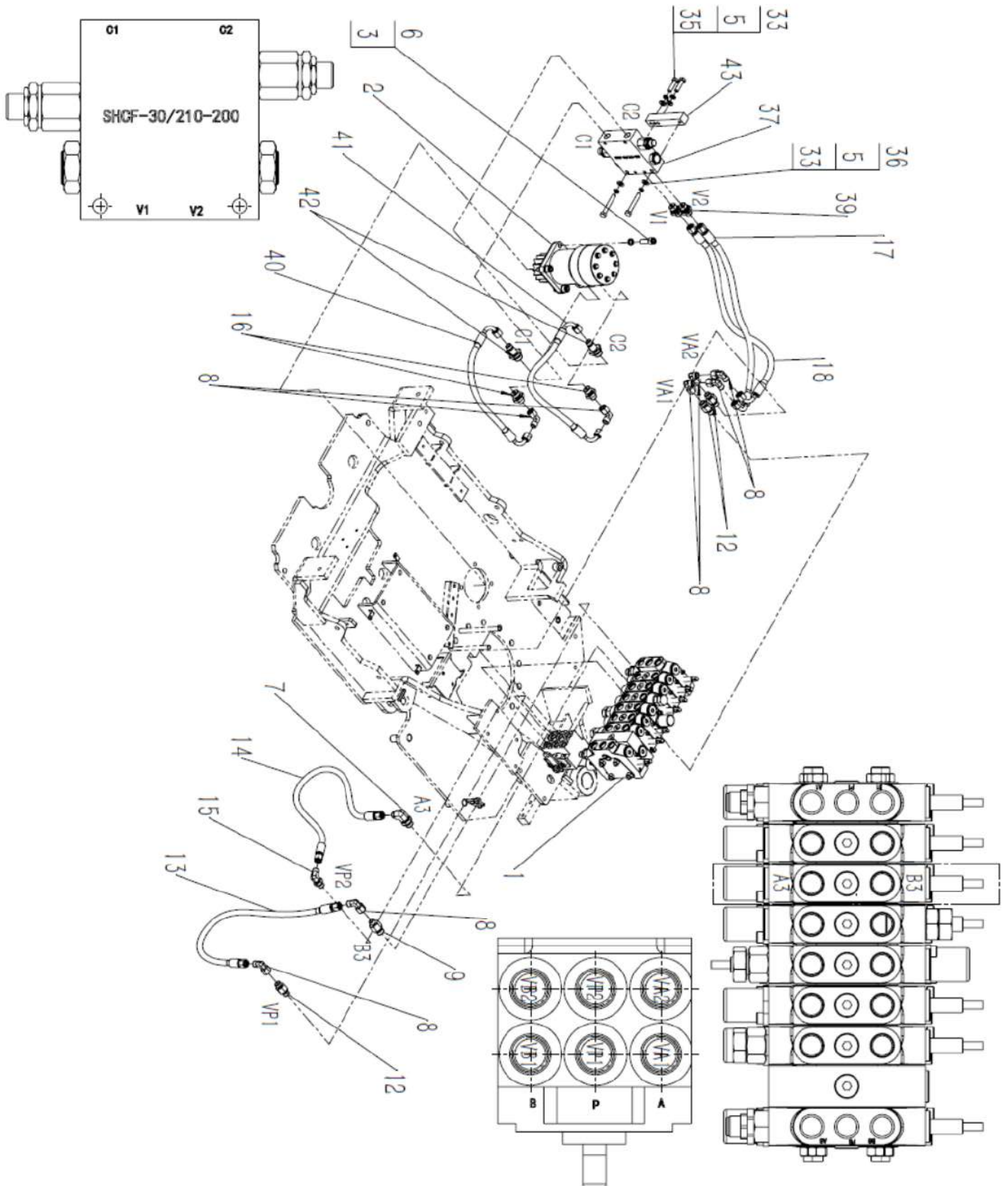
PART NO.	REF.	DESCRIPTION	QTY
G31	ZH07.7-18	Pin	1
G32	GB/T 91	Cotter Pin 3.2*16	1
G33	GB/T 3452.1	O- Ring ϕ 48.7*3.55	2
G34	GB/T 6170	Nut M10	1
G35	GEO15LR1/20MD	Connector M18X1.5-G1/2	1
G36	VSTI12*1.5ED	Plug M12*1.5	1
G37	VKAM15L	Tapered Hole Plug M22*1.5	1
G38	ZH065.7-25	Spacer	3
G39	ZH065.7-26	Insulation Cotton 01	1
G40	ZH065.7-27	Insulation Cotton 02	1
G41	ZH065.7-28	Insulation Cotton 03	1
G42	ZH07.7-21	Stainless Steel Rolled Strip 02(60 Cm)	4
G43	ZH065.7-29	Side Fixing Clamp	1
G44	ZH065.7-30	Outer Aluminum Foil Insulation Tube	1
G45	ZH065.7-31	Upper And Lower Aluminum Foil Tape	2
G46	GB/T 6182	Nut M6	1
G47	ZH065.7-13A	Fuel Tank Return Pipe	1
G48	ZH065.7.32A	Exhaust Gas Buffer Port Welding Parts 02	1
G49	ZH07.7-24A	Pump Suction Transition Joint	1
G50	ZH07.7-6A	Pump Suction Hose	1
G51	ZH065DS.7.35.2	Oil Drain Bolt Assembly	1

H01 Upper Frame Hydraulic System – Yaw Oil Circuit





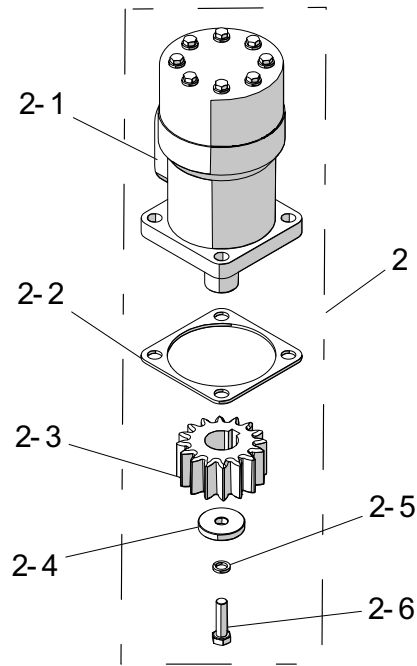
H01 Upper Frame Hydraulic System - Rotary Oil Circuit



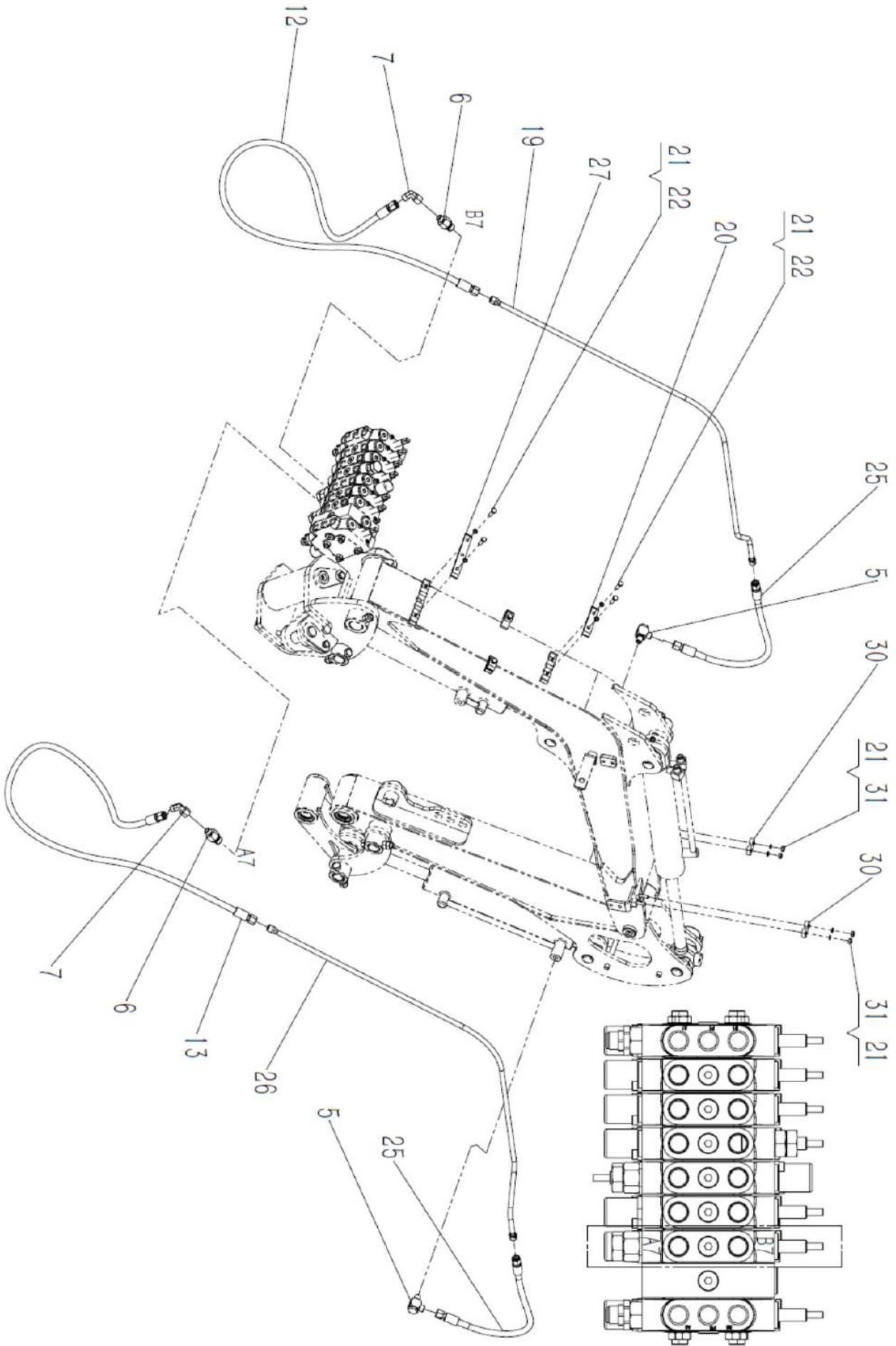
H01 Upper Frame Hydraulic System - Yaw / Travel / Oil Circuit

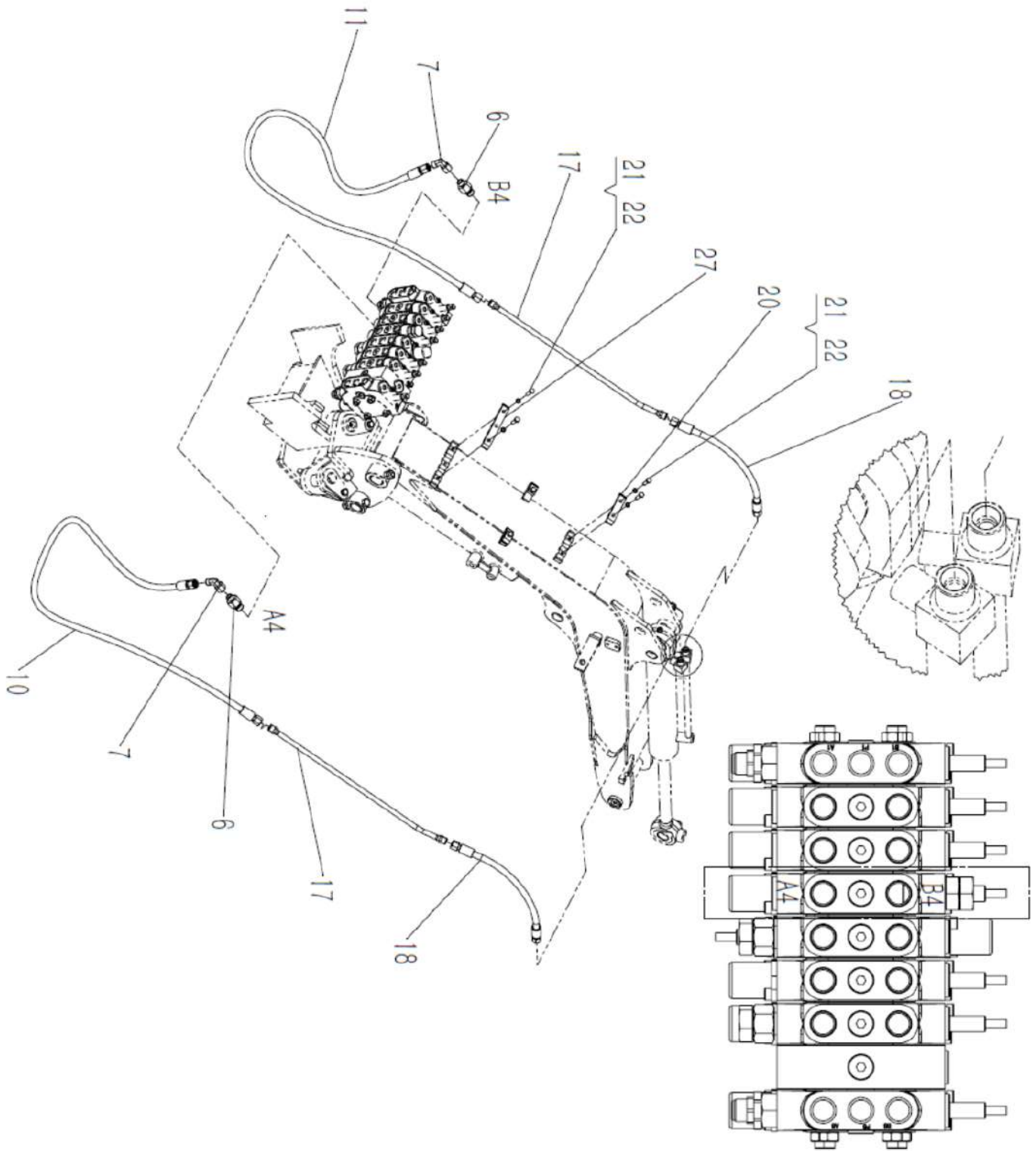
Part No.	Ref.	Part Description	QTY
H1	HMCV12-8-0.6-ZHC	Multi-Way Valve	1
H2	ZH065.8.1	Rotary Motor Components	1
H3	GB/T 93	Washer 10	4
H4	GB/T 93	Washer 6	2
H5	GB/T 93	Washer 8	4
H6	GB/T 70.1	Screw M10*30	4
H7	ZH07.7-10	Pump Outlet Connector	5
H8	EW08LOMD	Connector M14*1.5-M14*1.5	17
H9	ZH07.7-7	Multi-Way Valve Middle Joint	3
H10	ZH065.8.2	Yaw Cylinder	1
H11	WH08LMOMD	Connector M12x1.5-M14x1.5	2
H12	ZH07.8-3	Switching Valve Connector	4
H13	ZH07.8-4	Oil Pipe 01	1
H14	ZH07.8-5	Oil Pipe 02	1
H15	ZH07.8-6	Switching Valve Connector 02	2
H16	ZH07.8-7	Rotary Motor Connector	2
H17	ZH07.8-8	Oil Pipe 03	1
H18	ZH07.8-9	Oil Pipe 04	1
H19	ZH07.8-10	Oil Pipe 05	1
H20	ZH07.8-11	Oil Pipe 06	1
H21	GE08LREDOMD	Connector M14*1.5-G1/4	4
H22	WH08LROMD	Connector M14*1.5-G1/4	6
H23	ZH07.8-12	Oil Pipe 07	1
H24	ZH07.8-13	Oil Pipe 08	1
H25	ZH07.8-14	Oil Pipe 09	1
H26	ZH07.8-15	Oil Pipe 10	1
H27	ZH07.8-16	Oil Pipe 11	1
H28	ZH07.8-17	Oil Pipe 12	1
H29	VRPDC-G1/4	Hydraulic Lock	1
H30	ZH07.8-18	Oil Pipe 13	1
H31	ZH07.8-19	Oil Pipe 14	1
H32	GB/T 97.1	Washer 6	2
H33	GB/T 97.1	Washer 8	4
H34	GB/T 5783	Bolt M6*45	2
H35	GB/T 5783	Bolt M8*30	2
H36	GB/T 5783	Bolt M8*55	2
H37	SHCF-30/210-200	Rotary Buffer Valve	1
H39	GE08LR3/8EDOMD	Connector G3/8-M14*1.5	2
H40	ZH07.8-21	Oil Pipe 15	1
H41	ZH07.8-22	Oil Pipe 16	1
H42	ZH065.8-23	Rotary Buffer Valve Connector	2

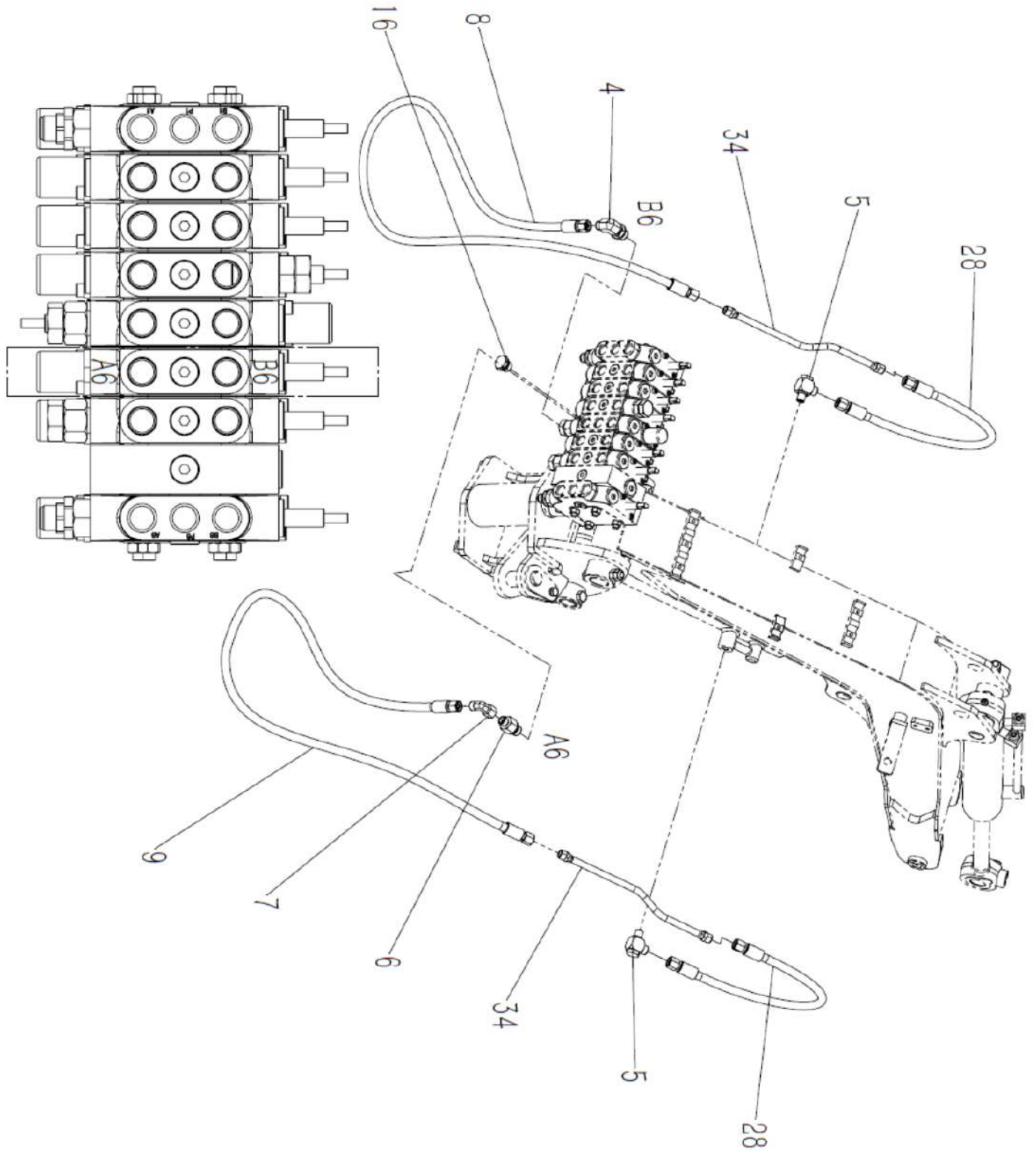
H02 Rotary Motor Assembly



Part No.	Ref.	Part Description	QTY
H2	ZH065.8.1	Rotary Motor Components	1
H2-1	W-04-BM1-314-0019	Rotary Motor	1
H2-2	ZH065.8.1-3	Gasket	1
H2-3	ZH07.8.1-2	Rotary Motor Installation Gear	1
H2-4	ZH07.8.1-1	Rotary Motor Gasket	1
H2-5	B-G000930-8	Washer 8	1
H2-6	B-G057830-8*30	Bolt M8*30	1



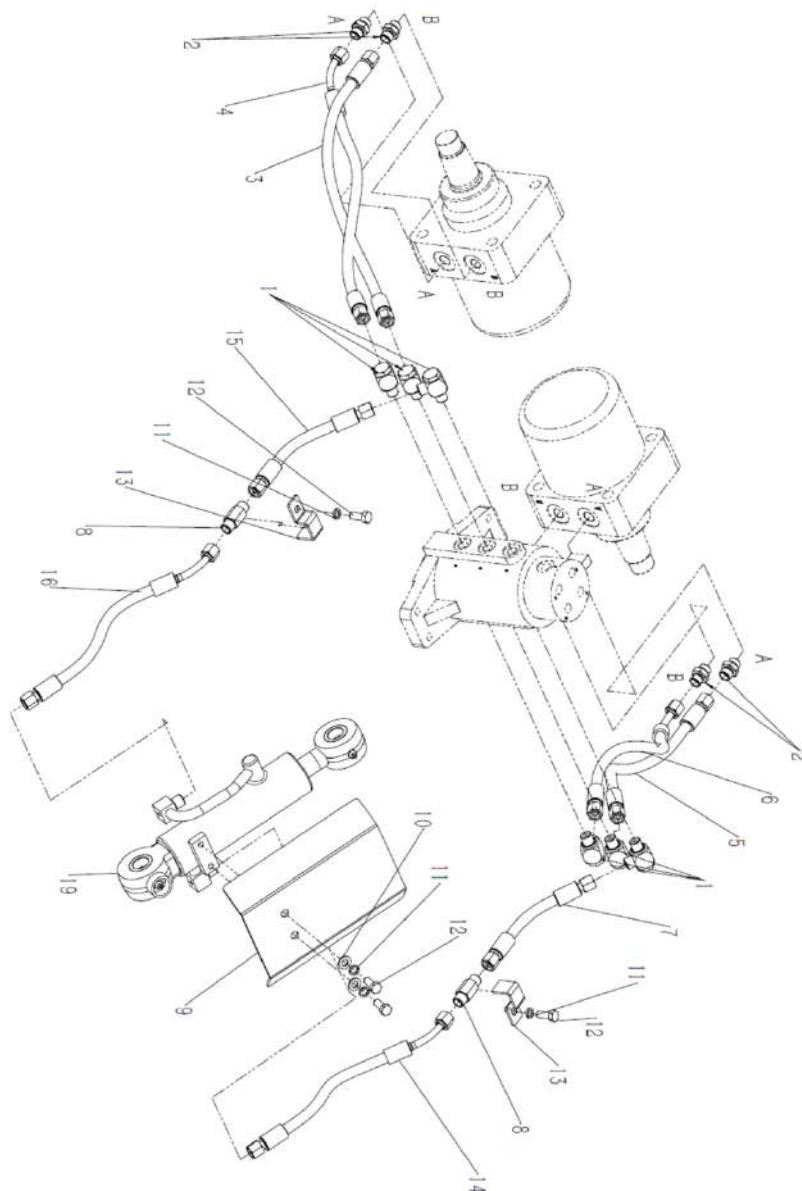




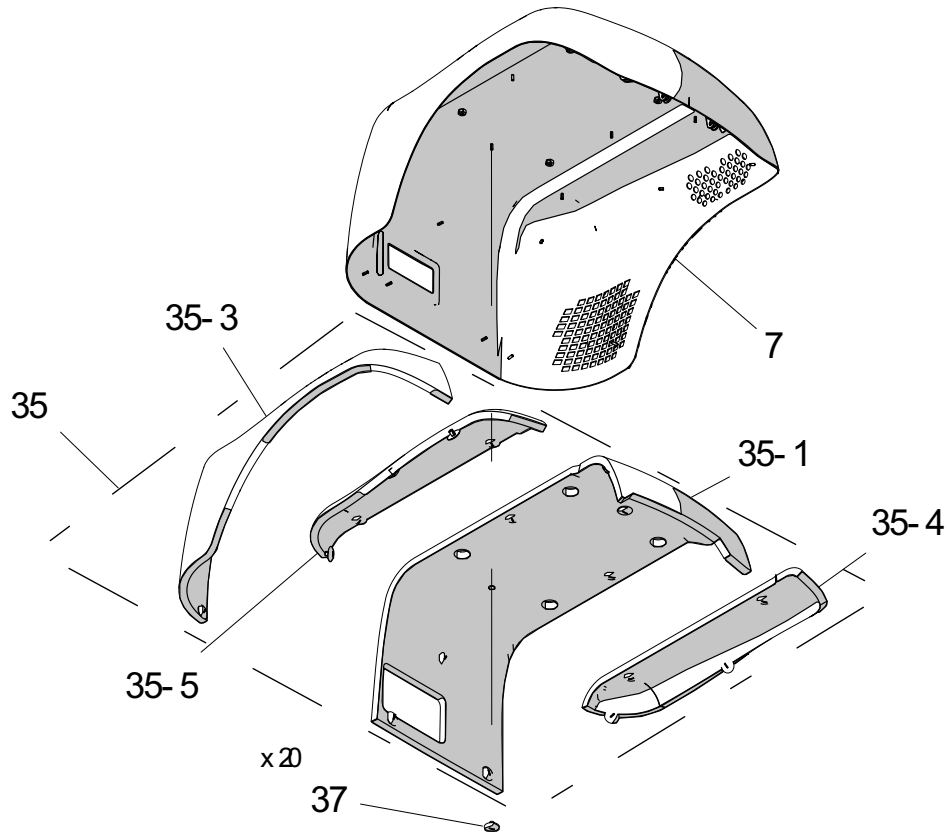
I01 Working Device Hydraulic System - Bucket / Dipper Stick / Arm Oil Circuit

Part No.	Ref.	Part Description	QTY
I4	ZH07.7-10	Pump Outlet Connector	1
I5	WH08LMOMD	Connector M12x1.5-M14x1.5	4
I6	ZH07.7-7	Multi-Way Valve Middle Joint	5
I7	EW08LOMD	Connector M14*1.5-M14*1.5	5
I8	ZH065.9-31	Oil Pipe 01	1
I9	ZH065.9-32	Oil Pipe 02	1
I10	ZH065.9-36	Oil Pipe 06	1
I11	ZH065.9-35	Oil Pipe 05	1
I12	ZH065.9-33	Oil Pipe 03	1
I13	ZH065.9-34	Oil Pipe 04	1
I14	ZH07.9-20	Multi-Way Valve Plug	2
I15	ZH065.9.21	Stick Cylinder Nozzle Welding Parts	2
I16	ZH065.9-29	Stick Cylinder Takeover	1
I17	ZH065.9.22	Bucket Cylinder Takeover Welding Part 01	1
I18	ZH065.9-24	Pipe Splint 03	1
I19	GB/T 93	Washer 6	15
I20	GB/T 5783	Bolt M6*20	6
I21	GB/T 5783	Bolt M6*35	4
I22	GB/T 5783	Bolt M6*40	1
I25	ZH065.9-26	Pipe Splint 02	1
I26	ZH065.9-30	Boom Cylinder Takeover	1
I27	ZH065.9-37	Pipe Splint 02	2
I28	ZH065.9-27	Pipe Splint	2
I29	GB/T 6170	Nut M6	8
I30	ZH065.9-28	Protective Tube	1
I31	QB/T 4494	Rolled Strip ZD-SLT6*250	1
I34	RAP112X	A Pipe Clamp - Lightweight	4

J01 Lower Frame Hydraulic System

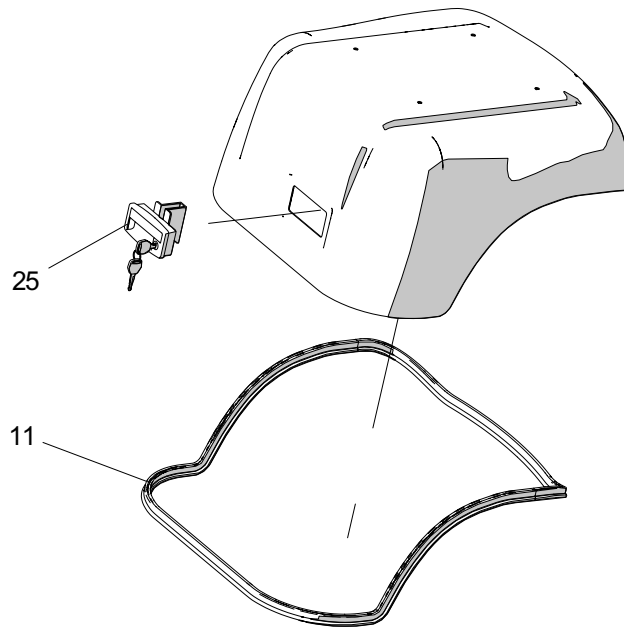


Part No.	Ref.	Part Description	QTY
J1	WH08LR0MD	Connector M14*1.5-G1/4	6
J2	1C0-14-06	Transition Joint	4
J3	ZH065.10-6	Oil Pipe 01	1
J4	ZH065.10-7	Oil Pipe 02	1
J5	ZH065.10-8	Oil Pipe 03	1
J6	ZH065.10-9	Oil Pipe 04	1
J7	ZH065.10-10	Oil Pipe 05	1
J8	ZH07.10-3	Dozer Blade Pipe Connector	2
J9	ZH07.10-4	Bulldozer Cylinder Guard Plate	1
J10	GB/T 97.1	Washer 8	2
J11	GB/T 93	Washer 8	4
J12	GB/T 5783	Bolt M8*20	4
J13	ZH07.10-5	Bulldozer Oil Pipe Bending Plate	2
J14	ZH07.10-11A	Oil Pipe 06	1
J15	ZH065.10-12	Oil Pipe 07	1
J16	ZH07.10-13A	Oil Pipe 08	1
J19	ZH07.10.1A	Dozer Blade Cylinder	1



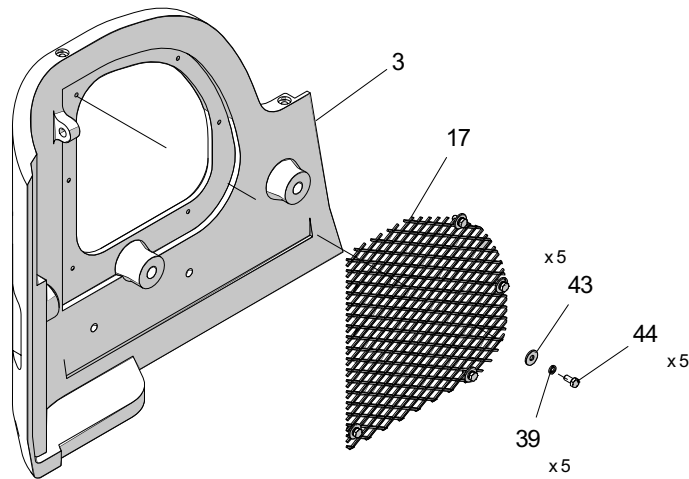
Part No.	Ref.	Part Description	QTY
K7	ZH07.11.6	Cover Welding Parts	1
K35	ZH07.11.13	Sound Insulation Cotton Components	1
K35-1	ZH07.11.13-1	Sound Insulation And Heat Insulation Cotton 01	1
K35-3	ZH07.11.13-3	Sound Insulation And Heat Insulation Cotton 03	1
K35-4	ZH07.11.13-4	Sound Insulation And Heat Insulation Cotton 04	1
K35-5	ZH07.11.13-5	Sound Insulation And Heat Insulation Cotton 05	1
K37	ZH07.11-14	Nut	20

K02 Cover Welding Parts / Insulation Cotton



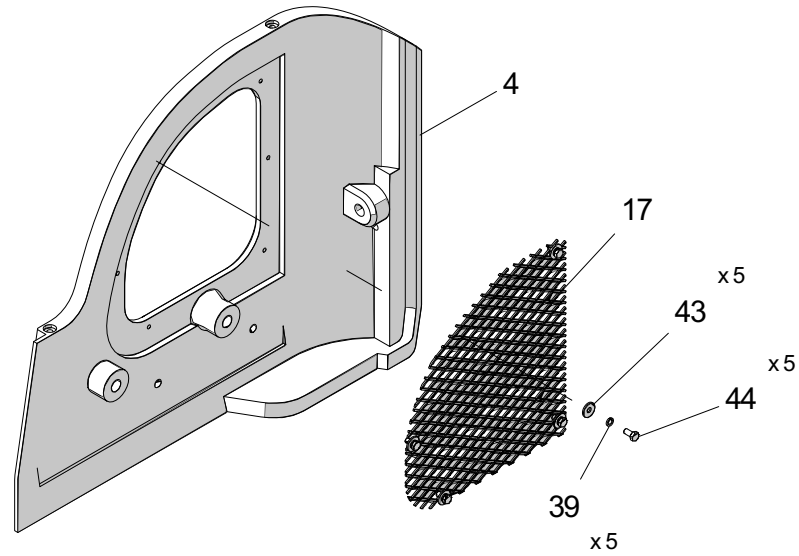
Part No.	Ref.	Part Description	QTY
K11	ZH07.11-9	Cover Seal Strip	1
K25	W-06-DS514-1	Door Lock Assembly	1

K03 Left Rear Cover / Steel Mesh



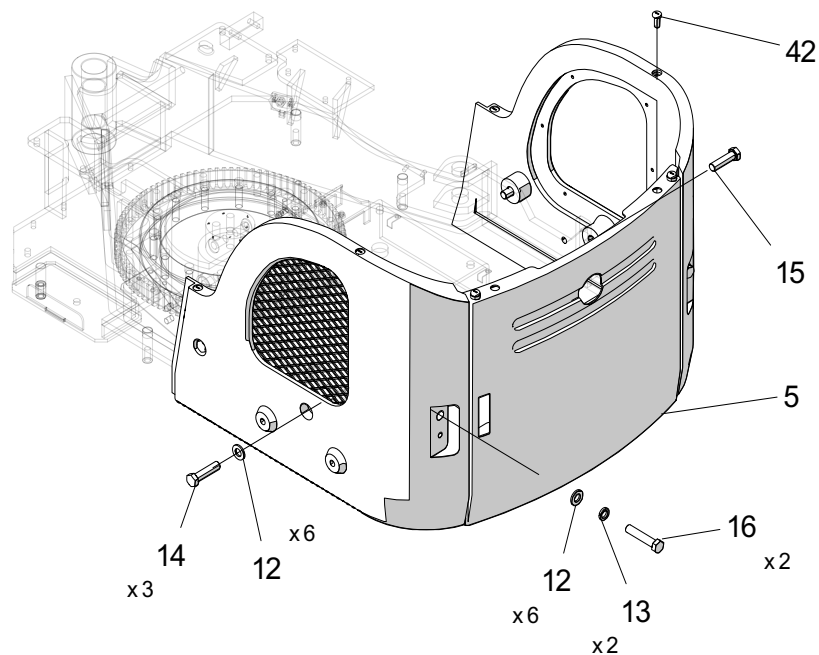
Part No.	Ref.	Part Description	QTY
K3	ZH07.11-3	Left Rear Cover	1
K17	ZH07.11-10	Steel Wire Mesh	2
K39	B-G000930-6	Washer 6	14
K43	B-G000960-6	Washer 6	12
K44	B-G057830-6*12	Bolt M6*12	12

K04 Right Rear Cover / Steel Mesh



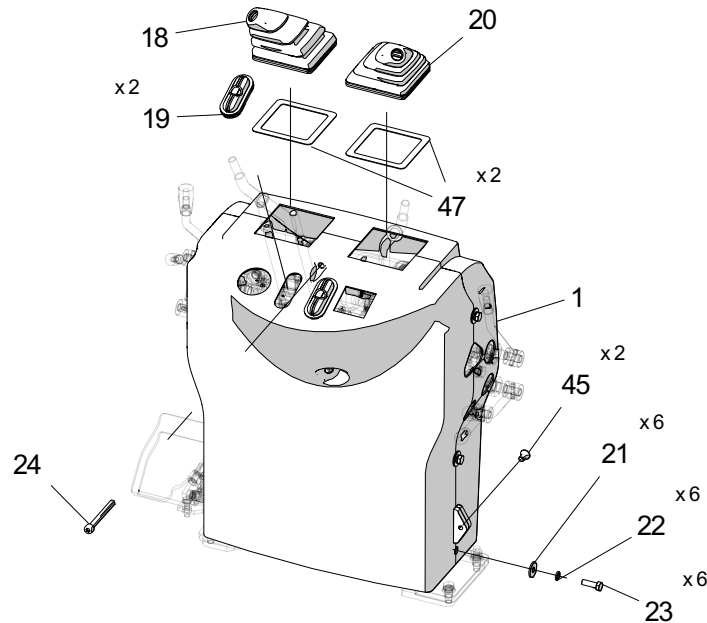
Part No.	Ref.	Part Description	QTY
K4	ZH07.11-18	Right Rear Cover	1
K17	ZH07.11-10	Steel Wire Mesh	2
K39	B-G000930-6	Washer 6	14
K43	B-G000960-6	Washer 6	12
K44	B-G057830-6*12	Bolt M6*12	12

K05 Right Rear Cover / Steel Mesh



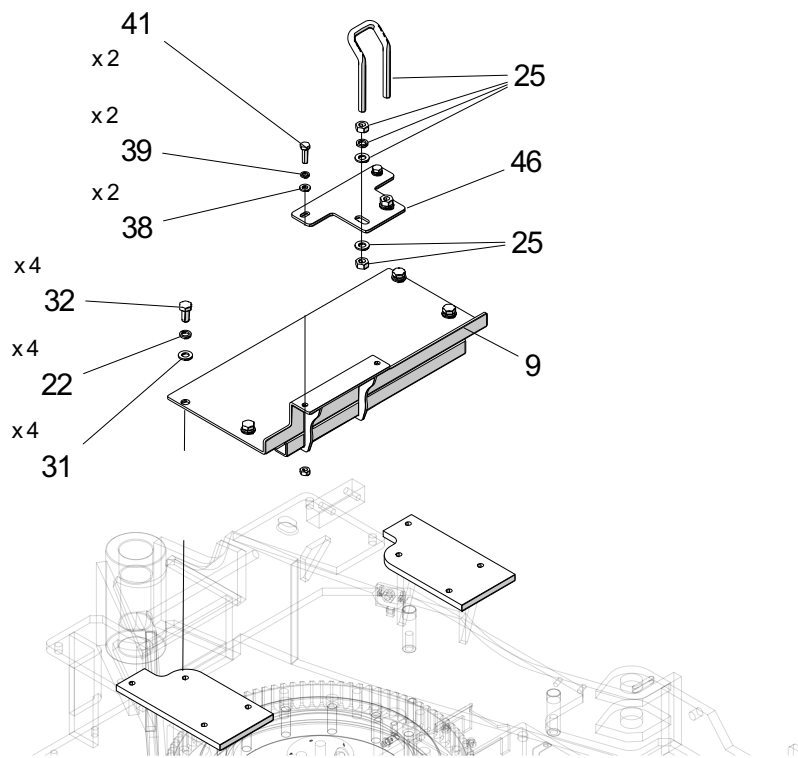
Part No.	Ref.	Part Description	QTY
K5	ZH07.11.4	Tail Cover Welded Parts	1
K12	B-G00097A-12	Washer 12	6
K13	B-G000930-12	Washer 12	6
K14	B-G057830-12*50	Bolt M12*50	3
K15	B-G057830-12*35	Bolt M12*35	1
K16	B-G057830-12*60	Bolt M12*60	2
K42	ZH07.11-21	Adjustment Screw	6

K06 Control Device Cover / Sheath



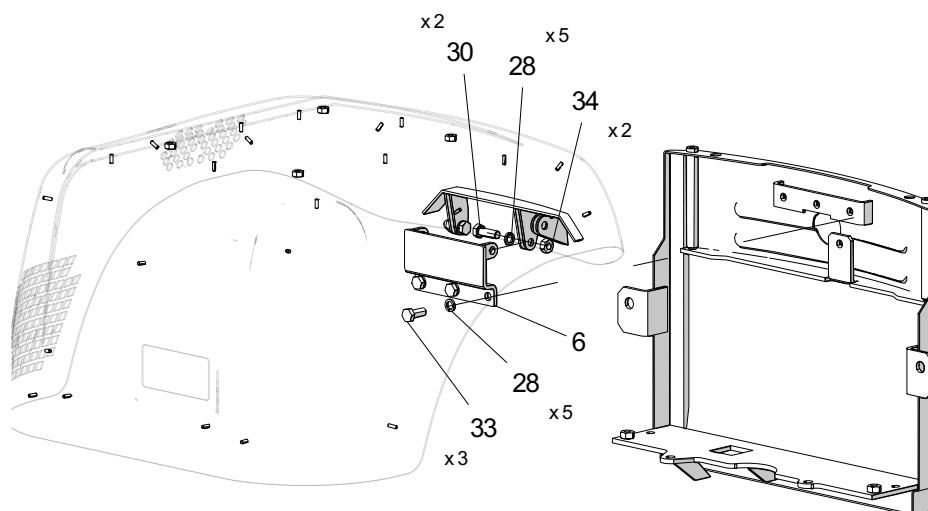
Part No.	Ref.	Part Description	QTY
K1	ZH065.11.1	Operating Device Cover	1
K18	ZH07.11-11	Square Operating Handle Cover	1
K19	ZH07.11-12	Walking Sheath	2
K20	ZH07.11-20	Square Operating Handle Sheath 02	1
K21	B-G000960-8	Washer 8	6
K22	B-G000930-8	Washer 8	18
K23	B-G057830-8*25	Bolt M8*25	6
K24	B-G00070A-8*80	Screw M8*80	1
K45	B-G00070C-8*16	Screw M8*16	2

K07 Control Device Cover / Sheath



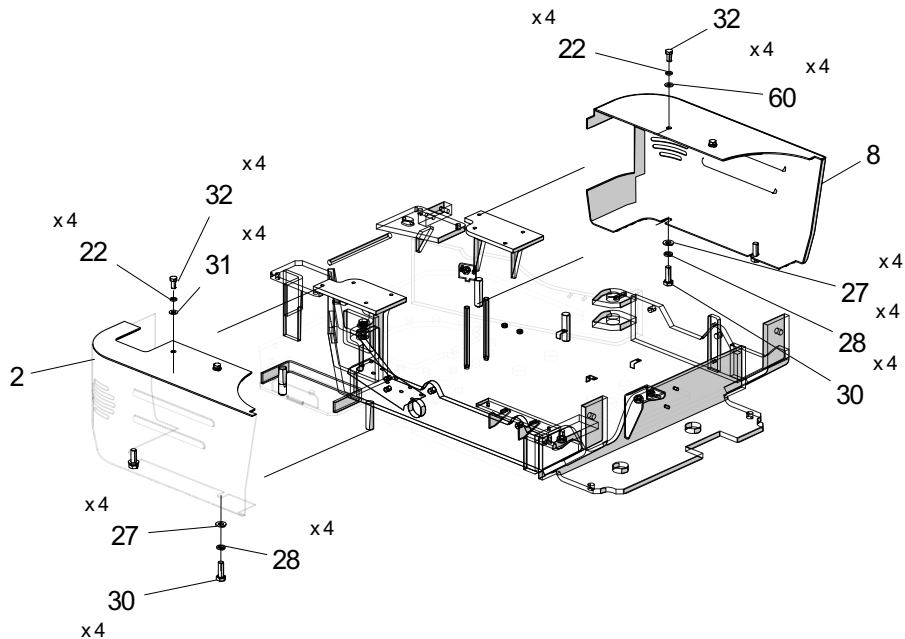
KPART NO.	REF.	DESCRIPTION	QTY
K9	ZH07.11.7	Pedal Sealing Plate Welding Parts	1
K22	B-G000930-8	Washer 8	18
K25	W-06-DS514-1	Door Lock Assembly	1
K31	B-G00097A-8	Washer 8	8
K32	B-G057830-8*16	Bolt M8*16	8
K38	B-G00097A-6	Washer 6	2
K39	B-G000930-6	Washer 6	14
K40	B-G061700-6	Nut M6	2
K41	B-G057830-6*20	Bolt M6*20	2
K46	ZH07.11.16	Lock Mounting Plate Welding Parts	1

K08 Hinge Welding Parts



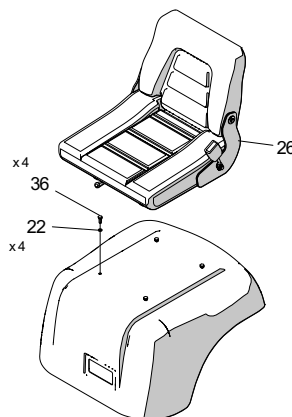
Part No.	Ref.	Part Description	QTY
K6	ZH07.11.5	Hinge Welding Parts	1
K28	B-G000930-10	Washer 10	11
K30	B-G057830-10*30	Bolt M10*30	7
K33	B-G057830-10*25	Bolt M10*25	3
K34	B-G061700-10	Nut M10	3

K09 Left Cover Welding Part / Right Front Cover Welding Part



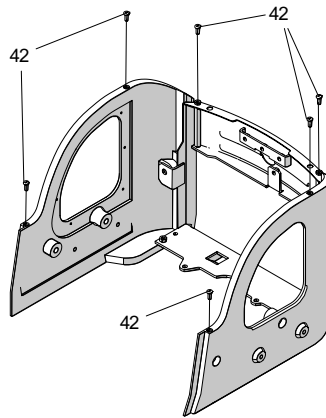
Part No.	Ref.	Part Description	QTY
K2	ZH07.11.2	Left Cover Welded Part	1
K8	ZH07.11.19	Right Front Cover Welding Part	1
K22	B-G000930-8	Washer 8	18
K27	B-G00097A-10	Washer 10	5
K28	B-G000930-10	Washer 10	11
K30	B-G057830-10*30	Bolt M10*30	7
K31	B-G00097A-8	Washer 8	8
K32	B-G057830-8*16	Bolt M8*16	8

K10 Seat



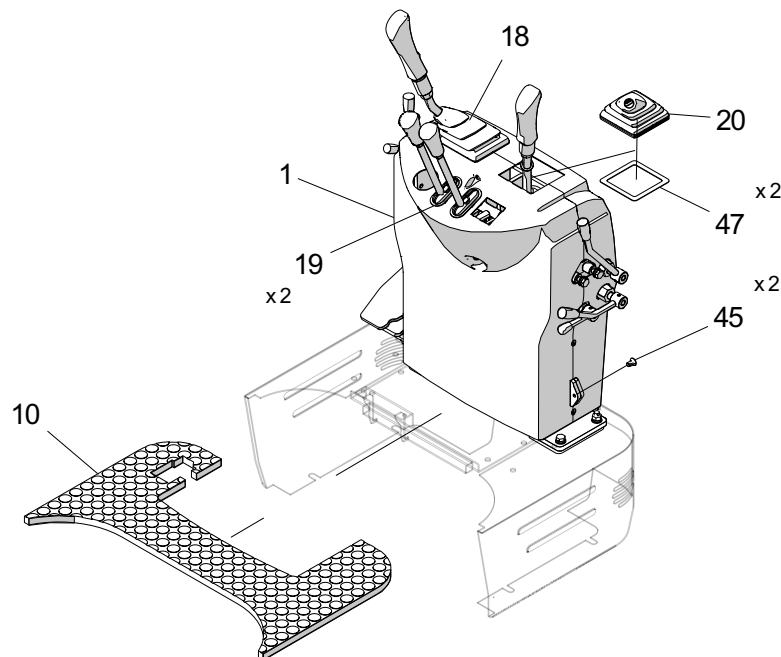
Part No.	Ref.	Part Description	QTY
K22	B-G000930-8	Washer 8	18
K26	W-06-XFZY-1DHA	Seat	1
K36	B-G057830-8*20	Bolt M8*20	4

K11 Adjustment Screw



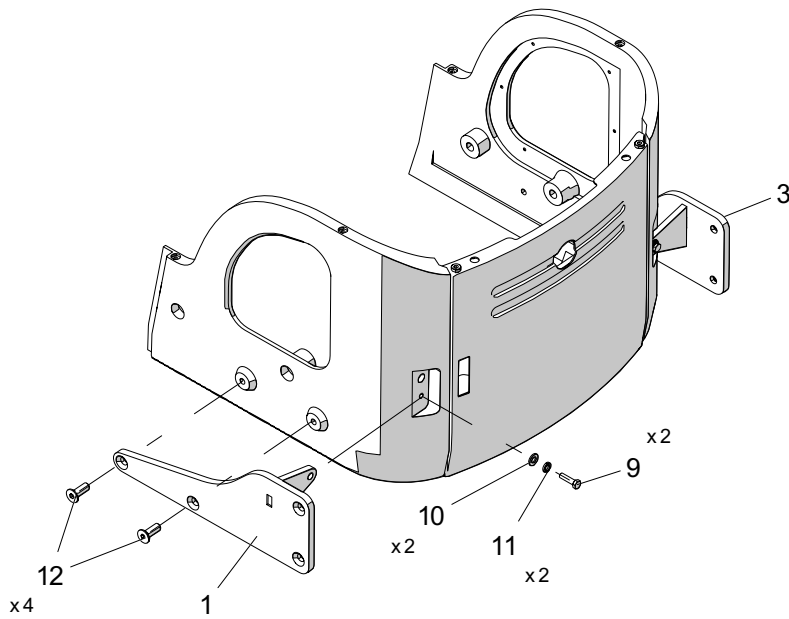
Part No.	Ref.	Part Description	QTY
K42	ZH07.11-21	Adjustment Screw	6

K12 Control Device Cover / Anti-Slip Rubber Pad



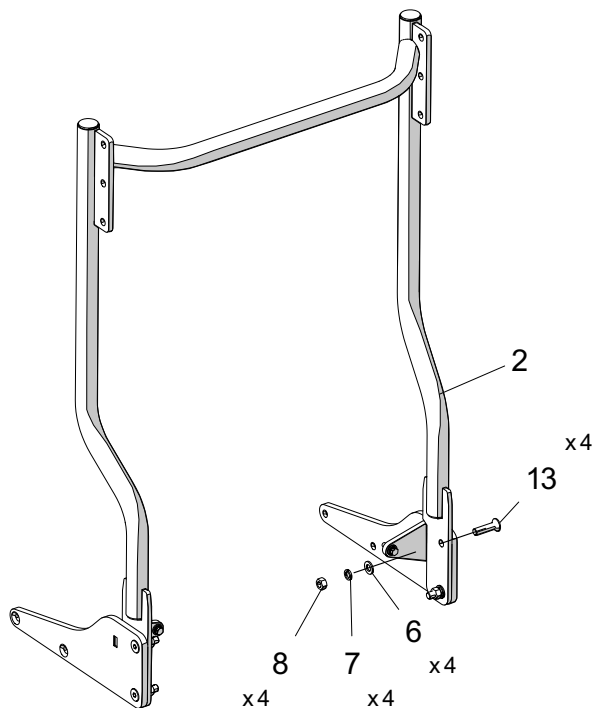
Part No.	Ref.	Part Description	QTY
K1	ZH065.11.1	Operating Device Cover	1
K10	ZH07.11-8	Anti-Slip Rubber Pad	1
K18	ZH07.11-11	Square Operating Handle Cover	1
K19	ZH07.11-12	Walking Sheath	2
K20	ZH07.11-20	Square Operating Handle Sheath 02	1
K45	B-G00070C-8*16	Screw M8*16	2
K47	ZH07.11-22	Sheath Reinforcement Plate	2

L01 Bottom Connecting Plate Welding Parts



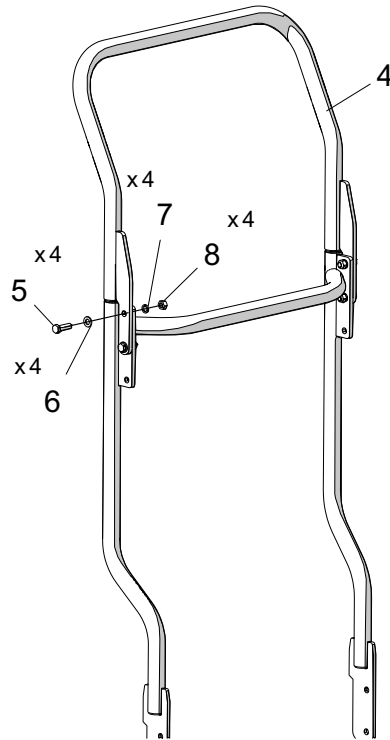
Part No.	Ref.	Part Description	QTY
L1	ZH07.12.1	Bottom Connecting Plate Welding Parts	1
L3	ZH07.12.3	Support Frame Welding Parts 02	1
L9	B-G057830-8*30	Bolt M8*30	2
L10	B-G00097A-10	Washer 10	2
L11	B-G000930-10	Washer 10	2
L12	B-G00070C-12*35	Screw M12*35	4

L02 Support Frame Welding Parts



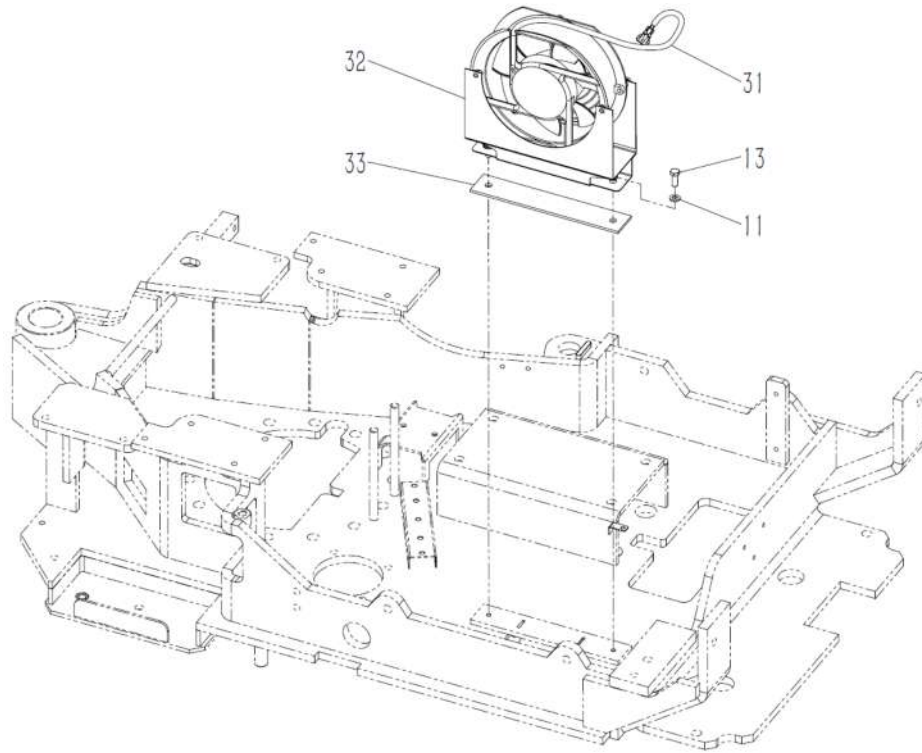
Part No.	Ref.	Part Description	QTY
L2	ZH07.12.2	Support Frame Welding Parts	1
L6	B-G00097A-12	Washer 12	8
L7	B-G000930-12	Washer 12	8
L8	B-G061700-12	Nut M12	8
L13	B-G00070C-12*50	Screw M12*50	4

L03 Upper Elbow Welding Parts



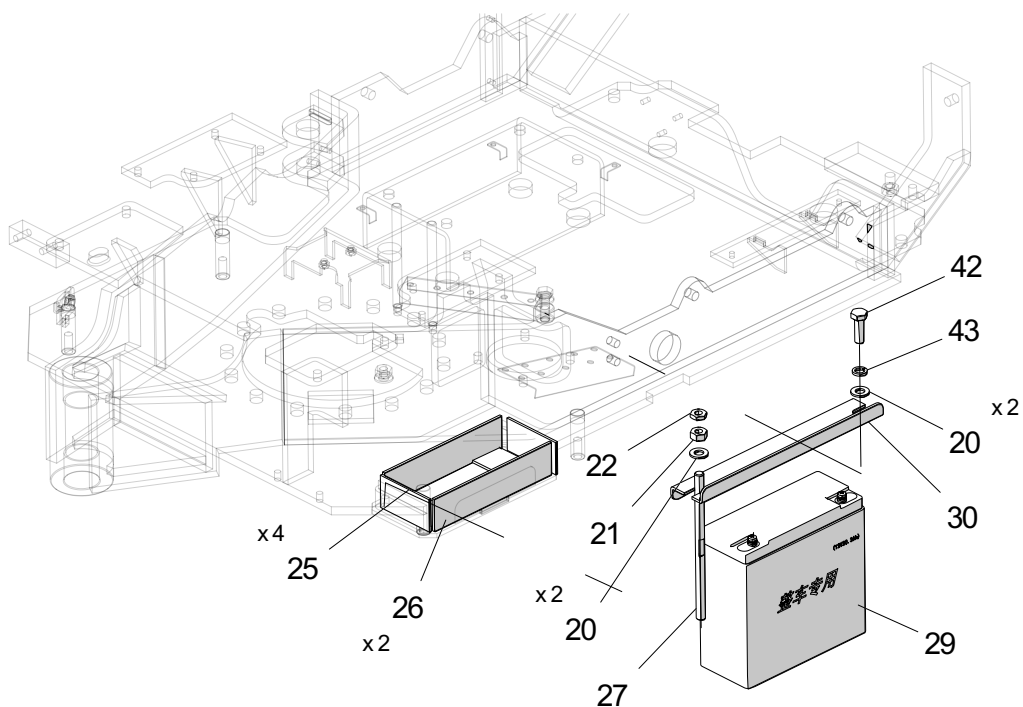
Part No.	Ref.	Part Description	QTY
L4	ZH07.12.4	Upper Elbow Welding Parts	1
L5	B-G057830-12*40	Bolt M12*40	4
L6	B-G00097A-12	Washer 12	8
L7	B-G000930-12	Washer 12	8
L8	B-G061700-12	Nut M12	8

M01 DC Fan



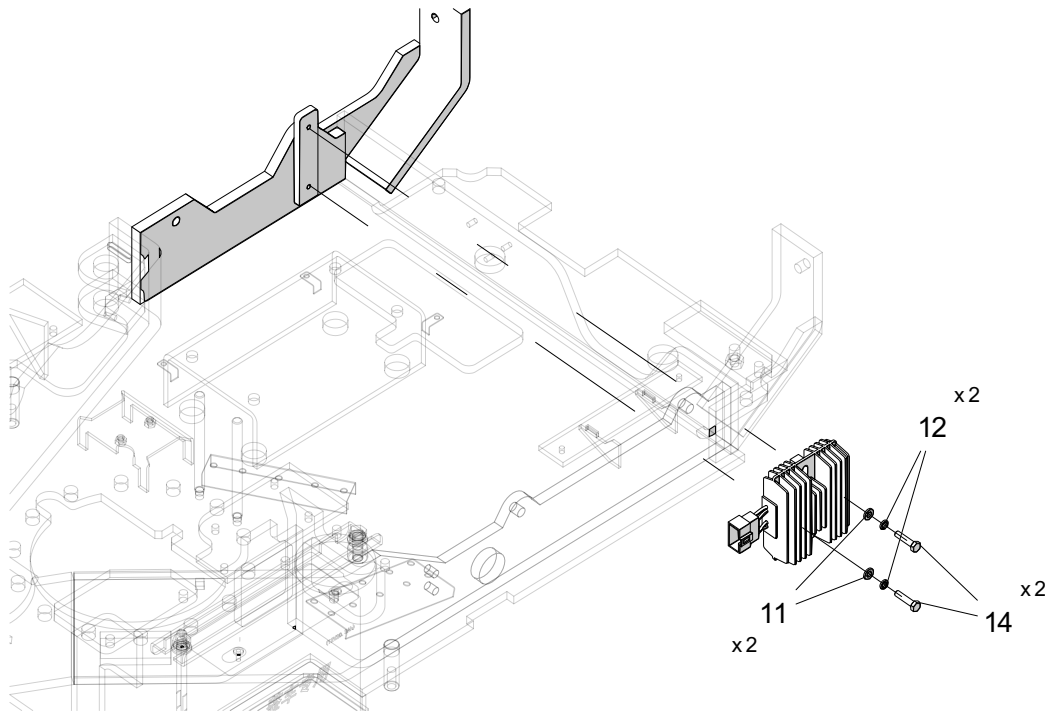
Part No.	Ref.	Part Description	QTY
M11	B-G00097A-6	Washer 6	2
M13	B-G057830-6*16	Bolt M6*16	2
M31	ZH065.13.26	DC Fan Assembly	1
M32	ZH065.13.27	Fan Installation Box Assembly	1
M33	ZH065.13-28	DC Fan Bottom Rubber Plate	1

M02 Battery



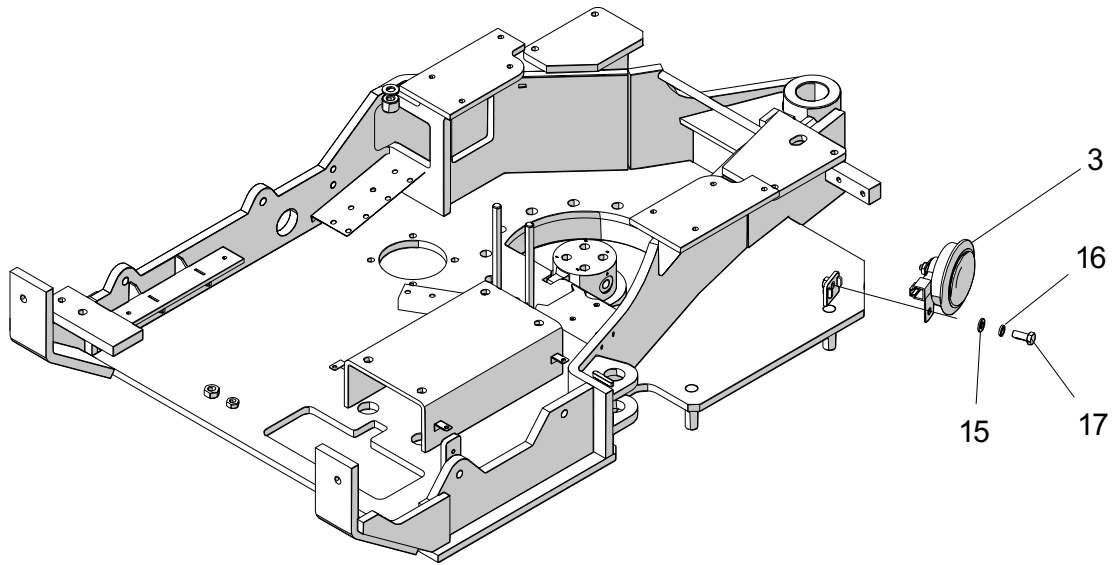
Part No.	Ref.	Part Description	QTY
M20	B-G00097A-10	Washer 10	2
M21	B-G061700-10	Nut M10	1
M22	B-G061720-10	Nut M10	1
M25	ZH07.13-1	Battery Bottom Rubber Plate 01	4
M26	ZH07.13-6	Battery Bottom Rubber Plate 02	2
M27	ZH065.13-2	Battery Fixing Screw	1
M29	W-10-6-DZF-20.3	Battery	1
M30	ZH065.13-3	Battery Pressure Plate	2
M42	B-G057830-10*30	Bolt M10*30	1
M43	B-G000930-10	Washer 10	1

M03 Rectifier Regulator



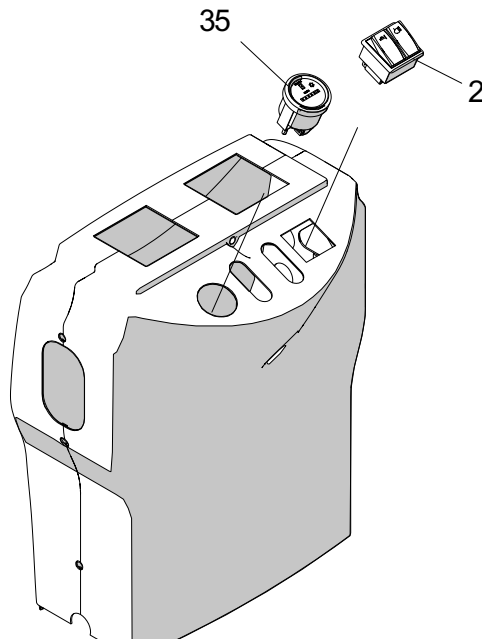
Part No.	Ref.	Part Description	QTY
M11	B-G00097A-6	Washer 6	8
M12	B-G000930-6	Washer 6	6
M14	B-G057830-6*25	Bolt M6*25	4

M04 Electronic Speaker



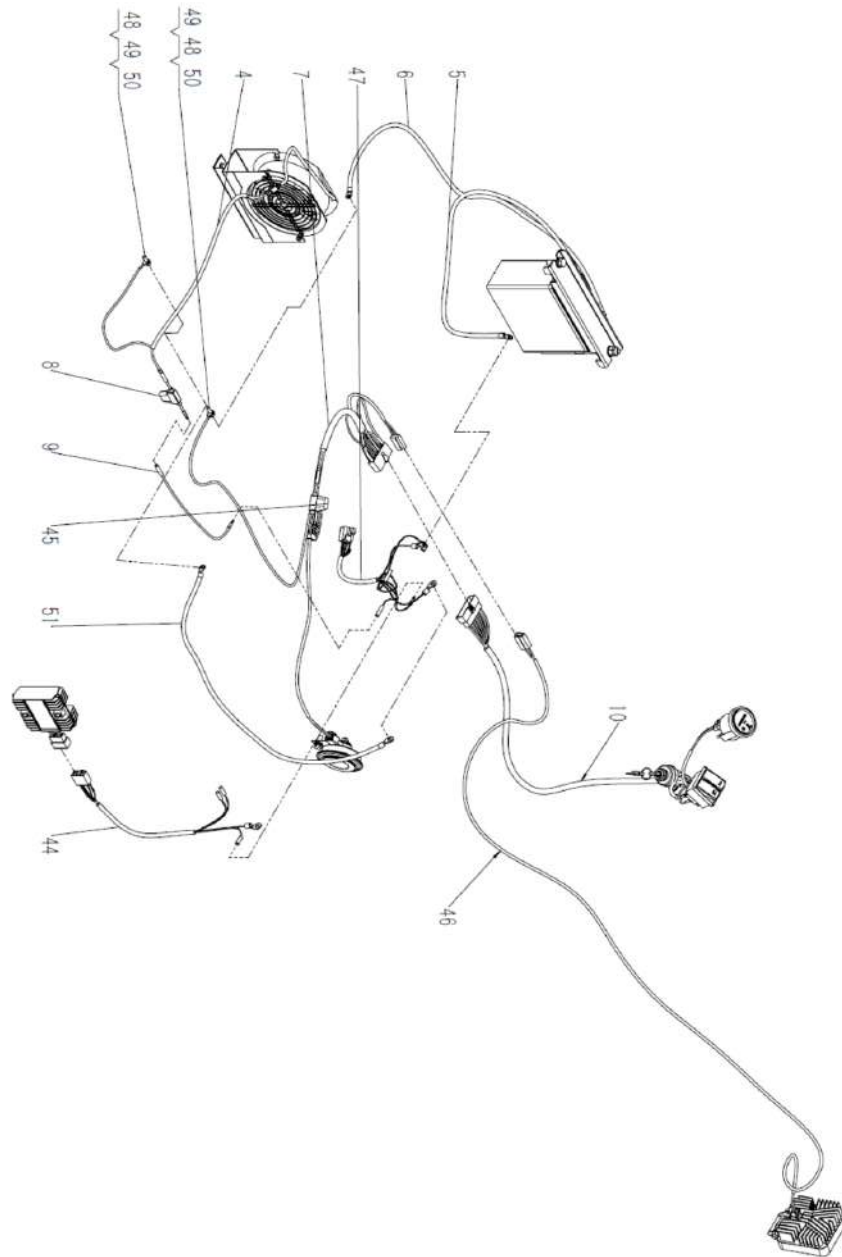
Part No.	Ref.	Part Description	QTY
M3	W-10-021.588-237	Electronic Speaker	1
M15	B-G00097A-8	Washer 8	1
M16	B-G000930-8	Washer 8	1
M17	B-G057830-8*20	Bolt M8*20	1

M05 Timer / Double Switch



Part No.	Ref.	Part Description	QTY
M2	W-10-JK962	Waterproof Switch 2 Units	1
M35	ZH065.13-29	Waterproof Timer	1

M06 Wiring Harness



Part No.	Ref.	Part Description	QTY
M4	ZH065.13.8	Connect The Electronic Fan Harness	1
M5	ZH065.13.9	Battery Positive Wiring	1
M6	ZH065.13.10	Negative Wire	1
M7	ZH07.13.11	Connect Gasoline Engine Wiring Harness	1
M8	ZH065.13.12	5A Fuse Assembly	1
M9	ZH07.13.13	Gasoline Engine To 15A Fuse Line	1
M10	ZH07.13.14	Manipulating The Main Harness	1
M44	ZH07	Gasoline Engine Comes With Line Speed	1
M45	ZH07.13.15	10A Fuse Assembly	1
M46	ZH065.13.16	Connect Light Harness	1
M47	ZH07.13.23	Gasoline Engine Comes With Modified Wiring Harness	1
M48	GB/T 97.1	Washer 6	8
M49	GB/T 93	Washer 6	6
M50	GB/T 5783	Bolt M6*16	4
M51	ZH07.13.20	Gasoline Engine Ground Wire	1