Hydraulic Crusher

- safety & Maintenance & Parts list

UFC132R

FOREWORD

This manual is composed of three sections, "SAFETY", "OPERATION", "MAINTENANCE" and explains the correct handling and daily checkup and repair when using a hydraulic crusher.

For the hydraulic excavator to mount on, refer to the instruction manual for the excavator.

Before using the crusher, be sure to read this manual and fully understand the operation, inspection and repair.

The maker can change the specifications or the contents of this manual without any obligations because it should be constantly up-to-date.
Please contact the distributor for obscure things about the crusher.

⚠ WARNING

If the crusher is used carelessly, an accident, which could result in serious injury or death, will be caused.

- **This manual should be kept near the hydraulic excavator on which the crusher is mounted and the user should read it periodically.**
- **If this manual is lost or damaged or if you need it, order a new one from the distributor.**
- **If the crusher is transferred, be sure to attach this manual to the crusher.**
- **The maker can change the specifications or the contents of this manual without any obligations because it should be constantly up-to-date. Please contact the distributor for obscure things about the crusher.**
- **Use this manual according to the regulations and provisions of the country where the customer uses the machine.**

SAFETY INFORMATION

Most accidents are caused by disregarding the basic rules of operation, inspection or repair, or by neglecting the inspection before operation. Many accidents can often be avoided by recognizing potentially hazardous situations before they occur.

Before operating, inspecting or repairing the hydraulic excavator on which the crusher is mounted, be sure to read and fully understand the warnings and operation procedures described in this manual.

Safety messages are classified as follows so that the users can understand the warnings in this manual.

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
This signal word is to be limited to the most extreme situations.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
It may also be used to alert against unsafe practices.

★ NOTICE

Signs used to indicate a statement of company policy directly or indirectly related to the safety of personnel or protection of property.

Note

DANGER or WARNING should not be considered for property damage accidents unless personal injury risk appropriate to these levels is also involved. CAUTION (and NOTICE) are permitted for property -damage- only accidents.

The safety messages include the preventive measures to avoid danger.
Furukawa cannot anticipate every possible circumstance that might involve a potential hazard on operation, inspection or repair. Therefore the warnings in this manual are not all inclusive.
Observe the safety warnings on your own responsibility.

GENERAL DESCRIPTION OF CRUSHER

Specified works

WARNING

Don't use the crusher for other works except the specified works.

The hydraulic crusher is used to crush and break concrete columns, beams, and foundation during demolition of buildings.
It is designed and manufactured to be used for the following works.

- Demolition of the foundation of buildings and bridge piers.
- Demolition of concrete structures.
- Demolition of partitions of buildings and other demolition work for concrete structures in small places.

Features

- This crusher enables the low -noise and low- vibration work. It is applicable to a work in a city or a night work.
- Wearproof steel is used for the reinforcing bar cutter, which is a standard equipment. Four surfaces can be used by changing and reversing the cut surface.
- The opening/closing speed of the arms has been shortened sharply as the acceleration valve is equipped as standard.
- The rod guard as a standard equipment protects the hydraulic cylinder from scattered stones or contact with others during breaking and dismantling.

Running - in operation

If it is handled severely in the initial stage of use, the efficiency is lowered earlier than usual and its service life is shortened.
Perform running -in operation for initial 100 hours (calculated by the hour meter of the hydraulic excavator).
Don't use the crusher forcedly.

Safety

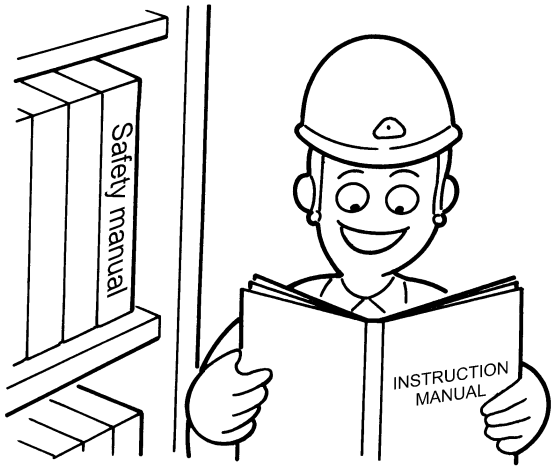
⚠ WARNING
Thoroughly understand the importance of "Safety". Incorrect handling is very dangerous, leading to serious injuly or death.

SAFETY PRECAUTIONS

Safety control

Study instructions

- Severe injury or death can result from failure to follow instructions.
- Study this safety manual and the instructions for both your particular hydraulic crusher and hydraulic excavator, and fully understand their controls, inspections and maintenance.
- Don't operate the machine until you fully understand all these items.
  Keep this manual and the instructions with your hydraulic excavator.

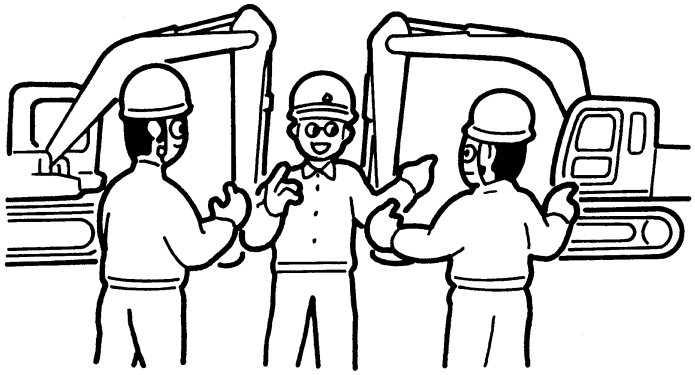


Follow instructions and warnings

- Severe injury or death can result from failure to follow instructions and warnings. Don't ignore what you don't understand.
- Make sure to read all safety instructions and warnings and fully understand them before operation.
- Because instructions, stickers and safety signs are very important for safety, keep them in good condition and replace them, if damaged.

Observe the rules on the working stop

- Make a working plan, prepare a daily or monthly report and record the working situation.
- Before starting the work, check the inhibited procedure and precautions with the superintendent. You must observe them.
- When the operator alternates with another, he must inform the alternate of the machine condition by a memo or word of mouth.
- When operating two or more machines at a time, arrange signs and put a safety guard in place.



No fatigue or alcohol

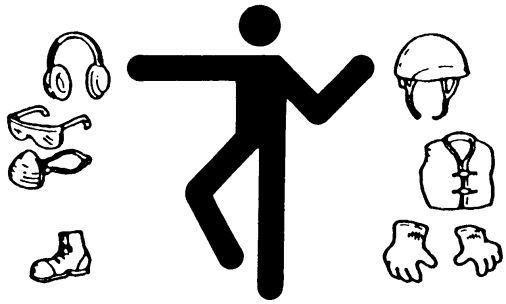
Fatigue, lack of sleep, drugs or alcohol can lead to carelessness and cause accidents.

Don't operate a machine of you are in such a condition.

Get a periodical medical examination to maintain a healthy life style.

Safety clothing/Protective instruments

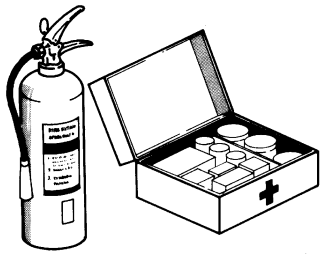
- Don't wear loose clothes, which can become entangled in the machinery and cause accidents. Take care of your safety clothing, especially cuffs and shoestrings.
- Don't wear coveralls soaked with oil to prevent fire hazard.
- Wear safety helmet and safety boots when operating or working on machine. Also wear safety glasses, breathing mask, ear protection, or safety rope if needed.
- Make sure your protective gear is always in good repair.



Fire and other accidents

Be sure a first aid kit and fire extinguisher are near at hand in case of emergencies.

- Learn how to use a fire extinguisher.
- Be familiar with where fire extinguishers are located.
- Know where a first aid kit is located.
- Know where to get assistance.



Adjust oil pressure and flow correctly

Available oil pressure and flow between the hydraulic excavator and the crusher may be different.

If oil pressure and flow exceed their available range, they can lead to increased vibrations, shocks and hose movements, and the machine and hose can become damaged. Serious injury or death can result from it.

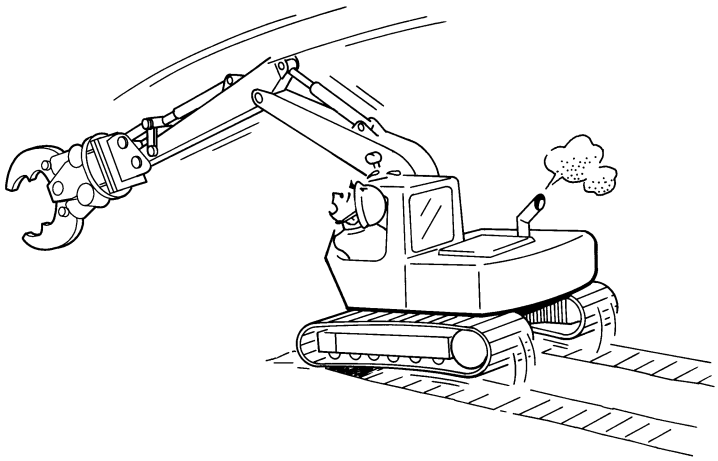
Follow the instructions for your particular machine and adjust oil pressure and flow correctly.

Selecting the hydraulic excavator

Install a crusher to a proper-sized hydraulic excavator to fit with each other.

If a hydraulic excavator is small for the crusher, the excavator may tip over.

Make sure to install the crusher to a manufacture's recommended hydraulic excavator.



Modification is inhibited

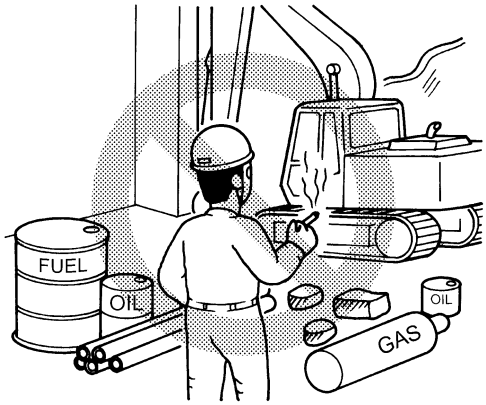
If trouble has occurred, if disassembly and repair is done or if you wish modification, contact the distributor.

We cannot assume responsibility for the accident or trouble caused by the modification (including disassembly and repair) not permitted, and for the secondary damage.

Safe work site

Be sure all flammables (e.g. fuels and gas cylinder) and obstacles (e.g. tools, vehicles, wastes and other materials) are clear of work site to secure safe work site.

Take precautions to minimize hazard. For example, partition a dangerous work site with a wall.



Be careful for fire

Fuel, oil and other flammable fluids are dangerous and can be explosive. Always handle them with care.

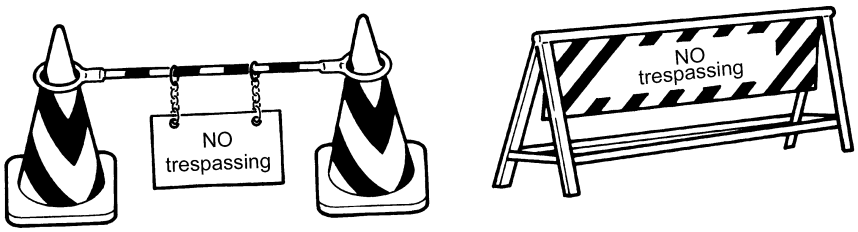
- Don't put flammables close to the machine and don't smoke when filling the fuel tank.
- Stop the engine completely before filling the fuel tank.
- Add fuel and lubricants in the open air only.
- Don't overfill the fuel tank or other reservoirs.
- Always use a nonflammable solvent as a cleaner.
- Put out a fire immediately.
- Have fire-lighting tools near at hand.
- Don't smoke during inspections and maintenance.
- Use explosive-proof lights and lights fixtures when performing inspections of fuels, oils and battery fluid.

Precautions before starting the engine

Trespassing prohibited

To prevent accidents, post no trespassing signs at dangerous working sites.

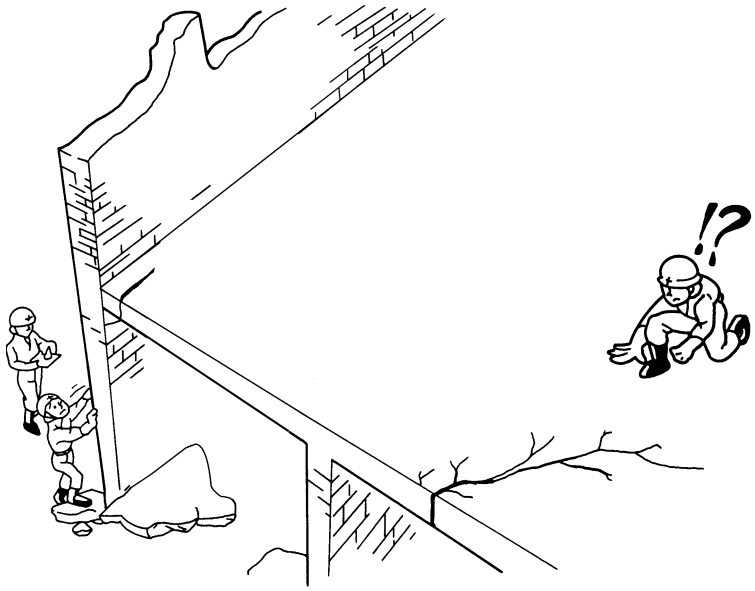
- Be sure all personnel and obstacles are clear of work area before operation.
- It is dangerous that unauthorized personnel trespass into the work site.
- If the work site is located in a town area, post no trespassing signs and palisade the work site.
- If the work site is located on a busy traffic street, put a signal person to prevent accidents.



Securing firm ground

If working sites or tramming paths are rough, instability and vibration of the machine can cause accidents or property damage.

- Maintain graded working sited and roadways.
  Operate the hydraulic excavator on even, firm ground only. Do not operate the excavator on piles or other unstable ground.
- When operating the hydraulic excavator on a building, a floor may collapses and the excavator may tip over.
  Before operation, verify that the floor is strong enough to support the excavator. The floor also should be strong enough to bear the breaking impact. Reinforce the floor if necessary.



Beware of underground utilities

Before operating, verify location with control offices of underground cables, gas pipes, water pipes and drain pipes and other underground utilities.

If a gas pipe get damaged during operating, keep flammable materials away from the damaged gas pipe and report the damage to a fire station and neighbors immediately.

Cutting through a fiber optic cable can cause serious eye damage.

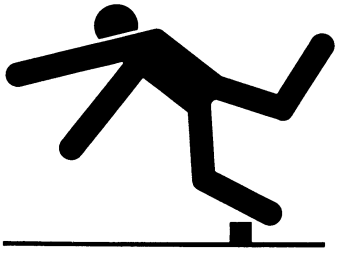
Inspection before operation

Perform inspections before starting the engine or operating machine. If something is wrong, replace it.

- Looseness of bolts
- Looseness or oil leakage of hoses
- Crack, damage or looseness of the components (especially arm and bracket)
- Operating function
- Clearance of the turning bearing
- Rub grease on the rotation segment and the sliding part

Cleaning around the operator seat

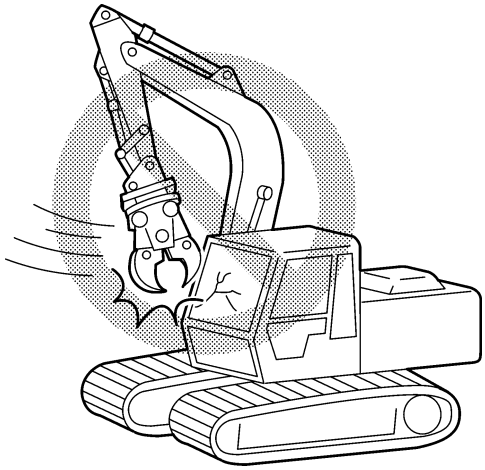
- Don't put a tool or part around the operator seat, or the operation will be hindered.
- Wipe away mud or oil from the floor, pedal and lever. Otherwise, mis - operation will occur.
- Don't operate pedals and levers from outside of the operator station. The machine may move unexpectedly and accidents can result from operating the machine from outside of the operator station.
- To operate the crusher safely, have a seat securely in the operator station.



Precautions for safe operation

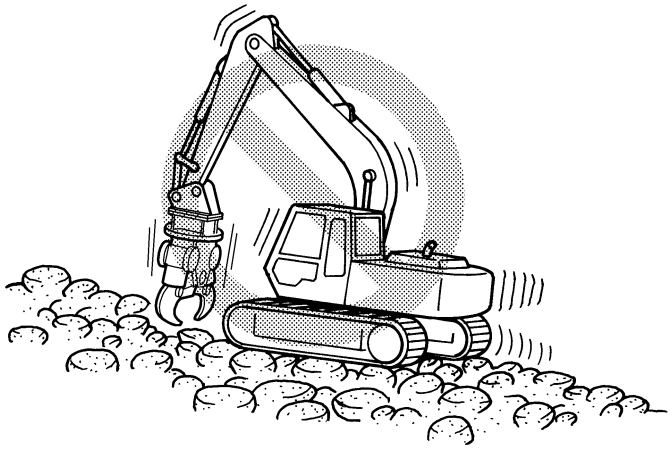
Beware of the crusher operation

If the crusher runs into the cab or the boom, serious injury or death can result from it.
Always be careful of the crusher operation to prevent accidents.



Tram safety

- To prevent accidents, travel on flat ground as much as possible and make sure to hold the crusher at 40 to 50cm (15 to 20 inches) above ground when tramming.
- Keep the machine away from utility poles, buildings or other obstacles as much as possible.
- Be careful when tramming on frozen ground or snow.
- Starting or stopping the machine abruptly on unstable ground and slopes can cause to tip over. Always operate the machine slowly on unstable ground and slopes.

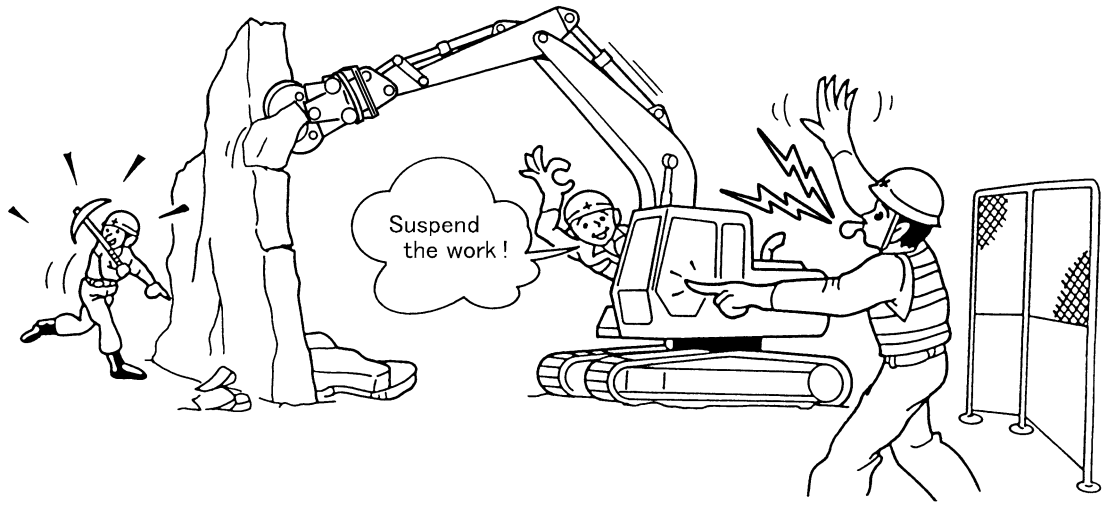


Hazardous range

Immediately stop the work it, while crushing, the signal man has found it "dangerous" or if other than the signal man has trespassed on the "hazardous range".

The operator and signal man must determine beforehand a hand sign or other signals of stopping the work at once.

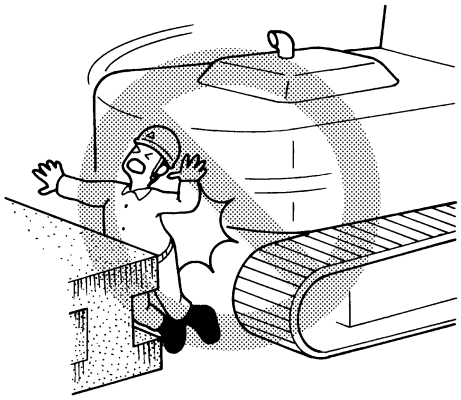
- The hazardous range during crushing is generally within a circle of approximately 3m radius from the max. working range of the hydraulic excavator.
- Other than the signal man is not allowed to enter the working site.



Turning precautions

To prevent serous injury or death, follow the instructions when turning a hydraulic excavator safely.

- Before turning the hydraulic excavator, sound the horn to warn all personnel around the excavator.
- Make sure all personnel are clear of the work area around the hydraulic excavator before turning.
- A signal person is required in any place where visibility is poor.



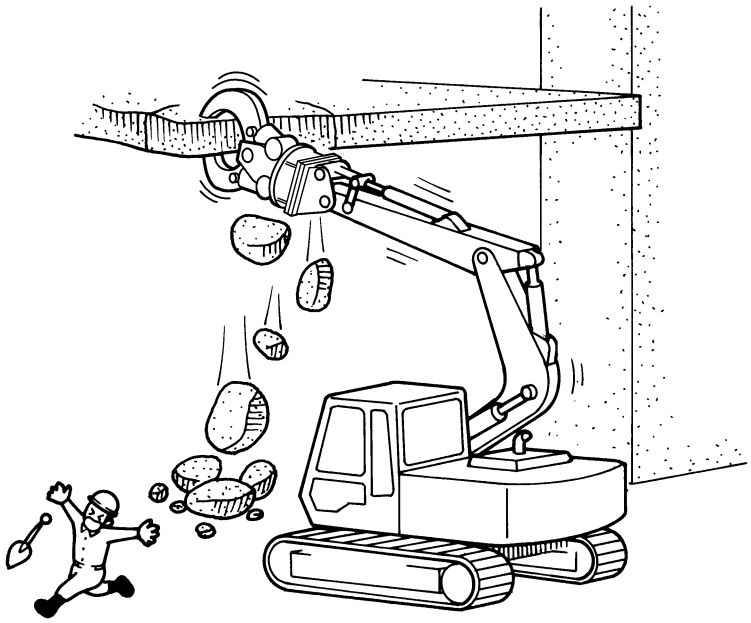
Beware of falling objects

Make sure all personnel are clear of potentially dangerous area of falling objects crushed by operation.

Falling objects may unexpectedly fall down on the operator's station along the arm and the boom.

Be careful of potentially dangerous direction of falling objects and always operate the crusher with care. Use the hydraulic excavator installed with a head guard or FOPS when operating the crusher at a potentially dangerous site.

FOPS … Falling-object protective structures



Beware of flying objects

Flying objects may unexpectedly occur during crushing operation and serious injury or death can result from it.

Be careful of potentially dangerous direction of flying objects and always operate the crusher with care.

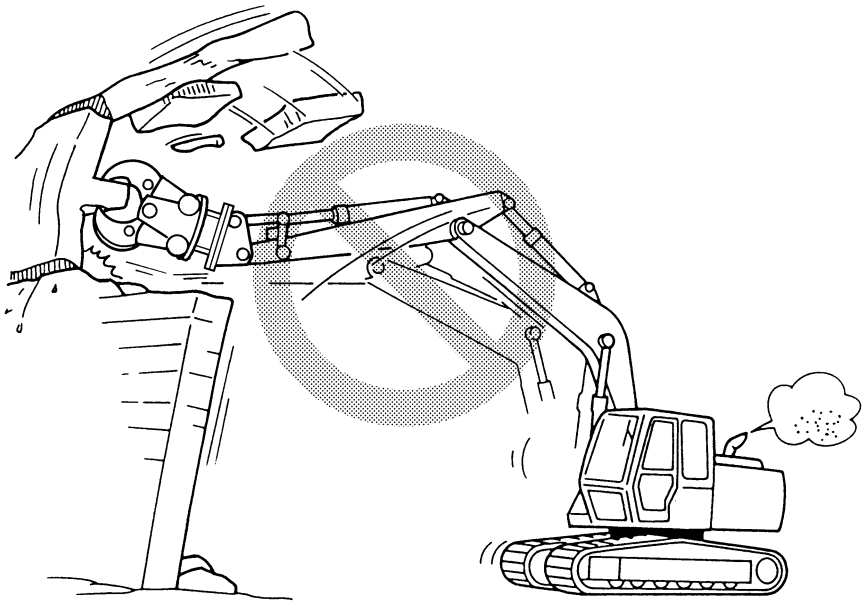
Make sure all personnel are clear of all potentially dangerous area of flying objects crushed by operation.

Secure large no-trespassing area for safety.

Pull down poles, beams and walls carefully

When pulling down buildings with the crusher, poles, beams and walls may fall down in an unexpected direction and can cause serious injury or death.

Follow a supervisor's instruction to take safe procedure.

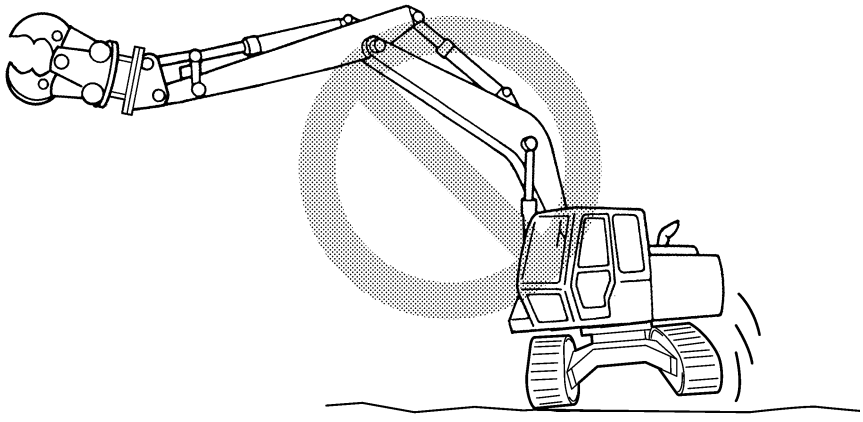


Don't operate the crusher to crossway against the track

Operating the crusher while turning the boom aside against the track of the hydraulic excavator can cause instability of the excavator and tipping over.

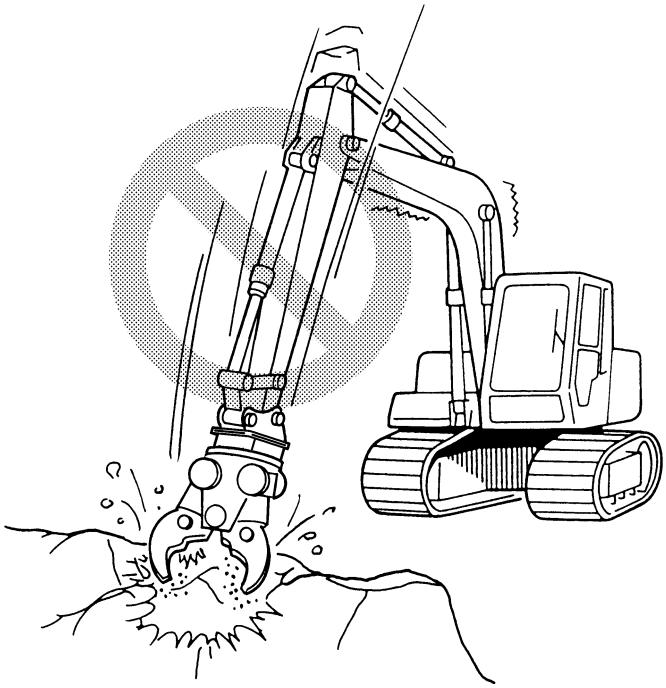
Don't operate the crusher to crossway against the track.

When turning aside, draw the boom and the arm near the excavator and turn securely.



Don't strike any object with the crusher

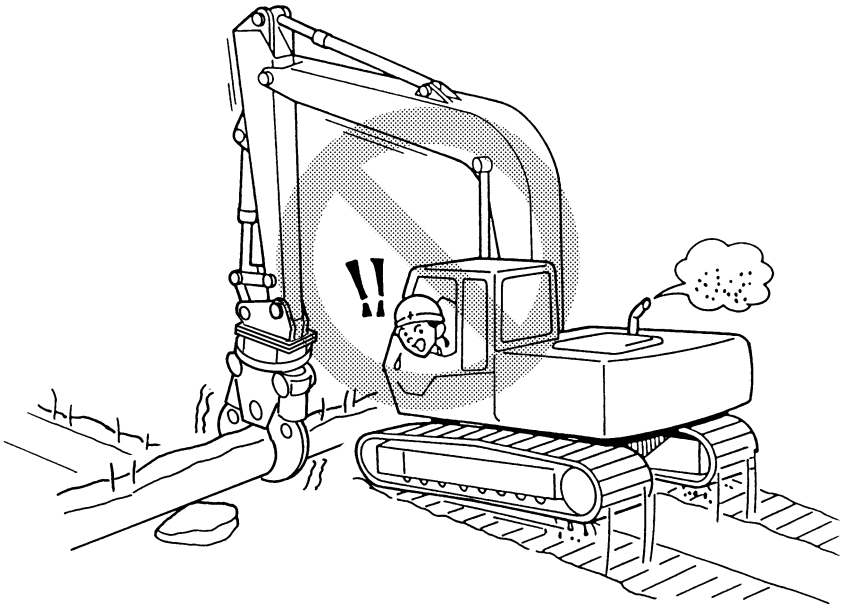
Striking a object with the crusher can cause flying objects and serious injury or death can result from it. Never do it.



Don't operate the hydraulic excavator with overload

Operating the hydraulic excavator with overload, the excavator may tip over.

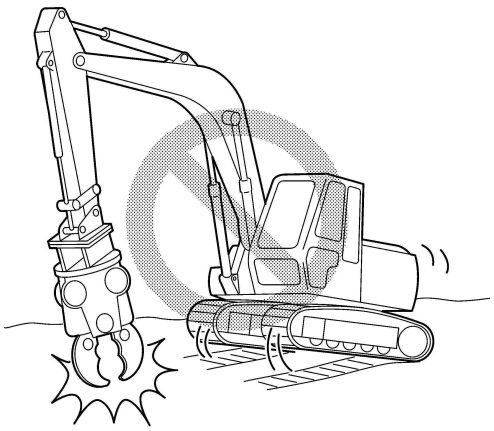
Overall mass of the equipment and the held object must be within the safety range of the operating radius to operate the machine safely.



Don't jack up the hydraulic excavator

if pushing the equipment so hard that the hydraulic excavator is jacked up or turns. the excavator becomes not only unstable, but also unexpectedly damaged. And serious accidents can result from it.

Never jack up the hydraulic excavator.

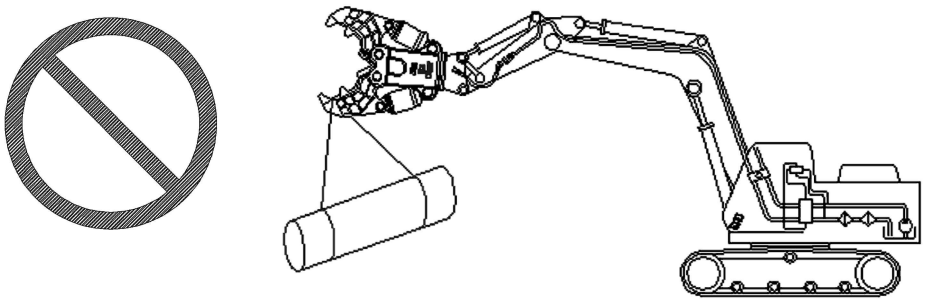


Don,t suspend any objects

A load hanging from the crusher may fall and cause serious injuly. death or property damage.

Never suspended or place any objects on the crusher.

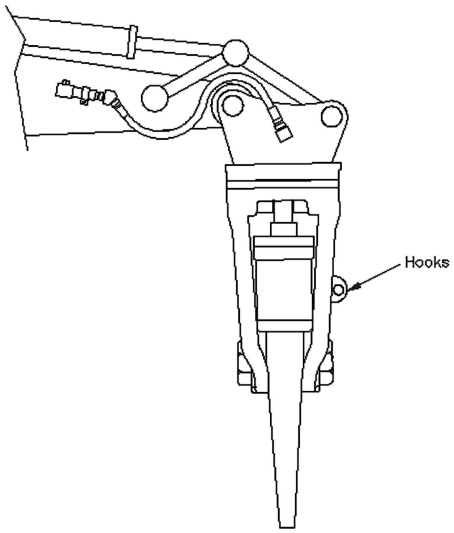
- Use a special machine for the crane work.
- Hooks on the crusher are provided for inspection, maintenance, and transportation of the crusher itself. Do not use them for hoisting loads.



Inhibition of hosting with hooks"

Hooks on crusher are provided for inspection, maintenance, and transportation of the crusher itself. Do not use them for hosting loads.

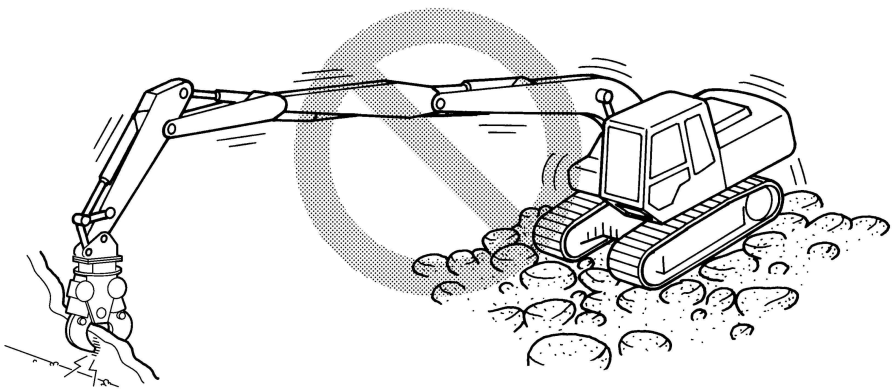
Since they are designed to hoist the crusher, they are not strong enough to hoist any object for operation.



Operate a long-arm hydraulic excavator carefully

When operating long-arm hydraulic excavator with a crusher, leaning the boom down or extending the arm toward a horizontal radius can cause tipping over.

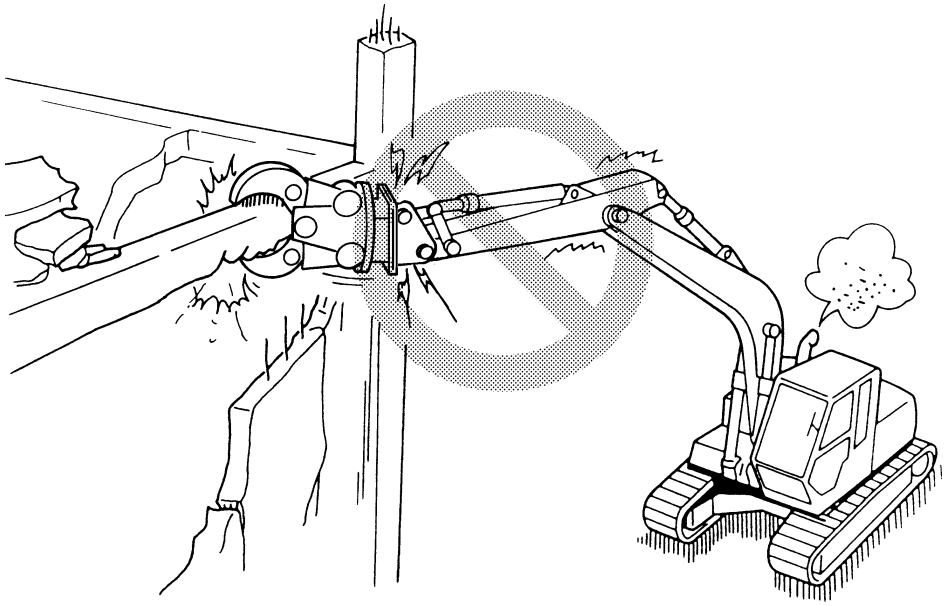
Follow the instruction of the safe operation radius and limited mass for your particular machine, and operate the machine within the safe range of the operating radius securely.



Inhibition of "aslant engagement"

Aslant engagement added a torsion to the arms, whereby the crusher, cylinder, bushing, etc. might break.

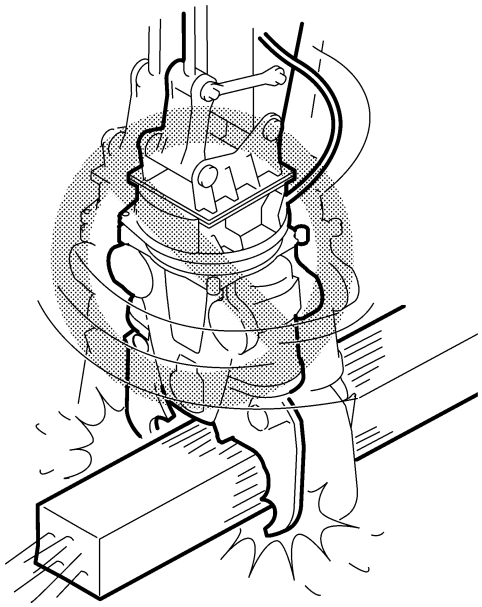
When crushing pillar, beams, etc., position the crusher perpendicularly to them.



Don't operate the crusher by force

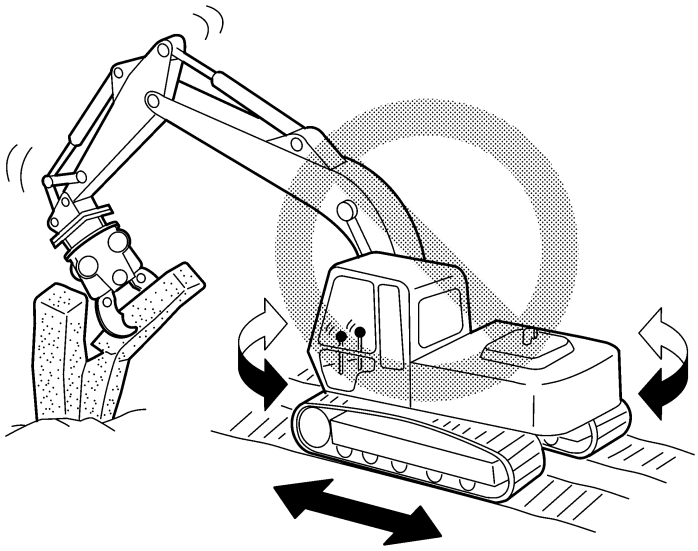
If operating the crusher by force to pull down poles or beams, the crusher, the boom, arm, cylinder and link can become damaged.

Never do it.



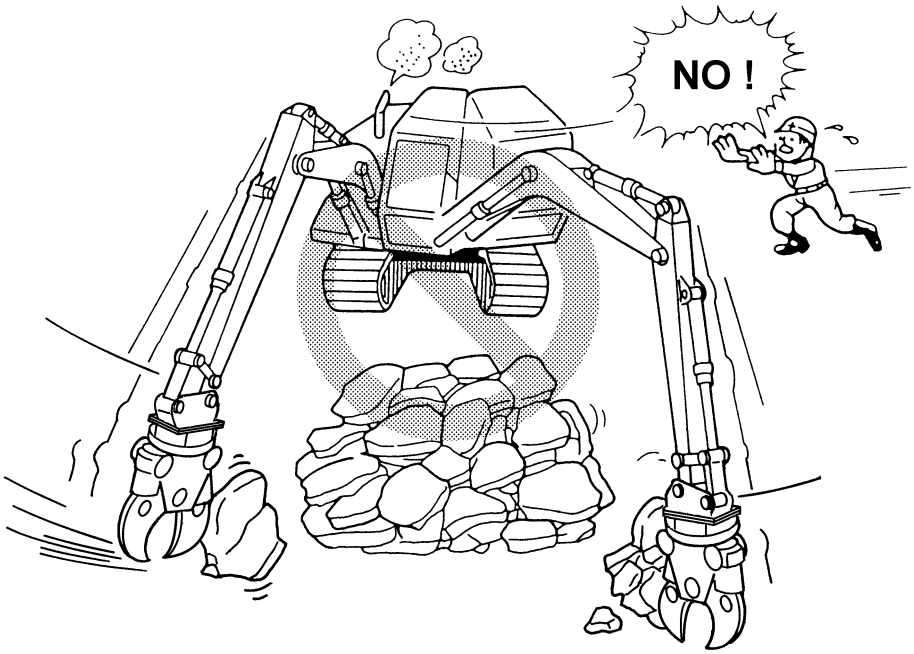
Inhibition of "simultaneous operation"

Moving the boom and arm of the hydraulic excavator or traveling and rotating the excavator during crushing with the crusher can damage not only the crusher but also the hydraulic excavator.
Do not operate the hydraulic excavator during crushing.



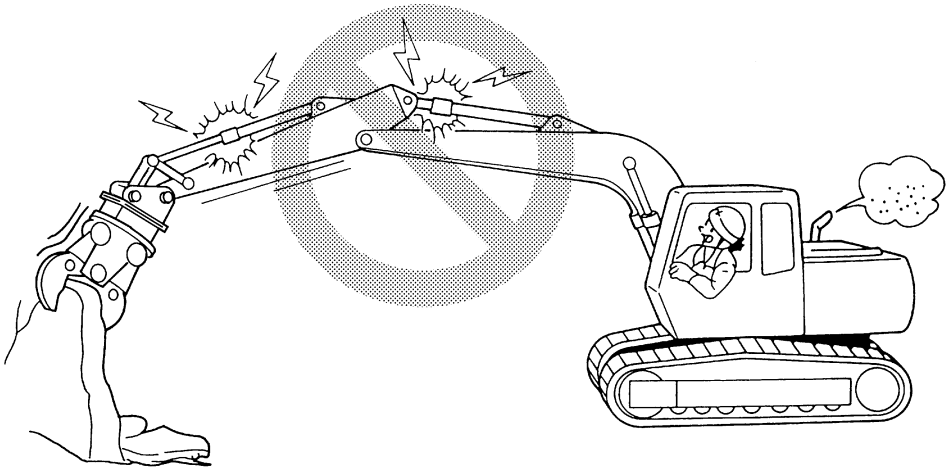
Inhibition of "dragging in"

Do not drag in or draw near concrete or metal chips with the crusher, otherwise the rotation gear of the crusher can be damaged.



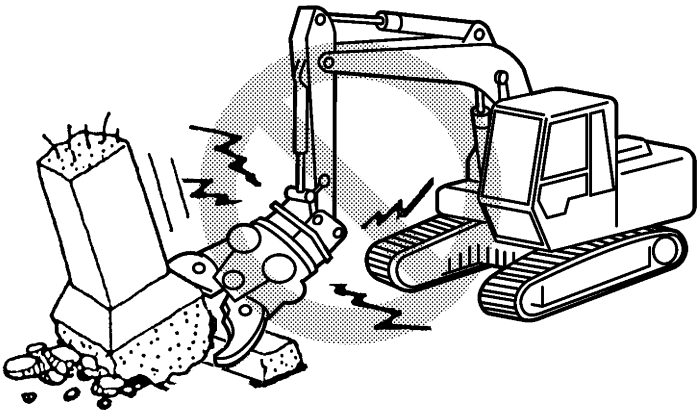
Don't operate the hydraulic crusher at the cylinder stoke end

If using the crusher with the cylinder for the hydraulic excavator arm, boom and bucket link on the stoke end position, the cylinder can become damaged by impacts and the boom may fall down.
Never use the breaker at the cylinder stroke end.



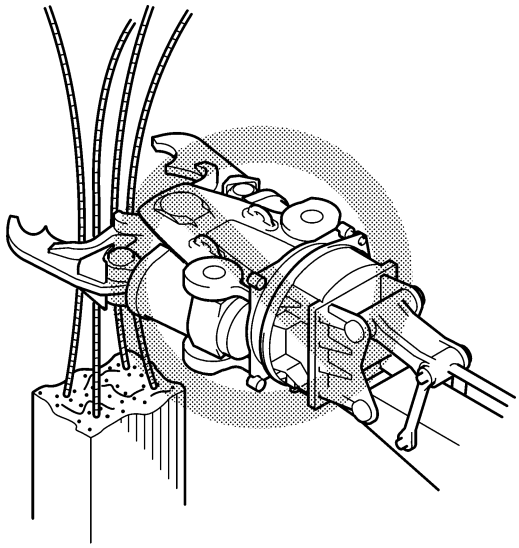
Inhibition of "levering"

Do not dig up structures or concrete using the crusher as a lever, otherwise not only the crusher but also the arm of the hydraulic excavator can be bent or deformed.



Precautions in cutting reinforcing bars

- Cutting a bundle of reinforcing bars will apply excessive force to the crusher, possibly damaging not only the cutter but the crusher itself.
  Cut reinforcing bars one by one without bundling them up.
- Clamping concrete and others that are not reinforcing bars can deform or damage the cutter.
  Remove the concrete from reinforcing bars before cutting them.



Beware of electrocution

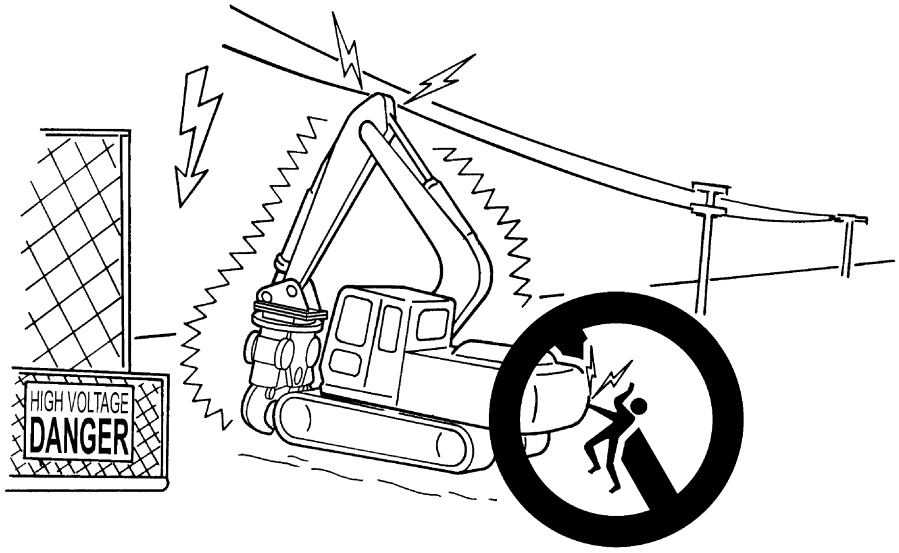
- In case of high voltage lines, being close to them is enough to cause serious injury or death by an electric shock.
- Place the machine as far as possible from power lines.
- Make inquires to an electric company and use a signal person to guide the machine safety.

Touching a high voltage line with the machine

- In the event that a machine comes in contact with high voltage lines, warn all site personnel: "DO NOT TOUCH THE MACHINE" under any circumstances.
- When escaping from the hydraulic excavator, jump out of the excavator without touching any grab rails or steps.

  The figures in the table below may be used as a general guideline.

VOLTAGE (A,C)	SAFE DISTANCE
0 - 60,000V	3m or More
66,000V	4m or More
154,000V	5m or More
500,000V	11m or More



Precautions when trouble has occurred

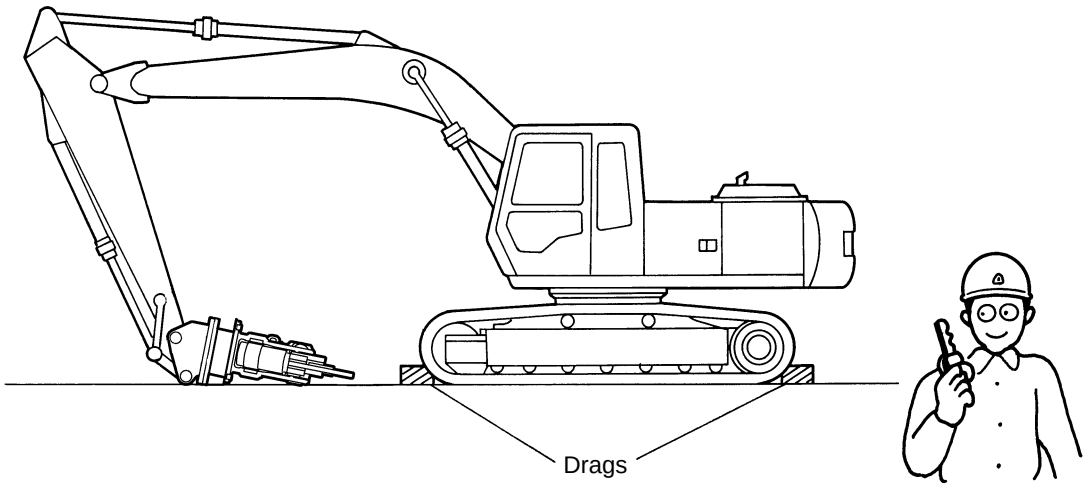
- If trouble has occurred or if disassembly or repair is required, contact the distributor.
- If trouble has occurred in the crusher, report to the superintendent.

  Don't operate the crusher before the repair is ended.

Precautions for parking the machine

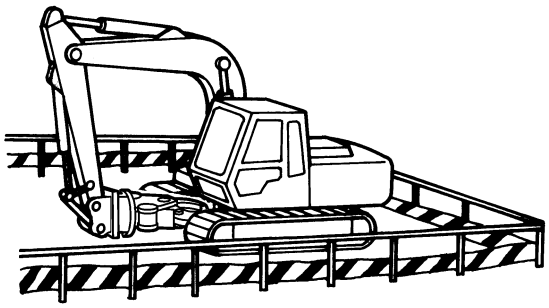
Precautions for parking and stopping the machine

- Stop the hydraulic excavator on flat and firm ground.
- When leaving the machine, set the crusher on the ground, and take the key with you to prevent unauthorized people from operating the machine.
- Block up the tracks to prevent the excavator from moving unexpectedly.
- Stopping or parking the hydraulic excavator on inclines can cause unexpected moving.
  Don't stop or park on inclines.
- If stopping or parking on an incline is unavoidable, put the crusher on the ground, place all levers in neutral position and block up the tracks on the downslope side.
  Also set the turning lock.



Park on a street

- When parking the hydraulic excavator on a street, post signs and palisade around the excavator to identity it even in the dark to prevent accidents.
- Set the crusher on the ground and lock the doors to prevent unauthorized personnel from operating the machine or doing mischief.



Roadway transfer

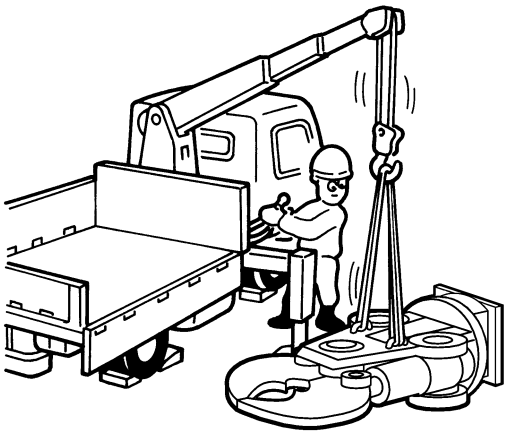
Remove the crusher from the hydraulic excavator

- If the crusher is installed with the hydraulic excavator, the overall height of a truck mounted the excavator is too high to transport safely.
- Before loading the excavator to the truck, remove the crusher from the hydraulic excavator to transport safely.

Precautions in loading and unloading

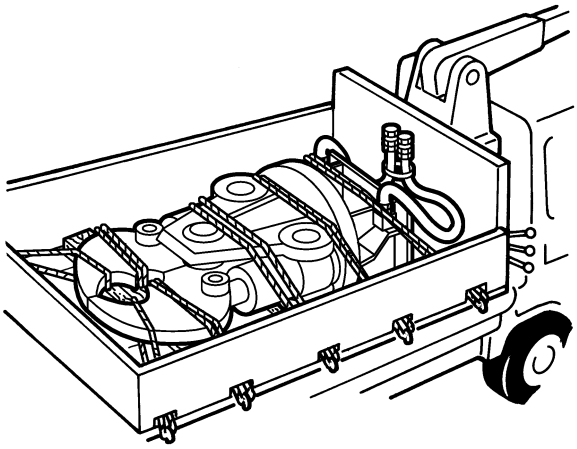
Use a crane to load/unload the crusher on/from a truck for transportation.

- Select a crane that is strong enough to withstand the weight of the crusher.
- The strength of the hoisting wire rope should be more than 1.5 times the weight of the crusher.



Safety transfer

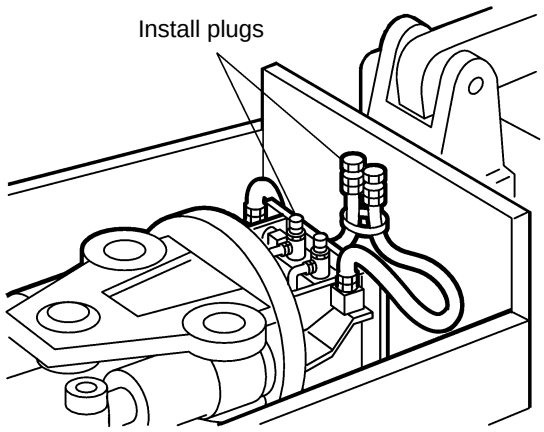
Secure the crusher with wire ropes to prevent falling or shifting during transportation.



Avoid oil leakage during transporting

If oil leaks from the crusher during transporting, oil may drop on a road and cause accidents, or slipping and injury can result when unloading.

Install plugs with the hoses and joints to prevent oil leakage.



Precautions before maintenance

Inspect the machine after operation

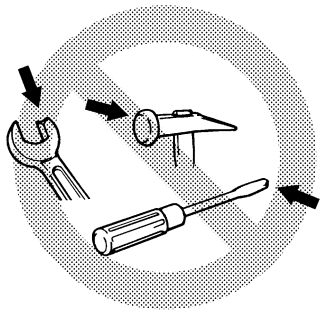
Perform inspections of bolts, oil leakage, cracks, damage, wear and hoses after operation every day.
Operating the faulty machine without trouble shooting can cause unexpected machine damage or accidents.
If something is wrong with the machine, perform maintenance and contact your nearest distributor to repair or replace the machine, if necessary.

Study safety maintenance

Failure to follow inspection and maintenance instructions can cause, not only property damage, but also serious injury or death.
Before performing inspections for your particular machine carefully, and fully understand how to inspect the machine safely, including safety precautions, tools, qualifications, safety clothing, etc.

Practice safety maintenance

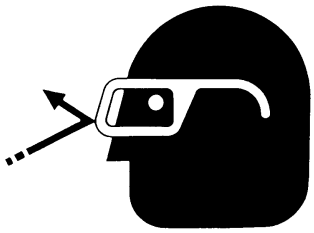
- Do not let anybody except for associated personnel enter the inspection and maintenance area.
- Always keep the work place orderly, and clean and dry.
- Remove obstacles, greases, oils, paints and other debris from the work area before performing inspections and maintenance.
- Use only the correct tools to make repair and adjustments.
  Always check the tools to be used. Do not use tools such as dull-edge spanners, folded-edge hammers or chipped drivers.



Wear protective clothing

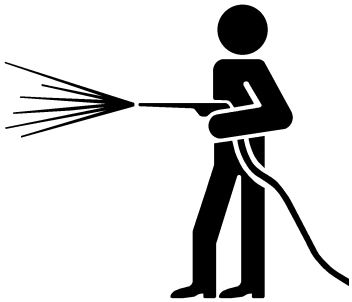
Before performing inspections and maintenance, wear the appropriate protective clothing.

- Always wear protective grasses, helmet boots, gloves, and when necessary, ear protections, when performing inspections.
- Make sure to wear protective grasses, helmet, and other protective gear when using a grinder or a hammer, to protect from fling bits of steel.
- Depending on the nature of the work, wear proper protective gear, such as insulated protective gear, protective gloves and safety belt.



Clean the machine before inspections

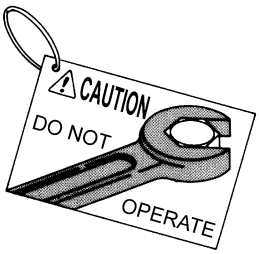
Dirt on the machine can hide damage, and also, cause injuries during inspection and maintenance.
Clean the machine before performing inspections and maintenance to inspect securely and safely.



Use a caution tag

If a person unconcerned starts the engine or moves the control lever erroneously, a serious accident will be caused.

- While inspecting or repairing, hang a caution tag and show clearly "Don't start the engine" and "Don't handle the control lever".
- Hang caution tags around the machine if necessary. Prevent mis - operation fully.



Fire prevention

Fuel, battery and other inflammable materials are handled when performing inspections and maintenance.

- Always use a nonflammable solvent as a cleaner.
- Put out a fire immediately.
- Have fire-fighting tools near at hand.
- Don't smoke during inspections and maintenance.
- Use explosive-proof lights and lights fixtures when performing inspections of fuels, oils and battery fluid.
- Keep away from flammable materials when grinding or welding.

Precautions during maintenance

Beware of hot areas on the machine

Right after stopping the engine, the machine is still very hot and contacting the machine can cause serious injury.

The parts contacting the hydraulic oil, in particular, become very hot.

Don't start inspections or maintenance until the temperature of such part cools down.

Beware of pressurize oil

If exhausted or degraded hosing is used, pressurized oil might burst out.

- Pressurized oil invades into your skin.
  When pinhole oil leakage is checked, do not touch it directly with your hand, but check it with cardboard or wooden sheeting.
- If you are touched by pressurized oil, immediately get medical treatment. If oil invaded your skin, you might get gangrene unless it is removed within some hours.

Relieve hydraulic pressure before maintenance

Loosening hydraulic lines (i.e. cap, hose, piping and filter) without relieving pressure can cause hydraulic oil to blow out. Make sure to stop the engine, relieve pressure and shut the stop valve of the crusher line.

Support the equipment securely during inspection

Don't repair or replace joint links or hoses of the crusher in the air.

Otherwise, the crusher may move or fall and cause serious injury or death.

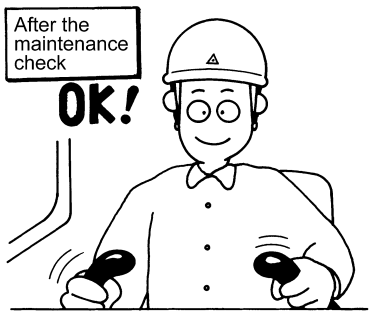
Put down the crusher on the ground or hold it with safety poles or wooden blocks.

Don't work under the machine without secure supports.

Precautions after maintenance

Check the machine after the maintenance

- After maintenance, run the engine at low idle and check for oil and water leakage areas where the maintenance was performed.
- Move the operation levers slowly to check their functions.
- Increase the engine speed and check again for oil and water leakage.
- Move each operation levers normally to check their functions.
- Run the engine of the crusher with a regular setting oil pressure and check for oil leakage, hydraulic oil.

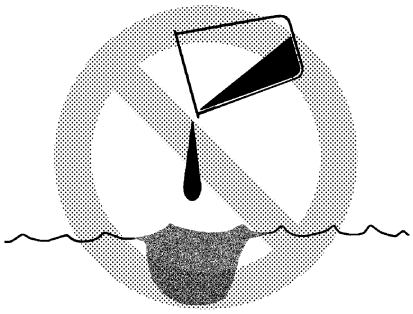


Store the hydraulic crusher safety

- The crusher can fall and cause serious injury if not properly shelved.
- Store them securely.
- Don't let unauthorized personal or children enter the storage room.

Dispose of waste

- Disposal of waste can cause environmental pollution.
- Never dump waste on the ground, rivers or ponds.
  When waste is drained from the machine, use a container to collect the waste.
- Follow local, States or Federal regulations to dispose of refuse oils, fuels, cooling water, coolants, brake oils, solvents, filters, batteries and other potentially harmful waste.



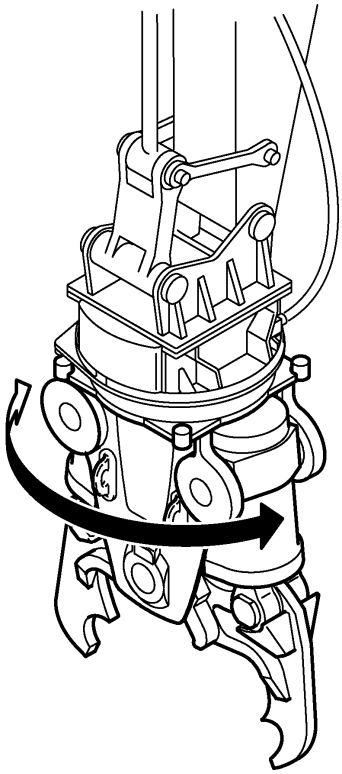
Operation

⚠ WARNING

Thoroughly understand the details of this operation manual.
Improper handling is very dangerous, causing an accident, resulting in serious injury or death.

DESCRIPTION OF EACH FUNCTION

Rotation section

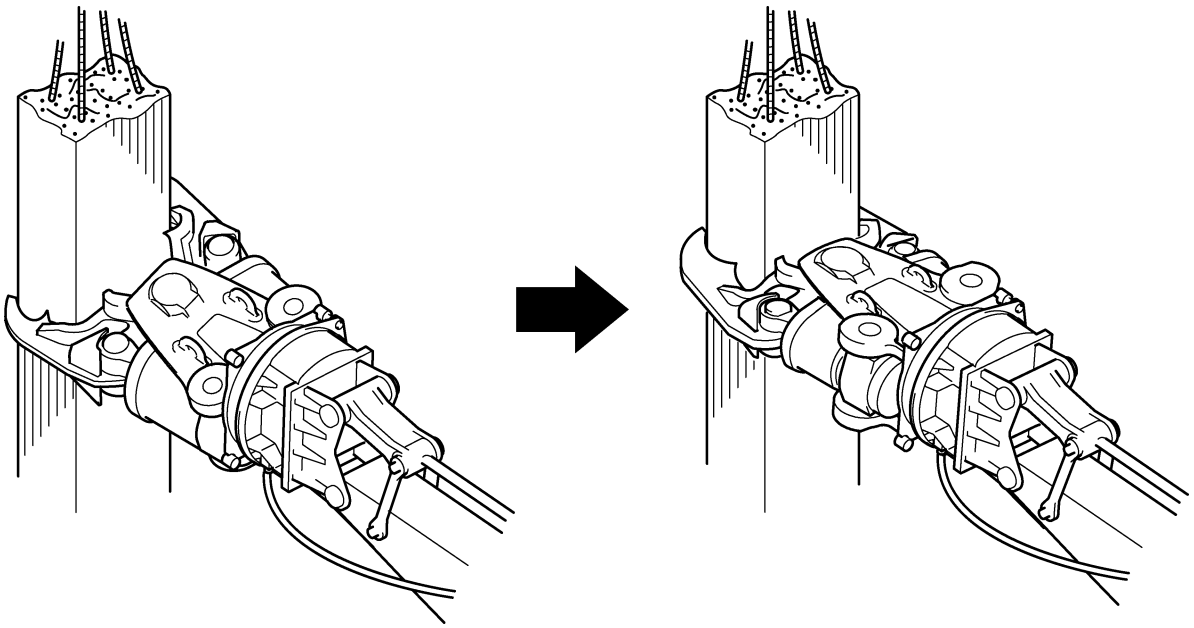


The main unit of the crusher can rotate by 360° to right and left.

The crusher comes in two types - one made to the hydraulic rotation specification which permits arbitrary change in the rotation angle by a hydraulic rotation motor and the other made to the free rotation specification that permits rotation when the side of the arm is pressed against an object.

Rotation function

When crushing begins, the rotation section rotates so that the arm will be at right angles with an object even if a column, beam, or other objects are clamped with the arm inclined rightward or leftward.
Crushing will be smooth because the rotation body rotates so that the arm will be at right angles with objects at all times.



Hydraulic rotation specification

CAUTION

Do not rotate the rotation section forcibly by pressing the side of the arm against an object, otherwise the hydraulic rotation motor can be damaged.

The crusher made to the hydraulic rotation specification permits clockwise or counterclockwise rotation when the rotation pedal is operated.
Rotation of the rotation section permits positioning of the arm at any desired angle, allowing crushing of objects located at any angle.

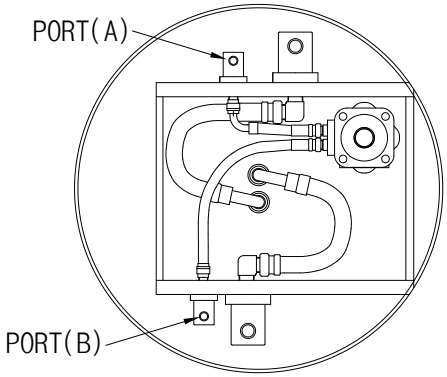
Free rotation specification

The crusher made to the free rotation specification is equipped with a 360° free rotation mechanism that permits rotation of the rotation section when the side of the arm lightly hits against an object.
Rotation stop positions are provided at every 15° (20° for Vp15FT), permitting easy positioning for objects at any angle.

The smoothness of rotation can be adjusted by the degree of tightening of the set screws of the brake ball and brake pad.

★ For adjustment of the brake ball and brake pad, refer to "BRAKE UNIT ADJUSTMENT".

The output shaft of motor rotates when high-pressure oil is supplied to the port(A) or port(B). Connect an oil hose for rotation according to the piping of the hydraulic excavator.



“A” or “B” is marked on the terminal block attached to the orbit motor.

The direction of rotation is shown below.

	DIRECTION OF ROTATION OF OUTPUT SHAFT (1)	DIRECTION OF ROTATION OF OUTPUT SHAFT (2)
DURING FLOW THROUGH PORT A	CLOCKWISE	COUNTERCLOCKWISE
DURING FLOW THROUGH PORT A	COUNTERCLOCKWISE	CLOCKWISE

1.When viewed form under the output shaft.
2.When viewed form the hydraulic excavator side.

When high-pressure oil exceeding the set pressure flows through the port(A) or (B) of the brake valve, the brake valve releases the high-pressure oil entering through port(A) to port(B) and that entering port(B) to port(A).

The relief pressure of the brake valve is shown below.

model	relife pressure
12-14 ton	9MPa (at 20L/min)
18-22ton	10MPa (at 20L/min)
20-24ton	11MPa (at 25L/min)
28-32ton	11MPa (at 25L/min)
34-45ton	13MPa (at 30L/min)

Cutting work

★ NOTICE

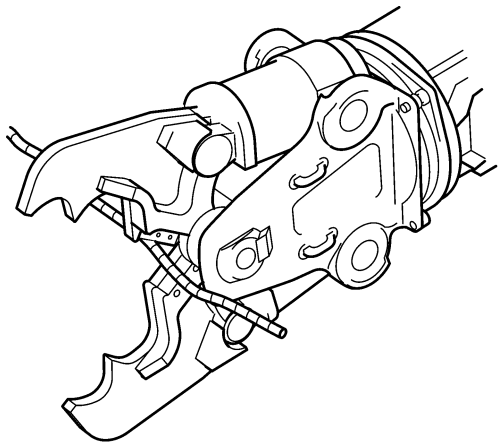
When clamping concrete and other objects that are not reinforcing bars with the cutter, the cutter will be deformed or damaged.

When cutting reinforcing bars inside concrete, remove the concrete from the reinforcing bars.

Reinforcing bars embedded in beams or walls can be cut.

Open the arms and apply the cutter to a reinforcing bar. Then close the arms to cut the reinforcing bar.

The reinforcing bar of a maximum of 1 inch (ϕ25 mm) in diameter can be cut.



MOUNTING AND DISMOUNTING THE CRUSHER

WARNING

Before mounting or dismounting the crusher, select a stable footing and make sure that nobody is nearby except the persons concerned.

For the operation, cooperate with a signal man. Before starting the joint work, familiarize yourselves with signs and signals and obey the signal man.

CAUTION

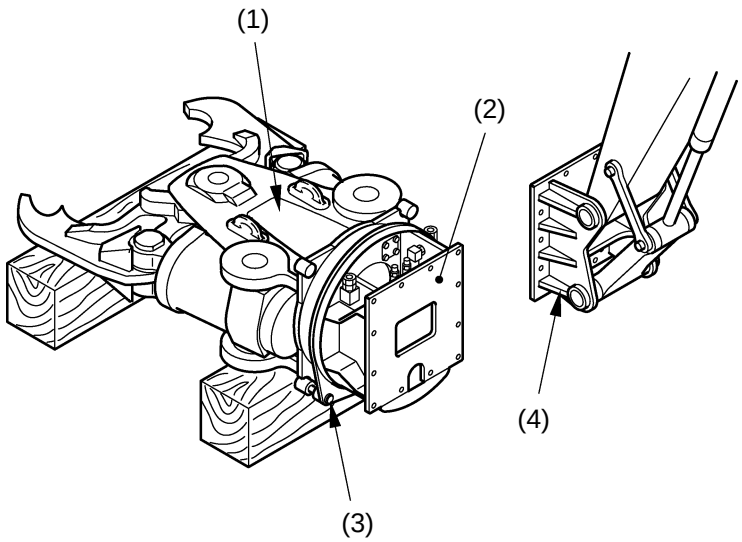
Before connecting or detaching hydraulic oil hoses, prepare an oil pan.
Carefully wipe off the spilt oil.

Mounting the crusher

1. Check that the frame (1) and bracket (2) are secured with the lock pin (3).

2. Place the crusher stably on wood blocks.

3. Clean the mounting surface of the crusher and the attachment bracket (4) on the hydraulic excavator side.



4. Slowly move the operation levers of the hydraulic excavator in accordance with the signal given by the leader.

5. Apply the attachment bracket (4) to the bracket of the crusher, and secure it with bolts and nuts.

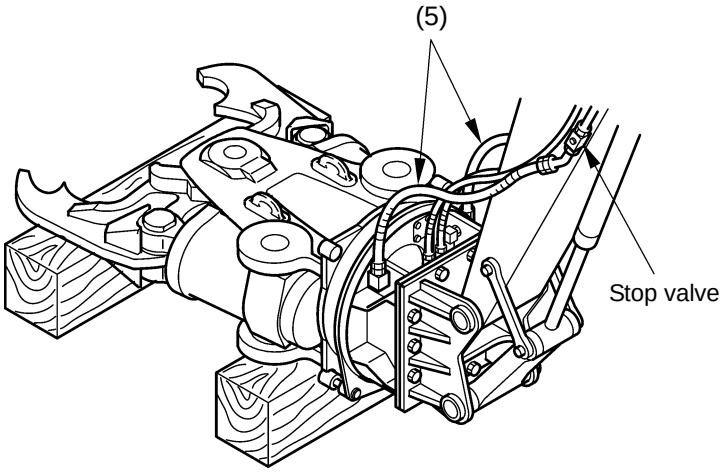
6. Lock the hydraulic control levers of the hydraulic excavator and stop the engine.
   ★ For locking the hydraulic control levers and release the internal pressure, refer to the instruction manual for the hydraulic excavator.

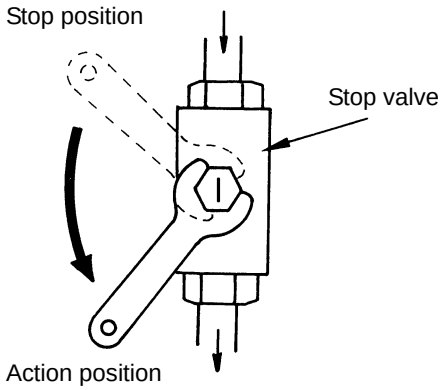
7. Remove the oil hose plugs and union caps.

8. While paying attention to the twisting or contact of the oil hoses (5), connect them to the pipes of the hydraulic excavator.
   ★ Carefully wipe dust and earth from the caps of the oil hoses and hydraulic pipes.

9. Connect the oil hoses for rotation to the crusher made to the hydraulic rotation specifications.
   ★ For connection of hydraulic rotation pipings, refer to "Connection of hydraulic rotation piping".

10. Open the stop valves at right and left to operate the crusher.





11. Start the engine of the hydraulic excavator, and place the arms while the crusher is positioned upright. Supply grease.
   ★ For the greasing locations, refer to the "Everyday inspection".

12. Open and closes the arms of the crusher several times.
   Remove the lock pin and rotate the crusher.
   Check to see if the movable parts move smoothly, oil hoses are twisted or in contact with the movable parts, or oil is leaking.

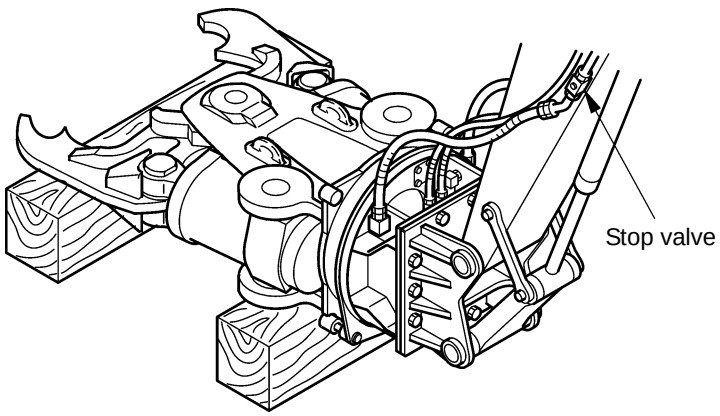
Dismounting the crusher

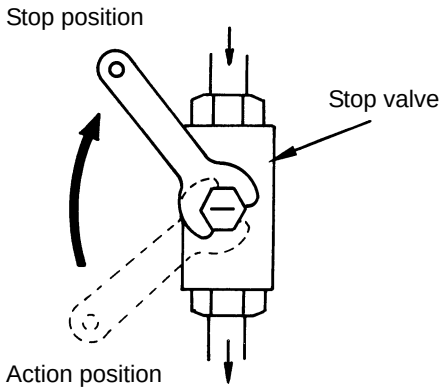
1. Rotate the crusher so that the hoisting hook will face upward, and insert the lock pin.

2. Open the arms, and place the crusher stably on wood blocks.

3. Lock the hydraulic control levers of the hydraulic excavator and stop the engine.
   ★ For locking the hydraulic control levers and release the internal pressure, refer to the instruction manual for the hydraulic excavator.

4. Close the stop valves at right and left so that the crusher will not operate.



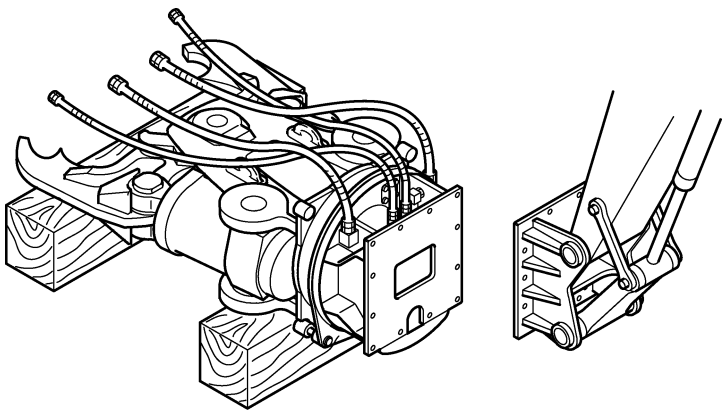


5. Remove the hoses attached to the arm side of the hydraulic excavator.
   Remove the hydraulic rotation hoses.

6. Put and tighten the union caps and oil hose plugs.

7. Remove all bolts and nuts that are securing the attachment bracket to the crusher.

8. Start the engine and slowly move the hydraulic control levers.
   Check the pipes attached to the hydraulic excavator for oil leakage.



TRANSPORTATION

⚠ WARNING

A director is necessary for loading or unloading. Before starting a joint work, check the procedure beforehand and obey the director.

Clean the ramp and the trailer bed, and remove any object that may cause a slip, such as ice, snow, oil, or other slippery material.

Engage wood blocks with and securely fasten by wire rope or chain the crusher (or hydraulic excavator) so that it will not accidentally move during transportation.

★ NOTICE

For loading or unloading of the hydraulic excavator equipped with a crusher to or from the trailer or truck, refer to the instruction manual for the hydraulic excavator.

When transporting a crusher or hydraulic excavator equipped with it, use a trailer or truck dedicated to such a construction machine.

Investigate travel route for road width and overpass. Check any bridges for weight limits.

Obey local laws governing weight, width and length of a load.

Observe all regulations governing wide loads.

STORAGE

★ NOTICE

When using the machine after a long interval, it is recommended to replace the oil seal of the hydraulic cylinder and thoroughly inspect and maintain respective parts.

Precautions before storage

1. Wash, clean and then sufficiently dry each section of the crusher.
2. Apply grease to the cutter.
3. Open the arms and dismount the crusher from the hydraulic excavator.
   ★ For dismounting the crusher, refer to "MOUNTING AND DISMOUNTING THE CRUSHER".
4. Taking care not to allow mud or dust, detach the piping hoses from the crusher and tighten the union caps and oil hose plugs.
5. Lubricate sufficiently until old grease comes out.
   ★ For greasing up, refer to "Everyday inspection".
   When the piston rod of the hydraulic cylinder is exposed, apply grease.
6. Place the crusher stably on wood blocks and keep it in a well ventilated indoor yard.
   If it is obliged to keep it outdoors, select a well ventilated, easily drained flat ground and put sheet or the like on the crusher.

Precautions before use

1. Wash and clean each section of the crusher and retighten bolts and nuts.
   ★ For retightening bolts and nuts, refer to "Inspection and maintenance every 50 hours".
2. Lubricate sufficiently until old grease comes out.
   ★ For greasing up, refer to "Everyday inspection".
   If grease is applied to the piston rod of the hydraulic cylinder, completely wipe it off.
3. Check the hydraulic oil hoses to make sure they are free from cracks or damages and clean the hose fixtures.

TROUBLE SHOOTING

On a crusher which is an attachment for hydraulic excavator, trouble is caused by several factors combined. If any trouble has occurred, refer to the instruction manual for the crusher as well as that for the hydraulic excavator and locate and remedy the relevant trouble.

For items marked with "▲", ask the distributor. For items marked with "■", contact the distributor for hydraulic excavator to mount on.

Symptom	Probable cause	Remedy
Arm does not open.	Stop valve is closed.	● Open the stop valve.
	Hydraulic piping is broken or leaky.	▲ Repair or replace.
	Hydraulic oil level is too low.	● Refill up to specified level.
	Hydraulic pump is faulty.	■ Adjust or replace.
	Control valve is locked.	■ Repair or replace.
	Acceleration valve malfunctions.	▲ Repair or replace.
Arm closing speed is extremely low.	Hydraulic piping is broken or leaky.	▲ Repair or replace.
	Hydraulic oil hose leaks.	▲ Replace.
	Hydraulic pump is faulty.	■ Adjust or replace.
	Control valve is locked.	■ Repair or replace.
	Cylinder seal is worn or damaged.	▲ Replace.
	Suction strainer is clogged.	● Wash or replace.
	Return filter is clogged.	● Wash or replace.
	Return pipe inner diameter is too small.	■ Replace pipe.
	Acceleration valve malfunctions.	▲ Repair or replace.
Crushing force is poor.	Hydraulic piping is broken or leaky.	▲ Repair or replace.
	Hydraulic oil hose leaks.	▲ Replace.
	Hydraulic oil level is too low.	● Refill up to specified level.
	Set pressure dropped.	▲ Adjust.
	Hydraulic pump efficiency dropped.	■ Adjust or replace.
	Control valve is locked.	■ Repair or replace.
	Cylinder seal is worn or damaged.	▲ Replace.
	Acceleration valve malfunctions.	▲ Repair or replace.
Hydraulic oil temperature is excessive.	Engine speed is excessive.	● Lower the engine speed.
	Hydraulic oil level is too low.	● Refill up to specified level.
	Hydraulic oil is deteriorated.	● Replace.
Cylinder leaks.	Cylinder seal is worn or damaged.	▲ Replace.
	Piston rod is damaged.	▲ Replace.

Maintenance

⚠ WARNING
Pay attention to safety during inspection and maintenance. **Abnormality, when left as it is, will cause serious injury or death. Repair immediately.**

PRECAUTIONS FOR MAINTENANCE

When checking or repairing the machine, select a flat ground and place the crusher stably.

Cleaning the crusher

Before checking or repairing, clean and dry every section of the crusher to find the faulty part easily. Clean the parts to be lubricated carefully and be careful not to allow dust.

Hanging the caution tag

While checking and repairing, hang a caution tag on the operator seat and show "Don't start the engine", "Don't operate the lever", etc. fully.

Be careful for fire

Wash the parts with incombustible oil.

Use genuine parts

When replacing a part, use a genuine part in the parts list. Order the genuine parts from the distributor.

Hydraulic oil and grease

Use the hydraulic oil and grease with specified viscosity. When refilling, prepare a clean container and be careful not to allow dust.

★ Don't reuse the hydraulic oil or grease.

Relieve the hydraulic pressure

An internal pressure is always applied to the hydraulic system. Relieve the hydraulic pressure in the circuit when installing or detaching the oil hose or when replacing the hydraulic oil or filter.

★ For relieving pressure, refer to the instruction manual for the hydraulic excavator.

Close the stop valve

When installing or detaching the oil hose, relieve the pressure in the hydraulic system and then close the stop valve.

Precautions for draining oil

Just after the operation is ended, the hydraulic oil temperature is high. Wait till the hydraulic oil temperature is normal if installing or detaching the oil hose or if replacing the hydraulic oil or filter.

★ If the hydraulic oil is cold, warm it properly (about 30 - 40°C) and then drain it.

Cautions after draining oil

If replacing the hydraulic oil or filter, prepare a container with sufficient capacity and drain the oil into the container. After draining, check the oil or filter to make sure there is not metal piece nor foreign matter.

★ Don't reuse the drained hydraulic oil or filter.

Wipe off the antiseptic

Before setting a new part, wipe off the antiseptic from the processed surface of the machine.

Replacement of seal

When checking the section with O-ring or seal rubber, clean the surface to mount on and replace the parts with new ones.

★ Don't reuse the detached O-ring or seal rubber.

Replacement of hydraulic cylinder seal

A special tool is necessary to replace the piston seal of the hydraulic cylinder.
Ask your Furukawa distributor for replacement.

Coating thread lock cement

When coating thread lock cement, clean the surface to be adhererd (degrease) and dry it naturally or by blowing clean air. After coating, finish assembling before the thread lock cement is dried.

Disposal of wastes

Dispose of the wastes such as the hydraulic oil or filter according to the laws and regulations.

SELECTING HYDRAULIC OIL AND GREASE

Selecting hydraulic oil and grease is important for fully exhibiting the crushing performance and maintaining a high efficiency. Take care of hydraulic oil meticulously since the crusher uses the hydraulic excavator as a hydraulic pressure source.

Hydraulic oil

⚠ CAUTION

If the oil temperature exceeds 80°C, the crushing performance would degrade, the seal life would shorten and the hydraulic oil could deteriorate.
Control the temperature with utmost attention.

If the hydraulic oil temperature does not rise above -20°C when using the crusher, contact the distributor.

Selecting the hydraulic oil

Selection and maintenance of hydraulic oil is important for fully exhibiting the machine performance and maintaining a high efficiency.

Contaminants such as metal powder and dust mixed with the hydraulic oil will cause rapid wear and malfunction of the hydraulic equipment.
If the hydraulic oil contamination level exceeds NAS-11 class, change the hydraulic oil more frequently.

The hydraulic oil recommends the use to NAS-11 class based on the NAS-1638 standards.
NAS: National Aerospace Standard Committee

★ NOTICE

The oil characteristics are different from one maker to another. Always use the same brand.

Hydraulic oil temperature control

Before operating the crusher, start the hydraulic excavator engine, warm it up and slowly move the control lever to warm up the hydraulic system for 5 minutes.

The hydraulic excavator oil temperature should be 40 - 60°C when the crusher is being operated.

Grease

Use grease.

★ NOTICE

Use grease having a consistency of NLGI No.1 or 2 when the atmospheric temperature is 0°C or higher, or No.1 when lower than 0°C.

INSPECTION AND MAINTENANCE

The crusher is an attachment of the hydraulic excavator. Check and repair the crusher by the items in this manual, and besides, check and repair the hydraulic excavator to mount on. Read and understand the instruction manual fully to operate a crusher safely and efficiently and then check and repair it.

Check and repair periodically according to the hour meter. Shorten the check interval according to the working procedures or conditions, and you will prevent trouble or accident.

Inspection and maintenance list

Inspection/Repair items

Initial inspection and maintenance

It should be performed only after initial 100 hours.

It should be performed only after initial 250 hours.

Inspection and maintenance every 50 hours

Inspection and maintenance every 500 hours

Carry out "Inspection and maintenance every 50 hours" at the same time.

Inspection and maintenance every 1500 hours

Carry out "Inspection and maintenance every 50 hours" and "Inspection and maintenance every 500 hours" at the same time.

Overhaul

Perform after 2000 operation hours or 2 years after purchasing. Use the earlier limit as standard.

Inspection and maintenance every 50 hours

Tightening the bolts

CAUTION

If the bolt is worn, deformed or damaged, replace it with a genuine part.

If the set bolts are left loose, the crusher could not fully exhibit its performance and, furthermore, the arm or cylinder might break, the cutter might wear prematurely or other malfunctions might occur. Check the set bolts periodically and tighten them at the specified torque.

1. Place the crusher on flat and firm ground.

2. Lock the hydraulic control levers of the hydraulic excavator engine and stop the engine.
   ★ For locking the hydraulic control levers and release the internal pressure, refer to the instruction manual for the hydraulic excavator.

3. Eliminate soil and dust from the bolt setting section.

4. Check the bolts for looseness and damage.

5. Make sure that a bolt does not fall off.

6. If a bolt is loosened, remove and check it for wear, deformation and damage.

7. Eliminate rust, soil, dust, etc. from the bolt setting surface, and clean it in washing solution to remove the oil.

8. Tighten the new bolts with specified tightening torque.
   ★ For the tightening torque and the thread lock cement, refer to the list for each model.

Inspection and maintenance every 1500 hours

Perform the 50 hours and 500 hours maintenance at the same time.

Replacing the hydraulic oil

⚠ CAUTION

Change the oil before too late at the time of replacement of the hydraulic excavator, referring to the hydraulic excavator's instruction manual.

★ NOTICE

Change the hydraulic oil after 250 hours only at the first time.

Hydraulic devices are precision instruments. If deteriorated or contaminated oil is used for a long time, unexpected malfunction or trouble may be caused. The crusher operates using the hydraulic excavator as the power source. Take utmost care of the oil.

Referring to the instruction manual for the hydraulic excavator, change the hydraulic oil.

★ Clean the suction strainer together at the time of replacement of the hydraulic oil.

Overhaul

⚠ CAUTION

Contact the distributor for overhaul.

To use the machine safely and for a long time, have it overhauled when the engine hour meter count is 2000 hours or when 2 years have passed since you purchased the crusher.

Secondary **Pulverizer**

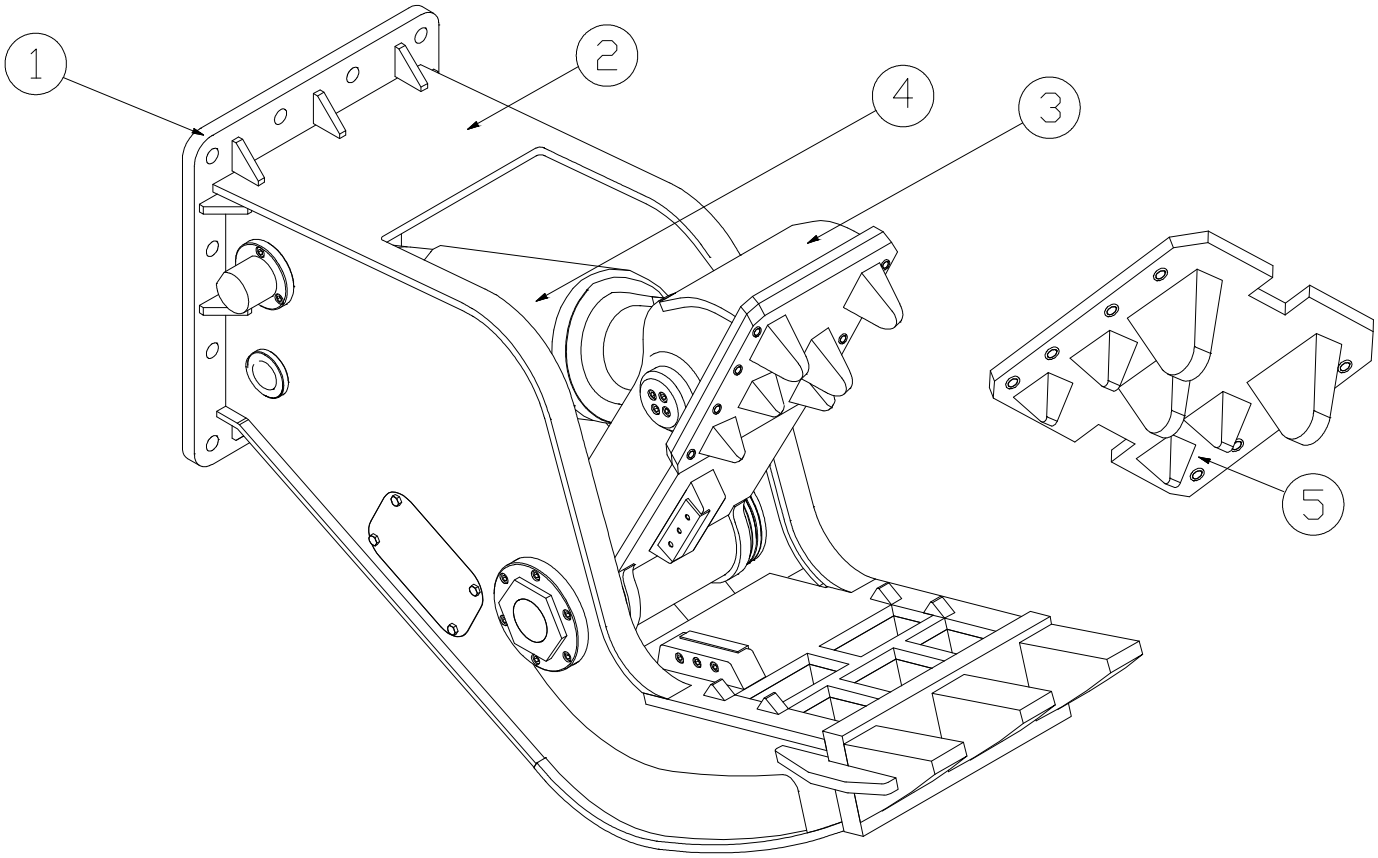
INSTRUCTION MANUAL

PART LIST

FOR UFC132R

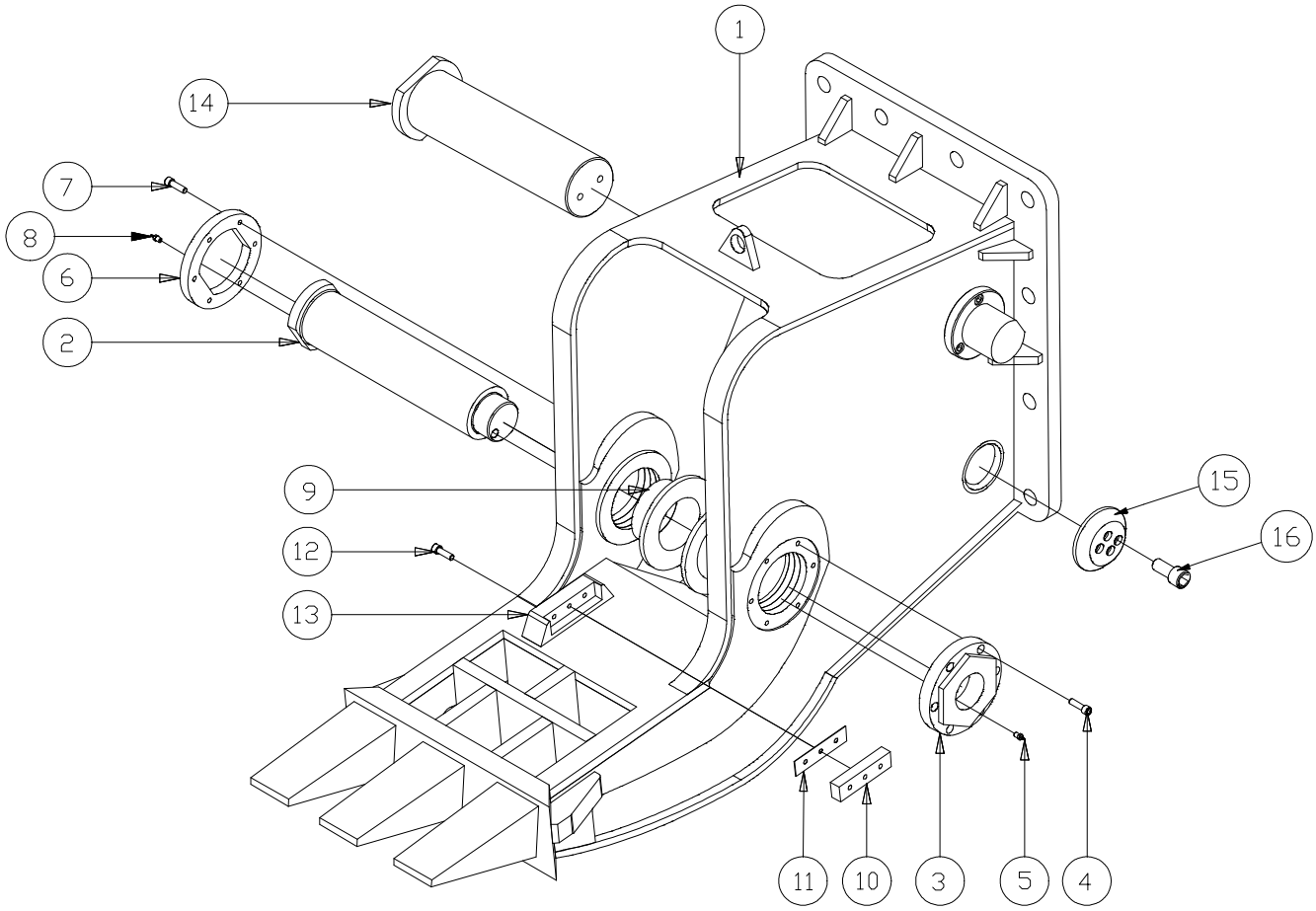
PART LIST

FOR UFC132R



PART LIST		
ITEM	PART NAME	QTY
1	UPPER BRACKET	1
2	MAIN BODY	1
3	ARM BODY	1
4	CYLINDER	1
5	BOLT ON TOOTH PLATE	1

UFC132R MAIN BODY ASSEMBLE



UFC132R MAIN BODY ASSEMBLE

PART LIST				
ITEM	PART NAME	PART NO	SPEC	QTY
1	MAIN BODY	U32-B001		1
2	MAIN PIN	U32-B002		1
3	MAIN PIN NUT	U32-B003		1
4	〃 BOLT	U32-B004		6
5	GREASE NIPPLE	U32-B005		1
6	MAIN PIN LOCK PLATE	U32-B006		1
7	〃 BOLT	U32-B007		6
8	GREASE NIPPLE	U32-B008		1
9	MAIN BUSH	U32-B009		2
10	BLADE	U32-B010		1
11	BLADE SHIM	U32-B011		1
12	BLADE BOLT	U32-B012		3
13	BLADE BASE	U32-B013		1
14	BOOM PIN	U32-B014		1
15	BOOM PIN CAP	U32-B015		1
16	BOOM PIN CAP BOLT	U32-B016		4
17				
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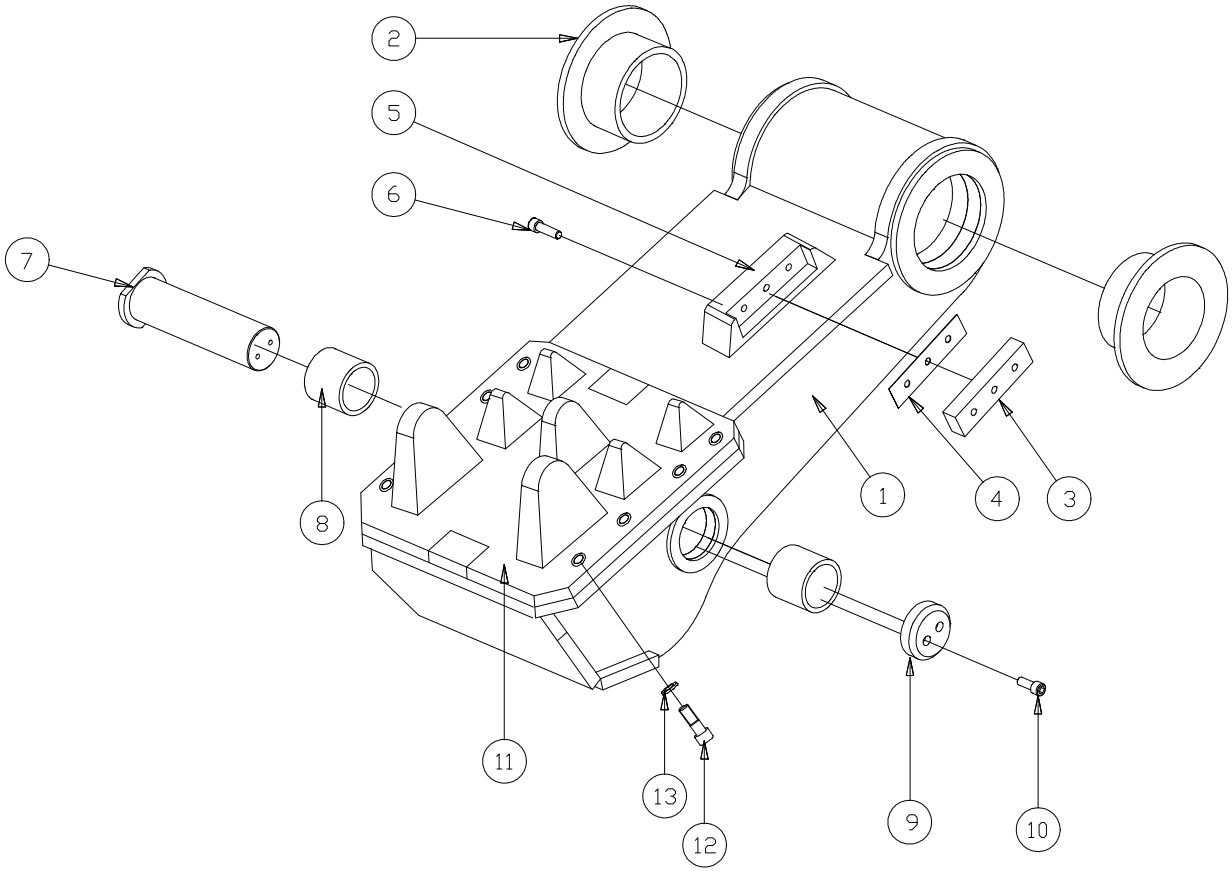
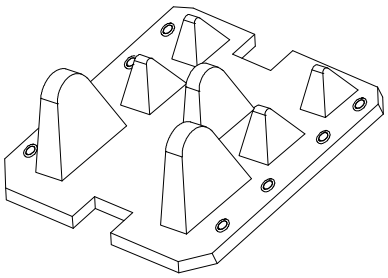
19				
20				

UFC132R ARM BODY ASSEMBLE





UFC132R ARM BODY

PART LIST				
ITEM	PART NAME	PART NO	SPEC	QTY
1	ARM BODY	U32-A001		1
2	ARM MAIN BUSH	U32-A002		2
3	BLADE	U32-A003		1
4	BLADE SHIM	U32-A004		1
5	BLADE HOUSING	U32-A005		1
6	〃 BOLT	U32-A006		3
7	ARM PIN	U32-A007		1
8	ARM SIDE BUSH	U32-A008		2
9	ARM PIN CAP	U32-A009		1
10	〃 BOLT	U32-A010		2
11	BOLT ON TOOTH PLATE	U32-A011		1
12	BOLT ON TOOTH PLATE BOLT	U32-A012		8
13	〃 WASHER	U32-A013		8
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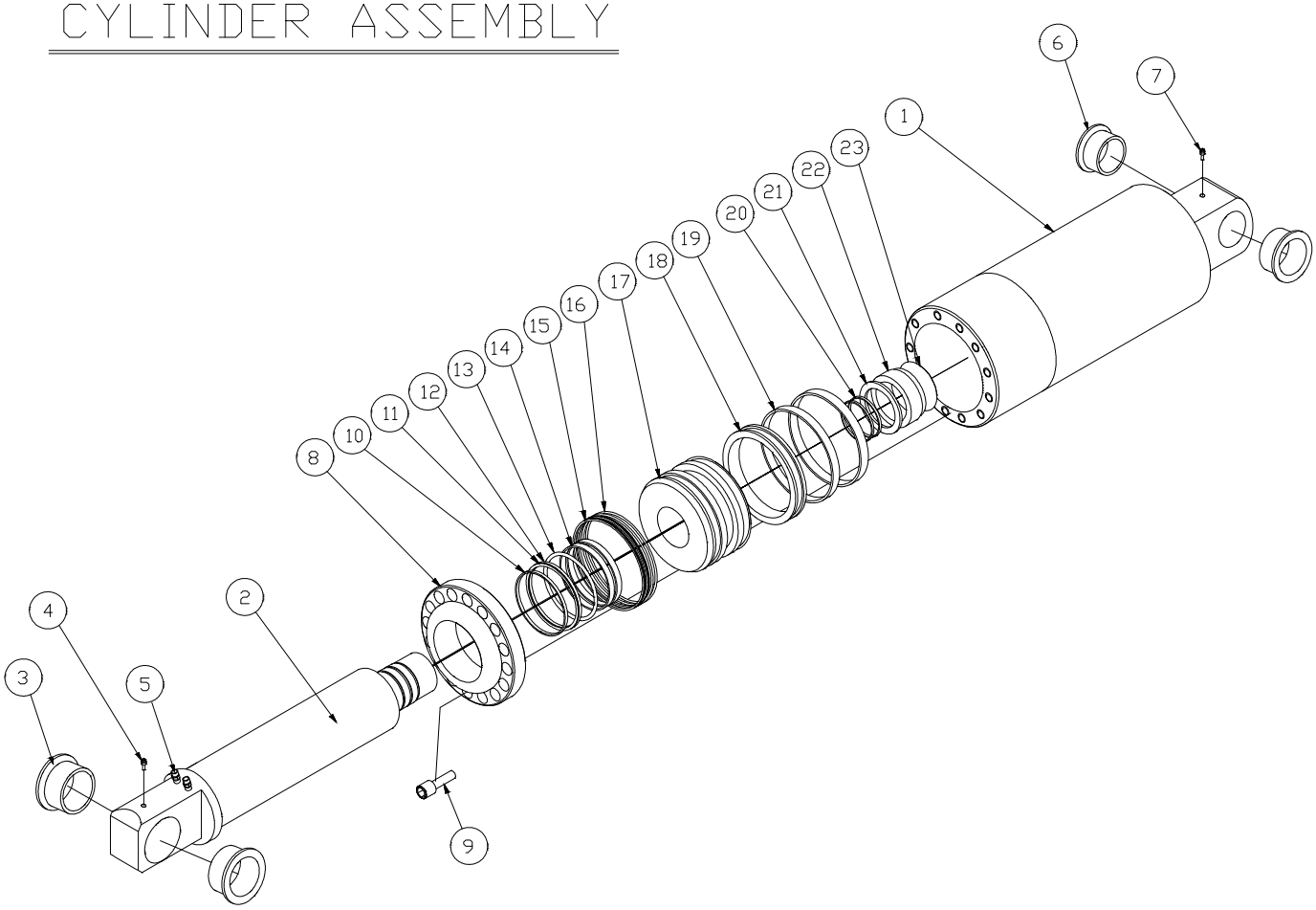
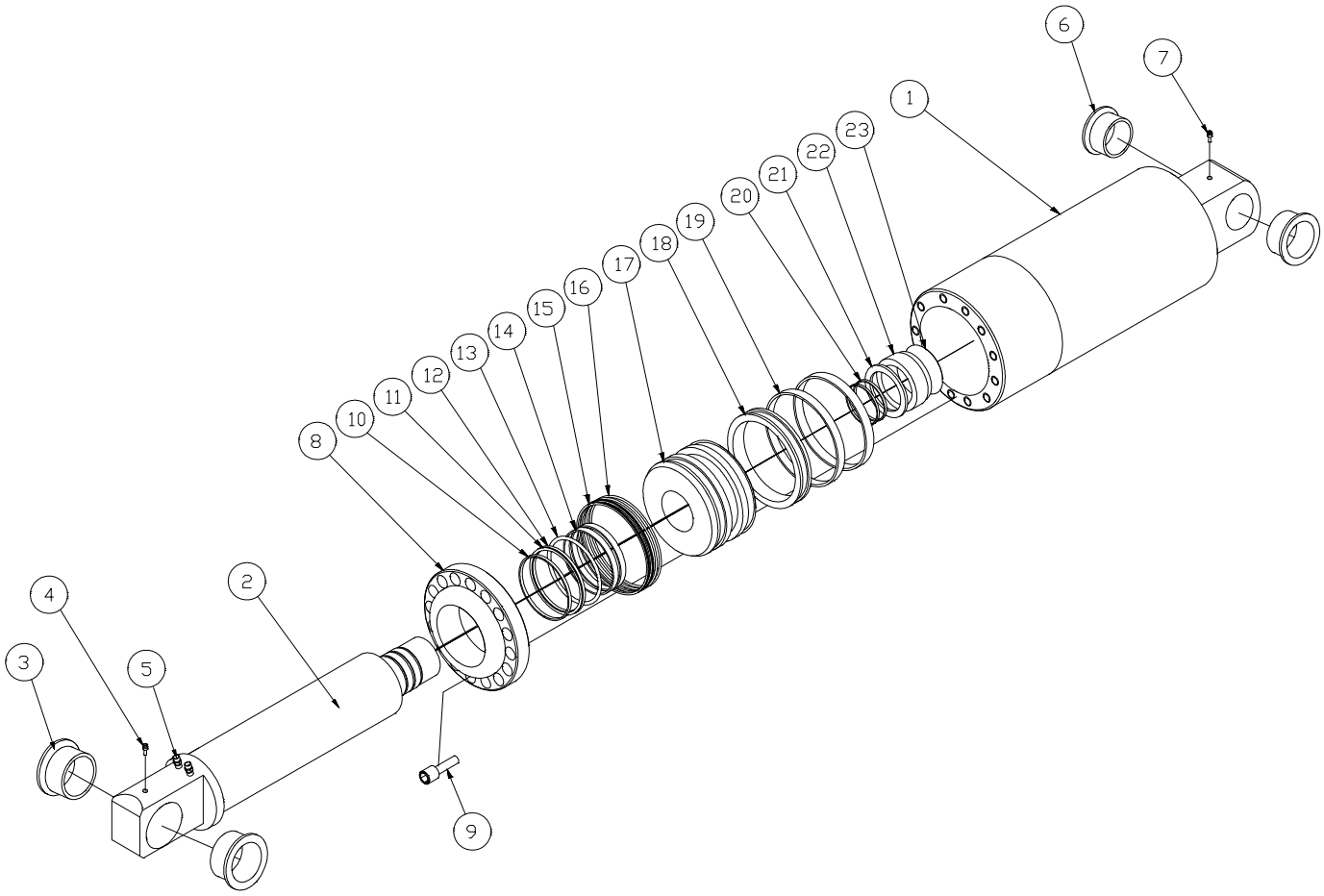
CYLINDER ASSEMBLY



PART LIST				
ITEM	PART NAME	PART NO	SPEC	QTY
1	CYLINDER TUBE	U32-C001		1
2	ROD	U32-C002		1
3	ROD BUSH	U32-C003		2
4	GREASE NIPPLE	U32-C004		1
5	LINE NIPPLE	U32-C005		2
6	CYLINDER HOLDER BUSH	U32-C006		2
7	GREASE NIPPLE	U32-C007		1
8	CYLINDER CAP	U32-C008		1
9	CYLINDER CAP BOLT	U32-C009		18
10	DUST SEAL	U32-C010		1
11	ROD SEAL BACKUP RING	U32-C011		1
12	ROD SEAL	U32-C012		1
13	ROD SEAL	U32-C013		1
14	ROD WEAR RING	U32-C014		2
15	CYLINDER CAP O-RING B/R	U32-C015		2
16	CYLINDER CAP O-RING	U32-C016		2

CYLINDER ASSEMBLY



PART LIST				
ITEM	PART NAME	PART NO	SPEC	QTY
17	PISTON	U32-C017		1
18	PISTON SEAL	U32-C018		1
19	PISTON WEAR RING	U32-C019		2
20	ROD O-RING	U32-C020		1
21	PISTON COLLAR	U32-C021		1
22	PISTON NUT	U32-C022		1
23	LOCK KEY	U32-C023		1