Hydraulic pulverizer PAT

Guzzilla Pulverizer

MC-36 | MC-52 | MC-75 | MC-135 | MC-212 | MC-352

Operation & Maintenance Manual

⚠ Warning

- **Inappropriate use of this product may lead to a serious accident.**
- **Operators and service representatives must carefully read and sufficiently understand this manual before operating, inspecting, or maintaining this product.**
- **Always store this manual nearby and read it repeatedly.**
- **This manual covers only this product (attachment). When you operate the attachment, read the Operation & Maintenance Manual of the hydraulic excavator (base machine) together with this manual.**
- **Note that the warranty does not cover damages caused by the use of non-genuine parts.**

TAGUCHI®

Overseas Exclusive Distributor

PT.Guzzilla International

MC-2309-E11

Before reading this manual

Thank you for purchasing this product.

This manual contains operation, inspection, and maintenance procedures of this product (attachment) and items that must be strictly observed so you can use this product safely. Many accidents occur due to operation, inspection, and maintenance that do not observe basic precautions.

Before operating, inspecting, or maintenance this product, read and understand all warnings and preventative measures of this product and this manual. If warnings and preventative measures are not observed, serious injury or death may result.

This product is attached to hydraulic excavators of various manufacturers. When you work with this product (perform attachment work), use the manual of the hydraulic excavator and this manual.

Taguchi cannot predict all conditions under which the customer will use this product. Therefore, the precautions listed in this manual and safety marks displayed on products do not cover all circumstances related to safety. Accordingly, if operation, inspection, and maintenance will be performed under circumstances not written in this manual, the customer is responsible for all preventative measures necessary for safety. Furthermore, in such cases, never perform operations or work prohibited by this manual. Incorrect operation, inspection, and maintenance of products are dangerous and may lead to serious injury or death.

Persons involved in the handling of this product must read this manual carefully and understand its content before carrying out work. This includes hydraulic excavator operators (with qualifications), work managers, work directors, and staff that perform onsite attachment exchange, transfer (shipping), maintenance, inspection, and repair (gas welding work managers).

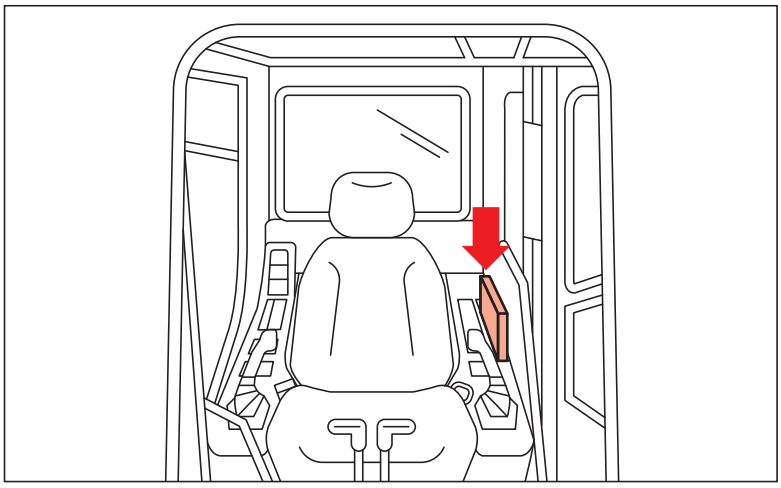
If this manual is lost, damaged, or becomes illegible due to soiling, contact your Taguchi dealer immediately and arrange for a replacement. To ensure that the correct manual is delivered, confirm the serial number of this product before contacting your Taguchi dealer.

Always store this manual in the manual storage location shown below so that authorized people can reference this manual repeatedly and as needed.

If this product will be resold or transferred to a third party, pass this manual to the new owner.

Manual storage location

Magazine box ▶



If the safety decals affixed to this product come off or become illegible due to soiling, contact your Taguchi dealer immediately to replace them with new ones.

The explanations, numerical values, illustrations, and other components of this manual are based on information available at the time this manual was created. Due to Taguchi's policy of constantly improving product quality, the product you are using may differ partially with the information and product specifications listed in this manual. If you have any questions or comments about this manual, please contact your Taguchi dealer.

Taguchi has the right to change material and specifications to this product at any time without notice. Furthermore, Taguchi has the right to stop production of any product at any time at its own discretion.

Using machinery safely

To prevent accidents resulting in personal injury or death of people performing operation, inspection, or maintenance, and for the safety of people around machinery, always observe the warnings and protective measures displayed in this manual and on the product.

The following signal words are used to classify important safety messages in safety marks displayed in this manual and on products.

Safety alert symbols are used to identify important messages on this product and in this manual. These alert symbols list the danger of accidents that lead to injury or death. Always follow these safety alert symbols.

Danger	**Indicates an imminently hazardous situation that will very likely lead to death or serious injury if not avoided.**
Warning	**Indicates a potentially hazardous situation that may lead to death or serious injury if not avoided.**
Caution	**Indicates a potentially hazardous situation that will lead to a slight or moderate injury if not avoided.**

As another signal word, the following symbol indicates actions that should always be observed to prevent machine damage.

Notice	**If the displayed notice is not observed, the product may be damaged or its lifespan may be reduced.**

Intended use

Use this product primarily for the following work.

- Secondary demolition and crushing of reinforced concrete, concrete, and asphalt
- Cutting steel rebar

Do not use this product for other uses.

Operation qualifications

Operators of a hydraulic excavator with this product attached may be required to take a course, such as skill training course for operation of vehicle type construction machine, and have evidence of course completion as prescribed by Industrial Safety and Health Act and related laws and regulations.

Product serial numbers, nameplates, and safety decals

Notice

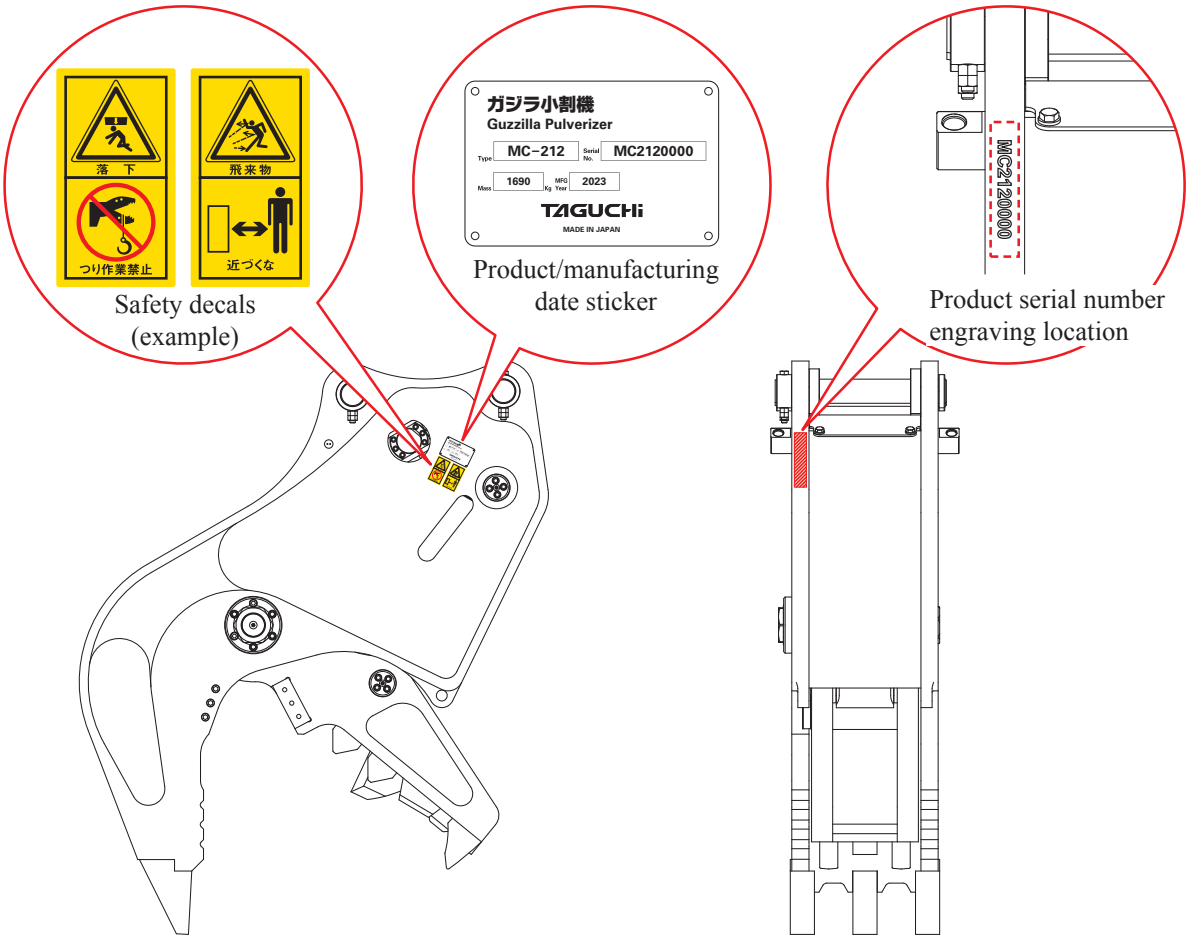
The product serial number is engraved and nameplates and safety decals are affixed to the body of this product. Check the nameplates for the model name, mass, and year of manufacture of this product.

Warning

As listed on the safety decals affixed to the body of this product, you must read this manual carefully and sufficiently understand the correct operation, inspection, and maintenance methods before operation.

Failure to follow this manual may lead to a serious accident or loss.

(Example) In case of MC-212



Note: The locations of the nameplate and caution plate differ by model.

When communicating orders or failure of parts, provide the product model name and product serial number to your Taguchi dealer.

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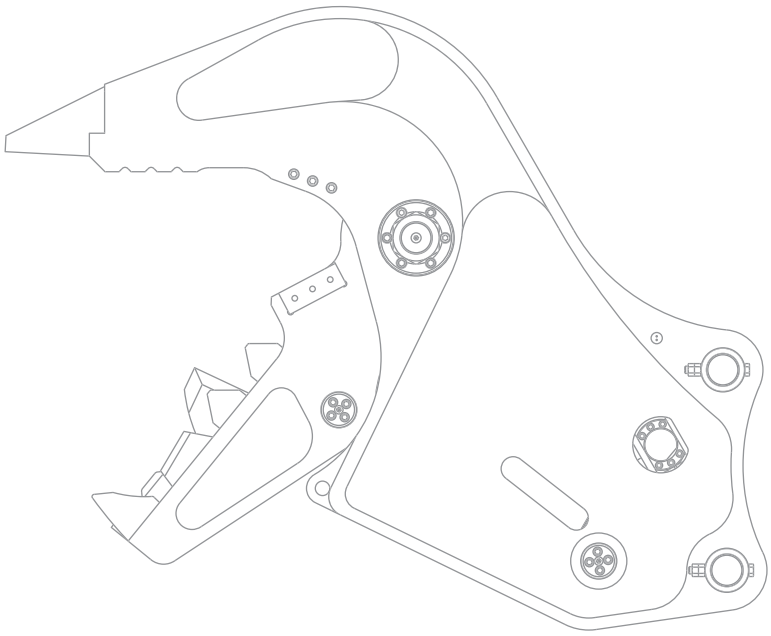
MEMO

Safety



Warning

Fully understand the safety precautions displayed in this manual and on the product.

Strictly observe the precautions when operating, inspecting, or maintenance this product.

1. Precautions

⚠ Warning

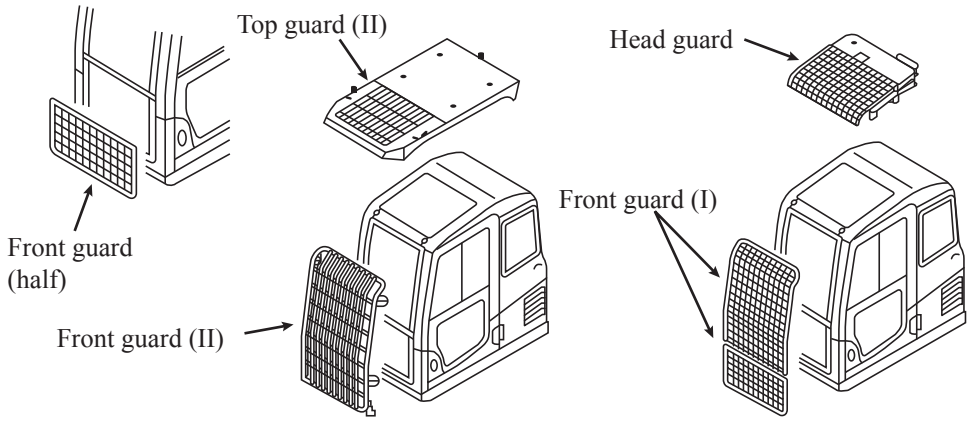
1-1 Observe the basic safety rules

Operators of a hydraulic excavator with this product attached may be required to take a course, such as skill training course for operation of vehicle type construction machine, and have evidence of course completion as prescribed by Industrial Safety and Health Act and related laws and regulations.

- The attachment must be maintained by a person that has received education and training related to machinery. If a person without sufficient knowledge carries out maintenance, a breakdown or damage may occur.
- Observe all safety regulations, precautions, and procedures when operating or maintenance machinery.
- When performing group work or when a leader has been fixed, work based on established signals.

1-2 Always install safety devices

- During attachment work, there is a chance that falling or scattered objects may enter the operator cab. To protect the operator, install a front guard, head guard, and top guard and affix a laminate coating sheet to the windshield.



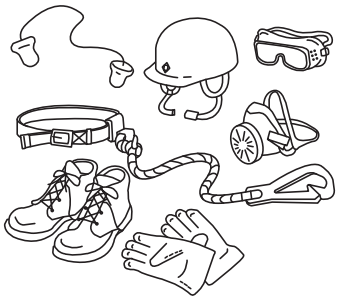
- When you are working in a location with a risk of falling rocks, such as during bedrock excavation at a stone pit or tunnel construction, install a FOPS (falling object protective structure) on the hydraulic excavator and affix a laminate coating sheet to the windshield.
- When working, always close the front window of the hydraulic excavator.
- During attachment work operation, make sure that other people stay a reasonable distance away so that falling objects and scattered objects cannot reach them.

⚠ Warning

1-3 Wear proper clothing and protective equipment

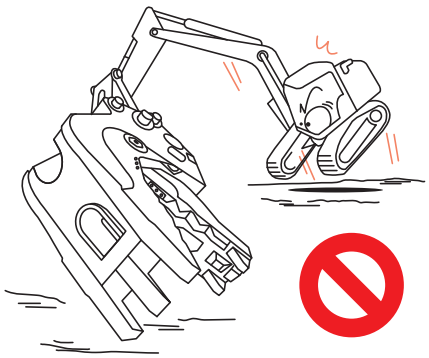
- Do not wear loose clothing, jewelry, or other decorative items that may be caught by control levers or mechanical parts. This may cause the machinery to malfunction. Furthermore, never wear work clothes stained with oil, as they can catch fire easily. Make sure to wear protective gear to prevent from burning, especially during welding works.

- Always wear a helmet and safety footwear. Wear safety glasses, a mask, gloves, hearing protection, a safety belt, and other protective equipment as required by the work. Particularly when there is a danger of flying metal pieces or foreign substances, such as when hammering a pin with a hammer, always wear protective equipment. Furthermore, always make sure that there are no people around before starting work.



1-4 Install on a compatible hydraulic excavator

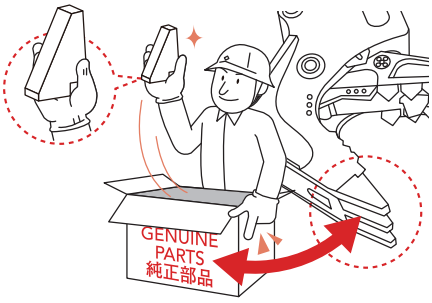
Always use an attachment model that suits the hydraulic excavator. If the hydraulic excavator is small, there is a risk that it will lose balance and fall over. If the hydraulic excavator with the product is larger than our recommendations, some unintended external force may be given to the product and it will cause machine breakdown. Please consult your Taguchi dealer about the hydraulic excavator class to attach the product.



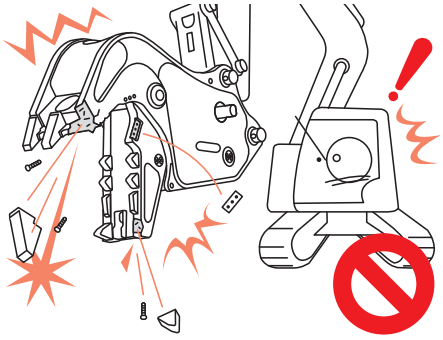
Danger

1-5 Use genuine parts

- Always use genuine parts when replacing parts.



- Use of non-genuine parts may result in accidents or attachment damage due to interference, insufficient strength, or other part problems.



⚠ Warning

1-6 Do not modify

- Only make modifications recommended by Taguchi. Otherwise, safety problems may occur.
- If modification is unavoidable, always contact Taguchi or your Taguchi dealer in advance.

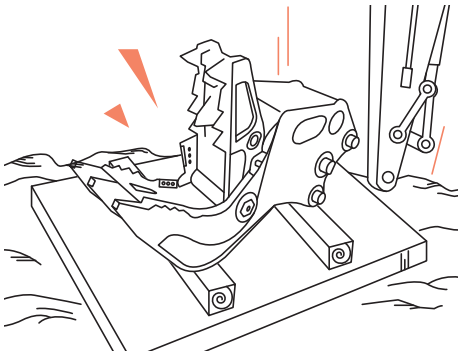
1-7 Read safety decals (caution plates) carefully

- Carefully read and understand the safety decals affixed to the hydraulic excavator and attachment.
- Always keep safety decals clean. If safety decals are lost or damaged, affix them again or contact your Taguchi dealer and replace the safety decals with new ones.

1-8 Precautions when installing and removing

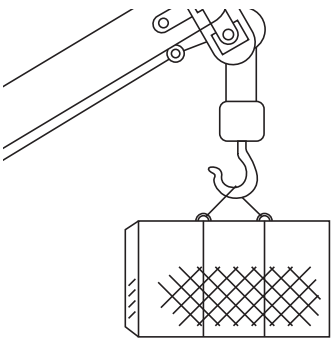
When installing and removing the attachment, observe the following precautions and work safely.

- Carry out installation and removal on flat solid ground. Always place a stand, rectangular lumber, or other similar item on a solid flat surface, place this product on it, and then stabilize the product.



- When two or more people are working together, follow established signals.

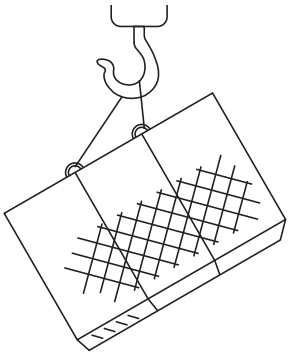
- When carrying heavy items (25 kg or greater), use a crane.



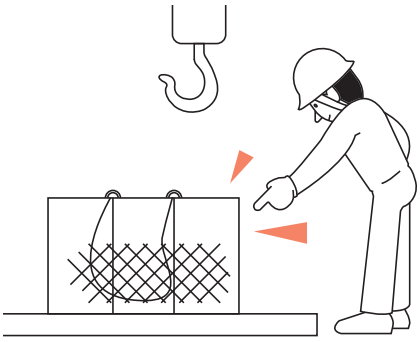
Warning

1-8 Precautions when installing and removing

- When removing heavy parts, always use a support before removal. Furthermore, when hanging objects by a crane, etc., pay particular attention to the location of the center of gravity.



- Working while a part or the attachment is still suspended by a crane is dangerous. Always use a stand and ensure safety before starting work.



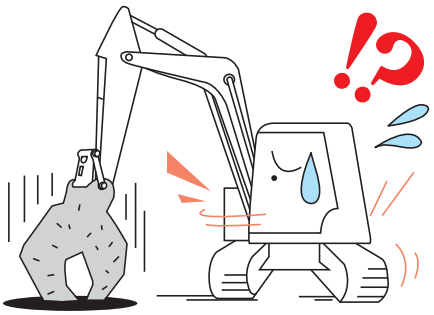
- Never stand under an item suspended from a crane. Stay back in a risk-free, safe location in the unlikely event that an object falls.

- For details of installation and removal, see “Installing the attachment” (P.36) and “Removing the attachment” (P.45) in the Operation section.

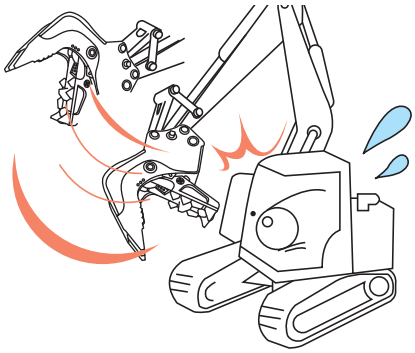
Warning

1-9 Check for interference with excavator body

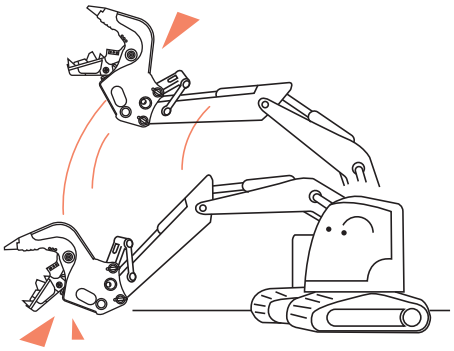
- There may be interference with the excavator body (operator cab, boom hydraulic cylinder, or undercarriage) depending on the operation method or attachment type.



- When operating an attachment or working equipment (boom and arm), take sufficient care not to hit the excavator body.



- After installing the attachment, always check for interference and the range of work in a risk-free environment.

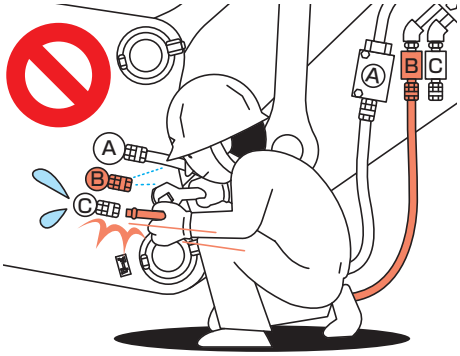


Notice

1-10 Check the connection locations of the hydraulic hoses

Always check the piping pattern with the hydraulic excavator manufacturer and connect the connection hydraulic hoses to the prescribed locations on the attachment and hydraulic excavator correctly.

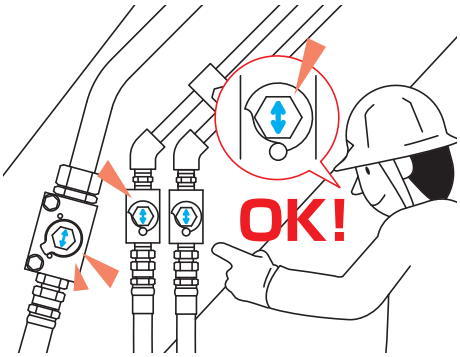
Incorrect connection of the drain hydraulic hose or connecting it to a wrong position may be a cause of damaging the attachment in particular.



1-11 Check the open/close state of stop valves

Make sure that all stop valves on the hydraulic excavator connected to the attachment are ON (fully open).

Usage while the stop valves are fully or half closed may damage the attachment.

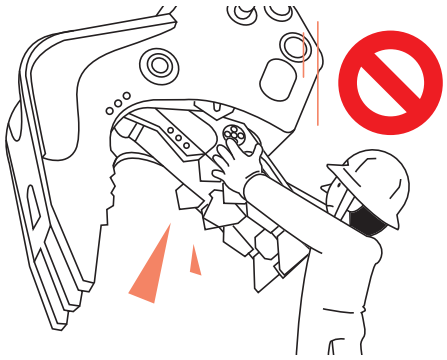


2. Work cautions

⚠ Danger

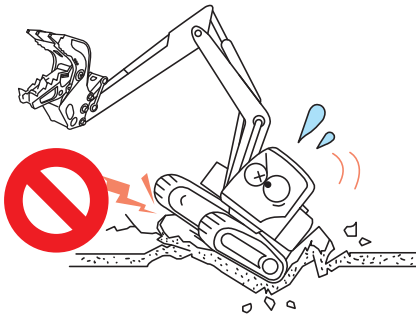
2-1 Do not enter within the working range

Do not enter into or place your hands, arms, or other body parts in the working range. Furthermore, do not stand or place your hands, arms, or other body parts directly under the attachment or hydraulic excavator. An operation of the hydraulic excavator may cause death or serious injury. For example, be aware that an accident may occur due to an internal leak of the hydraulic cylinder, even when the engine is stopped.



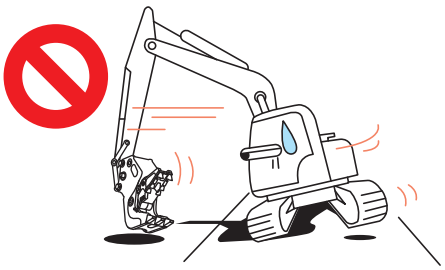
2-2 Check the withstand load of the floor

When you are working inside a building, make sure that the withstand load of the floor is sufficiently safe. The floor may fall out during work or a load greater than the weight of the machine may be applied to the floor surface depending on the work methods, which is very dangerous.



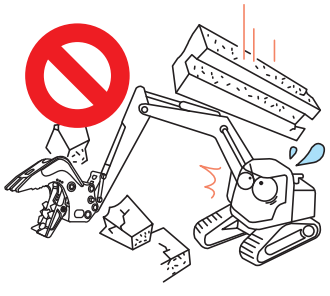
2-3 Work in the direction of the crawler tracks

Depending on the work methods, working crosswise to the crawler tracks can cause instability, which is very dangerous. Take care when working crosswise to the crawler tracks.



2-4 Watch for falling objects

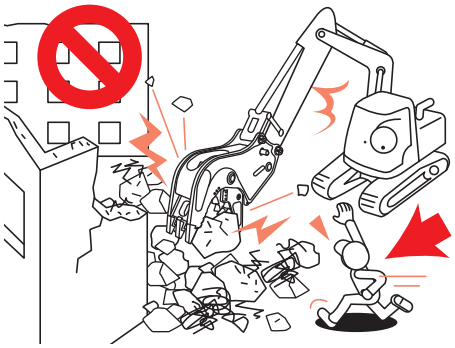
Work so that items such as beams, pillars, and concrete do not fall from above the operator.



⚠ Danger

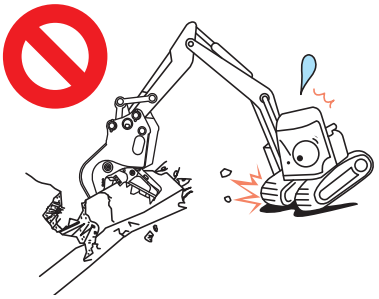
2-5 Do not approach a hydraulic excavator in operation

The area around an attachment or hydraulic excavator in operation is very dangerous. Never approach an attachment or hydraulic excavator in operation.



2-6 Do not perform work in which the hydraulic excavator rises from the ground

Do not use the weight of the hydraulic excavator such that it rises from the ground.



2-7 Do not operate on unstable surfaces

While you work, keep the hydraulic excavator body level and its base stable. Riding on crushed material and working on slopes are particularly dangerous.

⚠ Warning

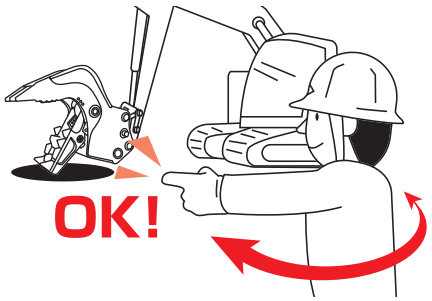
2-8 Operator must be trained and qualified

Operators of a hydraulic excavator with this product attached may be required to take a course, such as skill training course for operation of vehicle type construction machine, and have evidence of course completion as prescribed by Industrial Safety and Health Act and related laws and regulations (P.5 “Operation qualifications”).

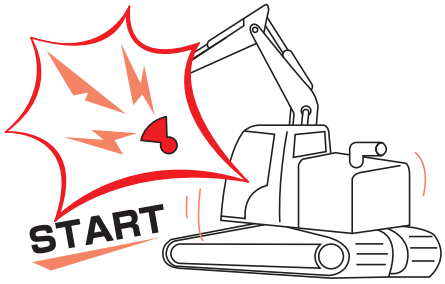
⚠ Warning

2-9 Use a signal before starting the engine

- Always make sure that there are no people around the excavator body or in the work area before getting on the excavator.



- When starting the engine, sound the horn first as a warning.



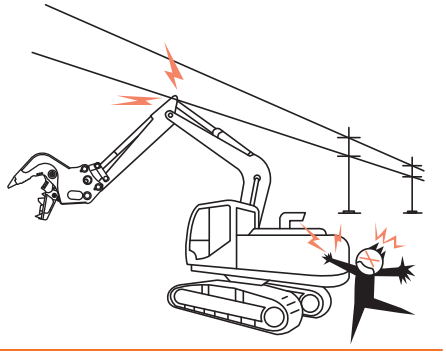
- Do not allow people other than the operator to get on the excavator body or in the operator's cab.

2-10 Keep away from high-voltage cables

Simply approaching high-voltage cables can result in electric shock. Be familiar with the maximum height of the excavator body and the maximum attained height of the working equipment (boom and arm) including the attachment, and always maintain the following minimum safe distances.

*Ask the power company about the voltage of power cables at the job site.

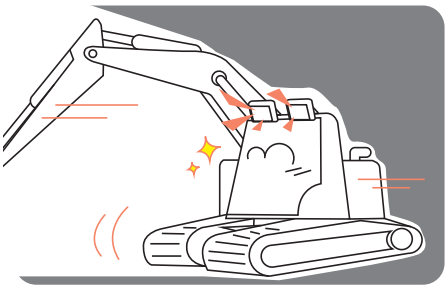
Voltage of power cables	Minimum safe distance
6.6 kV	3 m
33.0 kV	4 m
66.0 kV	5 m
154.0 kV	8 m
275.0 kV	10 m



⚠ Warning

2-11 Maintain sufficient visibility

- Turn on the work lights of the hydraulic excavator in dark locations. Furthermore, brighten the area by preparing lighting equipment as necessary.

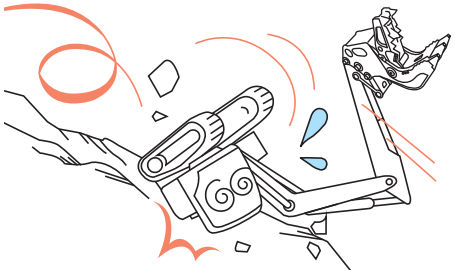


- Stop work immediately when visibility is bad due to bad weather, clouds of dust, etc.

2-12 Cautions about slopes

- If the excavator body has slipped or become unstable while travelling, immediately lower the attachment to the ground and stop travelling.

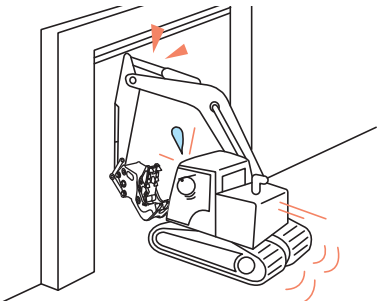
- Be careful that the hydraulic excavator does not tip over when working with heavy loads on sloping land. Furthermore, do not swivel the hydraulic excavator.



⚠ Warning

2-13 Watch for collisions

When you are working in a location in which the height is restricted, such as in a tunnel, under an overpass or power cables, or when parking in a garage, take sufficient care not to hit the attachment or working equipment (boom and arm) of hydraulic excavator.



2-14 Do not perform excessive work

① **Do not perform punching work**

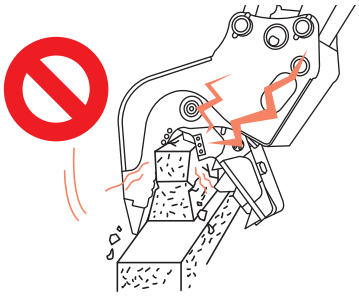
This product is an attachment for secondary crushing.

Do not use it for primary crushing, prying, sideswipes, or striking.

② **Do not demolish concrete with the cutting blade section**

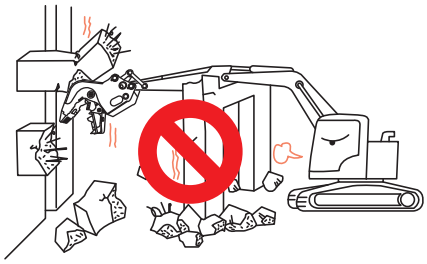
Do not demolish concrete with the cutting blade section.

The cutting blade will be damaged if you use it to demolish concrete.



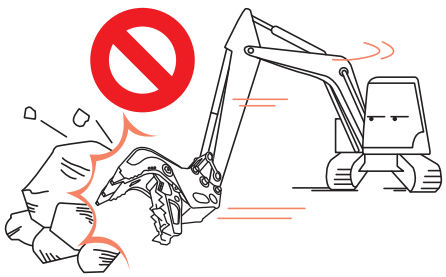
③ **Do not secure the boom and arm of the hydraulic excavator**

When you use the attachment, do not secure the boom and arm of the hydraulic excavator by contact with another object. This can bend the boom and arm of the hydraulic excavator or other parts.



④ **Do not perform leveling work**

Do not level crushed materials or residual soil using the attachment. Otherwise, both the attachment and the hydraulic excavator may be damaged.

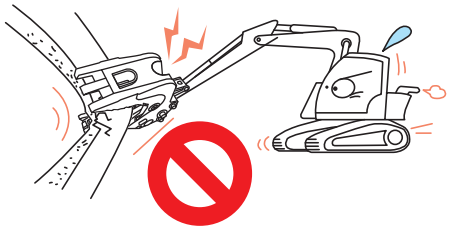


⚠ Warning

2-14 Do not perform excessive work

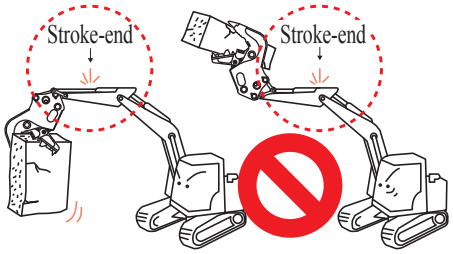
⑤ Do not perform operations simultaneously

Do not operate the boom and arm of the hydraulic excavator, move the hydraulic excavator, or perform any other operations while using the attachment. An abnormal force may be applied and damage the attachment, arm and link of the hydraulic excavator, and other parts.



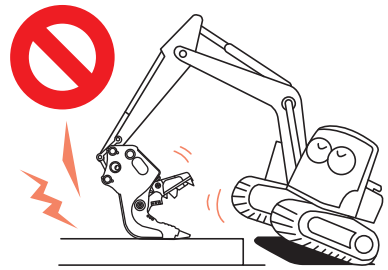
⑥ Do not operate at the stroke-end

Do not use the stroke-end of the hydraulic excavator's cylinder. Do not use the attachment when the bucket cylinders of the hydraulic excavator is fully extended or retracted. It may be damaged the arm, link and pin or other parts of the hydraulic excavator.



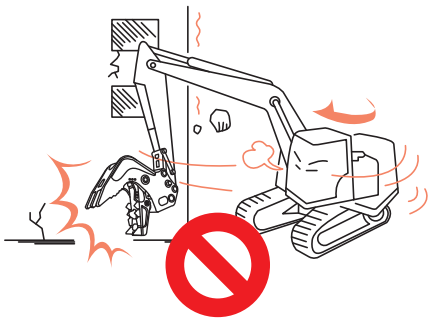
⑦ Do not jack up the hydraulic excavator using the attachment

An unreasonable force will work on the boom and arm of the hydraulic excavator and may break both the attachment and hydraulic excavator.



⑧ Do not use the turning force of the hydraulic excavator to create an impact

Excessive force will be applied to the attachment and upper components of the excavator, which may cause damage.



⑨ Do not grasp items from an angle

Excessive force will be applied to the jaw and rotating parts of the attachment, which may cause damage.

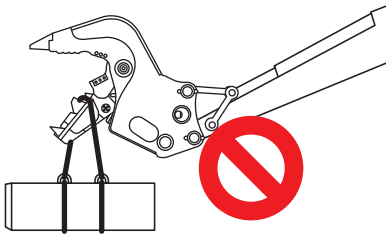
⚠ Warning

2-14 Do not perform excessive work

⑩ **Do not lift materials**

Lifting objects using an attachment of a hydraulic excavator is a violation of law in Japan.

Moving objects using the hydraulic excavator is also considered crane work.



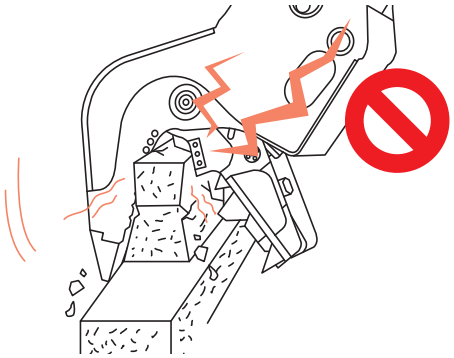
Notice

2-15 Do not use the attachment to crush fieldstone

Do not use the attachment to crush granite or other fieldstone.

2-16 Use the cutting blade to cut only rebar

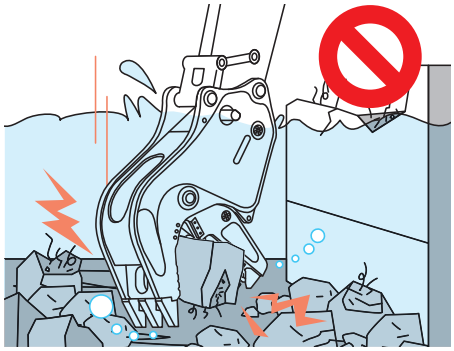
Do not use the cutting blade to cut items other than rebar. Crushing concrete with the cutting blade will cause abnormal wear or other damage. Do not cut steel frames that exceed the ability of the cutter.



• For the Guzzilla Hydraulic pulverizer maximum cutting ability, see “Specifications and Dimensions” (P.32).

2-17 Do not use underwater

Do not use the attachment where it may be splashed with water or underwater. Water infiltration may damage the attachment.

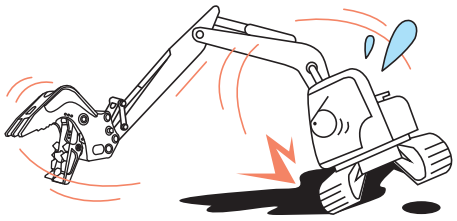


3. Cautions while travelling

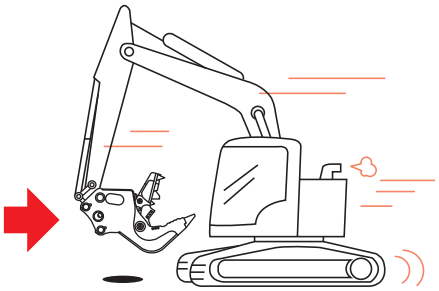
Warning

3 Cautions while travelling

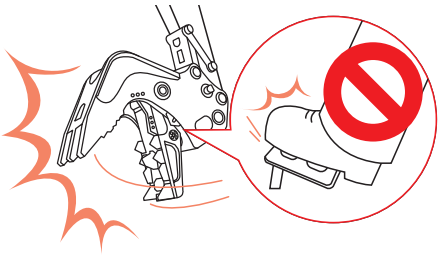
- When the attachment is installed, the balance of the excavator body is very different from when the standard bucket is installed. Be careful the hydraulic excavator does not tip over when swiveling or when a working equipment (boom and arm) is extended.



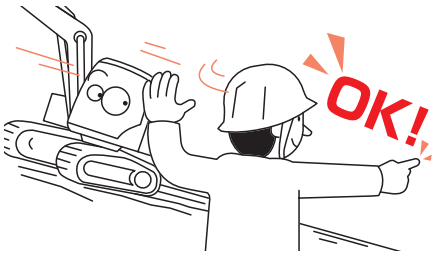
- Before travelling, bring the attachment and working equipment (boom and arm) to the front as much as possible. Travelling while a working equipment (boom and arm) extended is very dangerous because the excavator body becomes unstable. Furthermore, keep the tip of the attachment 30 to 40 cm above the ground so that it can be lowered and stopped immediately in an emergency.



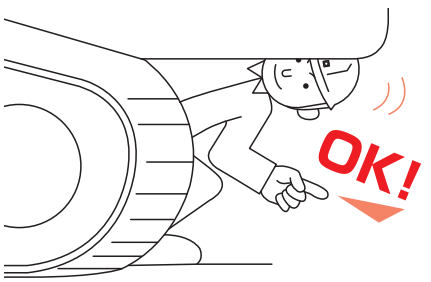
- Do not travel with your foot resting on the operation pedal of the hydraulic excavator because the attachment may move suddenly.



- While travelling, pay attention to the safety of your surroundings. Particularly when you are travelling backwards, or on a slope, make sure there are no people around, and then proceed with caution.



- Hydraulic excavators have blind spots. Before turning, make sure that no one is under the hydraulic excavator.

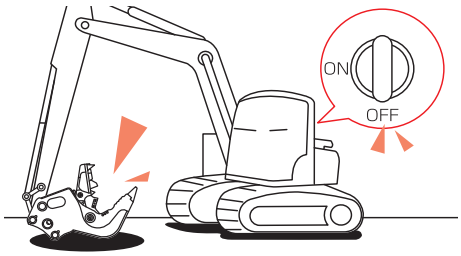


4. Cautions after operation

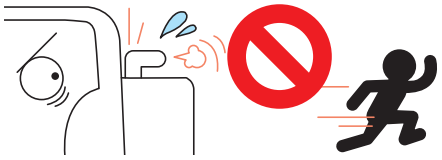
⚠ Warning

4-1 Cautions when leaving the driver's seat

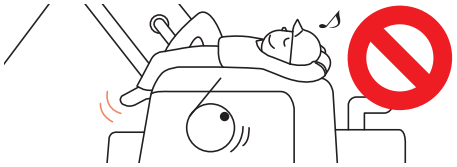
- Before leaving the body of the excavator, bring the working equipment (boom and arm) or attachment to the front and place it on the ground reliably. Furthermore, always stop the engine of the hydraulic excavator.



- Do not leave the driver's seat while operation.

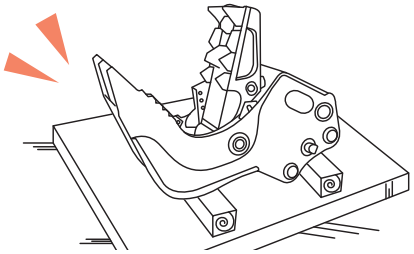


- Do not sit or ride on a working equipment (boom and arm).

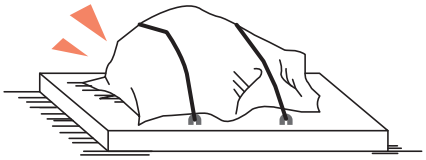


4-2 Safely store the attachment

- Depending on the storage position, there is a risk that the attachment may fall over. Choose a location with a flat solid surface, and store the attachment stably on a support stand, rectangular lumber, etc.



- If the attachment will be stored for a long time, choose a location that is not exposed to rain and store the attachment wrapped in a protective sheet or similar item.

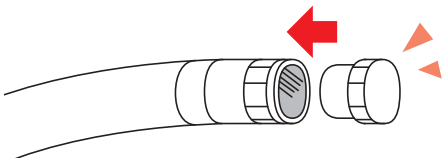


- Do not let children or third parties enter the storage area.

Warning

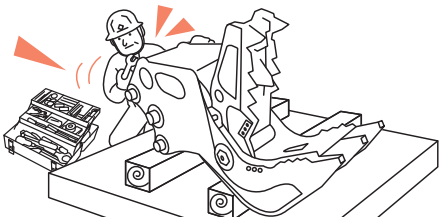
4-2 Safely store the attachment

- To stop the jaw of the attachment from moving, always attach the blind plug to the connection hose.

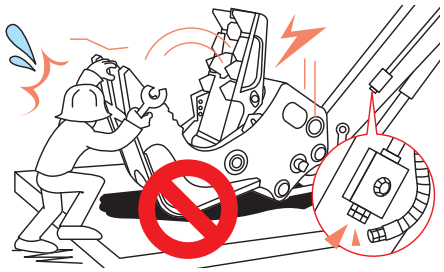


4-3 Maintenance position

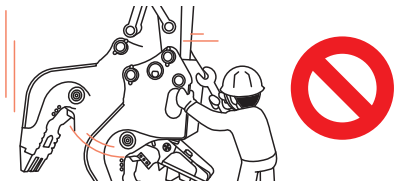
- Before maintaining the attachment, always place a stand, rectangular lumber, or other similar item on a solid flat surface, and then place the attachment on it in a stable condition.



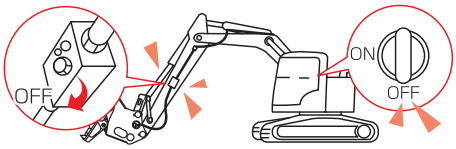
- Do not support the jaw of the attachment by the hydraulic cylinder only. This is dangerous because the jaw may fall (close) if the operation pedal is accidentally pressed, the hydraulic line is damaged, or the hydraulic piping parts are removed.



- Never work while the attachment is raised.



- Before maintenance, always stop the engine of the hydraulic excavator, and then switch OFF the stop valve of the hydraulic piping.

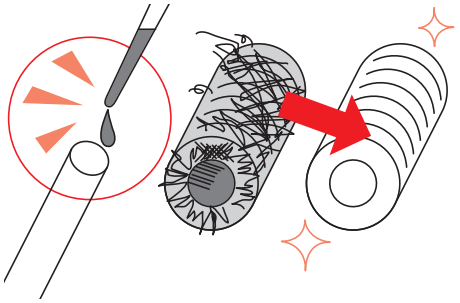


⚠ Warning

4-4 Managing hydraulic oil

- When the attachment is installed, it is assumed that the hydraulic oil will deteriorate quickly because the hydraulic oil reaches higher temperatures and pressures more often than with standard bucket excavation work. Follow the inspection and maintenance rules for the hydraulic excavator and observe the exchange time for the hydraulic oil.

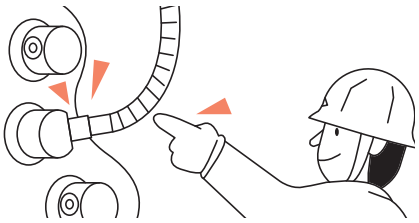
- Dirt, contamination, time-related deterioration, and other conditions of the hydraulic oil may cause problems for hydraulic equipment. Follow the inspection and maintenance rules for the hydraulic excavator and observe the exchange time for the filter (element) of the hydraulic circuit.



Warning

4-5 Watch for high-pressure oil

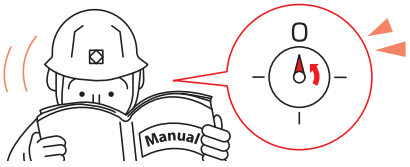
- Carefully check the hydraulic lines for leaks before and after work because leaks may cause fire or other serious accidents.



- Be aware that the hydraulic line has a constant internal pressure.

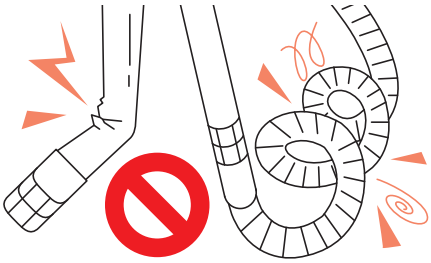
  Do not supply or discharge oil or perform inspection and maintenance work before the internal pressure becomes zero.

  For the procedure to relieve the internal pressure, see “Releasing internal pressure of hydraulic circuit to prevent high-temperature/high-pressure oil spouting” (P.50) of the Inspection/Maintenance section.



- If a leak of high-temperature/high-pressure oil from a small hole hits the skin or eye, there is a risk of blindness or serious injury. During an inspection, wear safety glasses and thick gloves and put thick paper, plywood, or a similar item on the inspection site. If you accidentally touch high-temperature/high-pressure oil, obtain medical treatment from a doctor immediately.

- Do not bend or strike the pipes of the hydraulic circuits of working equipment (boom and arm). Do not bend and install tubes and hoses or install damaged items.

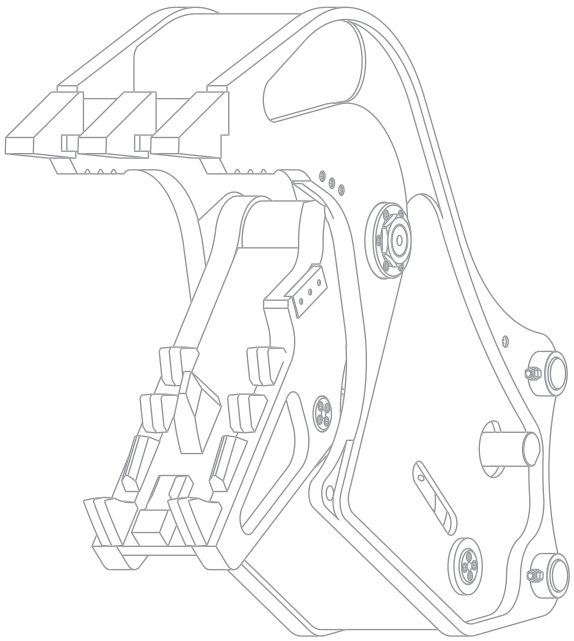


4-6 Watch for fire and explosions

- Do not weld or gas cut tubes or pipes containing flammable oil.

  Furthermore, do not allow heat from welding or other work near hydraulic equipment or plumbing. Before doing such work, remove the oil and clean the area.

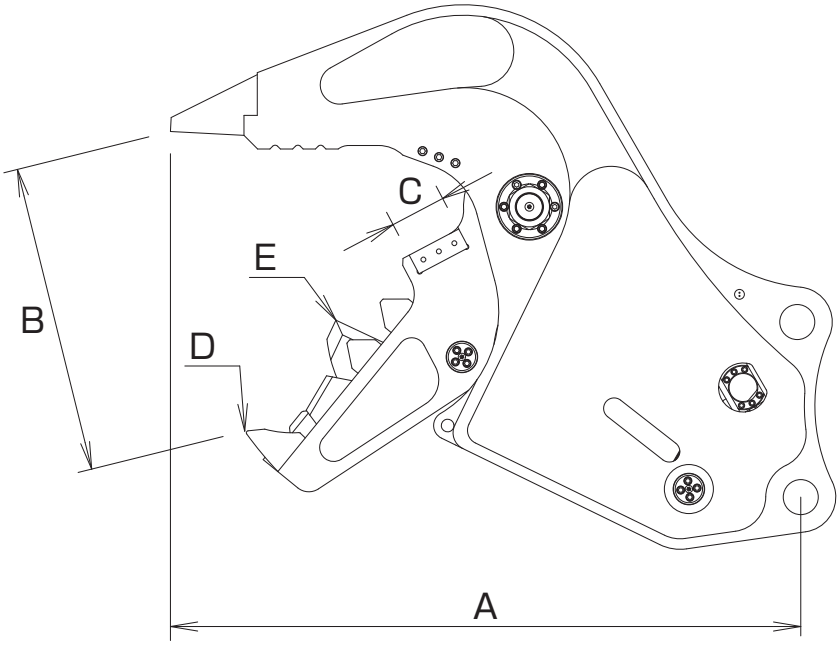
Operation



Warning

Carefully read and understand the Safety section (P.11) before reading this section.

Specifications and Dimensions



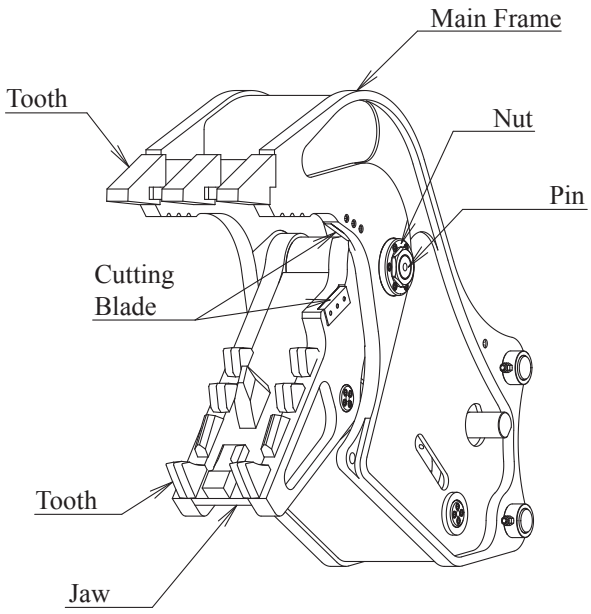
Model name		MC-36	MC-52	MC-75	MC-135	MC-212	MC-352
Class of excavator	ton	3-5	3.5-5.5	6-8	12-14	20-22	30-37
Operating pressure	MPa (kgf/cm²)	24.5 (250)			31.4 (320)		
Max. Op. Pressure	MPa (kgf/cm²)	24.5 (250)		27.4 (280)	34.3 (350)		
Required flow rate	L/min	80		140	240	400	600
A Length	mm	960	1120	1270	1470	1800	2130
B Maximum jaw opening	mm	430	510	620	750	885	1050
C Cutting blade length	mm	70		100	120	160	180
D Crushing force at tip	kN (tf)	178 (18)	226 (23)	369 (38)	547 (56)	725 (74)	1060 (109)
E Crushing force at center	kN (tf)	282 (29)	353 (36)	534 (55)	882 (90)	1170 (119)	1740 (178)
Mass	kg	240	380	590	1030	1690	2830

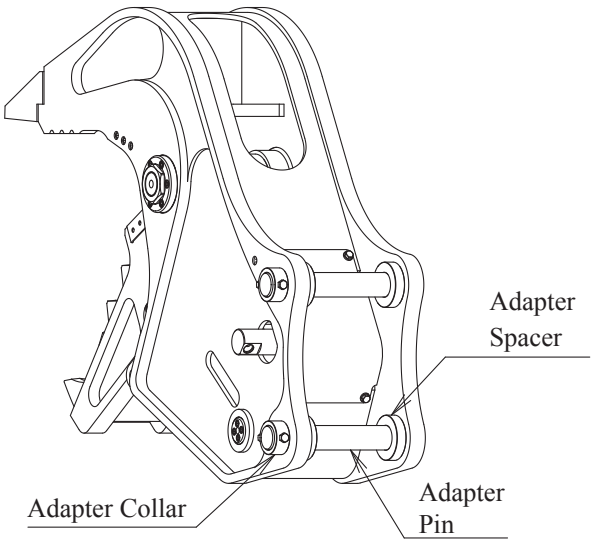
- Single two-way hydraulic piping is required.
- We recommend reinforcing the arm of a hydraulic excavator that has the Guzzilla series installed.
- The weights in the table are reference values. For the weight of products, refer to “Product name-plates”.
- The attachment cannot be installed on a hydraulic excavator of a different class.
- For installable models of the MC-36, contact your Taguchi dealer.

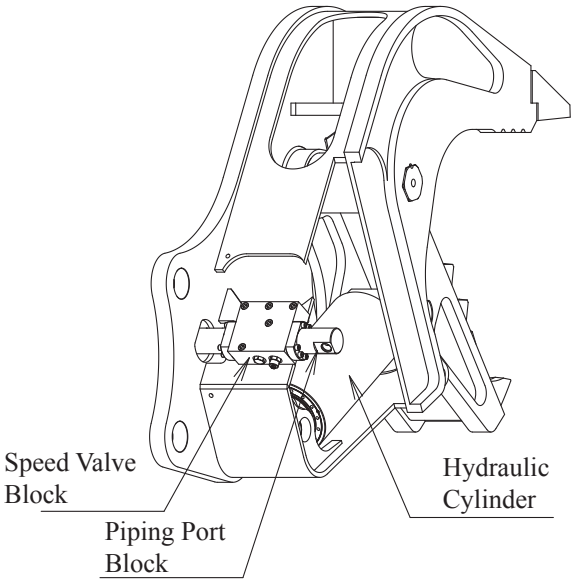
Diameter of rebar that can be cut by the Guzzilla Hydraulic Pulverizer **(Units: mm)**

Model name	MC-36	MC-52	MC-75	MC-135	MC-212	MC-352
Rebar diameter	φ19	φ22	φ25	φ32	φ41	φ51

Component names







Inspections and preparation before operation

To ensure operation safety and prevent trouble with attachments and hydraulic excavators, always perform the following inspections and preparation before starting operation.

■ Inspections

- Check the amount and dirt of the hydraulic oil of the hydraulic excavator.
  - If the amount is low, supply the same hydraulic oil up to the prescribed amount.
  - If contamination and deterioration are progressing, replace the full amount with the same hydraulic oil. Contaminated or deteriorated hydraulic oil may damage the hydraulic components of the product.

Notice

When you check the amount of hydraulic oil, use the inspection method listed in the manual of the hydraulic excavator.

- Inspect all the bolts and nuts of attachment parts and piping parts for looseness.
  Tighten any loose sections using the appropriate tightening torque (P.68 “Standard torque table”).
  Operating the attachment while a bolt or nut is missing may lead to a serious accident.
- Inspect the attachment parts and piping parts for oil leaks.
  If there is a large leak, investigate the cause and carry out countermeasures.
- Check for wear of the cutting blade surface, wear and cracks of the jaw, and inspect that the teeth are not too worn for the operation.
  Replace any worn items, because they not only lower work efficiency, they also lead to damage of the attachment (P.53 “Adjusting the gap of the jaw of the attachment”).
- Make sure that the stop valves on both sides of the arm of the hydraulic excavator are fully open.
- Make sure that all covers of the attachment are installed. Do not use the attachment if the covers are off.
- After the above-mentioned inspections, check the movement of attachment and make sure there are no malfunctions or unusual noises.

■ Preparation

- Due to transport conditions, the attachment has not been filled with grease. Always fill the attachment with grease before installation (P.41 “Greasing”).
- Inject grease to the grease injection points at least twice a day (every four hours), including at the start of work. (About five times with a grease gun.)
  If the grease runs out, it will cause seizures, wear, damage, and other problems to parts such as the pin and bushing. Increase the number of grease applications if the lubrication locations come into contact with water during work.
- The hydraulic excavator should be warmed up in cold regions or in the winter.
  Set the rotation of the engine to half stroke. With the boom fully raised, relieve the hydraulic oil continuously for 10 to 15 seconds, and then wait 5 to 10 seconds. Repeat this operation for 5 to 10 minutes.

Usage temperature range of hydraulic oil: 40 through 80°C (maximum)

Operation control

Warning

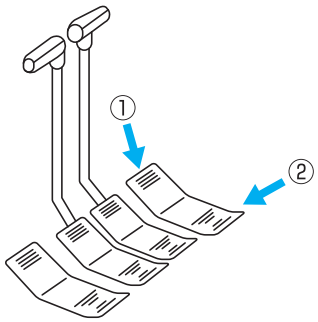
Depending on the specifications of the hydraulic excavator, the attachment operation method and movement direction may differ from the following description. Before operation, always check the operation pattern in a safe location.

For details, see the manual of the hydraulic excavator to be used.

■ Crushing

Operate the jaw by manipulating the operation pedals installed in the cab of the hydraulic excavator that follow to the hydraulic control system.

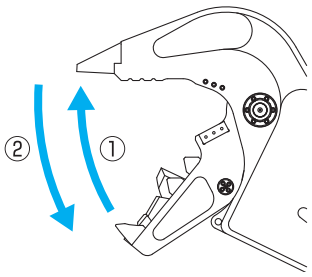
Attachment pedals



Open and close the jaw.

① Close: step on the toe-end of the pedal.

② Open: step on the heel of the pedal.



Installing the attachment

Warning

- **Installation and removal of the attachment has a risk of the attachment falling down, being contacted, or falling over. Work in a wide flat area under stable conditions.**
- **When you remove the attachment, always release the residual pressure of the hydraulic piping before removing the hydraulic hose. If there is residual pressure in the circuit, high-temperature oil may shoot out, which is very dangerous. For the procedure to relieve the internal pressure, see "Releasing internal pressure of hydraulic circuit to prevent high-temperature/high-pressure oil spouting" (P.50) of the Inspection/Maintenance section.**

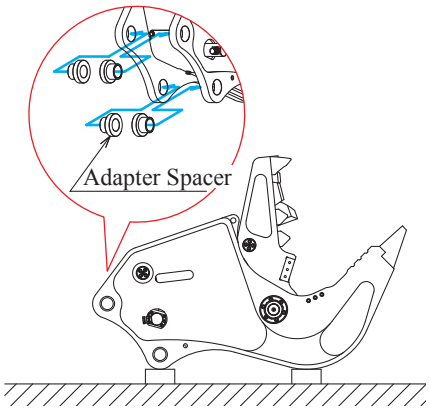
Caution

- **When attaching and detaching hoses, make sure that there is no adhesion or mixing of dirt, mud, or other foreign bodies in the piping, couplers, and hydraulic hoses. Remove all oil stains in the piping. Otherwise, the attachment and the hydraulic equipment of the hydraulic excavator may be damaged.**
- **Install the attachment in the correct orientation on the hydraulic excavator. If it is not installed correctly, the attachment and the arm of the hydraulic excavator may contact and be damaged.**
- **When you install the attachment on the hydraulic excavator, always check the following items. If these checks are not performed, the machinery may not run normally. Furthermore, an accident may result.**
  - **If the piping of the hydraulic excavator is a manual switching style shared with the hydraulic breaker, switch the selector valve to the crusher circuit.**
  - **If the piping of the hydraulic excavator is an automatic switching type, use the operation panel or switch to switch to the attachment mode before use.**
  - **If an accumulator is installed on the piping for the hydraulic breaker, always close the safety lock valve. (This is not necessary in the case of attachment-mode automatic-switching piping.) Be sure to set all stop valves on the piping connected to the attachment to ON (fully open) before use.**

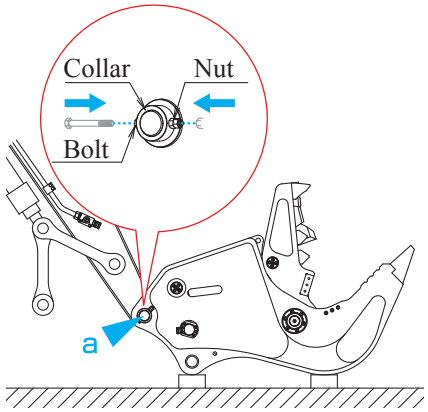
Notice

- **The adapter pin and adapter spacer change depending on the jaw width and pin diameter of the attachment model. If you attach a new model with the different arm width or pin diameter, an adapter pin and adapter spacer suitable for this model are necessary.**
- **Be sure to open any stop valves on the hydraulic line connected to the attachment after installation. If the pressure increases while one side is closed or partially open, hydraulic equipment may be damaged.**
- **Due to transport conditions, grease has not been filled. Always apply grease when installing (P.41 "Greasing").**

1 Choose a location with a flat solid surface, and then place the attachment stably on a support stand, rectangular lumber, etc. Attach the adapter spacers (4) inside the bracket.

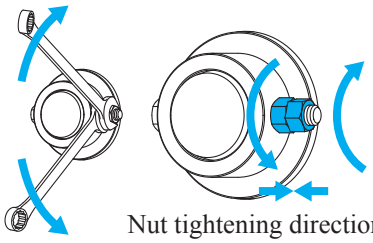


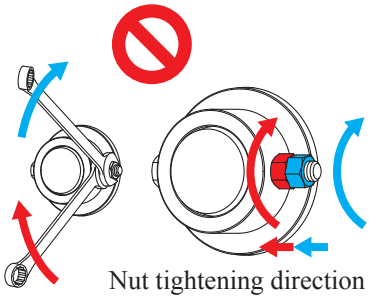
2 Align the pin holes on the tip of the arm of the hydraulic excavator with the installation holes of the attachment (a). Use the adapter pins, pin retainer collars, bolts, and nuts for the attachment to attach it to the hydraulic excavator.



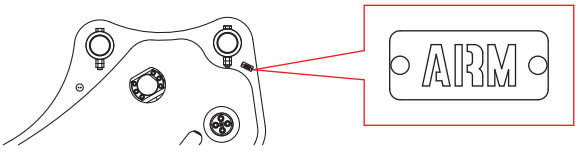
Notice

- **Tighten the double nut attached to the pin retainer bolt correctly.**

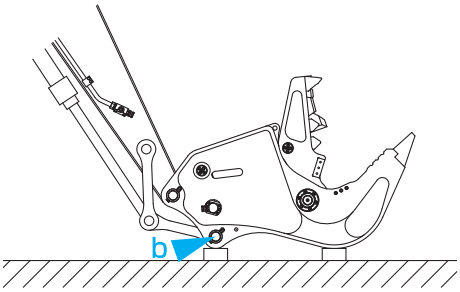




- **To prevent installation mistakes, an “ARM” plate is attached to the bracket of the attachment.**



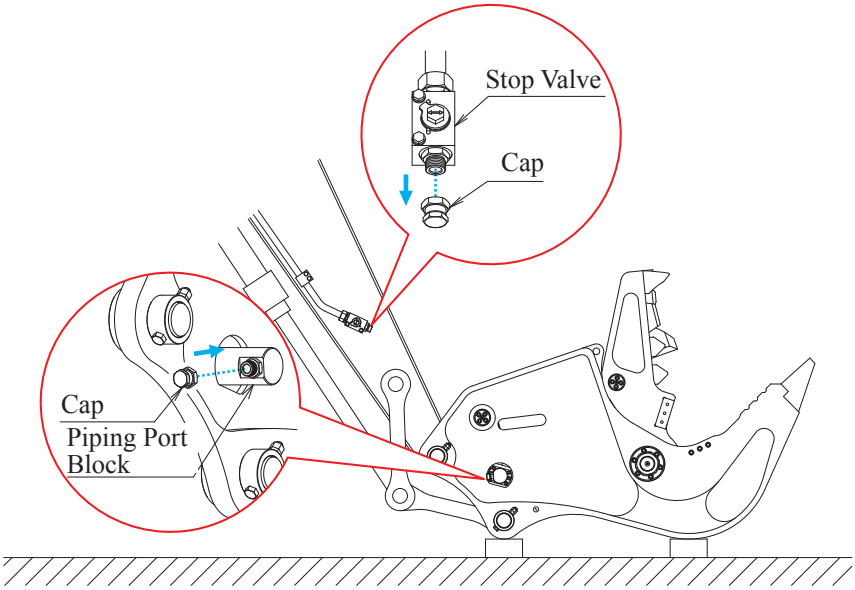
3 Align the pin holes on the bucket link of the hydraulic excavator with the installation holes of the attachment (b). Use the adapter pins, pin retainer collars, bolts, and nuts for the attachment to attach it to the hydraulic excavator.



4 Stop the engine of the hydraulic excavator, and then release the internal pressure inside the hydraulic circuit.

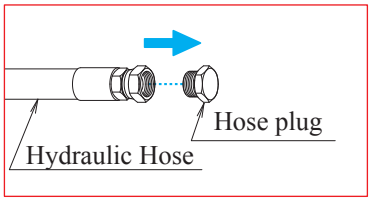
For the procedure to relieve the internal pressure, see “Releasing internal pressure of hydraulic circuit to prevent high-temperature/high-pressure oil spouting” (P.50) of the Inspection/Maintenance section.

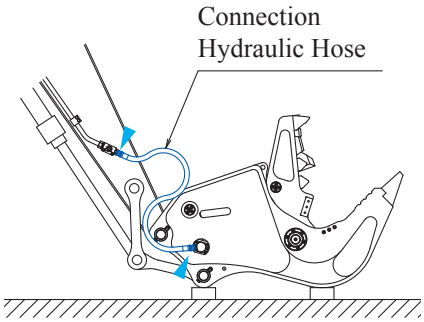
5 After making sure that the hydraulic oil has cooled, remove the caps of the piping port block of the attachment and the stop valve of the hydraulic excavator.



6 Remove the hose plugs from both ends of the connection hydraulic hose, and then connect the attachment and hydraulic excavator while not bending the hydraulic hose.

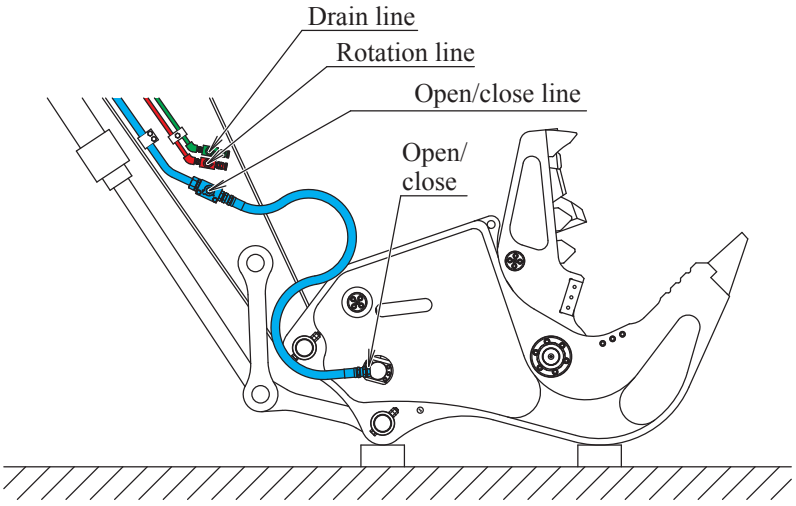
When connecting the hydraulic hose, make sure that no dirt, mud, or other foreign body gets in the hydraulic hose.





Notice

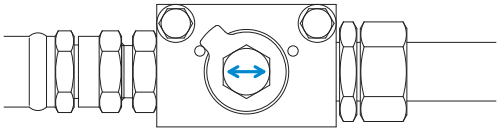
Always check the piping pattern with the hydraulic excavator manufacturer and connect the connection hydraulic hoses to the prescribed locations on the attachment and hydraulic excavator correctly.



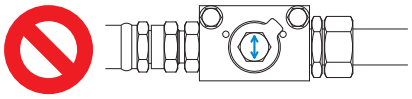
7 Due to transport conditions, the attachment has not been filled with grease. Always supply grease (P.41).

8 Set the orientation of the arrows of the stop valve of the hydraulic excavator as shown in the illustration to set the valve to ON (fully open).

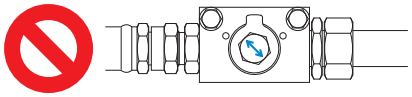
The stop valve shape depends on the hydraulic excavator. For details, see the manual of the hydraulic excavator to be used.



Stop valve fully open



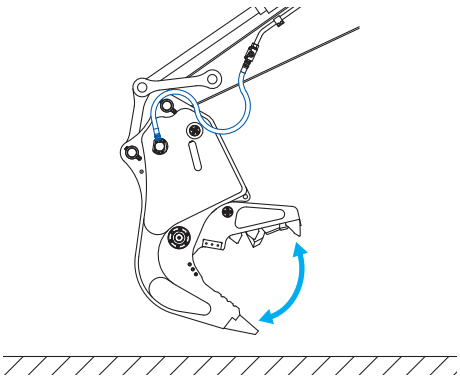
Stop valve fully closed



Stop valve half open

9 Start the engine of the hydraulic excavator, carefully check the operation pattern of the attachment in a safe location, and then start warm-up operations (P.43).

Always start warm-up operations to release the air in the hydraulic circuit and spread the grease inside the grease section.



10 After warm-up operations, stop the engine of the hydraulic excavator for five minutes or more to release the air bubbles in the hydraulic oil inside the hydraulic excavator tank.

11 Check the hydraulic oil amount of the hydraulic excavator and add hydraulic oil if necessary.

Take care not to overfill the hydraulic oil. The amount of hydraulic oil in the hydraulic excavator tank depends on the closing state of the jaw of the attachment and the position of the hydraulic excavator.

12 The installation procedure is complete.

Greasing

Caution

While greasing, open the jaw of the attachment and rotate it several times so that the grease spreads sufficiently.

Notice

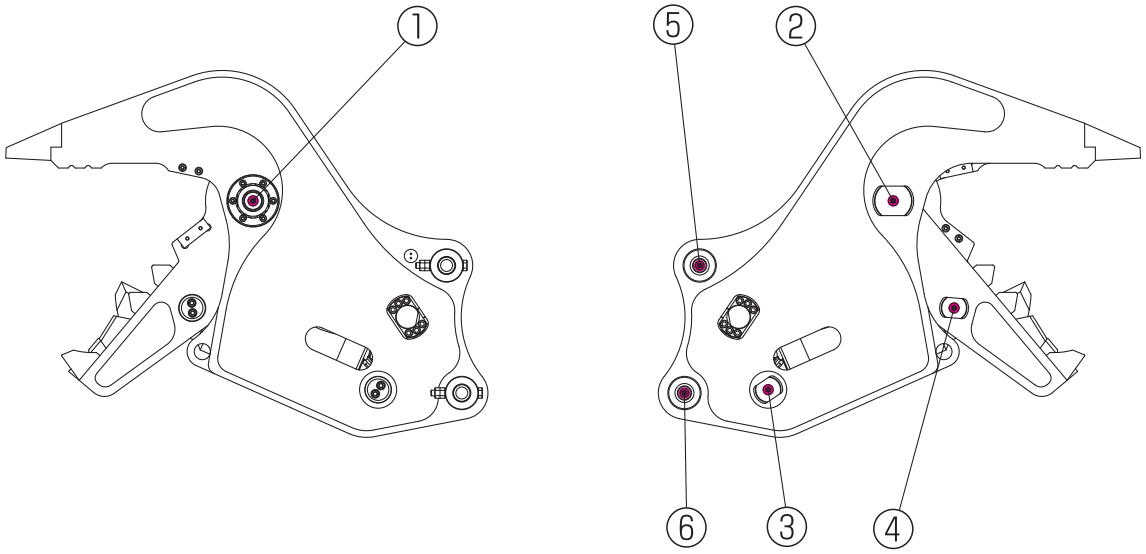
In particular, carefully grease the attachment after it has been cleaned or become wet.

1. Place the attachment on the ground, and then stop the engine.
2. Clean the grease nipples of the lubrication points, and then use a grease gun to add grease.
3. You can check whether grease has been filled sufficiently by whether old grease has been pushed out from the pin, edges, matching surfaces, dust seal section, etc.
4. After greasing, use a cloth or similar item to wipe away the pushed-out old grease.

■ Lubrication points

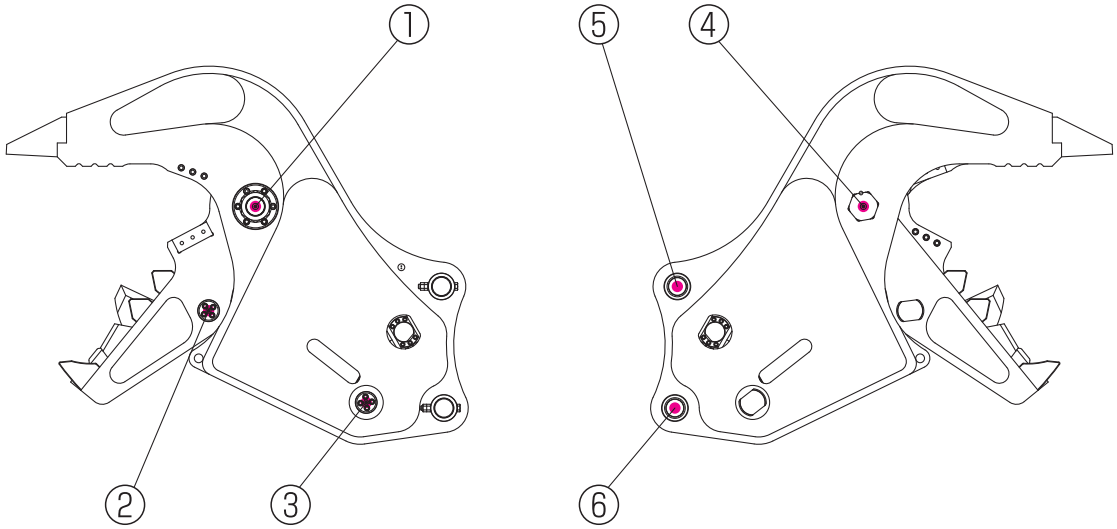
Apply grease to the locations numbered in the drawing.

● **MC-36/52**



* The presence of ⑤ and ⑥ items depends on the installation model.

● **MC-75/135/212/352**



* The presence of ⑤ and ⑥ items depends on the installation model.

Warm-up operations

When the attachment is new or has just been overhauled, always apply grease and run warm-up operations to release the air in the hydraulic circuit and spread grease before starting work.

Notice

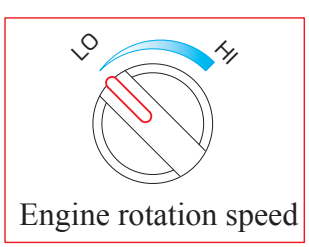
If warm-up operations are not performed, there is a risk that the hydraulic equipment of the hydraulic excavator and attachment may be seriously damaged or the moving parts of the attachment may seize.

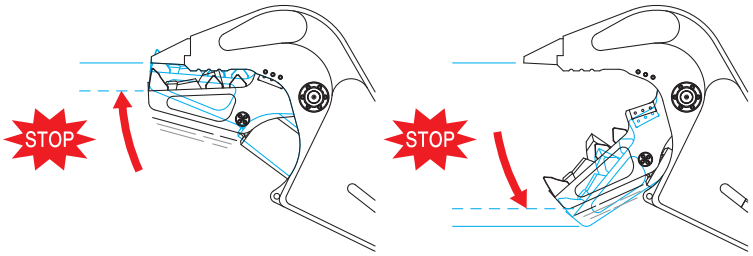
1 Add a sufficient amount of grease to the lubrication points.

For the lubrication points, see “Greasing” (P.41).

2 Set the rotation of the engine to low idling, and then slowly move the jaw between fully closed and fully opened about five times at the front.

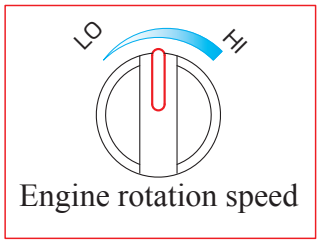
The air of the hydraulic circuit is released.

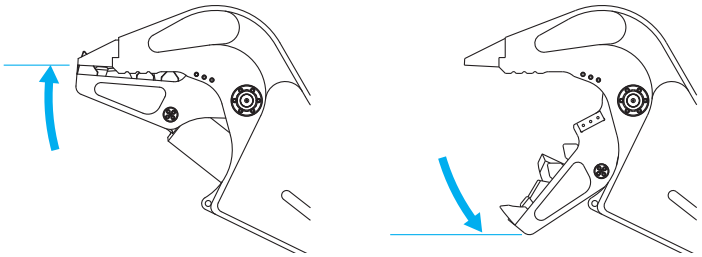




3 Add grease one more time.

4 At half stroke, move the jaw slowly from fully closed to fully opened about five times.





5 Warm-up operations are complete.

Troubleshooting during attachment installation

If there is a problem with the operating conditions of machinery when the attachment is installed, check the relevant location using the table below.

Note that the check items differ depending on the manufacturer or model of the hydraulic excavator. For details, see the manual of the hydraulic excavator.

Problem	Check item
Jaw does not move	• Is the work mode of the hydraulic excavator in crusher mode (in the case of automatic switching piping)? • Is the manual switching valve set to the crusher side (in the case of manual switching piping)? • Has the lock lever of the hydraulic excavator been released? • Has the lock pin of the operation pedal been released or is there a foreign object under the pedal? • Is the stop valve of the piping set to ON (fully open)?
The jaw moves arbitrarily	• Is the work mode of the hydraulic excavator in crusher mode (in the case of automatic switching piping)? • Is the manual switching valve set to the crusher side completely (in the case of manual switching piping)? • Is the lock valve of the accumulator of the piping completely closed?
There is a strange noise during opening or closing of the jaw	• Has grease been applied?
Jaw movement is slow	• Is the stop valve of the piping set to ON (fully open) (jaw)? • Has it been adjusted to the necessary flow rate? • Has the lock pin of the operation pedal been released or is there a foreign object under the pedal?
There is no force	• Is the stop valve of the piping set to ON completely (fully open)? • Is the necessary oil pressure coming out?

If the problem is not solved by the chart above, there may be a breakdown of the hydraulic excavator or attachment.

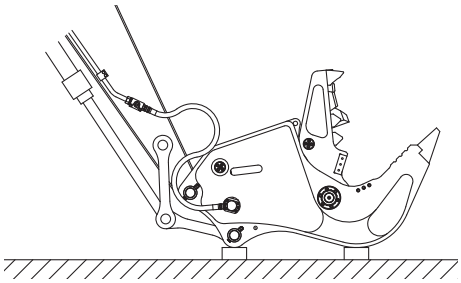
- Do not use machinery while the problem remains. Contact your Taguchi dealer immediately.
- Regarding inspections and adjustments of the oil pressure, flow rate, and other items, consult with the place of purchase of the hydraulic excavator.

Removing the attachment

Warning

When you remove the attachment, always release the residual pressure of the hydraulic piping before removing the hydraulic hose. If there is residual pressure in the circuit, high-temperature oil may shoot out, which is very dangerous. For the procedure to relieve the internal pressure, see "Releasing internal pressure of hydraulic circuit to prevent high-temperature/high-pressure oil spouting" (P.50) of the Inspection/Maintenance section.

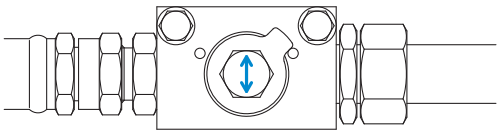
1 Choose a location with a flat solid surface, and place the attachment stably on the designated stand, rectangular lumber, etc. with the jaw of the attachment fully open.



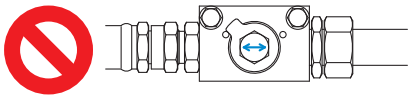
2 Stop the engine of the hydraulic excavator, and then release the internal pressure inside the hydraulic circuit.

For the procedure to relieve the internal pressure, see "Releasing internal pressure of hydraulic circuit to prevent high-temperature/high-pressure oil spouting" (P.50) of the Inspection/Maintenance section.

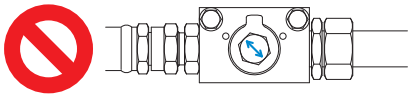
3 After making sure that the hydraulic oil has cooled, set the orientation of the arrows of the stop valve of the hydraulic excavator as shown in the illustration to set the valve to OFF (fully closed).



Stop valve fully closed

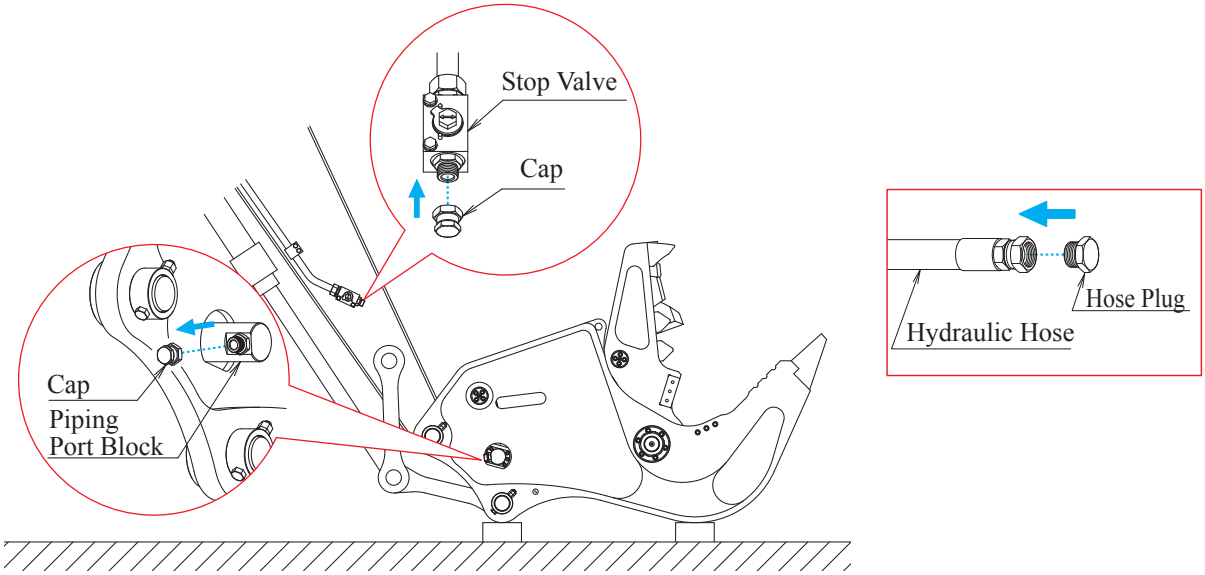


Stop valve fully open



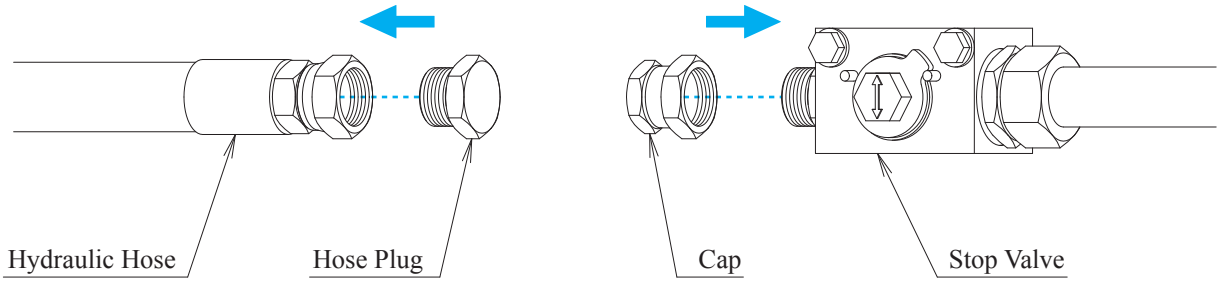
Stop valve half open

4 Remove the connection hydraulic hose, and then install the hose plugs on both ends of the hydraulic hose and the caps on the piping port block of the attachment and the stop valve of the hydraulic excavator.



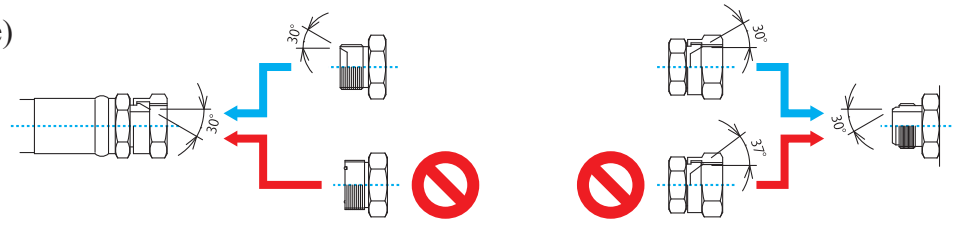
Notice

- **The hose plugs of the connection hydraulic hose and the caps of the piping port block of the attachment and the stop valve of the hydraulic excavator are intended to prevent waste and dust from entering the hydraulic circuit and causing a breakdown. After removing the hydraulic hose, tighten and store the hose plugs and caps reliably.**

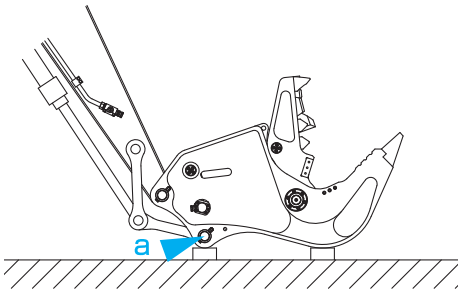


- **Always use a hose plug and stop valve cap that are the same type and size. Installing other types and sizes may lead to oil leaks.**

(Example)

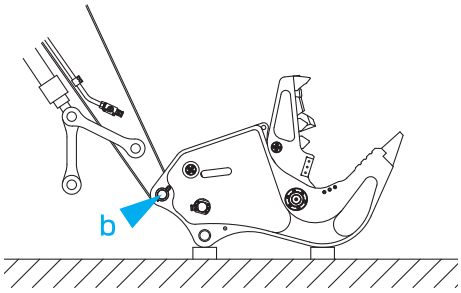


5 Remove the installation pin on the bucket link side of the hydraulic excavator (a).



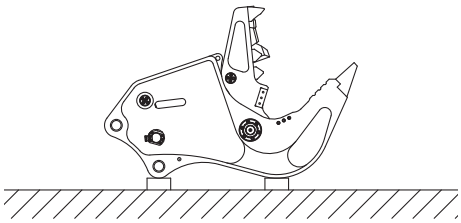
6 Remove the installation pin on the arm tip side of the hydraulic excavator (b).

When the installation pin cannot be removed, start the engine of the hydraulic excavator, carefully operate the hydraulic excavator arm and bucket link while centering the installation hole on the hydraulic excavator side and the installation hole on the attachment side.



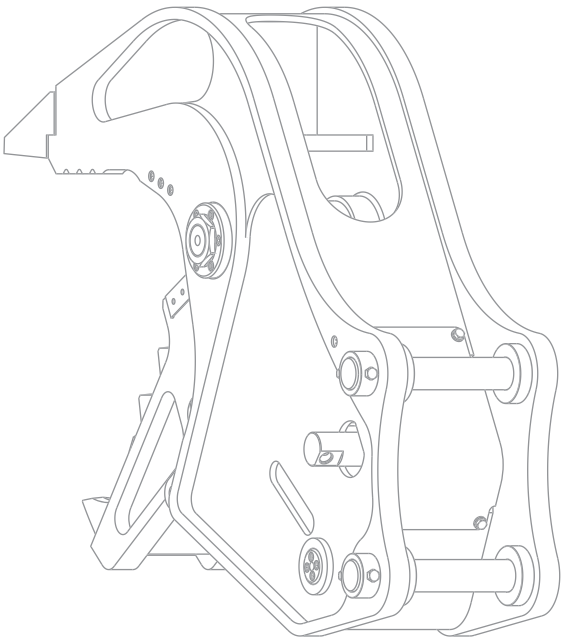
7 The removal procedure is complete.

When the attachment will be stored for a long time, add grease to all lubrication points.



MEMO

Inspection and Maintenance



Warning

Before working based on the items explained in this section, first sufficiently understand the content and important points of the Safety (P.11) and Operation (P.31) sections.

Releasing internal pressure of hydraulic circuit to prevent high-temperature/high-pressure oil spouting

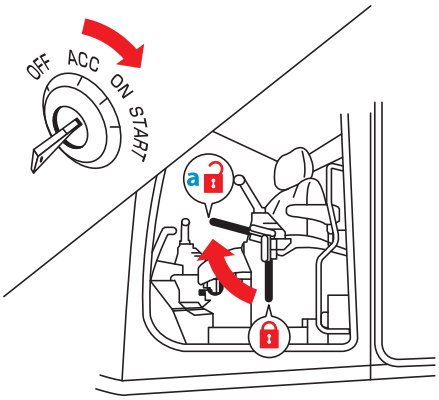
Warning

Because there is always internal pressure in the hydraulic system, always release the pressure in the circuit before inspecting or replacing piping and hoses or installing or removing the attachment from the hydraulic excavator (base machine). If the pressure is not released, high-temperature/high-pressure hydraulic oil may spout and lead to a serious accident resulting in personal injury or death.

■ Internal pressure release procedure

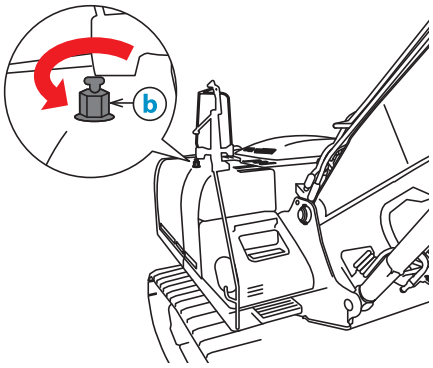
1 Always place the attachment on a stand, rectangular lumber, or other similar item on a solid flat surface, and then stop the engine.

2 Set the start switch to the ON position, and then set the lock lever to the free (a) position.



3 Perform a full stroke operation two or three times by moving the lever and pedals for each working equipment (boom and arm)/attachment operation front and back and left and right.

4 Slowly loosen the cap of the fuel filler opening on top of the hydraulic oil tank (b) to release the internal pressure.



Warning

The procedure above is an example. The procedure may be slightly different depending on the model of hydraulic excavator. For details, see the manual of the hydraulic excavator to be used.

Retightening of bolts, nuts, and hydraulic hoses

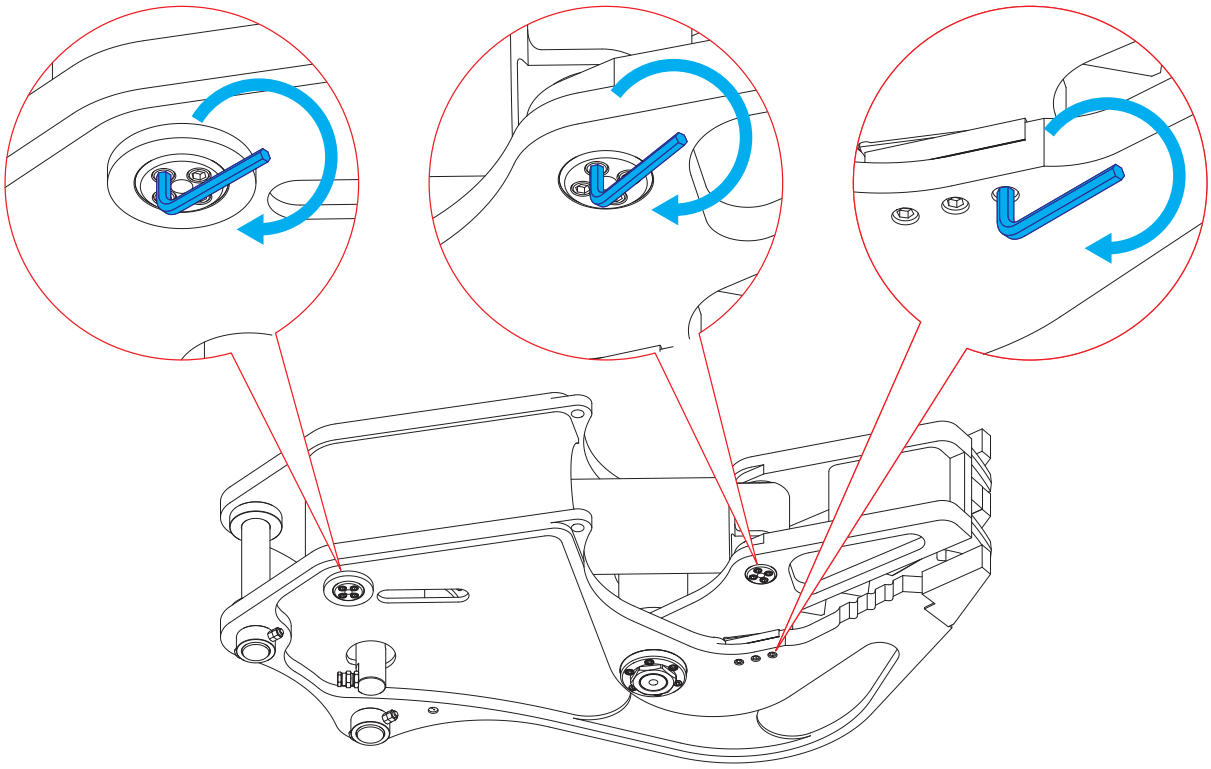
Warning

After eight hours have passed from the start of use of a new product, check the retightening of all bolts, nuts, and hose caps. Retighten any loose items.

Always check for loose or missing bolts, nuts, and hydraulic hoses during the inspection before start of work.

■ Retightening examples

▼ Pin installation section ▼ Pin installation section ▼ Cutting blade installation section



Always retighten using the prescribed torque. For the prescribed torque, see the standard torque table.

Standard torque table

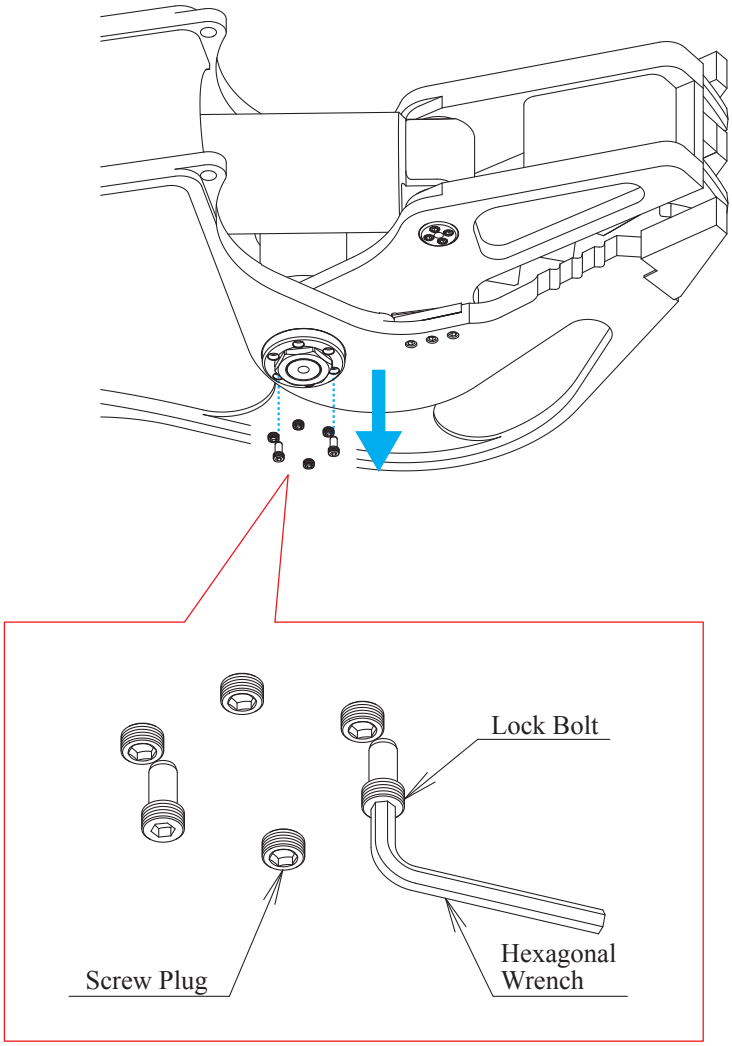
Size	Tightening torque (N · m)	Tightening torque (kgf · m)
M8	37.2	3.8
M10	72.5	7.4
M12	128	13.1
M14	204	20.8
M16	313	31.9
M18	450	45.9
M20	620	63.3
M22	825	84.2
M24	1060	108
M27	1530	156
M30	2090	213

Adjusting the gap of the jaw of the attachment

Wear of the bushings of the jaw of the attachment from long-term use create gaps between the jaw and the main frame. If there is a gap in the jaw, the crushing and cutting ability of the attachment will drop and the pins will be damaged. Therefore, periodically inspect and adjust the gap of the jaw.

■ Adjusting using the nuts

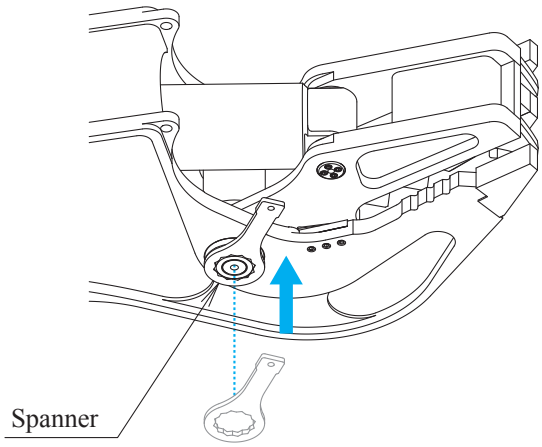
1 Remove all screw plugs and lock bolts from the nuts.

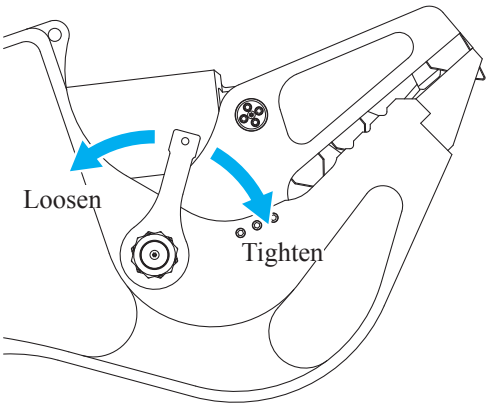


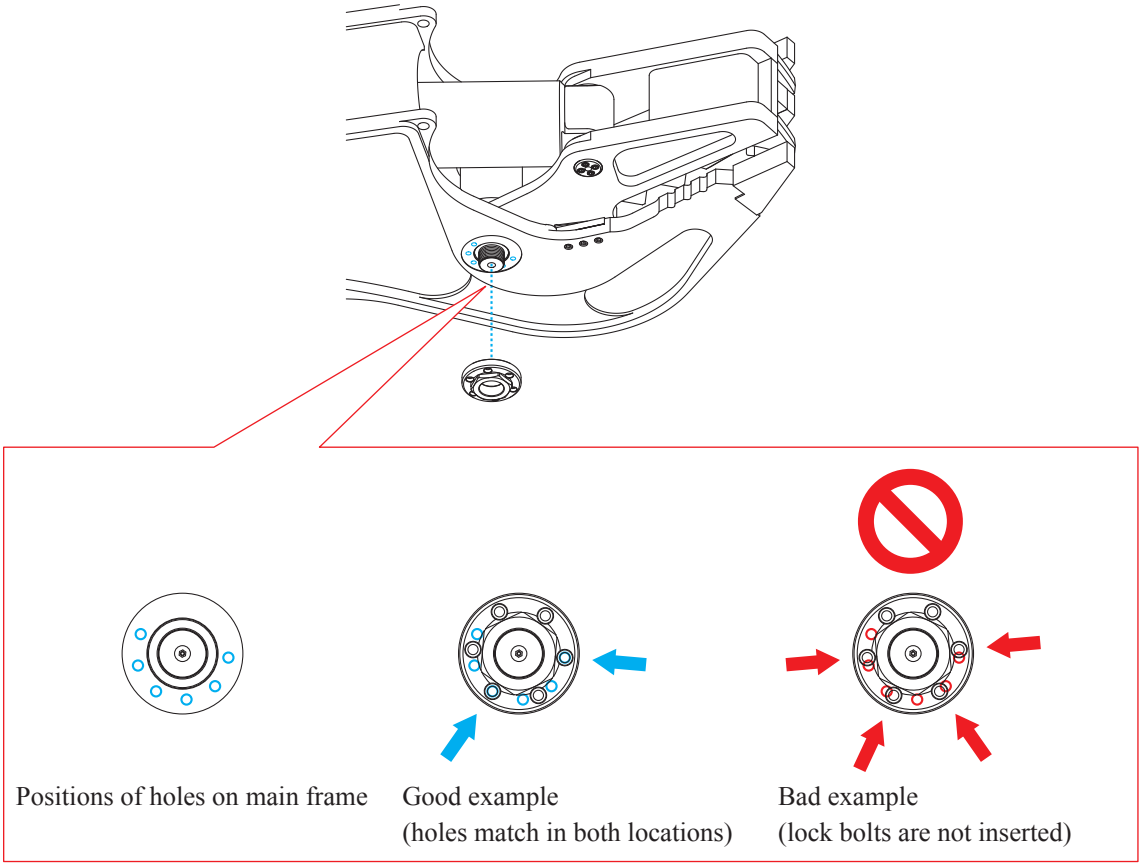
Caution

Two lock bolts are attached to each nut. Always remove all lock bolts.

2 Turn the nut to adjust the gap of the jaw so that the nut hole position and the main frame hole position match.



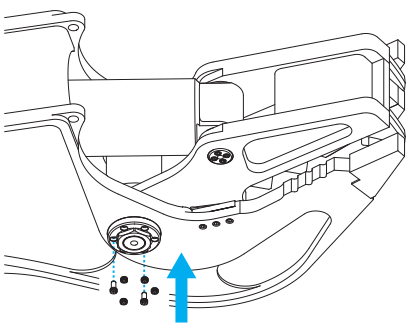




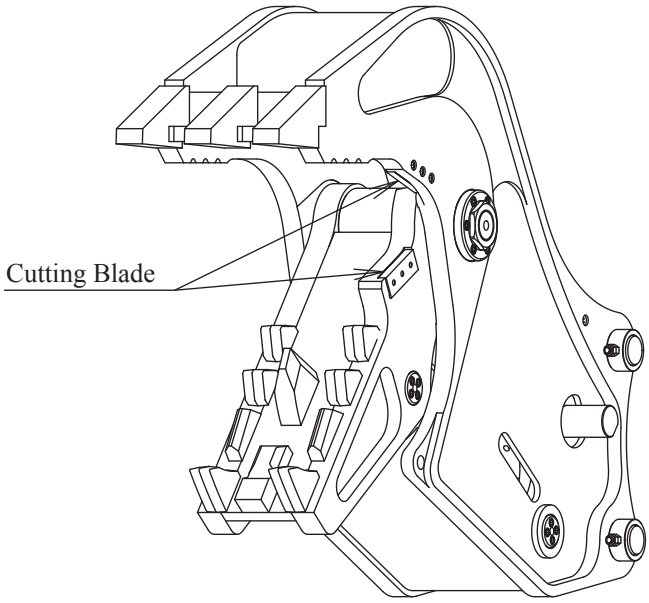
*Watch for damage due to excessive nut tightening.

3 Install the lock bolts and screw plugs.

The adjustment procedure is complete.



Inspecting the cutting blades



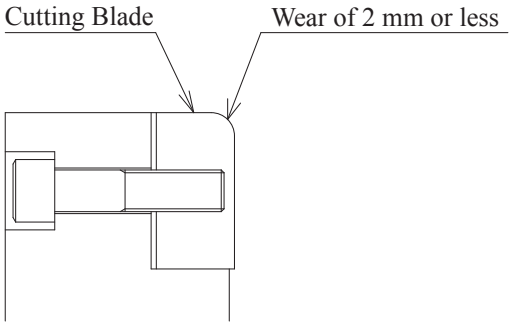
Notice

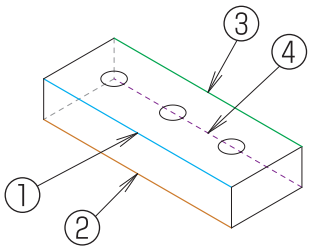
See the following section for wear and gaps of the cutting blade. If the range has been exceeded, stop use and adjust adding the shim(s) or replace the cutting blade.

■ Wear limit of the cutting blade

If the edge of the cutting blade has been worn and become rounded, use a grinder to sharpen the edge.

*Four sides of the cutting blade can be used. Use by reversing or rotating.



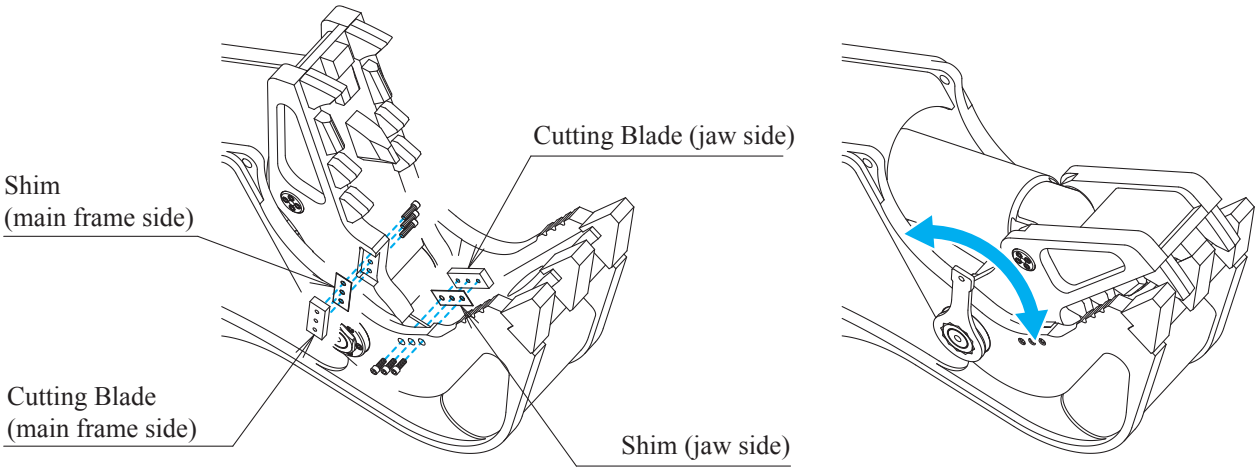


Warning

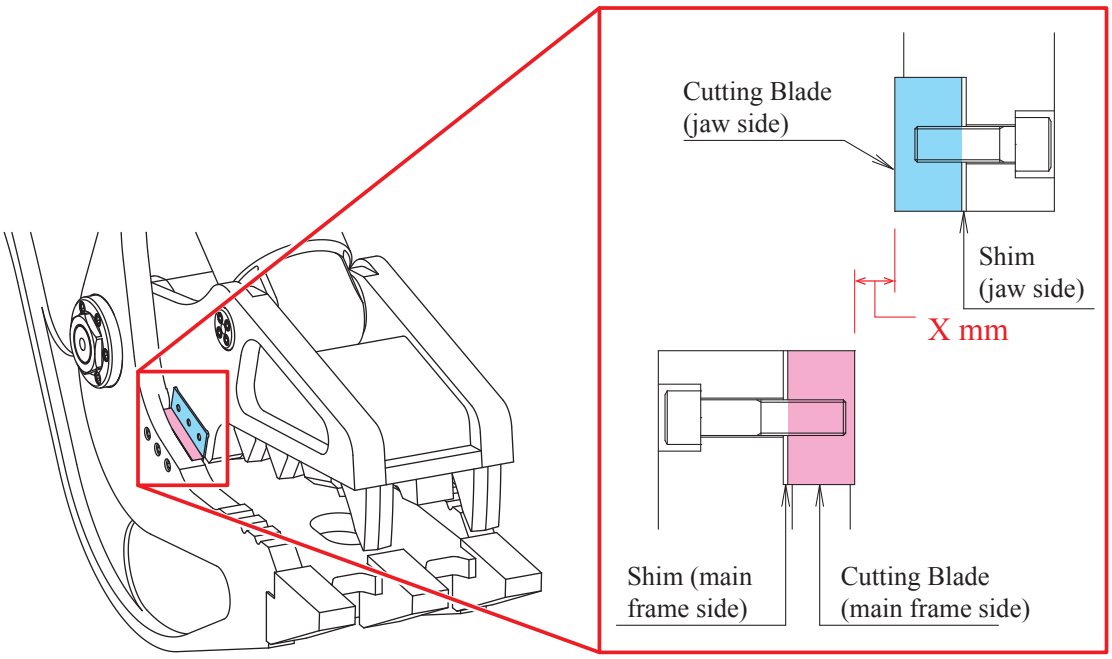
Do not repair the worn section of the cutting blade by welding. Otherwise, the cutting ability of the cutting blade will drop, which may cause an accident or attachment damage.

■ Adjusting the gap of the cutting blades

After adjusting the gap of the jaw of the attachment (P.53), insert a shim to adjust the gap of the cutting blades.

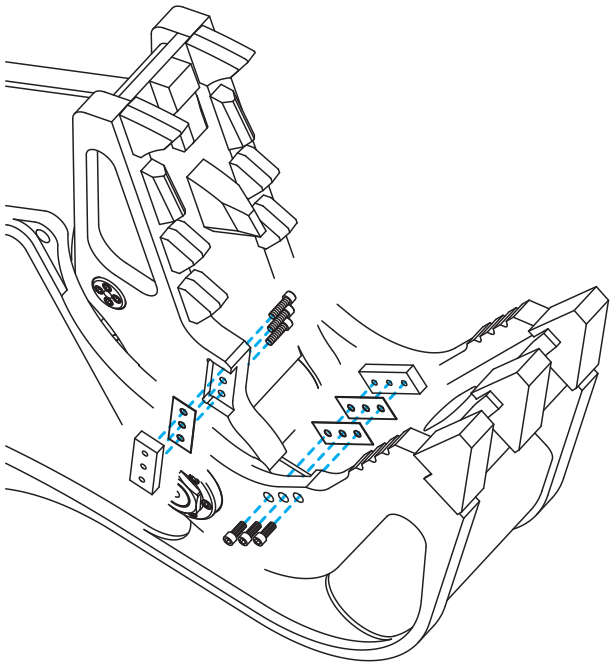


If the gap of the cutting blades exceeds X mm, adjust the gap so that it is within 0.5 mm.



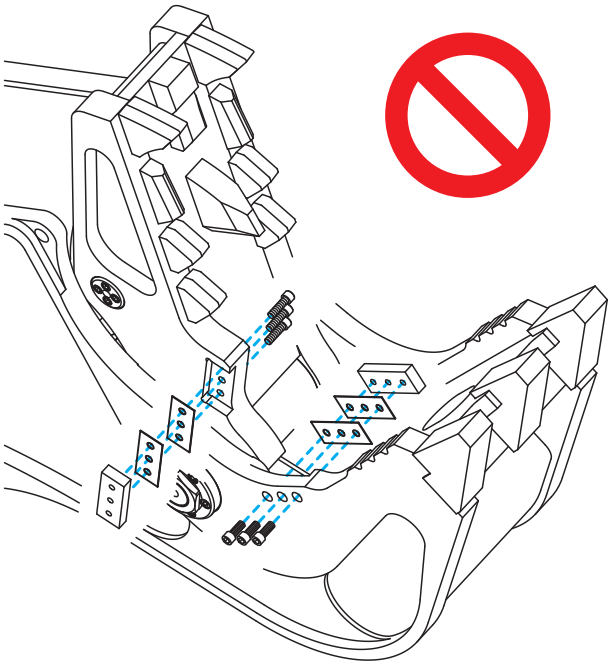
In case of MC-36, MC-52	X=1mm
In case of MC-75, MC-135, MC-212, and MC-352	X=2 mm

When the total of the shims used exceeds 2 mm, repair is necessary.



Good example:
Total of main-frame-side shims: 0.6 mm
Total of jaw-side shims: 1.2 mm

Shim total: 1.8 mm < 2.0 mm



Bad example:
Total of main-frame-side shims: 1.2 mm
Total of jaw-side shims: 1.2 mm

Shim total: 2.4 mm ≥ 2.0 mm

Repair welding

Teeth and other parts become worn following crushing work by the attachment. When there is a lot of wear, not only does the crushing performance drop, the attachment may malfunction or become damaged. In such cases, perform repair welding.

⚠ Caution

Remove moisture, rust, slag, paint, and other items on the welding surface before welding. When the welding materials or heat management (pre-heating or post-heating) are inappropriate, cracks may occur in the welding.

If the teeth of the attachment become worn, weld or build up as shown below. If there is a lot of wear, the teeth must be replaced. Consult with your Taguchi dealer.

Welding must be carried out by a qualified person.

Perform welding indoors in an area free of drafts.

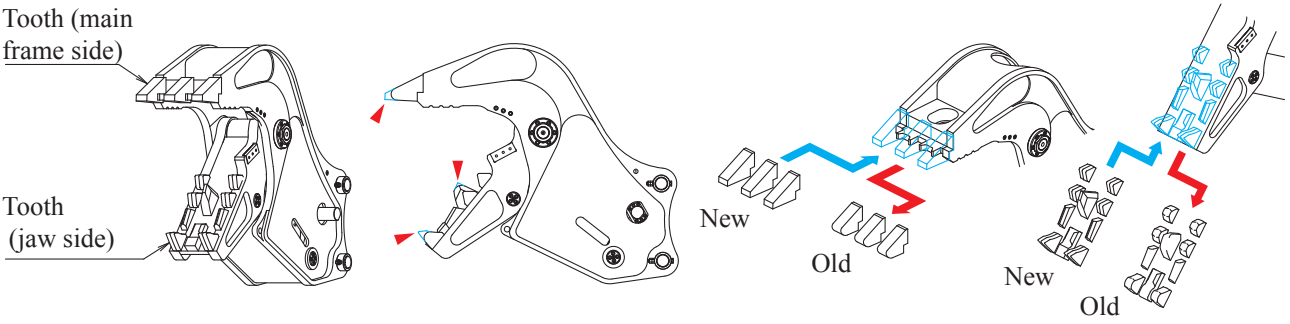
Notice

Replace or buildup the teeth using prescribed welding rods with proper heat management.

■ Repairing teeth

Special abrasion-resistant material is used for teeth. If careless buildup or surface hardening buildup with fine hairline cracks is performed, not only will the teeth crack, but the crack may reach down to the jaw base material.

When the teeth are worn, cut the old teeth, and then weld new teeth.



● Welding teeth

Use a welding rod of JIS Z 3211 E5716-U H10 or equivalent.

① **Drying of welding rods**

Before use, dry welding rods from 350 through 400°C for about 60 minutes.

② **Preheating of base material**

Before welding, preheat the base material from 50 through 100°C.

③ **After welding, retain heat and do not cool rapidly.**

■ Buildup repair of worn areas

Before welding, remove dirt, oil, rust, and other items on the area to be repaired, and then preheat the area to 200°C or higher.

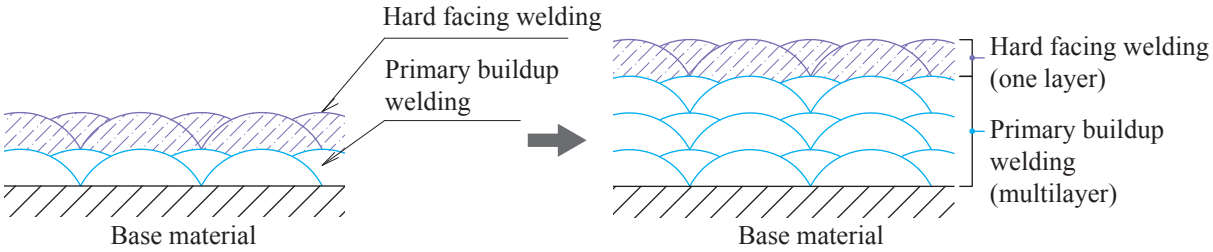
Weld at an interpass temperature of about 200°C. After welding, use a grinder to form the shape, and then post-heat to 200°C or higher. Next, slowly cool the welding area by wrapping it with an incombustible heat-installation sheet.

For post-heating in winter and cold regions, slowly cool the whole jaw by wrapping it with an incombustible heat-insulation sheet, and take care not to rapidly cool the welded part.

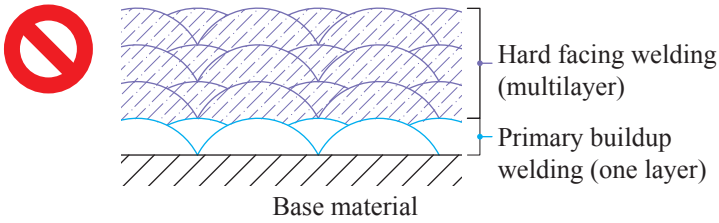
● Repair of worn areas

(1) Primary buildup welding

Perform primary buildup welding on locations that are badly worn, and then perform hard facing on top of this. In principle, perform hard facing for one layer of the surface.



Multilayer welding of hard facing causes cracks.



Use a welding rod of JIS Z 3211 E5716-U H10 or equivalent.

① **Drying of welding rods**

Before use, dry welding rods from 350 through 400°C for about 60 minutes.

② **Preheating of base material**

Before welding, preheat the base material from 50 through 100°C.

③ **After welding, retain heat and do not cool rapidly.**

(2) Hard facing welding

Use hard facing welding to repair worn areas and improve wear resistance.

Use a welding rod of JIS Z 3251 DF3C or equivalent.

① **Drying of welding rods**

Before use, dry welding rods from 350 through 400°C for about 60 minutes.

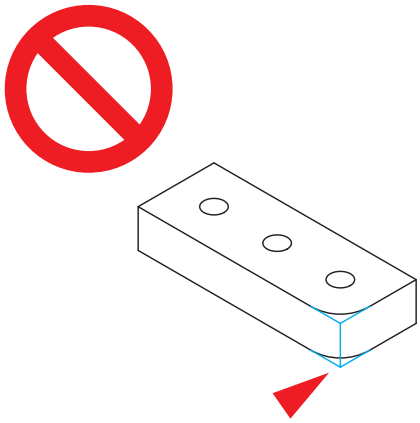
② **Preheating of base material**

Before welding, preheat to the base material to 200°C or higher.

③ **After welding, heat and keep at 400°C.**

Warning

Do not repair the worn section of the cutting blade by welding. Otherwise, the cutting ability of the cutting blade will drop, which may cause an accident or attachment damage.



Storage

Warning

- **Store the attachment in a stable condition so that it does not fall over.**
- **Take measures so that children, third parties, and other unauthorized people cannot enter the storage area, such as by using a lock.**

① **Do not store the attachment in a location exposed to rain. Store the attachment indoors. If the attachment will be stored outdoors, place it in a safe location on rectangular lumber and cover it with a sheet or similar item.**

② **If the attachment will be stored by itself, install dust plugs on the ends of hydraulic hoses to prevent foreign objects to get into.**

③ **When the attachment will not be used for a long time, add grease to specified locations. Furthermore, always store the attachment with the jaw opened. Before starting work after long-term storage, carry out the procedure of "Inspection and maintenance before start of work".**

④ **During storage, do not release the hydraulic oil inside the attachment.**

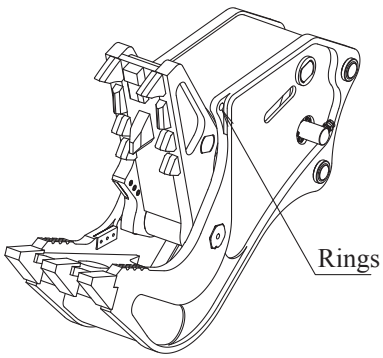
Cautions during transport

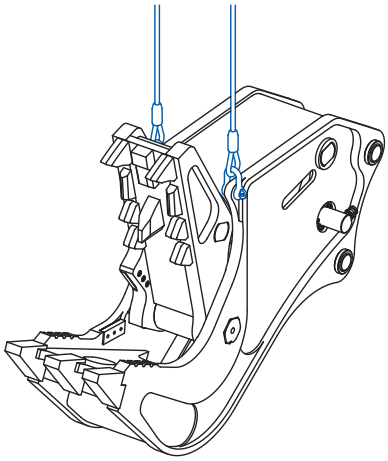
- Before transporting the attachment, remove it from the hydraulic excavator.
- During transport, set the attachment in a stable state and fasten it securely with wire ropes, chains, or similar items.
- Install dust plugs on the ends of hydraulic hoses to prevent the ingress of waste.

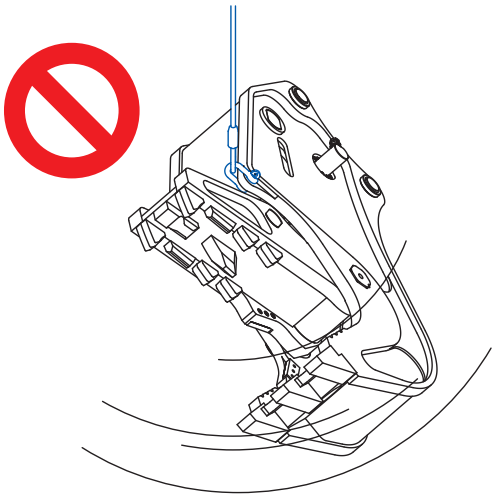
■ Lifting the attachment

1 Fully open the jaw of the attachment, and then attach shackles and wire ropes securely to the two rings of the main frame.

It is dangerous to use a hanger that does not satisfy the permissible hanging load or use lifting methods that cause the attachment to become unstable, such as using a single hanger.







2 After lifting the attachment a few centimeters from the ground, stop temporarily and wait for the attachment to stabilize before raising it up slowly.

Make sure that the attachment does not tilt or shake while it is being lifted.

Periodical maintenance

Inspection locations are classified by inspection intervals. Follow the content of the regular maintenance table. Immediately repair any problems that are found.

Periodical maintenance table

Comply separately with any mandatory inspections particular to the country of use.

Class	Inspection location/content	Inspection frequency				Reference
		Inspection by user		Inspection by qualified person (*)		
		First 8 hours	Inspection before start of work	Monthly inspection	Yearly inspection	
Exterior	**Main frame** Cracks, deformations, wear	—	○	○	○	P.34
	Adapter pin, bushing Cracks, deformations, wear, rattling	—	○	○	○	
	Bolts, nuts Breakage, bending, looseness, loss	Retightening	○	○	○	
	Cover Cracks, deformations, wear, loss	—	○	—	—	
Hydraulic devices	**Hydraulic piping (hydraulic hoses, hydraulic joints, high-pressure pipes)** Cracks, deterioration (aging), damage, fissures, twisting, looseness, oil dirt, oil leaks, installation, loss	—	○	○	○	
	Hydraulic cylinder Cracks, deformation, operation problems, oil dirt, oil leaks, expansion and contraction amount, dents, bending, corrosion, wear	—	○	○	○	
	Control valve (speed valve block) Cracks, operation problems, oil dirt, oil leaks, installation	—	○	○	○	
	Stop valve Are the stop valves on both sides of the arm of the hydraulic excavator are fully open?	—	○	—	—	
Crushing/ cutting section	**Jaw** Cracks, deformations, wear	—	○	○	○	P.34, P.53
	Cutting blade (cutter) Cracks, fragments, wear, installation, gaps, loss	—	○	○	○	P.34, P.55
	Teeth (crushing point) Cracks, loss, rattling, wear	—	○	○	○	P.34, P.58
Greasing	Apply grease to specified locations (first application is before delivery; after this apply two or more times a day (every four hours), including before the start of work)	○	○	○	○	P.34, P.41
Hydraulic oil	Insufficient hydraulic oil amount, presence of contamination	—	○	—	—	P.34

Class	Inspection location/content	Inspection frequency				Reference
		Inspection by user		Inspection by qualified person (*)		
		First 8 hours	Inspection before start of work	Monthly inspection	Yearly inspection	
Display	Notice boards **Nameplates/safety decals (caution plates)** Legibility/loss of text/illustrations	—	○	○	○	P.6
Operation	Operation levers of hydraulic excavator, etc.	—	—	○	○	P.34
Excavator body	**Flying-object protection devices** Are all covers installed?	—	○	○	○	
Overall attachment operation	Operation problems, abnormal noises, abnormal vibrations	—	○	—	—	
General	General test	—	—	○	○	

* The inspection table above is provided to users as a reference. It is based on the designated self-inspection system established by the Industrial Safety and Health Law of Japan and the repair and maintenance field particular to Taguchi. The inspection items of designated self-inspections carried out by qualified people may change without notice. For the latest information, refer to the website of the Safety Association of Construction and Loading Vehicles in Japan.

Items replaced periodically

Inspection part	Inspection content	Measure	Inspection interval
Hydraulic Hose	—	Replacement	4,000 hours or two years

Warning

Periodic replacement of hydraulic hoses

- **To ensure that the machinery can be used safely for a long time, periodically exchange hydraulic hoses, which are particularly related to safety and fire.**
- **The material of the hydraulic hose changes over time, and wear and deterioration occur easily. Because it is difficult to determine the extent through periodic maintenance, after a certain usage period, it is necessary to replace old parts with new ones to maintain constant and complete functionality, even when problems have not been discovered.**
- **Hydraulic hoses must be repaired or replaced before the replacement term in the unlikely event that some problem is discovered. Note that when deformation, cracking, or other deterioration of the hose clamp has been found, the clamp must also be exchanged.**
- **Ask your Taguchi dealer to replace hydraulic hoses.**
- **When replacing hydraulic hoses, replace the O-rings and seals with new ones at the same time.**

Troubleshooting

Many causes overlap when a malfunction of the attachment occurs.

In the event of a breakdown, check both the attachment manual and hydraulic excavator manual to find the cause of each item and carry out its countermeasure.

The marks in the “Countermeasure” field indicate the following content.

◎: Request an inspection from a workshop specified by Taguchi.

●: Request an inspection from a workshop specified for the hydraulic excavator’s dealer.

○: The customer performs the inspection countermeasure.

Condition	Cause	Countermeasure
Does not open or close or opens and closes slowly	The stop valve is not completely open	○ Open the stop valve
	The speed valve block is malfunctioning	◎ Repair or replace the speed valve block
	The hydraulic cylinder is malfunctioning	◎ Repair or replace the hydraulic cylinder
	The pressure or discharge amount of the hydraulic excavator has dropped	● Inspect the hydraulic excavator unit, and then adjust the pressure or flow rate
Crushing ability has dropped	The speed valve block is malfunctioning	◎ Repair or replace the speed valve block
	The hydraulic cylinder is malfunctioning	◎ Repair or replace the hydraulic cylinder
	Teeth are worn	○ Build up or replace the teeth
	The pressure of the hydraulic excavator has dropped	● Inspect the hydraulic excavator unit, and then adjust the pressure
Cutting ability has dropped	The cutting blade is worn	○ Flip or replace the cutting blade
	There is a large gap between cutting blades	○ Adjust the gap of the cutting blades with a shim
	The cutting blade is chipped or cracked	○ Exchange the cutting blade
	The speed valve block is malfunctioning	◎ Repair or replace the speed valve block
	The hydraulic cylinder is malfunctioning	◎ Repair or replace the hydraulic cylinder
	The pressure of the hydraulic cylinder has dropped	● Inspect the hydraulic excavator unit, and then adjust the pressure

Condition	Cause	Countermeasure
There is a strange noise during opening or closing	There is not enough grease	○ Add grease
There is a lot of rattling	The pin or bushing is worn	○ Exchange the pin or bushing
	The boss edge is worn	○ Retighten the nuts

- If the problem is not solved by the chart above, there may be a breakdown of the hydraulic excavator or attachment.
- Do not use machinery while the problem remains. Contact your Taguchi dealer immediately.
- Regarding inspections and adjustments of the oil pressure, flow rate, and other items, consult with the place of purchase of the hydraulic excavator.

Standard torque table

Warning

If the tightening torque is outside the specified range, the tightening section may become damaged or loose, which may lead to a mechanical breakdown, damage, or a serious accident. Take sufficient care when tightening.

Standard torque table

Size	Tightening torque (N · m)	Tightening torque (kgf · m)
M8	37.2	3.8
M10	72.5	7.4
M12	128	13.1
M14	204	20.8
M16	313	31.9
M18	450	45.9
M20	620	63.3
M22	825	84.2
M24	1060	108
M27	1530	156
M30	2090	213

Hydraulic hose coupling tightening torque table

Warning

If the tightening torque is outside the specified range, the hydraulic hose may become damaged or loose, which may lead to an oil leak, mechanical breakdown, or a serious accident. Take sufficient care when tightening.

Hydraulic hose coupling tightening torque table

Size	Tightening torque (N · m)	Tightening torque (kgf · m)
1/8	15	1.5
1/4	25	2.5
3/8	49	5
1/2	59	6
3/4	157	16
1	196	20
1.1/4	245	25

LIMITED PRODUCT WARRANTY

PT Guzzilla International (hereinafter called "Seller") warrants its new equipment manufactured by Taguchi Industrial Co., Ltd. and / or PT Daisho Precision (hereinafter collectively called "Manufacturers") and sold outside Japan, to be free, under normal use and service, of any defects in manufacture or materials for the following time periods, commencing on the date on which such equipment is invoiced to the original purchaser or the date on which such equipment is first put into service, whichever occurs first:

WITH RESPECT TO STRUCTURAL ELEMENTS: — 1 (One) year

WITH RESPECT TO ELECTRICAL COMPONENTRY: — 1 (One) year

WITH RESPECT TO HYDRAULICAL COMPONENTRY (except as provided below): — 1 (One) year

provided that (1) Seller receives written notice of the defect within fourteen (14) days of its discovery and Buyer establishes that (i) the equipment has been maintained and operated within the limits of rated and normal usage; and (ii) the defect did not result in any manner from the intentional or negligent action or inaction by Buyer, its agents or employees and (2) a new machine registration certificate has been completed, signed and delivered to Seller within fourteen (14) days of the equipment's "in-service" date. If requested by Seller, Buyer must return the defective equipment to manufacturing facility or other location designated by Seller, for inspection, and if Buyer cannot establish that conditions (1) (i) and (1) (ii) above have been met, then this warranty shall not cover the alleged defect. **Delivery inspection certificates are required to be completed, signed and delivered to Seller within one hundred twenty (120) days of the equipment's "in-service" date and on file with Seller's service department for warranty validation and processing.**

Seller's obligation and liability under this warranty is expressly limited to, at Seller's sole option, repairing or replacing, with new or remanufactured parts or components, any part, which appears to Seller upon inspection to have been defective in material or workmanship. Such parts shall be provided at no cost to the owner, FOB Seller's parts facility. Freight charges are not covered. If requested by Seller, components or parts for which a warranty claim is made shall be returned to Seller at a location designated by Seller. All return freight charges are the responsibility of the buyer. All components and parts replaced under this limited product warranty become the property of Seller. This warranty shall be null and void if parts (including wear parts) other than genuine OEM Seller parts are used in the equipment. Accessories, assemblies and components included in the Seller equipment, which are not manufactured by Manufacturers, are subject to the warranty of their respective manufacturers. Normal maintenance, adjustments, or maintenance/wear parts, including without limitation cutting blade, chisel, crushing jaw, crushing teeth, friction plates, filters, are not covered by this warranty and are the sole maintenance responsibility of Buyer. This warranty shall be null and void if equipment is operated for military or criminal purpose or purpose of production of weapon, for the reason that Seller's equipment is designed and produced for non-military purpose.

SELLER MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

No employee or representative is authorized to modify this warranty unless such modification is made in writhing and signed by an authorized officer of Seller.

Seller's obligation under this warranty shall not include any duty, taxes, environmental fees, including without limitation, disposal or handling batteries, petrochemical items, or any other charges whatsoever, or any liability for direct, indirect, incidental, or consequential damages. Improper maintenance, improper use, abuse, improper storage, operation beyond rated capacity, operation after discovery of defective or worn parts, accident, sabotage or alteration or repair of the equipment by persons not authorized by Seller shall render this warranty null and void. Seller reserves the right to inspect the installation of the product and review maintenance procedures to determine if the failure was due to improper maintenance, improper use, abuse, improper storage, operation beyond rated capacity, operation after discovery of defective or worn parts, accident, sabotage or alteration or repair of the equipment by persons not authorized by Seller.

NO TRANSFERABILITY OF WARRANTY: This warranty is limited to the original purchaser or original end-user if sold to a dealer, and is not assignable or otherwise transferable without the written agreement of Seller.

ITEMS NOT COVERED BY SELLER WARRANTY

The following items are **NOT** covered under the Seller Warranty (the following list is not exhaustive):

1. Filters, hydraulic oil, consumables items, shop supplies.
2. Items sold by any individual, corporation, partnership or any other organization or legal entity that is not an authorized dealer by Seller.
3. Inbound freight for replacement components or outbound freight for any part requested as a warranty return.
4. Components which are not manufactured by Manufacturers are not covered by Seller's warranty. Such components are covered only by the warranty, if any, that is provided by the manufacturer of such components. Such components may include, but are not limited to, engines, batteries, tires, customer-supplied products, generators/gensets.
5. Replacement of assemblies: Seller has the option to repair or replace any defective part or assembly. It is Seller's policy to refuse claims for the replacement of a complete assembly that is field repairable by the replacement or repair of defective part(s) within the assembly.

6. Normal Operational Maintenance Services and Wear Parts: Maintenance services and wear parts are excluded from warranty claims. Maintenance services and wear parts not covered include, but are not limited to, such items as: cutting blade, chisel, crushing jaw, crushing teeth, cutting blade, seals, hoses, friction plates, exterior coatings, proper tightening of bolts, nuts and fittings, adding or replacing fluids, adjustment of any kind, services supplies such as hard cleaners, towels and lubricants, inspections, diagnostic time, travel time.
7. **Transportation cost and/or damage**: Any damage caused by carrier handling is a transportation claim and should be filed immediately with the respective carrier.
8. **Deterioration**: Repairs, work required or parts exposed as the result of age, storage, weathering, lack of use, demonstration use, or use for handling of corrosive chemicals.
9. **Secondary Failures**: Should the owner or operator continue to operate a machine after it has been noted that a failure has occurred. Seller will not be responsible under the warranty for resultant damage to other parts due to that continued operation.

Workmanship of Others: Seller does not accept responsibility for improper installation or labor costs or costs of any kind from personnel other than personnel authorized by Seller.

Stop and Go Warranty: Seller does not recognize "Stop and Go" warranties.

Incidental or Consequential Damage: **SELLER SHALL NOT BE LIABLE FOR ANY INCIDENTIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, LOSS OF PRODUCTION, INCREASED OVERHEAD, LOSS OF BUSINESS OPPORTUNITY, DELAYS IN PRODUCTION, COSTS OF REPLACEMENT COMPONENTS AND INCREASED COSTS OF OPERATION THAT MAY ARISE FROM THE BEWACH OF THIS WARRANTY.**

Customer's sole remedy shall be limited to (at Seller's sole option) repair or replacement of the defective part.

THIS WARRANTY IS EXPRESSLY IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED (INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) AND ALL OTHER OBLIGATIONS OR LIABILITY ON SELLER'S PART. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY CONTAINED HEREIN. Seller neither assumes nor authorizes any other person to assume for Seller any other liability in connection with the sale of Seller's equipment. This warranty shall not apply to any of Seller's equipment of any part thereof which has been subject to misuse, alteration, abuse, negligence, accident, acts of God or sabotage. No action by any party shall operate to extend or revive this limited warranty without the prior written consent of Seller. In the event that any provision of this warranty is held unenforceable for any reason, the remaining provisions shall remain in full force and effect.

IN THE EVENT OF ANY BREACH OF THE WARRANTY BY SELLER, SELLER'S LIABILITY SHALL BE LIMITED EXCLUSIVELY TO THE REMEDIES (AT SELLER'S SOLE OPTION) OF REPAIR OR REPLACEMENT OF ANY DEFECTIVE EQUIPMENT COVERED BY THE WARRANTY. IN NO EVENT SHALL SELLER, OR ANY SUBSIDIARY OR DIVISION THEREOF BE LIABLE FOR INCIDENTIAL, INDIRECT, CONSEQUENTIAL OR OTHER DAMAGES OR LOSSES RESULTING FROM A BREACH OF WARRANTY INCLUDING, WITHOUT LIMITATION, LABOR COSTS, LOSS OF USE OF OTHER EQUIPMENT, THIRD PARTY REPAIRS, LOST PROFITS, LOST TIME, TOWING OR HAULING OF EQUIPMENT, RENTAL COSTS, PERSONAL INJURY, EMOTIONAL OR MENTAL DISTRESS, IMPROPER PERFORMACE OR WORK, PENALTIES OF ANY KIND, LOSS OF SERVICE OF PERSONNEL, OR FAILURE OF EQUIPMENT TO COMPLY WITH ANY FEDERAL, STATE OR LOCAL LAWS. The Seller's liability to the Buyer shall not in any event exceed the purchase price of the equipment, provided that nothing contained in this limited product warranty shall operate to exclude the Seller's liability for death or personal injury.

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