

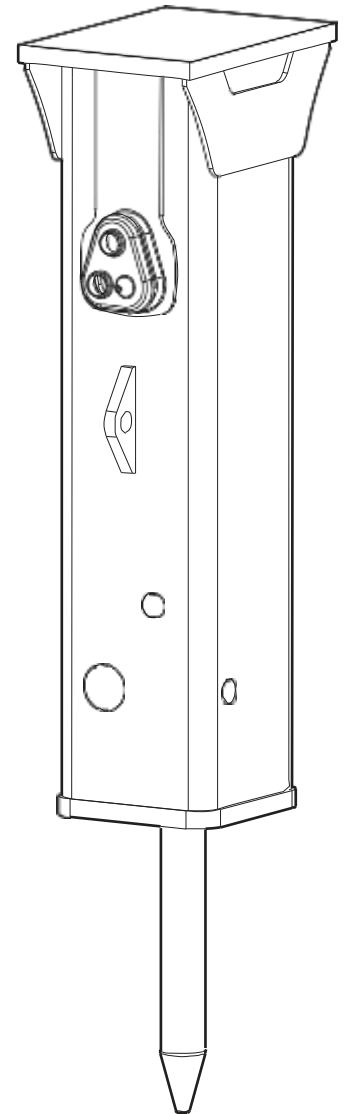
ERSKINE®

ATTACHMENTS LLC

Safety and operating instructions

Hydraulic breakers

Models 110X, 210X, 310X, 360X, 410X





LIMITED WARRANTY

Erskine Attachments, LLC warrants each new machine manufactured by us to be free from defects in material and workmanship for a period of twelve (12) months from date of delivery to the original purchaser.

Our obligation under this warranty is to replace free of charge, at our factory or authorized dealership, any part proven defective within the stated warranty time limit.

All parts must be returned freight prepaid and adequately packaged to prevent damage in transit.

This warranty does not cover:

1. New products which have been operated in excess of rated capacities or negligence
2. Misuse, abuse, accidents or damage due to improperly routed hoses
3. Machines which have been altered, modified or repaired in any manner not authorized by our company
4. Previously owned equipment
5. Any ground engaging tools in which natural wear is involved, i.e. tooth tips, cutting teeth, etc
6. Normal maintenance
7. Fork tines
8. Hydraulic motors that have been disassembled in any manner

In no event will the Sales Representative, Dealership, Erskine Attachments, LLC, or any other company affiliated with it or them be liable for incidental or consequential damages or injuries, including but not limited to the loss of profit, rental or substitute equipment or other commercial loss. Purchaser's sole and exclusive remedy being as provided here in above.

Erskine Attachments, LLC must receive immediate notification of defect and no allowance will be made for repairs without our consent or approval.

This warranty is in lieu of all other warranties, express or implied by law or otherwise, and there is no warranty of merchantability or fitness purpose.

No agent, employee, or representative of Erskine Attachments, LLC has any authority to bind Erskine Attachments, LLC to any warranty except as specifically set forth herein. Any of these limitations excluded by local law shall be deemed deleted from this warranty; all other terms apply.

This warranty may not be enlarged or modified in any manner except in writing signed by an executive officer of Erskine Attachments, LLC to improve its products whenever it is possible and practical to do so. Erskine Attachments, LLC reserves the right to make changes and or add improvements at any time without incurring any obligation to make such changes or add such improvements to products previously sold.

Erskine Attachments, LLC
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Contents

Introduction.....	5
About the Safety and operating instructions	5
Safety instructions	6
Safety signal words	6
Personal precautions and qualifications	6
Carrier, precautions	7
Installation, precautions	7
Operation, precautions	7
Maintenance, precautions	9
Storage, precautions	10
Overview.....	11
Design and function	11
Main parts	11
Labels.....	11
Transport	12
Installation.....	12
Hoses and connections.....	12
Hydraulic oil	13
Pressure adjustment.....	13
Assembly.....	13
Insertion tool.....	15
Operation	16
Preparation before breaking.....	16
Operating.....	16
Maintenance	18
Lubrication	18
Every second hour.....	19
Every day.....	19
Every week	20
Every year.....	20
Storage	20
Disposal.....	21
Technical data	22
Machine data	22
Capacities.....	22
Noise declaration statement.....	22
EC Declaration of Conformity	24
EC Declaration of Conformity (EC Directive 2006/42/EC).....	24

About the Safety and operating instructions

The aim of the instructions is to provide you with knowledge of how to use the hydraulic breaker in an efficient, safe way. The instructions also give you advice and tell you how to perform regular maintenance on the hydraulic breaker.

Before using the hydraulic breaker for the first time you must read these instructions carefully and understand all of them.

Safety instructions

To reduce the risk of serious injury or death to yourself or others, read and understand the Safety and operating instruction before installing, operating, repairing, maintaining, or changing accessories on the machine.

Post this Safety and operating instruction at work locations, provide copies to employees, and make sure that everyone reads the Safety and operating instruction before operating or servicing the machine.

In addition, the operator or the operator's employer must assess the specific risks that may be present as a result of each use of the machine.

Safety signal words

The safety signal words Danger, Warning and Caution have the following meanings:

DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

Personal precautions and qualifications

Only qualified and trained persons may operate or maintain the machine. They must be physically able to handle the bulk, weight, and power of the tool. Always use your common sense and good judgement.

Transport

Transport of the hydraulic breaker may only be undertaken by persons who:

- > are authorized to operate a crane or fork-lift truck in conformity with the applicable national directives,
- > are aware of all the relevant national safety instructions and accident prevention instructions
- > and have read and understood the safety and transport chapters of this manual.

Installation, storage, maintenance and disposal

Installation, storage, maintenance and disposal of the hydraulic breaker may only be undertaken by persons who:

- > are aware of all the relevant national safety instructions and accident prevention instructions
- > and have read and understood the Safety and operating instructions.

Operation

Operation of the hydraulic breaker may only be undertaken by qualified carrier operators. Carrier operators are qualified if they:

- > are trained to operate a carrier in conformity with national directives,
- > are aware of all the relevant national safety instructions and accident prevention instructions
- > and have read and understood the Safety and operating instructions.

Testing

Testing of the hydraulic installation must only be carried out by professional technicians. The technicians must be authorized to approve a hydraulic installation in accordance with national directives.

Personal protective equipment

Always use approved protective equipment. Operators and all other persons in the working area must wear protective equipment, including at a minimum:

- > Protective helmet
- > Hearing protection
- > Impact resistant eye protection with side protection
- > Respiratory protection when appropriate
- > Protective gloves
- > Proper protective boots
- > Appropriate work overall or similar clothing (not loose-fitting) that covers your arms and legs.

Drugs, alcohol or medication

⚠ WARNING Drugs, alcohol or medication

Drugs, alcohol or medication may impair your judgment and powers of concentration. Poor reactions and incorrect assessments can lead to severe accidents or death.

- ▶ Never use the machine when you are tired or under the influence of drugs, alcohol or medication.
- ▶ No person who is under the influence of drugs, alcohol or medication may operate the machine.

Carrier, precautions

Before using or transporting the carrier with the hydraulic breaker attached, carefully read the carrier manufacturer's safety regulations and operating instructions.

Make sure that the carrier is equipped with adequate protective features, including a protective screen in front of the operator.

The hydraulic breaker must only be mounted on a carrier with sufficient load capacity.

Carriers without sufficient load capacity will not provide the required degree of stability and could even fall over during hydraulic breaker use, causing injury and damage.

Installation, precautions

Hydraulic system

⚠ DANGER Compressed gas, explosion hazard

The integrated piston accumulator is pressurized even when the hydraulic system is shut off. To dismount the accumulator without first releasing the nitrogen gas can cause serious personal injury or death.

- ▶ Fill the integrated piston accumulator with nitrogen (N²) only.

⚠ WARNING Hydraulic oil at high pressure

Thin jets of hydraulic oil under high pressure can penetrate the skin and cause permanent injury.

- ▶ Immediately consult a doctor if hydraulic oil has penetrated the skin.
- ▶ Never use your fingers to check for hydraulic fluid leaks.
- ▶ Keep your face away from any possible leaks.

⚠ WARNING Hydraulic oil

Spilled hydraulic oil can cause burns, accidents due to slippery conditions and will also harm the environment.

- ▶ Take care of all spilled oil and handle it according to your safety and environmental regulations.
- ▶ Never dismount the hydraulic machine when the hydraulic oil is hot.
- ▶ Never run any hydraulic lines for attachment of the hydraulic machine through the driver's cab.

⚠ CAUTION Skin eczema

Hydraulic oil can cause eczema if it comes in contact with the skin.

- ▶ Avoid getting hydraulic oil on your hands.
- ▶ Always use protective gloves when working with hydraulic oil.
- ▶ Wash hands after contact with hydraulic oil.

Assembly or disassembly

⚠ WARNING Moving parts

Risk for leaking oil and personal injury, such as crushed hands and fingers.

- ▶ Never check bores or passages with hands or fingers.
- ▶ Any boom movements must only be done in cooperation with the personnel mounting the hydraulic breaker.
- ▶ If the hydraulic breaker is mounted on a quick hitch coupling, make sure it is locked securely and all risks of the hydraulic breaker coming loose are eliminated.

Operation, precautions

⚠ DANGER Explosion hazard

If an insertion tool comes into contact with explosives or explosive gases, an explosion could occur. When working on certain materials and when using certain materials in machine parts, sparks and ignition can occur. Explosions will lead to severe injuries or death.

- ▶ Never operate the machine in any explosive environment.
- ▶ Never use the machine near flammable materials, fumes or dust.
- ▶ Make sure that there are no undetected sources of gas or explosives.

▲ WARNING Operating pressure

If the maximum operating pressure for the hydraulic machine is exceeded, the accumulator can be over charged which can result in material damage and personal injury.

- ▶ Always run the hydraulic machine with the correct operating pressure. See "Technical data".

▲ WARNING Dust and fume hazard

Dusts and/or fumes generated or dispersed when using the machine may cause serious and permanent respiratory disease, illness, or other bodily injury (for example, silicosis or other irreversible lung disease that can be fatal, cancer, birth defects, and/or skin inflammation).

Some dusts and fumes created by drilling, breaking, hammering, sawing, grinding and other construction activities contain substances known to the State of California and other authorities to cause respiratory disease, cancer, birth defects, or other reproductive harm. Some examples of such substances are:

- > Crystalline silica, cement, and other masonry products.
- > Arsenic and chromium from chemically-treated rubber.
- > Lead from lead-based paints.

Dust and fumes in the air can be invisible to the naked eye, so do not rely on eye sight to determine if there is dust or fumes in the air.

To reduce the risk of exposure to dust and fumes, do all of the following:

- ▶ Perform site-specific risk assessment. The risk assessment should include dust and fumes created by the use of the machine and the potential for disturbing existing dust.
- ▶ Use proper engineering controls to minimize the amount of dust and fumes in the air and to minimize build-up on equipment, surfaces, clothing, and body parts. Examples of controls include: exhaust ventilation and dust collection systems, water sprays, and wet drilling. Control dusts and fumes at the source where possible. Make sure that controls are properly installed, maintained and correctly used.
- ▶ Wear, maintain and correctly use respiratory protection as instructed by your employer and as required by occupational health and safety regulations. The respiratory protection must be effective for the type of substance at issue (and if applicable, approved by relevant governmental authority).
- ▶ Work in a well-ventilated area.
- ▶ If the machine has an exhaust, direct the exhaust so as to reduce disturbance of dust in a dust filled environment.

- ▶ Operate and maintain the machine as recommended in the operating and safety instructions
- ▶ Select, maintain and replace consumables/ inserted tools/ other accessory as recommended in the operating and safety instructions. Incorrect selection or lack of maintenance of consumables/ inserted tools/ other accessories may cause an unnecessary increase in dust or fumes.
- ▶ Wear washable or disposable protective clothes at the worksite, and shower and change into clean clothes before leaving the worksite to reduce exposure of dust and fumes to yourself, other persons, cars, homes, and other areas.
- ▶ Avoid eating, drinking, and using tobacco products in areas where there is dust or fumes.
- ▶ Wash your hands and face thoroughly as soon as possible upon leaving the exposure area, and always before eating, drinking, using tobacco products, or making contact with other persons.
- ▶ Comply with all applicable laws and regulations, including occupational health and safety regulations.
- ▶ Participate in air monitoring, medical examination programs, and health and safety training programs provided by your employer or trade organizations and in accordance with occupational health and safety regulations and recommendations. Consult with physicians experienced with relevant occupational medicine.
- ▶ Work with your employer and trade organization to reduce dust and fume exposure at the worksite and to reduce the risks. Effective health and safety programs, policies and procedures for protecting workers and others against harmful exposure to dust and fumes should be established and implemented based on advice from health and safety experts. Consult with experts.
- ▶ Residues of hazardous substances on the machine can be a risk. Before undertaking any maintenance on the machine clean it thoroughly.

▲ WARNING Electric shock

The hydraulic breaker is not insulated against electric current. If the hydraulic breaker come in contact with electric circuits or other electrical power sources, there is a risk of severe injury or death.

- ▶ Never work in the proximity of electric circuits or other electrical power sources.
- ▶ Make sure there are no hidden electric circuits in your working area.

▲ WARNING Projectiles

Failure of the work piece, of accessories, or even of the hydraulic breaker itself may generate high velocity projectiles. During breaking, splinters, or other particles may become projectiles and cause bodily injury by striking the operator or other persons. Also, breakage of the work piece, accessories, or the insertion tool may generate high velocity projectiles that can cause bodily injury. In addition, objects falling from a height can cause bodily injury. To reduce risks:

- ▶ Close off the working area.
- ▶ Before starting, make sure that no persons are in the danger area, 20 meters both horizontally and vertically from the hydraulic breaker.
- ▶ Immediately switch off the hydraulic breaker when persons are present in the danger area.
- ▶ Press the insertion tool against the working surface before you start.
- ▶ Never operate unless the inserted tool is retained in the hydraulic breaker with a proper tool retainer.

▲ WARNING Noise hazard

High noise levels can cause permanent and disabling hearing loss and other problems such as tinnitus (ringing, buzzing, whistling or humming in the ears). To reduce risk and prevent an unnecessary increase in noise levels:

- ▶ Risk assessment of these hazards and implementation of appropriate controls is essential.
- ▶ Operate and maintain the machine as recommended in these instructions.
- ▶ Select, maintain and replace the insertion tool as recommended in these instructions.
- ▶ If the machine has a muffler, check that it is in place and in good working condition.
- ▶ Always use hearing protection.
- ▶ Use damping material to prevent work pieces from "ringing".

Maintenance, precautions

▲ WARNING Involuntary start

An involuntary start of the hydraulic breaker can lead to severe injuries.

- ▶ Follow the instructions in the carrier manual to prevent involuntary start of the hydraulic breaker.
- ▶ Installation of a start circuit on the hydraulic breaker must be made in a way that avoids any unintentional starts.
- ▶ A foot pedal on the carrier must be equipped with a protection cover.

▲ WARNING Hydraulicsystemunderhigh pressure

Maintenance work on a hydraulic breaker under pressure can lead to severe injuries. Connections can loosen suddenly, parts can suddenly move and hydraulic oil can be ejected.

- ▶ Depressurize the hydraulic system before performing maintenance on the hydraulic breaker or the carrier.

▲ WARNING Machine modification

Any machine modification may result in bodily injuries to yourself or others.

- ▶ Never modify the machine. Modified machines are not covered by warranty or product liability.
- ▶ Always use original parts, insertion tools, and accessories.
- ▶ Change damaged parts immediately.
- ▶ Replace worn components in good time.

▲ CAUTION Hot insertion tool

The tip of the insertion tool can become hot and sharp when used. Touching it can lead to burns and cuts.

- ▶ Never touch a hot or sharp insertion tool.
- ▶ Wait until the insertion tool has cooled down before carrying out maintenance work.

▲ WARNING Insertion tool hazards

Accidental engagement of the start and stop device during maintenance or installation can cause serious injuries, when the power source is connected.

- ▶ Never inspect, clean, install, or remove the insertion tool while the power source is connected.

Storage, precautions

⚠ WARNING Hydraulic breaker and working tool are heavy

If they topple over or fall down, it can result in material damage and personal injury.

- ▶ Store the hydraulic breaker and the working tool so that falling or rolling down is prevented.

Overview

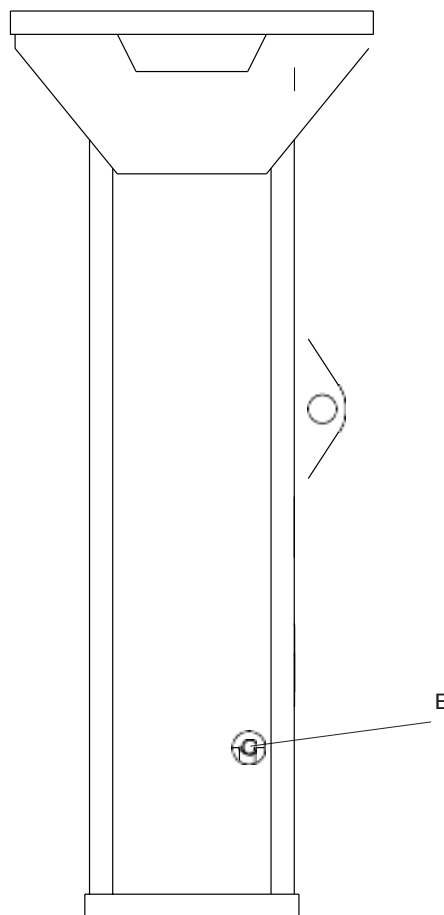
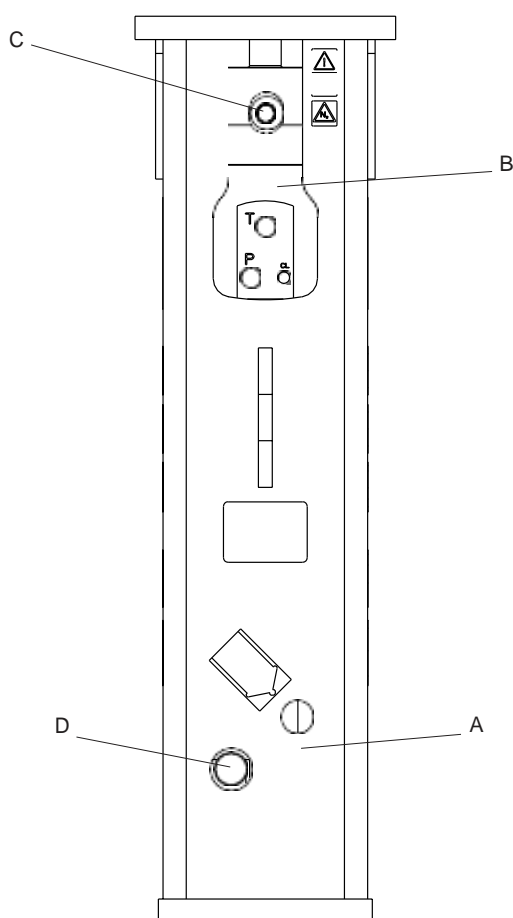
To reduce the risk of serious injury or death to yourself or others, read the **Safety instructions** section found on the previous pages of this manual before operating the machine.

Design and function

110X, 210X, 310X, 360X, 410X are a range of rig mounted hydraulic breakers designed for all kinds of demolition works. No other use is permitted.

The hydraulic breaker is operated from the driver's cab of the carrier using the carrier's hydraulic system. The breaker frequency is controlled by the oil flow from the carrier.

Main parts

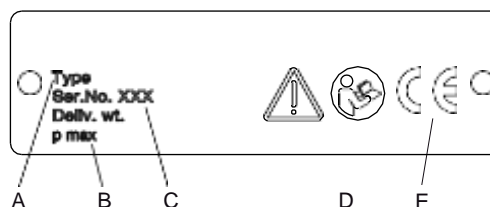


- A. Hammer box
- B. Percussion unit
- C. Gas filling valve
- D. Tool retainer
- E. Split pin

Labels

The machine is fitted with labels containing important information about personal safety and machine maintenance. The labels must be in such condition that they are easy to read. New labels can be ordered from the spare parts list.

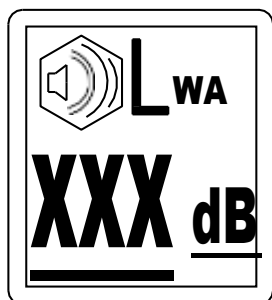
Data plate



- A. Machine type
- B. Maximum hydraulic pressure
- C. Serial number

- D. The warning symbol together with the book symbol means that the user must read the safety and operating instructions before the machine is used for the first time.
- E. The CE symbol means that the machine is EC-approved. See the EC Declaration of Conformity which is delivered with the machine for more information.

Noise level label



The label indicates the guaranteed noise level corresponding to EC-directive 2000/14/EC. See "Technical data" for accurate noise level.

Labels on the accumulator



Read through the overhaul instructions carefully before servicing or charging.



The accumulator must only be charged with Nitrogen.

NOTICE Only certified personnel are allowed to work with the accumulator.

Transport

▲ WARNING Falling breaker can cause injuries

- Place the hydraulic breaker in a safe position where it can't fall over and cause damage.

Carefully check that the carrier is stable enough when transporting or performing maintenance or other kind of work on the hydraulic breaker. The hydraulic breaker is delivered in a box. To lift out the hydraulic breaker in a safe way, use the lifting eye.

Installation

Before installing the hydraulic breaker on the carrier or operating it, read the operation manual and safety instructions provided by the carrier manufacturer. Follow all instructions.

The carrier must have the appropriate hydraulic system for operation of the breaker.

If the carrier is too large for the hydraulic breaker it may lead to broken insertion tools and increased wear. See "Technical data" for choosing suitable carrier.

The safety equipment in the hydraulic system must be checked for quality (CE mark, etc.), suitability and function ability by a professional or authorized supervisor before use.

Hoses and connections

▲ WARNING Whipping hydraulic hose

Hydraulic hoses under pressure can whip uncontrollably if screws loosen or are loosened. A whipping hydraulic hose can cause severe injuries.



- Depressurize the hydraulic system before loosening the connection of a hydraulic hose.
- Tighten the nuts on the connections of the hydraulic hoses to the required torque.

Type of nipple: Quick Attach JIC standard nipple. The nipple dimensions can be found in the Spare parts list.



The quality of the hydraulic hoses should be 2SC (according to EN 857) or better when connecting the breaker to the carrier. If quick couplings are to be used, we recommend using the "Flat Face" quick coupling. This type is sturdy and easy to clean. The quick couplings pressure class must agree with the carrier's working pressure.

Always clean the quick couplings before mounting or dismounting. Always plug hoses and hose nipples with tight and clean plugs when dismounting.

Hose connections**Right side (As seen from operator's seat)**

Symbol	Central lubrication	Tank, return line
		
110X	G ¼ in.	M22 x 1.5
210X	G ¼ in.	M26 x 1.5
310X	G ¼ in.	M26 x 1.5
360X	G ¼ in.	M26 x 1.5
410X	G ¼ in.	M26 x 1.5

Hose connections**Left side (As seen from operator's seat)**

Symbol	Pressure to breaker	Pressure for ContiLube®II
		
110X	M22	-
210X	M26	-
310X	M26	M14 x 1.5
360X	M26	M14 x 1.5
410X	M26	M14 x 1.5

Tightening torque for pressure and return hose

110X	150 Nm
210X	150 Nm
310X	150 Nm
360X	150 Nm
410X	210 Nm

NOTICE The tightening torques in the table above are valid when the pressure and return hose are mounted directly on the hydraulic breaker's connection nipple. If the pressure and return hose are connected with an additional connection nipple, another tightening torques must be used.

Hydraulic oil

Normally the type of hydraulic oil the carrier is using also works for the hydraulic breaker. When a hydraulic breaker is connected to the carrier, the hydraulic oil will get contaminated faster. Check and follow the carrier's instructions for changing oil and oil filter.

It is common to change the oil filter more frequently when a hydraulic breaker is installed.

NOTICE When the machine is delivered it contains some mineral based hydraulic oil. Before connecting to the carrier's hydraulic system, check which type of hydraulic oil the carrier is using. Mixing different types of hydraulic oil may destroy the lubrication quality which can lead to machine damage.

In order to protect the environment, we recommend the use of biologically degradable hydraulic oil.

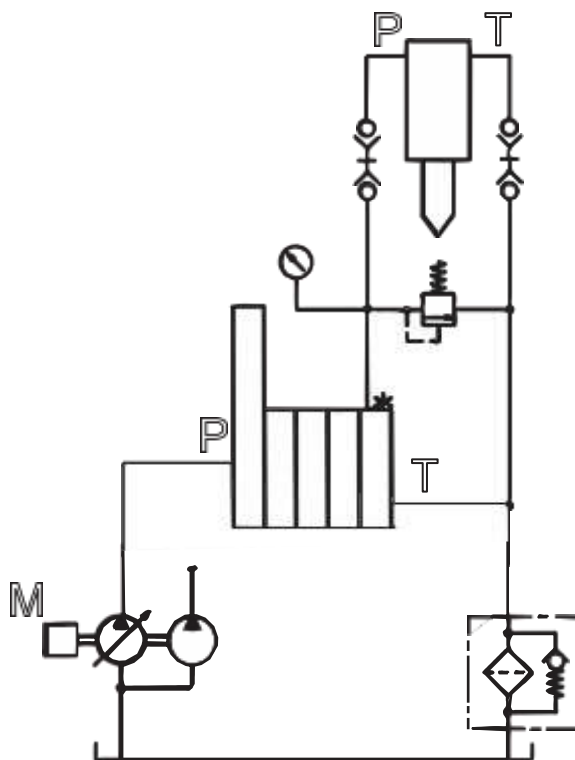
Viscosity

Viscosity (permitted)

15-100 cSt

Pressure adjustment

To ensure that the accumulator and hammer are not overloaded, a separate pressure relief valve should be installed, see picture below. It is set at a value of 30 bar over the hammer's maximum operating pressure. If the carrier's breaker circuit is already equipped with a pressure limiting valve, no extra valve is necessary.



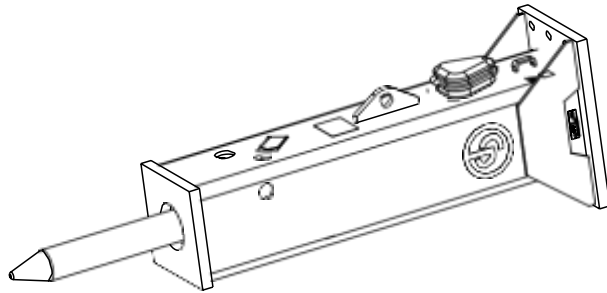
Assembly

⚠ WARNING Falling breaker can cause injuries

- Place the breaker in a safe position where it can't fall over and cause damage.

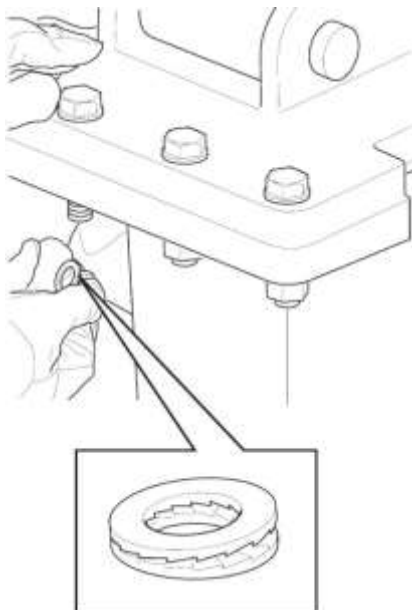
Preparation

1. Place the breaker in a position where it is easy and safe to mount the adapter plate.



Mounting the adapter plate

2. Place a locking washer pair on each screw.
3. Tighten the screws with an spanner.
4. Always use NORDLOCK™ washers under bolt and nut (NORDLOCK™ is a registered trademark of Nord-Lock AB).



5.	Adapter plate	Tightening torque
	110X	200 Nm
	210X	200 Nm
	319X	390 Nm
	360X	390 Nm
	410X	390 Nm

Connecting the breaker to the carrier

6. Place the breaker in a safe way at installation.

7. Carefully lower the stick of the boom into the adapter.

⚠ WARNING Moving parts can crush and cut

- Never check bores or passages with hands or fingers.

An assistant should direct the movement of the dipper arm until the bores in the dipper arm are flush with those in the adapter.

Agree with the assistant on clear hand signals for use during the mounting procedure.

8. Insert the pin and lock
9. Lift up the hydraulic breaker using the boom.
10. Extend the bucket cylinder until the bore in the toggle is flush with those in the adapter. Insert toggle pin and lock.
11. After mounting the breaker, carefully extend and retract the bucket cylinder to its full extent in each direction. It is important that the cylinder can be fully extended and retracted without any difficulty.

Connecting the hydraulic hose

12. Circulate the hydraulic oil before connecting the hydraulic breaker. This is to make sure that the hydraulic oil is clean. Use the same routine when changing the hydraulic oil hose. For further information see "The hydraulic oil".
13. Connect the pressure and return hose.

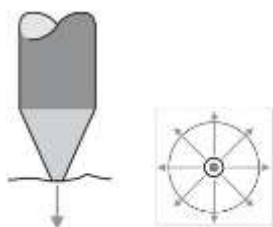


14. Run the hydraulic oil through the carrier's oil filter for approximately 3 minutes to make sure that the hoses are clean.

Insertion tool

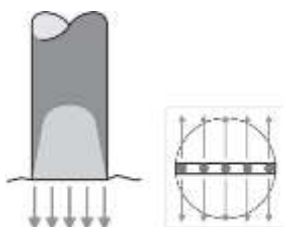
Selecting the right insertion tool

Conical moil point



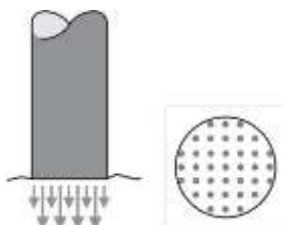
- > Very good penetration
- > Regular spread of wedge action
- > No torsion effect

Chisels and spades



- > Very good spread of wedge action
- > Good penetration
- > Torsion effect

Blunt tool



- > Very good energy application
- > Optimum breaking effect
- > No torsion effect

Mounting and dismounting the insertion tool

⚠ WARNING Running engine

Changing the inserted tool or accessories while the carrier's engine is running can cause serious injury.

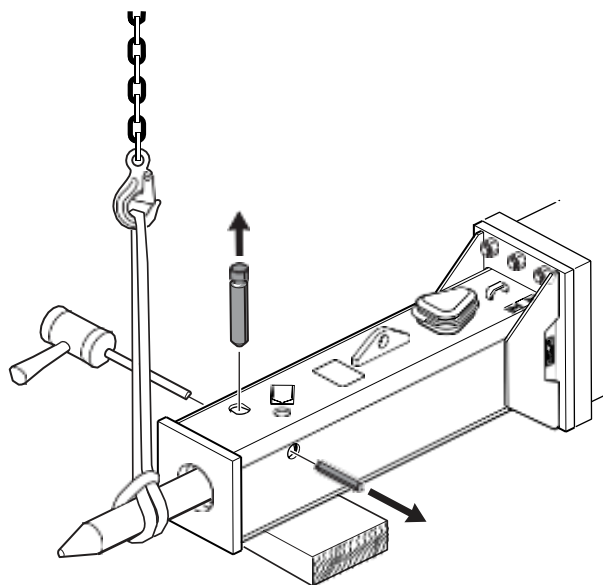
- Secure the carrier against involuntary activation.

Before you start mounting or dismounting the insertion tool, do the following:

1. Place the hydraulic breaker on timber support blocks. The boring on the back side of the hydraulic breaker has to remain free.
2. Shut off the carrier's engine.
3. Remove two plugs from the hammer box, the first at the split pin and the second at the retainer pin.

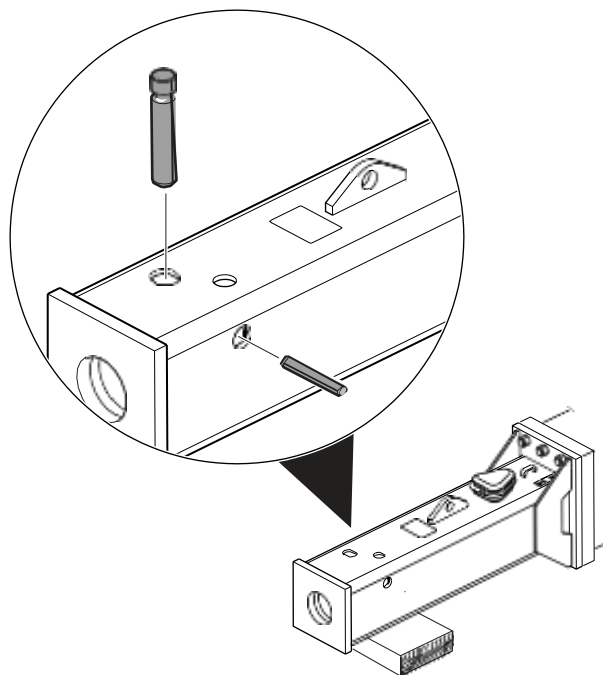
Dismounting the insertion tool:

1. Drive out the spring pin by using a break pin punch and a hammer. Press the retainer pin out from the hole at the back upwards until you can remove it through the hole on the front side.



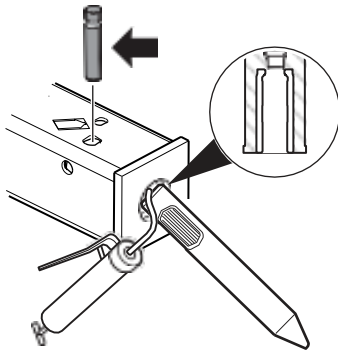
NOTICE Dismount the insertion tool with a lifting strap to reduce the risk of crushed body parts. Some insertion tools are heavy, therefore lift out the insertion tool in a safe way.

2. Check that the spring pin is not worn out or damaged. Change if necessary.

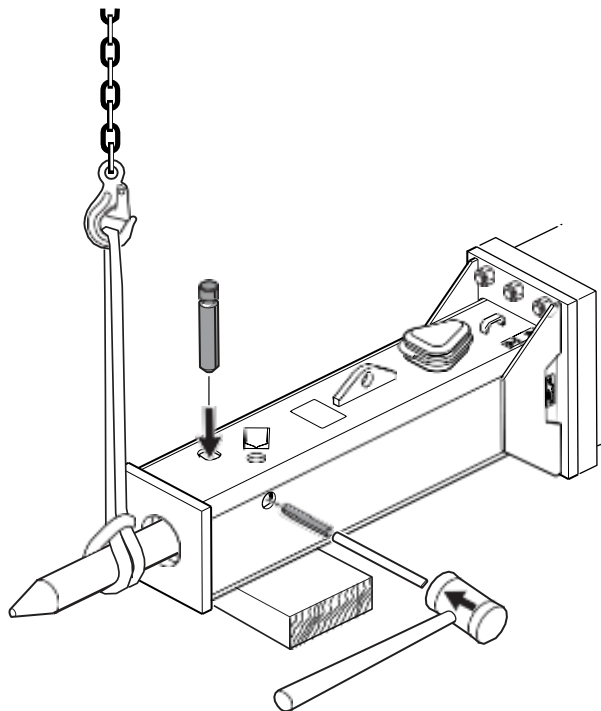


Mounting the insertion tool

1. Clean and lubricate the bushing plentifully. This is especially important when mounting a new insertion tool.



2. Mount the insertion tool.
3. Rotate the insertion tool to spread the grease.
4. Mount the retainer pin, and make sure it remains in position so it not falls through the boring at the back.
5. Drive in the spring pin by using a break pin punch and a hammer, until it is flushed with the percussion unit.



Operation

NOTICE The hydraulic breaker or the inserted tool is not to be used as a lifting device. When lifting heavy components use the hook on the carrier arm.

Preparation before breaking

Operating temperatures

The operating temperatures of the hydraulic breaker are between -20°C (-4°F) and + 80°C (+176°F).

▲ CAUTION Temperature hazard

The hydraulic breaker and the hydraulic oil system of the carrier can be damaged if the hydraulic breaker is used at higher or lower temperatures.

- Only start the hydraulic breaker when the hydraulic oil has reached the proper operating temperature.
- If the ambient temperature is below -20°C (-4°F), you must warm up the insertion tool and the hydraulic breaker before use.
- If the oil temperature exceeds + 80°C (+176°F), you must not use the hydraulic breaker as the oil quality becomes inadequate which severely shortens the life time of seals and O-rings.

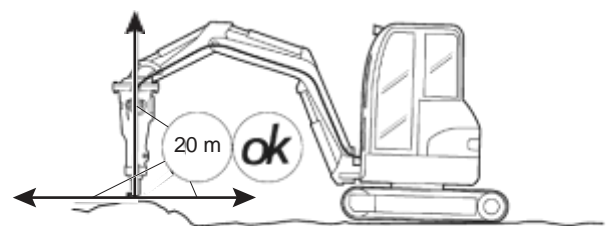
Engine rpm

Too high engine rpm only results in increased fuel consumption and increased oil temperature. Adapt the engine rpm to the recommended value to give the correct operating oil flow.

Operating

Risk area

Before starting the hydraulic breaker, make sure that no persons are in the risk area, 20 meters both horizontally and vertically from the hydraulic breaker.



Breaking

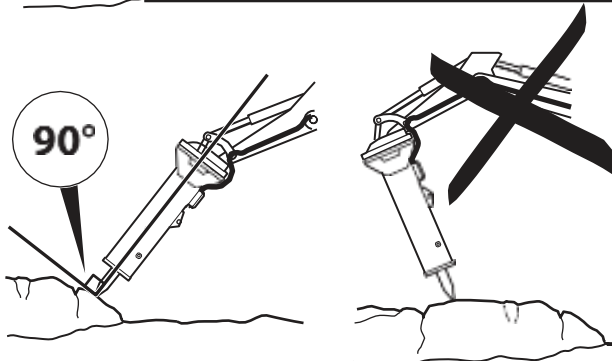
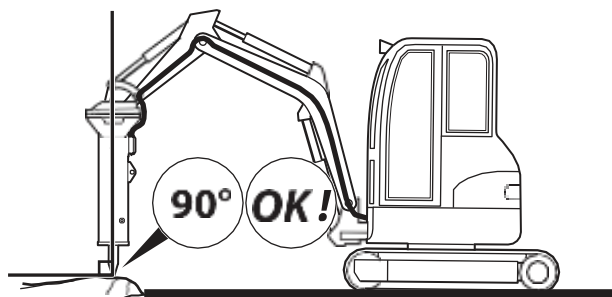
▲ CAUTION Machine and tool hazard

Continuous operation at full extension and/or retraction can result in damage to the hydraulic cylinders.

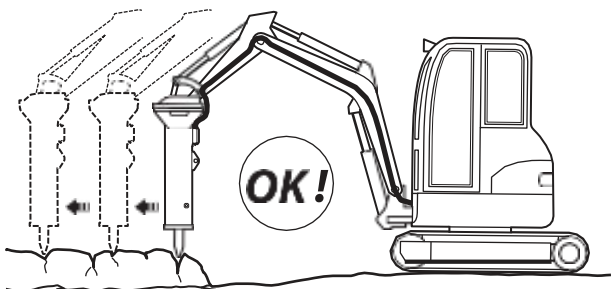
- Always avoid operating the breaker with the cylinders fully extended or retracted.
- Reposition the carrier and/or boom to avoid fully extended or retracted cylinders.
- Pay attention and look at what you are doing.

Never start the hydraulic breaker until both carrier and the hydraulic breaker are in the correct position.

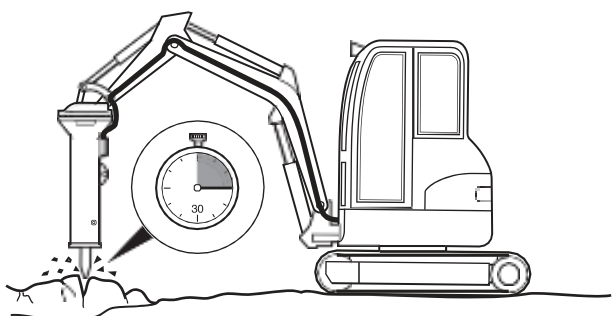
- ◆ Direct the hydraulic breaker in a position 90° towards the object.



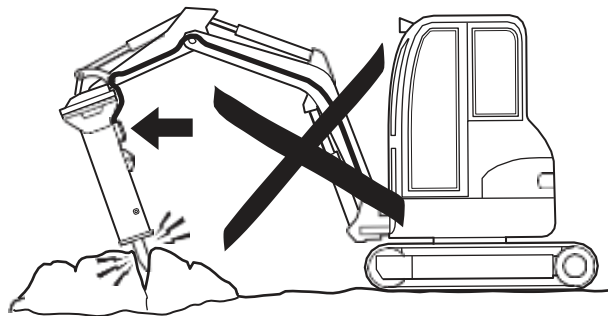
- ◆ Start near the edge and work your way in towards the middle. Never start in the middle of large objects.



- ◆ Never run the hydraulic breaker longer than 15 seconds on the same spot. Move the inserted tool to a new position if the object does not break.



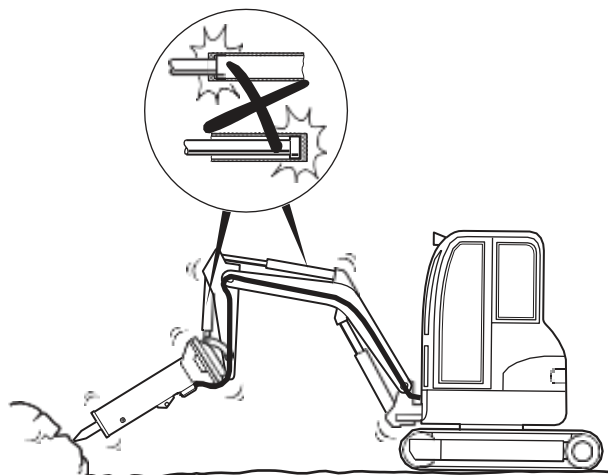
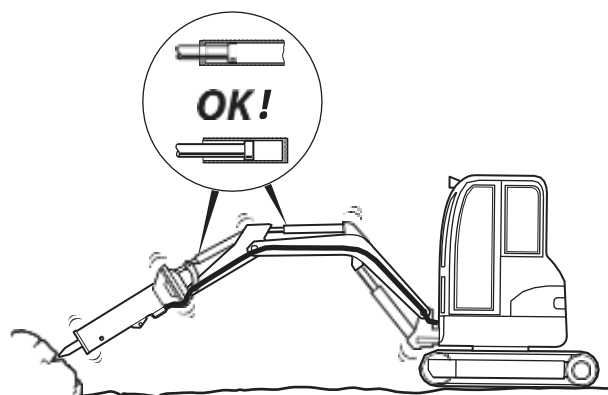
- ◆ Never bend with the insertion tool.



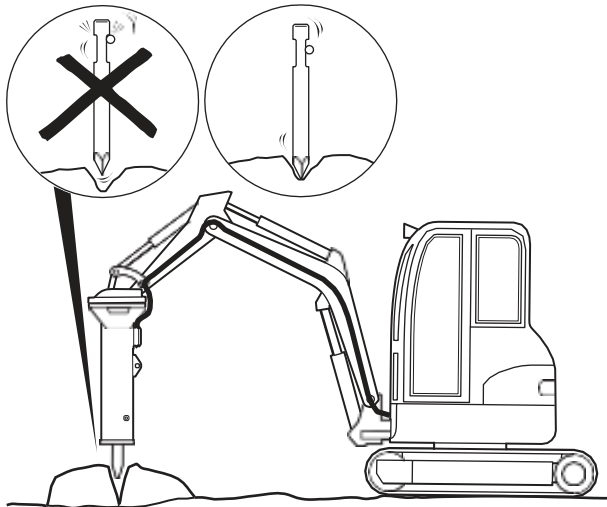
- ◆ Use the correct feed pressure. When the feed pressure is correct the hydraulic breaker is working at its best and the vibrations are at a minimum. Also, the wear on the bushing and inserted tool is kept to a minimum.

- ◆ Listen to the sound from the hydraulic breaker. The sound changes if there is any bending between the inserted tool and bushing.

- ◆ Never run the breaker with the boom cylinders at their end positions. It may cause damage to the carrier.



- ◆ Avoid idling strokes; it causes wear on both inserted tool and tool retainers.



Maintenance

It is essential that regular maintenance is performed to maintain the breakers maximum efficiency.

Equipment that is insufficiently maintained can be dangerous for both the operator and persons near the breaker. Make sure that regular maintenance routines with lubrication are followed to keep the equipment safe and efficient.

Lubrication

Lubricate the chisel shank thoroughly every two hours using high-temperature grease such as genuine chisel grease from your supplier. This also lubricates the bushing and the tool holder; 5-10 pumps of the grease gun is sufficient. Stop when the grease starts to emerge at the chisel holder or between the chisel and the bushing.

⚠ WARNING Running engine

If the carrier's engine is running when lubricating the chisel by hand, there is a risk of severe accidents.

- Always switch off the carrier's engine to avoid accidents.

During lubrication, the chisel must be pressed against the hammer piston so that the space between piston and the chisel does not fill with grease.

⚠ WARNING Explosion hazard

Use of other gases than Nitrogen (N₂) can cause an explosion.

- Charge the accumulator with Nitrogen (N₂) only!

QA supplies a service box containing all necessary tools and parts required to service the piston accumulator. See the Spare parts list.

If the hammer's performance begins to deteriorate, we recommend that you check the pressure in the piston accumulator.

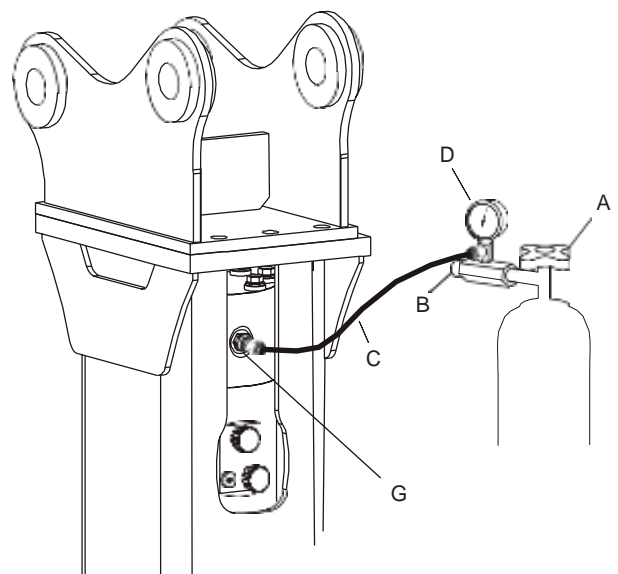
NOTICE The pressure must be checked with the hammer at a working temperature of 60°-70°C.

To measure the pressure, bring down the hammer with no pressure on the chisel. Detach the plug from the charge valve (G) and connect the test pressure gauge.

The piston accumulator only needs to be filled if the pressure falls below the minimum level.

Filling

1. Connect pressure relief valve (B) to gas bottle valve (A).
2. Connect gas hose (C) to pressure relief valve (B) as shown in figure.
3. Close pressure relief valve (B).
4. Open gas bottle valve (A).
5. Remove the plug from the charge valve (G).
6. Guide the nozzle of the hose (C) into the charge valve.
7. Carefully open the relief valve (B).
8. Fill the piston accumulator.
9. Read the pressure on the pressure gauge (D).
10. Close the pressure relief valve when the desired pressure has been reached.
Pull the gas hose out of the charge valve (G) and fit the plug.
11. Close gas bottle valve (A).



Checking and reducing the gas pressure

1. Always use the gas hose (C) and the pressure gauge (D) when checking the gas pressure.
2. Connect the gas hose to the pressure gauge.
3. Remove the plug from the charge valve (G).
4. Press the nozzle of the gas hose into the charge valve and read the pressure.
5. Reduce the pressure by repeatedly inserting and removing the nozzle.

NOTICE Only the nozzle may be used to reduce the pressure. Never use pins, screwdrivers etc. as these can damage the charge valve.

Every second hour

Regularly lubricate the insertion tool, the tool retainer and the bushings.

Lubricating with a grease gun

⚠ WARNING Hot insertion tool during operation and a period of time after use.

- ▶ Avoid contact with the insertion tool.

⚠ WARNING Hot hydraulic breaker during operation and a period of time after use.

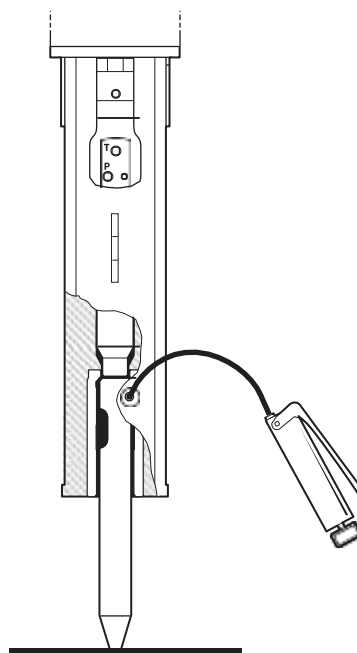
- ▶ Avoid contact with the hydraulic breaker.

⚠ CAUTION Skin eczema

Grease can cause eczema when it comes in contact with the skin.

- ▶ Avoid getting grease on your hands. Wash thoroughly after contact.

1. Press the insertion tool against the piston so that the space between the piston and the insertion tool does not fill with grease.



2. Lubricate the insertion tool's shank plentifully while pressing the insertion tool against the surface to avoid filling the cavity with grease. If the cavity is filled with grease when the hydraulic breaker is started, the lower seals may be damaged.

When the insertion tool shank is exposed to high pressure and high temperatures a standard type of grease will melt and run. To avoid this always use a genuine insertion tool grease from your supplier.

Central lubrication system

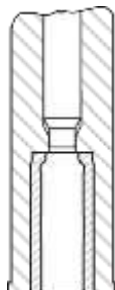
We recommend central lubrication system. When this system is fitted on the carrier, grease is pumped continuously from a lubrication container on the carrier to the breaker when the breaker is activated. This increases the life of the tool bushings and insertion tools considerably.

Every day

- ◆ Check the tool retainer and split pin.
- ◆ Check that hoses, couplings and accumulator are in a good condition.
- ◆ Check that bolts and connections are free from damage and properly tightened. See tightening torques in the spare parts list.

Every week

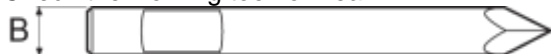
- ◆ Clean the hydraulic breaker carefully.
- ◆ Check the wear bushings wear and maximum inner wear limits.



A

The wear bushing must be replaced when the inner diameter (A) has reached its maximum wear limit, see section "Wear limits" and "Replacing the insertion tool bushing".

- ◆ Check the working tool for wear.



The working tool must be replaced when the outer diameter (B) has reached its minimum wear limit. See section "Wear limits".

Too large clearance can make the working tool break and the piston can be damaged.

- ◆ Check the breaker and the adapter plate for cracks and wear.
- ◆ Check that the accumulator screws are properly tightened. The correct tightening torque is found in the spare parts list.
- ◆ Check the scraper ring (C) for wear and function, replace if necessary.

The working tool may never be sharpened by forging. Sharpening must only be performed by milling, grinding, or turning.

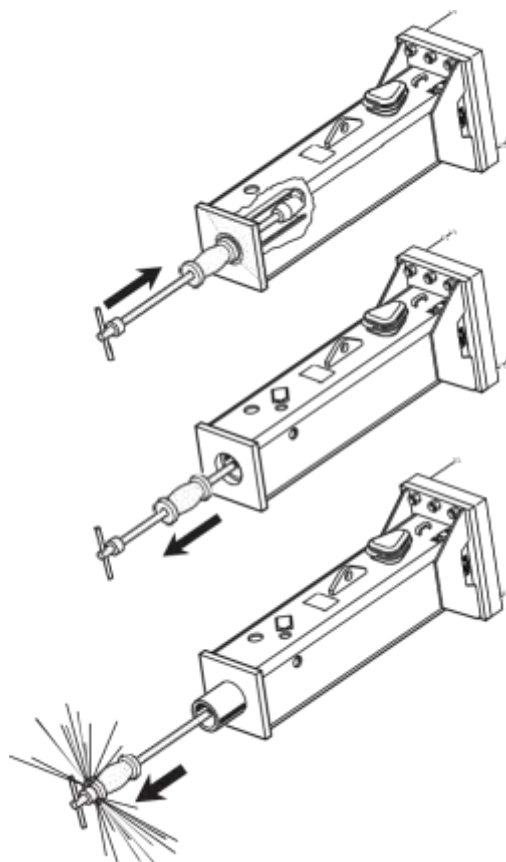
Wear limits

	A (mm)	B (mm)
110X	45	39
210X	55	49
310X	65	59
360X	73	67
410X	83	77

Replacing the insertion tool bushing

The insertion tool bushing is kept in place by the tool retainer. A new bushing has a slip fit.

1. If a worn-out bushing is stuck, use a sliding hammer to remove it.



2. Carefully clean the bore and the bushing seat area.
3. Lubricate and mount the bushing.
4. Use a plastic sledgehammer to insert the bushing.
5. Keep the bushing in position with help of the tool retainer.

Every year

Overhauling must be done after one year of continuous operation. Overhauling must for safety reasons be performed by authorized personnel at an authorized workshop.

Storage

▲ WARNING Falling breaker can cause injuries

- Place the hydraulic breaker in a safe position where it can't fall over and cause damage.

If the hydraulic breaker is not used for a long time, the following points must be considered to protect the hydraulic breaker from corrosion:

1. Clean the hydraulic breaker carefully.
2. Dismount the insertion tool and lubricate the front part of the piston, wear bushing, and the retainer pin.
3. Store the hydraulic breaker in a dry place.

Always keep the breaker in an upright position, if stored for a long time.

Disposal

A used machine must be treated and scrapped in such a way that the greatest possible portion of the material can be recycled and any negative influence on the environment is kept as low as possible.

Before a used machine is scrapped it must be emptied and cleaned from all hydraulic oil. The remaining hydraulic oil must be deposited and any negative influence on the environment is to be kept as low as possible.

Technical data

Machine data

	110X	210X	310X	360X	410X
Part number	8460 0500 38	8460 0500 39	8460 0500 40	8460 0500 41	8460 0500 42
Service weight, lb (kg)	207 (94)	328 (149)	470 (213)	600 (272)	816 (370)
Delivery weight, lb (kg)	165 (75)	265 (120)	370 (168)	470 (214)	660 (300)
Suitable carrier weight class, lb (tonnes)	2,900–6,600 (1.3-3.0)	4,600–9,900 (2.1-4.5)	6,400–13,200 (2.9-6.0)	9,300–19,800 (4.2-9.0)	11,500–26,500 (5.2-12.0)
Working length of working tool in standard version, in. (mm)	10.4 (265)	12.6 (320)	13.8 (350)	15.0 (380)	16.3 (415)
Working tool diameter, in. (mm)	1.7 (42)	2.0 (52)	2.4 (62)	2.8 (70)	3.1 (80)
Start up mode	Easy Power	Easy Power	Easy Power	Easy Power	Easy Power
Hose inside diameter P, in.(mm)	½ (12)	¾ (15)	¾ (15)	¾ (15)	¾ (15)
Hose inside diameter T, in. (mm)	½ (12)	¾ (15)	¾ (15)	¾ (15)	¾ (15)

Capacities

	110X	210X	310X	360X	410X
Oil flow, gpm (l/min)	4.0–9.2 (15-35)	7.9–13.2 (30-50)	9.2-15.9 (35-60)	11.9-19.8 (45-75)	15.9-23.8 (60-90)
Impact rate, bpm	560–1,600	670–1,500	520-1,300	530-1,200	530-1,000
Operating pressure, psi (bar)	1,595–1,885 (110-130)	1,595–2,030 (110-140)	1,595–2,030 (110-140)	1,450–2,030 (100-140)	1,740–2,175 (120-150)
Maximum hydraulic input power, kW	8	12	14	18	23
Pressure relief valve on carrier, psi (bar)	2,320 (160)	2,465(170)	2,465(170)	2,465(170)	2,610(180)
Piston accumulator gas pressure (min, at operating temperature 140-158°F (60-70°C)) psi (bar)	203(14)	232(16)	203(14)	160(11)	174(12)
Piston accumulator gas pressure (max, at operating temperature 140-158°F (60-70°C)) psi (bar)	268(18.5)	297(20.5)	276(19)	218(15)	239(16.5)

Noise declaration statement

	110X	210X	310X	360X	410X
Sound pressure ¹ dB(A)	81	83	85	86	87
Sound power ² dB(A)	109	111	113	114	115

¹ Sound pressure level according to EN ISO 3744 in accordance with directive 2000/14/EC at 10 meters distance.

² Guaranteed sound power according to EN ISO 3744 in accordance with directive 2000/14/EC inclusive spread in production.

These declared values were obtained by laboratory type testing in accordance with the stated directive or standards and are suitable for comparison with the declared values of other tools tested in accordance with the same directive or standards. These declared values are not adequate for use in risk assessments and values measured in individual work places may be higher. The actual exposure values and risk of harm experienced by an individual user are unique and depend upon the way the user works, in what material the breaker is used, as well as upon the exposure time and the physical condition of the user, and the condition of the breaker.

Erskine Attachments LLC, cannot be held liable for the consequences of using the declared values, instead of values reflecting the actual exposure, in an individual risk assessment in a work place situation over which we have no control.

EC Declaration of Conformity

EC Declaration of Conformity (EC Directive 2006/42/EC)

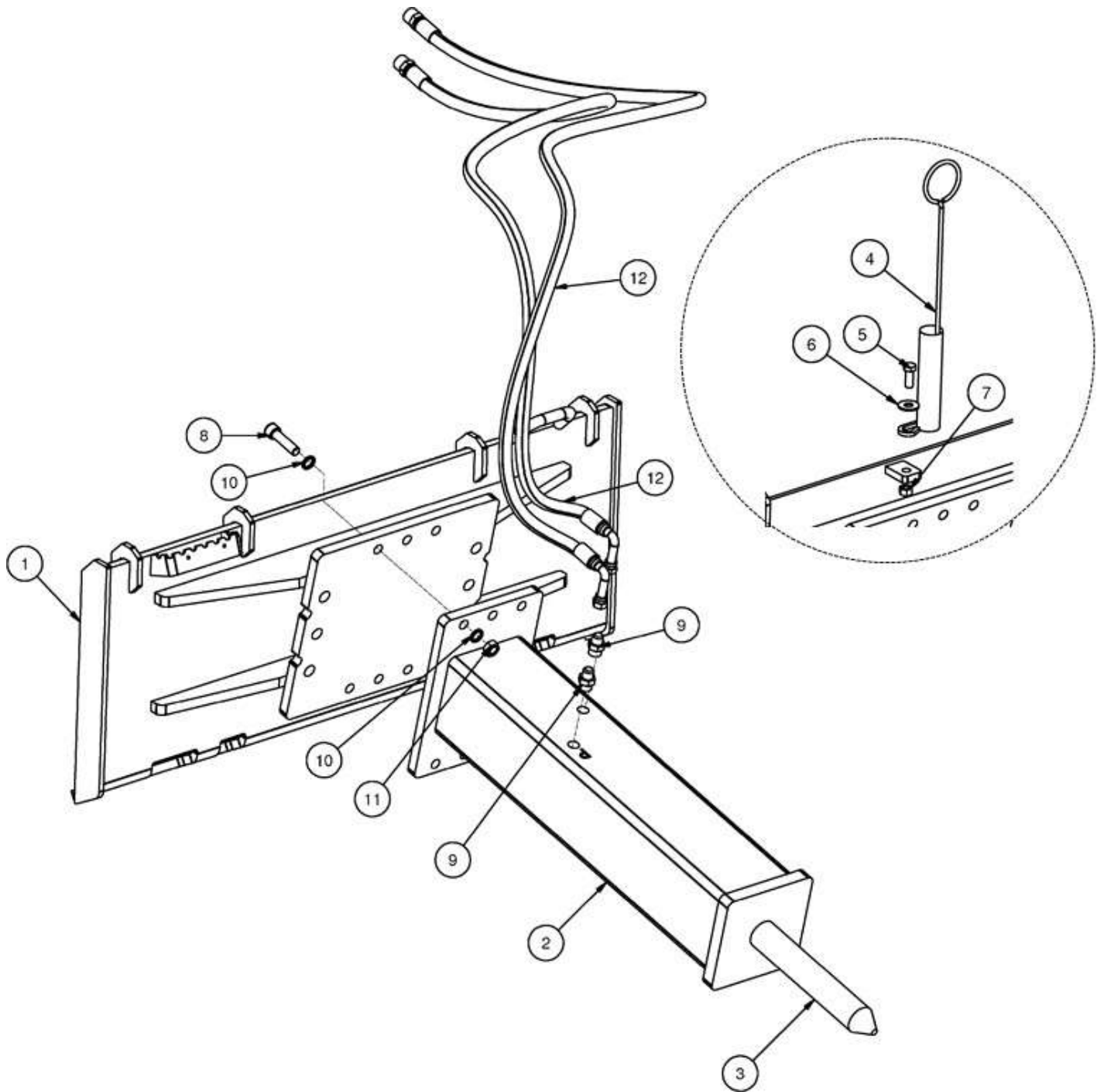
We, Quick Attach, hereby declare that the machines listed below conform to the provisions of EC Directive 2006/42/EC (Machinery Directive) and 2000/14/EC (Noise Directive).

Hydraulic breaker	Guaranteed sound power level [dB(A)]	Measured sound power level [dB(A)]	Pmax (bar)	Weight (kg)
110X	109	108	130	75
210X	111	110	140	120
310X	113	112	140	168
360X	114	113	140	214
410X	115	114	150	300

NEW STYLE HYDRAULIC BREAKER PARTS INFORMATION

ITEM	QTY	PART NO.	DESCRIPTION	STOCK NO.
1	1	311852	MOUNT FRAME 210X HVY W/A	REPLACED 311803
	1	311853	MOUNT FRAME 310X/360X & 410X HVY W/A	REPLACED 311804
	1	311803	MOUNT FRAME 210X W/A	OLD STYLE ONLY
	1	311804	MOUNT FRAME 310X & 360X W/A	OLD STYLE ONLY
2	1	311811	BREAKER GUTS 210X (RX3)	INCLUDES BIT
	1	311812	BREAKER GUTS 310X (RX4)	INCLUDES BIT
	1	311813	BREAKER GUTS 360X (RX6)	INCLUDES BIT
	1	311856	BREAKER GUTS 410X (RX8)	INCLUDES BIT
3	1	311822	TOOL BIT CHISEL - 210X	
	1	311823	TOOL BIT CHISEL - 310X	
	1	311824	TOOL BIT CHISEL - 360X	
	1	311858	TOOL BIT CHISEL - 410X	
	1	311826	TOOL BIT MOIL PT - 210X	
	1	311827	TOOL BIT MOIL PT - 310X	
	1	311828	TOOL BIT MOIL PT - 360X	
	1	311859	TOOL BIT MOIL PT - 410X	
	1	311836	TOOL BIT BLUNT - 210X	
	1	311837	TOOL BIT BLUNT - 310X	
	1	311838	TOOL BIT BLUNT - 360X	
	1	311860	TOOL BIT BLUNT - 410X	
4	1	311526	SPRINGHOSE HOLDER PNT (311523 UNPNT)	OLD STYLE ONLY
5	1	13207	BOLT HEX 1/2 X 1-1/4 NC GR 5	OLD STYLE ONLY
6	1	33012	WASHER FLAT 1/2"	OLD STYLE ONLY
7	1	37214	NUT REV LOCK 1/2 NC	OLD STYLE ONLY
8	6	11507857	BOLT M16X60MM 8.8 CLASS	210X MODELS ONLY
	6	11103431	BOLT M20X80MM 8.8 CLASS	310/360/410X MODELS ONLY
9	2	201523	ADPT STR 10MB-8MJ	
10	12	311831	WASHER NORD-LOCK M16 NARROW OD	210X MODELS ONLY
	12	311832	WASHER NORD-LOCK M20 NARROW OD	310X & 360X MODELS
11	6	40311	NUT HEX M16	210X MODELS ONLY
	6	40313	NUT HEX M20	310X & 360X MODELS
12	2	311829	HOSE 1/2 X 96 12MB-8FJX90-TALL	RED ZIP TIE TO PORT P
13	1	311834	VALVE RECHARGE BREAKER CP	FOR PARTS
14	1	311854	KIT BREAKER SERVICE BOX	NOT SHOWN
15	12PK	311855	GREASE BREAKER HI-TEMP (14 OZ TUBE)	NOT SHOWN

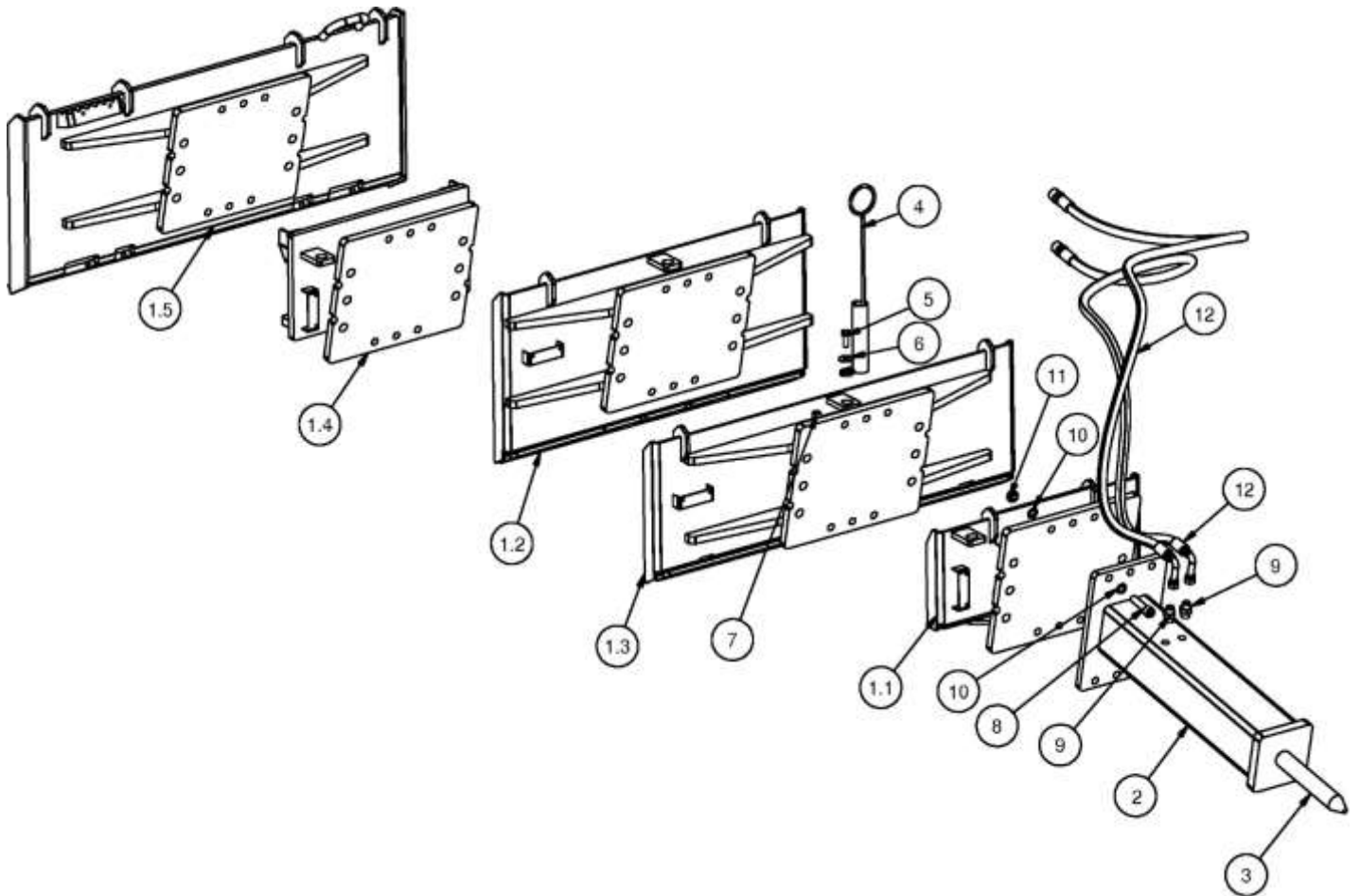
NEW STYLE HYDRAULIC BREAKER PARTS INFORMATION



MINI HYDRAULIC BREAKER NEW STYLE X SERIES INFORMATION

ITEM	QTY	PART NO.	DESCRIPTION	STOCK NO.
1.1	1	311800	MOUNT TORO MINI W/A	MOUNT PKG MINI ONLY
1.2	1	311801	MOUNT B/C MINI W/A	MOUNT PKG MINI ONLY
1.3	1	311802	MOUNT ASV MINI W/A	MOUNT PKG MINI ONLY
1.4	1	330717	MOUNT BREAKER AVANT MINI W/A	AVANT MNT PKG 330754
1.5	1	311852	MOUNT FRAME 210X HVY W/A	MOUNT PKG MINI UNIVERSAL
2	1	311810	BREAKER GUTS 110X (RX2) MINI	INCLUDES BIT
	1	311811	BREAKER GUTS 210X (RX3) MINI	INCLUDES BIT
3	1	311821	TOOL BIT CHISEL - 110X	
	1	311825	TOOL BIT MOIL PT - 110X	
	1	311835	TOOL BIT BLUNT - 110X	
4	1	311526	SPRING HOSE HOLDER PAINTED	(311523 UNPAINTED)
5	1	13207	BOLT HEX	1/2 X 1-1/4 NC GR 5
6	1	33012	WASHER FLAT	1/2"
7	1	37214	NUT REV LOCK	1/2 NC
8	6	11507857	BOLT M16X60MM 8.8 CLASS	
9	2	201523	ADPT STR 10MB-8MJ	
10	12	311831	WASHER NORD-LOCK M16 NARROW OD	
11	6	40311	NUT HEX M16	
12	2	311829	HOSE 1/2 X 96 12MB-8FJX90-TALL	FOR PARTS

MINI HYDRAULIC BREAKER NEW STYLE X SERIES INFORMATION



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