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Foreword

1. ***The contents of this manual are considered to be proprietary and confidential to the manufacturer and should not be reproduced without the prior written permission from the manufacturer.***
2. ***Nothing contained in this document is intended to extend any promise, warranty or representation, expressed or implied regarding the manufacturer products described herein. Any such warranties or other terms and conditions of sale of products shall be in accordance with the standard terms and conditions of sale of such products, which are available upon request.***
3. ***This manual contains instructions and technical data to cover all routine operations and scheduled maintenance tasks by operation and maintenance staff. Major overhauls are outside the scope of this manual and should be referred to an authorized manufacturer service department.***
4. ***The manufacturer reserves the right to make changes and improvements to products without notice and without incurring any obligation to make such changes or add such improvements to products sold previously.***

Symbols

Danger; Caution

Figure 1

Read Operation Manual

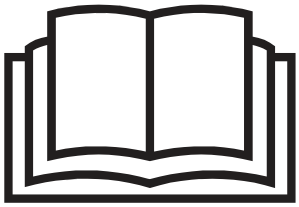


Figure 2

Check; Examine

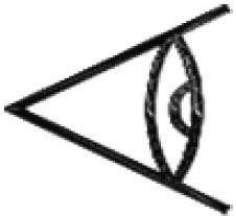


Figure 3

Read Maintenance Manual

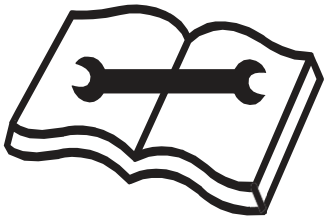


Figure 4

Hydraulic Oil

Figure 5

Hydraulic Oil Pressure

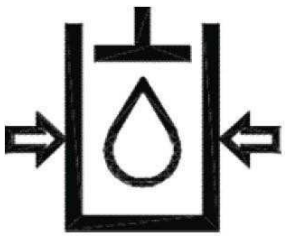


Figure 6

Hour Meter

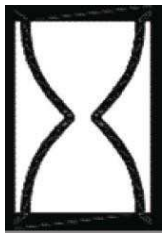


Figure 7

Mass

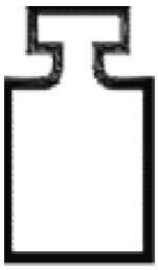


Figure 8

General Prohibition Signal

Figure 9

Lubricant Grease

Figure 10

Lock; Tighten

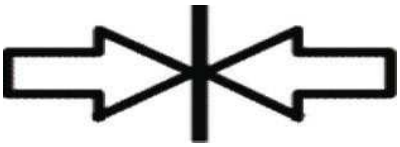
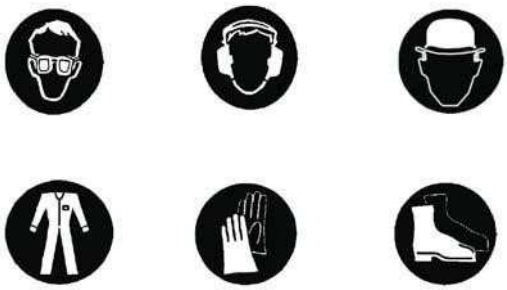


Figure 11

Obligation: to Wear Safety Equipments



8

Figure 12

Safety

Safety Signal Words

⚠ WARNING

WARNING implies that instructions must be followed strictly to avoid injury or death.

⚠ CAUTION

CAUTION means instructions must be followed strictly to avoid damaging the product, process or its surroundings.

NOTE: *NOTE" are used for supplementary information.*

Safety Precautions

All mechanical equipment can be dangerous when used without care or if in bad condition.

Ensure that the operator reads and understands the labels and consults the manuals before maintenance or operation.

Ensure that the operation and maintenance manual remains at operator's disposal.

Ensure that maintenance personnel are adequately competent and have read the maintenance manuals.

Safety is not only a matter of warnings.

Every time the operator is working with the breaker, he must foresee any risks which might occur and how to avoid them.

⚠ WARNING

AVOID DEATH OR SERIOUS INJURY

Never undertake a new job or maintenance operations without being sure you and other people in the environment will be safe.

General Information

The Breaker is an attachment for excavators, or back- hoes according to the model.

The operator must have the necessary knowledge, and must be qualified to operate such carriers.

He must know the safety instructions concerning the carrier and comply with them.

In addition to the usual safety equipment such as helmet, safety shoes, the operator will, if need be, have available.

- Safety glasses
- Industrial gloves
- Dust mask
- Ear protector

Ample, loose clothing, watch bracelet, can in some circumstances be dangerous.

The operator must not absorb any alcoholic drinks or medicine liable to generate sleepiness.

⚠ *WARNING*

AVOID DEATH OR SERIOUS INJURY

It is imperative to be informed and comply with all local laws and regulations concerning the breakers and their use.

Mounting on Carrier

Each model of breaker is suited to a specific carrier.

The operator must be informed of the technical instructions given by the manufacturer such as

- Carrier minimum weight
- Working pressure
- Flow rate
- Hoses
- Dimensions and connection to carrier’s hydraulic circuit

⚠ *WARNING*

AVOID DEATH OR SERIOUS INJURY

Failure to follow these instructions could result in permanent damage to hydraulic hammer!

When someone helps to install the breaker, make sure any hand signals will be well understood.

When connecting the breaker hoses to the carrier circuit, be sure the circuit is not under pressure (check the hydraulic tank is not pressurized) or at high temperature.

WARNING

AVOID DEATH OR SERIOUS INJURY

The cier engine must be stopped.

Check that IN and OUT return hoses are well connected.

Take all necessary steps to prevent oil- leakages when connecting the breaker.

Hydraulic Fluids

Hydraulic fluids and lubricants can be dangerous for heath if not used properly.

WARNING

AVOID DEATH OR SERIOUS INJURY

Avoid ingestion, skin contact and inhalation.

Safety data sheets for oil and lubricants should be obtained from the lubricant supplier.

Should hydraulic oil come into contact with eyes, rince them abundantly, then consult a doctor.

Fine jets of hydraulic fluids at high pressure, can penetrate the skin, causing serious injury.

Energy Chamber

The breakers incorporate one or two energy chambers, containing nitrogen under pressure.

WARNING

AVOID DEATH OR SERIOUS INJURY

Never attempt to open the covers.

If an energy chamber needs to be repaired, contact your distributor.

Operation

If the carrier is in a work area where there are risks of falling objects or rocks, the cabin must be equipped with an approved FOPS protection.

Prior to starting work, the operator must ensure there are no buried electricity, gas or water pipes or lines.

The operator must take every step to indicate or light up his working area and ensure that the ground on which the carrier is operating, is stable.

The rock breaker will be used on a clear working area, orientated in such a way that inevitable rock chips produced by the contact of tool with the ground are not dangerous for the operator or any bystanders.

WARNING

AVOID DEATH OR SERIOUS INJURY

Stand clear from a breaker in operation.

According to the job done with the breaker a large quantity of dust could be produced.

Then, use water spraying to drop dust and avoid inhalation.

Do not use the breaker for any other application than that which it is intended for : splitting blocks, trenches digging, demolition, excavations.

Never use the breaker as a lever or use the breaker to lift loads.

Using a breaker without tool pins is forbidden.

Do not use any other tools than those recommended by the manufacturer.

After a certain working time, the rock breaker temperature could be high: avoid therefore all contact with any parts until it has

completely cooled down and the pressure relieved in the hydraulic circuit.

Do not touch the rock breaker while it is in operation.

Do not leave any object on the breaker.

Maintenance and Repairing

All components, accessories, pipes and connectors added to the rock breaker should be

- Of good quality, procured from a reputable manufacturer and, wherever possible, be of a type approved by the manufacturer.
- Compatible with the breaker maximal working pressure.
- Accompanied by instructions for safe installation, operation and maintenance.

When replacing IN and OUT return hoses only use hoses compatible with the maximum working pressure.

The use of spare parts other than those included in the manufacturer approved parts list may create hazardous conditions over which the manufacturer.

Therefore the manufacturer cannot be held responsible for equipment on which non approved spare parts are installed.

Products and Structure

Products

1. HTB220 TOP

Structure

1. Through Bolt

   Front head, cylinder and back head of breaker body are tightly fixed with through bolts.

2. Back Head

   N2 Gas charging valve is built in and the inside is changed with the nitrogen gas.

3. Cylinder

   The cylinder is the heart of the breaker containing hydraulic circuit for piston reciprocation.

4. Control Valve

   Cylindrical control valve is built in the valve housing to control piston reciprocation.

5. Accumulator

   The accumulator compensates the pressure in the hydraulic circuit and prevents pulsation. It is not usually necessaryto refill. Use nitrogen gas only.

6. Piston

   Kinetic energy of the piston is converted into blowing energy after hitting the tool.The lowing energy is transmitted to the tool to break rocks.

7. Front Head

   The front head supports the whole breaker components. Upper bushing prevents shock from the tool.

8. Tool pins

9. Tool

   The specially heat-treated tool is directly applied to break rocks. It has various forms of a wedge, moil point, blunt and cone chisel appropriate to the application (optional)

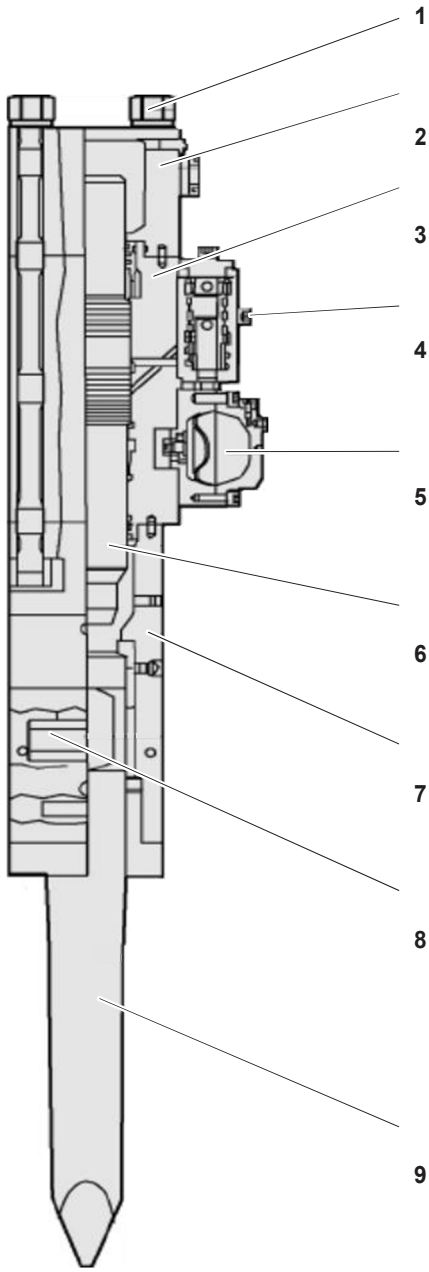


Figure 1

Information

Specification of Breakers

Description		Unit	HTB220
Operating Weight	Top	kg	1,890
		lb	4,105
Main Body Weight		kg	720
		lb	1,582
Required Oil Flow		L/min	130 ~ 150
		gal/min	34 ~ 40
Setting Pressure		bar	210
		psi	3,045
Operating Pressure		bar	170 ~ 210
		psi	2,465 ~ 3,045
Impact Rate bpm			400 ~ 800
Hose Diameter		inch	1"
		mm	25
Tool Diameter		mm	135
Applicable Carrier Weight		ton	18 ~ 25
* Specifications and features presented in this document are subject to change without notice.			

Usage of Breaker

Use Safety Equipment

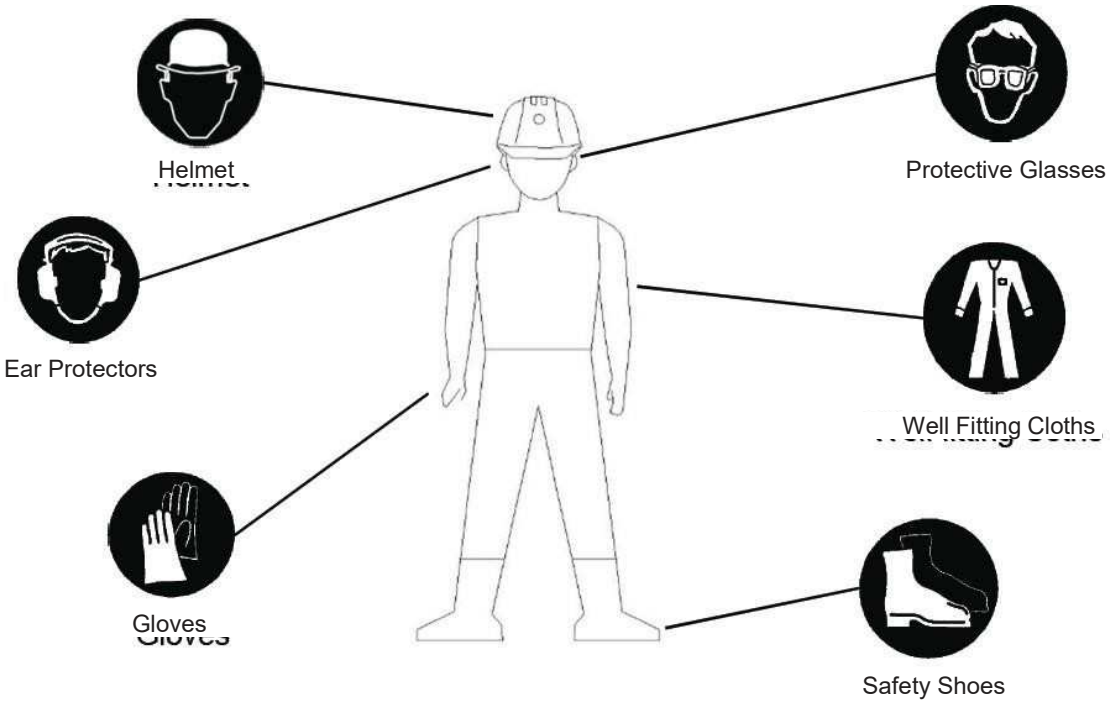


Figure 1

Safety Distance

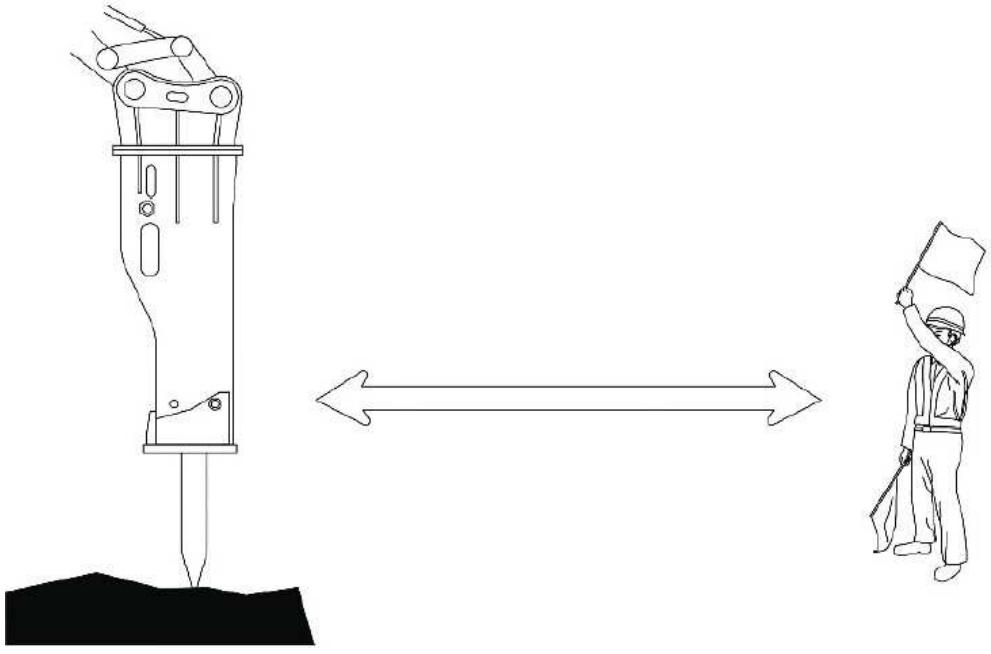
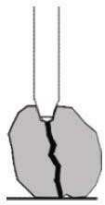
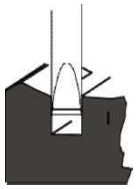
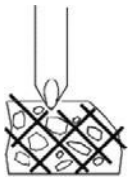


Figure 2

Tool Type

Classification	Contents	
Moil		Universal tool for demolition work and block splitting low abrasive material, concrete.
Wedge		Excavation of trenches, building pits, breaking of reinforced concrete.
Blunt		Block splitting in quaries
Corn		Hard reinforced concrete flooring, sedimentary materials

Installation and Operation

Flushing Before Install Breaker

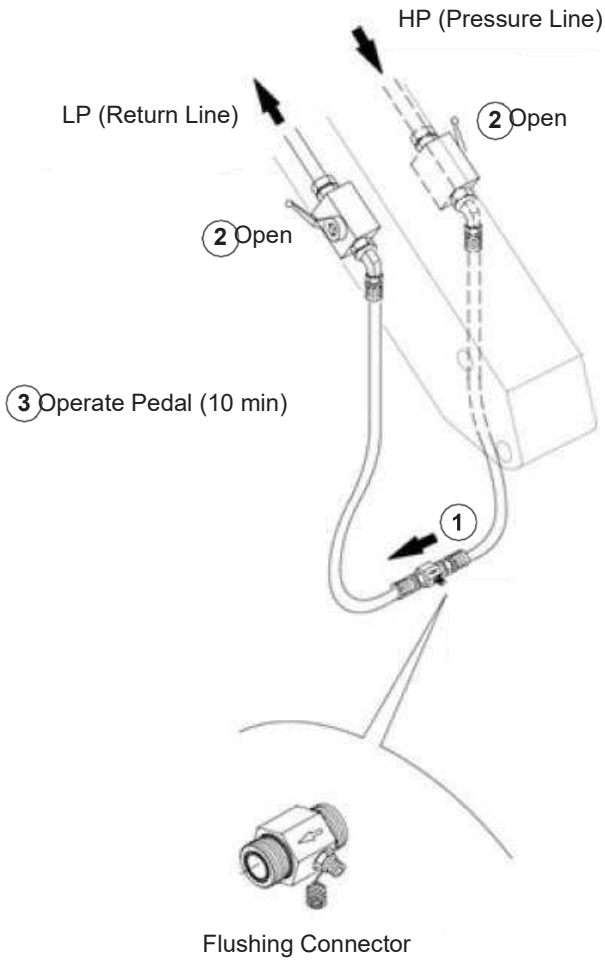


Figure 1

Chisel Installation

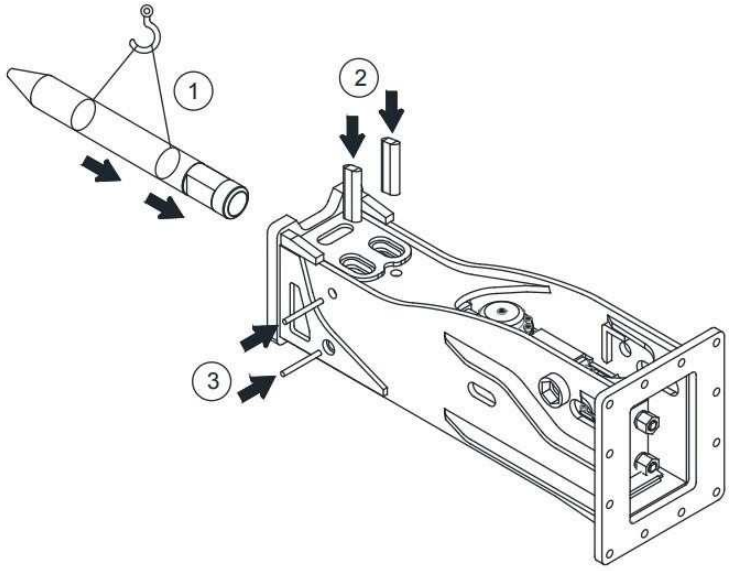


Figure 2

Chisel Removement

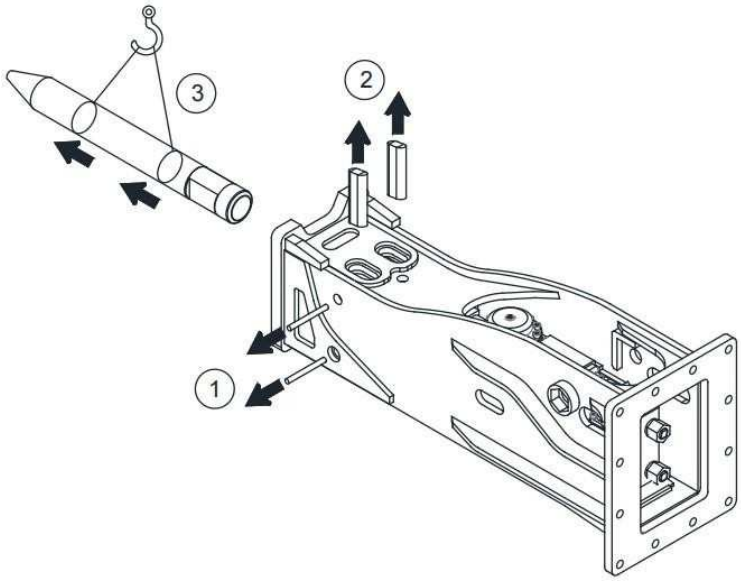


Figure 3

Hose Installation

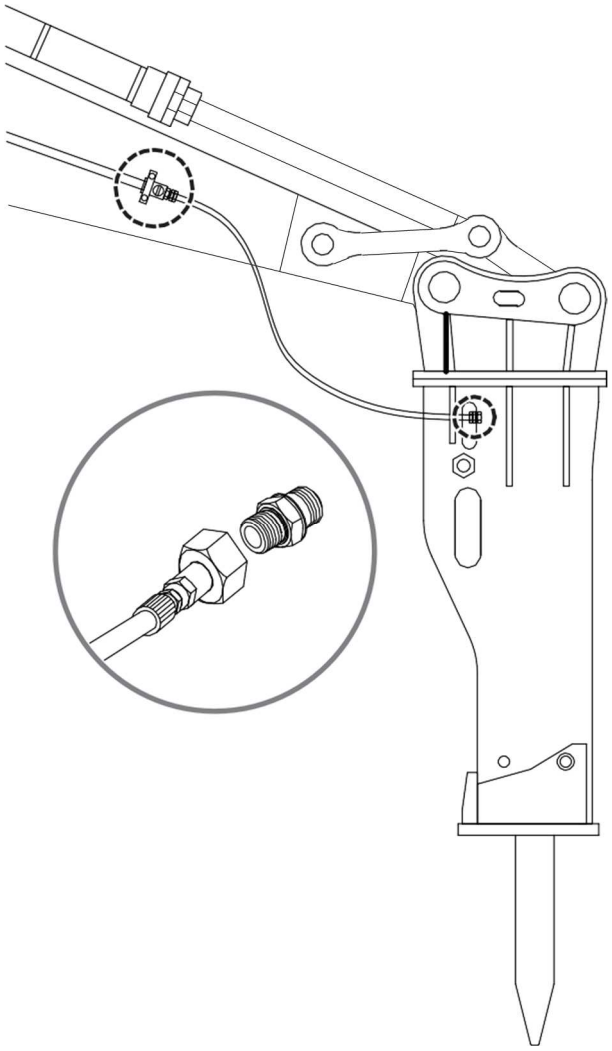


Figure 4

Check Setting Pressure

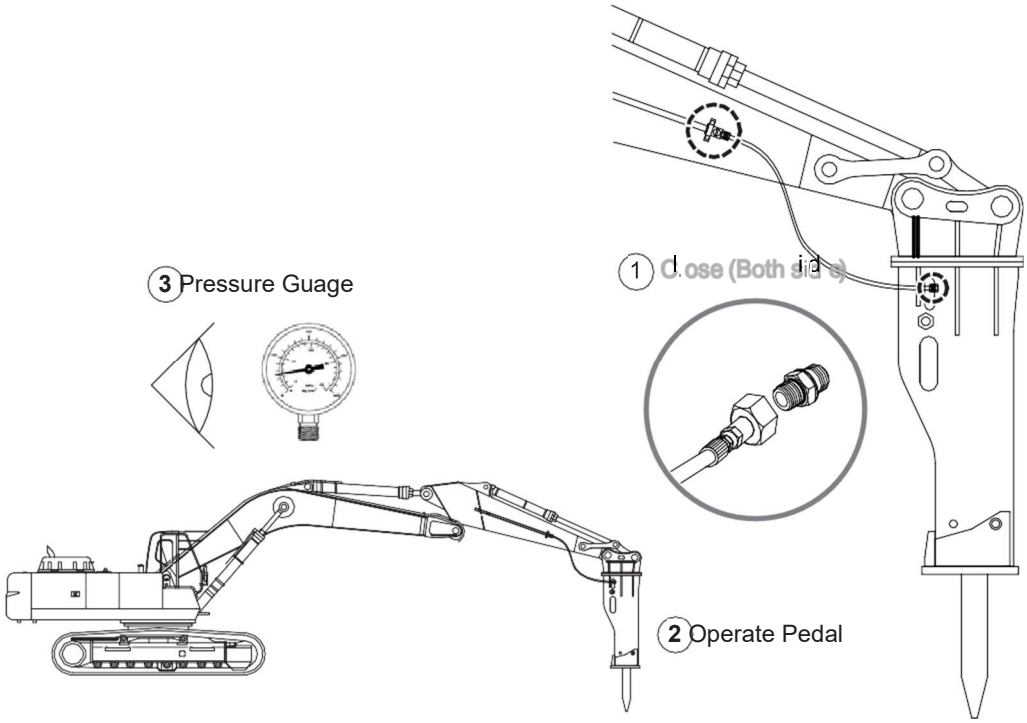


Figure 5

Check Operating Pressure

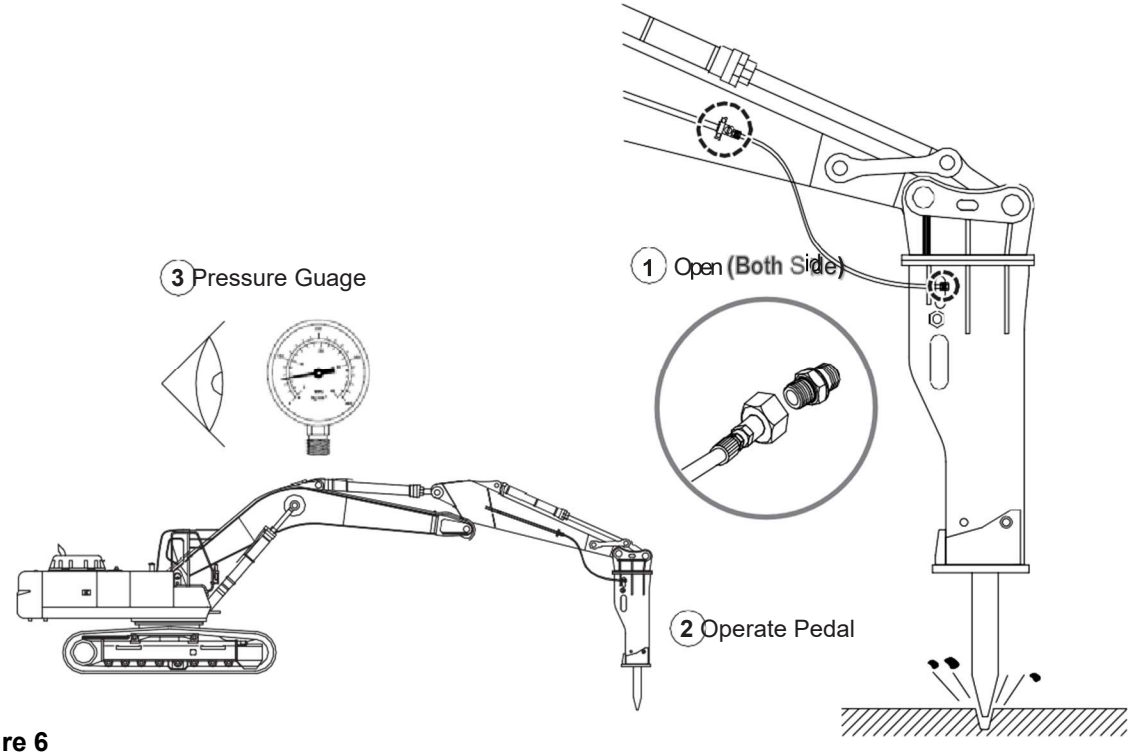


Figure 6

User Instruction

For the Working Position

Pressure on tool will always be correct if breaker remains perfectly perpendicular.

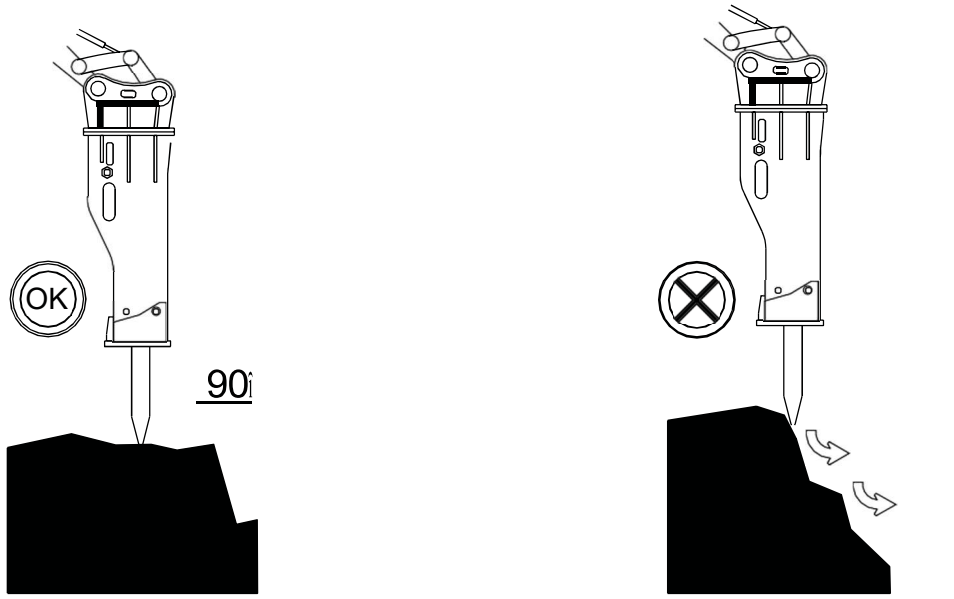
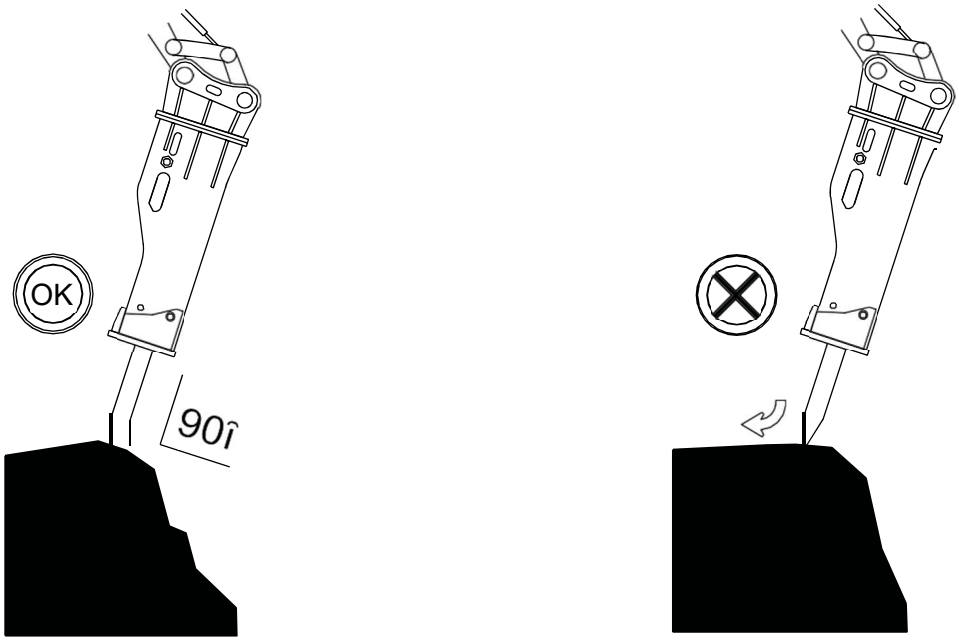


Figure 1



For the Working Time

Do not keep the breaker more than 15 seconds in the same position especially when the material is rather hard and resilient. (No warranty)

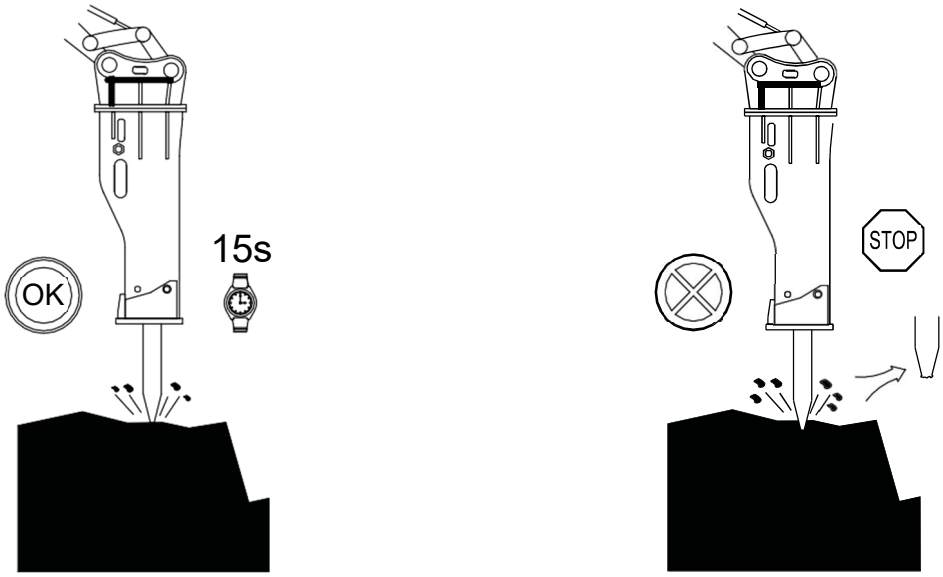


Figure 2

For the Breaker Position

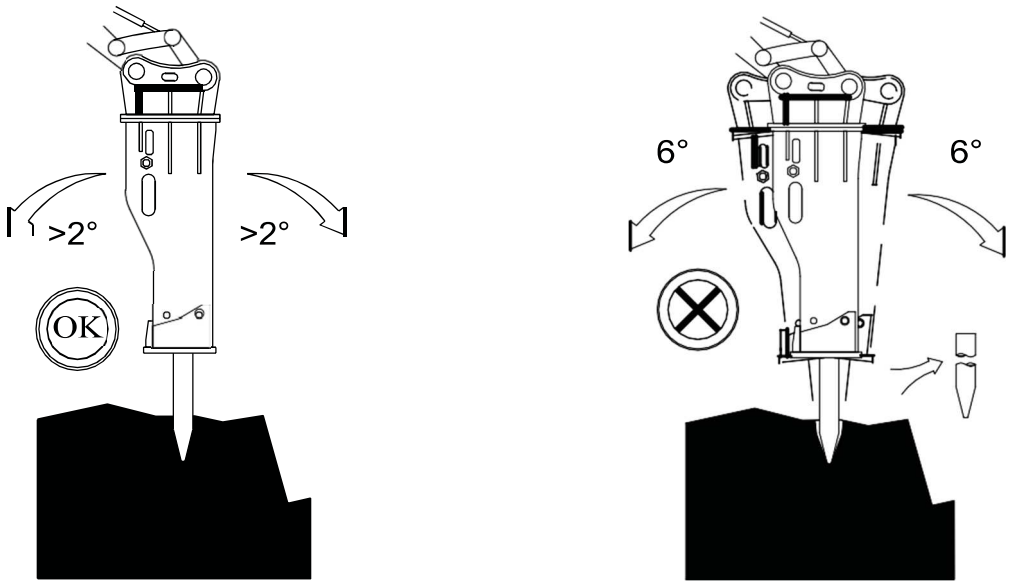


Figure 3

Push with the reinforced plate.

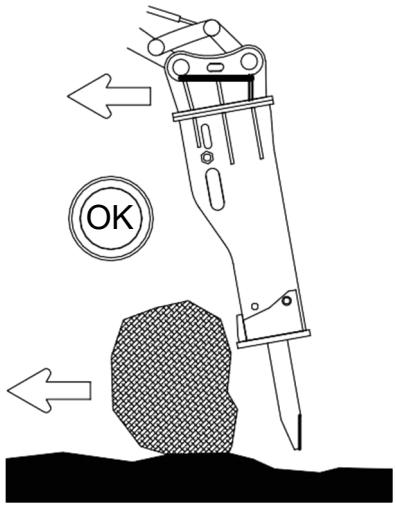


Figure 4

Do not push with tool or casing.

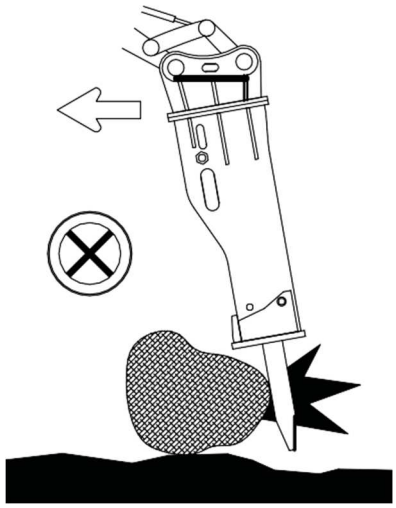


Figure 5

Do not push with tool or casing. (No warranty)

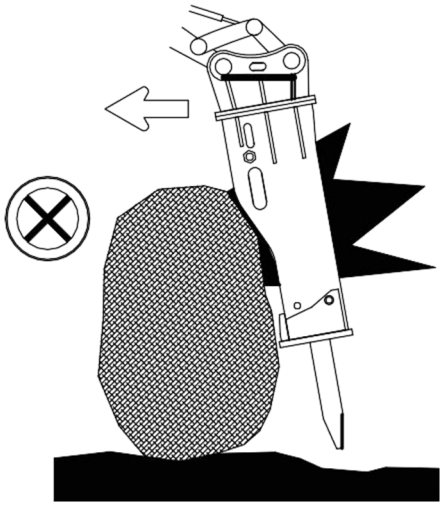


Figure 6

Push in lateral direction with the reinforced plate.

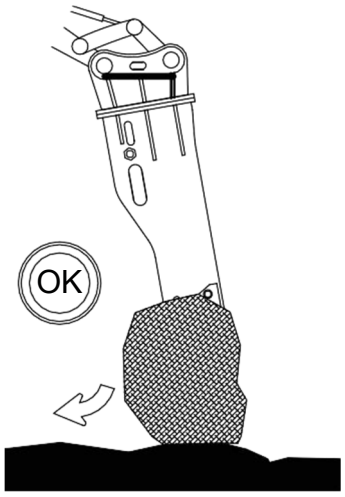


Figure 7

Do not push in lateral direction with the casing. (No warranty)

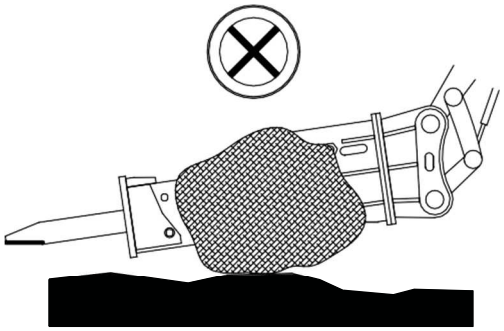


Figure 8

Cut small blocks of material.

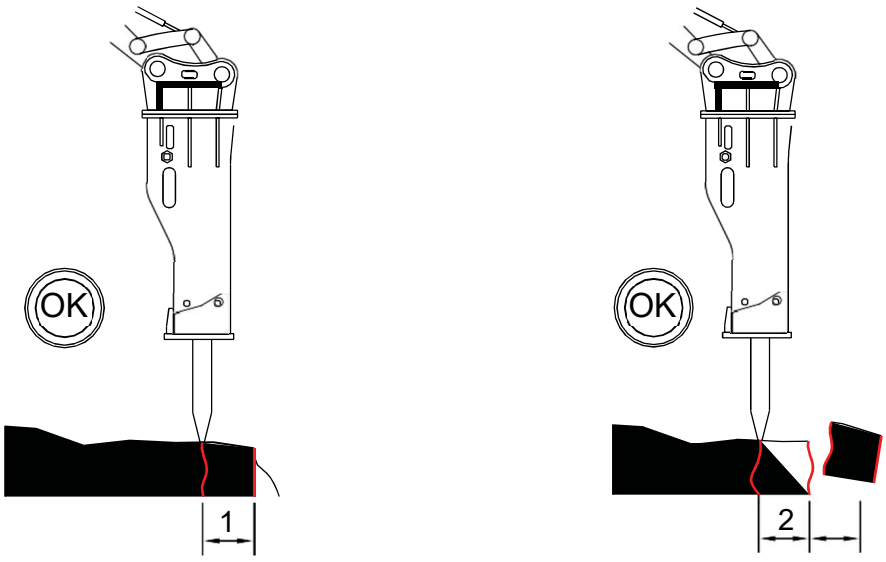


Figure 9

Do not cut big blocks of material

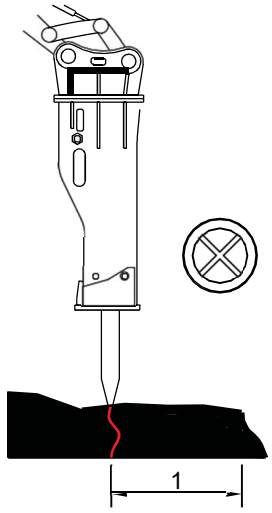


Figure 10

Make sure to keep a distance between casing and material.

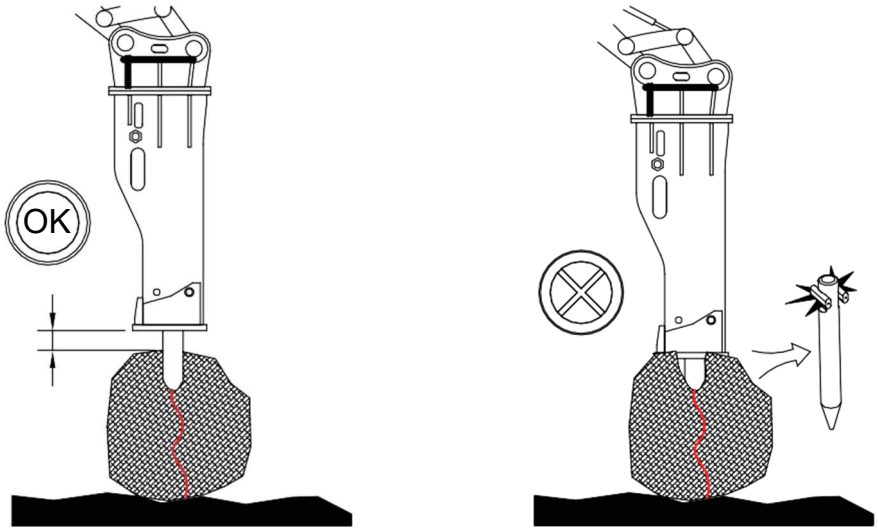


Figure 11

Work without vibration.

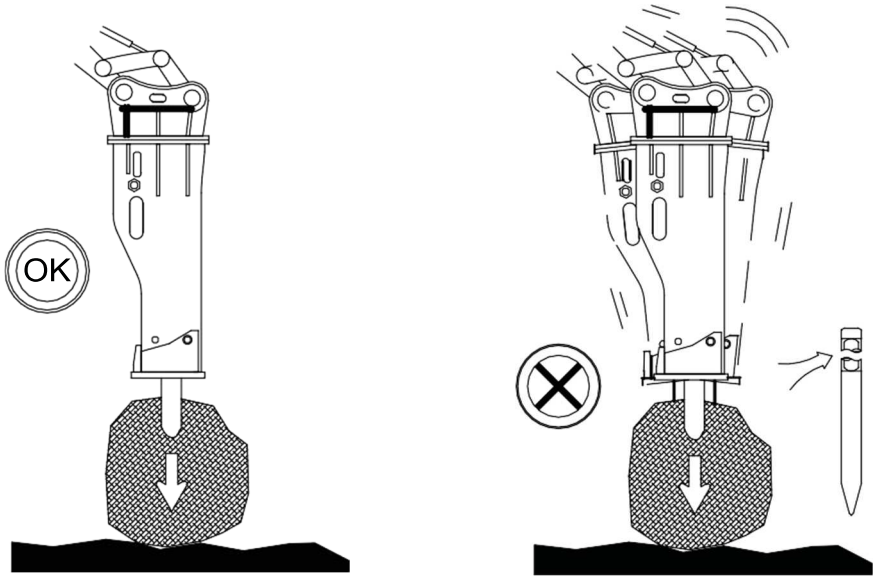


Figure 12

Avoid blank firing.

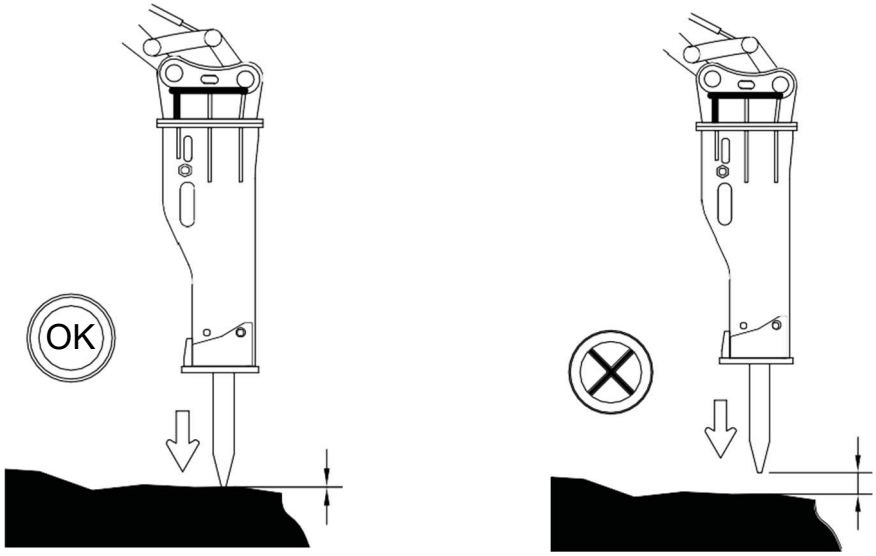


Figure 13

Stop the breaker immediately when hoses vibrate excessively.

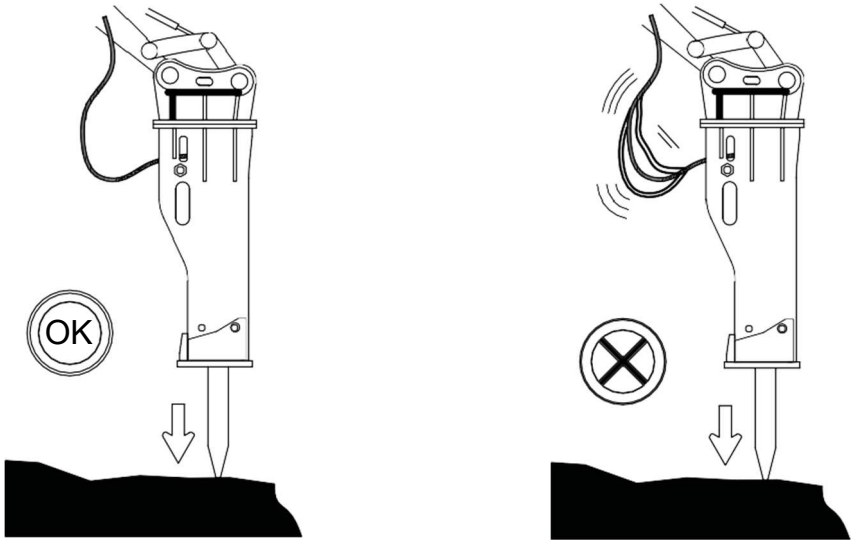


Figure 14

If piston have reached the maximum stroke, the excavator boom and arm cylinders will be damaged.

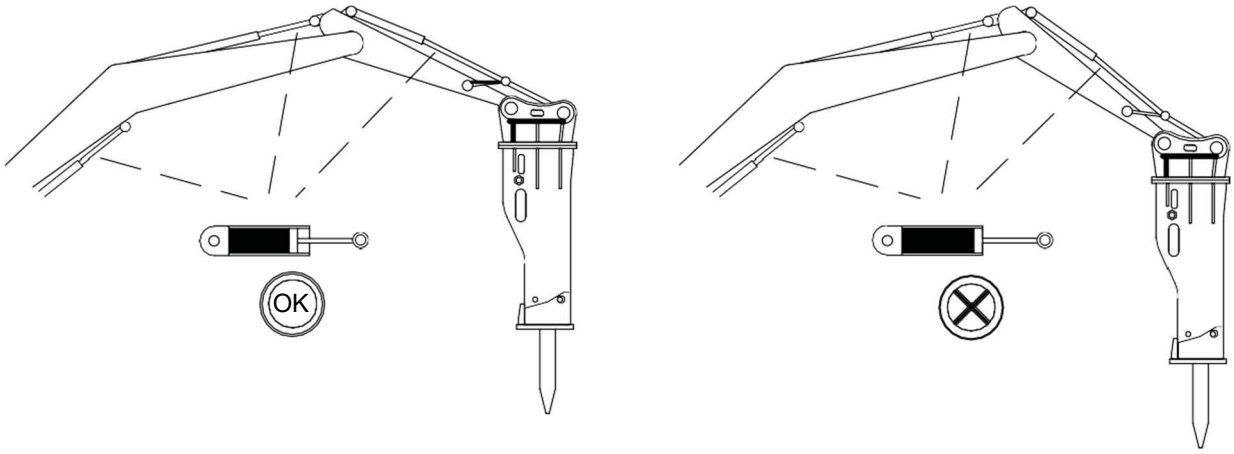


Figure 15

Working Temperature

Stop if oil temperature is too high.

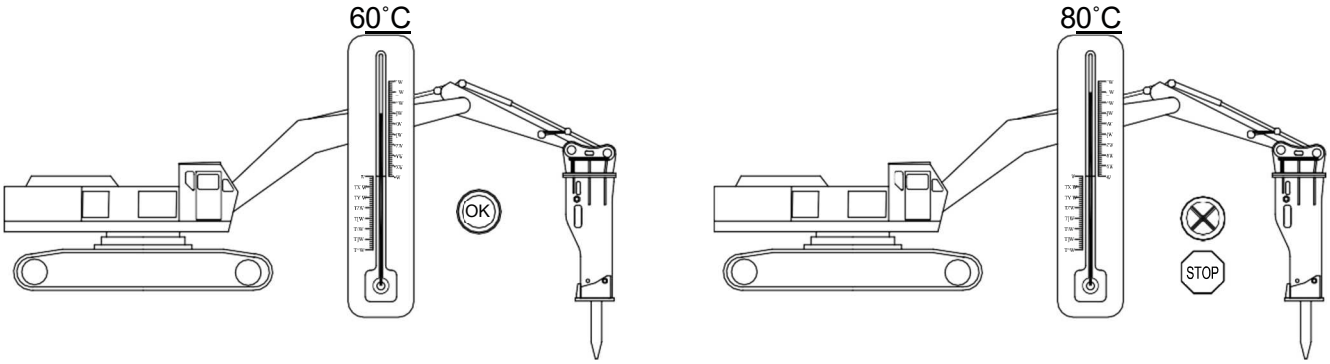


Figure 16

If the weather is too coil, don't start to work. Pre-heat the excavator oil.

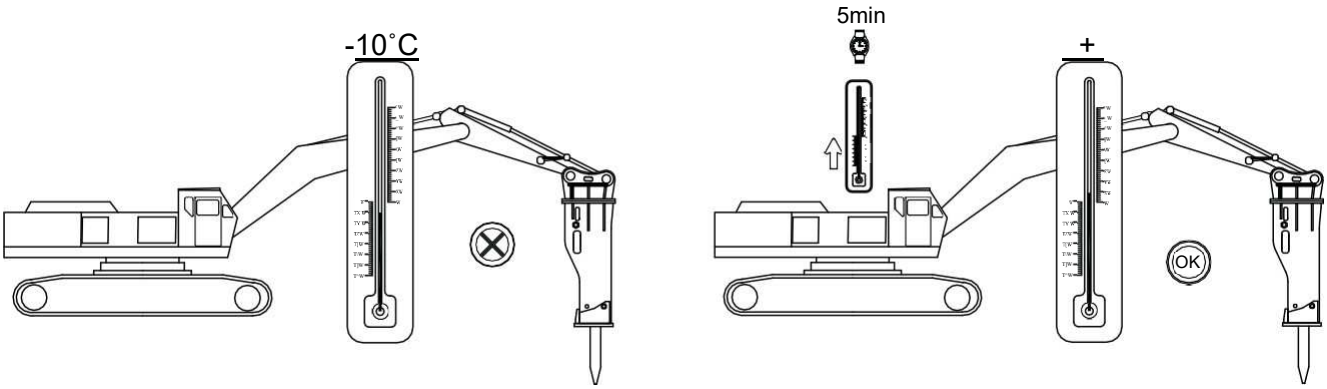


Figure 17

Never use the tool as a lever or to lift heavy loads.

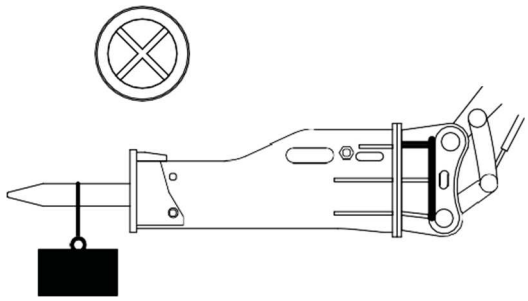


Figure 18

Do not use the breaker underwater without under water system.

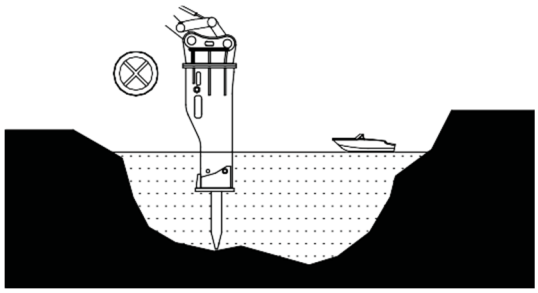


Figure 19

Impact Effect on Tool

Tool reacts differently to repeated impacts:

- When piston hits tool: compression effect
- After transmission of impact to the rock: expansion, compression or stress release

Stresses variations subject tool to fatigue. Therefore, it is recommended to replace a tool, when totally worn out, even if used correctly, rather than waiting for a fatigue failure.

Fatigue breakages occur perpendicularly to the tool axis. They develop from an incipient breakage, with progressive fissuring similarly to ripples at the surface of the water.

Comment: a similar phenomenon appears when there is a defect in steel. In this case, the fatigue lines develop from the weak point.

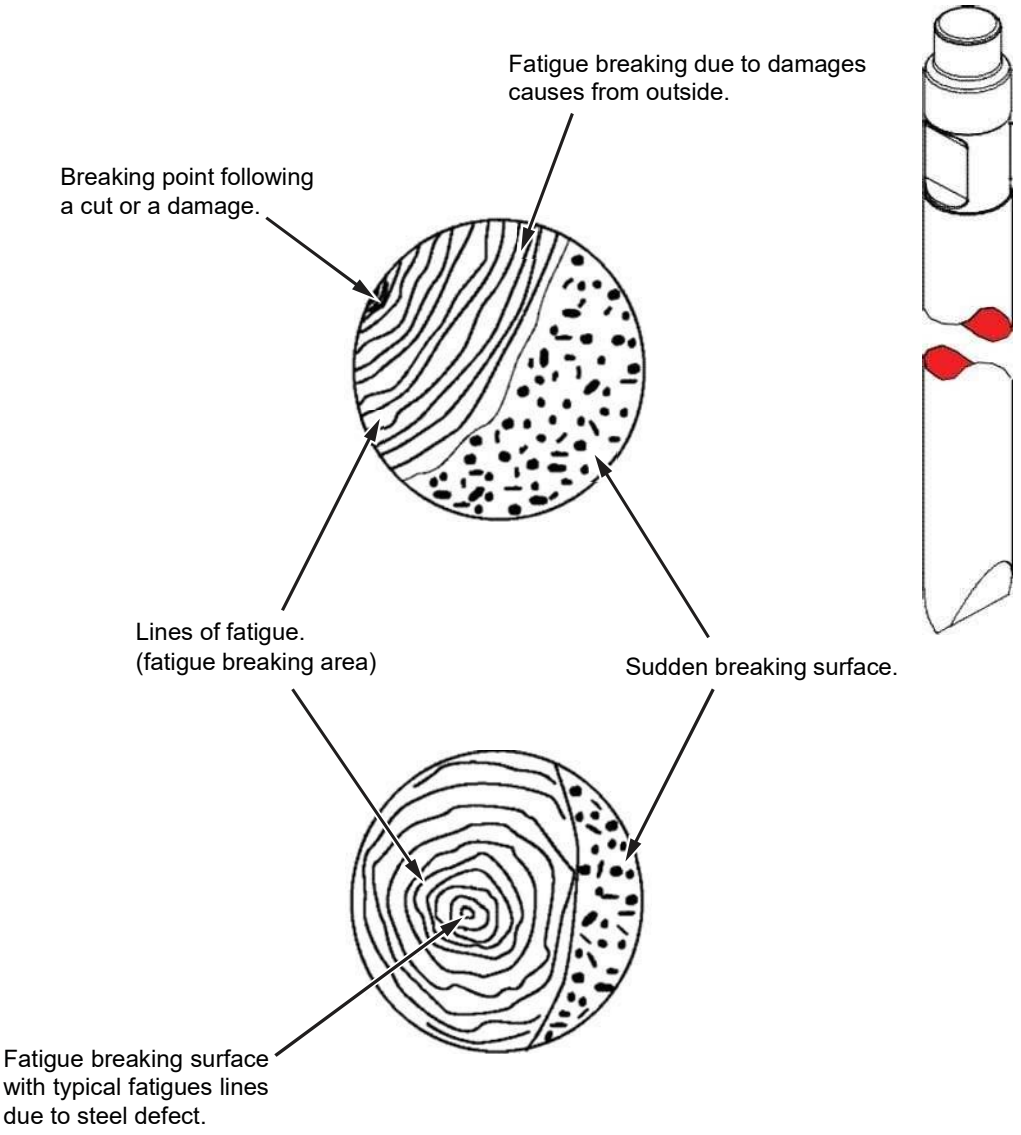


Figure 20

Origin of Breakages

WARNING

AVOID DEATH OR SERIOUS INJURY

Corrosion: Corrosion causes a superficial alteration of the steel, which may result in an incipient breakage. Tool should then be protected with grease during storage or when unused for a long time, to avoid rust formation.

WARNING

AVOID DEATH OR SERIOUS INJURY

Cold: Cold may cause brittleness of tool. (temperature lower than 5° C).
To prevent it:

- **Store tool in a temperate place**
- **Operate the breaker at a low pressure during 5 to 10 minutes to heat the tool**

Tool bending

To reduce frictions due to bending, apply sufficient pressure in the axis of the breaker and tool, and whenever possible, perpendicularly to the surface to be hit.

The breaker orientation must be constantly adjusted to keep up with tool motion or any possible tool slipping.

Tool twisting

This problem is specific to tool. When tool is in a fault or deviated by a rock, seizing may occur at the level of the retaining pins.These tool, more stressed, have generally a shorter life than standard moil point.

Nitrogen Inflating Procedure

IMPORTANT

Do not use other gas. Use N2 Gas only.

CAUTION

AVOID SERIOUS INJURY

Do not stay close to the tool, during the inflating operation.

Before inflating:
The strike piston must be imperatively in down position, the tool must not push the piston upward (contact) or, dismantle the tool.

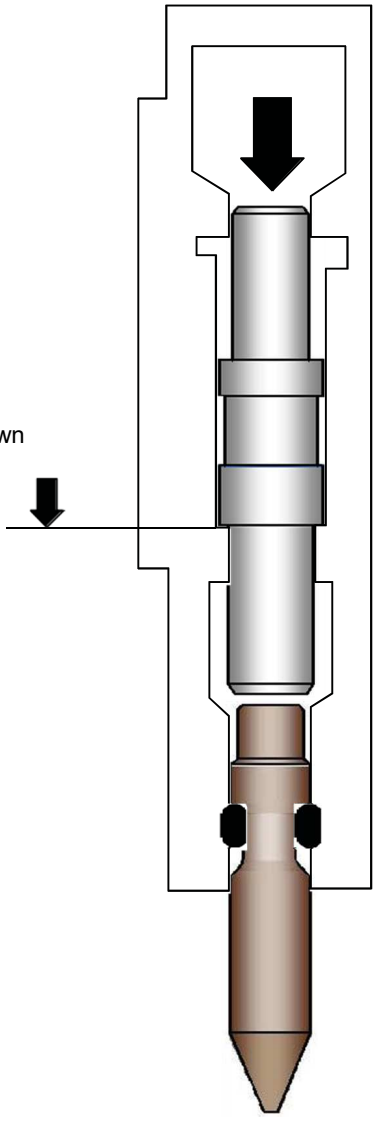


Figure 21

⚠ WARNING

AVOID DEATH OR SERIOUS INJURY

Waring Notice for N2 gas 3-way charging kit.

1. **Check the two O-Rings exists in right place.**
2. **Be sure the adapter nut (N) is locked before assemble the kit.**
3. **Be sure the release valve (RV) is locked before assemble the kit.**
4. **Check the amount of nitrogen gas remaining.**
5. **Keep fastening handle and tools always around you.**
6. **Must use the N2 charging kit for N2 charging purpose.**
7. **Avoid facing the kit when connecting the N2 cylinder and charing kit.**
8. **Check the points and maintenance.**
   - **A. Check interval valve leakage.**
   - **B. Check pressure gauge operate normally.**
   - **C. Check adapter nut (N) thread is damaged or not.**
   - **D. Check the dent on the charging kit.**

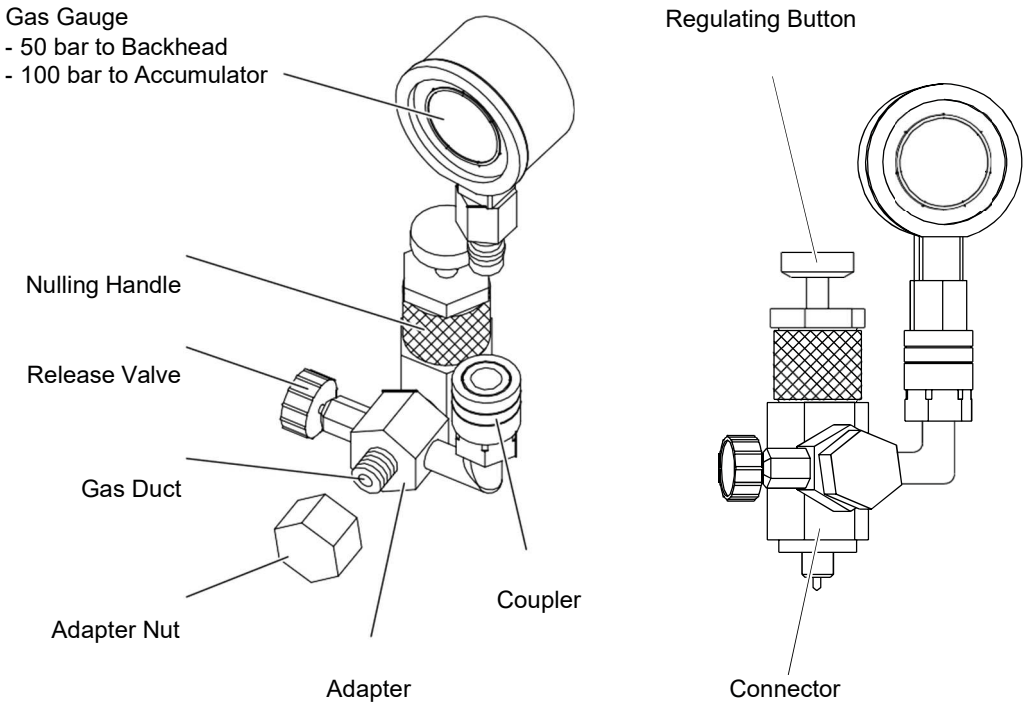


Figure 22

Charging N2 Gas Instruction - Back head

1. Assemble the 50 bar gas gauge (G).
   - Pull the coupling and assemble it

WARNING

AVOID DEATH OR SERIOUS INJURY

- **Check adapter nut (N) is be locked.**
- **Check release valve (RV) is be locked.**

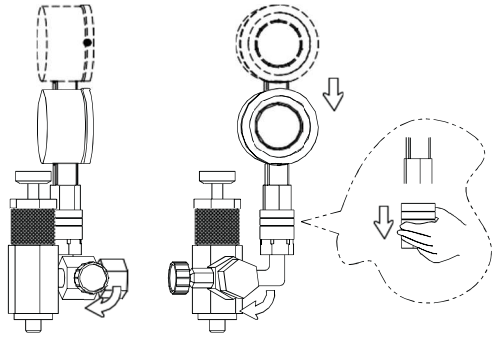


Figure 23

2. Unscrew the charging plug with 17 mm spanner.

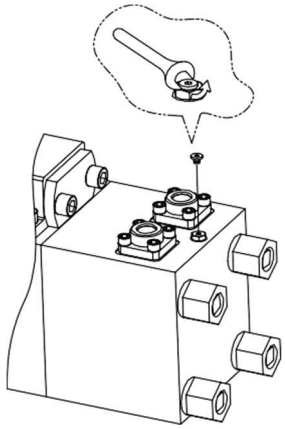


Figure 24

3. Assemble the charging kit on the back head byhand.
   - Use the knurling to lock tightly with your hands.

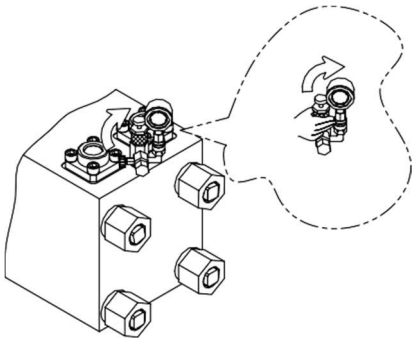


Figure 25

4. Press regulating button (RB) to check remaining nitrogen gas.
   - Check adapter nut (N) is be locked.
   - Check release valve (RV) is be locked.

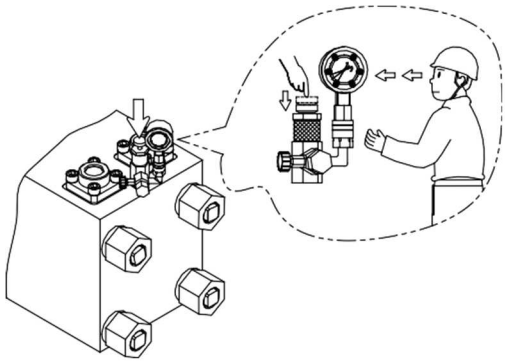


Figure 26

5. If there is no nitrogen gas, remove the adapter nut (N) with 22 mm spanner.

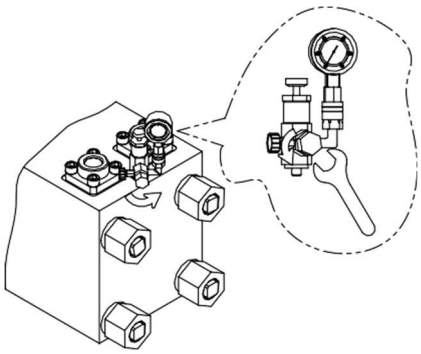


Figure 27

6. Connect the nitrogen cylinder to the hose with 30 mm spanner.

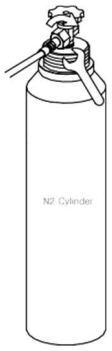


Figure 28

7. Connect the charging kit to the hose with 22 mm spanner.

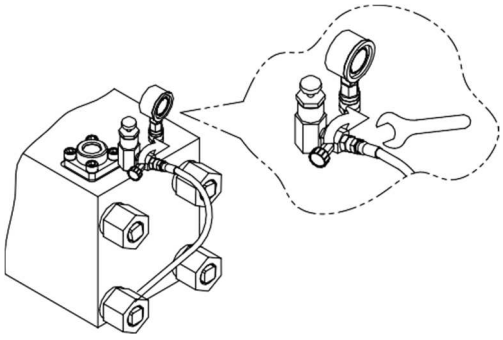


Figure 29

8. Turn counterclockwise the nitrogen cylinder handle slowly.

WARNING

AVOID DEATH OR SERIOUS INJURY

- **If you turn fast, you risk exploding.**
- **Keep your eyes on the gas gauge (G).**

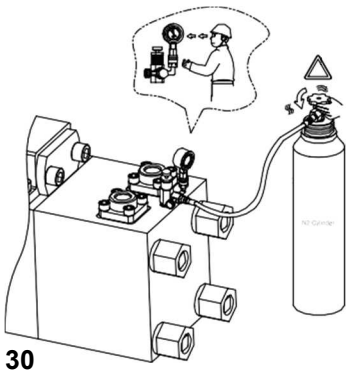


Figure 30

9. When the nitrogen gas reaches the setting pressure, turn and lock the nitrogen cylinder handle.
   - Keep your eyes on the gas gauge (G).

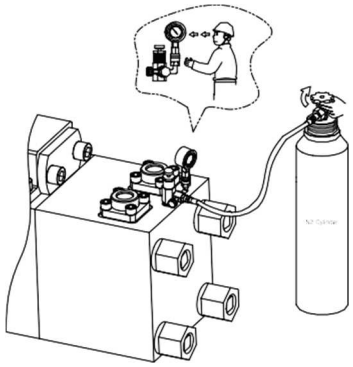


Figure 31

10. Turn counterclockwise the release valve (RV) for residual pressure removal.

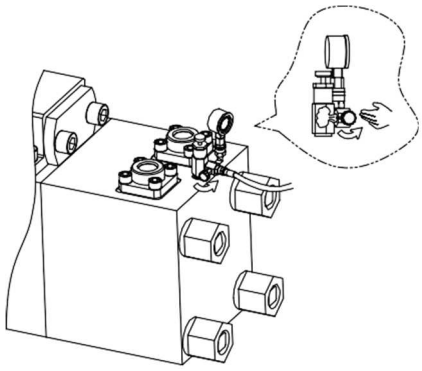


Figure 32

11. Disconnect the hose from the charging valve and nitrogen cylinder.

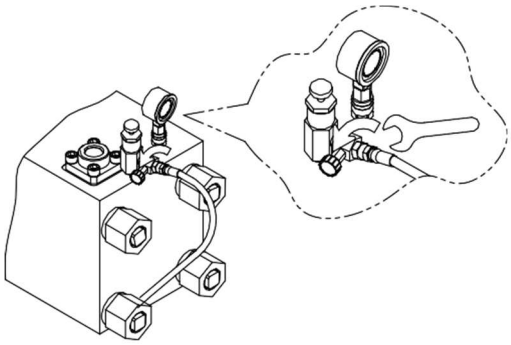


Figure 33

12. Be fasten the adapter nut (N).

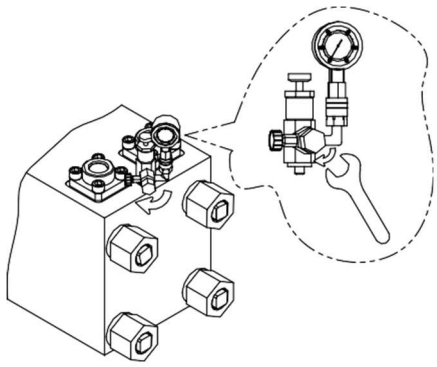


Figure 34

13. Be fasten the release valve (RV).

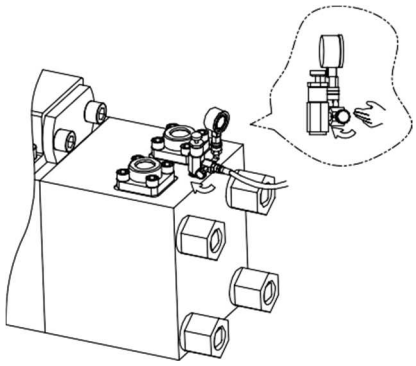


Figure 35

14. With the regulating button (RB) pressed, loosen the release valve (RV) gradually to adjust the specific pressure.
    - Do not loosen the release valve (RV) quickly.
    - Keep your eyes on the gas gauge (G).

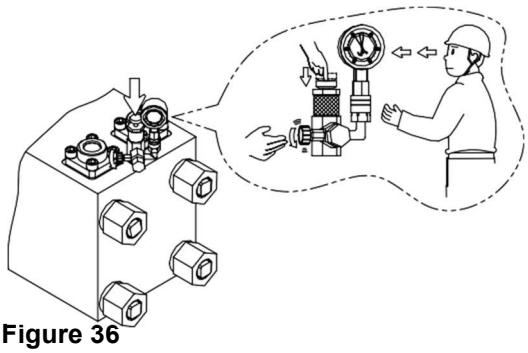


Figure 36

15. When setting is completed, loosen the release valve (RV) to remove residual pressure.

⚠ WARNING

AVOID DEATH OR SERIOUS INJURY

- **During in this working, the button must be not pressed.**

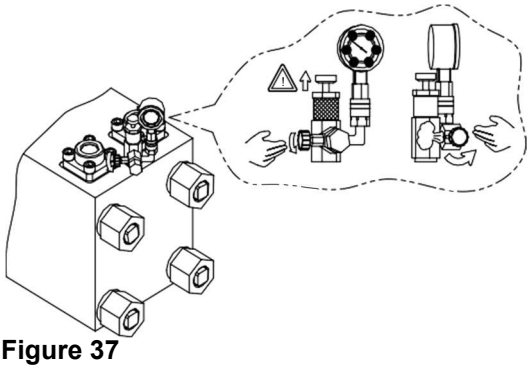


Figure 37

16. Disassemble the charging kit on the back head by hand.

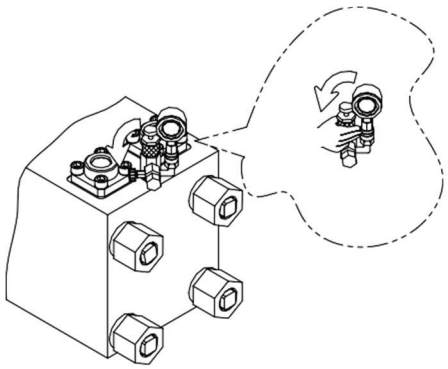


Figure 38

17. Screw and lock the charging plug.

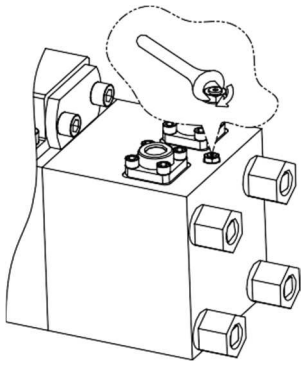


Figure 39

Back Head Inflating Table

(Unit: kg/cm^2)

Model	HTB220
Back head Gas Pressure	6

Depends on the temperature of the back head surface.

(Unit: kg/cm^2)

Temperature (°C)	Pressure
	HTB220
-10	5.1
0	5.4
10	5.7
20	6
30	6.3
40	6.6
50	6.9
60	7.2
70	7.5

Charging N2 Gas Instruction - Accumulator

1. Assemble the 100 bar gas gauge (G).
   - Pull the coupling and assemble it

WARNING

AVOID DEATH OR SERIOUS INJURY

- **Check adapter nut (N) is be locked.**
- **Check release valve (RV) is be locked.**
- **There is a risk of explosion if you don't use a 100 bar gauge.**

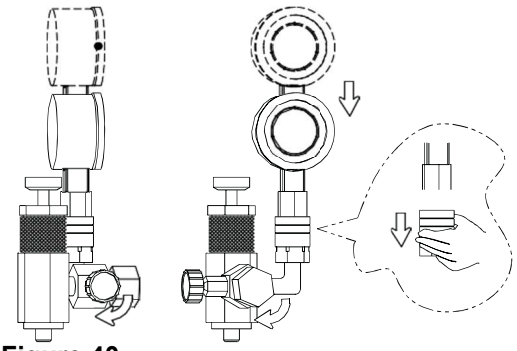


Figure 40

2. Unscrew the plug with 22 mm spanner

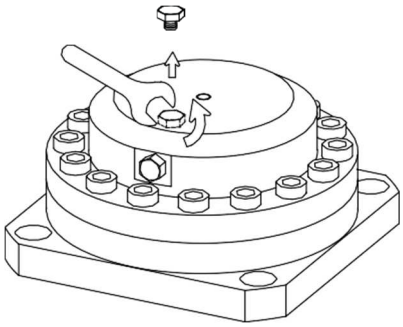


Figure 41

3. Assemble the charging kit on the accumulator by hand.
   - Use the knurling to lock tightly with your hands.

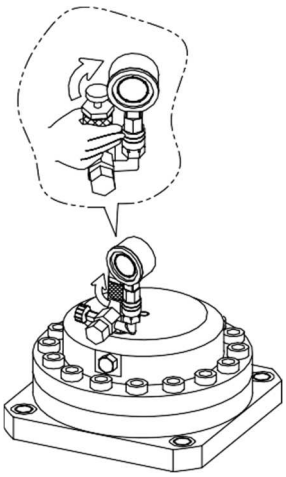


Figure 42

4. Unscrew the accumulator adjust nut with 22 mm spanner.

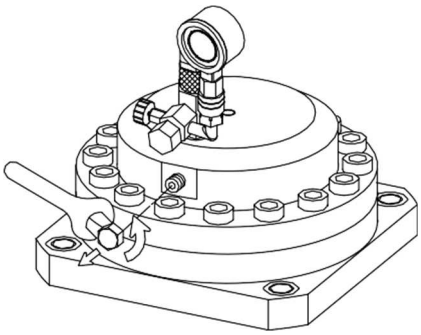


Figure 43

5. Turn the accumulator adjust in the counterclockwise direction with 5 mm L-wrench. (1/2 ~ 1 turn)

WARNING

AVOID DEATH OR SERIOUS INJURY

- **Do not turn the accumulator adjust over 1 turn. There is a possibility that if you turn it over than1 turn, you will be serious injured.**

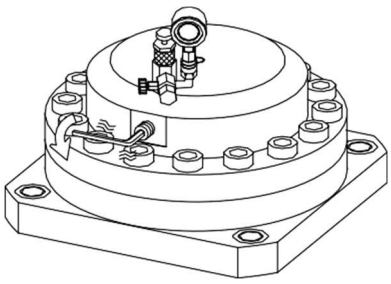


Figure 44

6. Press regulating button (RB) to check remaining nitrogen gas.
   - Check adapter nut (N) is be locked.
   - Check release valve (RV) is be locked.

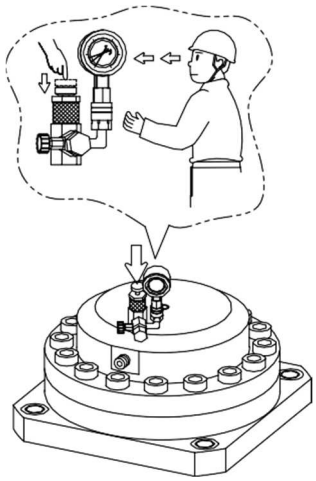


Figure 45

7. If there is no nitrogen gas, remove the adapter nut (N) with 22 mm spanner.

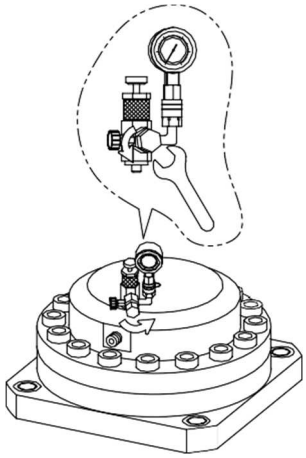


Figure 46

8. Connect the nitrogen cylinder to the hose with 30 mm spanner.

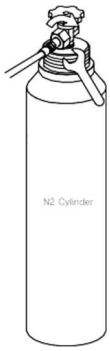


Figure 47

9. Connect the charging kit to the hose with 22 mm spanner.

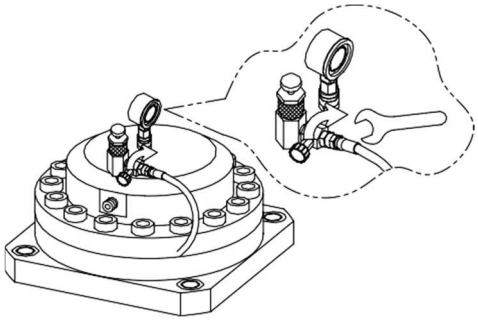


Figure 48

10. Turn counterclockwise the nitrogen cylinder handle slowly.

WARNING

AVOID DEATH OR SERIOUS INJURY

- **If you turn fast, you risk exploding.**
- **Keep your eyes on the gas gauge (G).**

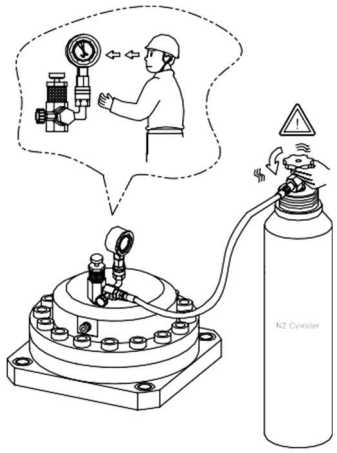


Figure 49

11. When the nitrogen gas reaches the setting pressure, turn and lock the nitrogen cylinder handle.
    - Keep your eyes on the gas gauge (G).

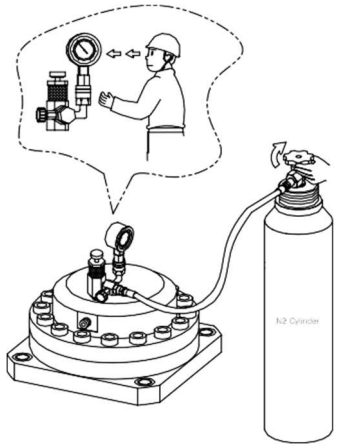


Figure 50

12. Turn counterclockwise the release valve (RV) for residual pressure removal.

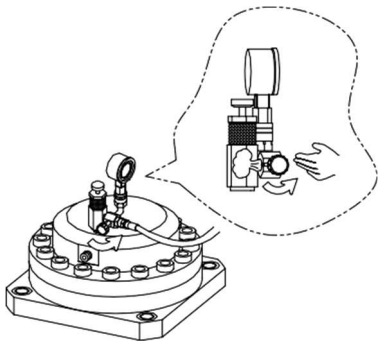


Figure 51

13. Disconnect the hose from the charging valve and nitrogen cylinder.

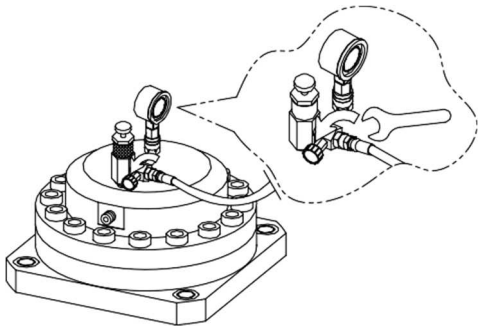


Figure 52

14. Be fasten the adapter nut (N).

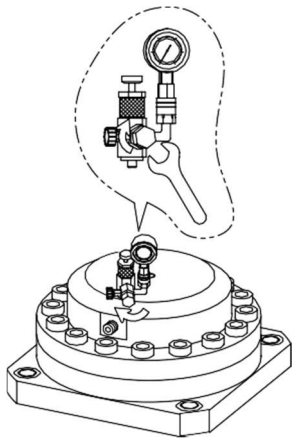


Figure 53

15. Be fasten the release valve (RV).

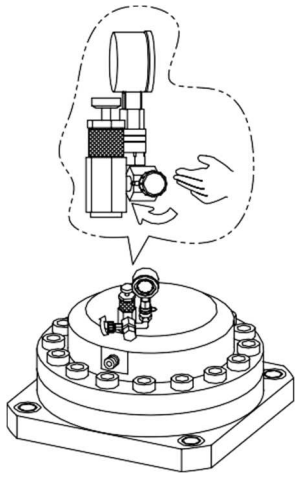


Figure 54

16. With the regulating button (RB) pressed, loosen the release valve (RV) gradually to adjust the specific pressure.
    - Do not loosen the release valve (RV) quickly.
    - Keep your eyes on the gas gauge (G).

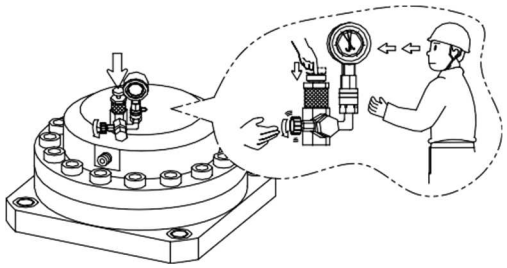


Figure 55

17. When setting is completed, loosen the release valve (RV) to remove residual pressure.

WARNING

AVOID DEATH OR SERIOUS INJURY

- **During in this working, the button must be not pressed.**

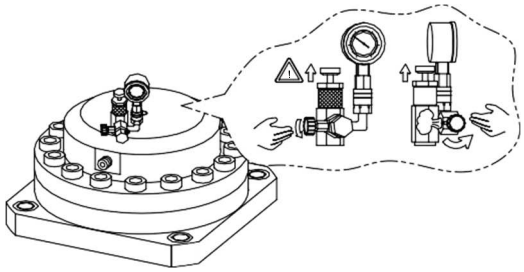


Figure 56

18. Turn the accumulator adjust in the clockwise direction for lock.

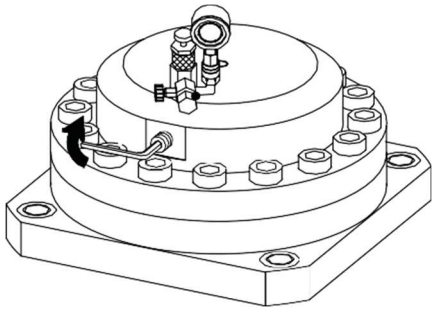


Figure 57

19. Screw the nut for lock.

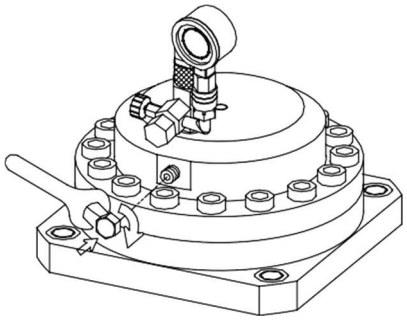


Figure 58

20. Disassemble the charging kit on the back head by hand.

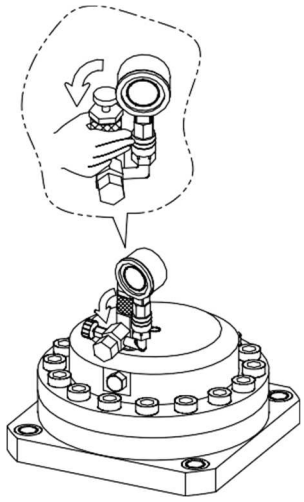


Figure 59

21. Be fasten the plug.

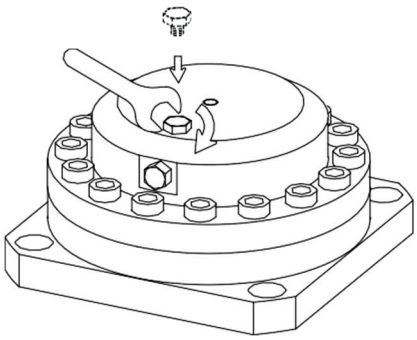


Figure 60

Accumulator Inflating Table

(Unit: kg/cm^2)

Model	HTB220
Accumulator Gas Pressure	58

Depends on the temperature of the accumulator surface.

(Unit: kg/cm^2)

Temperature (°C)	Pressure
	HTB220
-10	50
0	52
10	55
20	58
30	60
40	62
50	65
60	66
70	68

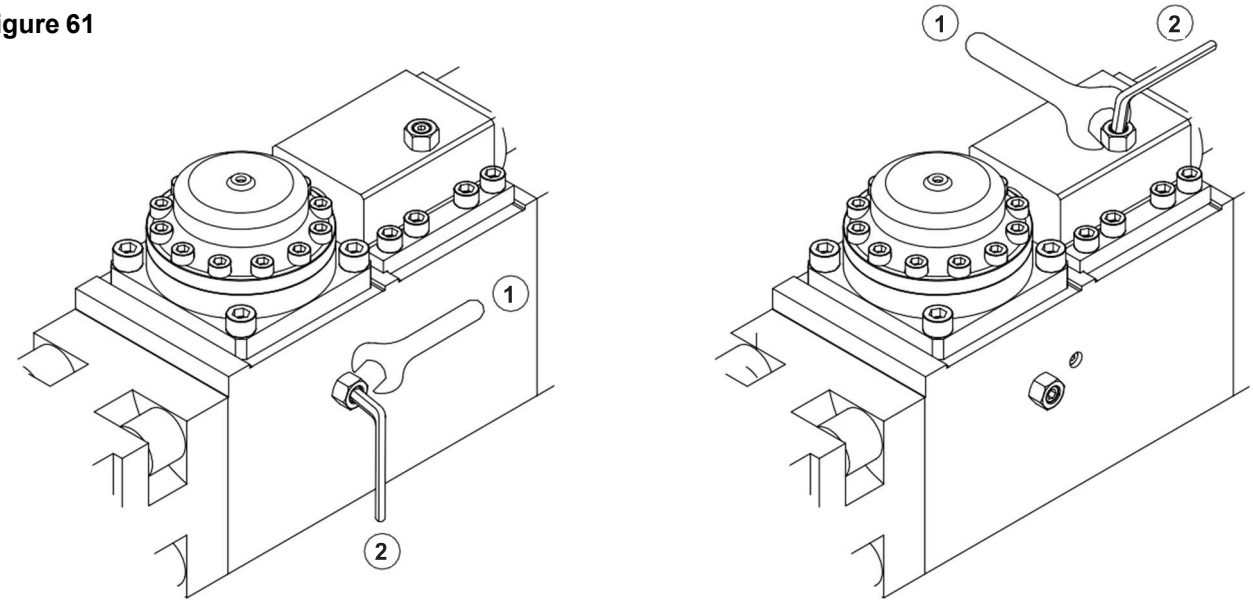
Stroke Adjustment

WARNING

AVOID DEATH OR SERIOUS INJURY

- **Do not turn over 2 turns in the counterclockwise direction.**
- **It can be exploded and got serious injured or die.**

Figure 61



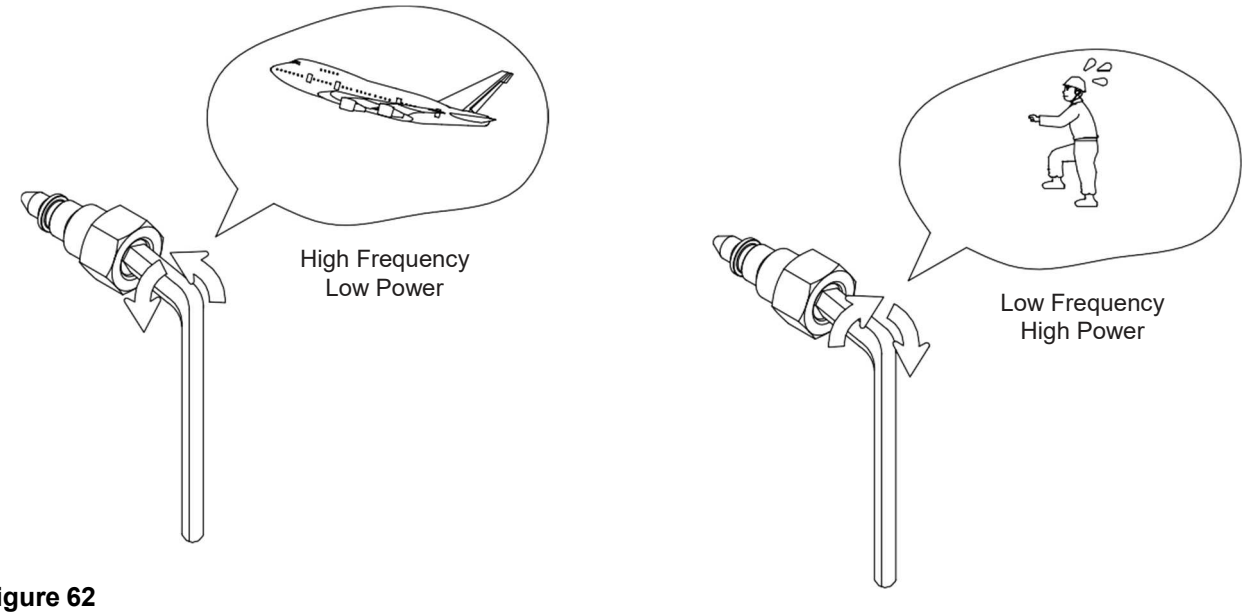


Figure 62

Front Cover Removement

WARNING

AVOID DEATH OR SERIOUS INJURY

- **Must be removed first the tool and tool pins.**

1. Remove the snap rings with snap ring plier.

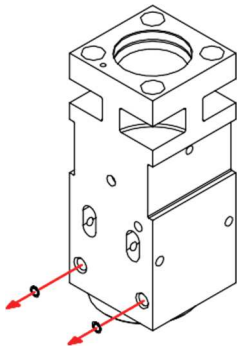


Figure 63

2. Remove the rubber plugs with snap ring plier or visepliers.

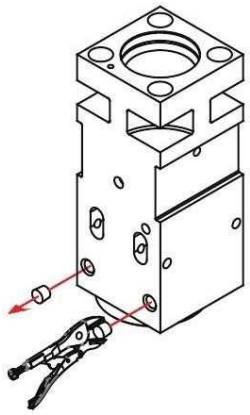


Figure 64

3. Remove the stop pins from the opposite side with hammer

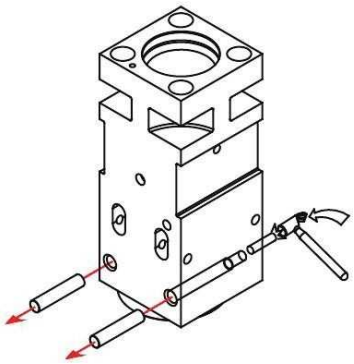


Figure 65

4. Lay the jig_a up as shown in the fig.4

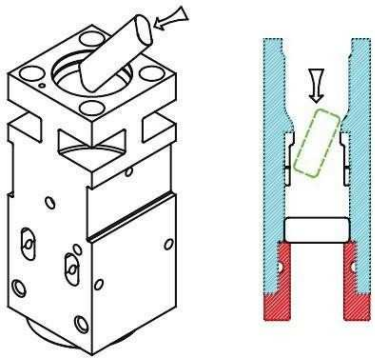


Figure 66

5. Lay the jig_b up as shown in the fig.5

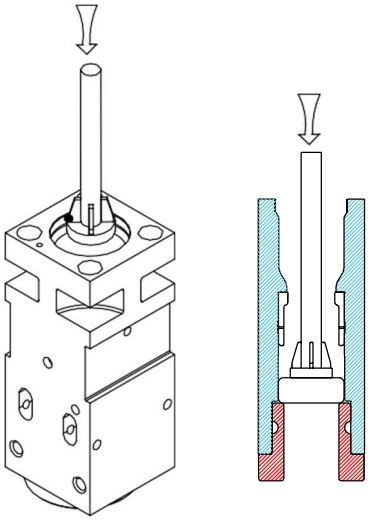


Figure 67

6. Hit the jig_b hard with a hammer until remove the front cover.

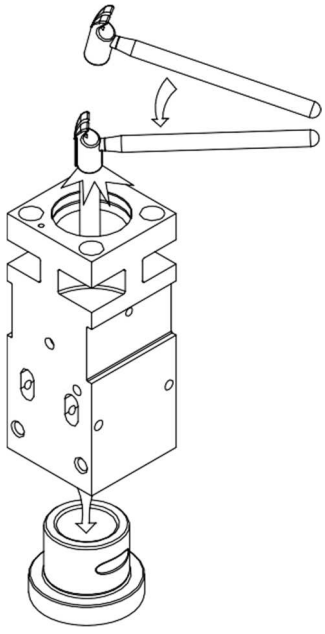


Figure 68

Innerbush Removement

WARNING

AVOID DEATH OR SERIOUS INJURY

- **Must be removed first the tool and tool pins.**

1. Remove the rubber plug with snap ring plier or vise pliers.

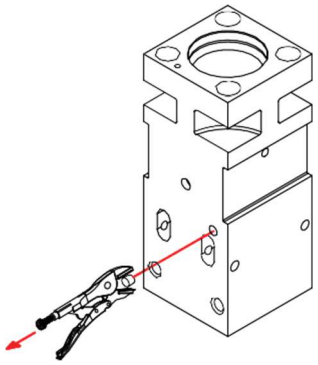


Figure 69

2. Remove the stop pin from the opposite side with hammer.

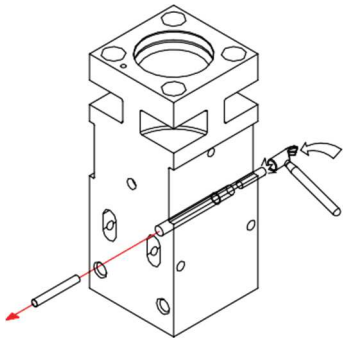


Figure 70

3. Lay the jig_c up as shown in the fig.9

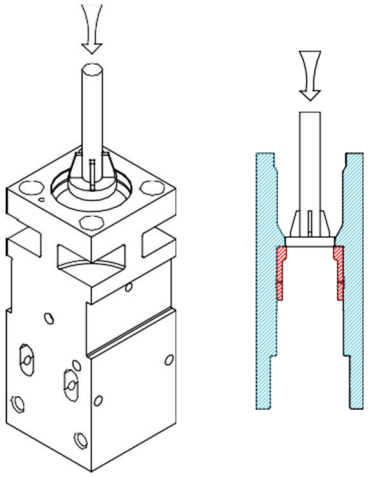


Figure 71

4. Hit the jig_c hard with a hammer until remove the innerbush.

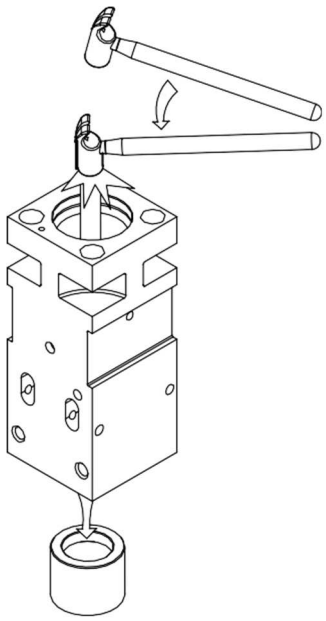


Figure 72

Innerbush Assembly

WARNING

AVOID DEATH OR SERIOUS INJURY

- **Must be removed first the tool and tool pins.**

1. Insert the innerbush in the front head as shown in fig.11

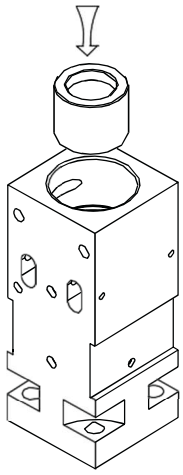


Figure 73

2. Lay the jig_d up as shown in the fig.12

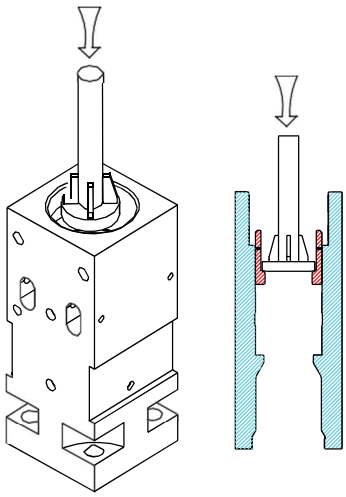


Figure 74

3. Hit the jig_d hard with a hammer until innerbush is fully assembled.

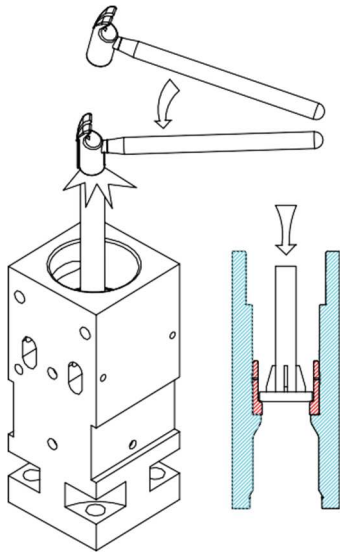


Figure 75

4. Insert the stop pin in a hole like fig.14

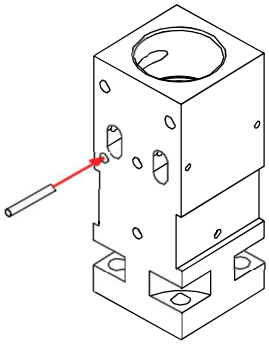


Figure 76

5. Assemble the rubber plug in a hole like fig.5 with snap ring plier or vise pliers.

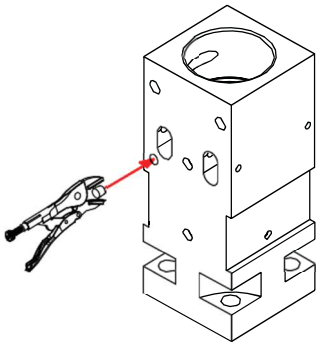


Figure 77

Frontcover Assembly

WARNING

AVOID DEATH OR SERIOUS INJURY

- **Must be innerbush assembled first.**

1. Insert the front cover in the front head as shown in fig.16

   At this time, be careful about the right angle between the front head pin holes and the front cover pin holes.

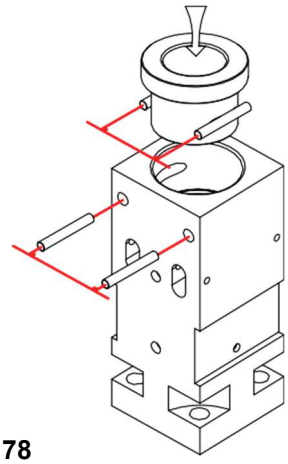


Figure 78

2. Lay the jig_e up as shown in the fig.17

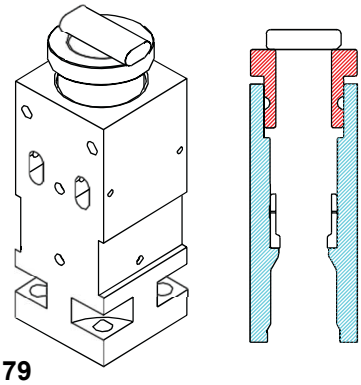


Figure 79

3. Hit the jig_e hard with a hammer until front cover in fully assembled.

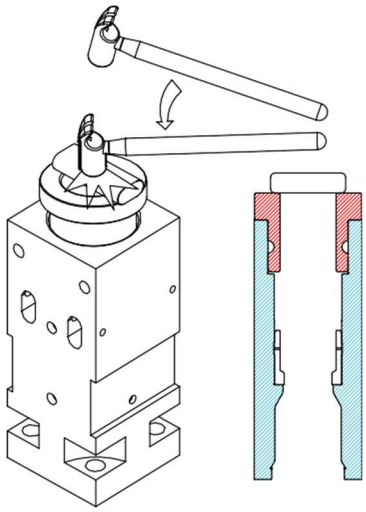


Figure 80

4. Insert the stop pins in holes like fig.19

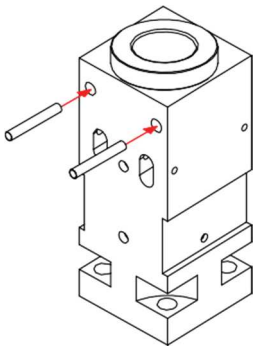


Figure 81

5. Assemble the rubber plugs in holes like fig.20 with snap ring plier or vise pliers.

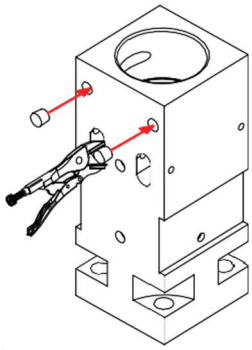


Figure 82

6. Assemble the snap rings in holes like fig.21 with snap ring plier.

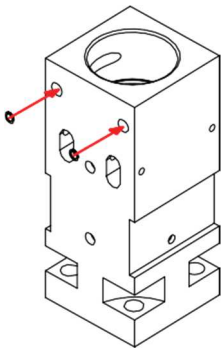
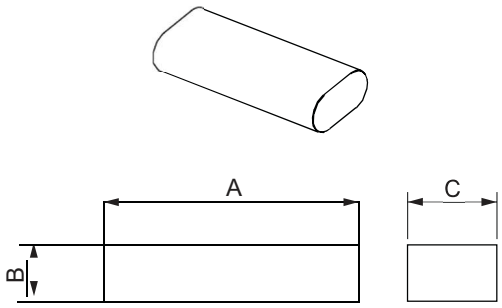


Figure 83

Front Cover & Innerbush Removement Tools

Unit: mm

Jig_a	A	B	C
HTB220	160	40	60



Unit: mm

Jig_b	A	B	C
HTB220	110	30	700

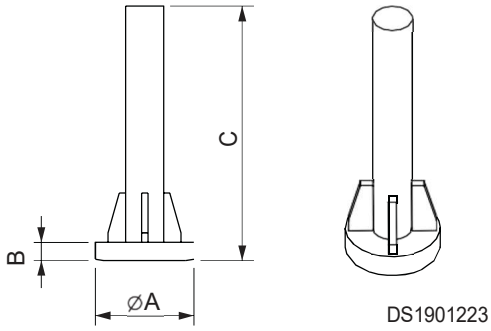


Figure 85

Unit: mm

Jig_c	A	B	C
HTB220	118	30	250

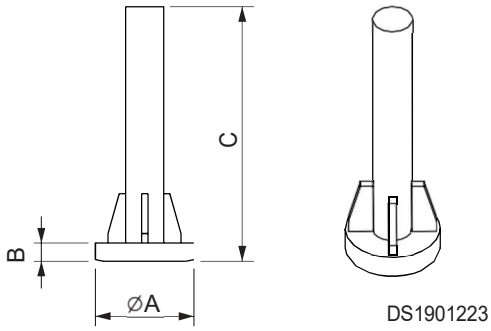


Figure 86

Front Cover & Innerbush Assembly Tools

Unit: mm

Jig_d	A	B	C
HTB220	135	30	380

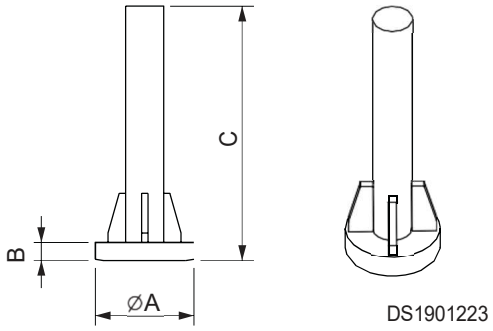


Figure 87

Unit: mm

Jig_e	A	B	C
HTB220	300	40	60

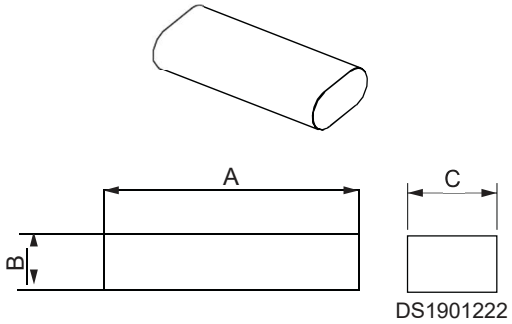


Figure 88

External Dimensions

Top Type Dimension

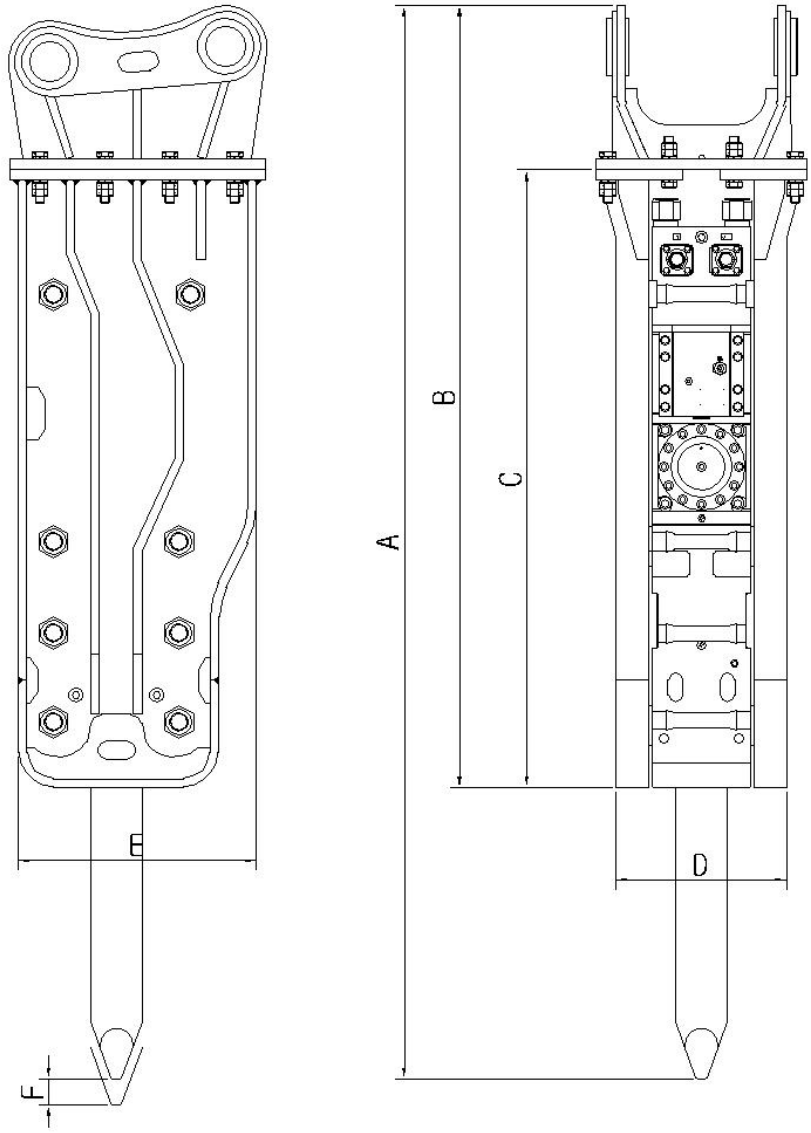


Figure 2

(Unit: mm)

Model	A	B	C	D	E	F
HTB220	2,820	2,060	1,625	447	625	75

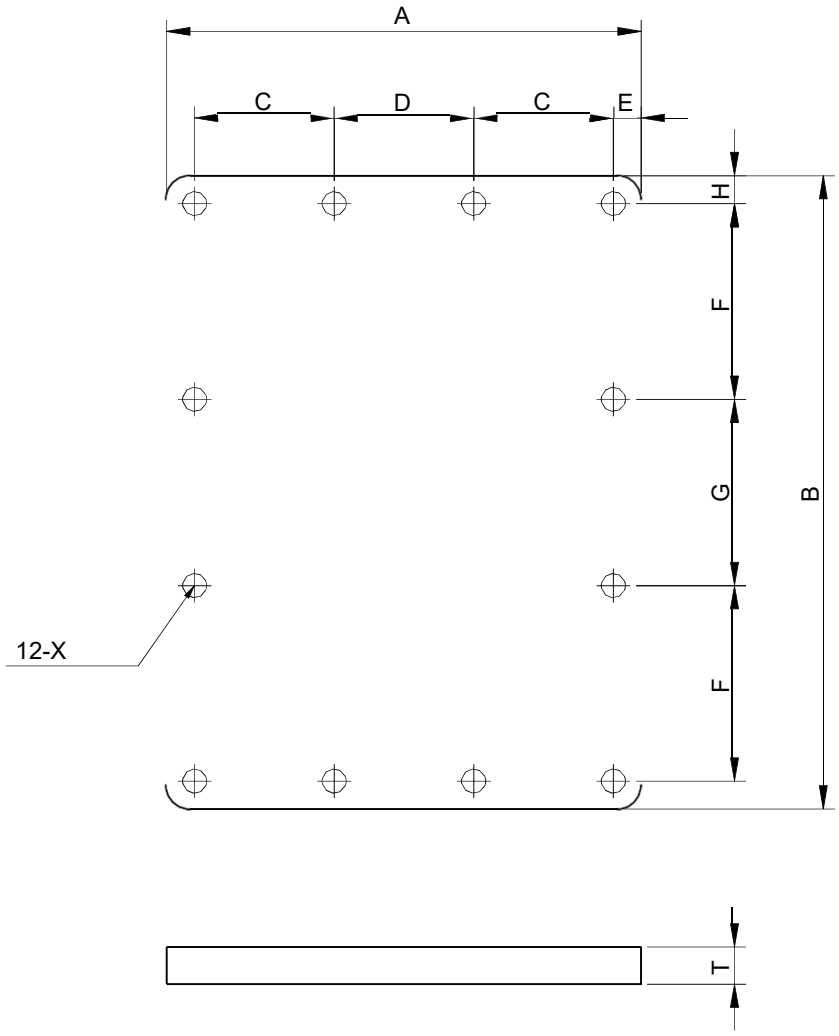


Figure 5

(Unit: mm)

Model	Type	A	B	C	D	E
HTB220	Top	550	670	160	170	30

Model	Type	F	G	H	T	X
HTB220	Top	170	170	30	27	26

Torque

Through Bolt

Unit: Nm

Model	HTB220
Torque	2719

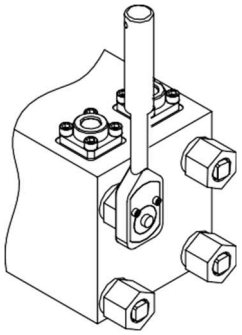


Figure 1

Mountcap Bolt

Unit: Nm

Model	HTB220
Torque	690

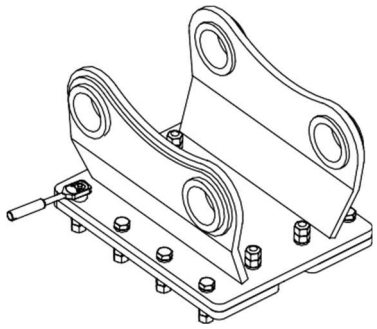


Figure 2

Accumulator Body Bolt

Unit: Nm

Model	HTB220
Torque	1300

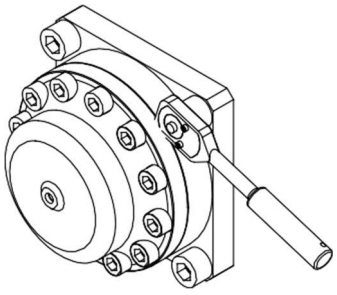


Figure 3

Accumulator Cover Bolt

Unit: Nm

Model	HTB220
Torque	805

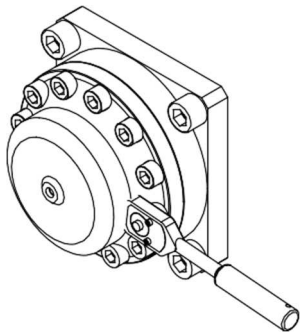


Figure 4

Valve Housing Bolt

Unit: Nm

Model	HTB220
Torque	1000

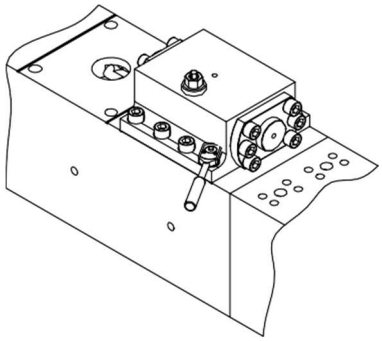


Figure 5

Valve Cover_A Bolt

Unit: Nm

Model	HTB220
Torque	855

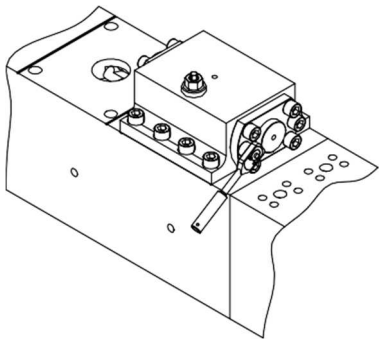


Figure 6

Valve Cover_B Bolt

Unit: Nm

Model	HTB220
Torque	-

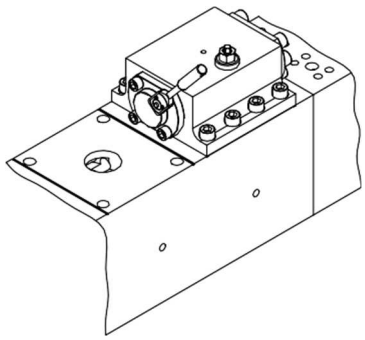


Figure 7

Bracket Side Bolt

Unit: Nm

Model	HTB220
Torque	2719

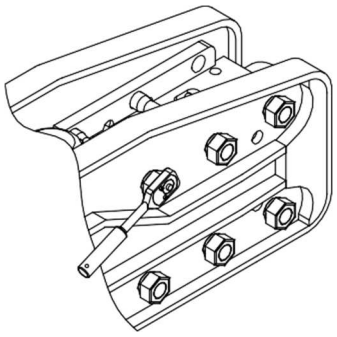


Figure 8

Maintenance and Trouble Shooting

Maintenance Schedule

Description		Substance
Every 2 hours		• Greasing on fronthead for tool, and tool pin. • Check hydraulic oil temperature. • Check hose and piping connection.
Every day	Every 10 hours	• Check oil leakage. • Check the tool and tool pins surface.
Every week	Every 50 hours	• Check gas pressure. • Check the side dampers and upper/lower damper's thickness. • Check each bolts tightening torque.
Every 4 weeks	Every 200 hours	• Check the clearance between tool and tool pins. • Check the clearance between tool and front cover.
Every 6 month	Every 1,000 hours	• Change the seals. • Change accumulator diaphragm. • Factory inspection by authorized service personnel recommended.

Wear Limit of Parts

1. Front Cover

(Unit: mm)

Model	New Part (A)	Usage Limit (B)
HTB220	135	141

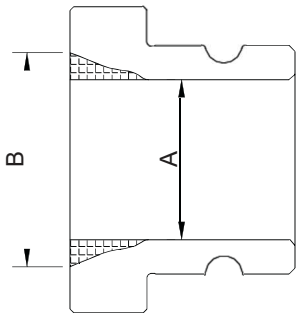


Figure 1

2. Tool Pin

(Unit: mm)

Model	New Part (A)	Usage Limit (B)
HTB220	80	77

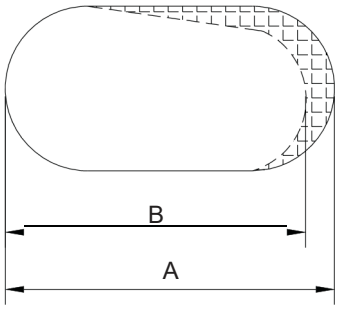


Figure 2

3. Tool

(Unit: mm)

Model	New Part (A)	Usage Limit (B)
HTB220	765	450

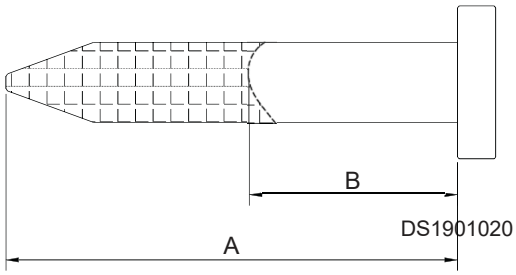
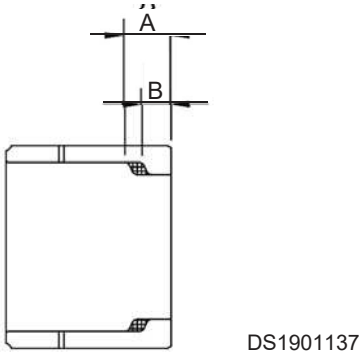


Figure 3

4. Innerbush

(Unit: mm)

Model	New Part (A)	Usage Limit (B)
HTB220	34	31



Trouble Shooting

1. The breaker does not work.

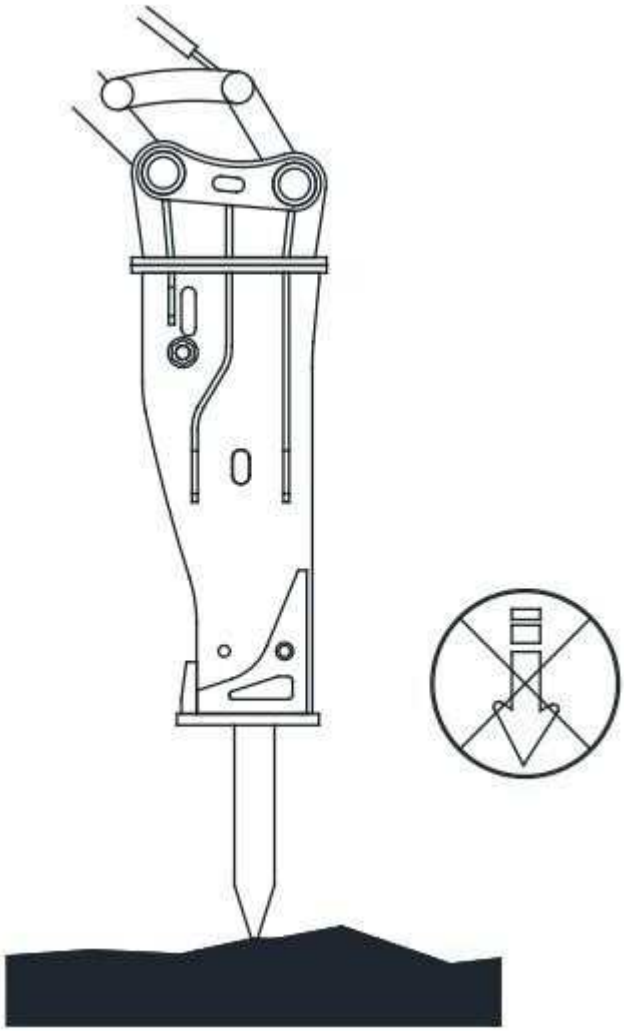


Figure 5

Condition	Cause	Solution
Does not work	Pressure and return line mixed up	Connect breaker hoses correctly
	Ball valves on pressure and / or return lines closed	Open valves
	Oil level in tank to low	Check and refill oil
	Abnormal performance of hydraulic pump	Repair and replace
	Pressure relief valve set too low	Check and refill oil
	Failure on the breaker	Check if the piston moves

2. Too low impact power of breaker.

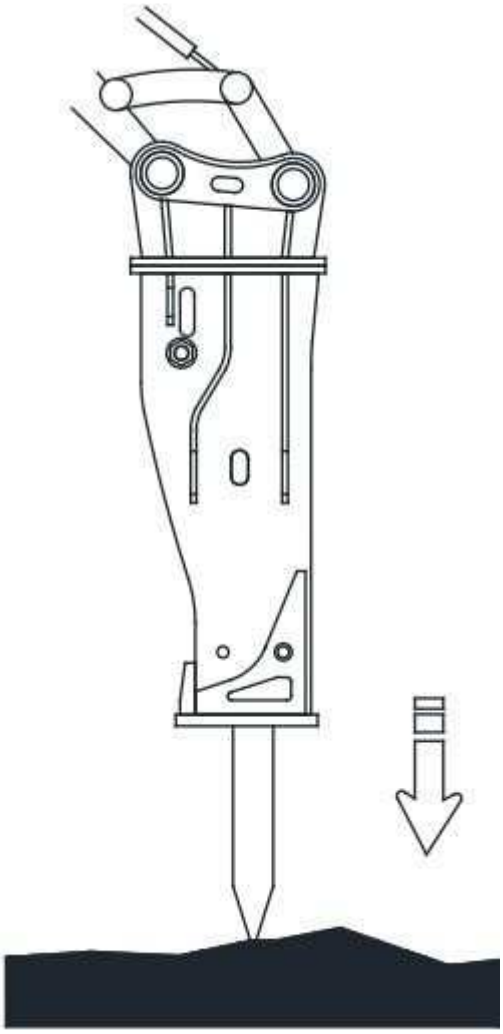


Figure 6

Condition	Cause	Solution
Lack of power	Insufficient oil flow and pressure	Check hydraulic of the excavator
	Flow resistance to high in return line	Check coupling, oil filter, cooler and return line diameter
	Hydraulic oil delivery (flow, pressure) from carrier not conform	Check engine speed
	Relief valve setted too low	Adjustment of the setting
	Breken tool	Replace tool and check piston damage
	Gas pressure in backhead too high or too low	Check gas pressure and reset to correct value

3. Abnormal operating of breaker.

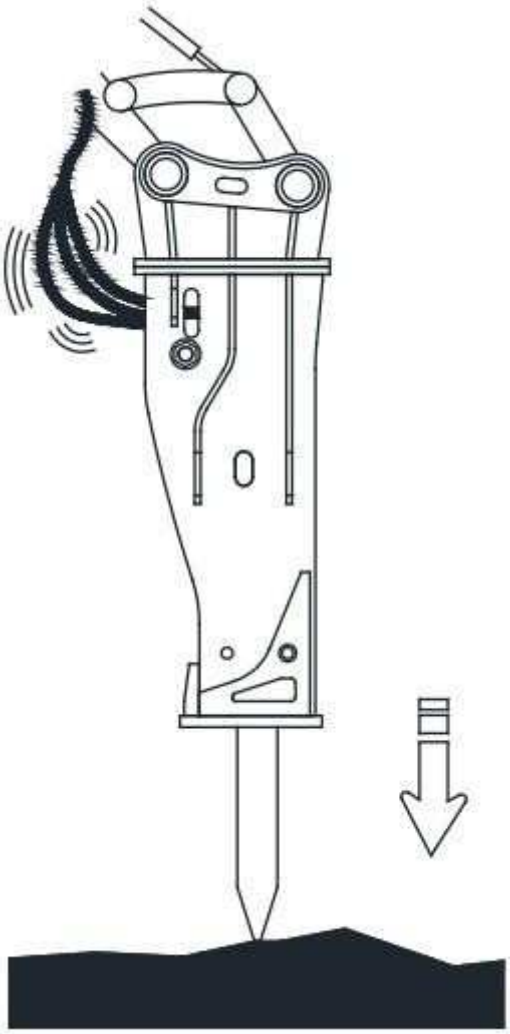


Figure 7

Condition	Cause	Solution
Irregular breaking	Hydraulic oil temperature too high	Oil temperature must not exceed 80 deg.C
	Float position	Never use float position
	Insufficient thrust	Increase thrust on breaker
	Suspension (Housing model)	Suspension (Housing model) check the damper
	Clogged or restricted hoses or pipes	Clean and replace
	Down force on the tool too low	Increase the down pressure acting on the tool
	Abnormal movement of piston and cylinder	Overhaul the breaker

4. Operating temperature too high

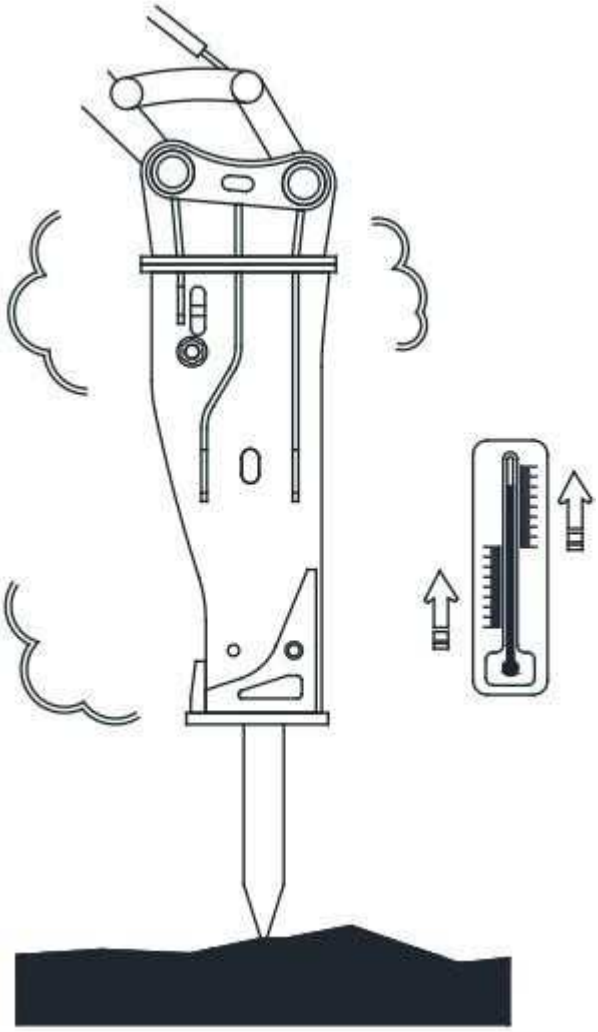


Figure 8

Condition	Cause	Solution
High temperature	Insufficient oil cooling	Check oil cooler
	Insufficient oil flow	Check pump output
	Incorrect oil pressure	check relief valve setting
	Oil level in tank is too low	Check and refill oil
	Too long continuous working	Never exceed 15 s

5. Leakage

DS1901025

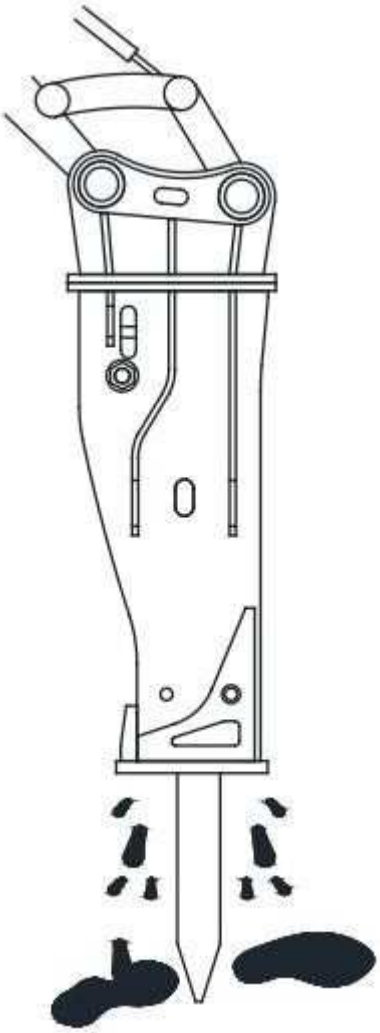


Figure 9

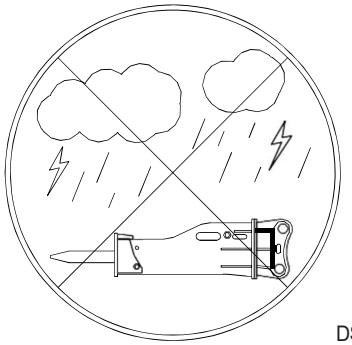
Condition	Cause	Solution
Oil leakage	Leakage on fittings	Tighten the fittings
	Leakage on IN & OUT port	Tighten the fittings
	Leakage on bottom of the piston	Contact to dealer
	Leakage between main body	Contact to dealer

Condition	Cause	Solution
Back head N2 gas leakage	Loosen bolts	Tighten the bolts
	Broken bolts	Replace the bolts
	Defect back head charging valve	Replace charging valve
	Defect O-ring or gas seal	Replace O-ring and gas seal

Storage

Caution for Long Term Storage

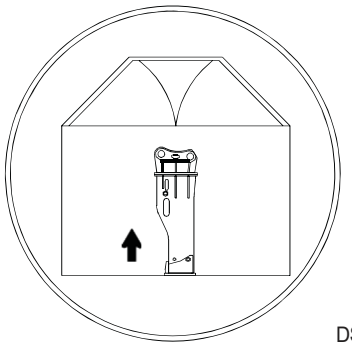
1. Breaker Storage
   - Do net store outside when not in use



DS1901007

Figure 1

2. Long Term Storage
   - Must be stored inside
   - Removed the tool
   - Upright (in safety stand)



DS1901008

Figure 2

3. Short Term Storage
   - Lay down (inclined at tool end)
   - Grease the tool
   - Cover with like tarpaulin

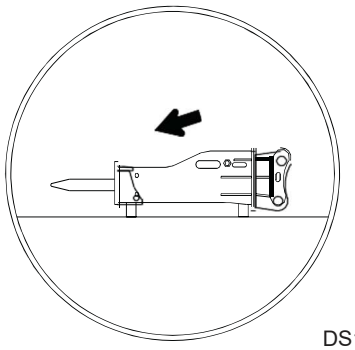


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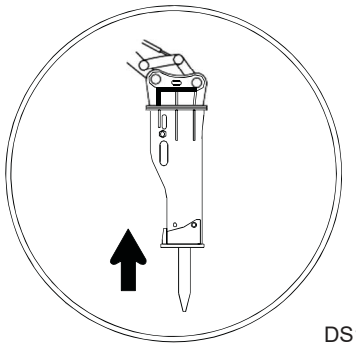
Figure 3

4. Boom Positioning (not in use)
    - Breaker vertical
    - Retract tool



DS1901006

Figure 4

Storage Method

Term	Solution
Every 3 months	Change up side down the body for good state of seal
Every 6 months	Check the internal cylinder & corrosion condition

Before Operating

Term	Solution
Every 3 months	Check the seals
Every 6 months	Check the seals and corrosion states

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