

MAR 2021



Hydraulic Breaker

*Operation Manual
& Parts List*

M SERIES

(MEDIUM & LARGE RANGE)

600M, 710M, 810M, 1000M,
1200M, 1400M, 1500M



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Preface

We totally appreciate your purchasing AJCE Hydraulic Breaker.

The Hydraulic Breaker, developed by AJCE's plentiful experiences and know-hows for many years, will satisfy customers under any working conditions with its highest power and long-time durability. However, without proper handling, regular inspection, the advanced demolition tool fails to display its excellent quality, resulting in various problems.

This operation manual shall be thoroughly read by customers before the first installation and operation in order to prevent any mishandling of hydraulic breakers.

We guarantee that a faithful understanding of the operation manual shall contribute to its best capacity.

If you have any further questions about operation of hydraulic breakers, please do not hesitate to contact local dealers or visit our website(www.ajce.co.kr) or email to info@ajce.co.kr.

We wish you a great success with us.



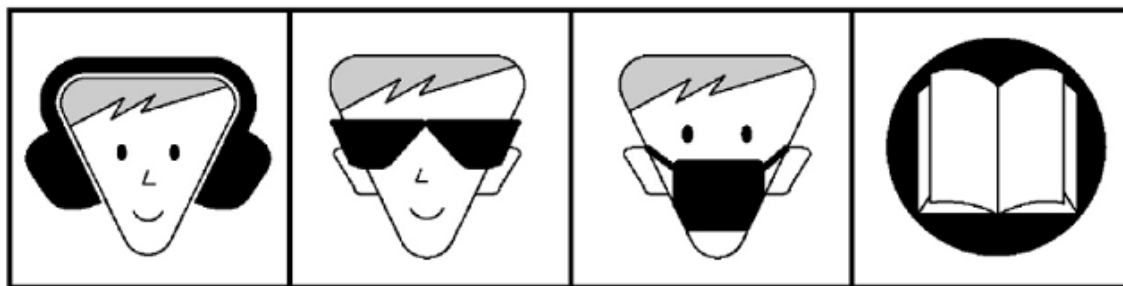
1. Safety Precautions

DO NOT OPERATE THE BREAKER UNLESS THE FOLLOWING SAFETY INSTRUCTIONS HAVE BEEN THOROUGHLY READ AND UNDERSTOOD.

READ THIS MANUAL BEFORE INSTALLING, OPERATING OR MAINTAINING THIS EQUIPMENT!

- Flying debris from the breaker, chisel, rock or other material may cause serious or fatal injury to the operator. Personal protection equipment must be used. Never operate the breaker when bystanders are in the work area.
- When operating the breaker, ear, eye, and breathing protection must be used at all times.
- The breaker will become very hot during the operation. Allow some time for the breaker to cool down before touching breaker parts.
- Operate the breaker in accordance with all laws and regulations which affect you, your equipment, and the work site.
- Know the limitation of your equipment.
- Do not operate the breaker unless thoroughly trained or under the supervision of an instructor.
- While learning about the breaker and the carrier, please do so at a slow pace. If necessary, set the carrier mode selector to slow working position.
- Make sure all control (levers and pedals) are in neutral position before starting the carrier.
- Stop the engine before attempting to make any repairs, adjustments, or servicing to either the carrier or the breaker.
- Do not operate the breaker at oil temperature above 175°F/80°C. Operation at higher temperatures can damage the internal components of the breaker and as well as the carriers, and result in low breaker performance.
- Do not operate the breaker in severe conditions such as, damage, leaking, improperly adjusted, or an incompletely assembled breaker.
- Do not operate this equipment if you are taking medication which may affect your mental judgment or physical performance.

■ Warning sticker





Hearing Protection

Eye Protection

Breathing
Protection

Read the manual
before use


■ Safety symbols

 DANGER	 WARNING	IMPORTANT
This safety symbol may appear on the breaker. It is used to alert the operator of an action that could place him/her or other in a life threatening situation.	This safety symbol appears in these instructions to identify an action that could cause bodily injury to the operator or other personnel.	This safety symbol appears in these instructions to identify an action or condition that could result in damage to the breaker or other equipment.

Safety symbols are to emphasize all operator, maintenance, and repair action, which, if not strictly followed, could result in a life-threatening situation, bodily injury or damage to equipment.

Always observe safety symbols. They are symbols for your safety.

■ Greasing sticker

GREASING	
	<ul style="list-style-type: none"> ■ <u>Grease every 2 hours and whenever chisel looks dry.</u> ■ When installing a new chisel, liberally coat the upper 1/3 of the chisel with grease before inserting. ■ Failure to comply with these instruction can result in damage to the breaker and will void the warranty.

2. Storage

IMPORTANT

■ Short term storage

1. Store breaker in dry and flat area. Rain or snow may cause a rust in the breaker.
2. Using your excavator, place the breaker horizontal on wooden pallet.
3. The breaker mount cap area shall be positioned higher than the chisel.
4. Remove the chisel and make sure the chisel pins, bushes are well greased.
5. Be sure that the hydraulic hoses are plugged to prevent dirty stuffs from getting into breaker.

■ Long term storage

1. Store breaker in dry and flat area. Rain or snow may cause a rust in the breaker.
2. Discharge N2 gas in back head.
3. Remove the chisel and push the piston up into cylinder. Otherwise, the piston bottom may get rusted.
4. Make sure the chisel pins, bushes are well greased.
5. Be sure that the hydraulic hoses are plugged to prevent dirty stuffs from getting into breaker.
6. Breaker must be stored in the vertical position. Otherwise, the breaker may cause oil leakage due to the seal damage.

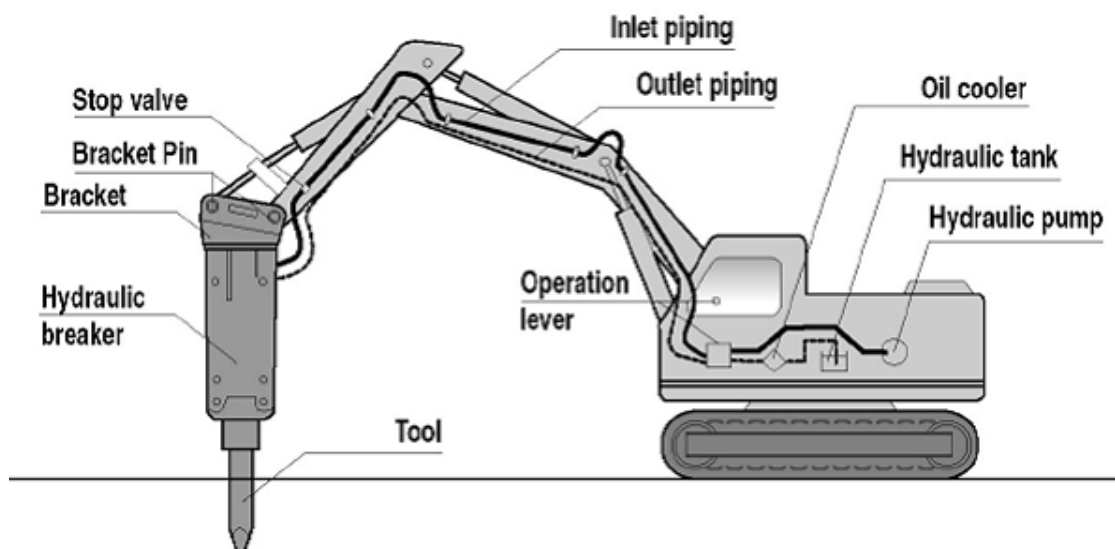
3. Preparation for Installation & Operation

(1) Checking instructions before installation

WARNING

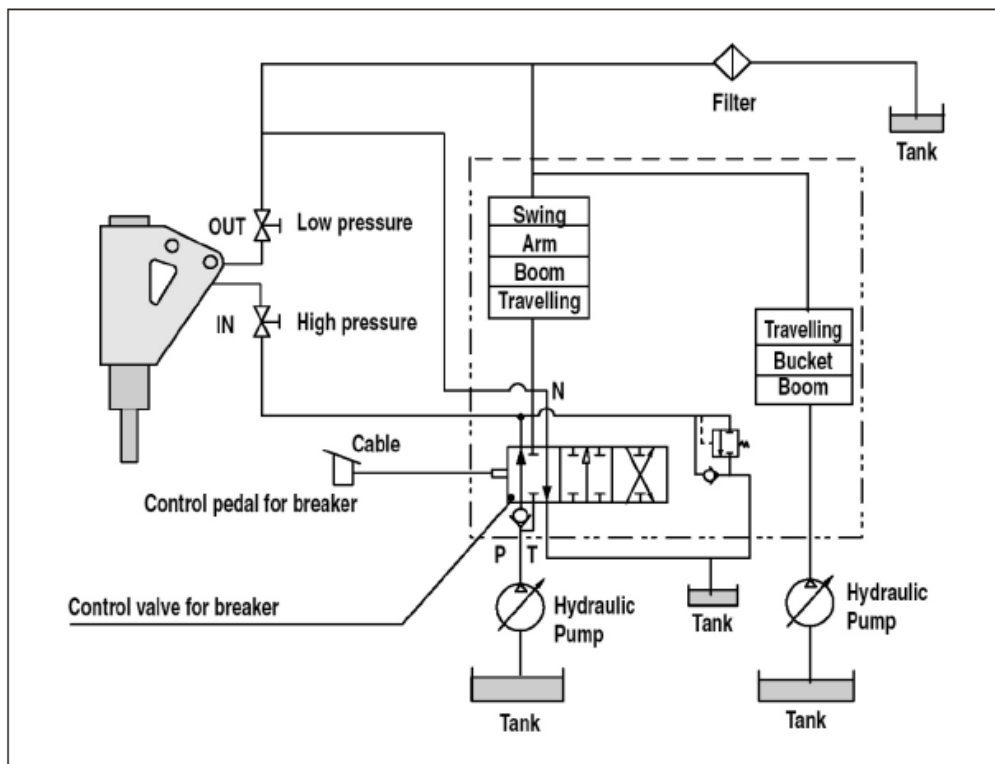
- Check the specifications to determine correct carrier sizes, hydraulic pressure, and hydraulic flow requirements.
- If the hydraulic pressure and hydraulic flow has exceeded, the breaker warranty is not applied.
- Check the N₂ gas in the back head and the accumulator.
- Be sure that the fluid in the hydraulic system is clean.
- Check the hydraulic filter. Replace the filter if dirty or deteriorating.
Hose and piping must be flushed.
- The contaminated part must be cleaned without delay.

(2) General view of breaker installed



(3) Hydraulic pipe lines for exclusive use

Operation of the hydraulic breaker requires installation of hydraulic pipe lines for exclusive use of the hydraulic breaker. As hydraulic pipe lines are depending on base machines, our service engineer must firstly check hydraulic pressure, oil capacity, pressure loss and other conditions. Use only genuine parts in case of replacement because hydraulic pipe lines(hoses, pipes and fittings) are made of materials carefully selected in consideration of durability.



IMPORTANT

The circuit relief setting pressure is not fixed. However, it will be adjusted by pump capacity.

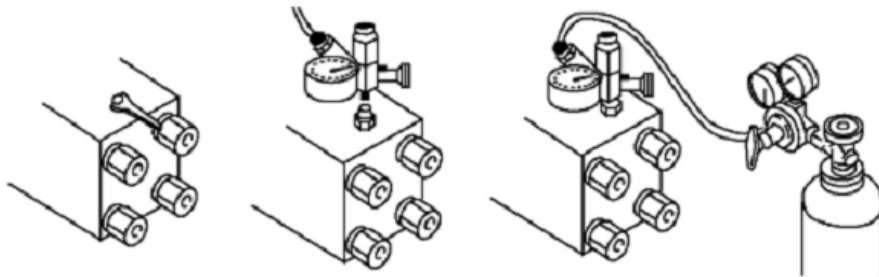
- Recommended back pressure is 10 kg/cm² for all AJCE hydraulic breakers.

(4) Inspecting and charging N₂ gas into the back head

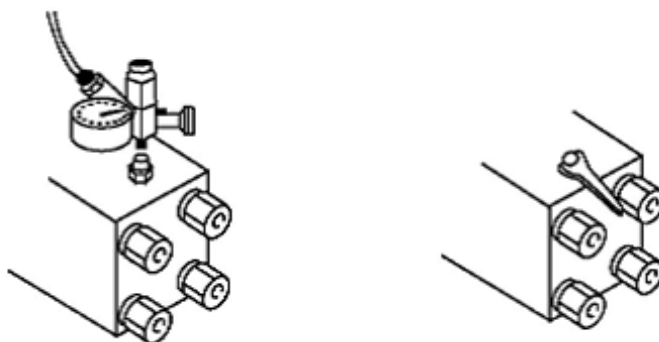
WARNING

- Lay down the breaker and let the chisel extend fully to charge gas.
- Stay clear of the chisel while charging the breaker with gas. The chisel may be impacted by the piston and forced out abruptly.
- Take care when the through bolts are changed or the breaker body is disassembled.
- Use special care to handle and store the N₂ cylinder as it is a High-pressurized container
- Use N₂ only.

■ Charging N₂ gas into the back head



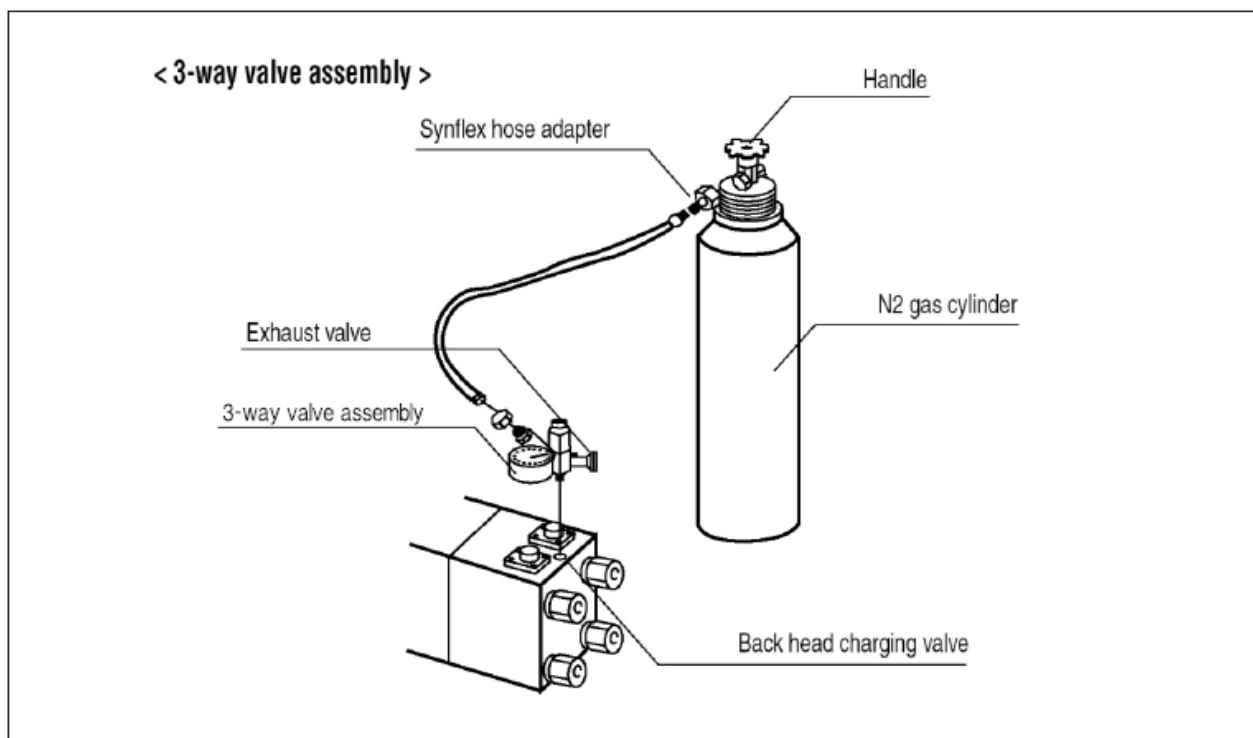
- ① Remove gas valve plug ② Insert 3-way valve with pressure gauge assembled ③ If gas is insufficient, adjust to specified valve as shown in the previous page



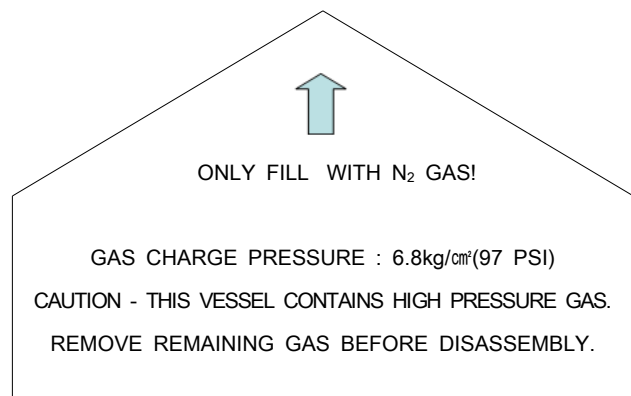
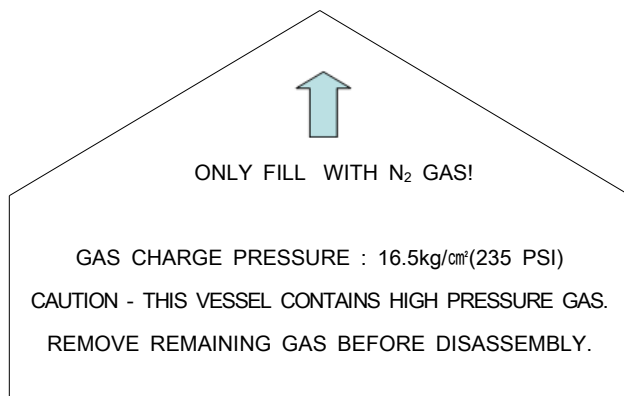
- ④ Adjust the pressure slowly by decreasing it through using the pressure gauge if gas is sufficient. ⑤ Tighten gas valve plug (Do not cut O-ring)

IMPORTANT

- Insert 3-way valve after its handle is fully turned counterclockwise.
- Turn the 3-way valve handle clockwise slowly. Stop turning it when the needle of the gauge starts to move. If it is turned clockwise too tightly, the valve may easily be damaged. Pay special attention to ensure that the nitrogen gas is not charged excessively.



- Back head sticker symbol
 - Appears on the back head charging valve



(5) Inspecting and charging N₂ gas into the accumulator

WARNING

- Use special care to handle and store the N₂ gas cylinder as it is a high pressurized container.
- Use N₂ gas only.

■ Inspection of N₂ gas pressure in the accumulator

- ① Remove the charging valve plug and tighten the charging valve fully.
(Ensure that O-rings are installed in the plug.)
- ② Remove the charging cap and install the charging adapter.
- ③ Install the charging kit to the adapter.
- ④ Loosen the valve gradually. The gas pressure is indicated on the gauge.
- ⑤ Close the valve when the gas pressure is normal. If the gas pressure is higher, repeat loosening and tightening the relief valve of charging kit.
- ⑥ Remove the N₂ charging kit and tighten the charging cap and plug.

■ Charging N₂ gas pressure into the accumulator

- ① Connect the charging hose to the N₂ charging kit and to the N₂ gas cylinder.
- ② Remove the charging valve plug and tighten the charging valve fully.
(Ensure that O-rings are installed in the plug.)
- ③ Remove the charging cap and install the charging adapter.
- ④ Install the charging kit to the adapter.
- ④ Loosen the valve gradually. The gas pressure is indicated on the gauge.
- ⑤ Turn the handle of the N₂ gas cylinder counter clockwise slowly to charge the gas.
- ⑥ Charge N₂ gas in accordance with the specification table.
- ⑦ Turn the handle of the N₂ gas cylinder clockwise to close.
- ⑧ Close the charging valve. If the gas pressure is higher, repeat loosening and tightening the relief valve of charging kit.
- ⑨ Remove the charging hose, N₂ charging kit, adapter and tighten the charging cap and plug.

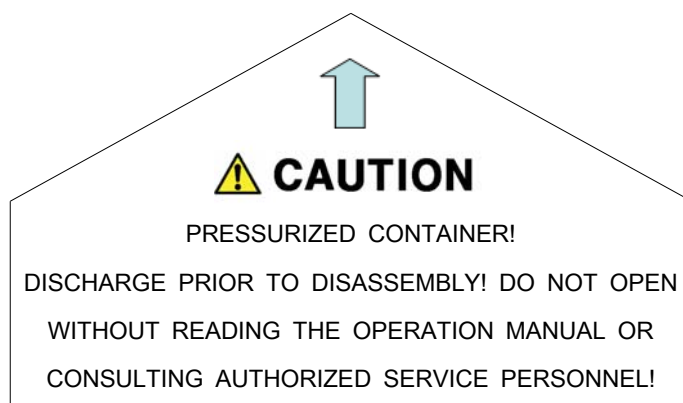
■ N₂ gas pressure into the accumulator

Accumulator gas pressure	Ambient Temperature(°C/°F)				
	0/32	10/50	20/68	30/86	40/104
kg/cm ²	50	52	55	58	61
psi	711	739	780	824	867

* Each specifications are shown in the accumulator sticker below.

■ Accumulator sticker(A) symbol

- Appears on the back head charging valve



■ Accumulator sticker(B) symbol

- Appears on the accumulator charging valve

Temperature(Max.)	80°C/175°F
Volume	0.78/1.33/1.48
Fill Material	Only N ₂ gas
Accumulator Precharge Pressure	55kg/cm ² , 780psi (at 20°C/68°F)

(6) Hydraulic oil

■ Recommended hydraulic oils and greases for hydraulic breakers by AJCE

SPEC Company	Hydraulic Oil			Grease
	Summer	Winter	All Season	(MOS2)
	ISO VG 46	ISO VG 32	ISO VG 46	NLGI No2
MOBIL	MOBIL DTE 25	MOBIL DTE 24	MOBIL DTE 15M	MOBIL GREASE SPECIAL
	MOBIL SHC 525*			MOBILTH SHC 220**
	MOBIL EAL SYNDRAULIC 46**			
LG-CALTEX	RANDO HD 46	RANDO HD 32	RANDO HD CZ	MOLYTEX EP2
BP	ENERGOL HP 46	ENERGOL HP 32	ENERGOL HP 46	-
SHELL	TELLUS 46	TELLUS 32	TELLUS T 46	RETINAX HDX-2

* : Synthetic Lubricant ** : Environmentally Friendly Synthetic Lubricant

■ Oil Contamination

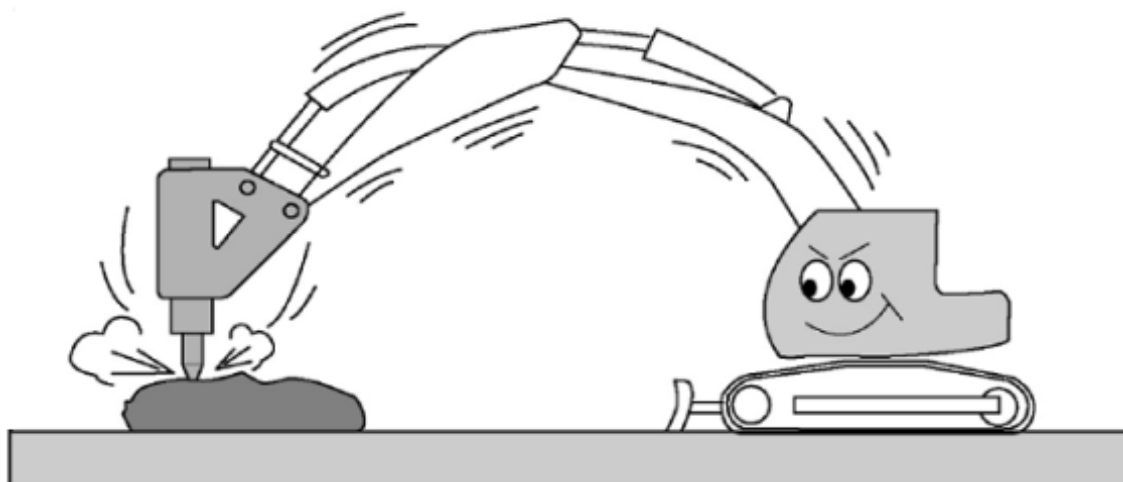
- Contaminated oil results in malfunctions of the breaker as well as the base machine and may cause damage to parts. Pay special attention to oil contamination. Contaminated oil should be changed without any delay. When changing oil, thoroughly wash oil tank, cylinder and pipes. Cleaning or replacing oil filter also requires check for oil contamination.
- Replacement of filter : after first 50 hours and every 100 hours thereafter
- Replacement of hydraulic oil : every 500 hours

■ Oil temperature

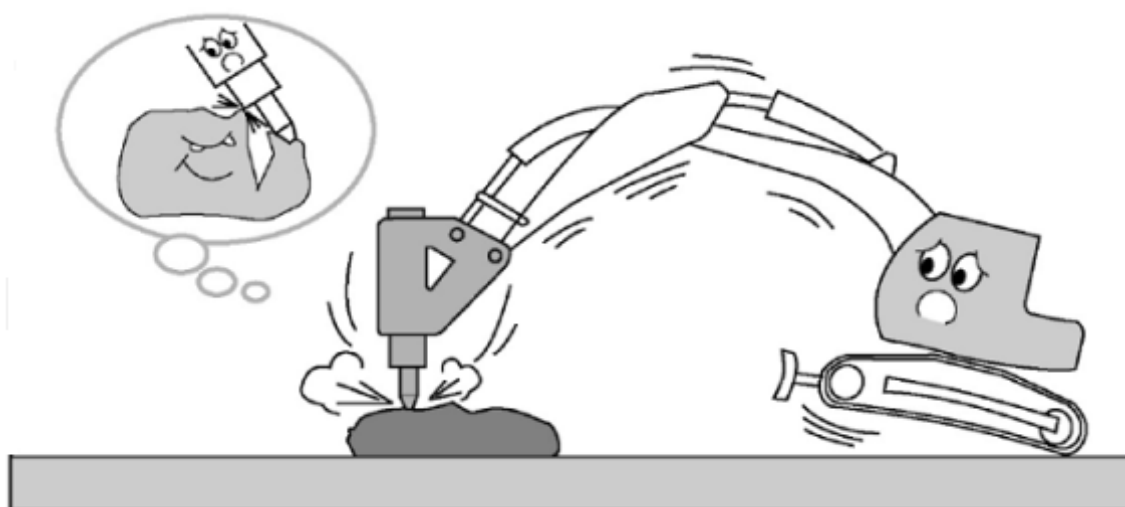
- The temperature of hydraulic oil shall not exceed 80°C/176°F. If higher temperature, oil cooler is to fitted.

4. Precautions for safe operation

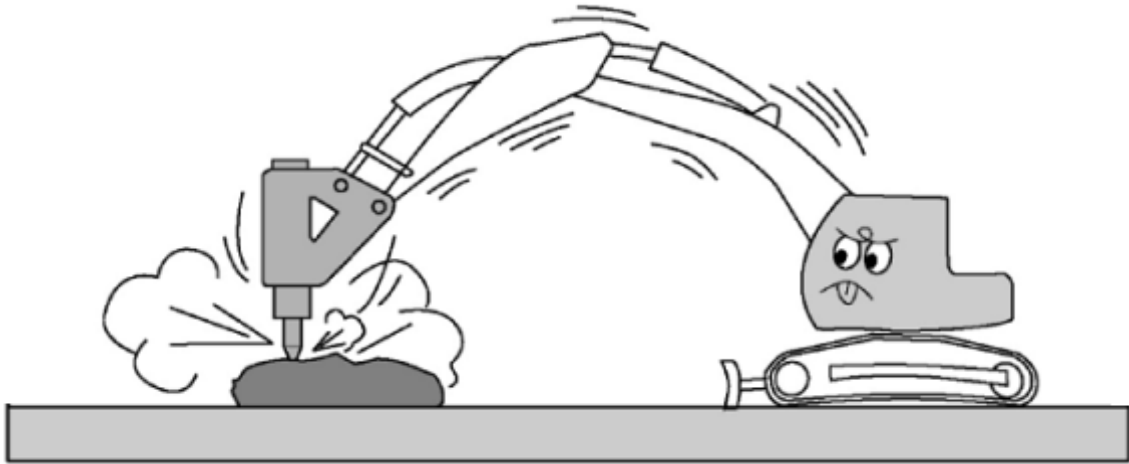
■ Proper position must be applied for an effective use of breaking force. When position is incorrect, the blowing energy of the piston is too weak to break rocks. Instead, blowing force applies shocks to the breaker body, chisel and boom of the base machine, thereby resulting in damage to those parts.



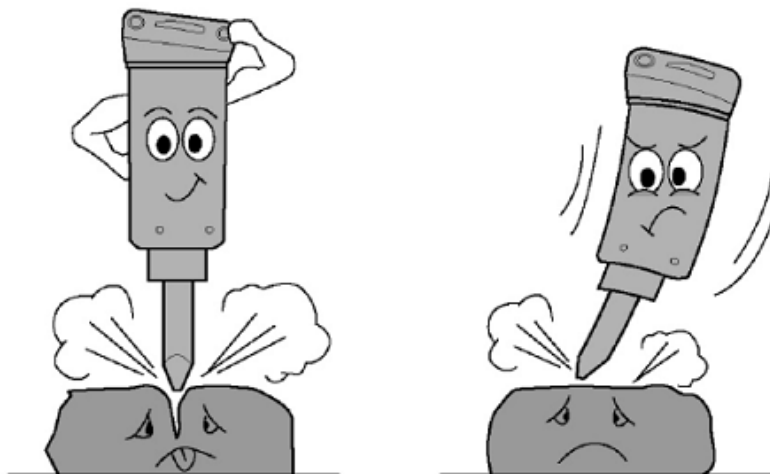
■ On the contrary, when position is excessive enough to break rocks with front of the base machine raised, the machine may suddenly tilt forward the moment rocks are broken then the breaker's body or the end of bracket may violently hit against rocks and result in damage.



■ It is undesirable to carry out hammering under the below condition, because vibrations during hammering may be transmitted to tracks of the base machine. During hammering, however, proper position must be always applied to the breaker. Special care must be taken not to hammer under abnormal condition.

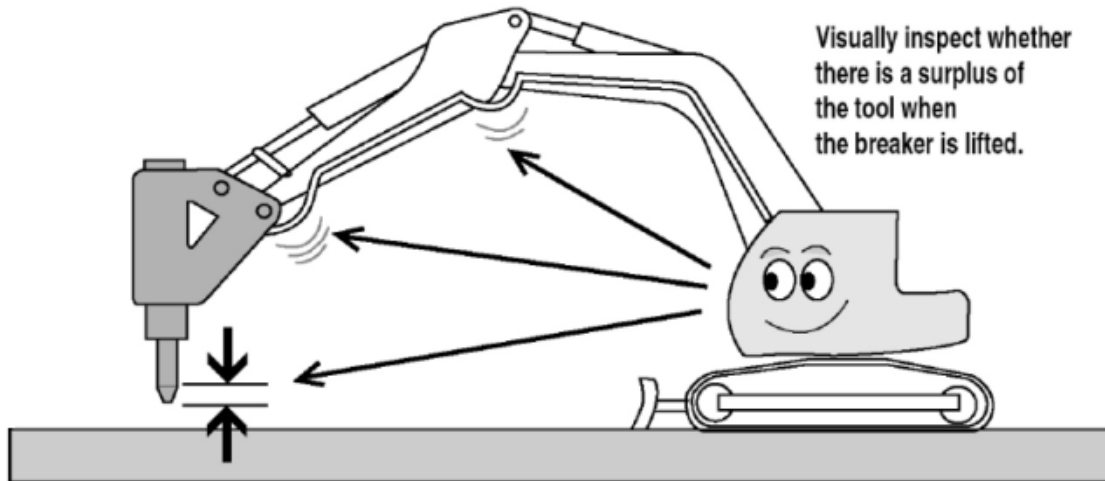


■ Apply same direction of boom force in line with the chisel, and place the chisel in the rock with hammering surface as vertical as possible. If hammering surface is oblique, the chisel may slip during hammering. This causes the chisel to seize and to be broken and piston to be damaged. When breaking, fully stabilize the chisel first and then select the point of the rock on which hammering can be performed in a stable condition.



■ **Stop operation as soon as hose vibrate excessively.**

Excessive vibration of high and low-pressure hoses of breaker calls for an instant disassembly and repair. Contact the nearest service station appointed by AJCE. For caution's sake, check oil leakage at the back head. The operator is required to pay attention to follow points during operation.



■ **Greasing**

With breaker mounted on carrier, apply down pressure on the chisel and fill the cavity with recommended grease through the grease nipple.

■ **When operating the breaker, you must use ear and body protection.**

You must use ear and breathing protection when the breaker is operating.

■ **Accumulator type - Danger**

Pay Attention to pressurized container! Do not open without reading the manual or consulting with the authorized service personnel.

■ **Do not touch chisel while breaker is working.**

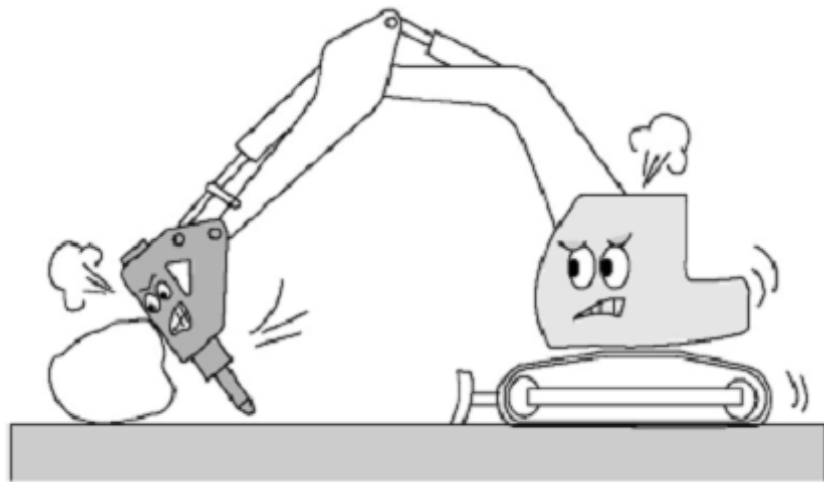
While the breaker is working, high temperature of the chisel will be generated.

■ **Do not continue to hammer for more than one minute.**

When rocks are not broken after more than one minute's hammering at the same point, change the place to be hammered. Extended hammering at the same place causes the chisel to wear out excessively.

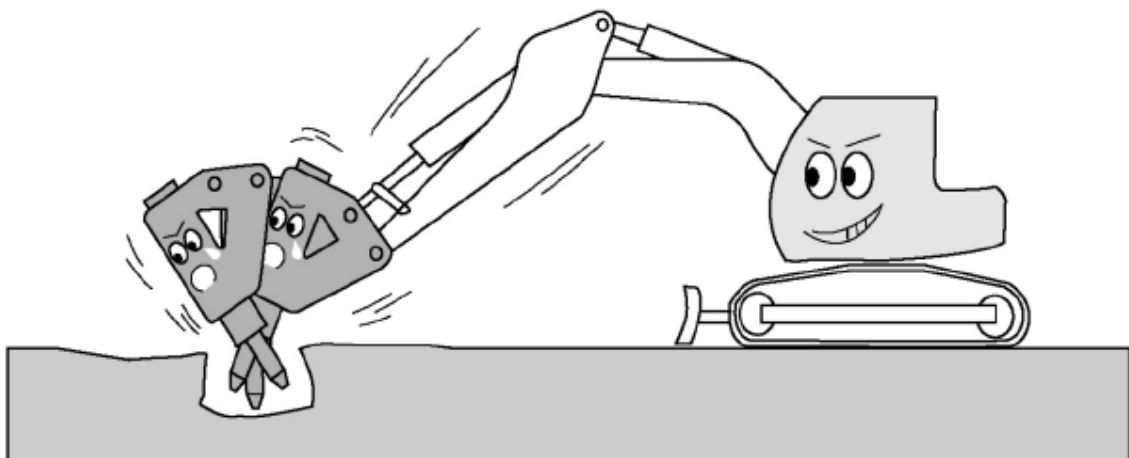
■ **Do not move rocks.**

Avoid moving rocks with the side of the bracket, because it is the major factor that causes broken bolts installed on the bracket, chisel and will damage the boom and the arm.



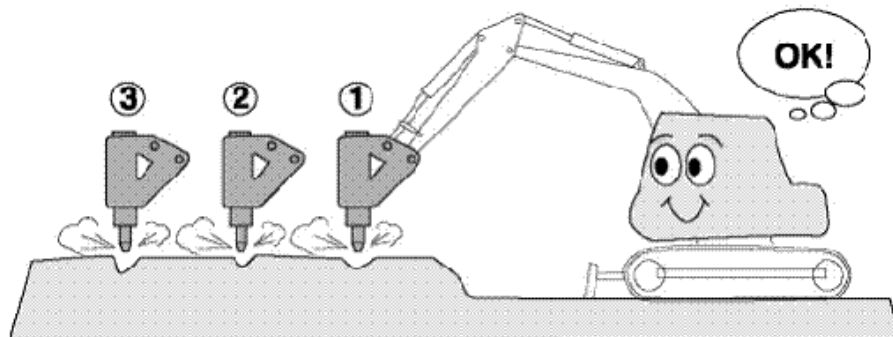
■ **Do not use chisel as a lever.**

When breaking rocks by using chisel as a lever, bolts and chisel may be broken, too.



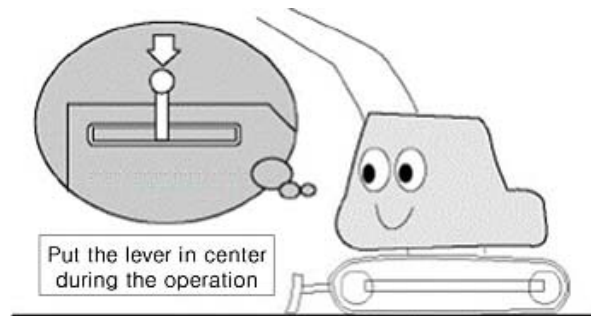
- On a hard and large rock, start breaking from the edge.

Even a hard and big rock can be easily broken when hammering begins at a crack or an edge.



- Operate breaker at proper engine speed.

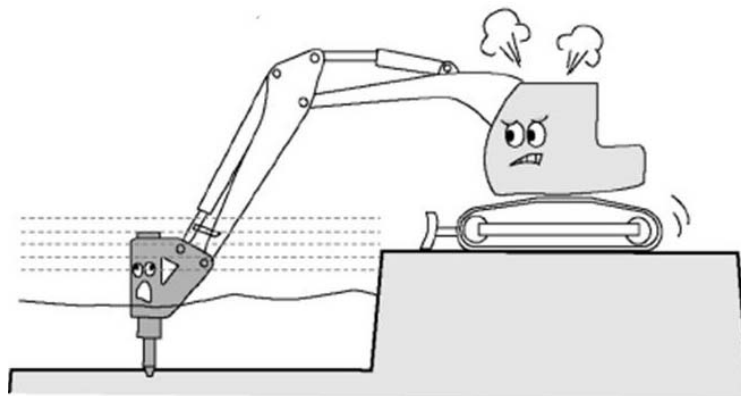
Break rocks at the specified engine speed. Raising engine speed more than necessary, does not strengthen hammering force but increases oil temperature to the detriment of pistons and valves.



- Do not operate the breaker in water and mud.

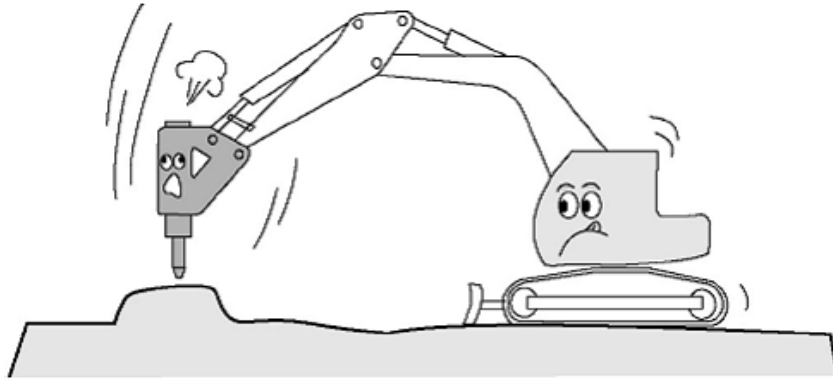
Do not operate the breaker when all components except chisel is immersed in water and mud.

Piston and similar components may gather rust and become a damaged breaker at an early stage.



■ **Do not allow the breaker to fall to break a rock.**

Falling down the breaker will apply excessive force in order to the breaker or the base machine, causing damage to many parts and the base machine.

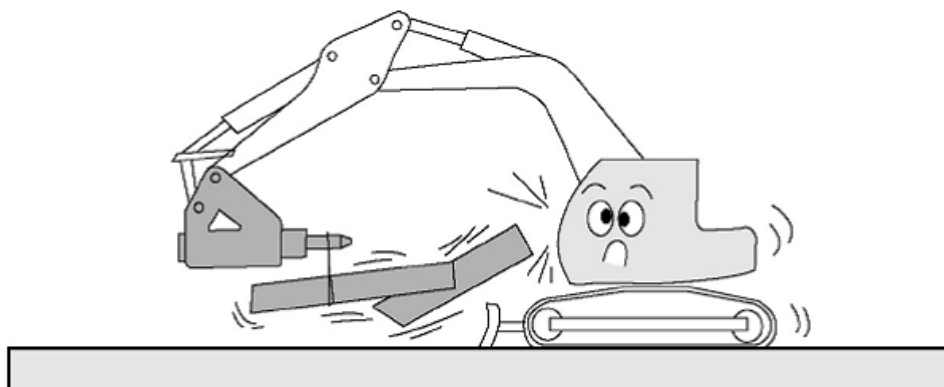


■ **Warm up base machine engine prior to operation.**

Especially in winter, the base machine engine should be warmed up for five to ten minutes 30°C~40°C(86°F~105°F) before breaker operation. Follow the instruction book for the base machine to warm up the engine.

■ **Do not lift things with the breaker.**

Lifting materials with a hanging wire in the bracket or chisel will not only cause damage to the breaker but also is very dangerous while operating.



IMPORTANT

Blank Firing

To understand "Blank Firing", the operator needs to be aware that if the chisel is not pressed against the work surface, the chisel will drop down in the lower body cavity far enough so that the piston cannot strike it. Blank firing occurs whenever the breaker is operating and the piston is not able to strike the chisel solidly or not strike the chisel at all. Blank firing accelerates wear and tear on breaker and excavator components and may result in failure of one or more components. Excessive blank firing may be considered equipment abuse and may result in voiding warranties.

Break-through or difficult surface contact results in blank firing when the material being broken fractures and the chisel is no longer in "hard contact" with the material but is still pushed high enough in the lower body cavity so that the piston can strike it. In this condition, the piston strikes the chisel and the chisel is driven against the tool pins because it is not in sufficient contact with the material to be broken. The energy is absorbed by the chisel pins, stop pins, front head chisel pin area, other breaker components, and the excavator boom components. Blank firing of this type can be experienced in trench work where obtaining striking contact with the work surface is difficult or the wrong chisel is used, or in flat rock work where the operator fails to stop operation of the breaker when slippage, fracturing or material break-through occurs.

Blank firing as a result of operator error occurs when the chisel is not in contact with the work surface to be broken and is allowed to drop down in the lower body cavity so that the piston is not able to strike it. Instead, the downward movement of the piston will be stopped by an internal oil cushion located at the bottom of the pistons's stroke and the energy of the piston will be absorbed by breaker components and excavator boom components. Blank firing of this type can be experienced when the operator fails to stop operation of the breaker when the material fractures or material break-through occurs, or during re-positioning of the breaker.

While blank firing cannot always be avoided, it can be kept to a minimum by avoiding the above conditions as much as possible.

5. Underwater Operation(Optional)

WARNING

- Underwater usage of the breaker without the underwater kit and air compressor will cause serious damage to the hydraulic breaker.

- The range of application : 500M ~ 1500M and 180F ~ 550F

- Underwater operation of the breaker is possible to pour air into the striking area between the piston and the chisel.

(1) Set up the underwater operating system

- Check where the air inlet of the breaker is before you equip the underwater operation system.
- Refer to the above the picture, and set up the underwater operation system.
- Assemble the underwater operation system into the breaker, and set an air hose on the equipment.

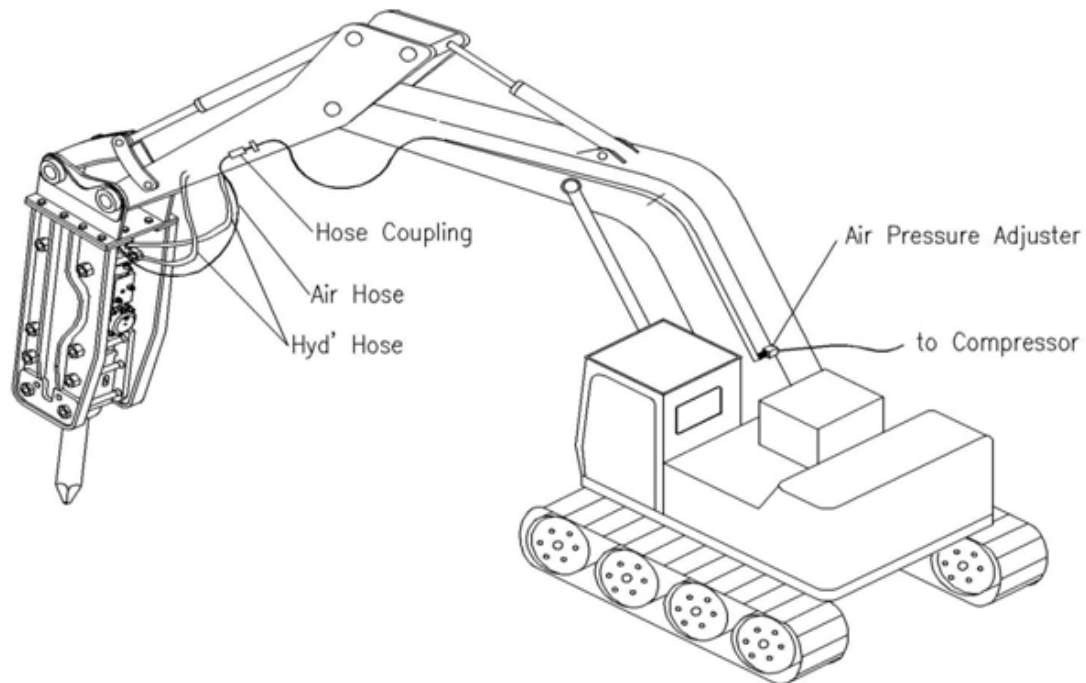
- Be careful that the hose should not be curved or bent.
- Set and fix the pressure adjustor where it can be seen very clearly from the driver seat.
- Remind that the hose connects to air compressor should not be interfered.

- The location of the hose coupling should be on the upper part of the arm of the machine and set and fix the metal part of the hose coupling on the equipment.

- When you set up the hose that connects to the air compressor, you can use a long bar to take down the hose to the ground from a distance from the machine. It can help preventing the hose from the damage which from the machine goes around.

- Remove the air vent from the back head of the breaker and connect the adapter to the air hose.

- Connect the pressure switch in series between the solenoid valve for the breaker operation and the breaker operation switch.



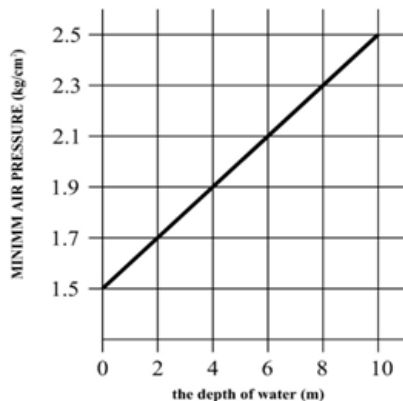
WARNING

- If the hose is curved and bent extremely when you set up the hose, it will cause that air cannot go and move around smoothly.
- be careful that the hose which connects the air compressor and the equipment should not be curved or bent by the equipment.
- If there is lack of the compressed air in the water, the breaker can be damaged seriously.

- Distribute the wires to operate the air compressor only when the breaker works.
- Turn on the air compressor and control the air pressure adjuster with checking the situation of compressed air in the breaker after installation.
- After finishing installation of the underwater operation system, turn on the air compressor and notice following instructions before you use the breaker.
- Check the situation of the hose connection once again before you start working in the water.
- Set up the compressed air

■ Generally, control the air valve adjuster to set up that pressure should be at least 1.5kg/cm higher than the water pressure which is the crushing site. In other words, the water pressure goes up 1kg/cm per 10m depth of water. Therefore, the minimum air pressure of the manometer can be calculated with next formula.

■ The minimum air pressure (kg/cm) =
$$\frac{\text{The depth of water of the crushing site(m)}}{10} + 1.5$$



■ Referring to the graph, calculate the minimum air pressure by the depth of water.

■ After turning on the air compressor, turn the handle of the air pressure adjuster to control the pressure not to go down under the minimum air pressure when breaker is blowing on the ground.

■ If the breaker is getting old, the gap of the chisel part will be getting bigger. In case of that, the amount of leakage air will be much, and the air pressure will not be made properly. If you face this problem, change a tool bush and a thrust bush of the breaker please.

■ Check the situation of the air hose connection every case during the working and the inspection. If the pressure of the manometer goes down under 0.5kg/cm², stop working immediately due to water can go into the inside of breaker's.

■ When you use the under water operation system, the period of the pouring grease related to the chisel should be 20 minutes or 30 minutes. The amount of the pouring grease should be doubled compare to regular work.

■ For the safety of the product and the efficiency of the work, use the auto-greasing system during the work under the water.

■ When you finish the breaker job, please pull the breaker out from the water as soon as possible. Even though the compressed air is supplied, the breaker can be rusted and earth and sand go into the breaker easily. As a result of that, the life of the breaker can be reduced.

■ After pulling the breaker out from the water, use the breaker over 10 minutes on the ground with the compressed air for removing and drying water which can remain at the striking room of the breaker.

■ After finishing all the work of the breaker, apply oil to the inside of striking room through the air inlet, and refill the grease.

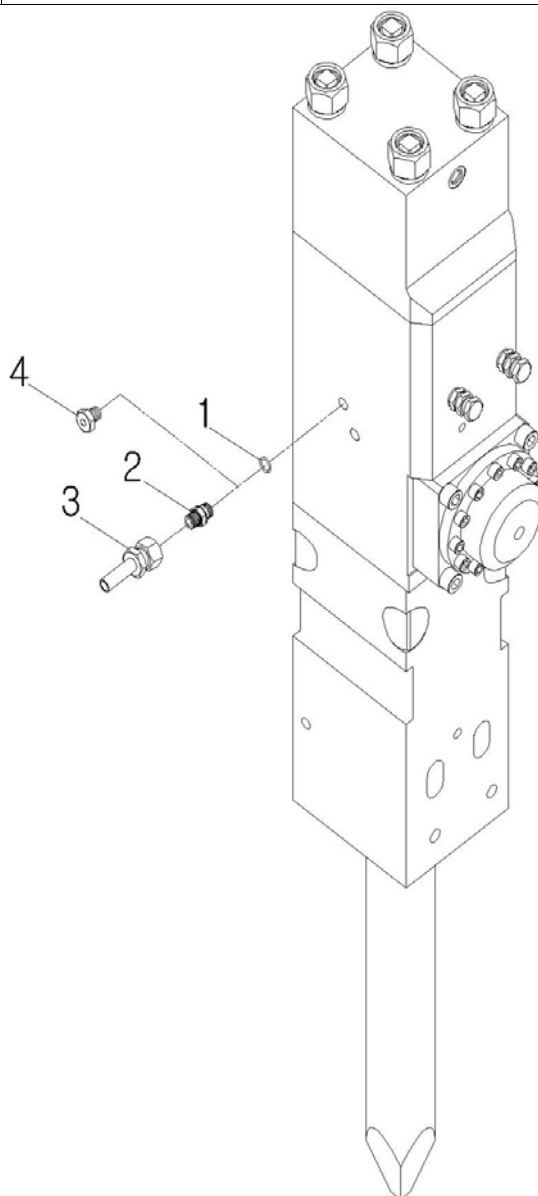
■ After long time of the work in the water or the regular period, disassemble the breaker, and check the all parts to keep the good condition. Replace the damaged parts and the rusted parts.

■ The frequent underwater work can reduce the life of the breaker seal. Please, check and replace the seal often compared to the regular period.

(2) Installing the underwater kit

- Clean the air check valve hole on the cylinder.
- Remove the air check valve with the standard tool.
- Apply the O-ring to the cylinder's air check valve hole and install it.
- Connect the hose to the air check valve hole and install it.
- Before underwater operation, the breaker get into water pouring air into air check valve.

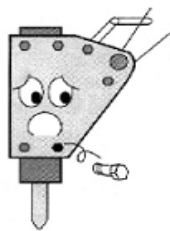
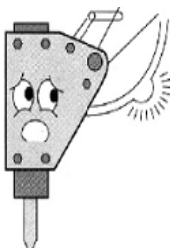
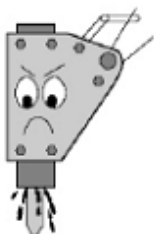
No.	Part name	Specification	Q'ty
1	O-ring	1BP18	1
2	Nipple	L50910	1
3	Hose	N/M	1
4	Air check valve	D10230	1


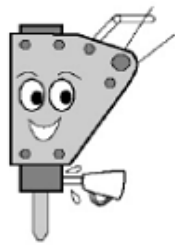
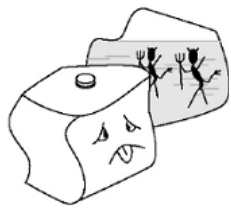
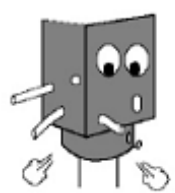


6. Maintenance

(1) Daily breaker inspection

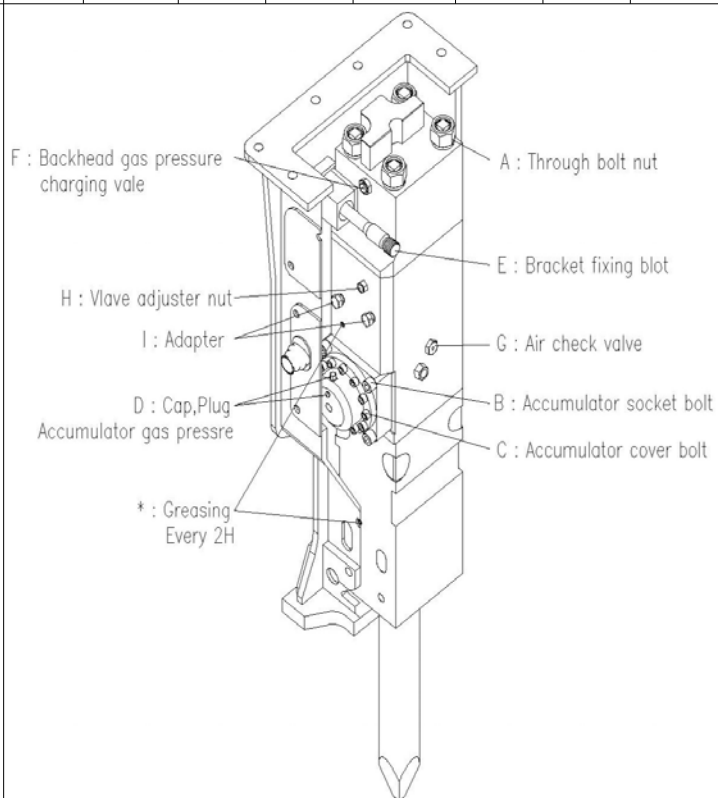
Before starting operation, be sure to inspect the breaker referring to the following table.

Inspection Item	Inspection Point	Remedy
<p>Looseness, missing and damaged bolts and nuts</p> 	<ul style="list-style-type: none"> ■ Through bolts ■ Bracket mounting bolts 	<ul style="list-style-type: none"> ■ Check looseness ■ Retighten securely
<p>Looseness of hose fittings, visible damage to hoses and oil leakage</p> 	<ul style="list-style-type: none"> ■ Hydraulic pipes for breaker oil hoses 	<ul style="list-style-type: none"> ■ Retighten securely ■ Replace seriously damaged parts
<p>Abnormal oil leakage</p> 	<ul style="list-style-type: none"> ■ Connections of back head and cylinder ■ Clearance between front head & tool (But small leakage is normal from front head) 	<ul style="list-style-type: none"> ■ Consult AJCE service station for further inspection

Inspection Item	Inspection Point	Remedy
<p>Abnormal wear and crack on tool</p> 	<ul style="list-style-type: none"> ■ Chisel 	<ul style="list-style-type: none"> ■ Deformed, burred and worn out chisel should be repaired. ■ Excessively worn out tool needs to be replaced.
<p>Greasing</p> 	<ul style="list-style-type: none"> ■ Grease at start every 2 ~ 3 hours using the grease pump. ■ Pump 5~10 times (Greasing position and method shown at left.) ■ When greasing, press the tool against the ground. 	<ul style="list-style-type: none"> ■ Grease front head
<p>Level and contamination of hydraulic oil</p> 	<ul style="list-style-type: none"> ■ Conditions of hydraulic Oil 	<ul style="list-style-type: none"> ■ Contamination of hydraulic oil carries with operating conditions. The oil color tells the level of contamination. ■ Criteria for judging contamination is specifically set by AJCE. ■ When contamination is excessive, drain and flush the hydraulic oil tank and fill it with a new oil.
<p>Missing rubber pulgs and snap rings</p> 	<ul style="list-style-type: none"> ■ Rubber plugs ■ Snap rings 	<ul style="list-style-type: none"> ■ A seriously damaged part must be replaced.

(2) Tightening Torque & Gas Pressure

Item \ Mode	Part	Unit	100M 200M	300M 350M	400M 430M	450M 500M	600M	710M	810M	1000M	1200M	1400M 1500M
Through bolt nut	A	kg. m	25~30	25~30 30~35	38~42 60~70	96~105 140~150	190~ 200	270~ 280	290~ 300	320~ 330	320~ 330	370~ 380
Accumulator body socket bolt	B	kg. m	-	-	-	-	-	-	60~65	60~65	60~65	90~95
Accumulator cover socket bolt	C	kg. m	-	-	-	-	-	-	45	45	45	45 65
Accumulator cap & plug	D	kg. m	-	-	-	-	-	-	15	15	15	15
Side fixing bolt	E	kg. m	60	80	100	145	200	250	250	250	350	350
Back head gas pressure	F	kg/cm ² (psi)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	17.0 (242)	18.0 (256)
Accumulator gas pressure	D	kg/cm ² (psi)	-	-	-	-	-	-	55 (782)	55 (782)	58 (826)	60 (854)
Air check valve	G	kg. m	16~18	16~18	16~18	16~18	16~18	16~18	16~18	16~18	16~18	16~18
Valve adjust nut	H	-kg. m	-	-	-	-	25~30	30~35	30~35	30~35	35~40	35~40
Adapter	I	kg. m	16~18	16~18	16~18	24~26	32~35	32~35	32~35	35~40	35~40	35~40
Charging valve	F	kg. m	35~40	35~40	35~40	35~40	35~40	35~40	35~40	35~40	35~40	35~40
Hex head plug	J	kg. m	-	-	-	-	3~4	3~4	3~4	3~4	3~4	3~4
Greasing every 1hr using(manual)		cc	7	7	10	10 15	15	20	20	20	25	25



(3) Regular breaker inspection and maintenance

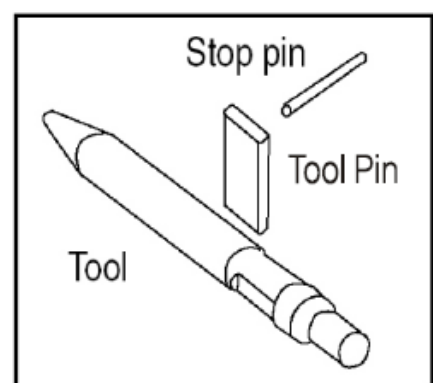
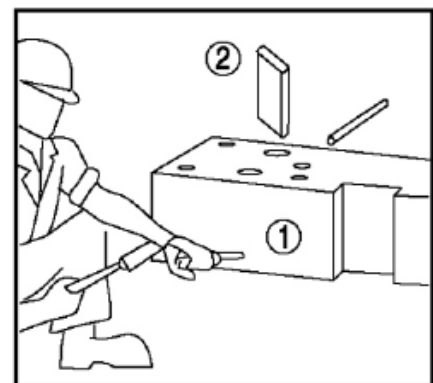
Regular inspection is essential for keeping the hydraulic breaker operating in its best condition. Consult the AJCE service station for a regular inspection and maintenance. Customers are recommended to contact the service station for inspection within six months after delivery.

(4) Replacement of chisel

Chisel is deformed of burrs produced in a long-term use. When the chisel's tip is worn out, chisel is liable to slip. Then, sharpen the chisel tip. Grinding the chisel tip many times to sharpen the edge will make the heat-treated hardened surface layer disappear and will wear out the chisel rapidly. In this case, replace with a new chisel. If the gap between the chisel and the lower bush becomes large, the piston will fail to fit into the chisel resulting to damage. When the gap is over 9mm, replace the upper bush together with the chisel.

■ Replacement Order

- Remove the snap-ring and the chisel pin in order with a 330mm-long steel bar. When reassembling, align groove in chisel to chisel pin hole and insert tool pin.
- Reverse disassembly procedures to install the replacement tool. Before installing a new chisel, check each part for wear, breakage, scores, etc. Remove burrs and swellings on each tool pin, apply a coat of grease to the movable and frictional areas of the chisel pin and chisel, and finally install the chisel. Excessively deformed chisel pins will make a difficult replacement of the chisel. Therefore, chisel pins are required to be checked every 100 to 150 hours of operation.
- If replacement chisel is not a genuine part, we do **NOT WARRANTY** the performance of the other parts of the breaker.



(5) Chisel claim judgment criteria




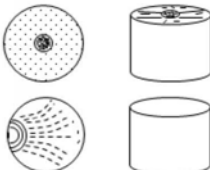
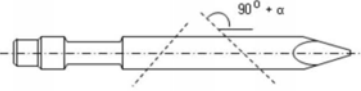

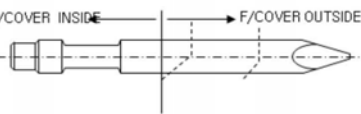

IMPORTANT

- For all chisel warranty, below pictures shall be given.
 - Picture of cylinder serial number and chisel serial number
(Chisel serial number is carved besides key area)
 - Picture with scale showing the total length of chisel
(If the chisel worn out over 100mm, it is out of warranty)
 - Picture for claim area

AJCE Chisels are manufactured through a process of strict manufacturing and quality control, from the receipt of materials through processing, heat-treatment to post-treatment. Chisel materials are well stored and managed as to enable quality record tracing throughout normal chisel life span, right from delivery.

However, apart from the chisel quality, chisel operating life may vary significantly according to operating conditions and methodology, or according to the type of material worked on, making it difficult to guarantee a standard operating life.

Hence, to help users use our products correctly, and ensure long operating life, these claim judgment criteria present defect examples that can occur during use, and the disposition standards applicable in various cases.

NO.	CUT OFF TYPE	CUT OFF FACE	WARRANTY	REASON FOR CUT OFF
1			NO	* OPERATOR FAULT * LACK OF GREASE * LEVERAGE WORK * EXCESSIVE WORK
2			YES	* MATERIAL PROBLEM
			NO	* OPERATOR FAULT * LACK OF GREASE * LEVERAGE WORK
3			NO	* OPERATOR FAULT * LEVERAGE WORK
4			YES (LOWER BUSH INSIDE)	* MATERIAL OR HEAT TREATMENT PROBLEM
			NO (LOWER BUSH OUTSIDE)	* OPERATOR FAULT * LEVERAGE WORK

7. Trouble Shooting Guide

(1) Problems in operation

If the breaker does not work or blow frequency and blow power get worse, check the arranging method. And then inspect according to the following order.

Symptom	Cause	Required action
No blow out	<ul style="list-style-type: none"> ■ Excessive back head gas pressure ■ Stop valve closed ■ Lack of hydraulic oil ■ Wrong adjustment of pressure reducing valve ■ Faulty hydraulic hose connection ■ Oil back head infection 	<ul style="list-style-type: none"> ■ Re-adjust N₂ gas pressure ■ Open stop valve ■ Fill hydraulic oil ■ Tighten or replace ■ Replace back head o-ring, or step seal of seal retainer
Low impact power	<ul style="list-style-type: none"> ■ Line leakage or blockage ■ Clogged tank return line filter ■ Lack of hydraulic oil ■ Hydraulic oil contamination, or heat deterioration ■ Poor main pump performance ■ Back head N₂ gas low ■ Low flow rate by mis-adjustment off low control pressure reduction valve ■ Chisel out of range for blowing position 	<ul style="list-style-type: none"> ■ Check lines ■ Wash filter, or replace ■ Fill hydraulic oil ■ Replace hydraulic oil, rinse tank and replace hydraulic oil inside lines ■ Call an authorized service man ■ Refill N₂ gas ■ Re-adjust reduction valve ■ Rush down Tool by excavator operation
Irregular impact	<ul style="list-style-type: none"> ■ Low accumulator gas pressure, of bad accumulator ■ Bad piston or valve sliding surface ■ Piston moves down/up to blank blow hammer chamber 	<ul style="list-style-type: none"> ■ Refill N₂ gas ■ Call an authorized service man. ■ Rush down tool by excavator operation
Gas leakage	<ul style="list-style-type: none"> ■ O-ring damage in related parts 	<ul style="list-style-type: none"> ■ Replace relevant O-ring
Oil leakage	<ul style="list-style-type: none"> ■ Cylinder seal kit worn 	<ul style="list-style-type: none"> ■ Replace seal kit

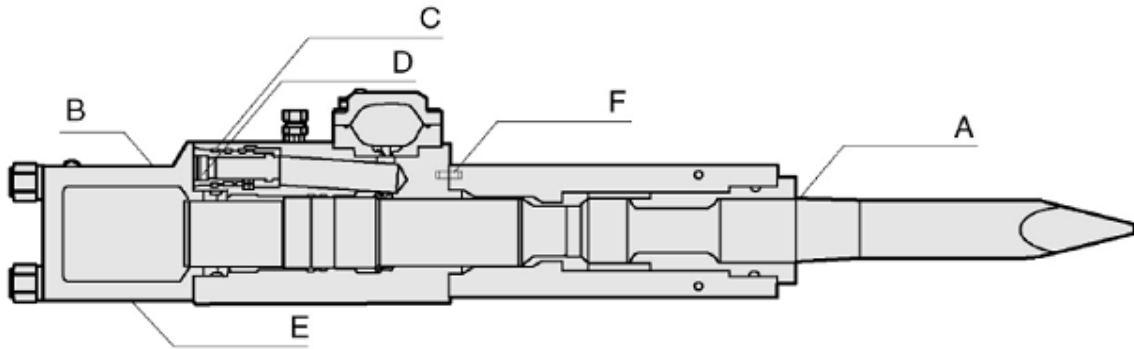
Pressure line vibration	<ul style="list-style-type: none"> ■ Accumulator gas leakage ■ Accumulator diaphragm damage 	<ul style="list-style-type: none"> ■ Replace o-ring, or refill N₂ gas ■ Replace diaphragm
Bad chisel movement	<ul style="list-style-type: none"> ■ Chisel diameter incorrect ■ Chisel jammed from chisel pin wear ■ Jammed lower bush and chisel <p>Deformed chisel and piston contact area</p>	<ul style="list-style-type: none"> ■ Replace chisel with genuine replacement parts ■ Smoothen rough surface of chisel ■ Smoothen rough surface of lower bush interior ■ Replace chisel

(2) Gas leakage

Trouble	Cause	Remedy
Gas leakage from the top of charging valve	<ul style="list-style-type: none"> ■ Defective or damaged charging valve 	<ul style="list-style-type: none"> ■ Repair or replace charging valve
Gas leakage between charging valve and back head	<ul style="list-style-type: none"> ■ Defective o-ring in charging valve ■ Charging valve loose in back head 	<ul style="list-style-type: none"> ■ Replace ■ Re-tighten
Gas leakage between cylinder and back head	<ul style="list-style-type: none"> ■ Defective o-ring in back head 	<ul style="list-style-type: none"> ■ Replace
Gas leakage from drain plug hole	<ul style="list-style-type: none"> ■ Defective gas seal in seal retainer ■ Defective step seal in seal retainer ■ Seizing of piston and seal retainer 	<ul style="list-style-type: none"> ■ Repair or replace seal retainer and piston

(3) Oil leakage

Even if oil is leaking, it is necessary to replace parts at all times. Check the following points listed in the chart below. The user can check the marked points before calling the dealer.

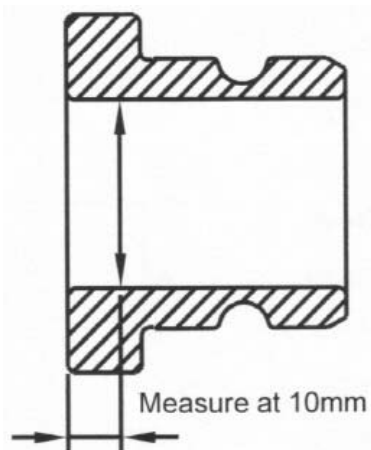
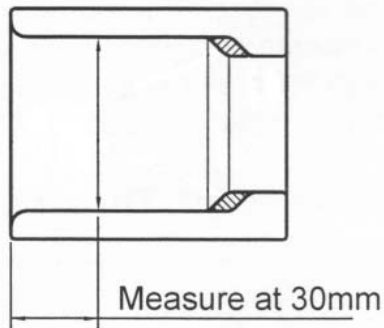


	Area of oil leakage	Condition	Causes & Remedies
A	Between the tool and lower bush	<ul style="list-style-type: none"> ■ A large amount of oil is leaking ■ Check if it is coming from oil or grease 	<ul style="list-style-type: none"> ■ Seals damaged ■ Replace
B	Surface of breaker	<ul style="list-style-type: none"> ■ Oil leaking from the hose and flange adapter portion 	<ul style="list-style-type: none"> ■ Loose breaker hoses and bolts ■ Retighten
C	Valve housing bolts and cap bolts	<ul style="list-style-type: none"> ■ Oil leakage from reassembly of valve after overhaul 	<ul style="list-style-type: none"> ■ During assembly from lubrication oil & anti-rust oil applied
D	Between main valve and surface of cylinder	<ul style="list-style-type: none"> ■ Oil leakage from reassembly of breaker after overhaul 	<ul style="list-style-type: none"> ■ Clean oil ■ Check that seal is damaged. ■ Loosen bolts ■ Replace with new seal
E	Between cylinder and back head	<ul style="list-style-type: none"> ■ Oil leakage ■ Oil leaks again 	<ul style="list-style-type: none"> ■ Loose tie rod nuts ■ Damaged O-ring ■ Retighten ■ Replace
F	Between cylinder and front head	<ul style="list-style-type: none"> ■ Oil is leaking 	<ul style="list-style-type: none"> ■ Loose plugs assembled on the surface of cylinder ■ Retighten ■ Replace damaged seals

8. Wear Tolerance

Wear tolerance of each kind expendable parts come to decide. The usage of exceeding the wear tolerance causes fatal damage to breaker. Prevent the damage through the regular inspection and exchange of expendable parts including seals and all kinds of bushes.

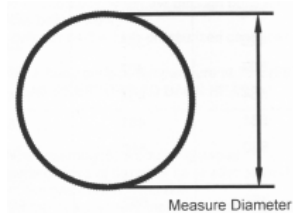
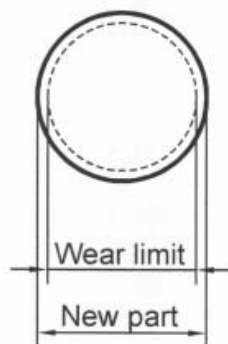
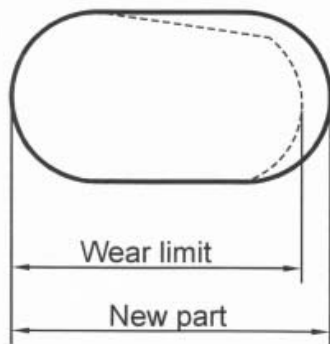
(1) Upper bush & Lower bush



Model	Inside diameter of New(mm/inch)	Inside diameter of Reject(mm/inch)
MINI	35(1.38)	37(1.46)
100M	40(1.57)	42(1.65)
200M	45(1.77)	47(1.85)
300M	53(2.09)	55(2.17)
350M	60(2.36)	62(2.44)
400M	68(2.68)	71(2.80)
430M	75(2.95)	78(3.07)
450M	85(3.35)	89(3.50)
500M	100(3.94)	105(4.13)
600M	125(4.92)	130(5.12)
710M	135(5.31)	140(5.51)
810M	140(5.51)	146(5.75)
1000M	150(5.91)	156(6.14)
1200M	155(6.10)	161(6.34)
1400M	165(6.50)	171(6.73)
1500M	175(6.89)	181(7.13)
180F	120(4.72)	125(4.92)
250F	135(5.31)	140(5.51)
350F	150(5.91)	156(6.14)
450F	180(7.09)	186(7.32)
550F	180	186
650F	190	196

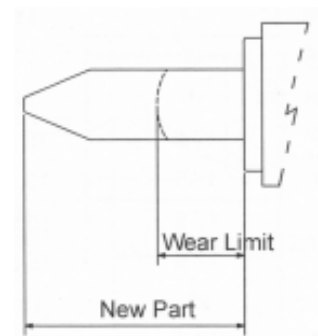
(2) Chisel pin & Stop pin & Bush pin

Model	Chisel pin		Stop pin		Bush pin	
	Length of New (mm/inch)	Length of Reject (mm/inch)	Outside diameter of New (mm/inch)	Outside diameter of Reject (mm/inch)	Outside diameter of New (mm/inch)	Outside diameter of Reject (mm/inch)
MINI	20(0.79)	18(0.71)	10(0.39)	8(0.31)	13(0.51)	11(0.43)
100M	28(1.10)	26(1.02)	10(0.39)	8(0.31)	13(0.51)	11(0.43)
200M	28(1.10)	26(1.02)	10(0.39)	8(0.31)	13(0.51)	11(0.43)
300M	32(1.26)	30(1.18)	10(0.39)	8(0.31)	13(0.51)	11(0.43)
350M	36(1.42)	34(1.34)	13(0.51)	11(0.43)	13(0.51)	11(0.43)
400M	38(1.50)	36(1.42)	16(0.63)	14(0.55)	16(0.63)	14(0.55)
430M	42(1.65)	40(1.57)	16(0.63)	14(0.55)	16(0.63)	14(0.55)
450M	54(2.13)	51(2.01)	17.5(0.69)	15.5(0.61)	20(0.79)	18(0.71)
500M	60(2.36)	57(2.24)	17.5(0.69)	15.5(0.61)	26(1.02)	24(0.94)
600M	75(2.95)	72(2.83)	17.5(0.69)	15.5(0.61)	26(1.02)	24(0.94)
710M	82(3.23)	79(3.11)	17.5(0.69)	15.5(0.61)	26(1.02)	24(0.94)
810M	88.5(3.48)	85.5(3.37)	20(0.79)	18(0.71)	30(1.18)	28(1.10)
1000M	94(3.70)	91(3.58)	17.5(0.69)	15.5(0.61)	26(1.02)	24(0.94)
1200M	96(3.80)	93(3.66)	17.5(0.69)	15.5(0.61)	26(1.02)	24(0.94)
1400M	96(3.80)	93(3.66)	17.5(0.69)	15.5(0.61)	26(1.02)	24(0.94)
1500M	99(3.90)	95(3.74)	26(1.02)	24(0.94)	36(1.42)	34(1.34)
180F	70(2.76)	67(2.64)	17.5(0.69)	15.5(0.61)	26(1.02)	24(0.94)
250F	80(3.15)	77(2.99)	20(0.79)	18(0.71)	30(1.18)	28(1.10)
350F	89(3.50)	86(3.39)	20(0.79)	18(0.71)	30(1.18)	28(1.10)
450F	101(3.98)	98(3.86)	25(0.98)	23(0.91)	36(1.42)	34(1.34)
550F	121(4.76)	118(4.65)	26(1.02)	24(0.94)	36(1.42)	34(1.34)
650F	102(4.02)	99(3.90)	26(1.02)	24(0.94)	36(1.42)	34(1.34)



(3) Chisel

Model	Length of New(mm/inch)	Length of Reject(mm/inch)
MINI	268(10.55)	150(5.91)
100M	297(11.69)	200(7.87)
200M	326(12.83)	200(7.87)
300M	330(12.99)	200(7.87)
350M	374(14.72)	200(7.87)
400M	425(16.73)	250(9.84)
430M	507(19.96)	250(9.84)
450M	564(22.20)	250(9.84)
500M	561(22.09)	250(9.84)
600M	650(25.59)	300(11.81)
710M	701(27.60)	350(13.78)
810M	762(30.00)	400(15.75)
1000M	854(33.62)	450(17.72)
1200M	913(35.94)	500(19.69)
1400M	952.5(37.50)	500(19.69)
1500M	918(36.14)	500(19.69)
180F	700(27.56)	350(13.78)
250F	765(30.12)	400(15.75)
350F	795(31.30)	450(17.72)
450F	910(35.83)	550(21.65)
550F	910	550
650F	1070	550



870(34.25)

1070(42.13)

(4) Seal & O-ring

Since hydraulic breaker operates at high-pressure and high-temperature, leakage or scratch could be occurred by friction, wear and breakage of seals. Considering pressure, temperature, viscosity of oil, a little leakage is accepted to be normal. But in case of abnormal leakage, replace as a new ones. Although the breaker is not operated in a long time, replace seals periodically to prevent rust, corrosion of oil and transformation of seals.

(5) Regular check and parts replacement recommendation

The below parts are to be regularly checked and to be replaced as following chart.

Part Name	Regular check	6 months 600 hours	12 months 1200 hours	18 months 1800 hours	24 months 2400 hours
Chisel pin◆	Weekly	●	●	●	●
Stop pin◆	Weekly		●		●
Bush pin◆	Monthly		●		●
Upper bush◆	Monthly		●		●
Lower bush◆	Monthly	●	●	●	●
Through bolt set◇	Weekly, Monthly		●		●
Side bolt set◇	Weekly		●		●
Bolt & nut◇◇	Weekly			●	
Diaphragm	-		●		●
Seals & O-rings	-		●		●
Dampers◆	Monthly		●		●
Snap rings	Weekly			●	
Rubber plugs	Weekly			●	

- Note :
1. Replace the parts by operating hours or months which comes first
 2. Stop using the breaker and replace the parts without delay if any crack or damage found during regular check
 3. ◆ : Replace the parts according to wear limit, page 34~37.
 4. ◇ : Tighten nuts immediately if any loosen found during regular check. Loosen nut may cause crack on thread area. It is recommended to tighten all nuts again by torque wrench or hammer wrench after 2 weeks or 20 hours operation from the first installation or replacement date of through bolt or side bolt.
 5. ◇◇ : Tighten bolts and nuts without delay if any loosen found during regular check. Loosen bolt or nut may cause oil leakage or breakage of bolt, nut and related parts.

9. Warranty Policy

(1) The Terms of Warranty

The Warranty provided by Supplier hereunder shall extend either by the date of Bill of Loading to Distributor or for the date of distributor's invoice for the Products to the buyer, whichever comes first. Distributor shall advise AJCE of the sales of the products to buyer either by facsimile or e-mail not later than **15 Days** after the date of sale. If not, AJCE shall settle the period of warranty have to be estimated by the date of Bill of Loading.

(2) The Contents of Warranty

■ All delivered products will be checked for defects, damage or missing parts to assure performance upon arrival. Distributor must inform AJCE with a written claim on any missing or damaged parts with detailed photo cuts and user's comment within **15 Days** after receipt of products or any failure was occurred. If not, AJCE will not take the responsibility on claim. Delivery Report and Warranty Claim Report are included in each Operation Manual supplied with each unit of Hydraulic Breaker.

■ Damage occurred by transportation shall be claimed by Distributor directly to the transportation company. AJCE will not warrant any damage that is occurred by incorrect or careless handling, excessive stress, normal wear and tear or similar cases not due to faults of AJCE.

■ **Warranty Claim Report has to include the following information**

- ① Model and Serial No. of the Hydraulic Breaker, Date of Delivery & Installation
(According to the designated form of "Delivery Report")
- ② Operating Hours & Detail of Defect
(According to the designated form of "Warranty Claim Report")
- ③ Detailed photos are necessary to study the claim by AJCE engineers.

(3) Warranty Compensation

■ Any defects found in workmanship and faulty material will be repaired by Distributor.

AJCE will reimburse to Distributor as follows;

- ① Spare parts on AJCE account
- ② Airfreight up to 10kgs
- ③ Otherwise, almost warranty spare parts shall be replaced or compensated under CFR Ocean basis
- ④ Other minor cost, including labor and local transport, to be supported by local distributor

■ Distributor will keep the damaged products at least for 1 Year for inspection, and analysis of AJCE engineers. Reimbursement will be decided within 7 Days after AJCE decision If any written **[Warranty Claim Report]** with photos is reported to AJCE. AJCE will make its best efforts to settle any claim made by distributor in a shortest time.

(4) The below-mentioned cause shall be excluded from the warranty service.

- Omission of **[Warranty Claim Report]**
- Elapsed time of warranty period or report period
- Operation faults, mistake, misuse by users
- Due to the misusing of unauthorized spare parts

(5) Warranty standard (months or working hours, whichever comes first)

Part name	Warranty period	No warranty case
Cylinder	12 months / 1,200 hours	<ul style="list-style-type: none"> ■ Scratch after 1 month or 100 hours. Scratch to be caused by contaminated oil, blank firing, horizontal hammering, excessive job, careless maintenance, wrong storage. ■ Piston horizontal crack after 1 month or 100 hours. Horizontal crack is to be caused by scratch.
Piston	12 months / 1,200 hours	
Front head	12 months / 1,200 hours	<ul style="list-style-type: none"> ■ Crack on chisel pin area after 3 months or 300 hours. This crack is to be caused by blank firing, non-genuine chisel, non-genuine chisel pin, broken chisel pin, broken stop pin. ■ Crack on lower bush area after 3 months or 300 hours. This crack is to be caused by broken lower bush, leverage job. ■ Crack on through bolt nut area after 3 months or 300 hours. This crack is to be caused by loosen nut.
Valves	12 months / 1,200 hours	<ul style="list-style-type: none"> ■ Scratch after 1 month or 100 hours.
Seal retainer	12 months / 1,200 hours	<ul style="list-style-type: none"> ■ Scratch after 1 month or 100 hours.
Accumulator cover Accumulator body	12 months / 1,200 hours	<ul style="list-style-type: none"> ■ Crack on accumulator body bolt area after 3 months or 300 hours. This crack is to be caused by loosen bolt.

Through bolt / nut Side bolt / nut	6 months / 600 hours	<ul style="list-style-type: none"> ■ Crack on thread area after 1 month or 100 hours. This is to be caused by loosen nut.
Dampers Side plates	6 months / 600 hours	<ul style="list-style-type: none"> ■ Exceed wear limit
Seal kit / O-rings	3 month / 300 hours	<ul style="list-style-type: none"> ■ Excessive oil pressure and oil flow from excavator
Diaphragm	3 months / 300 hours	<ul style="list-style-type: none"> ■ Damage on the center area. This problem is to be caused by hammering at one spot for over 30 seconds although the chisel doesn't go down.
Upper bush Lower bush	3 months / 300 hours	<ul style="list-style-type: none"> ■ Exceed wear limit
Chisel pin	3 months / 300 hours	<ul style="list-style-type: none"> ■ Exceed wear limit ■ Crack on stop pin hole area. This crack is to be caused by broken stop pin ■ Blank firing, non-genuine chisel
Stop pin / Bush pin	3 month / 300 hours	<ul style="list-style-type: none"> ■ Exceed wear limit ■ Blank firing, non-genuine chisel, non-genuine chisel pin
Bracket Mount cap Mount pin bush	3 month / 300 hours	<ul style="list-style-type: none"> ■ Damage caused by outside force □ Welding crack is to be repaired in local
Chisel	Follow [Chisel claim judgment criteria] on page 27	

Delivery & Installation Report

Document No.: _____

Date: _____

Distributor	Company Name :	
	Address & Tel. :	
Customer	Company Name :	
	Address & Tel. :	
Excavator Model	Manufacturer :	Year of Mfg. :
	Total weight : tons	Operating hours : hours
Breaker Model	Model :	Serial No. :
	Oil Pressure : bar (psi)	Oil Flow : l/min (g/min)
Warranty Start :		Expiry Date :
Remarks		
<p>I hereby acknowledge that the subject was delivered in satisfactory condition and operates properly, and that I received the operation manual and instructions of its proper operation, preventive maintenance, and that all aspects of the standard warranty have been fully explained to me.</p>		
Delivery Acceptance	Customer :	
	Dealer :	



Warranty Claim Report

Document No.: _____

Date: _____

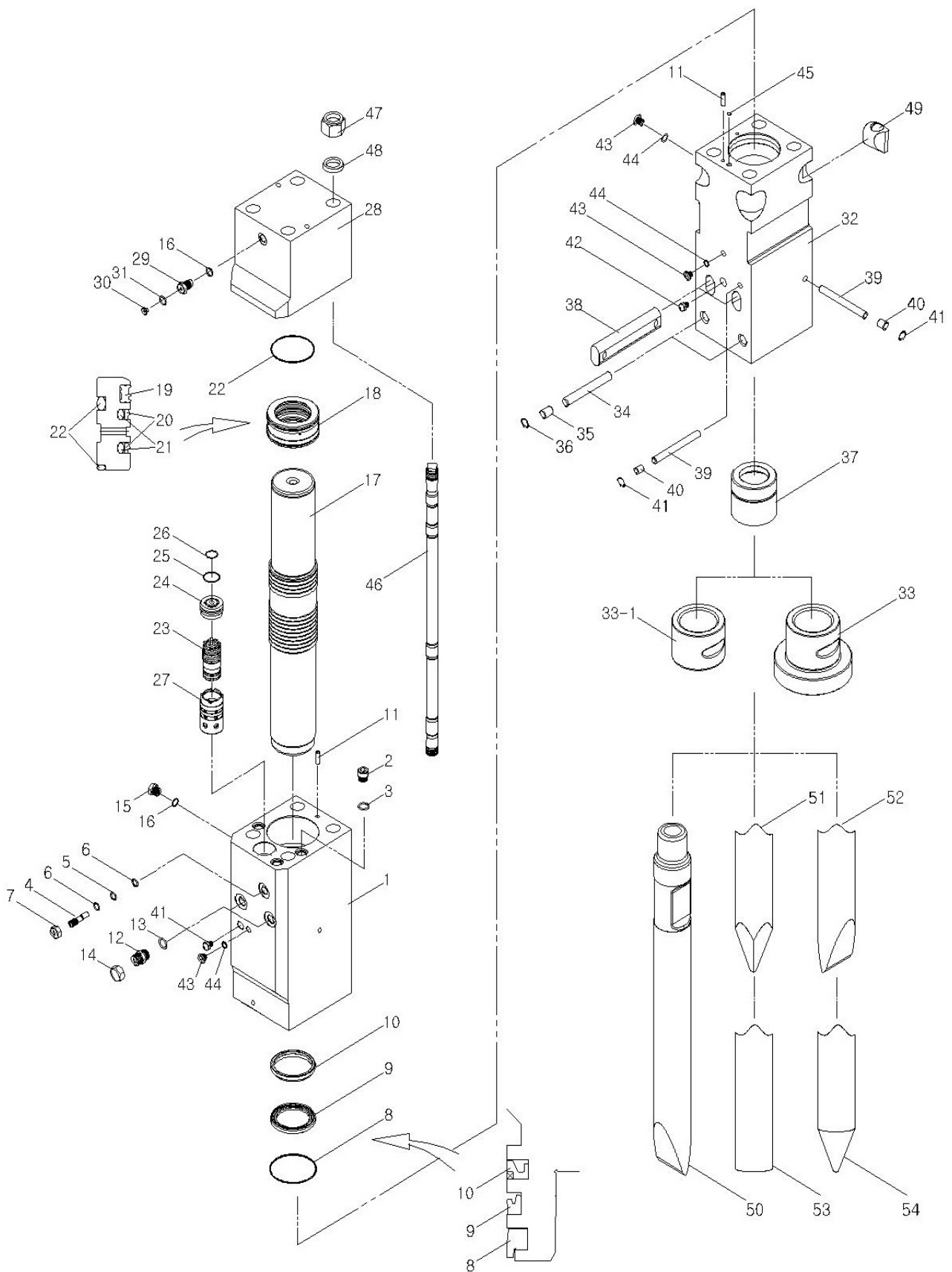
Customer	Company Name :	
	Address & Tel. :	
Excavator	Model :	Year of Mfg. :
AJCE Breaker	Model :	Serial No. :
	Installation Date :	Operating Hours : hours

Description

* Details photos shall be provided to AJCE within 15 days from the claim date.
Otherwise, the claim is not accepted.



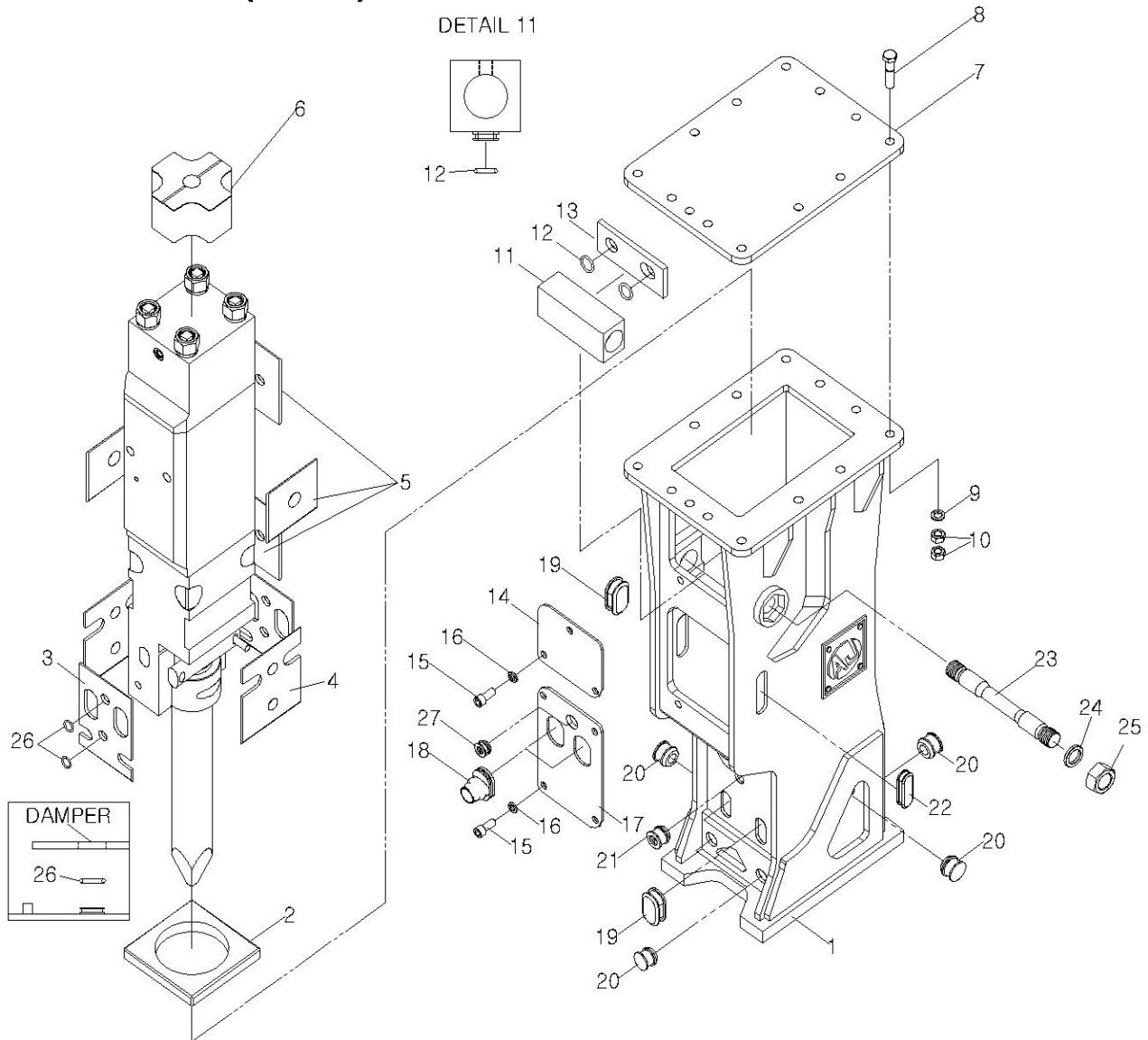
600M MAIN BODY



NO	PART NO.	PART NAME	QTY	REMARKS
-	A60100	MAIN BODY (TOP)	1	1~32,33,34~49
-	A60101	MAIN BODY (BOX)	1	1~32,33-1,34~49
-	N60100	SEAL KIT	1	
-	A60110	CYLINDER ASSY	1	1~27,41
1	B60110	CYLINDER	1	
2	D60210	SOCKET PLUG	3	
3	1BP22A	O-RING	3	
-	D60370	VALVE ADJUSTER ASSY	1	4~7
4	D60371	VALVE ADJUSTER	1	
5	1BP9	O-RING	1	
6	T3P9	BACKUP RING	2	
7	HN1615	HEX NUT	1	
8	DSI125	DUST SEAL	1	
9	IDI125	U-PACKING	1	
10	HBV125	BUFFER SEAL	1	
11	D60510	KNOCK PIN	2	
12	D60110	IN/OUT ADAPTER	2	
13	1BP29	O-RING	2	
14	D60120	ADAPTER CAP	2	
15	D10230	AIR CHECK VALVE	1	
16	1BP18	O-RING	2	
17	B60120	PISTON	1	
-	A60130	SEAL RETAINER ASSY	1	18~22
18	B60130	SEAL RETAINER	1	
19	IKH123.5	GAS SEAL	1	
20	SPNS123.5	STEP SEAL	2	
21		O-RING	2	
22	1BG150	O-RING	3	
-	A60300	VALVE ASSY	1	23~27
23	B60340	VALVE	1	
24	B60350	VALVE PLUG	1	
25	1BG60	O-RING	1	
26	1BG45	O-RING	1	
27	B60360	VALVE SLEEVE	1	
28	B60610	BACK HEAD	1	
-	D10640	GAS CHARGING VALVE ASSY	1	16,19~31
29	D10641	GAS CHARGING VALVE	1	
30	D10642	GAS CHARGING VALVE PLUG	1	
31	1BP16	O-RING	1	
-	A60500	FRONT HEAD ASSY (TOP)	1	32,33,34~44
-	A60510	FRONT HEAD ASSY (BOX)	1	32,33-1,34~44
32	B60510	FRONT HEAD	1	B60512 (S/N 001~242)
33	C60530	LOWER BUSH (TOP)	1	
33-1	C60531	LOWER BUSH (BOX)	1	
34	C50560	BUSH PIN	2	C60560 (S/N 001~242)
35	RP26	RUBBER PLUG	2	
36	SR26	SNAP RING	2	
37	C60520	UPPER BUSH	1	
38	C60540	CHISEL PIN	2	
39	C18550	STOP PIN	2	C60550 (S/N 001~242)
40	RP18	RUBBER PLUG	2	
41	SR19	SNAP RING	2	
42	D10590	GREASE NIPPLE	2	
43	WP1/4"	WRENCH PLUG	3	
44	1BP11	O-RING	3	
45	1BP14	O-RING	1	

-	A60700	THROUGH BOLT ASSY	4	46~49
46	C60710	THROUGH BOLT	4	
47	C60720	THROUGH BOLT TOP NUT	4	
48	C60730	THROUGH BOLT WASHER	4	
49	C60740	THROUGH BOLT BOTTOM NUT	4	
50	K60100	H-WEDGE CHISEL	1	
51	K60200	MOIL POINT	1	
52	K60300	V-WEDGE CHISEL	1	
53	K60500	BLUNT CHISEL	1	
54	K60600	CONE CHISEL	1	

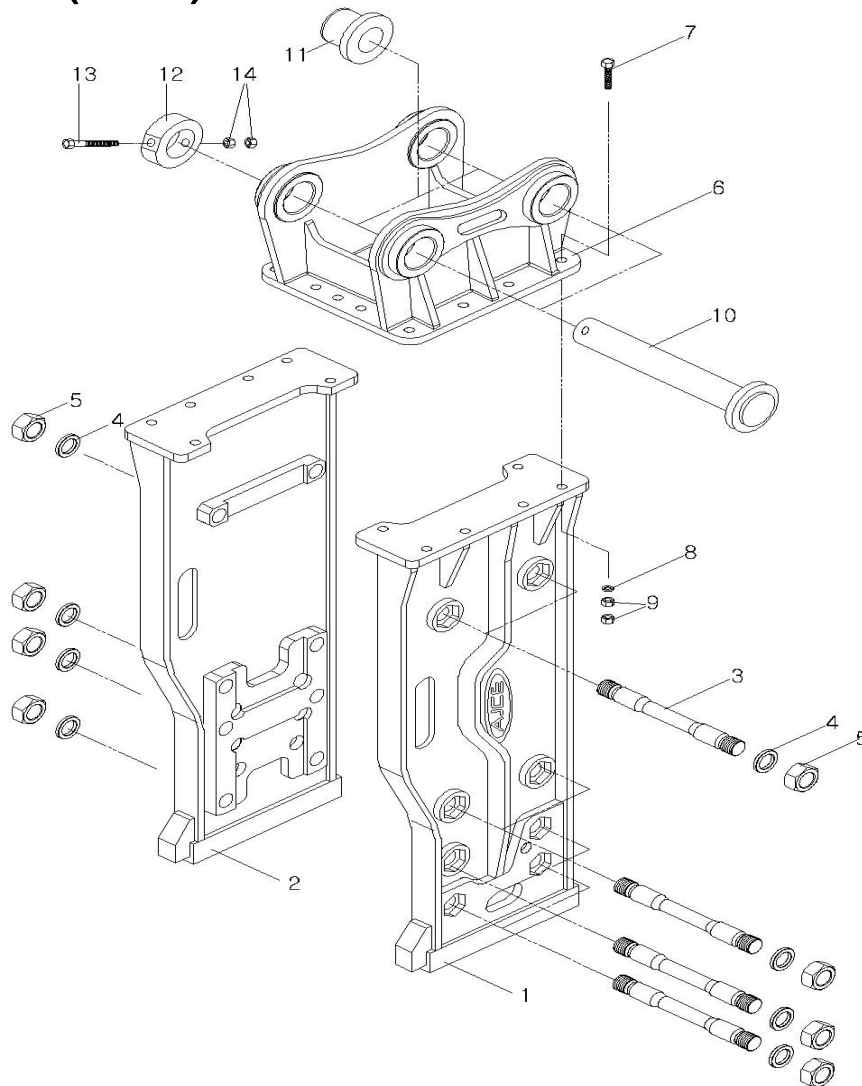
AB-600M (BOX)



NO	PART NO.	PART NAME	QTY	REMARKS
1	F60110	BOX BRACKET	1	
2	F60910	LOWER DAMPER	1	
3	F60930	FRONT PLATE	2	
4	F60940	FRONT SIDE PLATE	2	
5	F45960	SIDE PLATE (A)	4	
6	F50920	UPPER DAMPER	1	
7	F18320	UPPER PLATE	1	
8	HB2430110	HEX BOLT	12	
9	SW24	SPRING WASHER	12	
10	HN2430	HEX NUT	24	
11	F60120	GUIDE BLOCK	1	
12	1BP24	O-RING	2	
13	F50950	GUIDE DAMPER	1	
14	F60140	COVER PLATE (A)	1	
15	WB162035	WRENCH BOLT	7	
16	SW16	SPRING WASHER	7	

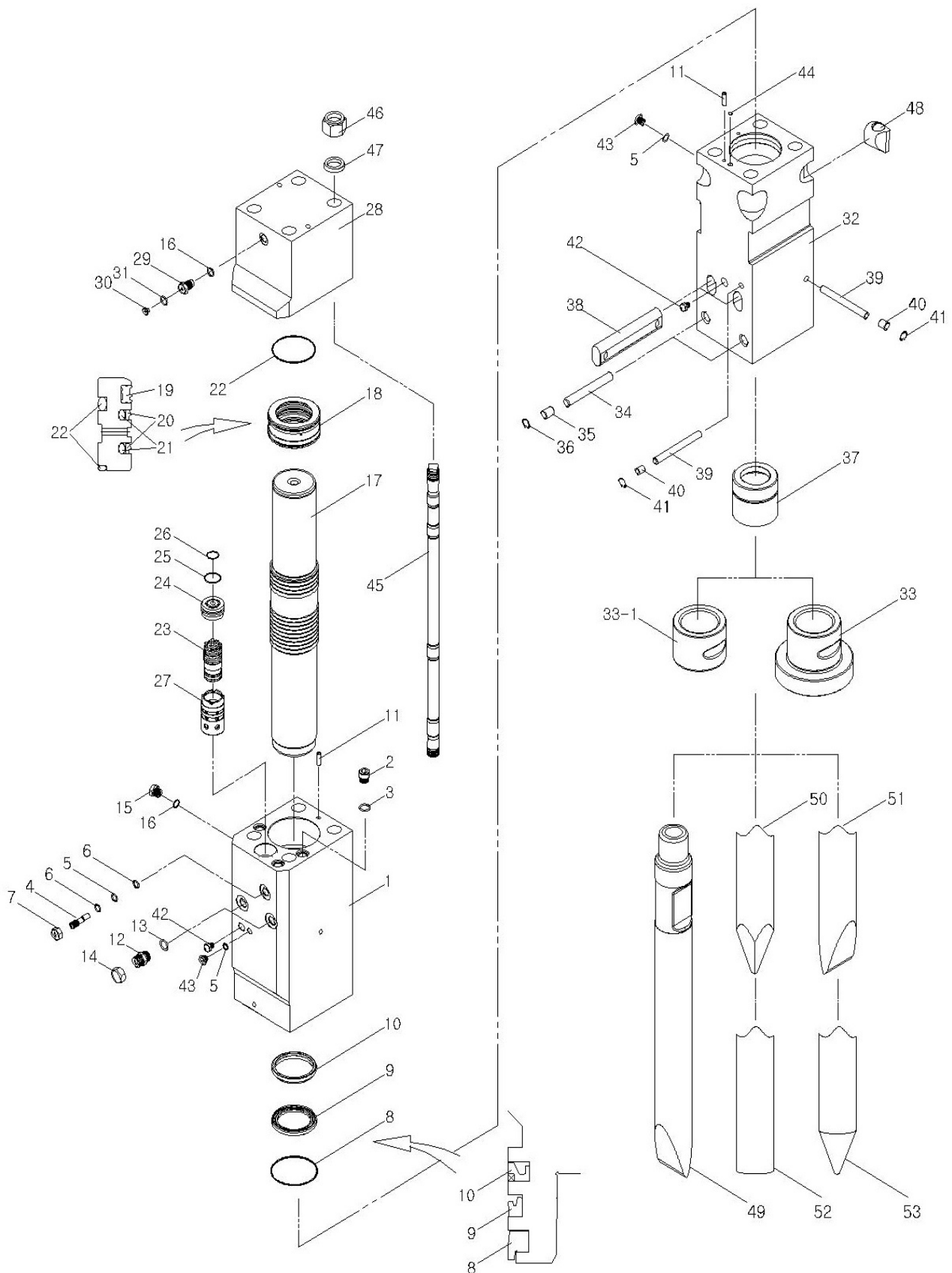
17	F60150	COVER PLATE (B)	1	
18	RP1"	IN/OUT PLUG	2	
19	RP884623	CHISEL PIN PLUG	3	
20	RP4018	STOP PIN PLUG	8	
21	RP4018X	GREASE PLUG	1	
22	RP1808022	ADAPTER PLUG	2	
-	F18800	SIDE BOLT ASSY	1	23~25
23	F18810	SIDE BOLT	1	
24	F18820	SIDE WASHER	2	
25	F18830	SIDE NUT	2	
26	1BP34	O-RING	12	
27	RP4006X	AUTO PLUG	1	

AT-600M (TOP)



NO	PART NO.	PART NAME	QTY	REMARKS
1	F60210	TOP BRACKET RIGHT	1	
2	F60220	TOP BRACKET LEFT	1	
-	F18800	SIDE BOLT ASSY	8	3~5
3	F18810	SIDE BOLT	8	
4	F18820	SIDE WASHER	16	
5	F18830	SIDE NUT	16	
6	F18340	MOUNT CAP	1	
7	HB2430110	HEX BOLT	12	
8	SW24	SPRING WASHER	12	
9	HN2430	HEX NUT	24	
-	F18700	PIN BUSH ASSY	2	10~14
10	F18710	MOUNT PIN	2	
11	F18720	T-BUSH	4	
12	F18730	STOP BAR	2	
13	HB1620180	HEX BOLT	2	
14	HN1620	HEX NUT	4	

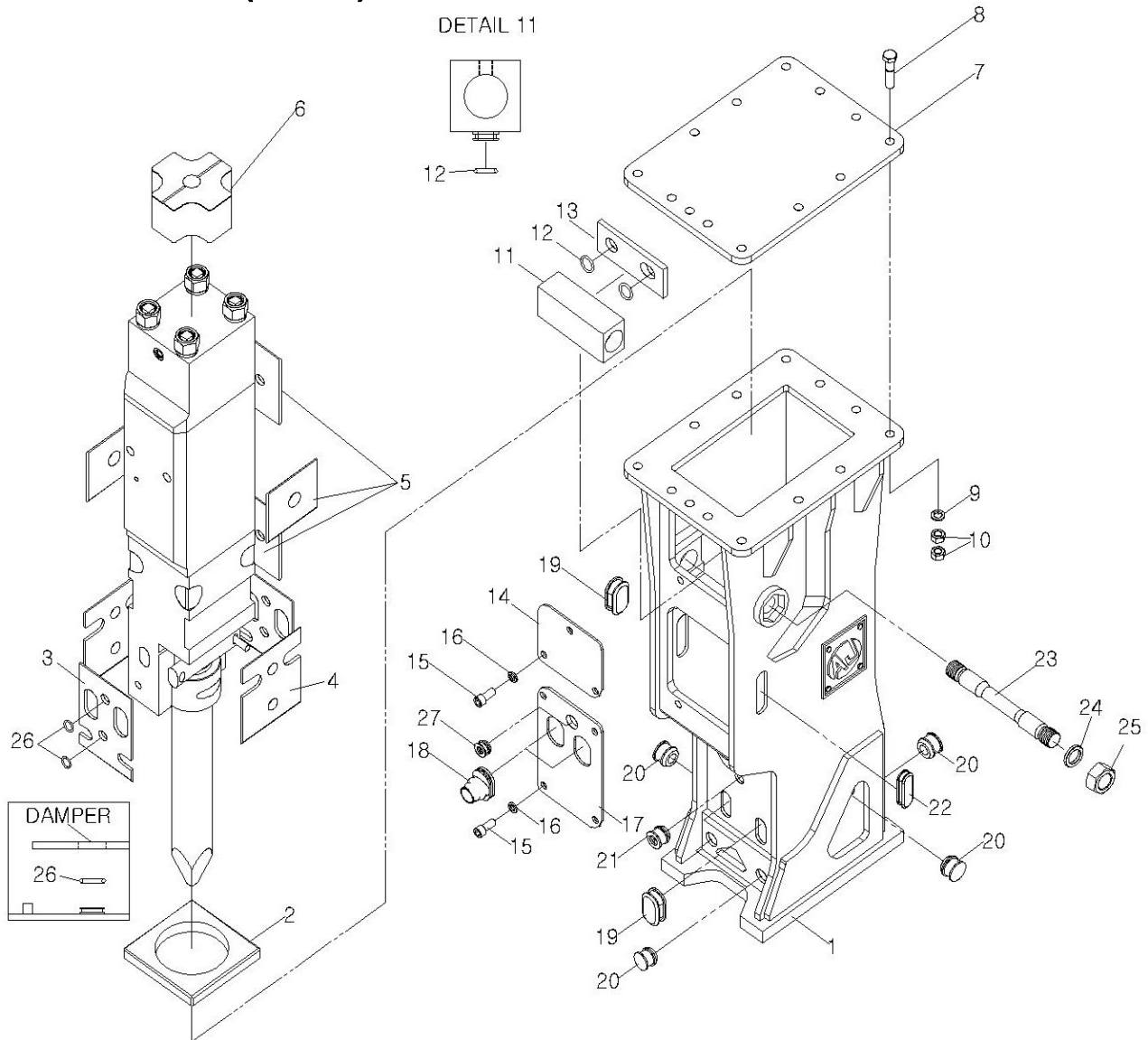
710M MAIN BODY



NO	PART NO.	PART NAME	QTY	REMARKS
-	A71100	MAIN BODY (TOP)	1	1~32,33,34~48
-	A71101	MAIN BODY (BOX)	1	1~32,33-1,34~48
-	N71100	SEAL KIT	1	
-	A71110	CYLINDER ASSY	1	1~27,41
1	B71110	CYLINDER	1	
2	D60210	SOCKET PLUG	3	
3	1BP22A	O-RING	3	
-	D71370	VALVE ADJUSTER ASSY	1	4~7
4	D71371	VALVE ADJUSTER	1	
5	1BP11	O-RING	3	
6	T3P11	BACKUP RING	2	
7	HN1815	HEX NUT	1	
8	LBI135	DUST SEAL	1	
9	IUIS135	U-PACKING	1	
10	HBV135	BUFFER SEAL	1	
11	D60510	KNOCK PIN	2	
12	D60110	IN/OUT ADAPTER	2	
13	1BP29	O-RING	2	
14	D60120	ADAPTER CAP	2	
15	D10230	AIR CHECK VALVE	1	
16	1BP18	O-RING	2	
17	B71120	PISTON	1	
-	A71130	SEAL RETAINER ASSY	1	18~22
18	B71130	SEAL RETAINER	1	
19	IKH133	GAS SEAL	1	
20	SPNS133	STEP SEAL	2	
21		O-RING	2	
22	1BG165	O-RING	3	
-	A71300	VALVE ASSY	1	23~27
23	B71340	VALVE	1	
24	B71350	VALVE PLUG	1	
25	1BG65	O-RING	1	
26	1BG50	O-RING	1	
27	B71360	VALVE SLEEVE	1	
28	B71610	BACK HEAD	1	
-	D10640	GAS CHARGING VALVE ASSY	1	16,29~31
29	D10641	GAS CHARGING VALVE	1	
30	D10642	GAS CHARGING VALVE PLUG	1	
31	1BP16	O-RING	1	
-	A71500	FRONT HEAD ASSY (TOP)	1	32,33,34~44
-	A71510	FRONT HEAD ASSY (BOX)	1	32,33-1,34~44
32	B71510	FRONT HEAD	1	B71512 (S/N 001~249)
33	C71530	LOWER BUSH (TOP)	1	
33-1	C71531	LOWER BUSH (BOX)	1	
34	C71560	BUSH PIN	2	
35	RP26	RUBBER PLUG	2	
36	SR26	SNAP RING	2	
37	C71520	UPPER BUSH	1	
38	C71540	CHISEL PIN	2	
39	C18550	STOP PIN	2	C71550 (S/N 001~249)
40	RP18	RUBBER PLUG	2	
41	SR19	SNAP RING	2	
42	D10590	GREASE NIPPLE	2	
43	WP1/4"	WRENCH PLUG	2	
44	1BP14	O-RING	1	
-	A71700	THROUGH BOLT ASSY	4	45~48

45	C71710	THROUGH BOLT	4	
46	C71720	THROUGH BOLT TOP NUT	4	
47	C71730	THROUGH BOLT WASHER	4	
48	C71740	THROUGH BOLT BOTTOM NUT	4	
49	K71100	H-WEDGE CHISEL	1	
50	K71200	MOIL POINT	1	
51	K71300	V-WEDGE CHISEL	1	
52	K71500	BLUNT CHISEL	1	
53	K71600	CONE CHISEL	1	

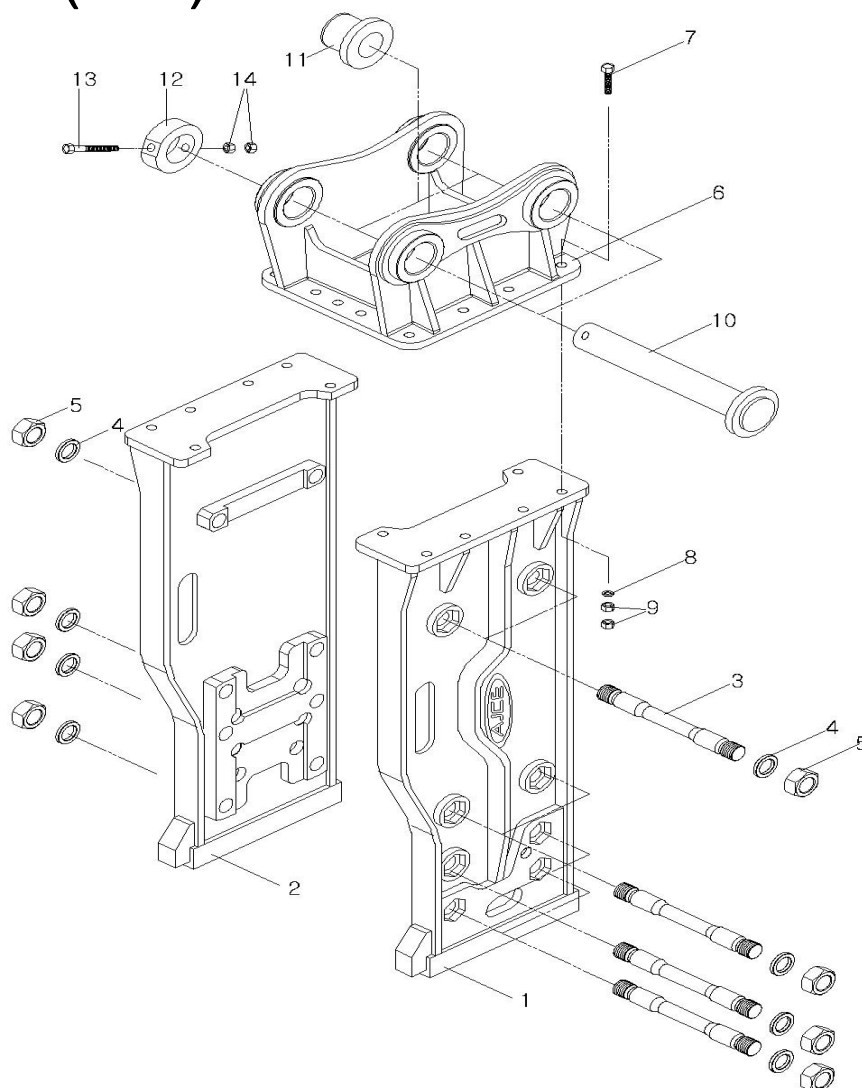
AB-710M (BOX)



NO	PART NO.	PART NAME	QTY	REMARKS
1	F71110	BOX BRACKET	1	
2	F71910	LOWER DAMPER	1	
3	F71930	FRONT PLATE	2	
4	F60940	FRONT SIDE PLATE	2	
5	F71970	SIDE PLATE (B)	4	
6	F71920	UPPER DAMPER	1	
7	F28340	UPPER PLATE	1	
8	HB3035140	HEX BOLT	12	
9	SW30	SPRING WASHER	12	
10	HN3035	HEX NUT	24	
11	F60120	GUIDE BLOCK	1	
12	1BP24	O-RING	2	
13	F50950	GUIDE DAMPER	1	
14	F71140	COVER PLATE (A)	1	
15	WB162035	WRENCH BOLT	7	
16	SW16	SPRING WASHER	7	

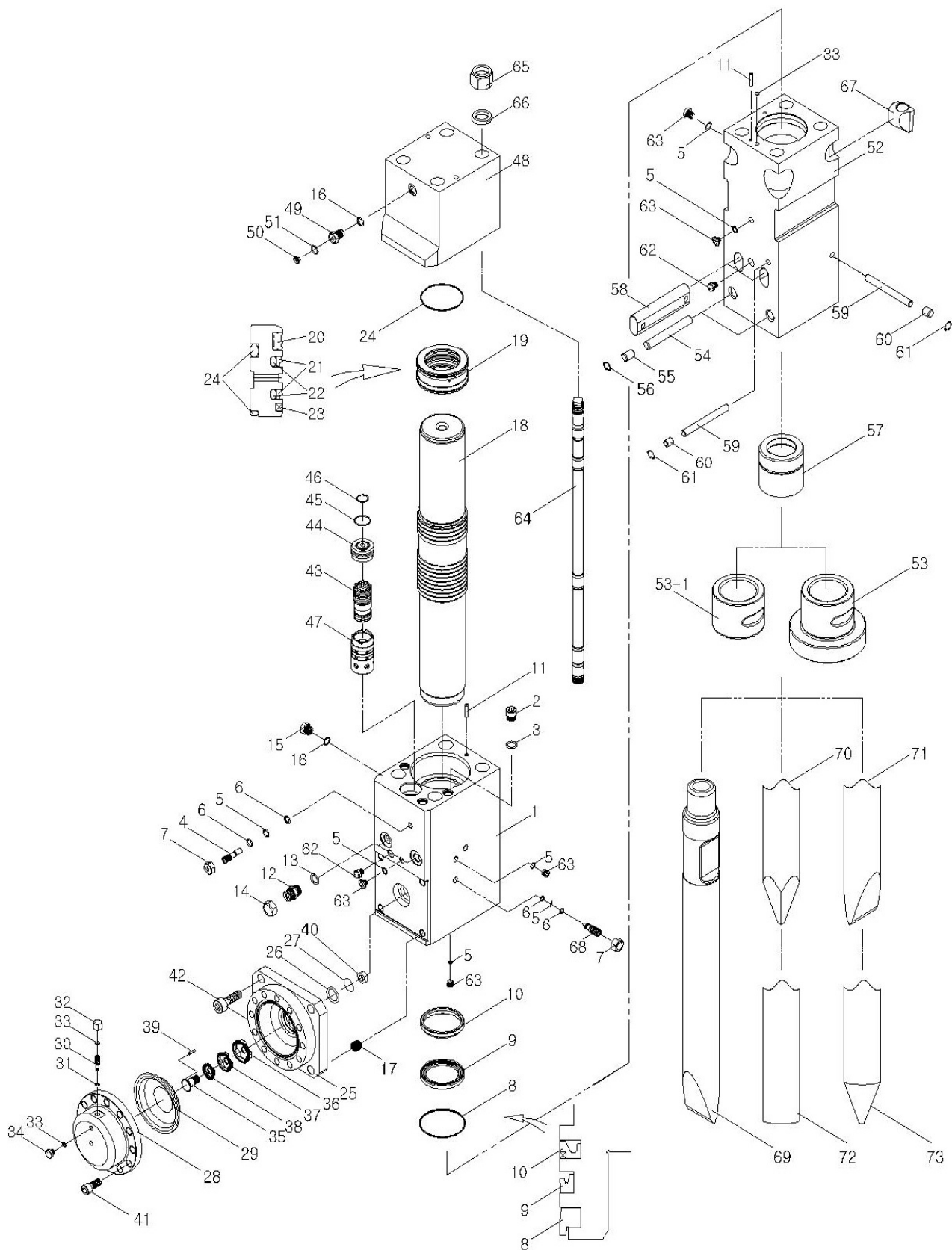
17	F71150	COVER PLATE (B)	1	
18	RP1"	IN/OUT PLUG	2	
19	RP884623	CHISEL PIN PLUG	3	
20	RP4018	STOP PIN PLUG	8	
21	RP4018X	GREASE PLUG	1	
22	RP1808022	ADAPTER PLUG	2	
-	F18700	SIDE BOLT ASSY	1	23~25
23	F18710	SIDE BOLT	1	
24	F18720	SIDE WASHER	2	
25	F18730	SIDE NUT	2	
26	1BP34	O-RING	12	
27	RP4006X	AUTO PLUG	1	

AT-710M (TOP)



NO	PART NO.	PART NAME	QTY	REMARKS
1	F71210	TOP BRACKET RIGHT	1	
2	F71220	TOP BRACKET LEFT	1	
-	F28800	SIDE BOLT ASSY	8	3~5
3	F28810	SIDE BOLT	8	
4	F28820	SIDE WASHER	16	
5	F28830	SIDE NUT	16	
6	F28340	MOUNT CAP	1	
7	HB3035140	HEX BOLT	12	
8	SW30	SPRING WASHER	12	
9	HN3035	HEX NUT	24	
-	F28700	PIN BUSH ASSY	2	10~14
10	F28710	MOUNT PIN	2	
11	F28720	T-BUSH	4	
12	F28730	STOP BAR	2	
13	HB1620180	HEX BOLT	2	
14	HN1620	HEX NUT	4	

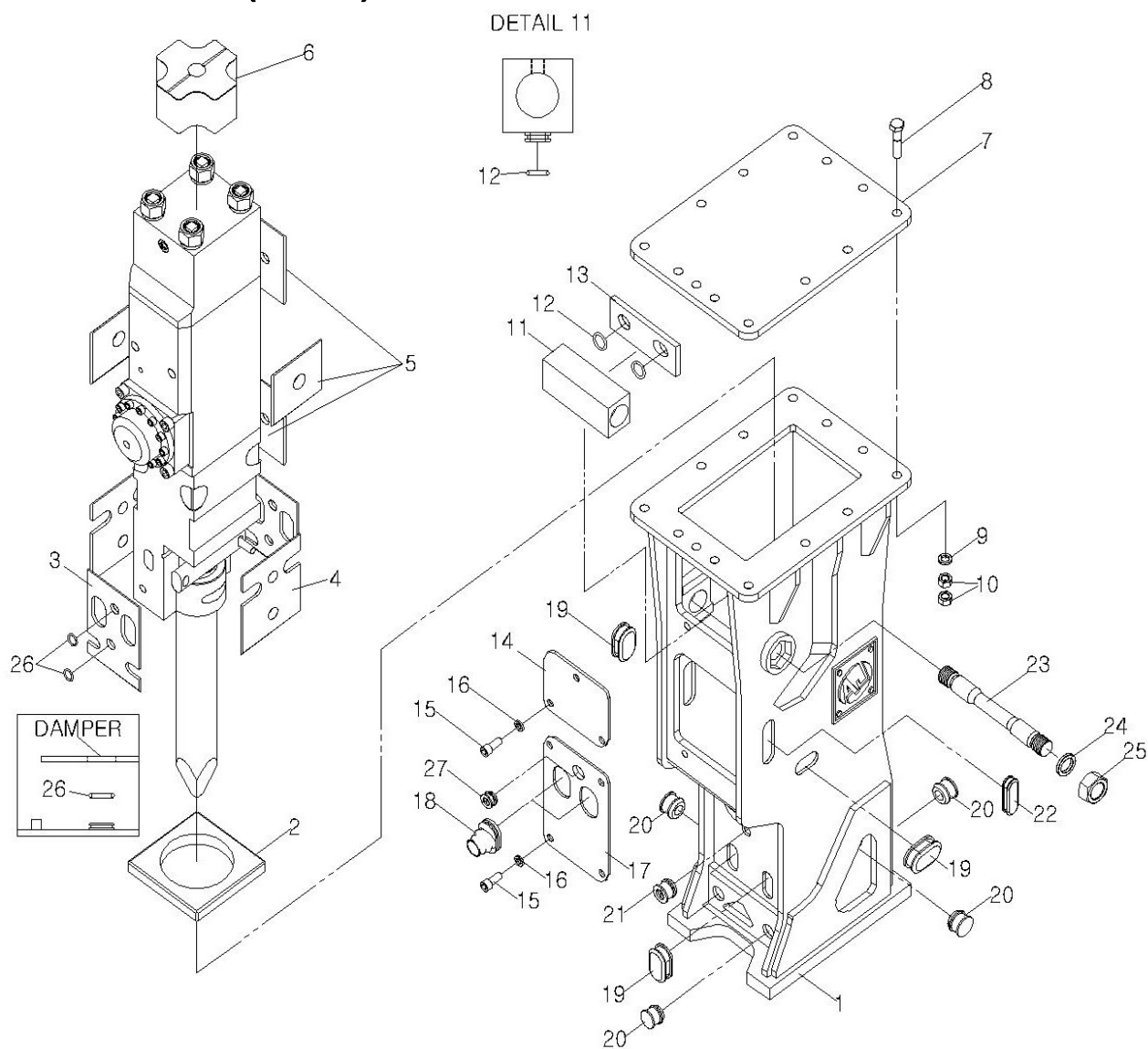
810M MAIN BODY



NO	PART NO.	PART NAME	QTY	REMARKS
-	A81100	MAIN BODY (TOP)	1	1~52,53,54~68
-	A81101	MAIN BODY (BOX)	1	1~52,53-1,54~68
-	N81100	SEAL KIT	1	
-	A81110	CYLINDER ASSY	1	1~47,61
1	B81110	CYLINDER	1	
2	D81210	SOCKET PLUG	3	
3	1BP25	O-RING	3	
-	D71370	VALVE ADJUSTER ASSY	1	4~7
4	D71371	VALVE ADJUSTER	1	
5	1BP11	O-RING	7	
6	T3P11	BACKUP RING	4	
7	HN1815	HEX NUT	1	
8	LPI140	DUST SEAL	1	
9	ISI140	U-PACKING	1	
10	HBV140	BUFFER SEAL	1	
11	D60510	KNOCK PIN	2	
12	D60110	IN/OUT ADAPTER	2	
13	1BP29	O-RING	2	
14	D60120	ADAPTER CAP	2	
15	D10230	AIR CHECK VALVE	1	
16	1BP18	O-RING	2	
17	HC243015	HELI SERT COIL	4	
18	B81120	PISTON	1	
-	A81130	SEAL RETAINER ASSY	1	19~24
19	B81130	SEAL RETAINER	1	
20	IKH138	GAS SEAL	1	
21	SPNS138	STEP SEAL	2	
22		O-RING	2	
23	SRTN138	BUFFER RING	1	
24	1BG180	O-RING	3	
-	F28200	ACCUMULATOR ASSY	1	25~41
25	B28210	ACCUMULATOR BODY	1	
26	1BG80	O-RING	1	
27	4BG80	BACKUP RING	1	
28	B28220	ACCUMULATOR COVER	1	
29	C28510	DIAPHRAGM	1	
-	D28250	ACC CHARGING VALVE ASSY	1	30~34
30	D28251	ACC CHARGING VALVE	1	
31	1AP5	O-RING	1	
32	D18252	ACC CHARGING VALVE CAP	1	
33	1BP14	O-RING	3	
34	D18253	ACC CHARGING VALVE PLUG	1	
-	D18240	ACC HOLDER ASSY	1	35~40
35	D18241	ACC HOLDER CENTER PIN	1	
36	D18242	ACC HOLDER (A)	1	
37	D18243	ACC HOLDER (B)	1	
38	D18244	ACC HOLDER (C)	1	
39	D18245	ACC HOLDER GUIDE PIN	1	
40	D18246	ACC HOLDER NUT	1	
41	WB181550	WRENCH BOLT	12	
42	WB243065	WRENCH BOLT	4	
-	A81300	VALVE ASSY	1	43~47
43	B81340	VALVE	1	
44	B81350	VALVE PLUG	1	
45	1BG70	O-RING	1	
46	1BG55	O-RING	1	

47	B81360	VALVE SLEEVE	1	
48	B81610	BACK HEAD	1	
-	D10640	GAS CHARGING VALVE ASSY	1	16,49~51
49	D10641	GAS CHARGING VALVE	1	
50	D10642	GAS CHARGING VALVE PLUG	1	
51	1BP16	O-RING	1	
-	A81500	FRONT HEAD ASSY (TOP)	1	52,53,54~63
-	A81510	FRONT HEAD ASSY (BOX)	1	52,53-1,54~63
52	B81510	FRONT HEAD	1	
53	C81530	LOWER BUSH (TOP)	1	
53-1	C81531	LOWER BUSH (BOX)	1	
54	C81560	BUSH PIN	2	
55	RP30	RUBBER PLUG	2	
56	SR30	SNAP RING	2	
57	C81520	UPPER BUSH	1	
58	C81540	CHISEL PIN	2	
59	C28550	STOP PIN	2	
60	RP20	RUBBER PLUG	2	
61	SR21	SNAP RING	2	
62	D10590	GREASE NIPPLE	2	
63	WP1/4"	WRENCH PLUG	5	
-	A81700	THROUGH BOLT ASSY	4	64~67
64	C81710	THROUGH BOLT	4	
65	C81720	THROUGH BOLT TOP NUT	4	
66	C81730	THROUGH BOLT WASHER	4	
67	C81740	THROUGH BOLT BOTTOM NUT	4	
-	D81380	ABF ADJUSTER ASSY	1	5~7,68
68	D81381	ABF ADJUSTER	1	
69	K81100	H-WEDGE CHISEL	1	
70	K81200	MOIL POINT	1	
71	K81300	V-WEDGE CHISEL	1	
72	K81500	BLUNT CHISEL	1	
73	K81600	CONE CHISEL	1	

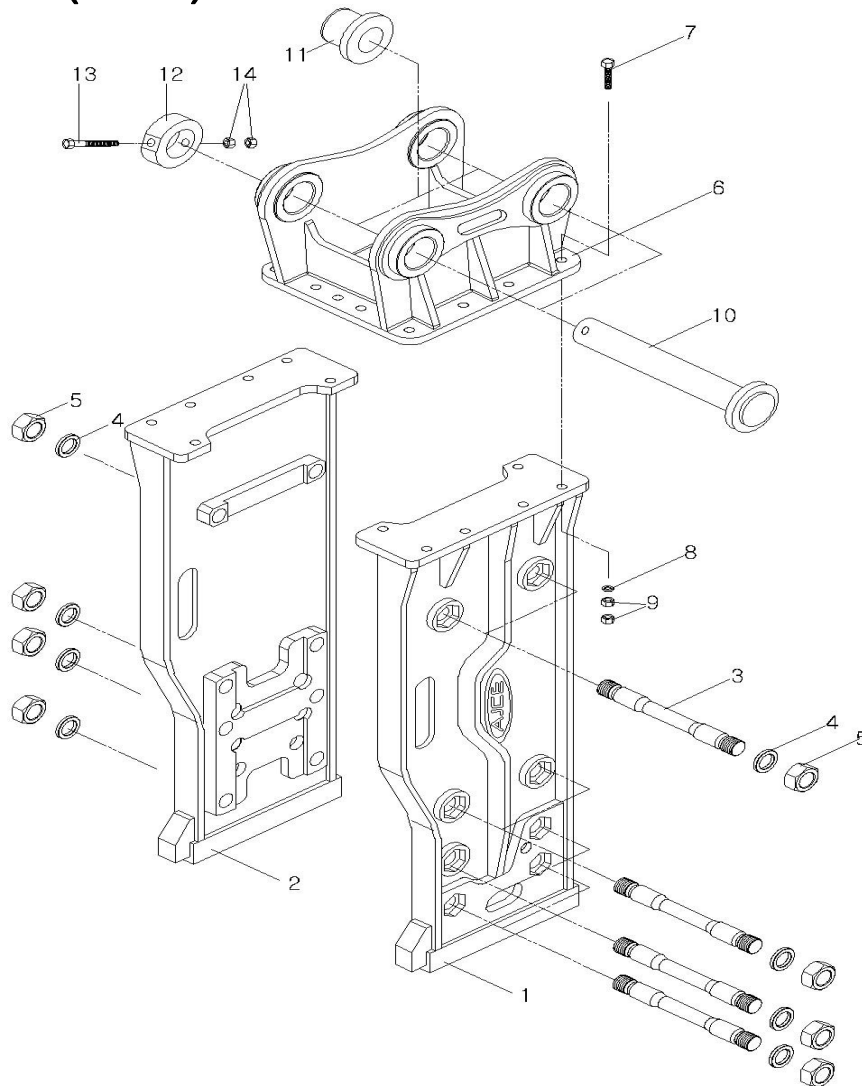
AB-810M (BOX)



NO	PART NO.	PART NAME	QTY	REMARKS
1	F81110	BOX BRACKET	1	
2	F81910	LOWER DAMPER	1	
3	F81930	FRONT PLATE	2	
4	F81940	FRONT SIDE PLATE	2	
5	F71970	SIDE PLATE (B)	4	
6	F81920	UPPER DAMPER	1	
7	F28340	UPPER PLATE	1	
8	HB3035140	HEX BOLT	12	
9	SW30	SPRING WASHER	12	
10	HN3035	HEX NUT	24	
11	F81120	GUIDE BLOCK	1	
12	1BP24	O-RING	2	
13	F81950	GUIDE DAMPER	1	
14	F81140	COVER PLATE (A)	1	
15	WB162035	WRENCH BOLT	7	
16	SW16	SPRING WASHER	7	

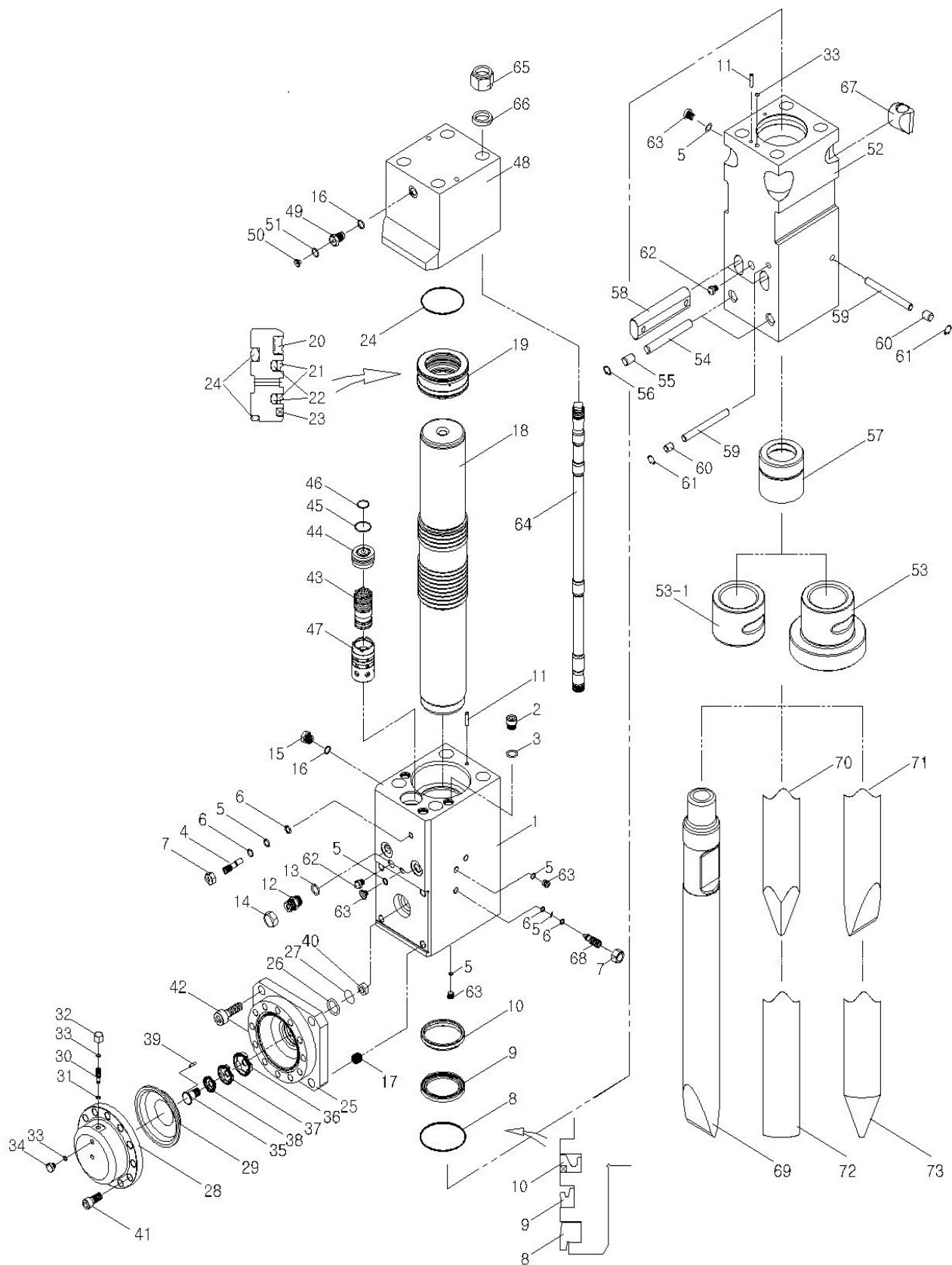
17	F81150	COVER PLATE (B)	1	
18	RP1"	IN/OUT PLUG	2	
19	RP884623	CHISEL PIN PLUG	4	
20	RP4018	STOP PIN PLUG	8	
21	RP4018X	GREASE PLUG	1	
22	RP1808022	ADAPTER PLUG	2	
-	F28800	SIDE BOLT ASSY	1	23~25
23	F28810	SIDE BOLT	1	
24	F28820	SIDE WASHER	2	
25	F28830	SIDE NUT	2	
26	1BP34	O-RING	12	
27	RP4006X	AUTO PLUG	1	

AT-810M (TOP)



NO	PART NO.	PART NAME	QTY	REMARKS
1	F81210	TOP BRACKET RIGHT	1	
2	F81220	TOP BRACKET LEFT	1	
-	F28800	SIDE BOLT ASSY	8	3~5
3	F28810	SIDE BOLT	8	
4	F28820	SIDE WASHER	16	
5	F28830	SIDE NUT	16	
6	F28340	MOUNT CAP	1	
7	HB3035140	HEX BOLT	12	
8	SW30	SPRING WASHER	12	
9	HN3035	HEX NUT	24	
-	F28700	PIN BUSH ASSY	2	10~14
10	F28710	MOUNT PIN	2	
11	F28720	T-BUSH	4	
12	F28730	STOP BAR	2	
13	HB1620180	HEX BOLT	2	
14	HN1620	HEX NUT	4	

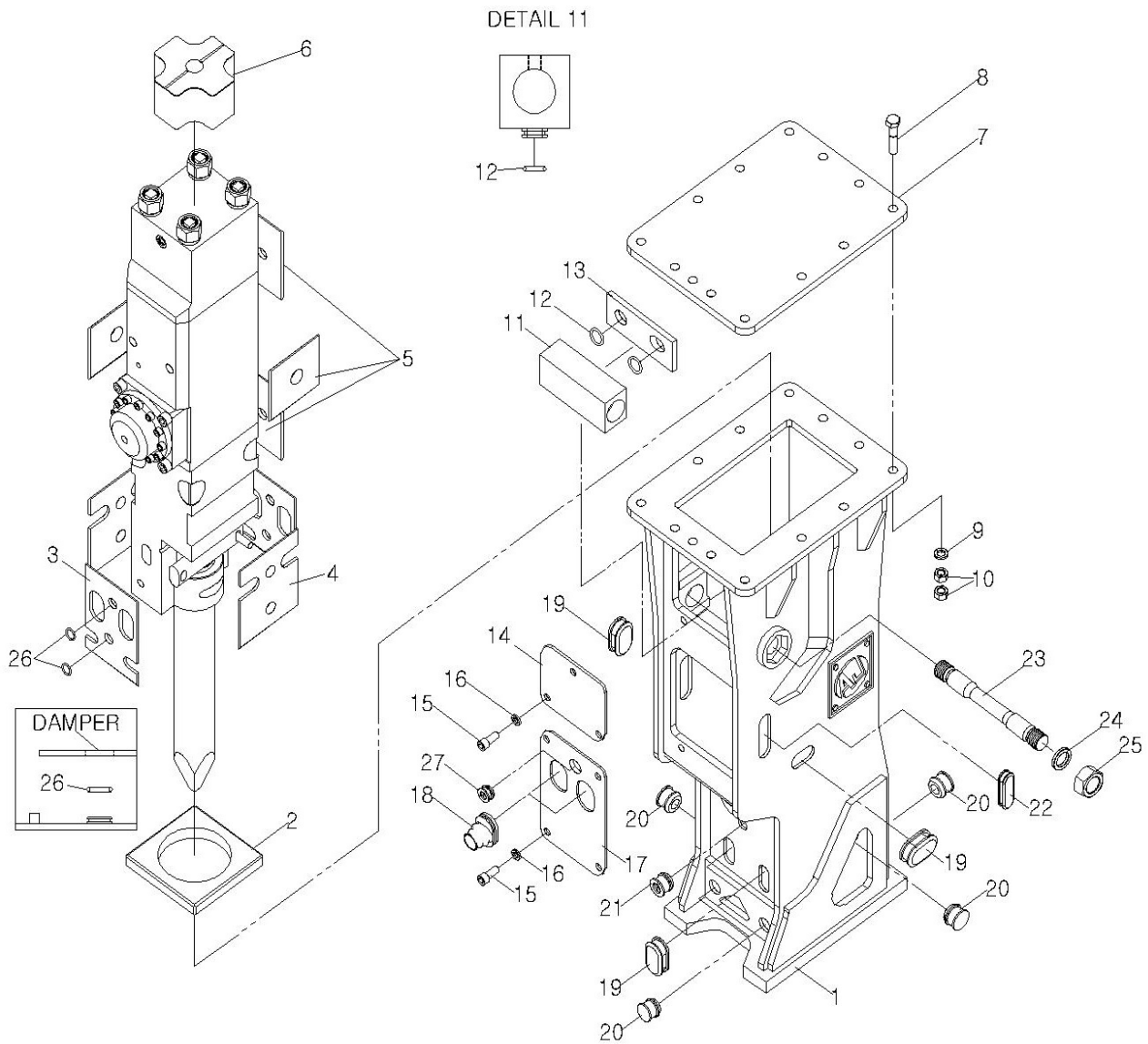
1000M MAIN BODY



NO	PART NO.	PART NAME	QTY	REMARKS
-	A100100	MAIN BODY (TOP)	1	1~52,53,54~68
-	A100101	MAIN BODY (BOX)	1	1~52,53-1,54~68
-	N100100	SEAL KIT	1	
-	A100110	CYLINDER ASSY	1	1~47,61
1	B100110	CYLINDER	1	B100111 (S/N 001~159)
2	D81210	SOCKET PLUG	3	
3	1BP25	O-RING	3	
-	D100370	VALVE ADJUSTER ASSY	1	4~7
4	D100371	VALVE ADJUSTER	1	
5	1BP11	O-RING	6	
6	T3P11	BACKUP RING	4	
7	HN1815	HEX NUT	1	
8	DSI150	DUST SEAL	1	
9	ISI150	U-PACKING	1	
10	IUIY150	BUFFER SEAL	1	
11	D60510	KNOCK PIN	2	
12	D100110	IN/OUT ADAPTER	2	
13	1BP38	O-RING	2	
14	D60120	ADAPTER CAP	2	
15	D10230	AIR CHECK VALVE	1	
16	1BP18	O-RING	2	
17	HC242015	HELI SERT COIL	4	HC243015 (S/N 001~159)
18	B100120	PISTON	1	
-	A100130	SEAL RETAINER ASSY	1	19~24
19	B100130	SEAL RETAINER	1	
20	IKH147	GAS SEAL	1	
21	SPNS147F	STEP SEAL	2	
22		O-RING	2	
23	SRTN147	BUFFER RING	1	
24	1BG190	O-RING	3	
-	F28200	ACCUMULATOR ASSY	1	25~41
25	B28210	ACCUMULATOR BODY	1	
26	1BG80	O-RING	1	
27	4BG80	BACKUP RING	1	
28	B28220	ACCUMULATOR COVER	1	
29	C28510	DIAPHRAGM	1	
-	D28250	ACC CHARGING VALVE ASSY	1	30~34
30	D28251	ACC CHARGING VALVE	1	
31	1AP5	O-RING	1	
32	D18252	ACC CHARGING VALVE CAP	1	
33	1BP14	O-RING	3	
34	D18253	ACC CHARGING VALVE PLUG	1	
-	D18240	ACC HOLDER ASSY	1	35~40
35	D18241	ACC HOLDER CENTER PIN	1	
36	D18242	ACC HOLDER (A)	1	
37	D18243	ACC HOLDER (B)	1	
38	D18244	ACC HOLDER (C)	1	
39	D18245	ACC HOLDER GUIDE PIN	1	
40	D18246	ACC HOLDER NUT	1	
41	WB181550	WRENCH BOLT	12	
42	WB242065	WRENCH BOLT	4	HC243065 (S/N 001~159)
-	A100300	VALVE ASSY	1	43~47
43	B100340	VALVE	1	
44	B100350	VALVE PLUG	1	
45	1BG70	O-RING	1	
46	1BG55	O-RING	1	

47	B100360	VALVE SLEEVE	1	
48	B100610	BACK HEAD	1	
-	D10640	GAS CHARGING VALVE ASSY	1	16,49~51
49	D10641	GAS CHARGING VALVE	1	
50	D10642	GAS CHARGING VALVE PLUG	1	
51	1BP16	O-RING	1	
-	A100500	FRONT HEAD ASSY (TOP)	1	52,53,54~63
-	A100510	FRONT HEAD ASSY (BOX)	1	52,53-1,54~63
52	B100510	FRONT HEAD	1	C100512 (S/N 001~154)
53	C100530	LOWER BUSH (TOP)	1	
53-1	C100531	LOWER BUSH (BOX)	1	
54	C71560	BUSH PIN	2	C100560 (S/N 001~154)
55	RP26	RUBBER PLUG	2	
56	SR26	SNAP RING	2	
57	C100520	UPPER BUSH	1	
58	C100540	CHISEL PIN	2	
59	C100550	STOP PIN	2	
60	RP18	RUBBER PLUG	2	
61	SR19	SNAP RING	2	
62	D10590	GREASE NIPPLE	2	
63	WP1/4"	WRENCH PLUG	4	
-	A100700	THROUGH BOLT ASSY	4	64~67
64	C100710	THROUGH BOLT	4	
65	C100720	THROUGH BOLT TOP NUT	4	
66	C100730	THROUGH BOLT WASHER	4	
67	C100740	THROUGH BOLT BOTTOM NUT	4	
-	D81380	ABF ADJUSTER ASSY	1	5~7,68
68	D81381	ABF ADJUSTER	1	
69	K100100	H-WEDGE CHISEL	1	
70	K100200	MOIL POINT	1	
71	K100300	V-WEDGE CHISEL	1	
72	K100500	BLUNT CHISEL	1	
73	K100600	CONE CHISEL	1	

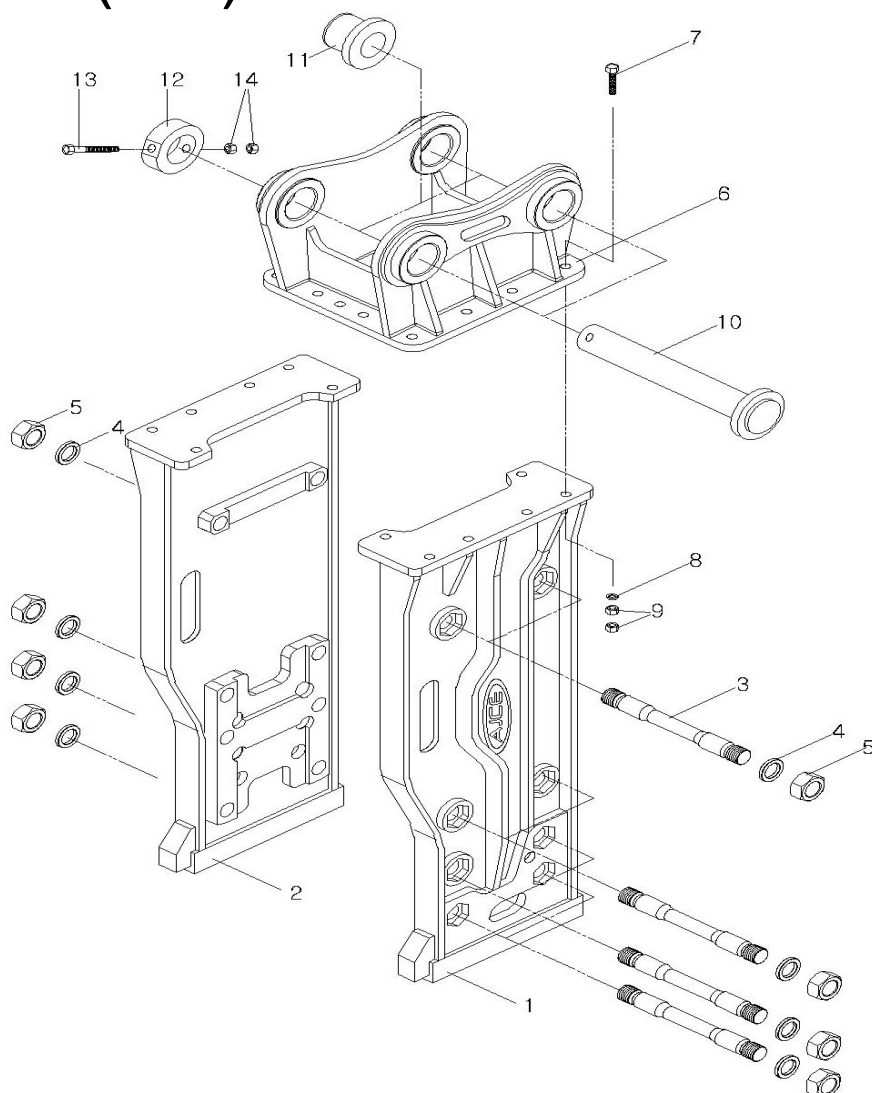
AB-1000M (BOX)



NO	PART NO.	PART NAME	QTY	REMARKS
1	F100110	BOX BRACKET	1	
2	F100910	LOWER DAMPER	1	
3	F100930	FRONT PLATE	2	
4	F100940	FRONT SIDE PLATE	2	
5	F71970	SIDE PLATE (B)	4	
6	F81920	UPPER DAMPER	1	
7	F38340	UPPER PLATE	1	
8	HB3035140	HEX BOLT	12	
9	SW30	SPRING WASHER	12	
10	HN3035	HEX NUT	24	
11	F100120	GUIDE BLOCK	1	
12	1BP24	O-RING	2	
13	F38950	GUIDE DAMPER	1	
14	F100140	COVER PLATE (A)	1	
15	WB162035	WRENCH BOLT	7	
16	SW16	SPRING WASHER	7	

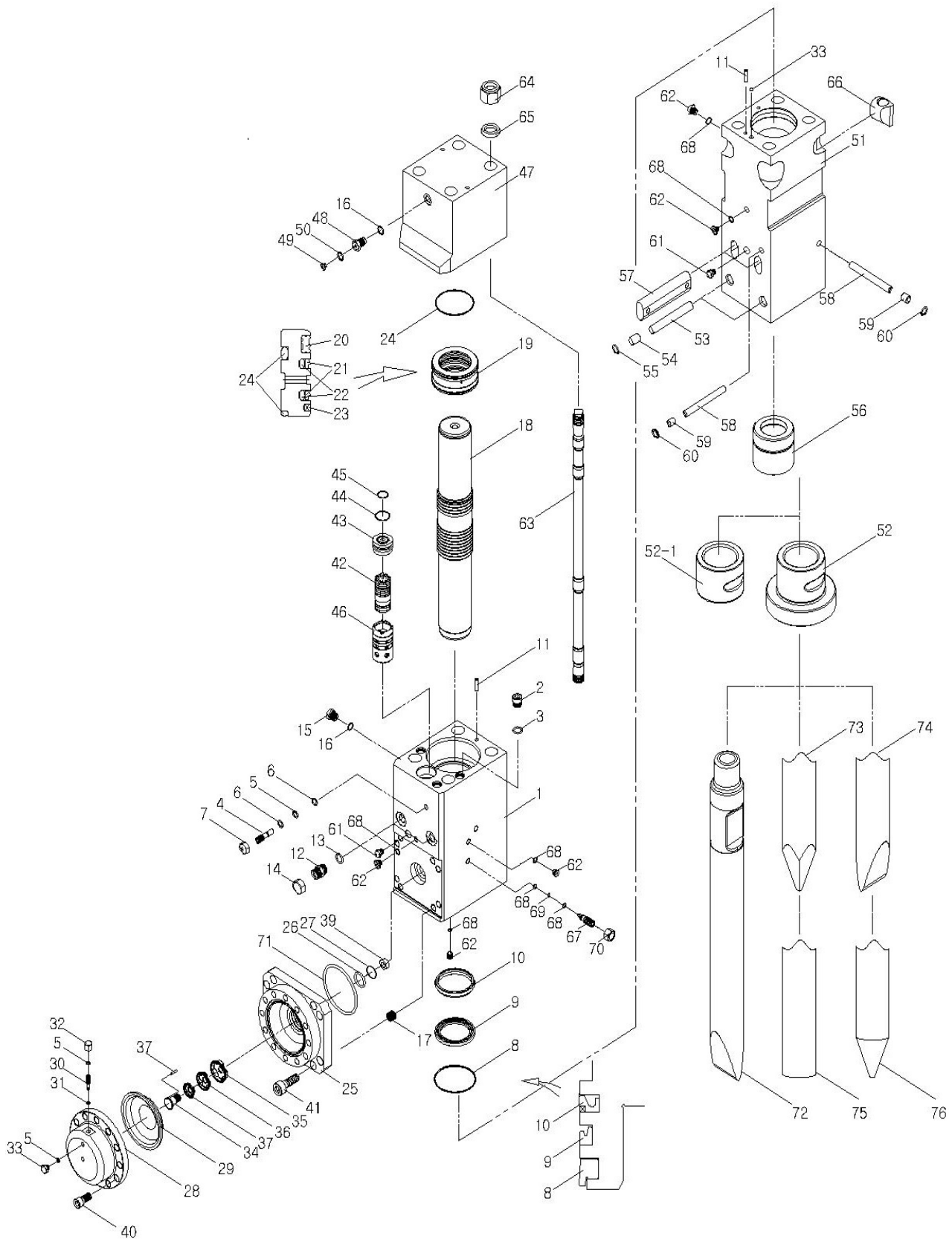
17	F100150	COVER PLATE (B)	1	
18	RP1"	IN/OUT PLUG	2	
19	RP1236023	CHISEL PIN PLUG	4	
20	RP4022	STOP PIN PLUG	8	
21	RP4023X	GREASE PLUG	1	
22	RP1808022	ADAPTER PLUG	2	
-	F28800	SIDE BOLT ASSY	1	23~25
23	F28810	SIDE BOLT	1	
24	F28820	SIDE WASHER	2	
25	F28830	SIDE NUT	2	
26	1BP34	O-RING	12	
27	RP4006X	AUTO PLUG	1	

AT-1000M (TOP)



NO	PART NO.	PART NAME	QTY	REMARKS
1	F100210	TOP BRACKET RIGHT	1	
2	F100220	TOP BRACKET LEFT	1	
-	F100800	SIDE BOLT ASSY	8	3~5
3	F100810	SIDE BOLT	8	
4	F100820	SIDE WASHER	16	
5	F100830	SIDE NUT	16	
6	F38340	MOUNT CAP	1	
7	HB3035140	HEX BOLT	12	
8	SW30	SPRING WASHER	12	
9	HN3035	HEX NUT	24	
-	F38700	PIN BUSH ASSY	2	10~14
10	F38710	MOUNT PIN	2	
11	F38720	T-BUSH	4	
12	F38730	STOP BAR	2	
13	HB1620190	HEX BOLT	2	
14	HN1620	HEX NUT	4	

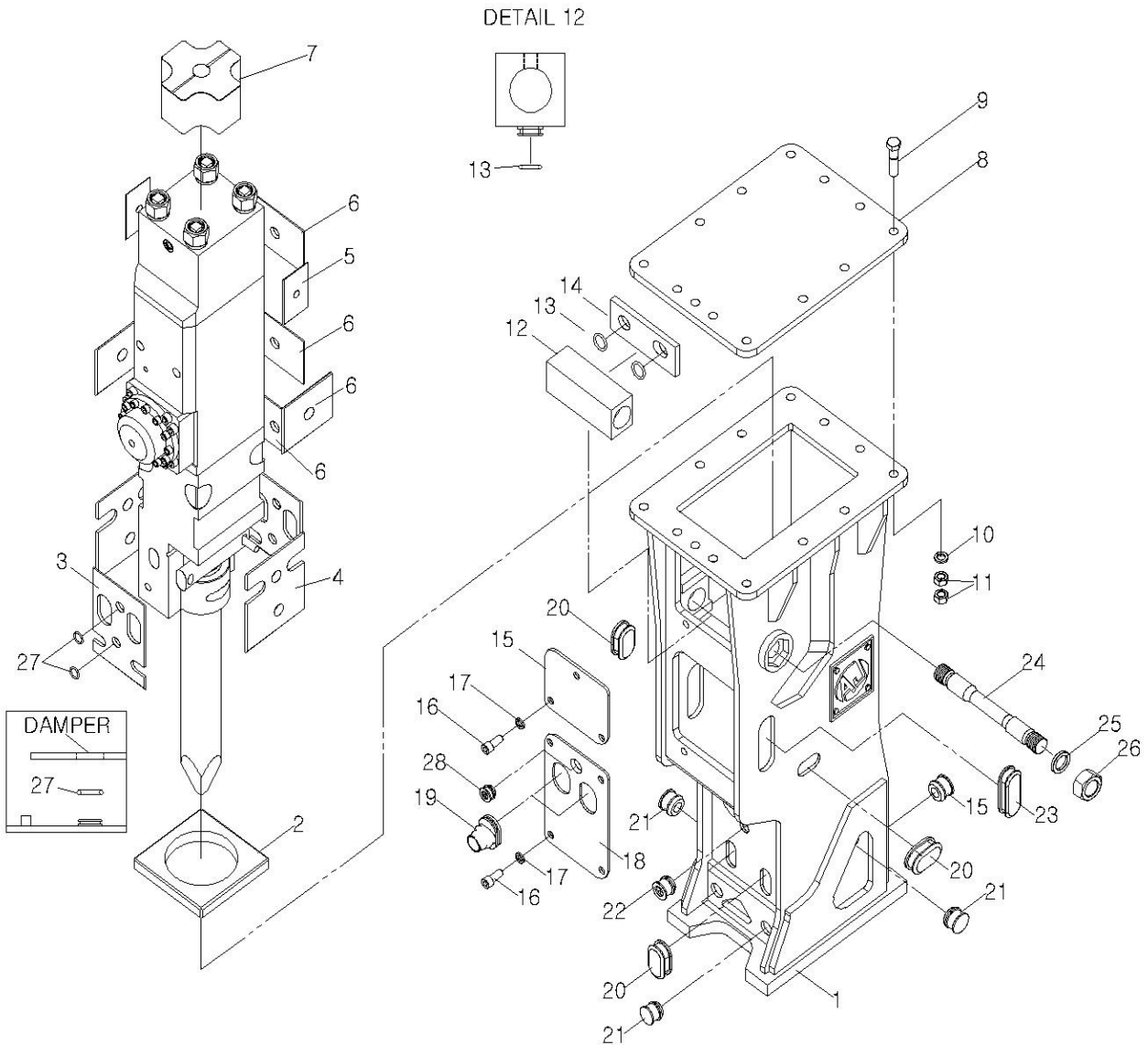
1200M MAIN BODY



NO	PART NO.	PART NAME	QTY	REMARKS
-	A120100	MAIN BODY (TOP)	1	1~52,53,54~72
-	A120101	MAIN BODY (BOX)	1	1~52,53-1,54~72
-	N120100	SEAL KIT	1	
-	A120110	CYLINDER ASSY	1	1~47
1	B120110	CYLINDER	1	B120111 (S/N 001~1706)
2	D120210	SOCKET PLUG	3	
3	1BP32	O-RING	3	
-	D120370	VALVE ADJUSTER ASSY	1	4~7
4	D120371	VALVE ADJUSTER	1	
5	1BP14	O-RING	2	
6	T3P14	BACKUP RING	2	
7	HN2215	HEX NUT	1	
8	LBI160	DUST SEAL	1	
9	IUIS160	U-PACKING	1	
10	IUIY160	BUFFER SEAL	1	
11	D60510	KNOCK PIN	2	
12	D120110	IN/OUT ADAPTER	2	
13	1BP38	O-RING	2	
14	D120120	ADAPTER CAP	2	
15	D10230	AIR CHECK VALVE	1	
16	1BP18	O-RING	2	
17	HC243015	HELI SERT COIL	8	HC242015 (S/N 001~1706)
18	B120120	PISTON	1	
-	A120130	SEAL RETAINER ASSY	1	19~24
19	B120130	SEAL RETAINER	1	
20	IKH157	GAS SEAL	1	
21	SPNS157	STEP SEAL	2	
22		O-RING	2	
23	SRTN157	BUFFER RING	1	
24	1BG195	O-RING	3	
-	F120200	ACCUMULATOR ASSY	1	5,25~40
25	B120210	ACCUMULATOR BODY	1	B120211 (S/N 001~1706)
26	1BG95	O-RING	1	
27	4BG95	BACKUP RING	1	
28	B120220	ACCUMULATOR COVER	1	
29	C120510	DIAPHRAGM	1	
-	D28250	ACC CHARGING VALVE ASSY	1	5,30~33
30	D28251	ACC CHARGING VALVE	1	
31	1AP5	O-RING	1	
32	D18252	ACC CHARGING VALVE CAP	1	
33	D18253	ACC CHARGING VALVE PLUG	1	
-	D120240	ACC HOLDER ASSY	1	34~39
34	D120241	ACC HOLDER CENTER PIN	1	
35	D120242	ACC HOLDER (A)	1	
36	D120243	ACC HOLDER (B)	1	
37	D120244	ACC HOLDER (C)	1	
38	D120245	ACC HOLDER GUIDE PIN	1	
39	D18246	ACC HOLDER NUT	1	
40	WB162045	WRENCH BOLT	16	
41	WB243065	WRENCH BOLT	8	HC242065 (S/N 001~1706)
-	A120300	VALVE ASSY	1	42~46
42	B120340	VALVE	1	
43	B120350	VALVE PLUG	1	
44	1BG85	O-RING	1	
45	1BG55	O-RING	1	
46	B120360	VALVE SLEEVE	1	

47	B120610	BACK HEAD	1	
-	D10640	GAS CHARGING VALVE ASSY	1	16,48~50
48	D10641	GAS CHARGING VALVE	1	
49	D10642	GAS CHARGING VALVE PLUG	1	
50	1BP16	O-RING	1	
-	A120500	FRONT HEAD ASSY (TOP)	1	51,52,53~62,68
-	A120510	FRONT HEAD ASSY (BOX)	1	51,52-1,53~62,68
51	B120510	FRONT HEAD	1	
52	C120530	LOWER BUSH (TOP)	1	
52-1	C120531	LOWER BUSH (BOX)	1	
53	C120560	BUSH PIN	2	
54	RP26	RUBBER PLUG	2	
55	SR26	SNAP RING	2	
56	C120520	UPPER BUSH	1	
57	C120540	CHISEL PIN	2	
58	C120550	STOP PIN	2	
59	RP18	RUBBER PLUG	2	
60	SR19	SNAP RING	2	
61	D10590	GREASE NIPPLE	2	
62	WP1/4"	WRENCH PLUG	5	
-	A120700	THROUGH BOLT ASSY	4	63~66
63	C120710	THROUGH BOLT	4	
64	C120720	THROUGH BOLT TOP NUT	4	
65	C100730	THROUGH BOLT WASHER	4	
66	C100740	THROUGH BOLT BOTTOM NUT	4	
-	D81380	ABF ADJUSTER ASSY	1	67~70
67	D81381	ABF ADJUSTER	1	
68	1BP11	O-RING	6	
69	T3P11	BACKUP RING	2	
70	HN1815	HEX NUT	1	
71	1BG160	O-RING	1	
72	K120100	H-WEDGE CHISEL	1	
73	K120200	MOIL POINT	1	
74	K120300	V-WEDGE CHISEL	1	
75	K120500	BLUNT CHISEL	1	
76	K120600	CONE CHISEL	1	

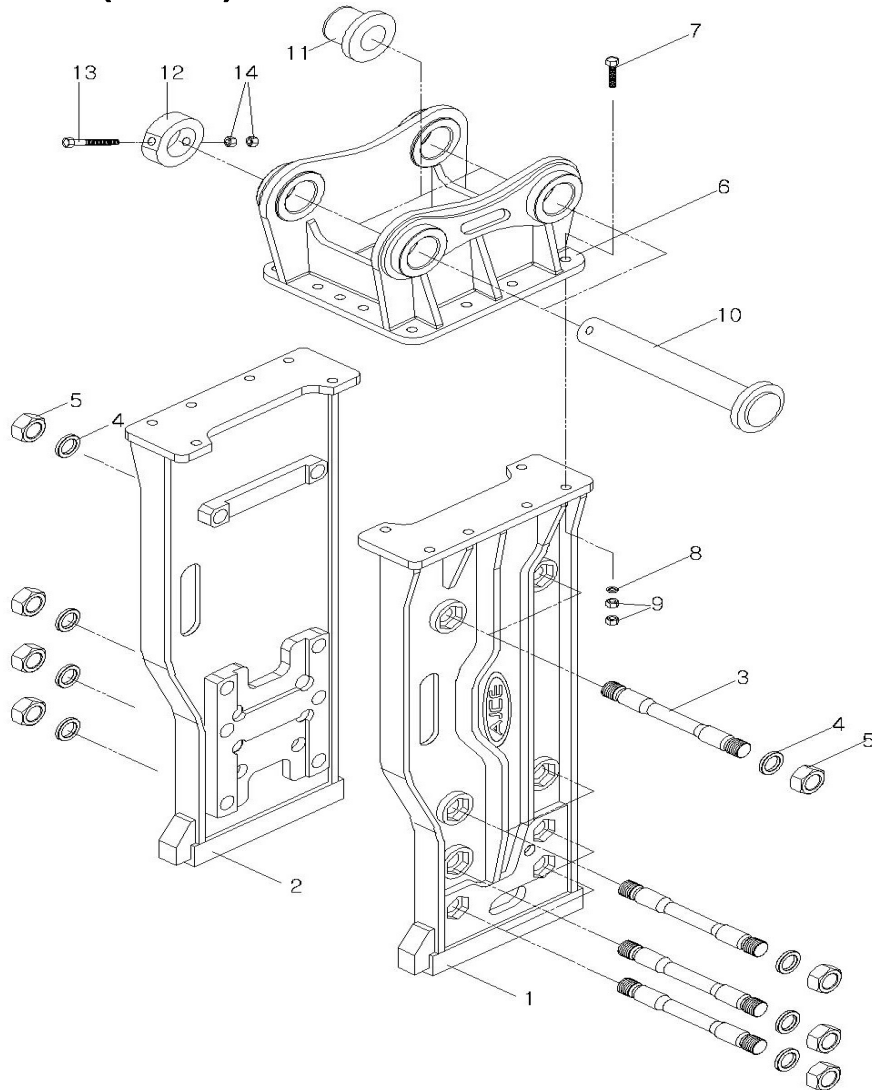
AB-1200M (BOX)



NO	PART NO.	PART NAME	QTY	REMARKS
1	F120110	BOX BRACKET	1	
2	F120910	LOWER DAMPER	1	
3	F120930	FRONT PLATE	2	
4	F120940	FRONT SIDE PLATE	2	
5	F45970	SIDE PLATE (A)	2	
6	F71970	SIDE PLATE (B)	5	
7	F120920	UPPER DAMPER	1	F120921 (133T)
8	F38340	UPPER PLATE	1	
9	HB3035140	HEX BOLT	12	
10	SW30	SPRING WASHER	12	
11	HN3035	HEX NUT	24	
12	F120120	GUIDE BLOCK	1	
13	1BP24	O-RING	2	
14	F120950	GUIDE DAMPER	1	
15	F120140	COVER PLATE (A)	1	
16	WB162035	WRENCH BOLT	7	

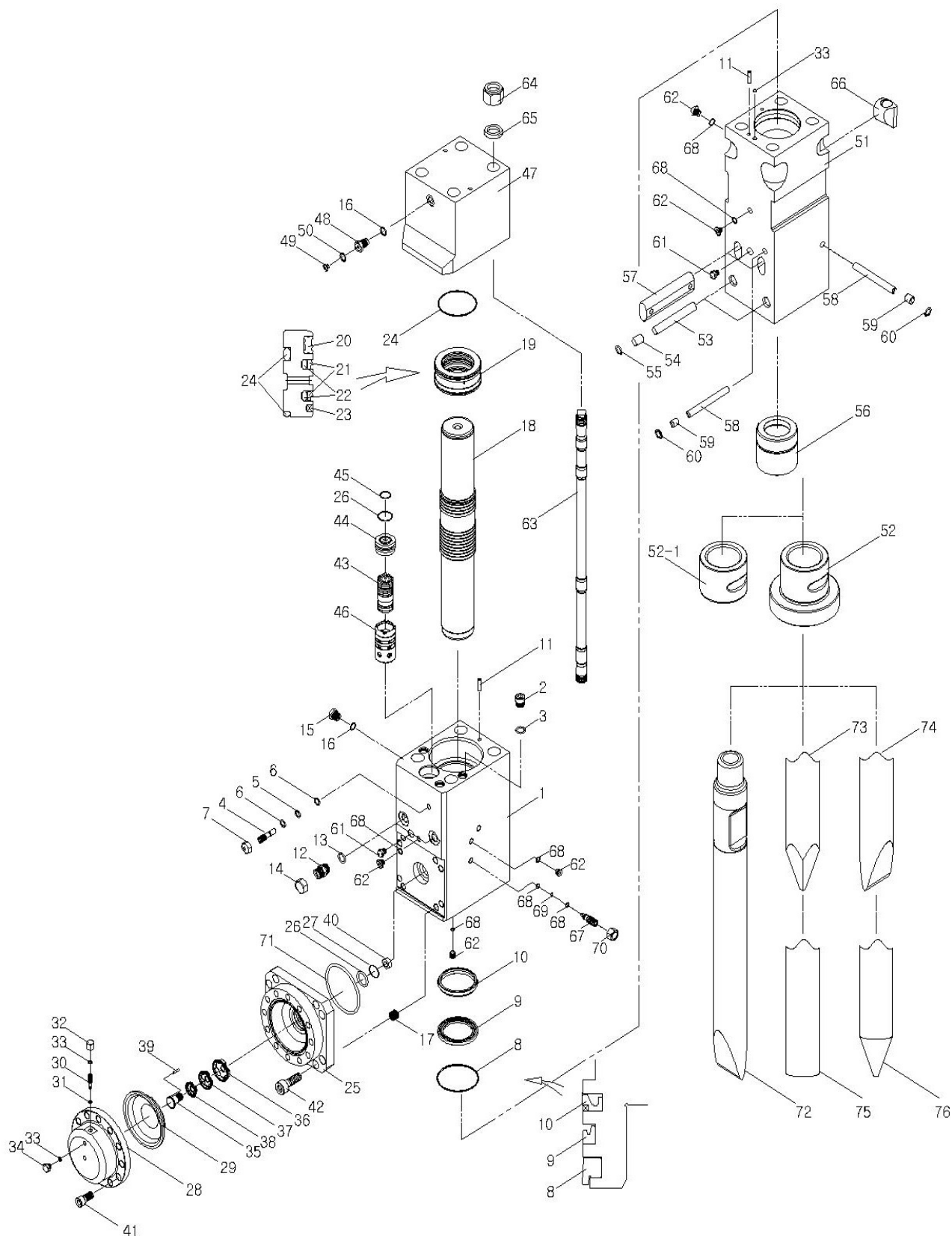
17	SW16	SPRING WASHER	7	
18	F120150	COVER PLATE (B)	1	
19	RP1-1/4"	IN/OUT PLUG	2	
20	RP1236023	CHISEL PIN PLUG	4	
21	RP4022	STOP PIN PLUG	8	
22	RP4023X	GREASE PLUG	1	
23	RP1808022	ADAPTER PLUG	2	
-	F100800	SIDE BOLT ASSY	1	24~26
24	F100810	SIDE BOLT	1	
25	F100820	SIDE WASHER	2	
26	F100830	SIDE NUT	2	
27	1BP34	O-RING	14	
28	RP4006X	AUTO PLUG	1	

AT-1200M (TOP)



NO	PART NO.	PART NAME	QTY	REMARKS
1	F120210	TOP BRACKET RIGHT	1	
2	F120220	TOP BRACKET LEFT	1	
-	F48800	SIDE BOLT ASSY	8	3~5
3	F48810	SIDE BOLT	8	
4	F48820	SIDE WASHER	16	
5	F48830	SIDE NUT	16	
6	F38340	MOUNT CAP	1	
7	HB3035140	HEX BOLT	12	
8	SW30	SPRING WASHER	12	
9	HN3035	HEX NUT	24	
-	F38700	PIN BUSH ASSY	2	10~14
10	F38710	MOUNT PIN	2	
11	F38720	T-BUSH	4	
12	F38730	STOP BAR	2	
13	HB1620200	HEX BOLT	2	
14	HN1620	HEX NUT	4	

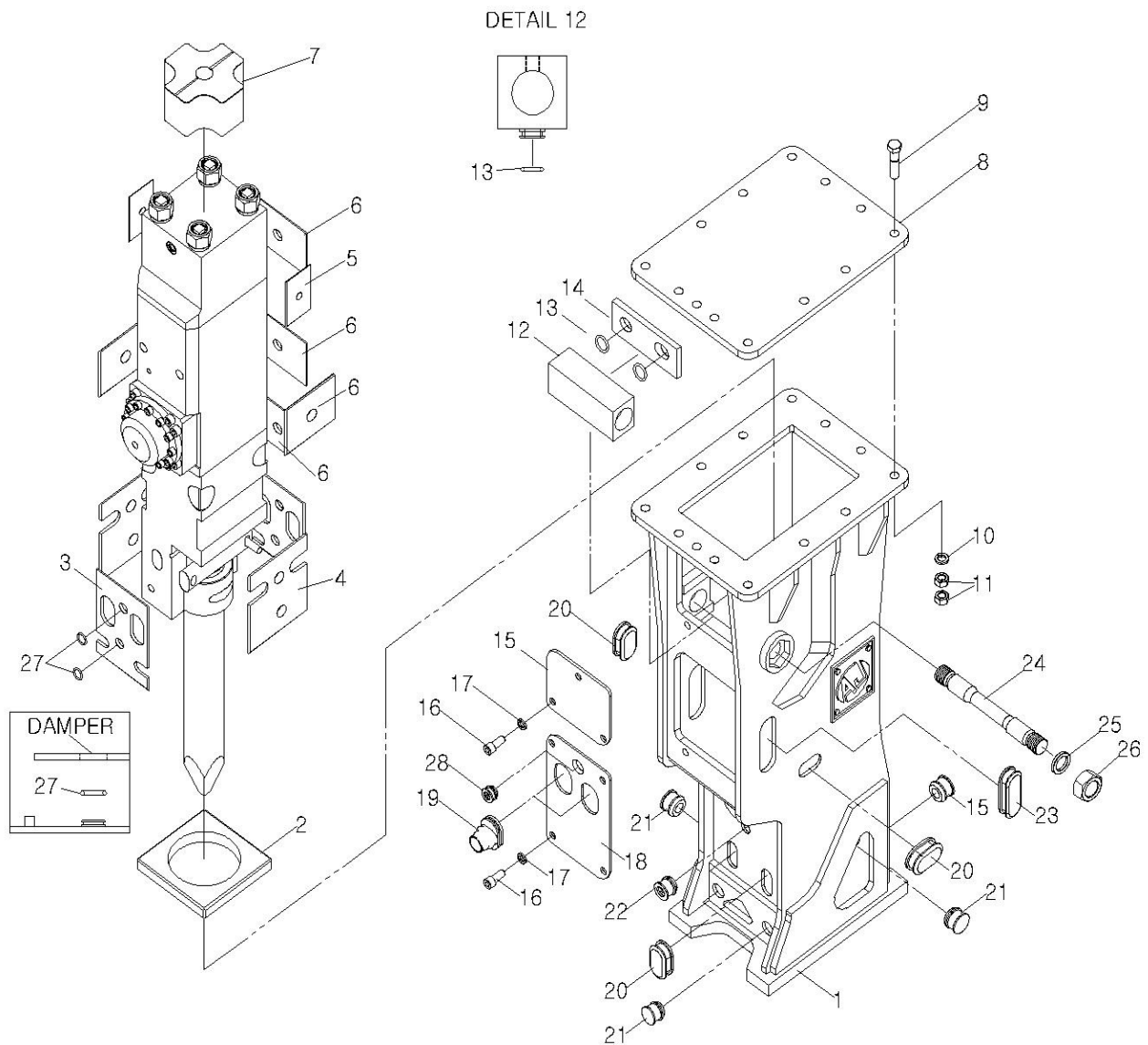
1400M MAIN BODY



NO	PART NO.	PART NAME	QTY	REMARKS
-	A140100	MAIN BODY (TOP)	1	1~52,53,54~72
-	A140101	MAIN BODY (BOX)	1	1~52,53-1,54~72
-	N140100	SEAL KIT	1	
-	A140110	CYLINDER ASSY	1	1~47
1	B140110	CYLINDER	1	B140111 (S/N 001~208)
2	D120210	SOCKET PLUG	3	
3	1BP32	O-RING	3	
-	D140370	VALVE ADJUSTER ASSY	1	4~7
4	D140371	VALVE ADJUSTER	1	
5	1BP15	O-RING	1	
6	T3P15	BACKUP RING	2	
7	HN2420	HEX NUT	1	
8	LBI175	DUST SEAL	1	
9	IUIS175	U-PACKING	1	
10	IUIY175	BUFFER SEAL	1	
11	D60510	KNOCK PIN	2	
12	D140110	IN/OUT ADAPTER	2	
13	1BP44	O-RING	2	
14	D120120	ADAPTER CAP	2	
15	D10230	AIR CHECK VALVE	1	
16	1BP18	O-RING	2	
17	HC243015	HELI SERT COIL	8	HC242015 (S/N 001~208)
18	B140120	PISTON	1	
-	A140130	SEAL RETAINER ASSY	1	19~24
19	B140130	SEAL RETAINER	1	
20	IKH172	GAS SEAL	1	
21	SPNS172	STEP SEAL	2	
22	568365	O-RING	2	
23	SRTN172	BUFFER RING	1	
24	1BG210	O-RING	4	
-	F120200	ACCUMULATOR ASSY	1	25~41
25	B120210	ACCUMULATOR BODY	1	B120211 (S/N 001~208)
26	1BG95	O-RING	2	
27	4BG95	BACKUP RING	1	
28	B120220	ACCUMULATOR COVER	1	
29	C120510	DIAPHRAGM	1	
-	D28250	ACC CHARGING VALVE ASSY	1	30~34
30	D28251	ACC CHARGING VALVE	1	
31	1AP5	O-RING	1	
32	D18252	ACC CHARGING VALVE CAP	1	
33	1BP14	O-RING	3	
34	D18253	ACC CHARGING VALVE PLUG	1	
-	D120240	ACC HOLDER ASSY	1	35~40
35	D120241	ACC HOLDER CENTER PIN	1	
36	D120242	ACC HOLDER (A)	1	
37	D120243	ACC HOLDER (B)	1	
38	D120244	ACC HOLDER (C)	1	
39	D120245	ACC HOLDER GUIDE PIN	1	
40	D18246	ACC HOLDER NUT	1	
41	WB162045	WRENCH BOLT	16	
42	WB243065	WRENCH BOLT	8	HC242065 (S/N 001~208)
-	A140300	VALVE ASSY	1	26,43~47
43	B140340	VALVE	1	
44	B140350	VALVE PLUG	1	
45	1BG65	O-RING	1	
46	B140360	VALVE SLEEVE	1	

47	B140610	BACK HEAD	1	
-	D10640	GAS CHARGING VALVE ASSY	1	16,49~50
48	D10641	GAS CHARGING VALVE	1	
49	D10642	GAS CHARGING VALVE PLUG	1	
50	1BP16	O-RING	1	
-	A140500	FRONT HEAD ASSY (TOP)	1	51,52,53~62,68
-	A140510	FRONT HEAD ASSY (BOX)	1	51,52-1,53~62,68
51	B140510	FRONT HEAD	1	
52	C140530	LOWER BUSH (TOP)	1	
52-1	C140531	LOWER BUSH (BOX)	1	
53	C120560	BUSH PIN	2	
54	RP26	RUBBER PLUG	2	
55	SR26	SNAP RING	2	
56	C140520	UPPER BUSH	1	
57	C140540	CHISEL PIN	2	
58	C120550	STOP PIN	2	
59	RP18	RUBBER PLUG	2	
60	SR19	SNAP RING	2	
61	D10590	GREASE NIPPLE	2	
62	WP1/4"	WRENCH PLUG	5	
-	A140700	THROUGH BOLT ASSY	4	63~66
63	C140710	THROUGH BOLT	4	
64	C140720	THROUGH BOLT TOP NUT	4	
65	C140730	THROUGH BOLT WASHER	4	
66	C140740	THROUGH BOTTOM NUT	4	
-	D81380	ABF ADJUSTER ASSY	1	68~70
67	D81381	ABF ADJUSTER	1	
68	1BP11	O-RING	7	
69	T3P11	BACKUP RING	2	
70	HN1815	HEX NUT	1	
71	1BG160	O-RING	1	
72	K140100	H-WEDGE CHISEL	1	
73	K140200	MOIL POINT	1	
74	K140300	V-WEDGE CHISEL	1	
75	K140500	BLUNT CHISEL	1	
76	K140600	CONE CHISEL	1	

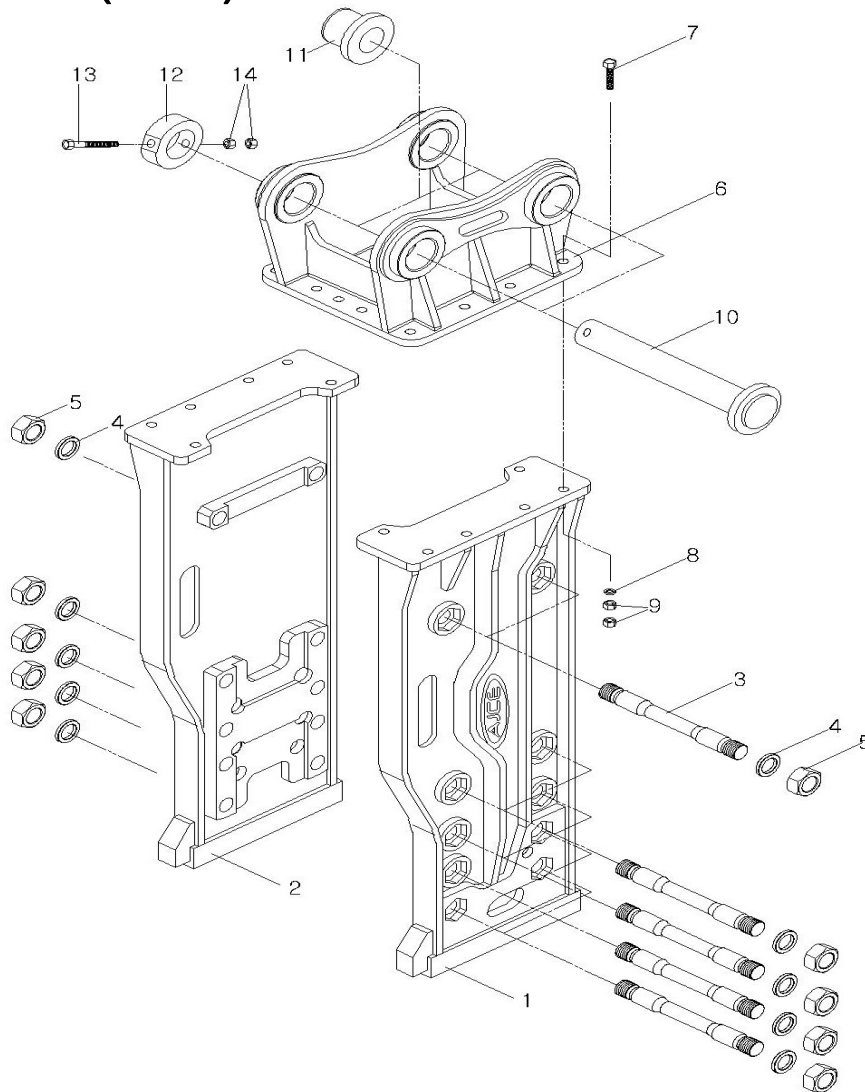
AB-1400M (BOX)



NO	PART NO.	PART NAME	QTY	REMARKS
1	F140110	BOX BRACKET	1	
2	F140910	LOWER DAMPER	1	
3	F140930	FRONT PLATE	2	
4	F140940	FRONT SIDE PLATE	2	
5	F45970	SIDE PLATE (A)	2	
6	F71970	SIDE PLATE (B)	5	
7	F48920	UPPER DAMPER	1	F48921 (150T)
8	F48340	UPPER PLATE	1	
9	HB3630160	HEX BOLT	12	
10	SW36	SPRING WASHER	12	
11	HN3630	HEX NUT	24	
12	F140120	GUIDE BLOCK	1	
13	1BP24	O-RING	2	
14	F48950	GUIDE DAMPER	1	
15	F140140	COVER PLATE (A)	1	
16	WB162035	WRENCH BOLT	7	

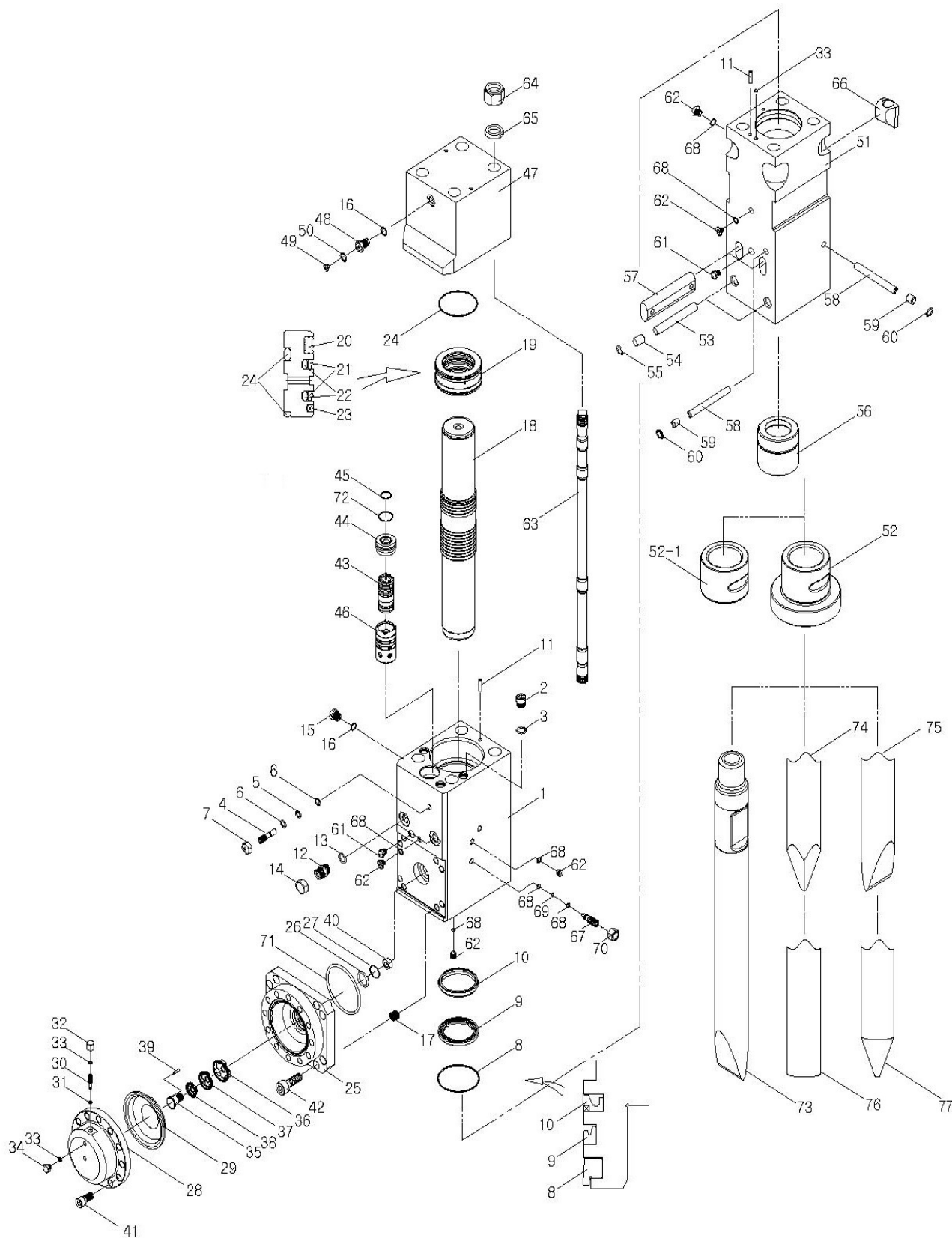
17	SW16	SPRING WASHER	7	
18	F140150	COVER PLATE (B)	1	
19	RP1-1/4"	IN/OUT PLUG	2	
20	RP1457431	CHISEL PIN PLUG	4	
21	RP4028	STOP PIN PLUG	8	
22	RP4028X	GREASE PLUG	1	
23	RP1509032	ADAPTER PLUG	2	
-	F140800	SIDE BOLT ASSY	1	24~26
24	F140810	SIDE BOLT	1	
25	F140820	SIDE WASHER	2	
26	F140830	SIDE NUT	2	
27	1BP34	O-RING	14	
28	RP4006X	AUTO PLUG	1	

AT-1400M (TOP)



NO	PART NO.	PART NAME	QTY	REMARKS
1	F140210	TOP BRACKET RIGHT	1	
2	F140220	TOP BRACKET LEFT	1	
-	F48800	SIDE BOLT ASSY	10	3~5
3	F48810	SIDE BOLT	10	
4	F48820	SIDE WASHER	20	
5	F48830	SIDE NUT	20	
6	F48340	MOUNT CAP	1	
7	HB3630160	HEX BOLT	12	
8	SW36	SPRING WASHER	12	
9	HN3630	HEX NUT	24	
-	F48700	PIN BUSH ASSY	2	10~14
10	F48710	MOUNT PIN	2	
11	F48720	T-BUSH	4	
12	F48730	STOP BAR	2	
13	HB1620200	HEX BOLT	2	
14	HN1620	HEX NUT	4	

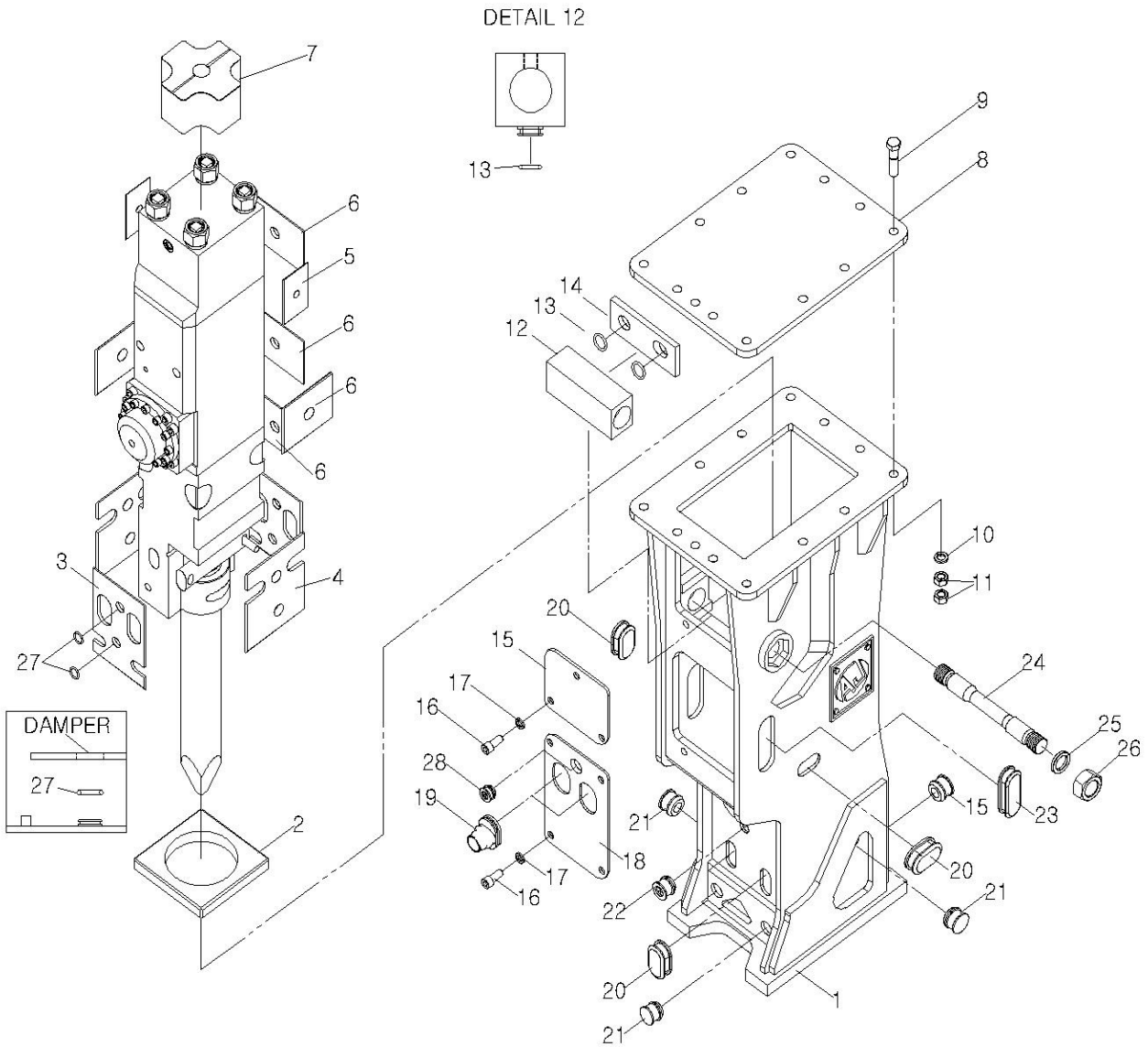
1500M MAIN BODY



NO	PART NO.	PART NAME	QTY	REMARKS
-	A150100	MAIN BODY (TOP)	1	1~50,51,52~70
-	A150101	MAIN BODY (BOX)	1	1~50,51-1,52~70
-	N150100	SEAL KIT	1	
-	A150110	CYLINDER ASSY	1	1~46,61
1	B150110	CYLINDER	1	B150111 (S/N 001~352)
2	D150210	SOCKET PLUG	3	
3	1BP35	O-RING	3	
-	D140370	VALVE ADJUSTER ASSY	1	4~7
4	D140371	VALVE ADJUSTER	1	
5	1BP15	O-RING	1	
6	T3P15	BACKUP RING	2	
7	HN2420	HEX NUT	1	
8	LBI180	DUST SEAL	1	
9	IUIS180	U-PACKING	1	
10	IUIY180	BUFFER SEAL	1	
11	D60510	KNOCK PIN	2	
12	D140110	IN/OUT ADAPTER	2	
13	1BP44	O-RING	2	
14	D120120	ADAPTER CAP	2	
15	D10230	AIR CHECK VALVE	1	
16	1BP18	O-RING	2	
17	HC243015	HELI SERT COIL	8	HC242015 (S/N 001~352)
18	B150120	PISTON	1	
-	A150130	SEAL RETAINER ASSY	1	19~24
19	B150130	SEAL RETAINER	1	
20	IKH177	GAS SEAL	1	
21	SPNS177	STEP SEAL	2	
22	568366	O-RING	2	
23	SRTN177	BUFFER RING	1	
24	1BG210	O-RING	3	
-	F150200	ACCUMULATOR ASSY	1	25~41
25	B150210	ACCUMULATOR BODY	1	B150211 (S/N 001~352)
26	1BG95	O-RING	1	
27	4BG95	BACKUP RING	1	
28	B150220	ACCUMULATOR COVER	1	
29	C150510	DIAPHRAGM	1	
-	D28250	ACC CHARGING VALVE ASSY	1	30~34
30	D28251	ACC CHARGING VALVE	1	
31	1AP5	O-RING	1	
32	D18252	ACC CHARGING VALVE CAP	1	
33	1BP14	O-RING	3	
34	D18253	ACC CHARGING VALVE PLUG	1	
-	D18240	ACC HOLDER ASSY	1	35~40
35	D18241	ACC HOLDER CENTER PIN	1	
36	D18242	ACC HOLDER (A)	1	
37	D18243	ACC HOLDER (B)	1	
38	D18244	ACC HOLDER (C)	1	
39	D18245	ACC HOLDER GUIDE PIN	1	
40	D18246	ACC HOLDER NUT	1	
41	WB202560	WRENCH BOLT	16	
42	WB243065	WRENCH BOLT	8	HC242065 (S/N 001~352)
-	A150300	VALVE ASSY	1	26,43~46
43	B150340	VALVE	1	
44	B150350	VALVE PLUG	1	
45	1BG80	O-RING	1	
46	B150360	VALVE SLEEVE	1	

47	B150610	BACK HEAD	1	
-	D10640	GAS CHARGING VALVE ASSY	1	16,48~50
48	D10641	GAS CHARGING VALVE	1	
49	D10642	GAS CHARGING VALVE PLUG	1	
50	1BP16	O-RING	1	
-	A150500	FRONT HEAD ASSY (TOP)	1	51,52,53~62,68
-	A150510	FRONT HEAD ASSY (BOX)	1	51,52-1,53~62,68
51	B150510	FRONT HEAD	1	B150512 (S/N 001~138)
52	C150530	LOWER BUSH (TOP)	1	
52-1	C150531	LOWER BUSH (BOX)	1	
53	C150560	BUSH PIN	2	
54	RP36	RUBBER PLUG	2	
55	SR36	SNAP RING	2	
56	C150520	UPPER BUSH	1	
57	C150540	CHISEL PIN	2	
58	C120560	STOP PIN	2	C150550 (S/N 001~138)
59	RP26	RUBBER PLUG	2	
60	SR26	SNAP RING	2	
61	D10590	GREASE NIPPLE	2	
62	WP1/4"	WRENCH PLUG	5	
-	A150700	THROUGH BOLT ASSY	4	63~66
63	C150710	THROUGH BOLT	4	
64	C150720	THROUGH BOLT TOP NUT	4	
65	C140730	THROUGH BOLT WASHER	4	
66	C140740	THROUGH BOLT BOTTOM NUT	4	
-	D81380	ABF ADJUSTER ASSY	1	67~70
67	D81381	ABF ADJUSTER	1	
68	1BP11	O-RING	7	
69	T3P11	BACKUP RING	2	
70	HN1815	HEX NUT	1	
71	1BG160	O-RING	1	
72	1BG100	O-RING	1	
73	K150100	H-WEDGE CHISEL	1	
74	K150200	MOIL POINT	1	
75	K150300	V-WEDGE CHISEL	1	
76	K150500	BLUNT CHISEL	1	
77	K150600	CONE CHISEL	1	

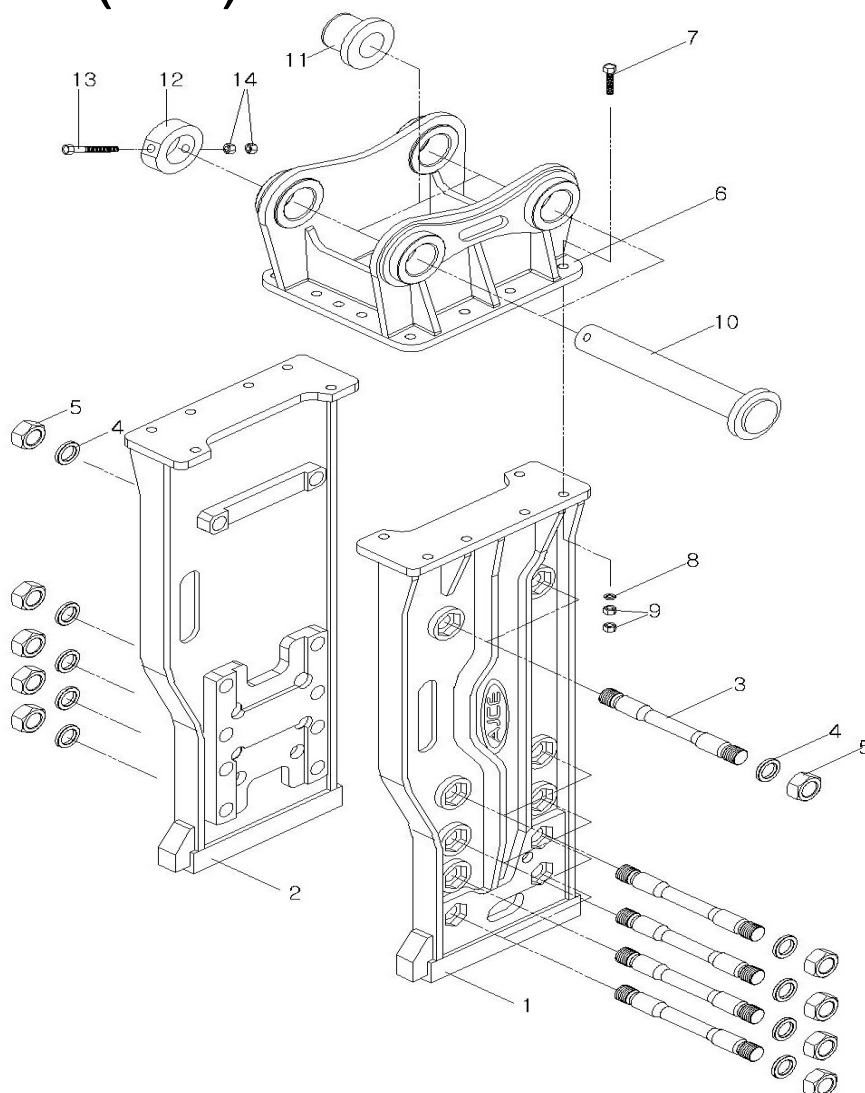
AB-1500M (BOX)



NO	PART NO.	PART NAME	QTY	REMARKS
1	F150110	BOX BRACKET	1	
2	F150910	LOWER DAMPER	1	
3	F150930	FRONT PLATE	2	
4	F150940	FRONT SIDE PLATE	2	
5	F45970	SIDE PLATE (A)	2	
6	F71970	SIDE PLATE (B)	5	
7	F150920	UPPER DAMPER	1	
8	F48340	UPPER PLATE	1	
9	HB3630160	HEX BOLT	12	
10	SW36	SPRING WASHER	12	
11	HN3630	HEX NUT	24	
12	F150120	GUIDE BLOCK	1	
13	1BP24	O-RING	2	
14	F48950	GUIDE DAMPER	1	
15	F150140	COVER PLATE (A)	1	
16	WB162035	WRENCH BOLT	7	

17	SW16	SPRING WASHER	7	
18	F150150	COVER PLATE (B)	1	
19	RP1-1/4"	IN/OUT PLUG	2	
20	RP1457431	CHISEL PIN PLUG	4	
21	RP4028	STOP PIN PLUG	8	
22	RP4028X	GREASE PLUG	1	
23	RP1509032	ADAPTER PLUG	2	
-	F48800	SIDE BOLT ASSY	1	24~26
24	F48810	SIDE BOLT	1	
25	F48820	SIDE WASHER	2	
26	F48830	SIDE NUT	2	
27	1BP34	O-RING	14	
28	RP4006X	AUTO PLUG	1	

AT-1500M (TOP)



NO	PART NO.	PART NAME	QTY	REMARKS
1	F150210	TOP BRACKET RIGHT	1	
2	F150220	TOP BRACKET LEFT	1	
-	F150800	SIDE BOLT ASSY	8	3~5
3	F150810	SIDE BOLT	10	
4	F150820	SIDE WASHER	20	
5	F150830	SIDE NUT	20	
6	F48340	MOUNT CAP	1	
7	HB3630160	HEX BOLT	12	
8	SW36	SPRING WASHER	12	
9	HN3630	HEX NUT	24	
-	F48700	PIN BUSH ASSY	2	10~14
10	F48710	MOUNT PIN	2	
11	F48720	T-BUSH	4	
12	F48730	STOP BAR	2	
13	HB1620220	HEX BOLT	2	
14	HN1620	HEX NUT	4	