

**ACDE ASB HYDRAULIC BREAKER
INSTRUCTION, SAFETY AND SERVICE MANUAL**



CE ISO9001

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ACDE EUROPE B.V.
Frans Halsstraat 5
6901 DC Zevenaar
The Netherlands

Phone
E-mail
Web
Mobile

+31 316 26 72 91
info@acde-europe.com
www.acde-europe.com
+31 6 53 150 283

PREFACE

Thank you for dealing with **ACDE EUROPE BV**.

This service manual has been designed to help you achieve the maximum performance from your **ASB** hydraulic breakers. Inside you will find a full account of what to look for whilst inspecting your breaker and how to ensure that it is correctly maintained.

ACDE stresses that in the event of a breakdown, only genuine **ACDE** parts should be used. This not only ensures that you receive high quality equipment along with maximum efficiency, but that all the parts are under guarantee. If, however, any repairs are made using parts made elsewhere, **ACDE** will not accept responsibility for the failure of the breaker and are not liable for the life of the breaker.

If you have any further queries, please do not hesitate to contact either your local **ACDE** distributor or the Head Office where technical staff will be happy to assist you further.

ACDE EUROPE BV.



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Chapter 1 | SPECIFICATION

PARAMETER	UNIT	ASB40	ASB45	ASB53	ASB70	ASB75	ASB85	ASB100A	ASB125A	ASB135A
WORKING WEIGHT	kg	85	125	156	320	415	580	865	1240	1550
TOTAL LENGTH	mm	1115	1120	1140	1360	1560	1775	1980	2236	2327
REQUIRED OIL FLOW	l/min	20-40	20-40	20-50	40-70	50-90	60-100	80-110	90-120	100-150
WORKING PRESSURE	kg/cm ²	90-120	90-120	90-120	110-140	120-150	130-160	150-170	150-170	160-180
IMPACT RATE	bpm	700-1200	700-1200	600-1100	500-900	400-800	400-800	350-700	350-650	350-500
CHISEL DIA	mm	Φ40	Φ45	Φ53	Φ70	Φ75	Φ85	Φ100	Φ125	Φ135
CHISEL LENGTH	mm	500	500	580	700	750	850	1000	1100	1200
HOSE DIA	inch	1/2	1/2	1/2	1/2	1/2	3/4	3/4	1	1
BACK HEAD PRESSURE	kg/cm ²	14-17	14-17	14-17	14-17	14-17	14-17	14-17	14-17	6-8
ACCUMULATOR PRESSURE	kg/cm ²	NONE	NONE	NONE	NONE	NONE	NONE	55-60	55-60	55-60
APPLICABLE EXCAVATOR	ton	0.5-0.8	0.8-1.5	1.5-3.5	4-6	6-9	7-11	10-14	14-18	18-22
IMPACT POWER	J	250	250	350	540	785	1260	1960	2550	3480

The above specifications are subject to change without prior notice for the specification data modification.

PARAMETER	UNIT	ASB140A	ASB150	ASB155	ASB165	ASB175L	ASB185G	ASB195	ASB210H
WORKING WEIGHT	kg	1680	2250	2380	2680	4050	4500	4880	6300
TOTAL LENGTH	mm	2410	2616	2704	2910	3154	3344	3393	3800
REQUIED OIL FLOW	l/min	120-180	150-210	180-240	200-260	220-300	270-350	280-350	350-450
WORKING PRESSURE	kg/cm ²	160-180	160-180	160-180	160-180	160-180	170-190	170-190	170-190
IMPACT RATE	bpm	350-500	300-450	300-450	250-400	150-300	150-250	150-250	120-220
CHISEL DIA	mm	Φ140	Φ150	Φ155	Φ165	Φ175	Φ185	Φ195	Φ210
CHISEL LENGTH	mm	1250	1400	1400	1500	1600	1700	1700	1900
HOSE DIA	inch	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2
BACK HEAD PRESSURE	kg/cm ²	14-17	17-20	17-20	17-20	22-25	25-28	22-25	19-22
ACCUMULATOR PRESSURE	kg/cm ²	55-60	55-60	55-60	55-60	55-60	55-60	55-60	55-60
APPLICABLE EXCAVATOR	ton	20-24	24-27	27-33	33-38	40~50	45~60	45~60	65~100
IMPACT POWER	J	3690	5300	5730	6830	14000	17000	19000	22000

The above specifications are subject to change without prior notice for the specification data modification.

2-1. STRUCTURE (Internal valve system with non-accumulator)

THROUGH BOLTS

Front head, cylinder and back head of breaker body are secured by four of these through bolts.

BACK HEAD

Oil pressure inlet and outlet ports and gas charging valve are built in and the inside chamber is charged with N² Gas.

VALVE

Cylindrical internal control valve is built in the valve housing and controls piston reciprocation with more efficient than other breaker valves.

CYLINDER

Hydraulic circuit for reciprocating the piston and the stroke adjusting circuit are built in. The cylinder is the core of breaker body in function.

PISTON

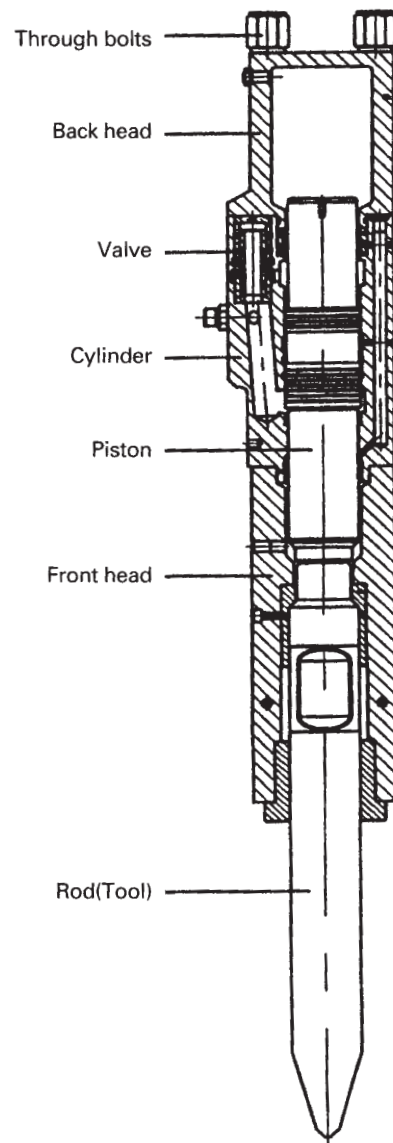
Kinetic energy of the piston is converted into physical hammering energy transmitted to the rod to break workpiece.

FRONT HEAD

The front head supports the entire breaker, thrust bushing is built in to withstand the shock from the rod.

ROD (TOOL)

Moil point, wedge point and flat rod can be employed in accordance with site conditions.



2-2. STRUCTURE (Valve system with accumulator)

THROUGH BOLTS

Front head, cylinder and back head of breaker body are secured by four of these through bolts.

BACK HEAD

Oil pressure inlet and outlet ports and gas charging valve are built in and the inside chamber is charged with N² Gas.

VALVE

Cylindrical control valve is built in the valve housing and controls piston reciprocation

CYLINDER

Hydraulic circuit for reciprocating the piston and the stroke adjusting circuit are built in. The cylinder is the core of breaker body in function.

ACCUMULATOR

The accumulator compensates for pressure drop in the hydraulic circuit and prevents pulsation.

It is not usually necessary to refill with N² gas in case.

PISTON

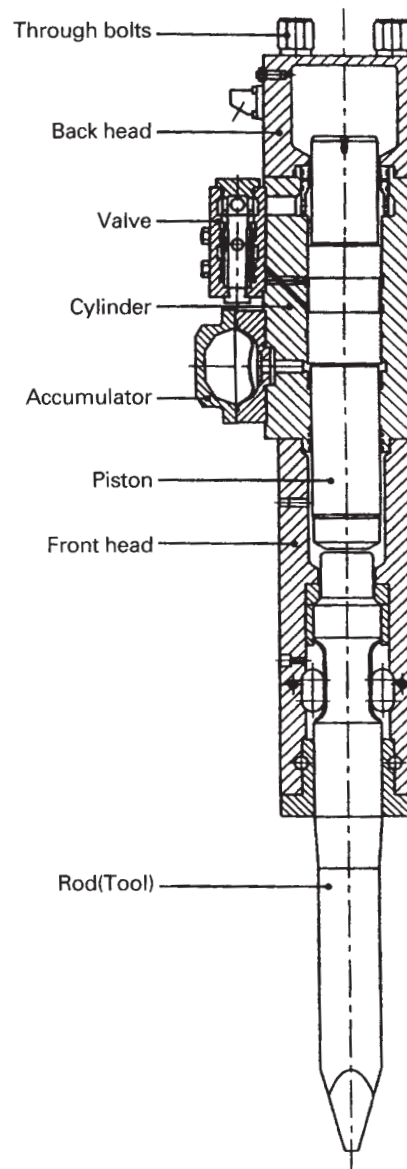
Kinetic energy of the piston is converted into physical hammering energy transmitted to the rod to break workpiece.

FRONT HEAD

The front head supports the entire breaker, thrust bushing is built in to withstand the shock from the rod.

ROD (TOOL)

Moil point, wedge point and flat rod can be employed in accordance with site conditions.



Chapter 3 | INSTALLATION & REMOVAL

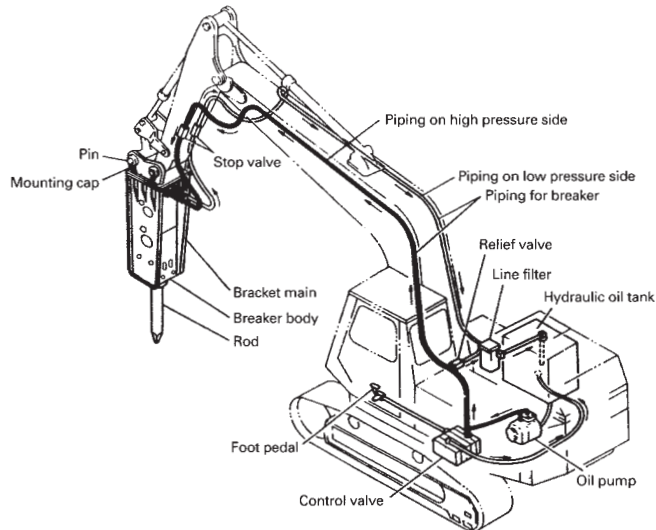
As our hydraulic hammers are hydraulically powered from a base machine which supplies the source of hydraulic operating power, our hammers should be installed by a competent engineer in such a manner that enables maximum working performance in accordance with each characteristics of different base machine.

Before installation and start up of operating breakers, the following should be referred to carefully;

- Check the "specifications" section of this manual to determine correct backhoe and excavator sizes, hydraulic pressure, and hydraulic flow requirements.
- If hydraulic pressure, hydraulic flow are exceeded, the breaker warranty is void.
- Check the nitrogen gas! - Back head and accumulator.
- Be sure the fluid in the hydraulic system is clean.
- Check the hydraulic filter. Replace the filter if dirty or deteriorated.
- Hose and piping must be flushing.
- The contaminated part must be cleaned without delay. Hydraulic oil or light oil is highly recommended.
- The circuit relief setting pressure is not fixed. However, it will be adjusted by pump capacity.

To ensure the long lasting use of your hammers, please ensure that you always use genuine spare parts which are supplied, or at least qualified by ACDE or their local dealers.

GENERAL VIEW OF BREAKER INSTALLATION



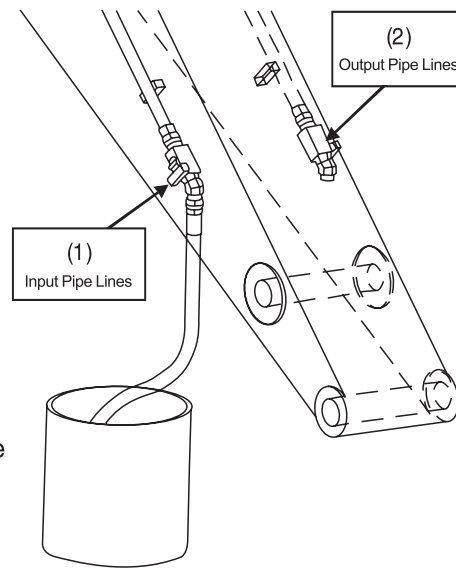
HYDRAULIC OIL CONTAMINATION & PIPE LINES CLEANING

Purpose:

Contaminated oil results in malfunctions of the breaker as well as the base machine and cause damage to the parts. Pay special attention to oil contamination. Contaminated oil should be changed without delay. When changing oil, thoroughly wash the oil tank, the cylinder and the pipes lines

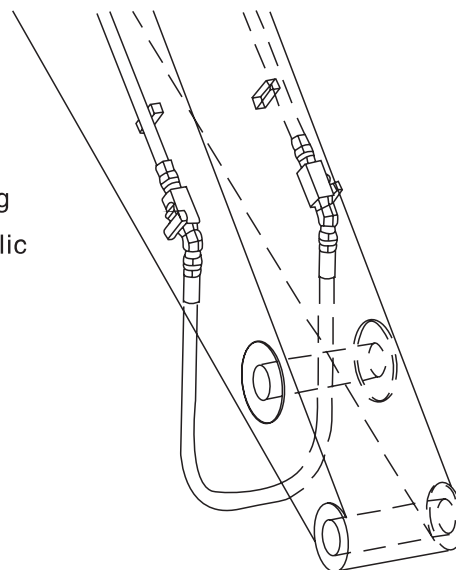
Hydraulic Oil Discharge Way:

- Prepare a clean drum with volume of 20 liters.
- Move the boom of base machine to the ground
- Turn the shut-off valve of input and output pipe lines to the “off” position, turn on and off the breaker operating button 3–5 times.
- Turn the shut-off valve of input pipe lines(2) and output(1) pipe lines to the “on” position, discharge the oil from pipe lines.
(Warning: Turn off the breaker operating button during discharging oil)
- Repeated the work showed on Item 3 and 4 three times.



Pipe Lines Cleaning

- After discharging hydraulic oil, connect input lines (2) and output lines (1) with oil hoses directly, not connected to breaker input and output bottom.
- Maximize the engine power, turn on breaker operating button ten second, then turn off five minutes.(Hydraulic Oil Circulation)
- Replacing the base machine oil filter after finishing hydraulic oil circulation.

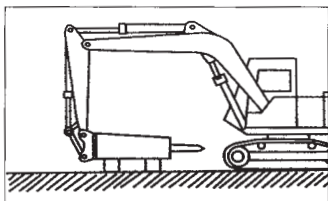


BREAKER INSTALLATION

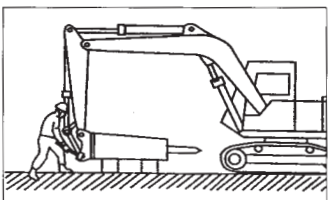
▲ WARNING

- Be careful not to drop pins during installation, which may cause personal injury.
- Wear safety shoes to protect feet.

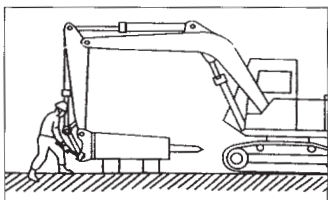
- 1) Set breaker on clear, flat, level ground.
- 2) Remove bucket, referring to manual of base machine.



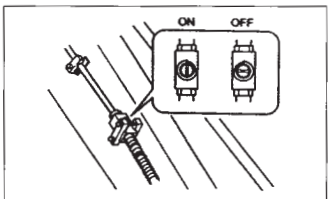
- 3) Insert bracket pin and assemble stop ring.
- 4) Set engine speed at low idle. Slowly move arm, align the arm holes with the mounting holes.
- 5) Move bucket cylinder, align the bucket linkage holes with the mounting holes. Insert bracket pin and assemble stop ring.



- 6) Remove caps from the stop valves, and remove plugs from hoses. Connect the hoses to stop valves at both sides of the arm.



- 7) Set the stop valves to "ON" Position.

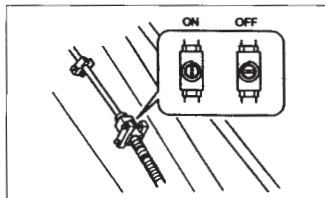


BREAKER REMOVAL

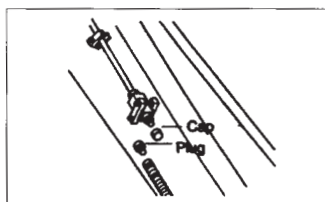
▲ WARNING

- Be careful not to drop pins during removal, which may cause personal injury.
- Wear safety shoes to protect feet.

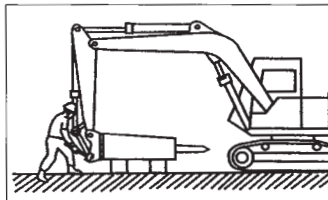
- 1) Set breaker on clear, flat, level ground and engage parking brake.
- 2) Turn stop valves to "OFF" position.



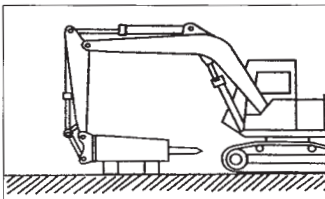
- 3) Disconnect hydraulic hoses from stop valves.
- 4) Apply caps and plugs to hose ends and stop valves to prevent contamination of oil.



- 5) Disassemble stop ring of bracket pins.
- 6) Withdraw the bracket pins.
- 7) When pins have been withdrawn, move the lever slightly to take weight off remaining bracket pins.



- 8) Lift arm away from breaker, so that breaker can be carried away, or another attachment mounted on base machine.



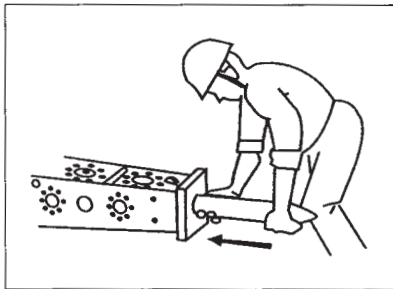
ROD INSTALLATION & REMOVAL

ROD INSTALLATION

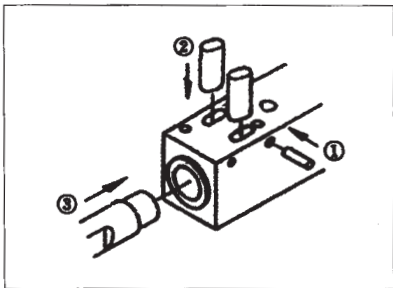
▲ WARNING

- Personal injury can be resulted from dropping rod and rod pins during installation.
- Wear safety shoes to protect feet.
- When charging backhead gas, rod may jump out.
- To avoid accidents, do not stand in front of rod.

- 1) Set breaker on level ground.
- 2) Make sure that transmission of base machine is in neutral and parking brake is engaged.
- 3) Stop the engine.
- 4) Release the backhead gas pressure.



- 5) Remove stop pin ① towards left side, pushing it through hole.
- 6) Install rod ③, aligning it's shank part with hole for easy fitting of rod pins ② later.
- 7) Install two rod pins ②
- 8) Insert stop pin ①, pushing it through hole.
- 9) Charge the backhead gas.

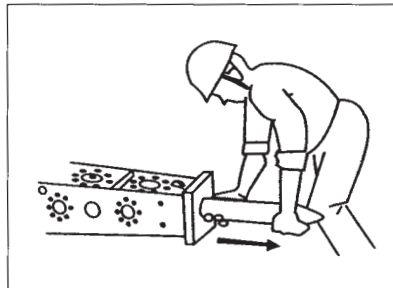


ROD REMOVAL

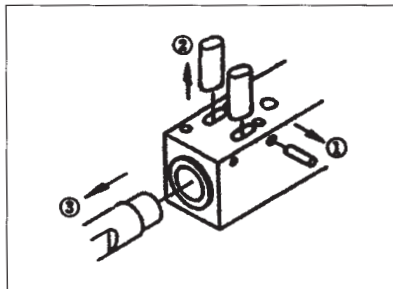
▲ WARNING

- Be careful not to drop the rod and rod pins, which may cause serious injury.
- Wear safety shoes to protect feet.
- When charging backhead gas, rod may jump out.
- To avoid accidents, do not stand in front of rod.

- 1) Set breaker on level ground.
- 2) Make sure that transmission of base machine is in neutral and parking brake is engaged.
- 3) Stop the engine.
- 4) Release the backhead gas pressure.



- 5) Remove stop pin ①, pushing it through hole.
- 6) Remove two rod pins ②.
- 7) Remove rod ③.



PRE-OPERATION CHECKS

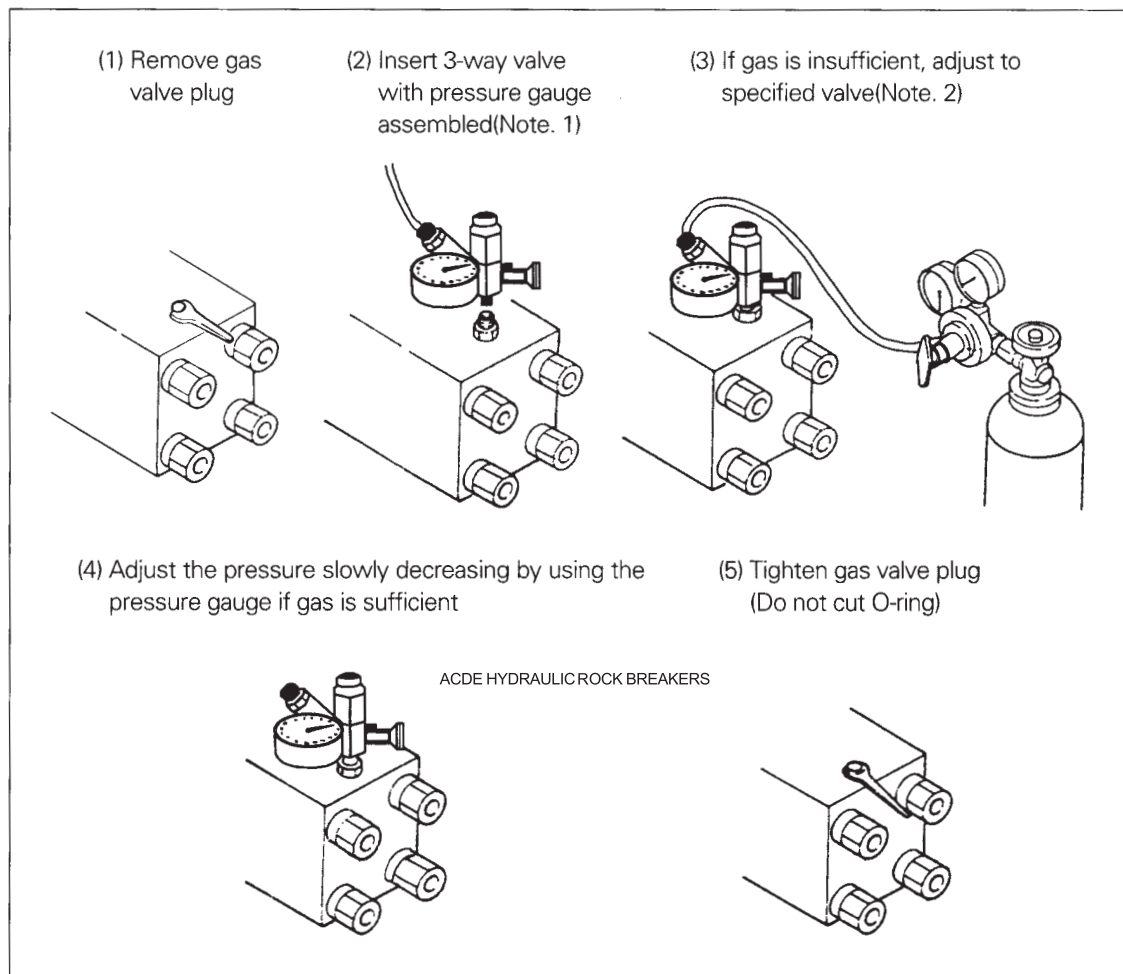
WARNING

It is dangerous to move the machine suddenly. When checking or repairing, set the breaker on the ground and stop the engine of base machine.

Before operation, be sure to check the following items.

Checking item	Checking point	Remedy
- Looseness, falling off or damage of bolts and nuts	- Accumulator mounting bolts - Through bolts - Valve housing bolts - Housing cover bolts - Bracket bolt - Top bracket fixing bolts	- Check whether they are loose. - Check for missing and damaged parts. - Install "genuine part" if anything is missing. - Retighten them fully.
- Falling off or damage of rubber plugs and snap rings	- Rubber plugs and snap rings	- If visible damage is serious, replace it.
- Looseness of pipe fitting - Crack of hoses or oil leakage	- Breaker hydraulic pipes - Oil hoses	- Retighten them. - If cracked or damaged, replace it.
- Abnormal oil leakage	ACDE HYDRAULIC ROCK BREAKERS - Clearance between front head and rod - Connection portions of back head, cylinder and accumulator	- Compare the leakage with the normal flow of rod lubrication oil. - Contact the distributor and ask for inspection.
- Abnormal wear and cracks on rod	- Rod	- If a rod is burred, deformed, or its end is broken, correct with a grinder. - If a rod is extremely worn, replace it. - If a rod is cracked, replace it with a new one.
- Greasing	- When using a grease gun, grease 5~6 times before start and subsequently every 2~3 hours.	- Grease the front head. - Grease the bracket mounting pins. - Grease them while the rod is on the ground and is pushed against the piston.
- Level of Hydraulic oil - Contamination	- Hydraulic oil tank	- Check the oil level of the hydraulic oil tank of the base machine when a work is performed. After starting the machine (after operating the boom and arm), check again. - Contamination of hydraulic oil varies with operating conditions. Judge it by the color of the hydraulic oil. If contamination is excessive, drain and flush the hydraulic oil tank and then fill with new oil.

CHARGING OF N₂ GAS INTO BACK HEAD



NOTE

- 1) Insert 3-way valve after its handle is fully turned counterclockwise.
- 2) 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.

INSPECTION AND CHARGING OF N₂ GAS IN ACCUMULATOR

WARNING

- Use special care to handle and store the N₂ gas cylinder as it is a highly pressurised container.
- Use nitrogen gas only.
- See "conversion table for charging N₂ gas pressure to back accumulator"
- Standard accumulator gas pressure 55kg/cm²/780psi, AT20°C/68°F ambient temperature, do not over pressurise accumulator.

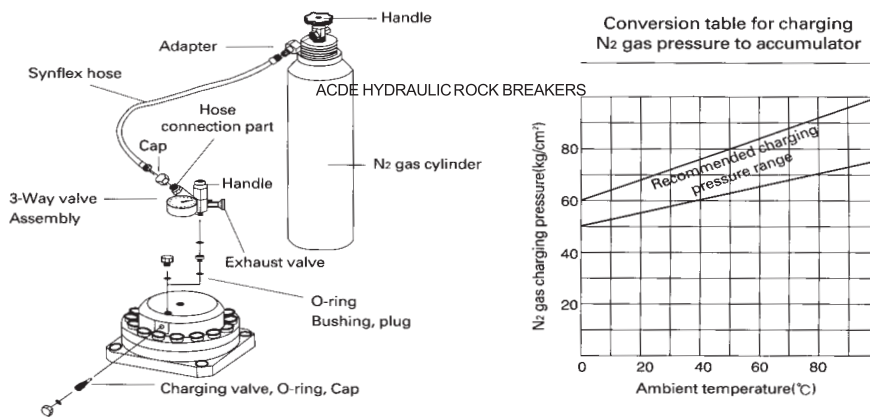
Cautions for charging N₂ gas to the accumulator

- Be sure to use the 3-way valve assembly for charging the N₂ gas.
If charging gas leaks directly from the cylinder, the diaphragm may be broken off.
 - If charging for handling N₂ gas to only the accumulator, make sure that the accumulator body and cover are tightened fully.
- 1) Make sure the cap and valve of the 3-way valve assembly are fully tightened.
 - 2) Remove the cap from the accumulator and tighten the charging valve fully.
 - 3) Check if O-rings are installed to the bushing. Remove the plug and screw in the bushing.
 - 4) Install the bushing to the 3-way valve assembly.
 - 5) Loosen the charging valve gradually. The charging pressure is indicated on the pressure gauge.
 - 6) Close the valve clockwise when the gas pressure is normal. When the gas pressure is higher, repeat loosening and tightening the valve of 3-way valve assembly. The pressure is lowered gradually.
 - 7) Loosen the valve of the 3-way valve assembly to discharge the N₂ gas in the 3-way valve assembly.
 - 8) Remove the 3-way valve assembly and tighten the plug and cap.

CHARGING OF N₂ GAS INTO ACCUMULATOR

- 1) Connect the charging hose to N₂ gas cylinder after screwing the bombe adapter onto adapter, nut and installing to the N₂ gas cylinder.
- 2) Connect the 3-way valve assembly to the charging hose after unscrewing the cap on the 3-way valve assembly.
- 3) Remove the cap from the accumulator and tighten the charging valve fully.
- 4) Check if O-ring are installed to the bushing. Remove the plug and screw the bushing.
- 5) Loosen the accumulator charging valve after checking if bushing is installed to the 3-way valve assembly.
- 6) Turn the handle of the N₂ gas cylinder counterclockwise slowly to charge gas.
- 7) Charge gas in accordance with the conversion table for charging N₂ gas pressure to accumulator.
- 8) Turn the handle of the N₂ gas cylinder clockwise to close the cock.
- 9) Close the accumulator charging valve.
- 10) Loosen the valve of the 3-way valve assembly to discharge the N₂ gas remaining in the charging hose.
- 11) Remove the charging hose, 3-way valve assembly and bushing and tighten the plug and cap.

N₂ gas charging tools to Accumulator



Hydraulic oils and grease recommended for ACDE Breakers

Maker	Hydraulic Oil				Grease
	Viscosity Grade				
	Summer	SAE68	Winter	SAE46	NLGI NO. 2
Shell	Shell Tellus T68		Shell Tellus T46		Alvania Grease2
Esso	Nuto H68		Nuto H46		Beacon Q2
Mobil	Mobil DTE16		Mobil DTE16		Mobil Grease Special
Gulf	Harmony 68		Harmony 46		Gulf Crown EP2
Caltex	Lando CZ68		Lando CZ46		

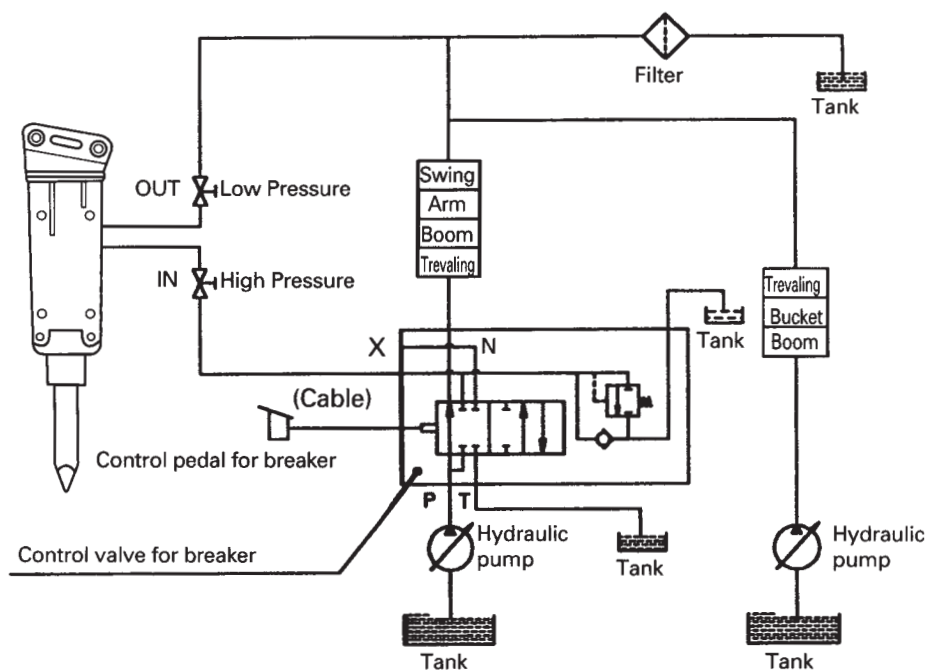
HYDRAULIC PIPE LINES FOR EXCLUSIVE USE

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

WARNING

The Hydraulic System to the base machine must be checked by checked by an authorized service engineer before first use and after any modifications.

■ HYDRAULIC PIPE LINES FOR EXCLUSIVE USE



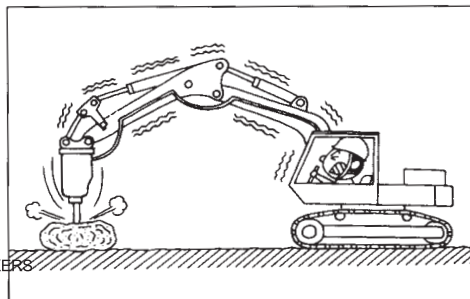
⚠ WARNING

Be sure to use hydraulic breaker only for breaking works. Be sure to check the surroundings of the machine for safety before start operation. Pay special attention for yourself and other persons during operation.

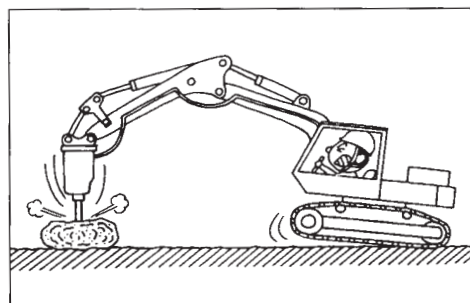
PROPER THRUST

To use breaking force of the breaker effectively, proper thrust must be applied. If thrust is insufficient, hammering energy of the piston is not efficiently used for breaking rocks. Hammering force applies shocks to the breaker body, bracket, arm and boom of the base machine, etc. and results in damage to those parts.

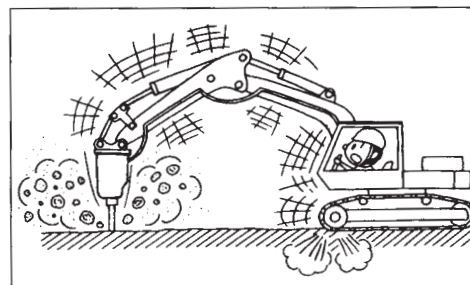
ACDE HYDRAULIC ROCK BREAKERS



On the other hand, if thrust is excessive and breaking is performed with the front of base machine raised, the machine may suddenly tilt forward the moment rocks are broken and the breaker body or the end of bracket may violently hit against rocks and result in damage.



If hammering is performed under such a condition, vibrations during hammering may also be transmitted to the tracks. Therefore, hammering in such a manner should be avoided to protect the tracks. Further, during hammering, take care to always apply thrust to the breaker. Do not hammer with no thrust applied.



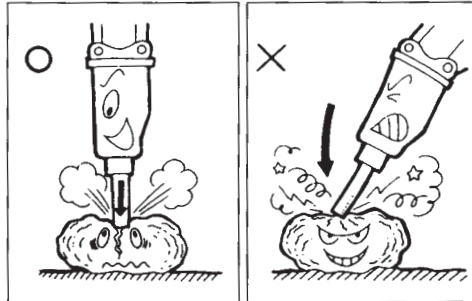
▲ WARNING

Donot touch the chisel during or after breaker operation.
The breaker parts can reach high temperatures.

THRUST DIRECTION

Apply thrust in line with the rod. Place the rod on a rock with hammering surface as vertical as possible. If hammering surface is oblique, the rod may slip during hammering and cause rod to seize, be broken and piston to seize.

When breaking, select the point of a rock on which hammering can be performed stably and fully stabilize rod to hammer.



OPERATING PRECAUTIONS

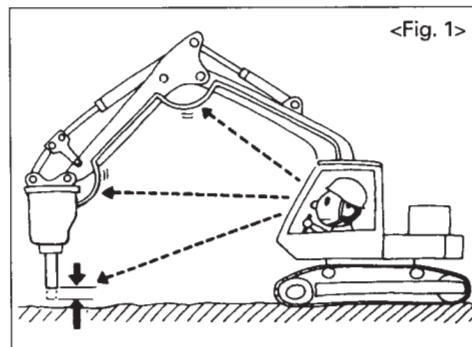
The operator should pay attention to the following points during operation.

ACDE HYDRAULIC ROCK BREAKERS

(1) Stop operation as soon as hoses vibrate excessively.

Check to see if high and low pressure hoses of breaker vibrate excessively. If so, the accumulator is defective and, therefore, contact the service shop appointed by us in your territory for disassembly and repair. Further, check oil leakage at the hose fittings and if oil oozes, re-tighten.

Visually inspect whether there is a surplus of rod, during operation as illustrated in Fig. 1. If not, the rod is seized in the front head.



<Fig. 1>

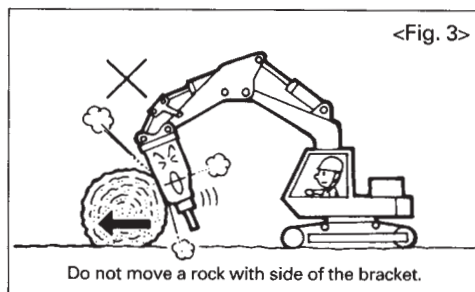
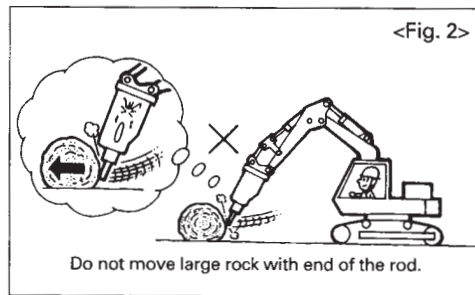
(2) Stopping (Avoid all idle hammering)

As soon as rocks are broken, stop hammering. If idle hammering is continued, the accumulator may be damaged, bolts may be loosened and broken. Further, base machine may also be affected adversely. When proper thrust is not applied to the breaker or the rod is used as a lever, at this time, idle hammering may occur. (In idle hammering, hammering sound changes.)

(3) Do not move rocks.

As shown on Fig. 2 and Fig. 3, do not roll or push a rock with end of the rod or side of the bracket using oil pressure for base machine boom, arm, bucket or swinging. Breaker attaching bolts may be broken, bracket may be damaged, the rod may be broken or scuffed, or base machine may be damaged. Avoid moving rocks.

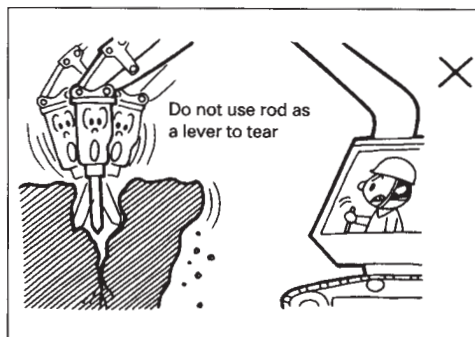
Especially, never move the machine with the rod placed at a rock.



(4) Don not use rod as a lever.

When a rock is broken by using rod as a lever as shown, bolts and rod may be broken.

Please refer to page 36 concerning the breakage of rods.

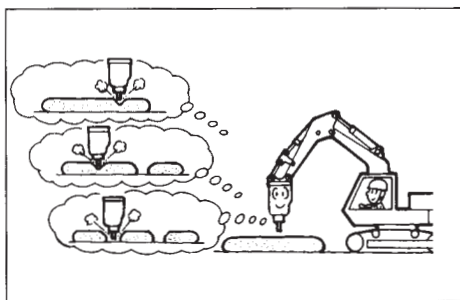


(5) Do not continue to hammer for one or more minutes.

When rocks are very hard, do not hammer at the same place in excess of one minute but change point to be hammered. Extended hammering raises the oil temperature and result in damaged accumulator and cause rod to wear excessively.

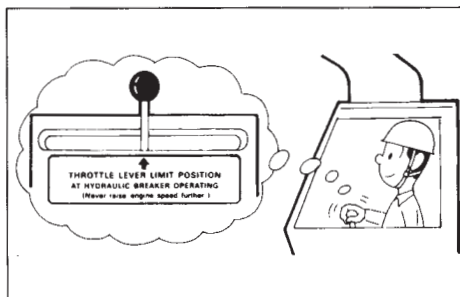
(6) On a hard and large rock, start breaking at the end.

Beginning to hammer at a crack or the end will enable even a big rock to be broken comparatively easily.



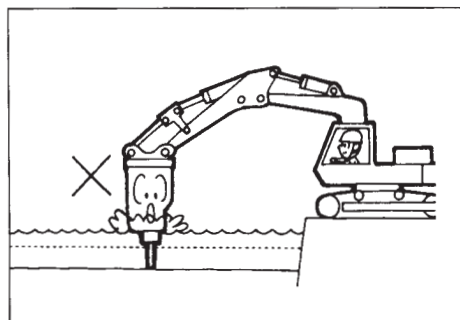
(7) Operate the breaker at proper engine speed.

Break rocks at the specified engine speed. Raising engine speed more than necessary does not increase hammering force but raises oil temperature and results in the damaged accumulator.



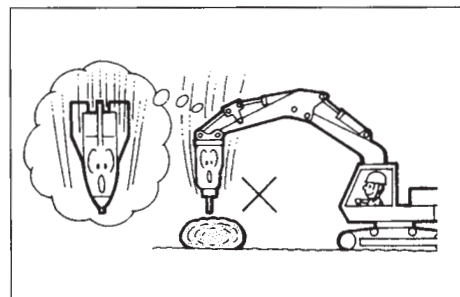
(8) Do not operate breaker in water and mud.

Do not operate standard type breaker with the components other than the rod immersed in water and mud. The piston or similar components may rust and result in a prematurely damaged breaker. If you need to operate breaker in water, you must order submersible type breaker.



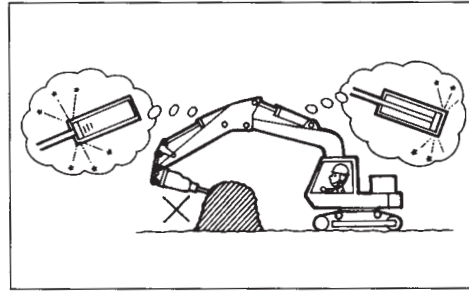
(9) Do not allow breaker to fall to break a rock.

An excessive force may be applied to the breaker or base machine to cause damage to base machine.



(10) Do not hammer with base machine cylinders moved to stroke end.

When a rock is broken with each base machine cylinder moved to stroke end (with the cylinder extended or retracted fully), the cylinder and each part of base machine may be damaged.



(11) Do not lift things with the breaker.

Lifting materials by hanging wire in the bracket or rod not only causes damage to the breaker but also is very dangerous when operating.

RE-TIGHTENING NUTS & BOLTS

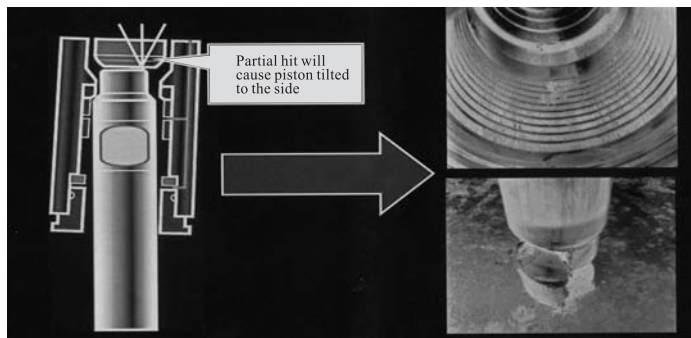
As breaker and bracket bolts, nuts, pipes and hose fittings may be loosened due to vibration, check for looseness before starting operation and after finishing operation. When those parts start loosening, retighten to specified torque.

REPAIRING ROD

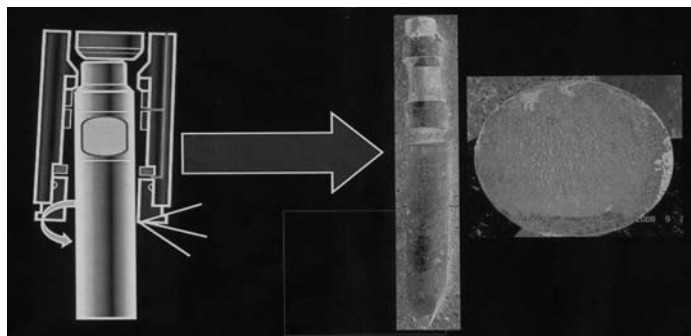
When a rod is used for many hours, it may be worn or become burred. In such case, deburr with a grinder. Further, when rod end is worn, it may also slip easily and, therefore, it is advisable to grind smooth. However, if the rod is repaired many times, the hardened layer depth is removed and rod is easily worn. In such case, replace with new rod.

1.Regular Replacement of Outer Bush and Inner Bush

Piston partial hit will strain piston and hitted parts.

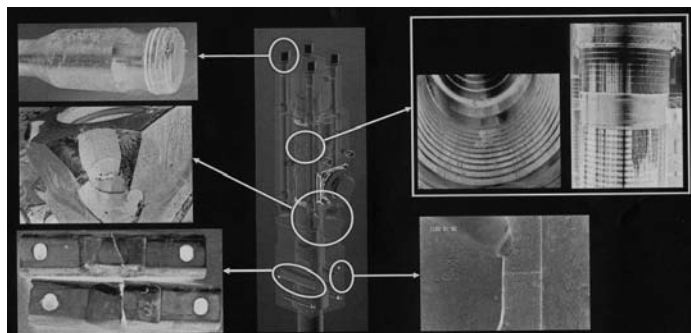


2.The wear of outer bush and inner bush will wreck chisel.

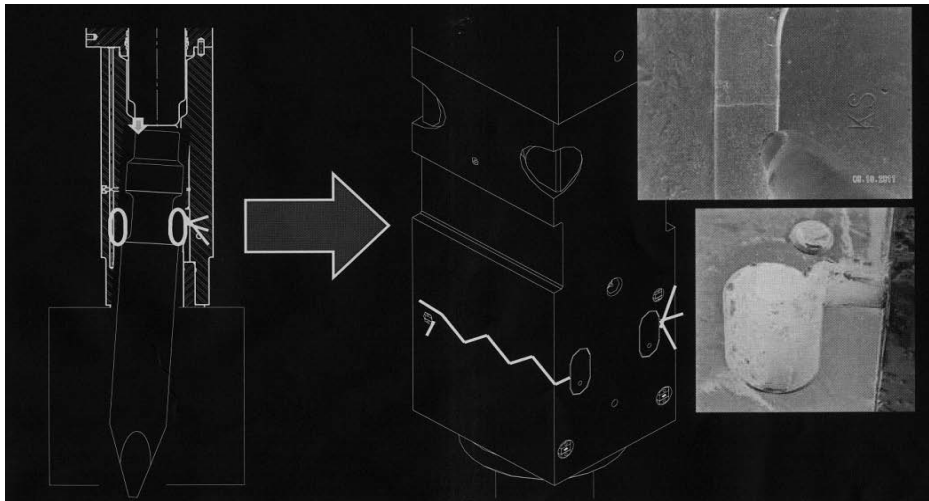


Minimize the frequency of empty strike

Empty strike will accelerate wear of breaker and base machine spare parts,
Frequently empty strike will casue following problem:

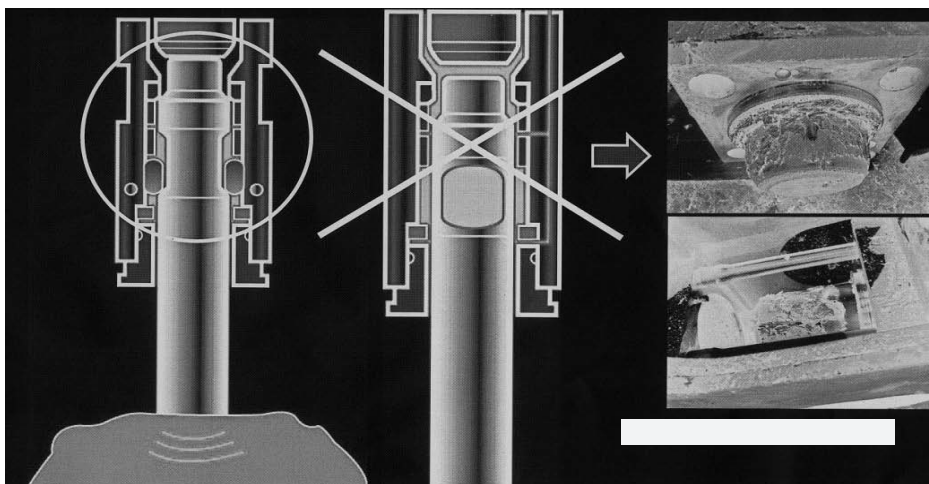


The wear of chisel pin will cause cracks on cylinder



5.Upright breaker and internal chisel to inner bush during injecting grease oil

If the grease oil go into the excavator through hammer,
it will damage the whole hydraulic cylinder and contaminate the oil.



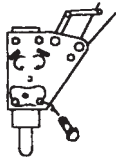
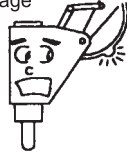
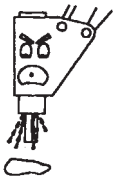
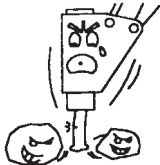
Chapter 5 | MAINTENANCE & INSPECTION

A hydraulic breaker is an attachment of a hydraulic excavator or the like. Therefore not only the inspection and repair mentioned in this manual but also those for the base machine (hydraulic excavator, etc.) are very important. Read the manual fully and carry out inspection and repair properly in order to use a hydraulic breaker safely and efficiently.

PERIODICAL INSPECTION

DAILY INSPECTION

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

Inspection Item	Inspection Point	Remedy
Looseness, missing and damage to the bolts and the nuts 	<ul style="list-style-type: none">Through BoltsBracket mounting bolts	<ul style="list-style-type: none">Check loosenessRe-tightened securely
Looseness of the hose fittings, visible damage to the hoses and oil leakage 	<ul style="list-style-type: none">Hydraulic pipes for the breakerOil hoses	<ul style="list-style-type: none">Re-tighten securelyReplace seriously damaged parts.
Abnormal oil leakage 	<ul style="list-style-type: none">Connections of the Back-Head and the cylinderClearance between the front head & the chisel	
Abnormal wear and cracks on the chisel 	<ul style="list-style-type: none">Chisel	<ul style="list-style-type: none">Deformed, burred and worn chisel should be repaired.Excessively a worn chisel needs to be replaced.

MONTHLY INSPECTION

Ask the distributor for an inspection once a month to prevent troubles and to use a hydraulic breaker safety.

YEARLY INSPECTION

Bring your hydraulic breaker to the distributor and ask for an inspection and repair once a year to prevent troubles and also, how to use a hydraulic breaker safely. Shorten the intervals according to the contents of conditions of work.

Group	Checking points		Standard of judgement		Remarks
			Description	Method	
Main body	Back head		- The charged gas pressure must be within the specified value. - No gas leakage	Measure the pressure. Check with soap bubbles	
	Cylinder		- No oil leakage	Visual	
	Valve housing		- The torque of mounting bolt must be proper. - No gas leakage	Check the torque. Visual	
	Accumulator		- The charged gas pressure must be within the specified value. - No gas leakage - The torque of mounting bolt must be proper.	Measure the pressure. Visual Check the torque.	
Main body	Front head group	Front cover Thrust bush Thrust ring Rod pin Stop pin Front head pin	- The wear degree must be within the specified value. - Every part must be greased fully.	Measure the wear degree Visual	
	Rod		- The effective length must be proper. - No damage - The wear of shank part must be minimized.	Measure the length. Visual Visual	
	Through bolt		- No bolt must be loosened, and the tightening torque must be proper.	Check the looseness and torque.	
Bracket	Bracket		- No crack and damage	Visual	
	Cross Bolt		- No bolt must be loosened, and the tightening torque must be proper.	Check the looseness and torque.	
	Pin and bush		- No pin and bush must be worn. - All pins and bushes must be greased fully.	Visual	
Pipes and hoses	Oil hose		- No oil leakage - Metal fixtures have no looseness.	Visual Check the oil hoses.	
	pipe		- No oil leakage - Hoses must not be damaged, touched nor swayed. Fittings have no looseness.	Visual Check the pipes.	
	Pipe clamp		- No mounting bolt must not fall off, nor be loosened.	Check the pipe clamps.	
	Control valve		- No oil leakage - Valve must be opened and closed normally.	Visual Check the valves.	
	Relief valve		- No oil leakage - Valve must work normally under the specified relief pressure.	Visual Measure the pressure.	
	Line filter		- No oil leakage / No damage - No element must be clogged.	Visual Check the elements.	
	Operation pedal		- Operative power and play amount must be proper.	Check the power and amount.	
	Stop valve		- No oil leakage - Valve must be opened and closed normally.	Visual Check the valves.	
Total function			- The operative pressure and number of blows must be within be specified values and all parts must work normally.	Measure the values.	

Torque Data

Model	ACCUMULATOR COVER (PART NO.:611)		ACCUMULATOR SET (PART NO.:612)			
	BOLT SIZE	(N.m) TORQUE DATA	BOLT SIZE	(N.m) TORQUE DATA	IMPATE RATE (bar)	TORQUE DATA (N.m)
100A,125A& 135A&135G	M20X1.5X50	480	M24X3X60	1176	1.0	246
140	M18X1.5X45	480			1.2	306
150&155	M16X2X40	353			1.4	366
175	M20X2.5X50	480			1.6	430
210	M20X1.5X50	480	M30X2X60	1404	1.8	490
					2.0	547
THROUGH BOLT TORQUE DATA(UNIT:N.m) (PART NO.:702)					2.2	600
Model	THROUGH BOLT DIAMETER	FIRST REACH TORQUE DATA	SECOND REACH TORQUE DATA		2.4	650
45	ø22	350	500		2.6	700
53	ø24	420	600		2.8	750
70	ø27	560	800		3.0	805
75	ø27	560	800		3.2	850
85	ø33	910	1300		3.4	890
100	ø39	1288	1840		3.6	940
125	ø42	1890	2700		3.8	980
135G	ø42	1890	2700		4.0	1025
135	ø44	2100	3000		4.2	1070
140	ø52	2450	3500		4.4	1115
150	ø56	3150	4500		4.6	1160
155	ø56	3150	4500		4.8	1200
165	ø56	3150	4500		5.0	1248
175	ø58	3570	5100		5.2	1300

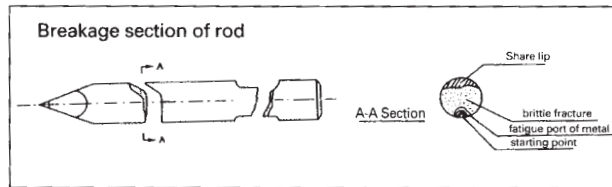
BREAKAGE OF RODS FOR HYDRAULIC BREAKER

The service life duration of various rods used for breakers largely depends on the manner of handling them.

The rod can sufficiently withstand the load acting vertically to its axis, but is weak to the load acting perpendicularly. especially,

when the rod with the above said weak point is affected by the negative conditions such as bending force by craning operation, tilted blowing, wrenching, idle strokes, etc., its service life may become shorter. There are several ways of breakage of rods. Each cause of their breakage can be inferred by observing their breakage sections. Further, there described is the breakage case which is not caused by low-quality materials or insufficient thermal treatment but by wrong way of handling, which the manufacturer is not responsible for.

As it can be seen in the figure, the breakage section has the origin on the outer surface, a narrow area of fatigue breakage and a wide area of brittleness, and the final breakage part has the share-lip form (with sharp edge like a hoe edge). Such an undulation on the breakage section and its inclination to the right and left witness that the breakage is caused by extra bending force which exceeds the toughness of the rod. Such a breakage is supposed to occur owing to careless handling of the rod. To avoid such a breakage, more carefulness and attention are required in handling the breaker.

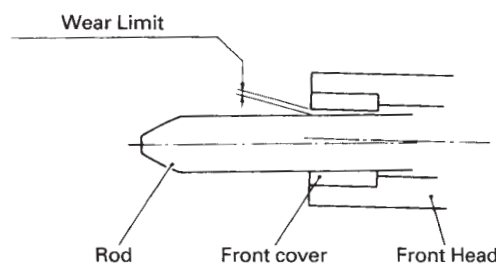


INSPECTION / REPLACEMENT OF ROD/FRONT COVER

▲ CAUTION

Use of non genuine rod will void the warranty of the breaker.

When a rod is used for many hours, it is deformed or burrs are produced. In such a case, de-burr with a grinder. If the rod end is worn, the rod is liable to slip. Regrind the rod end to be smooth. But if the rod is repaired many times, the hardened surface layer is gone and the rod is worn earlier than usual. In such a case, replace with a new one. If the clearance between the rod and front cover is large, the piston comes in contact with the rod abnormally to cause damage or the rod is prone to break. when the clearance is over the standard value, replace the rod and front cover together.



Replacement of chisel

Chisel worn to a certain extent need replacing, refer to following size

Unit: mm

Num	Break	Initial size	Replacing size
1	ASB 45	326	200
2	ASB 53	347	200
3	ASB 70	422	250
4	ASB 75	384	200
5	ASB 85	474	250
6	ASB 100	606	250
7	ASB 125	678	300
8	ASB 135	762	300
9	ASB 140	710	300
10	ASB 150	804	350
11	ASB 155	883	350
12	ASB 165	933	400
13	ASB 175	818.5	350
14	ASB 185	894	500

Replacement of chisel pin

If the flat size of the pin is worn over 1.5mm, so should reverse chisel pin together.

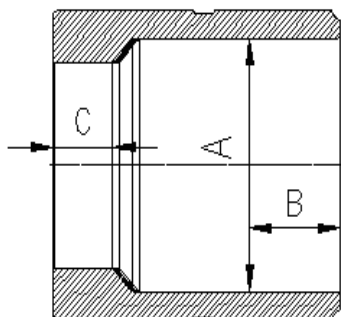
Chisel need replacing when badly worn.

Unit: mm

Num	Break	Initial size	Replacing size	Pin shape
1	ASB 45	24	21	Round
2	ASB 53	24	21	
3	ASB 70	35	32	
4	ASB 75	35	32	
5	ASB 85	54	50	Flat
6	ASB100	60	56	
7	ASB125	76	71	
8	ASB135	80	75	
9	ASB140	89.5	83.5	
10	ASB150	94	88	
11	ASB155	97	91	
12	ASB165	97	91	
13	ASB175	100	94	
14	ASB185	121	115	

Replacement of Inner Bush

If inner bush badly nom will shorten the piston and chisel life, even fracture piston and chisel.



Wear Limit Date showed as below. Moreover, if part A.C is worn beyond wear limit replace it.

Unit: mm

Num	Model	Part B	Original A	Replaced A	Original C	Replaced C
1	ASB 45	10	45	47	10.25	8
2	ASB 53	10	53	55	10	8.5
3	ASB 70	12	70	73	10	8.5
4	ASB 75	12	75	78	14.6	11.5
5	ASB 85	12	85	88	18.9	16
6	ASB100	15	100	104	12.5	10
7	ASB125	15	125	129	31	28
8	ASB135	15	135	140	24	21
9	ASB140	15	140	145	35.5	32.5
10	ASB150	20	150	155	31.5	28.5
11	ASB155	20	155	160	34	31
12	ASB165	20	165	171	40	36.5
13	ASB175	20	175	181	51.5	47
14	ASB185	20	180	186	43.5	39

Replacement of Outer bush

If outer bush badly worn will shorten the piston and chisel life, even fracture piston and chisel.

Unit: mm

Num	Breaker	Measurement position	Initial sizea	Replacement Diameter
1	ASB45	10	45	48
2	ASB53	10	53	56
3	ASB70	12	70	74
4	ASB75	12	75	80
5	ASB85	12	85	90
6	ASB100	15	100	105
7	ASB125	15	125	131
8	ASB135	18	135	141
9	ASB140	15	140	147
10	ASB150	20	150	157
11	ASB155	15	155	162
12	ASB165	15	165	173
13	ASB175	20	175	183
14	ASB185	20	180	188



Chapter 6 | TROUBLE-SHOOTING

Please do refer to following recommended remedies when you have troubles and if still you can not solve the problems you are kindly requested to contact us.

Trouble	Causes	Remedy
Reduced impact force	<ul style="list-style-type: none">- Low engine rpm- Leakage to gas chamber in backhead- Leakage in accumulator- Lost setting pressure in relief vale- Rod being stuck	<ul style="list-style-type: none">- Adjust throttle lever- Check pressure and refill- Check pressure and refill- Adjust pressure- Grinding part being stuck
No hammering	<ul style="list-style-type: none">- Relief valve improperly setup- High pressure in Backhead- Oil smeared into gas chamber- Piston, cylinder or valve stuck not to move	<ul style="list-style-type: none">- Adjust pressure to operating- Adjust gas pressure- Replace seal- Smooth grinding by fine sandpaper
Irregular hammering	<ul style="list-style-type: none">- Excessive pressure in gas chamber- Low working pressure- Rod stuck between front head and surface of rod- Piston, cylinder and valve stuck in places	<ul style="list-style-type: none">- Adjust gas pressure- Adjust relief valve- Grinding the place of part stuck- Grinding the place of part stuck
Gas leakage	<ul style="list-style-type: none">- Gas seal impaired	<ul style="list-style-type: none">- Replace with new seal- Change charging valve
Bad movement of rod.	<ul style="list-style-type: none">- Rod diameter incorrect rod and pin jammed due to rod pin wear jammed front cover and rod- Deformed rod and piston contact area	<ul style="list-style-type: none">- Replace rod with genuine parts- Smoothen rough surface of rod and replace rod pin- Smoothen rough surface of front bush replace rod
Sudden reduction power and vibration of high pressure line (In-line)	<ul style="list-style-type: none">- Accumulator gas leakage- Accumulator diaphragm damage	<ul style="list-style-type: none">- Replace O-ring, or refill nitrogen gas- Replace diaphragm
Oil leakage between front head and rod	<ul style="list-style-type: none">- Cylinder seal worn	<ul style="list-style-type: none">- Replace seal



ADVANCED CONSTRUCTION & DEMOLITION EQUIPMENT



CE ISO9001

ACDE EUROPE B.V.
Frans Halsstraat 5
6901 DC Zevenaar
The Netherlands

Phone
E-mail
Web
Mobile

+31 316 26 72 91
info@acde-europe.com
www.acde-europe.com
+31 6 53 150 283