

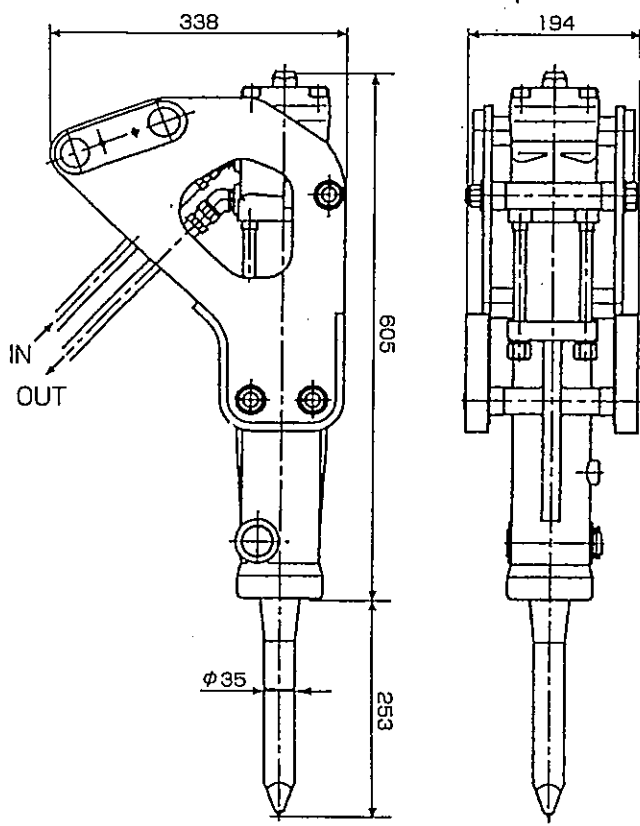
MARUZEN

HYDRAULIC
(MINI BACKHOE)
BREKER
MODEL BH501

OPERATING MANUAL
AND
PARTS LIST

MARUZEN KOGYO CO., LTD.

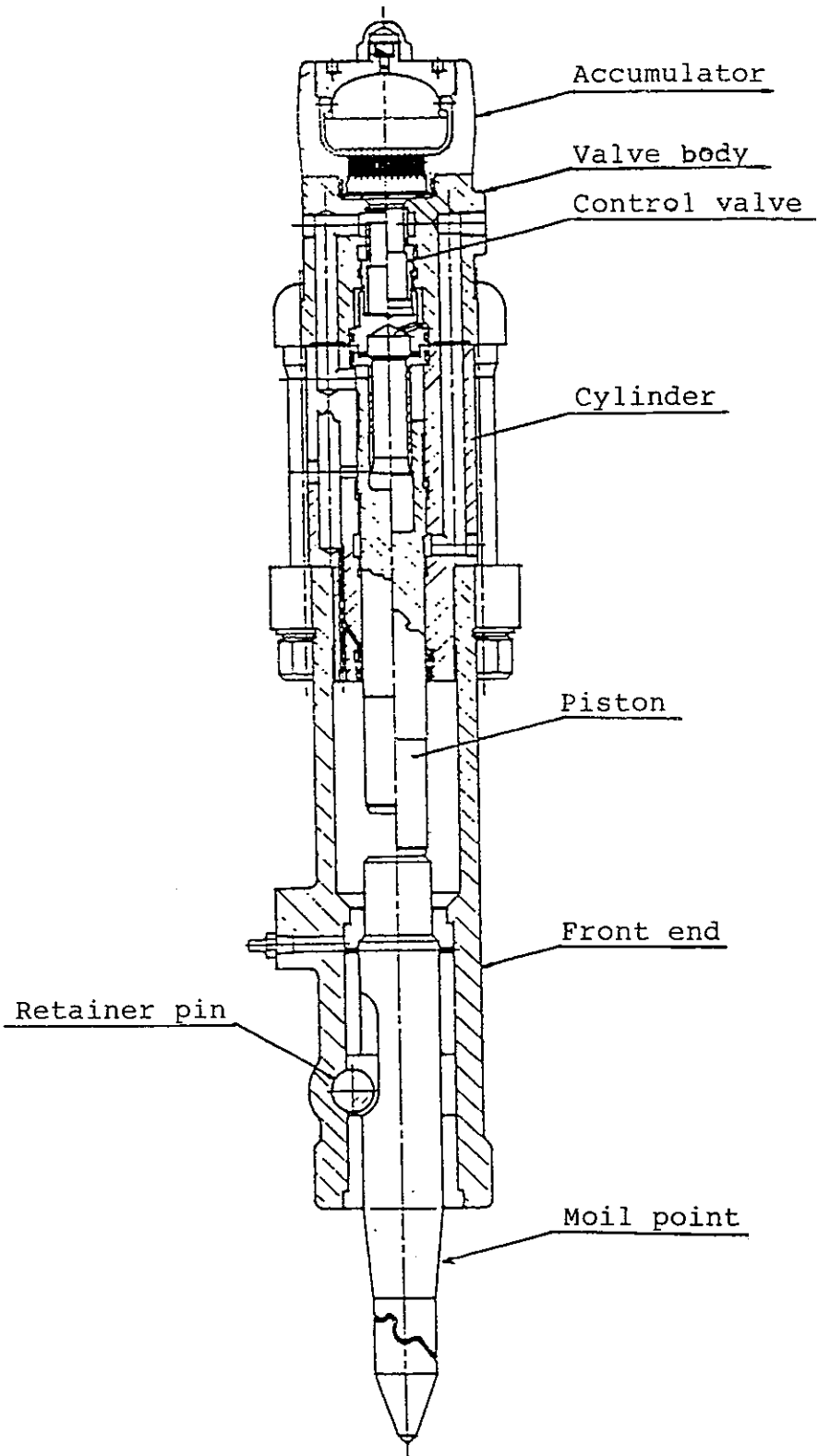
External View



Specifications

Dimension	338mm x 194mm x 605mm						
Total weight	46kg (including hoses, moil point)						
Working poessure	8.8 - 13.7Mpa (90-140kgf/cm ²)						
Max pressure	20.6Mpa (210kgf/cm ²)						
Required oil flow/ Blow rate	<table border="0" style="display: inline-table; vertical-align: middle;"> <tbody> <tr> <td>20 - 25 /min</td> <td>1050 - 1200b.p.m.</td> </tr> <tr> <td>16 - 20 /min</td> <td>800 - 1050b.p.m.</td> </tr> <tr> <td>12 - 16 /min</td> <td>600 - 800b.p.m.</td> </tr> </tbody> </table>	20 - 25 /min	1050 - 1200b.p.m.	16 - 20 /min	800 - 1050b.p.m.	12 - 16 /min	600 - 800b.p.m.
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16 - 20 /min	800 - 1050b.p.m.						
12 - 16 /min	600 - 800b.p.m.						
Connection	3/8" coupler (1/2" hose)						
Moil point	length 450mm, dia 45/35mm; weight 4kg						

Internal view

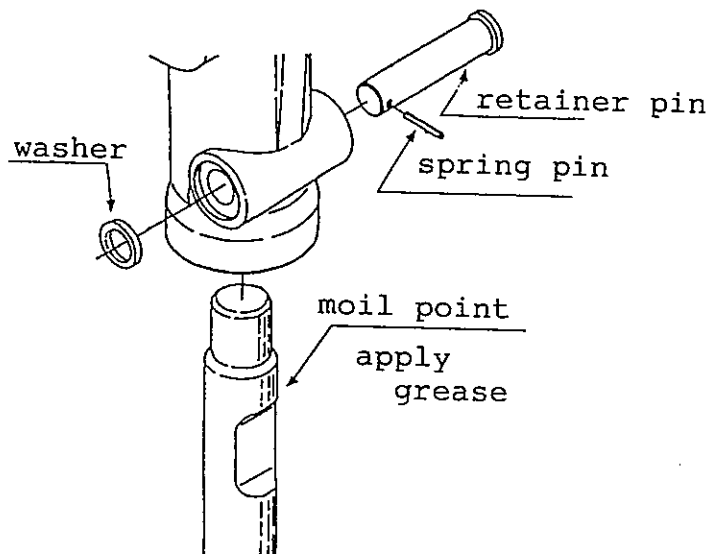


System

1. Accumulator is attached on the top for stable impact power and detachable by loosing 4 bolts for charging gas.
2. Control valve in valve body changes oil flow with piston location and controls impact action produced by piston reciprocation
3. Piston reciprocates in cylinder and strikes moil point.
4. 4 bolts tighten from valve body to front end.
5. In-and outlet of working oil are indicated on the side of valve body. The upper "P" is for high pressure and the lower "T" for return.
6. Moil point is attachable and detachable with a single retainer pin.

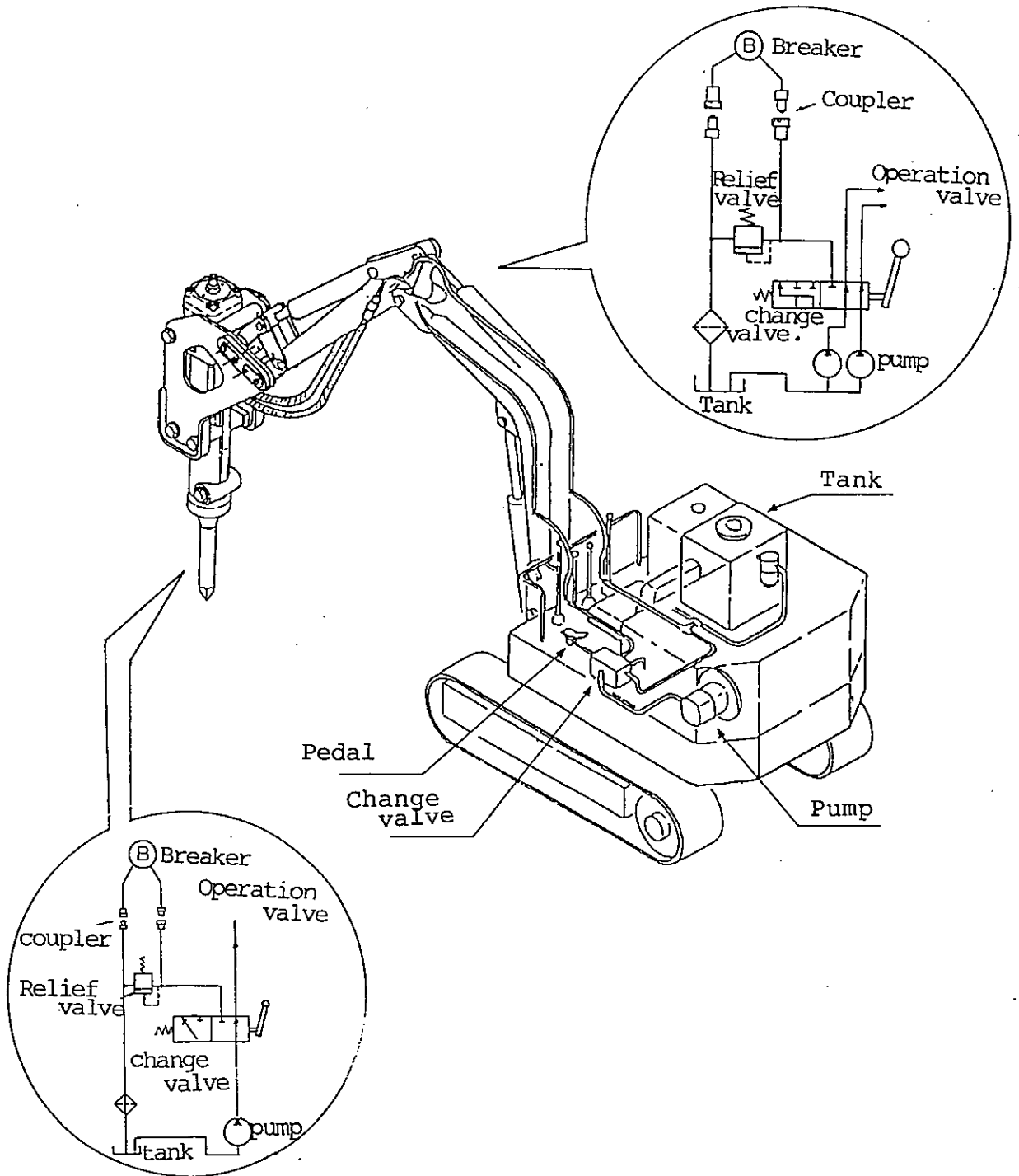
(how to attach)

- 1) Apply grease to moil point, insert it and attach retainer pin.
- 2) Attach washer and spring pin.



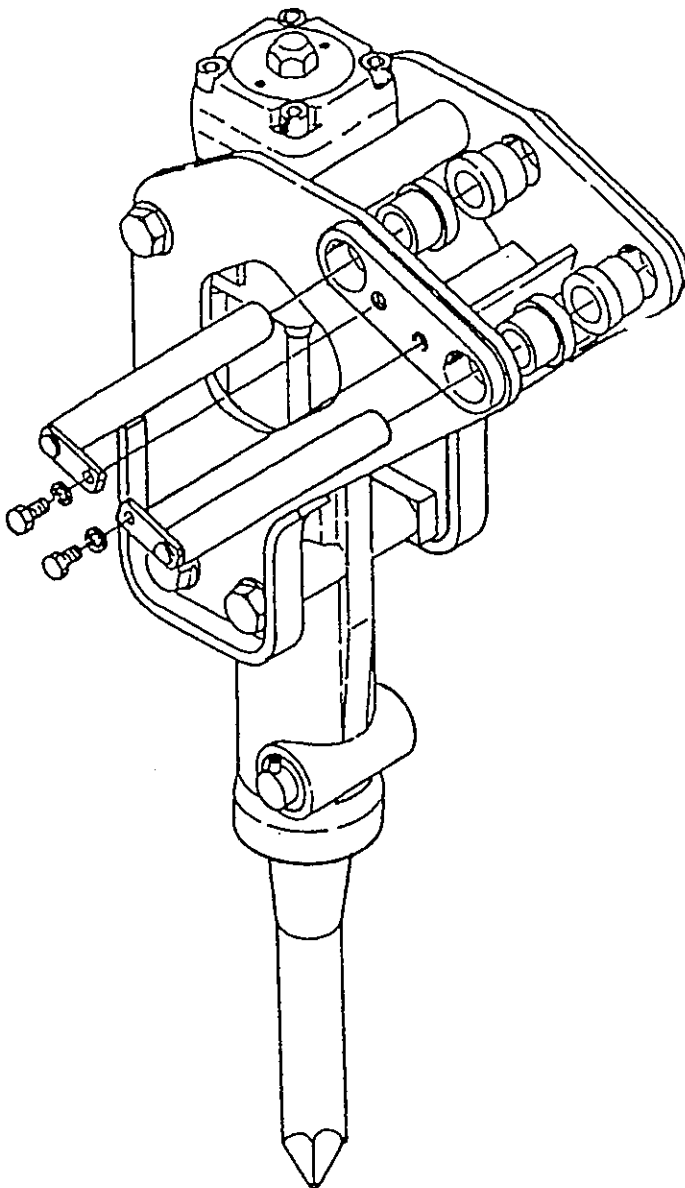
Piping

1. Piping is different according to backhoe model.
Refer to the below circuit as a base.
2. Set relief pressure in range of 140 - 175kg/cm².



Mounting / Dismounting

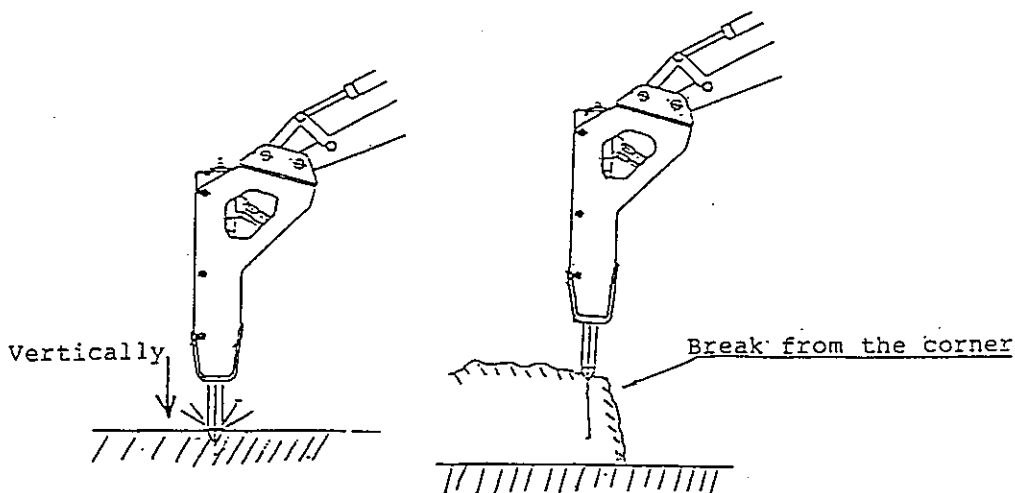
1. Use 4 bush and 2 pin to mount breaker on backhoe.
2. Apply grease to outer and inner dia. of bush to attach to bracket.
3. Insert pin and stop it with hex bolt and spring washer.
4. Connect male and female couplers of two hoses with each other when breaker is dismantled and kept.



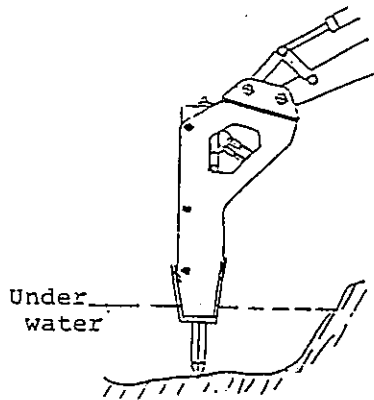
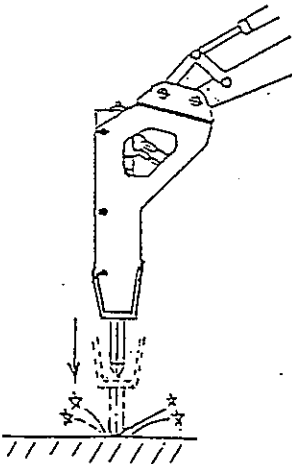
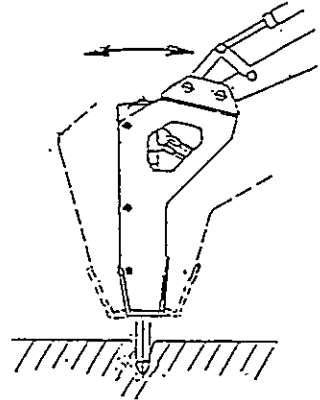
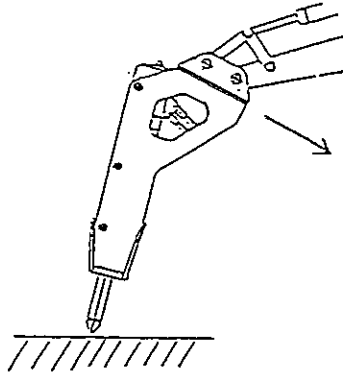
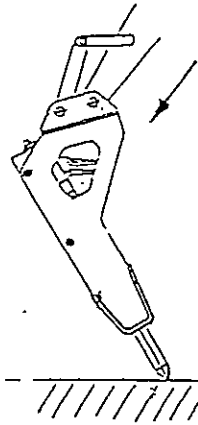
Operational notices

1. Operate breaker parallel to crawler movement.
2. Do not operate breaker with swung boom.
3. Operate the breaker with the provided flow rate.
Excess flow rate causes troubles.
4. Keep the relief-set pressure in the range of 140 - 175kg/cm².
5. Put the chisel vertically to the breaking objects and push vertically when striking.
6. Do not apply twist to the chisel during striking.
It causes bites and breaks of the chisel.
7. Do not apply twist also after striking the chisel into the objects.
8. If harder and bigger objects have to be broken, break it from the corner.
Change the striking position if it does not break after 30-60 seconds striking.
9. Do not use the breaker in the water.
10. Do not strike the breaker with the backhoe arm.

Right operation

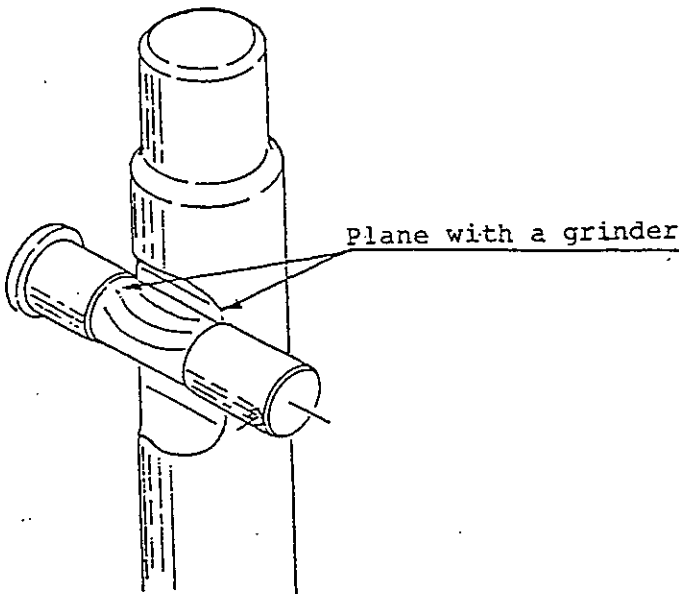


Avoid the following operation:



Maintenance

1. Grease the chisel sufficiently and cover with sheet when reserving.
2. Be careful that grease is not out during operating, or the chisel burns stuck or wears earlier.
Grease to the nipple on the front end if the chisel grease is dry during operating. (Grease with a gun with the chisel inserted)
Grease 4-5 times with a grease gun at the beginning of daily operation.
3. Tighten the nut for the pin that fixed the breaker and the bracket every 10-15 hours operation.
4. Check after 100 hours or half a year operation if the gas pressure in the accumulator keeps 55kg/cm^2 .
5. Replace the accumulator diaphragm and each seal with a new one in every 500 hours operation.
6. Replace the hydraulic oil with new one if it is dirty or stinks.
7. Check if the grooved nut of the pin which fixes the breaker to the bracket is loose.
If it is loose, pull the R-pin, fasten the nut and stop its rotation by inserting the R-pin again.
8. Check if the hydraulic oil is short or dirty.
If so, add it or replace, as the dirty oil causes malfunction of the piston.
9. Check if the contacting parts of the retainer pin and the chisel is swollen. If so, plane it with a grinder.



Periodical check and replacement

Check item	Check time
Accumulator gas pressure 40kg/cm ²	every 100 hrs or half a year
Replacement of the seals	every 300 hrs or a year
Replacement of the accumulator diaphragm	"
Replacement of the retainer pin	depending on wear degree
Replacement of the hydraulic hose	when damaged or oil leaks
Replacement of the bolt, nuts, etc.	When damaged

If oil does not leak extraordinarily plenty, these parts can be used without replacement.

Troubleshooting

Symptoms	Cause	Solution
1.The breaker does not operate	<ol style="list-style-type: none"> 1.Insufficient hydraulic oil 2.Incomplete hose connection 3.Reverse connection of feed and return hoses 4.Lower relief-set pressure of power source 5.Control valve does not function in order 6.Control valve is damaged 7.Oil does not flow 	<ol style="list-style-type: none"> 1.Replenish 2.Connect completely 3.Connect rightly. The upper hose is for high pressure 4.Adjust to the regular pressure 5.Disassemble and fit by rubbing 6.Replace 7.Check the oil circuit.
2.Impact power is weak	<ol style="list-style-type: none"> 1.Insufficient oil flow 2.Lower relief-set pressure 3.Reduced accumulator gas pressure 4.Control valve does not function in order 	<ol style="list-style-type: none"> 1.Secure proper flow rate. 2.Adjust to the regular pressure 3.Refill to attain the regular gas pressure.

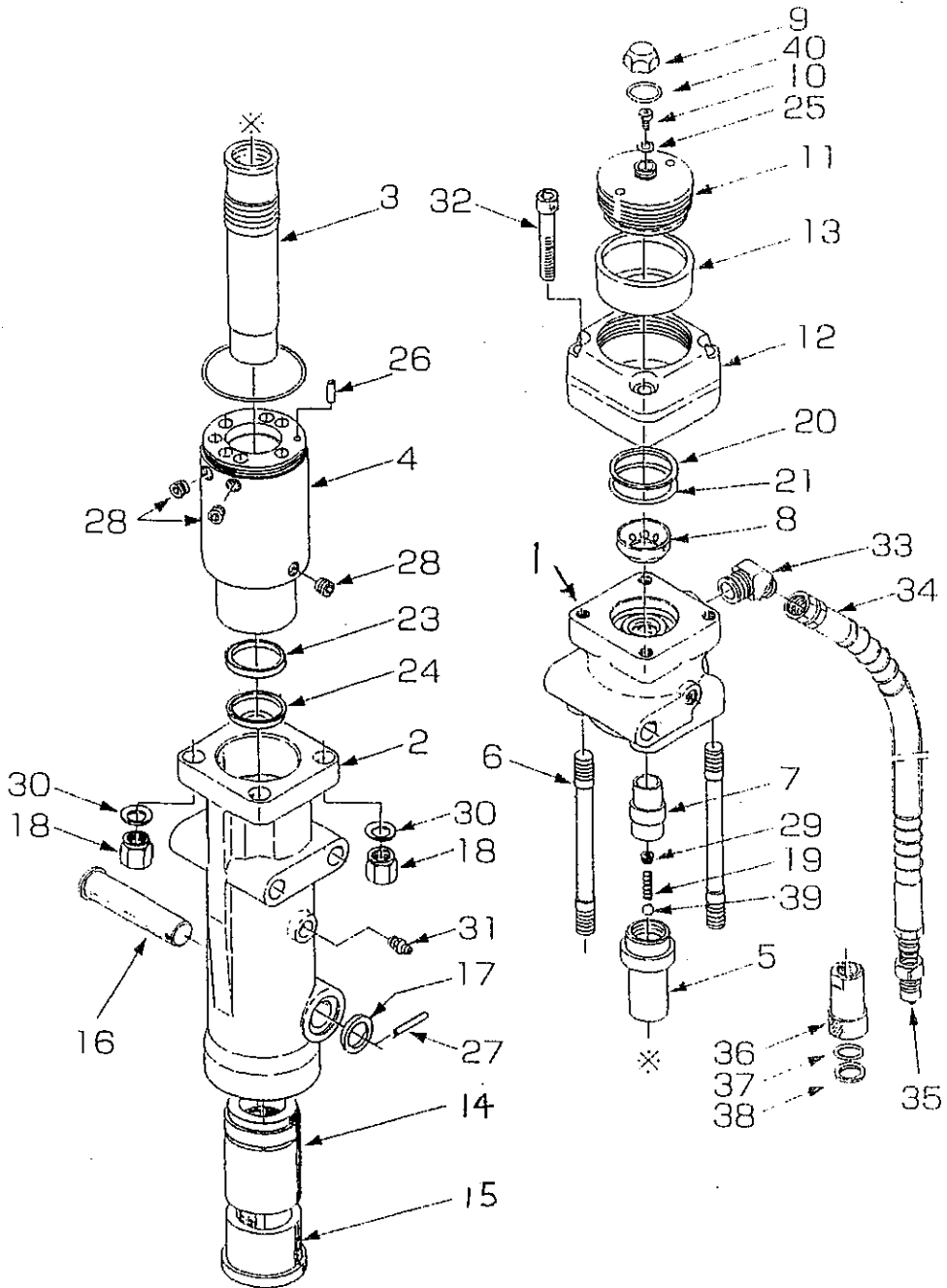
	<p>5.Chisel insertion is not smooth</p> <p>6.Accumulator diaphragm is damaged.</p>	<p>4.Disassemble and fit by rubbing</p> <p>5.Remove burr of the chisel or retainer pin.</p> <p>6.Replace.</p>
<p>3.Excessive pulsation in high pressure hose</p>	<p>1.Excessive gas pressure of accumulator</p> <p>2.Accumulator diaphragm is damaged.</p>	<p>1.Adjust to the proper pressure</p> <p>2.Replace (Note: There is some pulsation in low pressure hose.)</p>
<p>4.Plenty of oil leakage from chisel</p>	<p>1.Wear of piston rod seal</p> <p>2.Rod seal is damaged by piston scratch.</p>	<p>1.Replace.</p> <p>2.Replace seal and remove piston scratch.</p>
<p>5.Oil leakage from joint of valve body cylinder, etc.</p>	<p>1.Oring on seal side is damaged</p> <p>2.Bolt is loose</p> <p>3.Bolt is damaged</p>	<p>1.Replace.</p> <p>2.Tighten bolt using bond.</p> <p>3.Replace.</p>
<p>6.Oil leakage from hose</p>	<p>1.Hose is damaged.</p> <p>2.Hose joint is loose.</p>	<p>1.Replace</p> <p>2.Tighten</p>

PARTS LIST

(Main Body)

No.	Parts No.	Parts Name	Q'ty.
1	MB09C001A	VALVE BODY	1
2	MB09C002A	FRONT END	1
3	MB09D003A	PISTON (D)	1
4	MB09D004A	CYLINDER (C)	1
5	MB04E113A	INNER TUBE (C)	1
6	MB04E108A	DRAW BOLT	4
7	MB04E131A	CONTROL VALVE (D)	1
8	MB04E123A	RING	1
9	MIKTE108A	CAP NUT	1
10	1120-413	CAP BOLT	1
11	1110-420-01	LID	1
12	1110-310-01	SHELL	1
13	1110-421	DIAPHRAGM	1
14	1131-403-01	BUSH (A)	1
15	1131-417	BUSH (C)	1
16	1131-406	RETAINER PIN	1
17	1131-405-00	WASHER	1
18	1131-430	NUT (M16)	4
19	MIHTE107A	SPRING (P)	1
20	OBG-50	BACK UP RING	1
21	OG-50	O-RING	1
22	OG-80	O-RING	1
23	IUIS-40-50-6	U-CUP PACKING	1
24	DS-4048565	DUST SEAL	1
25	WS-06	SEAL WASHER	1
26	PR-6*20	PIN	1
27	PR-6*36	PIN	1
28	BPH1-PT1/4	PLUG	7
29	BPH1-PT1/8	PLUG	1
30	WF-16-2L(JISB1252)	WASHER	4
31	A-PT1/8	GREASE NIPPLE	1
32	BH-12*70	BOLT	4
33	1036-08	ADAPTER	2
34	HH-0815	HIGH PRESSURE HOSE	2
35	QC-03M	QUICK COUPLER (MALE)	1
36	QC-03F	QUICK COUPLER (FEMALE)	1
37	OP-03S	O-RING	1
38	OBP-03S	BACK UP RING	1
39	QB-5/16	STEEL BALL	1
40	OS-22.4	O-RING	1

Parts View



(Bracket)

No.	Parts No.	Parts Name	Q'ty.
1	MB09C005A	BRACKET	1
2	MB09E007A	BOLT	3
3		BUSH	4
4	MOSTE131A	PIN	2
5	WF18-1L	WASHER	6
6	WS-8	WASHER	2
7	B-8*15	BOLT	2
8	A-PT1/8	GREASE NIPPLE	2
9	N1-18	NUT	3

Parts View

