

REWIN HYDRAULIC BREAKER

OPERATION MANUAL & PARTS LIST

▲ DANGER

For the safe and correct use of this product, please read the safety directions and operating instructions in this manual. Don't operate this product before full acquaintance with its contents.

For the convenience of operation, please put this manual beside the corresponding breakers.

TYPE	
NUMBER	
TIME	

DANGER!!

DO NOT OPERATE THIS 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, breaker rod, rock or other material may cause serious or fatal injury to the operator. Personal protection equipment must be used.

Flying debris from the breaker, breaker rod, rock or other material may cause serious or fatal injury to bystanders. Never operate the breaker when bystanders are in the work area.

On some machines / carriers, the breaker can enter the operator's compartment if it breaks loose and swings toward the operator. Make sure that suitable impact shields are used when operating the breaker with this type of equipment.

Do not operate the breaker unless all safety decals described in this manual are in place. The decals must be inspected periodically to ensure that all wording is legible. The decals must be replaced if illegible. Replacement decals can be obtained from NUOSEN .

When operating the breaker ear, eye and breathing protection must be used at all times.

The breaker will become very hot during operation. Allow time for breaker to cool down before touching breaker parts.

PREFACE

We'd like to express our sincere gratefulness for your choosing of Nuosen Company's products. The breaker you bought is the accomplishment of Nuosen Company's excellent workmanship and accumulated experience, and is proved to be durable under any working conditions. However, without correct operation, regular inspection and maintenance, the machine will not bring into play its normal working efficiency, and will even be damaged. We recommend you to carefully read this manual before the work to avoid any wrong operations. We assure you that with this guidance, your machine will achieve its best working efficiency. At the same time, we remind you that for any damage resulted from improper operation or the use of part not produced by our company, we assume no responsibility of repair or quality warranty.

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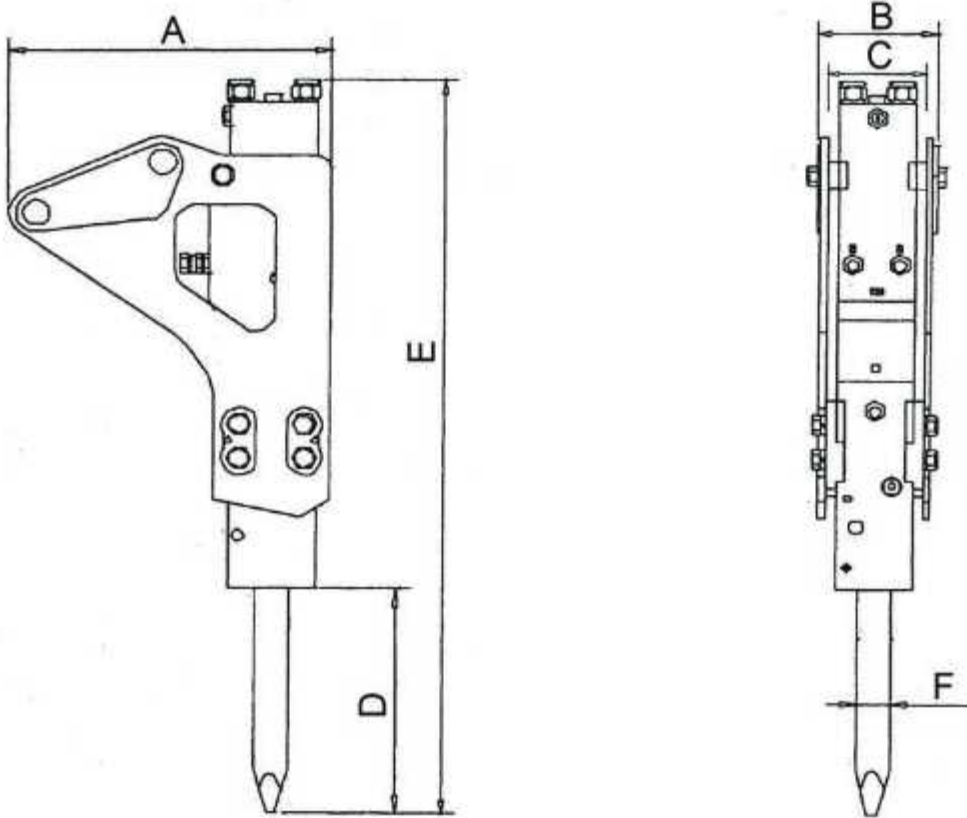
1、Standard specifications

Project	Unit	MODEL												
		RWB40	RWB45	RWB53	RWB68	RWB75	RWB100	RWB120	RWB135	RWB140	RWB155	RWB165	RWB175	RWB190
Side Type	Kg	70	90	120	300	430	890	980	1350	1678	2455	2830	3788	4270
Top Type	Kg	90	110	135	310	490	810	1000	1450	1560	2520	3200	4320	-
Box Type	Kg	73	100	120	295	430	980	1000	1544	1830	2800	3185	3833	-
Side Type	mm	972	1080	1121	1349	1553	1936	2076	2400	2467	2726	2904	3158	3266
Top Type	mm	1150	1250	1365	1589	1900	2358	-	2605	2850	3315	3376	3739	-
Box Type	mm	1222	1420	1325	1587	1187	2316	2605	2605	2850	3315	3376	3719	3895
Side Type	mm	230	230	237	308	308	376	428	488	488	570	570	625	625
Top Type	mm	230	230	237	308	308	376	428	488	488	570	570	625	625
Box Type	mm	230	230	237	308	308	376	428	488	488	570	570	625	625
Operating Flux	l/min	15~30	20~40	25~50	40~70	50~90	80~110	90~120	100~150	120~180	180~240	200~260	210~280	240~300
Operating Oil Pressure	kg/cm ²	90~120	90~120	90~120	110~140	120~150	150~170	150~170	150~170	160~180	160~180	160~180	160~180	200~230
Impact Frequency	BPM	800~1400	700~1200	600~1100	500~900	400~800	350~700	350~700	350~600	350~500	250~350	200~260	200~350	180~225
Size of Tube	in	1/2	1/2	1/2	1/2	1/2	1/2	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4
Rod Diameter	mm	40	45	53	68	75	100	120	135	140	155	165	175	189
Applicable Excavator	ton	0.8~2.5	1.2~3.0	2.5~4.5	4.0~7.0	6.0~9.0	11.0~16.0	15.0~18.0	16.0~21.0	18.0~26.0	28.0~35.0	30.0~45.0	40.0~55.0	50.0~65.0

Note: We reserve the right of revising the above parameters for product renewal without prior notification.

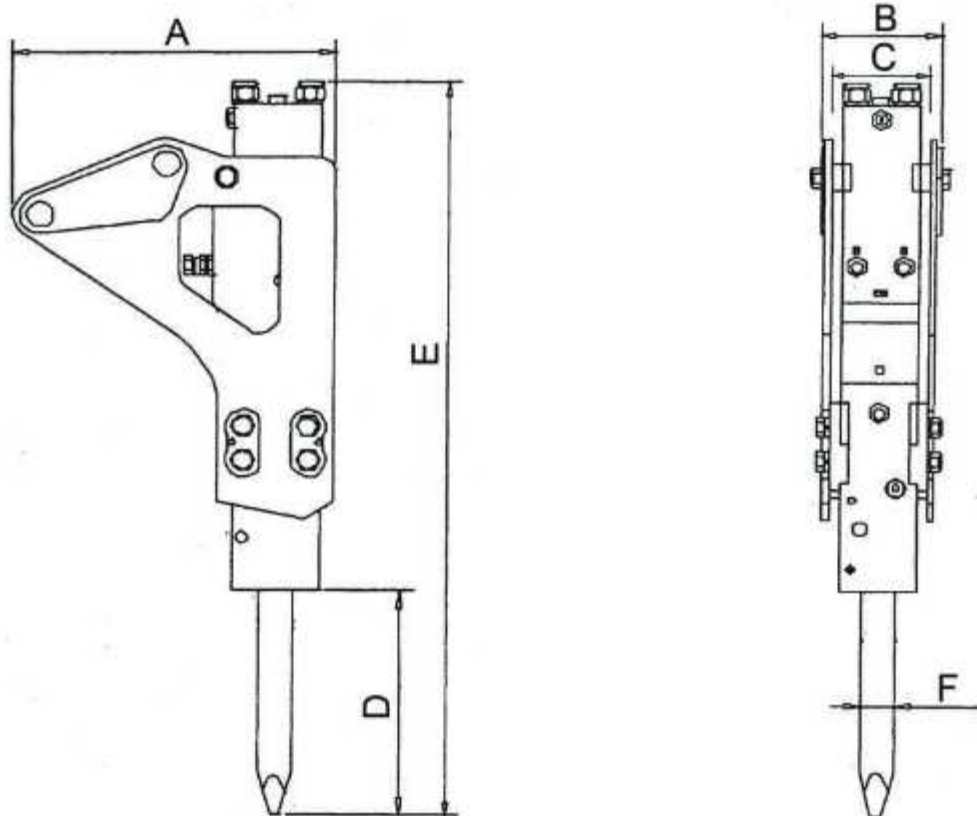
2、Overall dimension

SIDE TYPE



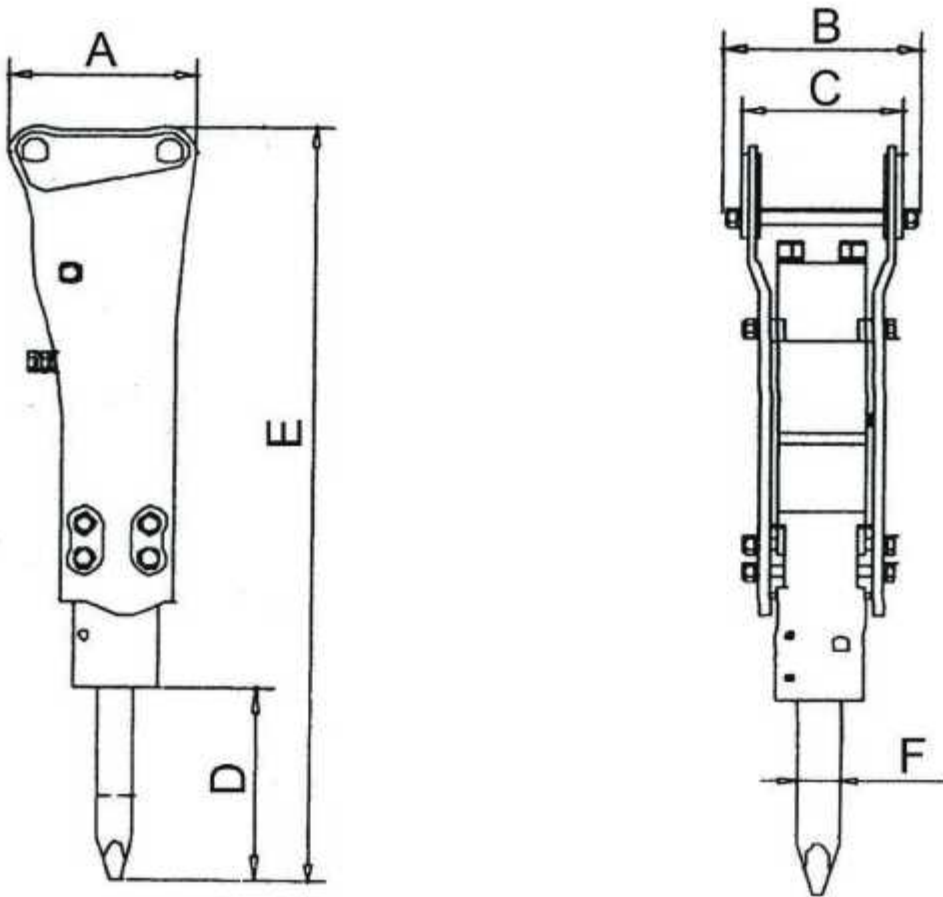
Model	A	B	C	D	E	F
RWB40	400	230	120	297	977	40
RWB45	425	230	130	326	1080	45
RWB53	480	237	145	377.5	1121	53
RWB68	690	308	220	426	1349	68
RWB75	750	308	220	455	1553	75
RWB100	992	376	280	516	1936	100

SIDE TYPE



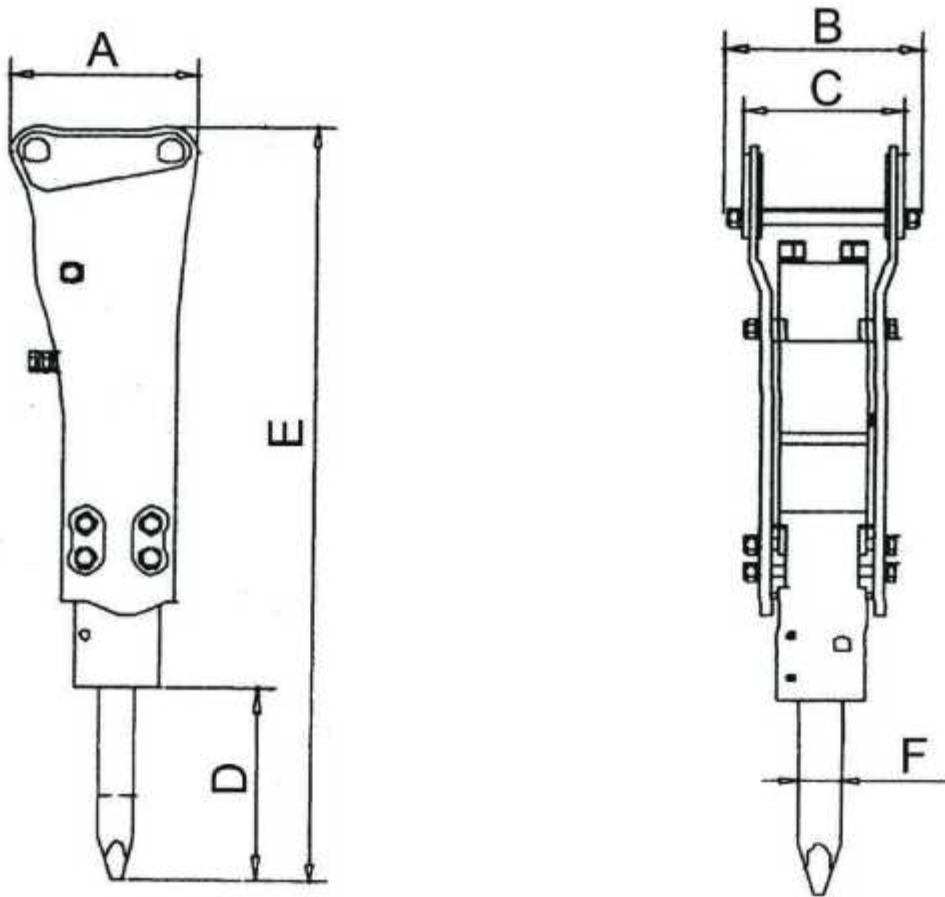
Model	A	B	C	D	E	F
RWB120	1220	428	300	666	2076	120
RWB135	1228	488	360	707	2400	135
RWB140	1264	488	360	738	2467	140
RWB155	1418	570	420	783	2726	155
RWB165	1490	570	420	818	2904	165
RWB175	1710	625	475	807	3158	175
RWB190	1776	625	475	853	3266	189

TOP TYPE



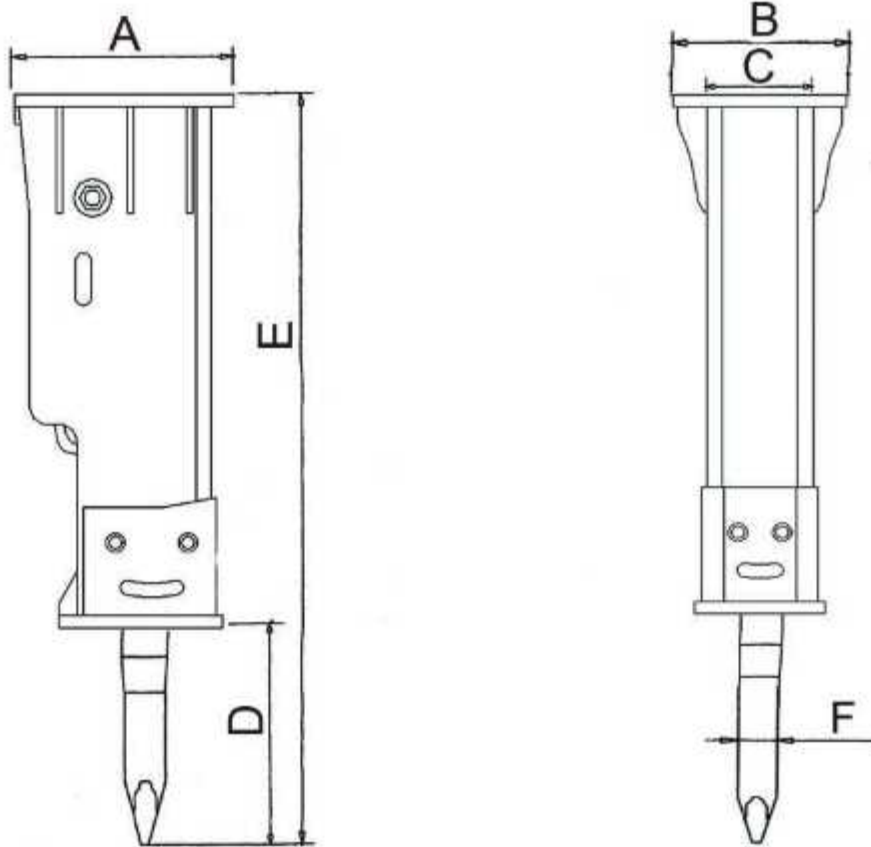
Mdoel	A	B	C	D	E	F
RWB40	300	230	120	297	1150	40
RWB45	300	230	120	326	1250	45
RWB53	300	237	145	377.5	1365	53
RWB68	420	308	220	426	1589	68
RWB75	490	308	220	455	1900	75
RWB100	610	376	280	516	2316	100

TOP TYPE



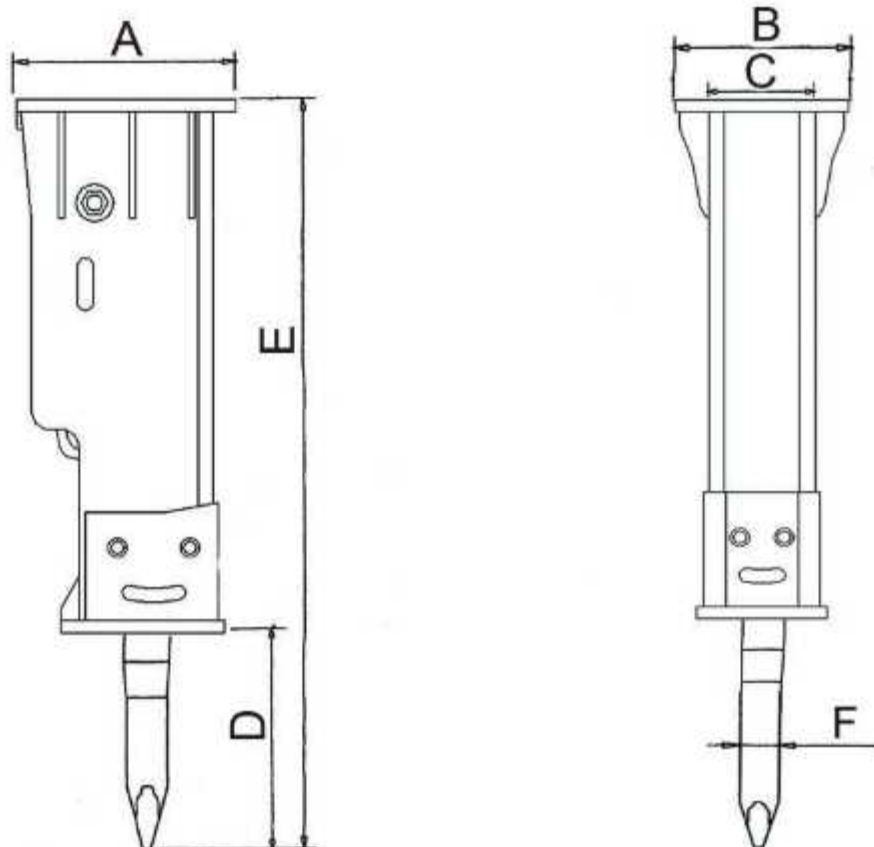
Model	A	B	C	D	E	F
RWB120	650	428	300	650	2605	120
RWB135	770	488	360	480	2605	135
RWB140	770	488	360	726	2850	140
RWB155	860	570	420	880	3315	155
RWB165	860	570	420	816	3376	165
RWB175	954	625	475	796	3719	175
RWB190	954	625	475	900	3900	190

BOX TYPE



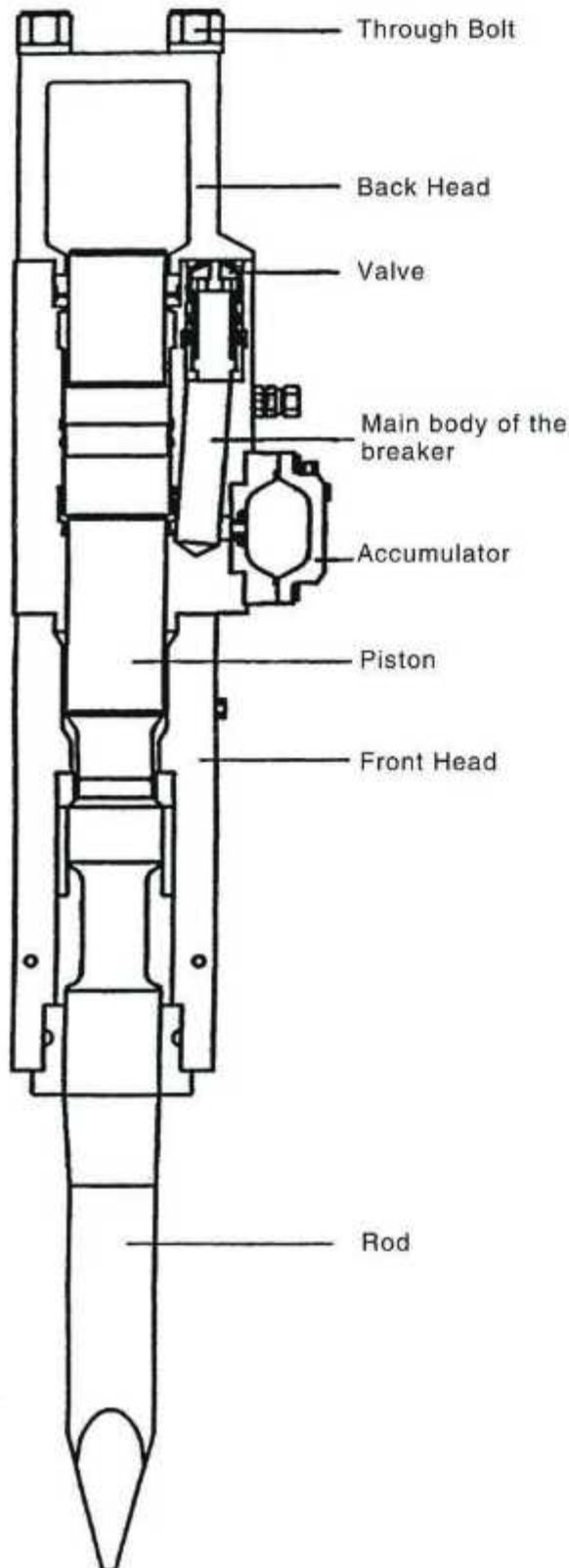
Model	A	B	C	D	E	F
RWB40	340	230	120	262	1222	40
RWB45	340	230	120	291	1420	45
RWB53	370	237	145	342	1542	53
RWB68	440	308	220	376	1609	68
RWB75	504	308	220	405	1872	75
RWB100	550	376	280	486	2208	100

BOX TYPE



Model	A	B	C	D	E	F
RWB135	720	488	360	439	2495	135
RWB140	740	488	360	689	2798	140
RWB155	854	570	420	764	3200	155
RWB165	854	570	420	754	3313	165
RWB175	954	625	475	739	3662	175

3、Structure and main parts



Through Bolt

Four main bolts tightly connecting the back head, main body of breaker and the front head.

Back Head

The leading role is to store nitrogen

Valve

Controlling the up and down movement of piston at certain frequencies.

Main body of the breaker-Cylinder

The heart of breaker; Containing a hydraulic circulation system to control the reciprocating movement of piston.

Piston

Converting hydraulic kinetic energy to the striking energy; playing the breaking role by punching the rod .

Front Head

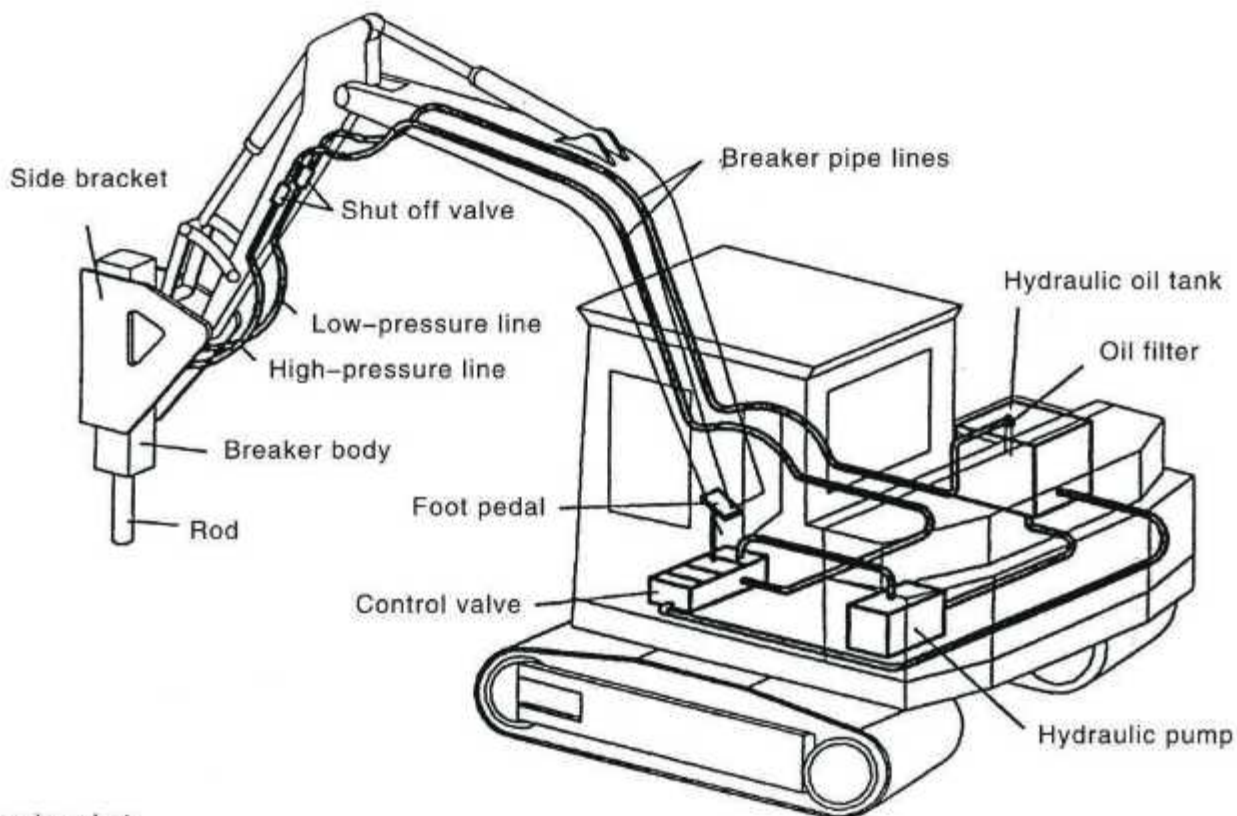
The function of front head is to support the main body of the breaker, and to save it from being damaged by the recoil force of breaking.

Rod

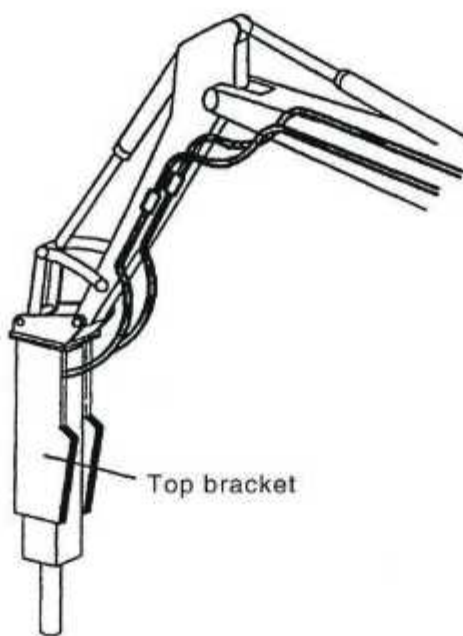
Rod itself is specially reinforced to endure the abrasion caused by direct impact. This part has three models for option: moil point type, flat type and v-wedge type.

4、Setting drawing of breaker

■Side bracket



■Top bracket



5.Preparation for installation and start—up of Hydraulic Breakers

1.Hydraulic Pipe Lines

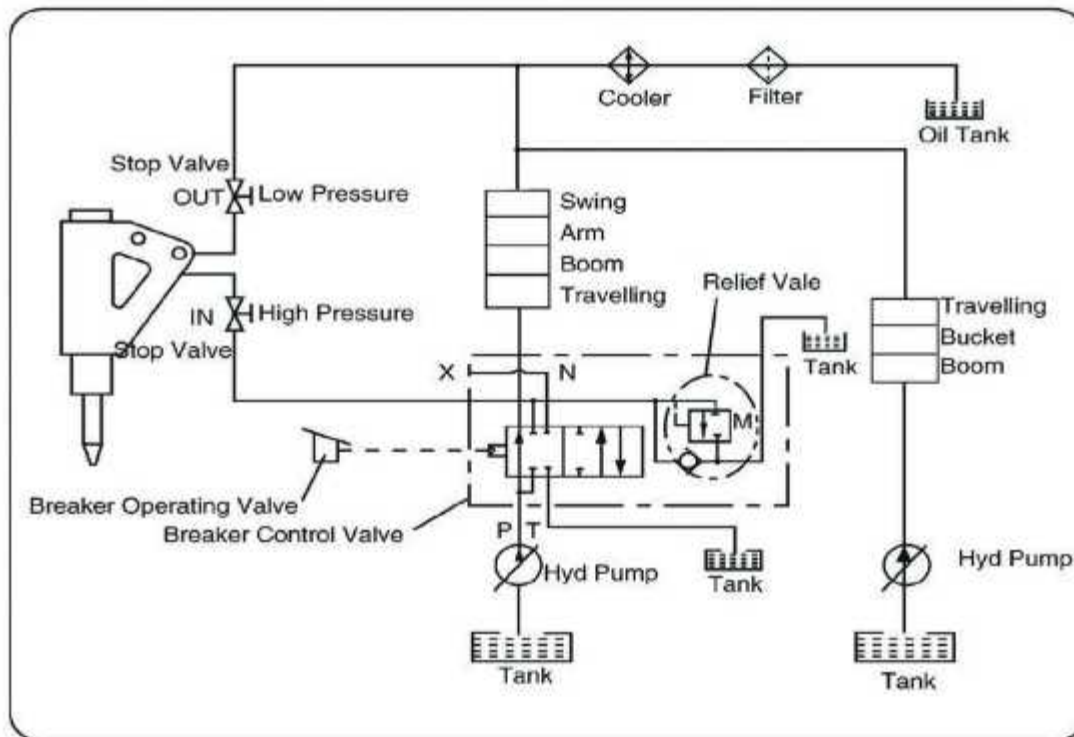
As NSB hydraulic breakers are hydraulically powered from excavator which supplies source of hydraulic operating power, our breakers should be installed by competent engineer in such manner that enables maximize working performance in accordance with each characteristics of different excavators.

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

※To install and run the breaker.the base machine should be equipped with separate hydraulic pipe lines for breaker only.

Hydraulic pipe lines will be different according to the models of base machines,thereforeour engineers(or qualified local engineers)should install this breaker pipelines onto this excavator always after check up the oil pressure, oil flow rate and pressure drops thereby for each different base machine.

To make sure of long lasting breaker works, you are requested to ensure that always you must use genuine parts for such as oil hoses, pipelines, and pipeline attachments with are supplied or at least qualified by NUOSEN HEAVY MACHINERY CO.,LTD.or local authorized distributors.



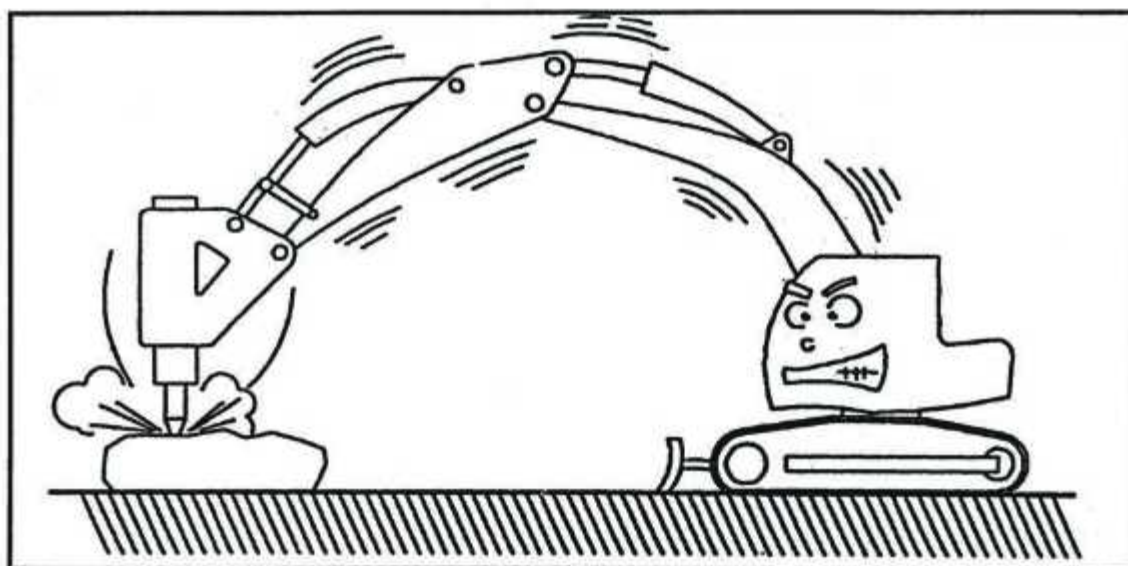
■Set pressure of the overflow valve and pipeline back pressure

Model	RWB 40	RWB 45	RWB 53	RWB 68	RWB 75	RWB 100	RWB 120	RWB 135	RWB 140	RWB 155	RWB 165	RWB 175	RWB 190
Set pressure of the overflow valve [Kg/cm ²]	140~160	140~160	150~170	150~170	170~180	190~200	190~200	190~210	200~210	200~220	220~240	240~260	240~270
Back pressure [Kg/cm ²]	10	10	10	10	10	10	10	10	10	10	10	10	10

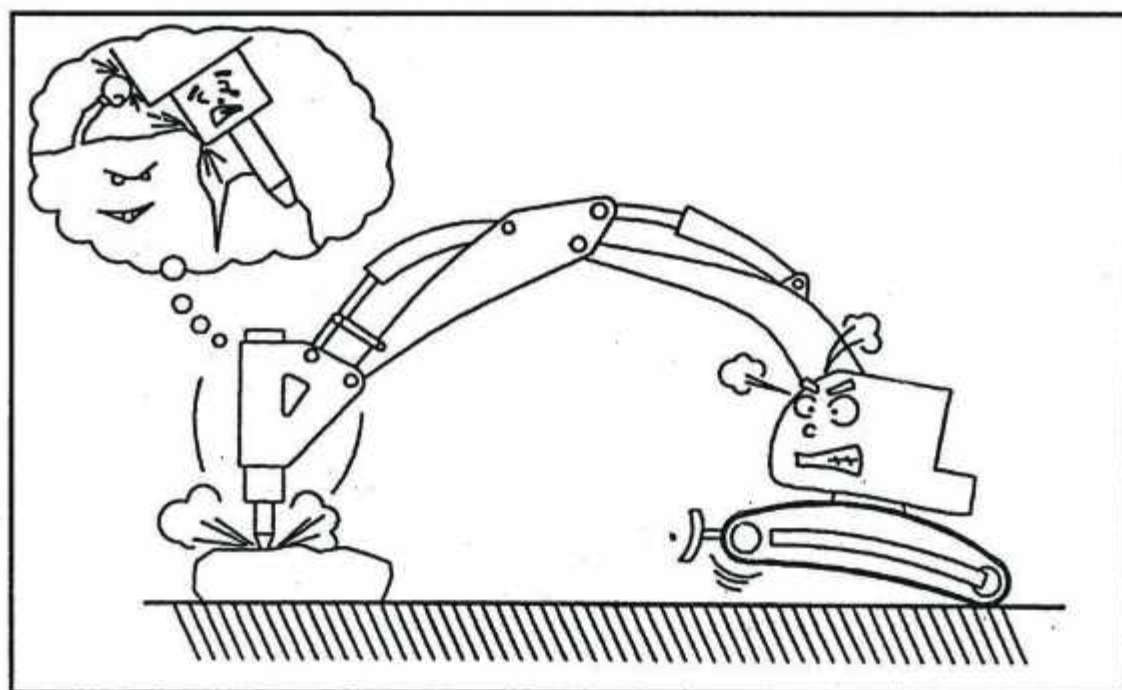
6. Operation precautions

6.1 Proper position of the rod

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

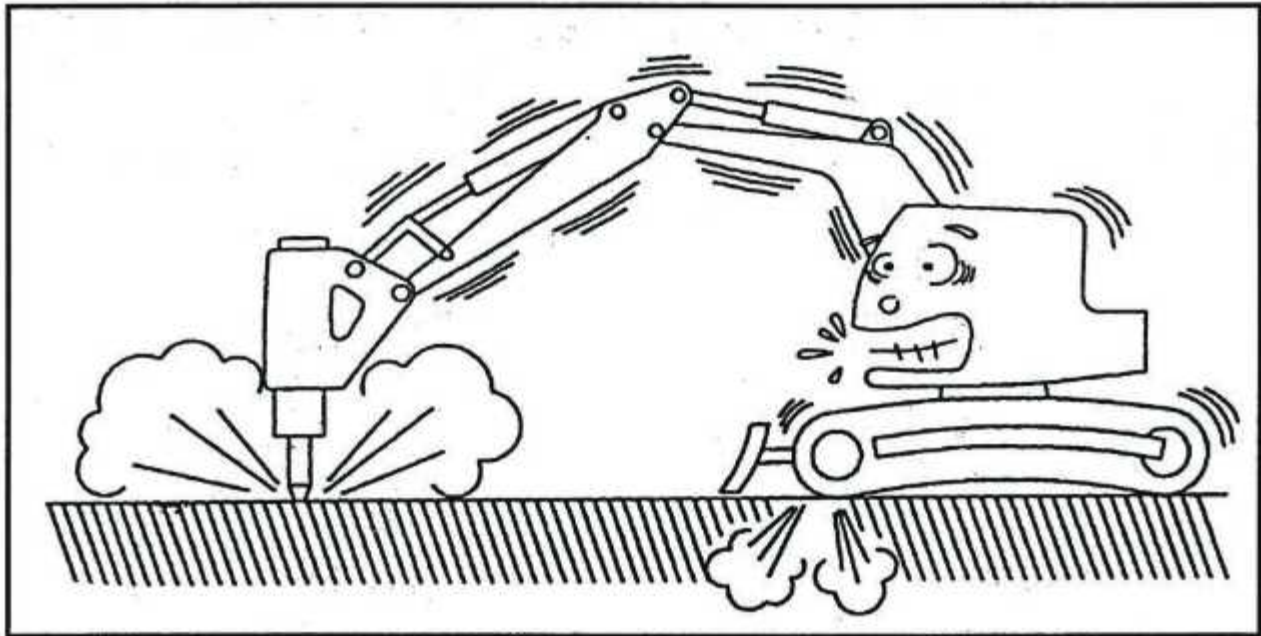


On the contrary, when position is excessive enough to break rocks with front of the base machine raised, the machine may suddenly tilt forward the moment rocks are broken. Then, the breaker body or the end of bracket may violently hit against rocks and result in damage.



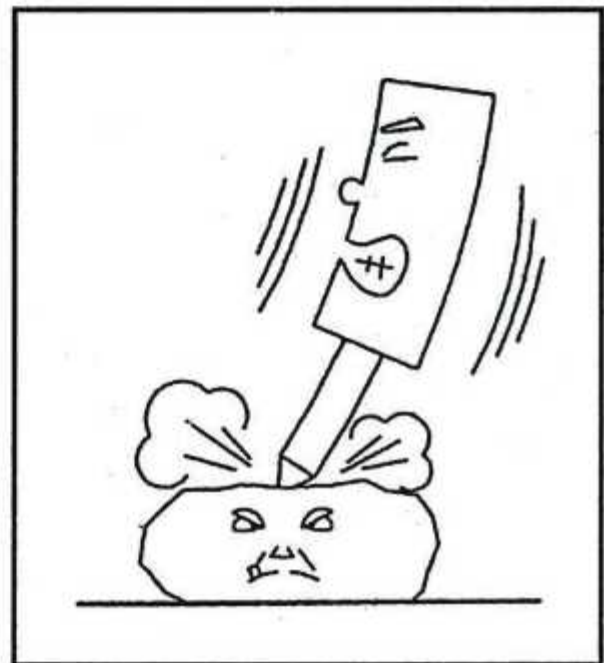
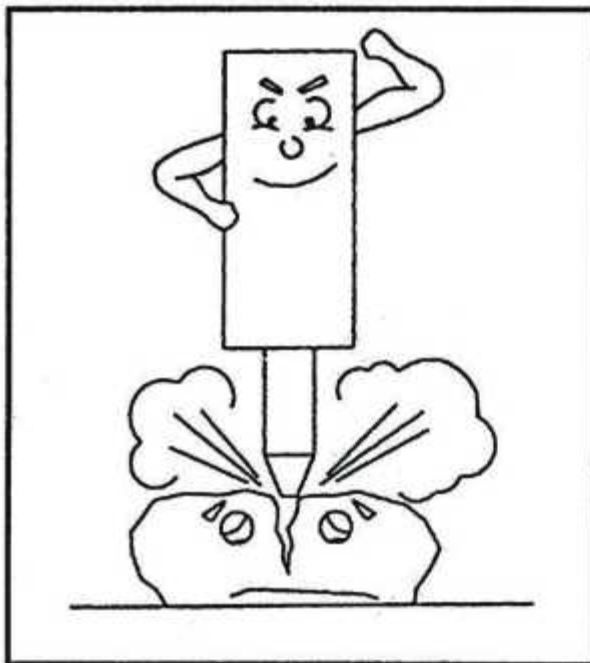
It is undesirable to carry out hammering under the below condition, because vibrations during hammering may be transmitted to tracks of the base machine.

During hammering, however, proper position must be always applied to the breaker. Special care must be taken not to hammer under abnormal condition.



6.2 Alignment of the rod

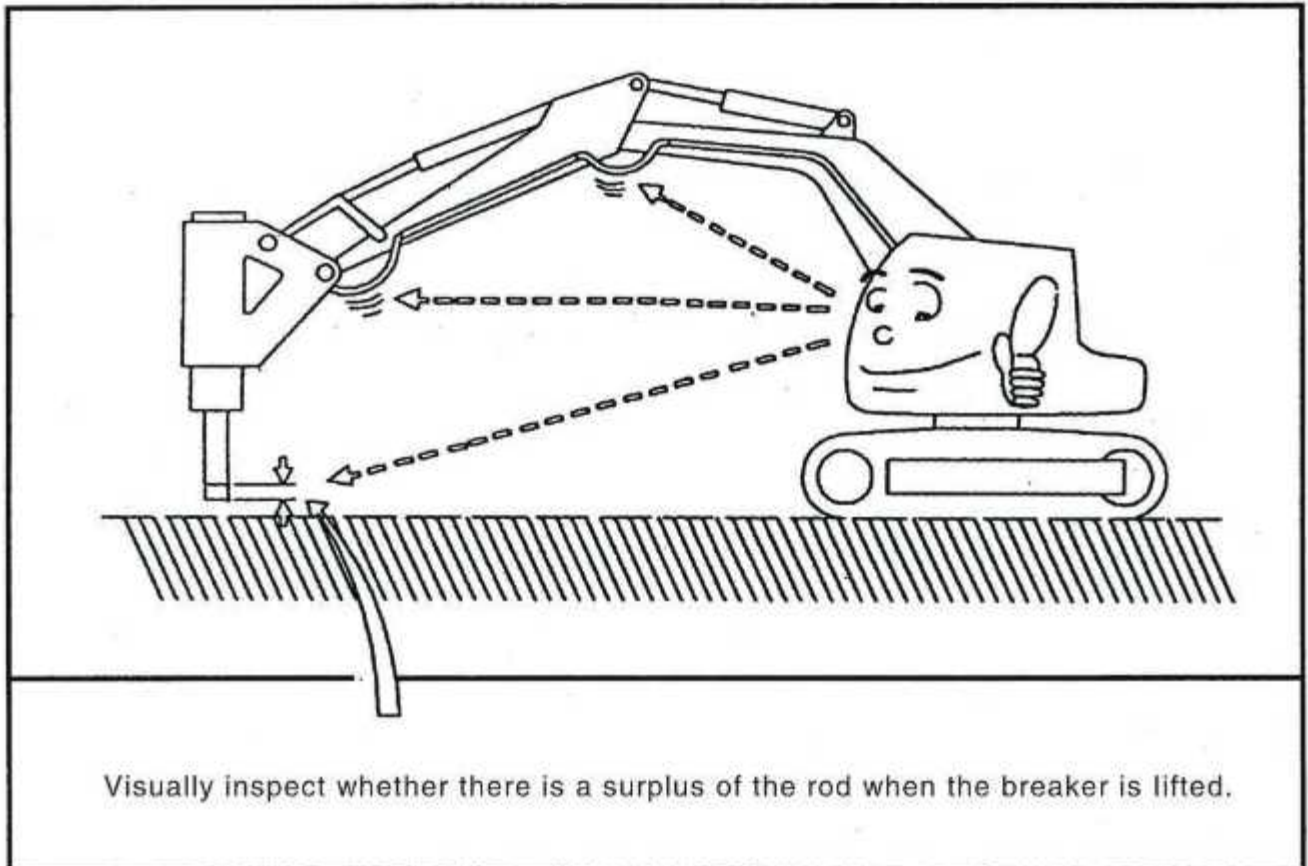
Apply same direction of boom force in line with the rod and place the rod in the rock with hammering surface as vertical as possible. If hammering surface is oblique, the rod may slip during hammering. This causes the rod to seize and to be broken and piston to be damaged. When breaking, fully stabilize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



6.3 Operation precautions

(1) Stop operation as soon as hoses 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 NUOSEN For caution' s sake,check oil leakage at back head.The operator is required to pay attention to following points during operation.

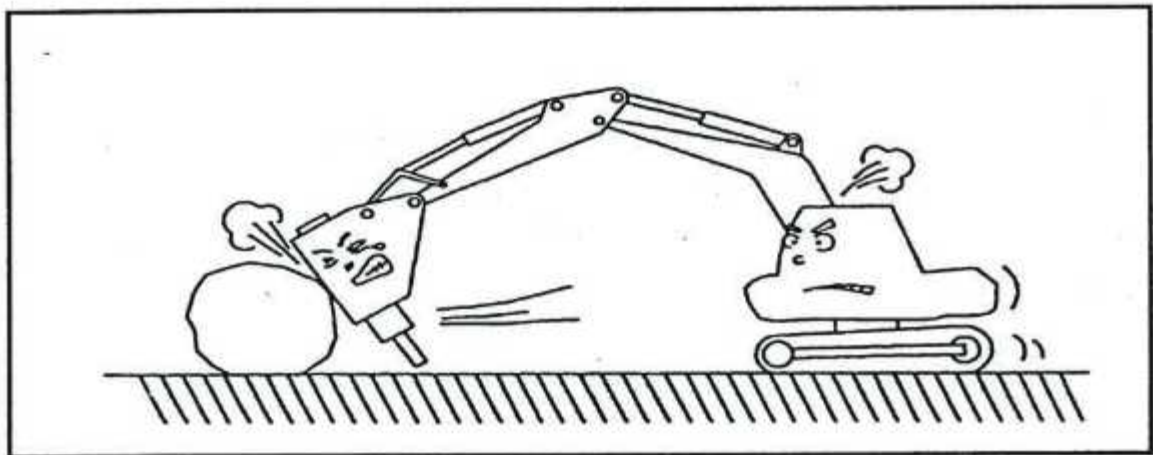
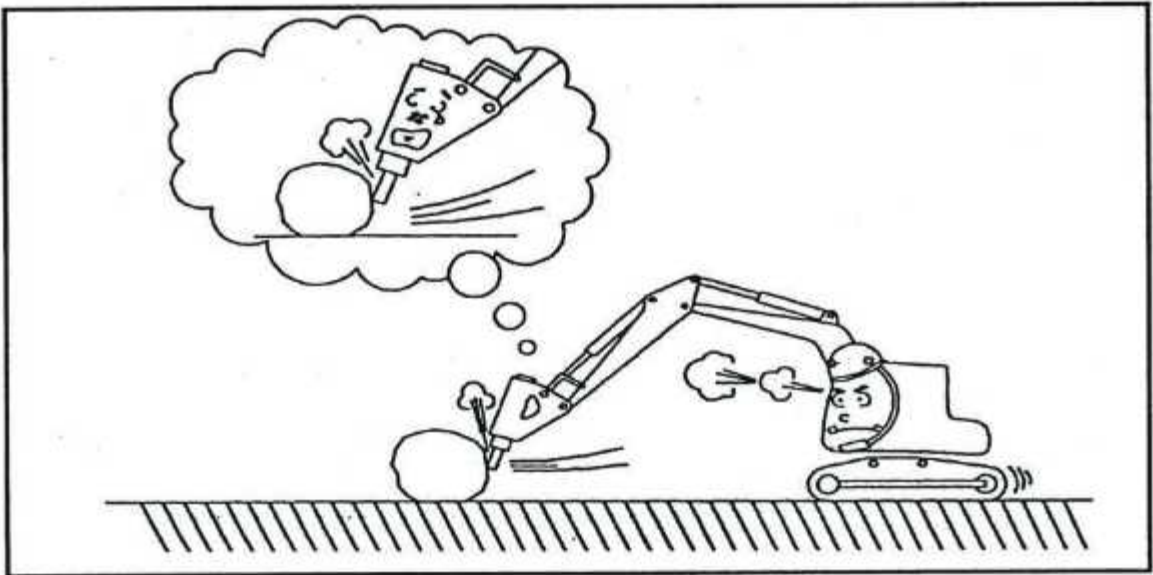


(2) Avoid all blank hammering

As soon as rocks are broken, stop hammering. Continuous blank hammering will not only damage front head and loosen and break bolts, but also adversely affect base machine. Blank hammering Occurs when proper position of the rod is not applied to the breaker or the rod is used as a lever. (Hammering sound changes during blank hammering.)

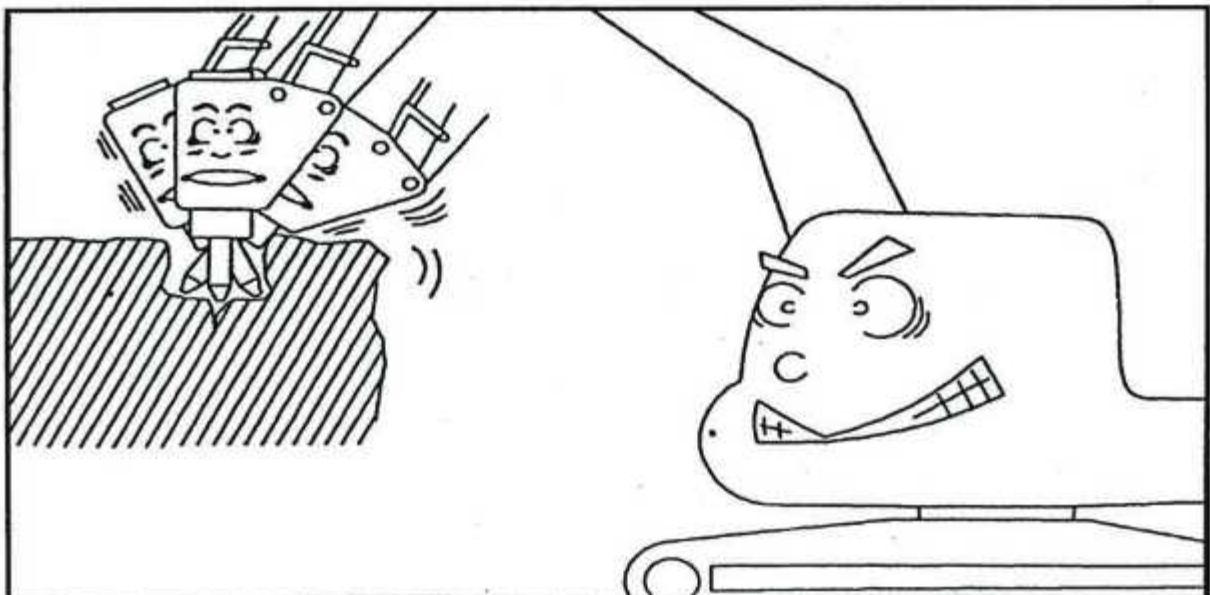
(3) Do not move rocks

Avoid moving rocks with side of the bracket, because it is the major factor to break bolts installed on the bracket, rod and damage boom and arm.



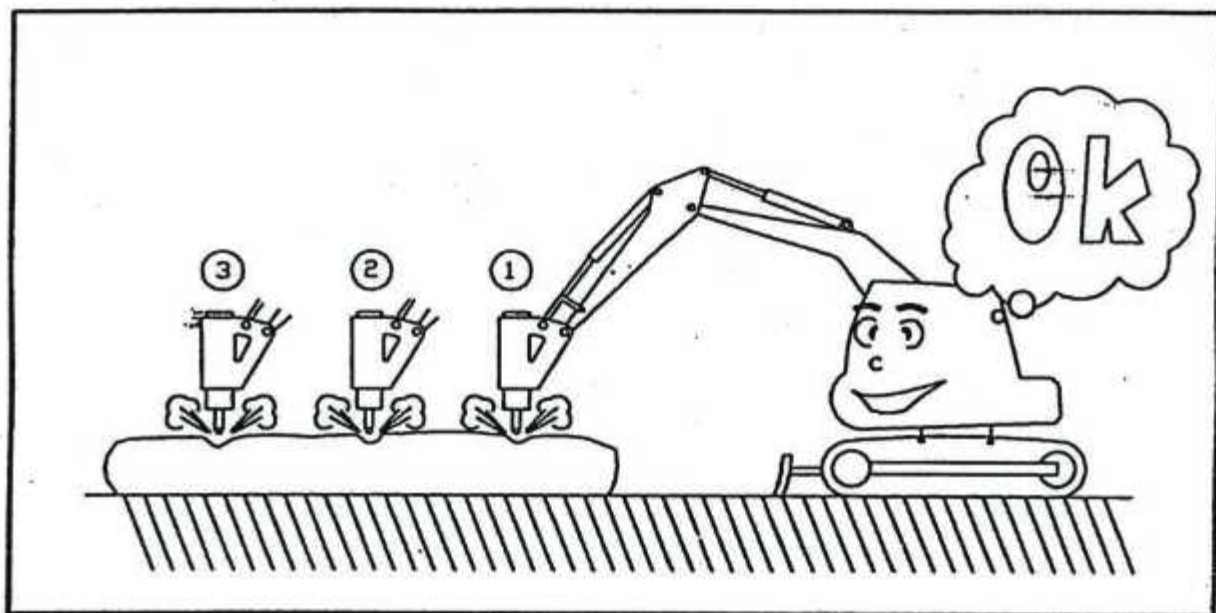
(4) Do not use rod as a lever.

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



(5) 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 rod to wear out excessively.

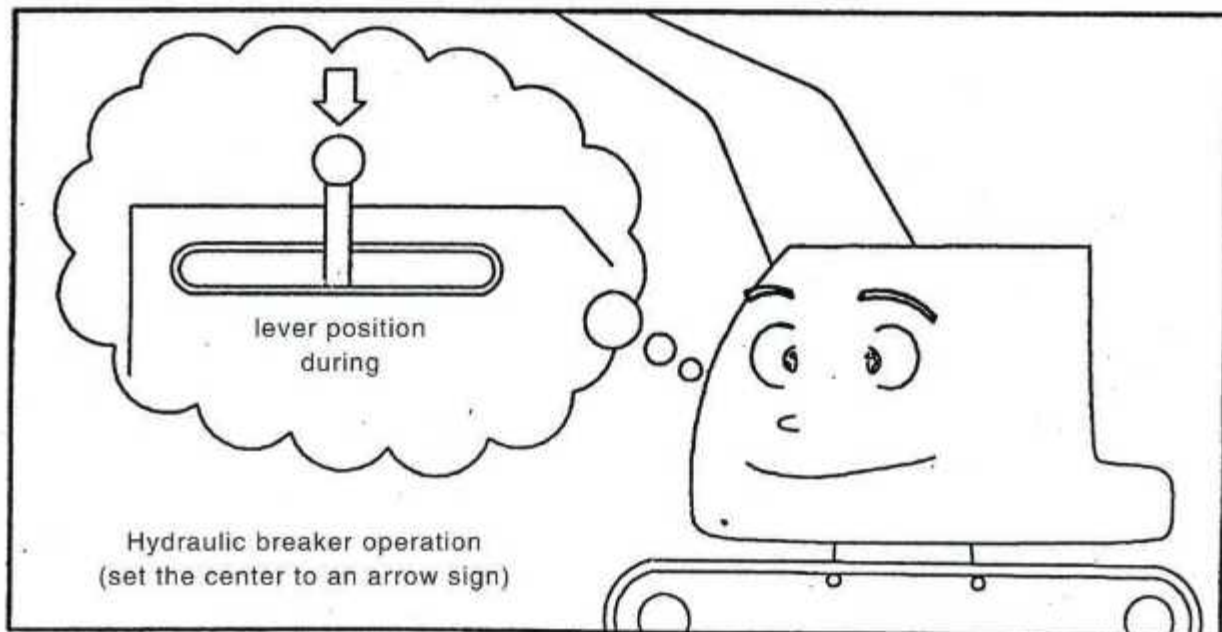


(6) On a hard and large rock, start breaking at an edge.

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

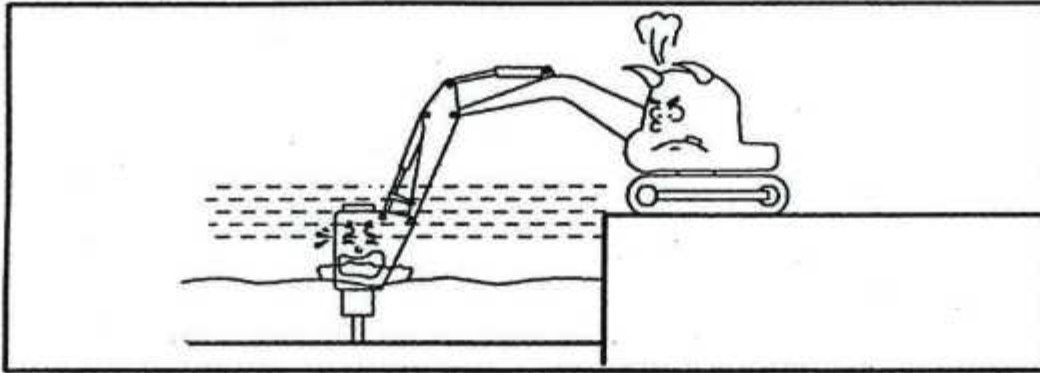
(7) Operate breaker at proper engine speed.

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



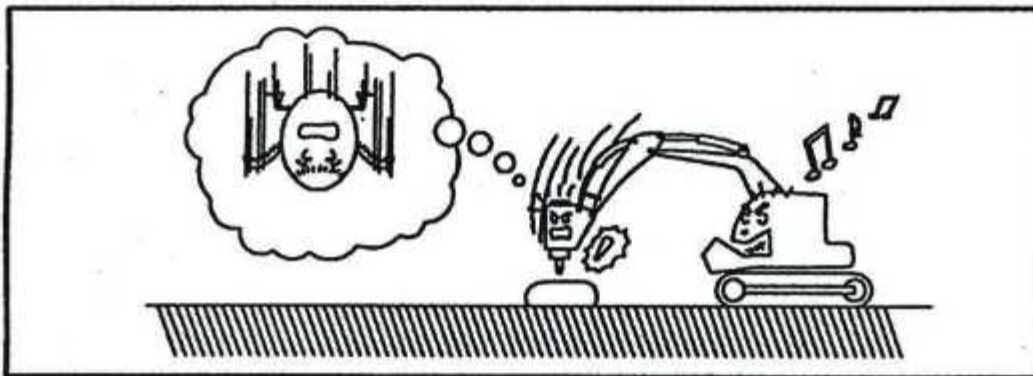
(8) Do not operate the breaker in water and mud.

When rocks are not broken after more than one minute's, do not operate breaker and also do not operate breaker when all components except rod are immersed in water and mud. Piston and similar components may gather rust and become a damaged breaker at an early stage.



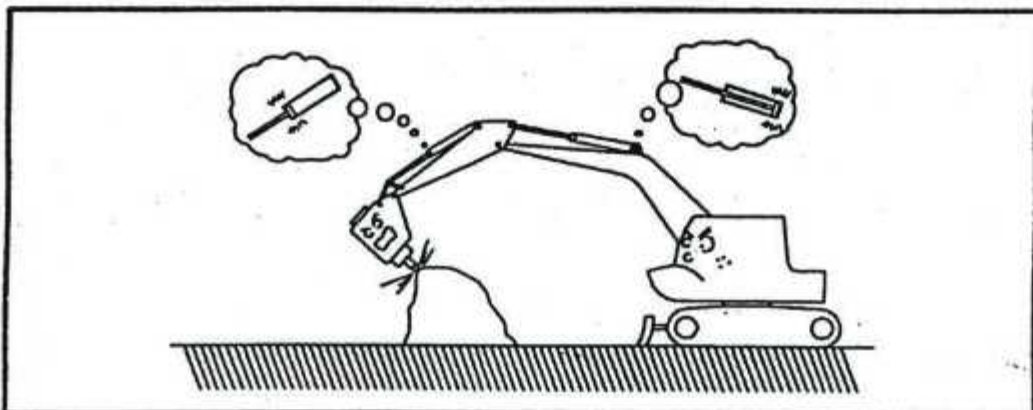
(9) Do not allow the breaker to fall to break a rock.

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



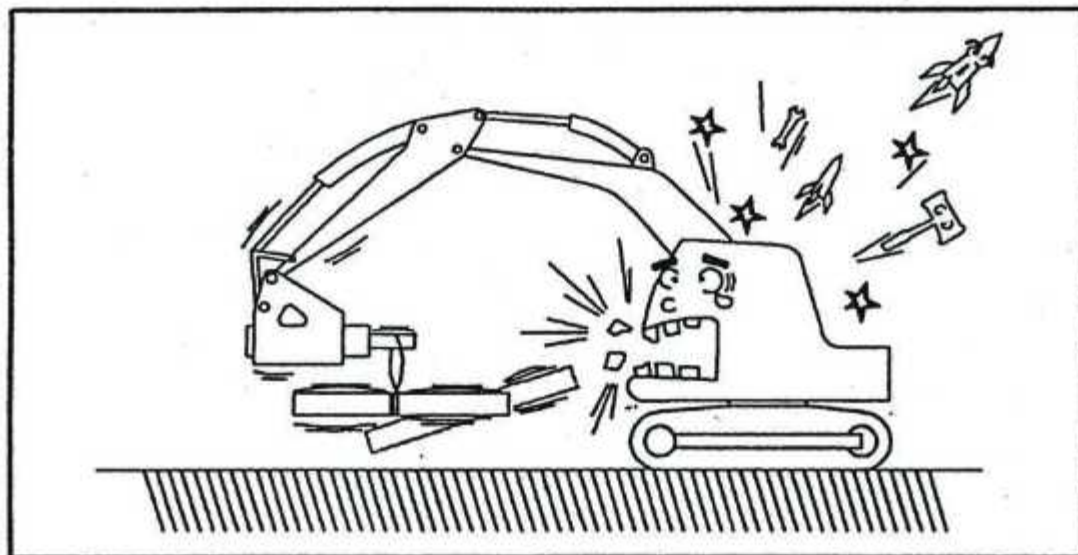
(10) Do not hammer with base machine cylinders moved to stroke end.

Hammering with each base machine cylinder moved to stroke end (a condition that the cylinder is fully extended or retracted) will do considerable damage to the cylinder and each part of the base machine.



(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.



(12) 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 to 40° C (86 to 105° F) before breaker operation. Follow the instruction book for base machine for warming-up of the engine.

(13) Do not touch rod when breaker working.

During breaker working, do not touch rod due to high temperature at rod.

(14) When operating the breaker you must use ear protection, eye protection and breathing protection.

(15) Danger of accumulator type.

Attention pressurized container! Do not open the accumulator without reading the manual or consulting the authorized service person!

(16) Greasing

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

(17) Always wear eye protection when removing the stop pin.

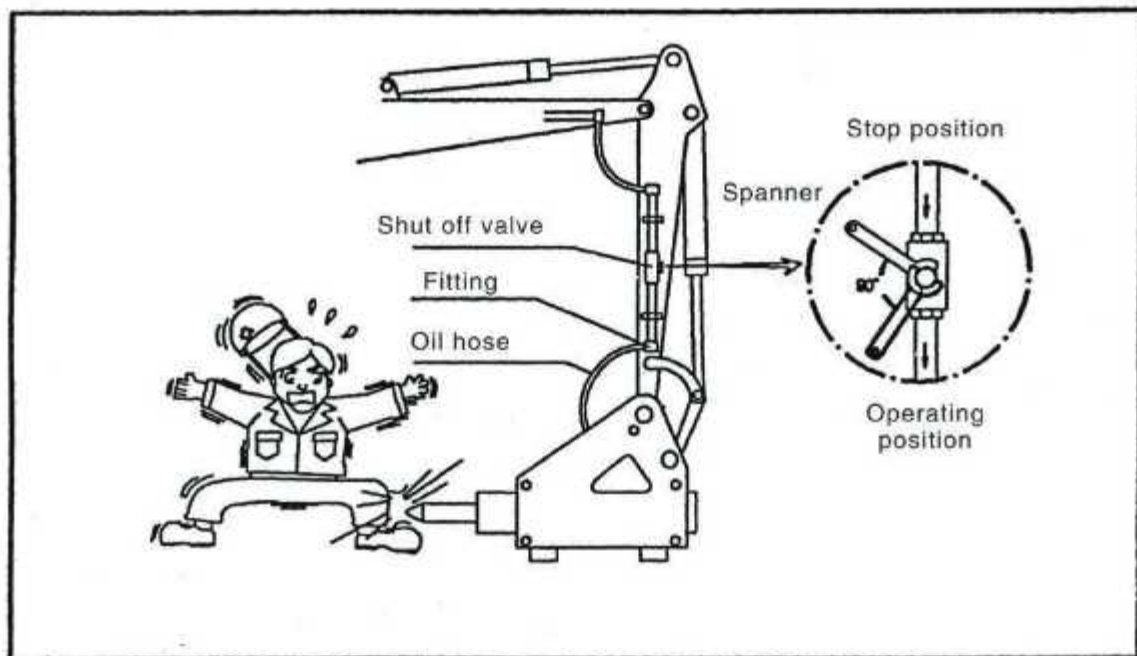
Stop pin removed by during it in and out with a punch and hammer.

7.Assembly and disassembly of breaker

When the bucket and breaker operation are performed alternately, the bucket and breaker can be easily exchanged by the hydraulic hoses and two pins. There is however, a risk of the hydraulic circuit contamination accordingly, install and remove as below.

(1) Move the base machine to stable ground free from mud, dust and dirt. Stop the engine. turn off the main switch and deflate air from oil tank if it is pressurized.

(2) Turn off the shut off valve installed to the end of arm to prevent hydraulic pressure from flowing c



*Warning !!As rod may fly out due to N2 gas pressure, do not approach to rod.

(3) Loosen hose plug on the breaker arm and correct small amount of oil flowing out at this time and put into a container.

(4) Be careful to prevent mud or dust from entering oil hoses and pipe lines. Plug oil hoses with hose plug and pipe lines with union caps. Bind high and low pressure hoses with a wire to prevent them getting mud.

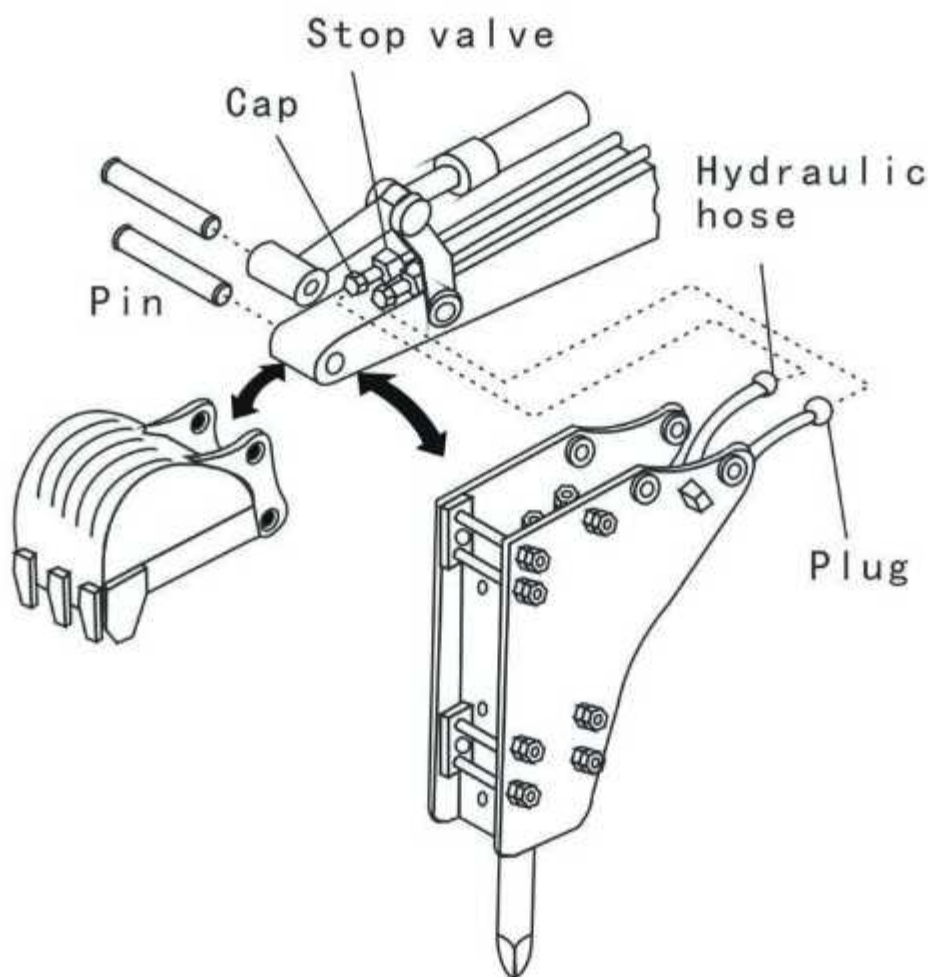
(5) To remove the breaker, pull out pins in the bucket link and arm. When leaving the breaker outdoor, set the breaker outdoor, set the breaker on wood blocks and cover with sheets.

(6) When leaving the breaker removed for a long period of time:

—Clean exterior of the breaker

—Remove rod from the front head and spray with rust preventive oil. And bleed N2 gas from the back head before pushing piston into cylinder.

(7) To install the hydraulic breaker, reverse the aforementioned removal procedures. The bucket operation easily contaminates the end part of hoses and pipe lines. The contaminated part must be cleaned with no delay. Hydraulic oil or light oil is highly recommendable.



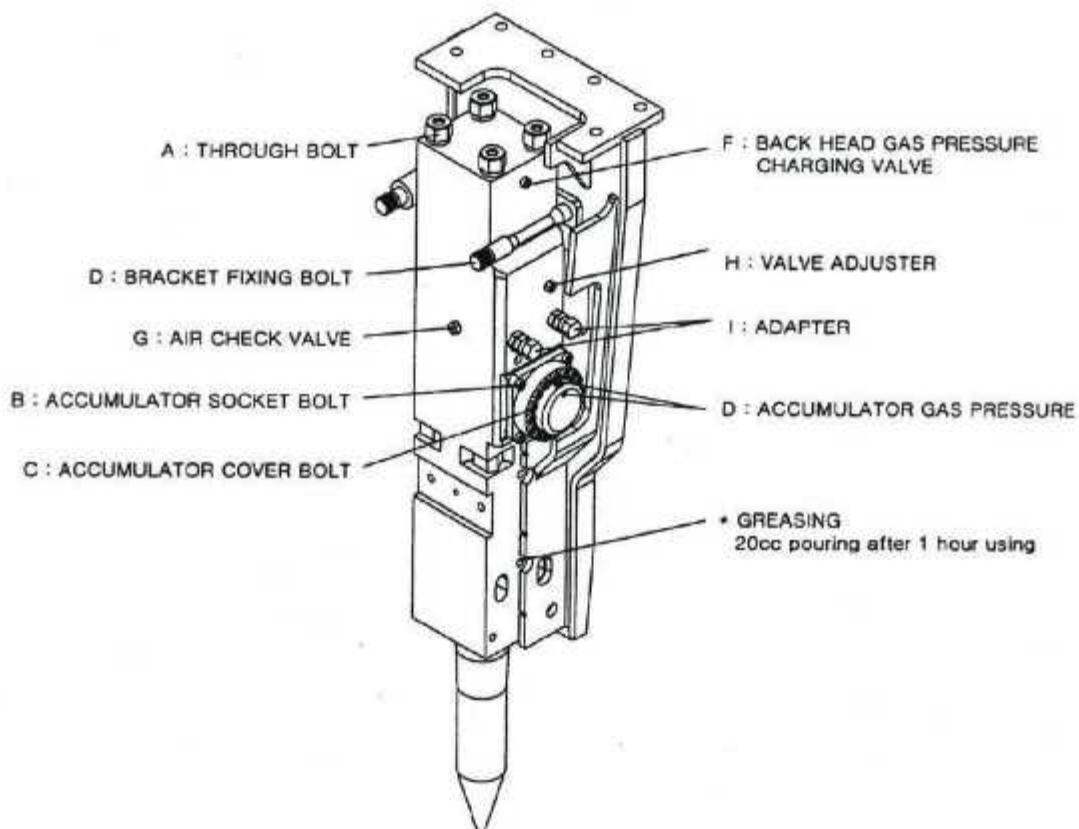
After installation of hydraulic lines for hydraulic breakers:

- (1) Remove the two pins of bucket and take away this bucket.
- (2) Put the arm of excavator into the pinholes of the side bracket and put pins back to the bucket again.
- (3) In case you wish to operate the bucket again, close the stop valve on the excavator's arm and turn the valves off and disconnect the hoses connecting the stop valves to the hydraulic breaker.
- (4) Be sure to blind the disconnected hoses. The entry of sand and mud into the hydraulic hoses and pipes can be a cause for troubles by abrasive friction or rusts, etc.

8. Repair and inspection

8.1 Checking points

PROJECT \ TYPE	POSTION	UNIT	RWB53	RWB68	RWB75	RWB100	RWB135	RWB140	RWB155	RWB165
Through Bolt	A	kg-m	30	40	65	150	250	270	300	350
Accumulator Socket Bolt	B	kg-m	-	-	-	-	-	60-65	60-64	60-65
Accumulator CoverSocket Bolt	C	kg-m	-	-	-	-	-	45	35	35
Cap,Plug	D	kg-m	-	-	-	-	-	15	15	15
Bracket Fixing Bolt	E	kg-m	80	100	100	145	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)
Accumulator Gas Pressure	D	kg/cm ² (psi)	-	-	-	-	-	55 (782)	55 (782)	55 (782)
Air Check Valve	G	kg-m	16-18	16-18	16-18	16-18	16-18	16-18	16-18	16-18
Valve Adjust Nut	H	kg-m	-	-	-	-	30-35	30-35	50-55	50-55
Adapter	I	kg-m	16-18	16-18	16-18	24-26	32-35	32-35	35-40	35-40
Back Head Charging Valve	F	kg-m	35-40	35-40	35-40	35-40	35-40	35-40	35-40	35-40



■ Maintenance of hydraulic breaker

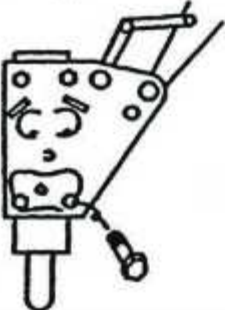

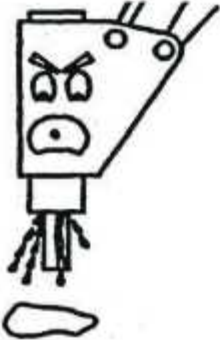

Inspection period	Inspection items
Detail inspection items before and after the use of breaker	<ul style="list-style-type: none"> ● To confirm the installation status of excavator and breaker. Check the abrasion status of pin shaft. Check the installation status of pin shaft's catch bolt. When quick connector is used, check its fixing status and the installation of all round nuts and pin shafts. Check the installations status of bolts of pressing plate and side plate (tower shape)
	<ul style="list-style-type: none"> ● To confirm the assembly status of core and shell of the breaking hammer Check the fastening status of side plate bolts and other bolts. Check the wearing condition of fixing accessories and shock-resisting parts. Check the shell of any cracks or damages and the welding seam.
	<ul style="list-style-type: none"> ● To confirm the status of assembling bolt of breaker core Check all pins, plugs and screws. Check the fastening status of through bolt. Thrust bush, stop pin and rubber plug Stop in and rubber plug Prefabricated air valve Back head air check valve Frequency adjustable valve Fastening bolt of accumulator Fastening bolt of accumulator's cover plate Air check valve of accumulator Hose coupler
	<ul style="list-style-type: none"> ● To confirm the intactness of safety warning signs and labels
	<ul style="list-style-type: none"> ● To confirm the using condition of shell parts Damping washer (low noise) Window cover plate Hose cover plate
	<ul style="list-style-type: none"> ● To check the pipeline of excavator of any friction or oil leakage Check the pipe and hose of any collision or friction. Check the fixing status of valves. Check the welding and fixing status of pipe clamps. Check the pipeline connections of any oil leakage and their assembly status. Check the hose of any bending or aging defects.
	<ul style="list-style-type: none"> ● To confirm the status of oil tank and hydraulic oil Check the amount of hydraulic oil. Check the cleanliness of hydraulic oil.
	<ul style="list-style-type: none"> ● To confirm the status of breaker's switch and the connection of wires
	<ul style="list-style-type: none"> ● To visual inspect the abrasion degree of wearing parts Inside diameter of thrust bush Abrasion of rod




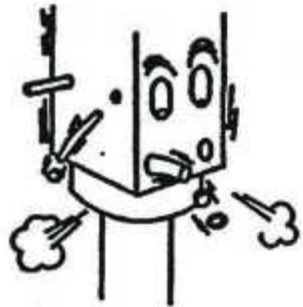
Inspection period	Inspection items
Items subject to inspection at any time of the operation	<ul style="list-style-type: none"> ● Temperature of hydraulic oil (under 80°C) ● Falling off or damage of fittings ● Oil leakage of breaker and pipeline Occasionally, there is small amount of oil flowing along the rod (It will cause no influence to the performance, use and operation of the breaker.) Any abnormal condition of breaker's efficiency or operation Any irregular striking phenomenon Any abnormal shaking of pipeline
After operation for one hour	<ul style="list-style-type: none"> ● Fill in grease (20cc every hour) Operate the oil gun for 5–10 times Friction surface of rod: inner bush, outer bush, rod pin
Periodic inspection of every week (after 50 hours of running)	<ul style="list-style-type: none"> ● Amount and cleanliness of hydraulic oil (supplement and replacement) Pollution criterion: 20~40cst
	<ul style="list-style-type: none"> ● All wearing parts shall be disassembled for inspection (Rectify the deformed parts if necessary) Rod pin Inner bush Thrust bush Internal cleaning of front head ● Pressure inspection and supplement of nitrogen Back head Accumulator
	<ul style="list-style-type: none"> ● To confirm the fixing status of bolts and nuts
Periodic inspection of every month (after 200 hours of running)	<ul style="list-style-type: none"> ● Working pressure of breaker ● Set pressure of overflow valve of the hydraulic pressure pipeline ● Oil consumption ● Filter core replacement of excavator
After three months (after 500–1000 hours of running)	<ul style="list-style-type: none"> ● Replacement of oil seal ● Replacement of internal leather cup of accumulator ● Check the deformation of piston ● Check the surface of fittings and grind if necessary
Long-term keeping for more than one month	<ul style="list-style-type: none"> Fill in adequate grease. Rod, rod pin, thrust bush, inner bush Apply lubricating oil on surface of piston Emptying of nitrogen Back head Accumulator Re-paint the parts paint off
After completion of underwater operation	<ul style="list-style-type: none"> Clean and lubricate the core after it is completely dismantled.

Refer to the manufacturer's standard for other maintenance issues related to excavator.

8.2 daily inspection

Before carrying on the work, please inspects each main point in catalogs

inspection items	inspection points	maintaince way
Loosening or losting of bolt and screw cap 	main body bolt side bracket bolt	Check whether it is loosen Tighten the bol
The hose components become less crowded, hose breakage and oil leakage 	breaker hydraulic pipe line high – pressure Oil pipe	tighten the loosen parts Renovate severy breakage parts
abnormal oil leakage 	The components between back head and cylinder Forebody and rod	please contact local Agents for information in details
abnormal wear and breakage of rod 	rod	renovate or maintain the rod with breakage and wear overused rod can must change at once

<p>Lubrication</p> 	<p>Apply lubricating oil before every operation and two–three hours after every continuous operation. Infuse 5–10 times.</p>	<p>Infuse from the front head filling orifice.</p> 
<p>Capacity and pollution of hydraulic oil</p> 	<p>Status of hydraulic oil.</p>	<p>Quality of hydraulic oil varies with the working environment. A simple way to judge the quality is to see its color. If the oil becomes inferior seriously, please discharge it from the hydraulic oil tank and clean the tank, then fill in new hydraulic oil.</p>
<p>Missing of rubber plug, pin or other parts</p> 	<p>Rubber plug Stop pin, rod pin, front head pin</p>	<p>Repair immediately to avoid further damages.</p>

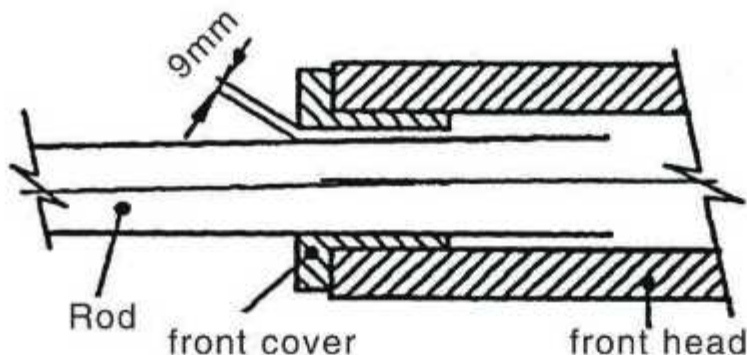
8.3 Routine inspection and maintenance

Routine is a necessary condition to maintain the best working condition of breaker.

We recommend that our customers shall contact our company or dealers within 6 months after the delivery to perform an overall mechanical inspection.

8.4 Replacement of rod

Rod shall undergo long term usage. If its top part is worn, it is prone to slide during the running, and must be ground again. However, the repeated grinding and use will spoil the hardened part due to the heat treatment, and thus speed up the deterioration of rod. Under this circumstance, we suggest replacement of rod. If the clearance between rod and thrust bush goes larger, danger may occur due to the non-matching of piston and rod. If the clearance is larger than 9mm, please replace the thrust bush also when you replace the rod.

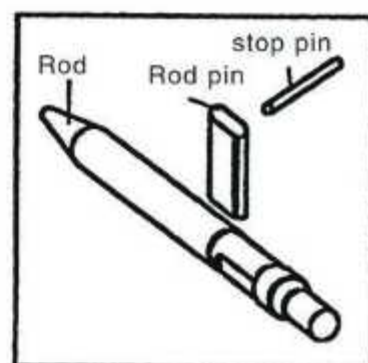
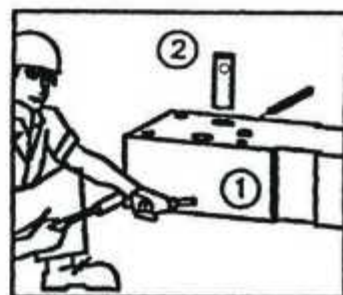


■ Precautions of rod replacement

1. To disassemble the rod, push the pin to dismantle the stop pin and rod pin first. To re-assemble it, align the rod pin with the groove on rod, then insert the rod.

2. Do in the reversed order to install the new rod. Before the installation, please check all parts for spoilage, abrasion or cracks, and remove the attaching on it. Then apply lubricating oil on the friction surface between rod and rod pin. Rod pin seriously damaged will have troubles in the installation. Inspection shall be carried out every 100-150 hours of running.

※ If the rod pin is not the original one supplied by our company, we will not guarantee its working efficiency.



8.5 Disassembly and assembly of main body of the breaker.

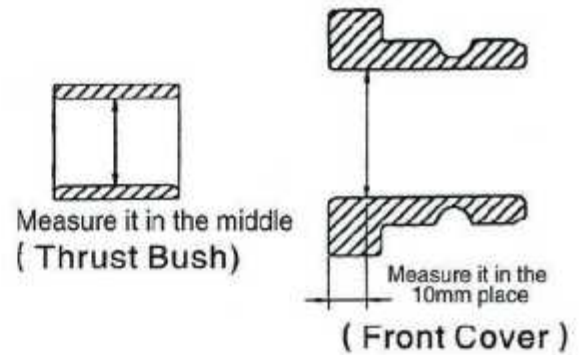
The main part of breaker is a precision part containing a hydraulic circulating system. It will be very dangerous to dismantle it independently in the factory not well appointed. If it is necessary to disassemble or assemble the breaker, please contact the licensed dealers or agencies, otherwise its mechanical quality and performance will not be within our scope of guarantee.

9 Wearing range of spare parts

9.1 Thrust Bush/Front Cover

Unit: mm

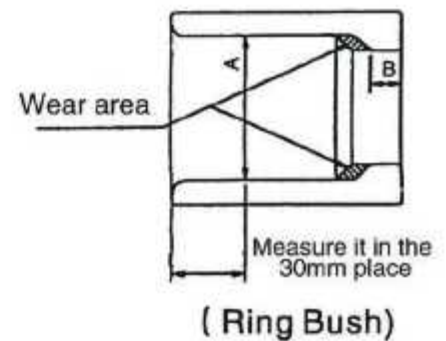
	Model	Inner diameter of new parts	Inner diameter of waste parts
THRUST BUSH	RWB40	40	42
	RWB45	45	47
	RWB53	53	55
	RWB68	68	71
	RWB75	75	79
FRONT COVER	RWB100	100	105
	RWB135	135	140
	RWB140	140	146
	RWB155	155	161
	RWB165	165	171
	RWB175	175	181



9.2 Ring Bush

Unit: mm

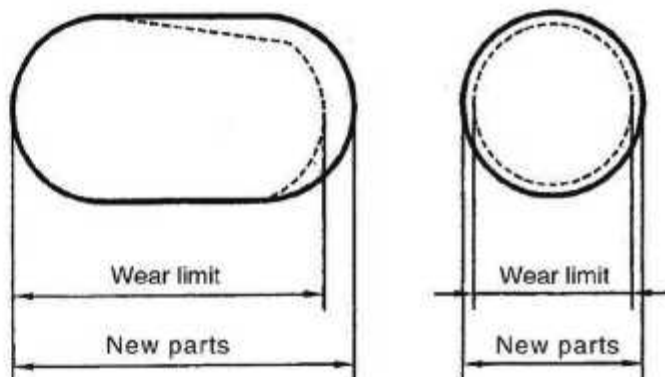
Model	Inner diameter of new parts	Inner diameter of waste parts	New parts	Waste parts
RWB40	40	42	8.75	7
RWB45	45	47	12.25	8
RWB53	53	55	8.5	6
RWB68	68	71	10.5	7.5
RWB75	75	79	15	12
RWB100	100	105	17	14
RWB135	135	140	32.5	29.5
RWB140	140	146	40	37
RWB155	155	161	46	43
RWB165	165	171	41	38
RWB175	175	181	53.5	50.5



9.3 Rod Pin

Unit: mm

Model	New parts	Waste parts
RWB40	28	26
RWB45	28	26
RWB53	32	30
RWB68	38	36
RWB75	42	40
RWB100	60	57
RWB135	82	79
RWB140	88.5	85.5
RWB155	96	93
RWB165	96	93
RWB175	99	95

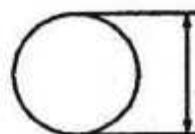


(Rod Pin)

9.4 Stop Pin

Unit: mm

Model	Inner diameter of new parts	Inner diameter of waste parts
RWB40	13	11
RWB45	13	11
RWB53	13	11
RWB68	16	14
RWB75	16	14
RWB100	17.5	15.5
RWB135	17.5	15.5
RWB140	20	18
RWB155	17.5	15.5
RWB165	17.5	15.5
RWB175	26	24



(Stop Pin)

9.5 Front Head Pin

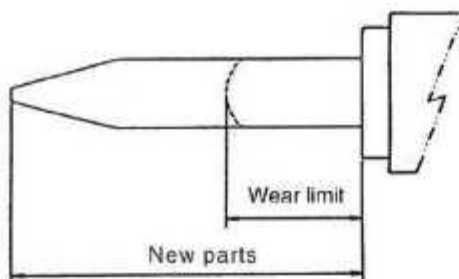
Unit: mm

Model	Inner diameter of new parts	Inner diameter of waste parts
RWB100	26	24
RWB135	30	24
RWB140	26	28
RWB155	26	24
RWB165	26	24
RWB175	36	34


9.6 Rod

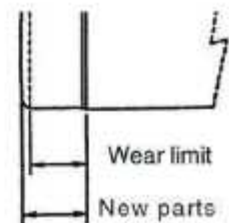
Unit: mm

Model	New parts (LONG TYPE)	Waste parts (SHOPT TYPE)	Length of waste parts
RWB40	297	247	200
RWB45	326	276	200
RWB53	330	280	200
RWB68	405	325	250
RWB75	467	357	250
RWB100	561	361	250
RWB135	701	501	350
RWB140	762	562	400
RWB155	913	813	500
RWB165	919	819	500
RWB175	952.5	852.5	500


(Rod)
9.7 Piston

Unit: mm

Model	Length of new parts	Length of waste parts
RWB40	159	158
RWB45	169	168
RWB53	168	167
RWB68	189	188
RWB75	251	250
RWB100	284	284
RWB135	318	316
RWB140	324	322
RWB155	385	383
RWB165	413	411
RWB175	518	516


(Piston)

10. Inspection and filling of back head nitrogen (see the next page for the detail drawing)**10.1 Test the pressure of back head nitrogen**

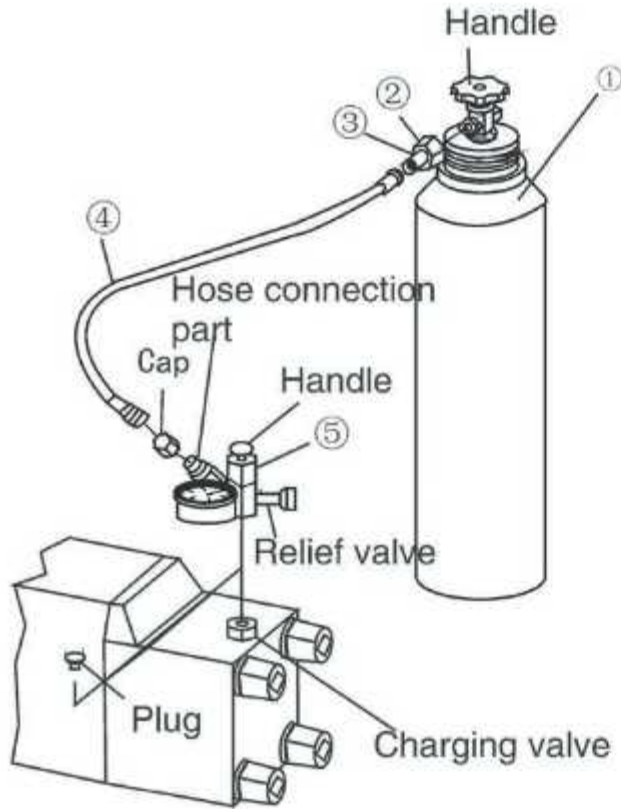
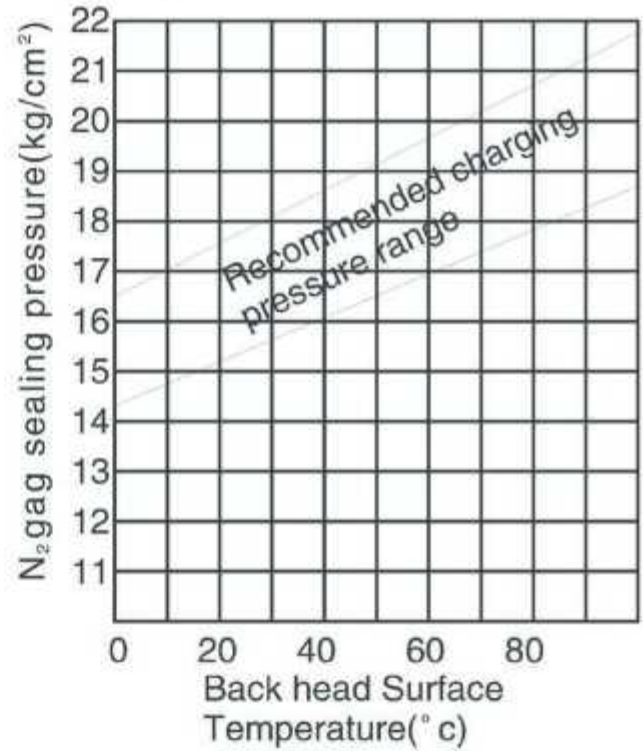
- (1) Tightly wind up the three-way valve (5) and its cap joint. Take out the socket plug on the back head air check valve, and wind up the three-way valve (5) with the air check valve.
- (2) The handle of the three-way valve (5) must be standing upright to avoid air leakage.
- (3) Force down the standing handle. At this time, the pressure of back head air is indicated on the pressure meter.
- (4) If the pressure is within the normal range, exhaust the air inside the three-way valve, then unscrew it.
- (5) If the pressure is too high or low, adjust it according to the instructions in the following.

10.2 Fill in the back head nitrogen

- (1) Tight adaptor (3) and round nut (2), and install them on the nitrogen bottle. Wind up gas-filled tube (4) to the nitrogen bottle.
- (2) Unscrew the cap joint on the three-way valve, and connect the gas-filled tube (4) with the three-way valve (5).
- (3) Install the three-way valve (5) onto the back head air check valve. At this time, the handle of three-way valve must be standing upright to avoid nitrogen leakage.
- (4) Force down the standing handle completely. Slowly turn the handle of nitrogen bottle counterclockwise to fill in gas.
- (5) Immediately turn the handle clockwise when nitrogen pressure exceeds 10% of the set value to shut the nitrogen bottle.
- (6) Move hand away from the handle of three-way valve. Pressure of the nitrogen room will restore the handle to the upright position before the gas filling.
- (7) Turn the vent valve on the three-way valve counterclockwise, so as to discharge the nitrogen inside the gas-filled tube (4) and the three-way valve (5).
- (8) Dismantle the gas-filled tube (4) from the nitrogen bottle (1) and the three-way valve (5). Wind up the union nut on the three-way valve.
- (9) Force down the upright handle of the three-way valve, then the back head nitrogen pressure shall display within the set values. If the pressure is too high, open and close the vent valve repeatedly to release some nitrogen till the pressure reduces to normal.
- (10) When nitrogen pressure reaches to the set valve, loosen the handle and shut the three-way valve.
- (11) Completely open the vent valve to discharge nitrogen in the three-way valve. Dismantle the three-way valve from the air check valve, and install socket plug on it. Prevent the coming of any foreign substances into the breaker.

The pressure meter for nitrogen filling at the back head
(decided by the surface temperature of the back head)

Nitrogen Gas of Back Head	Surface Temperature of Back Head				
	0/32	10/50	20/68	30/86	40/104
Kg/cm ²	15.3	15.9	16.5	17.0	17.6
Psi	217	226	235	242	250

10.3 N₂ Gas Charging Tools to Back Head

 Conversion table for charging N₂ gas pressure to back head


No	Part Name	Q'ty	Remarks
①	N2 gas Cylinder	1	
②	Bombe Adaptor Nut	1	
③	Bombe Adaptor	1	
④	Synflex Hose	1	
⑤	3 Way Valve Assembly	1	

11. Inspection and filling of accumulator nitrogen (see the next page for the detail drawing)**11.1 Check the nitrogen pressure of the accumulator.**

1. Completely tighten the three-way valve (5) and its cap joint.
2. Take off the cap joint (11) from the accumulator, and completely tighten the air check valve (12).
3. Check whether O-rings (6) (8) are on the adapter (7) or not. Dismantle the plug (9) and wind up the adapter (7).
4. Install the three-way valve on the adapter (7).
5. Slowly loosen the air check valve (12). Pressure of gas filling will be displayed on the pressure meter.
6. If the nitrogen pressure is normal, shut the air check valve (12) by turning clockwise. If the pressure is too large, loosen and wind up the vent valve on the three-way valve repeatedly, so as to decrease the nitrogen pressure gradually.
7. Loosen the vent valve to discharge the nitrogen in the three-way valve.
8. Dismantle the three-way valve (5) and wind up the plug (9) and cap joint (11).

11.2 Nitrogen filling into the accumulator

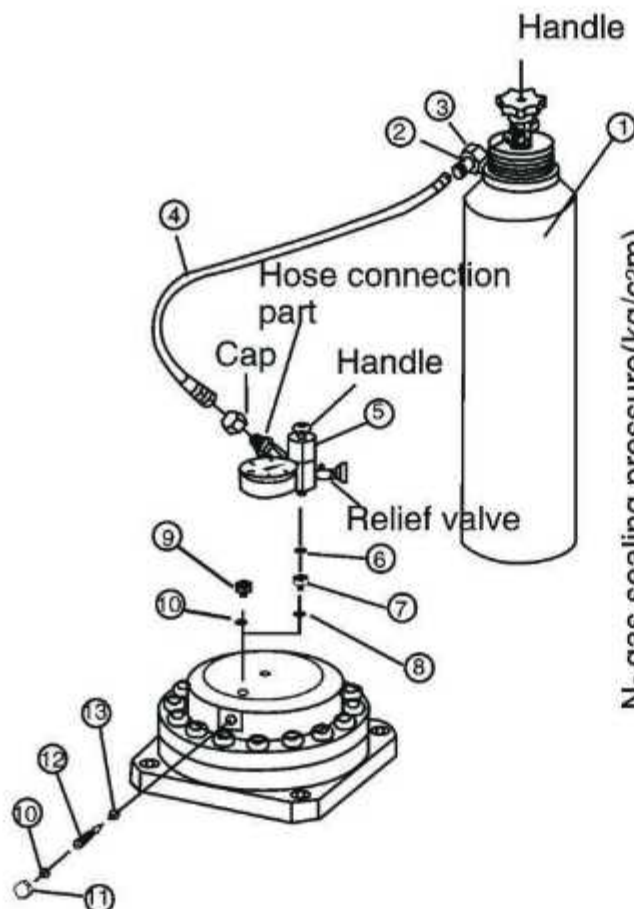
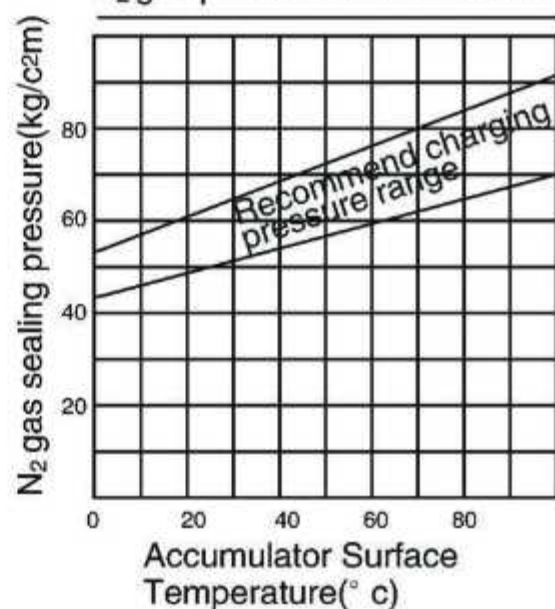
1. Fasten the joint (2) and coupling nut (3), and install them onto the nitrogen bottle. Then connect the gas-filled tube (4) to the nitrogen bottle (1).
2. Unscrew the cap joint on the three-way valve, and connect the gas-filled tube (4) and the three-way valve.
3. Dismantle the cap joint (11) from the accumulator, and completely wind up the air check valve (12).
4. Check whether O-rings (6) (8) are on the adapter (7) or not. Dismantle the plug (9) and wind up the adapter (7).
5. Install the three-way valve on the adapter (7). Loosen the air check valve (12) on the accumulator.
6. Slowly turn the valve of nitrogen bottle counterclockwise to fill in nitrogen.
7. The pressure of gas filling must be in consistent with the data in the accumulator's gas filling pressure list.
8. Turn off the valve of nitrogen bottle clockwise.
9. Shut the air check valve (12) of the accumulator.
10. Unscrew the outflow valve on the three-way valve to discharge the remaining nitrogen in the gas-filled tube.
11. Dismantle the gas-filled valve, three-way valve and adapter (7), and wind up the plug (9) and cap joint (11).

The pressure meter for nitrogen filling of the accumulator
(decided by the surface temperature of the accumulator)

Charging Pressure of Accumulator	Surface Temperature of Accumulator (° C/° F)				
	0/32	10/50	20/68	30/86	40/104
kg/cm ²	51.2	53.1	55	56.8	58.7
psi	730	755	780	815	830

11.3 N₂ Gas Charging Tools to Back Head

NO	Part Name	Q'ty	Remarks
①	N ₂ Gas Cylinder	1	
②	Bombe Adaptor Nut	1	
③	Bombe Adaptor	1	
④	Synflex Hose	1	
⑤	3 Way Valve Assembly	1	
⑥	O-Ring	1	
⑦	Hex Bushing	1	
⑧	O-Ring	1	
⑨	Plug	1	
⑩	O-Ring	2	
⑪	Cap	1	
⑫	Accumulator Charging Valve	1	
⑬	O-Ring	1	


 Conversion table for charging N₂ gas pressure to accumulator


(Precautions on nitrogen utilization)

1. The nitrogen bottle is filled with high-pressure gas. Special care shall be taken during the storage and use.
2. No other gas than nitrogen could be filled in.

(Precautions of nitrogen filling)

1. Pressure of filling nitrogen varies with the rod condition. During the filling, the breaker must be placed flat and level.
2. Do not approach the rods during nitrogen filling.

(Sometimes rod will bounce out due to the high pressure of nitrogen.)

3. To replace the main bolts or to disassemble the main body, please confirm that nitrogen has been completely discharged.

12. Troubleshooting table

This table will help users to find out causes in case of breaker faults, and communicate with maintenance personnel to get a proper resolution.

Conditions or problems	Cause	Countermeasure
1. Breaker does not work. (1) Hydraulic oil has not flowed into the breaker. (2) Hydraulic oil has flowed into the breaker.	(a) Hose or oil channel does not function. Oil channel is blocked or the pipeline is damaged. (b) Control valve or relevant parts are damaged. (c) Hydraulic oil is insufficient. (d) Parts of breaker are damaged.	(a) Check, clean and repair the hydraulic oil pipeline. Replace if necessary. (b) Check the valve and relevant parts. Replace if necessary. (c) Fill up the hydraulic oil tank. (d) Contact dealers or maintenance personnel.
2. Striking force is weakened. (1) Hydraulic oil has not flowed into the breaker. (2) Hydraulic oil has flowed into the breaker.	(a) Oil tube or hose does not function. <ul style="list-style-type: none"> • Oil channel is blocked. • Oil is leaking. (b) Control valve or relevant parts are damaged. <ul style="list-style-type: none"> • Deformed pedal • Deformed control valve • Scratched control valve • Malfunction of control valve due to loosening of screws (c) The return pipe of mechanical oil tank is blocked. (d) Hydraulic oil is insufficient. (e) Hydraulic oil is deteriorated or polluted. (f) Oil pressure auxiliary equipment does not function well. (g) Breaker has foreign matter inside. (h) Back head nitrogen pressure is insufficient.	(a) Check, clean and repair the pipeline. Replace if necessary. (b) Check the valve and relevant parts. Replace if necessary. (c) Clean or replace. (d) Fill in hydraulic oil. (e) Clean the storage tank and renew the hydraulic oil. (f) Ask the engineering mechanical service company to inspect the machine. (g) Please contact our dealers. (h) Please adjust the pressure of nitrogen.
3. Striking force decreases suddenly; the high pressure end of the hydraulic pipe shakes violently.	(a) Nitrogen leaks due to back head failure.	(a) Contact our agencies for repair.
4. Rod or front head is leaking oil.	(a) Piston oil is exhausted.	(a) Contact our agencies for repair.
5. Piston moves but not strikes.	(a) Rod is broken.	(a) Disassemble the front head, take out the rod and repair.

For faults of engineering mechanical parts, please contact the engineering mechanical company for repair.

13. Hydraulic oil

13.1 Selection of hydraulic oil

Quality of hydraulic oil decides the efficiency of the breaker. In case of any of following conditions, please contact our authorized agencies or dealers.

- (1) The machine must be operated under special weather conditions (such as in extremely cold or hot areas).
- (2) The recommended hydraulic oil can not be achieved, and other hydraulic oil should be used as a substitute.
- (3) The hydraulic oil recommended by the engineering machines is not ideal for the breaker.

Hydraulic oil and lubricating oil for Nuosen Company' s Recommendations

Manufacturer	Oil for summer use	Oil for winter use	Lubricating oil (NLGI.NO)
Shell	Shell Tellus T68	Shell Tellus T46	Alvania Grease2
ESSO	Nuto H68	Nuto H46	Beacon Q2
Mobil	Mobil DTE 16	Mobil DTE 15	Mobil Grease Special
Gulf	Harmony 68	Harmony 46	Gulf Grown EP2
Caltex	Lando CZ68	Lando CZ46

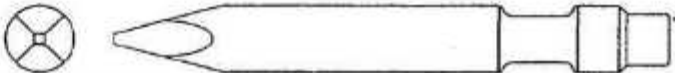
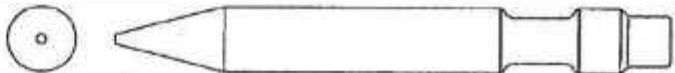
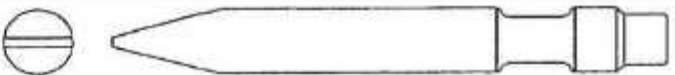

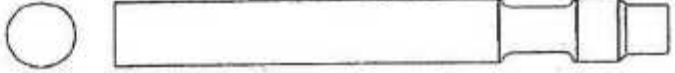
13.2 Oil pollution

The use of polluted hydraulic oil will damage the breaker and the engineering mechanical body and parts. Therefore the oil quality shall be rendered special attention. Once the hydraulic oil is polluted or deteriorated, renew it immediately. Before the renewal, clean the oil tank, pump and pipeline thoroughly. If the oil quality becomes worse, inspect and clean the filter cleaner also, or replace it if necessary.

Replacement of filter cleaner: First time of replacement shall take place after 50 hours of running. Subsequent replacements shall be carried out every 100 service hours.

Renew of hydraulic oil: Every 600 service hours.

14. ROD MODEL

Model	Shape
MOIL POINT TYPE	
UNIVERSAL TYPE	
V-WEDGE TYPE	
H-WEDGE TYPE	
FLAT TYPE	

Model		Specification	Parts No.				
			MOIL	UNIVERSAL	V-WEDGE	H-WEDGE	FLAT
RWB53	LONG	D53 * L550	E71 160	E71 161	E71 161	E71 163	E71 164
	SHORT	D53 * L500	E71 165	E71 166	E71 167	E71 168	E71 169
RWB68	LONG	D68 * L680	C01 220	C01 221	C01 222	C01 223	C01 224
	SHORT	D68 * L600	C01 225	C01 226	C01227	C01 228	C01 229
RWB75	LONG	D75 * L760	F91 144	F91 145	F91 146	F91 147	F91 148
	SHORT	D75 * L650	F91 159	F91 160	F91161	F91 162	F91 163
RWB100	LONG	D100 * L1000	C11 195	C11 196	C11 198	C11 199	C11 197
	SHORT	D100 * L800	C11 205	C11 206	C11 208	C11 209	C11 207
RWB135	LONG	D135 * L1200	L01 118	L01 119	L01 121	L01 122	L01 120
	SHORT	D135 * L1000	L01 124	L01 125	L01 127	L01 128	L01 126
RWB140	LONG	D140 * L1300	C31 211	C31 212	C31 214	C31 213	C31 215
	SHORT	D140 * L1100	C31 241	C31242	C31 244	C31 245	C31 243
RWB155	LONG	D155 * L1500	C61 227	C61 228	C61 230	C61 229	C61 231
	SHORT	D155 * L1300	C61 268	C61 269	C61 271	C61 272	C61 270
RWB165	LONG	D165 * L1600	D81 115	D81 118	D81 117	D81 116	D81 119
	SHORT	D165 * L1500	D81 152	D81 153	D81 155	D81 156	D81 154

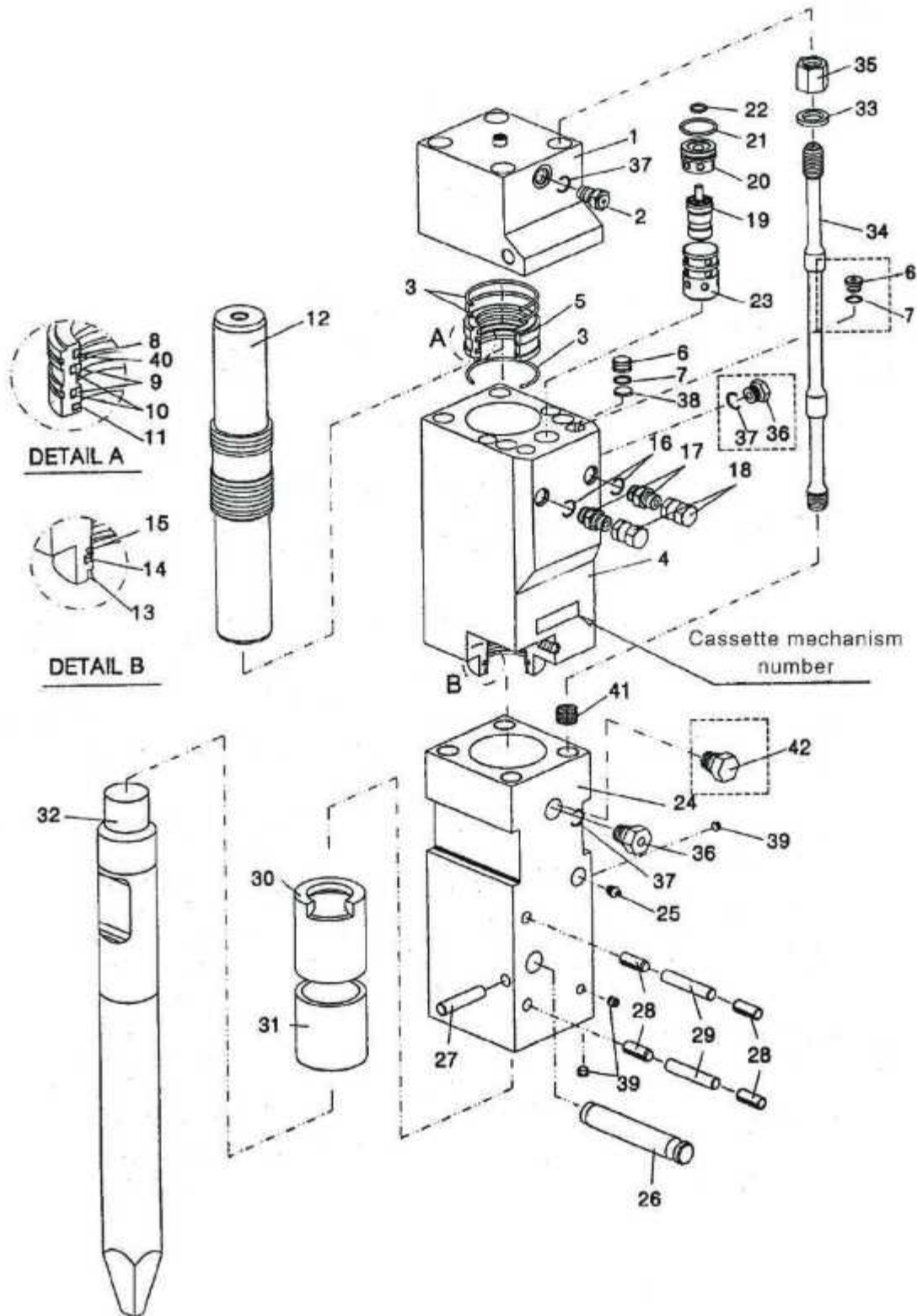
REWIN HYDRAULIC BREAKER

PARTS LIST

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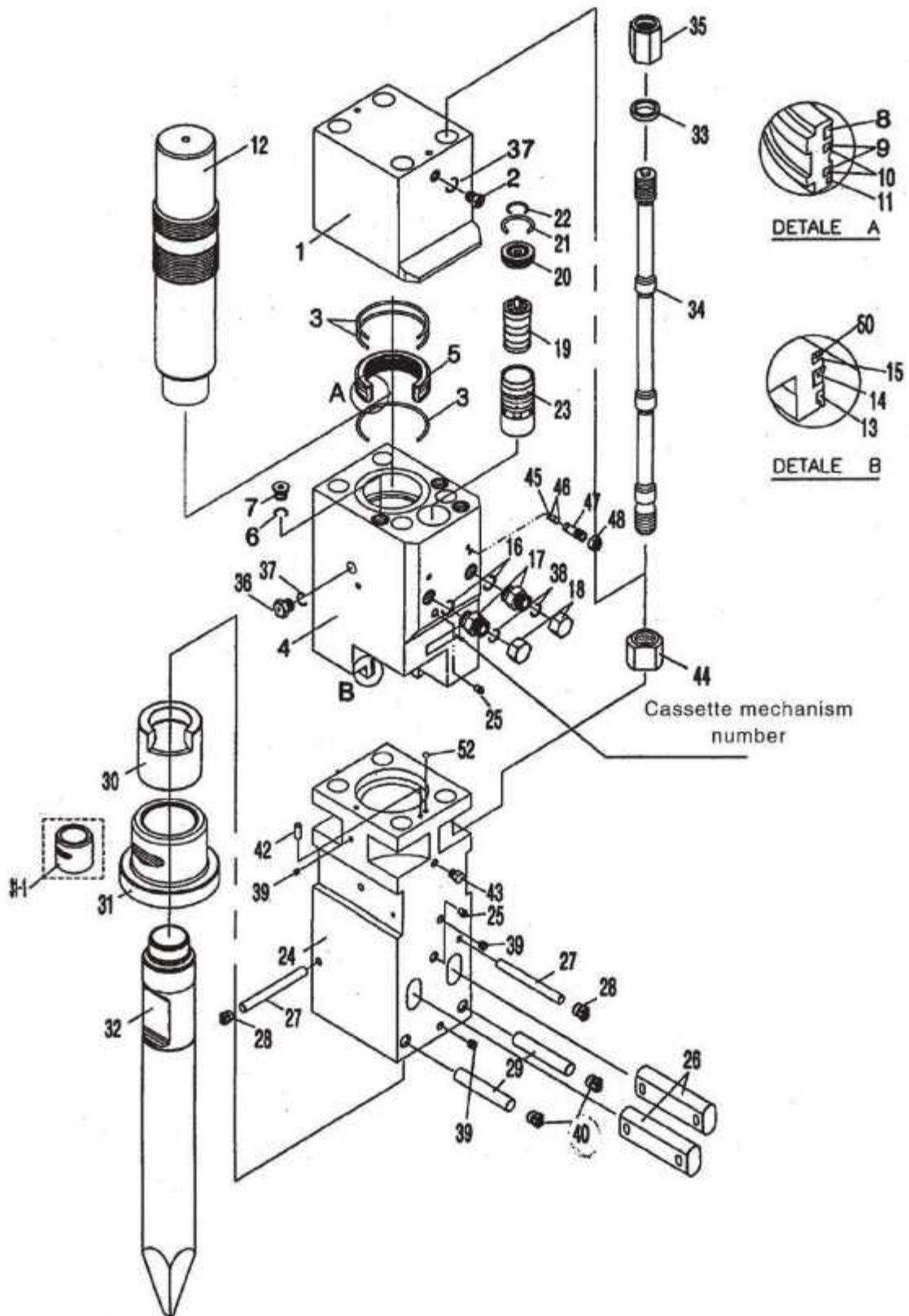
Parts and accessories list (RWB40, RWB45, RWB53, RWB68, RWB75)



MAIN BODY (RWB40、RWB45、RWB53、RWB68、RWB75)

NO	RWB40		RWB45		RWB53		RWB68		RWB75		PARTS NAME
	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	
	NS4080	1Set	NS4580	1Set	NS5080	1Set	NS6080	1Set	NS7080	1Set	Main Body's Ass'y
1	NS40501	1	NS45501	1	NS50501	1	NS60501	1	NS70501	1	Back Head
2	N15006	1	←	1	←	1	←	1	←	1	Charging Valve
3	N10018	3	←	3	←	3	←	3	←	3	O-Ring
4	NS40201	1	NS45201	1	NS5021	1	NS6021	1	NS7021	1	Cylinder
5	NS40203	1	NS45203	1	NS50203	1	NS60203	1	NS70203	1	Seal Retainer
6	N10011	3	←	3	←	3	N10016	3	N10016	3	Plug
7	N171902	3	←	3	←	3	←	3	←	3	O-Ring
8	NS40211	1	NS45211	1	NS50211	1	NS60211	1	NS70211	1	Gas Seal
9	NS40210	2	NS45210	2	NS50210	2	NS60210	2	NS70210	2	Step Seal
10	-	-	-	-	-	-	-	-	-	-	O-Ring
11	-	-	-	-	-	-	-	-	-	-	Buffer Seal
12	NS40202	1	NS45202	1	NS50202	1	NS60202	1	NS70202	1	Piston
13	NS40206	1	NS45206	1	NS50206	1	NS60206	1	NS70206	1	Dust Seal
14	NS40207	1	NS45207	1	NS50207	1	NS60207	1	NS70207	1	U-Packing
15	NS40209	1	NS45209	1	NS50209	1	NS60209	1	NS70209	1	Buffer Seal
16	N10018	2	←	2	←	2	←	2	←	2	O-Ring
17	N1310	2	←	2	←	2	←	2	←	2	Adapter
18	NS402041	2	NS452041	2	NS502041	2	NS602041	2	NS702041	2	Union Cap
19	NS45402	1	NS45402	1	NS50402	1	NS60402	1	NS70402	1	Valve
20	NS45404	1	NS45404	1	NS50404	1	NS60404	1	NS70404	1	Valve Plug
21	N10025	1	←	1	←	1	←	1	←	1	O-Ring
22	N100320	1	←	1	←	1	←	1	←	1	O-Ring
23	NS45403	1	NS45403	1	NS50403	1	NS60403	1	NS70403	1	Valve Sleeve
24	NS4011	1	NS4511	1	NS5011	1	NS6011	1	NS7011	1	Front Head
25	N15001	1	N15001	1	N15001	1	N15001	1	N15001	1	Grease Nipple
26	NS40105	1	NS45105	1	NS50105	1	NS60105	1	NS70105	1	Rod Pin
27	N141070	1	N141070	1	N141070	1	N141680	1	N141680	1	Stop Pin
28	N141370	2	←	2	←	2	-	-	-	-	Spring Pin
29	NS40107	2	NS45107	2	NS50107	2	N141680	2	N141680	2	Spring Pin
30	NS40104	1	NS45104	1	NS50104	1	NS60104	1	NS70104	1	Ring bush
31	NS40103	1	NS45103	1	NS50103	1	NS60103	1	NS70103	1	Thrust Bush
32	NS401011	1	NS451011	1	NS501011	1	NS601011	1	NS701011	1	Rod(Moil Point)
33	NS40504	4	NS45504	4	NS50504	4	NS60504	4	NS70504	4	Washer
34	NS40503	4	NS45503	4	NS50503	4	NS60503	4	NS70503	4	Through Bolt
35	NS40505	4	NS45505	4	NS50505	4	NS60505	4	NS70505	4	Hex Nut
36	N15004	1	←	1	←	1	-	-	-	-	Air Check Valve
37	N10018	2	←	2	←	2	-	-	-	-	O-Ring
38	←	3	←	3	←	3	←	3	←	3	Cover Plate
39	-	-	-	-	-	-	-	-	-	-	Hollow Hex Plug
40	-	-	-	-	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-	-	-	-	Heli Sert Coil
42	-	-	-	-	-	-	-	-	-	-	Hex Head Plug

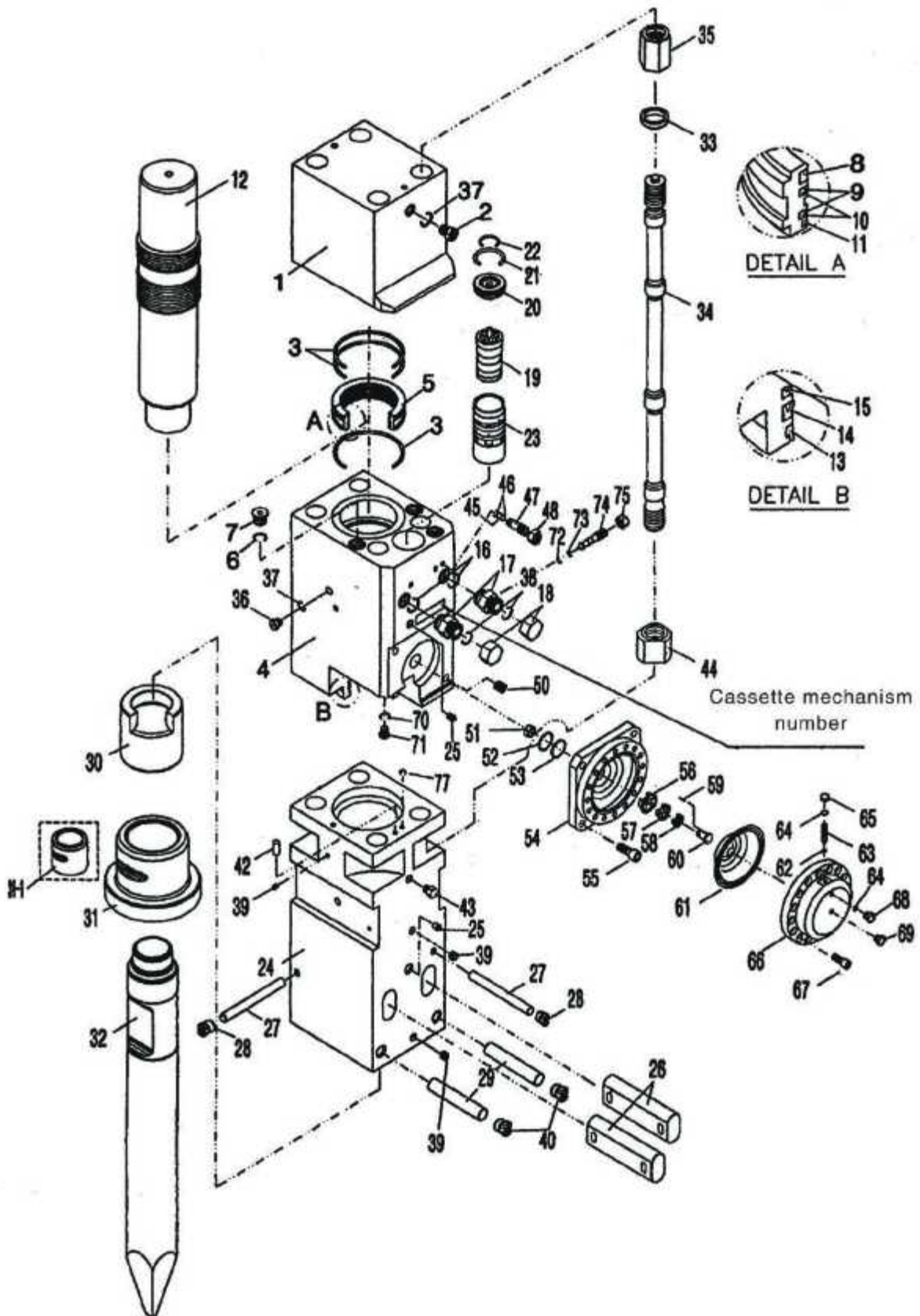
Parts and accessories list (RWB100, RWB135, RWB140)



MAIN BODY (RWB100、RWB120、RWB135、RWB135A、RWB140)

NO	RWB100		RWB120		RWB135		RWB135A		RWB140		PARTS NAME
	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	
	NS1080	1Set	NR1280	1Set	NS1380	1Set	NR1380	1Set	NS1480	1Set	Main Body's Ass'y
1	NS10501	1	NR12501	1	NS13501	1	NR13501	1	NS14501	1	Back Head
2	N15006	1	N15006	1	←	1	←	1	←	1	Charging Valve
3	N10016	3	N10016	3	←	3	←	3	←	3	O-Ring
4	NS1021	1	NR1221	1	NS1321	1	NR1321	1	NS1421	1	Cylinder
5	NS10203	1	NR12203	1	NS13203	1	NR13203	1	NS14203	1	Seal Retainer
6	N10018	4	N10018	4	←	4	←	4	←	4	O-Ring
7	N171902	3	N171902	3	←	3	←	3	←	3	Socket Plug
8	NS10211	1	NR12211	1	NS13211	1	NR13211	1	NS14211	1	Gas Seal
9	NS10210	2	NR12210	2	NS13210	2	NR13210	2	NS14210	2	Step Seal
10	-	-	-	-	-	-	-	-	-	-	O-Ring
11	NS10208	1	NR12208	1	NS13208	1	NR13208	1	NS14208	1	Buffer Seal
12	NS10202	1	NR12202	1	NS13202	1	NR13202	1	NS14202	1	Piston
13	NS10206	1	NR12206	1	NS13206	1	NR13206	1	NS14206	1	Dust Seal
14	NS10207	1	NR12207	1	NS13207	1	NR13207	1	NS14207	1	U-Packing
15	NS10208	1	NR12208	1	NS13208	1	NR13208	1	NS14208	1	Buffer Seal
16	←	2	←	2	←	2	←	2	←	2	O-Ring
17	←	2	←	2	←	2	←	2	←	2	Adapter
18	←	2	←	2	←	2	←	2	←	2	Union Cap
19	NS10402	1	NR12402	1	NS13402	1	NR13402	1	NS14402	1	Valve
20	NS10404	1	NR12404	1	NS13404	1	NR13404	1	NS14404	1	Valve Plug
21	N10025	1	N10025	1	←	1	←	1	←	1	O-Ring
22	N10030	1	N10030	1	←	1	←	1	←	1	O-Ring
23	NS10403	1	NR12403	1	NS13403	1	NR13403	1	NS14403	1	Valve Sleeve
24	NS1011	1	NR1211	1	NS1311	1	NR1311	1	NS1411	1	Front Head
25	N15001	1	N15001	1	N15001	1	N15001	1	N15001	1	Grease Nipple
26	NS101051	1	NR121051	1	NS131051	1	NR131051	1	NS141051	1	Rod Pin
27	NS10108	1	NR12108	1	NS13108	1	NR13108	1	NS14108	1	Stop Pin
28	←	2	←	2	←	2	←	2	←	2	Rubber Plug
29	NS10106	2	NR12106	2	NS13106	2	NR13106	2	NS14106	2	Front Head Pin
30	NS10104	2	NR12104	2	NS13104	2	NR13104	2	NS14104	2	Ring Bush
31	NS10103	1	NR12103	1	NS13103	1	NR13103	1	NS14103	1	Front Cover
32	NS101011	1	NR121011	1	NS131011	1	NR131011	1	NS141011	1	Rod(Moil Point)
33	NS10504	4	NR12504	4	NS13504	4	NR13504	4	NS14504	4	Washer
34	NS10503	4	NR12503	4	NS13503	4	NR13503	4	NS14503	4	Through Bolt
35	NS10505	4	NR12505	4	NS13505	4	NR13505	4	NS14505	4	Hex Nut
36	N15004	1	N15004	1	←	1	←	1	←	1	Air Check Valve
37	N100250	2	N100250	2	←	2	←	2	←	2	O-Ring
38	N100320	3	N100320	3	←	3	←	3	←	3	O-Ring
39	N15005	1	N15005	1	←	3	←	3	←	3	Hollow Hex Plug
40	N142015	2	N142015	2	←	2	←	2	N142620	2	Rubber Plug
41	-	-	-	-	-	-	-	-	-	-	Snap Ring
42	←	1	←	1	←	1	←	1	←	1	Knock Pin
43	-	-	-	-	-	-	-	-	-	-	Hex Head Plug
44	N141830	4	N141830	4	←	4	←	4	←	4	Round Nut
45	-	-	-	-	N100350	1	N100350	1	←	1	O-Ring
46	-	-	-	-	-	-	-	-	-	-	Back-Up Ring
47	NS10204	1	NR12204	1	NS13204	1	NR13204	1	NS14204	1	Valve Adjuster
48	-	-	-	-	-	-	-	-	-	-	Nut
49	-	-	-	-	-	-	-	-	-	-	Socket Plug
50	-	-	-	-	-	-	-	-	-	-	Square Ring
51	-	-	-	-	-	-	-	-	-	-	Socket Plug
52	-	-	-	-	N10060	1	N10060	1	←	1	O-Ring

Parts and accessories list (RWB155, RWB165, RWB175)



MAIN BODY (RWB155、RWB165、RWB175)

NO	RWB155		RWB165		RWB175		PARTS NAME
	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	
	NS1580	1Set	NS1680	1Set	NS1780	1Set	Main Body's Ass'y
1	NS15501	1	NS16501	1	NS17501	1	Back Head
2	N15006	1	←	1	←	1	Charging Valve
3	N10016	3	←	3	←	3	O-Ring
4	NS1521	1	NS1621	1	NS1721	1	Cylinder
5	NS15203	1	NS16203	1	NS17203	1	Seal Retainer
6	N10018	4	←	4	←	4	O-Ring
7	N171902	3	←	3	←	3	Socket Plug
8	NS15211	1	NS16211	1	NS17211	1	Gas Seal
9	NS15210	2	NS16210	2	NS17210	2	Step Seal
10	-	-	-	-	-	-	O-Ring
11	NS15208	1	NS16208	1	NS17208	1	Buffer Seal
12	NS15202	1	NS16202	1	NS17202	1	Piston
13	NS15206	1	NS16206	1	NS17206	1	Dust Seal
14	NS15207	1	NS16207	1	NS17207	1	U-Packing
15	NS15208	1	NS16208	1	NS17208	1	Buffer Seal
16	←	2	←	2	←	2	O-Ring
17	←	2	←	2	←	2	Adapter
18	←	2	←	2	←	2	Union Cap
19	NS15402	1	NS16402	1	NS17402	1	Valve
20	NS15404	1	NS16404	1	NS17404	1	Valve Plug
21	N10025	1	←	1	←	1	O-Ring
22	N10030	1	←	1	←	1	O-Ring
23	NS15403	1	NS16403	1	NS17403	1	Valve Sleeve
24	NS4011	1	NS4511	1	NS5011	1	Front Head
25	N15001	1	N15001	1	N15001	1	Grease Nipple
26	N151051	1	N161051	1	N171051	1	Rod Pin
27	NS15108	1	NS16108	1	NS17108	1	Stop Pin
28	←	2	←	2	←	2	Rubber Plug
29	NS15106	2	NS16106	2	NS17106	2	Front Head Pin
30	NS15104	2	NS16104	2	NS17104	2	Ring Bush
31	NS15103	1	NS16103	1	NS17103	1	Front Cover
32	NS151011	1	NS161011	1	NS171011	1	Rod(Moil Point)
33	NS15504	4	NS16504	4	NS17504	4	Washer
34	NS15503	4	NS16503	4	NS17503	4	Through Bolt
35	NS15505	4	NS16505	4	NS17505	4	Hex Nut
36	N15004	1	←	1	←	1	Air Check Valve
37	N100250	2	←	2	←	2	O-Ring
38	N100320	3	←	3	←	3	O-Ring
39	N15005	1	←	3	←	3	Hollow Hex Plug
40	N142015	2	←	2	N142620	2	Rubber Plug
41	-	-	-	-	-	-	Snap Ring
42	←	1	←	1	←	1	Knock Pin
43	-	-	-	-	-	-	Hex Head Plug
44	N141830	4	←	4	←	4	Round Nut
45	-	-	N100350	1	←	1	O-Ring
46	-	-	-	-	-	-	Back-Up Ring
47	N15204	1	N16204	1	N17204	1	Valve Adjuster
48	-	-	-	-	-	-	Nut
49	-	-	-	-	-	-	Socket Plug
50	-	-	-	-	-	-	Square Ring
51	-	-	-	-	-	-	Socket Plug
52	-	-	N10060	1	←	1	O-Ring

MAIN BODY (RWB155、RWB165、RWB175)

NO	RWB155		RWB165		RWB175		PARTS NAME
	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	
	NS1580	1Set	NS1680	1Set	NS1780	1Set	Main Body's Ass'y
51	←	1	←	1	←	1	Hex Nut
52	←	1	←	1	←	1	O-Ring
53	←	1	←	1	←	1	Back-Up Ring
54	N1531	1	NS1631	1	NS1731	1	Accumulator Body
55	←	4	←	4	←	4	Socket Bolt
56	←	1	←	1	←	1	Holder(A)
57	←	1	←	1	←	1	Hodler(B)
58	←	1	←	1	←	1	Hodler©
59	←	1	←	1	←	1	Center Pin
60	←	1	←	1	←	1	Holder Pin
61	←	1	←	1	←	1	Diaphragm
62	←	1	←	1	←	1	O-Ring
63	←	1	←	1	←	1	Accumulator Charging V/V
64	←	2	←	2	←	2	O-Ring
65	←	1	←	1	←	1	O-Ring Cap
66	NS15301	1	NS16301	1	NS17301	1	Accumulator Cover
67	←	16	←	16	←	16	Socket Bolt
68	←	1	←	1	←	1	O-Ring Plug
69	←	1	←	1	←	1	P.V.C Plug
70	-	-	-	-	-	-	O-Ring
71	-	-	-	-	-	-	Socket Plug
72	-	-	-	-	-	-	O-Ring
73	-	-	-	-	-	-	Back-Up Ring
74	-	-	-	-	-	-	Cylinder Adjuster
75	-	-	-	-	-	-	Nut
76	-	-	-	-	-	-	Socket Plug
77	-	-	-	-	-	-	O-Ring

SPARE PARTS SET(RWB40-RWB100)

NO	PARTS NAME	RWB40		RWB45		RWB53		RWB68		RWB75		RWB100		REMARK
		P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	
	Spare parts Set	F61 010	1	D31 010	1	E71 010	1	C01 010	1	F91 010	1	C11 010	1	SET
3	O-Ring	N10016	3	←	3	←	3	←	3	←	3	←	3	
6	O-Ring	N10018	3	←	3	←	3	←	3	←	3	←	4	
8	Gas Seal	NS40211	1	NS45211	1	NS50211	1	NS60211	1	NS70211	1	NS10211	1	
9	Step Seal	NS40210	2	NS45210	2	NS50210	2	NS60210	2	NS70210	2	NS10210	2	
11	Buffer Seal	NS40208	1	NS45208	1	NS50208	1	NS60208	1	NS70208	1	NS10208	1	
13	Dust Seal	NS40206	1	NS45206	1	NS50206	1	NS60206	-	NS70206	-	NS10206	-	
14	U-Packing	NS40207	1	NS45207	1	NS50207	1	NS60207	1	NS70207	1	NS10207	1	
15	Buffer Seal	-	-	-	-	-	-	-	-	-	-	-	-	
16	O-Ring	←	2	←	2	←	2	←	2	←	2	←	2	
21	O-Ring	N10025	1	←	1	←	1	←	1	←	1	←	1	
22	O-Ring	N10030	1	←	1	←	1	←	1	←	1	←	1	
25	Grease Nipple	N10035	1	←	1	←	1	←	1	←	1	←	1	
27	Spring Pin	N141230	1	←	1	←	1	←	1	←	1	←	1	
28	Rubber Plug	N141720	2	←	2	←	2	←	4	←	4	←	2	
37	O-Ring	N10045	2	←	2	←	2	←	2	←	2	←	2	
40	Rubber Plug	-	-	-	-	-	-	-	-	-	-	-	2	
52	O-Ring	-	-	-	-	-	-	-	-	-	-	-	-	

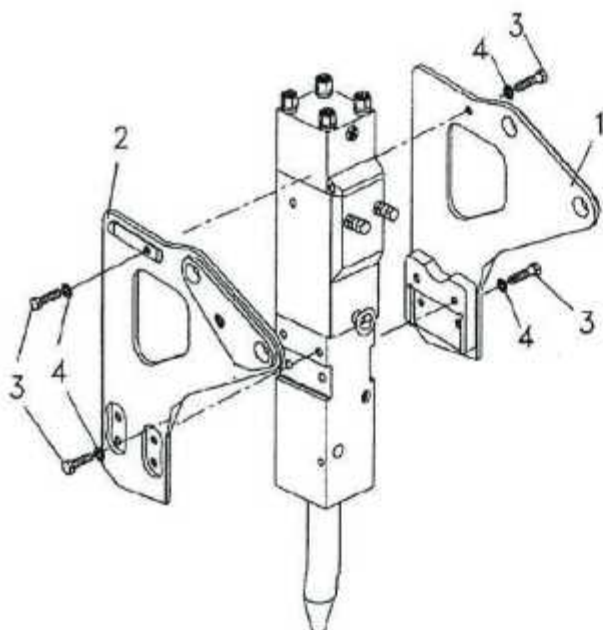
SPARE PARTS SET (RWB135-RWB175)

NO	PARTS NAME	RWB135		RWB140		RWB155		RWB165		RWB175		REMARK
		P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	
	Spare parts Set	L01 010	1	C31 010	1	C61 010	1	L21 010	1	E91 010	1	SET
3	O-Ring	N10016	3	←	3	←	3	←	3	←	3	
6	O-Ring	N10018	3	←	3	←	3	←	3	←	3	
8	Gas Seal	NS13211	1	NS14211	1	NS15211	1	NS16211	1	NS17211	1	
9	Step Seal	NS13210	2	NS14210	2	NS15210	2	NS16210	2	NS17210	2	
11	Buffer Seal	NS13208	1	NS14208	1	NS15208	1	NS16208	1	NS17208	1	
13	Dust Seal	NS13206	1	NS14206	1	NS15206	1	NS16206	-	NS17206	-	
14	U-Packing	NS13207	1	NS14207	1	NS15207	1	NS16207	1	NS17207	1	
15	Buffer Seal	-	-	-	-	-	-	-	-	-	-	
16	O-Ring	←	2	←	2	←	2	←	2	←	2	
21	O-Ring	N10025	1	←	1	←	1	←	1	←	1	
22	O-Ring	N10030	1	←	1	←	1	←	1	←	1	
25	Grease Nipple	N10035	1	←	1	←	1	←	1	←	1	
28	Rubber Plug	N142620	1	←	2	←	2	←	2	←	2	
37	O-Ring	N10035	2	←	2	←	2	←	2	←	2	
38	O-Ring	N10040	2	←	2	←	2	←	2	←	2	
40	Rubber Plug	N143025	2	←	2	←	2	←	2	←	2	
45	O-Ring	N10045	1	←	1	←	1	←	1	←	1	
46	Back-Up Ring	NS13304-1	2	NS14304-1	2	NS15304-1	2	NS16304-1	2	NS17304-1	2	
52	O-Ring	N10050	1	←	1	←	1	←	1	←	1	
53	Back-Up Ring	-	-	-	-	NS15304-2	1	NS16304-2	1	NS17304-2	1	
62	O-Ring	-	-	-	-	N10055	1	N10055	1	N10055	1	
64	O-Ring	-	-	-	-	N10060	2	N10060	2	N10060	2	
77	O-Ring	-	-	-	-	N10065	1	-	-	-	-	

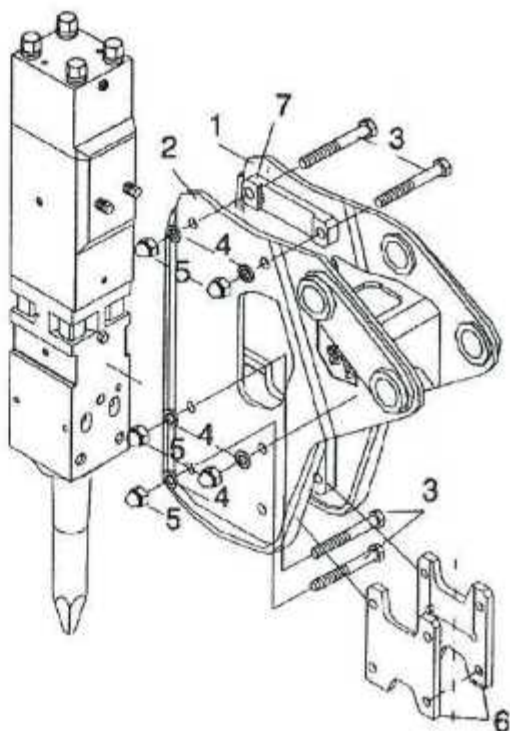
Case Parts accessories list

SIDE TYPE

RWB40、45、53



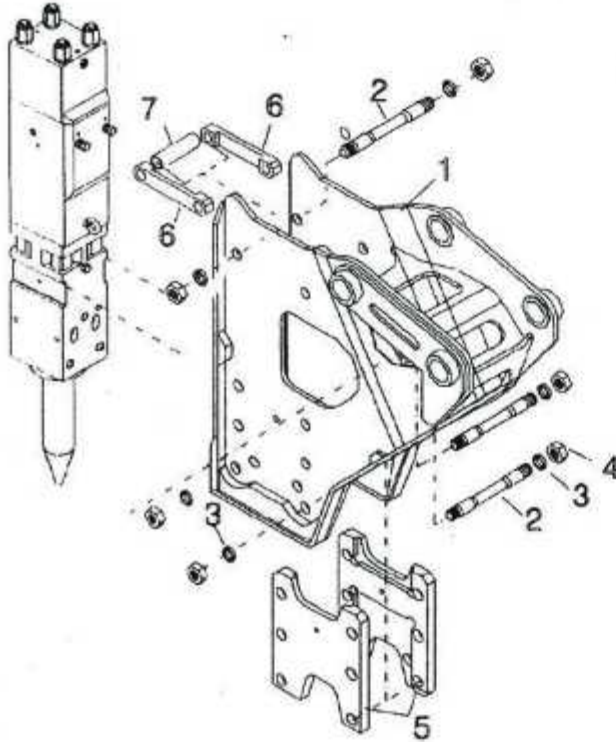
RWB68、75、100



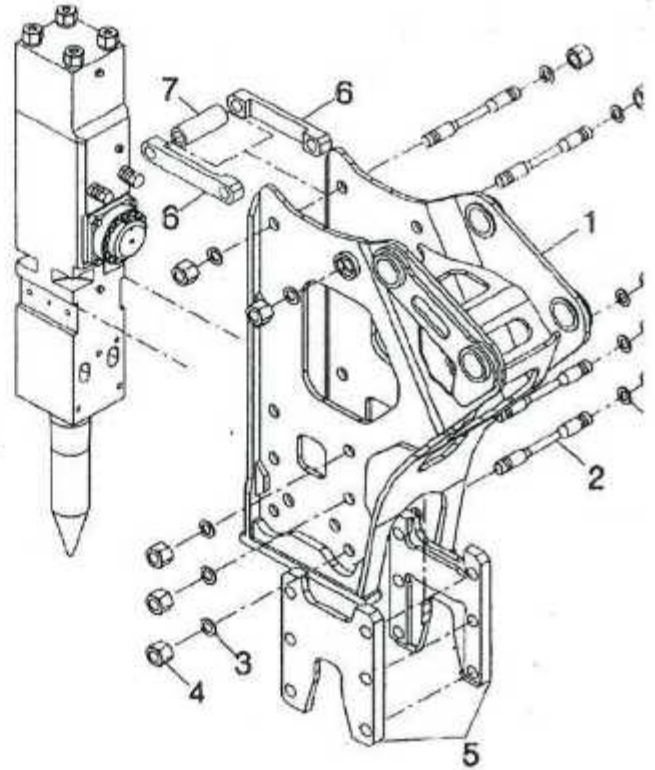
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	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	
	Side Sub Ass'y NS4061	1Set	← NS4561	1Set	← NS5061	1Set	← NS6061	1Set	← NS7061	1Set	← NS7061	1Set	
1	Side Bracket-R NS40611	1	← NS45611	1	← NS50611	1	← NS60611	1	← NS70611	1	Side Bracket NS10611	1	
2	Side Bracket-L NS40612	1	← NS45612	1	← NS50612	1	← NS60612	1	← NS70612	1	Set Plate NS10612	2	
3	Hex Bolt NS40607	12	← NS45607	12	← NS50607	12	← NS60607	5	← NS70607	12	← NS10607	6	Side Bolt
4	Spring Washer NS40605	12	← NS45605	12	← NS50605	12	← NS60605	5	← NS70605	12	← NS10605	6	Washer
5	Cap Nut NS40609	1	← NS45609	1	← NS50609	1	← NS45609	5	← NS45609	1	← NS45609	6	Side Bolt
6	-	-	-	-	-	-	Spacer NS60602	1	-	-	-	-	
7	-	-	-	-	-	-	Guide Plate NS60601	2	-	-	← NS10601	2	Set Plate
8	-	-	-	-	-	-	-	-	-	-	-	-	

SIDE TYPE

RWB135, 140

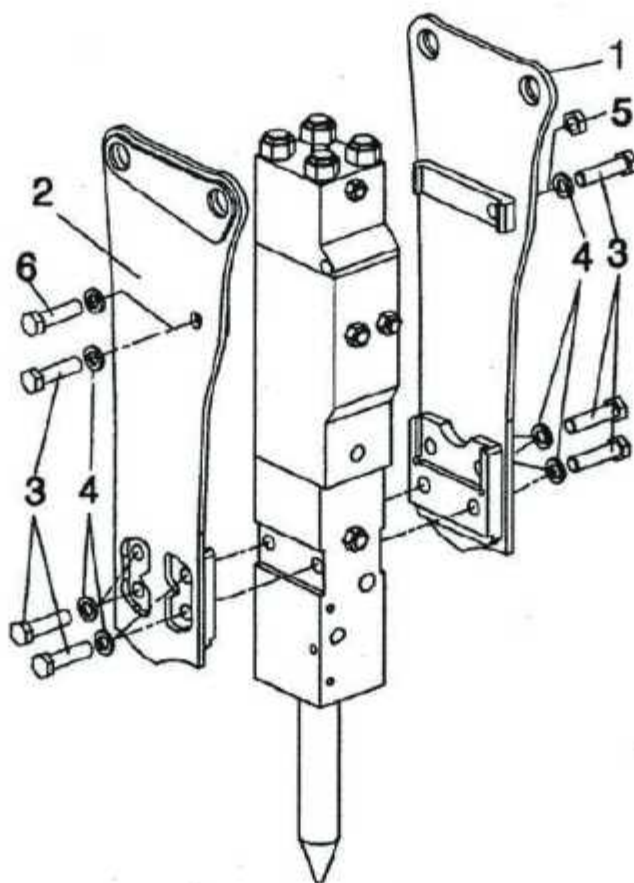


RWB155, 165, 175



NO	RWB135		RWB140		RWB155		RWB165		RWB175		RWMARK
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	
	Side Sub Ass'y NS1361	1Set	←	1Set	←	1Set	←	1Set	←	1Set	
1	Side Bracket NS13611	1	←	1	←	1	←	1	←	1	
2	Side Bolt NS13607	8	←	8	←	8	←	8	←	8	Side Bolt
3	Washer NS13605	16	←	16	←	16	←	16	←	16	Washer
4	Side Nut NS13609	16	←	16	←	16	←	16	←	16	Side Nut
5	Set Plate NS13609	2	←	2	←	2	←	2	←	2	Set Plate
6	Guide Plate NS13601	2	←	2	←	4	←	2	←	2	
7	Support Bar NS13606	1	←	2	←	1	←	1	←	1	Support Bar
8	-	-	-	-	-	-	-	-	-	-	

TOP TYPE

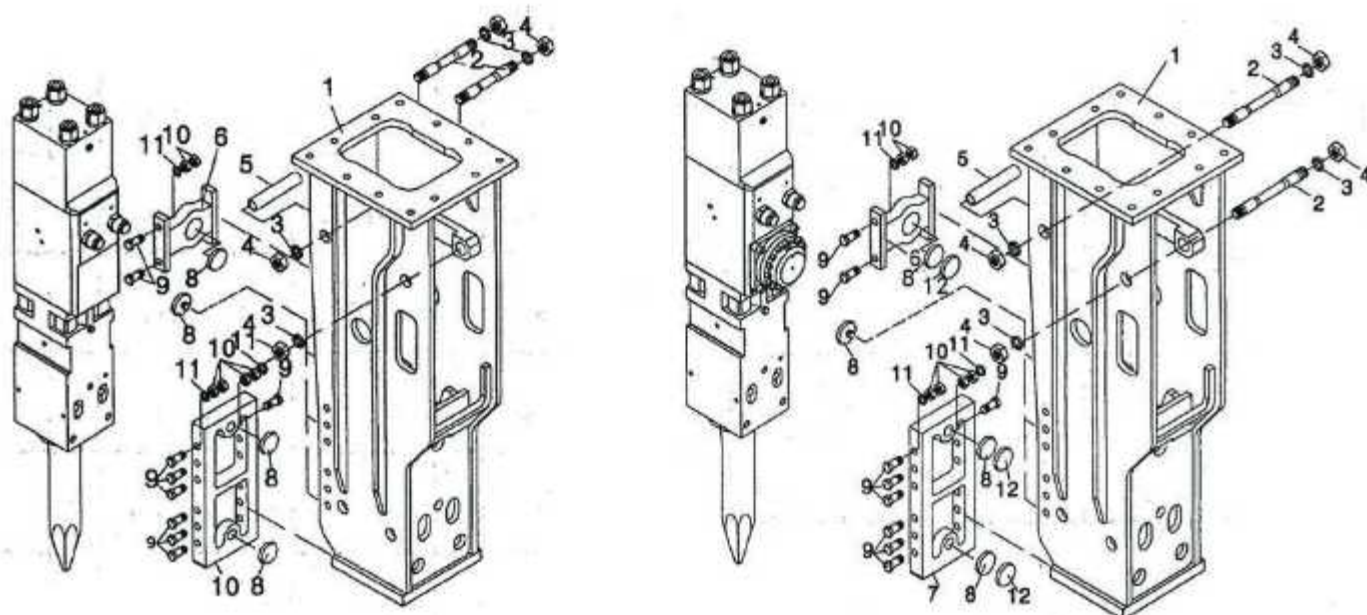


NO	RWB40		RWB45		RWB53		RWB68		RWB75		RWB100		RWMARK
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	
	Frame Ass'y NS4063	1Set	← NS4563	1Set	← NS5063	1Set	← NS6063	1Set	← NS7063	1Set	← NS7063	1Set	
1	Frame-R NS40631	1	← NS45631	1	← NS50631	1	← NS60631	1	← NS70631	1	← NS10631	1	
2	Frame-L NS40632	1	← NS45632	1	← NS50632	1	← NS60632	1	← NS70632	1	← NS10632	1	
3	Hex Bolt NS40607	12	← NS45607	12	← NS50607	12	← NS60607	4	← NS70607	12	← NS10607	6	Side Bolt
4	Spring Washer NS40605	12	← NS45605	12	← NS50605	12	← NS60605	4	← NS70605	12	← NS10605	6	Washer
5	Cap Nut NS40609	1	← NS45609	1	← NS45609	1	← NS45609	4	Spacer NS45609	1	Side Nut NS45609	6	Nut
6	-	-	-	-	-	-	-	-	-	-	-	-	

TOP TYPE

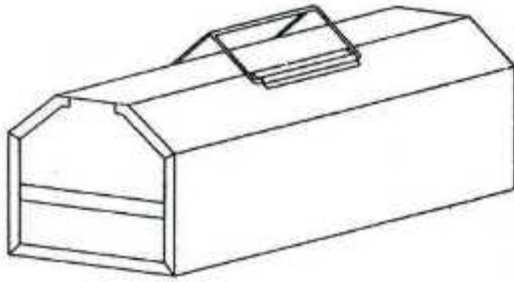
NO	RWB135		RWB140		RWB155		RWB165		RWB175	
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty
	Frame Ass'y NS1363	1Set	← NS1463	1Set	← NS1563	1Set	← NS1663	1Set	← NS1763	1Set
1	Frame NS13631	1	← NS14631	1	← NS15631	1	← NS16631	1	← NS1763 1	1
2	Support Bar NS13607	2	← NS14607	2	← NS15607	1	← NS16607	1	← NS17607	1
3	Support Plate NS13602	1	← NS14602	1	← NS15602	1	← NS16602	16	← NS17602	16
4	Hex Bolt NS13606	4	← NS14606	6	← NS15606	2	← NS16606	16	← NS17606	16
5	Spring Washer NS13605	6	← NS14605	6	← NS15605	4	← NS16605	2	← NS17605	2
6	Side Bolt NS13607	2	← NS14607	2	← NS15607	4	← NS16607	2	← NS17607	2
7	Side Nut NS13609	4	← NS13609	4	← NS13609	8	← NS13609	1	← NS13609	1
8	Washer NS13608	4	← NS13608	4	← NS13608	8	← NS13608	8	← NS13608	8
9	Hex Bolt NS13606	2	← NS14606	2	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-

BOX TYPE

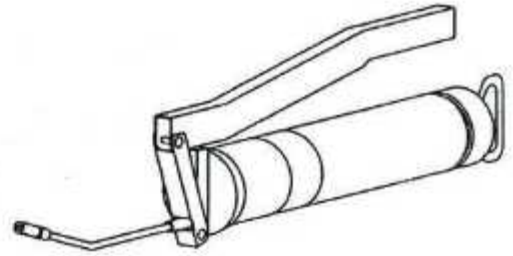


NO	RBW140		RBW155		RBW165		Remark
	Part Name Code No.	Q' ty	Part Name Code No.	Q' ty	Part Name Code No.	Q' ty	
	← C33 018	1Set	← C63 011	1Set	← D83 000	1Set	
1	← C33 311	1	← C63 159	1	← D83 000	1	
2	← C32 211	2	← C62 209	2	← D82 152	2	
3	← C33 114	4	← D82 153	4	← D82 153	4	
4	← C32 212	4	← C62 210	4	← C62 210	4	
5	← C33 116	1	← C63 175	1	← D83 103	1	
6	← C33 453	1	← C63 174	1	← D83 102	1	
7	← 4003457	12	← C63 173	1	← D83 101	1	
8	← 4101309	24	← C32 155	6	← -	-	
9	← 4210018	12	← 4005370	12	← 4005370	12	
10	← -	-	← 4104343	12	← 4101313	12	
11	← -	-	← 4210022	12	← 4211022	12	
12	← -	-	← C63 263	2	← -	-	

TOOL AND TOOL BOX



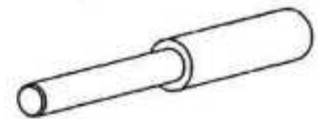
TOOL BOX



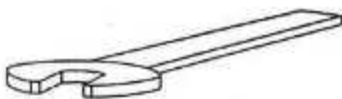
GREASE GUN



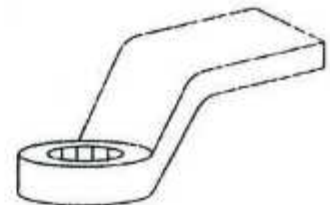
L-WRENCH



PIN BAR



SINGLE SPANNER



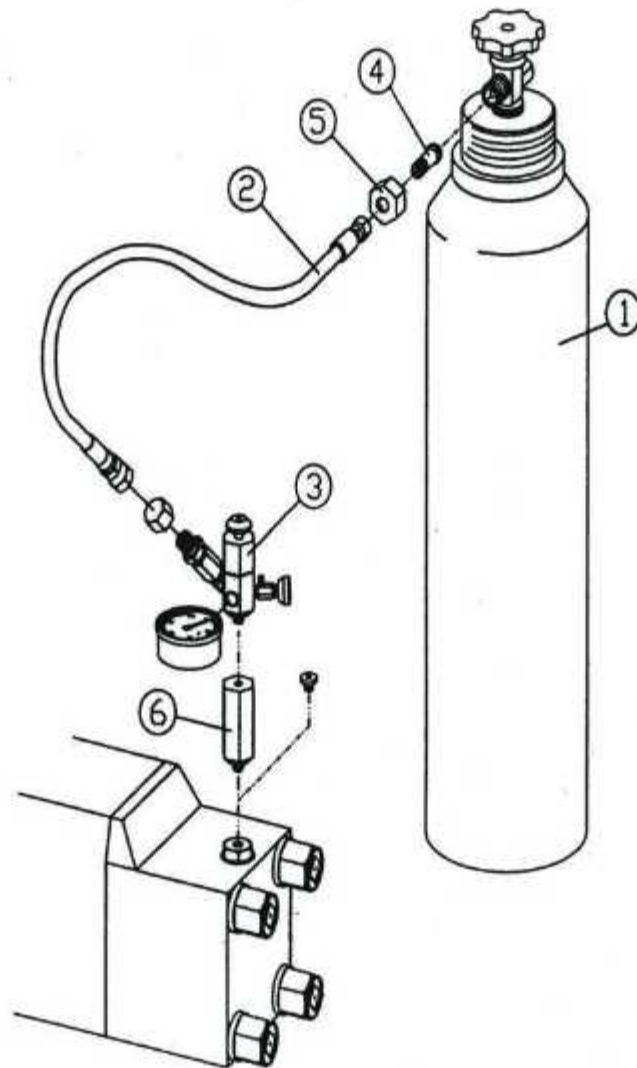
SINGLE RING SPANNER

TOOL SET(SIDE, TOP, BACK-HOE)

TOOL	Q'ty	RWB53	RWB68	RWB75	RWB100	RWB135	RWB140	RWB155	RWB165	RWB175
TOOL SET	1	NS50020	NS60020	NS70020	NS10020	NS13020	NS14020	NS15020	NS16020	NS17020
TOOL BOX	1	M 8290002	←	←	←	L 8290003	←	←	←	←
COMBINATION SPANNER	1	-	-	-	-	-	-	-	-	-
DOUBLE SPANNER	1	27*30 8203060	←	←	←	←	←	←	←	←
DOUBLE SPANNER	1	-	22*24 8203057	←	←	←	←	←	←	←
GREASE GUN	1	300cc 8214002	301cc 8214002	302cc 8214002	303cc 8214002	304cc 8214002	305cc 8214002	306cc 8214002	307cc 8214002	308cc 8214002
L-WRENCH	1	5mm 8202103	6mm 8202103	7mm 8202103	8mm 8202103	9mm 8202103	10mm 8202103	11mm 8202103	12mm 8202103	13mm 8202103
L-WRENCH	1	-	-	-	-	8mm 8202105	←	←	12mm 8202107	←
L-WRENCH	1	-	-	-	-	-	-	14mm 8202108	17mm 8202110	19mm 8202111
L-WRENCH	1	-	-	-	-	-	-	17mm 8202110	19mm 8202111	21mm 8202112
PIN BAR	1	D14 C01147	←	←	←	←	←	←	←	←
SINGLE RING SPANNER	1	-	-	-	55mm Cc11154	70mm Cc11155	75mm Cc11159	←	85mm Cc11161	90mm Cc11163
SINGLE RING SPANNER	1	-	-	-	-	-	-	85mm Cc11161	-	-
SINGLE SPANNER	1	13mm 8203003	←	41mm 8203018	36mm 820316	←	←	32mm 820314	36mm 820316	←
SINGLE SPANNER	1	41mm 8203018	←	46mm 8203019	-	41mm 8203018	←	46mm 8203019	←	←
SINGLE SPANNER	1	-	-	-	-	46mm 8203019	←	50mm 8203020	←	←
SINGLE SPANNER	1	-	-	-	-	-	50mm 8203020	55mm 8203021	←	60mm 8203022
PLLERS	1	-	-	-	230mm 8204024	←	←	←	←	←
T-WRENCH	1	14mm 8202131	←	←	←	←	←	←	←	←

BACK HEAD GAS CHARGING KIT (OPTION)

NO	PARTS NO	Q' ty	PARTS NAME
	C61 204	1set	N2 GAS CHARGING SET
1	2900003	1	N2 GASCYLINDER
2	2651001	1	SYNFLEX HOSE
3	C91 142	1	B-3WAY VALVE ASSEMBLY
4	C91 122	1	BOMBE ADAPTER
5	C91 121	1	BOMBE ADAPTER NUT
6	F01 137	1	LONG ADAPTER:USE FOR BOX & SILENCE TYPE



ACCUMULATOR CHARGING TOOL SET

NO	PARTS NO	Q' ty	PARTS NAME
	C61 205	1set	ACCUMULATOR GAS CHARGING SET
1	C61 204	1set	N2 GAS CHARGING SET
2	2850010	1	O-RING
3	U81 414	1	O-RING-HEX BUSHING
4	2850014	1	O-RING

