Operating Manual

Rhino®

HBR 60
Hydraulic Breaker

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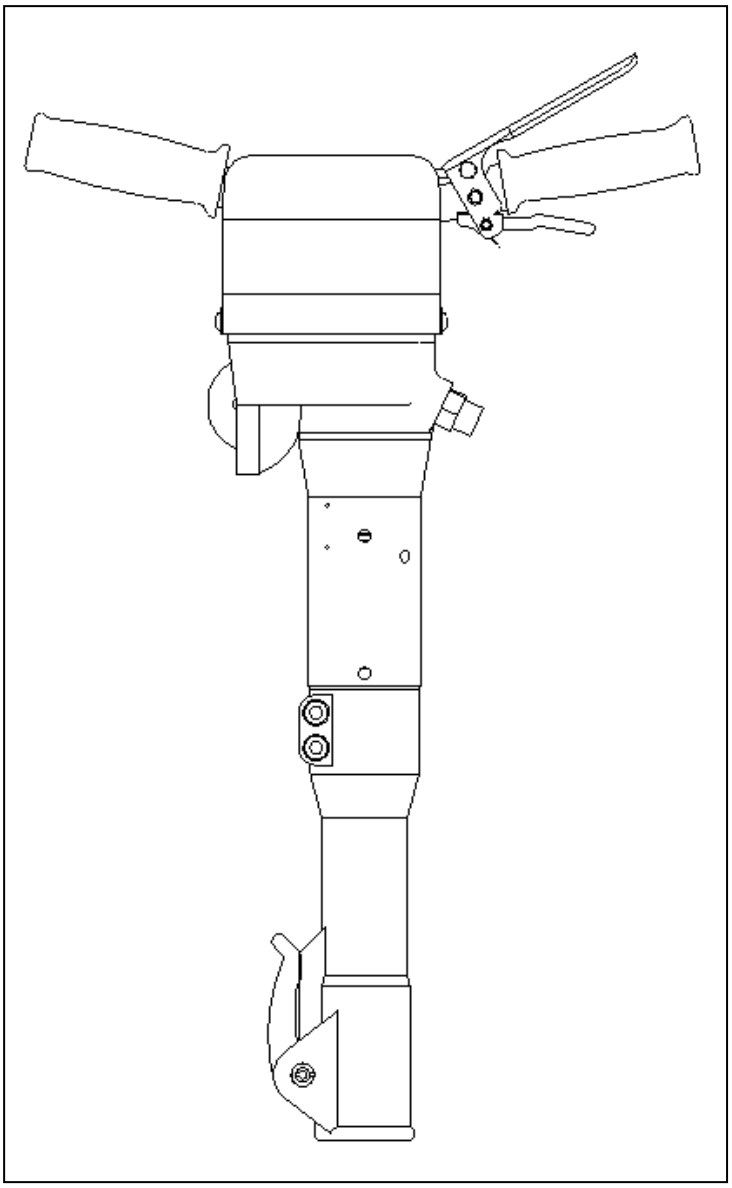

Prior to Operation

We thank you for choosing a Rhino® breaker.

To ensure smooth operation and long-lasting performance of your new breaker, we recommend you to study this operating manual carefully and pay special attention to the chapters about

Safety and Service Precautions

and

Oil Flow and Pressure

We are sure you will be satisfied with your new Rhino® breaker.

Best regards
Rhino® Tool Company

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Contents

Safety Precautions

- Only use the breaker in accordance with the local working regulations on allowed working time. Working with the breaker longer than prescribed may injure the operator. Please refer to the chapter about vibrations, page 4.

- All Rhino® breakers are supplied with safety trigger. The safety trigger may not be disabled. Always make sure that it is in proper working order.

- In case of horizontal breaking or breaking above the head, always be aware of material falling debris.

- A fine jet of oil at high pressure can penetrate the skin. It is therefore important never to use your fingers to check for oil leaks and never place your face close to suspected leaks – use a piece of cardboard instead. If oil has penetrated the skin, you should get medical treatment immediately.

- Never leave the breaker unattended when connected to the powerpack.

- Always use correct tool, in the breaker, for the job being preformed.

- Before connecting the breaker to the power source, always check that the latch is closed to prevent the tool from falling out of the front end.

- Always use approved hoses. Contact your dealer, if necessary. Install the hoses correctly – the valve housing is marked with ”P” and ”T”.

- The operator must make sure that there are no persons nearby when he operating the machine. Flying pieces of broken material can cause severe injury.

- The operator must pay extra attention and show caution when working in difficult working areas, such as slopes and other dangerous environments. Do overreach with the breaker, but always maintain a good footing and keep your balance.

- The operator must be properly trained in using the breaker or under supervision of a qualified operator.

- The operator must always use protective goggles, earplugs, hard hat and protective footwear when operating the breaker.

- Never use the breaker close to electric, gas, telephone, water, etc. Prior to operation, check whether there are hidden or buried cables in the ground.

- Never wear loose clothing as it may get entangled in the moving parts of the breaker or other hazards in the work area.

- Inspection or cleaning of the breaker, change of tool or disconnection of hoses may never be done while the breaker is connected to the powerpack and is under pressure, as unintentional activation of the breaker can cause severe damage.

- Always connect hoses to the breaker before starting the powerpack. Be sure that all couplings are tight.

- The breaker may not be operated if the oil temperature is above 160°F. Operation at higher temperatures may result in the breaker getting warmer than normal and the operator risks getting a thermal burn.

- To avoid all personal injury and damage to the breaker, all repair, maintenance and service work must be carried out by authorized or properly trained persons only.

IMPORTANT

- A breaker, when not in use should always be secured in a safe and dry place.

- Try not to do a job with a breaker which is too small for the job.

- Keep the tool sharp for maximum breaker performance. Make sure that the tool is sharp-pointed and not round.

- The breaker must never be operated without a bit, or without being held against the working surface, as this may result in overload of the breaker.

- Always make sure that the breaker labels and warning signs are legible.

- Always use hoses, couplings and other accessories as such recommend by Rhino®.

- Repairs may only be carried out by experienced personnel.

- Make sure that all couplings are cleaned before connection.

- Always disconnect the hydraulic circuit before connecting or disconnecting the breaker. If this is not done, there is a risk of damage to the quick release couplings or the hydraulic system getting superheated.

Oil Flow and Pressure

Your new Rhino® breaker is designed for a certain oil flow, working pressure and maximum pressure. A too high oil flow and/or a too high pressure results in overload of the breaker, meaning that the lifetime of your new Rhino® breaker will not be as expected, and that you incur higher service and repair costs will be higher.

It is important to check that the breaker is not supplied with an oil flow beyond its design capacity, that the working pressure is correct and that the maximum allowed pressure is not exceeded.

On page 6 you will find a table of the technical data, and on page 8 there is a guide to connecting to various hydraulic power sources and how to ensure that the breaker is not overloaded.

The Rhino® breakers are available both as 5 g.p.m. (20 l.p.m.) and 8 g.p.m. (30 l.p.m.) models. The individual types are stated on the ID-tag attached to the breaker.

Vibration Level

There are many examinations about the risk of contracting the so-called “white fingers” disease as a consequence of the use of tools with high vibration level. Hand-held electric, pneumatic and hydraulic breakers belong to this category.

To reduce the risk of injury, a number of guidelines for maximum daily use have been laid down. The risk is minimized if you keep the times of maximum daily use.

At Rhino®, we attach great importance to the protection of our customers in the form of a very low vibration level.

Therefore, your new Rhino® breaker is equipped with a handle designed for the lowest possible vibration level, even though the breaker has high performance. On all Rhino® breakers we mount our best vibration-dampened handle as standard to protect you as the user.

If you wish to obtain further information about the guidelines for maximum daily use, please contact us.

Starting Instructions

START

- Insert tool and close the latch
- Connect hoses – clean couplings before connection
- Set the power source on the correct g.p.m.
- Release the safety trigger
- Press the trigger lever down towards the handle
- Always work at right angles to the material, and only break pieces of a size that makes the material break quickly. If it does not break quickly, either the breaker is too small for the job, or you are trying to break too large pieces.

STOP

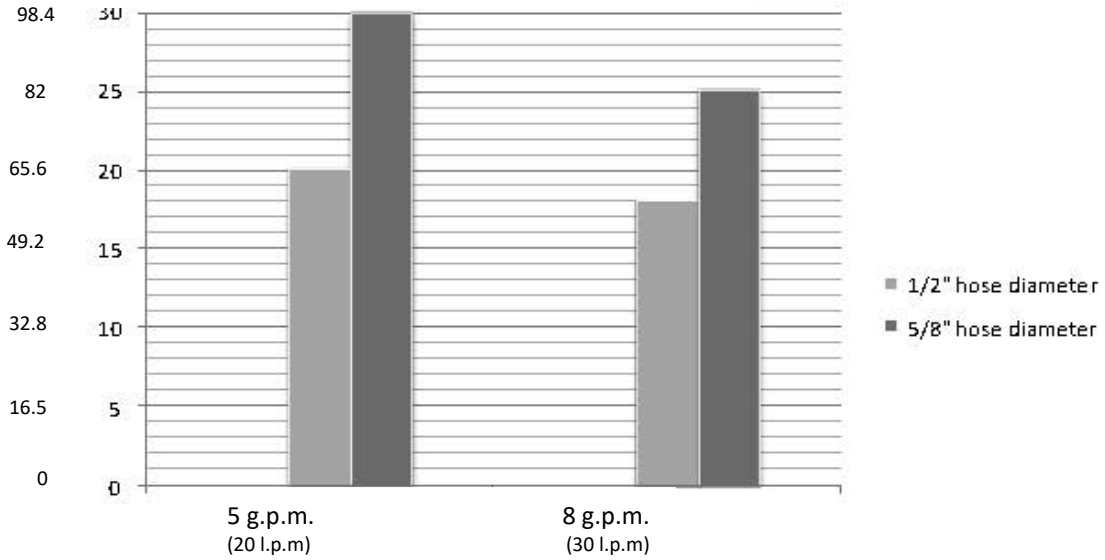
- Let go of the trigger lever
- The safety trigger automatically re-locks the trigger lever.

Performance Chart
Technical Data

		HBR60	HBR90
		5 g.p.m.	8 g.p.m.
Weight breaker	lbs (kg)	48.5 (22.0)	60.4 (27.4)
Service weight incl. moil point and hoses	lbs (kg)	55.8 (25.3)	70.6 (32.0)
EHTMA category		C	D
Oil flow	g.p.m. (l.p.m.)	5 (20)	8 (30)
Working pressure	psi (bar)	1600 (110)	1900 (130)
Max. setting pressure relief valve	psi (bar)	2300 (160)	2300 (160)
Max. return pressure	psi (bar)	220 (15)	220 (15)
Blow frequency	1/min.	1560	1260
Blow energy	ft-lb (Joule)	44 (60)	77 (105)
Max. oil temperature	°F (°C)	160 (70)	160 (70)
Accumulator charging pressure	psi (bar)	730 (50)	870 (60)
Cooling capacity needed	Hp (kW)	2.7 (2)	4.1 (3)
Vibration level 3 axis (ISO 20643) **Uncertainty (K)**	m/s^2 (dB) m/s^2 (dB)	6.8 (137) 1.2 (122)	10.7 (141) 1.6 (124)
Sound pressure level (L_{PA}) 1 m **Sound power level (L_{WA}) guaranteed**	dB dB	94 106	98 110
Tool size standard	inches (mm)	1” x 4-1/4” 25x108	1-1/4” x 6” 32x160

All Rhino® breakers

Maximum length of different sizes of hoses



Pressure from Power Pack: 2200 psi (150 bar), Flow: 5 g.p.m. (20 l.p.m), zero elevation, two set couplings per 33 ft (10m) hose.

Connection to Hydraulic Power Sources

The breaker can be connected to various hydraulic power sources, such as excavators, trucks, loaders, tractors etc., and of course Rhino® powerpacks, the design of which ensures your new Rhino® breaker the absolute best working conditions.

It is important that the breaker is not subjected to an oil flow and a working pressure beyond its design capability. Please refer to the ID-tag on the breaker in case of doubt. Check the oil flow and the working pressure by means of test equipment. The test equipment should comprise a pressure gauge, a flow meter and a valve for adjustment of the pressure.

Make sure that:

- the oil flow is not too high
- the working pressure is not too high
- the return pressure is not too high
- the pressure relief valve is not set higher than 2300 psi (160 bar)
- the internal diameter of the hoses is sufficient (min. ½")
- all couplings are clean
- the power source is equipped with an oil filter of min. 25 Micron

Hoses with too small internal diameter and/or defect couplings cause the breaker to work with incorrect working pressure. Your dealer can help you check this.

If the output of the power source is too high:

- the power source must be adjusted to correct output
- or you can choose to mount a Rhino® oil flow divider to protect the breaker against overload
- or you can choose one of our Rhino® powerpacks. Your dealer can guide you in choosing the right powerpack.

In case of doubt, please contact your dealer or Rhino® Tool Company

Service and Maintenance

Service / Maintenance	Daily	Weekly	Yearly
Check couplings and clean carefully	X		
Check hoses	X		
Check accumulator			X

At service/repair it is important to mount the hoses correctly. The feed line from the power source must be mounted at "P" and the return line at "T". "P" and "T" are marked on the valve housing.

Trouble Shooting

Before you start locating faults, check that the oil flow from the power source is correct and that the pressure relief valve is set correctly. Follow the instructions in the workshop manual of the power source. Do NOT preform maintenance or repairs with the breaker connected to the power source.

Problem	Cause	Solution
Breaker does not start, there is *no* pressure in T-hose	Trigger mechanism does not actuate trigger piston correctly	Dismount top cover, and check and adjust functioning.
Breaker does not start, there *is* pressure in P-hose	Striking piston is stuck in cylinder	Nose part is tightened too hard.
		Seizing between cylinder and striking piston. Polish or replace components.
	Defective Q.R. coupling	Check Q.R. coupling
	Oil supply is made to T-connection	Switch pump and tank line
Chisel falls out during operation	Latch and pin are worn	Replace parts.
	Chisel bushing is worn	Replace parts.
	Wrong chisel size	Check
Breaker works irregularly	Impurities in hydraulic oil	Replace oil and oil filter
	Oil level in power source too low	Add hydraulic oil
	Wrong chisel size or worn chisel bushing	Check
Bad performance	Internal leak	Dismount valve housing and replace O-rings.
	Oil flow from the power source is not correct for the breaker	Check oil flow
	Accumulator pressure too low	Charge with Nitrogen.
	Defective diaphragm	Replace diaphragm
	Defective Q.R. coupling	Check Q.R. coupling
	Return pressure too high	Check power source/hoses
	Hose diameter too small	Check hoses

Oil Types

The Rhino® breakers use standard hydraulic oil, i.e. all types of mineral oil and biodegradable oil, which comply with the following values:

Recommended viscosity	20-40 cSt
Permitted viscosity	15-1000 cSt
Viscosity index	Min. 100
Temperature area	-4°F to +160°F

If using biodegradable oil, we recommend the use of oil based on Rapeseed Oil. Other types of oil can be incompatible with the seals. If you are in doubt, please ask your dealer.

General Warranty
Conditions & Limitations on Liability

Rhino Tool Company, Inc. ("Rhino") warrants to the original purchaser, purchasing the Equipment in new condition, in original packaging from an authorized dealer that its Hydraulic Tool(s) will be free from defects in workmanship and materials (the "Limited Warranty"). The Limited Warranty shall survive for twelve (12) months with regard to all other components, excluding the Honda 13 HP engine and Vanguard 18 HP engine for which Rhino provides no warranty and for which the warranty is provided by American Honda Motor Co., Inc and by Briggs and Stratton Corporation respectively and the shall be the sole warranty applicable thereto. This Limited Warranty is non-transferable.

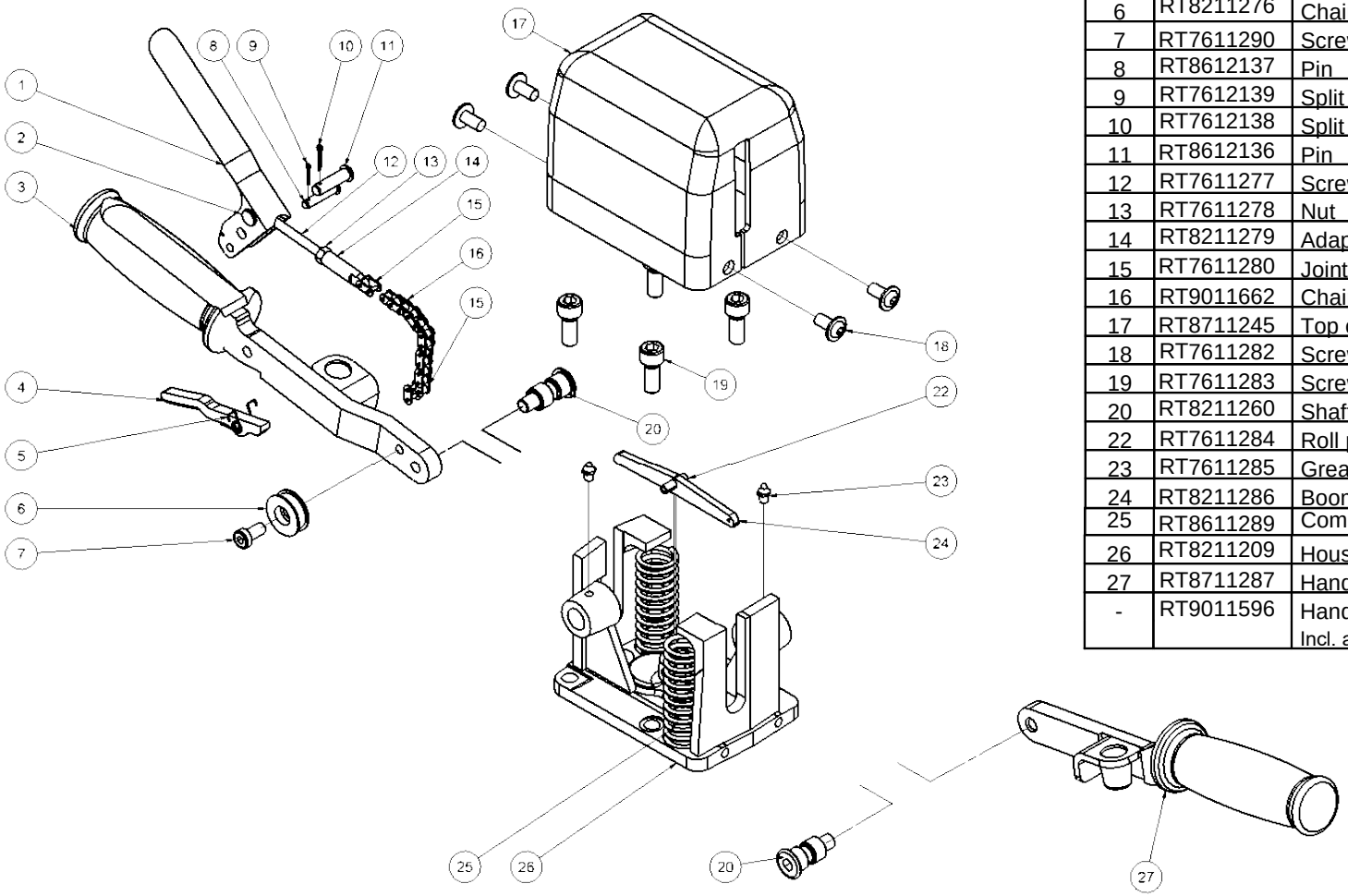
In the event of a warranty claim, the Hydraulic Tool(s) must be returned freight prepaid to Rhino or delivered in person to a Registered Rhino Servicing Dealer within the applicable warranty period with proof of original purchase provided. Rhino's obligation under this Limited Warranty is expressly limited to the repair or replacement, at Rhino's election, of such defective Hydraulic Tool(s), which is proved to be defective upon inspection by a Rhino-certified/authorized technician.

This Limited Warranty does not extend to a Hydraulic Tool(s) which has been subject to misuse, neglect, or accident, nor does it extend to any Hydraulic Tool(s) which has been repaired, altered, or serviced by unauthorized persons. This Limited Warranty does not cover any damage or adjustments required to any Hydraulic Tool(s) if such damage or adjustment is caused by the use of supplies, parts, or attachments not sold or approved by Rhino.

EXCEPT AS OTHERWISE PROVIDED HEREIN, RHINO DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. UNDER NO CIRCUMSTANCES SHALL RHINO BE LIABLE FOR ANY LOSS OF BUSINESS, REVENUES, OR PROFIT OR OTHER INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES OR LOSS ARISING OUT OF ANY DEFECTS IN OR PERFORMANCE OF THE HYDRAULIC TOOL(S), HOWSOEVER CAUSED.

HBR-60 spare parts list

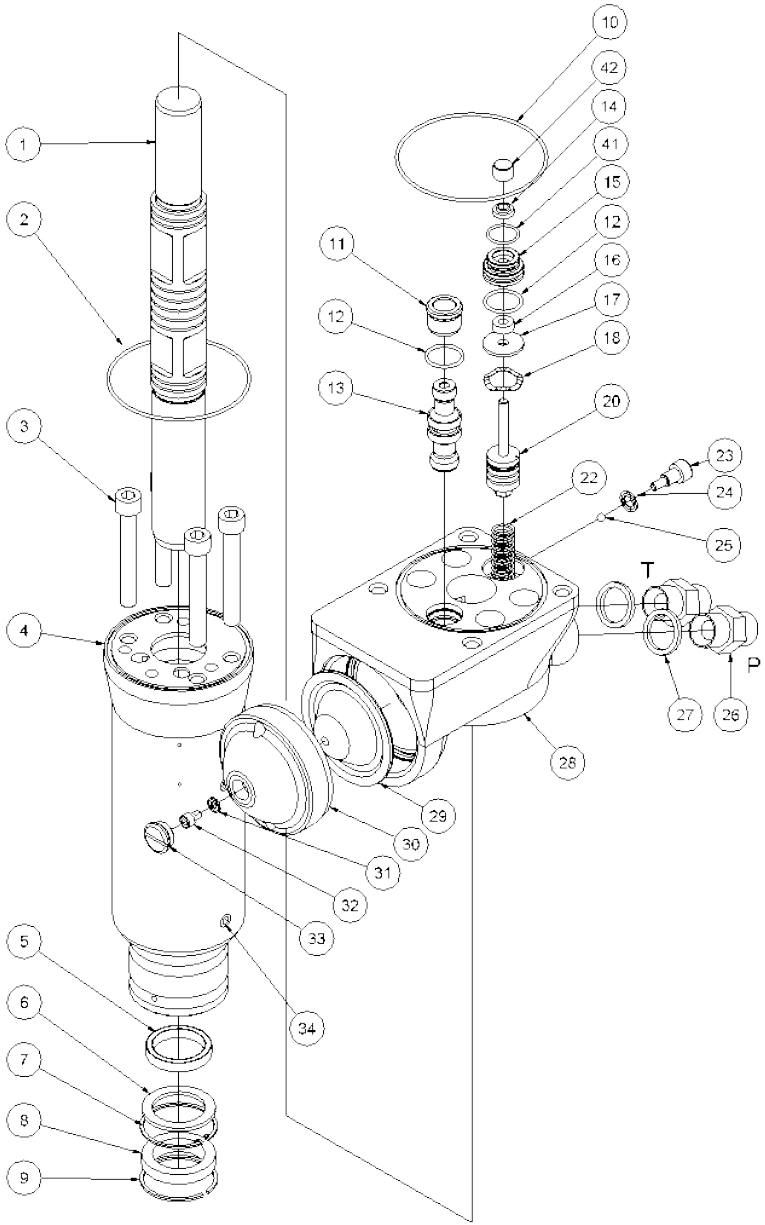
Fig. 1



Pos.	Part No.	Description	Pcs.
1	RT8211270	Trigger lever	1
2	RT8211271	Cross pin	1
3	RT8711275	Handle (trigger side)	1
4	RT8211273	Safety trigger	1
5	RT8611291	Spring	1
6	RT8211276	Chain spool	1
7	RT7611290	Screw	1
8	RT8612137	Pin	1
9	RT7612139	Split pin	1
10	RT7612138	Split pin	1
11	RT8612136	Pin	1
12	RT7611277	Screw	1
13	RT7611278	Nut	1
14	RT8211279	Adaptor	1
15	RT7611280	Joint	2
16	RT9011662	Chain	1
17	RT8711245	Top cover	1
18	RT7611282	Screw	4
19	RT7611283	Screw	4
20	RT8211260	Shaft for handle	2
22	RT7611284	Roll pin	1
23	RT7611285	Grease nipple	2
24	RT8211286	Boom	1
25	RT8611289	Compression spring	2
26	RT8211209	Housing	1
27	RT8711287	Handle	1
-	RT9011596	Handle complete Incl. all positions except 17, 18 and 19	1

HBR-60 spare parts list

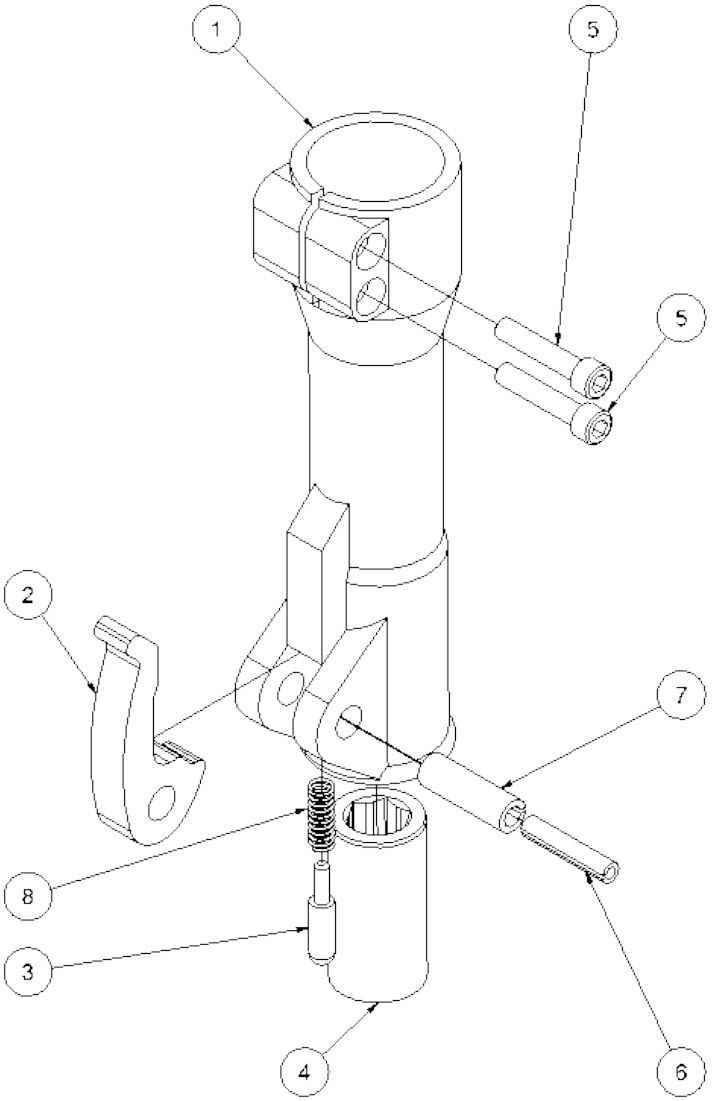
Fig. 2



Pos.	Part No.	Description	Pcs.
1	RT8212224	Striking piston	1
2	RT7511247	O-ring	1
3	RT7612554	Screw	4
4	RT9012222	Cylinder	1
5	RT7511232	Seal	1
6	RT8211223	Supporting washer	1
7	RT7611229	Retaining ring	1
8	RT7511234	Rod wiper	1
9	RT7611230	Spring ring	1
10	RT7511246	O-ring	1
11	RT8211228	Sleeve	1
12	RT7511248	O-ring	2
13	RT8211748	Spool	1
14	RT7521013	Seal	1
15	RT8211226	Seal housing	1
16	RT7521014	Seal	1
17	RT8211251	Washer	1
18	RT7611252	Crinkled spring washer	1
20	RT9011750	Trigger piston complete	1
22	RT8611249	Compression spring	1
23	RT8611255	Screw	1
24	RT7511254	Seal ring	1
25	RT7611253	Ball	1
26	RT7421343	Fitting 1/2"x3/4" JIC	2
27	RT7521072	Seal ring	2
28	RT8212121	Valve housing	1
29	RT7711091	Diaphragm	1
30	RT8211216	Accumulator cover	1
31	RT7511268	Seal ring	1
32	RT8611269	Screw f/accumulator	1
33	RT8211256	Plug	1
34	RT7621037	Pipe plug	4
41	RT7511300	O-ring	1
42	RT8211227	Distance piece	1
-	RT9011379	Seal kit	1

HBR-60spare parts list

Fig. 3



Pos.	Part No.	Description	Pcs.
1	RT8211205	Nose part Hex 1”	1
1	RT8211207	Nose part Hex 1-1/8” / 1-1/4”	1
2	RT8211220	Latch	1
3	RT8211221	Pin	1
4	RT8211217	Chisel bushing Hex 1” x 4-1/4”	1
4	RT8212743	Chisel bushing Hex 1-1/8” x 6”	1
4	RT8211218	Chisel bushing Hex 1-1/4” x 6”	1
5	RT7611238	Screw	2
6	RT7611239	Roll pin Hex 1”x 4-1/4”	1
6	RT7611242	Roll pin Hex 1-1/8” / 1-1/4” x 6”	1
7	RT7611240	Roll pin Hex 1” x 4-1/4”	1
7	RT7611241	Roll pin Hex 1-1/8” / 1-1/4” x 6”	1
8	RT8611222	Compression spring	1
-	801161	Nose part complete Hex 1” x 4-1/4”	1
-	801162	Nose part complete Hex 1-1/8” x 6”	1
-	801163	Nose part complete Hex 1-1/4” x 6”	1