

Hy-Ram

**Hydraulic
Impact
Breaker**

**Model
HR290**



ALLIED

Parts Manual - HY-RAM Series

Keep this manual in a convenient location so that it is easily accessible for future reference. Contact your Allied Dealer or the Allied Customer Service Department for replacement manuals. Inquiries regarding the content of this manual must include effective date shown on inside cover.



PM575473



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Continuous improvement of our products is an Allied policy. The material in this publication, including figures, captions, descriptions, remarks and specifications, describe the product at the time of its printing, and may not reflect the product in the future. When changes become necessary, these will be noted in the table below. Specifications are based on published information at the time of publication. Allied Construction Products, LLC, reserves the right to change, edit, delete or modify the content of this document, including descriptions, illustrations and specifications without prior notification. For product or document updates go to www.alliedcp.com.

Table of Revision History for PM575473

<u>Effective Date</u>	<u>Page</u>	<u>Summary of Change</u>
2014, Sep	20	Table 6.1 BR, SR Bolt part number change (Was-90566) Now 577485.
2013, Aug	9,10,11,12,16,17,18	Add detail to Fig. 6-2 gas seal orientation. Dimension change to wear plate with full interchangeability between old & new. Part #'s remain unchanged. With start of SN-01167 dimension change to front head, tool bushing and thrust ring. Add new part numbers and note serial number break points. Introduction of Auto grease port with SN-01172. Revise figures & add part #'s.
2011, Sep	9,11	Part number change 676202 was B2507120, 676204 was A2007110
2011, Aug	---	Original Issue of Parts Manual 575473

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1.0 Introduction & Scope

1.1 Purpose of This Manual

Table 1.1 About This Manual



Document ID.	PM575473
Type	Spare / Replacement Parts List
Current Status*	See Inside Cover
Product Name:	Mounted Hydraulic Impact Breaker
Series	Hy-Ram®
Applicable Model[s]:	HR290
Years of Manufacture:	Begin 2011
*Inquiries regarding this manual must include effective date shown on inside cover	

The material presented in this manual has been prepared in support of the product named in Table 1.1. It's intended solely for use with expressed model(s) and may be unsuitable with models unnamed.

The publication identified in Table 1.1 was created solely for information purposes and should not be considered all-inclusive. If further information is required, contact your local Allied dealer or the Allied Customer Service Department.

Parts Manuals do not include safety precautions or operating procedures. Figures depict views that are intended for parts identification and not for purposes of repair or service of the product. Material presented in this manual, including tables, figures, descriptions and captions, may show equipment that is optional.

How to use this Manual:

The Allied work tool consists of separate components and partial assemblies. Components are identified with the aid of figures, captions, item key, part name and quantity. If needed, 'remarks' and 'specifications' will further clarify the part's description or denote assignment with select unit(s) by serial number.

An order form is provided at the back of this manual. Prior to ordering parts, confirm that the information recorded on the equipment's identification label corresponds with Table 1.1. For the location of this label, refer to Section 2.0 of this manual.

The content of this document has been reviewed for accuracy. Allied Construction Products, LLC has

endeavored to deliver the highest degree of accuracy and every effort has made to provide information as complete as possible. However, continuous improvement of our products is an Allied policy. The material in this publication, including figures, captions, descriptions, remarks and specifications, describe the product at the time of its printing, and may not reflect the product in the future. A table of revision history for this document is found on the inside cover.

1.2 How To Order Replacement Publications

This manual is an integral part of this product. Keep it in a convenient location so that it is easily accessible for future reference. If replacement manuals are required, they may be ordered by contacting your Allied dealer service center. These manuals may also be viewed and downloaded at: www.alliedcp.com

1.3 Related Publications

Allied Construction Products, LLC offers the following publications for the product identified in Table 1.1.

1.3.1 Safety, Operation & Maintenance Manual

SOM577202

Applicable Models: Hy-Ram Series HR270-HR290

The Safety, Operation and Maintenance Manual has been prepared to assist the operator and maintenance personnel with the information necessary for the safe and proper use of the Allied work tool.

Material content of Safety, Operation & Maintenance Manual includes:

Safety Information

Where To Find the Serial Number and Model Identification of Equipment

Installation and Set-up - General Guidelines

Pre-Operation Inspection

How to Operate the Allied Work Tool

Maintenance Schedule

N2 Gas Charging Instructions

Tool and Guide Bushing – Lubrication, Inspection, Wear Limits of Parts and Tool Replacement

Troubleshooting

Removal of Allied Work Tool From Carrier,

Transporting, Lifting & Storage

Technical Data (Weight & General Dimensions)

1.0 Introduction and Scope – [cont'd]

1.3.2 AEM Safety Manual for Hydraulic Breakers

AEM Safety Manual for Hydraulic Breakers

The Association of Equipment Manufacturers offers a safety manual designed for operators and maintenance personnel of hydraulic mounted breakers. The manual is available in Spanish, French and English. It is published in an illustrated format of sensible do's and don'ts, featuring typical daily situations on the job site. Content includes safety tips concerning the workplace and equipment, start up and shut down guidelines and special operating and maintenance precautions.

This publication is available by contacting:
Association of Equipment Manufacturers
Toll free 1-866-AEM-0442
E-mail: aem@aem.org
Website: www.aem.org

Ask for FORM CMHB-1004, Hydraulic Mounted Breakers.

This publication is also available through Allied under part number 953076 (English). To order a copy, contact the Allied Customer Service Department.

2.0 Equipment Identification

2.1 Serial Number Location

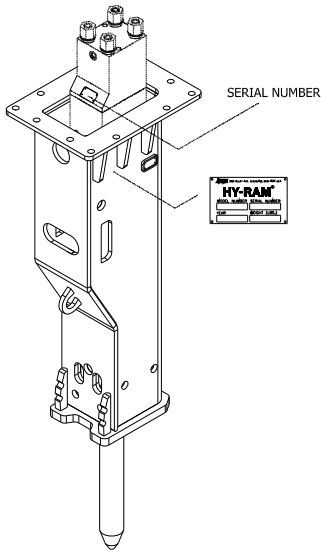


Fig 2-1 Equipment Identification

Refer to Figure 2-1. The Serial Number assigned to this equipment can be found in the following locations:

1. Stamped on the Equipment Identification Tag
2. Stamped on the back head near the N2 gas charging valve.

2.2 Equipment Identification Tag

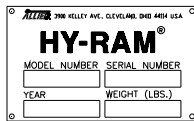


Fig 2-2 Equipment Identification Tag

The Equipment Identification Tag is affixed to the housing. It provides the following information:

- Manufacturer's name
- Address
- Product name
- Model number
- Serial number
- Year of manufacture
- Weight

Confirm that the information contained on the Tag corresponds with the information provided in Section 1, Table 1.1.

2.3 Owner's Record of the Equipment

Your local Allied dealer requires complete information about the equipment to better assist you with questions regarding parts, warranty, operation, maintenance, or repair.

- Record the equipment's serial number to the space provided below. This information may be obtained from the Equipment Identification Tag. Refer to Fig 2-1 for the location of the tag.
- Indicate the date in which the Allied equipment was placed into service.
- Indicate the date in which the Warranty Registration form was completed and returned to Allied.

Product Name: Hydraulic Breaker

Series: Hy-Ram

Model: HR290

Part Number: 575274

Serial Number: _____

In Service Date: _____

Registration Date: _____

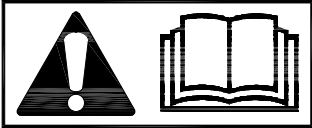


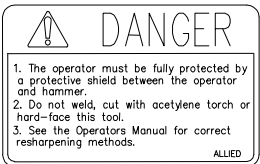

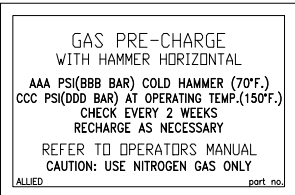
3.0 Safety, Identification & Information Labels

Label Description and Location

Labels affixed to the Allied equipment communicate important information. Safety labels alert personnel of potential hazards. Other labels provide product identification and instructions important to operation

and service. Keep labels clean so that words and illustrations are legible. Replace damaged or missing labels before operating this equipment. Refer to Table 3.2 for ordering information. Refer to Figure 3-15 for the position of the label on the equipment.

Table 3.1 Label Descriptions

Fig.	Label	Description
3-1		READ THE MANUAL – Safety Alert Symbol with pictogram of open book. It is important to read and understand information and follow instructions contained in the manual.
3-2		STAY CLEAR – Decal alerts personnel and by-standers to maintain a safe distance from the Breaker during operation.
3-3		FLYING DEBRIS – Alerts personnel to the hazard of fragments becoming projectiles. It directs personnel to the Safety, Operation and Maintenance Manual for instructions about the use of a shield between the breaker and machine to protect the operator from injury. NOTE: Place the smaller size decal in a conspicuous location inside the operator's cab.
3-4		TOOL SHARPENING – Decal warns against welding, cutting, or hard-facing the tool. It directs personnel to the Safety, Operation and Maintenance Manual for approved sharpening methods.
3-5		Pressurized Nitrogen Accumulator – Alerts personnel to the accumulator, warning of nitrogen gas under pressure. Directs personnel to the Safety Operation and Maintenance Manual for service instructions.
3-6		GAS PRE-CHARGE – Decal outlines measuring / charging the back head. Alerts personnel to the following – <ul style="list-style-type: none"> • Maintenance interval – every 2 weeks • Proper position when measured / charged • Charge pressure when COLD vs. HOT • Refers personnel to the Operation and Maintenance Manual • Cautions personnel to use N2 nitrogen gas only
3-7	REMOVED	

3.0 Safety, Identification & Information Labels

Table 3.1 Label Descriptions – [cont'd]

Fig.	Label	Description
3-8		LUBRICATION – Decal identifies the lubrication point, frequency and importance of proper positioning with contact pressure applied to tool before lubricating.
3-9		Lubrication Point – Decal identifies lubrication points. Refer to the manual(s) for grease type, re-lubrication schedules and procedures. Risk of equipment damage if instructions are not followed.
3-10		OIL SUPPLY LINE "PRESSURE" I.D. TAG – A red colored cable tie marked "PRESSURE LINE" is attached to the supply hose for ease of identification between hoses.
3-11		LIFT POINT – Decal identifies approved lift points.
3-12		ALLIED LOGO – This decal is the Allied brand identifier and is a registered trademark of Allied Construction Products, LLC.
3-13	HR290	MODEL – Decal identifies the specific model.
3-14		EQUIPMENT ID TAG - Contains identifying information about the equipment, including: Manufacturer's name, address, product name, model number, serial number, year of manufacture, and weight.

3.0 Safety & Information Labels

Table 3.2 Label Set

Item	Description	Part No.	Qty	Remarks / Specifications
---	Label Set	575483	1 (Set)	Set includes 1-13
1	Decal – Read Manual Instructions	676984	1	
2	Decal – Stay Clear	657841	2	
3	Decal – Danger (Large)	657840	1	
---	Decal – Danger (Small)	657839	1	Display in conspicuous location inside operator's cab
4	Decal – Tool Sharpening	657838	1	
6	Decal – Back Head N2 Pressure	676896	1	
7	Removed	N/A	---	Use is discontinued
8	Decal – Lube w/ Tool In	677334	1	
9	Decal – Lube Point	A101725	1	
10	Tag - Pressure ID	818676	1	Identifies oil supply line "IN"
11	Decal – Lift Point	676982	1	
12	Decal – Allied	676655	1	
13	Decal – Model HR290	575493	1	
14	Tag - Equipment ID	658833	1	Item 14 is not included in Set

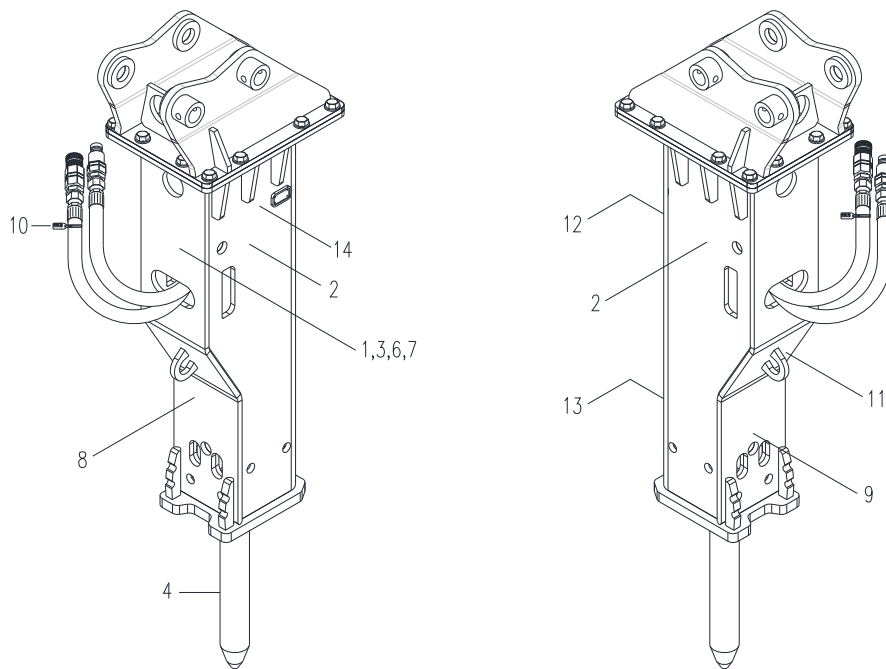


Fig. 3-15 Label Positions

4.0 Housing Box and Components

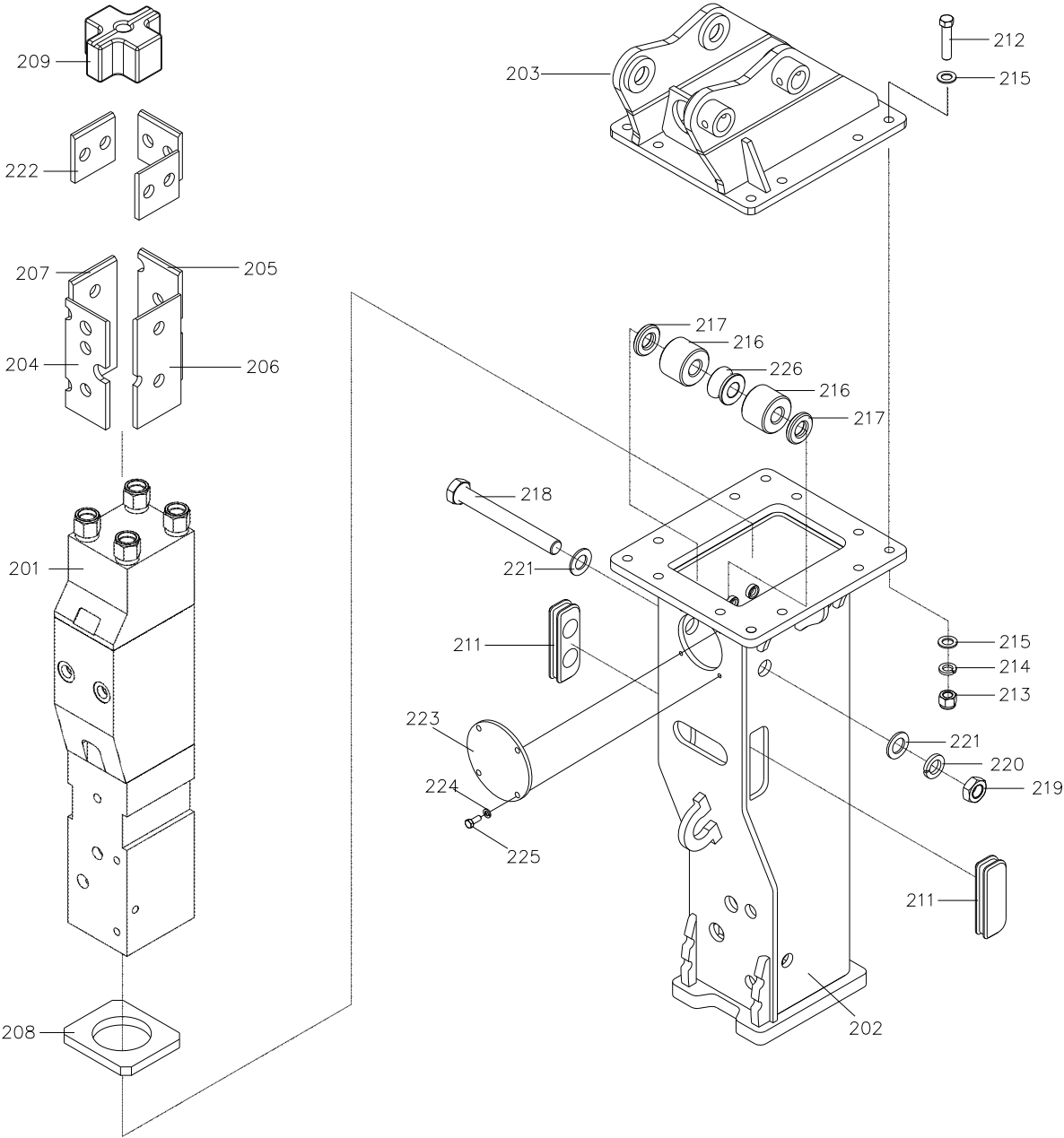


Fig. 4-1 Housing Box and Components

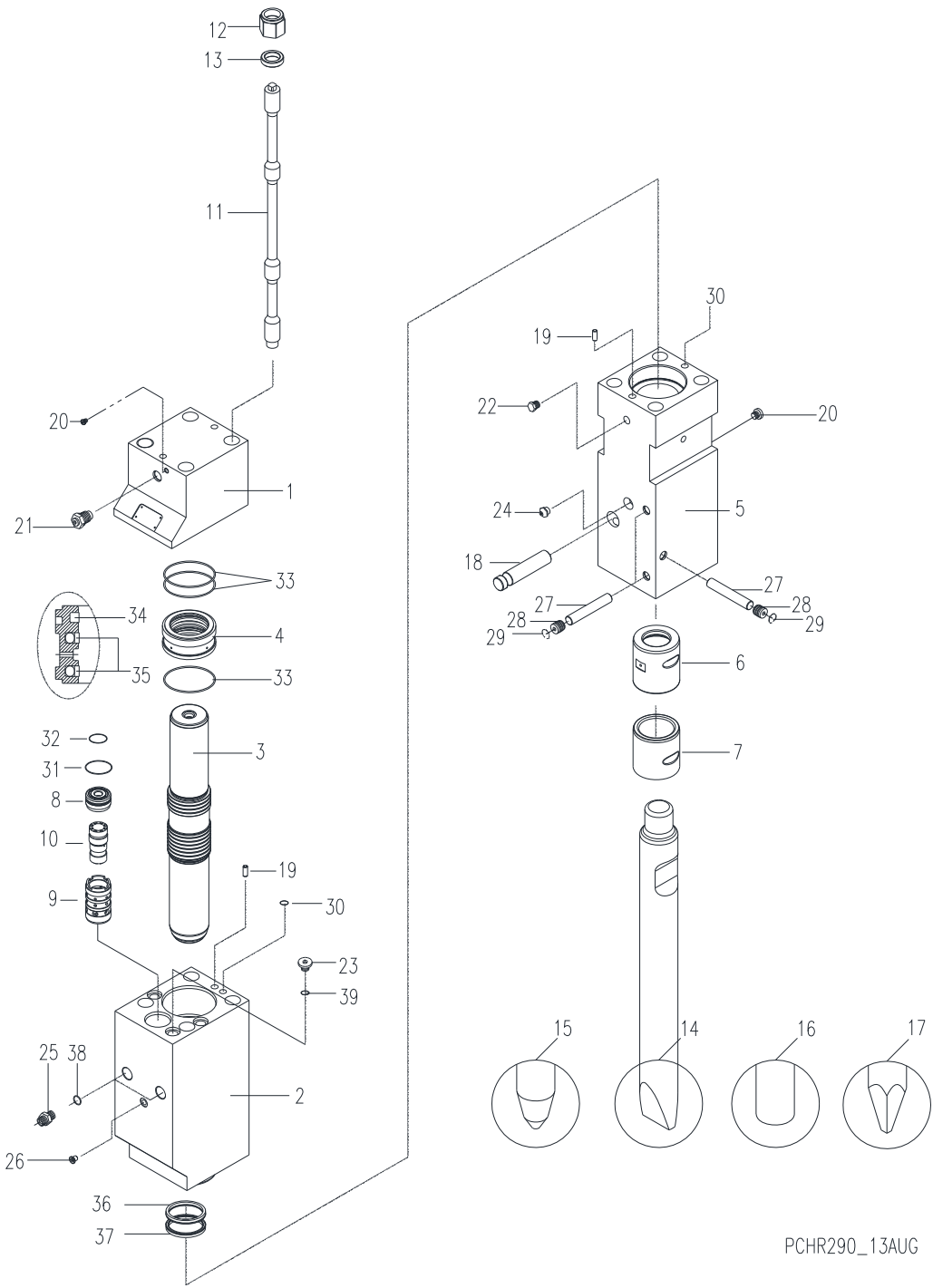
4.1 Housing Box & Components

Table 4.1 Housing Box & Components

Item	Description	Part No.	Qty	Remarks / Specifications
---	HY-RAM HR290	575274	1	Standard Configuration – BR
201	Breaker Assembly	---	1	
202	Housing Box	575548	1	Standard Configuration - BR
203	Mounting Bracket - BR	Varies	---	Not included. Refer to Section 6
204	Wear Plate	A0802100	1	¹⁾ Dimension change – interchangeable old-to-new
205	Wear Plate	A0802110	1	¹⁾ Dimension change – interchangeable old-to-new
206	Wear Plate	A0602120	1	¹⁾ Dimension change – interchangeable old-to-new
207	Wear Plate	A0602130	1	¹⁾ Dimension change – interchangeable old-to-new
208	Base Buffer	A0802140	1	
209	Top Buffer	A1006250	1	
211	Side Rubber	A0602190	2	
212	Bolt	---	---	Items 212,213,214,215 Refer to Section 6
213	Nut	---	---	
214	S/Washer	---	---	
215	F/Washer	---	---	
216	Side Buffer	A0803290	2	
217	Side Washer	A0812090	2	
218	Side Joint Bolt	HB3035260	1	M30
219	Side Joint Nut	NN303500	1	M30
220	S/Washer	SW300000	1	M30
221	F/Washer	PW300000	2	M30
222	Wear Plate	A0602200	3	¹⁾ Dimension change – interchangeable old-to-new
223	Cover Plate	B150A240	1	
224	S/Washer	940237	4	M10
225	Hex Bolt	965306	4	M10 x 25
226	Side Washer	A0803300	1	

¹⁾ Dimension change to wear plates – Full interchangeability old-to-new is preserved. Part numbers unchanged.

4.2 Breaker Assembly



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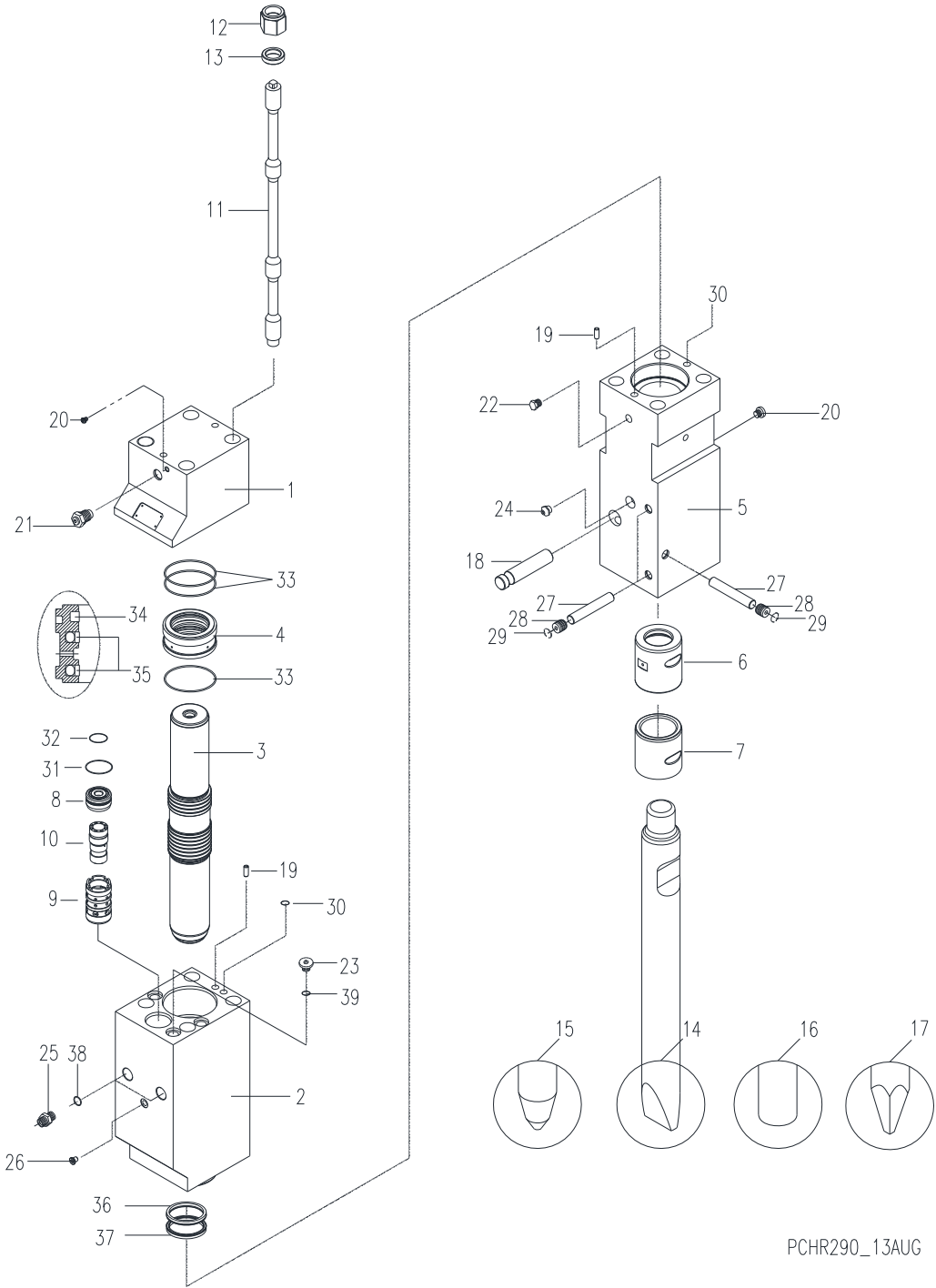
Fig. 4-2 Breaker Assembly

4.2 Breaker Assembly

Table 4.2 Breaker Assembly

Item	Description	Part No.	Qty	Remarks / Specifications
201	Breaker Assembly	---	1	
1.0	Back Head	A0806010	1	Serial No. 01171&DN
1.1		A0806640		Serial No. 01172&UP
2.0	Cylinder	A0806020	1	Serial No. 01171&DN
2.1		A0806660		Serial No. 01172&UP
3	Piston	A0806030	1	
4	Seal Housing	A0806040	1	
5.0	Front Head	A0806550	1	Serial No. 01153&DN
5.1		A0806590		Serial No. 01167 thru 01171
5.2		A0806690		Serial No. 01172&UP
6.0	Thrust Ring	A0806560	1	Serial No. 01153&DN
6.1		A0806610		Serial No. 01167&UP
7.0	Tool Bushing	A0806570	1	Serial No. 01153&DN
7.1		A0806600		Serial No. 01167&UP
8	Valve Plug	A0806080	1	
9	Oper. Valve Guide	A0806090	1	
10	Oper. Valve Spool	A0806100	1	
11	Side Rod	A0806110	4	
12	Side Rod Nut	A0806120	4	
13	Side Rod Washer	A0806130	4	
14	Tool Selection	Varies	1	For Items 14,15,16,17 Refer to Section 4.4
18	Tool Pin	A0806190	1	
19	Stop Pin	B4006370	2	
20	Socket Plug	102241	1	
21	Gas Charging Valve	A3006590	1	
22	Socket Plug	A4006530	1	
23	Socket Plug	A0606180	3	
24	Grease Nipple	816675	1	
25	Adapter	B1306320	2	
26	Socket Plug	B4006530	1	
27	Bushing Pin	A0806170	3	
28	Rubber Plug	676243	3	
29	Snap Ring	B1006440	3	

4.2 Breaker Assembly – [cont'd]



PCHR290_13AUG

Fig. 4-2 Breaker Assembly

4.2 Breaker Assembly – [cont'd]

<u>Item</u>	<u>Description</u>	<u>Part No.</u>	<u>Qty</u>	<u>Remarks / Specifications</u>
30	O-Ring	571004	2	Serial No. 01172&UP
31	O-Ring	A0807500	1	
32	O-Ring	A0807600	1	
33	O-Ring	676202	3	
34	Gas Seal	A0807100	1	
35	Step Seal	A0807200	2-Sets	Packaged as a set. Includes O-ring
36	U-Packing	A0807110	1	
37	Wiper	A0807120	1	
38	O-Ring	676204	2	
39	O-Ring	A2507380	3	

4.3 Hydraulic Connections

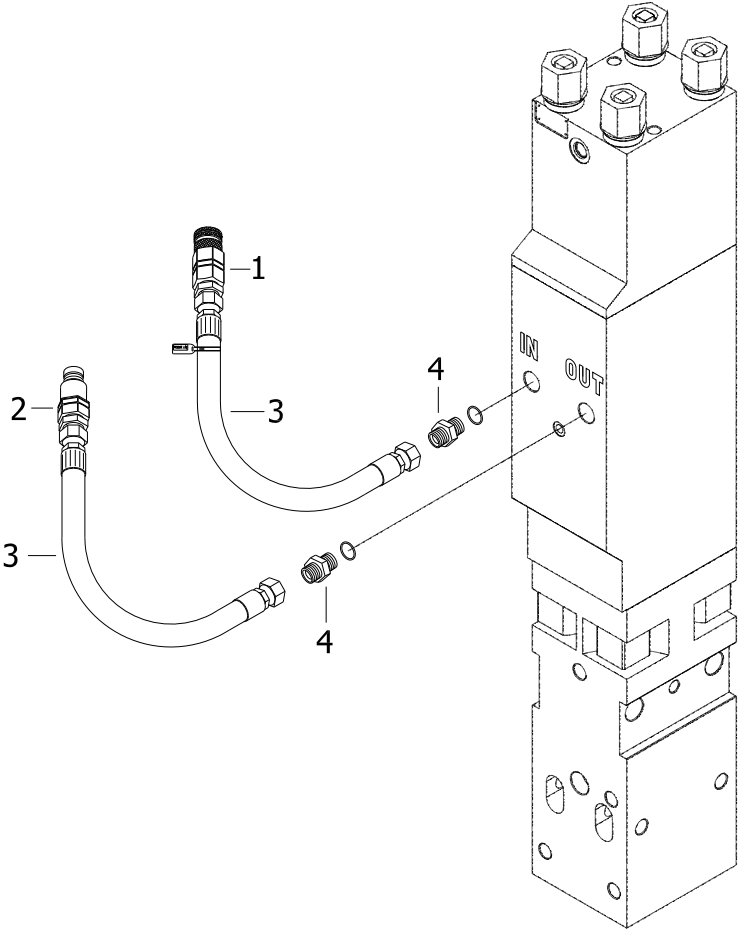


Fig. 4-3 Hydraulic Connections

Table 4.3 Hydraulic Connections

<u>Item</u>	<u>Description</u>	<u>Part No.</u>	<u>Qty</u>	<u>Remarks / Specifications</u>
1	Quick Disconnect - Socket	101571	1	
2	Quick Disconnect - Plug	101570	1	
3	Hose	570368	2	
4	Adapter	667710	2	

4.4 Tool Selection Guide

4.4.1 Standard Tools

The three most commonly used tool points for concrete demolition rock cutting and boulder reduction are the Chisel, Conical and Blunt.

A. Chisel (Wedge – Cross Cut or In-Line) – Suitable applications include soft rock and general demolition of concrete. The tool penetrates into the material, forcing it to

separate. Useful when cutting action is required, e.g. benching and trenching.

- B. Conical Point** - The conical point penetrates the material and its shape makes it less prone to twisting which can lead to burring of the tool's retainer pin.
- C. Blunt Tool** – Designed for impact breaking. The blunt tool is effective in secondary breaking of oversize rock or boulder reduction.

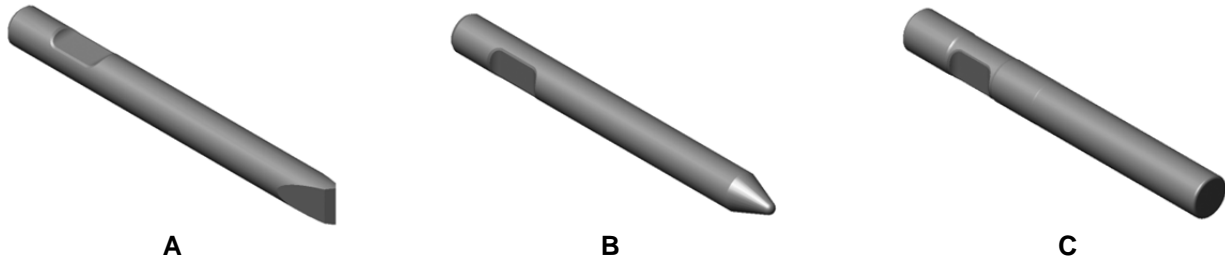


Fig. 4-5 Standard Tool Types A thru C.

4.4.2 Specialty Tools

Specialty tools have a specific purpose or function designed into each tool. These tools can extend the versatility of a breaker, thus increasing productivity and eliminating the need for additional equipment. For availability of tool types not listed, contact Allied.

- D. Post Driver** – For driving posts, pipes, etc.
- E. Tamper** – Designed to compact loose material.
- F. Frost Cutter** – For cutting into frozen ground.
- G. Asphalt Cutter** – Designed to cut seams in asphalt for removal. Useful when removing asphalt to dig a trench. Available in Cross-Cut and In-Line configurations.

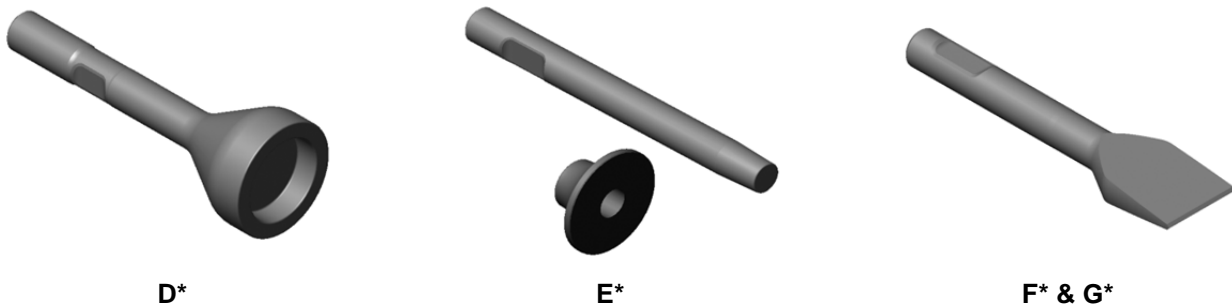


Fig 4-6 Specialty Tool Types D thru G.

General illustrations are shown. Actual tool design may vary.
*Not available for all models.

4.4 Tool Selection Guide

Table 4.4 Standard Tools

<u>Item</u>	<u>Description</u>	<u>Part No.</u>	<u>TD x WL in. [mm]</u>	<u>Weight lbs. [kg]</u>
14-B	Conical Point	575384	2.93 [74.5] x 16 [416]	51 [23]
15-A¹	Chisel Cross Cut	575264	2.93 [74.5] x 16 [416]	51 [23]
---	Chisel In-Line	--- ²	2.93 [74.5] x 16 [416]	51 [23]
16-C	Blunt End	575394	2.93 [74.5] x 16 [416]	53 [24]
17 ²	Pyramid (Not Pictured)	--- ²	2.93 [74.5] x 16 [416]	51 [23]

¹) **Standard tool supplied with Breaker In Bold**

²) For availability of tool types not listed, contact Allied

³) TD- Tool Diameter

⁴) WL-Working Length

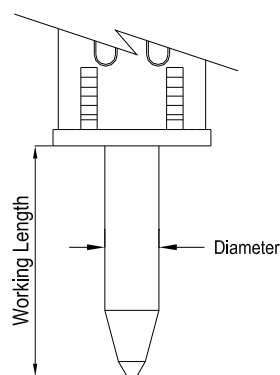


Fig. 4-6 Tool Working Length

4.6 Lubricant For Bushing and Tool

4.6.1 Allied Chisel Paste

Wear costs money, sometimes lots of money. Without lubrication to prevent metal-to-metal contact, bushings and tools will quickly wear from friction related damage.

A key element in managing wear of the bushing and tool is through the regular use of a high-quality lubricant. Formulated as a 'specialty' lubricant, Allied Chisel Paste is ideally suited for use in applications requiring long-lasting protection against damage from heavy loaded, sliding motion and high heat.

Allied Chisel Paste performs exceptionally well in this application due to its 'unique blend' of liquid and dry film lubricants. Dry film lubricants, which include solids of molybdenum, graphite and copper, combine to form a highly effective layer that resists being squeezed out during periods of heavy loading (extreme pressure).

Grease labeled 'General / Multi-Purpose' will typically contain only modest amounts of solid lubricants or none at all. When the tool is loaded against the bushing, the liquid lubricant is squeezed out, leaving metal surfaces unprotected.

4.6.2 Packaging / Ordering Information

Table 4.5 Chisel Paste

<u>Part No.</u>	<u>Packaging</u>
574430	Case of 10 cartridges*
574431	Case of 30 cartridges*
676698	Bucket, 35# (5 gallons)
679968	Keg, 120# (15 gallons)

* 14 oz. cartridge fits standard grease gun

5.0 Service Kits and Tools

5.1 Tune-up Kit

All breakers require regular maintenance and periodic parts replacement. Follow the recommended service schedule to maintain reliable service.

Tune-up kits can help restore performance by replacing common wear parts. Tune-up kits offer the convenience of combining parts that usually need to be replaced at the same time into one pre-packaged kit.

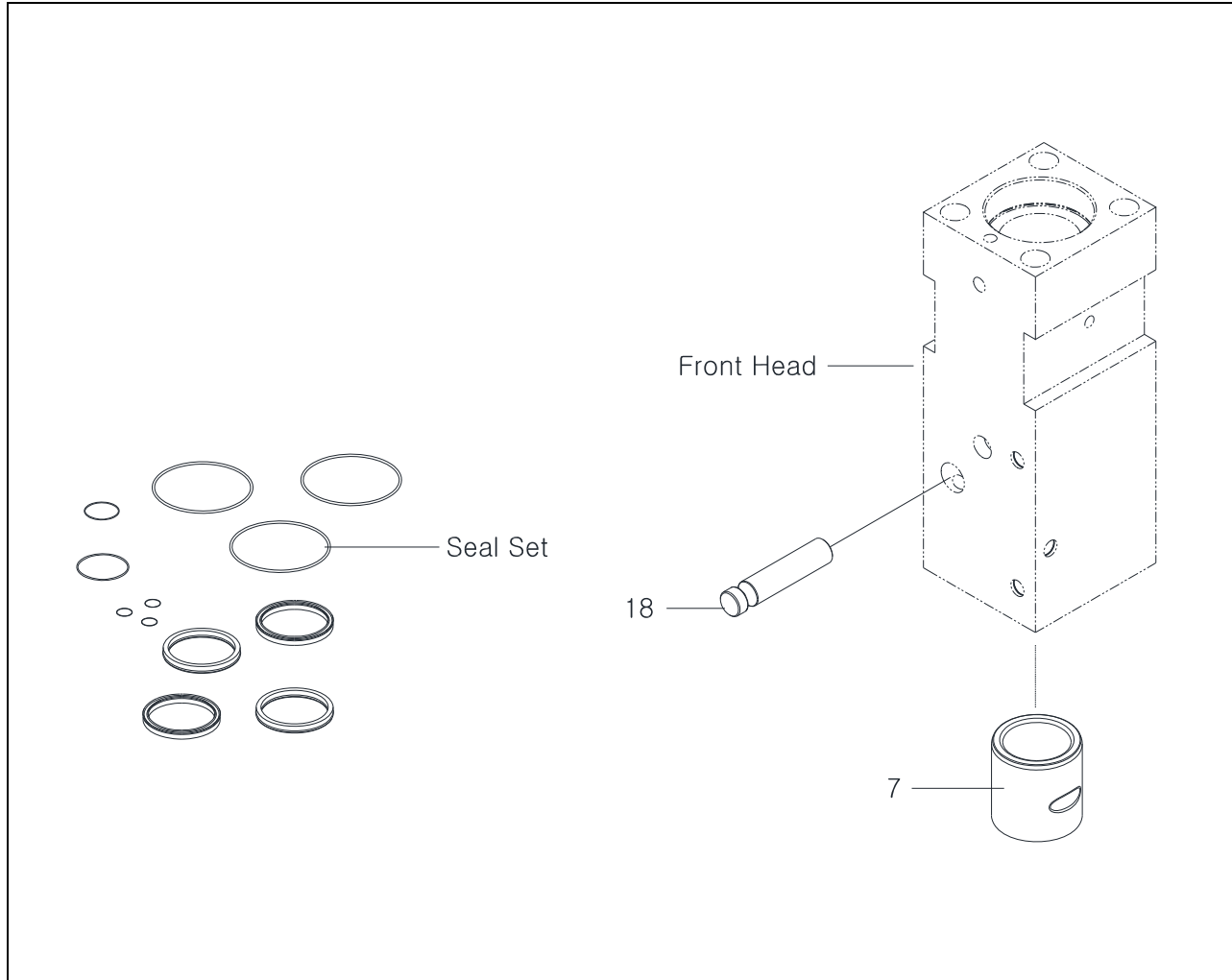


Fig. 5-1 Tune-up Kit

Table 5.1 Tune-up Kit

Item	Description	Part No.	Qty	Remarks / Specifications
---	Tune-up Kit	575405	1	Serial No. 01153&DN
		576765		Serial No. 01167&UP
---	Seal Set	575415	1	
7.0	Lower Tool Bushing	A0806570	1	Serial No. 01153&DN
7.1		A0806600		Serial No. 01167&UP
18	Tool Pin	A0806190	1	

5.0 Service Kits and Tools

5.2 Seal Set - 575415

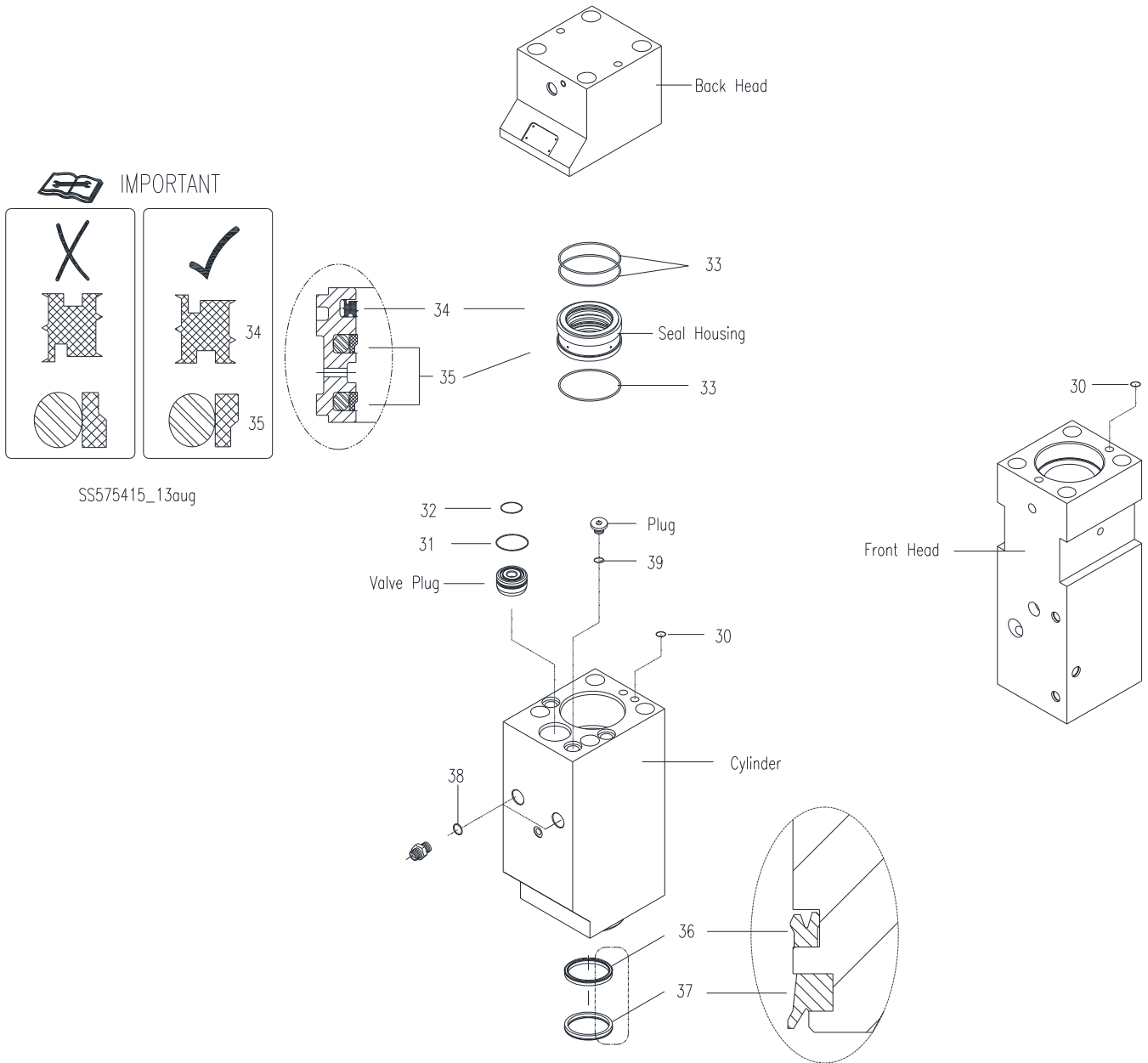


Fig. 5-2 Seal Positions / Orientation



Follow Assembly Instructions

5.0 Service Kits and Tools

Table 5.2 Seal Set

Item	Description	Part No.	Qty	Remarks / Specifications
---	Seal Set	575415	1	Set all items in Table 5.2
30	O-Ring	571004	2	Serial No. 01172&UP
31	O-Ring	A0807500	1	
32	O-Ring	A0807600	1	
33	O-Ring	676202	3	
34	Gas Seal	A0807100	1	
35	Step Seal	A0807200	2-Sets	
36	U-Packing	A0807110	1	
37	Wiper	A0807120	1	
38	O-Ring	676204	2	
39	O-Ring	A2507380	3	
---	Thread Lube	676927	1	Follow application instructions

IMPORTANT

Contamination interferes with reliable operation and will shorten component life. Prevent dirt and debris from entering the hydraulic system. Always work in a clean area. Keep seals properly stored in their original sealed package until ready for use.



IMPORTANT

Refer to the manual for proper assembly.



IMPORTANT

Seal Set includes packet of Thread Lube. Apply thread lube to side rods at assembly. DO NOT apply Thread Lube to seals!

5.0 Service Kits and Tools

5.3 N2 Gas Charge Tool - General Description

Designed for use with all Hy-Ram models, the charge kit adapts to both the back head and accumulator¹⁾. Periodic checking of the back head pressure will detect whether it is sufficiently charged. Proper function of the breaker is accomplished through accurate charging.

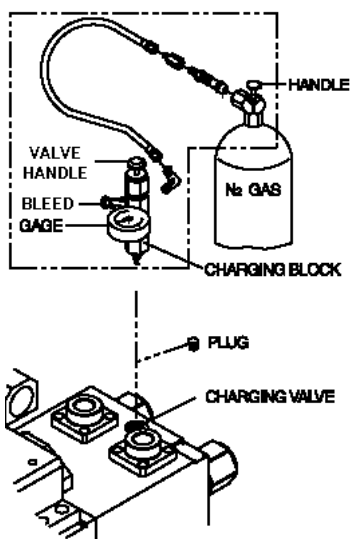


Fig. 5-3 N2 Charge Pressure - Back Head

The accumulator¹⁾ is a self-contained pressure vessel with a flexible membrane dividing the inner chamber. The lower chamber is used to receive, store and discharge pressurized oil. Pressurized gas is stored in the upper chamber. Reliable operation of the breaker along with optimal membrane life is accomplished through proper filling of the charge pressure.

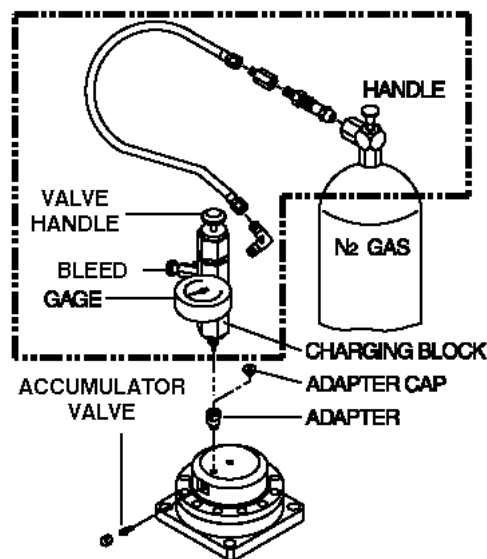


Fig. 5-4 N2 Charge Pressure - Accumulator¹⁾

Table 5.3 N2 Gas Charge Tool

Item	Description	Part No.	Qty	Remarks / Specifications
---	N2 Gas Charge Kit	575427	1	Kit includes 2,3,4,5
---	Charge Valve with Gauge	---	1	"Charging Block"
---	Extension	---	1	"Adapter"
---	Hose	---	1	
---	Gas Bottle Adapter	---	1	
---	N2 Gas Bottle	N/A	---	Source nitrogen bottle locally.



Read, understand and follow all instructions given in Operation & Maintenance Manual 577202 for the safe and proper use of this tool.

¹⁾ Not all Hy-Ram models are equipped with an accumulator

6.0 Mounting Bracket Information

6.1 Mounting Brackets – Not Included

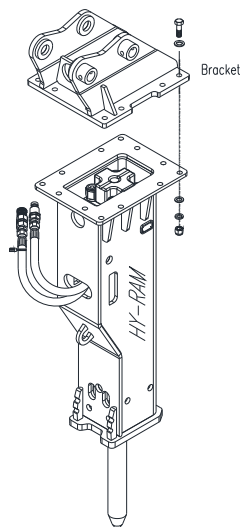


Fig. 6-1 Housing Box, Mounting Bracket & Bolt Set

Hy-Ram series breakers come without mounting. Allied offers an array of mounting brackets to fit virtually any carrier, including those equipped with pin-grab or hook style mounting couplers.

To order a mounting bracket, complete information about the carrier (and coupler) is required: including the make, model, series and serial number.

The mounting bracket is bolted to a connection plate located at the top of the housing box. Refer to Figure 6-2. The thickness of the plate, as well as other dimensions, including the quantity, diameter and spacing of the bolt holes will vary between breaker models.

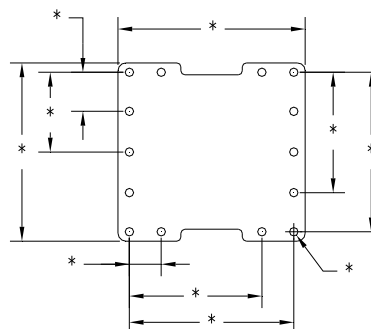


Fig. 6-2 Connection Plate – Dimensions Vary

In Table 6.1, 'Family' identifies the connection plate that's been appointed to the standard housing box. Other work tools from Allied, including the Ho-Pac[®], share the same Family types.

Table 6.1 Mounting Family & Hardware (Qty)

Family	Model	Bolt	FL Washer	LK Washer	Nut
XR	HR175	575555 (7)	667628 (5)	100088 (7)	575652 (7)
XR	HR230	901382 (7)	667628 (5)	100088 (7)	575652 (7)
BR	HR270	577485 (12)	921825 (24)	056245 (12)	90548 (12)
BR	HR290	577485 (12)	921825 (24)	056245 (12)	90548 (12)
SR	HR330	575556 (12)	798064 (24)	100088 (12)	575652 (12)
SR	HR390	951390 (12)	798064 (24)	100088 (12)	575652 (12)
MR	HR470	575557 (12)	901291 (24)	658529 (12)	90507 (12)
MR	HR560	575557 (12)	901291 (24)	658529 (12)	90507 (12)
LR9	HR600	90520 (12)	573029 (24)	573028 (12)	90519 (12)
LR10	HR710	573167 (12)	573029 (24)	573028 (12)	90519 (12)



The recommended tightening torque of fasteners can be found in the Safety, Operation and Maintenance Manual 577202.

9.0 How To Order Spare Parts

Your local Allied dealer requires the Product Name, Model and Serial Number to better assist you with questions regarding parts, warranty, operation, maintenance, or repair. This information should be noted in Section 2.3 of this manual.

Product _____
 Model _____
 Serial No. _____

Complete information is required

Line	Description	Part Number	Quantity	Price
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Your contact information

Your Name _____ Company Name _____
 Phone _____ Account Number _____
 Fax _____ Purchase order _____
 Email _____ Shipping carrier _____

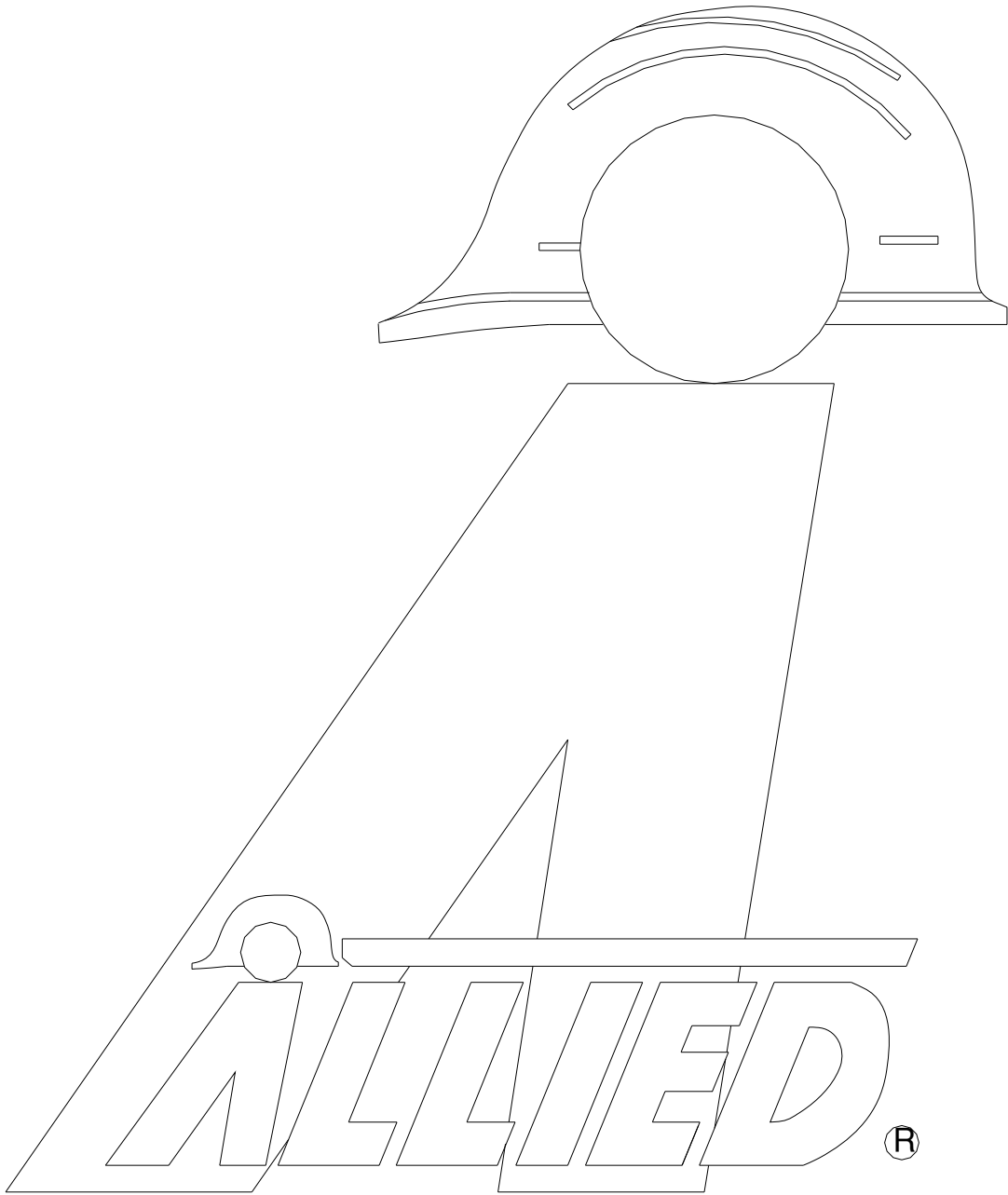
*See note below

Billing Address _____ Shipping Address _____

***Note: All backordered parts will be shipped when available via the same method as the original order unless initialed and checked below:**

Initials _____
 Ship complete order only
 Ship available parts and contact customer on disposition of backordered parts
 Other – specify below

NOTES



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