AR Series

Hydraulic Impact Breaker

Model
AR70D
AR75B
AR85B
AR95B

ALLIED

Safety, Operation and Maintenance

Thoroughly read and understand the content of this manual before using the Allied Breaker. The safe and efficient use of the Allied equipment depends upon proper installation, operation, maintenance and training.

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.

SOM576778

Contact Information

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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 Document No. SOM576778

Effective Date	Page	Summary of Change
2015, Apr		Housing Box – AR85B Begin S/N-01213 Housing Box – AR95B Begin S/N-01114
2014, Apr	41	Revise Table 14.1
2013, Dec	41,42	Revise Table 14.1, 14.2. Auto Grease (AG) port introduced on units after September 2013 (AR85B Begin S/N-01172 & AR95B begin serial number 01093)
2013, Sep	All	Original issue of 576778. This issue includes the introduction of the model AR70D. In addition, this document supports existing models AR70D, AR75B, AR85B & AR95B. These models are no longer supported in Publication 002065.

Safety Information

Safety Statements and Hazard Alerts

Safety messages appear throughout this manual and on labels affixed to the Allied equipment. Read and understand the information communicated in safety messages before any attempt to install, operate, service or transport the Allied equipment.

Keep all safety labels clean. Words and illustrations must be legible. Before operating this equipment, replace damaged or missing labels.

Purpose of Safety Messages

Information provided in safety messages is important to your safety. Safety messages communicate the extent, magnitude and likelihood of injury associated with unsafe practices such as misuse or improper handling of the Allied equipment. Safety messages also explain how injury from potential hazards can be avoided.

Safety messages presented throughout this manual communicate the following information:

1. **Alert** personnel to potential hazards
2. **Identify** the nature of the hazard
3. **Describe** the severity of the hazard, if encountered
4. **Instruct** how to avoid the hazard

Safety Alert Symbol

The safety alert symbol is represented by the exclamation point within an equilateral triangle. This symbol means - **ATTENTION, BECOME ALERT, YOUR SAFETY IS INVOLVED.**

Fig. S1 Safety Alert Symbol

The Safety Alert Symbol (Fig. S1), either used alone or in conjunction with a signal word, is used to draw attention to the presence of potential safety hazards.

Signal Words

“DANGER”, “WARNING” and “CAUTION” are signal words used to express severity of consequences should a hazard be encountered.

DANGER - Indicates an imminent hazard, which, if not avoided, **will** result in death or serious injury.

WARNING - Indicates an imminent hazard, which, if not avoided, **can** result in death or serious injury.

CAUTION - Indicates hazards which, if not avoided, **could** result in serious injury or damage to the equipment.

Pictograms

Safety messages may also include a pictogram in addition to the safety alert symbol and signal word. Pictograms provide another component of information that will further enhance the effectiveness of the hazard communication.

CAUTION

Burn injury from contact with hot surface. Some components become hot during operation. Allow parts and fluids to cool before handling.

Fig. S-2 Components of Safety Message - Typical

Signal Words Used for Non-Hazard Messages

Other message types appearing in this manual utilize signal words 'IMPORTANT' and 'NOTE'. These contain messages that describe instructions and suggestions, but are not safety-related.

IMPORTANT – Identify instructions that if not followed, may diminish performance; interrupt reliability and production or cause equipment damage.

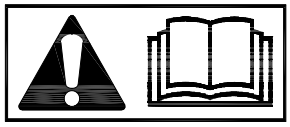
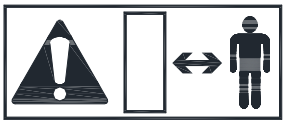
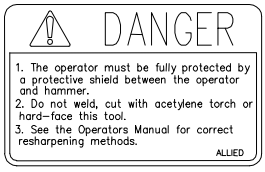
NOTE – Highlight suggestions, which will enhance installation, reliability, or operation.

Safety Information – [cont'd]

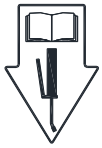
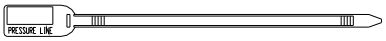
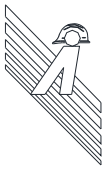
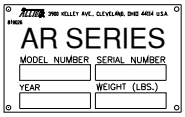
Safety, Information and Identification Labels

Information labels affixed to the Allied equipment include safety warnings, identification and instructions important to operation and service. Refer to Figure "L-15" for their location on the equipment.

Keep all safety labels clean. Words and illustrations must be legible. Before operating this equipment, replace damaged or missing labels. For replacement, refer to the appropriate Parts Manual for identification.

Fig.	Label	Description
L1		**READ INSTRUCTIONS** - Decal directs personnel to the manual for further information / instructions.
L2		**STAY CLEAR** – Decal alerts personnel and by-standers to maintain a safe distance from the Breaker while in operation.
L3		**FLYING DEBRIES** – Decal alerts of the risk of injury from impact by rock fragments. Protective guards must be placed between the breaker and operator to shield against material fragments becoming projectiles. It directs personnel to the safety instructions in the Operator's Manual. **NOTE: Place the smaller size decal in a conspicuous location inside the operator's cab.**
L4		**TOOL SHARPENING** – Decal warns against welding, cutting, or hard-facing the tool. It directs personnel to the Operator's Manual for approved sharpening methods.
L5		**PRESSURIZED NITROGEN ACCUMULATOR** – Decal warns of pressurized gas and directs personnel to the Repair Manual for service instructions.
L6	---	**REMOVED – USE DISCONTINUED**
L7		**LIFT POINT** – Decal identifies approved lift points.

Safety Information – [cont'd]

Fig.	Label	Description
L8		**LUBRICATION** – Decal emphasizes key re-lubrication instructions, including; frequency and precautions that must be observed to ensure breaker is not damaged through unapproved methods.
L9		**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.
L10		**PRESSURE I.D. TAG** - The hydraulic supply hose is tagged for ease of identification.
L12		**ALLIED LOGO** – This decal is the Allied brand identifier and is a registered trademark of Allied Construction Products, LLC.
L11		**ALLIED LOGO** – This decal is the Allied brand identifier and is a registered trademark of Allied Construction Products, LLC.
L13	**AR70D**	**MODEL** – Decal identifies the specific model.
L14		**ID Tag** - Contains identifying information about the equipment, including: Manufacturer's name, address, product name, model number, serial number, year of manufacture, and weight.

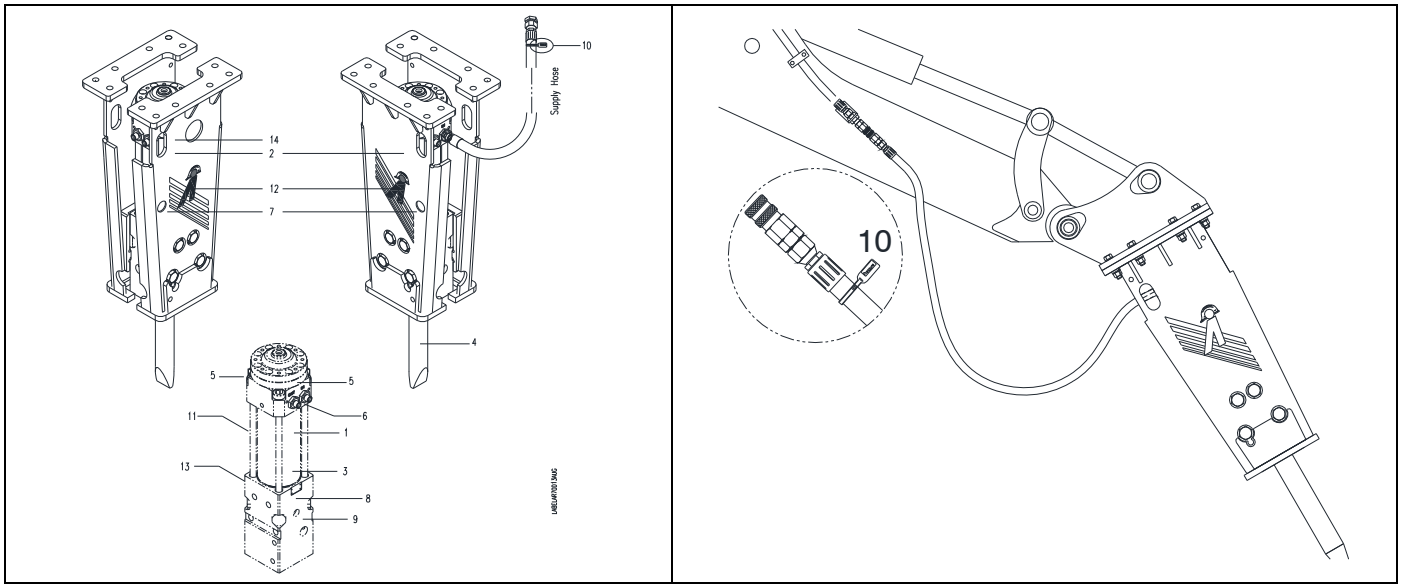


Fig. L15 Label Positions

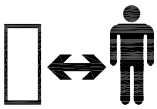
Safety Information – [cont'd]

Meaning of Pictograms

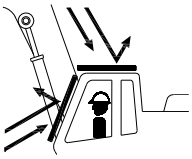
Pictograms are used to rapidly communicate information. For the purposes of this manual and labels affixed to the Allied equipment, pictograms are defined as follows:

- Read the manual
- Refer to the manual for further details
- Procedures are explained in the manual

Read the Service Manual For Additional Information



Personnel maintain a safe distance from breaker



Protective guards required on cab when operating this work tool

- Fragments / debris becoming airborne projectiles

- Falling object
- Unsupported loads

Personal Protection Equipment

- Hearing protection

- Safety eyewear

- Gloves

- Safety shoes
- Falling part

Moving part (in direction indicated by arrow)

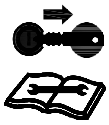
Pinch point

Crush point

Leaking fluid under pressure

Hot surfaces

Gas / Oil under pressure



Shut off carrier & remove key before servicing

Identifies lift point

Prohibited actions must be avoided to prevent injury and/or equipment damage

A prohibited action is identified with an X-out or a circle with a diagonal slash.

The check mark symbol is used to indicate actions and methods that are recommended, correct and approved

Safety Information – [cont'd]

Attention Read the Manual

Improper installation, operation or maintenance of the Allied equipment could result in serious injury or death. Only qualified operators may operate the Allied equipment. Personnel responsible for the maintenance of the Allied equipment or its systems, including inspection, installation or adjustments must also be qualified. Operators and personnel responsible for maintenance of this equipment should read this manual. Other manuals, such as those published by the machinery used in support of the Allied equipment, should also be read.

Qualified Person

For the purposes of this manual, a qualified person is an individual that has successfully demonstrated or completed the following:

- Has read, fully understands and adheres to all safety statements in this manual.
- Is competent to recognize predictable hazardous conditions and possess the authorization, skills and knowledge necessary to take prompt corrective measures to safeguard against personal injury and/or property damage.
- Has completed adequate training in safe and proper installation, maintenance and operation of this Allied equipment.
- Is authorized to operate, service and transport the Allied equipment identified in Table 1.1.

Safety Information Overview

It's important for all personnel working with the Allied equipment to read this manual in its entirety. It contains important safety information that must be followed so that unsafe situations may be avoided. Safety information described at the beginning of this manual is generic in nature. As you continue reading through later sections of this manual, instructions and safety information become tool-specific and operation-specific.

Allied has made every effort to provide information as complete and accurate as possible for this document. Allied cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this manual and labels affixed to the Allied attachment are therefore not all inclusive.

General Construction Safety

Always follow procedures that promote safe conditions for workers and bystanders. The standard safety precautions expected and required of those working in construction shall include, but not limited to:

- Locating existing underground service and utility lines
- Establishing pedestrian barriers
- Using personnel protection equipment appropriate to working conditions, etc.

Federal, State, Local and OSHA Construction Guidelines and Regulations

Use the Allied equipment in accordance with all federal, state and local regulations regarding construction practices and public safety. Identification of, and compliance to, governing regulations are the responsibility of the owner and operator.

In the United States, comply with the recommendations of the Occupational Safety and Health Administration standards of the U.S. Department of Labor. For OSHA construction guidelines contact your local federal government office or write:

U.S. Government Printing Office Superintendent of Documents P.O. Box 371954 Pittsburgh, Pa. 15250-7954
Website: www.osha.gov

Ask for Construction Industry OSHA Standards Stock #869-034-00107-6.

Owner's Responsibilities

Ensure that only qualified personnel operate and service the Allied equipment.

Ensure personnel protection equipment is available to personnel and enforce the use of PPE

Ensure equipment is kept in safe operating condition

Ensure safety-related materials such as instructions and including this manual are kept in a convenient location so that they are easily accessible to operators and maintenance personnel.

Safety Information – [cont'd]

Operational Safety Program

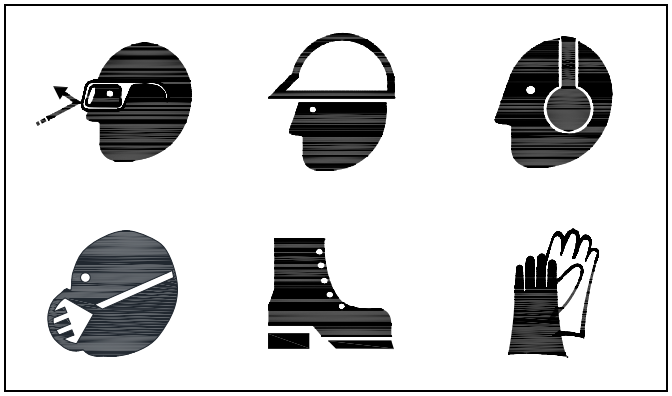
The safe and efficient use of the Allied equipment depends upon proper installation, operation, maintenance and repair. Operational safety programs must encompass all of these elements.

Accident prevention through operational safety programs are most effective when the equipment owner further develops the program by taking into account his own experience in using and maintaining equipment.

Developing such programs will help minimize equipment downtime, while maximizing service life and performance. Most importantly, it will minimize the risk of personal injuries.

Personal Protection Equipment (PPE)

Personal protection equipment (PPE) must be available to any personnel operating or nearby the equipment that may be exposed to hazards such as falling, flying and splashing objects, or harmful dusts, fumes, mists, vapors, or gases. Approved PPE, when used correctly, helps protect against certain harmful effects from exposure with the identified hazard.



Examples of PPE include safety eyewear, safety hat, hearing protection, dust mask, safety footwear, and gloves. (Shown Pictograms of PPE is not all-inclusive).

Those responsible for administering PPE shall train personnel with the proper selection and use of PPE to protect against misuse.

Safety Guards and Protective Barriers

A safety guard is a physical barrier designed to prevent access to danger areas. Guards are fitted to the Allied equipment to protect against unsafe situations that could not be eliminated through design measures. Guards are only effective when properly installed and in place. Guards shall not be removed unless for the purpose of inspection and service of components. Reinstall all guards after service or adjustments are completed.

Where it was not possible to prevent an unsafe situation by means of a guard, safety messages appear on the equipment, warning personnel of a recognized hazard.

Additional guarding, not included with the Allied equipment, is necessary at the operator's station to protect the operator and other nearby personnel against flying debris from material being cut or demolished. Do not handle, demolish or cut material overhead without proper guards installed.

The control switch shall be located in a protected area that is guarded against accidental operation of the Allied work tool.

Unapproved Use or Modifications

In order to provide and maintain efficient operation with reliable service, while ensuring operator safety, the Allied equipment may not be used for any purpose other than, for which it was intended. Use of the Allied equipment, other than those cited in this manual, may place personnel at risk of injury and/or may subject the equipment to damage.

When making repairs, use only the manufacturer's genuine parts. Substitute parts may not meet the required standards for fit and quality, or may impair function, safety and performance. The Allied equipment shall not be modified or used in unapproved applications unless written consent is received from the Allied Engineering Department.

Table of Contents

Table of Contents - [cont'd]

List of Figures

List of Figures and Tables

1.0 Introduction and Scope

1.1 About this Manual

Table 1.1 About This Manual

Document ID No.	SOM5767778
Type	Safety, Operation and Maintenance
Current Status	See Inside Cover
Product Name:	Hydraulic Impact Breaker
Series	AR
Applicable Model[s]:	AR70D, AR75B, AR85B, AR95B
Years of Manufacture:	Begin 2002

1.2 Content Includes

This Manual has been prepared to assist the operator and maintenance personnel with the information necessary for the safe and proper use of the Allied Breaker. This manual is an integral part of this product. Keep it in a convenient location so that it is easily accessible for future reference.

- Safety Section
- Equipment Identification
- Pre-Operation Inspection
- How to Operate the Breaker
- Maintenance Schedule
- Lubrication
- Changing the Breaker Tool
- Wear Limits of Bushing and Tool
- Charging the N2 Gas Accumulator
- Troubleshooting
- Lifting, Transporting & Storage
- Technical Data / General specifications

Prior to use, confirm that the information recorded on the equipment's identification label corresponds with Table 1.1.

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.

Material presented in this manual, including tables, figures, descriptions and captions, may show equipment that is optional.

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.

1.2.1 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. 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.

1.4.1 Parts Manual

The Parts Manual identifies each component of the Allied work tool. Safety and information labels are also included in the Parts Manuals.

Material presented in each Parts Manual, including part names, illustrations and descriptions, may not be suitable for other models. Prior to using any Parts Manual, confirm that the information recorded on the Equipment's Identification Tag corresponds with the model information located on the front cover of the manual.

Illustrations shown in the Parts Manual are not intended for use in the repair or service of the breaker.

1.0 Introduction and Scope – [cont'd]

1.4.2 Repair Manual

The Repair Manual has been prepared to assist the Service Technician with the information necessary for the disassembly & reassembly of the Breaker. Content includes:

- Safety Information
- Disassembly & Reassembly
- Bolt Torque Specifications
- Wear Limits of Parts
- N2 Gas Charging Instructions

1.4.3 AEM Safety Manual for Hydraulic Mounted 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

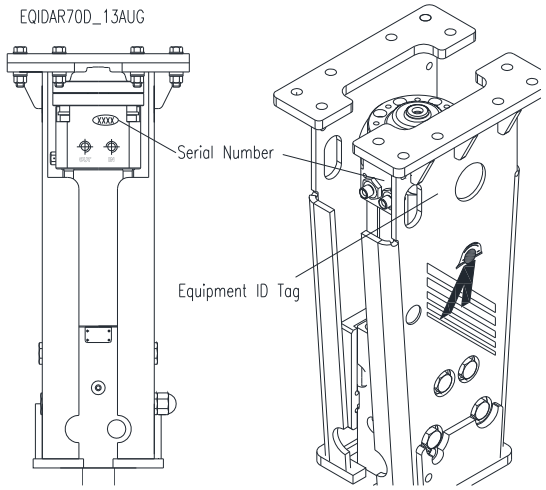


Fig 2-1 Equipment Identification

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 valve housing near the IN port.

2.2 Equipment Identification Tag

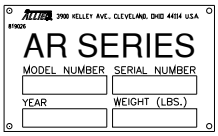


Fig 2-2 Equipment Identification Tag

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 Record Equipment ID Information for Future Reference

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

- Copy the Model and Serial Number from the Equipment Identification Tag to the space provided below.
- Indicate the date in which the Allied equipment was placed into service.
- Fill out the Warranty Registration form and return to Allied Construction Products, LLC.

Product **Hydraulic Breaker**

Series **AR**

Model _____

Part Number: _____

Serial Number: _____

In Service Date: _____

Registration Date _____

3.0 Warranty Protection Summary

3.1 Overview

The Allied equipment is delivered assembled and factory tested. Upon receipt of the equipment, inspect for possible shipping damage or loss.

Before installing the equipment, familiarize yourself with the features and functionality of the unit. Refer to the technical data section of this manual for specifications and dimensions. When properly installed, operated and maintained by qualified personnel, the Allied equipment will remain productive with a minimum of service. Improper installation, including failure to calibrate (test and adjust) the equipment correctly may negatively impact performance or subject the equipment to conditions beyond their operating specifications.

The use of non-genuine parts or unapproved lubricants, modifications, installation, service methods and operation not in accordance with the contents of this manual may cause loss of performance, equipment failure or personal injury.

Warranty does not cover conditions, which in the reasonable judgment of Allied Construction Products, LLC, arise from improper installation, misuse, negligence, alteration, accident, or underperformance of necessary maintenance. Complete warranty terms and conditions can be found in document 100785.

3.2 General Maintenance Policy

The following general maintenance policies outline the minimum requirements for reducing failures and minimizing unscheduled equipment downtime. The owner is strongly encouraged to implement these guidelines and further develop them to manage particular applications and operating environments.

Owner's responsibility includes:

- Ensure that personnel entrusted with installation, operation, and maintenance of the Allied equipment adhere to the following:
- Read and fully understand the information included in this manual.
- Recognize that operating this equipment in conditional applications, such as working underwater, requires modifications to the standard breaker and additional training for the operator, maintenance and service personnel.
- Use the Allied equipment only if it is in sound operating condition. Take prompt action to rectify any faults that, if left uncorrected, could lead to further damage of this equipment or subsequent damage to supporting equipment or personal injury
- Use the Allied equipment only for the purpose for which it is intended.
- Regularly conduct inspections of the equipment and follow the recommendations found in the Maintenance Section of this manual.
- Understand effective communication is key to the success of any maintenance program. Appointing ‘Who Does What’ ensures that all personnel understand exactly what their specific responsibilities include.

1. Establish maintenance responsibilities to be performed by the Operator.
2. Establish maintenance responsibilities to be performed by the Service Technician.

- Recognize problems and know how to take corrective action as outlined in the Troubleshooting Section of this manual.
- Allow only qualified operators and service technicians to perform maintenance and repair.
- Maintain written records of equipment maintenance, service and repair. These records are helpful if warranty coverage is ever in question.

Each record shall include at least:

- Date of service, maintenance or repair.
- Description of the service, maintenance or repair performed. Include part numbers if applicable.
- Copies of purchase order(s) and invoice(s) for repair parts and service.
- The name and signature of the person performing the service, maintenance or repair.

3.0 Warranty Protection Summary - [cont'd]

3.3 Allied Product Policies

In this manual, Allied recommends breaker applications, maintenance and service consistent with industry practices.

Allied assumes no responsibility for the results of actions not recommended in this manual and specifically the results of:

- Improper Installation, Set-up, Calibration
- Carelessness / Incorrect operating methods
- Inattention to re-lubrication and other maintenance requirements
- Misuse / Unapproved applications
- Inadequate or Absence of Training
- Use of non-genuine Allied replacement parts
- Unapproved modifications
- Use of grease, which is not or is only conditionally pumpable.
- The use of a lubricant type that is unsuitable for the application. Allied Chisel Paste is recommended for all breaker models.
- Contaminated lubricants.
- Improper disposal of used or contaminated lubricants.

These exclusions apply to damage to the Allied equipment, associated equipment and injury to personnel.

4.0 Product Information

4.1 Description and Typical Applications

The Allied Breaker is a hydraulic powered impact breaker designed for mounting on mobile equipment with hydraulic booms, such as rubber tired or track-type construction vehicles.

The breaker is suited for many types of construction and mining applications including -

- Clearance Work: Demolition of buildings, bridges, reinforced foundations etc.
- Trenching: Breaking trenches out of rocky and frozen ground.
- Mining and Quarrying Applications: Demolishing and leveling quarry rock, breaking oversized minerals and other rock-like raw materials. Excavation of rock from trenches, foundations and tunneling.
- Underwater: Demolition and deepening of shipping channels. (Requires conversion from standard type before underwater use!)
- Recycling: Breakup of "skulls" from the steel industry.

4.2 Familiarization of Components

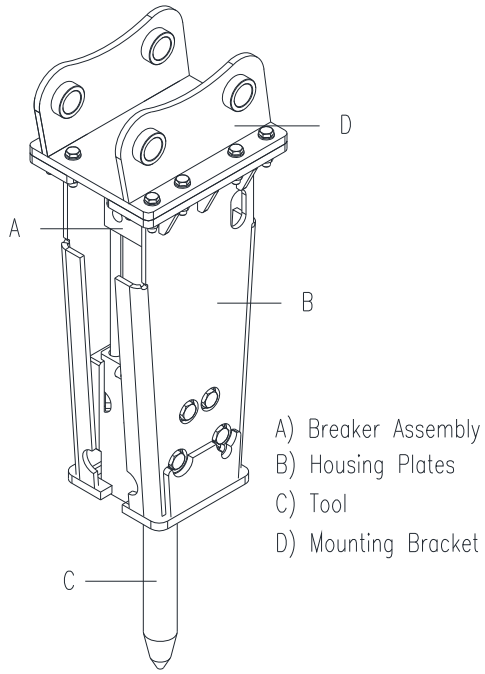


Fig 4-1 Main Components of Hydraulic Breaker

4.3 Principle of Operation

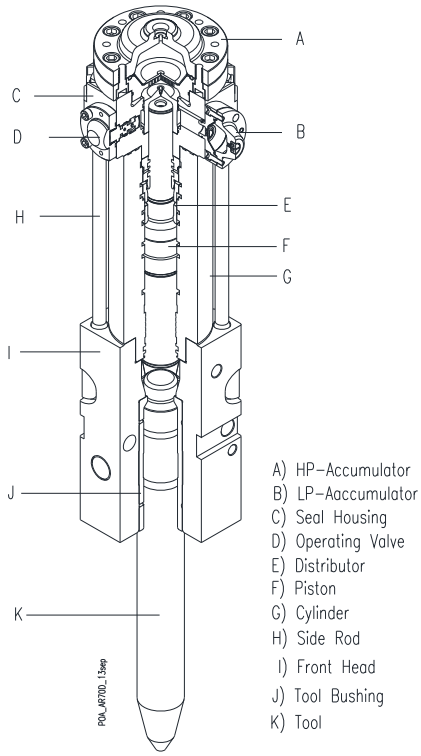


Fig 4-2 Cutaway of Breaker Assembly

- The Breaker is not self-powered. Performance relies on a capable host machine that's equipped with a hydraulic circuit. Within the hydraulic circuit, an ON/OFF valve is used to control flow in one direction to the Breaker. The valve will be managed with a momentary switch located inside the operator's cab within easy reach of the operator.
- With the valve ON, supply oil from the host machine flows to the [IN] port on the breaker. Oil is blocked from entering the breaker unless sufficient contact pressure is applied on the tool to push the piston up and out of the brake position.
- Located on the breaker is the operating valve. Oil is directed by this valve to the lower end of the cylinder. The first half of the cycle begins when oil, under pressure, raises the piston. As the piston strokes upwards, oil in the upper cylinder is expelled through the [OUT] port and returned back to the machine.

4.0 Product Information –[cont'd]

- The breaker is equipped with a gas-charged accumulator. Inside this self-contained pressure vessel is a pair of expansible chambers divided by an elastic membrane. The top chamber is pre-charged with nitrogen gas (N2). The bottom chamber will receive, store and discharge pressurized oil.

- As the piston nears the top of its stroke, signal ports inside the cylinder become pressurized and shift the operating valve closed. Oil is blocked from exiting and the upper end of the cylinder becomes pressurized.

- The final half of the cycle begins with the piston at the top if its stroke. The force from the pressurized oil from the host machine combines with the pressurized oil discharged stored in the accumulator. The piston is driven downward until it impacts the tool.

- The cycle is continuous without interruption until the machine operator releases the momentary switch controlling the ON/OFF valve.

5.0 Sizing the Breaker

5.1 Breaker Selection - General

When selecting a breaker, key points to consider include –

- Production rate (Material strength)
- Lifting capacity of machine
- Hydraulic power of machine

The size of the breaker is typically dictated by the job requirements, but the size must also be compatible with the carrier on which it will be mounted.

For optimum productivity, match the size of the breaker to the job. Materials are fractured by two methods – Penetrative and Impact. With penetrative breaking, blows from the piston drive the tool into the material and wedge it apart. With impact breaking, blows from the piston generate a compressive force that squeezes the material. When the material's strength is exceeded, it fractures.

Be careful not to undersize the breaker in hard material. It's important that the material absorb all of the energy (mechanical stress wave). Problems arise when these undesirable waves of energy are reflected back into the breaker.

Ideally, it should take 3- 5 seconds to fracture the material. When working in extremely hard materials, undersized breakers will be subjected to longer running cycles. This negatively impacts production, component longevity and reliability. Continuous running beyond 15 seconds will generate unwanted heat at the tip of the tool. Attention to wear parts, such as bushings and tools, will need to be more frequent. The machine’s service intervals will also require extra attention.

Reaching optimal production rates requires efficient interaction between the operator and machine. A machine that is undersized will force the operator to work at a slower pace to keep the machine stable. An undersized machine also reduces the size of the material it can shuffle when repositioning materials.

Allied breakers are assigned a recommended carrier weight range. On a general level, if the breaker falls within this range, it's regarded as a good match.

To ensure the carrier can safely handle the weight of the breaker, always consult the specifications in the manual provided by the carrier manufacturer. Factors such as boom and stick length, undercarriage and tracks, counterweights, etc., all affect the lifting capacity of the carrier. Check the machine for any modifications and also take into account any add-ons such as a quick attach coupler.

Next, review the hydraulic specifications of the carrier and breaker. All hydraulic breakers are designed to provide optimum performance with reliable service life at a specific oil pressure and flow range. For a combination to be successful, the circuit must be in good working condition and able to deliver adequate flow and pressure with minimal heat generation and power loss.

Before the breaker is used, complete a performance evaluation of the hydraulic circuit. These test results will confirm if the hydraulic circuit is calibrated and set in accordance to the specifications of the breaker.

Tools required for testing the oil flow, operating pressure and back pressure include a flow meter and pressure gages. An overview of the testing procedure, along with a form to record the results of the flow test, can be found in the Technical Data section in this manual. Compare test results with the specifications of the breaker. Make all necessary adjustments.

5.2 Auxiliary Circuit and Conversion Kits

CAUTION

Equipment damage from improper oil flow or pressure. Accurate calibration of the hydraulic circuit is important for reliable operation.

Hydraulic circuits differ between machines. Only qualified personnel, having knowledge of the machine’s systems, proper test equipment and tools should perform conversion set-up and adjustments.

Work tools, such as Breakers, are not self-powered. Their performance is reliant upon the hydraulic power of the host machine. The hydraulic power it provides to the breaker must meet all of the requirements specified in the technical data section of this manual.

Most machines will require some degree of conversion to make use of their hydraulic power. A hydraulic circuit, capable of producing flow and pressure in one direction is needed to operate a breaker.

5.0 Sizing the Breaker – [cont'd]

Conversions to machines equipped with a factory or dealer installed auxiliary circuit may require little more than minor adjustments to flow and pressure settings. Follow the machine manufacturer's instructions when making any adjustments.

If the machine is not equipped with a hydraulic circuit, a conversion kit, from Allied, can be installed. When necessary, Allied conversion kits include the Allied "AC" series valves. These are solenoid-operated valves that control flow and pressure.

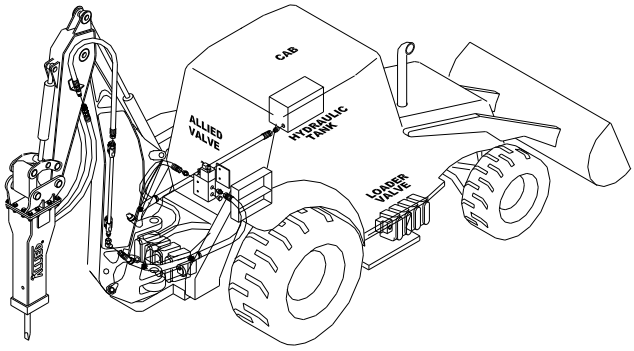


Fig 5-1 Allied Conversion Kit With AC-Series Valve

The process of selecting the right breaker must consider the type of work to be done. This includes any special needs such as required modifications when working in underwater applications

Requests for further information or assistance with breaker selection should be directed to your Allied dealer or by contacting the Allied Sales or Product / Technical Support Departments.

6.0 Operation

6.1 Before the Breaker is Used

Trained operating and service personnel, commissioning, regular inspections, preventative maintenance and performance testing are all key to reliable performance. Prior to using the Breaker, check that it has been properly installed and serviced with all scheduled maintenance and repairs completed. **Do not operate the breaker until all faults are corrected.**

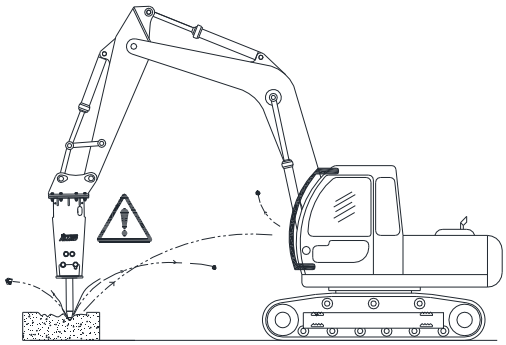
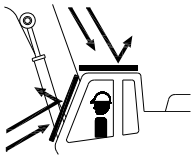


Fig. 6-1 Install Protective Guards



CAUTION

Injury from flying debris. Protective guarding must be fitted to the operator's cab when the breaker is used.

6.1.1 Pre-Operation Inspection

A qualified individual should conduct a visual inspection of the following:

- ❑ Ensure Breaker is securely attached to the carrier.
- ❑ Ensure Breaker tool is locked securely in the front head
- ❑ Ensure Breaker tool is well lubricated
- ❑ Check grease level and test operation of automatic lube system, if equipped
- ❑ Ensure hoses are not rubbing and tubes are secured tightly in clamps
- ❑ Ensure fasteners are not loose, missing or damaged

An inspection record, which can be copied, is located in Section 7 of this manual.

6.2 Proper Operation of the Breaker

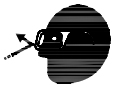
CAUTION

Before work can start, identify all site hazards, including electrical and gas utilities

CAUTION

Only qualified personnel shall operate the breaker. Never activate the breaker unless the operator is seated in the operator's seat and is in full control of the machine.

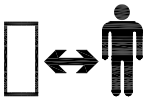
CAUTION



Injury from flying debris. Personal protection equipment is required when operating this equipment. PPE must include safety eyewear and hearing protection.

Prolonged exposure to high noise levels may cause hearing impairment or loss. Hearing protection must be worn when breaker is in operation.

CAUTION



Clear out all personnel before maneuvering the carrier into the work area.

Injury from flying debris. Do not operate breaker with personnel in vicinity of work zone.

IMPORTANT

Serious equipment damage may result if proper procedures are not followed. Select proper engine speed and set function mode to "BREAKER".

IMPORTANT

Service life of parts is diminished if attention to correct working methods is not applied. Prevent the tool from binding against the bushings by always aligning the breaker tool 90° to the work surface.

- Use the boom and arm controls to extend the breaker away from the carrier.
- Position the breaker tool against the material to be broken. Do not drop breaker on to material.

6.0 Operation – [cont'd]

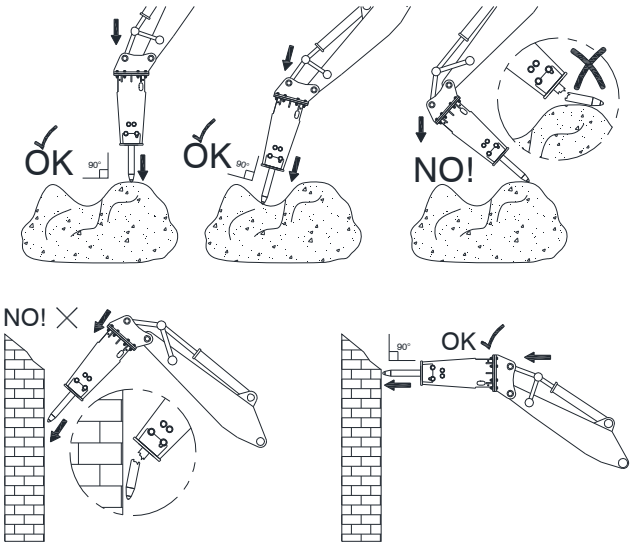


Fig. 6-2 Align the Breaker 90° to the Work Surface

- With a "firm preload" applied on the breaker tool, the breaker is ready to operate.
- Actuate the control that fires the breaker.
- Follow the progress of the breaker through the material. Use the boom, arm and bucket controls to provide a constant feed force on the tool as it penetrates the material. Strong vibrations will generate back to the carrier if sufficient force is not maintained.
- Stop the breaker immediately when the tool breaks through.

6.2.1 Cycle Time

Extended hammering in one spot must be avoided.

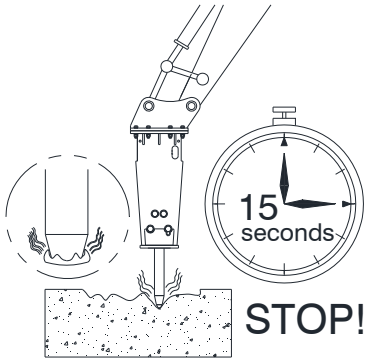


Fig. 6-3 Do Not Overheat Tool

Limit hammering to 15 seconds to prevent overheating the tool. Stop and reposition the tool nearer the edge of the material. Refer to Figure 6-4.

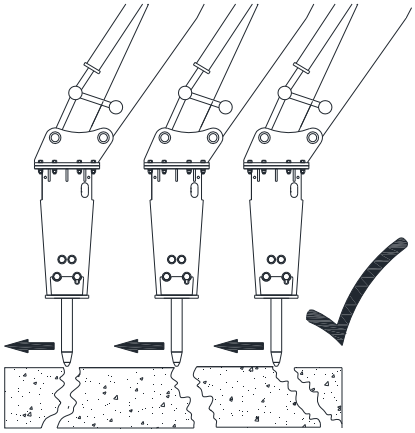


Fig 6-4 Work From Outer Edge and Advance Inward

Start breaking near the outer edge and advance inward.

NOTE: The force of the impact is dampened by soft ground underneath the material and by rock dust accumulated at the tool. Tilt the breaker to expel dust away from the tool. Tilt no more than 5º to avoid placing a strain on the front head and bending the tool.

6.3 Operating Mistakes to Avoid

IMPORTANT
Equipment damage may result if proper procedures are not followed. Carefully read through this section as it describes actions to be avoided when using the breaker.

6.3.1 Listen for Change in Pitch or Frequency

The operator must remain alert to unusual sounds emitted by the breaker. A metallic pinging noise will be heard when the tool strikes against the retainer pins. Always keep the tool firmly in contact with the material as it penetrates the material. Material that is weak and easily fractured, requires quick reaction to stop the breaker so idle strokes are prevented.

Never operate the breaker when the tool suspended in the air (Blank Fire), or is not pressed firmly against the material (Idle Strokes). Both conditions are damaging to the breaker.

6.0 Operation – [cont'd]

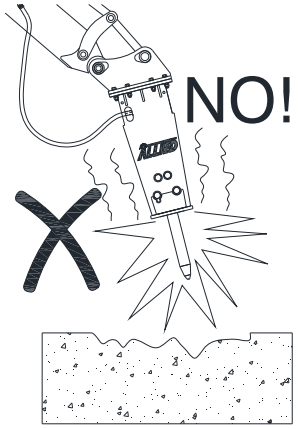


Fig 6-5 Do Not Blank Fire

A hollow (thin) sound is emitted when the tool binds in the bushing. This is usually accompanied by a drop in blow frequency and reduced impact energy.

Binding results when the tool is misaligned or lacks sufficient lubrication. Review operator technique. Avoid binding by aligning the tool 90° to the material. Keep the tool and bushings well lubricated. Re-lubricate the tool every two hours or if it appears dry.

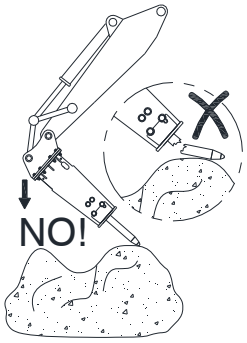


Fig 6-6 Misalignment – Side Load against Bushing

6.3.2 Do Not Pry With the Breaker

The leading cause of tool breakage is from bending. In the occurrence of tool failures from bending, the length of the tool, skill level of the operator and lubrication management, all play a decisive role. Prying will damage other parts as well, including the bushings, front head and housing.

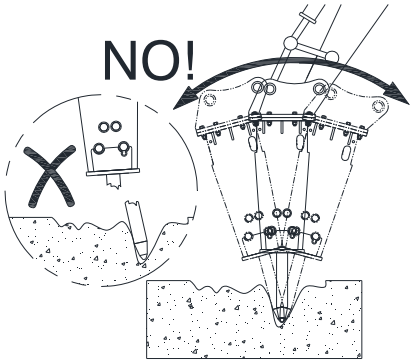


Fig 6-7 Do Not Pry With the Breaker

6.3.3 Do Not Drop or Hack at Material

Avoid uncontrolled movements that may cause the carrier to become unstable. Do not drop the breaker against the material. Do not use the breaker to hack at the material.

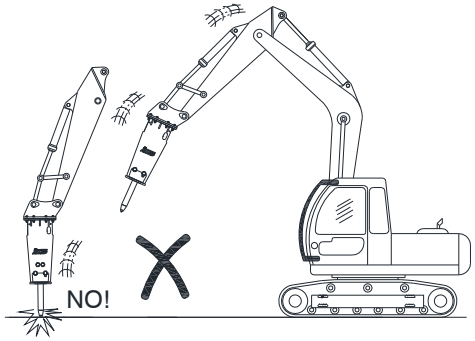


Fig 6-8 Do Not Pound or Hack with the Breaker

6.3.4 Do Not Operate with Cylinders at Stroke End

Damage to cylinders if the breaker is operated with the cylinders fully extended or retracted.

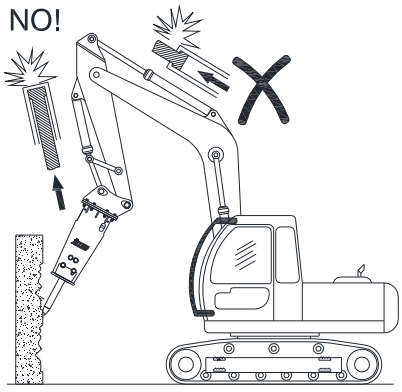


Fig 6-9 Do Not Operate With Cylinder at Stroke End

6.0 Operation – [cont'd]

CAUTION
The Breaker is not designed to lift or transport loads. This practice is unsafe and can damage the Breaker.

6.3.5 Other Prohibited Actions to Avoid with Breaker

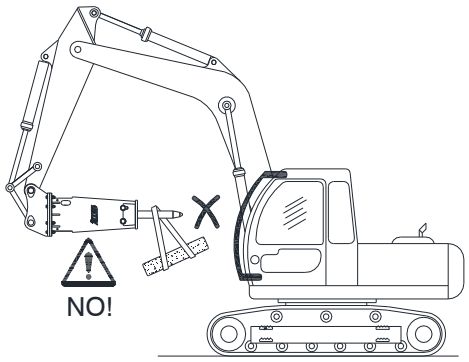


Figure 6-10 Do Not Use the Breaker to Lift or Transport Loads

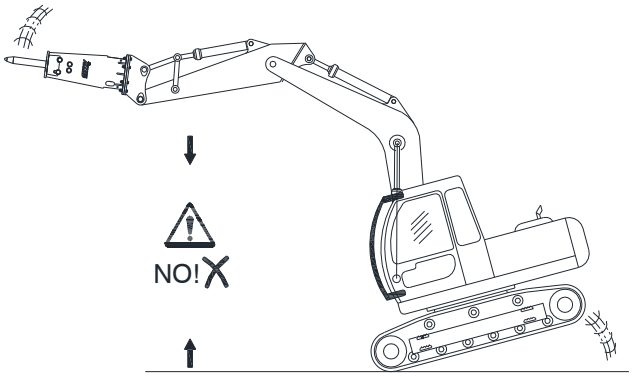


Figure 6-11 Travel Only With Breaker Low to Ground

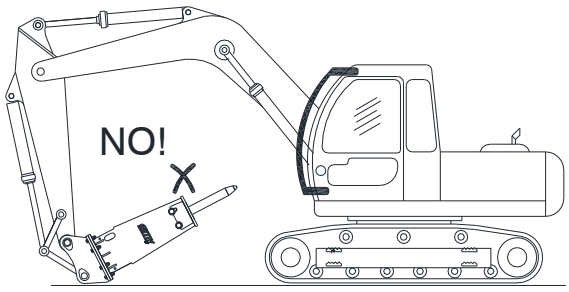


Figure 6-12 Park With Breaker In Horizontal Position

6.4 Special Applications & Operating Conditions

6.4.1 Working Underwater

CAUTION
Serious equipment damage will result if Breaker is submerged in water without proper modifications, equipment and training.

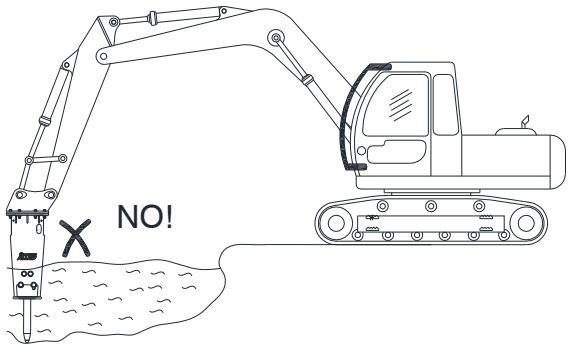


Fig 6-13 Not Underwater Ready - Modifications Are Required

Working underwater requires special preparation to avoid damaging internal components, including the piston and seals. Additional equipment and training is required. Further instructions should be directed to the Allied Technical Service Department.

6.4.2 Working Underground

When using the Breaker underground [tunneling or mining applications] special safety regulations may apply. Additional considerations include:

- Use of water sprays to suppress dust.
- Use of fire-resistant hydraulic fluids. Hydraulic systems using fire-resistant fluids require special engineering consideration when using the Breaker. With some fluids, decreased flow and/or pressure to the Breaker may be necessary.

6.4.3 Working in Hot Temperatures

IMPORTANT
Serious equipment damage may result if proper procedures are not followed. Check the oil temperature often to ensure it does not exceed 176ºF [80ºC]. If higher temperatures are measured in the tank, refer to the Troubleshooting Section in this manual.

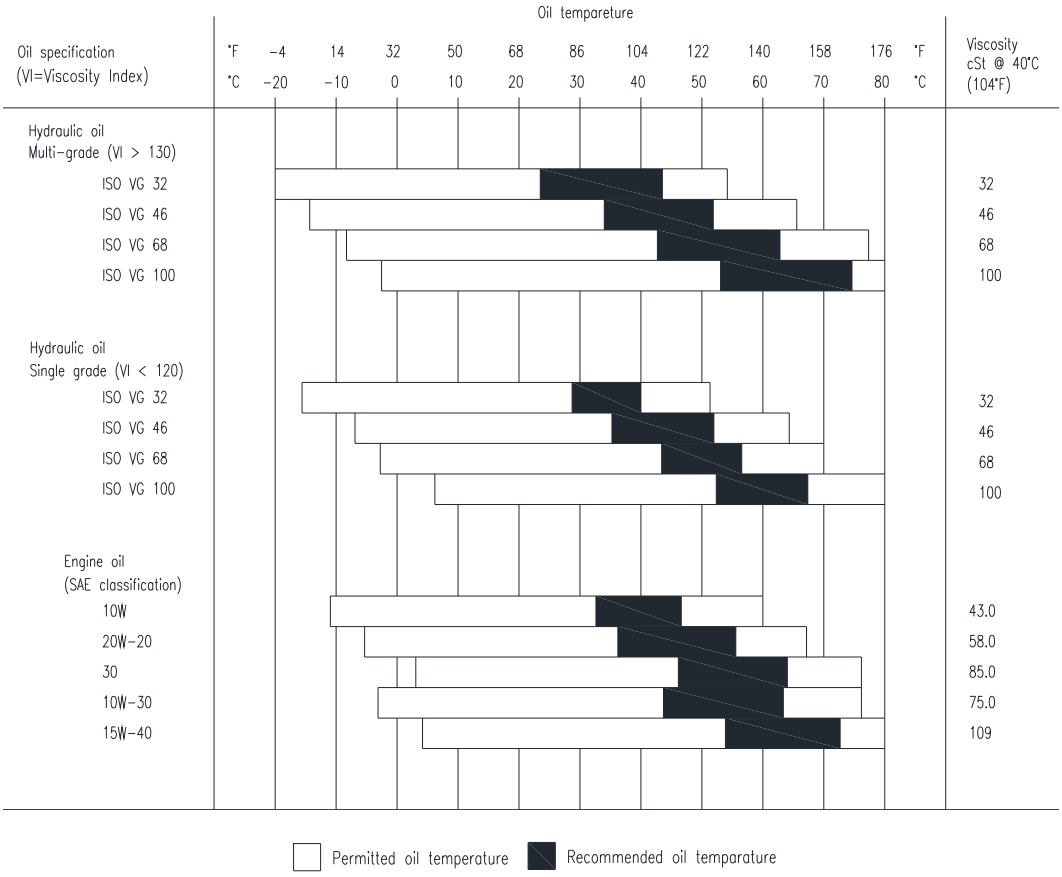
6.0 Operation – [cont'd]

- Specify hydraulic oils with viscosity suitable for the climate conditions. In general, the hydraulic oil that was originally specified for the machine by the carrier manufacturer can be used with this equipment.
- Check the oil level in reservoir
- Inspect the cooling system. Good air circulation is essential in dissipating heat from the hydraulic oil. Make sure the cooler is clean.

6.4.4 Working in Cold Temperatures

IMPORTANT
Serious equipment damage may result if proper procedures are not followed. When working in temperature conditions below minus 4ºF [-20ºC], operating the Breaker with cold hydraulic oil may damage the seals.

- At temperatures below minus 4º F [-20º C], the hydraulic oil must be warmed up before starting the Breaker. Follow instructions provided by the carrier manufacturer for on warming up the carrier.
- Keep the oil circulating in the carrier during pauses in work to prevent it from falling below a temperature that is too cold for normal operation.
- Specify hydraulic oils with viscosity suitable for the climate conditions. In general, the hydraulic oil that was originally specified for the machine by the carrier manufacturer can be used with the Allied equipment.
- Use oil viscosity based on the expected air temperature range during the period between oil changes.
- Optimum oil viscosity for the breaker @ operating temperature is 60 – 30cSt. Allowable oil viscosity range 1000 – 20cSt.



Many factors can reduce the service life of hydraulic components. Incorrect fluid viscosity is just one of these factors. To prevent low (or high) viscosity from cutting short component life, select an appropriate fluid for the operating temperature and viscosity range and then keep it maintained on a continuous basis.

7.0 Care and Maintenance

Item	Hours [A)]	2	10	50	100	250	600	1200	Note
Tool Re-Lubrication		X							A
Visual Inspection - Walk around			X						A,B
Measure Tool & Bushing Gap				X					A,C
Inspect Bushings, Thrust Ring & Piston									A,C
Reseal & Replace Accumulator Membrane							X	X	A,D
Measure Wear Plates & Buffers									A,D
Measure Oil Pressure						X			A
Hydraulic Fluid									A,D

A) As recommended unless a change in performance is observed.
B) Inspect the condition of components listed in Daily Pre-operation
C) Refer to Appropriate Wear Limit Tables
D) Reseal breaker and replace accumulator membrane at rebuild
E) Refer to the manual provided by the carrier manufacturer for instructions

7.1 Inspection & Maintenance Schedule Overview

When properly installed, operated and maintained by qualified personnel, the Allied equipment requires a minimum of service.

The schedule in Table 7.1 is the recommendations of Allied Construction Products, LLC for the maintenance of this equipment. It contains the minimum preventative maintenance requirements necessary to keep the machine in safe operating condition.

In Table 7.1, a Visual Inspection is defined as: A walk around type inspection, looking at components for wear, damage, loose, missing or unsecured fastener, fluid leaks, and cracks in weld.

Intervals are based on standard (normal) operating conditions and must be adjusted accordingly when applications or operating conditions are harsh. For example, it will become necessary to shorten service intervals if using water content hydraulic fluid or operating under extreme temperatures, dust, high humidity or elevations, etc.

Use regular component inspection to determine if interval adjustment is warranted.

In addition to monitoring parts for wear, the aim of these inspections is to spot and correct problem areas in their early stages before damage escalates and the more costly it is to repair.

These service intervals are guidelines that apply to breakers working under normal conditions. Breakers working in severe operating conditions or special applications such as underwater, tunneling, scaling, foundry cleaning, etc., will require more frequent service.

Daily Pre-operation Walk-around Inspection

- ❑ Lubricate breaker tool
- ❑ Check breaker tool is properly engaged in front head
- ❑ Check level and operation of automatic lube system - If equipped
- ❑ Check for loose or missing fasteners
- ❑ Check for fluid leaks at tubes, hoses, connections and seals
- ❑ Ensure hoses are not rubbing and tubes are secured tightly in clamps
- ❑ Ensure breaker is properly engaged with carrier. Check mounting pins are lubricated and secure
- ❑ Check housing and mounting bracket for wear and cracks
- ❑ Look for signs of contact between breaker and housing caused by excessive movement

Every 2 Hours (While in use – Service Hours)

- ❑ Lubricate breaker tool or sooner if the tool appears dry
- ❑ Check breaker tool is properly engaged in front head

During Shift (While breaker is in use)

- ❑ Actively monitor efficiency and evenness of operation. Look and listen for any interruptions from normal operation
- ❑ Monitor hydraulic oil temperature. Keep within the required operating range
- ❑ Be alert to fluid leaks

7.0 Care and Maintenance – [cont'd]

Every 50 Hours or Weekly

- ❑ Measure gap between breaker tool and bushing

Every 100 Hours or 2 Weeks

Remove breaker tool from front head
- ❑ Check retainer slot area for burring
- ❑ Inspect impact surface for uneven wear, cracks or chips
- ❑ Inspect retainers for wear, cracks or chips
- ❑ Inspect impact surface of piston for uneven wear, cracks or chips
- ❑ Inspect thrust ring for evenness of wear, cracks or chips

Every 250 Hours or 3 Months (Or As Required)

- ❑ Measure hydraulic oil pressures and confirm all are within required range
- ❑ Should repairs or changes be made to the hydraulic system, the oil flow and pressure must be re-tested.

At Rebuild

- ❑ Replace all seals. Replace all worn components
- ❑ Replace accumulator membrane and charge accumulator

After Rebuild – Before Use

- ❑ Test quality of hydraulic oil
- ❑ Service hydraulic oil filters
- ❑ Test hydraulic circuit with flow meter and pressure gages.

7.2 Equipment Maintenance Log

The importance of regular maintenance along with frequent inspections and detailed record keeping cannot be overemphasized. Keep an updated log of equipment maintenance. Records of services performed and any repair are helpful if warranty coverage is ever in question. Records should include:

- Date of service and hour meter reading
- Details of the service, maintenance or repair performed.
- Names of persons performing the service, maintenance or repair
- Copy of the purchase order or invoice, including part numbers used in the repair

Service Notes	Date

7.3 Housing Plate Inspection – Daily Start of Shift

Inspect the housing plates for cracks and wear. Frequent raking of material will lead to a higher rate of wear. Build-up worn areas and promptly repair cracks to prevent further spreading. Neglecting or delaying repairs will lead to further damage and increased repair costs.

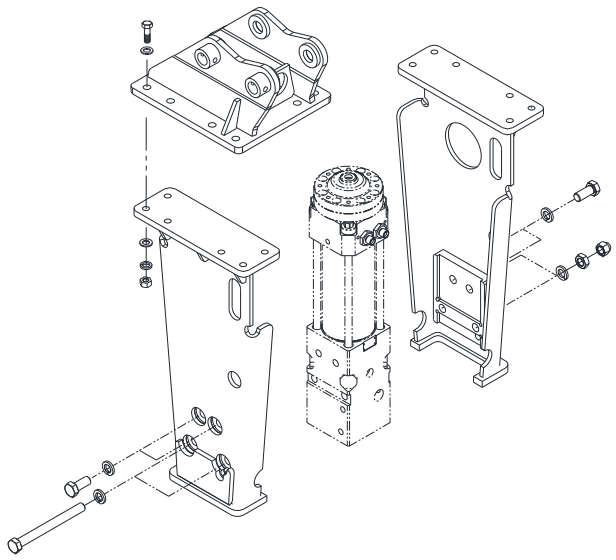


Fig. 7-1 Housing Plates, Mounting Bracket & Hardware

7.0 Care and Maintenance – [cont'd]

7.3.1 Housing Box Vibration Damping Inspection

A system of buffers, dampers and guide plates help minimize vibrations to the carrier and unwanted noise by isolating the breaker from the housing box.

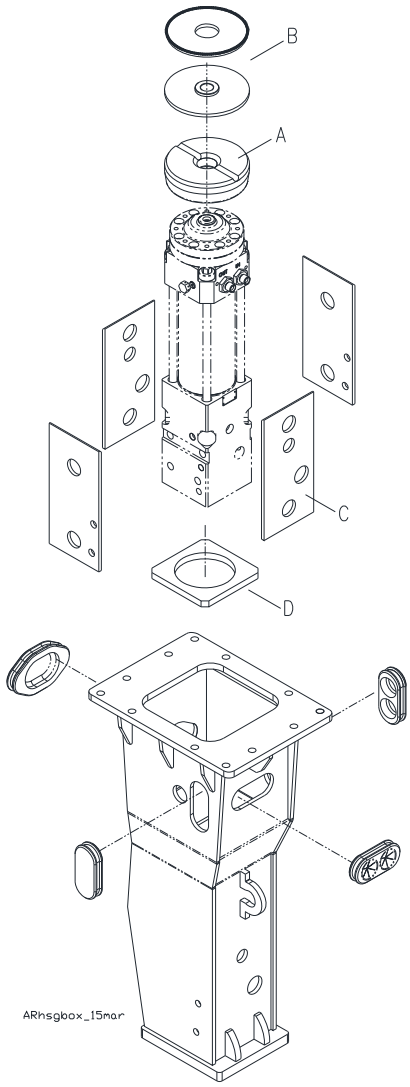


Fig. 7-2 Housing Box, Isolators & Dust Plugs

When buffers and guide plates are maintained in good condition, the breaker has minimal movement inside the housing box. Guide plates are made from abrasion resistant material. Wear of these parts can be minimized by following proper operating methods and keeping dust plugs in place.

IMPORTANT
Critical parts, such as the buffers and guide plates must be actively monitored for wear and promptly replaced when worn. These parts play a vital role as they help prevent contact between the breaker and housing box. The operator must avoid applying excessive force that could cause the breaker to contact the housing.

Table 7.1 Buffer Wear Limits. Inch [mm]

	AR70D	AR75B	AR85B	AR95B
A-Min				
B-Min				
C-Min				
D-Min				

7.4 Front Head Assembly - Inspect Every 2 Hours

Critical parts such as the tool and bushing must be actively monitored for wear. The aim of regular inspections is to spot problems early. If the condition of the front head is left unchecked, minor repairs can quickly escalate into serious damage and repair costs.

Visually inspect the condition of the front head assembly area each time the tool is re-lubricated.

- Check that the retainer system used to secure the tool in the front head is fully engaged.
- Check that both the tool and bushings are receiving sufficient lubrication.
- Be alert to any oil seepage on the ground, tool or the front head, as this may indicate a serious condition that will require further investigation
- Visually inspect the gap between the lower bushing and tool. Further details in Section 7.4.2.

IMPORTANT
Several factors contribute to the rate in which front head components will wear. The most apparent include the operator's technique, lubrication management and the material's abrasiveness.

7.0 Care and Maintenance – [cont'd]

7.4.1 Front Head Inspection – Every 100 Hours

The bushing is a replaceable steel lining inside the front head. It plays a vital role as it guides the tool and holds it square to the piston at the time of impact. Bushing wear is unpreventable but it can be controlled and lessened through sufficient re-lubrication and proper operating methods.

The bushing is viewable only when the breaker tool is removed. Wipe grease from parts to be inspected. Check parts for wear and damage. Review Table 7.2 for cause and remedy.

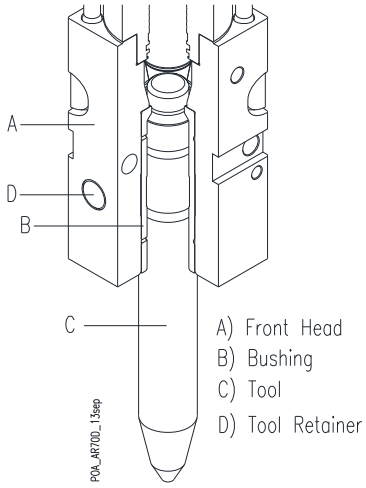


Fig 7-3 Front Head Assembly

IMPORTANT
Damage from galling is the result of insufficient lubrication and/or side loading the tool against the bushing. Review the frequency, quantity and quality of lubricant. Shorten re-lubrication interval if the tool is dry or if chisel paste is not used.

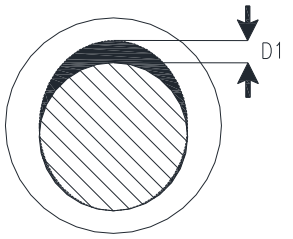


Fig 7-4 Gap D1 Between Tool D2 and Bushing D3

IMPORTANT
Regularly measure the tool and bushing. Continued operation with worn bushings and tool will increase the risk of misalignment which can lead to piston and seal damage.

7.4.2 Measuring the Tool and Bushings for Wear

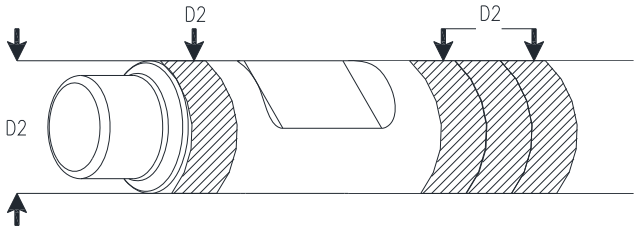


Fig 7-5 Tool Wear - Contact Area With Bushing

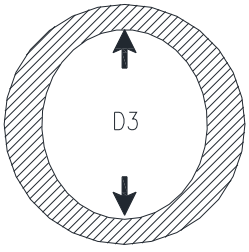
7.4.3 Tool Retainer Inspection

1. Inspect tool retainers each time the breaker tool is removed.

2. Replace when surface becomes uneven.

Table 7.3 Wear Limits

inches [mm]	AR70D	AR75B	AR85B	AR95B
Gap Max "D1"	0.21 [5.5]	0.21 [5.5]	0.21 [5.5]	0.21 [5.5]
Tool OD Min "D2"	2.64 [67]	2.87 [73]	3.27 [83]	3.66 [93]
Bushing ID Max "D3"	2.90 [73.5]	3.03 [77]	3.43 [87]	3.82 [97]
Thrust Ring Max				



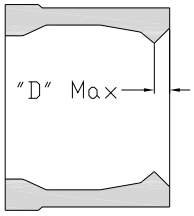


Fig 7-6 Measure ID of Bushing (D3) for Wear
Fig 7-7 Thrust Ring Wear Limit

7.0 Care and Maintenance – [cont'd]

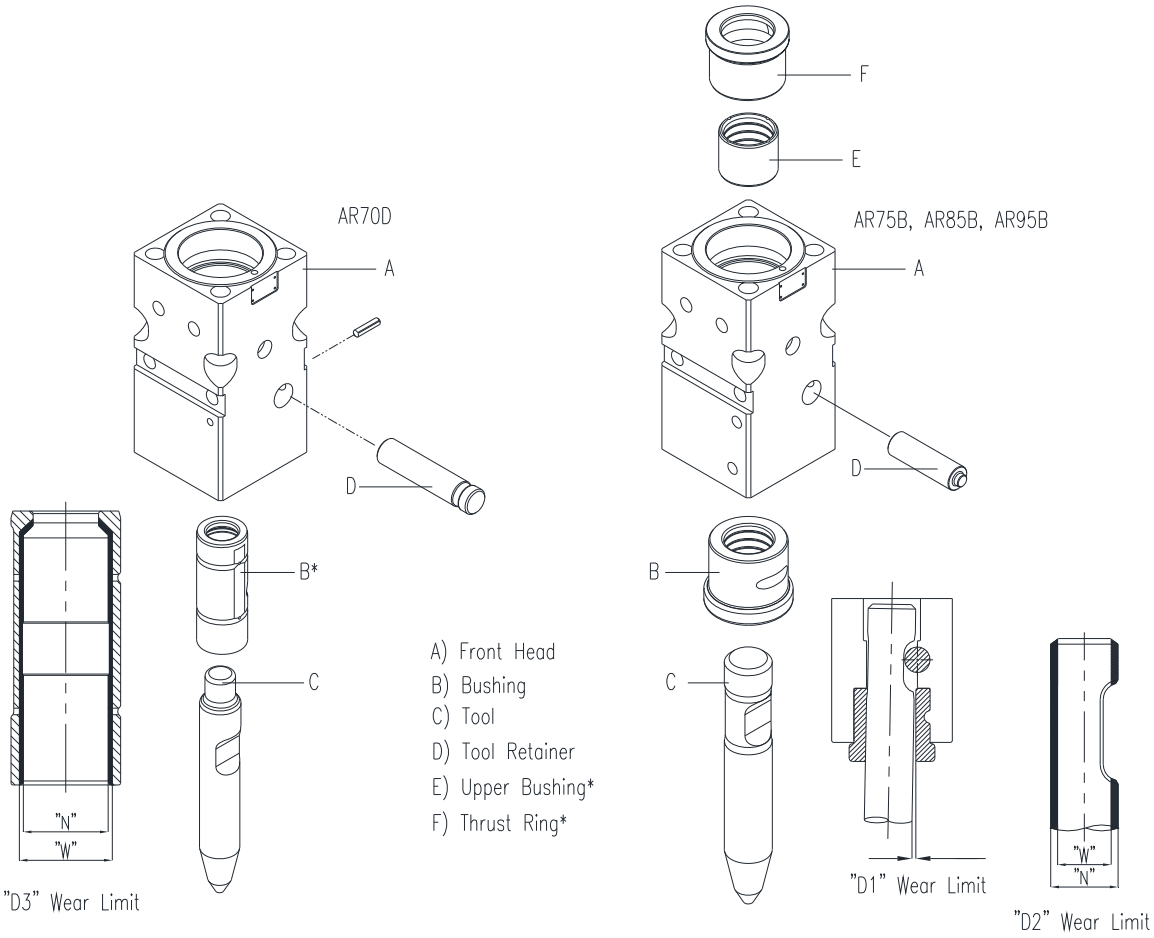


Fig. 7-8

Table 7.2 Inspection of Front Head Assembly

Part - Condition	Cause	Remedy
Tool - Burs form in retainer slot	Wedge shape tool prone to twisting from material	Use conical tool - less prone to twisting
Tool retainer - Chipped, burs, uneven wear.	Blank fire / tool twist	Maintain sufficient feed force. Stop hammering at instant material breaks. Use conical tool - less prone to twisting
Tool, bushing or retainer - Rapid wear or galling	Ineffective lubricant, Insufficient re-lubrication	Lubricant must meet application requirements. Re-lubricate every 2 hours – sooner if tool shank is dry. Increase quantity and frequency. Use Chisel Paste.
Thrust Ring - Chipped, cracked or uneven wear	Idle blows	Maintain sufficient feed force. Stop breaker as soon as material breaks. Align tool at 90° angle to work surface. Do not pound or hack material with tool.
Piston - Impact face is cracked, chipped, dished or sharp edges	Tool misalignment	Excessive gap between tool & bushing. Maintain 90° angle to work surface.
Bushing - Cracked	Side loading	Do not pry with tool.

7.0 Care and Maintenance – [cont'd]

7.4.4 Thrust Ring Inspection – With Tool Removed

Both the tool and thrust ring have tapered shoulders. The thrust ring correctly positions the height of the tool to match the downward stroke of the piston. Wear of either taper will alter the height and may prevent normal operation of the breaker. The operator's technique will have the greatest influence on the thrust ring's condition and its rate of wear. Weak down force, persistent blank firing and extensive raking must be avoided if it is to deliver a long and reliable service life.

Wear is measured at the tapered surface "D". Replace thrust ring when "D" Maximum is reached in the Table 7.3. Regardless of measurement, always replace the thrust ring if chipped or cracked.

7.5 Piston Inspection

The piston can be viewed after the tool is removed. The impact surface should be flat and smooth.

Replace the piston if the impact face is cupped, chipped, cracked or has sharp edges. This damage is often the result of tool misalignment caused by improper operating technique or from worn bushings. Damage can also be the result of metal fatigue.

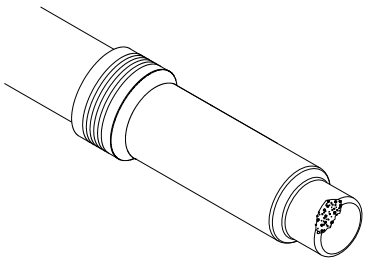


Fig 7-9 Piston Shown With Damage to Impact Face

Complete disassembly of the breaker is required to replace the piston. Contact your Allied service center.

7.6 Inspection of N2 Gas Charged Accumulator

The accumulator is a self-contained pressure vessel with an elastic membrane dividing the inner chamber. The lower chamber is used to receive, store and discharge pressurized oil. The upper chamber is pressurized with nitrogen gas.

Visually inspect the accumulator daily for oil leaks and broken or loose bolts.

During normal operation, no service is required to the accumulator between rebuilds. Generally, membrane failure is sudden with a complete discharge of the gas. The loss of the gas charge will noticeably change the performance of the breaker and exhibit some or all of these symptoms:

- Loss of blow energy
- Decrease in blow frequency
- Strong pulsations in hoses
- Oil leaking from around the accumulator

CAUTION

In the event of an accumulator failure, immediately discontinue operation. Ignoring this notice can damage the breaker and the carrier.

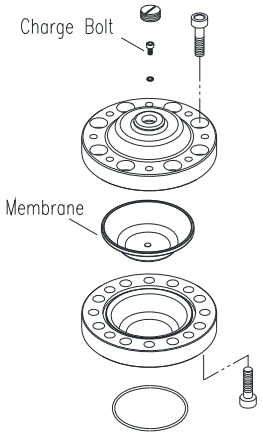


Fig 7-10 N2 Gas Charged Accumulator

WARNING

Prevent unexpected release of high pressure gaseous energy. The accumulator is pressurized with nitrogen gas and remains pressurized even at times when there is no hydraulic pressure to the breaker.

Never attempt to dismantle the accumulator unless completely discharged of all pressure. If the breaker is attached to a carrier do not service the accumulator until oil pressure inside breaker and hydraulic circuit is relieved.

Only qualified technicians with special tools and training should service the accumulator.

7.0 Care and Maintenance – [cont'd]

The breaker cannot be used until after the membrane is replaced and the upper chamber is pre-charged. Several factors, including the technique used to fill with gas, can affect the function and reliability of the accumulator. It is important to closely follow the instructions and accurately fill to the proper pressure if it is to deliver a long and reliable service life.

7.7 Mounting Pin Inspection

Inspect the mounting pins for wear and damage when the breaker is removed from the carrier. Replace worn or damaged pins.

7.8 Threaded Fasteners

IMPORTANT
Keep threaded fasteners tight. Replace damaged or missing fasteners prior to operating equipment. Replacement must be the same type and grade.

Threaded fasteners are subjected to high stresses. All threaded fasteners must be checked daily for the first 50 operating hours and once a week thereafter. Tighten fasteners to the specified torque.

7.9 Hose Inspection

Replace hoses if any of the following conditions are present:

- End fittings are damaged or leaking
- Outer coverings are chafed or cut.
- Wires are exposed
- Outer coverings are ballooning
- Flexible part of the hoses are kinked
- Outer covers have embedded armoring
- End fittings are displaced

7.10 Check Carrier's Oil Level and Quality

Check oil level in reservoir. Check records for last oil and filter service. Test oil quality. Review the manufacturer's maintenance schedule. It may specify operating conditions that require special attention to maintenance and adjusted service intervals.

CAUTION

Follow the service intervals recommended by the carrier manufacturer.

7.11 Measuring Oil Pressure

All hydraulic breakers are designed for optimum performance with reliable service life when operated within specified parameters. Monitor the efficiency of the breaker through regular testing of the oil pressure.

It is required to measure the oil pressure –

- When the breaker is first installed to a new carrier.
- Anytime the carrier's hydraulic circuit is repaired or modified.
- Anytime other work tools are used on the same carrier and these operate at different flow and pressure settings.
- Anytime the breaker is moved off one carrier and installed to a different carrier.

It is recommended to measure the oil pressure –

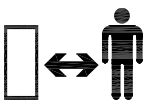
- At every 250 hours of use.

7.11.1 Safety Precautions When Measuring Oil Pressure

CAUTION

Equipment damage from improper oil flow or pressure. Accurate calibration of the hydraulic circuit is important for reliable operation.

Hydraulic circuits differ between machines. Only qualified personnel, having knowledge of the machine's systems, proper test equipment and tools should perform conversion set-up and adjustments.

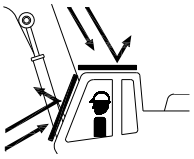


CAUTION

Some procedures, such as measuring the oil pressure, must be done while the breaker is operating. This will require an assistant.

Both must be qualified in these procedures. Take all necessary precautions. All directions and signals must be agreed upon in advance. Never activate the breaker unless the operator is seated in the operator's seat and is in full control of the machine.

7.0 Care and Maintenance – [cont'd]



CAUTION

Injury from flying debris. Proper guarding must be fitted to the operator's cab when the breaker is used.

WARNING

Prevent injury from unexpected release of high pressure hydraulic energy. Relieve all oil pressure inside breaker and attachment circuit before service.

Wear personal protection equipment, including safety eyewear when working with pressurized systems.

WARNING

Escaping fluid under pressure can cause injury from injection. Always relieve pressure before disconnecting hydraulic lines or other pressurized lines.

If any fluid appears to penetrate the skin, seek immediate medical attention. Qualified technicians with special tools and training should test the hydraulic system.

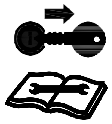
CAUTION

Injury from flying debris. Personal protection equipment is required when operating this equipment. PPE must include safety eyewear and hearing protection.

Prolonged exposure to high noise levels may cause hearing impairment or loss. Hearing protection must be worn when breaker is in operation.

CAUTION

Crush injury from falling or shifting loads. All loads must be stable before service begins.



Engage interlock, shut off carrier and remove key. Follow safety instructions in the manual provided by the carrier manufacturer.

7.11.2 How to measure the oil pressure

IMPORTANT
Contamination can shorten service life. Prevent dirt and debris from contaminating the oil. Always clean the area around the connections prior to removal of plugs or caps. Have a suitable container and rags on hand before disconnecting hose. Collect fluid and dispose of it properly.

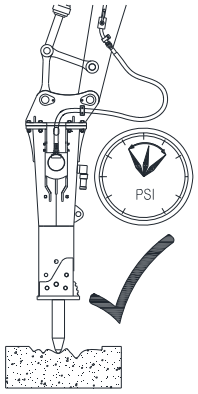


Fig. 7-11 Measure Oil Pressure

- Connect a pressure gauge [0-5000 PSI] into the supply line near the breaker.
- Start the carrier and allow the oil temperature to reach its normal operating temperature before starting.
- Move the breaker into a suitable working position.
- Set the engine rpm at the normal operating speed
- Set work mode to breaker.
- Start the breaker and record the oil pressure. It's normal for the needle of the gauge to pulsate. Compare the average reading with the values listed in the Technical Data Section of this manual.
- Make all necessary adjustments. Remove the gauge when finished.

8.0 Safe Handling & Storage

WARNING

Falling or shifting loads may cause injury or equipment damage. Do not lift the Breaker by the mounting pins or hose. Approved lift points are identified by the LIFT HOOK. The lifting eye located on the housing for handling the breaker. Do not use it to lift other loads.

Crush hazard. Falling or shifting loads may cause injury. Lifting devices must safely carry the loads to which they will be subjected. Lift away from people. Do not enter the danger zone while the Breaker is being lifted.

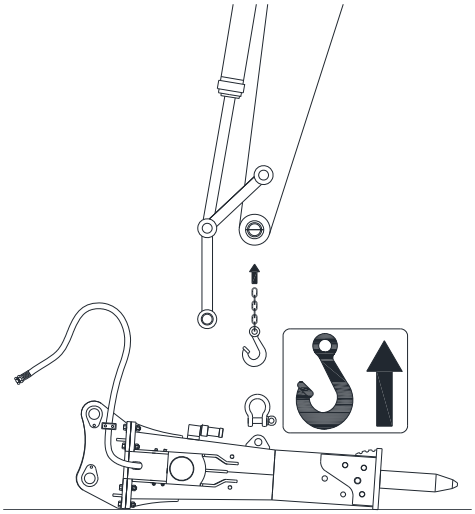


Fig 8-1 Use Approved Lift Points

WARNING

Injury from falling object/debris. Hoisted items can be hazardous to bystanders or to the machine itself. Remove all unsecured items including loose parts, service tools and debris before item is hoisted.

8.1 Transport Breaker Independently of Carrier:

1. Remove all loose debris from Breaker.
2. Follow removal instructions in Section 9.6.
3. Secure hoses to unit to avoid accidental damage.
4. Lift the Breaker at approved lift points only with appropriate lifting equipment.
5. Adequately stabilize and secure the Breaker for transport.

8.2 Transport Breaker Installed on Carrier:

1. Remove all loose debris from Breaker.
2. Secure hoses to unit to avoid accidental damage.
3. Inspect the mounting pins and hardware for damage and integrity.
4. Transport carrier in accordance with the carrier manufacturer's recommendations

8.3 Breaker Storage – Short Term [< 14 Days]

1. The Breaker may be stored vertically (tool down) or horizontally.

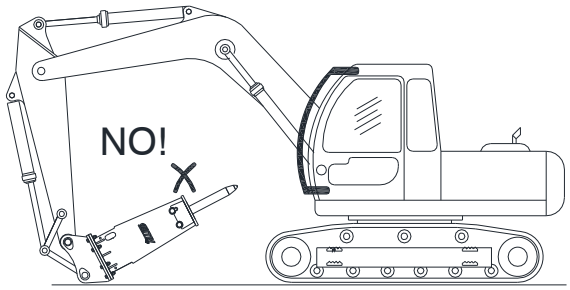


Fig 8-2 Improper Park Position

IMPORTANT

Exposure to moisture can cause destructive rust and pitting on the piston. Elevate the top of the breaker slightly higher to prevent water ingress through front head.

If the Breaker is stored off the carrier -

2. Seal all hydraulic connections.
3. If stored outside, cover the Breaker with a waterproof tarp.

8.4 Breaker Storage – Long Term [> 14 Days]

1. Remove the breaker tool from the Breaker. [Refer to Section 10.]
2. Seal all hydraulic connections.
3. Release back head charge. Push piston to its highest position. (Crack open [OUT] cap).

8.0 Safe Handling & Storage – [Cont'd]

IMPORTANT
Contamination can shorten service life. Prevent dirt and debris from contaminating the oil. Always clean the area around the connections prior to removal of plugs or caps. Have a suitable container and rags on hand before disconnecting hose. Collect fluid and dispose of it properly.

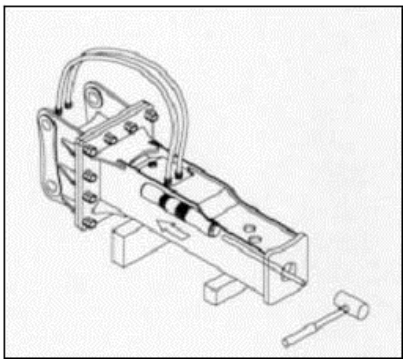


Fig 8-3 Push Piston To Its Highest Position

4. Protect the lower end of the piston with grease

IMPORTANT
Exposure to moisture can cause destructive rust and pitting on piston. Protect from damage by coating the exposed surface (below the wiper) with grease.

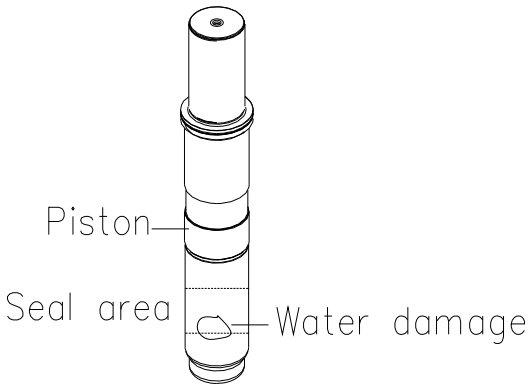


Fig 8-4 Protect Piston From Water Damage

5. The Breaker must be stored in the vertical position.

WARNING

Crush Hazard. Unsupported loads may cause injury or equipment damage. Use sufficient blocking and restraints to stabilize loads.

6. If stored outside, cover the Breaker with a waterproof tarp.

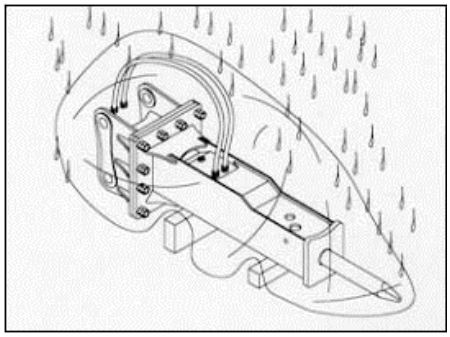


Fig 8-5 Cover Breaker with Waterproof Tarp

9.0 Attach / Remove Breaker From Carrier

9.1 Carrier Requirements

CAUTION

Carrier may become unstable with risk of tipping if work tool is too heavy or transported incorrectly.

- The Breaker shall only be attached to carriers that are capable of providing sufficient load carrying capacity.
- Know the capacities and limitations of your machine and do not exceed them.
- Consult the manual provided by the carrier manufacturer for the lift capacity of the machine.
- Lift capacities decrease as the load moves away from the machine.
- Factors such as stick length, undercarriage, counterweights, etc., all affect the lifting capacity of the carrier.
- Any modifications made to the Breaker or the carrier must be taken into consideration to prevent machine instability

IMPORTANT

Incorrect combination of Breaker and carrier will result in poor performance or equipment damage. Review hydraulic specifications of each.

9.2 Mounting Kits

A mounting bracket is required to attach the Allied Breaker to a carrier. Allied offers an array of mounting brackets to fit virtually any carrier, including those equipped with quick mounting couplers.

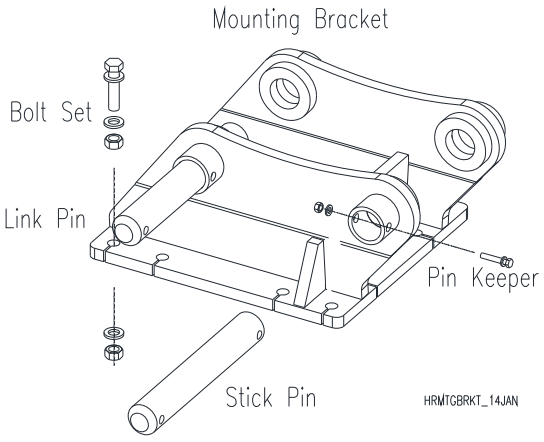


Fig 9-1 Mounting Bracket – Pin-On Typical

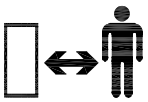
9.3 Tools Required to Attach the Breaker

No special tools are required, but the following tools should be available:

- PPE including Safety eyewear & gloves
- Sledge Hammer
- Drift pin
- 3/4 drive socket wrench
- 3/4 drive metric sockets
- Grease gun
- Standard and Metric open end wrenches
- Pry bar
- Rags

9.4 Attach Breaker to the Carrier

CAUTION



Some procedures, such as attaching the Breaker to and from the carrier, will require an assistant. Both the operator and assistant must be qualified in these procedures.

Take all necessary precautions. Throughout the procedure the machine operator shall be seated in the operator's seat and maintain full control of the machine. All directions and signals must be agreed upon in advance. Take signals from only ONE person.

Crush hazard. Use sufficient blocking to avoid accidental or sudden movement of the Breaker. Keep hands and feet clear of crush points. Do not touch any moving parts.

Use personal protective equipment when handling the breaker. PPE should include appropriate clothing, gloves, safety eyewear and shoes.

The breaker is attached to the carrier in the same manner as mounting a bucket. Use standard mechanic's techniques and tools to attach the breaker to the carrier.

The installation described is for a typical pin on type. Procedures may vary and you should follow the instructions in the manual provided by the carrier manufacturer.

For carriers equipped with a quick coupler, refer to the owner's manual provided by the coupler manufacturer for instructions.

9.0 Attach / Remove Breaker From Carrier – [cont'd]

The machine operator and an assistant shall perform the following procedure:

1. Operator: Move carrier and breaker to a firm level surface. Refer to Figure 9-2. Position the breaker horizontally with the hose side up and with the breaker's tool pointing toward the carrier.

2. Assistant: Check that the breaker is stable and all loads are supported.

3. Operator: Maneuver the stick in between lugging of the mounting bracket. Align the stick pin holes with holes in mounting bracket.

4. Assistant: Clean pins of rust and debris before they are installed. Insert the stick pin and secure with keepers.

5. Repeat procedure for installing link pin.

6. Lubricate pins.

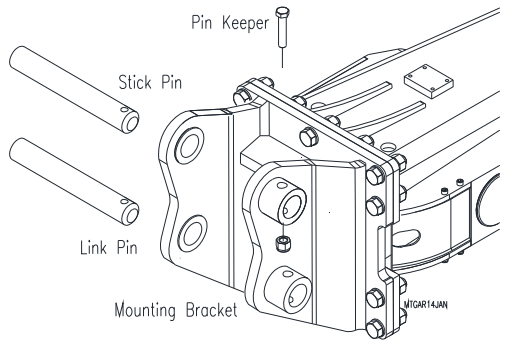


Fig 9-2 Mounting Bracket – Pin-On Typical

9.5 Connect Pressure and Return Lines

CAUTION

Hydraulic circuits differ between machines. Improper set up can damage the breaker or carrier. Only qualified personnel, having knowledge of the machine's systems should install the breaker.

Identify whether the carrier's pressure line is located on the right-hand or left-hand side. Do not guess. The Breaker will not operate if these hoses are crossed.

IMPORTANT

For ease of identification, the supply hose is tagged with a red colored cable tie and marked "PRESSURE LINE". Connect this hose to the port marked [IN] on the breaker as shown in Fig. 9-3.

IMPORTANT

Contamination can diminish service life. Always clean area around fluid connections prior to opening the hydraulic system. Collect all fluids in a suitable container when opening the hydraulic system. Clean up spills and obey all local regulations for the disposal of these fluids.

1. Remove plugs / caps from the ends of the hydraulic hoses. Set these aside and store them for later use when the Breaker is removed.

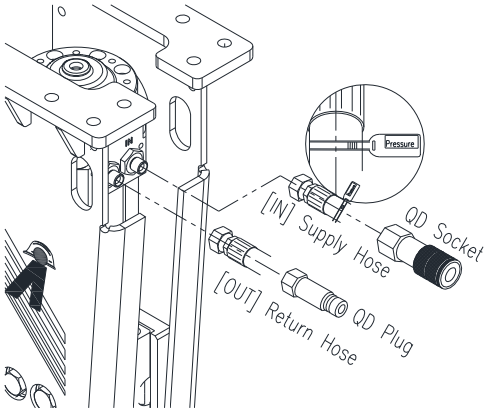


Fig. 9-3 Port [IN] and [OUT] Marked On Valve Housing

2. Connect the hydraulic lines to the Breaker. On the Valve Housing, look for markings [**IN**] and [**OUT**].

3. Connect the other end of each hose to the carrier.

4. Raise the breaker off the ground. Slowly cycle the bucket cylinder thru its full range to assure hoses will not be pinched or restricted.

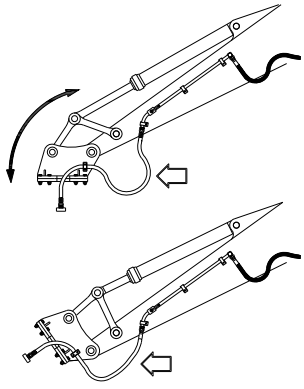
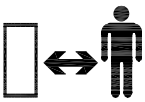


Fig. 9-4 Check Hose Routing For Interference or Restricted Movement

9.0 Attach / Remove Breaker From Carrier – [cont'd]

9.6 Remove Breaker from the Carrier

CAUTION



Some procedures, such as attaching the Breaker to and from the carrier, will require an assistant. Both the operator and assistant must be qualified in these procedures.

Take all necessary precautions. Throughout the procedure the machine operator shall be seated in the operator's seat and maintain full control of the machine. All directions and signals must be agreed upon in advance. Take signals from only ONE person.

Crush hazard. Use sufficient blocking to avoid accidental or sudden movement of the Breaker. Keep hands and feet clear of crush points. Do not touch any moving parts.

Use personal protective equipment when handling the breaker. PPE should include appropriate clothing, gloves, safety eyewear and shoes.

WARNING

Escaping fluid under pressure can cause injury from injection. Always relieve pressure before disconnecting hydraulic lines or other pressurized lines.

If any fluid appears to penetrate the skin, seek immediate medical attention. Qualified technicians with special tools and training should test the hydraulic system.

CAUTION

Burn injury from contact with hot surface. Some components become hot during operation. Allow parts and fluids to cool before handling.

9.6.1 Tools Required For Removal

No special tools are required, but the following tools should be available:

- PPE including safety eyewear & gloves
- Sledge Hammer
- Drift pin
- 3/4 drive socket wrench
- 3/4 drive metric sockets
- Standard and Metric open end wrenches
- Pry bar
- Rags and fluid collection container

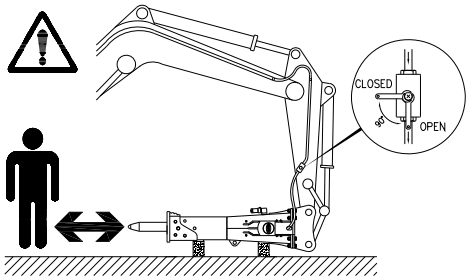


Fig. 9-5 Close Supply and Return Valves

1. Operator: Move carrier and breaker to a stable and level surface. Position the Breaker horizontally with the hose side up and the breaker tool pointing toward the carrier.

2. Shut the carrier off and relieve the pressure in the hydraulic tank and lines.

3. Assistant: Check that the Breaker is stable and all loads are supported. Close the supply and return valves.

4. Clean dirt from connection areas. Disconnect the hoses from the valves. Seal all connections with the appropriate plugs and caps.

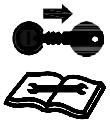
5. Remove keepers and pins. Collect any shims and adapters, if used, and store them for future use.

6. See Section 8.0 for storage instructions.

IMPORTANT
Contamination can diminish service life. Always clean area around fluid connections prior to opening the hydraulic system. Collect all fluids in a suitable container when opening the hydraulic system. Clean up spills and obey all local regulations for the disposal of these fluids.

10.0 Changing the Breaker Tool

10.1 Safety Precautions – Read First



CAUTION

Follow all safety and operating instructions provided by the carrier manufacturer. Engage interlock, shut off engine and apply parking brake.

CAUTION

Crush injury. Unsupported loads may cause injury or equipment damage. If attached to a carrier, lower the breaker to a flat stable surface. Ensure all loads are stabilized. Use sufficient blocking and restraints to stabilize loads.

CAUTION

Crush injury. If breaker is attached to carrier, relieve all hydraulic pressure inside breaker and attachment circuit before tool is removed.

CAUTION

Crush injury. Keep fingers, hands and other body parts clear of falling or moving parts. Do not insert fingers into bores. Use a screwdriver or rod to push pins out of bore.

Keep hands, feet and other body parts out of path and clear of falling parts.

CAUTION

Burn injury from contact with hot surface. Some components become hot during operation. Allow parts and fluids to cool before handling.

CAUTION

Injury from flying debris. PPE must be worn when striking pins with hammer. PPE includes appropriate clothing, gloves, safety eyewear and shoes.

CAUTION

Tools and other components of the breaker are heavy. Use suitable lifting equipment.

10.2 Tools Required

- Screw Driver or round push bar
- Hammer - Hand sledge
- Sling and lifting device

10.3 Overview of Tool Retainer System

The arrangement of front head components and the procedure for removing and installing the tool is essentially the same for all models. The tool can be changed with the breaker on or off the carrier.

The tool is inserted into the open end of the front head and retained by a pair of large pins, which pass through the slots located on the shank end of the breaker tool. The large pins are held captive by a pair of small retainers.

10.4.1 Removing the Breaker Tool – AR70D (Fig. 10-1)

1. Position the breaker horizontally on a stable and level surface. Elevate with blocks to access retainer from below.
2. Engage the hydraulic interlock. Stop the engine and apply the parking brake.
3. Close shut off valves
4. Remove spring pin using hammer and drift.
5. Remove tool retainer.
6. Tool is free to be removed from Front Head.

10.4.2 Removing the Breaker Tool – AR75B, AR85B, AR95B (Fig. 10-2)

7. Position the breaker horizontally on a stable and level surface. Elevate with blocks to access retainer from below.
8. Engage the hydraulic interlock. Stop the engine and apply the parking brake.
9. Close shut off valves
10. Push lock pin clear of tool retainer pin using screw driver.
11. Drive tool retainer clear of notch on tool.
12. Tool is free to be removed from Front Head.

10.0 Changing the Breaker Tool – [cont'd]

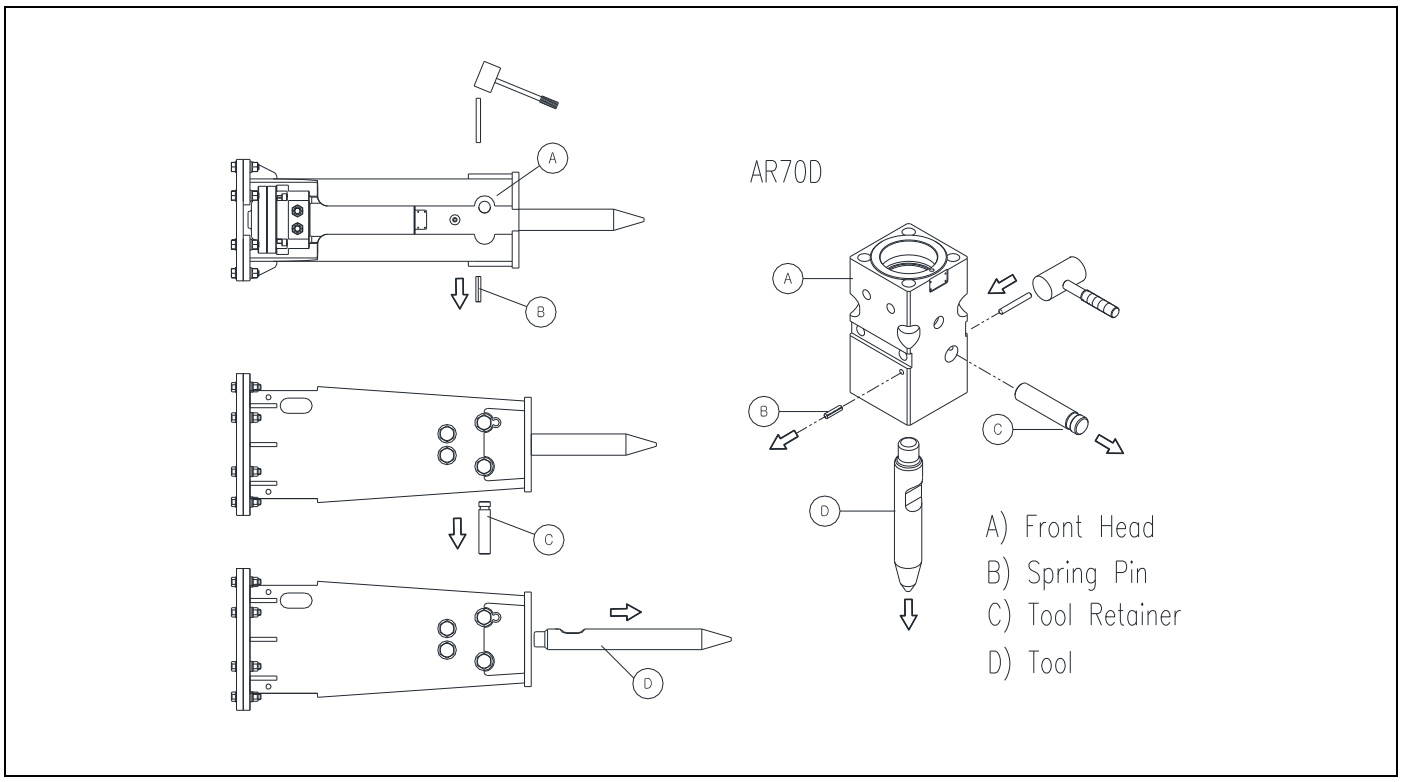


Fig. 10-1 Removing the Tool – AR70D

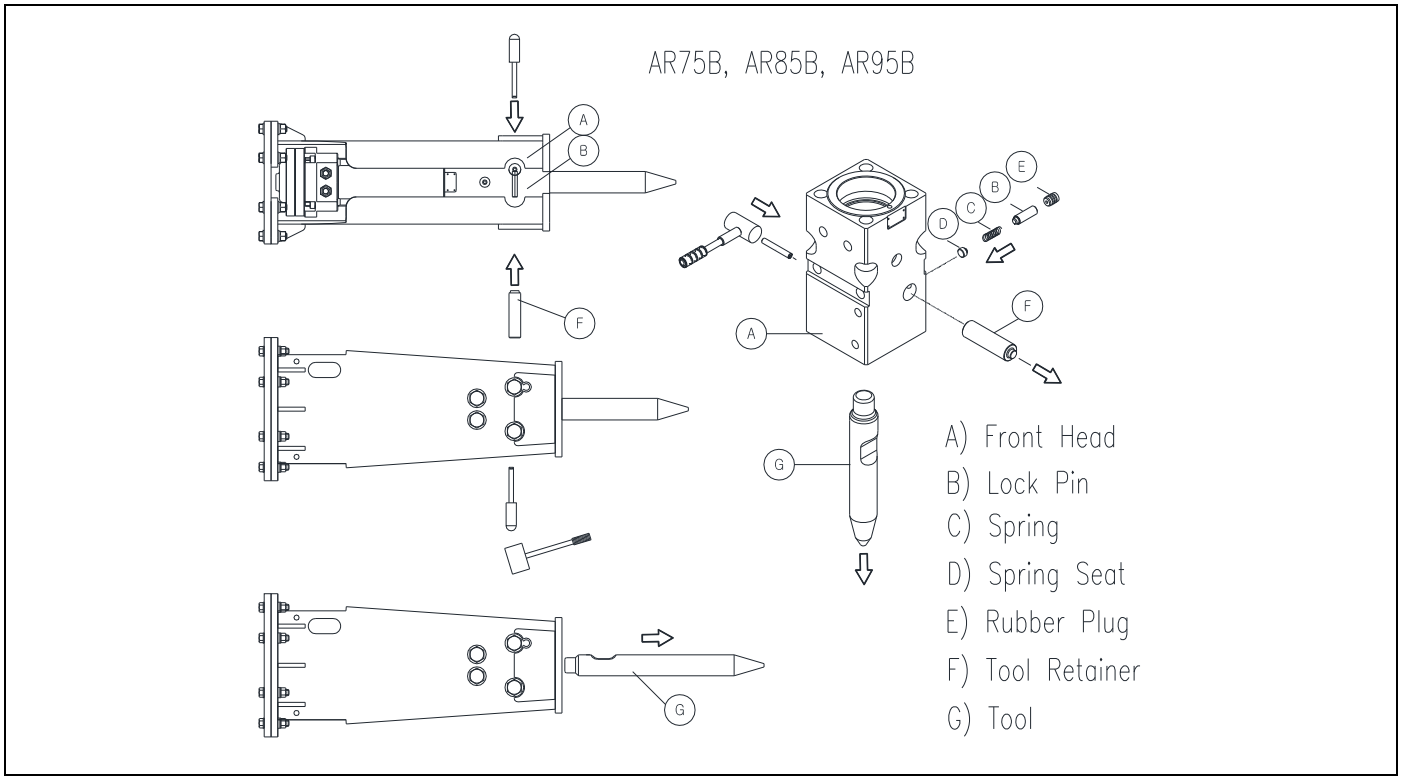


Fig. 10-2 Removing the Tool – AR75B, AR85B, AR95B

10.0 Changing the Breaker Tool – [cont'd]

10.5 Tool Inspection / Prepare for Installation

1. Clean and inspect front head bushings, tool and retainers. Check for uneven or excessive wear, cracks or other damage. Refer to Table 7.2.

2. Measure bushing and tool. Parts must be replaced if worn beyond wear limit.

3. Inspect impact face of piston and thrust ring for uneven or excessive wear, cracks or other damage.

4. Grind any burrs and sharp edges smooth if found on tool shank. Refer to Table 7.2.

IMPORTANT
Gradually remove burrs to prevent over-heating the steel.

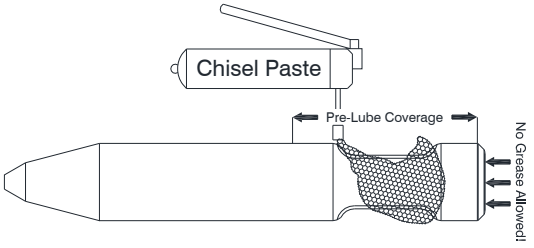
10.5.1 Installing the Breaker Tool – General

WARNING
Read, understand and follow all safety precautions described in section 10.1 of this manual before installing the breaker tool. Incorrect installation may allow the breaker tool to be driven out of the front head, possibly causing bodily injury or property damage.

IMPORTANT

Rapid wear to front head components will result if the following are not observed.

- Pre-lubricate the breaker tool before inserting into front head. This applies to new breaker tools and tools that have been wiped clean for inspection.



- For field replacement, keep dirt and rocks from contaminating the grease.

The arrangement of front head components and the procedure for removing and installing the tool is essentially the same for all models. The tool can be changed with the breaker on or off the carrier.

The tool is inserted into the open end of the front head and retained by a pin, which passes through the notched area of the breaker tool. The tool pin is held captive by a smaller pin.

10.5.2 Tools Required

- Screw driver, drift pin or round push bar
- Hammer - Hand sledge
- Sling and lifting device
- Grease gun

10.5.3 Installing the Breaker Tool

1. If attached to the carrier, lower the breaker and position horizontally on a stable and level surface.

2. Enable the hydraulic interlock. Stop the engine and apply the parking brake.

3. Close shut-off valves

4. **Large Breaker Tools are Heavy!** Handle tools with a suitable hoist and sling.

5. Pre-lubricate tool shank and retainer slot with clean grease. Insert tool into front head

6. Insert large retainer pin into front head

7. Install spring pin. For models equipped with plunger pin be sure pin is fully engaged over tool pin.

10.6 Tool Re-Lubrication – Conventional Method

Conventional re-lubrication is accomplished with a grease dispenser such as a standard hand-operated or power-assisted grease gun.

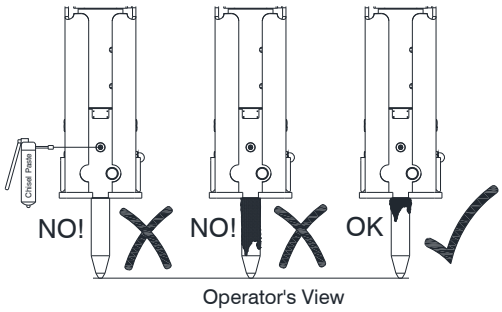


Fig 10-3 Operator Must Always See Lubricant On Tool

10.0 Changing the Breaker Tool – [cont'd]

Tool re-lubrication is generally recommended every two hours. The operator, however, must actively monitor the tool and adjust re-lubrication intervals accordingly. If grease does not remain visible, shorten the time between re-lubrication. Over-lubrication ends up as waste, either wait longer between re-lubrication or reduce the number of shots from the grease gun.

The breaker must be stood upright with the tool contacting the ground. Use the carrier to push down until the tool is seated firmly against the thrust ring.

1. Figure 10-4. On stable and level ground, stand the breaker vertically and push the tool firmly against the ground. Engage interlock and shut off carrier.

2. Fig. 10-5. Locate the single lube fitting on the front head. Wipe lube nipple. Press grease gun over lube nipple. Pump lever 10-20 strokes.

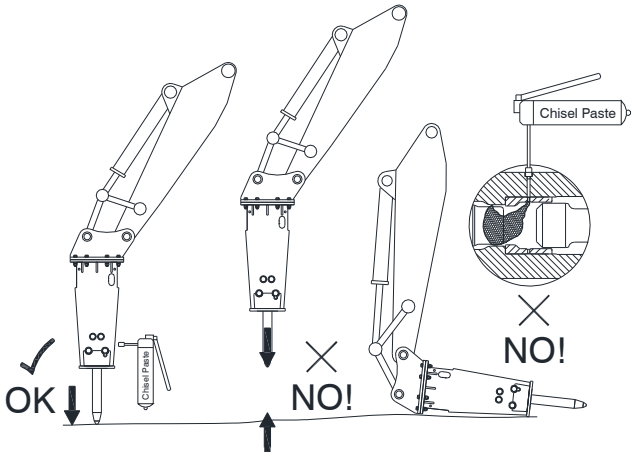


Fig 10-4 Correct and Incorrect Lubrication Positions

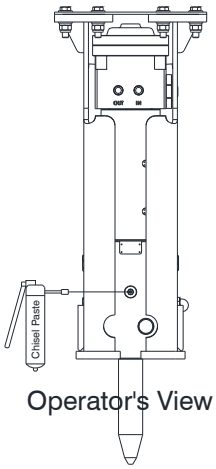


Fig 10-5 Lube Point

10.7 Avoid Costly Lubrication Mistakes

CAUTION

Failure to follow proper re-lubrication instructions will result in equipment damage. At no time is it permissible to re-lubricate the tool with the breaker suspended off the ground or lying horizontally as shown in Figure 10-4. Insufficient seating of the tool against the thrust ring will risk grease by-pass into the impact chamber (the area where the piston strikes the tool). Formation of grease in this area can produce pressures that can dislodge seals.

CAUTION

If an automatic dispenser provides re-lubrication of the tool, **please read carefully**. When delivery is continuous and the output is properly adjusted, the amount dispensed will be sufficient in volume to replenish the amount consumed during normal breaker operations. Any interruptions with the grease delivery will require special attention before the breaker can be returned to service. Delivery interruptions include:

- Installing a replacement tool
- Tool and bushings are wiped clean for inspection
- A grease line is replaced or added
- Operating the dispenser beyond the minimum level mark has depleted the reservoir

For new tools and tools wiped clean for inspection, prior to insertion, pre-lubricate by spreading a layer of clean grease over entire surface of tool shank including the slots for the retainer. Grease further after the tool is installed. Read and follow the re-lubrication instructions in Section 10.6. Any new grease line must be pre-filled. All pockets of air must be purged until delivery is continuous.

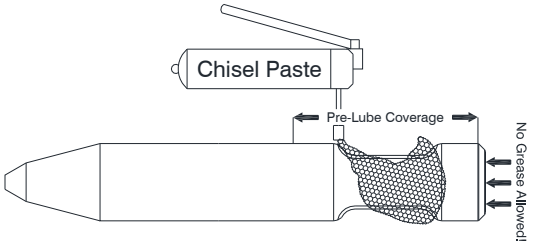


Fig. 10-6 Pre-Lube the Tool Shank

10.0 Changing the Breaker Tool – [cont'd]

10.8 Tool Re-Lubrication – AutoLube Options

As an option, Allied offers automatic grease dispensing systems that provide continuous re-lubrication of the tool and bushings during operation.

When installed correctly and properly maintained, automatic lubricators provide the following benefits-

- Higher utilization rate of breaker
- Extend service life of tool and bushings
- Reduced grease waste

A choice of carrier and breaker mounted models is available. The AutoLube can be used with any breaker having the necessary connection port.

10.8.1 Carrier Mounted Lubricator - CML Series

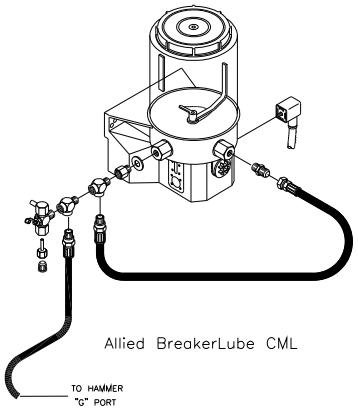


Fig 10-7 Carrier Mounted AutoLube System

The CML series AutoLube is designed for mounting on the carrier. It features a large refillable reservoir with a shut off switch that immobilizes the breaker and signals the operator when the reservoir reaches the low level mark. The electric motor can drive up to three pumping elements.

The CML series is highly configurable to suit virtually any size breaker. Allied offers kits to help facilitate the installation. Components of each kit, such as the number of pumping elements and lube lines, are coordinated with the size of the breaker and carrier combination. Universal kits are also available for non-Allied breakers. When ordering kits, it is necessary to provide the make and model of the carrier and breaker.

10.8.2 Hammer Mounted Lubricator – HML Series

The AutoLube HML-series is a compact size pump that mounts directly to the breaker. There are no electric or hydraulic connections. Grease is dispensed when the pump is pulsated by the breaker. The refillable reservoir is transparent and allows easy monitoring. Delivery is adjustable to match different size breakers and requires no special tools.

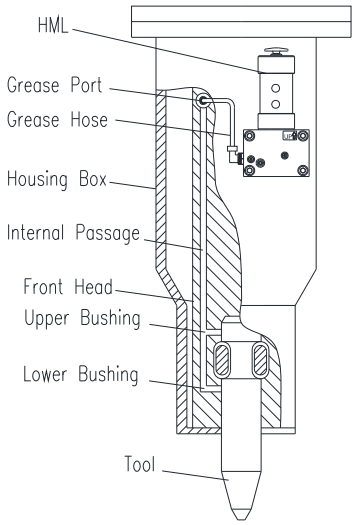


Fig 10-8 Hammer Mounted BreakerLube

Installation kits for both the CML-series and HML-series are available from Allied. These kits do not include Chisel paste. Order separately.

10.9 Chisel Paste

Allied Chisel Paste is a specialty lubricant made for use with all breakers. Developed exclusively for bushing and tools, chisel paste (when applied regularly) offers supreme protection against friction-related wear from heavy-loading.

Chisel Paste is specially formulated from a unique blend of lubricants that also include solids of molybdenum disulfide [MoS2], graphite and copper. These solids (typically not found in General Purpose" and "Multi-Purpose" grease) are key elements of Chisel Paste that help extend the service life of bushings and tools.

IMPORTANT
Pre-lubricate the tool before inserting into front head. Keep dirt and rocks from contaminating the grease. If Allied Chisel Paste is not used, re-lubrication frequency must be increased. Use high-quality EP type grease that contains a high percentage of molybdenum disulfide [MoS2] and formulated for use in high-temperature applications.

11.0 Tool Selection Guide

11.1 Match the Application

Hydraulic breakers are used in a variety of applications including concrete demolition and rock breaking. Efficient operation, production rates and service life of the Breaker is affected by many factors, including:

- Variations in operator technique
- Maintenance
- Selection of breaker tool

11.1.1 Methods Used to Break Material

Materials are fractured by two methods – Penetrative and Impact. With penetrative breaking, blows from the piston drive the tool into the material and wedge it apart. With impact breaking, blows from the piston generate a compressive force that squeezes the material. When the material's strength is exceeded, it fractures.

The three most commonly used tools for concrete demolition, rock cutting and bolder reduction are the Conical, Chisel, and Blunt. Conical [Pointed] and chisel [wedge] type tools work best in penetrative applications. The blunt [Flat] tool is used for impact breaking. Applications include bolder (oversize) reduction, rip rap and any work with hard, brittle and abrasive materials.

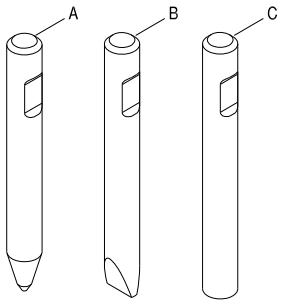


Fig. 11-1 A-Conical, B-Chisel, C-Blunt

A. Conical [Point] – Designed for penetrative breaking, the conical is suitable for most applications, including trenching and benching in sedimentary rock [e.g. sandstone], weak metamorphic rock and general breaking of concrete. The conical preforms well when working in reinforced concrete because its round shape resists twisting that can lead to retainer pin and pin slot deformation.

B. Chisel [Wedge-Cross Cut transverse or In-line parallel] – Same applications as the conical. Useful when cutting action is required.

C. Blunt – Designed for impact breaking, the blunt tool is effective in breaking concrete slabs, boulder reduction and secondary breaking of oversize rock. Blunt tools are best for igneous rock [e.g. granite] and tough metamorphic rock.

11.2 Working Length of Breaker Tool

Allied breaker tools are designed to provide exceptional quality and durability. Tools are made of high-strength alloy steel and given specialized heat treatment. Unless the application requires a longer length tool, it is best to stay with the standard length tool supplied with the breaker. Shorter tools are less prone to breaking when subjected to side loading forces. Review and adopt operating methods described in Section 6.0.

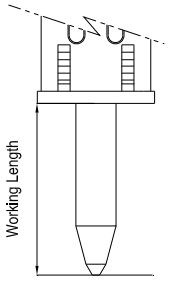


Fig. 11-2 Tool Working Length

11.3 Sharpening the Tool

Breaker tools can be re-machined on suitable equipment. Conical and blunt breaker tools can be re-machined on a lathe with carbide tooling. Chisels can be sharpened on a shaping or milling machine.

CAUTION

High temperatures will alter the original heat treatment of the tool material and change the strength. Do not cut with torch, hard face or weld breaker tools. When sharpening the breaker tool, prevent temperatures from exceeding 390º F.

12.0 Accumulator N_2 Gas Charge Tool

12.1 Accumulator N2 Gas Charge Equipment

The accumulator is a self-contained pressure vessel with an elastic membrane that divides the inner housing into a pair of expansible chambers. The lower chamber is used to receive, store and discharge pressurized oil. The upper chamber is filled with nitrogen gas.

After membrane replacement, the accumulator must be pre-charged with nitrogen (N2) gas. Accurate charging to the specified pressure is important for proper performance with long-term reliability. This is accomplished with the charging tool (Fig. 12-1) and a commercially available nitrogen bottle.

WARNING

Only qualified personnel, having knowledge of the machine's systems, proper test equipment and tools should attempt accumulator repairs.

Prevent injury from unexpected release of high pressure gaseous energy. The gas must be released before disassembly of accumulator.

Protective eyewear must be worn when servicing the accumulator.

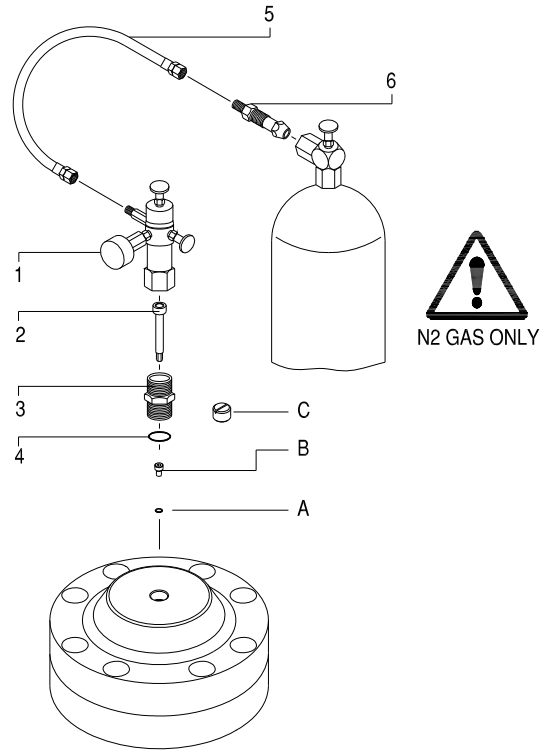


Fig. 12-1 N_2 Gas Charge Tool

Table 12.1 N2 Gas Charge Kit

Item	Description	Part No.	Qty	Remarks / Specifications
---	**N2 Gas Charge Kit**	**570071**	**1-Kit**	**Kit includes 1,2,3,4,5,6**
1	Charge Valve and Gauge	100527	1	Includes 2-6 and storage case
2	Socket Bolt	40601	1	
3	Adaptor	R101635	1	
4	O-ring	901135	1	
5	Hose	N/A	1	8 Ft. [2.5 M] Not Sold Separately
6	Gas Bottle Adapter	N/A	1	Not Sold Separately
---	Nitrogen Gas Bottle	N/A	1	Not Supplied (SOURCE LOCALLY)
A,B,C	U-sit ring, Charge Bolt, Cap	---	---	A,B,C shown for reference only. These items are not included in charge kit

Read, understand and follow all instructions for the safe and proper use of this tool.

12.0 Accumulator N_2 Gas Charge Tool – [cont'd]

12.2 Accumulator N2 Gas Charge – Safety Precautions

WARNING

Only qualified technicians , having knowledge of the machine's systems, proper test equipment and tools should attempt repairs to the accumulator.

Prevent injury from unexpected release of high pressure gaseous energy.

Protective eyewear must be worn when servicing the accumulator.

WARNING

Risk of explosion if filled with substitute gas or air. Use only dry nitrogen gas to fill accumulator.

WARNING

Prevent injury from unexpected release of high pressure hydraulic energy. If attached to carrier, relieve all oil pressure inside breaker and attachment circuit before service.

CAUTION

When working with pressurized systems, personal protection equipment, including safety eyewear must be worn.

WARNING

Crush injury from falling or shifting loads. All loads must be stable before service. If breaker is attached to carrier, lower to a flat stable surface.

Read, understand and follow all instructions for the safe and proper use of this tool. These instructions were prepared to assist the qualified technician with the information necessary for measuring/filling the Accumulator (figure 12-2).

12.2.1 Tools Required

1. Charge Kit 570071 (Fig. 12-1)

Source additional equipment locally:

- Nitrogen Bottle (with pressure regulator is recommended)
- Screwdriver
- Combination wrench
- Hex wrench (6mm)
- Torque Wrench
- Clean oil
- Rags

12.3 Connect the Charge Valve (Fig. 12-1)

1. Clean immediate area around the charge port. With a screwdriver, remove protective plug (C).
2. Use hex wrench to loosen charge bolt (B). (Do not allow gas to escape. Do not exceed 1/6 turn)
3. Check condition of O-ring (4) and thread the charging adaptor (3) into charge port
4. Insert socket bolt (2) thru adapter and engage with charge bolt.
5. Thread charge valve (1) onto adapter.
6. Attach one end of hose to the charge valve and the other to the valve at nitrogen bottle.

12.4 How to Test / Measure Gas Charge

WARNING

For the purpose of these instructions, the nitrogen bottle is equipped with a pressure regulator.

To preserve U-sit ring (A), the pressure must be equalized on both sides. To accomplish this, adjust regulator to zero.

12.0 Accumulator N_2 Gas Charge Tool – [cont'd]

1. Slowly crack open valve on nitrogen bottle to avoid pressure shock. Adjust regulator to pressure specified in technical data section. Close valve on bottle when desired pressure is shown on gage. If over pressure, adjust using bleed valve.

2. Observe gage on charge valve while unseating the charge bolt. Turn T-handle 2 – 3 revolutions CCW. If the pressure in hose is equal to pressure inside accumulator, the gage will remain stationary.

3. If a change in pressure is observed, but is +/- 5% of specification, no adjustment is necessary. If so, remove charging valve from accumulator as described in Section 12.6 of this manual.

4. Pressures > +/- 5% of specification requires adjustment. If so, follow the instructions for charging the accumulator as described in Section 12.5 of this manual.

5. If the gage plummets to 0 psi, this may indicate a ruptured membrane. Try adding gas. If gas is bypassing membrane, pressure will fail to rise. If so, repair is necessary.

12.5 Charging the Accumulator

CAUTION
Rapid cooling of the gas is normal when gas is transferred from the bottle. It is important not to fill the accumulator too quickly or risk damage to the rubber membrane.

1. Follow the instructions described in Section 12.3 for connecting the charge tool.

2. Unseat the charge bolt by turning the T-handle 3 revolutions CCW.

3. SLOWLY open valve on nitrogen bottle.

4. Adjust pressure regulator and SLOWLY fill the accumulator.

5. Adjust the regulator to + 50 psi above the value specified in the Technical Data Section.

NOTE: Gas pressure is sensitive to temperature changes. The technical data section lists the charge pressure with the ambient temperature of 70°.

6. Wait 15 to 30 minutes for temperature of gas inside accumulator to stabilize.

7. Recheck the gas pressure and make final adjustments as necessary.

12.6 Remove the Charge Valve

1. Close charge bolt hand tight.

2. Close valve at nitrogen bottle.

3. Open bleed valve.

4. Remove charge valve, adapter and socket bolt from accumulator.

5. Tighten charge bolt with torque wrench to 15 lb-ft [20 Nm].

6. Check for leaks. Fill the area surrounding the charge bolt with clean hydraulic oil. Bubbles indicate leak.

7. If no bubbles are observed, clean out oil and re-install protective plug

8. Store charge valve in protective case

9. Store nitrogen tank according to regulations

13.0 TROUBLESHOOTING GUIDE

CAUTION

Only qualified personnel, having knowledge of the machine's systems, proper test equipment and tools should attempt adjustments and repairs.

This guide identifies several commonly encountered conditions and the recommended course of action.

For conditions other than these, contact the Allied Technical Service Department

Condition	Possible Cause	Corrective Action
Breaker does not operate	Restriction in pressure or return line	Verify shut off valves are open. Check if hose has collapsed
	Pressure and return lines are crossed	Verify supply line is connected to port marked "IN" and return line to "OUT"
	Piston in brake	Piston must be forced out of brake. Apply contact pressure against the tool until it pushes up piston
	Incorrect breaker tool installed	Verify breaker tool is correct
	Insufficient oil pressure	Refer to section "Operating Pressure Too Low"
	Return line pressure too high	Refer to section "Return Line Pressure Too High"
	Carrier hydraulic circuit leaks	Locate source of bypass – Adjust, repair or replace faulty components
	Control valve [Carrier] misadjusted or malfunction	Incorrect working mode. Troubleshoot valve for mechanical, pilot circuit, or electrical fault
	AutoLube reservoir is empty - power interrupted to valve	Fill Auto-lube reservoir
Breaker starts but operation is irregular	Breaker tool is binding	Maintain right angle to work surface. Review operating technique Section 6.
		Check breaker tool is receiving sufficient lubrication. Check operation of AutoLube. Use Chisel Paste
		Breaker tool / bushings are worn
	Breaker tool loosing contact with material	Use boom, arm and bucket cylinder to follow breaker as tool penetrates material. Review operating technique Section 6.
	Return line pressure too high	Refer to section "Return Line Pressure Too High"
	Operating flow or pressure is too low	Refer to section "Operating Pressure Too Low"

13.0 TROUBLESHOOTING - [cont'd]

Condition	Possible Cause	Corrective Action
	Operating pressure too low	Refer to section "Operating Pressure Too Low"
	Improper Breaker operation Tool binding in bushing	Maintain right angle to work surface. Refer to operating technique Section 6.
		Check breaker tool is receiving sufficient lubrication. Check operation of Autolube. Use Chisel Paste
		Breaker tool / bushings are worn
	Return line pressure too high	Refer to section "Return Line Pressure Too High"
	Control valve [Carrier] misadjusted or malfunction	Incorrect working mode. Check for mechanical or pilot circuit failure
	Hydraulic oil overheating	Oil temperature should not exceed 176° F [80° C]
Blow frequency (BPM) slows down	Hydraulic oil is overheated	Refer to section "Operating Temperature Too High"
	Return line pressure too high	Refer to section "Return Line Pressure Too High"
	Flow too low	Measure oil Flow – Set to value listed in the specifications section of this manual
	Leakage in hydraulic circuit [Carrier]	Test hydraulic components for malfunction
	Oil viscosity too low	Consult carrier manufacturer for recommended oil type
	Breaker tool is binding	Maintain right angle to work surface. Review operating technique Section 6.
		Check breaker tool is receiving sufficient lubrication. Check operation of Autolube. Use Chisel Paste
		Breaker tool / bushings are worn
Excessive pulsations in pressure hose	No gas charge in accumulator	Stop breaker operation until accumulator is repaired

13.0 Troubleshooting - [cont'd]

Condition	Possible Cause	Corrective Action
Operating pressure too low	Relief valve set too low	Set to value listed in the specifications section of this manual
	Leakage in carrier's hydraulic circuit	Test hydraulic components for malfunction or improper adjustment
	Insufficient pump delivery [low flow results in low pressure]	Check pump flow [Measure with flow meter]
	Flow control set improperly	Set to value listed in the specifications section of this manual
Oil temperature too high	Operating pressure too high or too low	Refer to section "Operating Pressure Too High" or "Operating Pressure Too Low"
	Relief valve set too low	Set to value listed in the specifications section of this manual
	Ambient temperature is high	Auxiliary cooler may be required Check with carrier manufacturer
	Tool binding in bushing	Check breaker tool is receiving sufficient lubrication. Use Chisel Paste
	Return line pressure too high	Refer to "Return Line Pressure Too High" section
	Excessive cycle time	Limit cycle time to 15 seconds maximum Review operating technique Section 6.
	Oil flow too high	Set to value listed in the specifications section of this manual
	Breaking cycle too long	Review operating technique and application. Reduce advance. Evaluate breaker size to material
	Oil viscosity too low	Review Section 6.4.3. Adjust oil to match ambient temperatures. Optimum oil viscosity @ operating temperature is 60 – 30 cSt. Consult carrier manufacturer for recommended oil.
	Cooling system fault	Clean cooler, repair
Return line pressure too high	Flow restricted from blocked hoses or fittings	Remove blockage, replace damaged hoses or fittings
	Flow restricted from hoses or fittings too small for installation	Replace with proper size hose and fitting
	Flow restricted from small ports in valve bank	Return line must by-pass valve bank and be routed directly to the filter.
	Flow restricted from cooler or return filters	Repair or replace cooler Change filter

13.0 Troubleshooting- [cont'd]

Condition	Cause	Corrective Action
Oil leakage from body, accumulator or front head	Damaged or worn seals	Stop Breaker operation immediately and replace seals
	Ruptured accumulator membrane	Stop Breaker operation immediately and service accumulator
	Broken Through Bolt	Stop Breaker operation immediately and replace
Tool wear Excessive / Uneven	Excessive galling of tool shank or bushings	Check breaker tool is receiving sufficient lubrication Increase lubrication frequency. Use Allied Chisel Paste
		Maintain right angle to work surface. Refer to operating technique Section 6.
	Excessive wear on tip	Reduce advance, Limit cycle time. Refer to operating technique Section 6.
	Uneven wear on tip	Maintain right angle to work surface. Refer to operating technique Section 6.
Tool breakage	Excessive tool length	Use shorter length tool
	Tool driven into material and becomes stuck	Limit tool penetration. Refer to operating technique Section 6.
	Bending force exceeds material strength	Do not pry with tool. Refer to operating technique Section 6.
		Operator technique to adopt correct working angle. Maintain 90° angle to work surface. Refer to operating technique Section 6.
	Material strength is weakened if surface is damaged from galling, deep gouge or corrosion.	Operator technique to adopt correct working angle. Maintain right angle to work surface. Refer to operating technique Section 6. Check tool is receiving sufficient lubrication. Increase lubrication frequency. Use grease that is approved for this application such as a premium high temperature and extreme pressure type grease. Allied Chisel Paste is specifically formulated for this application. Store indoors. Coat with grease to protect from moisture.

The Breaker is not self-powered. Its performance level is affected by a hydraulic system that is not operating to specification.

All hydraulic breakers are designed to provide optimum performance with reliable service life at a specific oil pressure. The correct pressure must be maintained for proper functioning, optimal efficiency and reliable service.

If the Breaker is working incorrectly, first check that the mode switch is positioned correctly for operating a breaker. Next, check that the shut off valves are fully open.

If there is no improvement in the breaker's performance, conduct a thorough evaluation of the carrier's hydraulic circuit. Measure oil pressures at the supply [IN] and return [OUT].

Further testing may be necessary and will require the use a flow meter. Be sure to include the breaker's supply and return hoses when conducting a flow test, as they may be faulty, e.g. collapsed hose. Use the flow meter to measure oil delivery from the pump and to verify the cracking pressure of the relief valve.

14.0 Technical Information

14.1 Definition of Terms

For the purposes of this manual, Hydraulic Flow, Operating Pressure, Dynamic Relief Pressure and Static Relief Pressure are defined as follows:

- **Range** – A range is represented by two values 'V1 – V2' and generally means the lowest-to-highest limit of a device that will allow it to adequately respond. “Minimum flow” describes the least amount required while permitting continuous operation that is both satisfactory and efficient.

- **Hydraulic Flow** – A measure of the volume of oil (values given in GPM / LPM) necessary for the safe and efficient operation of the Allied attachment. For attachments such as Breakers, the flow value is represented as a range. The range specifies the upper and lower limits in which the Breaker is designed to operate.

- **Operating Pressure** – A measure of the hydraulic oil pressure (values given in PSI / BAR) taken in the breaker’s supply line during operation. For attachments such as Breakers, the pressure value is represented as a range. The range specifies the upper and lower limits in which the Breaker is designed to operate.

- **Relief Valve** – An adjustable, spring-loaded valve that opens when a preset pressure value is reached. A relief valve is safety device, used to protect the circuit against hydraulic overload. Relief valves vary in design. Pilot controlled pressure relief valves are designed so that the relief pressure increases very little as the flow through the valve increases. For Breaker applications, they are recommended over direct acting type relief valves.

- **Dynamic Relief Pressure –** Also referred to as “Cracking Pressure”. The pressure measured at the moment the oil pressure exceeds the preset value of the relief valve and the spool “cracks” open.

- **Static Relief Pressure** – Also referred to as “Full Relief Pressure”. The pressure measured at the moment the relief valve has opened fully and all oil is by-passed.

- **Opening Curve** – The opening curve is the rise of pressure between dynamic (first open) and static (all of the oil flow is bypassed). The dynamic pressure is always less than the static pressure. A relief valve adjusted to a dynamic pressure of 3000 psi (200 Bar) will crack open when the preset point is reached, but fully opens at a higher pressure.

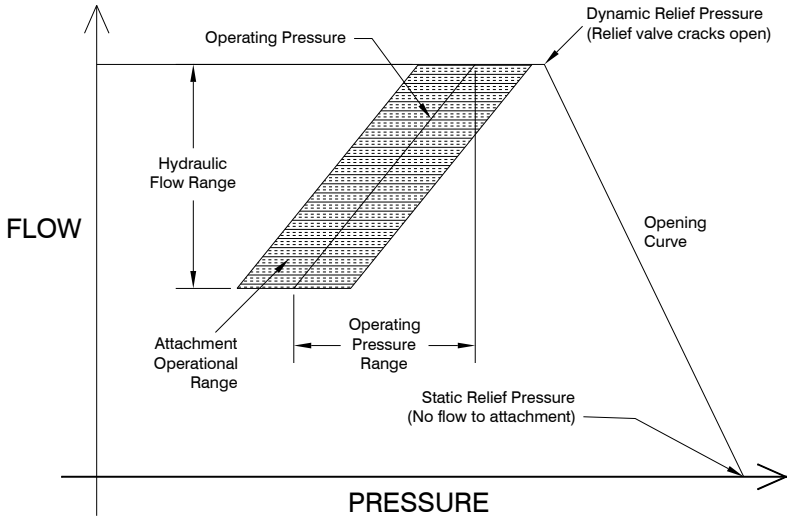


Fig. 14-1: Flow-Pressure Diagram

14.0 Technical Information –[cont'd]

14.2 Testing the Hydraulic Circuit

Allied requires a qualified person to perform the post-installation test. A post-installation test is performed after completion of the installation and before the breaker is first used. Thorough assessment entails testing under varied conditions, including temperature, work mode, engine speed and load. This will assure that the hydraulic circuit has been configured in accordance with the prescribed parameters listed in the technical data table.

Tools required to complete these tests include a flow meter and pressure gages. Record the test measurements in the worksheet provided below. Compare the results with the Technical Data section of this manual.

Performance is negatively impacted by a hydraulic system not operating correctly or set outside the prescribed specifications. If the Breaker is underperforming or not working, thoroughly check the hydraulic system of the carrier before disassembly of the Breaker. Be sure to include the hoses attached to the breaker to eliminate any possible faults, e.g. collapsed hose.

Work Mode	Engine RPM	Flow [GPM]	Load Pressure [PSI]	Oil Temp [ºF]	Relief Pressure [Crack]	Relief Pressure [Static]	Return Pressure [PSI]
			0				
			1000				
			1500				
			1800				
			2000				
			2200				
			2400				
			2600				
			2800				
			3000				
			3200				
			3400				

CAUTION

Before starting, make sure the circuit to be tested has a relief valve. Open restrictor valve on flow meter. Procedures can vary depending on specifics of your equipment. Follow the instructions provided by the manufacturer of the carrier and flow meter when testing.

Work Mode – Set to Breaker position (if equipped).

Engine RPM – Set to normal operating speed

Flow [GPM] – Record measured flow at each load pressure

Load Pressure [PSI] – Steadily increase load with restrictor valve on the flow meter

Oil Temperature – Testing must be done while the hydraulic oil temperature is at normal operating temperature. Stop test if temperature exceeds 176° F (80° C)

Relief Pressure [Crack] – Steadily close restrictor valve until pressure gage indicates relief valve has cracked open.

Relief Pressure [Static] – After cracking pressure is reached, steadily close the restrictor valve until flow gage indicates relief valve is fully open.

Return Pressure [PSI] – Record the pressure measured in the return line. Measuring point for gage must be located near breaker's outlet port.

14.0 Technical Information –[cont'd]

Table 14.1 Technical Data

				AR70D	
Impact Frequency [a]			B/min	500-1200	
Oil Flow Range			gpm [l/min]	10-24 [40-90]	
Operating Pressure Range [b]			psi [bar]	1,600-1,890 [110-130]	
Pressure Relief – Min [c] - Max [d]			psi [bar]	2,320-2,610 [160-180]	
Back Pressure – Min - Max			Psi [bar]	60-145 [4-10]	
Oil Temperature - Max			F° [C°]	176° [80°]	
Oil Viscosity Range – Permissible (Optimum – at working temp.) j]			cSt	1000-15 (60-30)	
Accumulator Charge Pressure N2 Gas @ 70° F [21°C]			Psi [bar]	870 [60]	145 [10]
Oil Port Connection Type / Size – IN [OUT]			Internal Thread	G3/4	[G3/4]
Line Size - Min. ID.	Supply IN	**Return OUT**	in. [mm]	3/4 [19]	**3/4 [19]**
AG Grease Port Connection - G			---	Not Equipped	
Air Port Connection - A			---	Not Equipped	
Breaker Tool:	Type-Std Diameter Length		in. [mm] in. [mm]	Chisel - CCW 2.75 [70] 17.2 [438]	
Working Weight [f]			lbs. [kg]	730 [330]	
Carrier Weight Range [g]	Carrier Type [h] B) E) S)		lbs. x1000 [kg] x 1000	S) 5+ [2+] B) 9.0-15.4 [4-7] E) 6.6-15.4 [3-7]	

a] Actual frequency depends on oil flow [Factors that affect oil flow include oil viscosity and temperature]

b] Permissible range. Actual operating pressure depends on oil flow, back pressure, material to be broken

c] Permissible setting of MINIMUM pressure relief – DYNAMIC. Measured operating pressure + Minimum 725 psi [50 Bar]

d] Permissible setting of MAXIMUM pressure relief – STATIC [Not to exceed main relief setting]

e] Auto Grease (AG) port introduced on units after September 2013 (AR85B & AR95B)

f] Equipped with typical mounting bracket & standard tool

g] Values shown are guidelines – Always consult carrier manufacturer's lift capacity to assure stable carrier operation. The carrier must have adequate lift and hydraulic capacities to properly and safely operate the BREAKER.

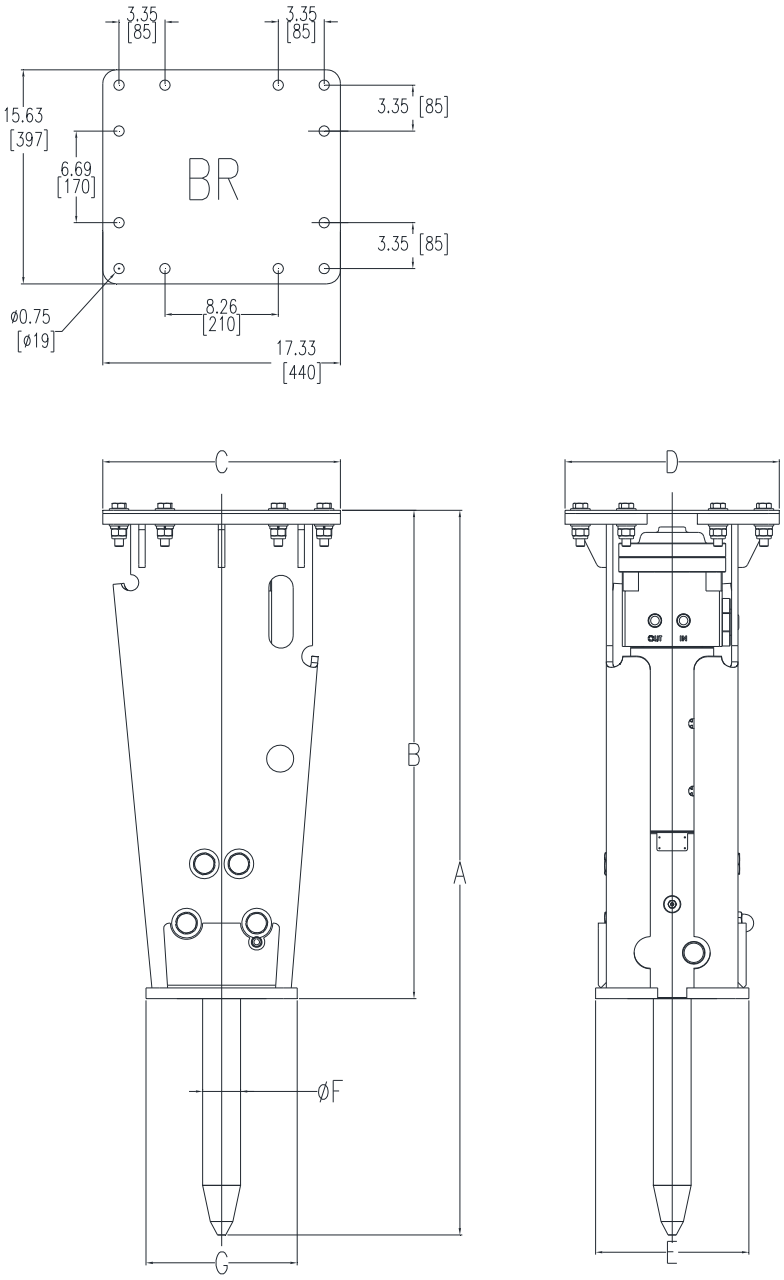
h] Carrier Type: (B) Backhoe, (E) Excavator, (S) Skid Steer

j] Many factors can reduce the service life of hydraulic components. Incorrect fluid viscosity is just one of these factors. To prevent low (or high) viscosity from cutting short component life, select an appropriate fluid for the operating temperature and viscosity range and then keep it maintained on a continuous basis.

14.0 Technical Information –[cont'd]

Table 14.2		AR70D
A	inch	53
	[mm]	1344
B	inch	35.6
	[mm]	906
C	inch	17.3
	[mm]	440
D	inch	15.6
	[mm]	397
E	inch	11.2
	[mm]	284
F	inch	2.75
	[mm]	70
G	inch	11
	[mm]	280
Mounting Family		BR

Fig. 14-2: Standard Dimensions



14.0 Technical Information –[cont'd]

Table 14.3 Technical Data				AR75B	
Impact Frequency [a]			B/min	520-1000	
Oil Flow Range			gpm [l/min]	16-22 [60-82]	
Operating Pressure Range [b]			psi [bar]	1,600-1,890 [110-130]	
Pressure Relief – Min [c] - Max [d]			psi [bar]	2,320-2,610 [160-180]	
Back Pressure – Min - Max			Psi [bar]	60-145 [4-10]	
Oil Temperature - Max			F° [C°]	176° [80°]	
Oil Viscosity Range – Permissible (Optimum – at working temp.) j]			cSt	1000-15 (60-30)	
Accumulator Charge Pressure N2 Gas @ 70° F [21°C]			Psi [bar]	580 [40]	
Oil Port Connection Type / Size – IN [OUT]			Internal Thread	G1	[G1]
Line Size - Min. ID.	Supply IN	**Return OUT**	in. [mm]	3/4 [19]	**3/4 [19]**
AG Grease Port Connection - G			---	Not Equipped	
Air Port Connection - A			---	Not Equipped	
Breaker Tool:	Type-Std Diameter Length		in. [mm] in. [mm]	Chisel - CCW 2.95 [75] 19 [487]	
Working Weight [f]			lbs. [kg]	740 [335]	
Carrier Weight Range [g]	Carrier Type [h] (B) (E) (S)		lbs. x1000 [kg] x 1000	S) 8+ [3.6+] B) 12.0-19.8 [5.4-9] E) 8.0-19.8 [3.6-9]	

a] Actual frequency depends on oil flow [Factors that affect oil flow include oil viscosity and temperature]

b] Permissible range. Actual operating pressure depends on oil flow, back pressure, material to be broken

c] Permissible setting of MINIMUM pressure relief – DYNAMIC. Measured operating pressure + Minimum 725 psi [50 Bar]

d] Permissible setting of MAXIMUM pressure relief – STATIC [Not to exceed main relief setting]

e] Auto Grease (AG) port introduced on units after September 2013 (AR85B & AR95B)

f] Equipped with typical mounting bracket & standard tool

g] Values shown are guidelines – Always consult carrier manufacturer's lift capacity to assure stable carrier operation. The carrier must have adequate lift and hydraulic capacities to properly and safely operate the BREAKER.

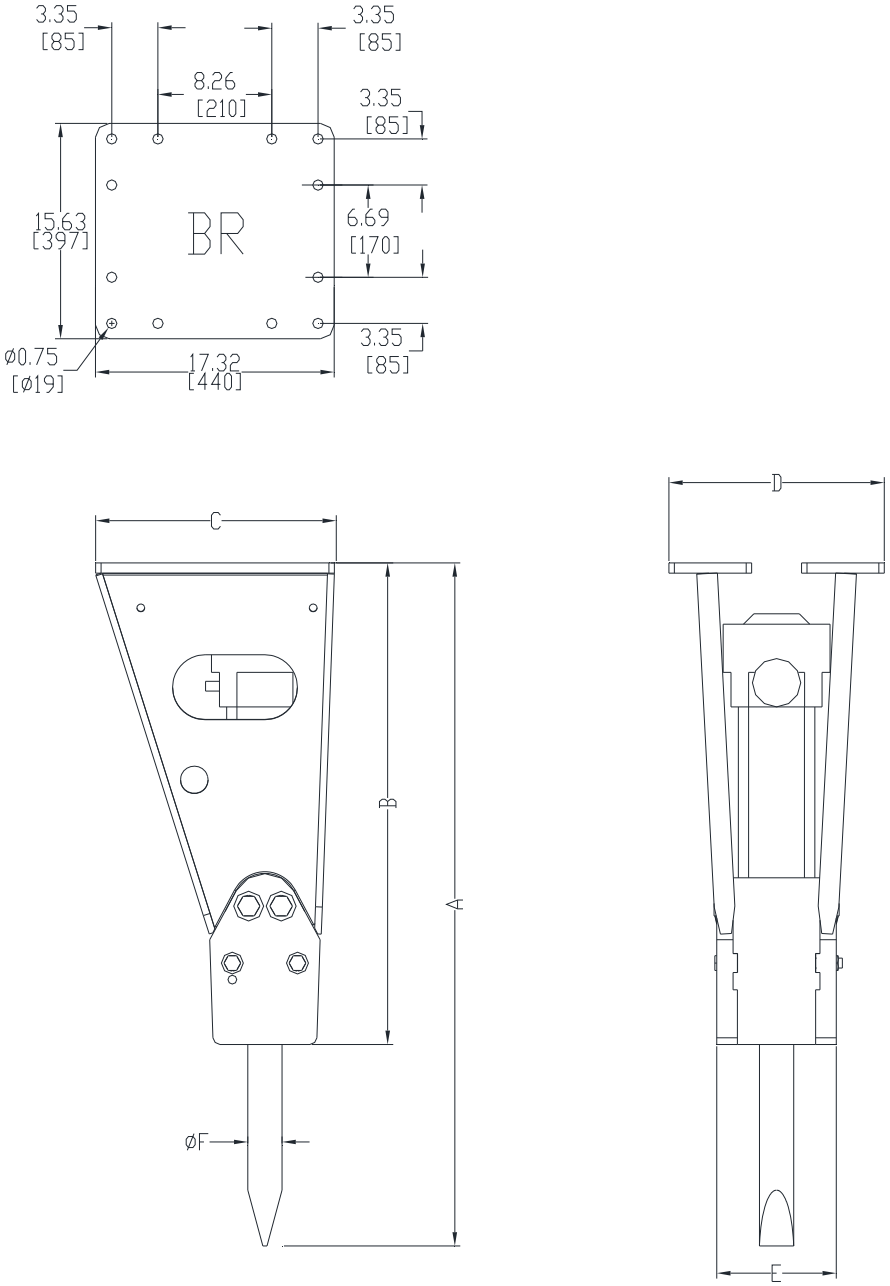
h] Carrier Type: B) Backhoe, E) Excavator, S) Skid Steer

j] Many factors can reduce the service life of hydraulic components. Incorrect fluid viscosity is just one of these factors. To prevent low (or high) viscosity from cutting short component life, select an appropriate fluid for the operating temperature and viscosity range and then keep it maintained on a continuous basis.

14.0 Technical Information –[cont'd]

Table 14.4		AR75B
A	inch	53.0
	[mm]	[1346]
B	inch	38.3
	[mm]	[973]
C	inch	17.3
	[mm]	[440]
D	inch	15.6
	[mm]	[399]
E	inch	8.7
	[mm]	[220]
F	inch	2.95
	[mm]	[75]
Mounting Family		BR

Fig. 14-3: Standard Dimensions



14.0 Technical Information –[cont'd]

Table 14.5 Technical Data

				AR85B		AR95B	
Impact Frequency [a]			B/min	500-900		350-700	
Oil Flow Range			gpm [l/min]	16-26 [60-100]		18-33 [70-125]	
Operating Pressure Range [b]			psi [bar]	1,600-1,890 [110-130]		1,740-2,030 [120-140]	
Pressure Relief – Min [c] - Max [d]			psi [bar]	2,320-2,610 [160-180]		2,320-2,610 [160-180]	
Back Pressure – Min - Max			Psi [bar]	60-145 [4-10]			
Oil Temperature - Max			F° [C°]	176° [80°]			
Oil Viscosity Range – Permissible (Optimum – at working temp.) j]			cSt	1000-15 (60-30)			
Accumulator Charge Pressure N2 Gas @ 70° F [21°C]			Psi [bar]	870 [60]			
Oil Port Connection Type / Size – IN [OUT]			Internal Thread	G1 [G1]		G3/4 [G3/4]	
Line Size - Min. ID.	Supply IN	**Return OUT**	in. [mm]	3/4 [19]	**3/4 [19]**	1 [25]	**1 [25]**
AG Grease Port Connection - G			BSP	G3/8 [e]			
Air Port Connection - A			---	Not Equipped			
Breaker Tool:		Type-Std Diameter Length	in. [mm] in. [mm]	Chisel - CCW 3.35 [85] 18 [457]		Chisel - CCW 3.74 [95] 23 [584]	
Working Weight [f]			lbs. [kg]	1,185 [544]		1,600 [725]	
Carrier Weight Range [g]	Carrier Type [h] B) E) S)		lbs. x1000 [kg] x 1000	B) 14,0-25,0 [6-11] E) 12.1-24.2 [5,5-11]		B) 16,0-25,0 [7-11] E) 17.6-35.2 [8-16]	

a] Actual frequency depends on oil flow [Factors that affect oil flow include oil viscosity and temperature]

b] Permissible range. Actual operating pressure depends on oil flow, back pressure, material to be broken

c] Permissible setting of MINIMUM pressure relief – DYNAMIC. Measured operating pressure + Minimum 725 psi [50 Bar]

d] Permissible setting of MAXIMUM pressure relief – STATIC [Not to exceed main relief setting]

e] Auto Grease (AG) port introduced on units after September 2013 (AR85B begin S/N-1172 & AR95B begin S/N-01093)

f] Equipped with typical mounting bracket & standard tool

g] Values shown are guidelines – Always consult carrier manufacturer's lift capacity to assure stable carrier operation. The carrier must have adequate lift and hydraulic capacities to properly and safely operate the BREAKER.

h] Carrier Type: B) Backhoe, E) Excavator, S) Skid Steer

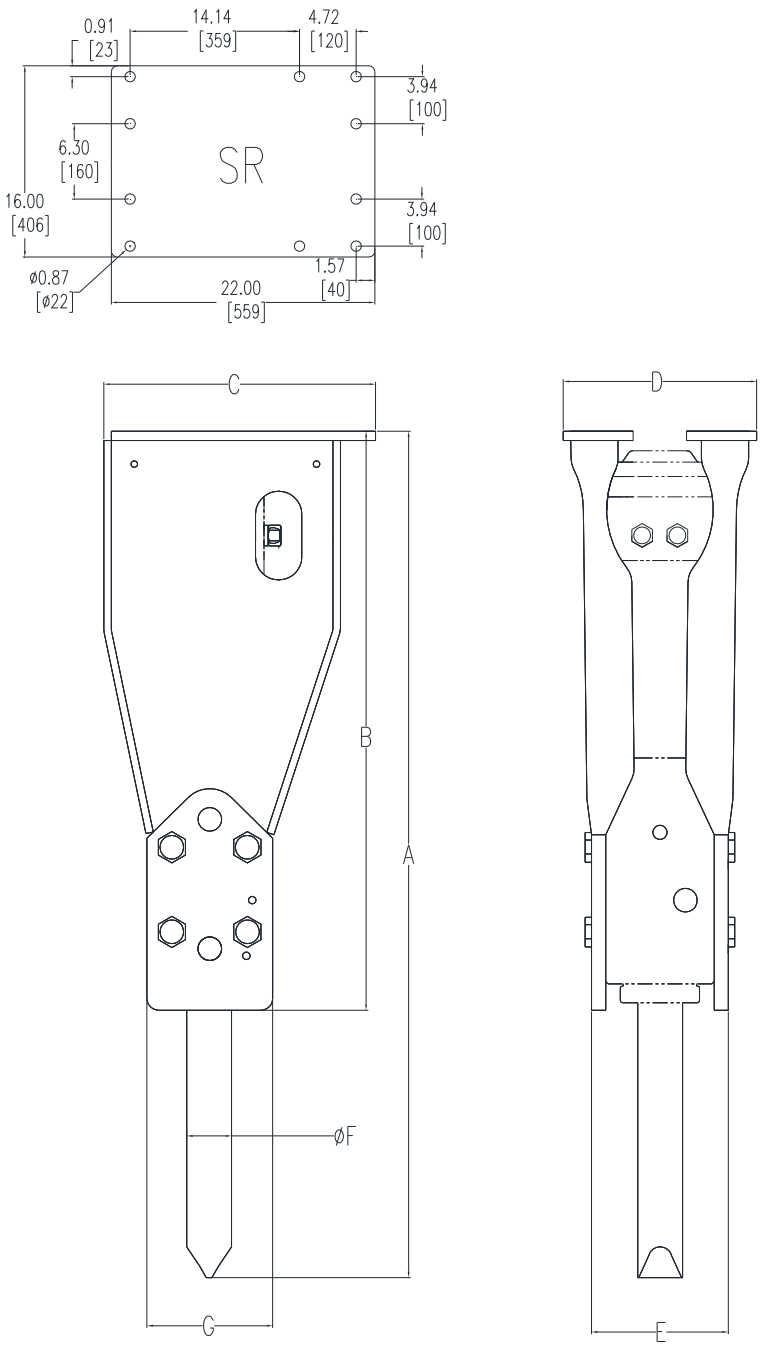
j] Many factors can reduce the service life of hydraulic components. Incorrect fluid viscosity is just one of these factors. To prevent low (or high) viscosity from cutting short component life, select an appropriate fluid for the operating temperature and viscosity range and then keep it maintained on a continuous basis.

Housing Box – AR85B Begin S/N-01213, Housing Box – AR95B Begin S/N-01114

14.0 Technical Information –[cont'd]

Table 14.6		AR85B	AR95B
A	inch	60.5	70.8
	[mm]	[1538]	[1800]
B	inch	42.1	47.8
	[mm]	[1069]	[1214]
C	inch	22.5	22.5
	[mm]	[560	[560]
D	inch	16.1	16.1
	[mm]	[410]	[410]
E	inch	12.3	12.7
	[mm]	[314]	[324]
F	inch	3.35	3.74
	[mm]	[85]	[95]
G	inch	12.5	13.7
	[mm]	[320]	[350]
Mounting Family		SR	SR

Fig. 14-4: Standard Dimensions

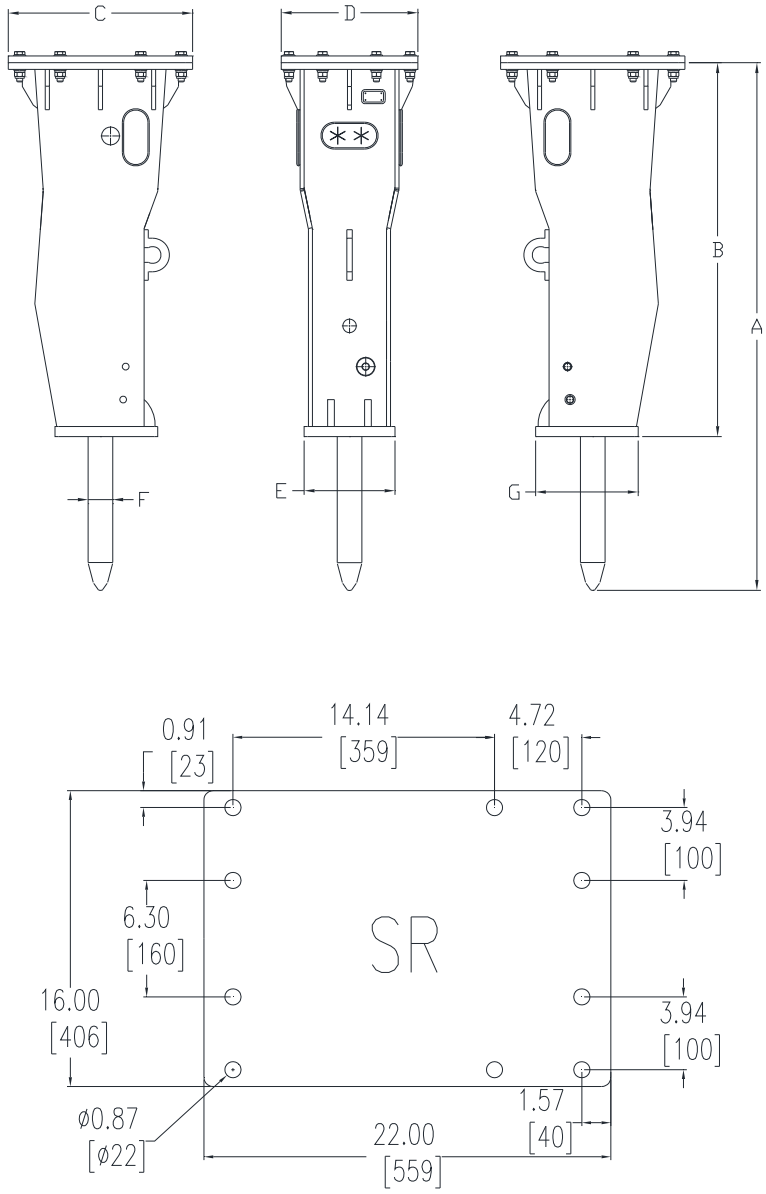


Housing Box – AR85B Begin S/N-01213, Housing Box – AR95B Begin S/N-01114

14.0 Technical Information –[cont'd]

Table 14.7		AR85B	AR95B
A	inch	62.5	70.5
	[mm]	[1585]	[1790]
B	inch	44.5	50
	[mm]	[1132]	[1274]
C	inch	22.5	22.5
	[mm]	[560]	[560]
D	inch	16.1	16.1
	[mm]	[410]	[410]
E	inch	10.5	12
	[mm]	[270]	[304]
F	inch	3.35	3.74
	[mm]	[85]	[95]
G	inch	12	13.3
	[mm]	[305]	[339]
Mounting Family		SR	SR

Fig. 14-5: Standard Dimensions



Housing Box – AR85B Begin S/N-01213, Housing Box – AR95B Begin S/N-01114

14.0 Technical Information –[cont'd]

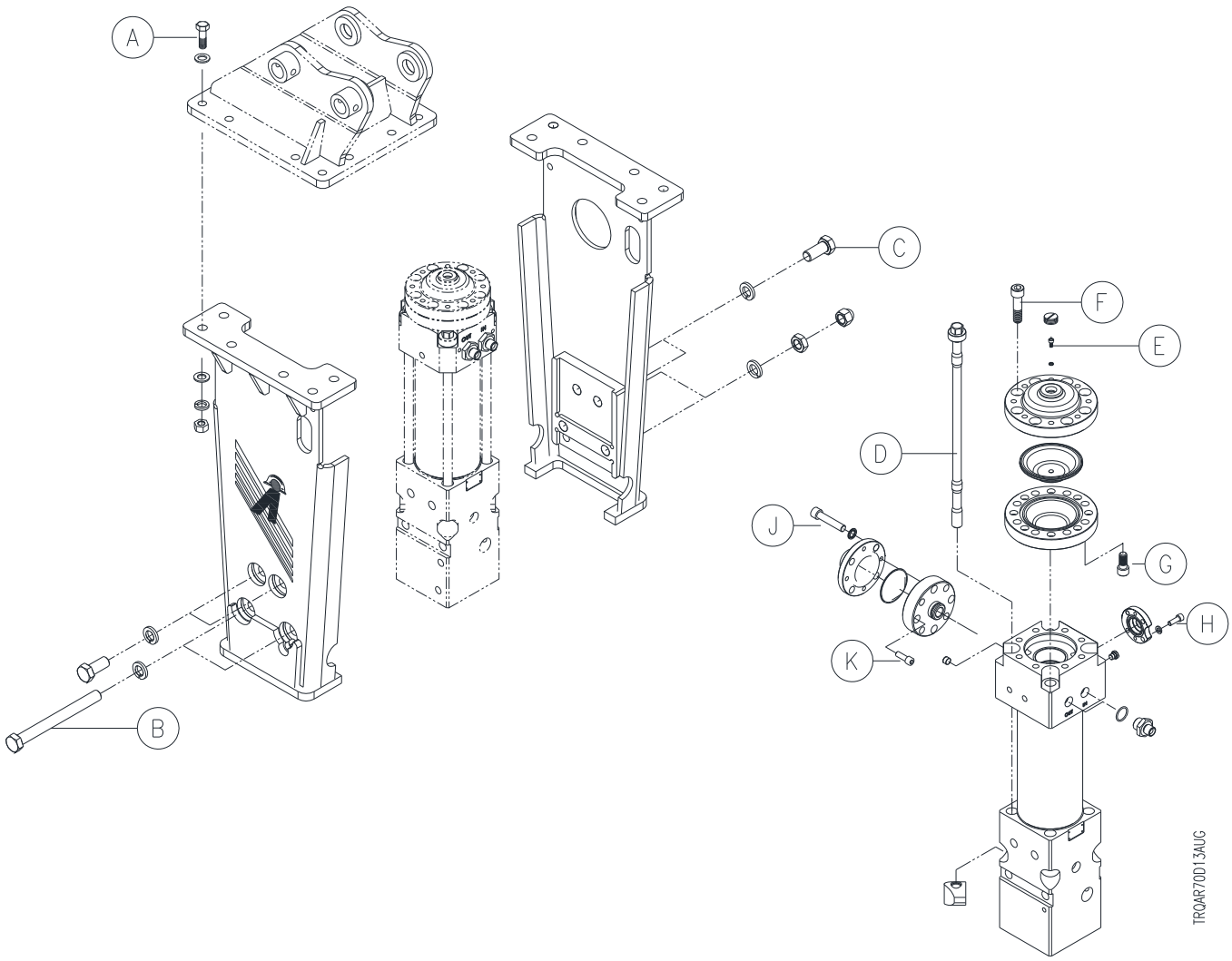


Fig 14-6 Position of Threaded Fasteners

Table 14.6 Fastener Torque

			AR70D		AR75B	
Item	**Description**	**Qty**	**Size**	**Ft-Lbs. [N·m]**	**Size**	**Ft-Lbs. [N·m]**
A	Top Mtg Brkt Bolts	12	M16	140 [190]	M16	140 [190]
B	Housing Plate Long Bolt	2	M24	590 [800]	M24	425 [580]
C	Housing Plate Short Bolt	4	M24	590 [800]	M24	425 [580]
D*	Side Rod	4	---	Table 14.8*	---	Table 14.8*
E	Gas Charge Bolt	1	M08	15 [20]	M08	15 [20]
F	HP Accum Top Bolt	8	M16	185 [250]	M18	220 [300]
G	HP Accum Bottom Bolt	8	M16	185 [250]	M16	185 [250]
H	Oper Valve Cover Bolt	4	M10	40 [55]	M10	40 [55]
J	LP Accum Top Bolt	4	M16	185 [250]	---	Not Equipped
K	LP Accum Bottom Bolt	4	M12	75 [100]	---	Not Equipped

14.0 Technical Information –[cont'd]

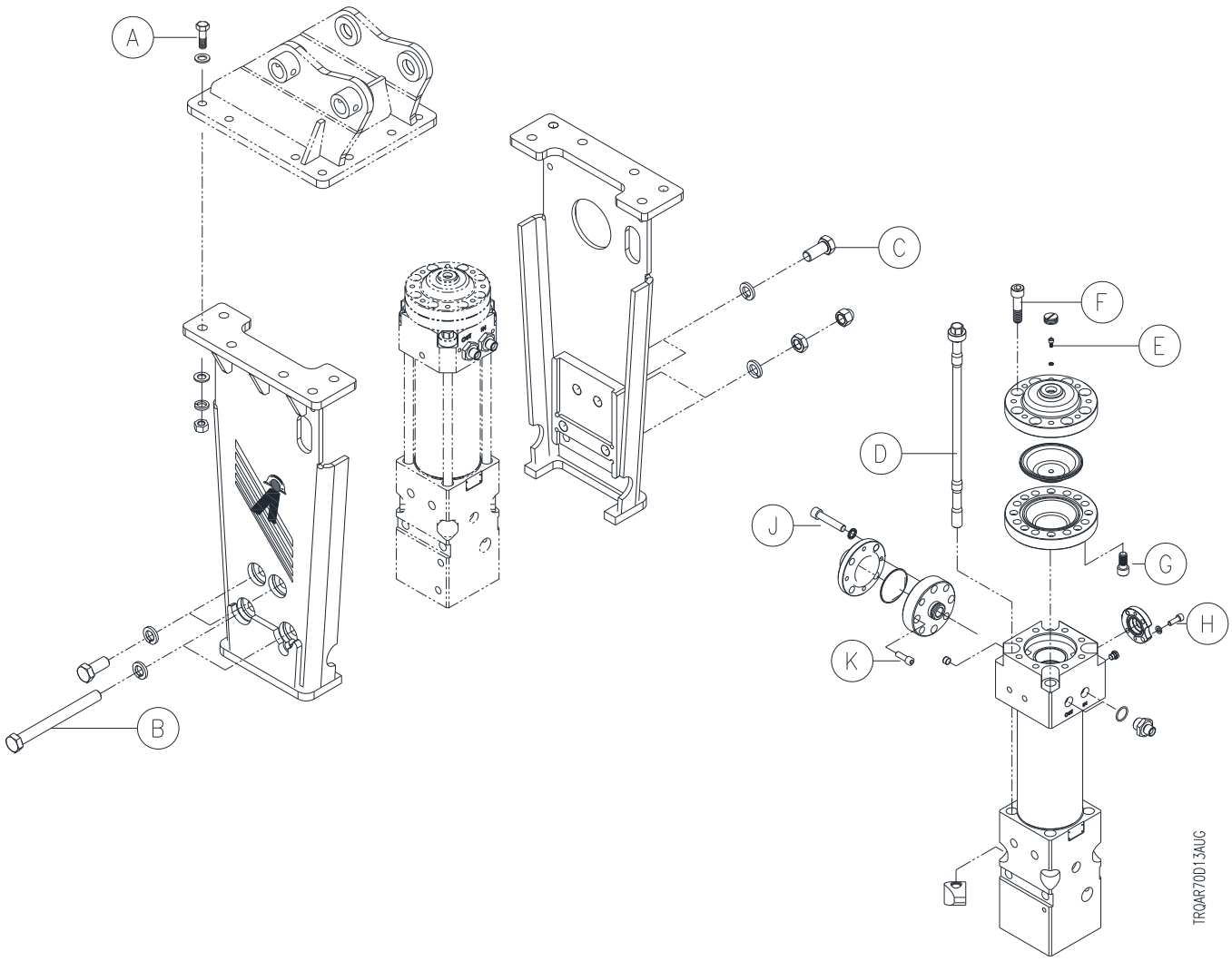


Fig 14-7 Position of Threaded Fasteners

Table 14.7 Fastener Torque

			AR85B		AR95B	
Item	**Description**	**Qty**	**Size**	**Ft-Lbs. [N·m]**	**Size**	**Ft-Lbs. [N·m]**
A	Top Mtg Brkt Bolts	10	M20	250 [340]	M20	250 [340]
B	Housing Plate Long Bolt	2	M27	625 [850]	M30	850 [1150]
C	Housing Plate Short Bolt	4	M27	625 [850]	M30	850 [1150]
D*	Side Rod	4	---	Table 14.8*	---	Table 14.8*
E	Gas Charge Bolt	1	M08	20 [30]	M08	15 [20]
F	Accum Top Bolt	8	M18	220 [300]	M18	220 [300]
G	Accum Bottom Bolt	8	M16	185 [250]	M16	185 [250]
H	Oper Valve Cover Bolt	4	M10	45 [60]	M10	45 [60]
J	Top Bolt LP Accum	---	---	Not Equipped	---	Not Equipped
K	Bottom Bolt LP Accum	---	---	Not Equipped	---	Not Equipped

14.0 Technical Information –[cont'd]

IMPORTANT
Apply Moly-Paste 676927 to threads at assembly. Use progressive tightening technique to draw side rods up evenly. Progressive tightening means the nut will be turned a little at a time. Never exceed 1 full turn without turning the other 3 nuts. Complete pre-torque levels 1, 2 & 3 (in small increments) by following a crisscross pattern to ensure all side rods are evenly loaded.

Table 14.8 Side Rod Tightening Item D* **Ft-Lbs. [N·m]**

IMPORTANT! Apply Moly-Paste 676927 to threads before assembly.		**AR70D**	**AR75B**	**AR85B**	**AR95B**
Step 1	Tighten side rod 1 (Fig 14-6). Then tighten side rods 2,3 & 4 following the order shown in Figure 14-7.	110 [150]	110 [150]	110 [150]	220 [300]
Step 2	Following the sequence (Fig. 14-6) tighten all side rods.	220 [300]	220 [300]	220 [300]	370 [500]
Step 3	Following the sequence (Fig. 14-6) tighten all side rods.	220 [300]	440 [600]	440 [600]	515 [700]

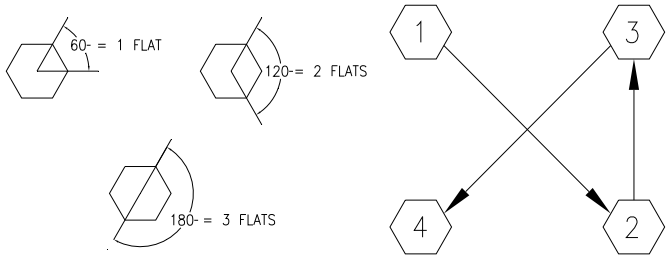


Fig. 14-8 **Rotation Angle (Each Flat = 60°)** Use progressive tightening technique to draw side rods up evenly.

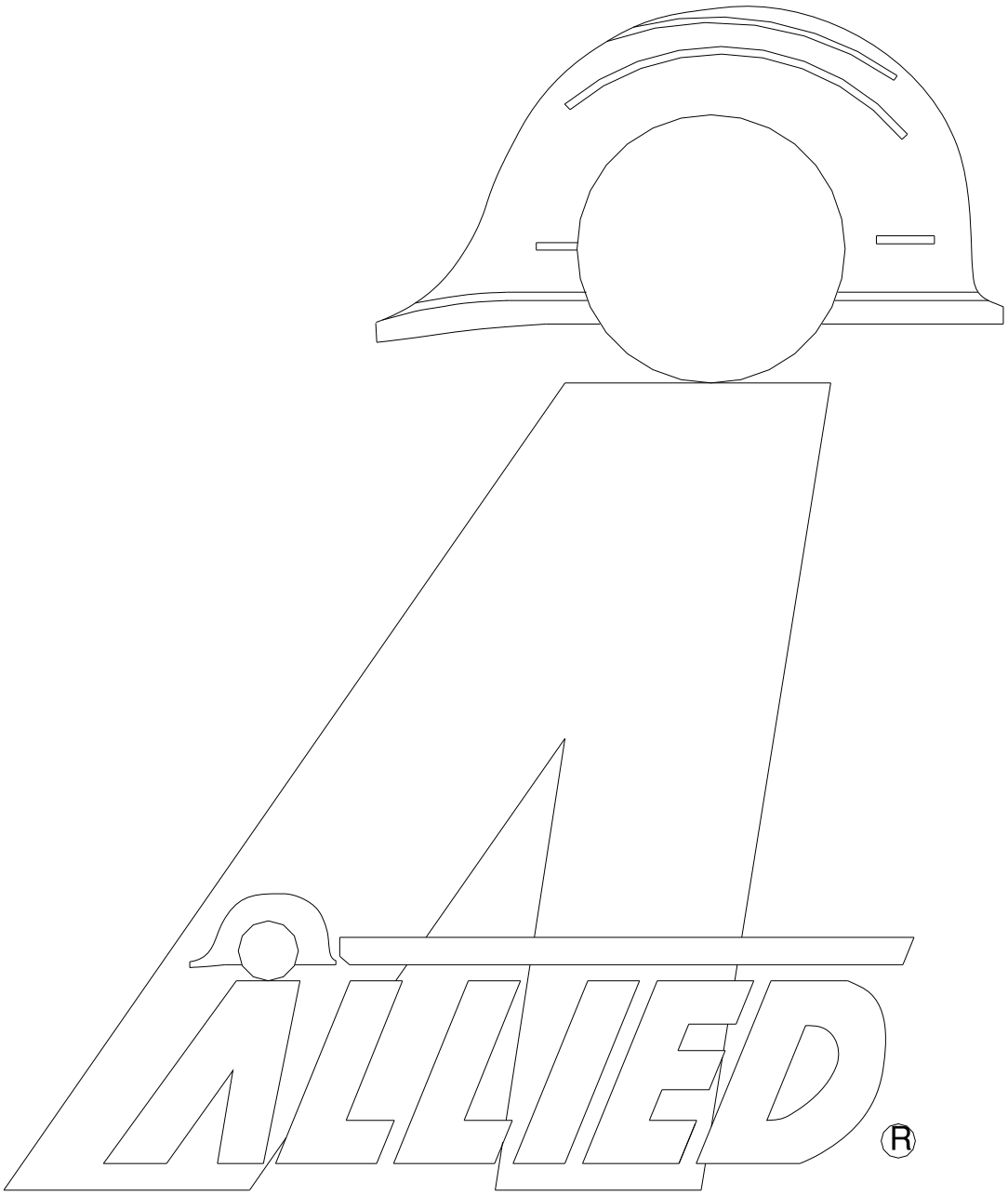
Tightening Pattern – Follow Diagonal Sequence

15.0 Service Record

Service Performed	By	Date

NOTES

	By	Date



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