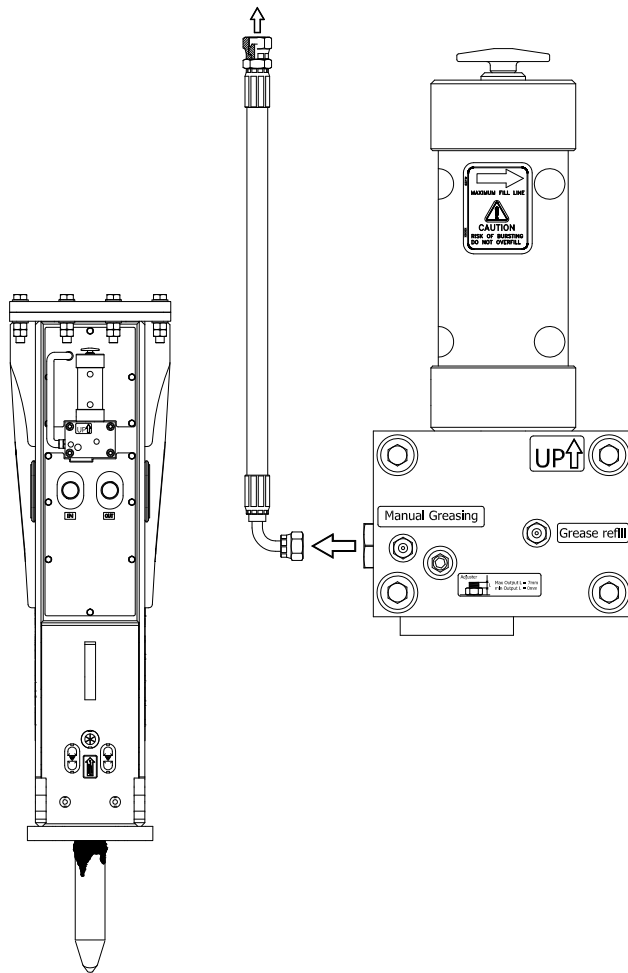


BreakerLube

Automatic Grease Dispenser



Series - HML

Model
HML300CU
HML400CD



Installation, Operation, Maintenance and Parts



This manual was prepared to assist qualified personnel with the information necessary to install, operate and maintain the Allied BreakerLube. Read, understand and follow the information contained in the safety messages. Keep for future reference.



TM575767

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Revision History of Document No. TM575767

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 TM575767

<u>Release Date</u>	<u>Page</u>	<u>Summary of Change</u>
2015, Mar	22	Cartridge design and material change – old / new interchangeable as an assembly . The aluminum cartridge with round sight windows has been replaced by a polycarbonate material that improves grease level visibility.
2011, Oct	All	Original issue of 575767

Safety Messages

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.**

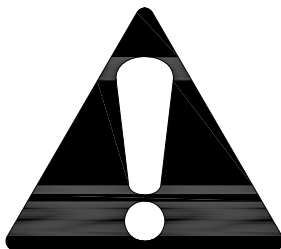


Fig. S1 Safety Alert Symbol

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.

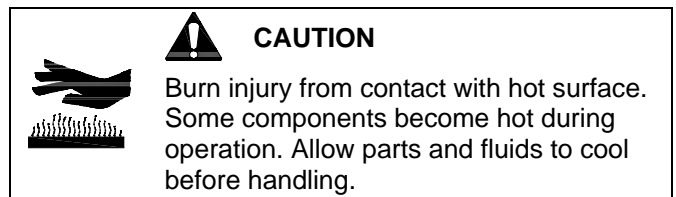


Fig. S-2 Components of Safety Message - Typical

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.


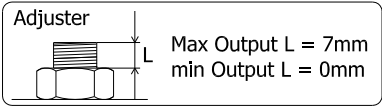



NOTE – Highlight suggestions, which will enhance installation, reliability, or operation.

Safety Messages

Information Labels

Information labels affixed to the Allied equipment include safety warnings, identification and instructions important to operation and service. Refer to Figure “A” for their position on the equipment.

Keep all safety labels clean. Words and illustrations must be readable. Before operating this equipment, replace damaged or missing labels. For part number identification, refer to table x for ordering information.

Pos	Label	Description
1		Mounting Orientation – Decal specifies the mounting orientation of the lubricator. For proper operation, it must be installed in the up-right direction as indicated by the arrow.
2		Delivery Output – Decal identifies the location of the variable delivery adjustment and the Maximum / Minimum adjuster range (L).
3		Maximum Fill Line – Decal indicates the maximum fill line when refilling the cartridge with lubricant. The decal also calls attention to hazard if overfilled.
4		Grease Refill - Decal identifies the location of the lube fitting used when refilling the cartridge with grease.
5		Manual Greasing – Decal identifies the location of the lube fitting used to manually grease the bushing & tool. Use this lube fitting to pre-fill hose and passages.

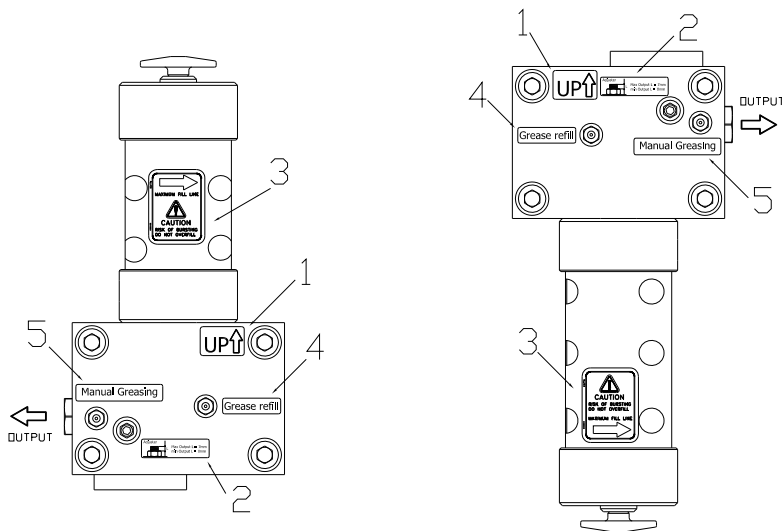


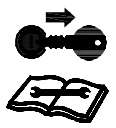
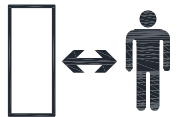
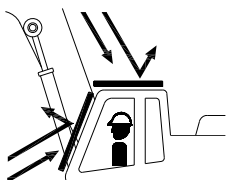


















Fig. A Label Positions

Safety Messages

Meaning of Pictograms

Safety messages in this manual and on the equipment may contain pictograms. These are used to rapidly communicate hazards. For the purposes of this manual and labels, pictograms are defined as follows:

	Read the manual
	Read the Service Manual For Additional Information
	Shut off carrier & remove key before servicing
	Personnel maintain a safe distance from breaker
	Install protective guards on cab to shield operator against fragments / debris from work tool that become flying projectiles
	Debris becoming airborne projectiles
Personal Protection Equipment PPE	
	• Hearing protection
	• Safety eyewear
	• Gloves
	• Safety shoes
	• Falling object • Unsupported loads

	Pinch / Crush point
	Falling / moving part
	Moving part (in direction indicated by arrow)
	Hot surfaces
	Pressurized gas, fluid or spring
	Fluid injection
	Identifies lift point
	The X-out or a circle with a diagonal slash is a prohibited action.
	Prohibited actions must be avoided to prevent injury and/or equipment damage
	The check mark symbol indicates actions that are OK, correct, approved and recommended

Safety Information – [cont'd]**Attention Read the Manual**

Operators and personnel responsible for maintenance of the Allied work tool should read this manual. Other manuals, such as those published by the machinery used in support of the Allied equipment, should also be read. 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.

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 more detailed 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 and marking existing underground and above ground service and utility lines
- Erecting pedestrian barriers
- Using personnel protection equipment appropriate with current 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

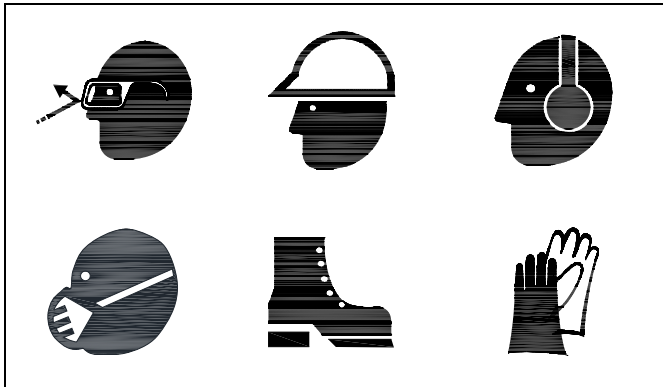
The safe and efficient use of the Allied equipment depends upon proper installation, operation, maintenance and repair. Operational safety programs must encompass all of these elements.

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.

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Introduction and Scope

1.1 About This Manual

Table 1.1 About This Manual



Document ID.	TM575767
Type	Installation, Operation, Maintenance and Parts List
Current Status*	See Inside Cover
Product Name:	Hammer Mounted Lubricator
Series	HML
Applicable Model[s]:	HML300CU, HML400CD
Years of Manufacture:	Begin 2011
*Inquiries regarding this manual must include effective date shown on inside cover	

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

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

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

How to use this Manual:

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

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

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

1.2 How To Order Replacement Publications

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

- No further Publications are available.

Product Information

2.1 Equipment Identification - Model Designation

The model number reveals the following useful information about the BreakerLube:

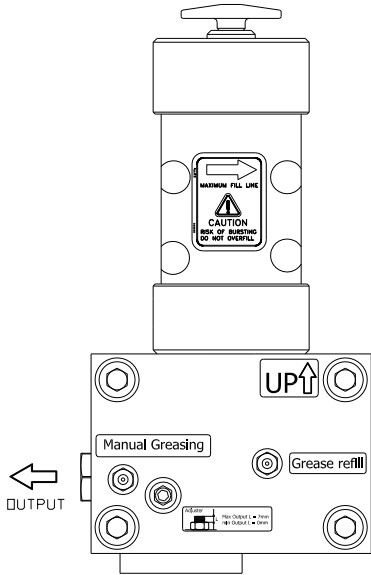


Fig. 2-1 HML300CU

- HML
Hammer Mounted Lubricator
- 300
Reservoir Capacity [cc]
- CU
Cartridge UP*

*) Cartridge Position Relative to Body

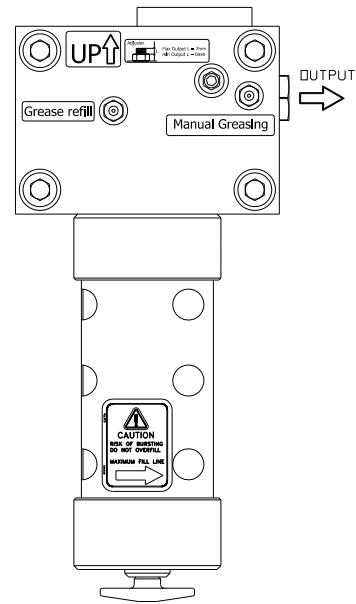


Fig. 2-2 HML400CD

- HML
Hammer Mounted Lubricator
- 400
Reservoir Capacity [cc]
- CD
Cartridge DOWN*

Owner's Record of the Equipment

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

Indicate the model and the date in which this equipment was placed into service.

Product Name BreakerLube

Series HML

HML300CU HML400CD

In service 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.

Owners responsibilities 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
- Imperfect delivery adjustment
- Irregular pump refilling – required maintenance
- 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 Description & Application

4.1 Description, Application and Benefits

The HML-series BreakerLube is a vibration operated automatic grease dispensing system. It is designed for direct mounting on the breaker and offers a simple, effective and inexpensive method of lubricating the bushing and tool.

4.1.2 Features and Benefits of BreakerLube

The HML-series BreakerLube offers the following cost saving advantages:

- Fully automated eliminates the need to stop production to manually lubricate the bushing and tool.
- Safety is improved as operators are not required to lubricate in hazardous areas
- Lubrication occurs while the breaker is in operation, when it is of the most benefit
- Eliminates waste caused by overfilling with excessive injection when greased manually. Also prevents expensive repairs and down time from grease deficit when greasing manually is not kept to the schedule.
- Prevents improper grease methods from damaging seals
- Simple, reliable design with few moving parts
- Installation requires no electrical or hydraulic connections which can contribute to unreliability as well as overall cost and complexity.
- Compact size mounts directly to housing of large and medium-size breakers.
- Breaker mounted – stays with breaker when working with more than one carrier
- Re-fillable reservoir – Is quickly and easily refilled with no special tools required. Can be bulk filled or through grease nipple
- Delivery output is easily adjusted to match breaker size and application.
- Compatible with Allied Chisel Paste.
- Kits are available to facilitate mounting to different breakers. Kit consists of lube pump,

hose, mounting plate, hardware and instructions for mounting.

4.2 Familiarization of Main Components

The cartridge and body are the two main assemblies of the BreakerLube.

1. The piston, spring, handle and plastic tube make up the cartridge assembly. The tube also functions as the grease reservoir. The refillable grease cartridge is threaded to the body.
2. The body assembly includes the vibration valve, the output adjustment and connection port for grease hose.

4.3 Operation

The HML-series BreakerLube dispenses a shot of grease each time the pump is pulsated. There are no electrical or hydraulic connections. The BreakerLube operates from the pulsating vibration or shock that is produced while the breaker is operating.

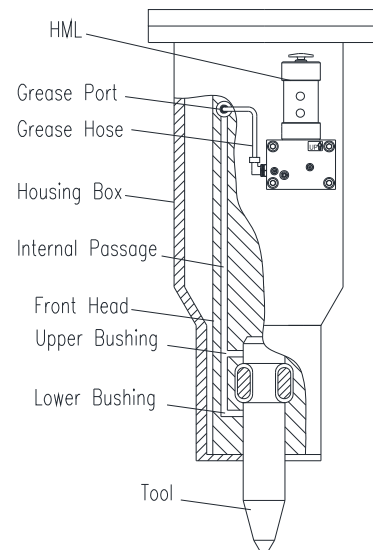


Fig. 4-1 Cross Section of Breaker Lube Passage

1. Each time the vibration valve opens, grease from the reservoir is pushed into the grease hose from the pressure exerted by the piston and spring.
2. The delivery output can be increased and decreased by turning the external adjuster screw.
3. Grease is pumped through the hose connected to the breaker and travels the internal passage that distributes the lubrication to the bushing and tool.

5.0 Installation

Table 5.1 Installation Kits

<u>Breaker Model</u>	<u>HML Model</u>		<u>Kit Part Number</u>	<u>Remarks</u>
	<u>300CU</u>	<u>400CD</u>		
HR290	☑		576970	
AR85B	☑		576489	
HR330, HR390, AR95B, AR110B/C, AR120B	☑		575648	Install according to instructions provided with kit.
HR470, HR560, HR600, HR710, AR130B, AR140B, AR160C, AR170C, AR180D		☑	575647	
AR165, AR175		☑	575628	

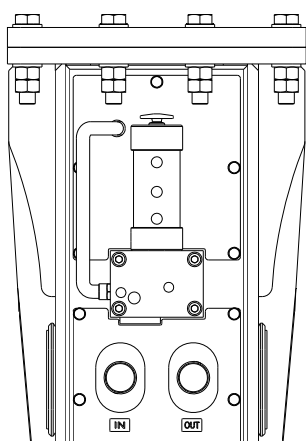


Fig. 5-1 Mounting Location - Typical

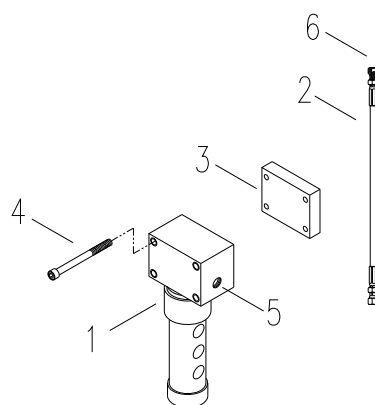


Fig. 5-2 Installation Kit - Typical

Table 5.2

Item	Description	Part No.	Qty	Remarks / Specifications
1	Pump HML300CU	575531	1	Includes Item 4
	Pump HML400CD	575532		
2	Hose	Varies	1	
3	Mounting Plate	575629	1	Factory installed on some breaker models
4	SHCS	---	4	Item 4 supplied with pump
5	90° El Adaptor	Varies	1	Item 5 not shown
6	Adaptor	Varies	1	Item 6 not shown (Grease Port on Breaker)

See separate instructions provided with the installation kit for further details.

5.1 Location Considerations and Mounting

First determine that the application is suitable for the HML-series BreakerLube. For proper operation and reliability, do not install unless all of the following requirements can be met.

☑ It must be mounted directly to the breaker

- ☑ The cartridge must be mounted parallel to the breaker and oriented according to the model designation (marking on body).
 - CU= Cartridge UP
 - CD = Cartridge Down
 - Label displayed on body Arrow(UP)

5.0 Installation – [cont'd]

- ☑ Suitable mounting location to include easy access for maintenance and cartridge refilling
- ☑ Suitable mounting location to provide protection against damage - preferably within view of the operator.
- ☑ The mounting area must be sufficient in size to accommodate the physical dimensions of the unit.
- ☑ Suitable breakers to include an appropriate lube port connection. It should be independent of the grease nipple located on the breaker's front head. The location ideally suited for this port is at or near the top of the breaker and within short distance of the lubricator.
- ☑ The HML-series lubricator may not be suitable for all applications. In the case were breakers are equipped with dual feed passages, bushings may not receive sufficient shares.

CAUTION

Fig. 5-4. Horizontal mounting is prohibited. It is not permissible to mount the lubricator in any position other than the direction indicated by the arrow. Failure to observe the directional arrow will render the unit inoperable. The arrow (label) is located on the pump body (Fig. 5-3).

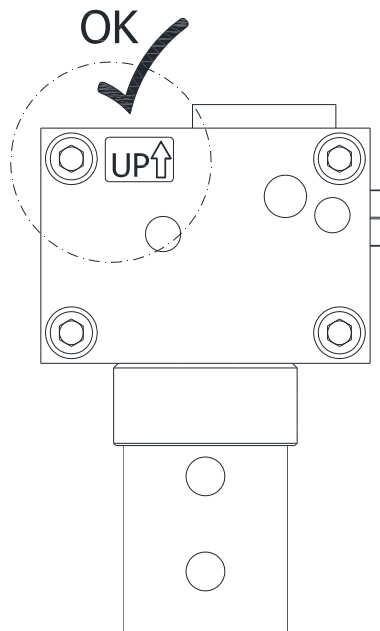


Fig. 5-3 Directional Arrow UP – Pump Body

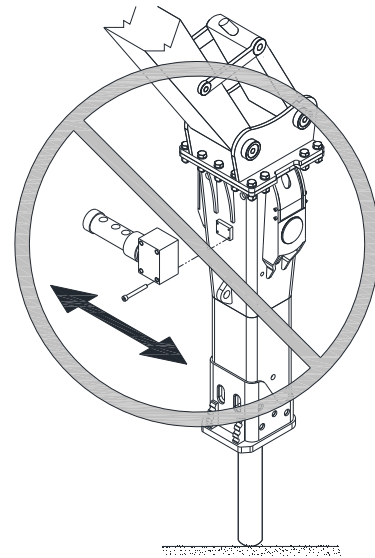


Fig. 5-4 Horizontal Mounting Is Prohibited

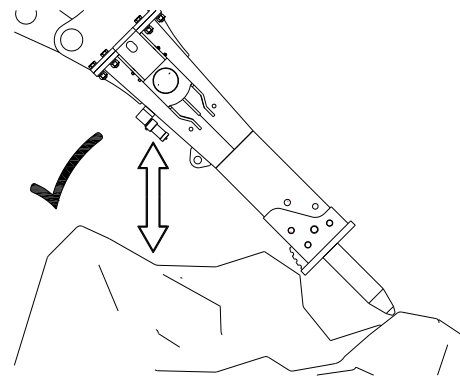


Fig. 5-5 Protect Against Damage – Locate Within View of Operator – Typical Location Shown

5.3 BreakerLube Kit - Basic Installation Steps

Installation kits include grease pump, hose, connectors, mounting hardware and instructions.

- ☑ Before starting, check that all parts are on hand
- ☑ The mounting plate is factory installed on select breaker models
- ☑ Attach mounting plate and fasten lubricator with supplied bolts.
- ☑ Connect lube line.
- ☑ Fill reservoir, pre-fill lines and manually grease tool
- ☑ Test and adjust

5.0 Installation – [cont'd]

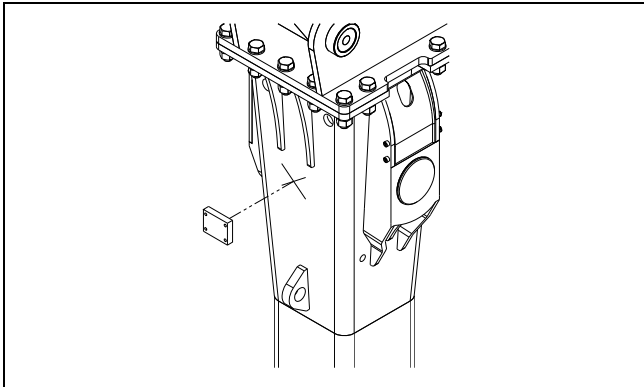


Fig. 5-6 Weld Mounting Plate To Housing

IMPORTANT

Before welding, shield hoses from damage. Prevent battery damage by disconnecting battery cables before welding. Locate the welder ground clamp near the welding point.

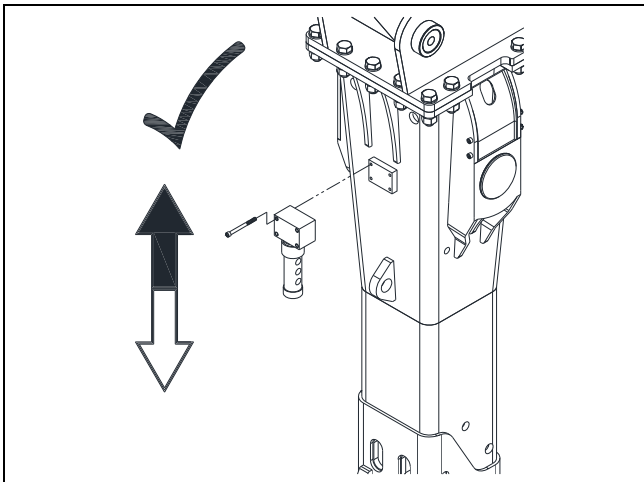


Fig. 5-7 Mount Pump Vertical - Parallel To Housing

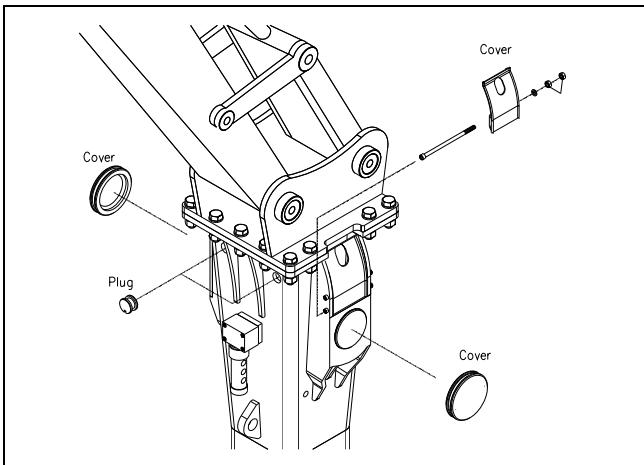


Fig. 5-8 Access to Grease Port Connection Varies

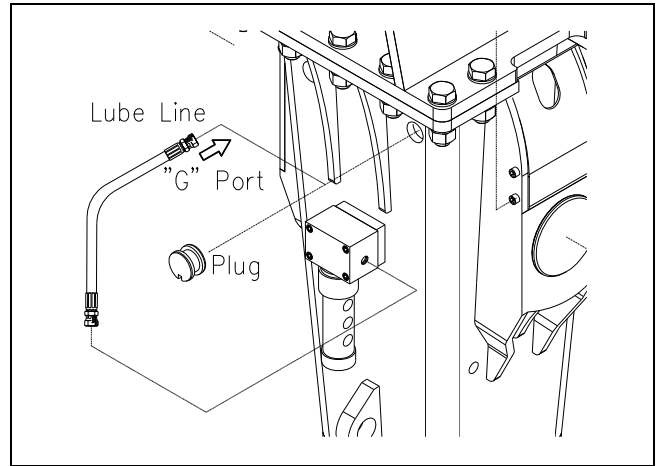


Fig. 5-9 Install Grease Hose

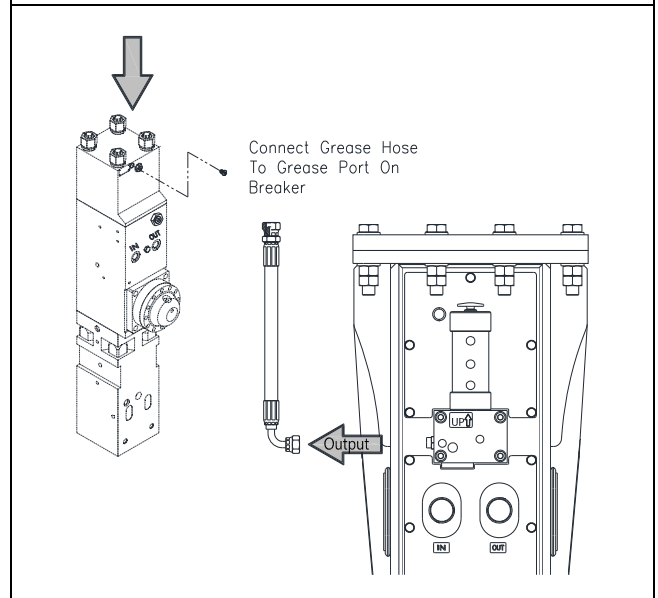
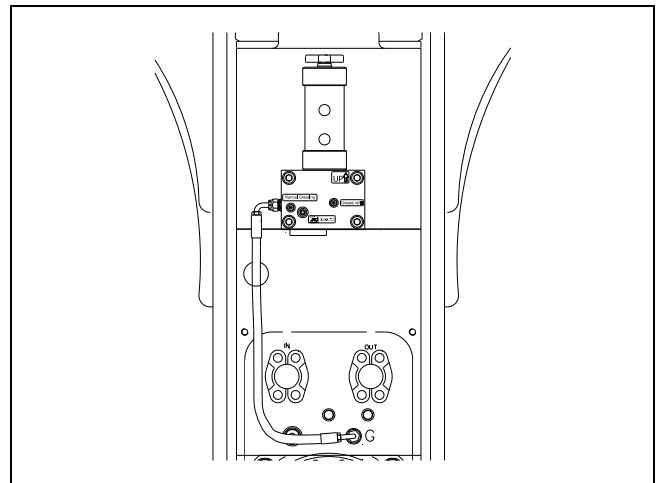


Fig. 5-10 Grease Port Location Varies

5.0 Installation – [cont'd]

5.4 Set-up and Adjustment

CAUTION

The BreakerLube DOES NOT produce a high output of grease. Failure to observe the set-up directions will result in insufficient lubrication to bushings and tool. If starved of lubrication, even if only for a short time, they will be damaged.

The pump's output delivery is limited in its capacity to produce the high-volume it would require to quickly fill empty lube lines. Pre-filling lines and passages after installation is required to prevent dry start up.

The bushings, tool shank and tool retainer must be pre-lubricated prior to installation.

1. Figure 5-11. Pre-fill all lines and passages leading to the chisel
2. Figure 5-12. If a new breaker tool is installed, apply a liberal amount of lubricate to the shank of the breaker tool before inserting into front head.
3. Figure 5-12. Follow the same procedure when re-installing breaker tools that are wiped clean for purposes of inspection.
4. Fill grease reservoir. Refer to Section 6 for refilling instructions.

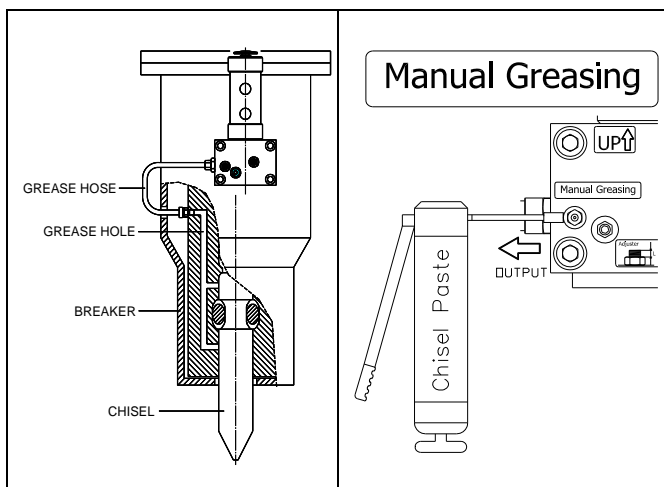


Fig. 5-11 Pre-Fill Hose & Top-Down Passages

IMPORTANT

Neglecting to complete post installation requirements, such as pre-filling grease lines and passages, can lead to serious damage of bushings and tool.

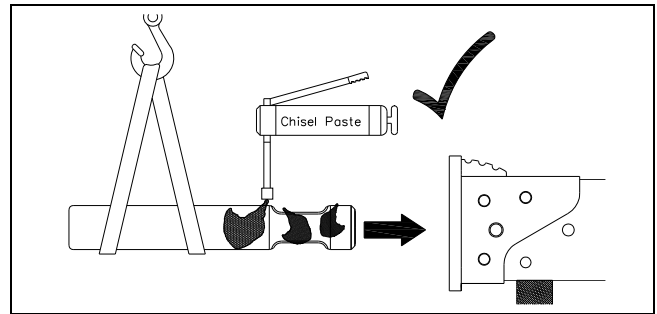


Fig. 5-12 Pre-Lube Tool Shank Before Installing

5.5 Functionality Test of BreakerLube

Test Functionality and Delivery Output:

1. Disconnect hose at delivery outlet
2. Operate breaker
3. Confirm grease is dispensing
4. Re-attach hose end to pump
5. Operate breaker. Make adjustments to delivery output as necessary (Fig. 5-19)

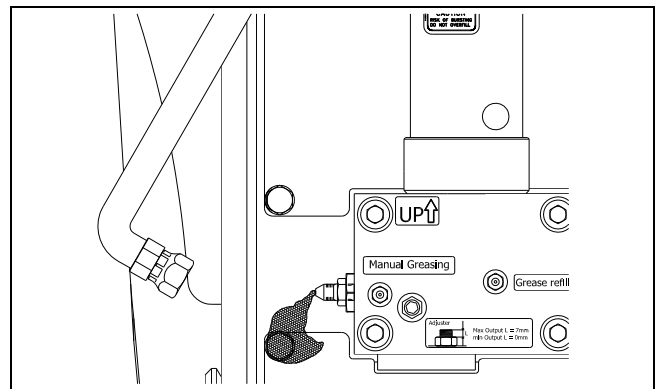


Fig. 5-13 Test Functionality of Pump After Install



CAUTION



Use adequate protection to prevent splashing of material onto the skin or into the eyes. Wear eye protection when servicing this equipment.

IMPORTANT

Collect fluids in a suitable container. Clean up any spills. Obey all local regulations for the disposal of these fluids.

5.0 Installation – [cont'd]

5.6 Manual Greasing of Tool (Bypass the BreakerLube)

If the BreakerLube is inoperable, grease the tool manually using a conventional hand or power assisted grease gun. Grease points are located on the BreakerLube (Figure 5-11) and at the front head Fig. 5-17.

5.6.1 Manual Greasing At BreakerLube

Locate the grease nipple identified as Manual Greasing on the BreakerLube (Fig. 5-11).

Follow these important instructions carefully:

1. Stand Breaker Upright
 2. Push Tool Against Firm Surface Until Seated Against Thrust Ring
- OK To Grease Tool

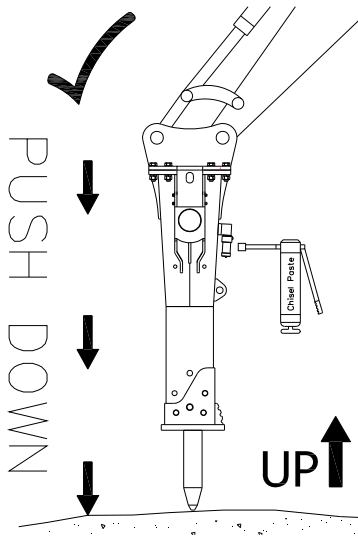


Fig. 5-14 Manual Tool Greasing At BreakerLube

5.6.2 Manual Greasing At Front Head

On the breaker, locate the grease nipple(s) at the front head. (Fig. 5-15 Location varies by model).

Follow these important instructions carefully:

1. Stand Breaker Upright
 2. Push Tool Against Firm Surface Until Seated Against Thrust Ring
- OK To Grease Tool

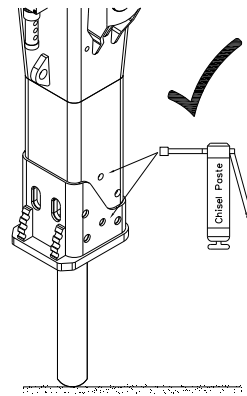


Fig. 5-15 Manual Tool Greasing At Front Head

CAUTION

Damage to the seals may result if the instructions for greasing the tool are not followed.

1. Stand the breaker upright
 2. Press tool against firm surface
- OK to grease

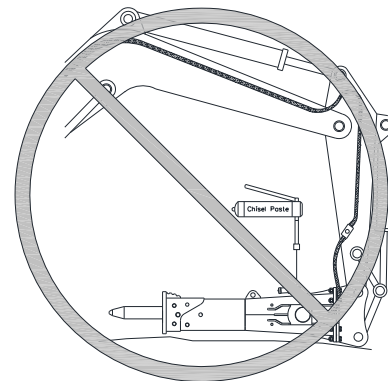


Fig. 5-16 DO NOT Grease Tool When Horizontal

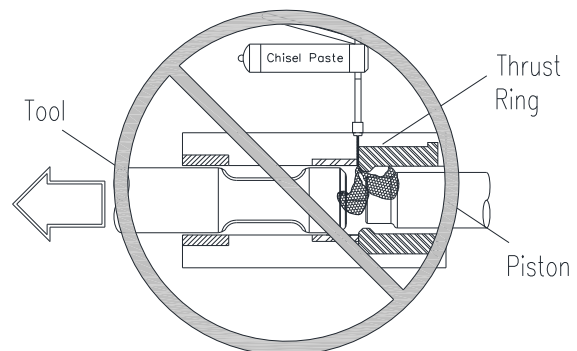


Fig. 5-17 Risk of Seal Damage – Tool Unseated

5.0 Installation – [cont'd]

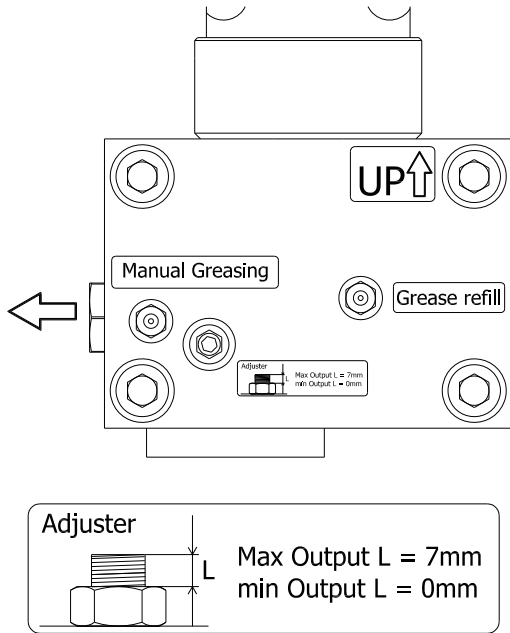


Fig. 5-18 Location of Delivery Adjustment

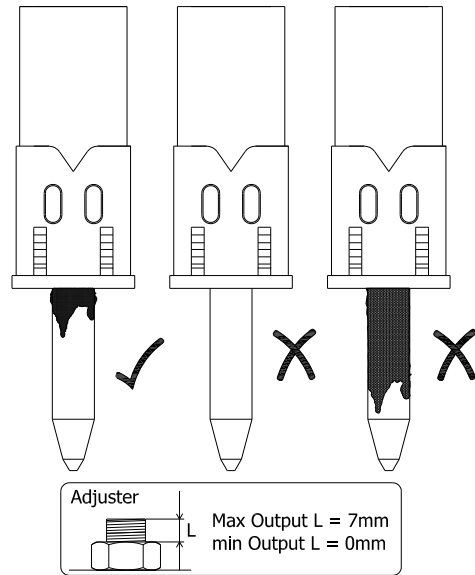


Fig. 5-19 Delivery Adjustment Set – OK ✓

5.7 Adjusting the Delivery Output

Keep the tool shank well lubricated during breaker operation. Actively monitor tool for sufficient lubrication. Figure 5-19.

IMPORTANT


Delivery output is not pre-set. Adjusting may take several attempts to reach the satisfactory delivery. When properly set, a fresh discharge of lubricant maintains a wet coating that is visible on the tool shank while working – without waste. Refer to Figure 5-19.

Figure 5-18. The BreakerLube is equipped with an adjustment for the delivery output. The adjustment screw is located on the body. Turning the screw clockwise will decrease delivery. Turn counter clockwise to increase output. Do not to turn screw beyond 1/4 inch [7mm].

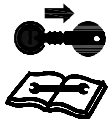
Adjusting may take several attempts to reach proper delivery. Setting the output adjustment varies on any given application. Every application is different, the variety of operating conditions is unlimited and other factors need to be taken into account such as the size of breaker and wear of bushings and tool.

6.0 Maintenance

6.1 Maintenance Overview



WARNING



Unless otherwise instructed, all maintenance is performed with the work tool supported on stable ground and the machine shut off. Remove the ignition key, engage interlock and apply parking brake.

A steady supply of lubricant is absolutely essential if metal-to-metal contact is to be avoided. While the bushing and tool may be sufficiently lubricated at first, as levels are depleted and not replenished, rapid deterioration of the bushing and tool will result.

It's important to refill the cartridge before it is emptied. Prompt replenishment of the near-empty cartridges preserves uninterrupted delivery.

Actively monitor the tool for sufficient lubrication. A wet coating of lubricant must be clearly visible on the tool shank at all times when working. Refer to Fig. 5-19.

6.2 Grease Level Sight Window – Early Design

CAUTION

The pump will continue to operate until all grease is dispensed. Make regular checks of the reservoir and do not allow the grease level to fall below the minimum mark. Purging lines of air pockets is time consuming.

The cartridge is designed so that minimum and maximum grease levels are visible through the round windows located in the housing (Early). Refer to Figure 6-1.

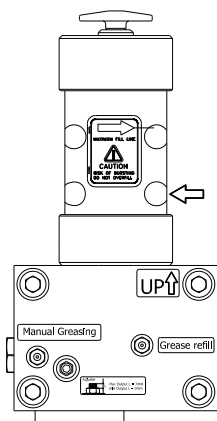




Fig. 6-1 Grease Level Sight Windows - Early

6.3 How To Refill Cartridge

CAUTION

Minimize air pockets by replenishing the cartridge through the grease nipple located on the pump body. Replenish the cartridge before it is depleted. If not, the formation of air pockets inside the pump and lube lines will disrupt grease distribution. Air pockets are time-consuming to purge.

CAUTION

Use adequate personal protection equipment to prevent splashing of material onto skin or into eyes. Wear eye protection when servicing this equipment.

CAUTION

Never service the BreakerLube while the breaker is operating. Ensure all loads are adequately supported before performing any service work. Service in safe work areas.

6.3.1 Cartridge Refill Without Removal

IMPORTANT

Contamination interferes with reliable operation and will shorten pump life. Prevent dirt and debris from entering the pump system. Always clean the area around the ports and cartridge housing prior to opening the system.

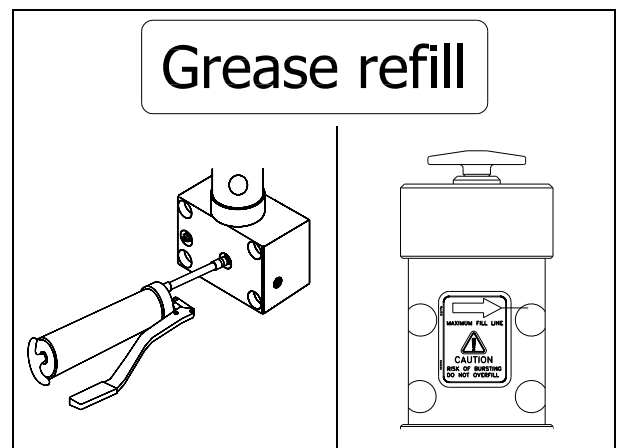


Fig. 6-2 Cartridge Refill & Max Fill Line

1. Turn off breaker
2. Lower breaker to ground. Make sure all loads are stabilized

6.0 Maintenance – [cont'd]

3. Wipe off grease fitting labeled Grease refill
4. Attach grease gun (Fig. 6-2).
5. Fill until grease reaches the maximum fill line
6. Do Not overfill (Fig. 6-2).

6.3.2 Cartridge Refill With Removal – Bulk Fill

1. Turn off breaker
2. Lower breaker to ground. Make sure all loads are stabilized
3. Wipe off area surrounding cartridge
4. Loosen cartridge and remove from body
5. Insert cartridge (discharge port end) into grease container (Fig. 6-3)
6. Twist handle counter clockwise - OPEN
7. Pull handle out and wait 2 seconds for grease to get inside. (Figure 6-3).
8. Push handle in (Fig. 6-4).
9. Repeat steps 7 and 8. (Figure 6-5).
10. When cartridge is filled, twist handle clockwise - CLOSE (Fig. 6-6)
11. Reinstall cartridge on body

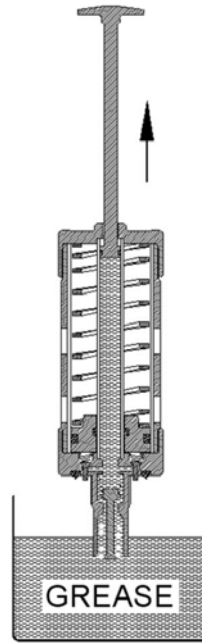


Fig. 6-3 Step 5,6&7

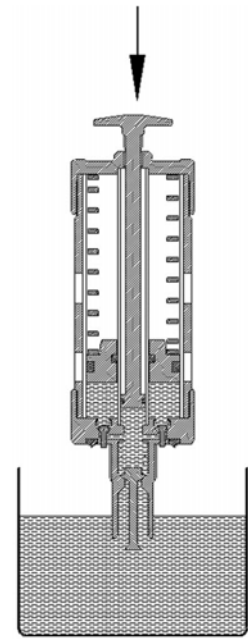


Fig. 6-4 Step 8

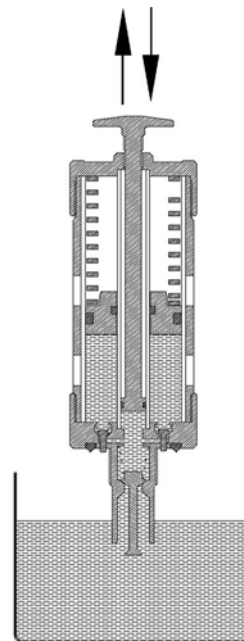


Fig. 6-5 Step 9 (7&8)

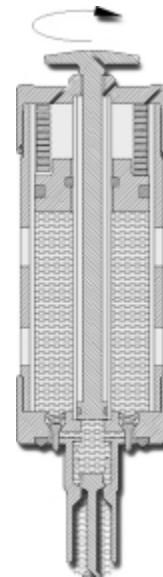


Fig. 6-6 Step 10

6.0 Maintenance – [cont'd]

6.4 Daily Inspections

Minimize unscheduled downtime by regularly inspecting the equipment.

- At the beginning of each shift, visually inspect unit for damage or leaks. Check for missing or loose fasteners.
- Observe lubricant level inside the cartridge. Never allow level to fall below the minimum level mark Fig. 6-1. Prompt replenishment of cartridges is required to preserve uninterrupted delivery.
- ✗ Actively monitor the breaker tool for sufficient lubrication. A wet coating of lubricant must be clearly visible on the tool shank at all times when working.

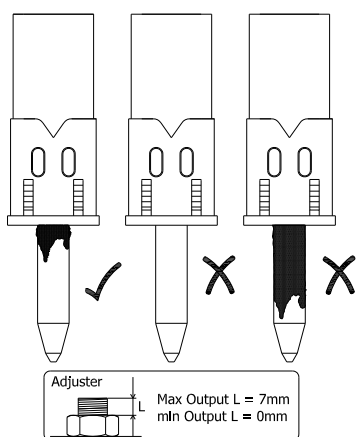


Fig. 6-7 Delivery Adjustment – OK ✓

6.5 When Lube Lines Are Replaced

	CAUTION
	Use adequate personal protection equipment to prevent splashing of material onto skin or into eyes. Wear eye protection when servicing this equipment.

IMPORTANT
Regularly inspect grease hose for damage. Replacement hose must be the same type. Minimum diameter of hose is 0.25 in. (6.35mm). If replaced, the hose must be pre-filled.

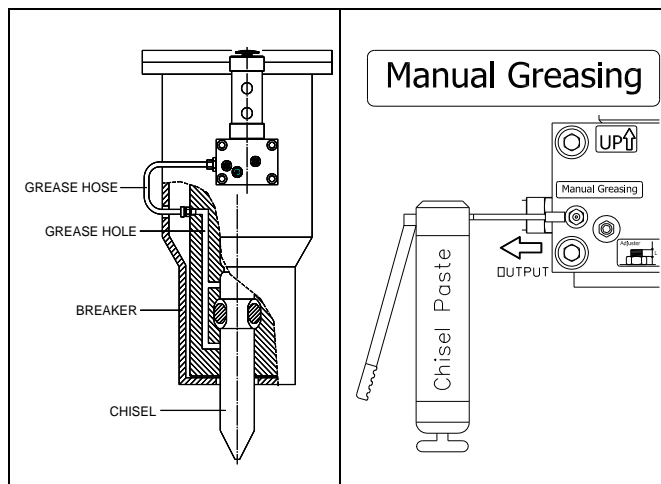


Fig. 6-8 Pre-fill Lines and Purge Air

The pump's output delivery has a limited capacity and does not produce the high-volume needed to quickly fill empty lube lines. Pre-filling lines and passages after installation is required to prevent delivery interruptions at the bushing and tool.

On the pump body, locate the grease nipple marked 'Manual Greasing'. Use a hand grease gun to pre-fill the hose. Purge air from lines as follows:

1. Disconnect lube hose at breaker.
2. Attach grease gun to lube fitting on pump body. The lube fitting is identified Manual greasing.
3. Pump until uninterrupted flow of grease is observed at hose end.
4. Re-attach hose end to breaker. Avoid over-tightening lubricant lines that may cause deformation of fitting.

IMPORTANT
Use a suitable container to collect fluids before any component containing fluids is disassembled. Clean up spills. Dispose of used lubricants in accordance with local environmental laws.

7.0 Technical Data

7.1 General Specifications

Table 7.1 BreakerLube HML Series

Specification	HML300CU	HML400CD	Remarks
Service Weight lbs. [kg]	11 [5.0]	11.5 [5.2]	Empty
			Full
Cartridge Orientation	UP	DOWN	Position Relative to Body
Reservoir Capacity of Cartridge cu. in. [cc]	18 [300]	24 [400]	Cartridge is bulk filled
Height in. [mm]	12 [306]	14.25 [361]	Refer to Fig. 4-1, 4-2
Width in. [mm]	7.28 in. [185]		
Depth in. [mm]	3.31 in. [84]		
Output Pressure psi [bar]	145 psi [10]		Approximate
Delivery Output – Variable cu. in. [cc] / 1min	0.01 ~ 0.06 [0.2 ~ 1]		
Delivery Output - Variable cu. in. [cc] / 60min	0.7 ~ 3.66 [12 ~ 60]		
Available Temperature Range °F [°C]	14° to 122° [-10° to 50°]		
Permissible Main Body Temperature °F [°C]	-4° to 194° [-20° to 90°]		
Output Connection	1/4 BSPP		
Hose Size - in. [mm]	1/4 [6.35]		Lubricant Line
Recommended Grease	Allied Chisel Paste. If not available, can temporarily use a high-temperature NLGI-2 premium quality grease containing EP and molybdenum disulfide (MoS ₂) additives.		

7.2 Working In High / Low Temperatures

The use of Allied Chisel Paste is recommended for all Allied breakers. Allied Chisel Paste can be used in a temperature range of 32° F to 122° F (0° C to 50° C).

Pumpability is the ability of grease to be pushed through passages until it is distributed at points where the lubrication is needed. Pumpability, in terms related to grease-dispensing systems and their use with breakers, is defined as the ease with which grease can flow through hoses, fittings and passages that lead to the front head and bushings.

Pumpability becomes increasingly difficult at colder temperatures. If the system is to be used in temperatures below freezing, a cold weather paste must be used. In such cases, please contact Allied's Technical Service Department for recommended cold weather pastes.

7.3 Working Underwater

If the breaker is working underwater, the BreakerLube must remain above the water's surface.

Contact Allied's Technical Service Department for further assistance on operating the breaker underwater.

7.0 Technical Data

7.1 Dimension Diagram

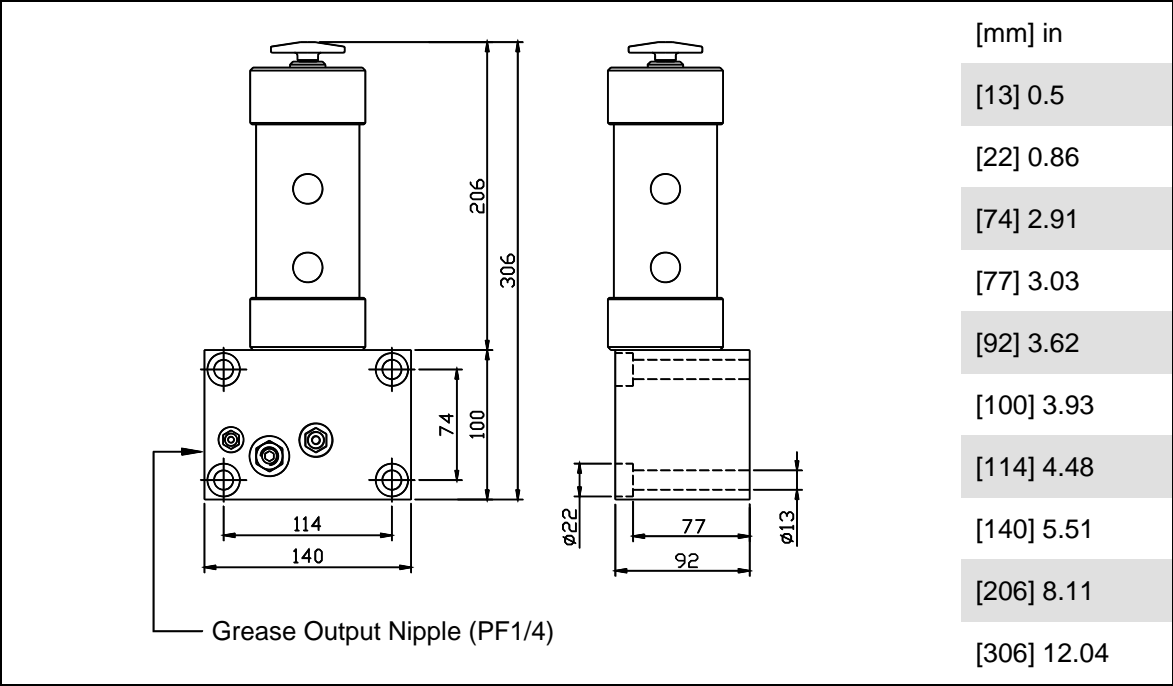


Fig. 7-1 Model HML300CU

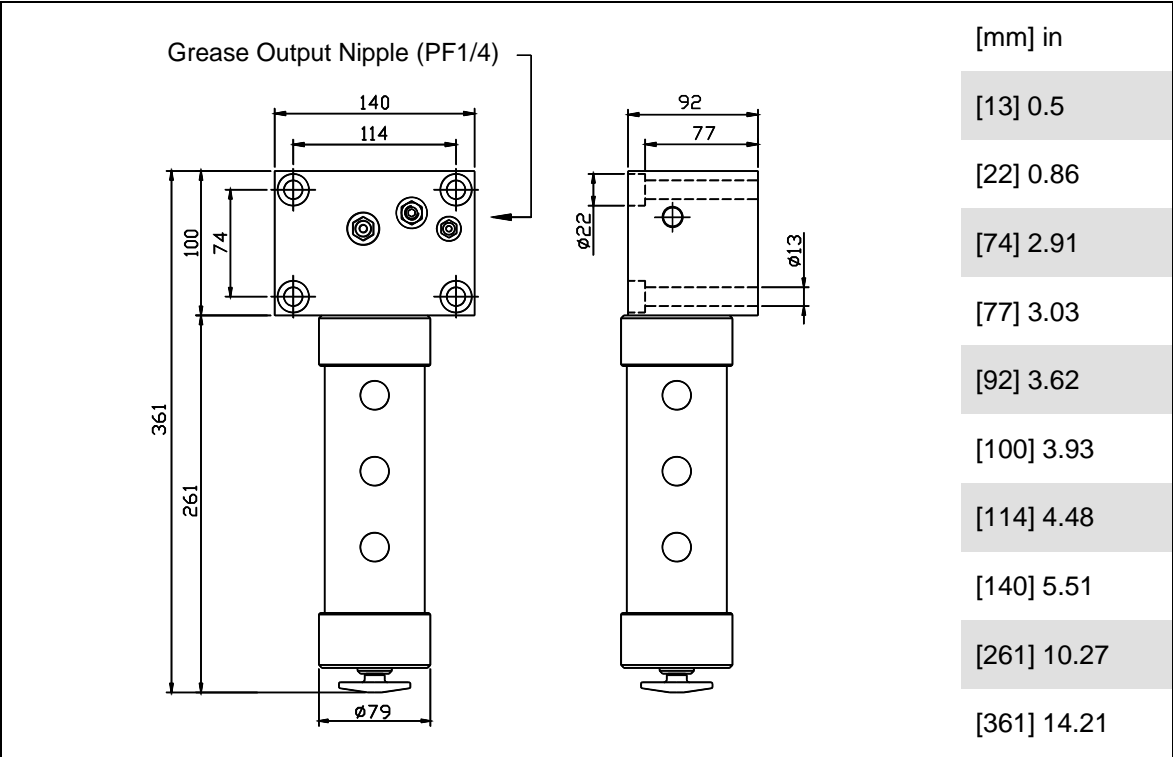


Fig. 7-2 Model HML400DN

8.0 Troubleshooting



CAUTION



Use adequate personal protection equipment to prevent splashing of material onto skin or into eyes. Wear eye protection when servicing this equipment.

The function and performance of this device is highly dependent upon proper mounting and set up.

Fault	Possible Cause	Remedy
Lubricant Not Reaching Bushing & Tool	Empty cartridge	Refill cartridge. (Section 6)
	Lubricator installed in wrong orientation	Mount lubricator according to orientation arrow. (Section 5)
	Spring or piston damaged	Check condition of parts. Replace if necessary. (Section 11)
	Pump draws air	Housing gasket damaged. Check for valve malfunction.
	Formation of air pockets in pump or grease lines	Purge air from pump and lines until steady stream of grease is dispensed. (Section 5)
	Grease hose or passage restricted	Use proper size. Clear hose of hardened grease or contamination. Perform functional test with hose disconnected at pump outlet. (Section 5)
	Output adjustment is closed	Open adjustment valve (Section 5)
	Contamination restricting flow or causing blockage	Remove contamination.
Delivery Output Insufficient or Excessive	Unpumpable Lubricant	Lubricant unsuitable for temperature conditions. Observe lubricant recommendations. (Section 7)
	Mis-adjustment	Turning the screw clockwise will decrease delivery. Turn counter clockwise to increase output. Do not to turn screw beyond 1/4 inch [7mm]. Adjusting may take several attempts to reach proper delivery. (Section 5)



IMPORTANT

Should the tool appear dry, immediate inspection is required to locate and correct. This condition is generally the result of an empty cartridge, broken line, air pocket, mis-adjustment, blockages of passages from contaminated grease, old grease or unpumpable grease that is unsuited for temperature conditions

If the BreakerLube fails to work properly and the cause cannot be immediately determined from the Troubleshooting Guide, contact Allied's Technical Service Department for further assistance.

9.0 Removal and Storage

9.1 Removal (Uninstall) From Breaker

	CAUTION
	Use adequate personal protection equipment to prevent splashing of material onto skin or into eyes. Wear eye protection when servicing this equipment. Regularly inspect hoses for damage. Replacement hoses must be the same type and pressure rating.

IMPORTANT
Contamination interferes with reliable operation and will shorten pump life. Prevent dirt and debris from entering the pump system. Always clean the area around connections and the cartridge prior to opening the system.

IMPORTANT
Use a suitable container to collect fluids before any component containing fluids is disassembled. Clean up spills. Obey all local regulations for the disposal of these fluids.

9.2 Remove Hoses

1. Loosen and remove the grease hose connected to the breaker's lubrication port. Plug breaker's grease port to keep out dirt and debris.
2. Loosen and remove mounting bolts holding pump.

9.2 Storage and Handling Techniques

- Store BreakerLube in a secure place and protected against heat, dust and moisture.
- Reinstall mounting hardware on BreakerLube to avoid loss or damage.
- Prevent contamination from entering the system. Plug openings to keep out dirt and debris.

9.3 Re-attach After Idle Period

Grease may change its characteristics and deteriorate during periods of storage. The rate and degree in which grease may deteriorate can vary. Some grease may undergo change in consistency becoming firmer and forming a putty-like condition that can impair the operation and reliability of the breakerlube. This behavior can occur when grease is stored for long periods or exposed to heat or

becomes contaminated. Contaminates from dusty conditions can draw out the base oils from the thickener system, resulting in the thickening of the grease.

- X** Do not use any grease that shows signs of contaminants. Discard and replace with new grease.
- X** Do not use grease that has changed consistency over time.
- X** Do not use grease if stored for long periods of time unless their condition and cleanliness can be verified. If grease is more than a year old, the National Lubricating Grease Institute (NLGI) recommends that it be inspected and the worked penetration tested to ensure that the grease is still within its intended NLGI grade.

10.0 Allied Chisel Paste

Each time the breaker is put to work, the tool and bushing are subjected to extreme pressure, heat and abrasive debris. These parts are made of high quality, heat-treated alloy steel. Yet, inattention to relubrication schedules or using the wrong grease will cause rapid wear and render parts unusable. Replacing these parts can be costly, both in terms of down time and price.

When choosing a grease to lubricate the bushing and tool, it's important to emphasize that the "right type" is equally important as "how much" and "how often".

There are many types of grease available, both basic and specialized. Basic types are generally suited for use in a variety of applications. Specialized types are highly developed and possess unique properties that are intended for specific tasks. Lubricating the bushing and tool requires the right type of grease. Allied Chisel Paste is specifically formulated to provide the bushing and tool with superior protection against wear and friction related damage.

Allied Chisel Paste contains a high solid content, which is desirable, especially in sliding applications that involve heavy side loading. Solids maintain a high-strength boundary between the bushing and tool that effectively reduce metal-to-metal contact and thereby reduce heat-generated damage from friction.

Basic lubricants, in comparison, are less developed and are usually labeled "General Purpose", or "Multi-Purpose". They are usually less expensive because they possess few additives and are unlikely to contain any solid content. When these types are subjected to heavy side loading, the lubricant is squeezed out, leaving nothing to protect the bushing and tool against friction related damage.

Additionally, not all are formulated for high temperature applications. The breaker tool gets extremely hot during operation. Higher temperatures can cause grease to lose its ability to cling. Many factors, including operator technique, determine whether the breaker will remain productive. Everyday wear-and-tear is unavoidable and no other component receives more punishment than the bushing and tool. Attention to maintenance, including timely lubrication, and through the regular use of Allied Chisel Paste, the wear of these parts and the cost to replace them can be minimized.

Allied Chisel Paste Specifications

- NLGI Grade - No. 2
- Thickener Type – Calcium sulfonate complex

- Solids include graphite and copper
- Dropping Point ° F (° C), min. – 500 (260)
- Oil Viscosity @ 100° F (40° C) – 200-240
- Application methods include brushing, grease gun and all Allied automatic grease dispensers

IMPORTANT

Non-approved lubricants may cause loss of performance or equipment damage. The use Allied Chisel Paste is strongly recommended to protect total warranty coverage. Application Restriction - Chisel Paste is NOT suitable for use with roller type bearings.

**Table 10-1
Packaging / Ordering Information**

Container	Packaging	Part No.
14.5 oz Tubes*	Qty x 10	574430
14.5 oz Tubes*	Qty x 30	574431
35 lb Bucket	Qty x 1	676698
120 lb Drum	Qty x 1	679968

*Fits standard hand operated grease guns.

IMPORTANT

Contamination interferes with reliable operation and will shorten pump life. Prevent dirt and debris from entering the pump system. Always clean the area around connections and cartridge prior to opening the system. Keep lubricants properly stored in their original, sealed container until ready for use.

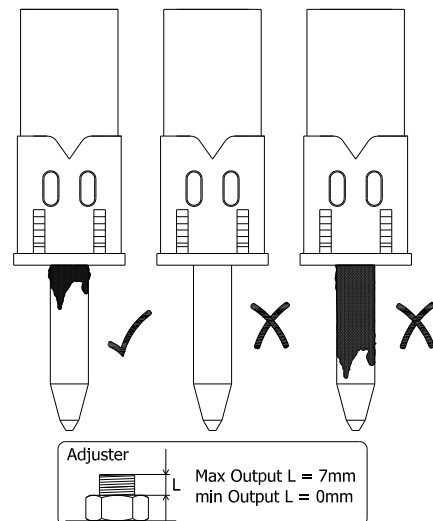


Fig. 10-1 Delivery Adjustment – OK ✓

11.0 How To Order Spare Parts

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

Product Breaker Lube HML-Series
 Series / Model HML /
 Serial No. _____

Please fill out completely

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

Contact information

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

*See note below

Billing Address _____ Shipping Address _____

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

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

12.0 Parts Information

IMPORTANT
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 performance, function and safety.

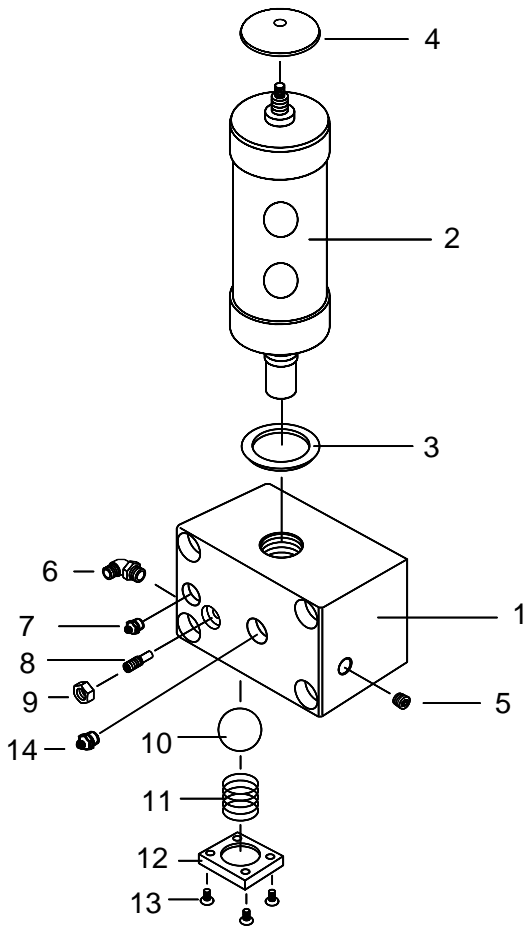


Fig. 11-1 HML300CU

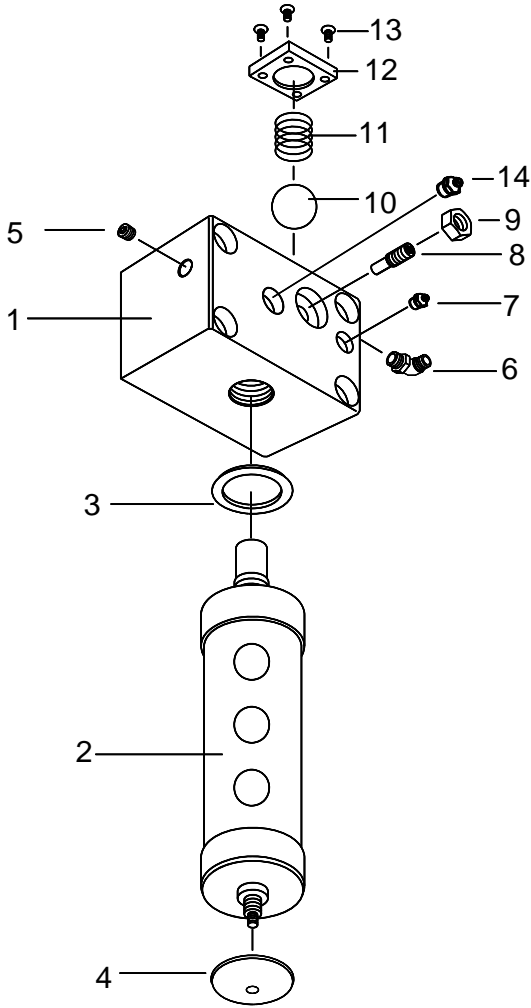
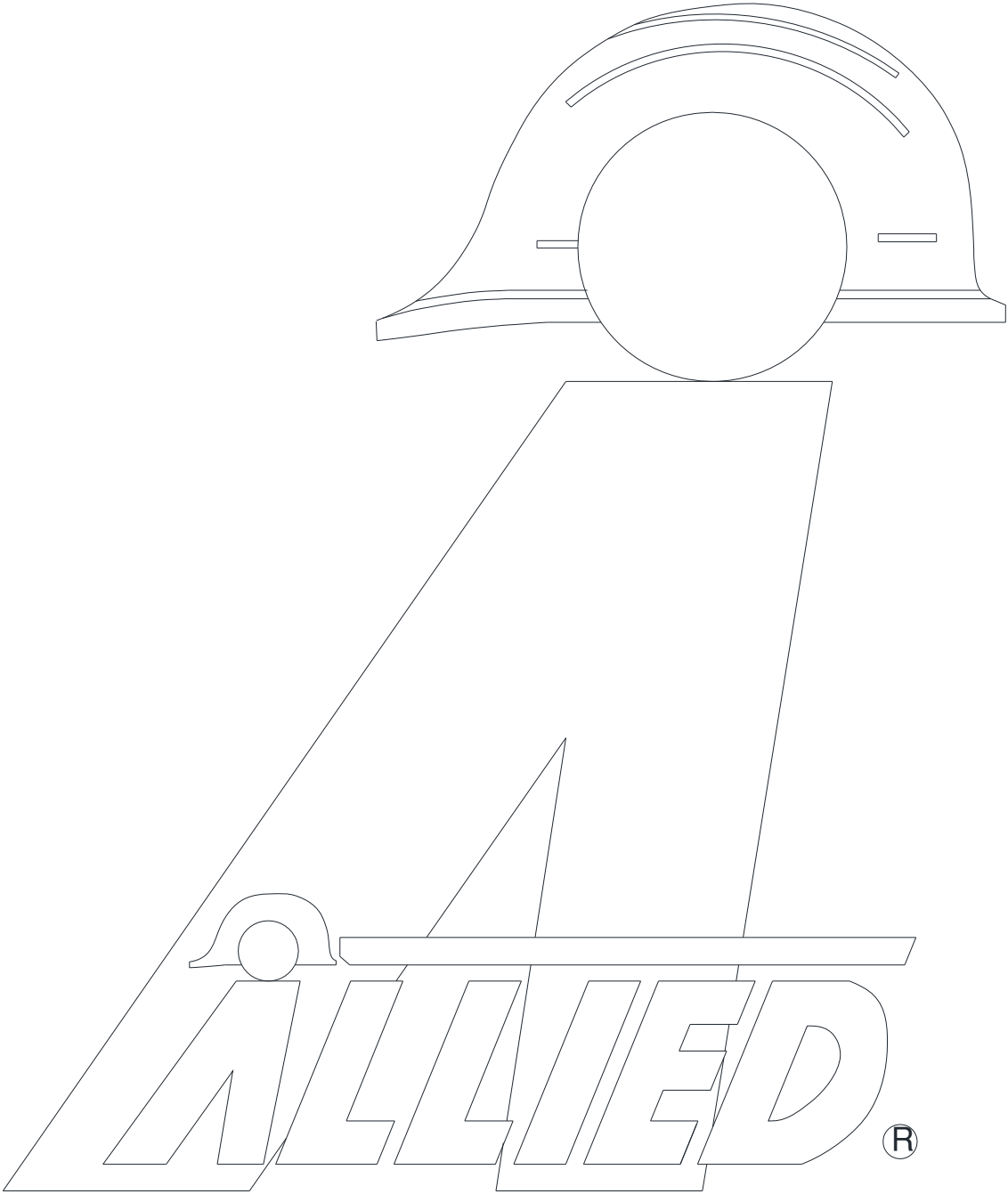


Fig. 11-2 HML400CD

12.0 Parts Information – [cont'd]**Table 12.1**

Item	Description	Part No.	Qty	Remarks / Specifications
---	Pump HML300CU	575531	1	Includes items 1-14
---	Pump HML400CD	575532	1	Includes items 1-14
1	Body	HL0300	1	
2.1	Cartridge Assembly – 300	HL0110	1	Includes items 3 & 4. ¹⁾ Cartridge change – old / new interchangeable
2.2	Cartridge Assembly – 400	HL0100		
3	Lock Seal	HL0040	1	
4	Handle	HL0810	1	
5	Plug	HL0920	1	
6	Adaptor	HL0360	1	
7	Grease Nipple	HL0710	1	
8	Adjuster	HL0240	1	
9	Nut	HNM1201	1	
10	Ball	HL0350	1	
11	Spring	HL0220	1	
12	Cover	HL0330	1	
13	Bolt	JBM0615	1	
14	Grease Nipple	90201	1	

¹⁾ Cartridge design and material change – old / new **interchangeable as an assembly**. The aluminum cartridge with round sight windows has been replaced by a polycarbonate material that improves grease level visibility.



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