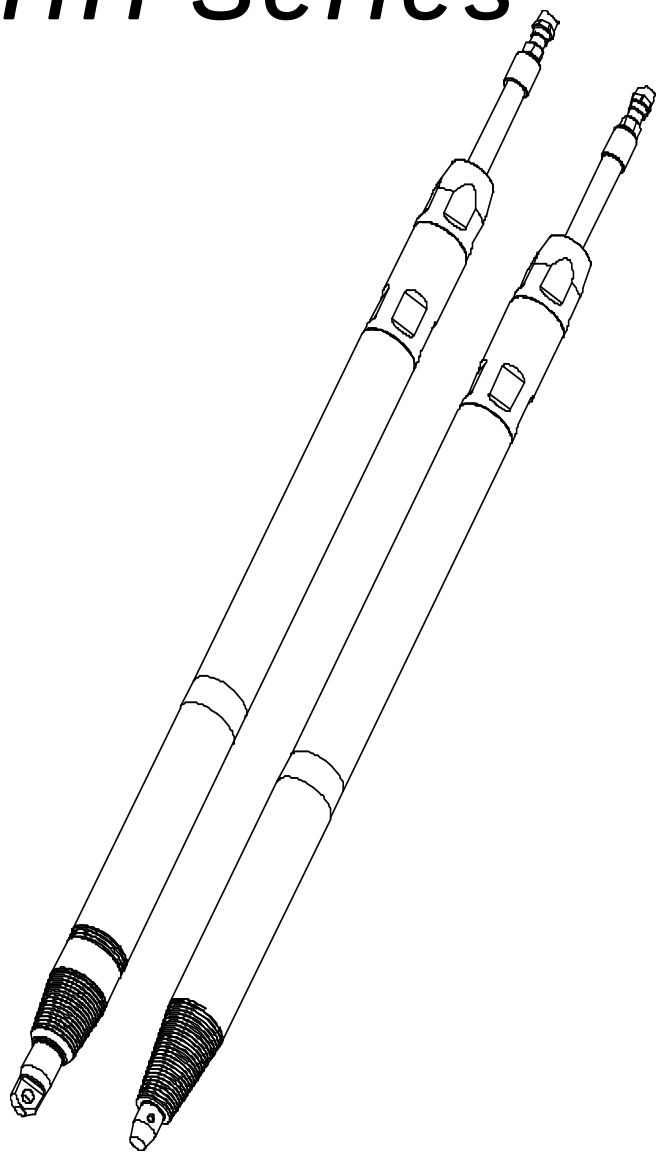
TECHNICAL MANUAL

HH-Series HOLE-HOG

Manual Part Number 574007

HOLE-HOG

HH Series



HH46
HH57
HH68
HH68-TH
HH79
HH79-TH
HH108
HH108-TH

ALLIED®
Construction Products, LLC

READ THIS MANUAL BEFORE OPERATING

SAFETY MESSAGES

Be Alert to Safety Messages

Be alert to all safety messages that appear throughout this manual. Safety messages identify potential hazards associated with the operation of the Allied equipment. Read each safety message carefully and be aware of the consequence if not followed.

The information provided in the safety message is important for your safety and the safety of others. Understand thoroughly the information it contains before attempting to install, operate, service or transport the Allied equipment.

Safety messages are affixed to the Allied equipment. Be sure all safety decals can be clearly read and understood. Replace damaged or missing decals.

Purpose of Safety Messages

The purpose of safety messages is to:

- Alert personnel to potential hazards
- Describe the severity of the hazard, if encountered
- Identify the nature of the hazard
- Instruct how to avoid the hazard

Learn to Recognize Safety Symbols and Signal Words

ATTENTION, BECOME ALERT, YOUR SAFETY IS INVOLVED. The exclamation point within an equilateral triangle is the safety alert symbol. The symbol is used to bring your attention to important safety messages that warn of the presence of potential hazards.

Signal Words

"DANGER", "WARNING" and "CAUTION" are signal words used to express the different degrees of hazard seriousness. Learn to recognize and understand the severity and consequence associated with each of these signal words should a potentially hazardous condition be encountered.

"**DANGER"** identifies the highest degree of hazard seriousness. Its use is limited to the most extreme situations.

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.

Additional Precautionary Messages and Instructions

Additional precautionary messages and instructions found in this manual are preceded with – "**IMPORTANT"** and "**NOTE"**.

IMPORTANT - indicates instructions that if not followed, may cause damage to the equipment.

NOTE – Indicates Instructions that highlight suggestions, which will result in enhanced installation, reliability, or operation.

SAFETY and RESPONSIBILITY

Before Operating Any Equipment

Read the Manual

This manual contains important information for the safe and proper use of the Allied Hole-Hog. Read and understand thoroughly all instructions and safety precautions described in this manual before installing, operating or servicing the Allied equipment.

AND

Read and follow the instructions provided by the manufacturer of the associated equipment used to power this Allied equipment for any additional safety precautions.

Qualified Person

For the purposes of this manual and product labels, a qualified person is one who:

- Has read, understands and adheres to the safety messages in this manual
- Is able to recognize the possible dangers of potential hazards and take appropriate measures to safeguard against personal injury and property damage.
- Has received adequate training in safe and proper installation, maintenance and operation for this Allied equipment.
- Is authorized to operate, service and transport the Allied equipment.

Allied cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this manual and labels affixed to the Allied product are therefore not all inclusive.

Owner's Responsibilities

The equipment owner is responsible to assure that only qualified personnel operate and service the Hole-Hog.

Qualified personnel must adhere to the procedures explained in this manual, especially regarding personnel safety.

If necessary, the owner or safety/training personnel must expand upon these general instructions to adapt them to particular applications.

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 and using personnel protection equipment, 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
www.osha.gov

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

Operational Safety Program

The safe and effective use of the Allied Hole-Hog depends upon proper installation, operation, maintenance and repair.

Operational safety must encompass all of these factors.

Accident prevention through operational safety programs must be further developed by the equipment owner and tailored to meet specific site conditions and applications.

Developing such programs will result in improved equipment life, performance and reduced downtime. Most importantly, it will minimize the risk of personal injuries and equipment damage.

Overview of Safety Messages Found in This Manual

The following includes some examples of the safety messages concerning the various forms of hazards that can arise during installation, operation, maintenance and transport. Safety messages appear throughout this manual and at the beginning of any task involving a potentially hazardous condition.

Intended Use

CAUTION

Improper application may result in personal injury. The Allied Hole-Hog is a tool used to pierce underground holes and to drive pipe. Do not use the Hole-Hog in any manner not described in this manual.

Operating Precautions

CAUTION

Improper installation, operation, service or the use of non-Allied parts may subject the Hole-Hog to conditions beyond its design capability and result in personal injury or Hole-Hog failure. Adhere to the specifications listed in this manual and operate the Hole-Hog only within its performance limits.

CAUTION

Use the Hole-Hog only if it is in good operating condition. Immediately rectify any faults that could be potentially hazardous.

CAUTION

Exposure to high noise levels may cause hearing loss. Wear hearing protection.

CAUTION

To avoid the risk of injury, wear protective equipment including appropriate clothing, gloves, safety eyewear and shoes when handling the Hole-Hog.

CAUTION

A loose end cap could blow out with damaging force, injuring the operator or bystanders. Ensure that the end cap is properly tightened. Before operation, check the tightness of the end cap using proper tools and torque.

CAUTION

Never pull on air lines. Pulling on air supply or whip hose could cause the hoses to break or separate, which could result in injury. Check all air lines regularly for leaks or other damage. Repair damaged lines and connections immediately.

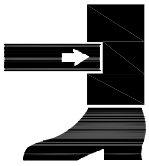
CAUTION

Inhaled fumes from lubricant are harmful and could cause illness. Stand clear of the Hole-Hog exhaust. Always read and follow lubricant safety precautions. Avoid contact with skin and eyes.

CAUTION

To avoid the risk of injury from flying debris, stand clear of the Hole-Hog exhaust.

CAUTION



To avoid the risk of injury, do not stand behind the Hole-Hog. If an obstruction is hit, the unit could kick back. Stand clear.

Air Compressor Precautions

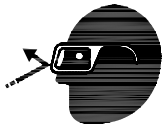
CAUTION

Read the operating manual for the air compressor and observe all safety precautions. Follow the manufacturer's instructions for proper operation, service and maintenance procedures.

CAUTION

Do not leave the compressor unattended while the unit is running. Have a qualified person at the compressor to shut the unit down in case of an emergency. The operator and safety person shall have agreed upon hand signals to indicate the necessity of immediate shut down.

CAUTION



Guard against injury from flying debris and high noise levels. Always wear protective equipment, including safety eyewear and hearing protection.

Lifting, Blocking and Handling Precautions

CAUTION

Avoid personal injury or damage from accidental or sudden movement of the Hole-Hog or its components. Prevent the Hole-Hog from rolling when placed on a horizontal surface. Always use sufficient blocking. Wear protective equipment and keep hands and feet clear of crush points.

CAUTION

Avoid personal injury or equipment damage from sudden shifting of components. When manually handling the Hole-Hog or its components, make sure enough personnel are used to safely distribute the strain among them. Protect against shifting striker by maintaining a level horizontal position.

CAUTION

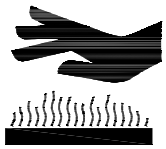
Avoid damage or personnel injury. Do not lift the Hole-Hog by the whip hose. Injury could result from broken or separated hose. Use slings that are suitable for loads to which they will be subjected to lift the Hole-Hog in and out of the trench.

CAUTION

Bodily injury may result if the Hole-Hog falls. Do not enter the danger zone while the Hole-Hog is being lifted.

Maintenance Precautions

CAUTION



Avoid contact with hot parts. Some components of the Hole-Hog become hot during operation. Do not touch until cool.

IMPORTANT

If the End Cap becomes loose at any time, do not retighten. Remove End Cap. Give special attention to cleaning of threads. Tighten according to Section 13.

CAUTION

Injury from hose whip may result if hose fails or separates while pressurized. Inspect air supply hose frequently for leakage, kinking or any other signs of wear or damage. Never stand directly over the air supply hoses.

Site Precautions

WARNING

Cutting a utility line could cause serious injury. Use extreme caution working with electric and gas lines. Locate existing underground service and utility lines, before starting operation of the Hole-Hog.

CAUTION

Falls into open excavations can cause serious injury. Establish pedestrian barriers. To prevent collapse, trench must be shored to meet federal, state and local guidelines.

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DOCUMENT REVISIONS

Date	Page	Change
Feb. 13, 2009	-	Original issue
Jul. 28, 2009	31	Correct wrench part number for HH79

SECTION 1.0
INTRODUCTION

1.1 About this Manual

Manual Part Number: 574007

This Technical Manual is applicable to the following Allied Hole-Hog models:

HH46, HH 57, HH 68, HH 68-TH, HH79, HH79-TH, HH 108, HH 108-TH

Years of Manufacture: 2003 and beyond.

This manual covers all models of Allied's Hole-Hog HH-Series, both standard and "TH" (Threaded Anvil). All information in this manual applies to all HH-Series models unless specifically noted otherwise. The standard and "TH" models are nearly identical except for the provisions for securing optional attachments to the anvil of the "TH" type.

Standard models have a plain anvil with no Nose Cap.

"TH" models have a threaded anvil with a protective Nose Cap and Grooved Nose Cover.

The Technical manual contains important information for the safe and proper use of the Allied Hole-Hog. A section is provided for replacement parts.

The Technical Manual is an integral part of the product. Keep it in a convenient location so that it is easily accessible for future reference. In addition to completing the warranty registration form, record the model and serial number, in service date and other pertinent information in the space provided in Section 2 of this manual.

Table 1.1 Technical Manual

Manual No.	Hole-Hog	
	Model	Part No.
574007	HH 46	573660
	HH 57	571640
	HH 68	571968
	HH 68-TH	571967
	HH 79	570436
	HH 79-TH	571094
	HH 108	572128
	HH 108-TH	572150

Notice: Material presented in this manual, including descriptions, illustrations specifications and designs, are subject to change without prior notice.

SECTION 2.0
HOLE-HOG IDENTIFICATION

2.1 Serial Number Identification

Hole-Hog Serial Numbers are issued sequentially at the time of manufacture. For example: The Hole-Hog S/N 01499 is the one thousand four hundred and ninety-ninth unit built. The next unit built, would be assigned S/N 01500, and so forth.

2.2 CE Identification

The identification label contains the following information: Manufacturer's name and address, product name and model number, serial number, year of manufacture, and weight. The identification label is located on the body. (Note: USA units do not have this label).

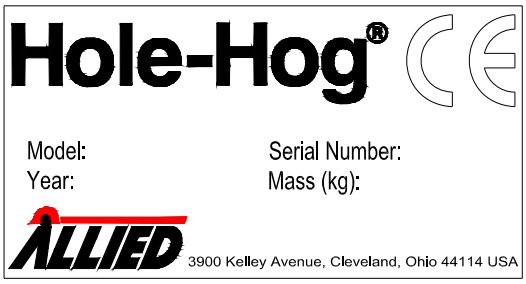


Figure 2-1 Identification Label

The serial number is also found on the End Cap (Figure 2.2) and the Striker (Figure 2.3).

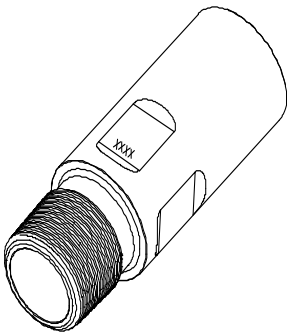


Figure 2-2 End Cap Serial Number Location

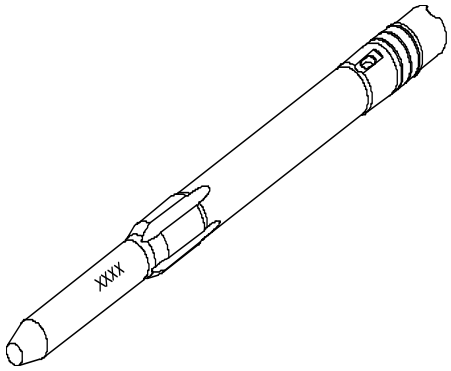


Figure 2-3 Striker Serial Number Location

2.3 Record the Serial Number

The Hole-Hog is delivered assembled, lubricated, and factory tested. Upon receipt of the Hole-Hog, inspect for possible shipping damage. Pay particular attention to the hose.

Record the Model and Serial Number as listed on the shipping papers, in the space provided below. Enter the date in which the unit was put into service.

Model: _____

Serial Number: _____

In service date: _____

Retain these numbers for future reference. When ordering replacement parts, or if there are questions or concerns regarding operation, service, repair or warranty, always provide your Allied Distributor with the model and serial number of your Allied product.

SECTION 3.0
WARRANTY PROTECTION SUMMARY

3.1 Overview

Improper installation, operation, service or use of non-Allied parts may subject the Hole-Hog to conditions beyond its design capability and may result in Hole-Hog failure or personnel injury. Operation or maintenance, other than in accordance with the instructions detailed in this manual shall void the warranty coverage. For information regarding warranty terms and conditions, refer to document number 100666.

3.2 Owner's Responsibilities

This summary outlines the minimum maintenance policies required for all Allied Hole-Hog models. The Hole-Hog owner is strongly encouraged to expand upon these general instructions to adapt them to particular applications.

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

Ensure that personnel entrusted with installation, operation, maintenance and transporting of the Allied equipment adhere to the following:

- Read and thoroughly understand the information and procedures detailed in this manual.
- Understand proper operating techniques for all recommended applications.
- Use the Allied equipment only if it is in good operating condition and only for the purpose for which it is intended.
- Immediately rectify any faults that, if left uncorrected, could lead to further damage.
- Adhere to the specifications listed in this manual and operate the Allied equipment within its performance limits.
- Appoint qualified personnel with specific maintenance responsibilities
    1. Maintenance procedures performed by the operator.
    2. Maintenance procedures performed by the Allied trained service technicians.
- Recognize problems and know how to take corrective action as detailed in operator troubleshooting Section 8.0.
- Conduct regular checks and inspections as scheduled in the Care and Maintenance Section 10.0.
- Allow only qualified operators and Allied trained service technicians to perform maintenance and repair as specified in the care and maintenance schedule.
- Use only genuine Allied replacement parts and recommended lubricants to protect total warranty coverage.
- Maintain written records of Hole-Hog maintenance, service and repair. These records are helpful if warranty coverage is ever in question.

Each record shall include at least:

1. The date of the service, maintenance or repair.

2. A description of the service, maintenance or repair performed. Include part numbers if applicable.

3. Copies of purchase order(s) and invoice(s) for repair parts and service.

4. The name and signature of the person performing the service, maintenance or repair.

3.3 Allied Product Policies

In this manual, Allied recommends Hole-Hog applications, maintenance and service consistent with industry expectations for underground piercing tools.

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

- Improper Training
- Improper Installation
- Operation in non-recommended applications.
- Incorrect operation
- Improper maintenance
- Use of non-genuine Allied replacement parts and/or non-approved modifications.

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

SECTION 4.0
OVERVIEW

The Allied Hole-Hog is a pneumatically propelled, reversible, ground piercing tool designed to pierce continuous, blind horizontal, inclined and vertical holes in compressible soils. With optional attachments, the Hole-Hog can also be used to install or remove rigid pipe from the ground.

The tool consists of three primary sections: Body/Anvil, Striker, and Tail Assembly. A simple reversing mechanism allows the operator to easily change the tool's direction from forward to reverse.

4.1 Body/Anvil

The body/anvil forms the majority of the Hole-Hog's exterior. It consists of the anvil and the body. Refer to figure 4-1. The body/anvil is the ground contact surface. Wear of this component is expected and normal. The body is internally threaded at the rear for attaching the Tail Assembly.

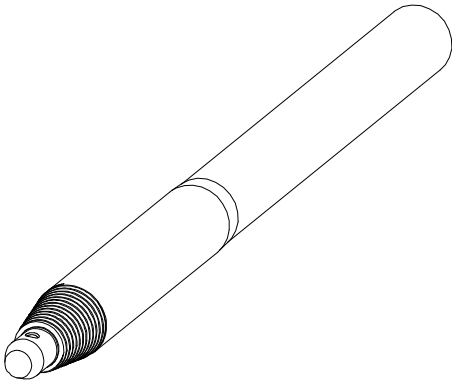


Figure 4-1 Body/ Plain Anvil

4.1.1 Plain Anvil (HH46, HH57, HH68, HH79, HH108)

The anvil is the conical surface that forms the front of the body/anvil. The anvil is pressed into the body, and cannot be removed from the assembled body/anvil.

4.1.2 Threaded Anvil (HH68-TH, HH-79TH, HH108-TH)

Hole-Hog models identified with "TH" are equipped with threaded anvils. The threaded anvil is used for attaching optional accessories that enhance operation of the Hole-Hog. The Nose Cap protects the anvil threads and secures the Grooved Nose Cover. Standard on all "TH" models, the Grooved Nose Cover protects the body against wear, preserving its tapered profile, thereby ensuring proper seating of front mounted accessories such as expanders.

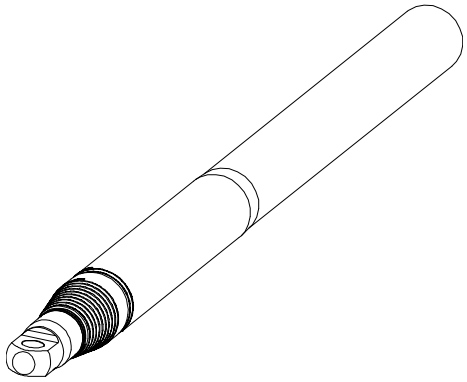


Figure 4-2 Body/Threaded Anvil

Refer to Section 12.0 for more information on accessories and their functions.

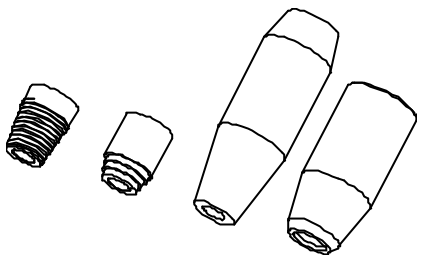


Figure 4-3 Front Mounted Accessories

4.2 Striker

The Striker reciprocates inside the body, transferring energy to the anvil upon impact and propelling the Hole-Hog forward through the ground. Partially rotating the reversing mechanism, which is part of the Tail Assembly, alters the air flow pattern. The Striker impacts the tail assembly and the Hole-Hog drives itself back out through the pierced hole.

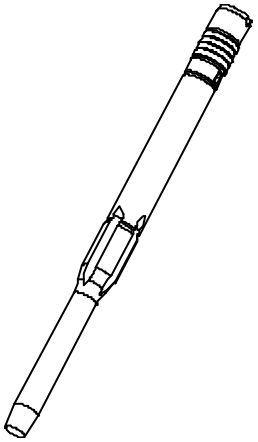


Figure 4-4 Striker

4.3 Tail Assembly

Except for the striker, the Tail Assembly contains all internal operating components, including the reversing mechanism. The external threads of the End Cap secure the Tail Assembly to the Body/Anvil. The Whip Hose attaches to the Tail Assembly at the other end of the End Cap. Hole-Hog service and repair require removal of the tail assembly to access the serviceable parts.

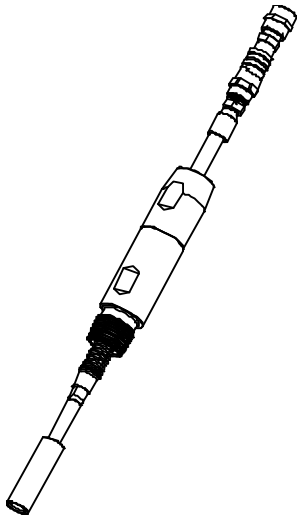


Figure 4-5 Tail Assembly

4.3.1 Tail Adapter

The Tail Adapter is a tapered cylinder that threads to the hose end of the End Cap. The Tail Adapter can be removed and replaced with optional accessories that enhance the operation of the Hole-Hog. The Tail Adapter is included on all standard and "TH" models. Tail mounted accessories are available for most models. Refer to Section 14.0 for more information on accessories and their functions.

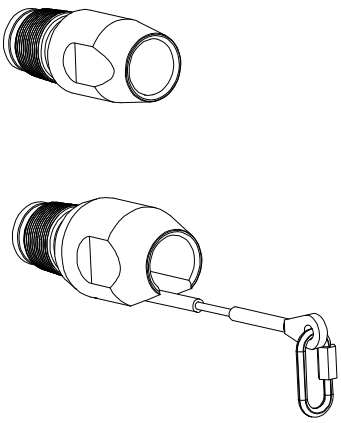


Figure 4-6 Tail Adapter (Top) & Cable Puller Assembly (Bottom)

SECTION 5.0
SPECIFICATIONS AND DECALS

5.1 Specifications

	HH46	HH57	HH68	HH 68-TH	HH79	HH 79-TH	HH108	HH 108-TH
Outside Diameter Inch [mm]	1.83 [46]	2.24 [57]	2.68 [68]		3.10 [79]		4.25 [108]	
Overall Length Inch [cm]	37 [63.5]	39.6 [101]	50.0 [127]	52.8 [134]	54.7 [139]	57.9 [147]	66.7 [169]	69.9 [178]
Weight Lbs [kg]	20 [9.1]	31 [14.1]	53 [24.0]	56 [25.4]	75 [34.1]	80 [36.0]	169 [76.7]	179 [182]
Recommended Operating Temperature* °F [°C]	0 to 120 [-18 to 50]							
Working Air Pressure** psi [kg/cm²]	110 [7.7]							
Air Consumption cfm [m3]	10 [0.3]	20 [0.6]	32 [0.9]		40 [1.2]		110 [3.1]	
Whip Hose, Inside Diameter Inch [mm]	½ [12]				¾ [19]		1 [25]	
Recommended Air Supply Hose, Inside Diameter Inch [mm]	½ [12]	¾ [19]						
Percussion Rate Per minute	625	585	480		440		425	

*Refer to Section 7.0 for lubrication and de-icing requirements.

** Pressure required at the tool. Allow 5 psi [0.4 kg/cm²] pressure drop for each 100 ft. [30m] of hose. Clean/dry regulated pneumatic pressure is essential for satisfactory operation and long service life. Pressure above 110 psi [7.7 kg/cm²] at the tool decreases performance and the life of the Hole-Hog.

5.2 Minimum Recommended Operating Depths

Inch [cm]	HH46	HH57	HH68 HH68-TH	HH79 HH79-TH	HH108 HH108-TH
Hard Glacial Clay	18 [46]	18 [46]	18 [46]	18 [46]	25 [64]
Clay/Sand Mix	18 [46]	18 [46]	18 [46]	18 [46]	25 [64]
Wet/Dry Sand	24 [61]	24 [61]	24 [61]	24 [61]	33 [84]
Cultivated Soil	24 [61]	24 [61]	24 [61]	24 [61]	33 [84]
Clay/Loam Mix	20 [51]	20 [51]	20 [51]	20 [51]	28 [71]

The Hole-Hog operates best in compactable soils. The minimum depth of operation varies with soil conditions and the length of the hole. The chart above is intended as a guide only. The specifications are subject to change without notice.

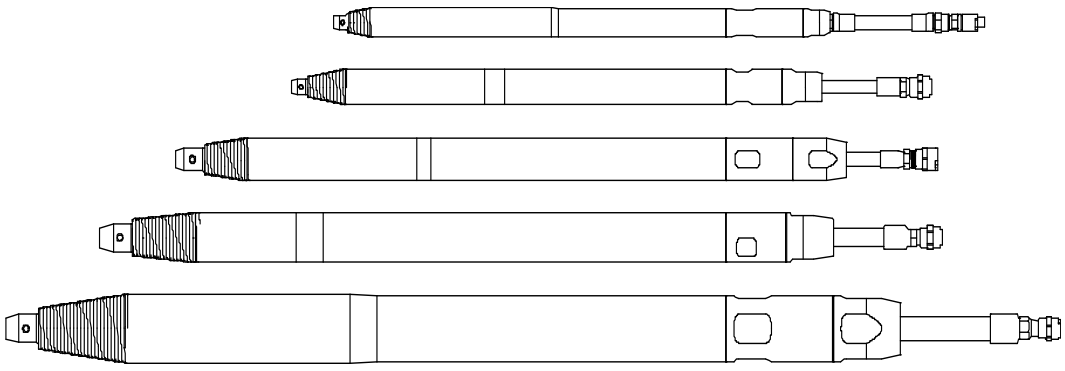


Figure 5-1 Hole-Hog Model HH46, HH57, HH68, HH79, HH108

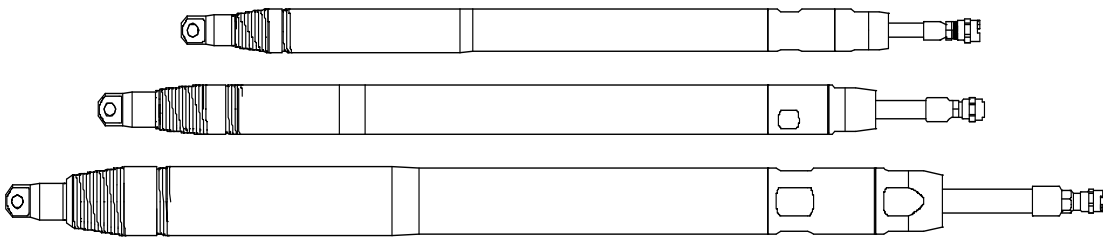


Figure 5-2 Hole-Hog Models HH68-TH, HH79-TH and HH108-TH

5.3 Decal Identification & Location

	The **READ INSTRUCTIONS** decal indicates that it is important for the operator to read the manual prior to transporting, installing, operating, or servicing the Hole-Hog. Follow all Instructions, Cautions and Warnings.
	The **MADE IN THE USA** decal indicates that the Allied Hole-Hog is an American made, premium quality tool.
	Hole-Hog **PATENT NUMBERS** decal lists all patents pertaining to the Hole-Hog and those pending.
	The **ALLIED LOGO** decal Is the Allied brand identifier and is a registered trademark of Allied Construction Products, LLC
Hole-Hog®	The **Hole-Hog LOGO** decal is a product identifier and a registered trademark of Allied Construction Products, LLC

Figure 5-3 Decals

Figure 5-4 Decal Location

Item No.	Qty.	Part Number		Description
		HH46, HH57, HH68	**HH79 HH108**	**Hole-Hog Model**
		571660	**101234**	**Decal Kit Complete**
1	1	676984	676984	Decal – Read Instructions
2	1	833291	833291	Decal – Hole-Hog Patents
3	1	815696	815696	Decal – Made in USA
4	1	103293	103293	Decal – Hole-Hog Logo
5	1	676651	676653	Decal – Allied Logo

SECTION 6.0
OPERATION

6.1 Lifting, Blocking and Handling Precautions

Some Hole-Hog models covered in this manual are heavy. The weights of the Hole Hog are listed in the Technical Specifications table, Section 5.1. Even when disassembled, components such as the Body/Anvil and Striker are heavy enough to cause serious bodily injury if not handled with caution.

When handling and lifting the Hole-Hog, follow all precautions normal to the lifting and operating of heavy equipment with particular attention to the following.

CAUTION

Avoid risk of personal injury or equipment damage from broken or separated hose. Do not lift the Hole-Hog by the whip hose. Lift the Hole-Hog in and out of the trench using slings that are suitable for loads encountered.

CAUTION

Bodily injury may result if the Hole-Hog falls. Stand clear of the danger zone while the Hole-Hog is being lifted.

CAUTION

Avoid personal injury or equipment damage from sudden shifting of components. When manually handling the Hole-Hog or its components, make sure enough personnel are used to safely distribute the load among them. Protect against shifting striker by maintaining a level horizontal position.

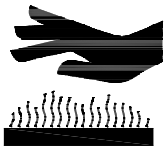
CAUTION

Avoid personal injury or damage from accidental or sudden movement of the Hole-Hog or its components. Prevent the Hole-Hog from rolling when placed on a horizontal surface. Always use sufficient blocking. Wear protective equipment and keep hands and feet clear of crush points.

CAUTION

To avoid risk of injury, wear protective equipment including appropriate clothing, gloves, safety eyewear and shoes when handling the Hole-Hog.

CAUTION



Avoid contact with hot parts. Some components of the Hole-Hog become hot during operation. Do not touch until cool.

IMPORTANT

Do not drop the Hole Hog. This could damage internal components.

IMPORTANT

Do not carry the Hole-Hog by the whip hose or use hose as a handle. This could damage internal components.

6.2 Operating Overview

There are 8 steps in piercing an underground hole with a Hole-Hog:

1. Review all safety precautions.
2. Select a safe path for the hole to be pierced.
3. Dig an entrance pit at one end of the path.
4. Dig an exit pit or set a target marker at the other end of the path.
5. Prepare the Hole-Hog and air supply lines.
6. Place the Hole-Hog in the entrance pit and align it with the target or exit hole.
7. Operate the Hole-Hog until it completes the hole.
8. Remove the Hole-Hog.

6.3 Operating Guidelines

When performing each of the steps listed in 6.2, pay particular attention to the related guidelines that follow.

6.3.1 Safety Precautions

The equipment owner is responsible to assure that only qualified personnel install and operate the Hole-Hog. To minimize the risk of personal injuries, qualified personnel must adhere to the procedures explained in this manual, especially regarding personal safety. Read all warnings and operating instructions before use. Follow procedures that promote safe conditions for workers and bystanders. Be alert to all safety messages.

6.3.2 Select a Safe Piercing Path

Plan and mark the complete piercing path and the depth of the hole prior to starting Hole-Hog operation.

WARNING

Risk of electric shock, fire or explosion. Cutting a utility line could cause serious injury. Use extreme caution working with electric and gas lines. The owner/operator is responsible for locating all utility lines before starting operation of the Hole-Hog.

1. Locate all existing underground utilities, including electrical, gas, water, sewer, telecom, etc., in the area to be penetrated.
2. Select the shortest possible path under the obstacle (road, walk, driveway, etc.).
3. Determine the depth (elevation) of the hole to be pierced.

- Refer to 5.2 Minimum Recommended Operating Depths.
- Identify the type of soil to be pierced and the minimum depth of the hole.

IMPORTANT

Do not attempt to pierce a hole in frozen ground. Frozen ground is not compactable. However, a hole can be pierced below the frost line.

- If possible, select a hole depth well below the minimum. In some soils, the

Hole-Hog may raise while piercing a shallow hole.

- When the piercing path is very long through low-density soil, the hole depth should be as deep as practical for the application.

6.3.3 Prepare Entrance Trench

CAUTION	
	Falls into open excavations can cause serious injury. Establish pedestrian barriers. To prevent collapse, trench must be shored to meet federal, state and local guidelines.

Excavate the entrance pit to the depth, width and length required to properly align the piercing tool and work comfortably. Allow enough room for the operator to push the Hole-Hog into the wall to be pierced, approximately one foot beyond the end of the whip hose.

IMPORTANT
Special care must be taken to avoid sharp bending of the Whip Hose. A soft bend is permissible, but do not kink.

6.3.4 Prepare Exit Pit or Target

Excavate the exit pit. The length, width, and depth of the exit pit should exceed the entrance pit dimensions by 6 inches to 10 inches [152mm to 254mm).

In cases where the exit pit length is limited and for blind holes, the unit is reversed and drives itself back out through the pierced hole.

6.3.5 Prepare the Hole-Hog and Air Supply Hose

1. Perform pre-operational checks as described in Daily Maintenance. Refer to Care and Maintenance Section 9.

CAUTION	
	A loose end cap could blow out with damaging force, injuring the operator or bystanders. Ensure that the end cap is properly tightened. Follow tightening method described in Section 12.0.

CAUTION	
	Injury from hose whip may result if hose fails or separates while pressurized. Inspect air supply hose frequently for leakage, kinking or any other signs of wear or damage. Never stand directly over the air supply hoses.

IMPORTANT
Forward and reverse direction is selected by turning the Air Supply Hose. The hose used to connect to the Hole Hog MUST have rigid couplings and enough stiffness to turn the Valve Stem without the hose itself becoming coiled.

2. The Air Supply Hose controls the forward and reverse motion of the Hole-Hog as well as the air flow. Typically, there will be two (2) air supply hoses and an Air Line Lubricator involved.

    a. The first hose is connected between the air compressor and Air Line Lubricator.

b. A second hose connects the Air Line Lubricator to the Hole-Hog.

3. To monitor Hole-Hog travel along the piercing path, mark the Air Supply Hose in two ways.

   a. Place tape at two foot [1/2 meter] intervals along the hose. This provides an indication of how far the Hole-Hog has traveled along the path.

   b. Next, add a special tape mark on the Air Supply Hose that will serve as an indicator of when the Hole-Hog should reach the exit pit. Start by measuring the distance between the entrance and exit pit. Then, measure from the tip of the Hole-Hog and back along the air supply hose. Place a tape mark at that point. If the tape mark is reached and the Hole-Hog has not reached the exit pit, the tool has deflected from its targeted piercing path.

IMPORTANT

Purge the air supply hoses of any debris and water before connecting to Air Line Lubricator and Hole-Hog.

4. Review all of Section 7.0 Lubrication. Startup lubrication, paragraph 7.5 must be performed at the beginning of piercing operations.

5. Connect air supply hose to compressor and Air Line Lubricator.

6. Connect second air supply hose to Air Line Lubricator and Hole-Hog.

NOTE: Install the In-Line Lubricator Assembly as near to the Hole-Hog as is practical.

IMPORTANT

When using a new air supply hose or after long periods of inactivity, the inside of the hose must be primed with lubricant. Priming produces a slick surface and prevents the lubricant dispensed from the lubricator from clinging to a hose that is dry. Refer to Lubrication Section 7.2.1.

6.3.6 Position and Aim the Hole-Hog

1. Verify that the bottom of the entrance pit is at the depth (elevation) determined in Section 6.3.2, Step 3.

CAUTION

Avoid risk of personal injury or equipment damage from broken or separated hose. Do not lift the Hole-Hog by the whip hose. Lift the Hole-Hog in and out of the trench using slings that are suitable for loads encountered.

CAUTION

Avoid personal injury or equipment damage from sudden shifting of components. When manually handling the Hole-Hog or its components, make sure enough personnel are used to safely distribute the strain among them. Protect against shifting striker by maintaining a level horizontal position.

IMPORTANT

Do not drop the Hole Hog. This could damage internal components.

CAUTION

Bodily injury may result if the Hole-Hog falls. Stand clear of the danger zone while the Hole-Hog is being lifted.

2. Lower the Hole-Hog into the entrance trench, as shown in Figure 6-1.

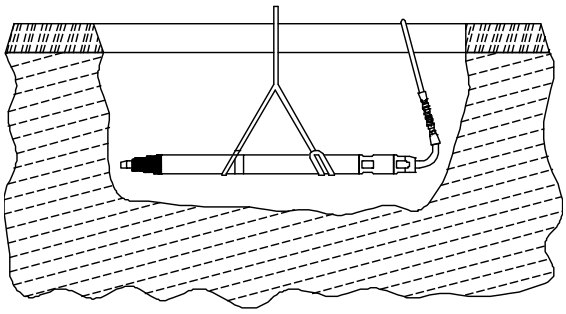


Figure 6-1 Lifting the Hole-Hog

IMPORTANT

Do not carry the Hole-Hog by the whip hose or use hose as a handle. This could damage internal components.

3. Align the length of the Hole-Hog with the center of the exit pit or target at the other end of the piercing path.

NOTE: In order to compensate for a tendency of the tool to rise along the piercing path, the nose of the tool must be pitched slightly downward. The amount of pitch depends on the length of travel and the soil type. Normally, one half (1/2) a bubble on a spirit level is sufficient.

4. Block the Hole-Hog in this position.

6.3.7 Piercing the Underground Hole

CAUTION

Never leave running compressor unattended. Have a qualified person at the compressor to shut the unit down in case of an emergency. The operator and safety person shall have agreed upon hand signals to indicate the necessity of immediate shut down.

CAUTION

Read the operating manual for the air compressor and observe all safety precautions. Follow the manufacturer's instructions for proper operation, service and maintenance procedures.

WARNING

Risk of electric shock, fire or explosion. Cutting a utility line could cause serious injury. Use extreme caution working with electric and gas lines. Locate all utility lines before starting operation of the Hole-Hog.

CAUTION

Inhaled fumes from air line lubricant are harmful and may cause illness. Stand clear of exhaust fumes. When handling lubricant, avoid contact with skin and eyes. Read and follow all lubricant safety precautions.

CAUTION

Prevent injury from flying debris. Wear personal protective equipment, including appropriate clothing, gloves, safety eyewear and shoes when operating or handling the Hole-Hog.

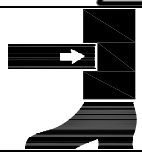
CAUTION

Avoid risk of injury from flying debris. Stand clear of the Hole-Hog exhaust. Wear personal protective equipment including safety eyewear.

CAUTION

Exposure to high noise levels may cause hearing loss. Wear hearing protection.

CAUTION

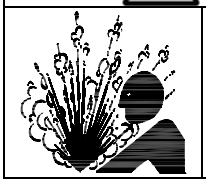


Avoid risk of injury. If an obstruction is hit, the unit could kick back. Do not stand behind Hole-Hog.

NOTE: It is recommended to operate the Hole-Hog above ground momentarily in both forward and reverse.

1. Open the air supply valve quickly and then immediately close to approximately 2/3 of full open. This reduces the percussive energy of the Hole-Hog and allows easier handling and quicker penetration into the ground. It is necessary to apply force in the direction of motion.

CAUTION



Injury could result if hoses break or separate. Never pull on whip hose or air supply hose to move or position Hole-Hog.

2. After approximately 1/3 of the body length has penetrated into the ground, turn off air supply and check alignment to target and pitch. The nose of the tool must be pitched down; refer to paragraph 6.3.6, step 3.

3. Restart air supply to piercing tool. If tool fails to start, open and close the valve quickly to create pulses of air to start the tool.

4. Monitor alignment and pitch as the Hole-Hog continues to penetrate.

5. When the Hole-Hog body is completely enveloped in the ground, fully open the air supply valve. Increase air pressure to 110 psi [7.7kg/cm²].

IMPORTANT

Operating above 110 psi [7.7kg/cm²] decreases performance and the life of the tool. This type of damage is not covered under the warranty.

6. Monitor Hole-Hog progress along the piercing path. Use the tape markers on the Air Supply Hose to estimate the length of hose used and progress along the piercing path.

7. Underground obstacles can impede the forward progress of the Hole-Hog or deflect it off its intended path.

    - If the Hole-Hog stops moving along the path, it has encountered an obstacle.

    - If the special tape mark on the hose, which serves as the indicator for the total run distance, is reached, but the Hole-Hog is not visible at the target or exit pit, the Hole-Hog has been deflected off its targeted path by an obstacle.

In either case, do the following:

- Retrieve the Hole-Hog by reversing the direction of the unit as described in paragraph 6.3.8.

- Verify location of all utilities before starting a second hole.

- Pierce another hole that will bypass the object, repeating steps 6.3.6 and 6.3.7. In extreme circumstances it may be necessary to relocate the entrance or exit pit.

8. When the Hole-Hog reaches the exit pit or target, stop air delivery by closing the air supply valve.

NOTE: DO NOT REMOVE THE HOLE-HOG from the exit pit or pierced hole.

9. Before removing the Hole-Hog form the exit pit or pierced hole, verify the means by which the materials, e.g. pipe, tube, cable, etc. will be installed in the pierced hole. Refer to paragraph 6.3.9 Install Material in the Pierced Hole.

6.3.8 Reversing the Hole-Hog

If the Hole-Hog meets an obstacle or deviates from its intended course, stop the tool and reverse it out of the hole. The tool may also be stopped and reversed when a blind hole is required.

To reverse the tool, proceed as follows:

1. Stop air delivery by closing the air supply valve.

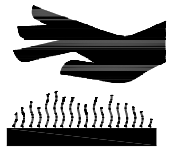
2. With the air supply off, rotate hose assembly 120º counterclockwise. The hose may need to be turned several times to account for hose twist.

3. Open the air supply valve and verify that the tool is in the reverse direction.

IMPORTANT
Do not pull on the air hose as this could damage internal components.

6.3.9 Install Material in the Pierced Hole

Optional attachments are available for the Hole-Hog. Some of these install materials in the pierced hole, for example: pipe drivers and cable/tube pullers. Refer to Section 13.

CAUTION	
	Avoid contact with hot parts. Some components of the Hole-Hog become hot during operation. Do not touch until cool.

6.3.10 Remove the Hole-Hog

When the Hole-Hog is no longer required for piercing or material installation, proceed as follows:

1. Stop compressed air delivery by closing the air supply valve.

2. Disconnect the air supply hose.

3. Remove the Hole-Hog from the pit. Follow safety precautions in Section 6.1 Lifting, Blocking and Handling.

4. Refer to Section 9.0 Care and Maintenance, and perform appropriate procedures.

SECTION 7.0
LUBRICATION

7.1 Lubrication Overview

CAUTION	
	Inhaled fumes from air line lubricant are harmful and could cause illness. Stand clear of exhaust fumes. When handling lubricant, avoid contact with skin and eyes. Read and follow all lubricant safety precautions.

CAUTION	
	Risk of explosion and fire. Never use flammable lubricants or cleaners. Unsuitable lubricants could damaged internal parts of the Hole-Hog. Use only Allied approved lubricants.

To ensure proper operation and extend the life of the Hole-Hog, the tool's internal components must be lubricated during use. Allied recommends the use of in-line lubricator to provide continuous lubrication. The lubricator design must include an oil adjustment valve to control the delivery rate. Allied Hog Wash is the preferred lubricant.

7.2 In-Line Air Lubricator and Valve Assembly.

The In-Line Lubricator and valve assembly features a lubricator with an oil adjustment valve, mounting plate, shut off valve and Quick Disconnect (Q.D.) Fittings. For parts information, refer to Section 14.

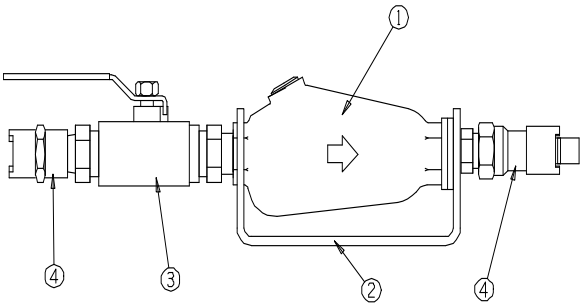


Figure 7-1 Air Flow Direction
1-Lubricator, 2-Bracket, 3-Ball Valve, Q.D.

7.3 In-Line Air Lubricator Specifications

Port Size	Max Pressure	Oil Capacity
¾ -inch NPT	300 psi [20 bar]	11 fl. Oz. [320 cc]

7.4 Installation

Install the In-Line Lubricator Assembly as near to the Hole-Hog as is practical. For proper operation, the In-Line Lubricator Assembly must remain in the upright position. Refer to Figure 7-1 for air flow direction.

7.5 Startup

Be sure to check the oil level before each use.

IMPORTANT
Before connecting air supply hose to lubricator, open air supply valve to purge the hose of any debris and water.

NOTE: If the air supply hose is new or after long periods of inactivity, the inside of the hose is dry and must be primed with lubricant. "Priming" will wet the inside of the hose, creating a slick surface. This ensures that the lubricant dispensed from the

lubricator will quickly reach the Hole-Hog instead of clinging to a dry surface.

To prime the air supply hose, pour approximately 2 ounces [60 cc] of lubricant into the hose between the lubricator assembly and the Hole-Hog. Repeat this procedure at every 100 ft. [30 m] intervals. This may generate a heavy mist of lubricant upon tool startup.

7.6 Normal Operation

After several minutes of operation at the proper lubricant rate, the whip hose should be lightly coated with lubricant. If a heavy mist of lubricant is continuously present in the exhaust air, reduce the lubrication rate by following the instructions in Section 7.7.

7.7 Lubrication Adjustment

Since both air pressure and oil viscosity affects oil flow, adjustments may be necessary to achieve proper lubrication.

The In-Line Air Lubricator has an oil adjustment valve, located inside the reservoir, used to control the oil flow output.

IMPORTANT
Shut off the air delivery before removing the fill plug. Slowly open the fill plug to depressurize the oil reservoir.

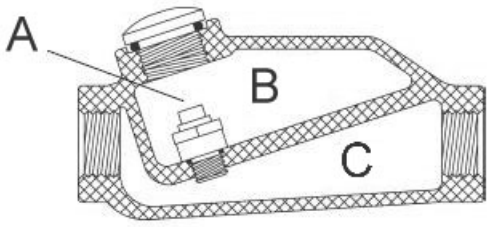


Figure 7-2 Lubricator Adjustment
A-Oil Adjustment Valve, B-Upper Reservoir, C-Lower Reservoir

The range of the adjustment valve is marked 0 – 30. A low number, such as 5, indicates low flow. A high number, such as 20, indicates high flow. Use a screwdriver to turn the adjusting screw.

NOTE: A setting of 5 is suitable for most conditions when Allied Hog Wash, or equivalent 10-weight pneumatic tool oil is used. When making changes to the oil adjustment valve, the effects will not be seen immediately. During adjustment, closely monitor the exhaust air. The delay time will depend on hose length and air flow.

7.8 Storage

The lubricator's simple design does not provide for relief of trapped pressure at shut down. Residual air pressure above the oil, forces some of the reservoir oil into the air line during periods of inactivity. If this is objectionable, either:

a. Store the lubricator upside down to prevent oil flow, or

b. Slowly open the fill plug to depressurize the oil reservoir. Be sure to re-tighten the fill plug to prevent oil leakage.

7.9 De-Icing

The weather conditions of cool, damp days are ideal for icing problems to develop. Moisture in compressed air will form into droplets as it comes from an air compressor. When humidity is high or when a compressor is in continuous use for an extended period of time, this moisture will collect. A normal cooling effect inside the Hole-Hog is experienced as the compressed air expands. Under certain temperature and humidity conditions, the moisture in the compressed air can condense and freeze on internal components. Excessive icing restricts striker movement, which can result in erratic operation, low impact or non-performance.

An early indicator of internal icing is the presence of ice chips in the air exhaust.

If internal ice buildup is suspected:

1. Stop the air delivery to the Hole-Hog.

2. Wait several minutes to allow the tool to warm.

3. Prior to restarting the tool, follow the instructions in Section 7.2. This step may need to be repeated if icing is severe.

The use of a de-icing agent is a must when ambient temperatures are below 60°F [15°C]. Allied Hog Wash is a specially formulated lubricant, which also contains de-icing agents.

NOTE: If icing persists, increase the amount of lubricant delivered to the Hole-Hog.

NOTE: Conditioning (heating or drying) the compressed air prior to delivery to the Hole-Hog can minimize icing problems. Consult the air compressor manufacturer for the availability of these accessories.

SECTION 8.0
HOLE-HOG TROUBLESHOOTING GUIDE

CAUTION

Do not attempt any repairs unless you have proper knowledge, equipment and tools.

This section is designed to help diagnose possible causes of several commonly encountered conditions. Only qualified personnel should do repairs. For further assistance, contact Allied's Technical Service.

Condition	Cause	Action
Hole-Hog does not start	Restriction in air supply hose.	Disconnect and purge hose.
	Bent Valve Stem.	Replace Valve Stem.
	Air pressure too low.	Check air pressure.
	Ice buildup inside unit.	Follow de-icing instructions.
	Excessive internal clearances.	Replace body, striker or valve
	Foreign material inside unit.	Disassemble and clean.
	Broken/misaligned internal parts.	Disassemble, then repair or replace.
	Rusted or rough sliding surfaces.	Disassemble, clean and polish.
Runs erratically in forward / reverse	Restriction in air supply hose.	Disconnect and purge hose.
	Bent Valve Stem.	Replace Valve Stem.
	Air pressure too high.	Check air pressure.
	Ice buildup inside unit.	Follow de-icing instructions.
	Hit obstacle.	Reverse tool from hole and retry.
	Deteriorated shock absorber.	Replace shock absorber.
	Improper lubrication.	Follow lubrication instructions.
Stops in ground	Restriction in air supply hose.	Disconnect and purge hose.
	Ice buildup inside unit.	Follow de-icing instructions.
	Ground too hard or too soft.	Re-evaluate application.
	Hit obstacle.	Reverse tool from hole and retry.

HOLE-HOG TROUBLESHOOTING GUIDE (cont'd)

Condition	Cause	Action
Low impact power	Restriction in air supply hose.	Disconnect and purge hose.
	Air pressure too low.	Check air pressure.
	Ice buildup inside unit.	Follow de-icing instructions.
	Deteriorated shock absorber.	Replace shock absorber.
	Excessive internal clearances.	Replace body, striker or valve
	Improper lubrication.	Follow lubrication instructions.
	Broken/misaligned internal parts.	Disassemble, then repair or replace.
	Rusted or rough sliding surfaces.	Disassemble, clean and polish.
Slow ground penetration	Air pressure too high.	Check air pressure.
	Ground too hard or too soft.	Re-evaluate application.
	Hit obstacle.	Reverse tool from hole and retry.

SECTION 9.0
MAINTENANCE and STORAGE

9.1 Daily Inspection and Maintenance

When properly maintained, the Allied Hole-Hog requires a minimum of service.

- Check Whip Hose for damage such as cuts or kinks. Replace damaged Whip Hose.
- Inspect Quick Disconnect fittings and gasket. Make sure connectors fit tightly and stay interlocked. Replace damaged components.
- Inspect the Body/Anvil. These components are subject to wear. A smoothly worn body is acceptable. Replace if excessively worn or cracked. Smooth out any deep grooves. The anvil by itself is not replaceable.
- Check tightness of the End Cap. For "TH" models, verify that the Nose Cap is tightened securely to the threaded anvil.
- Flush out moisture at the end of daily shift. Tilt the anvil end of Hole-Hog up to allow moisture to drain.

9.2 Preventative Maintenance

Normally, maintenance to the surface of the Hole-Hog without entry into the unit is all that is necessary. Many problems can be avoided by simply flushing the unit with Hog Wash at the end of each shift. If moisture is allowed to remain inside the unit, this can cause internal components to rust.

9.3 Conditional Maintenance

Maintenance must be performed more frequently if the Hole-Hog is operated continuously during periods of high humidity or in muddy and wet soil conditions.

Disassemble, clean and lubricate all Hole-Hog working surfaces when operating under the following conditions:

NOTE: Allied does not recommend removal of the Tail Assembly unless absolutely necessary.

- The Hole-Hog is operated in extremely humid weather conditions.
- The Hole-Hog is operated in muddy or extremely wet soils.
- If reduced performance is observed
- The Hole-Hog is to be stored for a period longer than one month.

9.1 Hole-Hog Storage

Improper storage can lead to the formation of rust that can damage internal components, resulting in reduced performance or making the Hole-Hog inoperable. Follow these instructions to ensure the Hole-Hog is ready to use the next time it is needed and to keep it operating efficiently.

1. Exterior.
    - Wipe exterior surface of unit with an oily rag to leave a thin coating of oil over the whole unit.
    - Clean Whip Hose and Quick Disconnect Coupling
    - Inspect parts for damage and excessive wear. It is recommended to order spare replacement parts prior to scheduled repairs to ensure availability.

2. Flush and lubricate internal components.

    - Raise the back end of the Hole-Hog. Pour approximately 1 to 2 oz of Hog Wash through Whip Hose.

    - Lay Hole-Hog on flat surface. Raise the front end of Body/Anvil to allow fluid to drain from Tail Adapter.

3. Plug Whip Hose to prevent foreign material from entering.

4. Position or tie Whip Hose in a manner to prevent it from being damaged.

5. Use sufficient blocking to secure Hole-Hog from rolling.

6. Place in a dry storage area or cover with a waterproof tarp. Avoid wet or damp conditions to minimize rust.

If stored improperly, it may be necessary to disassemble the Hole-Hog for cleaning and inspection.

NOTE: Before disassembling the Hole-Hog, refer to Section 11.3 Extent of Disassembly for guidelines in planning maintenance.

- ❑ Remove Tail Assembly and Striker. Refer to Section 11.6.

- ❑ Inspect the Body/Anvil and Striker for rust, cracks or chipped surfaces.

- ❑ Inspect the operation of the forward and reversing mechanism.

- ❑ Inspect the forward valve position. (Note: Measuring the forward valve position is useful in determining the condition of the shock absorber. Generally, this is not required unless erratic operation or poor performance is observed).

    1. By hand, turn the Whip Hose to the maximum clockwise position. Pull back on Whip Hose, away from End Cap.

    2. Measure distance as shown in Figure 9-1.

    3. Compare measurement with specified value in table.

    4. If the measured dimension is less than the value indicated in the table, further disassembly of the Tail Assembly is required. Refer to Section 11.7.

Forward Valve Dimension Range		
Model	inch	[mm]
HH 46	8.40 – 8.50	[213 - 216]
HH 57	7.50 - 7.70	[190 - 195]
HH 68	9.15 - 9.25	[232 - 235]
HH 79	12.1 - 12.3	[307 - 312]
HH 108	11.9 - 12.0	[302 - 305]

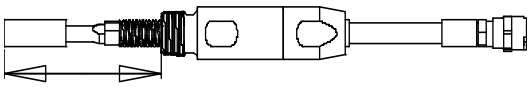


Figure 9-1 Forward Valve Dimension

- ❑ Remove Tail Adapter. Refer to Section 11.6.1. Check the exhaust ports in the shock absorber for obstructions. Clean and check for damage.

- ❑ Inspect Whip Hose for leakage, abrasion, kinks or any other signs of damage. Replace damaged hose.

- ❑ Check shock/valve guide for proper seating. Press into place or replace shock if necessary.

SECTION 10.0
FIELD REPAIR

10.1 Field Replaceable Components

This section describes the procedures for replacing only the Whip Hose and Quick Disconnect (Q.D.) fitting. When repairs are made in the field, disassembly of the Hole-Hog should be limited to the following components:

- Tail Adapter, Quick Disconnect (Q.D.) Fitting, Whip Hose (Figure 10-1).
- Nose Cap and Cover (Figure 10-2).

Perform only the minimum disassembly required to avoid contamination of internal components. Before attempting any disassembly, read through the procedures and select the sections to be performed.

IMPORTANT

Removal of the Tail Assembly from the Body/Anvil is not necessary to perform the procedures contained in this section. Repairs that require the removal of the Tail Assembly should be performed at a well-equipped shop, knowledgeable with the disassembly, cleaning, inspection and repair of pneumatic construction equipment.

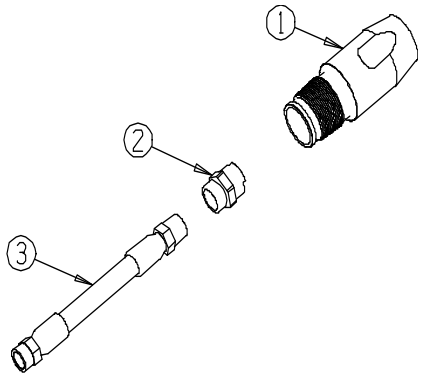


Figure 10-1
1-Tail Adapter, 2-Quick Disconnect Fitting, 3-Whip Hose

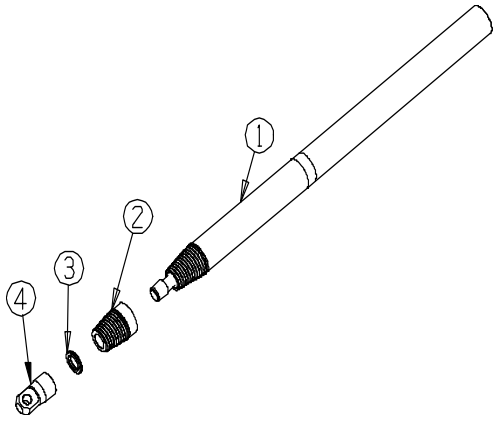


Figure 10-2
1-Body/Anvil, 2-Grooved Nose Cover, 3-Washer, 4-Nose Cap ("TH" models)

10.2 Replacement Preparations

CAUTION

To prevent injury to personnel and equipment damage, mount a vise or saddle clamp on the work surface. Otherwise, obtain blocking to hold the Hole-Hog in place during disassembly and reassembly.

IMPORTANT

Create a clean work platform to avoid contamination. Obtain a clean plastic or canvas tarp and spread over the work surface.

NOTE: To clean parts that are accidentally contaminated, obtain the following:

a. Mineral spirits and clean hydraulic fluid

b. Clean cloth rags to wipe away dirt, mineral spirits and excess hydraulic fluid

10.3 Anvil/Cap Removal ("TH" Models Only)

CAUTION

Risk of personal injury and equipment damage. Welding or applying heat with a torch to any part of the Hole-Hog can cause altered component strength and result in premature failure. Excessive heat can damage parts beyond use. Heating Hole-Hog components relieves Allied of all warranty responsibilities.

IMPORTANT

Do not use a pipe wrench on the Hole-Hog Body/Anvil. Wrench teeth can create deep gouges and relieves Allied of all warranty responsibilities.

Place the Hole-Hog on a clean flat work surface. To prevent rolling during maintenance, secure the Hole-Hog in a vise or saddle-clamp, or between adequate blocking.

10.3.1 Remove the Nose Cap

1. Secure the Hole-Hog on the work surface as described above.
2. Hold the Body/Anvil in place with a strap or chain wrench. (Figure 10-3)
3. With an 18-inch pipe wrench, loosen the Nose Cap from the Body/Anvil.

NOTE: Slip a six-foot section of pipe over the wrench handle, to assist with loosening the Nose Cap. See Figure 10-3.

4. Unthread the Nose Cap from the Body/Anvil. Remove the special Lock Washer and the Nose Cover.

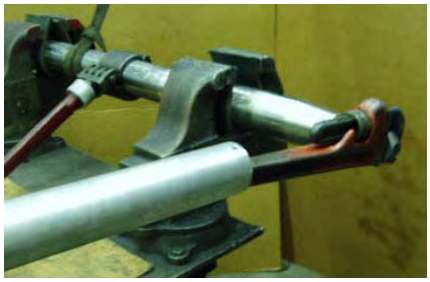


Figure 10-3 Loosen Nose Cap.

10.3.2 Install the Nose Cap

1. Secure the Hole-Hog on the work surface as described in Section 10.3.
2. Slide the Nose Cover or nose-mounted accessory onto the Body/Anvil.
3. Slide the Lock Washer onto the Body/Anvil. Lubricate threads with Anti-Seize lubricant.
4. By hand, thread the Anvil/Cap onto the Body/Anvil until tight.
5. Hold the Body/Anvil in place with a strap or chain wrench. See Figure 10-4.
6. With an 18-inch pipe wrench, tighten the nose cap to the following:
   - HH 68-TH – 1000 ft/lbs. [1355 N·m]
   - HH 79-TH and HH108-TH – 2000 ft/lbs. [2710 N·m]

NOTE: Use a six-foot pipe placed over the wrench handle to provide enough leverage to tighten.

Figure 10-4 Tighten Nose Cap

10.4 Quick Disconnect (Q.D.) Fitting Replacement

Place the Hole-Hog on a clean flat work surface. To prevent rolling during maintenance, secure the Hole-Hog in a vise or saddle-clamp, or between adequate blocking.

10.4.1 Remove the Q.D. Fitting

1. Secure the Hole-Hog on the work surface as described above.

2. Fit an open-end wrench across the flats of the Whip Hose fitting, and a second open-end wrench across the flats of the Q.D. Fitting. Refer to Figure 10-5.

3. Hold the Whip Hose stationary and remove the Q.D. Fitting from the Whip Hose.

Figure 10-5 Q.D. Fitting and Whip Hose

10.4.2 Install the Q.D. Fitting

1. Secure the Hole-Hog on the work surface as described under section 10.4.

2. At the free end of the Whip Hose, apply Blue Loctite® 248 to the external threads.

3. Hand-tighten the Quick Disconnect Fitting onto the Whip Hose fitting.

4. Fit an open-end wrench across the flats of the Whip Hose fitting, and a second open-end wrench across the flats of the Q.D. Fitting. Refer to Figure 10-5.

5. Hold the Whip Hose stationary and tighten the Q.D. Fitting until securely fastened to the Whip Hose.

10.5 Remove the Q.D. Fitting Gasket

1. Remove old gasket using a small screwdriver or needle nose pliers. Refer to Figure 10-6. Discard old gasket.

Figure 10-6 Q.D. Fitting Gasket

10.5.1 Install New Gasket to Q.D.

NOTE: If a new Q.D. Fitting is installed, it already contains a new gasket.

1. Position new Gasket with grooved face toward the Quick Disconnect Fitting. Insert gasket into the open groove. Check that the gasket seats properly. Refer to Figure 10-7.

Figure 10-7 Install New Gasket

10.6 Whip Hose Replacement

This section describes the procedures for replacing the Whip Hose.

NOTE: To replace the Whip Hose it is not necessary to remove the Tail Assembly from the Body/Anvil.

10.6.1 Tail Adapter Removal

1. Place the Hole-Hog on a clean flat work surface.

2. Use either of the following methods to hold the body stationary:

    a. Strap wrench or saddle clamp

NOTE: Grip the Hole-Hog across the raised area of the End Cap on either side of the wrench flats.

ALTERNATE METHOD

    b. End Cap Wrench. (Supplied in Service Tool Kit).

NOTE: When using the End Cap Wrench, grip the Hole-Hog across the wrench flats of the End Cap as shown in Figure 10-8.

NOTE: (HH46 Only) Do not remove the Tail Adapter. The Tail Adapter remains attached to the End Cap during Whip Hose replacement.

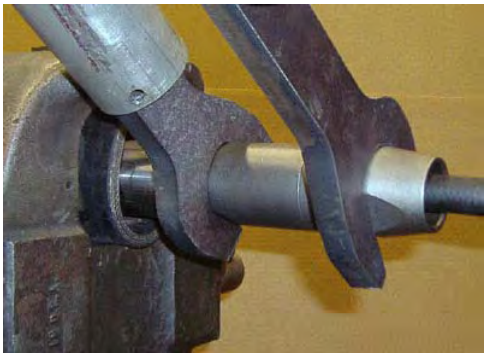


Figure 10-8 Secure Hole-Hog for Tail Adapter removal

3. With the Hole-Hog held stationary, fit one of the End Cap Wrenches across the flats of the Tapered Tail Adapter as shown in Figure 10-8.

4. Loosen the Tapered Tail Adapter.

NOTE: A six-foot section of pipe may be slipped over the wrench handle. In this way, enough torque can be applied to loosen the Tail Adapter.

5. Unthread the Tail Adapter from the End Cap. Slide it over the Whip Hose, as shown in Figure 10-19.

NOTE: (HH57 Only) It will be necessary to remove the Quick-Disconnect (Q.D.) Fitting before the Tail Adapter can be removed. Refer to the instructions in Section 10.4.1 for the removal of the Q.D.

Figure 10-9 Unthread Tail Adapter and slide over Whip Hose

10.6.2 Whip Hose Removal

1. Remove the Tail Adapter as described in Section 10.6.1.

2. By hand, turn the Whip Hose to the maximum counter-clockwise position. Pull back on the Whip Hose to expose Thread Adapter. Place an open-end wrench across the flats of the Thread Adapter as shown in Figure 10-10.

3. Brace the wrench against the edge of the End Cap and pry the Adapter outward with enough force to prevent the Valve Stem from pulling back into the End Cap. See Figure 10-10.

Figure 10-10 Secure Thread Adapter for Whip Hose Removal/Installation

4. Fit a second open-end wrench across the hex fitting of the Whip Hose as shown in Figure 10-11.

Figure 10-11 Whip Hose Removal/Installation

5. With Thread Adapter held stationary, loosen and remove the Whip Hose from the Thread Adapter.

NOTE: When removing the Whip Hose, it is important to hold the Thread Adapter stationary. Do not allow it to loosen. Do not remove the Thread Adapter from the stem.

10.6.3. Whip Hose Installation

1. Assemble the Whip Hose and Quick Disconnect Fitting as described in Section 10.5.2.

CAUTION

Avoid risk of personal injury. Use of non-Allied parts could result in injury or equipment failure. Always use Allied Whip Hose. (Refer to Section 14.0 Parts Information).

2. Place the Hole-Hog on the work surface and secure it as described in Section 10.6.1.

NOTE: When using the End Cap Wrench, grip the Hole-Hog across the wrench flats of the End Cap.

NOTE: When using a vise or saddle clamp, grip the Hole-Hog across the raised area of the End Cap on either side of the wrench flats.

3. Apply Blue Loctite® 248 to the threads at the end of the Thread Adapter.

4. Thread Whip Hose onto the Thread Adapter hand tight.

5. By hand, turn the Whip Hose to the maximum counter-clockwise position. Pull back on the Whip Hose to expose Thread Adapter. Place an open-end wrench across the flats of the Thread Adapter as shown in Figure 10-10.

6. Brace the wrench against the edge of the End Cap and pry the stem outward with enough force to prevent the Valve Stem from pulling back into the End Cap as shown in Figure 10-10.

7. Fit a second open-end wrench across the flats of the Whip Hose Hex Fitting as shown in Figure 10-11.

8. Tighten the Whip Hose Hex Fitting securely onto the Thread Adapter.

10.6.4 Tail Adapter Installation

1. Hold the Hole-Hog stationary as described is Section 10.6.1. Install the Whip Hose as described in Section 10.6.3.

2. Apply a light coat of Anti-Seize lubricant to the threads of the Tail Adapter.

3. Slide the Tail Adapter over the Whip Hose, with the threaded end toward the End Cap, as shown in Figure 10-12.

4. Thread the Tail Adapter into the End Cap and hand tighten.

5. With the End Cap secured as described in Section 10.6.1, steps 1 and 2, fit one of the End Cap Wrenches across the flats of the Tapered Tail Adapter as shown in Figure 10-13.

6. Tighten the Tapered Tail Adapter until it is securely fastened to the End Cap, as described in Section 12.

Figure 10-12 Tail Adapter and End Cap

Figure 10-13 Tighten Tail Adapter to End Cap

SECTION 11.0
DISASSEMBLY

11.1 General

This section describes the procedures for the proper removal of the Tail Assembly and Striker. It also includes instructions for the complete disassembly of the Tail Assembly. Any repairs that require the removal of the Tail Assembly should be performed at a shop knowledgeable about the disassembly, cleaning, inspection and repair of pneumatic construction equipment.

IMPORTANT
Locate a clean flat area to make repairs. While the End Cap is removed, protect threads and other internal parts against damage. Cover internal components to reduce the risk of contamination.

11.2 Service Tool Kit

In addition to the tools and fixtures normally found in a well-equipped shop, the Allied Service Tool Kit must also be available. Refer to Section 15 for details of each Service Tool Kit.

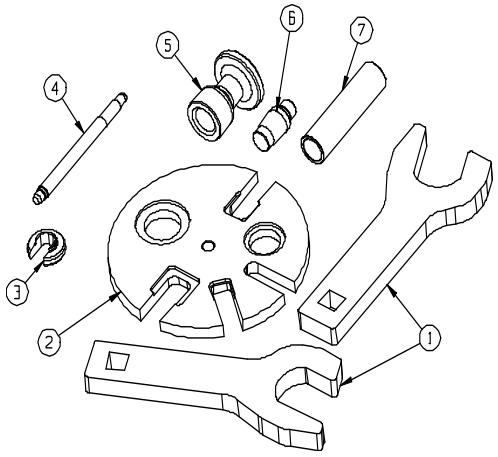


Figure 11-1 Service Tool Kit (HH57 Shown)

11.3 Extent of Disassembly

NOTE: Most repairs do not require complete disassembly. Allied does not recommend removal of the Tail Assembly unless absolutely necessary. Do not disassemble Tail Assembly components unless parts replacement or repair is necessary.

- Before starting any disassembly procedures, clean and inspect the components to determine the parts requiring replacement.
- Then read through the disassembly procedures and select the sections to be performed.
- Perform only the minimum disassembly required to replace parts that are worn or damaged.

CAUTION	
	To avoid risk of personal injury or equipment damage, do not operate Hole-Hog with Tail Adapter removed. Internal components may become dislodged or blow out with damaging force, injuring operator or bystanders.

11.4 Replacing the Whip Hose

NOTE: It is not necessary to disassemble the Tail Assembly components to replace the Whip Hose and Quick Disconnect (Q.D.) Fitting.

- To replace either of these components in the field, without removal of the Tail Assembly, refer to section 10.0.

- To remove either of these components as part of a shop disassembly, follow procedures as described in section 11.6.

11.5 Replacing Only the Body/Anvil

NOTE: It is not necessary to disassemble the Tail Assembly components to replace the Body/Anvil.

1. Remove the Tail Assembly and Striker as described in section 11.6.

NOTE: Protect Tail Assembly and Striker against damage from contamination or moisture until reassembly. Cover or wrap them in cloth or plastic as required.

NOTE: When replacing a worn Body/Anvil for "TH" models only, also replace the Nose Cap, Washer and Nose Cover.

2. To replace the Nose Cap or Nose Cover, refer to Section 10.4.

11.6 Removing Tail Assembly and Striker

IMPORTANT
Do not use a pipe wrench on the Hole-Hog Body/Anvil. Wrench teeth can create deep gouges and relieves Allied of all warranty responsibilities.

IMPORTANT
Do not weld or use a torch on the Hole-Hog. Excessive heat from welding or applied from a torch can cause altered component strength and destroy the main body, striker and other parts beyond use. Damage as the result of welding or torch is not covered by warranty.

1. Secure the Hole-Hog in a vise on a level surface. Attach girth grip wrench to body of Hole-Hog to hold Body/Anvil stationary during loosing of Tail Assembly. Refer to Figure 11-2.

2.

Figure 11-2 Loosening of Tail Assembly

3. With Body/Anvil secured in place, use the End Cap Wrench to loosen the Tail Assembly.

NOTE: To loosen the Tail Assembly, a six-foot section of pipe may be slipped over the wrench handle. In this way enough torque can be applied to loosen the tail assembly.

	Model	Part Number
End Cap Wrench	HH 46	573686
	HH 57	571653
	HH 68	572162
	HH 79	571182
	HH 108	572172

4. Remove the Tail Assembly by unthreading and pulling the assembly from the Body/Anvil.

IMPORTANT
Protect the Tail Assembly against damage from contamination or moisture until reassembly. Coat threads with grease if long-term storage is anticipated.

5. With Body/Anvil still in vise, fabricate a hook from heavy gauge wire as shown in Figure 11-3. Insert the hook into one

of the Striker air holes and carefully pull the Striker from Body/Anvil as shown in Figure 11-4.

Figure 11-3 Fabricate Hook from Heavy Gauge Wire

Figure 11-4 Removing Striker from Body/Anvil

6. Verify the Serial Number located on the Striker with the number recorded in Section 2.0.

IMPORTANT
Protect the Striker and Body/Anvil against damage from contamination or moisture until reassembly. Coat threads with grease if long-term storage is anticipated.

11.7 Disassembling the Tail Assembly

NOTE: Most repairs do not require complete disassembly. DO NOT disassemble the Tail Assembly unless parts replacement or repair is necessary.

11.7.1 Remove Tail Adapter

IMPORTANT
Do not grip the End Cap by its threads. Refer to Figure 11-5.

NOTE: (HH46 Only) Do not remove the Tail Adapter. The Whip Hose is removed with the Tail Adapter installed. (Refer to 11.7.2)

1. Place the Tail Assembly in vise. Grip the Tail Adapter across the wrench flats as shown in Figure 11-5.

Figure 11-5 Secure End Cap for Disassembly

2. With the Tail Adapter secured as described above, fit the End Cap Wrench across the flats of the End Cap as shown in Figure 11-5.

3. Loosen the Tail Adapter.

NOTE: Slip a six-foot section of pipe over the wrench handle to assist with loosening the Tail Adapter.

4. Unthread the Tail Adapter from the End Cap and slide over the Whip Hose as shown in Figure 11-6.

NOTE: (HH57) The Quick-Disconnect (Q.D.) Fitting must be removed before the Tail Adapter will slide off the Whip Hose. Refer to Section 10.4.1.

Figure 11-6 Tail Adapter, Whip Hose and Q.D.

11.7.2 Remove Whip Hose and Thread Adapter

1. With Tail Adapter removed (Except for HH46), secure Tail Assembly in vise as shown in Figure 11-7.

NOTE: When using a vise or saddle clamp, grip the Hole-Hog across the raised area of the End Cap on either side of the wrench flats.

IMPORTANT
DO NOT grip the End Cap by its threads. Refer to Figure 11-7.

Figure 11-7 Press Valve Stem to expose Thread Adapter

2. By hand, turn the Whip Hose to the maximum counter-clockwise position. Press the Valve Stem and Valve components toward the End Cap to expose the flats of the Thread Adapter.

3. Fit an open end-wrench across the flats of the Thread Adapter. Fit a second open-end wrench across the flats of the Valve Stem. Refer to Figure 11-8.

Step 4.	Wrench Size	
Model	**Thread Adapter**	**Valve Stem**
HH 46	7/8 in.	1/2 in.
HH 57	7/8 in.	3/4 in.
HH 68	7/8 in.	3/4 in.
HH 79	1-1/16 in.	13/16 in.
HH 108	1-3/8 in.	1-1/8 in.

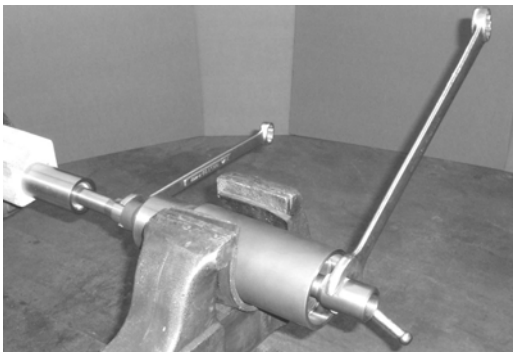
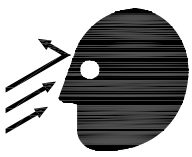


Figure 11-8 Position wrenches on Thread Adapter and Valve Stem.

CAUTION	
	Avoid injury from rapid release of spring. The Valve Spring is under tension. Hold valve stem in place while removing the Whip Hose and Thread Adapter.

4. Hold the Valve Stem stationary and loosen the Thread Adapter. Remove Thread Adapter and Whip Hose from the Valve Stem.

5. Slide the Valve Stem, Valve Finger and Spring from the End Cap as shown in Figure 11-9.

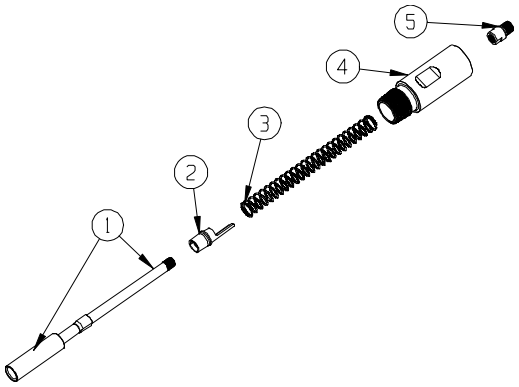


Figure 11-9 Remove Valve Stem form End Cap. 1-Vlave Stem, 2-Valve Finger, 3-Spring, 4-End Cap, 5-Thread Adapter.

6. Slide Spring and Valve Finger off Valve Stem.

11.7.3 Disassemble Valve Stem Components

NOTE: Do not disassemble the Valve Stem components unless parts replacement is required.

1. The Snap Ring secures the Valve Sleeve to the Valve Stem.

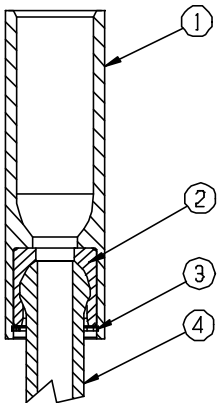


Figure 11-10 Valve Stem Components 1-Valve Sleeve, 2-Bushing, 3-Snap Ring, 4-Valve Stem

2. Use snap ring pliers to remove the Snap Ring from the Valve as shown in Figure 11-11. Slide the loosened Snap Ring along the Valve Stem away from the Valve.

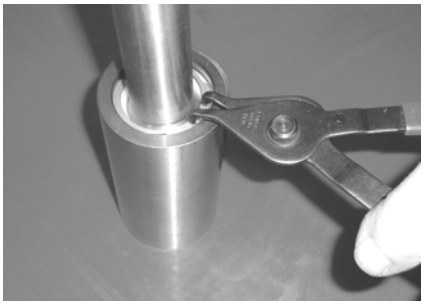


Figure 11-11 Remove Snap Ring from Valve

NOTE: The Snap Ring is not re-usable. Discard after removal.

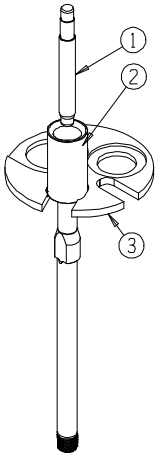


Figure 11-12 Valve Sleeve and Stem Disassembly.1-Punch, 2-Valve Sleeve and Stem, 3-Arbor Press Plate Assembly.

2. Refer to Figure 11-12. Place the Valve with Stem (2) with the threaded end facing down, in the Arbor Press (3). Use Punch (1), to press Valve Stem and Bushing from the Valve Sleeve.

IMPORTANT
Be prepared to catch the Valve Stem and Punch as they fall through the press plate. Failure to do so may damage parts.

3. Refer to Figure 11-13. Place the Valve Bushing (2), with the threaded end of the Valve Stem facing down, into the Arbor Press. Use the Punch (1) to press Valve Stem from the Valve Bushing.

IMPORTANT

Be prepared to catch the Valve Stem and Punch as they fall through the press plate. Failure to do so may damage parts.

NOTE: The Valve Bushing is not re-usable. Discard after removal.

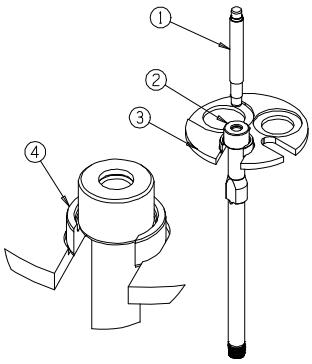


Figure 11-13 Bushing and Stem Disassembly.
1-Punch, 2-Bushing, 3-Arbor Press Plate, 4-Stem Removal Tool. (NOTE: #4 for HH108 only)

11.7.4 Disassemble End Cap Components

NOTE: Most repairs do not require disassembly of End Cap components. Disassembly will destroy the Shock Absorber. Remove only if replacement is necessary.

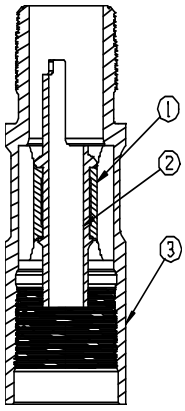


Figure 11-14 End Cap Components
1-Shock Absorber, 2-Valve Guide, 3-End Cap

1. Refer to Figure 11-15. Place End Cap (3) with the external threaded end facing up on Arbor Press Plate (4). With Valve Guide Pusher (2) and Punch (1) press the Valve Guide and Shock Absorber from the End Cap.

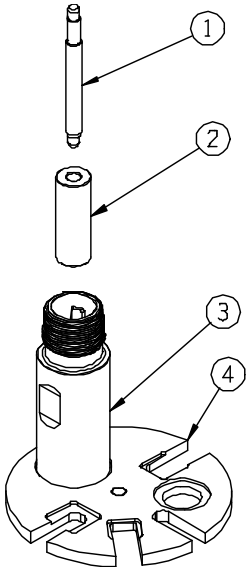


Figure 11-15 End Cap Disassembly
1-Punch, 2-Valve Guide Pusher, 3-End Cap, 4-Arbor Press Plate

IMPORTANT

Be prepared to catch the Valve Guide and tools as they fall through the Arbor Press Plate. Failure to do so may damage parts.

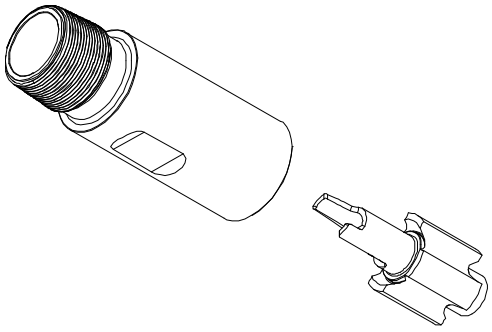


Figure 11-16 HH46, HH57, HH68, HH108 End Cap, Valve Guide, Shock Absorber

2. Continue Shock Absorber removal.

- **(HH79 Only)** After completion of Step 1, only the valve guide will press out, leaving the shock absorber inside the end cap. To remove Shock Absorber, complete Steps 3 through 5.

- **(HH 46, HH57, HH68, HH108)** After completion of Step 1, the Valve Guide and Shock Absorber will remain attached as shown in Figure 11-16. Skip Steps 3, 4 and 5 and continue with Step 6.

3. **(HH79 Only)** Clamp the End Cap in a vise with external threaded end facing down. Use a sharp knife to cut the shock absorber out of the End Cap.

4. **(HH79 Only)** Alternate method: Insert pry bar into Shock Absorber and rotate so holes are crosswise as shown in Figure 11-17. Pry out of End Cap using the large center hole.

Figure 11-17 HH79 Shock Absorber and Pry Bar

5. **(HH57 and HH68)** Refer to Figure 11-18a. Place the Valve Guide on the Press Plate with the finger notch end up.

6. **(HH108)** Refer to Figure 11-18b. Place the Valve Guide on the Press Plate with the finger notch end down.

7. **(HH 46, HH57, HH68, HH108)** Use the Valve Guide Pusher (2) and Punch (1) to press the Valve Guide through the Shock Absorber.

IMPORTANT

Be prepared to catch the Punch, Valve Guide Pusher and Valve Guide as they fall through the press plate. Failure to do so may damage parts.

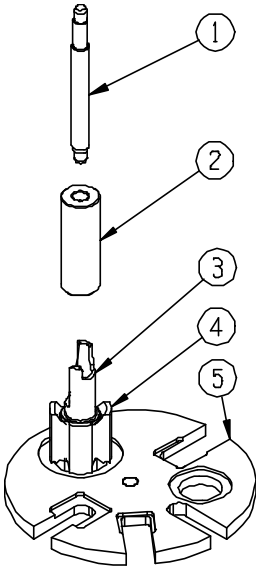


Figure 11-18a HH46, HH57 and HH68 Valve Guide and Shock Absorber Disassembly
1-Punch, 2-Valve Guide Pusher, 3-Valve Guide, 4-Shock Absorber, 5-Press Plate

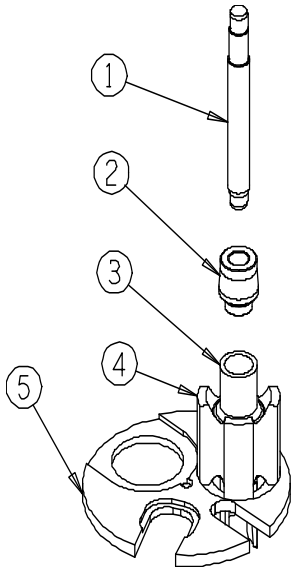


Figure 11-18b HH108 Valve Guide Disassembly
1-Punch, 2-Valve Guide Pusher, 3-Valve Guide, 4-Shock Absorber, 5-Press Plate Assembly

SECTION 12.0
ASSEMBLY

12.1 General

This section describes the procedures for the proper assembly of the Tail Assembly and Striker. It also includes instructions for tightening the Tail Assembly to the Body/Anvil. Any repairs that require the removal of the Tail Assembly should be performed at a well-equipped shop knowledgeable with the disassembly, cleaning, inspection and repair of pneumatic construction equipment.

IMPORTANT

Locate a clean flat work surface to make repairs. While the End Cap is removed, protect threads and other internal parts against damage. Cover internal components to reduce the risk of contamination.

12.2 Service Tool Kit

In addition to the tools and fixtures normally found in a well-equipped shop, the Allied Service Tool Kit must also be available. Refer to Section 15 for details of each Service Tool Kit.

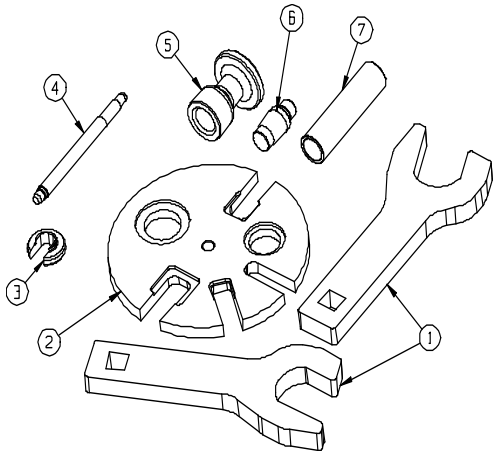


Figure 12-1 Service Tool Kit (HH57 Shown)

IMPORTANT

Do not use a pipe wrench on the Hole-Hog Body/Anvil. Wrench teeth can create deep gouges. This type of damage is not covered by warranty.

12.3 Extent of Re-Assembly

NOTE: Perform only the minimum disassembly required to avoid contamination of internal components. Before attempting any disassembly, read through the procedures and select the sections to be performed.

12.4 Replacing Only the Whip Hose and Quick Disconnect (Q.D.) Fitting

NOTE: The Whip Hose and Quick Disconnect (Q.D.) Fitting can be replaced without the removal of the Tail Assembly or disassembling internal components.

- To replace either of these components, without removal of the Tail Assembly, refer to Sections 10.4 and 10.6.

- To re-assemble components of the Tail Assembly and install on Body/Anvil, follow the procedures in this section, starting with 12.9.

12.5 Replacing Only the Body/Anvil

NOTE: When replacing the Body/Anvil, there is no need to disassemble the Tail Assembly.

1. Acquire the new Body/Anvil. Bring the Striker and Tail Assembly to the work area for assembly.

2. Install Striker and Tail Assembly to the Body/Anvil. Follow procedures starting with section 12.12.

12.6 Assemble End Cap Components

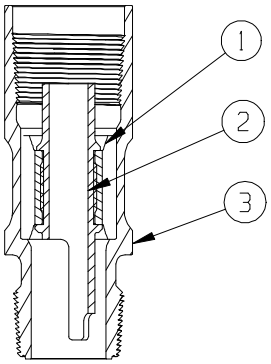


Figure 12-2 View of completed End Cap Assembly
1-Shock Absorber, 2-Valve Guide, 3-End cap

NOTE: Lubricate all rubber parts with Rubber Lube P280 or equivalent before pressing. The lubricant will protect the rubber parts during installation. Do not lubricate with grease.

1. Lubricate the internal surface of the Shock Absorber.

2. Refer to Figures 12-3a, 12-3b. Position the Shock Absorber on the Press Plate Assembly.

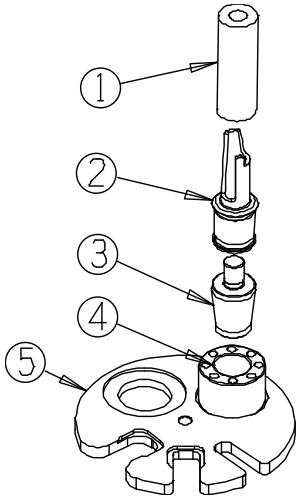


Figure 12-3a HH79 Inserting the Valve Guide into the Shock Absorber.
1-Valve Guide Pusher, 2-Valve Guide, 3- Valve Guide Installation Tool, 4-Shock Absorber, 5-Press Plate Assembly.

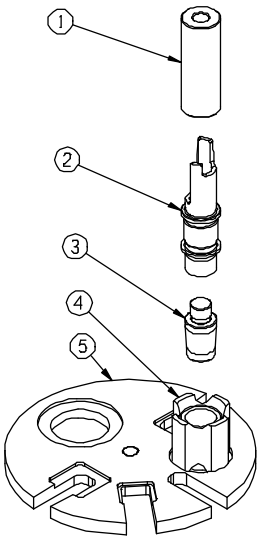


Figure 12-3b HH46, HH57, HH68 & HH108 Inserting the Valve Guide into the Shock Absorber.
1-Valve Guide Pusher, 2-Valve Guide, 3- Valve Guide Installation Tool, 4-Shock Absorber, 5-Press Plate Assembly.

3. Set Valve Guide Installation Tool in the center bore of the Shock Absorber as shown in Figure 12-3a, 12-2b.

4. Place Valve Guide on top of Valve Guide Installation Tool.

5. Position the Valve Guide Pusher over the Valve Guide.

IMPORTANT

Be prepared to catch the Valve Guide Installation Tool as it falls after passing through the Shock Absorber. Failure to do so may damage parts.

6. Carefully press the Valve Guide and Insertion Tool through the Shock Absorber.

7. Remove the Valve Guide Pusher from the Valve Guide.

8. Prepare to install shock absorber. Follow the instructions that pertain to your model.

9. **(HH79 refer to Figure 12-4a)**. Position the End Cap with the external thread end down on the Press Plate Assembly

10. Insert the shock Absorber Installation Tool into the internal thread end of the End Cap.

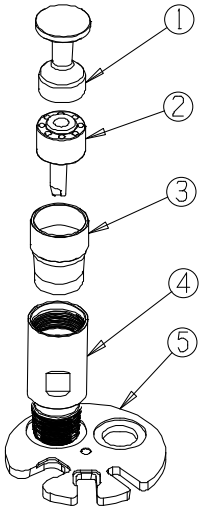


Figure 12-4a HH79 Inserting Shock Absorber into End Cap
1-Shock Absorber Pusher, 2-Shock Absorber with Valve Guide, 3-Shock Absorber Installation Tool, 4-End Cap, 5-Press Plate Assembly

11. Lubricate the outer surface of the Shock Absorber with Rubber Lube P80 or equivalent. With the fingers of the Valve Guide pointing down, position the Shock Absorber with the Valve Guide as shown in Figure 12-4a.

12. Center the Shock Absorber Pusher Tool over the Shock Absorber as shown in Figure 12-4a.

13. Slowly press the Shock Absorber into the End Cap until the Shock Absorber Pusher Tool contacts the Installation Tool.

14. Remove the Shock Absorber Installation Tool.

(HH46, HH57, HH68 & HH108 refer to Figure 12-4b). Shock Absorber Installation Tool is not used with these models).

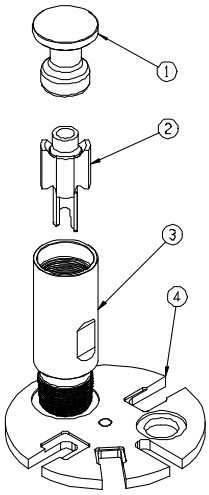


Figure 12-4b HH46, HH57, HH68 & HH108 Inserting Shock Absorber into End Cap
1-Shock Absorber Pusher, 2-Shock Absorber with Valve Guide, 3-End Cap, 4-Press Plate Assembly

15. Position the End Cap with the external thread end down on the Press Plate Assembly

16. Lubricate the outer surface of the Shock Absorber with Rubber Lube P80 or equivalent. With the fingers of the Valve Guide pointing down, position the Shock Absorber with the Valve Guide as shown in Figure 12-4b.

17. Center the Shock Absorber Pusher Tool over the Shock Absorber as shown in Figure 12-4b.

18. Slowly press the Shock Absorber into the End Cap until the Shock Absorber Pusher Tool contacts the End Cap.

19. Remove the Shock Absorber Pusher from the End Cap.

12.7 Assemble Valve Stem Components

NOTE: Place the snap ring over the ball of the stem prior to installing Valve Bushing onto Stem, as shown in Figure 12-6.

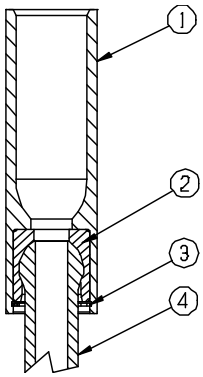


Figure 12-5 View of completed Valve Assembly
1-Valve, 2-Valve Bushing, 3-Snap Ring, 4-Valve Stem

1. Place the Valve Stem, with the ball end facing up, on the Press Plate Assembly. Slide the Snap Ring onto Stem. Refer to Figure 12-6.

2. Set Valve Bushing over the ball. Gradually increase pressure until the Bushing snaps into place.

IMPORTANT
To prevent damage to Bushing, stop applying pressure as soon as ball snaps into place.

NOTE: When properly installed, the bushing should rotate freely on the ball.

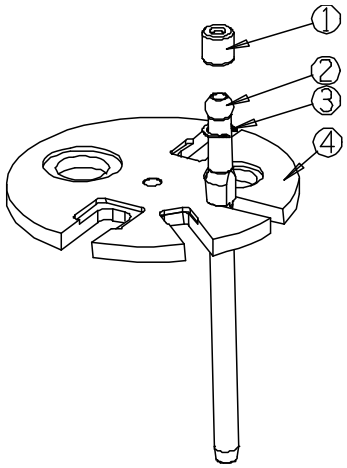


Figure 12-6 Install Valve Bushing onto Valve Stem (Note: Install Snap Ring on Stem prior to installing Bushing).
1-Valve Bushing, 2-Valve Stem, 3-Snap Ring, 4-Press Plate Assembly

3. By hand, start the larger internal bore of the Valve Sleeve onto the Valve Bushing. Slide the Valve Sleeve onto the Valve Bushing as far as it will go.

4. Place the Valve Bushing Press Tool with small end facing up on the Press Plate Assembly as shown in Figure 12-7.

5. With the Valve Sleeve centered on the Valve Press Tool, slowly press the Valve Sleeve onto the Valve Bushing.

6. Press the Valve Sleeve onto the Valve Bushing until the lower edge of the Valve Sleeve contacts the Valve Bushing Press Tool.

IMPORTANT
To prevent damage to the Bushing, stop pressure as soon as the Valve Sleeve contacts the Valve Bushing Press Tool.

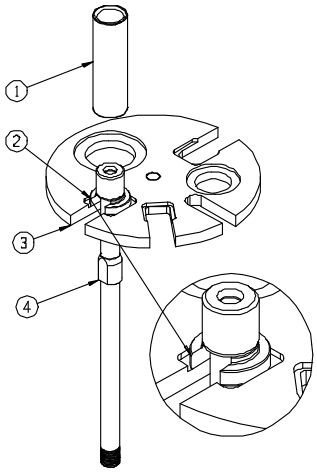


Figure 12-7 Inserting Valve Sleeve onto Valve Bushing
1-Valve Sleeve, 2-Valve Bushing Press Tool, 3-Press Plate Assembly, 4-Valve Stem with Bushing

7. Prior to inserting the snap ring, inspect the snap ring groove located inside the Valve Sleeve. It must be free of any displaced plastic from the Valve Bushing.

8. The Snap Ring secures the Valve Sleeve and Valve Bushing to the Valve Stem. Use snap ring pliers to install the Snap Ring into the groove as shown in Figure 12-8.

NOTE: When properly installed, the Valve should rotate freely on the ball of the Stem with a maximum allowable end-play of 0.015-inch [0.381 mm].

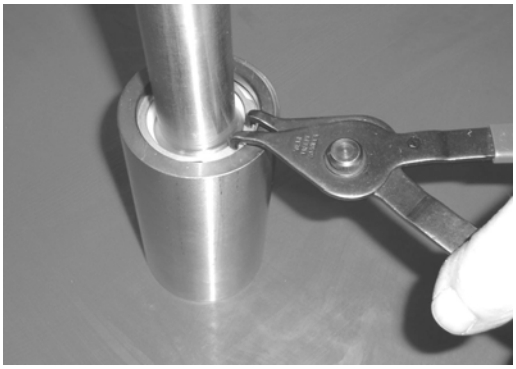


Figure 12-8 Snap Ring secures Valve Sleeve and Bushing to Stem.

12.8 Secure Valve Stem to End Cap

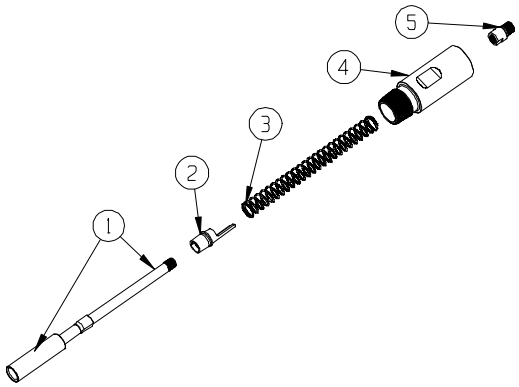


Figure 12-9 Valve Stem and End Cap Components
1-Valve Assembly, 2-Valve Fingers, 3-Spring, 4-End Cap Assembly with Valve Guide, 5-Thread Adapter.

1. Clamp the End Cap in vise, as shown in Figure 12-11a.

Figure 12-10 Valve Fingers installed to Valve Stem Assembly

2. Slide the Valve Finger over the threaded end of the Valve Stem Assembly, as shown in Figure 12-10, until fully engaged.

3. Slide the Spring over the threaded end of the Valve Stem, as shown in Figure 12-10.

4. **(HH46 Only)** Install Tail Adapter to End Cap before proceeding to next step. Lubricate threads with anti-seize.

5. Insert Valve Stem through center bore of Valve Guide. Refer to Figure 12-11.

NOTE: The Spring fits around the outside edge of the Valve Guide.

Figure 12-11 Valve Spring, Stem, and Guide

6. By hand, press the Valve end of the Valve Stem toward the End Cap until the threads on the stem are accessible.

7. While holding the Valve Stem in position, apply Blue Loctite® 248 to the threads of the Valve Stem.

8. By hand, thread the Thread Adapter to the Valve Stem.

9. Place an open-end wrench across the flats of the Valve Stem. Refer to Figure 12-12a.

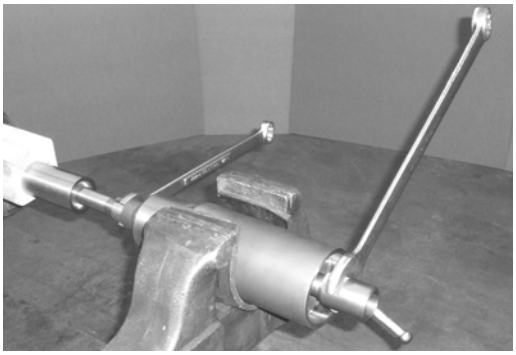


Figure 12-12a HH46, HH57, HH68 & HH108 Tighten Thread Adapter to Valve Stem.

10. Prepare to tighten Thread Adapter. Follow instructions that describe your model.

- **(HH46, HH57, HH68 and HH108)** Place a second open-end wrench across the flats of the Stem Adapter. Refer to Figure 12-11a.

- **(HH79)** Place a deep well socket over the flats of the Thread Adapter. Refer to Figure to 12-11b.

11. Tighten the Thread Adapter securely to the Valve Stem.

Figure 12-12b HH79 Tighten Thread Adapter to Valve Stem.

Step 8 & 9	Wrench Size	
Model	**Thread Adapter**	**Valve Stem**
HH 46	7/8 in.	9/16 in.
HH 57	7/8 in.	3/4 in.
HH 68	7/8 in.	3/4 in.
HH 79	1-1/16 in.	13/16 in.
HH 108	1-3/8 in.	1-1/8 in.

12.9 Install Whip Hose

CAUTION

Avoid personal injury. Improper hose could fail and result in injury or equipment damage. Always use Allied's Whip Hose or equivalent – SAE100R12 hose.

1. At this point, the End Cap and Valve components have been assembled per sections 12.5, 12.6 and 12.7.

2. Acquire the Whip Hose and Quick Disconnect (Q.D.) Fitting. Clamp the

End Cap in vise, as shown in Figure 12-13.

NOTE: When using a vise or saddle clamp, grip the Hole-Hog across the raised area of the End Cap on either side of the wrench flats.

3. By hand, press the Valve end of the Valve Stem toward the End Cap until the Thread Adapter is exposed as shown in Figure 12-13.

Figure 12-13 Press Valve Stem to expose Thread Adapter.

4. Fit an open-end wrench across the flats of the Thread Adapter. Brace the wrench against the edge of the End Cap and pry the stem outward with enough force to prevent the Valve Stem from pulling back into the End Cap as shown in Figures 12-14.

Figure 12-14 Hold Thread Adapter in Position

5. While holding the Thread Adapter in position, apply thread locker (Loctite 248® or equivalent) to the Thread Adapter.

6. By hand, thread the Whip Hose onto the Threads Adapter.

7. Continue holding the Thread Adapter in position. Fit an open-end wrench across the flats of the Whip Hose Hex Fitting as shown in Figure 12-15.

8. Tighten the Whip Hose securely onto the Thread Adapter.

Figure 12-15 Tighten Whip Hose

12.10 Install Quick Disconnect (Q.D.) Fitting

1. At this point, the Whip Hose is attached to the Tail Assembly.

2. Place Tail Assembly on work surface. Acquire the Quick Disconnect (Q.D.) Fitting.

3. At the free end of the Whip Hose, apply thread locker (Loctite 248® or equivalent) to the threads.

4. By hand, start the Quick Disconnect (Q.D.) Fitting onto the Whip Hose threads.

5. Fit an open-end wrench across the flats of the Whip Hose Fitting. Place a second open-end wrench across the flats of the Quick Disconnect (Q.D.) Fitting. Refer to Figure 12-16.

Figure 12-16 Secure the Q.D. Fitting to the Whip Hose Fitting

6. Holding the Whip Hose fitting stationary, tighten Quick Disconnect (Q.D.) Fitting securely to the Whip Hose.

	Wrench Size	
Model	**Whip Hose**	**Q.D. Fitting**
HH 46	1-1/16 in.	7/8 in.
HH 57	1-1/16 in.	1-3/8 in.
HH 68	1-1/16 in.	1-3/8 in.
HH 79	1-1/16 in.	1-3/8 in.
HH 108	1-3/8 in.	1-3/8 in.

12.11 Install Gasket in Quick Disconnect (Q.D.) Fitting

NOTE: New Quick Disconnect (Q.D.) Fitting is supplied with gasket installed.

1. Insert Gasket, with the grooved face toward the Q.D., into the channel. Check that the gasket seats properly. Refer to Figure 12-17.

Figure 12-17 Install Gasket in Q.D. Fitting

12.12 Body/Anvil, Striker, Tail Assembly and Tail Adapter

1. Collect the following on a clean flat work surface: Body/Anvil, Striker, and Tail Assembly.

2. Remove the protective wrapping and coatings from any stored components.

NOTE: The Body/Anvil and Striker are not customer serviceable. If either of these components are worn or damaged, replace them with new components.

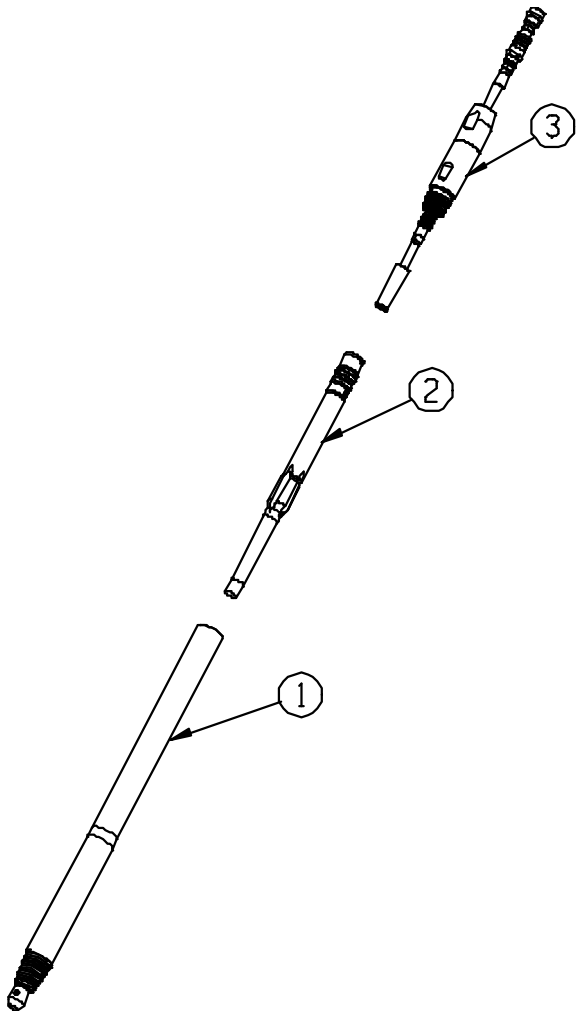


Figure 12-18
1-Body/Anvil, 2-Striker, 3-Tail Assembly

3. Secure Body/Anvil in a vise on a level surface.

Figure 12-19 Inserting Striker into Body/Anvil

4. Lubricate the internal bore of the Body/Anvil and the external surface of the Striker.

5. Slide the Striker carefully over the threads and into the Body/Anvil. Refer to Figure 12-19.

Figure 12-20 Prepare Body/Anvil and Tail Assembly for Installation

6. Lubricant the Valve components.

7. Insert the Valve into the bore of the Striker. Refer to Figure 12-20.

8. Lubricate the End Cap threads with anti-seize thread lubricant. Apply two (2) beads of lubricant across the entire length of the external threads. Each bead should be approximately ¼" wide and distanced 180º apart from each other.

9. By hand, thread the End Cap into the Body/Anvil until hand-tight. Refer to Figure 12-21.

Figure 12-21 Insert Valve into Body/Anvil and Striker

10. Lubricate the Tail Adapter threads with anti-seize thread lubricant. Apply two (2) beads of lubricant across the entire length of the external threads. Each bead should be approximately ¼" wide and distanced 180º apart from each other.

Figure 12-22 End Cap and Tail Adapter

11. Slide the Tail Adapter over the Whip Hose with the threaded end toward the End Cap, as shown in Figure 12-22.

12. By hand, thread the Tail Adapter into the End Cap until tight.

12.13 Proper tightening of the End Cap and Tail Adapter

	Body and End Cap Wrench	
Model	Girth Wrench	End Cap Wrench
HH 46	1-13/16 in.	573686
HH 57	2-5/16 in.	571653
HH 68	2-9/16 in.	572162
HH 79	3 in.	571182
HH 108	4-1/4 in.	572172

1. Secure the Hole-Hog in a vise as shown if Figure 12-24. Fit a girth wrench to Hole-Hog Body/Anvil to prevent it from turning.

2. Fit Wrench across flats of the Tail Adapter. Use only the wrench to tighten.

NOTE: Tighten, using only the wrench, until all gaps between the End Cap and Body/Anvil or the Tail Adapter are no longer visible. The Shock Absorber will compress slightly as the Tail Adapter is tightened. If a gap remains after tightening the End Cap or Tail Adapter, disassemble parts and inspect threads for damage or debris. Repeat tightening.

IMPORTANT

When the *"existing"* Body, End Cap and Tail Adapter are re-used, omit Step 3 and proceed to Step 4.

Follow the instructions in Step 3 only when the Body, End Cap, or Tail Adapter are a *"new replacement"*.

3. When installing a "new replacement" component for the first time, the new threads must be "pre-torqued".

   - For End Cap or Body/Anvil replacement, attach wrench to the End Cap. Attach a torque wrench to End Cap Wrench. Torque to value specified in Pre-Torque Table.

   - For Tail Adapter replacement, attach a wrench to the End Cap to prevent it from turning. Attach a wrench to the Tail Adapter. Attach a torque wrench to Tail Adapter Wrench. Torque to value specified in Pre-Torque Table.

   Continue with Step 4.

4. Using a scribe, paint or marker, place a mark across the joints as shown in Figure 12-23.

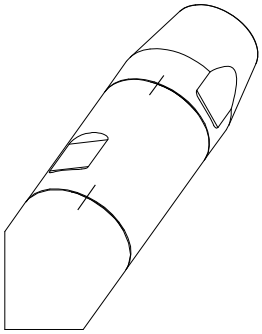


Figure 12-23 Place mark across joints

5. Fit wrench over flats of Tail Adapter. Place a six foot pipe over the handle of End Cap Wrench. Refer to Figure 12-24.

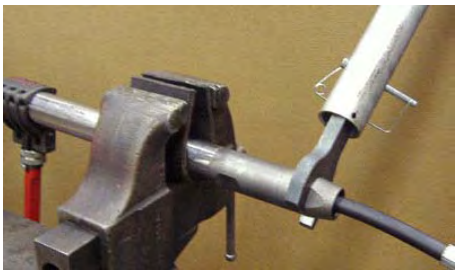


Figure 12-24 Tighten End Cap and Tail Adapter

6. Tighten until the set of scribe marks are offset, as shown in Figure 12-25. Refer to Torque Table for offset distance.

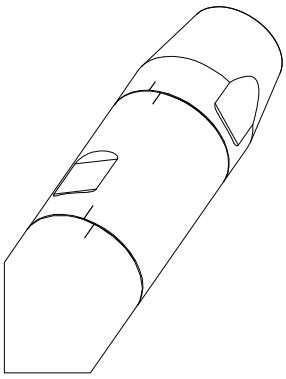


Figure 12-25 Scribe Marks Offset after tightening.

IMPORTANT Pre-Torque is necessary only when new replacement parts are introduced	
Model	Ft-Lbs [N·m]
HH 46	70 [95]
HH 57	70 [95]
HH 68	120 [160]
HH 79	160 [160]
HH 108	160 [160]

1. Continue to tighten until the scribe marks have offset the distance indicated in the following table. Refer to Figure 12-25.

	End Cap Offset, Inch [mm]	Tail Adapter Offset, Inch [mm]
HH 46	1/4 [6]	1/4 [6]
HH 57	3/8 [9.5]	1/4 [6]
HH 68	3/8 [9.5]	3/8 [9.5]
HH 79	3/8 [9.5]	3/8 [9.5]
HH 108	5/8 [16]	9/16 [14]

At this point, assembly is complete and the Hole-Hog is ready for use.

NOTE: If installing accessories to threaded models (-TH), see Section 13.0

SECTION 13.0
HOLE-HOG ACCESSORIES

13.1 General

Hole-Hog models identified with "TH" are equipped with threaded anvils. The threaded anvil is used for attaching optional accessories that enhance the versatility of the tool. Standard on all "TH" models, the Nose Cap protects the anvil threads and secures the Grooved Nose Cover.

The versatility of the HH-series Hole Hog is further expanded by the threaded tail piece. This feature permits accessories such as pipe and cable pullers to be installed that will further increase the tool's usefulness and cost-effectiveness. These include.

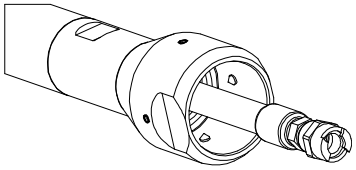
13.2 Pullers

The Pipe and Cable Pullers are rear-mounted accessories that attach in place of the Tail Adapter.

13.2.1 PVC Pipe Puller

NOTE: PVC Pipe Pullers are not available for the models HH46 and HH57.

The air supply hose is routed inside of the PVC pipe to be pulled. The four set screws are tightened on the puller adapter and hold the PVC pipe securely in place.



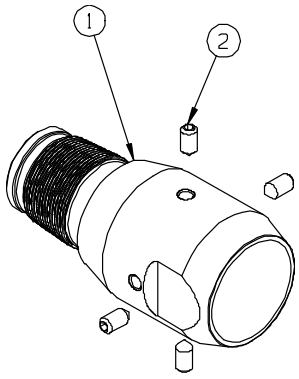


Figure 13-1 Typical PVC Pipe Puller Assembly

PVC Pipe Puller Assembly for Standard and "TH" Models (Fig. 13-1)								
Item No.	**Qty**	**Part No.**						**Description**
		HH57 2-inch [50.8]	**HH68 2-inch [50.8]**	**HH79 2-inch [50.8]**	**HH79 3-inch [76.2]**	**HH108 3-inch [76.2]**	**HH108 4-inch [101.6]**	**Model**
		571642	**571993**	**570686**	**571498**	**572159**	**572181**	**Assembly**
1	1	671643	571994	570685	571497	572160	572182	PVC Puller
2	4	831732						Set Screw

PVC Pipe Puller Assembly not available for HH 46 Model

13.2.2 Cable Puller Tail Adapter Assembly.

Small cables can be pulled into the bore that is being made, providing there is room for both the cable and the Air Supply Line.

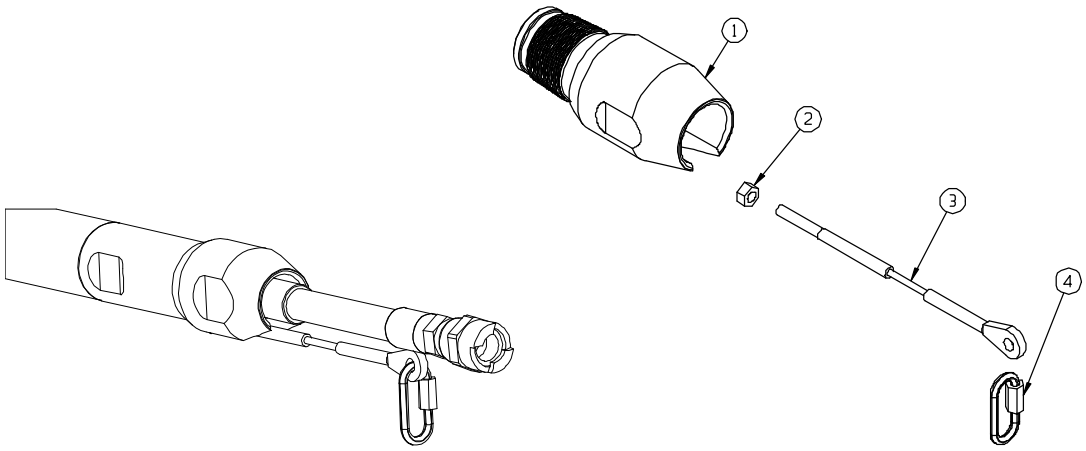


Figure 13-2 Typical Tail Adapter Cable Puller Assembly

Tail Adapter Cable Puller Assembly for Standard and "-TH" Models (Fig. 13-2)						
Item No.	**Qty**	**Part No.**				**Description**
		HH 57	**HH 68**	**HH 79**	**HH 108**	**Model**
		571644	**571995**	**571095**	**572157**	**Complete Assembly**
1	1	571645	571996	571440	572158	Tail Adapter Cable Puller
2	1	815592				Hex Nut 5/16-24
3	1	831108				Connector Cable
4	1	831090				Threaded Chain Connector

Cable Puller Tail Adapter Assembly not available for HH 46 Model

13.2.3 Cable Puller Nose Cap

NOTE: Pulling Nose Caps are standard on all "TH" (Threaded Anvil) models.

To install cable, first the hole is made and then the cable is attached. The Tool is reversed to pull cable back through the hole.

13.2.4 Cable Puller Hose Adapter

To install cable, first the hole is made and the Hole-Hog is removed from the exit pit. The cable is then attached to the Air Supply Line using the Cable Puller Hose Adapter. Now the Cable can be manually pulled through the hole.

Pulling Adapter		
1/2 inch		HH 46
3/4 inch	831016	HH 57, HH 68, HH 79
1 inch	833026	HH 108

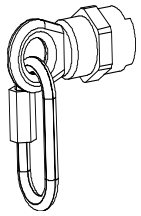


Figure 13-3 Cable Puller Hose Adapter

13.2.5 Pipe Pulling Grip Assembly

Figure 13-4 Pulling Grip

Pulling Grips are simple attachments that work on a leverage principle and offer an easy way to pull small diameter pipe, tubing, and cable with Hole-Hogs. They reduce jobs to a one-step operation.

Pulling Grip	
Part Number	Size Minimum-Maximum Inch [mm]
831092	3/4 to 1 [19.05 – 25.4]
831093	1 to 1-1/4 [25.4 – 31.75]
831094	1-1/4 to 1-1/2 [31.75 – 38.1]
831069	1-1/2 to 1-3/4 [38.1 – 44.45]
831074	1-3/4 to 2 [44.45 – 50.8]
831075	2 to 2-1/2 [50.8 – 63.05]
831076	2-1/2 to 3 [63.5 – 76.2]

13.3 Nose Covers

A Nose Cover is used to protect the outer surface of the front of the body from wear. Nose Covers are available in two styles: Grooved and Stepped.

Nose Cover		
	Part Number	
Model	Grooved	Stepped
HH 46	Not Available	
HH57	Not Available	
HH68-TH	571991	571997
HH79-TH	570846	570618
HH108-TH	572153	572154

13.3.1 Install Nose Cover

To install the Nose Cover, slide the accessory over the front end of the Hole-Hog and secure in place with the Washer and Nose Cap.

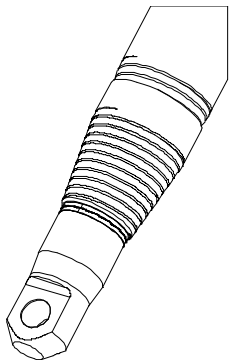


Figure 13-5 Grooved Nose Cover

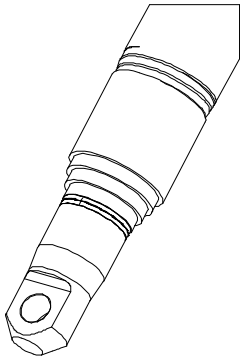


Figure 13-6 Stepped Nose Cover

13.4 Expanders

Expanders are used to increase the hole diameter.

NOTE: The hole MUST first be made without the expander. With the completion of the first pass, the Hole Hog is run through the same hole with the expander attached. The hole is increased to the diameter of the expander.

13.4.1 Install Nose Expander

To install the nose expander, slide it over the front end of the Hole-Hog.

NOTE: Nose Expanders are compatible with both Threaded (TH) and Non-threaded Anvil models. However, when installed on Non-threaded models, the Hole-Hog may only be operated in the forward direction.

Nose Expanders		
Model	Diameter Inch [mm]	Part Number
HH 46	Not Available	
HH 57	Not Available	
HH 68	3-7/8 [98.4]	571999
HH 79	4-1/2 [114.3]	831066
HH 108	6 [152.4]	572156

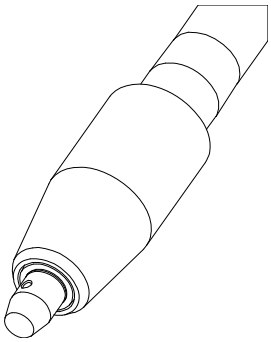


Figure 13-7 Nose Expander

13.5 Reversible Expander

Expanders are used to increase the diameter of the hole. The hole MUST first be made without the Expander installed. To increase the hole diameter, a second run is made with the Expander attached.

13.5.1 Install Reversible Expander

To install the reversible expander, first remove the Nose Cap and Washer. Slide the Expander over the front end of the Hole-Hog. Secure in place with the Washer and Nose Cap.

Reversible Expanders		
	Diameter, Inch [mm]	Part Number
HH 46	Not Available	
HH 57	Not Available	
HH 68	3-7/8 [98.4]	571998
HH 79	4-1/2 [114.3]	831066
HH 108	6 [152.4]	572155

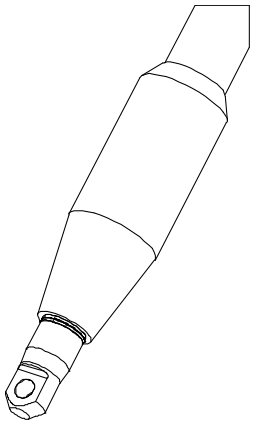


Figure 13-8 Reversible Expander

13.6 Air Supply Hose

The Air Supply Line controls the forward and reverse motion of the Hole-Hog as well as the air flow. Typically there will be two hoses involved. The first hose is connected to the air compressor and Air Line Lubricator. A shut-off valve is mounted to the Air Line Lubricator and controls the air flow.

A second hose is used to connect the Air Line Lubricator to the Hole-Hog. Forward or reverse direction may be selected by turning this hose.

NOTE: This hose MUST have rigid couplings and enough stiffness to turn the Valve Stem without the hose itself becoming coiled.

13.6.1 Air Supply Hose Specifications

The air supply hose is constructed from braided wire (SAE 100R2AT) with male pipe threads at both ends.

Air Supply Hose			
		Part Number	
Hole-Hog Model		HH46	HH 57 HH 68 HH 79 HH 108
Diameter Inch [mm]		1/2 [12]	3/4 [19]
Length Feet [Meter]	25 [7.62]	573691	831055
	50 [15.24]	574004	831056
Threads		(M)NPT ½ -14	(M)NPT ¾-14

13.6.2 Quick Disconnect (Q.D.) Fitting

The Quick Disconnect Fitting has a steel body and 300 PSI [21 bar] operating pressure. The Q.D. for the HH46 uses a Male NPT thread. The Q.D. used for the other models is designed with a female type NPT.

Quick Disconnect (Q.D.) Fitting		
Description	Part Number	
Hole-Hog Model	HH46	HH 57 HH 68 HH 79 HH 108
Plug	573674	102395
Socket	573675	831027
Coupler Set	---	831250
Threads	(F)NPT ½ -14	(M)NPT ¾-14

13.6.3 Air Line Lubricator

The Air Line Lubricator is used to provide continuous lubrication to the Hole-Hog. The In-Line Lubricator features an adjustable flow valve, mounting plate, shut off valve and Quick Disconnect (Q.D.) Fittings.

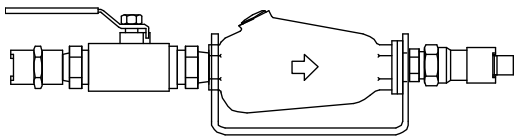


Figure 13-9 Air Line Lubricator

Air Line Lubricator	
HH46, HH 57 HH 68, HH 79 HH108	
Part Number	831035
Port Size	¾ NPT
Maximum Working Pressure [kg/cm^2]	300 PSIG [21]
Oil Capacity	11 fl. oz. 320 cc
Supply Hose Size	3/4 inch [20 mm]

SECTION 14.0
PARTS INFORMATION

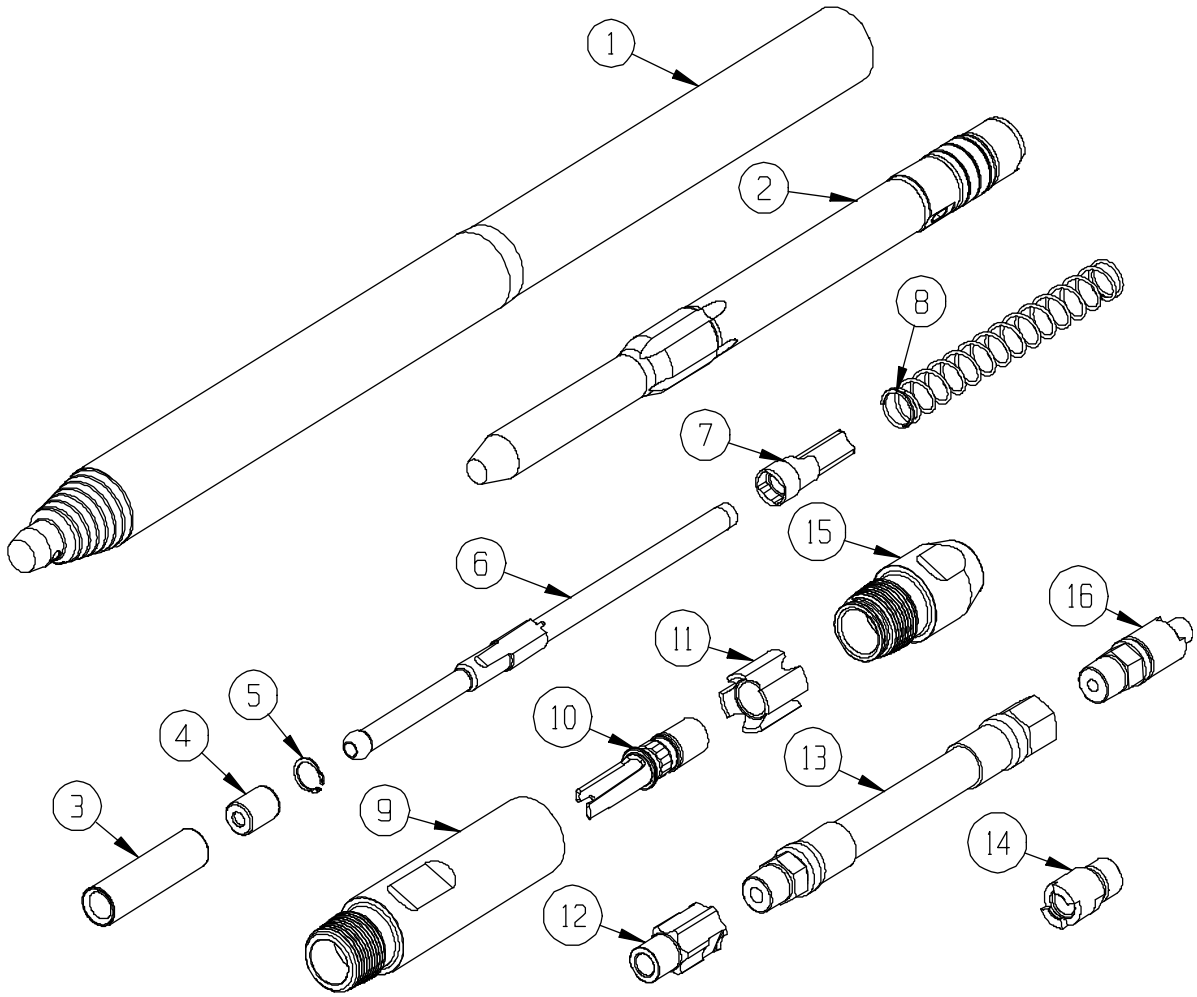


Figure 14-1 Typical Hole-Hog Assembly (Non-Threaded Body/Anvil)

PARTS INFORMATION				
Item No.	**Qty.**	**Part Number**		**Description**
		HH46	**HH57**	**Model**
		573660	**571640**	**Complete Assembly**
1	1	573658	571621	Body/Anvil Assembly
2	1	573656	571638	Striker
3[(a)]	1	573666	571631	Valve Sleeve
4[(a,b)]	1	573667	571632	Valve Bushing
5[(a,b)]	1	573669	571634	Snap Ring
6[(a)]	1	573668	571633	Valve Stem
7[(a)]	1	573670	571635	Valve Finger
8[(a,b)]	1	573671	571639	Valve Spring
9[(a)]	1	573662	571626	End Cap
10[(a)]	1	573664	571628	Valve Guide
11[(a,b)]	1	573663	571627	Shock Absorber
12[(a)]	1	573672	572183	Adapter Stem
13[(a,b)]	1	573673	571637	Hose Assembly
14[(a)]	1	573675	831027	Q.D Coupler Socket
15[(a)]	1	573665	571629	Tail Adapter
16[(a)]	1	573674	102395	Q.D. Coupler Plug w/ Lock Ring
17[(a)]	1	---	798056	Adapter
(a)		573661	572708	Tail Assembly
(b)		574001	572395	Rebuild Kit
(c)		573680	571646	Service Tool Kit

(a) Components of the Tail Assembly
(b) Components of the Rebuild Kit
(c) Service Tool Kit (Optional)

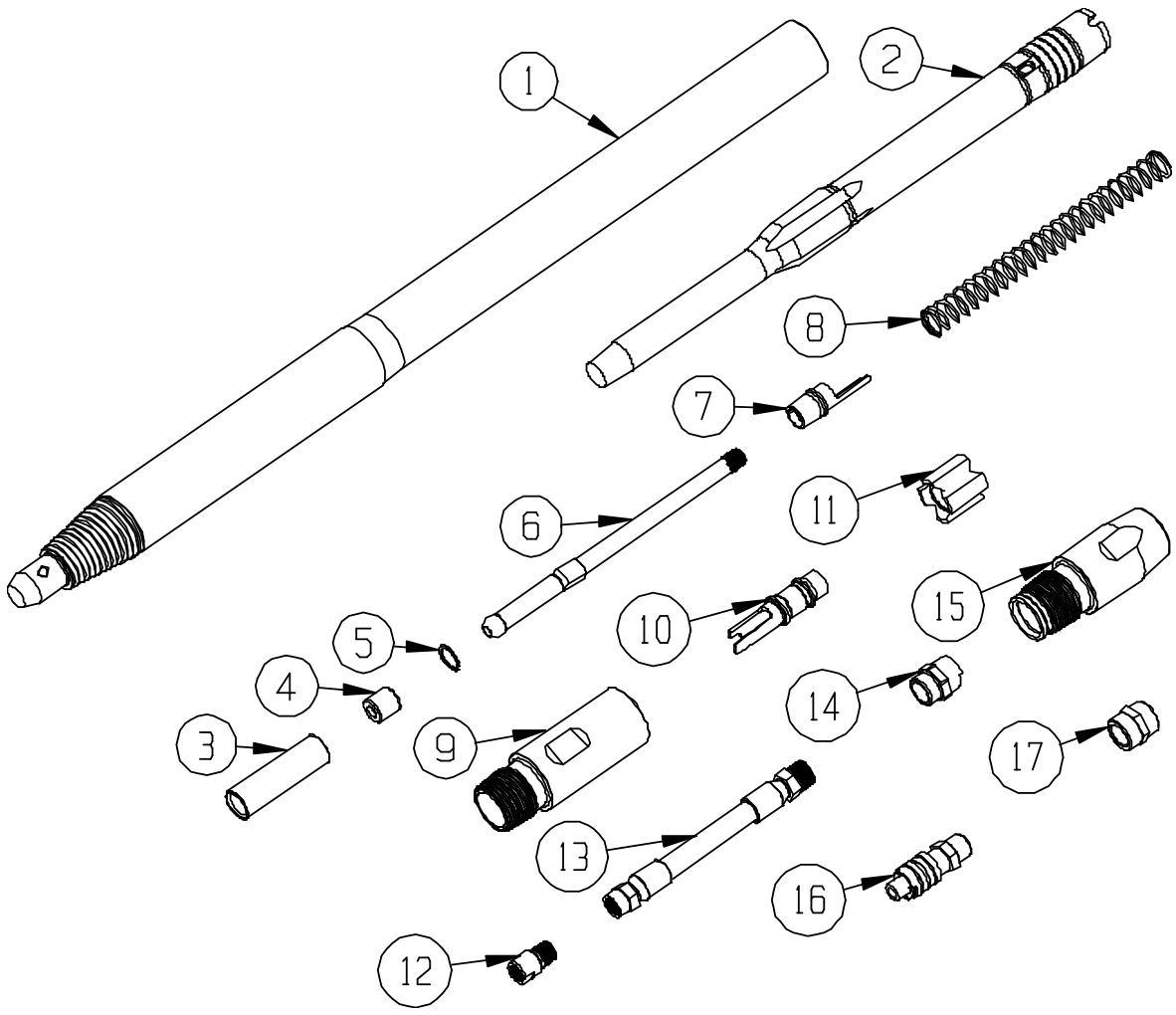


Figure 14-2a Typical Hole-Hog Assembly (Non-Threaded Body/Anvil)

PARTS INFORMATION					
Item No.	**Qty.**	**Part Number**			**Description**
		HH68	**HH79**	**HH108**	**Model**
		571968	**570436**	**572128**	**Complete Assembly**
1	1	571969	570605	572129	Body/Anvil Assembly
2	1	571975	570440	572132	Striker
3[(a)]	1	571977	570437	572134	Valve Sleeve
4[(a,b)]	1	571978	570610	572135	Valve Bushing
5[(a,b)]	1	571979	831118	572136	Snap Ring
6[(a)]	1	571980	570611	572137	Valve Stem
7[(a)]	1	571981	570613	572138	Valve Finger
8[(a,b)]	1	571982	831121	572139	Valve Spring
9[(a)]	1	571983	570433	572140	End Cap
10[(a)]	1	571984	831158	572141	Valve Guide
11[(a,b)]	1	571985	831812	572142	Shock Absorber
12[(a)]	1	571986	831165	572143	Adapter Stem
13[(a,b)]	1	571637	571093	572144	Hose Assembly
14[(a)]	1	831027	831027	831027	Q.D Coupler Socket
15[(a)]	1	571988	570438	572145	Tail Adapter
16[(a)]	1	102395	102395	102395	Q.D. Coupler Plug w/ Lock Ring
17[(a)]	1	798056	798056	798056	Adapter
(a)		572709	570801	572710	Tail Assembly
(b)		572396	572397	572398	Rebuild Kit
(c)		572161	571095	572171	Service Tool Kit

(a) Components of the Tail Assembly
(b) Components of the Rebuild Kit
(c) Service Tool Kit (Optional)

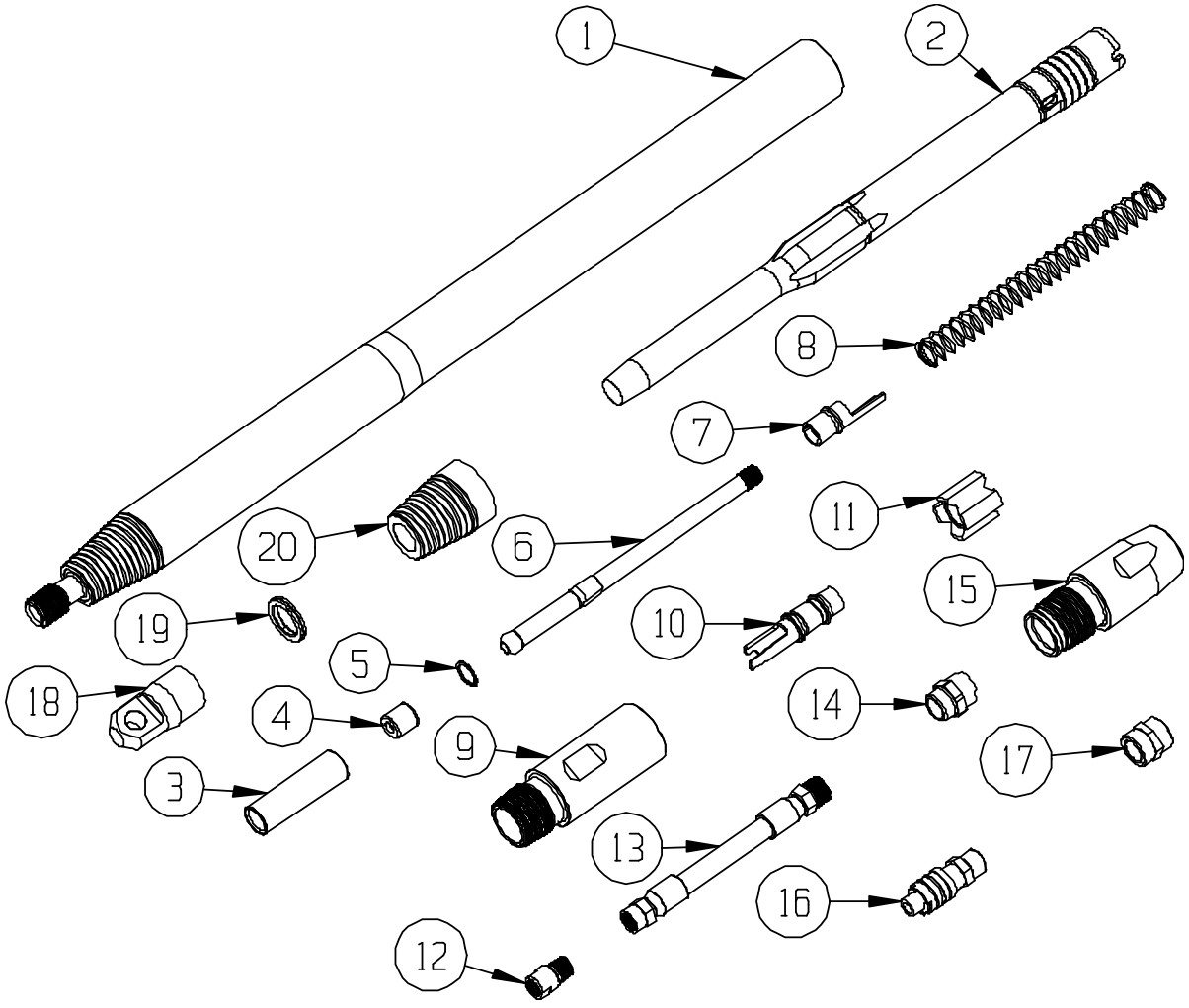


Figure 14-2b Typical Hole-Hog Assembly (Threaded Anvil/Body)

PARTS INFORMATION					
Item No.	**Qty.**	**Part Number**			**Description**
		HH68-TH	**HH79-TH**	**HH108-TH**	**Model**
		571967	**571094**	**572150**	**Complete Assembly**
1[(d)]	1	571973	570620	572152	Body/Anvil Assembly - TH
2	1	571975	570440	572132	Striker
3	1	571977	570437	572134	Valve Sleeve
4	1	571978	570610	572135	Valve Bushing
5	1	571979	831118	572136	Snap Ring
6	1	571980	570611	572137	Valve Stem
7	1	571981	570613	572138	Valve Finger
8	1	571982	831121	572139	Valve Spring
9	1	571983	570433	572140	End Cap
10	1	571984	831158	572141	Valve Guide
11	1	571985	831812	572142	Shock Absorber
12	1	571986	831165	572143	Adapter Stem
13	1	571637	571093	572144	Hose Assembly
14	1	831027	831027	831027	QD Coupler Socket
15	1	571988	570438	572145	Tail Adapter
16	1	102395	102395	102395	QD Coupler Plug w/ Lock Ring
17	1	798056	798056	798056	Adapter
18[(d)]	1	571992	570619	570619	Nose Cap
19[(d)]	1	90598	571061	571061	Washer
20[(d)]	1	571991	570846	572153	Nose Cover Grooved
(d)		572718	570620	573227	Body/Threaded Anvil Assembly

(d) Components of the Body/Threaded Anvil Assembly

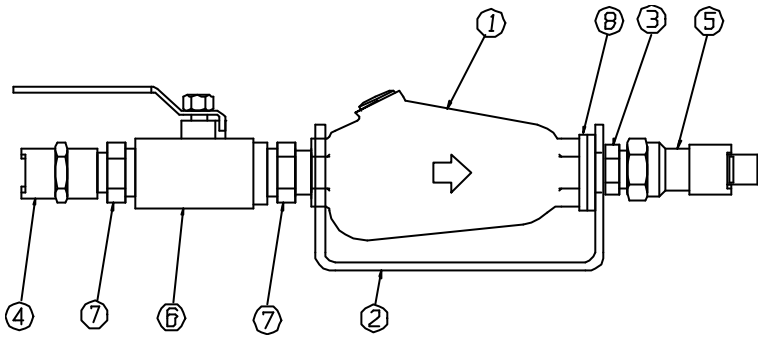


Figure 14-3 Air Line Lubricator Assembly

Item No.	Qty.	Part Number	Description
		HH46, HH57 HH68, HH79 HH108	**Hole-Hog Model**
		831035	**Lubricator Complete Assembly**
1	1	831021	In-Line Air Lubricator
2	1	831022	Support Bracket
3	1	798057	Pipe Nipple
4	1	831027	Quick Disconnect - Socket
5	1	831042	Quick Disconnect - Plug
6	1	837099	Ball Valve
7	2	798092	Pipe Nipple
8	2	677346	Washers

14.5 Hog Wash Lubricant

To ensure satisfactory operation and extend the life of the tool, the Hole-Hog must be lubricated during use. Allied recommends the use of Hog Wash lubricant, dispensed from an In-Line Lubricator. The lubricator design must include an oil adjustment valve to control the delivery rate.

Allied Hog Wash is a specially formulated lubricant, which also contains de-icing agents. The use of a de-icing agent is a must when ambient temperatures are below 60°F [15°C].

Air Line Lubricant		
	Quantity	**Part Number**
Hog Wash	1 quart [946 mL]	832240
	Box of 4 quarts	832219
	5 gallons [18.9 L]	832220

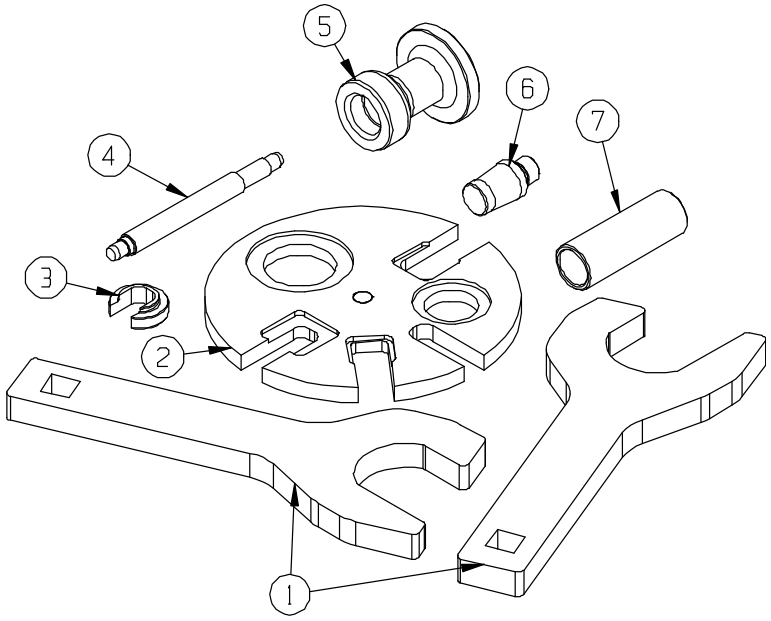


Figure 14-4 Service Tool Kit

PARTS INFORMATION					
Item No.	**Qty.**	**Part Number**			**Description**
		HH46	**HH57**	**HH68**	**Model**
		573680	**571646**	**572161**	**Complete Service Kit**
1	2	573686	571653	572162	End Cap Wrench
2	1	573687	571655	572163	Press Plate Assembly
3	1	573683	571650	572165	Valve Bushing Press Tool
4	1	573685	571652	572166	Valve Bushing Punch
5	1	573682	571662	572167	Shock Absorber Pusher
6	1	573681	571647	572169	Valve Guide Installation Tool
7	1	573684	571651	572170	Valve Guide Pusher

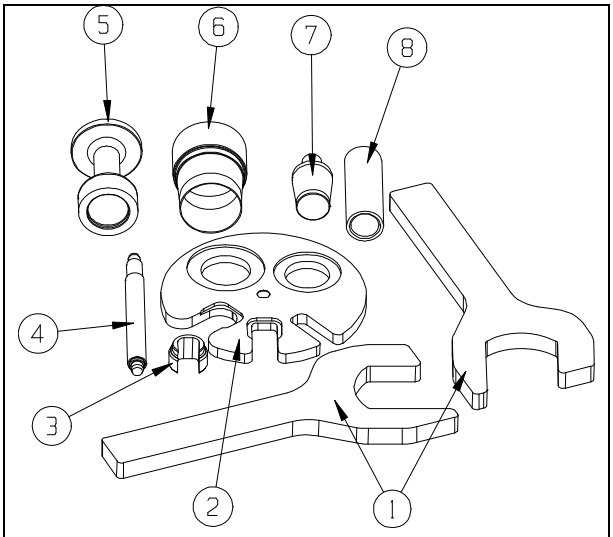


Figure 14-5

HH79, HH79-TH Service Kit

Item No.	Qty.	Part No.	Description
		571095	**Complete Service Kit**
1	2	571182	Wrench 2-3/4 inch
2	1	571096	Press Plate Assembly
3	1	570451	Valve Bushing Press Tool
4	1	571183	Valve Bushing Punch
5	1	570432	Shock Absorber Pusher
6	1	570431	Shock Absorber Installation Tool
7	1	570430	Valve Guide Installation Tool
8	1	571098	Valve Guide Pusher

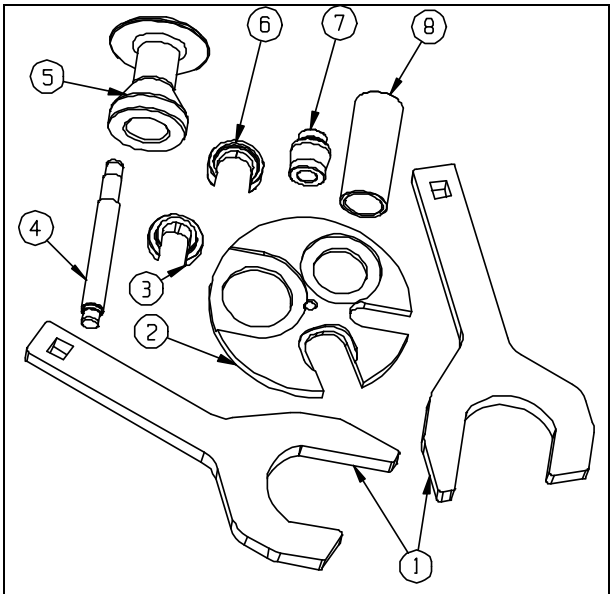


Figure 14-6

HH108, HH108-TH Service Kit

Item No.	Qty.	Part No.	Description
		572171	**Complete Service Kit**
1	2	572172	Wrench, 3-3/4-inch
2	1	572173	Press Plate Assembly
3	1	572175	Tool, Valve Bushing
4	1	572176	Tool, Valve Bushing Punch
5	1	572177	Tool, Shock Pusher
6	1	572178	Tool, Stem removal
7	1	572179	Tool, Valve Guide Install
8	1	572180	Tool, Valve Guide Pusher

NOTES:

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