ALLIED®
Construction Products, Inc.

TECHNICAL MANUAL

Manual Part No. 002053
August 25, 2000

HOLE-HOG Model 5500

Allied Hole-Hog, Model 5500
Document Change Notice

Date	Page	Change

TABLE OF CONTENTS

Section Page

SECTION 1.0 GENERAL 1
SECTION 2.0 OVERVIEW 3
2.1 Body/Anvil 3
2.2 Striker 3
2.3 Tail Assembly 3
2.4 Differences Among Models Covered 3
SECTION 3.0 SPECIFICATIONS AND DECALS 5
3.1 Specifications 5
3.2 Minimum Recommended Operating Depths 5
3.3 DECAL IDENTIFICATION 5
SECTION 4.0 GENERAL CONSTRUCTION SAFETY 9
4.1 Owner's Responsibilities 9
4.2 General Construction Safety 9
4.3 Federal, State, Local and OSHA Construction Guidelines and Regulations . 9
4.4 General Safety Summary 9
4.4.1 CAUTIONS and WARNINGS 9
4.4.2 Personnel Precautions 10
4.5 Warranty Protection Summary 10
4.6 Allied Product Policies 10
SECTION 5.0 HOLE-HOG SAFETY PRECAUTIONS 11
5.1 Receiving A New Hole Hog 11
5.2 Lifting and Blocking Precautions 11
5.3 Operating Precautions 11
SECTION 6.0 OPERATION 13
6.1 Operating Overview 13
6.2 Operating Guidelines 13
6.2.1 Safety Precautions 13
6.2.2 Select a Safe Piercing Path 13
6.2.3 Prepare Entrance Pit 14
6.2.4 Prepare Exit Pit or Target 14
6.2.5 Prepare The Hole-Hog and Air Hose 14

TABLE OF CONTENTS

Section Page

6.2.6 Position and Aim The Hole-Hog 14
6.2.7 Piercing The Underground Hole 15
6.2.8 Reversing The Hole-Hog 16
6.2.9 Install Material in the Pierced Hole 16
6.2.10 Remove and Service Hole-Hog 16
SECTION 7.0 LUBRICATION 17
7.1 Startup. 17
7.2 Normal Operation 17
7.3 De-Icing 17
SECTION 8.0 DISASSEMBLY 19
8.1 General 19
8.2 Extent of Disassembly 19
8.3 Replacement of The Whip Hose and The Hose Coupling with Clamp. 20
8.4 Replacing The Body/Anvil Only 20
8.5 Removing Tail Assembly and Striker 20
8.6 Disassembling the Tail Assembly 21
8.6.1 Secure Tail Assembly 21
8.6.2 Remove Hose Coupling from Hose 22
8.6.3 Remove The Whip Hose. 23
8.6.4 Remove Valve Stem from End Cap. 23
8.7 Remove Valve and Bushing. 25
8.8 Disassemble End Cap Components 26
SECTION 9.0 ASSEMBLY 29
9.1 General 29
9.2 Installation of The Whip Hose and The Hose Coupling with Clamp. 29
9.3 Replacing The Body/Anvil Only 29
9.4 Assemble End Cap Components 30
9.5 **Assemble Valve Stem Components** 32
9.6 Assemble Valve Stem and End Cap 35
9.7 Attach Whip Hose to Hose Adapter 37

TABLE OF CONTENTS

Section Page

9.8 Attach Hose Coupling to Whip Hose 38
9.9 Assemble Body/Anvil, Striker and Tail Assembly 40
SECTION 10.0 MAINTENANCE 43
10.1 Daily Maintenance 43
10.2 Preventive Maintenance 43
10.3. Conditional Maintenance 43
SECTION 11.0 FIELD MAINTENANCE 45
11.1 Field Replacements 45
11.1.1 Hose Coupling with Clamp 45
11.1.2 Whip Hose 45
11.2 Repair Preparations 45
11.3 Removal and Replacement of The Hose Coupling with Clamp 46
11.3.1 Remove Hose Coupling 46
11.3.2 Install The Hose Coupling 47
11.4 Removal and Replacement of the Whip Hose 49
11.4.1 Remove the Whip Hose from the Hose Adapter 49
11.4.2 Attach Whip Hose to Hose Adapter 50
SECTION 12.0 HOLE-HOG TROUBLESHOOTING CHART 53
SECTION 13.0 PARTS INFORMATION 55

This page intentionally
left blank.

LIST OF FIGURES

Figure Page

Figure 2-1. Major Components: Hole-Hog, Model 5500 3
Figure 3-1. Hole-Hog Decal Location 6
Figure 8-1. Spanner Wrench 835758.. 19
Figure 8-2. Loosening the End Cap. 20
Figure 8-3. Removing Tail Assembly.. 20
Figure 8-4. Access the Striker with a Hook. 20
Figure 8-5. Tilting the BodyAnvil to Access the Striker. 21
Figure 8-6. Tail Assembly and Striker Removed from Body/Anvil. 21
Figure 8-7. Pad the vise jaws to protect the End Cap threads. 21
Figure 8-8. Secure End Cap for Disassembly. 22
Figure 8-9. Hose Coupling Clamp 22
Figure 8-10. Remove Hose from Coupling. 22
Figure 8-11. Remove hose completely from the coupling plug and clamp. 22
Figure 8-12. Secure End Cap in Vice or Saddle Clamp 23
Figure 8-13. Hose Adapter, and Whip Hose 23
Figure 8-14. Remove Whip Hose from the Adapter 23
Figure 8-15. Remove Hose Socket from Valve Stem. 23
Figure 8-16. Loosen Hex Head Cap Screw.. 24
Figure 8-17. Loosen the Hose Adapter on the Valve Stem. 24
Figure 8-18.Remove Hose Adapter from the Valve Stem 24
Figure 8-19. Thread the Valve Stem From the Valve Body Nut and End Cap. . . . 24
Figure 8-20. Inspect Hose Socket. 24
Figure 8-21. Valve Stem and Valve Components in Vise. 25
Figure 8-22. Remove Valve Nut and Nut Bushing from Valve Stem.. 25
Figure 8-23. Remove Valve and the upper Spacers, and O-ring. 25
Figure 8-24. Remove the lower Spacers and O-ring.. 26
Figure 8-25. Removing the Valve Seal from the End Cap 26
Figure 8-26. End Cap in Arbor Press 27
Figure 8-27. Remove Valve Body Nut 27
Figure 8-28. End Cap, Shock Absorber and Push Bar in Press.. 27

LIST OF FIGURES

Figure Page

Figure 8-29. Press Shock Absorber from The End Cap. 28
Figure 8-30. Cut the Shock Absorber from the End Cap. 28
Figure 8-31. Cutting Pattern to Remove Shock Absorber from End Cap 28
Figure 9-1. End Cap and Shock Absorber in Press 30
Figure 9-2. Press the Shock Absorber into the End Cap 30
Figure 9-3. Valve Body Nut and Shock Absorber in Press. 31
Figure 9-4. Press the Valve Body Nut into the Shock Absorber. 31
Figure 9-5. Lubricate the Valve Seal and the Valve Body Nut. 32
Figure 9-6. Press Bushing into Valve. 32
Figure 9-7. Valve Stem in Vise 32
Figure 9-8. Install Lower Spacers and O-Ring 33
Figure 9-9. Install Valve on Valve Stem. 33
Figure 9-10. Install Upper Spacers and O-Ring 34
Figure 9-11. Proper Seating of Spacers and O-rings 34
Figure 9-12. Install Valve Nut and Nut Bushing 35
Figure 9-13. Secure Valve to Vale Stem 35
Figure 9-14. Inspect Adapter Timing Pin 35
Figure 9-15. Inspect Hex Head Cap Screw 35
Figure 9-16. Pad the vise jaws to protect the End Cap threads. 36
Figure 9-17. Secure End Cap for assembly of Tail Assembly 36
Figure 9-18. Thread Valve Stem into End Cap. 36
Figure 9-19. Threaded End of Valve Stem 36
Figure 9-20. Attach Adapter to Valve Stem 36
Figure 9-21. Tighten the Hose Adapter onto the Valve Stem. 37
Figure 9-22. Hose Adapter in place on the Valve Stem. 37
Figure 9-23. Tighten the Hex Head Cap Screw. 37
Figure 9-24. Hose Socket on Valve Stem. 38
Figure 9-25. Thread the Whip Hose fitting into the Hose Adapter. 38
Figure 9-26. Tighten Whip Hose securely in the Hose Adapter. 38
Figure 9-27.Coupling Clamp Hardware 38
Figure 9-28. Clean coupling plug and clamp. 39

LIST OF FIGURES

Figure Page

Figure 9-29. Open Hose Clamp 39
Figure 9-30. Secure Whip Hose in Hose Coupling Clamp.. 39
Figure 9-31. Secure Whip Hose to Coupling.. 40
Figure 9-32. Components for Final Assembly 40
Figure 9-33. Block Body/Anvil for Assembly 40
Figure 9-34. Insert Striker into the Body/Anvil. 41
Figure 9-35. Prepare Body/Anvil and Tail Assembly. 41
Figure 9-36. Insert Valve into Striker. 41
Figure 9-37.Secure End Cap to Body/Anvil 41
Figure 9-38.Tighten End Cap. 42
Figure 11-1. Whip Hose Disassembly 45
Figure 11-2. Secure Hole-Hog in place.. 46
Figure 11-3. Loosening Hose Coupling Clamp 46
Figure 11-4. Remove Hose from Coupling 46
Figure 11-5. Secure Hole-Hog in place. 47
Figure 11-6.Coupling Clamp Hardware 47
Figure 11-7. Clean coupling plug and clamp. 47
Figure 11-8. Open Hose Clamp 48
Figure 11-9. Secure Whip Hose in Hose Coupling Clam. 48
Figure 11-10. Secure the Hose Coupling to the Whip Hose 48
Figure 11-11. Whip Hose disassembly 49
Figure 11-12. Secure Hole-Hog in Place. 49
Figure 11-13. Hose Adapter, and Whip Hose. 49
Figure 11-14. Remove Whip Hose from the Adapter 49
Figure 11-15. Secure Hole-Hog in place.. 50
Figure 11-16. Thread the Whip Hose fitting into the Hose Adapter. 50
Figure 11-17. Secure Whip Hose onto the Hose Adapter. 51
Hole-Hog Troubleshooting Chart 53
Figure 13-1. Model 5500 Hole-Hog Complete Assembly 56
Figure 13-2. Air Line Lubricator Assembly 58

This page intentionally
left blank.

SECTION 1.0 GENERAL

This manual covers the Allied Hole-Hog Model 5500.

The major components of this model and the differences among Hole Hogs with this model number are explained in Section 2.0.

The Allied Hole-Hog is a pneumatic, reversible, underground piercing tool designed to pierce continuous, blind horizontal, inclined and vertical holes in compressible soils.

The holes are used for trenchless installation of underground utility lines, gas lines, water lines, and sewers, without the need to disturb asphalt and concrete paving, or landscaping. Back-filling is eliminated and traffic can be maintained.

With optional attachments, the Hole-Hog can also install or remove rigid pipe from the ground.

When using the Hole-Hog, underground safety procedures such as the location of existing underground service lines, cables and conduit must be followed. See Sections 4.0 and 5.0 for further safety guidelines.

CAUTION

Instructions identified with this symbol are important for personal safety and full service life of the Hole-Hog. Follow them carefully. Operation or service not in accordance with these instructions may subject the Hole-Hog to conditions beyond its design capability. Improper operation or servicing can result in Hole-Hog failure or personal injury. Read this manual thoroughly before operating or maintaining the Hole-Hog.

This page intentionally
left blank.

SECTION 2.0 OVERVIEW

The Allied Hole-Hog is a pneumatically propelled, reversible, ground piercing tool. 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.

2.1 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 2-1. 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.

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.

2.2 Striker

The striker is moved by air pressure back and forth within the body. Internally, the striker impacts either the anvil in the front or the tail assembly in the rear to propel the Hole-Hog through the ground.

2.3 Tail Assembly

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

2.4 Differences Among Models Covered

This manual covers the Allied Hole-Hog Model 5500. There are no significant differences among the Hole-Hogs with this model number.

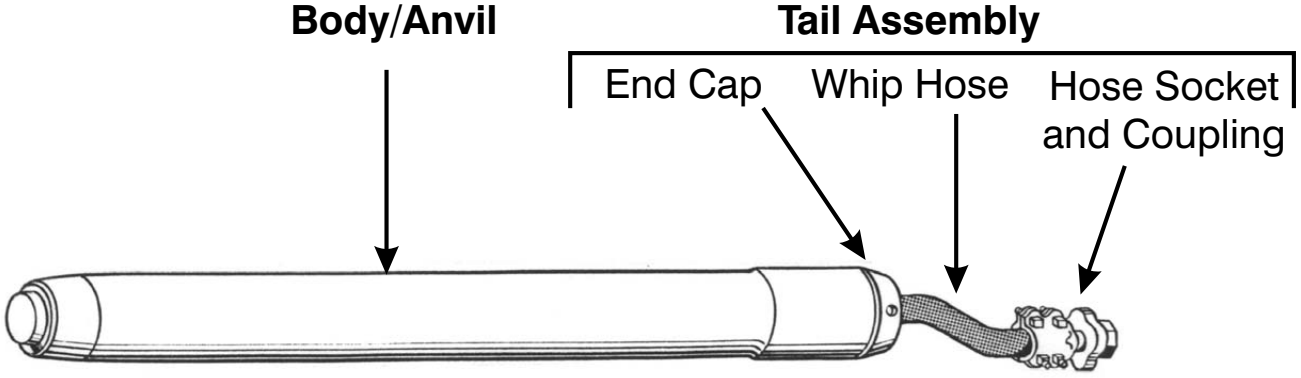


Figure 2-1. Major Components: Hole-Hog, Model 5500

This page intentionally
left blank.

SECTION 3.0 SPECIFICATIONS AND DECALS

3.1 Specifications

Outside Diameter:. . . 10.5 in. (267mm)

Weight: . . . . . 1375 lbs. (625kg)

Overall Length: . . . . 86 in. (2184mm)

Working Air PSI *: . 90 psi (6.3 kg./cm^2)

Air Consumption per Min.: . . . . . 360 scfm (9.9scmm)

Whip Hose (inside diameter): . . . . 2 in. (50.8mm)

Recommend Delivery Hose (inside diameter): . . . . .2 in. (50.8 mm)

Percussion Rate Per Minute: 200

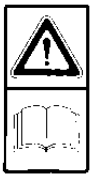
* Pressure required at the tool. Allow 5 psi (0.4 kg/cm2) pressure drop for each 100 ft. (30m) of hose. Pressure above 100 psi (7 kg./cm2) at the tool decreases the life of the Hole-Hog.

3.2 Minimum Recommended Operating Depths

Hard Glacial Clay	48 in.
Clay/Sand Mix	48 in.
Wet/Dry Sand	60 in.
Cultivated Soil	60 in.
Clay/Loam Mix	60 in.

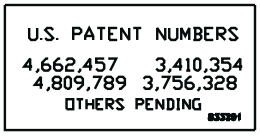
The Hole-Hog operates best in compactable soils. The minimum depth of operation varies with soil conditions and the length of the hole. The chart above is intended as a guide only. Specifications subject to change without notice.

3.3 DECAL IDENTIFICATION

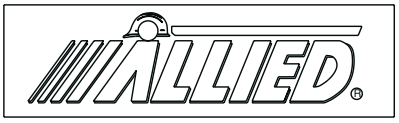


IMPORTANT! Read Technical Manual.

Made in USA.



Hole-Hog patent numbers.



Allied Construtrion Products logo.

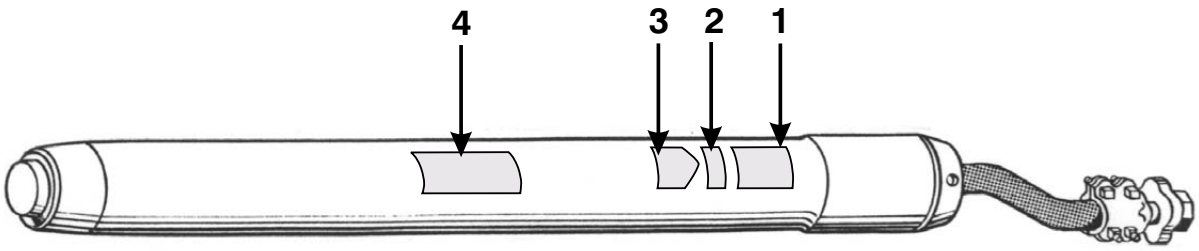


Figure 3-1. Hole-Hog Decal Location

Hole-Hog Decal Kit Part No. 101234			
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	676984	Decal - Read Instructions
2	1	833291	Decal - Hole-Hog Patents
3	1	815696	Decal - Made in USA
4	1	676653	Decal - Allied (not part of Decal Kit)

This page intentionally
left blank.

SECTION 4.0 GENERAL CONSTRUCTION SAFETY

4.1 Owner's Responsibilities

The equipment owner is responsible to assure that all operating personnel are fully trained and adhere to the procedures explained in this manual, especially regarding safety to personnel and equipment. If necessary, the owner or safety/training personnel must expand upon these general instructions to adapt them to particular applications.

4.2 General Construction Safety

The standard safety precautions expected and required of those working in construction shall be followed, including but not limited to: locating existing underground service and utility lines, establishing pedestrian barriers and using proper lifting equipment and personnel protection equipment, etc.

4.3 Federal, State, Local and OSHA Construction Guidelines and Regulations

Use the Hole-Hog 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

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

4.4 General Safety Summary

The safe and effective use of any heavy construction equipment depends upon proper installation, operation, maintenance and repair. Operational safety must encompass all of these factors. The following safety summary outlines the minimum safety policies the Hole-Hog owner shall establish for any Hole-Hog installation. The summary is arranged by topic. Each summary Section addresses a safety topic and states the Allied recommended policy. Any operational safety program must be tailored by the Hole-Hog owner to the specific site and application. Such a program will result in increased equipment life and performance and reduced down-time. Most importantly, it will reduce the risk of equipment damage and personnel injuries.

4.4.1 CAUTIONS and WARNINGS.

Throughout this manual detailed CAUTIONS and WARNINGS are included with the instructions and procedures. Even experienced service technicians are to review these CAUTIONS and WARNINGS prior to performing a procedure. These are highlighted by the symbol shown here.

4.4.2 Personnel Precautions

- Always wear safety glasses and protective clothing when operating or handling the Hole-Hog.
- All personnel in the immediate area must wear ear protection.

4.5 Warranty Protection Summary

Warranty coverage of the Allied Hole-Hog, as stated on the inside back cover of this manual, depends on proper maintenance and operation of the Hole-Hog. The Hole-Hog requires minimal service if properly operated and maintained by trained personnel. The following summary will help keep the Hole-Hog in a safe, efficient operating condition. This summary outlines the minimum maintenance policies the Hole-Hog owner shall establish for any Hole-Hog installation to ensure effective operation and warranty coverage. However, this operational maintenance program must be tailored, by the Hole-Hog owner, to the specific sites and applications.

- Hole-Hog operators shall:
  - Read and thoroughly understand the information and procedures detailed in this manual.
  - Understand proper operating techniques for all recommended applications.
  - Understand the maintenance schedule and requirements for procedures performed by an Allied trained service technicians.
  - Recognize problems and know how to take corrective action as detailed in operator troubleshooting.
  - Conduct regular checks and inspections as scheduled in the care and maintenance schedule.
- Use only Allied trained service technicians and Allied repair parts, and recommended lubricants to protect total warranty coverage.
- Maintain written records of Hole-Hog maintenance, service and repair. These records will be helpful if warranty coverage is ever in question. Each record shall include at least:
  - The date of the service, maintenance or repair.
  - A description of the service, maintenance or repair performed. Include part numbers if applicable.
  - Copies of purchase order(s) and invoice(s) for repair parts and service.
  - The name and signature of the person performing the service, maintenance or repair.

4.6 Allied Product Policies

Allied reserves the right to make modifications to the design or changes to the specifications without prior notice.

In this manual, Allied recommends Hole-Hog applications, maintenance and service consistent with industry expectations for high performance piercing tools. Allied takes no responsibility for the results of actions not recommended in this manual and specifically the results of:

- Operation in non-recommended applications
- Incorrect operation
- Improper maintenance
- Use of service parts not approved or supplied by Allied.

These exclusions apply to damage to the Hole-Hog, associated equipment, and injury to personnel.

SECTION 5.0 HOLE-HOG SAFETY PRECAUTIONS

5.1 Receiving A New Hole Hog

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

> **WARNING**
> Avoid injury to the operator and bystanders. Check the tightness of the end cap using the proper tools and torque (Section 9.0). A loose end cap could blow out with damaging force.
>
> Daily, check the end cap before operation.

It is recommended that the air hose be connected to an air compressor of sufficient capacity and the Hole-Hog operated above ground momentarily.

5.2 Lifting and Blocking Precautions

The Hole-Hog Models covered in this manual are heavy; refer to Section 3.0 Specifications. Even when disassembled, component parts like the Body/Anvil, Striker, and End Cap are heavy enough to cause serious bodily injury if not handled with caution.

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

- Always use sufficient blocking to prevent accidental or sudden movement of the Hole-Hog or its components.
- Always prevent the Hole-Hog and/or its components from rolling when they are placed on a horizontal surface.
- Always use suitable lifting equipment that will assure the safety of personnel and not damage the Hole-Hog or its components.
- Always keep hands and feet away from pinch points.
- Always wear a hard-hat when any part of the Hole-Hog will be lifted above waist level.
- When man-handling the Hole-Hog or its components, make sure enough personnel are used to safely distribute the strain among them. Make sure they are wearing the following safety items.
  - Steel-toed shoes suitable to protect the arch as well as the toes.
  - Kidney belt wide enough and tight enough to protect against herniating internal organs and lower back.

5.3 Operating Precautions

- Daily, before operation, check the tightness of the end cap using the proper tools and tightening method as described in Section 9.9, Step 8. A loose end cap could blow out with damaging force, injuring the operator or bystanders.
- Observe all safety precautions outlined in the air compressor operating manual.
- The owner/operator/contractor is responsible for locating underground utilities.

- Entrance and exit pits may be unstable and dangerous. These trenches must be shored to meet federal, state and local guidelines.

- Be aware of Hole-Hog travel distance by marking air supply hose. Place marking tape at two foot intervals on the hose to monitor travel.

- Check air supply hose periodically for fitting and hose damage.

- Serious injury from flying debris may result if personnel are in line with the Hole-Hog exhaust. Stand clear.

- Never stand directly over the Hole-Hog air supply hose. Retain long hoses against whipping in case of failure.

SECTION 6.0 OPERATION

6.1 Operating Overview

There are 9 steps in piercing an underground hole with a Hole-Hog :

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

6.2 Operating Guidelines

When performing each of the steps listed in 6.1, pay particular attention to the related guidelines below.

6.2.1 Safety Precautions

Review the safety sections, 4.0 and 5.0, of this manual. Perform all operations according to the precautions and recommendations described in these sections.

WARNING

Use extreme caution working with electric and gas lines. Cutting a utility line could cause serious injury or death.

6.2.2 Select a Safe Piercing Path

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

1. Locate all utility lines: water, electric, gas and sewer lines, 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.
   a. Refer to 3.2 Minimum Recommended Operating Depths.
   b. Identify the type of soil to be pierced and the minimum depth of the hole.
   c. If possible, select a hole depth well below the minimum. In some soils, the Hole-Hog may raise while piercing a shallow hole.
   d. When the piercing path is very long through low density soil, the hole depth should be as deep as practical for the application.

6.2.3 Prepare Entrance Pit

> **CAUTION**
> Prevent injury to personnel by observing all shoring safety precautions.

Excavate the entrance pit to the depth, width and length required to properly align the piercing tool and work comfortably.

Pit length should:

- Allow the operator to press the Hole-Hog into the pilot hole when piercing begins.
- Permit a soft bend in the Whip Hose. Do not crimp the air supply.

6.2.4 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 in. to 10 in./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.

6.2.5 Prepare The Hole-Hog and Air Hose

1. Refer to Section 10.0 Maintenance and perform Daily and Preventive Maintenance.
2. Review all of Section 7.0 Lubrication. Startup Lubrication, paragraph 7.1 must performed at the beginning of piercing operations, paragraph 6.2.7
3. To monitor Hole-Hog travel along the piercing path, mark the air hose in two ways.
   a. Place tape at two foot intervals along the hose.

      This provides an indication of how far the Hole-Hog has traveled along the path.

   b. Measure the total length of the piercing path. Measure that length from the piercing tip, back along the Hole-Hog and hose. Make a special tape mark at that point.

      This provides an indication of when the piercing tool should reach the exit point. It will also indicate if the tool has been deflected off course.
4. Connect air supply hose to compressed air supply and purge air hose.

6.2.6 Position and Aim The Hole-Hog

1. Verify that the bottom of the entrance pit is at the depth (elevation) determined in 6.2.2, step 3.
2. Set the Hole-Hog in the entrance pit with the piercing tip just touching the forward wall, the wall to be pierced.
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.
4. The nose of the tool must be pitched down to compensate for a tendency of the tool to raise along the path.

   The amount of pitch depends on the length of travel and the soil type. Normally one half a bubble on a construction level is sufficient.
5. Block the Hole-Hog in this position.

6.2.7 Piercing The Underground Hole

1. To "wet" the air line, pour a small amount of Allied Hog Wash into air line at the compressor connection and connect it to piercing tool air line.(Refer to Section 7.0 Lubrication.)
2. Quickly turn on the air supply and immediately reduce air pressure to approximately 2/3 of full open and start piercing tool penetration into the ground. It is necessary to apply force in the direction of motion.
3. After approximately 1/3 of the body length has penetrated into the forward wall of the entrance pit, check alignment on target and pitch using suitable level. Refer to paragraph 6.2.6, step 4 for the proper pitch.
4. Restart air supply to piercing tool. If tool fails to start, simply open and close the quick-acting valve to create pulses of air to start the tool.
5. Continue checking alignment and pitch (steps 3 and 4) until the Hole-Hog is completely enveloped by the forward wall of the entrance pit.
6. Increase air pressure to 100 psi (7.0kg/cm^2) and complete hole penetration. Never exceed 100 psi (7.0kg/cm^2). Pressures above 100 psi (7.0kg/cm^2) decrease tool life.
7. Monitor Hole-Hog progress along the piercing path. Use the 2-foot tape markers on the air hose to estimate the length of hose used and progress along the path.
8. The Hole-Hog can be stopped or deflected from its path by some underground obstacles.
   - If the Hole-Hog stops moving along the path, it has hit an obstacle.
   - If total path marker on the air hose is reached but the Hole-Hog has not reached the target or exit pit, the Hole-Hog has been deflected by an obstacle.

In either case:

a. Retrieve the Hole-Hog by reversing Hole-Hog direction as described in paragraph 6.2.8.

> **WARNING**
> Use extreme caution working with electric and gas lines. Cutting a utility line could cause serious injury or death
>
> Verify location of all utilities before starting a second hole.

b. Pierce another hole that will bypass the object, repeating steps 6.2.6 and 6.2.7. In extreme circumstances it may be necessary to relocate the entrance or exit pit.

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

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

10. Before removing the Hole-Hog from the exit pit or pierced hole, verify the means by which the pipe, tube, cable, etc. will be installed in the pierced hole.

    Refer to paragraph 6.2.9 Install Material in the Pierced Hole.

CAUTION

If the end cap becomes loose at any time, do not retighten. Remove end cap and clean thoroughly. Pay special attention to cleaning the threads of end cap and body. Lubricate threads as instructed in the maintenance section, then reassemble according to Section 9.8.

6.2.8 Reversing The Hole-Hog

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

To reverse the tool, proceed as follows:

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

CAUTION

Do not pull on the air hose or use hose as a handle. This could damage internal components.

2. With the air supply off, rotate hose assembly 120 degrees 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 reverse mode.
4. Increase air pressure to 100 psi (7.0kg/cm^2) and drive the tool out of the hole. Never exceed 100 psi (7.0kg/cm^2). Pressures above 100 psi (7.0kg/cm^2) decrease tool life.

6.2.9 Install Material in the Pierced Hole

Many attachments are available for the Hole-Hog. Some of these install materials in the pierced hole; for example: pipe drivers and cable /tube pullers.

If one of these attachments is used to install material in the pierced hole:

1. Refer to the manual provided with the attachment and proceed as instructed.
2. Once the material is installed in the pierced hole, remove and service the Hole-Hog as described in 6.2.10.

6.2.10 Remove and Service Hole-Hog

1. When the Hole-Hog is no longer required for piercing or material installation, proceed as follows:
   a. Stop compressed air delivery by closing the air supply valve.
   b. Disconnect the hose and remove the hose from the hole.
   c. Remove the tool from the pit.
2. Clean all mud and other debris from the Hole-Hog. Refer to Section 10.0 Maintenance and perform appropriate procedures.

SECTION 7.0 LUBRICATION

CAUTION
Always follow lubricant safety precautions.

To insure proper operation and tool life, the Hole-Hog must be lubricated during use. Allied recommends the use of Allied Hog Wash lubricant and de-icing agent dispensed by the Allied Air Line Lubricator. At temperatures below 60°F (15°C), the use of a lubricator and de-icing agent is particularly important.

7.1 Startup

Just prior to operation, purge the supply hose of any debris and water. Next, pour approximately 2 ounces (60cc) of Allied Hog Wash into the hose at the compressor and at every 100 ft. (30m) interval. This wets the hose and ensures that lubricant flows into the Hole-Hog. An initial heavy mist of lubricant in the exhaust air may be experienced upon tool startup.

7.2 Normal Operation

During normal Hole-Hog operation, dispense lubricant at the following rate:

- At temperatures below 40°F (5°C): 5 to 7 drops per minute.
- At temperatures above 40°F (5°C): 3 to 5 drops per minute.

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, the lubrication rate is too great. Adjust the lubrication rate accordingly.

7.3 De-Icing

Because the tool is powered by expanding compressed air, a normal cooling effect inside the tool is experienced. Under certain temperature and humidity conditions, the moisture in the compressed air can condense and freeze on internal components. The weather conditions of cool, damp days are ideal for icing problems to develop.

Icing problems can be minimized by conditioning (heating or drying) the compressed air prior to delivery to the Hole-Hog. Consult the air compressor manufacturer for the availability of these accessories.

An early indicator of internal icing is the presence of ice chips in the air exhaust. Excessive icing restricts striker movement which results in erratic or non-performance.

If internal ice buildup is suspected:

1. Stop the air delivery to the tool.
2. Wait several minutes to allow the tool to warm.
3. Prior to restarting the tool, follow the instructions in Section 7.1. This step may need to be repeated if icing is severe.
4. If icing persists, increase the amount of lubricant delivered to the Hole-Hog. The use of a lubricant with a de-icing agent is extremely important under these conditions. Allied Hog Wash is recommended.

This page intentionally
left blank

SECTION 8.0 DISASSEMBLY

WARNING

Do not remove the End Cap from the Body/Anvil under field operating conditions. This may expose the internal operating parts to contamination, and reduce the operating life of the Hole-Hog.

WARNING

Using a pipe wrench on the Hole-Hog Body/Anvil relieves Allied of all warranty responsibilities.

WARNING

Applying heat with a torch or by any other method to any part or parts of the Hole-Hog relieves Allied of all warranty responsibilities. Applying heat can destroy the main body, striker and other parts beyond use. Heating Hole-Hog components can cause altered component strength and result in premature failure or personal injury.

8.1 General

The procedures in this section must be performed in a machine shop suitable for the disassembly, cleaning, inspection and repair of pneumatic construction equipment. In addition to the tools and fixtures normally stocked in such a shop, lifting equipment capable of lifting the assembled Hole-Hog and its larger components must be available. Also, the Allied Spanner Wrench 835758 must be available. This wrench is supplied with the Hole-Hog. It is shown in Figure 8-1.

Figure 8-1. Spanner Wrench 835758.

In the following procedures, reference numbers in parentheses accompany most part names. These numbers refer to the part item numbers on the exploded views and parts lists in Section 13.0.

8.2 Extent of Disassembly

The procedures explained in this section completely disassemble every replaceable component in the Hole-Hog. Most repairs do not require such a complete disassembly. After removing the Tail Assembly and Striker from the Body/Anvil (paragraph 8.6), clean and inspect the internal components while they are still assembled. After cleaning and inspection, perform only the minimum disassembly required to replace worn or broken parts.

8.3 Replacement of The Whip Hose and The Hose Coupling with Clamp.

The Whip Hose (14) and Hose Coupling with Clamp (17) can be removed and replaced in the shop or in the field without disassembly of internal Hole-Hog components.

- To replace either of these components in the field, refer to paragraph 11.1.
- To remove either of these components as part of shop disassembly, follow the procedures 8.6 through 8.6.3.

8.4 Replacing The Body/Anvil Only

When replacing the Body/Anvil (1) only, it is not necessary to disassemble the Whip Hose (14) and tail assembly components.

1. Remove Striker (2) and the assembled Whip Hose (14) and tail assembly as described in paragraph 8.5.
2. Until the new Body/Anvil is installed, place the Striker (2), Whip Hose (14) and tail assembly where they will not be contaminated with dust and dirt. Cover or wrap them in cloth or plastic as required.

8.5 Removing Tail Assembly and Striker

1. Place the Hole-Hog on a level surface and secure it with a strap wrench or saddle clamp. Block the Hole-Hog to prevent rolling during removal of the End Cap. Refer to Figure 8-2.
2. With the Body/Anvil (1) secured in place, use wrench P/N 835758 to loosen the End Cap (10). It may be necessary to strike the wrench handle several times with a hammer to loosen the End Cap.

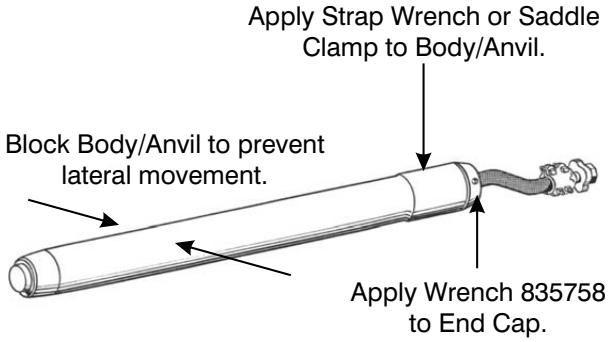


Figure 8-2. Loosening the End Cap.

3. Remove the tail assembly by unthreading the End Cap (10) and pulling the Tail Assembly from the Body/Anvil (1) as shown in Figure 8-3.

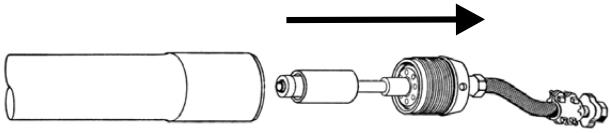


Figure 8-3. Removing Tail Assembly.

4. Place the Tail Assembly where it will not be contaminated with dust and dirt. Wrap it in cloth or plastic if necessary.
5. Remove the Striker (2) from the Body/Anvil (1):
   a. If it is unsafe or impractical to lift the Body/Anvil and Striker, use a long hook to pull the Striker out of the Body/Anvil about six to eight inches as shown in Figure 8-4. Otherwise, perform step b.

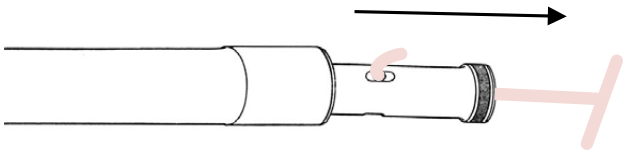


Figure 8-4. Access the Striker with a Hook.

b. Tip the Body/Anvil (1) so the end of the Striker (2) slides out of the Body/Anvil about six to eight inches. (Figure 8-5).

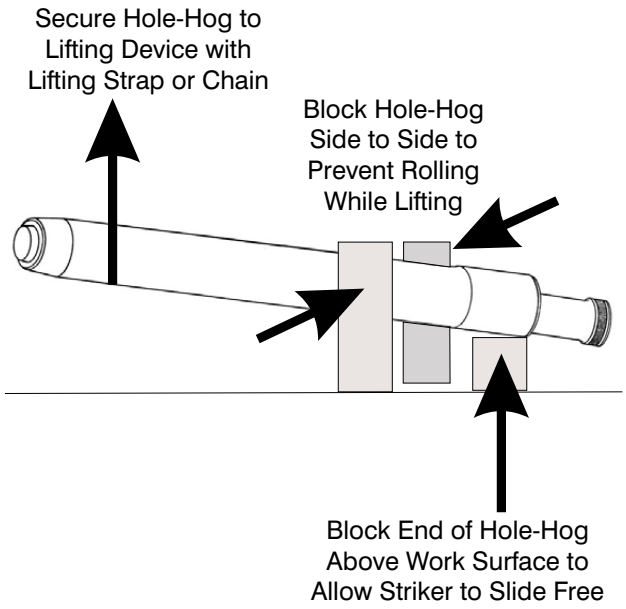


Figure 8-5. Tilting the BodyAnvil to Access the Striker.

6. Once the Striker (2) is accessible, lower the Body/Anvil (1) to the level surface and block it to prevent rolling. Pull the Striker from the Body/Anvil by hand as shown in Figure 8-6.

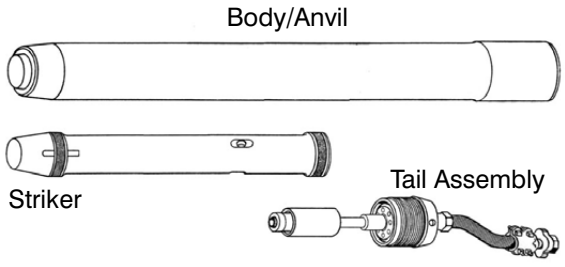


Figure 8-6. Tail Assembly and Striker Removed from Body/Anvil.

7. Place the Striker where it will not be contaminated with dust and dirt. Wrap in cloth or plastic if necessary.

8. Cover the open end of the Body/Anvil to prevent contamination of the interior and threads. Coat threads with grease if long term storage is anticipated.

8.6 Disassembling the Tail Assembly

NOTE

DO NOT disassemble components of the tail assembly unless replacement is necessary.

8.6.1 Secure Tail Assembly

1. Before securing the Tail Assembly for disassembly, protect the threads of the End Cap (10) by padding the vise jaws or wrapping the threads with a heavy cloth or canvas.

   a. If a vise is used, install the jaw pads. If jaw pads are not available, tape or bind strips of wood to the vise jaws as shown in Figure 8-7.

   b. If a saddle clamp is used, protect the End Cap threads by wrapping them in thick cloth or canvas.

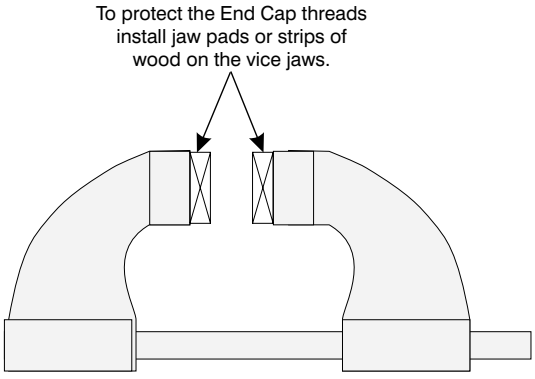


Figure 8-7. Pad the vise jaws to protect the End Cap threads.

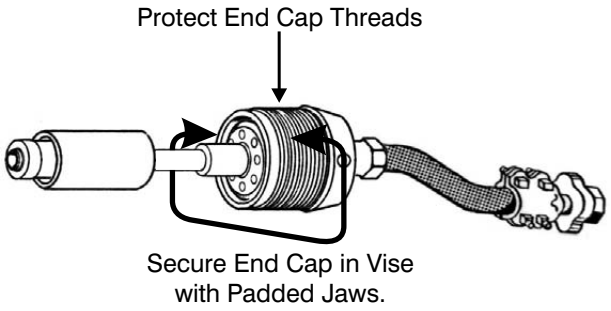


Figure 8-8. Secure End Cap for Disassembly.

2. Place the End Cap (10) in a vise or saddle clamp as shown in Figure 8-8. Secure the End Cap (10) tight enough to hold the Tail Assembly in place during disassembly.

8.6.2 Remove Hose Coupling from Hose

- If both the Whip Hose (14) and the Hose Coupling (17) are to be replaced, do not bother to disassemble these two components. Proceed to step 8.6.3.

- If either the Whip Hose (14) or the Hose Coupling (16) is to be replaced, separate these two components by the following procedure.

1. Refer to Figure 8-9. With the End Cap secured to prevent rolling, loosen the square head screws and nuts of the Hose Coupling Clamp.

   Do not remove the screws and nuts from the clamp.

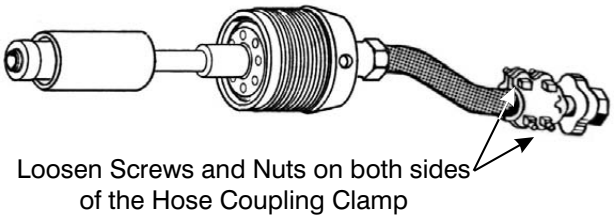


Figure 8-9. Hose Coupling Clamp

   a. Use a 3/4-inch open-end wrench to hold the square head nuts.

   b. Use a 5/8-inch open-end wrench to back the square head screws almost out of the nuts.

2. Separate the two halves of the clamp as shown in Figure 8-10-A.

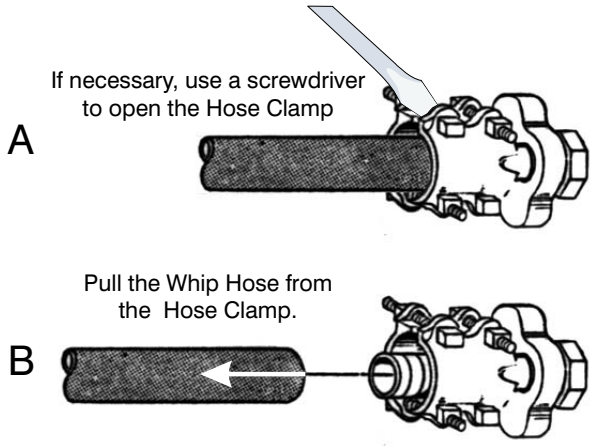


Figure 8-10. Remove Hose from Coupling.

3. It may be necessary to pry the two clamp halves apart. Use a knife blade or a flat blade screwdriver to separate the two clamp halves as shown in Figure 8-10-A.

4. Once the clamp is loose, pull the hose from the hose plug of the Hose Coupling as shown in Figure 8-10-B.

5. Use a needle-nose pliers or wooden stick to remove hose pieces that are stuck to the coupling plug. Refer to Figure 8-11. Do not scratch the coupling plug.

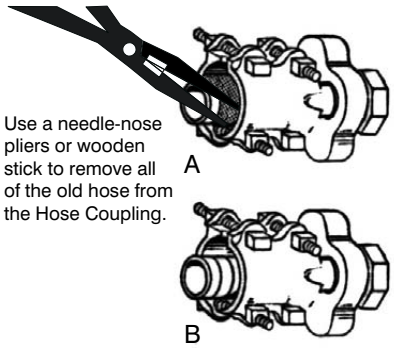


Figure 8-11. Remove hose completely from the coupling plug and clamp.

8.6.3 Remove The Whip Hose

1. With the End Cap (10) secured to prevent rolling, detach the Whip Hose (14) from the Hose Adapter (15). Refer to Figure 8-12.

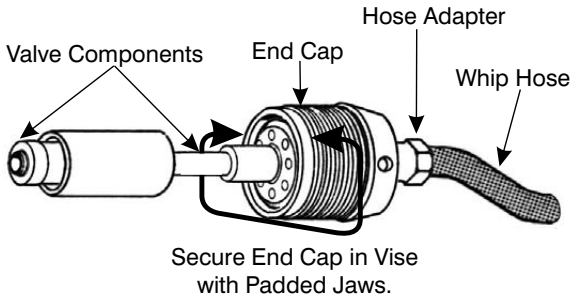


Figure 8-12. Secure End Cap in Vice or Saddle Clamp

   a. Hold the Hose Adapter (15) across its flats with a 3-inch open end wrench. Refer to Figure 8-13.

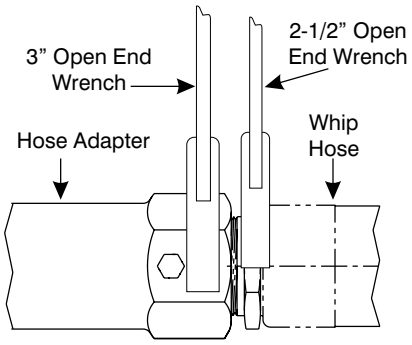


Figure 8-13. Hose Adapter, and Whip Hose

   b. Use a 2-1/2-inch open-end wrench to thread the Whip Hose (14) from the Hose Adapter (15). Refer to Figures 8-13 and 8-14.

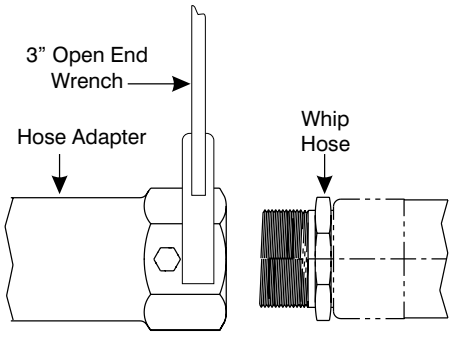


Figure 8-14. Remove Whip Hose from the Adapter

WARNING

Failure to use 100R2 hose could result in injury to personnel. Always use Allied's Whip Hose (see parts list in Section 13.0) or equivalent - 100R2 hose.

2. After removing the Whip Hose (14) from the Hose Adapter (15), inspect the hose for damage, especially the end removed from the Hose Coupling Clamp (17).

   a. If the hose is damaged, discard it and obtain a new Allied Whip Hose (14).

   b. If the hose fitting is crimped or distorted or if the threads are damaged, so the fitting cannot be secured and air tight, discard the assembly and obtain a new Allied Whip Hose (14).

8.6.4 Remove Valve Stem from End Cap

1. With the End Cap (10) secured to prevent rolling, detach the Hose Adapter (15) from the Valve Stem (8) . Refer to Figure 8-15.

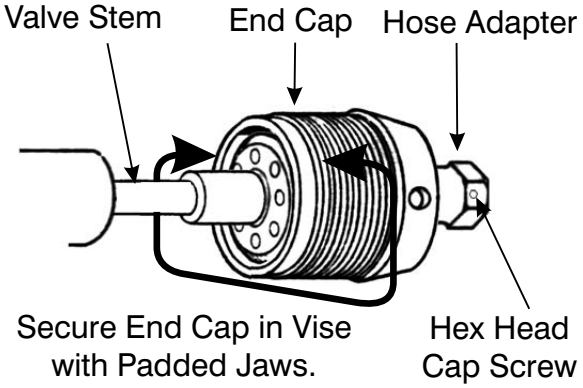


Figure 8-15. Remove Hose Socket from Valve Stem.

   a. With a ½-inch open end wrench loosen but do not remove the Hex Head Cap Screw (16) in the Hose Adapter (15). See Figure 8-16.

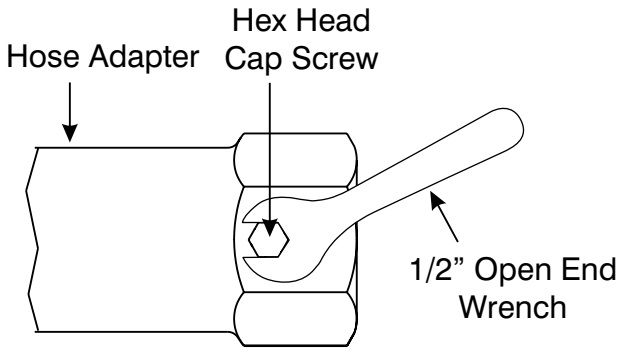


Figure 8-16. Loosen Hex Head Cap Screw.

b. Hold the Valve Stem (8) across its flats with a 2-3/4-inch open-end wrench. Refer to Figure 8-17.

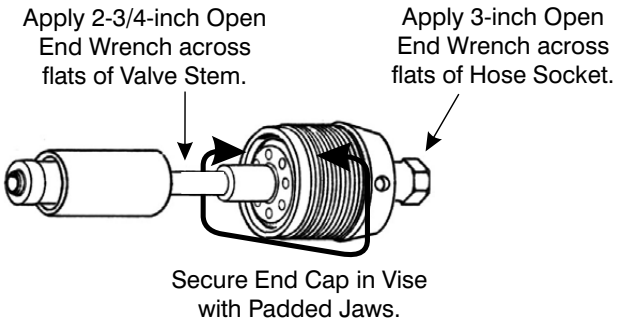


Figure 8-17. Loosen the Hose Adapter on the Valve Stem.

c. Use a 3-inch open-end wrench to loosen the Hose Adapter (15) on the Valve Stem (8).

d. By hand thread the Hose Socket (15) from the Valve Stem (8) as shown in Figure 8-18.

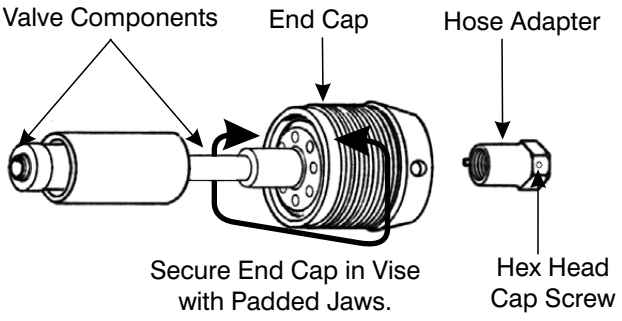


Figure 8-18.Remove Hose Adapter from the Valve Stem

2. Thread the Valve Stem (8) and its assembled components out of the Valve Body Nut (12) and End Cap (10), as shown in Figure 8-19.

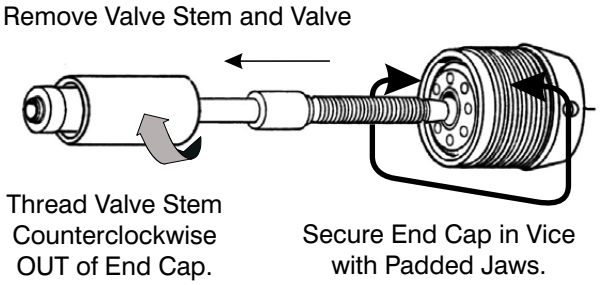


Figure 8-19. Thread the Valve Stem From the Valve Body Nut and End Cap.

3. Refer to Figure 8-20. Inspect the Hose Socket Timing Pin for damage and correct height. The Timing Pin should extend 1/4-inch from the Hose Socket (15).

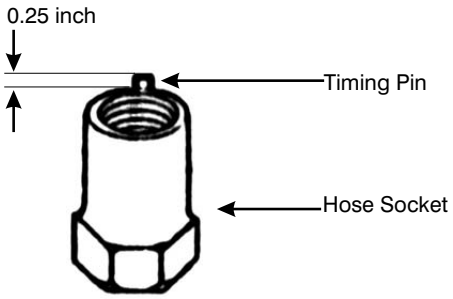


Figure 8-20. Inspect Hose Socket.

4. DO NOT remove the Timing Pin from the Hose Socket (15). If either the Timing Pin or Hose Socket must be replaced, replace the complete assembly.

8.7 Remove Valve and Bushing

NOTE

DO NOT disassemble components from the Valve Stem unless replacement is necessary.

1. Secure the Valve Stem (8) and the assembled Valve components vertically in a vise. The vise jaws should grip the Valve Stem squarely across the Valve Stem flats as shown in Figure 8-21.
2. Be sure the part of the Valve Stem extending below the jaws clears the operating components of the vise. If necessary, protect the threads by wrapping them with a thick cloth or canvas.
3. Use a 2-3/4-inch wrench to loosen the Valve Nut (4) as shown in Figure 8-21.
4. Thread the Valve Nut (3) from the Valve Stem (8) as shown in Figure 8-22.

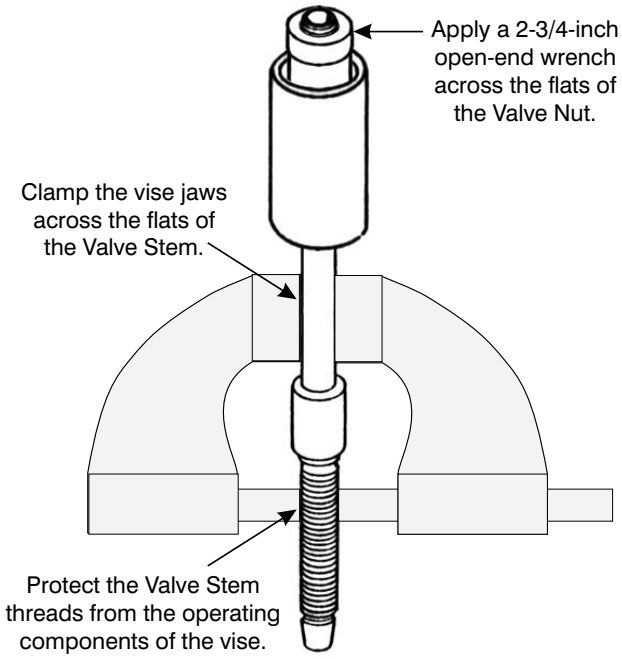


Figure 8-21. Valve Stem and Valve Components in Vise.

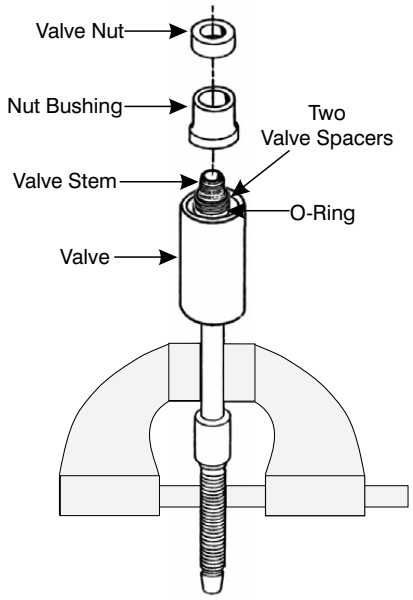


Figure 8-22. Remove Valve Nut and Nut Bushing from Valve Stem.

5. Remove the Nut Bushing (4) as shown in Figure 8-22.
6. Pull the Valve (7) up and off the Valve Stem (8). As the Valve leaves the Stem, it will strip the upper Spacers (5) and O-ring (6) from the Valve Stem. Refer to Figure 8-23.

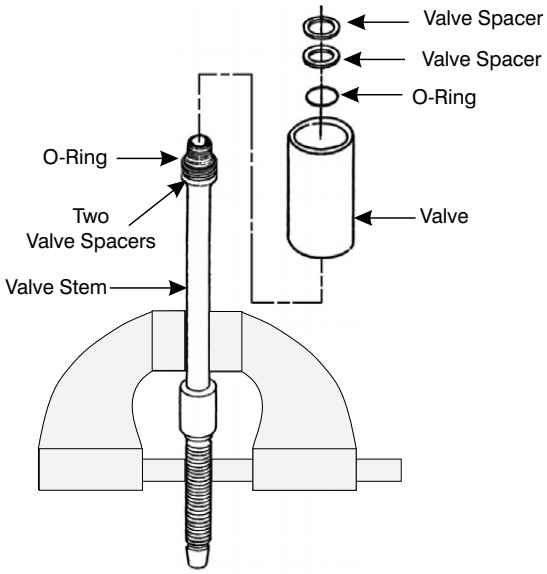


Figure 8-23. Remove Valve and the upper Spacers, and O-ring.

7. Discard the Spacers (5) and O-ring (6).
8. If the interior of the Valve has been fouled with dirt or other contamination, it may be necessary to clean the interior of the Valve, the Spacers, and the O-ring before removal is possible.
9. Removing the Valve (7) exposes the lower Spacers (5) and O-ring (6). Remove these components from the Valve Stem (8) and discard them as shown in Figure 24.

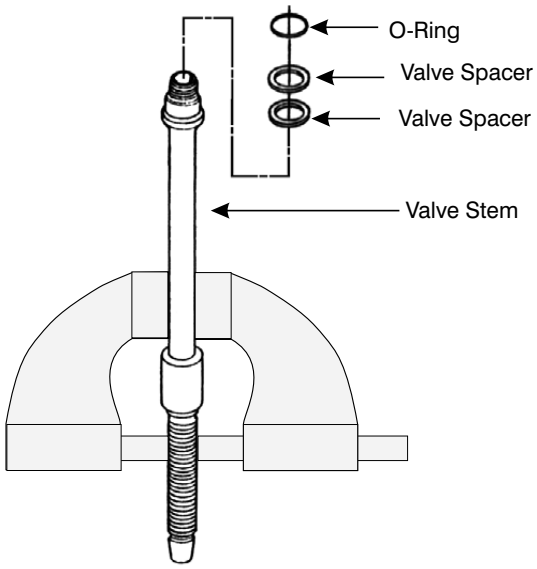


Figure 8-24. Remove the lower Spacers and O-ring.

10. If the interior of the Valve has been fouled with dirt or other contamination, use a pliers or screwdriver to loosen and remove the Spacers and the O-ring.
11. Discard the Spacers (5) and O-ring (6).

8.8 Disassemble End Cap Components

CAUTION
Removal destroys Shock Absorber. DO NOT remove Shock Absorber (11) or Valve Body Nut (12) from End Cap (10) unless replacement is necessary.

1. Use a sharp knife or hack saw to cut through the Valve Seal (13). Using a large screw driver or needlenose plyers, pry the Valve Seal from the End Cap. Discard the Seal. See Figure 8-25.

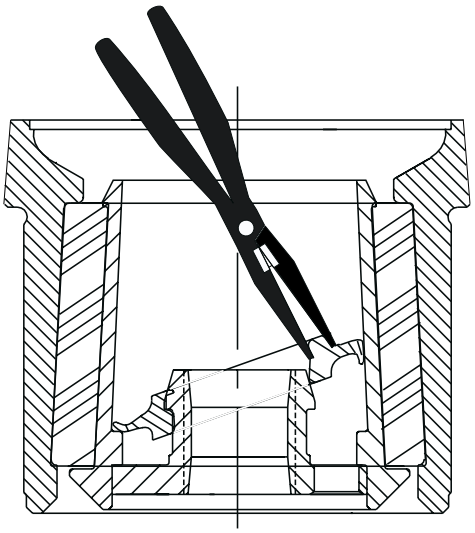


Figure 8-25. Removing the Valve Seal from the End Cap

2. With threaded end down, place the End Cap in the arbor press as shown in Figure 8-26.
   - Support the edges of the End Cap (10) with standard blocking.
   - Provide additional space below the blocking to permit Valve Body Nut (12) travel during pressing.

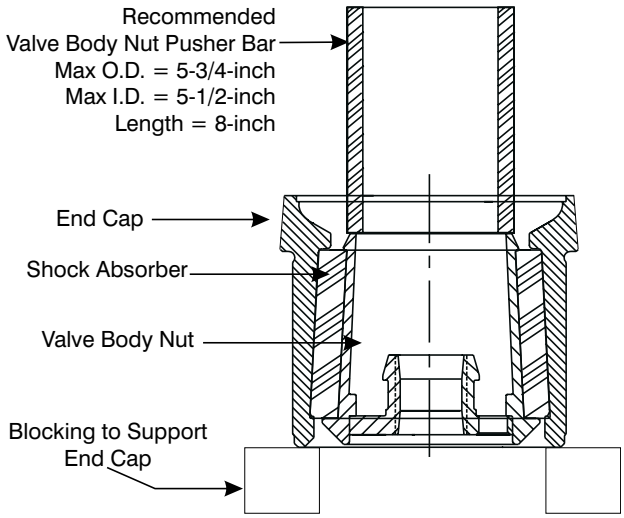


Figure 8-26. End Cap in Arbor Press

3. Press the Valve Body Nut (12) from the Shock Absorber (11) inside the End Cap (10).
   - If the plunger of the arbor press does not fit inside the End Cap, use a standard push bar.
   - A push bar 8-inches long and 5-3/4-inches in diameter will drive the Valve Body Nut (12) completely out of the Shock Absorber (11).

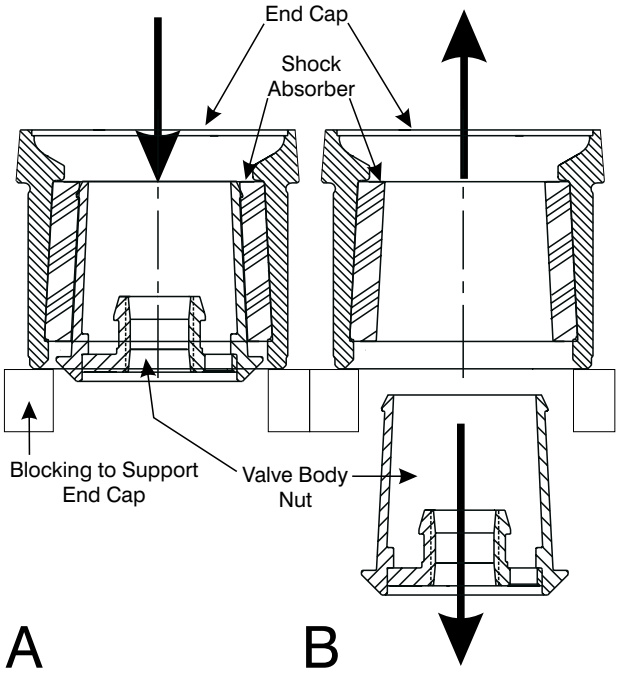


Figure 8-27. Remove Valve Body Nut

4. Lubricate the push bar so it will slide from the Shock Absorber (11) after removing the Valve Body Nut.
5. Press the Valve Body Nut (12) from the Shock Absorber (11) as shown in Figure 8-27-A.
   - If a standard push bar is used, the Valve Body Nut (12) will be loosened and pushed part way out of Shock Absorber (11). The Valve Body Nut can be pulled free by hand. Refer to Figure 8-27-B.
   - If the recommended size push bar is used, the Valve Body Nut will fall free as it passes out of the Shock Absorber as shown in Figure 8-27-B.
6. Remove the push bar.
7. Obtain a push bar approximately 10-inches long and 6-7/16-inches in diameter to drive the Shock Absorber (11) from the End Cap (10) as shown in Figure 8-28.

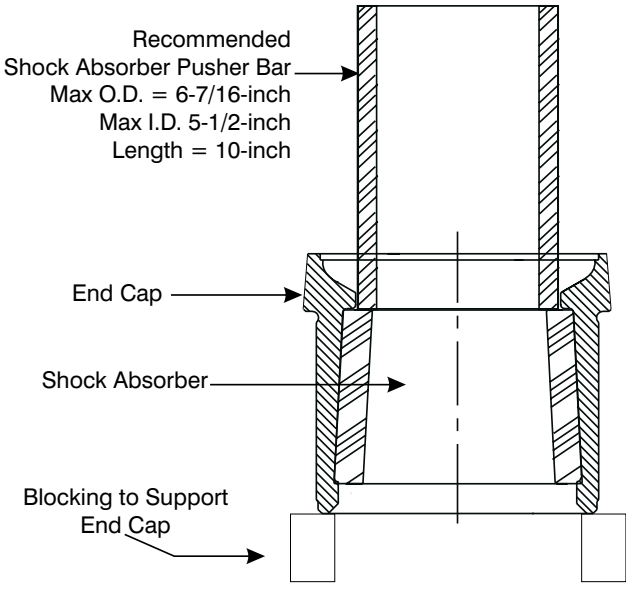


Figure 8-28. End Cap, Shock Absorber and Push Bar in Press.

8. Lubricate the push bar lightly. It must pass through the End Cap (10) but must not slide inside the Shock Absorber.
9. Place the push bar inside the End Cap (10), and centered over the Shock Absorber (11) as shown in Figure 8-28.
10. Press the Shock Absorber (11) from the End Cap (10) as shown in Figure 8-29.

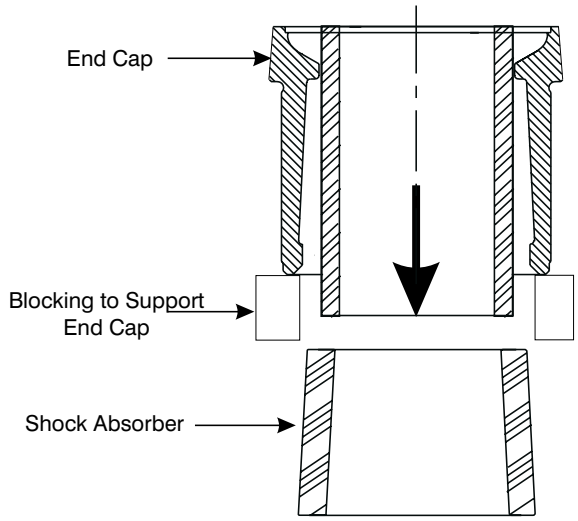


Figure 8-29. Press Shock Absorber from The End Cap.

If the recommended size push bar is used, the Valve Body Nut will fall free as it passes out of the Shock Absorber.

11. Remove the push bar.
12. If the recommended size push bar is not available, cut the Shock Absorber from the End Cap as shown in Figure 8-30.
    - Use a sharp knife or hack saw to cut through the Shock Absorber (11), and remove it from the End Cap.
    - See Figure 8-31 for the recommended cutting pattern.

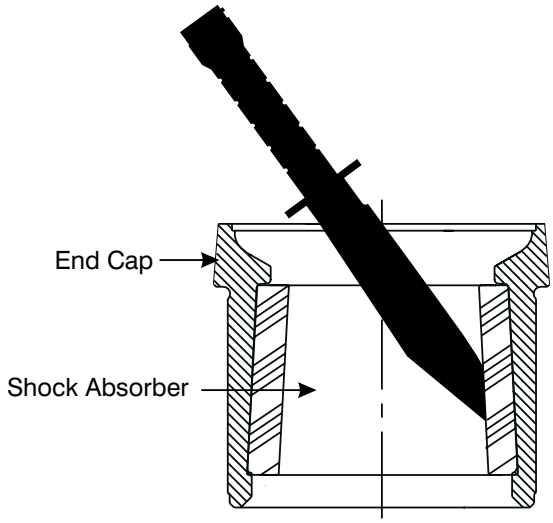


Figure 8-30. Cut the Shock Absorber from the End Cap.

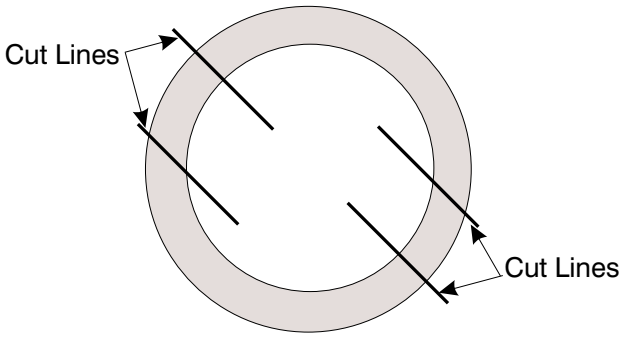


Figure 8-31. Cutting Pattern to Remove Shock Absorber from End Cap

SECTION 9.0 ASSEMBLY

WARNING

Applying heat with a torch or by any other method to any part or parts of the Hole-Hog relieves Allied of all warranty responsibilities. Applying heat can destroy the main body, striker and other parts beyond use. Heating Hole-Hog components can cause altered component strength and result in premature failure or personal injury.

WARNING

Using a pipe wrench on the Hole-Hog Body/Anvil relieves Allied of all warranty responsibilities.

CAUTION

Lubricate all rubber parts & tools with lithium grease before pressing.

9.1 General

The procedures in this section must be performed in a machine shop suitable for the disassembly, cleaning, inspection and repair of pneumatic construction equipment. In addition to the tools and fixtures normally stocked in such a shop, lifting equipment capable of lifting the assembled Hole-Hog and its larger components must be available. Also, the Allied Spanner Wrench 835758 must be available. This wrench is supplied with the Hole-Hog. It is shown in Figure 8-1.

In the following procedures, reference numbers in parentheses accompany most part names. These numbers refer to the part item numbers on the exploded views and parts lists in Section 13.0.

9.2 Installation of The Whip Hose and The Hose Coupling with Clamp.

The Whip Hose (14) and Hose Coupling with Clamp (17) can be replaced in the shop or in the field without disassembly of internal Hole-Hog components.

- To install either of these components in the field, refer to sections 11.2,3,& 4.
- To install either of these components as part of shop assembly, follow the procedures 9.6 through 9.8.

9.3 Replacing The Body/Anvil Only

When replacing the Body/Anvil (1) only, the Striker (2), the Whip Hose (14) and tail assembly components have all been removed from the Body/Anvil and stored with no further disassembly.

1. When the new Body/Anvil is available, bring the Striker (2), the Whip Hose (14) and tail assembly components to the work area for reassembly.
2. Install all of the assemblies in the Body/Anvil following the assembly procedures in this section, starting with section 9.xx.

9.4 Assemble End Cap Components

1. Obtain a push bar to press the Shock Absorber (11) into the End Cap (10). A push bar approximately xx-inches long and 7-3/4-inches in diameter is recommended as shown in Figure 9-1.
2. Lubricate the push bar lightly. It must press into the End Cap (10) but must not slide inside the Shock Absorber.
3. Lubricate the O.D. of the Shock Absorber (11) and the I.D. of End Cap (10) as shown in Figure 9-1.

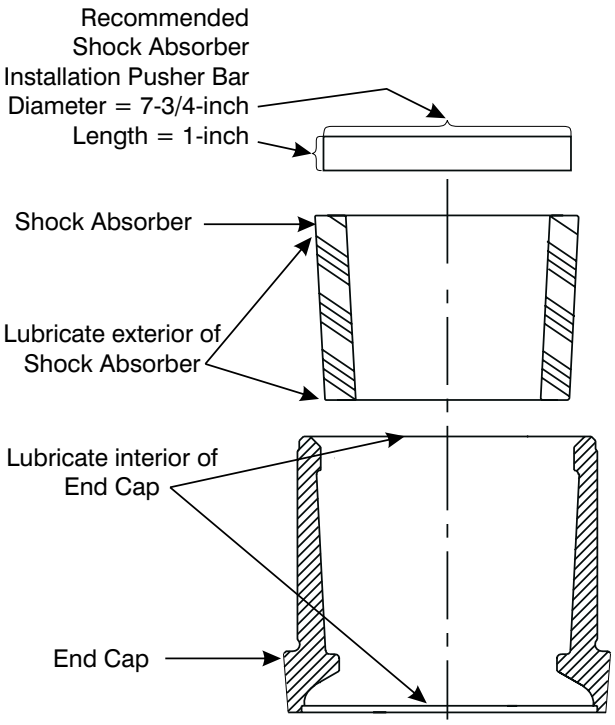


Figure 9-1. End Cap and Shock Absorber in Press

4. Position the End Cap (10) in an arbor press with the threaded end up as shown in Figure 9-1.
5. Center the Shock Absorber (11) over the threaded end of the End Cap (10). Fit the the Shock Absorber into the End Cap only as far as it will slide freely. Refer to Figure 9-2-A.

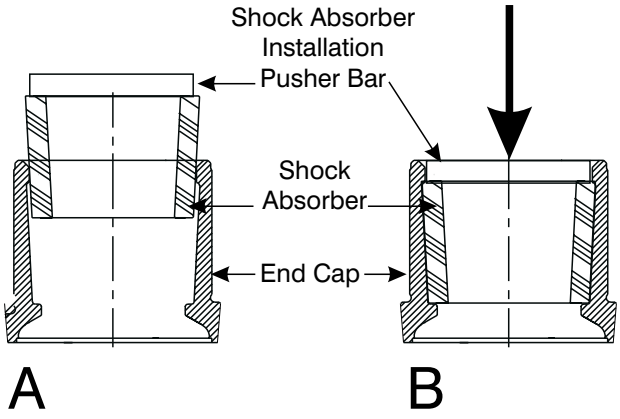


Figure 9-2. Press the Shock Absorber into the End Cap

6. Center the press plunger or push bar over the Shock Absorber as shown in Figure 9-2-A.

CAUTION

DO NOT press Shock Absorber past the seat at the non-threaded end of the End Cap.

7. Press the Shock Absorber (11) into the End Cap (10) until it seats between the shoulders at opposite ends of the end of the cap as shown in Figure 9-2-B.
   - If press plunger or standard push bar is used, stop pressing when the Shock Absorber snaps under the shoulder at the threaded (upper) end of the End Cap.

- If a push bar of recommended size is used, stop pressing when the push bar is level with the threaded (upper) end of the End Cap.

8. Remove the End Cap from the press and remove the push bar from the End Cap.

9. Inspect the seating of the Shock Absorber at both ends of the End Cap. The Shock absorber should fit just under the shoulder with no space between the shoulder and the corner of the Shock Absorber. Refer to Figure 9-2-B.

10. Before installing the Valve Body Nut (12), refer to Figure 9-3 and lubricate:
    - the outer surface of the Valve Body Nut (12).
    - the inner surface of the Shock Absorber (11).

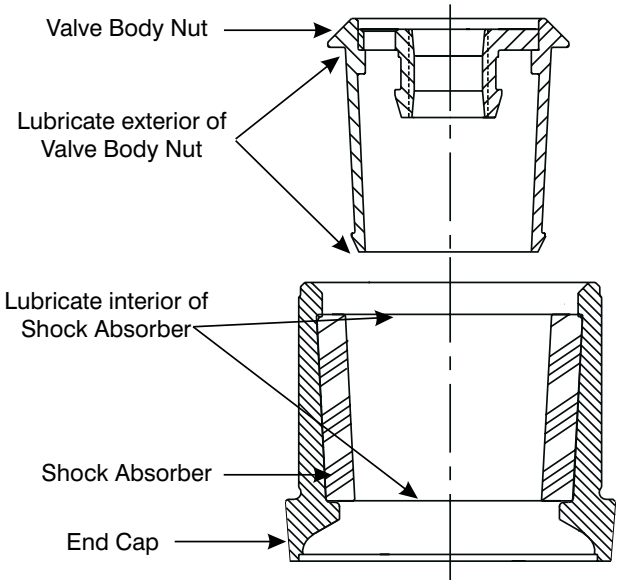


Figure 9-3. Valve Body Nut and Shock Absorber in Press

11. Position the End Cap (10) in an arbor press with the threaded end up as shown in Figure 9-3.

12. Center the Valve Body Nut (12) over the shock absorber as shown in Figure 9-3.

13. Center the Valve Body Nut (12) above the threaded end of the End Cap (10). Fit the Valve Body Nut (12) into the Shock Absorber (11) as far as it will slide freely. Refer to Figure 9-4-A.

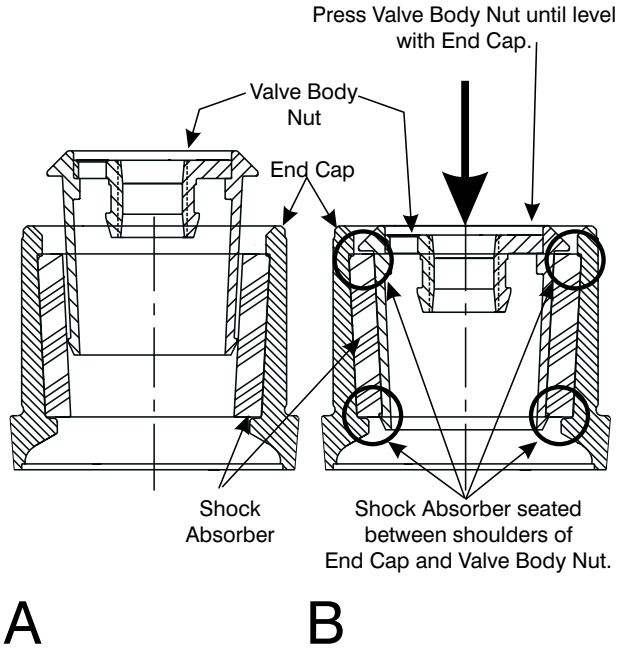


Figure 9-4. Press the Valve Body Nut into the Shock Absorber

14. Center the press plunger over the Valve Body Nut (12).

15. Press the Valve Body Nut (12) into the Shock Absorber (11) until the shoulder of the Valve Body Nut seats against the Shock Absorber as shown in Figure 9-4-B.

16. Remove the End Cap from the press.

17. At both ends of the End Cap (10), inspect how the Shock Absorber (11) seats between the shoulders of the End Cap and the shoulders of the Valve Body Nut (12).

a. Check that the Shock Absorber has not been unseated from the End Cap during installation of the Valve Body Nut.

b. Refer to the circled areas of Figure 9-4-B.

c. At both ends of the End Cap, the Shock Absorber should fit just under the shoulders of the End Cap and the Valve Body Nut. There should be no space between the shoulder and the corner of the Shock Absorber.

18. Turn the End Cap (10) so the threaded end is down as shown in Figure 9-5.

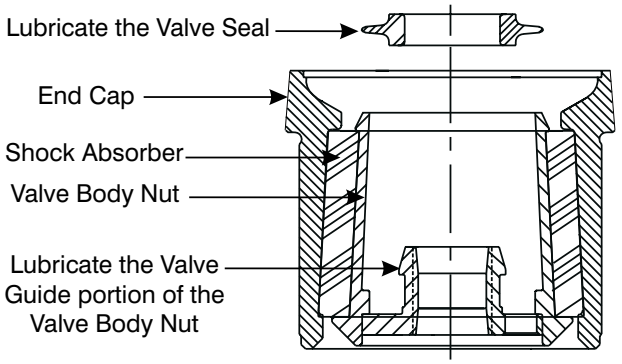


Figure 9-5. Lubricate the Valve Seal and the Valve Body Nut.

19. Look inside the non-threaded end of the End Cap for a central hub. This hub is the valve guide portion of the Valve Body Nut (12). Lubricate the surface of this hub as shown in Figure 9-5.

20. Lubricate the Valve Seal (13) and fit it over the end of the valve guide hub in the Valve Body Nut See. Figure 9-6-A.

21. With a large, flat screw driver, press the Valve Seal onto the valve guide hub in the Valve Body Nut. Moving progressively around the seal, press each quarter of the seal deeper onto the hub until the seal seats in the seal groove of the hub as shown in Figure 9-6-B.

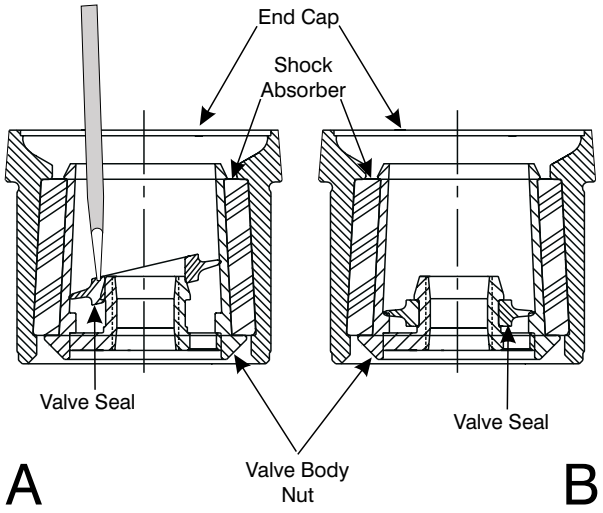


Figure 9-6. Press Bushing into Valve

9.5 Assemble Valve Stem Components

CAUTION

When securing the Valve Stem in position with a vise or clamp, pad the jaws to prevent damage to the finish surface.

1. Secure the Valve Stem (8) vertically in a vise. The vise jaws should grip the Valve Stem squarely across the Valve Stem flats as shown in Figure 9-7.

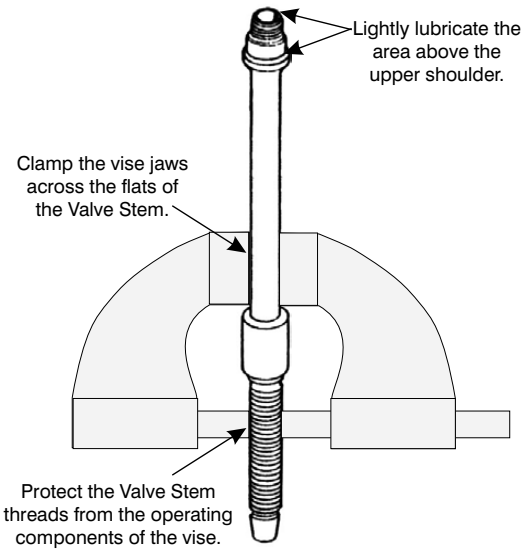


Figure 9-7. Valve Stem in Vise

2. Be sure the part of the Valve Stem extending below the jaws clears the operating components of the vise. If necessary, protect the threads by wrapping them with a thick cloth or canvas.
3. Lightly lubricate the threads and plain hub above the upper shoulder of the Valve Stem as shown in Figure 9-7.
4. Obtain two Spacers (5) and one O-Ring (6). Lightly lubricate each of these components.
5. Slide the two Spacers (5) over the threads and onto the hub of the Valve Stem. Seat the Spacers squarely against the flat upper shoulder of the stem. Refer to Figure 9-8.

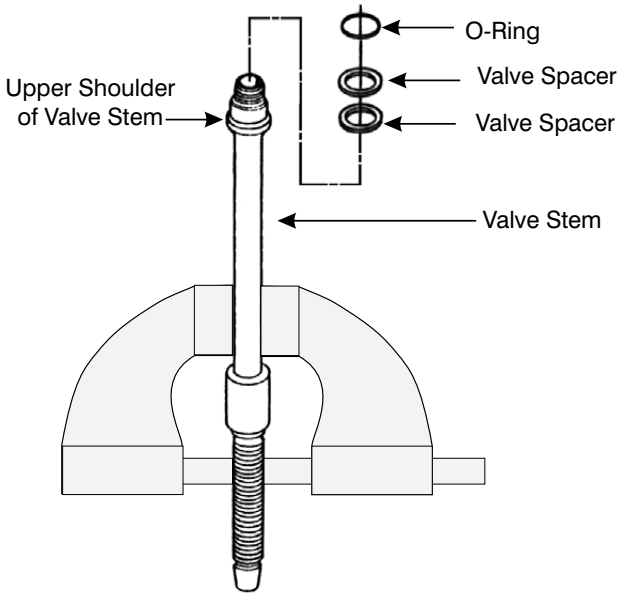


Figure 9-8. Install Lower Spacers and O-Ring

6. Slide the O-ring (6) over the threads and onto the hub of the Valve Stem. Seat the O-ring squarely against the upper Spacer. Refer to Figure 9-8.
7. Obtain the Valve (7). Look into each end of the Valve for the internal shoulder. Refer to Figure 9-9.

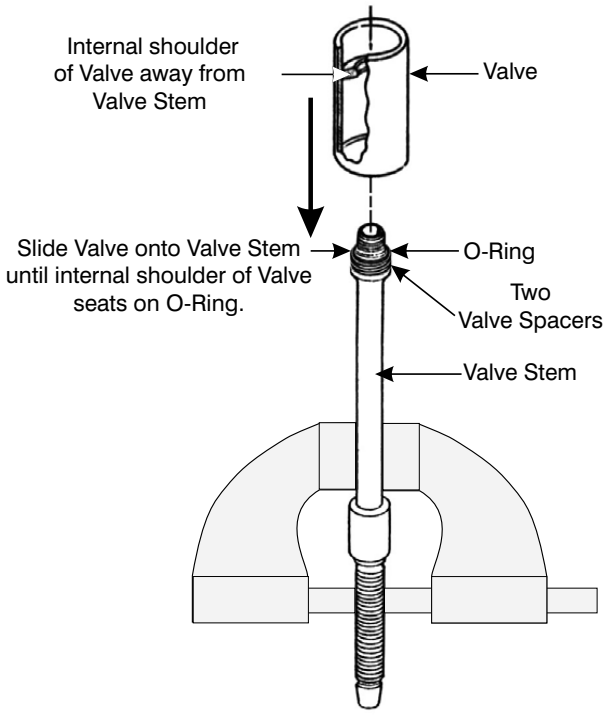


Figure 9-9. Install Valve on Valve Stem.

8. Position the Valve over the end of the Valve Stem. The end of the Valve with the internal shoulder should be away from the Valve Stem, as shown in Figure 9-9.
9. Slide the other end of the Valve, the end without an internal shoulder over the threads and onto the hub of the Valve Stem.
10. Seat the internal shoulder of the Valve squarely against the lower O-ring. Refer to Figure 9-9.
11. Obtain the remaining two Spacers (5) and one O-Ring (6). Lightly lubricate each of these components.
12. Slide the O-ring (6) over the threads and onto the un-threaded hub of the Valve Stem.

13. Seat the O-ring squarely against the upper surface of the internal Valve shoulder. Refer to Figure 9-10.

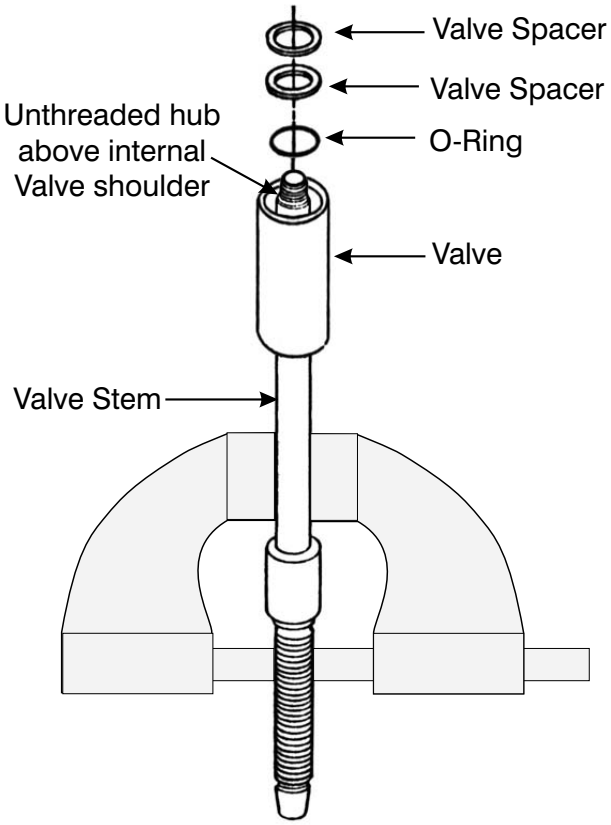


Figure 9-10. Install Upper Spacers and O-Ring

14. Slide the two Spacers (5) over the threads and onto the unthreaded hub of the Valve Stem. Seat the Spacers squarely against the upper O-ring. Refer to Figure 9-10.

15. Figure 9-11-B shows the Spacers and O-rings seated correctly.

16. It may be necessary to force the valve down onto the lower O-ring and Spacers to obtain enough clearance to install both upper spacers on the unthreaded portion of the hub.

17. DO NOT attempt to install the Valve Nut (3) and Nut Bushing (4) until the O-rings and Spacers are seated properly.

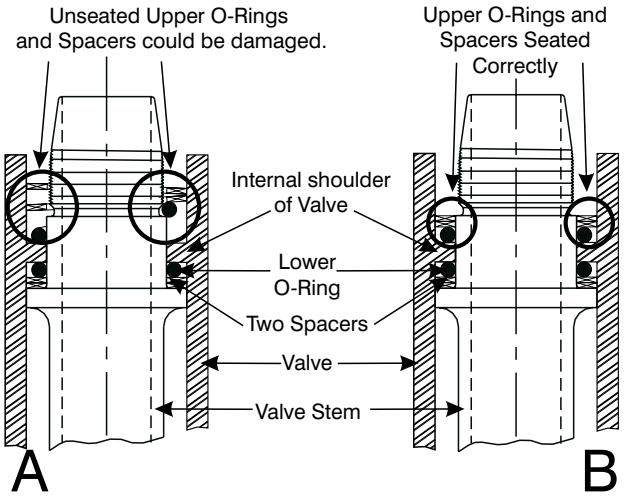


Figure 9-11. Proper Seating of Spacers and O-rings

- If they are seated improperly as the examples in Figure 9-11-A show, the Hole-Hog will malfunction and these components may be damaged.

- These components must be seated so the top Spacer aligns with the top of the unthreaded portion of the hub. Refer to Figure 9-11-B.

18. Slide the Nut Bushing (4) over the threads of the Valve Stem and seat the bushing against the top Spacer (5). Refer to Figure 9-12.

19. Holding the Nut Bushing (4) in place, thread the Valve Nut (3) onto the Valve Stem. Tighten it hand tight.

20. Use a 2-3/4-inch open end wrench to tighten the Valve Nut (3) on the Valve Stem (8). Refer to Figure 9-13.

21. Adjust Valve movement:

    a. Tighten the nut just enough to remove play from the Valve assembly.

    b. Then back the nut off by ¼ to ½ a turn to allow Valve movement.

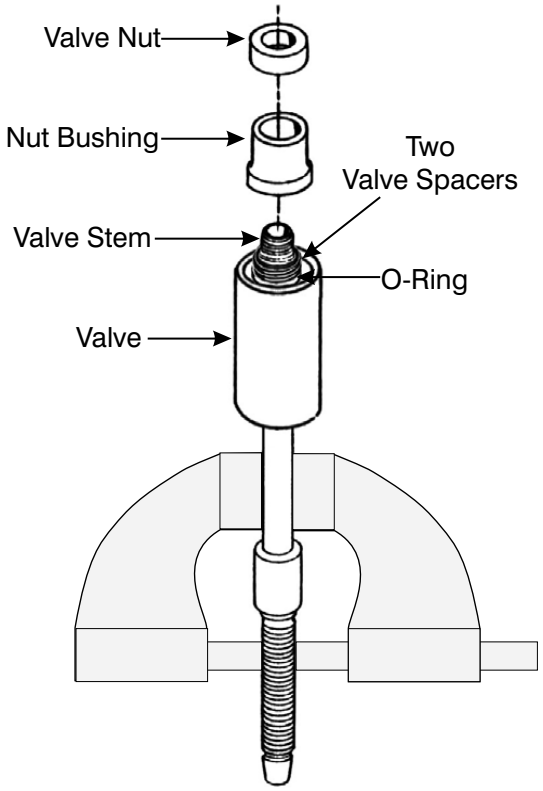


Figure 9-12. Install Valve Nut and Nut Bushing

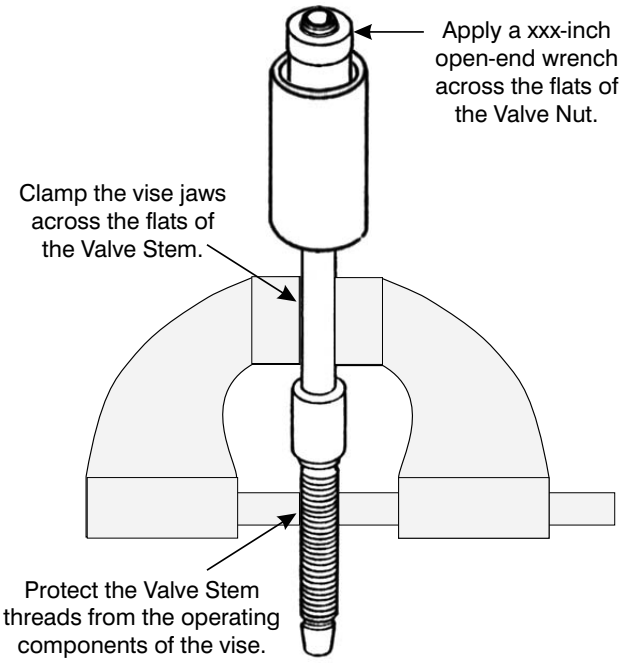


Figure 9-13. Secure Valve to Vale Stem

9.6 Assemble Valve Stem and End Cap

1. Prepare the following assemblies before starting this procedure:

   a. Assemble the End Cap () as described in paragraph 9.4.

   b. Assemble the Valve and Stem components as described in paragraph 9.5.

   c. Whether new or used, inspect the Hose Adapter (15):

- Refer to Figure 9-14, and inspect the Hose Adapter Timing Pin for damage and correct height. The Timing Pin should extend 1/4-inch from the Hose Socket (15).

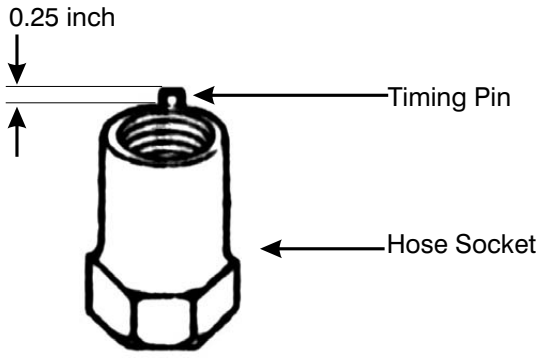


Figure 9-14. Inspect Adapter Timing Pin

- Refer to Figure 9-15, and verify that the tip of the Hex Head Cap Screw does not project inside the Hose Adapter.

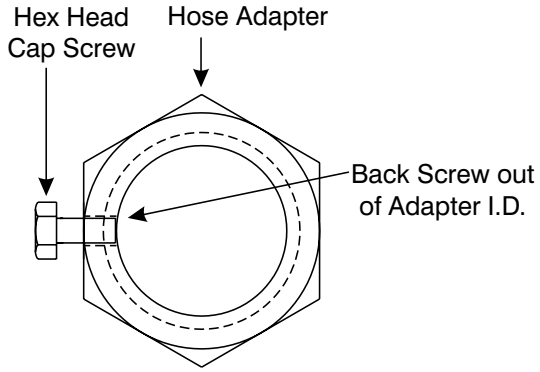


Figure 9-15. Inspect Hex Head Cap Screw

2. Before securing the End Cap (10) for assembly, protect the threads of the End Cap (10) by padding the vise jaws or wrapping the threads with a heavy cloth or canvas.

   a. If a vise is used, install the jaw pads. If jaw pads are not available, tape or bind strips of wood to the vise jaws as shown in Figure 9-16.

   b. If a saddle clamp is used, protect the End Cap threads by wrapping them in thick cloth or canvas.

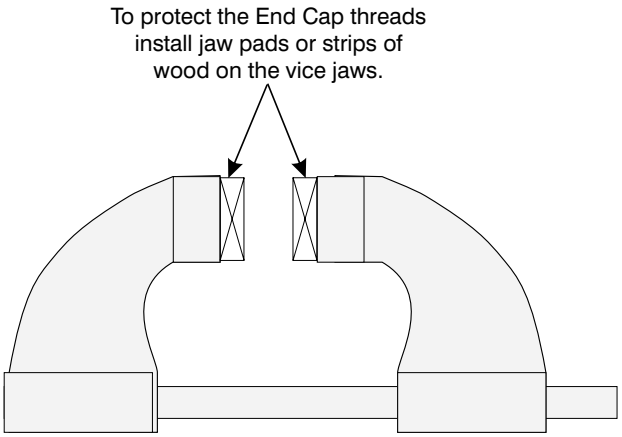


Figure 9-16. Pad the vise jaws to protect the End Cap threads.

3. Place the End Cap (10) in a vise or saddle clamp as shown in Figure 9-17. Secure the End Cap (10) tight enough to hold it in place during disassembly.

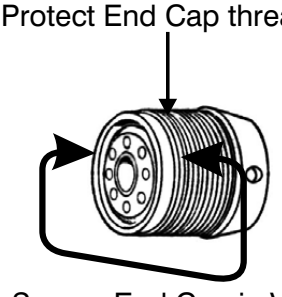


Figure 9-17. Secure End Cap for assembly of Tail Assembly

4. Refer to Figure 9-18, and slide the tapered and threaded end of the Valve Stem (8) into the Valve Body Nut (12) in the End Cap. Thread the Stem into and through the End Cap (10).

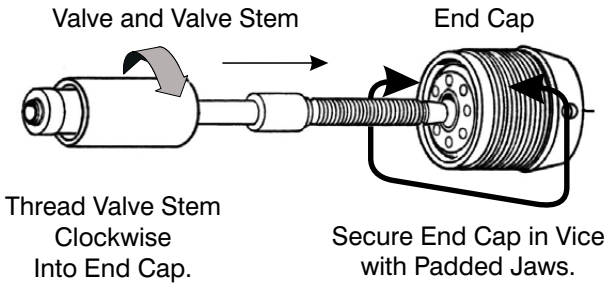


Figure 9-18. Thread Valve Stem into End Cap.

5. Continue threading the Valve Stem (8) into the Valve Body Nut (12) until the threaded part of the Valve Stem protrudes from the other side of the End Cap (10), as shown in Figure 9-19.

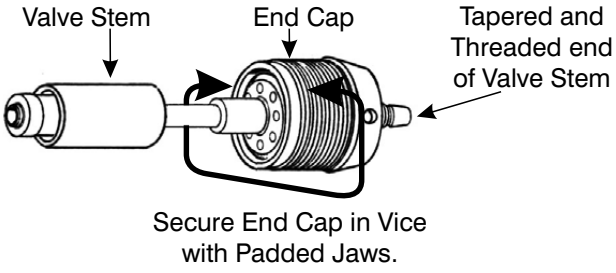


Figure 9-19. Threaded End of Valve Stem

6. Thread the Hose Adapter (15) onto the Valve Stem (8). Hand tighten the Hose Adapter to the Valve Stem. Refer to Figure 9-20.

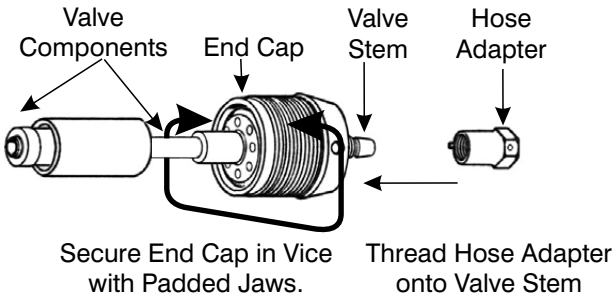


Figure 9-20. Attach Adapter to Valve Stem

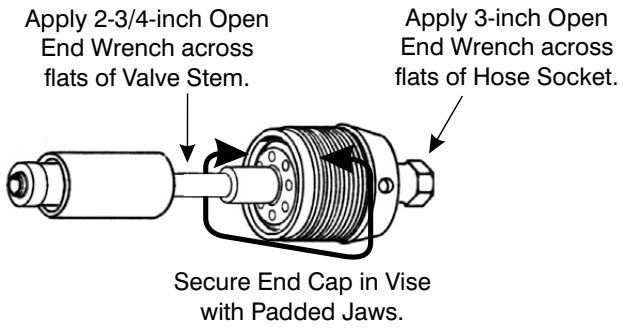


Figure 9-21. Tighten the Hose Adapter onto the Valve Stem.

7. Secure the Hose Adapter (15) onto the Valve Stem (8). Refer to Figure 9-21.
   a. Hold the Valve Stem (8) across its flats with a 2-3/8-inch open-end wrench.
   b. Use a 3-inch open-end wrench to tighten the Hose Adapter (15) on the Valve Stem (8). Refer to Figure 9-21.
   c. Tighten the Hose Adapter (15) onto Valve Stem until the undercut on the Valve Stem reaches the Hose Adapter as shown in Figure 9-22.

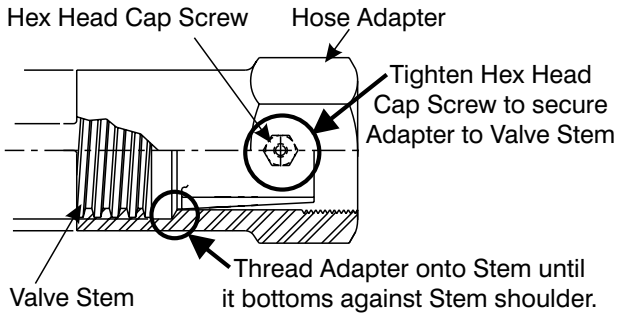


Figure 9-22. Hose Adapter in place on the Valve Stem.

8. Use a ½-inch open end wrench to tighten the Hex Head Cap Screw (16). Tightened, the Cap Screw enough to prevent the Hose Adapter (15) from backing off of the Valve Stem (8) during operation. Refer to Figure 9-23.

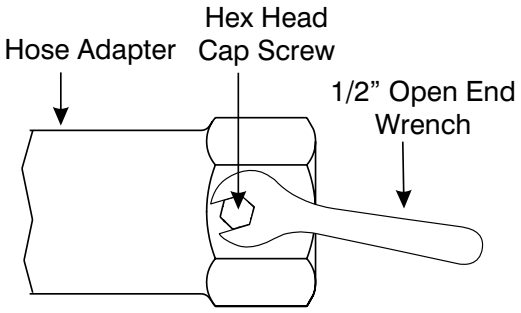


Figure 9-23. Tighten the Hex Head Cap Screw.

9.7 Attach Whip Hose to Hose Adapter

WARNING
Failure to use 100R2 hose could result in injury to personnel. Always use Allied's Whip Hose (see parts list in Section 13.0) or equivalent - 100R2 hose.

1. Obtain and inspect the new or used Whip Hose (14) to be installed. Inspect the Whip Hose for damage and for dirt that would damage the internal components of the Hole Hog.
   a. If the hose is damaged or worn, discard it and obtain a new Allied Whip Hose (14).
   b. If the hose fitting is crimped or distorted, or if the threads are damaged, so the fitting cannot be secured air tight, discard the assembly and obtain a new Allied Whip Hose (14).
   c. Use compressed air to blow any dirt or packing debris from inside the hose and from the threads.

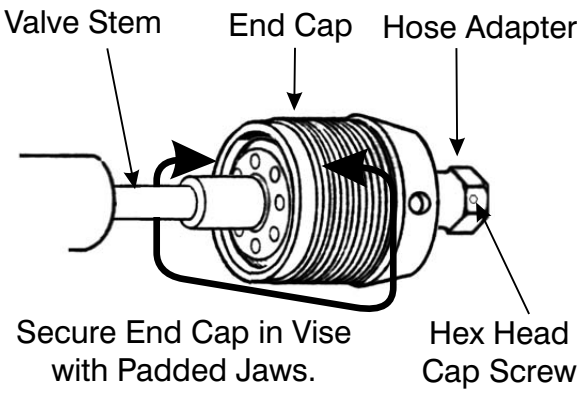


Figure 9-24. Hose Socket on Valve Stem.

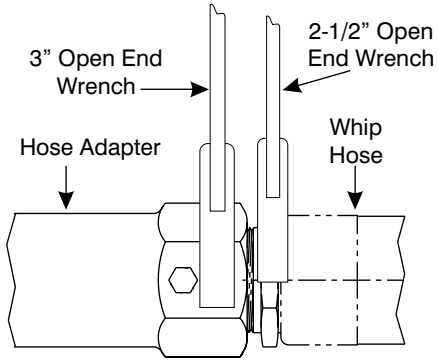


Figure 9-26. Tighten Whip Hose securely in the Hose Adapter.

2. Secure the End Cap (10) to prevent rolling during assembly. See Figure 9-24.
3. Inspect the threads of the Hose Adapter for dirt that would prevent threading or complete sealing.
   - DO NOT use compressed air to remove dirt from the Adapter threads. This may force dirt into the internal components of the Hole Hog.
   - Wipe dirt from the threads with a clean cloth dampened with hydraulic fluid.
4. Align the threads of the hose fitting with those of the Adapter and thread the Whip Hose (14) into the Hose Adapter (15). Refer To Figure 9-25.
5. Hand tighten the threaded fitting into the Hose Adapter.

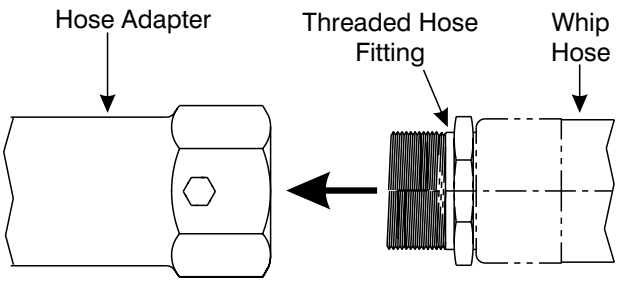


Figure 9-25. Thread the Whip Hose fitting into the Hose Adapter

6. Tighten the Whip Hose (14) securely into the Hose Adapter (15) as shown in Figure 9-26.
   a. Hold the Hose Adapter (15) across its flats with a 3-inch open end wrench.
   b. Use a 2-1/2-inch open-end to tighten the Whip Hose (14) securely into the Hose Adapter (15).

9.8 Attach Hose Coupling to Whip Hose

1. Obtain and inspect the new or used Hose Coupling with Clamp (17). Inspect it for damage and for dirt that would damage the internal components of the Hole Hog.
   a. Refer to Figure 9-27, and verify that all four sets of screws and nuts are assembled on the Coupling's hose clamp. Inspect the threads for wear or damage. Replace missing or damaged nuts and screws, or obtain a new Hose Coupling with Clamp (17).

Figure 9-27.Coupling Clamp Hardware

b. If the Hose Coupling was previously used, inspect the plug inside the clamp portion of the Hose Coupling. Remove pieces of the old hose not removed during disassembly.

c. Use a needle-nose pliers or wooden stick to remove hose pieces that are stuck to the coupling plug. Refer to Figure 9-28.

DO NOT scratch the coupling plug.

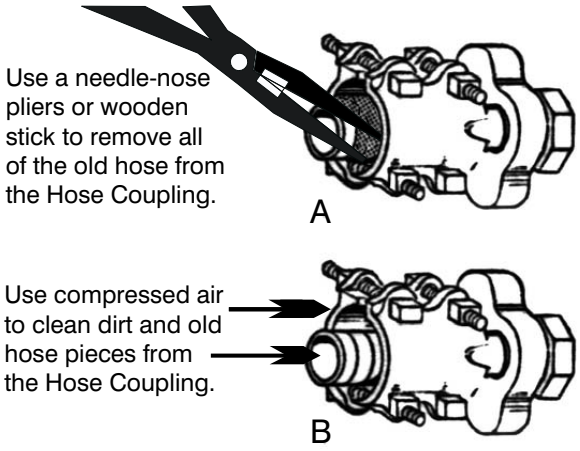


Figure 9-28. Clean coupling plug and clamp.

2. Use compressed air to blow any dirt, old hose pieces, or packing debris from around the hub and from inside the Hose Coupling.

3. Do not disassemble the Hose Coupling Clamp. Only loosen the square head screws and nuts of the Hose Coupling Clamp. Refer to Figure 9-29.

Do not remove the screws and nuts from the clamp.

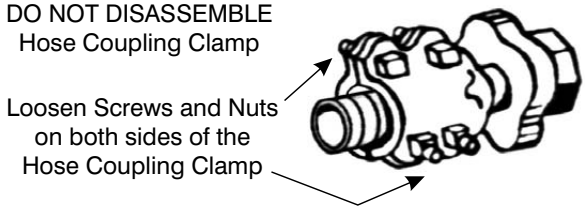


Figure 9-29. Open Hose Clamp

a. Use a 3/4-inch open-end wrench to hold the hex head nuts.

b. Use a 5/8-inch open-end wrench to back the square head screws almost out of the nuts.

4. Separate the two halves of the clamp. It may be necessary to pry the two halves apart. Use a knife blade or a flat blade screwdriver to separate the two clamp halves as shown in Figure 8-30-A.

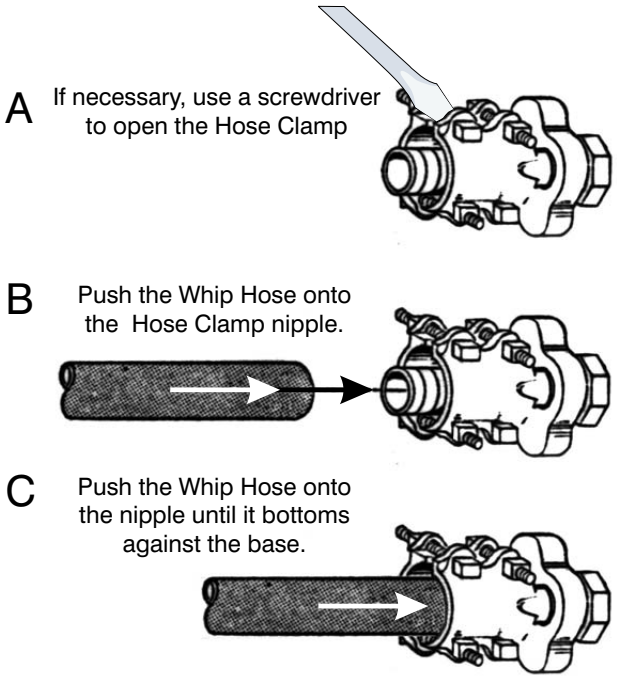


Figure 9-30. Secure Whip Hose in Hose Coupling Clamp.

5. Once the clamp is loose, fit one end of the Whip Hose over the nipple of the Hose Coupling as shown in Figure 9-30-B.

6. Press the hose to the base of the nipple. The clamp may not hold the hose tight enough if the hose does not completely cover the nipple. During operation, the hose may slide from the coupling.

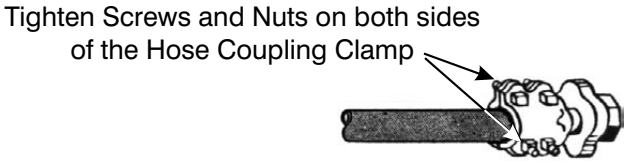


Figure 9-31. Secure Whip Hose to Coupling.

7. Tighten the square head screws and nuts of the Hose Coupling Clamp. Refer to Figure 9-31.
   a. Use a 3/4-inch open-end wrench to hold the hex head nuts.
   b. Use a 5/8-inch open-end wrench to back the square head screws almost out of the nuts.

9.9 Assemble Body/Anvil, Striker and Tail Assembly

WARNING

The Body/Anvil and Striker are heavy. Bodily injury could result from improper handling of heavy components.

NOTE

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

1. Refer to Figure 9-32, and gather the following components for final assembly:
   - The Body/Anvil (1).
   - The Striker (2)
   - The Tail Assembly

2. Remove packing from new components and protective wrappings from stored components.

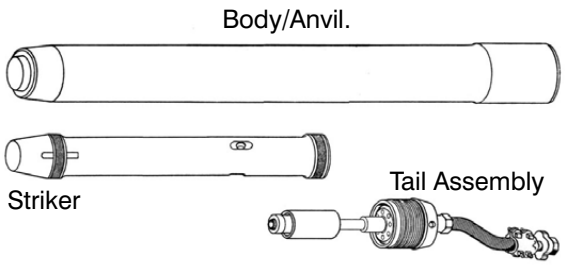


Figure 9-32. Components for Final Assembly

3. Place the Body/Anvil (1) on the work surface. Block it so the open end is easily accessible and the Body/Anvil will not accidentally roll off the work surface. Refer to Figure 9-33.

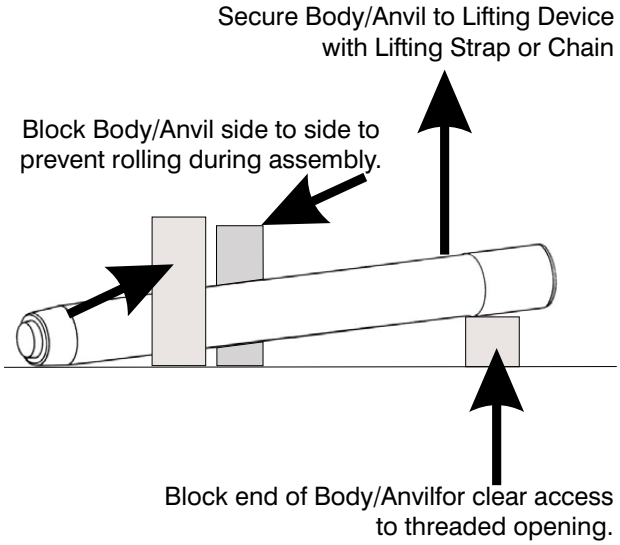


Figure 9-33. Block Body/Anvil for Assembly

4. Coat the Striker (2) with hydraulic fluid before installing it into the Body/Anvil (1).

5. Refer to Figure 9-34 and slide the Striker (2) into the Body/Anvil (1). The back end of the Striker should be about 6 in. to 8 in. in (past the threads of the Body/Anvil).

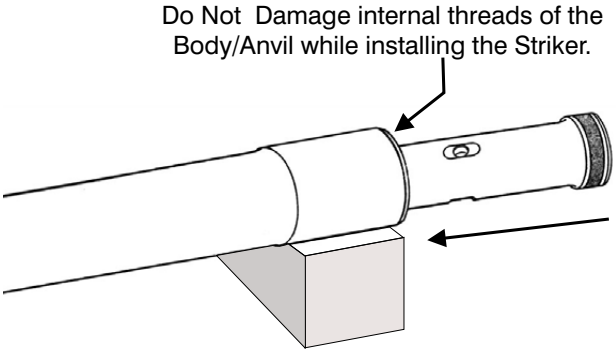


Figure 9-34. Insert Striker into the Body/Anvil.

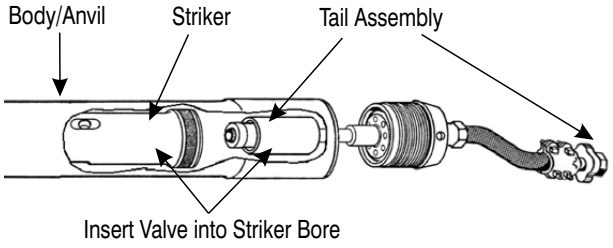


Figure 9-36. Insert Valve into Striker.

6. Apply anti-seize thread lubricant sparingly to the threads of the End Cap (10) and the Body/Anvil (1). See Figure 9-35.

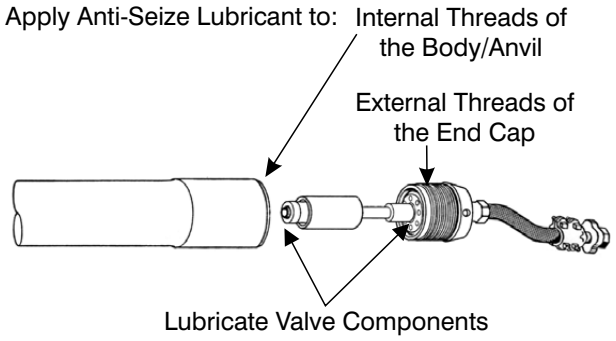


Figure 9-35. Prepare Body/Anvil and Tail Assembly.

7. With the exception of the End Cap (10) and the Whip Hose (14), coat the Tail Assembly components with hydraulic fluid.
8. Insert the Valve (7) into the Striker (2) and thread the End Cap (10) into the Body/Anvil (1), as shown in Figure 9-36.
9. Hand tighten the End Cap (10) to the Body/Anvil (1).
10. Place the Hole-Hog on a level surface. Holding the Body/Anvil (1) with a strap wrench, use wrench P/N 835758 to tighten the End Cap (10), as shown in Figure 9-37.

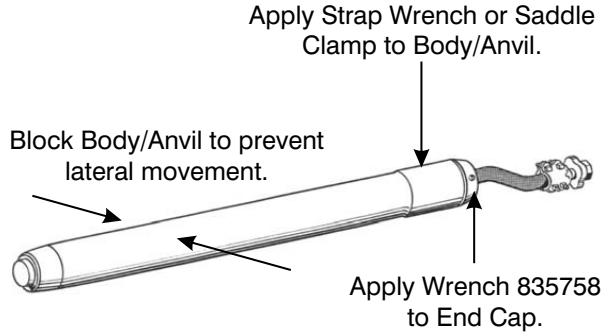


Figure 9-37.Secure End Cap to Body/Anvil

11. Tighten the End Cap to a torque of 550- ft.-lbs (745nm). If a torque wrench is not available, use the following procedure. See Figure 9-38.
    a. After tightening the End Cap hand tight, put a scribe mark on the End Cap next to the Body/Anvil.

b. Measure from the scribe line 1-inch ±1/8-inch and put another scribe mark on the Body/Anvil.

c. Using P/N 835758 wrench, or equivalent, tighten the end cap until the mark on the end cap is in alignment with the mark on the body within the tolerance indicated.

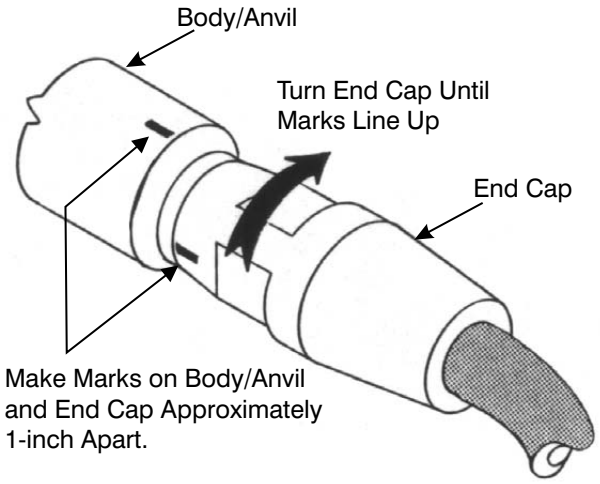


Figure 9-38.Tighten End Cap.

SECTION 10.0 MAINTENANCE

10.1 Daily Maintenance

- Clean and lubricate end cap threads with an anti-seize lubricant. Tighten end cap according to procedure in Section 9.9, Step 8.
- Clean and oil Hole-Hog.
- Lubricate Hole-Hog according to Section 7.0.

10.2 Preventive Maintenance

After every 100 hours of operation, the Hole-Hog should be disassembled, cleaned and inspected.

- Check all components for abrasion and excessive wear.
- Check the exhaust ports in the shock absorber for obstructions.

The frequency of maintenance depends upon the operating environments and conditions of operation. Refer to 10.3 for additional maintenance considerations.

When disassembling the Hole-Hog, refer to 8.2 Extent of Disassembly for guidelines in planning disassembly maintenance.

10.3. Conditional Maintenance

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

- The Hole-Hog is to be stored for more than one week.
- 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.

This page intentionally
left blank.

SECTION 11.0 FIELD MAINTENANCE

11.1 Field Replacements

WARNING

Always use Allied's Whip Hose Assembly (see parts list in Section 13.0) or equivalent - 100R2 hose. Failure to use 100R2 hose could result in injury to personnel.

CAUTION

Hole-Hog performance and operating life will be seriously reduced if the internal components are contaminated with dust or dirt.

11.1.1 Hose Coupling with Clamp

The Hose Coupling with Clamp (17) can be replaced in the field without disassembling the Hole-Hog itself. To remove and replace a Hose Coupling, refer to paragraphs 11.2 and 11.3. See Figure 11-1.

11.1.2 Whip Hose

The Whip Hose Assembly (14) can be replaced in the field without disassembling the Hole-Hog itself. If only the hose is replaced, it must be separated from the Hose Coupling with Clamp (17). To remove and replace a Whip Hose Assembly (14), refer to paragraphs 11.2 and 11.4. See Figure 11-1.

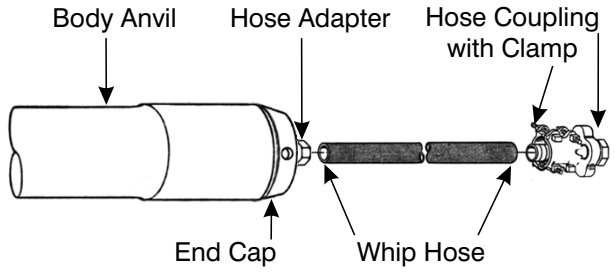


Figure 11-1. Whip Hose Disassembly

11.2 Repair Preparations

1. Obtain the required tools:
   a. Open end wrench, ¾".
   b. Open end wrench, ½".
   c. Open end wrench, 5/8".
   d. Open end wrench, 2-1/2".
   e. Open end wrench, 3".
   f. Flat blade screwdriver or a knife.
2. To prevent injury to personnel and damage to equipment, mount a vise or saddle clamp on the work surface. Otherwise, obtain blocking to hold the Hole-Hog in place during disassembly and reassembly.
3. For a clean work platform, obtain a clean, plastic or canvas tarp. Spread this clean tarp over the work bench or work area to prevent contamination of the Hole-Hog components.
4. To clean parts that are accidentally contaminated, obtain:
   a. Mineral spirits and clean hydraulic fluid.
   b. Clean cloth rags to wipe away dirt, mineral spirits and excess hydraulic fluid.

11.3 Removal and Replacement of The Hose Coupling with Clamp

- If both the Whip Hose (14) and the Hose Coupling (16) are to be replaced, do not disassemble these two components. Proceed to paragraph 11.4 and remove the Whip Hose from the Hose Adapter.

- If either the Whip Hose (14) or the Hose Coupling (16) is to be replaced, separate these two components by the following procedure.

11.3.1 Remove Hose Coupling

> **WARNING**
> Bodily injury could result from improper handling of heavy components. The assembled Hole Hog is very heavy. Proper lifting precautions must be taken when handling the Hole Hog.

1. Place the Hole-Hog on the work area tarp. Block it so the Hole-Hog will not accidentally roll off the work surface. Leave the Whip Hose (14) and Hose Coupling (17) easily accessible, as shown in Figure 11-2.

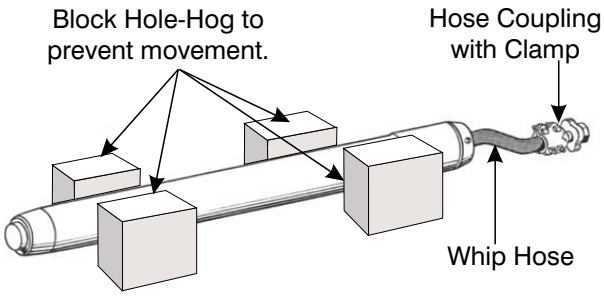


Figure 11-2. Secure Hole-Hog in place.

2. Refer to Figure 11-3. Loosen the square head screws and nuts of the Hose Coupling Clamp.

   Do not remove the screws and nuts from the clamp.

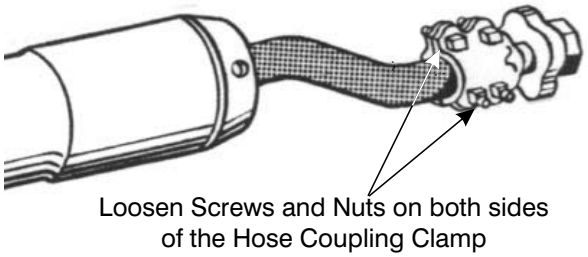


Figure 11-3. Loosening Hose Coupling Clamp

   a. Use a 3/4-inch open-end wrench to hold the square head nuts.

   b. Use a 5/8-inch open-end wrench to back the square head screws almost out of the nuts.

3. Separate the two halves of the clamp as shown in Figure 11-4.

4. It may be necessary to pry the two clamp halves apart. Use a knife blade or a flat blade screwdriver to separate the two clamp halves as shown in Figure 11-4-A.

5. Once the clamp is loose, pull the hose from the hose plug of the Hose Coupling as shown in Figure 11-4-B.

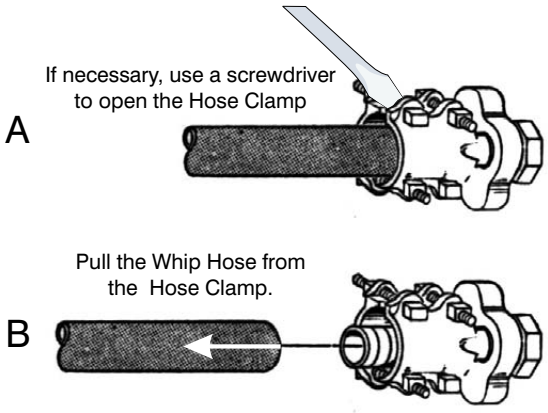


Figure 11-4. Remove Hose from Coupling

- If the Whip Hose is to be replaced, proceed to 11.4.
- If only the Hose Coupling is to be replaced, continue with 11.3.2.

11.3.2 Install The Hose Coupling

Install a new or used Hose Coupling with Clamp (17) onto the Whip Hose (14) by the following procedure.

> **WARNING**
> Bodily injury could result from improper handling of heavy components. The assembled Hole Hog is heavy. Proper lifting precautions must be taken when handling the Hole Hog.

1. Place the Hose Coupling with Clamp (17) and the Hole-Hog on the work area tarp. Block the Hole-Hog so it will not accidentally roll off the work surface. Leave the Whip Hose (14) easily accessible as shown in Figure 11-5.

2. Inspect the new or used Hose Coupling with Clamp (16) for damage and for dirt that would damage the internal components of the Hole Hog.

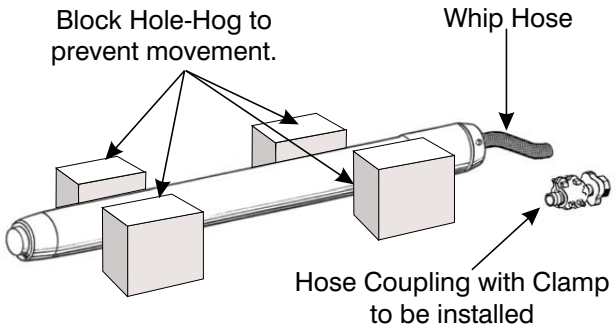


Figure 11-5. Secure Hole-Hog in place.

a. Refer to Figure 11-6, and verify that all four sets of screws and nuts are assembled on the Coupling's hose clamp. Inspect the threads for wear or damage. Replace missing or damaged nuts and screws, or obtain a new Hose Coupling with Clamp (17).

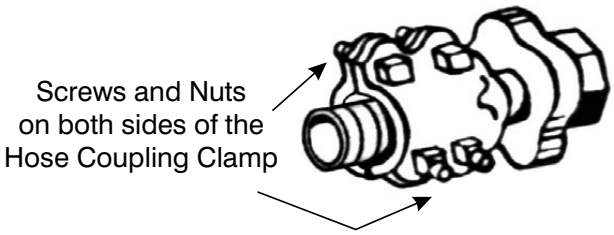


Figure 11-6.Coupling Clamp Hardware

b. If the Hose Coupling was previously used, inspect the plug inside the clamp portion of the Hose Coupling. Remove pieces of the old hose not removed during disassembly.

c. Use a needle-nose pliers or wooden stick to remove hose pieces that are stuck to the coupling plug. Refer to Figure 11-7.

DO NOT damage the coupling plug.

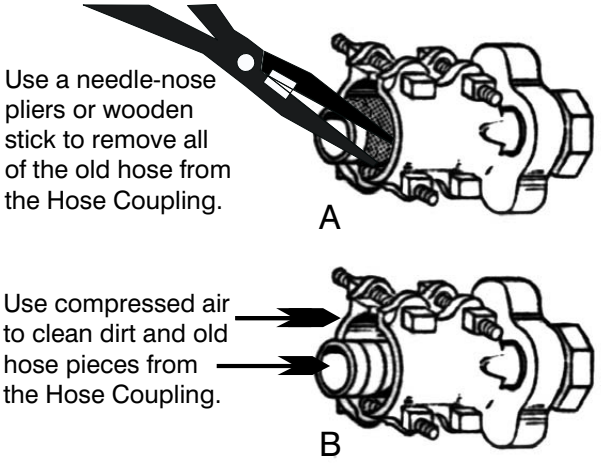


Figure 11-7. Clean coupling plug and clamp.

3. Use compressed air to blow any dirt, old hose pieces, or packing debris from around the hub and from inside the Hose Coupling.
4. Do not disassemble the Hose Coupling Clamp. Only loosen the square head screws and nuts of the Hose Coupling Clamp. Refer to Figure 11-8.

   DO NOT remove the screws and nuts from the clamp.

   a. Use a 3/4-inch open-end wrench to hold the nuts.

   b. Use a 5/8-inch open-end wrench to back the square head screws almost out of the nuts.

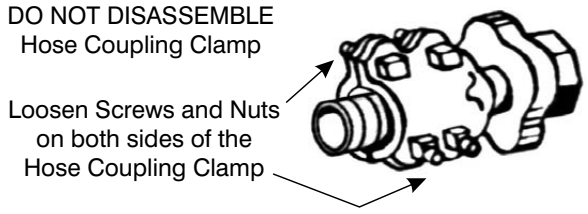


Figure 11-8. Open Hose Clamp

5. Separate the two halves of the clamp. It may be necessary to pry the two halves apart. Use a use a knife blade or a flat blade screwdriver to separate the two clamp halves as shown in Figure 11-9-A.
6. Once the clamp is loose, fit one end of the Whip Hose over the nipple of the Hose Coupling as shown in Figure 11-9-B.
7. Press the hose to the base of the nipple. The clamp my not hold the hose tight enough if the hose does not completely cover the nipple. During operation, the hose may slide from the coupling.

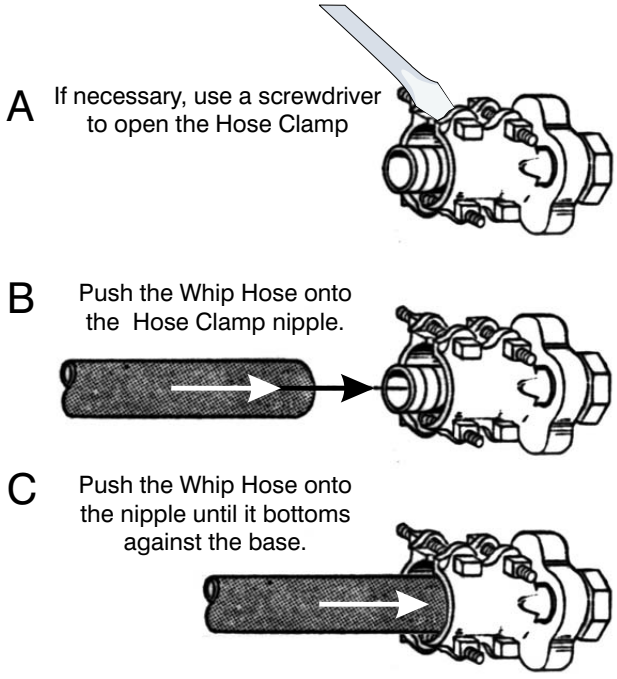


Figure 11-9. Secure Whip Hose in Hose Coupling Clam.

8. Tighten the square head screws and nuts of the Hose Coupling Clamp. Refer to Figure 11-10.

   a. Use a 3/4-inch open-end wrench to hold the hex head nuts.

   b. Use a 5/8-inch open-end wrench to thread the square head screws securely into the nuts.

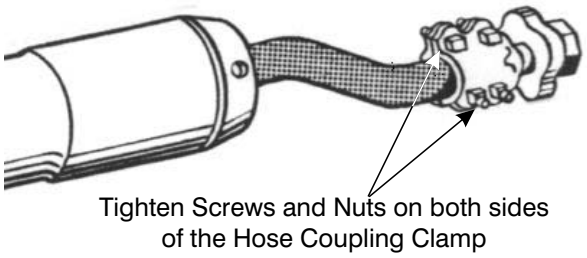


Figure 11-10. Secure the Hose Coupling to the Whip Hose

11.4 Removal and Replacement of the Whip Hose.

NOTE
It is NOT necessary to disassemble any portion of the Hole Hog body when replacing the Whip Hose.

To install a new Whip Hose (14), the Hose Coupling with Clamp (16) and the old Whip Hose (14) must be removed from the Hose Adapter as shown in Figure 11-11.

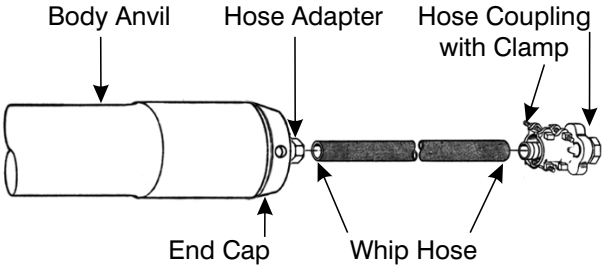


Figure 11-11. Whip Hose disassembly

11.4.1 Remove the Whip Hose from the Hose Adapter

WARNING
Bodily injury could result from improper handling of heavy components. The assembled Hole Hog is very heavy. Proper lifting precautions must be taken when handling the Hole Hog.

1. Place the Hole-Hog on the work area tarp. Block it so the Hole-Hog will not accidentally roll off the work surface. Leave the Whip Hose (14) and Hose Coupling (16) easily accessible, as shown in Figure 11-12.

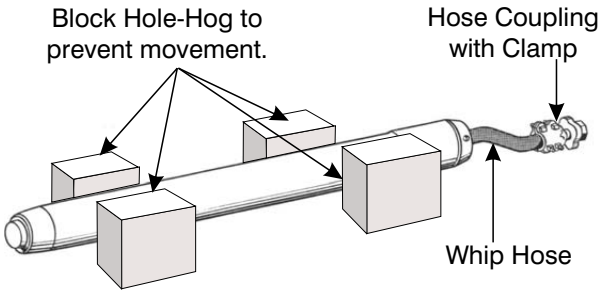


Figure 11-12. Secure Hole-Hog in Place.

2. Remove the Hose Coupling with Clamp (17) from the Whip Hose as described in paragraph 11.3.1.
3. Detach the Whip Hose (14) from the Hose Adapter (15).

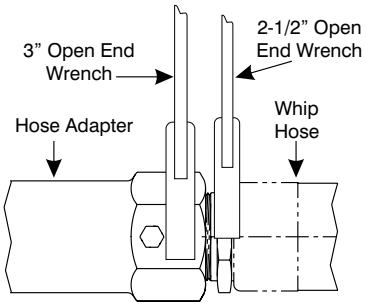


Figure 11-13. Hose Adapter, and Whip Hose

   a. Hold the Hose Adapter (15) across its flats with a 3-inch open end wrench. Refer to Figure 11-13.
   b. Use a 2-1/2-inch open-end wrench to thread the Whip Hose (14) from the Hose Adapter (15). Refer to Figures 11-13 and 11-14.

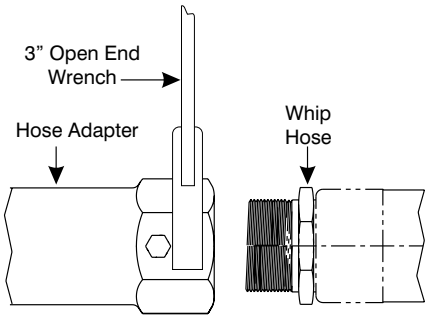


Figure 11-14. Remove Whip Hose from the Adapter

11.4.2 Attach Whip Hose to Hose Adapter

Install a new or used Whip Hose (14) onto the Hose Adapter (15) by the following procedure.

> **WARNING**
> Injury to personnel could result if the Whip Hose is not 100R2 hose. Always use Allied's Whip Hose (see parts list in Section 13.0) or an equivalent 100R2 hose.

> **WARNING**
> Bodily injury could result from improper handling of heavy components. The assembled Hole Hog is heavy. Proper lifting precautions must be taken when handling the Hole Hog.

1. Place the Whip Hose (14) and the Hole-Hog on the work area tarp. Block the Hole-Hog so it will not accidentally roll off the work surface. Leave the Hose Adapter (15) easily accessible as shown in Figure 11-15.

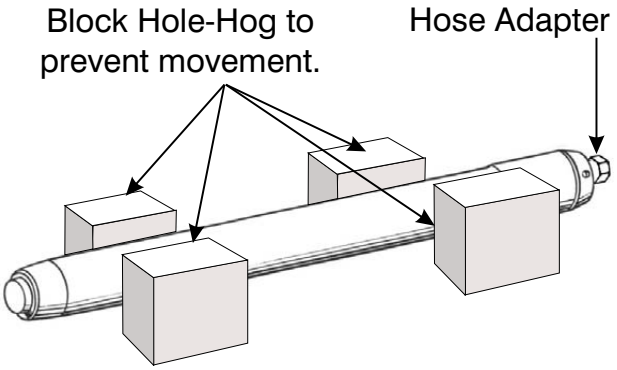


Figure 11-15. Secure Hole-Hog in place.

2. Obtain and inspect the new or used Whip Hose (14) to be installed. Inspect the Whip Hose for damage and for dirt that would damage the internal components of the Hole Hog.
   a. If the hose is damaged or worn, discard it and obtain a new Allied Whip Hose (14).
   b. If the hose fitting is crimped or distorted, or if the threads are damaged, so the fitting cannot be secured air tight, discard the assembly and obtain a new Allied Whip Hose (14).
   c. Use compressed air to blow any dirt or packing debris from inside the hose and from the threads.
3. Inspect the threads of the Hose Adapter for dirt that would prevent threading or complete sealing.
   - DO NOT use compressed air to remove dirt from the Adapter threads. This may force dirt into the internal components of the Hole Hog.
   - Wipe dirt from the threads with a clean cloth dampened with hydraulic fluid.
4. Align the threads of the hose fitting with those of the Adapter and thread the Whip Hose (14) into the Hose Adapter (15). Refer To Figure 11-16.

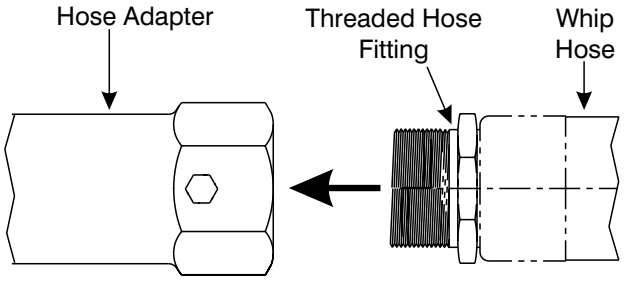


Figure 11-16. Thread the Whip Hose fitting into the Hose Adapter.

5. Hand tighten the threaded fitting into the Hose Adapter.
6. Tighten the Whip Hose (14) securely into the Hose Adapter (15) as shown in Figure 11-17.
   a. Hold the Hose Adapter (15) across its flats with a 3-inch open end wrench.
   b. Use a 2-1/2-inch open-end to tighten the Whip Hose (14) securely into the Hose Adapter (15).
7. Install a new or used Hose Coupling with Clamp (17) onto the Whip Hose (14) as described in procedure 11.3.2.

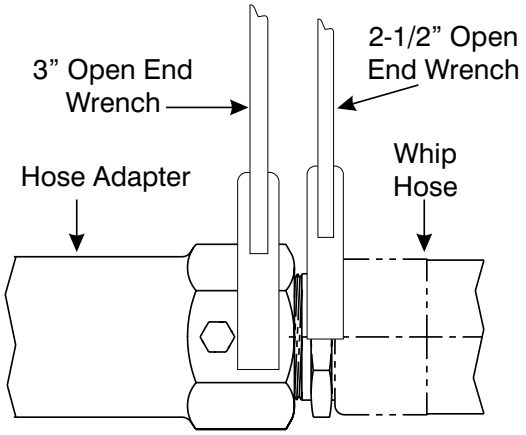


Figure 11-17. Secure Whip Hose onto the Hose Adapter.

This page intentionally
left blank.

SECTION 12.0 HOLE-HOG TROUBLESHOOTING CHART

The following chart outlines corrective actions for several commonly encountered conditions. For further information, contact the Allied Technical Service Department.

Hole-Hog Troubleshooting Chart

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

This page intentionally
left blank.

SECTION 13.0
PARTS INFORMATION

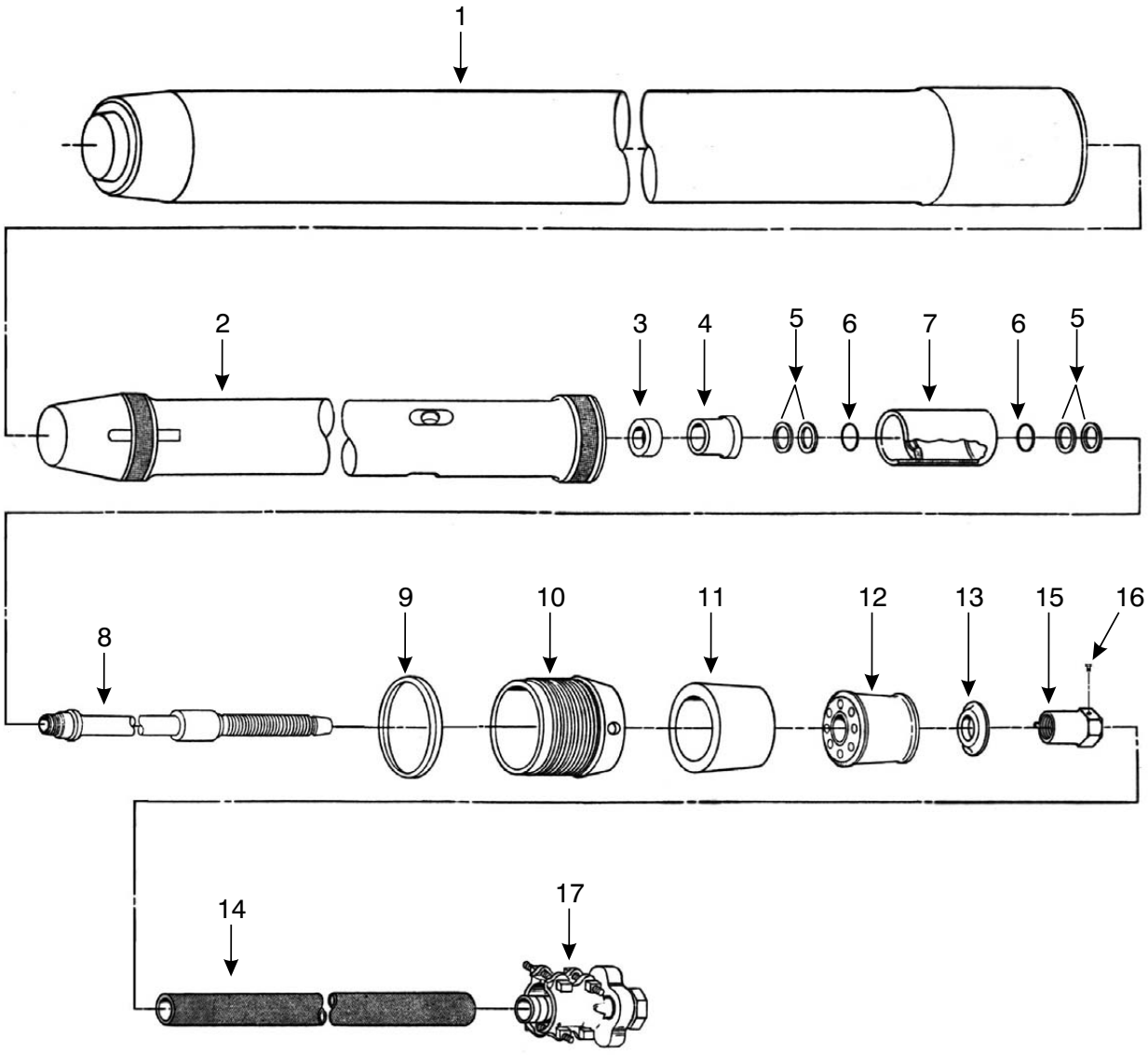


Figure 13-1. Model 5500 Hole-Hog Complete Assembly

Model 5500 Hole-Hog Complete Assembly Part No. 835800			
ITEM ONLY	QTY.	PART NO.	DESCRIPTION
1	1	835820	Body/Anvil
2	1	835801	Striker
3	1	835861	Valve Nut
4	1	835811	Nut Bushing
5	4	835862	Valve Spacer
6	2	667226	O-Ring
7	1	835806	Valve
8	1	835804	Valve Stem
9	1	832881	Spacer
10	1	835807	End Cap
11	1	835857	Shock Absorber
12		835817	Valve Body Nut
13		835813	Valve Seal
14	1	835831	Hose
15	1	835864	Hose Adapter
16	1	835866	Hex Head Cap Screw
17	1	835830	Hose Coupling with Clamp
18	1	676653	Decal - Allied (shown in Section 3.3 Decal Identification)

ALLIED®
Construction Products, Inc.
3900 Kelley Avenue, Cleveland, Ohio 44114
Tel: 216-431-2600 Fax: 216-431-2601