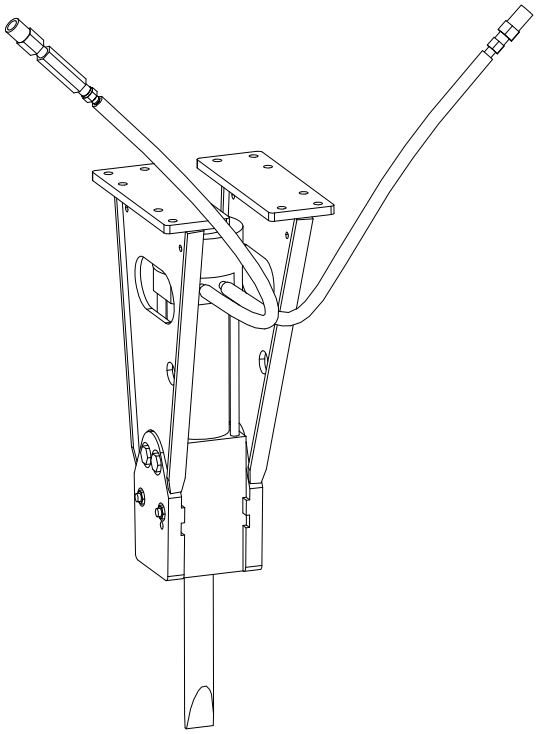
ALLIED®
Construction Products, LLC

AR-Series Hydraulic Impact Breaker



This Operator's Manual for use with

Model
AR 70
AR 70B
AR 70C
AR 75
AR 85
AR 95

OPERATOR'S MANUAL

Part Number 002065

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

Operator's Manual: Part Number 002065

This Operator's Manual is applicable to models AR 70, 70B, 70C, 75, 85 & 95 models only.

DOCUMENT REVISIONS for 002065

Date	Page	Change
5/02/00	Ch. 4 & 7	Added Skid Steer Info
5/02/00	Throughout	Minor editing
5/08/01	Throughout	Added AR 95
5/08/01	Ch. 7	Added photos and revised procedure to attach SSU hammer
12/07/01	Ch. 11	New bolt torques
2/11/02	Ch. 4 & 11	New configurations, bolt torques
3/10/03	Throughout	Added AR 70B & AR 75B
6/10/03	Throughout	Added AR 85
8/04/03	Section 11.2.6	Corrected Torque Tables
8/04/05	Throughout	Added AR 70C
10/19/05	Section 11.2.6	Correct AR70C Torque Table
11/30/05	Section 10.0	Revised chart
4/28/06	4-10	Revise Table 4-9
8/14/06	Throughout	Add Model AR 95B
11/20/06	Throughout	Add Model AR 85B
2015, Feb	Throughout	Remove information pertaining to AR 75B, AR 85B and AR 95B. Information regarding these models can be found in SOM576778.

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

TABLE OF CONTENTS

TABLE OF CONTENTS (cont'd)

TABLE OF CONTENTS (cont'd)

TABLE OF CONTENTS (cont'd)

Section **Page**

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

LIST OF FIGURES

Figure **Page**

LIST OF FIGURES (cont'd)

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

SECTION 1.0
INTRODUCTION AND SCOPE

Operator's Manual: Part Number 002065
This Operator's Manual is applicable to models AR 70, 70B, 70C, 75, 85 & 95 models only.

Years of Manufacture: Begin 2002 Model _____ Serial Number _____

This manual contains important information for the safe use and maintenance of Allied Hammer Model Series AR 70, 75, 85 & 95. Read this manual thoroughly before installing, operating or servicing the hammer. This manual must be easily accessible to operators, service and transport personnel. Store this manual in a convenient location.

Additional information is contained in the Parts Manuals for these hammers

WARNINGS and CAUTIONS identified with this symbol are important for personnel safety and full service life of the hammer. Follow these instructions carefully.

Pay careful attention to all instructions and follow all governing regulations. Operation or service other than in accordance with these instructions may subject the hammer to conditions beyond its design capability. Improper operation, service or the use of non-Allied parts may result in hammer failure or personnel injury.

1.1 Safety Information

When using any AR 70, 75, 85 & 95 Series hammer, safety procedures must be followed. See Section 5.0 for further safety guidelines.

1.2 Warranty Information

Warranty coverage of the hammer depends upon proper maintenance and operation of the hammer as detailed in this manual. Improper maintenance or operation shall void the warranty coverage. For further information, refer to Section 5.5, Warranty Protection Summary.

Record the hammer Serial Number in the space provided above and in the hammer Parts Manual.

1.3 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 hammer applications, maintenance and service consistent with industry practices. Allied takes no responsibility for the results of actions not recommended in this manual and specifically the results of:

- Operations 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 hammer, associated equipment, and injury to personnel.

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

SECTION 2.0
OVERVIEW

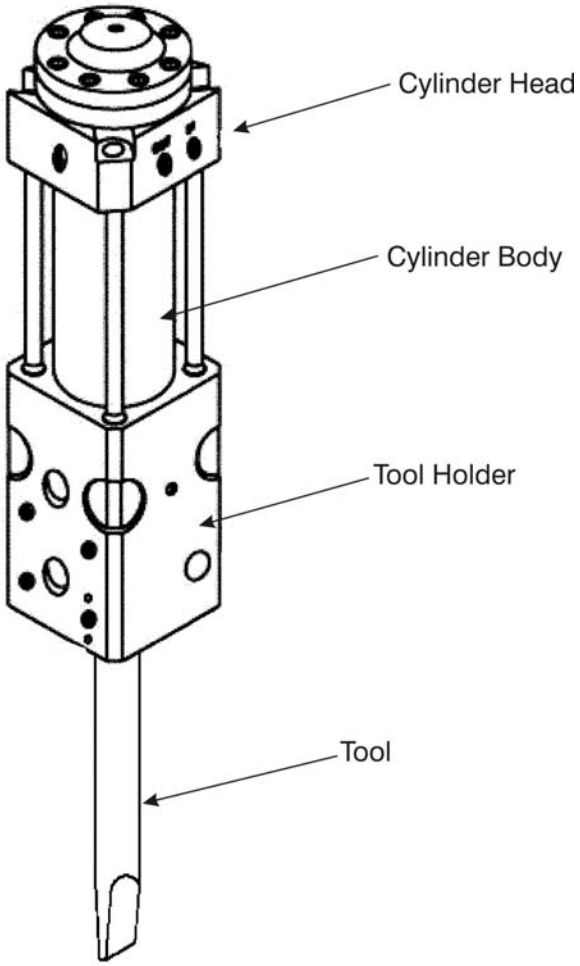


Figure 2-1: Typical Hammer Main Components

2.1 Introduction

The Allied AR Series hammers are classified by carrier application:

(1) Backhoes

(2) Skid steer loaders

(3) Mini-excavators.

Depending on the model, AR hammers are compatible with backhoes, skid steer loaders and mini-excavators from 5000 to 40,000 lbs. (3200 - 11,300 kg). The hammers can be installed on almost any hydraulic system and can operate with pump capacities as low as 4 gpm (15 lpm).

The maximum operating pressure varies by hammer model.

The hammer is designed to operate with the carrier's auxiliary attachment circuit. If the carrier does not have an auxiliary circuit, an Allied installation kit is required. In either case, the auxiliary circuit must maintain proper hydraulic flow and pressure.

Illustrations are representative of typical hammers. These illustrations are not to be used for repair or service.

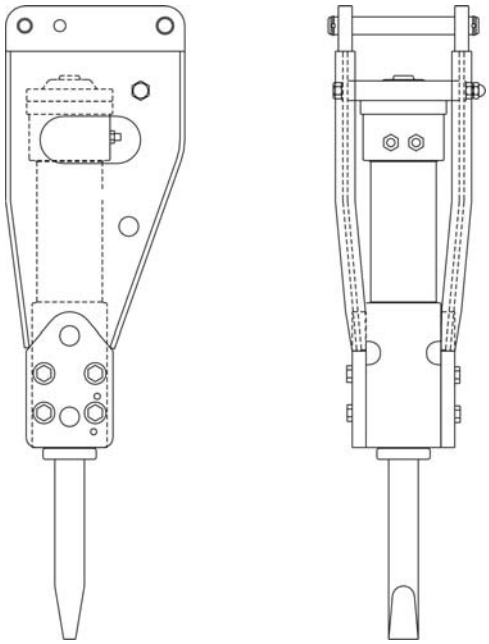


Figure 2-2: Typical BSF Configuration

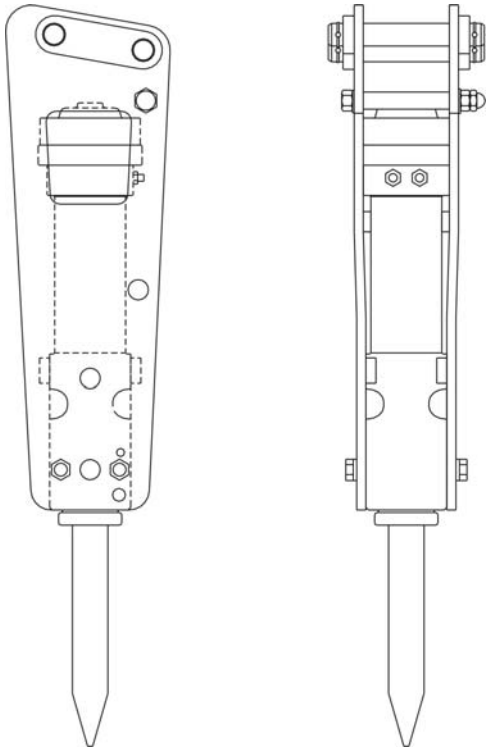


Figure 2-3: Typical XSF Configuration

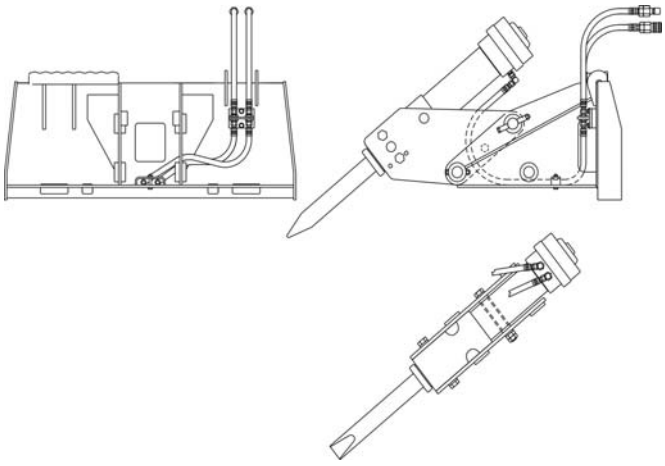


Figure 2-4: Typical SSU Configuration

2.2 Description of Assembly Groups

- Cylinder (Back) Head

The cylinder head is the upper hammer section. The pressure connection (from the pump), labeled IN above the port, and the return connection (to the tank), labeled OUT above the port, are located on the front of the cylinder head. Refer to Figures 2-5 and 2-6.

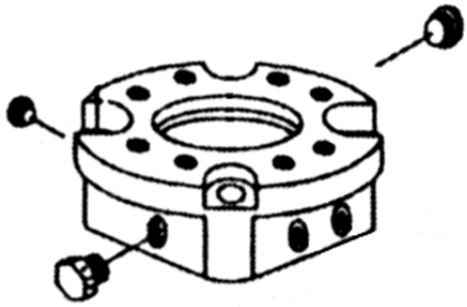


Figure 2-5: AR 70, AR 70B & AR 70C – Ports On Cylinder Head

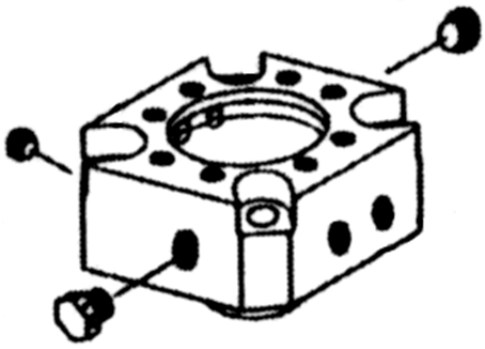


Figure 2-6: AR 75 & 75B, AR 85 & 85B, AR 95 & 95B – Ports On Cylinder Head

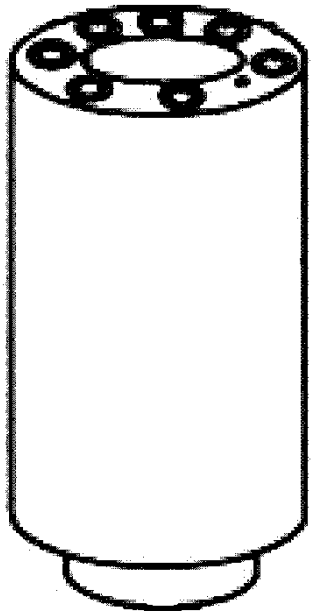


Figure 2-7: Typical Cylinder

- Cylinder

The cylinder is the center section of the hammer between the cylinder head and the tool holder. These three assemblies are connected with side rods.

- Piston

The piston reciprocates in the cylinder transferring its energy to the demolition tool upon impact.

- Tool Holder (Front Head)

The tool holder (front head) holds the demolition tool in place with a retainer pin. A tool bushing and impact ring are located in the tool holder.

Figure 2-8: Typical Piston

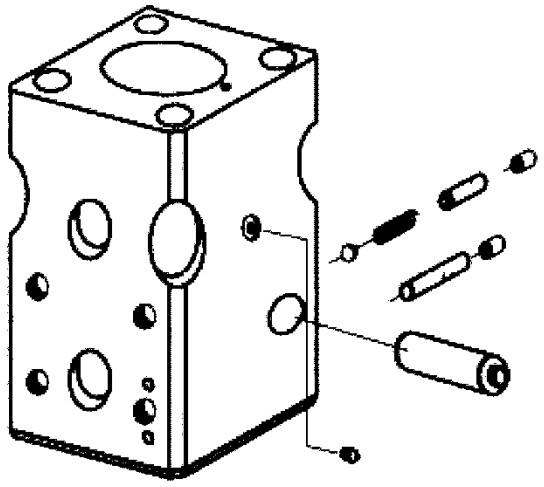


Figure 2-9: Typical Tool Holder (Front Head)

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

SECTION 3.0
THEORY OF OPERATION

Figure 3-1 is a diagram of basic AR 70, 75, 85 & 95 Series hammer operation illustrating how the piston is moved up and down to impact on the demolition tool.

Up and down piston travel within the cylinder is controlled by hydraulic pressure above the piston.

- When the oil pressure above surface 2 is low, the constant high oil pressure against surface 1 forces the piston up the cylinder.
- The upward piston movement causes a control valve (not shown) to shift position. This results in high pressure above surface 2.
- When the pressure above surface 2 is high, the piston is forced downward because the area of surface 2 is greater than surface 1.
- Just before impact, the control shifts again, resulting in low pressure above surface 2, and the cycle is repeated.

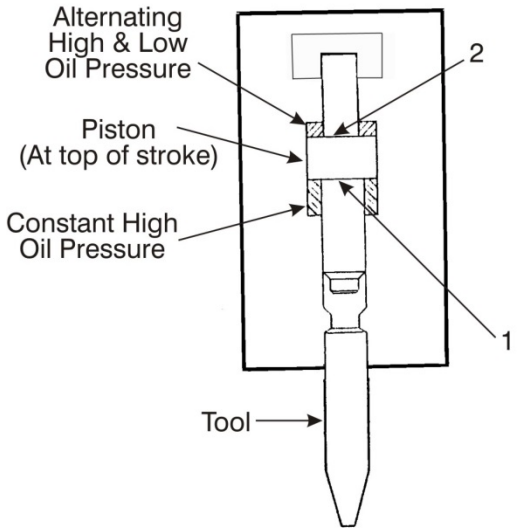


Figure 3-1: Hammer Block Diagram

SECTION 4.0 TECHNICAL DATA

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

4.1 General Specifications

Operating Specifications						
		AR70 AR70B	**AR70C**	**AR75**	**AR85**	**AR95**
Frequency Range	per minute	500-1000	500-950	600-1000	500-750	300-700
Hydraulic Flow	gpm (lpm)	8 – 16 (30 – 60)	8 – 16 (30 – 60)	14 – 22 (53 – 83)	13 – 27 (50 – 100)	16 – 33 (60 – 125)
Hydraulic Operating Pressure	psi (bar)	1400-1850 (97-128)	1400-1900 (97-130)	1750-1850 (120-128)	1400-1750 (97-120)	1450-1900 (100-130)
Hydraulic Relief Pressure	psi (bar)	2350 (162)	2400 (166)	2350 (162)	2250 (155)	2400 (166)
Accumulator N_2 Pressure	psi (bar)	870 (60)	870 (60)	870 (60)	870 (60)	870 (60)
**Weight:	lbs (kg)					
BSF		560 (250)	538 (245)	790 (358)	N/A	N/A
XSF		520 (236)	508 (230)	N/A	N/A	N/A
SSU-1		N/A	N/A	1200 (554)	N/A	N/A
SSU-2		760 (347)	748 (340)	N/A	N/A	N/A
BCS		N/A	N/A	800 (363)	N/A	N/A
BR		N/A	640 (290)	*740 (336)	N/A	N/A
*** SR/SCS		N/A	N/A	N/A	1185 (538)	1600 (726)
Demolition Tool: Diameter	inch (mm)	2.77 (70)	2.48 (63)	2.95 (75)	3.35 (85)	3.74 (95)
Working Length	inch (mm)	18 (457)	15 (380)	19 (483)	18 (457)	23 (584)
Carrier Weight Class: Backhoe	1000 lbs (1000 kg)	9-17 (4-8)	9-17 (4-8)	12-25 (5-12)	14-25 (6-11)	16-25 (7-11)
Excavator	1000 lbs (1000 kg)	7-15 (3-7)	7-15 (3-7)	15-30 (7-14)	15-30 (7-14)	20-40 (9-18)
Skid Steer	1000 lbs (1000 kg)	5-8 (2-4)	5-8 (2-4)	8 & up (4 & up)	N/A	N/A
Hydraulic Hose Diameter	inch (mm)	½ (12)	½ (12)	¾ (19)	¾ (19)	1 (25)

* AR 75B only ** Includes mounting and tool *** AR95B SR mounting only

4.2 Dimensions

Table 4-1: AR 70, 70B & 70C Dimensions - BSF			
Letter	**Dimension: in. (mm)**		**Description**
	AR 70 & 70B	**AR 70C**	
A	58.0 (1473)	53.5 (1359)	Hammer Length
B	13.6 (345)	15.5 (394)	Hammer Width
C	18.0 (457)	15.0 (380)	Tool Length
D	56.0 (1422)	51.5 (1308)	Hammer Working Length – stick pin to tool tip
E	10.3 (260)	10.25 (260)	Mounting Width
F	17.9 (454)	17.9 (454)	Hammer Depth
G	10.5 \ 14.0 (261) \ (356)	10.5 \ 14.0 (261) \ (356)	Stick Pin to Link Pin Length
H	2.77 (70)	2.48 (63)	Tool Diameter

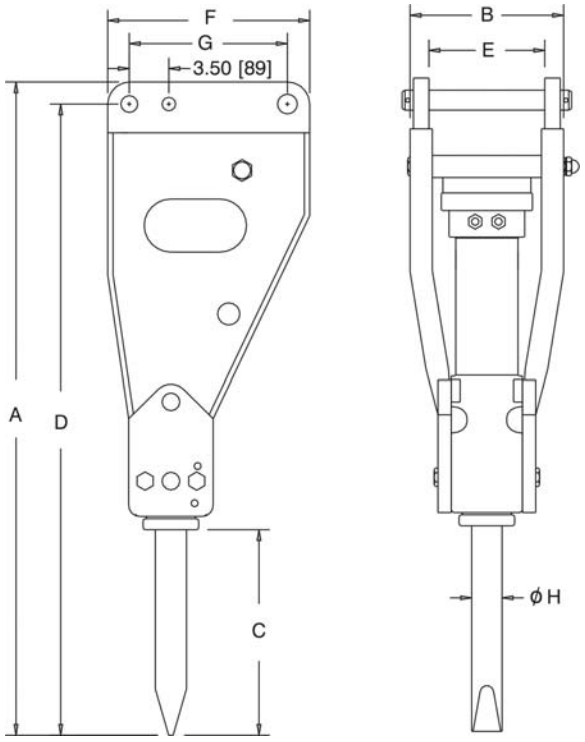


Figure 4-1: Dimension Drawing – Model AR 70, AR 70B & AR 70C – BSF

Table 4-2: AR 70, 70B & 70C Dimensions - XSF			
Letter	**Dimension: in. (mm)**		**Description**
	AR 70 & 70B	**AR 70C**	
A	58.5 (1486)	53.5 (1360)	Hammer Length
B	9.84 (250)	12.1 (308)	Hammer Width
C	18.0 (457)	15.0 (380)	Tool Length
D	55.0 (1397)	50.0 (1270)	Hammer Working Length – stick pin to tool tip
E	6.69 (170)	6.69 (170)	Mounting Width
F	12.8 (325)	12.7 (321)	Hammer Depth
G	7.00 (178)	7.00 (178)	Stick Pin to Link Pin Length
H	2.77 (70)	2.48 (63)	Tool Diameter

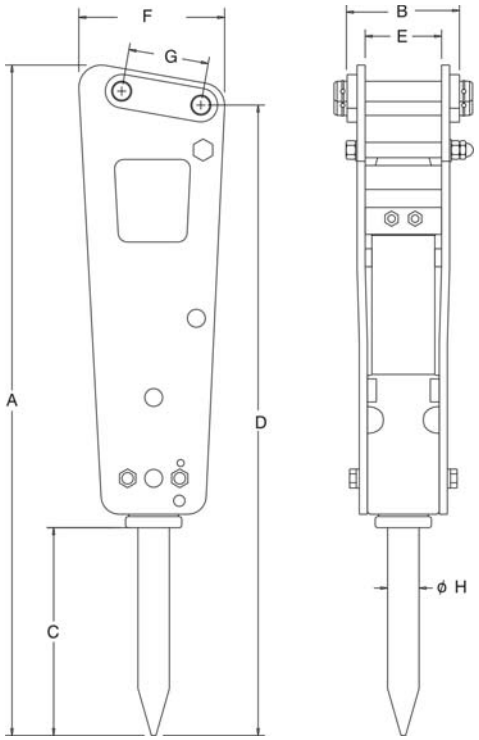


Figure 4-2: Dimension Drawing – Model AR 70, AR 70B & AR 70C – XSF

Table 4-3: AR 70, 70B & 70C Dimensions – 2-Postion SSU			
Letter	**Dimension: in. (mm)**		**Description**
	AR 70 & 70B	**AR 70C**	
A	55.9 (1421)	52.6 (1336)	Hammer Length
B	48.5 (1232)	48.8 (1239)	Hammer Width
C	18.0 (457)	15.0 (380)	Tool Length
D	51.7 (1313)	48.4 (1230)	Hammer Working Length
E	39º	39º	Hammer Rotation Angle
F	20.0 (580)	18.9 (480)	Hammer Depth
G	2.77 (70)	2.48 (63)	Tool Diameter

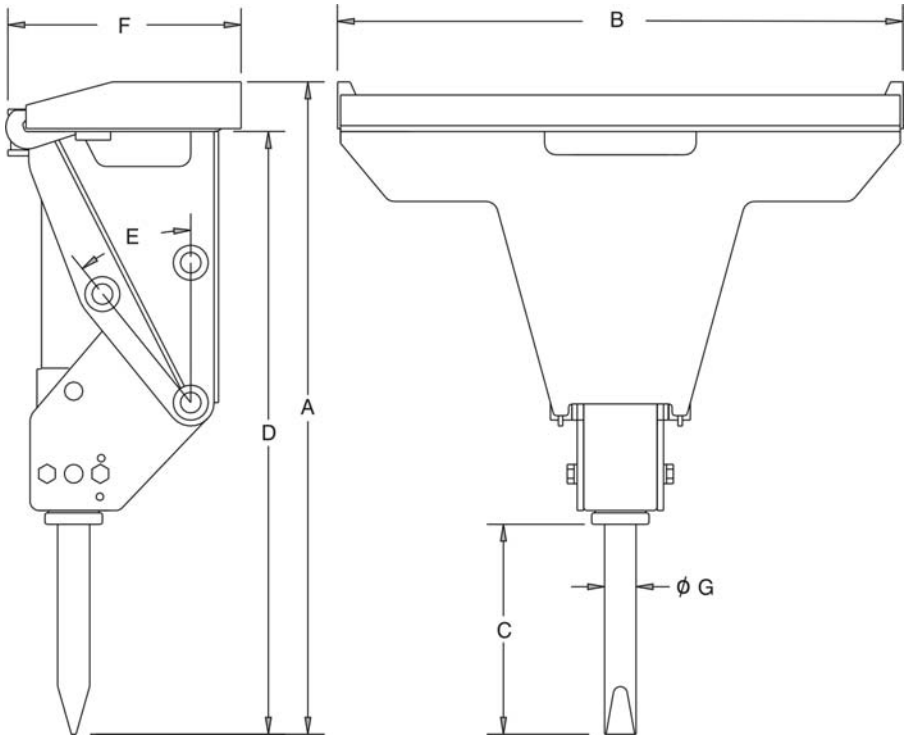


Figure 4-3: Dimension Drawing – Model AR 70, AR 70B & AR 70C – 2-Position SSU

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

Table 4-4: AR 70, 70B & 70C Dimensions - BR			
Letter	**Dimension: in. (mm)**		**Description**
	AR 70 & 70B	**AR 70C**	
A	N/A	49.6 (1259)	Hammer Length
B		15.6 (396)	Hammer Width
C		15.0 (380)	Tool Length
D		17.3 (440)	Hammer Depth
E		2.48 (63)	Tool Diameter

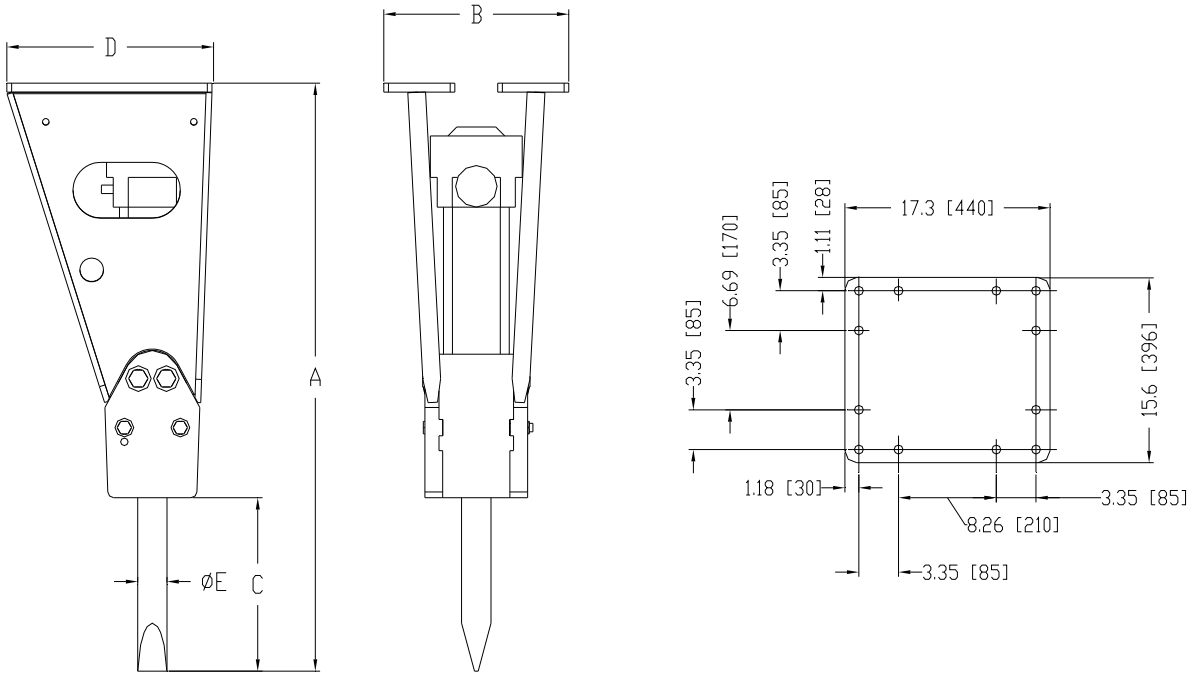


Figure 4-4: Dimension Drawing – Model AR 70C – BR

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

Table 4-5: AR 75 & 75B Dimensions - BSF			
Letter	**Dimension: in. (mm)**		**Description**
	AR 75	**AR 75B**	
A	64.4 (1636)	64.4 (1636)	Hammer Length
B	13.60 (345)	13.60 (345)	Hammer Width
C	19.0 (483)	19.0 (483)	Tool Length
D	62.4 (1585)	62.4 (1585)	Hammer Working Length
E	10.25 (260)	10.25 (260)	Mounting Width
F	17.87 (454)	17.87 (454)	Hammer Depth
G	10.5 \ 14.0 (261) \ (356)	10.5 \ 14.0 (261) \ (356)	Stick Pin to Link Pin Length
H	2.95 (75)	2.95 (75)	Tool Diameter

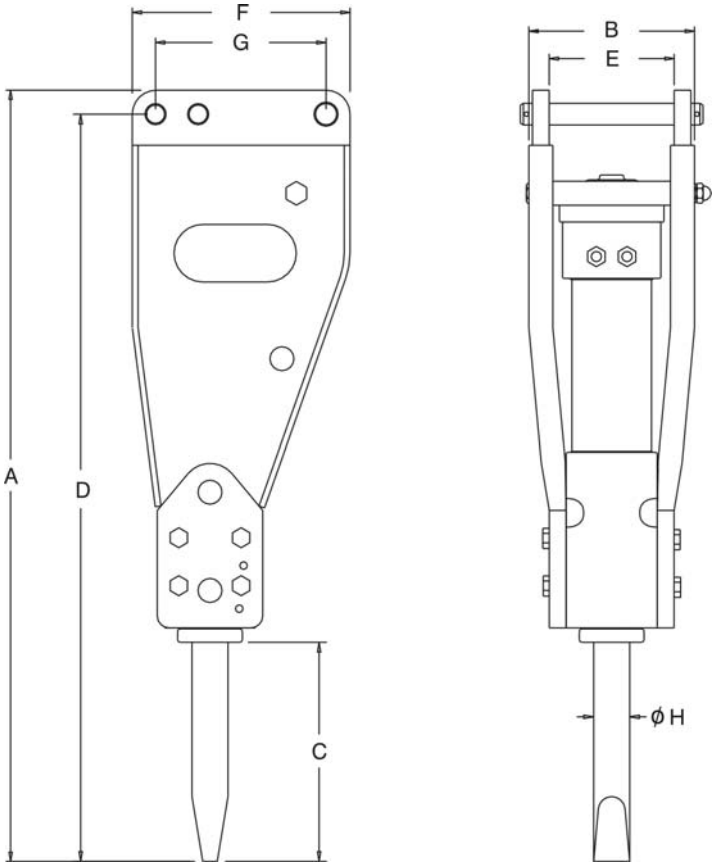


Figure 4-5: Dimension Drawing – Model AR 75 & AR 75B – BSF

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

Table 4-6: AR 75 & 75B Dimensions – BCS			
Letter	**Dimension: in. (mm)**		**Description**
	AR 75	**AR 75B**	
A	67.4 (1711)	67.4 (1711)	Hammer Length – Side plate top to tool tip
B	13.0 (330)	13.0 (330)	Hammer Width
C	19.0 (483)	19.0 (483)	Tool Length
D	58.5 (1486)	58.5 (1486)	Hammer Working Length
E	10.25 (260)	10.25 (260)	Mounting Width
F	20.3 (515)	20.3 (515)	Hammer Depth
G	10.5 \ 14.0 (261) \ (356)	10.5 \ 14.0 (261) \ (356)	Stick Pin to Link Pin Length
H	2.95 (75)	2.95 (75)	Tool Diameter
J	6.75 (171)	6.75 (171)	Bracket Mounting Height

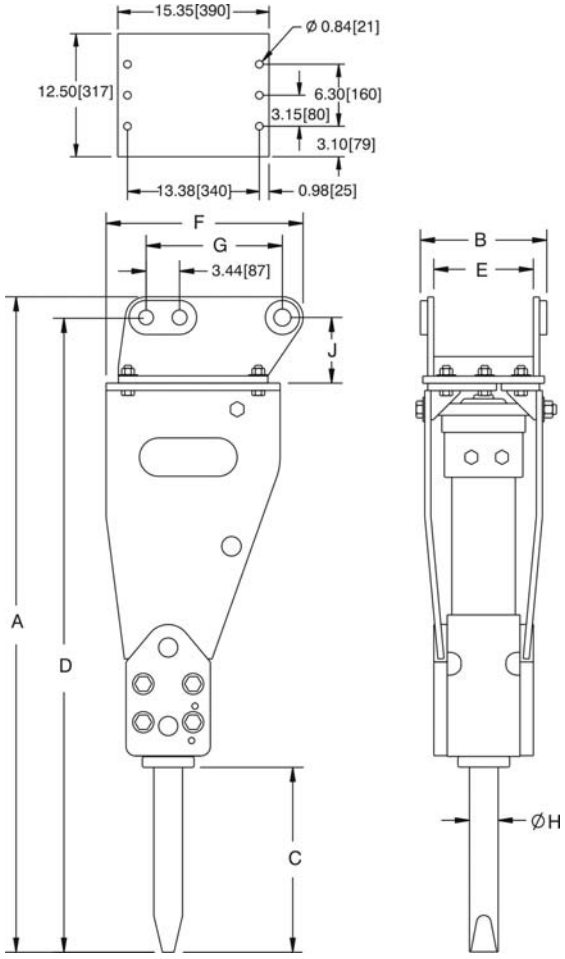


Figure 4-6: Dimension Drawing – Model AR 75 & AR 75B – BCS (T Style)

Table 4-7: AR 75 & 75B Dimensions – 1-Position SSU			
Letter	**Dimension: in. (mm)**		**Description**
	AR 75	**AR 75B**	
A	66.1 (1678)	66.1 (1678)	Hammer Length
B	48.5 (1232)	48.5 (1232)	Hammer Width
C	19.0 (483)	19.0 (483)	Tool Length
D	61.6 (1564)	61.6 (1564)	Hammer Working Length
E	24.8 (630)	24.8 (630)	Hammer Depth
F	2.95 (75)	2.95 (75)	Tool Diameter

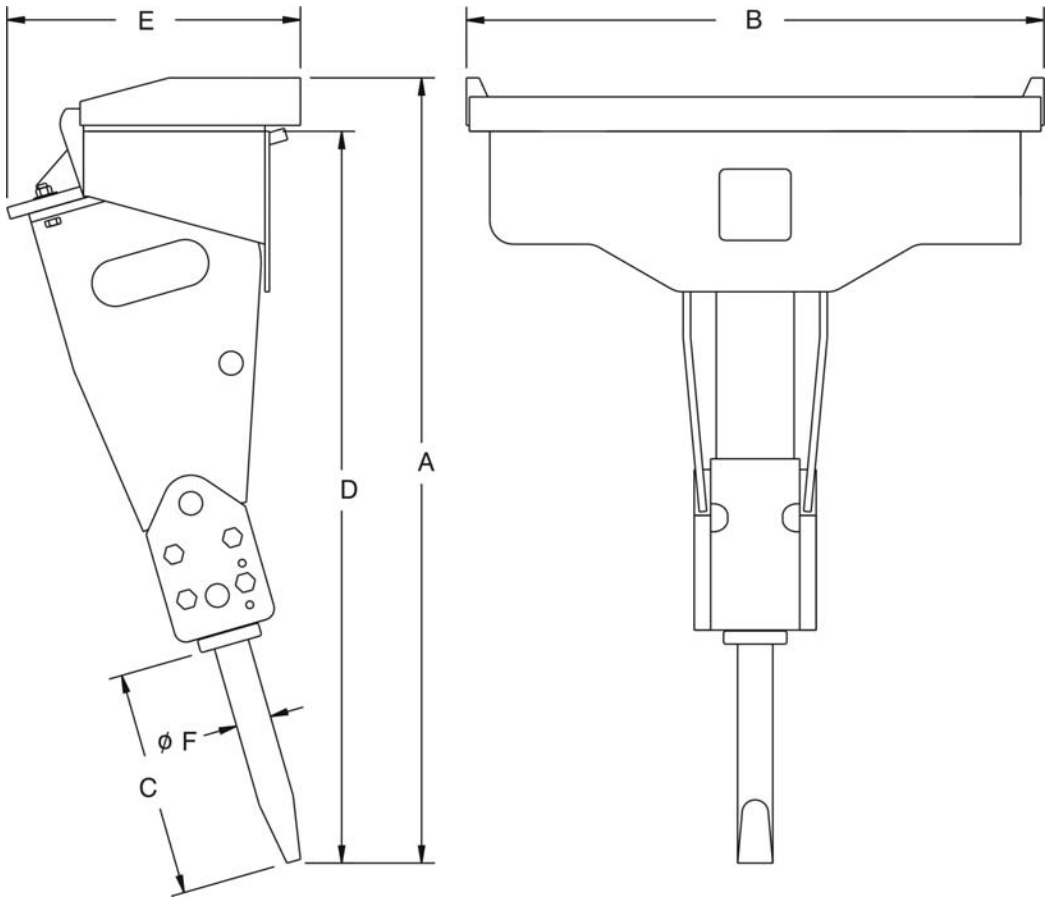


Figure 4-7: Dimension Drawing – Model AR 75 & AR 75B – 1-Position SSU

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

Table 4-8: AR 75 & 75B Dimensions - BR			
Letter	**Dimension: in. (mm)**		**Description**
	AR 75	**AR 75B**	
A	N/A	53.0 (1346)	Hammer Length
B		15.6 (399)	Hammer Width
C		19.0 (483)	Tool Length
D		17.3 (440)	Hammer Depth
E		2.95 (75)	Tool Diameter

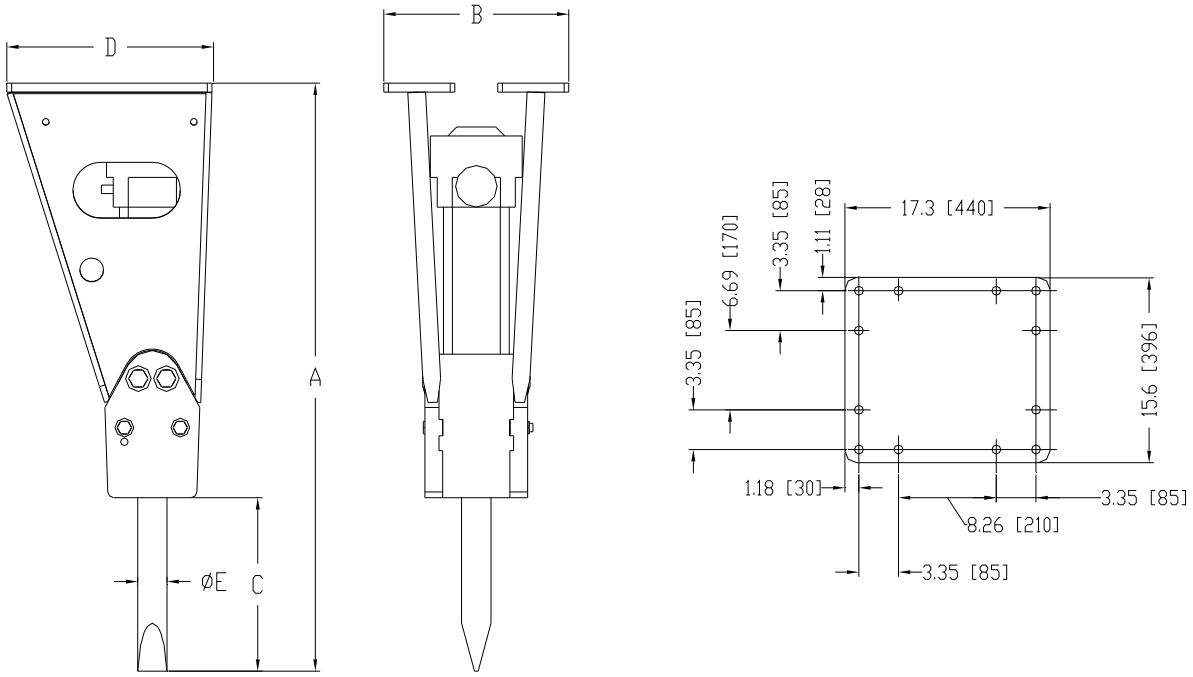


Figure 4-8: Dimension Drawing – Model AR 75B – BR

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

Table 4-9: AR 85 Series & AR 95 Series Dimensions			
Letter	**Dimension: in. (mm)**		**Description**
	AR 85-SR/SCS AR85B-SR	**AR 95-SR/SCS AR95B-SR**	
A	60.5 (1538)	70.8 (1800)	Hammer Working Length
B	16.1 (410)	16.1 (410)	Hammer Width
C	22.5 (560)	22.5 (560)	Hammer Depth
D	18.4 (467)	23.0 (584)	Tool Length
E	3.35 (85)	3.74 (95)	Tool Diameter

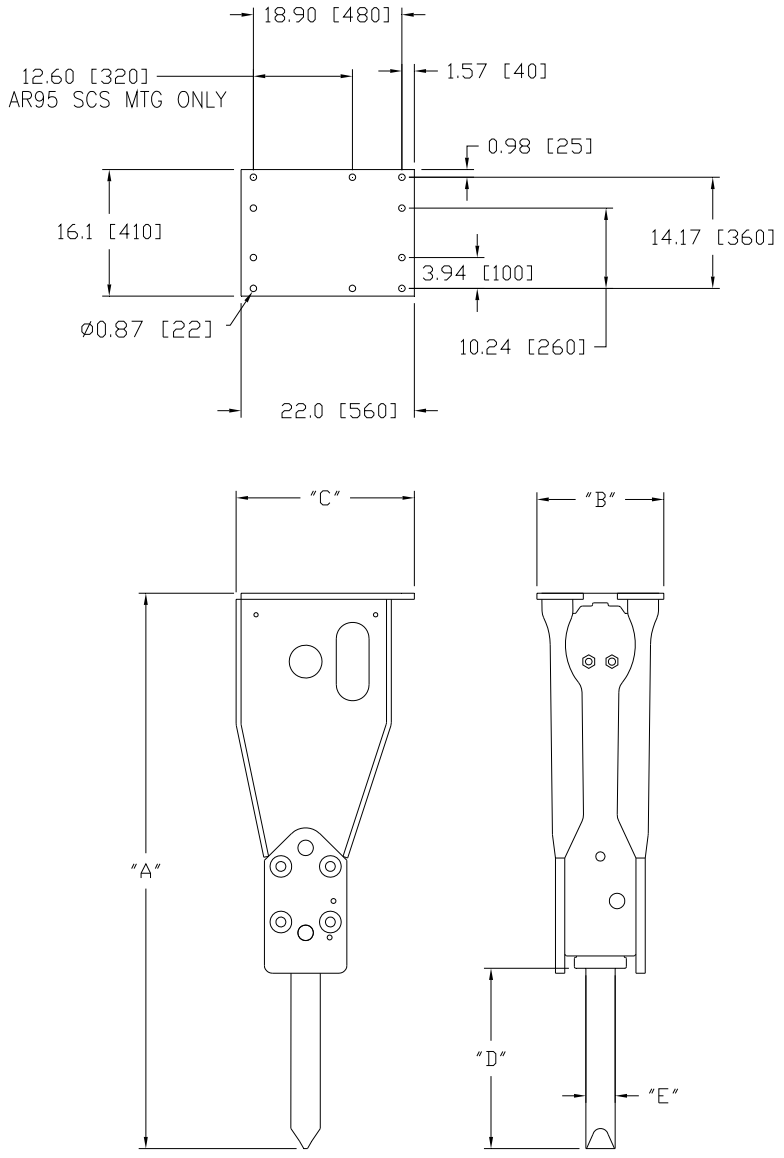


Figure 4-9: Dimension Drawing – Model AR 85 Series & AR 95 Series – SR & SCS

SECTION 5.0
GENERAL CONSTRUCTION SAFETY

5.1 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 to particular applications.

5.2 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 personnel protection equipment, etc.

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

Use the hammer 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.

5.4 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 hammer owner shall establish for any hammer 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 hammer owner to the specific site and application. Such a program will result in equipment life, performance and reduced downtime. Most importantly, it will reduce the risk of equipment damage and personnel injuries.

5.4.1 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.

5.4.2 Initial Operating Precautions

Some pre-operational checks and scheduled maintenance must be performed more frequently on a new hammer installation. Refer to the Operator Checklist and the Care and Maintenance Schedule in Section 11.0 of this manual.

5.4.3 Carrier Precautions

- To assure stable carrier operation, the carrier load capacity must meet or exceed the hammer requirements listed in the Technical Specifications Table, Section 4.1.
- To protect the operator from hot, high-pressure hydraulic fluid, do not run any hydraulic lines through the operator's cab.
- Follow the carrier manufacturer's guidelines regarding filtration of return fluid from the hammer. The carrier oil filter must be cleaned according to the Care and Maintenance Schedule.
- To protect the operator from injury from flying rock splinters, the operator's cab must have a protective shield. The shield must be closed during hammer operation.
- Refer to the carrier manufacturer's manuals for proper carrier operation, service and maintenance procedures.
- Never lift or move loads with the hammer.
- Operate the hammer only from the carrier operator's seat; and only after the carrier and hammer are correctly positioned.

5.4.4 Personnel Precautions

- The carrier operator shall perform some hammer procedures with an assistant. Both the operator and assistant must be experienced and thoroughly trained in these procedures.
- Always wear safety glasses and protective clothing when operating or handling the hammer.
- All personnel in the immediate area, including the carrier operator and the assistant, must wear ear protection.
- Avoid pinch points.
- Never put fingers in mounting bores or locking bars.
- Keep personnel away from the demolition tool while:
  - The demolition tool is jammed in the tool holder; it may release suddenly.
  - Technicians service the hydraulic system.
  - Technicians service the accumulator.

5.4.5 Hydraulic Pressure Precautions

- Before disconnecting any hydraulic lines, properly bleed all hydraulic system pressure.
- Make sure the hammer and carrier hydraulic systems are compatible, especially regarding:
  - Flow rate and pressure
  - Pressure relief valve setting
  - Hydraulic fluid compatibility
  - Heat exchanger if required

5.4.6 Nitrogen Gas Precautions

To avoid an explosion and equipment damage, use only 99.8% pure nitrogen gas in the accumulator pressure chamber.

Do not allow anyone into the service area while the service technicians are testing, measuring, filling or bleeding the nitrogen chamber.

5.4.7 Hoisting and Lifting Precautions

- Hammer and component weights are listed in the Technical Specifications table, Section 4.1. Before starting a procedure that requires hoisting, prepare the required lifting equipment.
- When hoisting the assembled hammer, use the designated lifting points on the hammer.
- Keep hands clear of any bores or fittings while moving, removing, attaching, or hoisting the hammer.

5.4.8 Maintenance Precautions

- Do not start maintenance on the hammer until it has cooled. The hammer is heated during operation and some components become very hot.

!!WARNING!!
Bodily injury and equipment damage could result if the hammer falls. After detaching it from the carrier, block the hammer securely.

!!WARNING!!
Clearing a jammed demolition tool is hazardous. Properly protect personnel against sudden release.

- Jamming the demolition tool in the holder can damage internal hammer components and shorten hammer service life. To reduce the risk of jamming, carefully follow the operator checklist and the care and maintenance schedule, especially:
  - Lubricating the demolition tool. (See Section 8-4.)
  - Checking tool bushing wear. (See Section 11.2.3.)
  - Checking piston impact surface wear (See Section 11.2.4.)
  - Checking demolition tool wear. (See Section 11.2.5.)

5.4.9 Site Precautions

- The danger area around the carrier is greater for hammer operation than for carrier operation due to the risk of flying rock splinters and debris. Immediately cease operation of the hammer if personnel without protective glasses or protective clothing enter the danger area.
- Never use the hammer in or under water. These models are not designed and built for underwater use.
- When work site temperatures are below minus 4ºF [-20ºC], follow the carrier manufacturer's low temperature operating instructions. Refer to Section 9.5.4 Working in Low Outside Temperatures.

5.5 Warranty Protection Summary

The Allied hammer requires a minimum of service if properly operated and maintained by trained personnel. The following steps will help keep the hammer in a safe, efficient operating condition. This summary outlines the minimum maintenance policies the hammer owner shall establish for any hammer installation to ensure effective operation and warranty coverage as stated on the inside back cover of this manual. The hammer owner, to the specific site and application, must tailor this operational maintenance program. Under such a program, the hammer will afford many years of reliable, effective operation; and warranty coverage will be effective.

- Train all carrier operators in the following functions.
  - 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 the carrier operator.
    - procedures performed by the Allied trained service technicians.
  - Recognize problems and know how to take corrective action as detailed in operator troubleshooting.
  - Conduct regular pre-operational checks as described in operator checklist.
  - Conduct regular checks and inspections as scheduled in the care and maintenance schedule.
- Establish for each hammer application a pre-operational check and maintenance program as described in Sections 9.1 and 11.1 of this manual.
- Establish a scheduled maintenance program for each hammer application in accordance with the carrier operator maintenance section (Section 11.0) in this manual.
- Allow only trained carrier operators and Allied trained service technicians to perform maintenance and repair as specified in the care and maintenance schedule.
- Use only Allied trained service technicians and Allied repair parts, and lubricants to protect total warranty coverage.
- Maintain written records of hammer 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.

5.6 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 hammer applications, maintenance and service consistent with industry expectations for high performance, heavy impact hammers. 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 and/or demolition tools not approved or supplied by Allied.

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

SECTION 6.0
HAMMER APPLICATIONS

These AR Series hammers are suited for many types of construction and mining applications. The following examples are typical and suggest the variety and limitations of standard applications. The hammers are not designed for use in or under water. Typical surface applications are:

- Clearance Work: Light concrete and brick breaking, curb and gutter, sidewalk and driveway work. Cutting asphalt*.

- Trenching: Trench compaction*; sheet, pipe and pile driving*. Trench rock excavation.

*in certain applications

- Mining: Descaling in mines; horizontal breaking in tunnels.

- Demolition: Concrete road and structural demolition.

Safety regulations for the hammer and the carrier must be observed at all times.

SECTION 7.0
HAMMER ATTACHMENT & REMOVAL

7.1 Carrier Requirements

Refer to Section 4.1 Technical Specifications to determine the carrier weight required to adequately maneuver and handle the hammer.

!!CAUTION!!
Do not attempt to set the Hammer operating pressure or flow without first consulting the installation instructions for your machine.
Refer to Table 4-1, Operating Specifications, for the maximum operating pressure for the hammer model selected. DO NOT exceed this value.

The hydraulic pressure and flow must be adequate for operation of both the carrier and the hammer simultaneously. Hydraulic pressure and flow requirements for the hammer are given in Table 4-1 Operating Specifications.

The carrier must have an oil temperature gauge. Operating temperature range of the hydraulic oil is 140º F (60ºC.) to 176º F. [80ºC.]. If the ambient temperature is low, warm the oil to a minimum of 32º F. (0º C.) by running the carrier (see Paragraph 9.5.4 for operating at low temperatures).

7.2 Installation Kits

Proper mounting hardware must be used to mount the hammer to the carrier. Allied installation kits are recommended; if others are used, they must satisfy the minimum requirements listed under Section 7.6 Attaching the Hammer.

Allied Installation Kits are designed for most carrier makes and models and contain the parts required for the mechanical and hydraulic installation.

7.3 Mounting Brackets

Several different mounting brackets are available for the hammer: top mounting brackets: Backhoe Series (BR, BCS) and small excavator series (SR, SCS), a 1-Position Skid Steer Universal (SSU), and a 2-Position SSU. Bracket hardware, such as spacers and bushings may be provided.

7.4 Heat Exchanger

In some environments with a high ambient temperature, an auxiliary heat exchanger may be necessary to maintain a safe operating oil temperature. The oil temperature shall never exceed 176ºF (80ºC). There are several operating problems that can cause oil to overheat. DO NOT install an auxiliary heat exchanger before inspecting and correcting hammer or carrier malfunctions. Refer to Section 10, Performance Troubleshooting Chart, and troubleshooting procedures recommended by the carrier manufacturer.

7.5 Tools Required to Attach the Hammer

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

- Safety glasses & gloves
- Sledgehammer
- Drift pin
- 3/4-inch-drive socket wrench
- 3/4-inch metric sockets
- Grease gun

- Metric open end wrenches
- Caliper for checking tool wear
- Pry bar

7.6 Attaching the hammer to the Carrier

(Refer to Figure 7-1.)

!!WARNING!!
The hammer shall only be attached to a carrier with sufficient load carrying capacity. If the carrier is too light, it may become unstable.

!!WARNING!!
An assistant is required for attachment and removal of the hammer from the carrier. All directions and signals must be agreed upon before beginning attachment and removal.

!!WARNING!!
Keep hands away from bores and pin areas when attaching the hammer. Do not touch any parts when the boom is moving. Never put fingers in bores to check alignment; use drift pin.

!!WARNING!!
Always wear safety glasses during attachment, operation, and removal of the hammer.

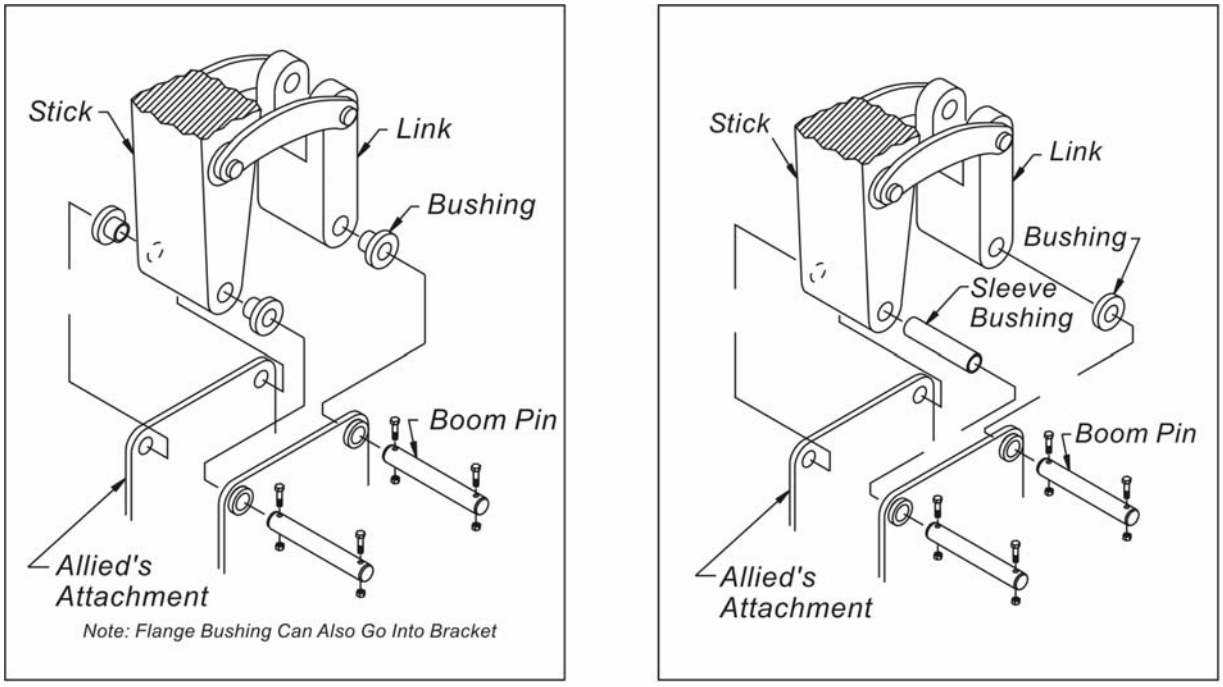


Figure 7-1: Attaching the Hammer to a Backhoe or Mini-Excavator

7.6.1 Attaching the Hammer to a Backhoe (Refer to Figure 7-1.)

NOTE: The backhoe installation described below is typical; installation procedures may vary. Consult carrier attachment installation instructions for specific details.

1. Before attaching the hammer, remove the bucket or tool attached to the stick of the carrier.

2. Maneuver the stick into the hammer at the front (hose side) and align mounting holes. The front (hose side) of the hammer should face the operator in the carrier cab.

3. Push the stick pin into holes through the hammer, spacer, if required, and the stick. Tap stick pin through holes with a hammer if necessary. Note, a spacer may go between the stick and hammer on both sides.

4. Install stick pin bolts and nuts or quick pins.

5. Maneuver the stick until the link lines up with the holes on the back (non-hose side) of the hammer.

6. Install the spacers and link pin through the link and hammer.

7. Install nuts and bolts or quick pin in link pin.

8. Refer to Section 7-7 to connect hydraulic lines.

7.6.2 Attaching the Hammer to a Mini-Excavator

The hammer is attached to the Mini-Excavator the same way it is attached to the Backhoe. Refer to Section 7.6.1.

7.6.3 Attaching the Hammer to a Skid Steer

NOTE

The skid steer installation described below is typical; installation procedures may vary. Consult carrier attachment installation instructions for specific details.

1. Make sure that skid steer attaching clamps are open and the locking pins are retracted. Refer to carrier operator's manual for detailed attachment instructions.

2. Maneuver the skid steer to the mounting bracket. Operate the skid steer hydraulic controls to engage the mounting coupler under the flange at the top of the mounting bracket.

3. Using the skid steer hydraulic cylinders, slowly lift the mounting bracket until the bottom of the mounting bracket is flush with bottom of the mounting coupler.

!! WARNING !!
In Step 4, make sure the mounting pins are through the holes in the bottom of the mounting bracket. If pins are not fully engaged, there is danger of hammer and bracket falling off the carrier. This could result in equipment damage and personal injury. Refer to Figure 7-2.

Figure 7-2: Skid Steer Locking Pins

4. Engage the skid steer attachment locking assembly so the locking pins protrude through the holes in the bottom of the mounting plate. Refer to Figure 7-2.

5. Refer to Section 7-7 to connect hydraulic lines.

!! CAUTION !!
Be sure that the hammer is always perpendicular to the work. Refer to Figures 7-3 and 7-4.

Figure 7-3: Working Orientation

Figure 7-4: Working Orientation

!! WARNING !!
Secure the hammer before changing pin location so it does not swing. Damage to hammer and injury to personnel can result if hammer is not secure.

6. The orientation of the hammer can be changed on the 2-Position Skid Steer bracket by pivoting the hammer in the bracket to help keep the hammer perpendicular to the work. Refer to Figures 7-5 thru 7-7.

Pivot the hammer in the bracket as follows:

1. Remove the retainer pin closest to the top of the hammer.

2. Pivot the hammer up or down in the mounting bracket.

3. Insert the pin in the corresponding hole.

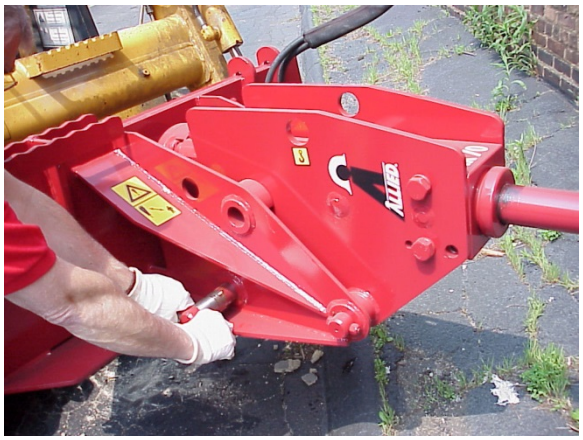


Figure 7-5: Hammer Position Pin Revise/Replacement

Figure 7-6: Hammer Position Pin Revise/Replacement

Figure 7-7: Hammer Position Pin Revise/Replacement

NOTE

Allied manufactures other brackets to mount LTS or Mini-Ex hammers to a Skid Steer. Contact Allied Customer Service for more information.

7.7 Connecting the Hammer Hydraulic Lines

!! CAUTION !!
Contaminated hydraulic oil is detrimental to attachments and carriers. Clean connection areas and hose ends before and after removing protective caps so hose fittings are clean when attached to hammer and carrier.

Connect the hydraulic lines to the hammer as follows:

1. Clean dirt from connection areas.

2. Unthread the cap nuts from hammer ports P (pressure) and T (tank/return). Refer to Figure 7-8.

3. Wrap the cap nuts in clean plastic or cloth to protect them from dirt. Place the cap nuts in the toolbox for safekeeping.

4. Remove the plugs from the ends of the hydraulic lines that connect to the hammer.

!! WARNING !!
Do not run any hydraulic lines through the operator's cab. The hoses may leak or burst. The hydraulic oil becomes very hot during operation.

5. Check all hose connecting threads. The threads must be undamaged and free of contamination.

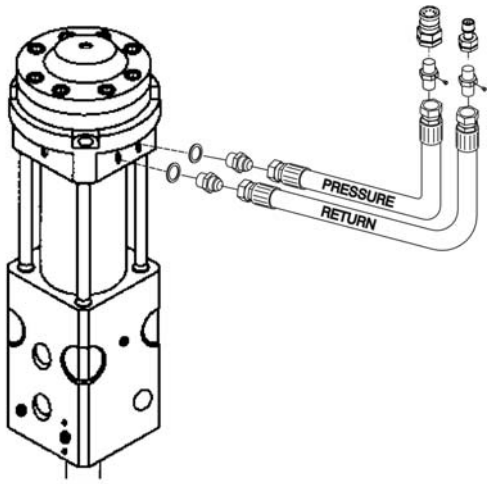


Figure 7-8: AR 70 Series, Connecting Hydraulic Lines

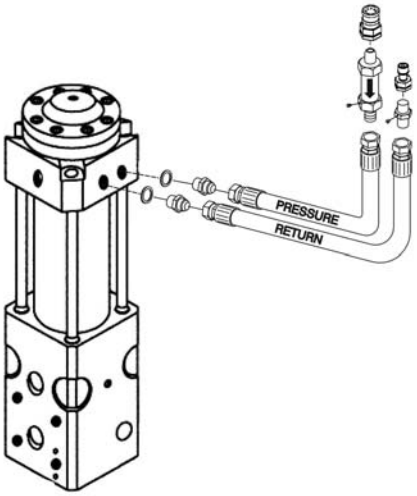


Figure 7-9: AR 75 Series, AR 85 Series, Connecting Hydraulic Lines

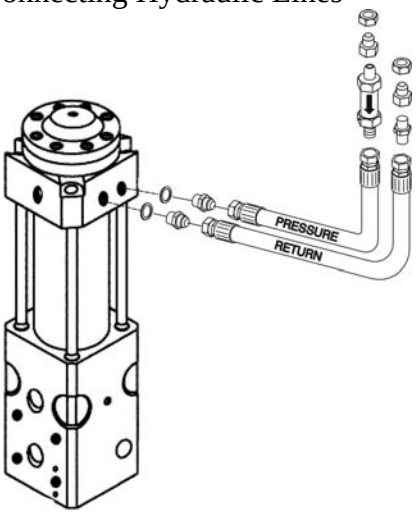


Figure 7-10: AR 95 Series, Connecting Hydraulic Lines

6. Connect the hydraulic lines as follows. Refer to Figures 7-8, 7-9 and 7-10:

   a. Connect the pressure hose to the hammer port marked “P”.

   b. Connect the return line to the port marked “T”.

   c. Connect the pressure and return lines to the corresponding carrier quick disconnects.

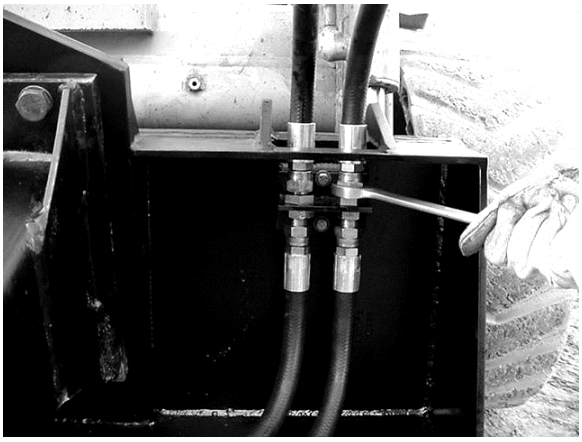


Figure 7-11: Connecting Hydraulic Lines to Bulkhead Adapter

7. Hammers with a union bulkhead connector

   a. Connect the hydraulic lines to the hammer ports. The port marked “P” is the pressure port; the port marked “T” is the return or tank port. See Figures 7-8, 7-9 and 7-10.

   b. Connect the two pressure hoses and the two return hoses through the bulkhead connector. See Figure 7-11.

   c. Connect the pressure and return lines to the carrier quick disconnect

coupling, or corresponding carrier lines. See Figure 7-12.

Figure 7-12: Connecting Hydraulic Lines to Skid Steer

7.8 Removing the Hammer from the Carrier

!! WARNING !!
All directions and signals must be agreed upon beforehand with the assistant. Keep hands well clear of bores and boom pin areas when removing the hydraulic hammer. Do not touch any parts when the boom is moving.

!! CAUTION !!
Collect any spilled oil and dispose of it properly.

Removal of the hammer is done in reverse order of attachment unless otherwise stated.

SECTION 8.0
DEMOLITION TOOL

8.1 Demolition Tool

Only use genuine Allied demolition tools. Use of other demolition tools may void the warranty invalid.

It is important that the demolition tools be used correctly, especially longer demolition tools, which are more susceptible to damage from prying. Pay particular attention to Section 9.0 Operation.

!! WARNING !!
The demolition tool shall only be installed in the way described. Failure to do so could allow the demolition tool to be driven out of the tool holder with force possibly causing bodily injury or physical damage.

!! WARNING !!
Always wear safety glasses and gloves when installing the demolition tool and clear the area of bystanders. Metal chips and debris may fly off when hammering the pins in or out, injuring workers or bystanders.

8.2 Sharpening

Demolition tools shall only be re-machined on suitable equipment. Conical and blunt demolition tools can be re-machined on a lathe with carbide tooling. Chisels can be sharpened on a shaping or milling machine. During re-machining, the demolition tool must be cooled thoroughly with liquid coolant.

Never attempt to burn or weld the demolition tools. The high temperatures involved can damage the demolition tools.

8.3 Installing and Removing the Demolition Tool

Refer to Figures 8-1 and 8-2. The Retainer Pin is held in place by the Plunger Pin, which is assembled in line with a Plunger Spring and Plunger Spring Guide. The Retainer Pin, which is positioned at right angles to the Plunger Pin, is installed and removed by depressing the Plunger Pin as detailed in the following paragraphs.

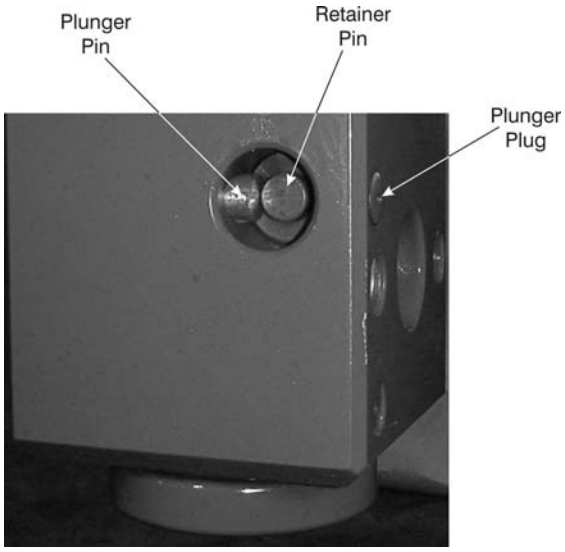


Figure 8-1: Retainer Pin and Plunger Pin

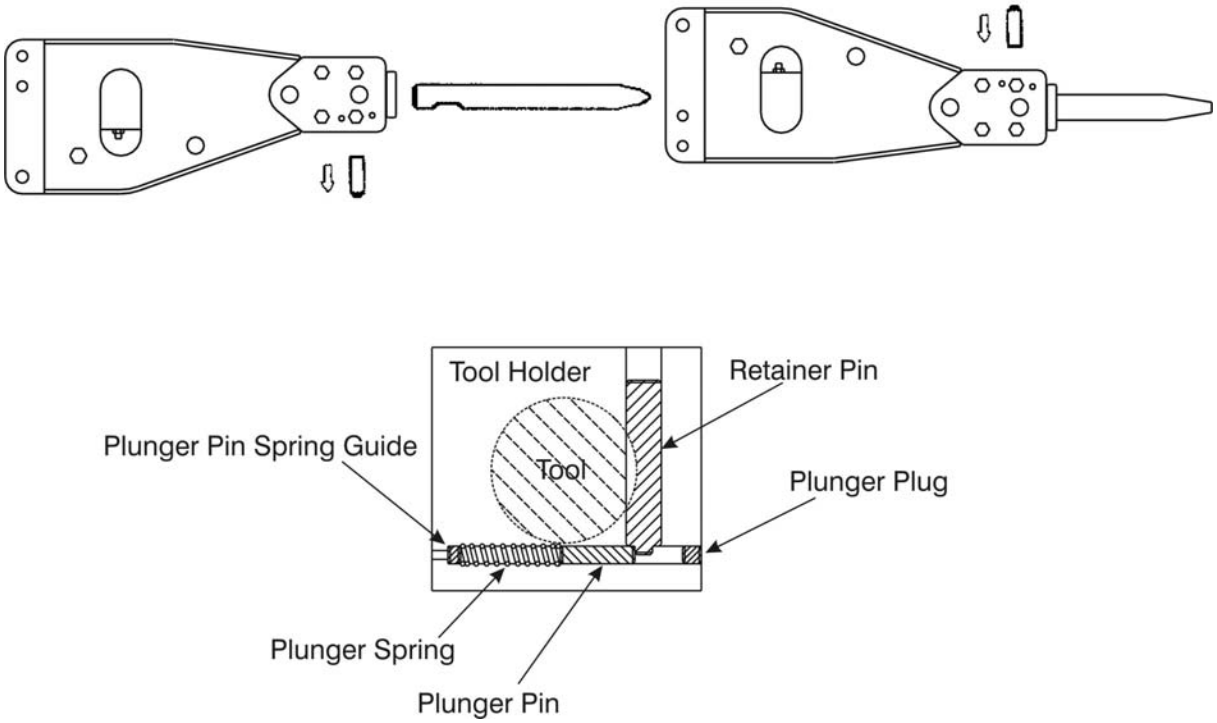


Figure 8-2: Installing the Demolition Tool

8.3.1 Required Tools

No special tools are required, but the following tools are recommended:

- Hand sledge
- Large size screwdriver
- 1/8-inch diameter x 8-inch long dowel rod

8.3.2 Tool Installation

1. Clean tool holder bore and upper half of tool.

2. Liberally apply Allied Chisel Paste to the tool shank.

3. Position hammer horizontally to allow access from below

4. Using a hoist, lift the demolition tool and insert it into bore, turning it until the slot in the tool is in line with the retainer pin hole.

5. Push a thin dowel rod through hole in Plunger Plug against Plunger Pin. While depressing Plunger Pin, insert Retainer Pin until dowel rod can be removed.

6. Insert Retainer Pin all the way in slot until Plunger Pin releases to lock Retainer Pin in place

8.3.3 Tool Removal

1. Position the hammer horizontally to allow access from below.

2. Depress the Plunger Pin with a screwdriver to clear the Retainer Pin.

3. While keeping the Plunger Pin depressed, drive the Retainer Pin out using a rod and hand sledge.

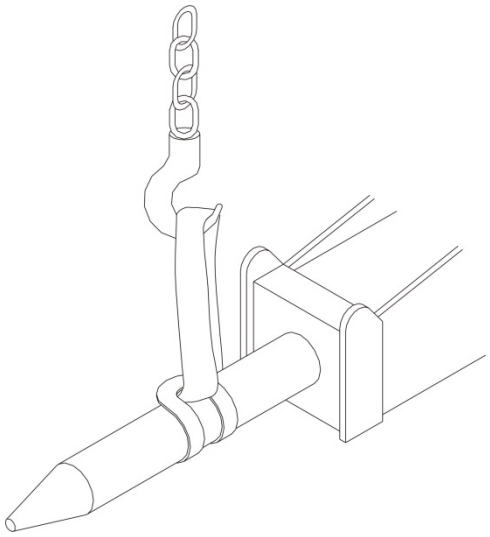


Figure 8-3: Lifting the Demolition Tool

4. Remove the screwdriver and finish driving the Retainer Pin out of slot.

5. Using a hoist, remove the demolition tool from the hammer. Refer to Figure 8-3.

6. Refer to Section 13.0 for storage instructions.

8.4 Lubricating the Demolition Tool

(Refer to Figures 8-4 and 8-5.)

Allied Chisel Paste is recommended for lubrication. If Allied Chisel Paste is unavailable, a high quality, petroleum based, lubricating grease with molybdenum disulfide can be used.

!! WARNING !!

Serious injury or death could result if the hammer falls from the carrier. Make sure that all mounting hardware is secure before lubrication or any other maintenance.

On Skid Steers, be sure that locking pins are securely engaged.

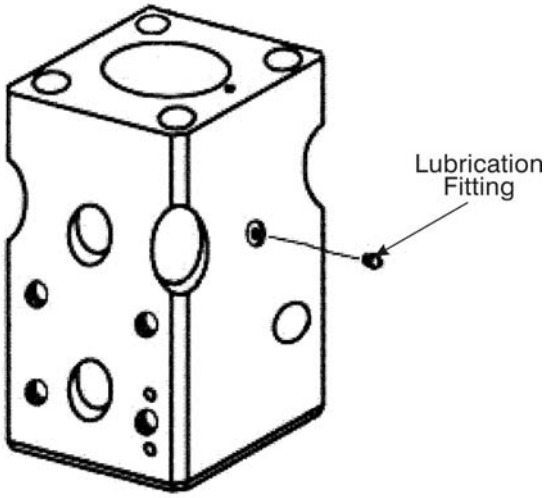


Figure 8-4: Lubricating the Demolition Tool

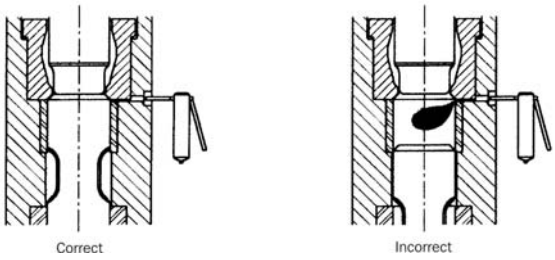


Figure 8-5: Lubricating the Demolition Tool

The demolition tool must be lubricated every two hours during operation as follows:

1. Check that hammer is securely mounted to carrier; on skid steers, be sure attachment locking pins are securely engaged.

!! CAUTION !!
Be sure to maintain contact pressure on the demolition tool during lubrication procedure or hammer could be damaged.

2. On level ground, stand the hammer vertically on the demolition tool and apply contact pressure. This ensures that the tool is in contact with the impact ring to prevent grease from entering piston area.

!! WARNING !!
Serious injury or death could result if carrier is not properly secured and locked when performing any carrier or hammer maintenance. Follow all safety instructions included in carrier manual and the AEM Safety Manual supplied with hammer.

3. Block carrier wheels to ensure carrier stability.

4. Shut off carrier and engage carrier interlock. Operator shall remain in cab.

!! WARNING !!
DO NOT crawl between carrier and hammer. Serious injury could result.

5. Assistant: Reach around hammer from the side, remove cover plug and attach grease gun to lubrication fitting as shown in Figure 8-3.

6. Lubricate until grease emerges from the gap between the tool bushing and the demolition tool.

8.5 Allied AutoLube Automatic Lubrication System

The Allied AutoLube Automatic Lubrication System is not used on the hammers covered in this manual.

SECTION 9.0
OPERATION

9.1 Operator Check List

Before operating the hammer, inspect the following:

- Check that hose and tube connections are secure.
- Check all fasteners for wear and tightness.
- Check all fasteners according to the maintenance schedule (see Section 11.0).
- Check that demolition tool is inserted properly.
- Be sure scheduled maintenance is performed before operating the hammer.
- Be sure all required tools are available.
- Frequently check the oil temperature. The temperature of the hydraulic oil must never exceed 176ºF. [80ºC.].
- Remember to lubricate the demolition tool every two hours during operation.

9.2 Tools Required by Operator

No special tools are required, but the following tools are recommended:

- safety glasses & gloves
- sledge hammer
- drift pin
- socket wrench set
- grease gun
- open end wrenches
- caliper for checking tool wear

9.3 Operating the Hammer

!!CAUTION!!
Check the oil temperature often to ensure it does not exceed 176ºF [80ºC]. If higher temperatures are measured in the tank, refer to Section 10. Troubleshooting.

9.3.1 Startup

!! WARNING !!
Close the protective shield on the operator's cab to prevent possible injury from flying rock splinters during hammer operation.

All persons in the immediate area, including the carrier operator, must wear ear protection.

The hammer shall only be operated from the operator's seat and shall not be put into operation until both carrier and hammer are in the correct position.

!! WARNING !!
Immediately cease operation of the hammer if anyone moves into the danger area, which is greater for hammer operation than for carrier operation due to the risk of flying debris.
When working with a hydraulic hammer, operation of the carrier is governed by the carrier manufacturer's safety regulations.

When contact pressure is applied to the demolition tool, the piston in the hammer is driven up to its starting position. When the foot switch is activated, the hammer cycles the demolition tool up and down.

9.3.2 Advance from Outer Edge

(Refer to Figure 9-1.)

Start breaking large and hard rocks near the outer edge. Place the tool a short distance from the edge of the material. If the rock does not break away within thirty (30) seconds, the advance must either be

reduced or breaking restarted at a different point.

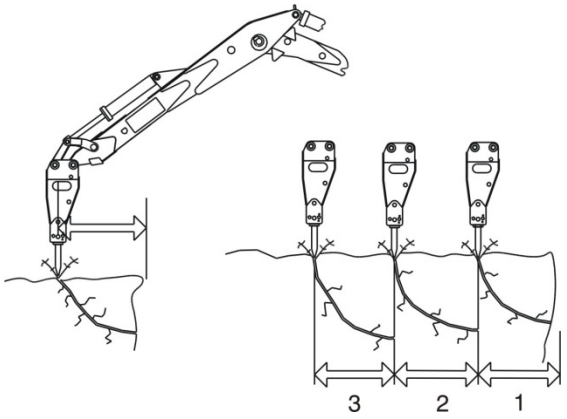


Figure 9-1: Advancing From Outer Edge

9.3.3 Angle of Operation
(Refer to Figure 9-2)

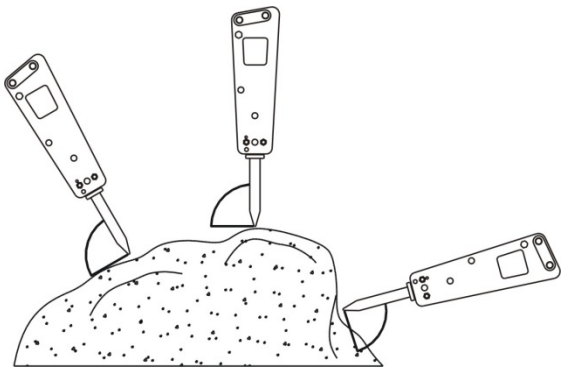


Figure 9-2: Angle of Operation

Always place the demolition tool at right angles to the surface of the material. If not placed at right angles, the hammer will wear more quickly, leading to permanent damage.

9.3.4 Hammer Rocking
(Refer to Figure 9-3)

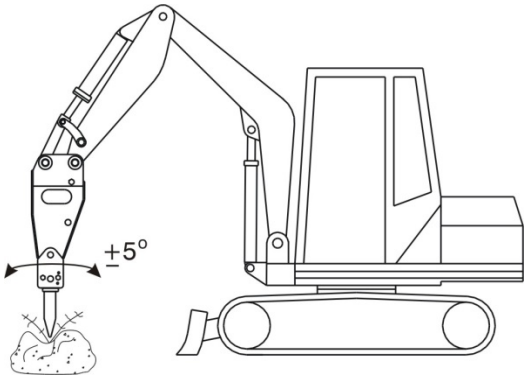


Figure 9-3: Rocking the Hammer

The hammer may be gently rocked backward and forward at a maximum of 5º to allow dust to escape, which would otherwise dampen the impact power of the demolition tool. Do not rock the hammer at angles greater than 5º or bending strain will occur, damaging the demolition tool and the hammer.

9.4 Incorrect Use of the Hammer

Carefully read through this section. The following sections describe functions that damage the hammer or cause personal injury.

9.4.1 Never Use as a Crowbar
(Refer to Figure 9-4.)

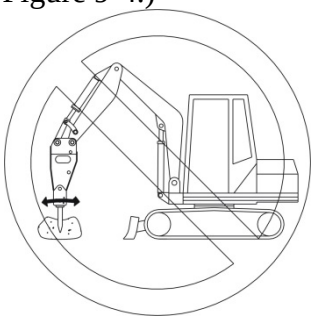


Figure 9-4: Never Use Hammer As A Crowbar

Using the hammer as a crowbar may cause the demolition tool to break.

9.4.2 Never Drive Demolition Tool into the Material
(Refer to Figure 9-5)

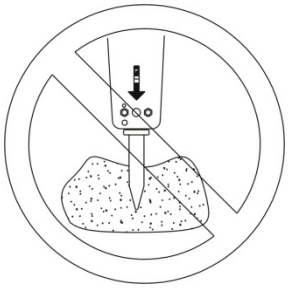


Figure 9-5: Never Drive Tool Into Material

If the advance is too large and the hammer is not rocked to release the dust, the demolition tool will be driven into the material, causing the tip to glow red-hot and become soft. It then could become wedged in the hole.

9.4.3 Never Pound with the Hammer and the Demolition Tool
(Refer to Figure 9-6.)

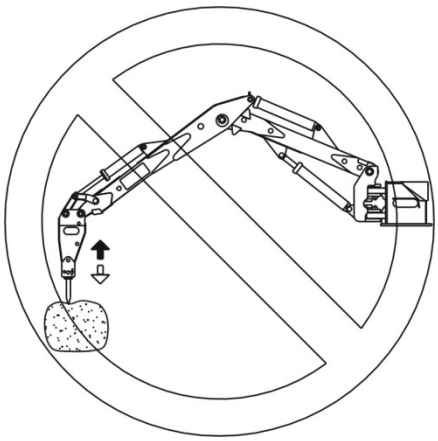


Figure 9-6: Do Not Pound With Hammer

Pounding at material with the hammer could cause damage to the hammer and the carrier.

9.4.4 Never Lift or Transport Loads with the Hammer (Refer to Figure 9-7.)

!!CAUTION!!
The hammer is not designed to lift or transport loads. This practice will damage the hammer.

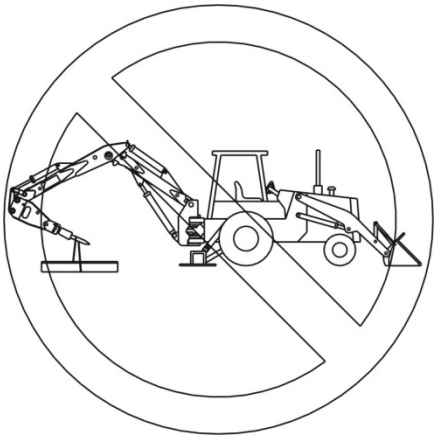


Figure 9-7: Do Not Use Hammer as Lift Or Transport

9.5 Special Operating Environments

9.5.1 Never Use In or Under Water

!! WARNING !!
Never use an AR 70, 75, 85 or 95 hammer underwater. These models are not built for underwater use.

9.5.2 Working Underground

When using the hammer underground (tunneling or mining applications) special regulations may apply. Additional considerations include:

- Use water sprays to suppress dust.
- Use fire-resistant hydraulic fluids when required.

Hydraulic systems using fire-resistant fluids require special engineering consideration when using the hammer. With some fluids, decreased flow and/or pressure to the hammer may be necessary. Contact Allied well before installation for

specific parameters for your particular fluid.

9.5.3 Working in High Outside Temperatures

Check the oil temperature frequently to ensure it does not exceed 176ºF [80ºC]. If higher temperatures are measured in the tank, a heat exchanger must be installed. Use only hydraulic oils with adequate viscosity.

9.5.4 Working in Low Outside Temperatures

!!CAUTION!!
When working in temperature conditions below minus 4ºF [-20ºC], the hydraulic hammer shall not be put into operation while the hydraulic oil is still cold. Operating the hammer with cold hydraulic oil may cause the seals in the hammer to break.
Observe the carrier manufacturer's recommendations.

When the temperature is below minus 4º F. (-20º C.), warm up the oil by running the carrier before starting the hammer.

Keep oil circulating in the carrier during pauses in work so that the oil does not get too cold for normal operation.

SECTION 10.0
OPERATOR TROUBLESHOOTING CHART

!!WARNING!!
Before removing the hydraulics lines, bleed off all hydraulic pressure. When troubleshooting and correcting problems, observe all safety regulations.

Problem	Cause	Remedy
Hammer does not start	Pressure and return lines crossed	Reroute hoses
	Quick disconnect not opening (if equipped)	Repair or replace
	Operating pressure too low	Refer to "Operating Pressure Too Low" section
	Fault in carrier control valve electric circuit	Check for power at solenoid
	Carrier hydraulic circuit leaks	Check hydraulic components
	Return line pressure too high	Refer to "Return Line Pressure Too High" section
	Carrier control valve failure	Call Service Technician
	Piston failure	Call Service Technician
	Hammer control valve (internal) does not function	Call Service Technician
	Tool binding in bushings	Check for proper lubrication Replace worn bushings or tool
Operating pressure too low	Relief valve set too low	Reset pressure (Check dynamic pressure)
	Damaged relief cartridge or seals	Inspect, repair or replace
	Insufficient pump delivery (low flow results in low pressure)	Check pump with flow meter (Check dynamic pressure)
	Flow control not set properly	Set flow to specified range
	Regulator valve incorrectly set	Adjust regulator valve
Oil leaks from hammer body or tool holder	Damaged or worn seals	Stop hammer operation immediately and replace seals
	Broken side rod	Stop hammer operation immediately and replace side rod

OPERATOR TROUBLESHOOTING CHART (cont'd)

Problem	Cause	Remedy
Hammer runs irregularly	Insufficient flow of oil	Set flow to specified range
	Return line pressure too high	Refer to "Return Line Pressure Too High" section
	Operating pressure is too low	Refer to "Operating Pressure Too Low" section
	Regulator valve failure	Call Service Technician
Return line pressure too high	Failed or blocked hoses or fittings	Remove blockage Replace damaged hoses or fittings
	Heat exchanger and return filters plugged	Change filter Repair or replace heat exchanger
	Return line connected to valve bank	Hammer return line must by-pass valve bank and be routed directly to the filter.
	Hoses or fittings too small for installation	Install proper hose and fitting sizes
Operating temperature too high	Operating pressure too high or too low	Refer to "Operating Pressure Too High" or "Operating Pressure Too Low" section
	Leakage or excessive flow through relief valve	Repair or replace worn parts
	Ambient temperature is high	Heat exchanger may be required Check with carrier manufacturer
	Tool binding in bushing(s)	Check for proper lubrication Replace worn bushings or tool
	Return line pressure too high	Refer to "Return Line Pressure Too High" section
	Excessive cycle time	Limit hammer operation time (Refer to Section 9.0)
	Oil flow too high	Set flow to specified range
	Breaking cycle too long	Reduce advance
	Oil viscosity too low	Check oil and correct
	Heat exchanger insufficient	Clean, install new or additional heat exchanger

OPERATOR TROUBLESHOOTING CHART (cont'd)

Problem	Cause	Remedy
Poor operation or low power	Operating pressure too low	Refer to "Operating Pressure Too Low" section
	Low pressure in accumulator	Have qualified service technician check high pressure accumulator for proper nitrogen pressure
	Operating temperature too high	Refer to "Operating Temperature Too High" section
	Tool binding in bushing(s)	Check for proper lubrication Replace worn bushings or tool
	Return line pressure too high	Refer to "Return Line Pressure Too High" section
	Carrier control valve not operating	Call Service Technician
	Regulator valve incorrectly set	Adjust regulator valve
	Improper hammer operation	Refer to Section 9.0 Operation
Impact rate slows down	Overheated oil (above 176ºF / 80ºC)	Check oil cooling system Replace or install additional heat exchanger Check carrier hydraulic circuit Check return line
	Return line pressure too high	Refer to "Return Line Pressure Too High" section
	Flow too low	Set flow to specified range
	Leakage in excavator hydraulic circuit	Check hydraulic components
	Hammer or carrier valve failure	Call Service Technician
	Low pressure in accumulator	Have qualified service technician check high pressure accumulator for proper nitrogen pressure
	Oil viscosity too low	Check oil and correct

OPERATOR TROUBLESHOOTING CHART (cont'd)

Problem	Cause	Remedy
Tool breakage	Tool driven into material too far and becomes stuck.	Limit tool penetration (Refer to Section 9.0)
	Excessive bending	Do not pry with tool (Refer to Section 9.0)
	Excessive wear	Reduce advance Limit cycle time (Refer to Section 9.0)
	Improper tool alignment	Maintain right angle to work surface (Refer to Section 9.0)
	Excessive tool length	Use shorter tool
	Excessive galling of tool shank or bushings due to insufficient lubrication	Increase lubrication frequency (Refer to Section 8.5)
	Excessive galling of tool shank or bushings due to inferior lubrication quality	Use high quality chisel paste (Refer to Section 8.5)

SECTION 11.0
CARE AND MAINTENANCE

11.1 Care and Maintenance Schedule

During Shift

- Lubricate demolition tool every two hours or anytime the tool appears dry. (See Section 8-4.)
- Check lube fitting for damage.

Daily

- Tighten threaded connections (during first 50 hours)
- Check for leaks in hydraulic lines.
- Check that pipe clamps fit correctly.

Weekly

- Check threaded connections.
- Check mounting pins for wear.
- Check retainer pin and plunger pin in tool holder for tight fit.
- Check demolition tool for burrs. Pay special attention to slot area.

Every Two Weeks

- Check demolition tool for wear.
- Check tool bushing for wear.
- Check side plates for wear.

Monthly

- Check piston impact surface for dents.
- Check impact surface (top) of demolition tool for chips.
- Check impact surface (top) of tool bushing for cracks, chips, wear or looseness.

As Required

- Replace bent and damaged tubes.
- Replace any damaged hose(s).
- Clean hydraulic oil filter.

11.1.1 Maintenance Records and Warranty Protection

Maintain records of hammer maintenance, service and repair. These records will be helpful if warranty coverage is ever in question. Each record shall include:

- The date of service, maintenance or repair
- A description of the service, maintenance or repair performed. Include part numbers if applicable
- Copies of purchase orders and invoices for repair parts and service
- The name and signature of the person performing the service, maintenance or repair

11.2 Care and Maintenance Instructions

(Refer to sections 11.2.1 thru 11.2.12.)

11.2.1 Checking Hydraulic Lines for Leaks Before Starting Work

1. Visually check all hydraulic lines (tubes and hoses) from the pump to the hydraulic hammer and back into the tank.

2. Tighten any loose fasteners and hose clamps.

3. Replace any damaged tubes or hoses.

11.2.2 Daily Checking for Cracks

Check the mounting bracket and housing assemblies for cracks daily.

11.2.3 Checking Wear To The Tool Bushings and Impact Ring

(Refer to Figure 11-1 and 11-2)

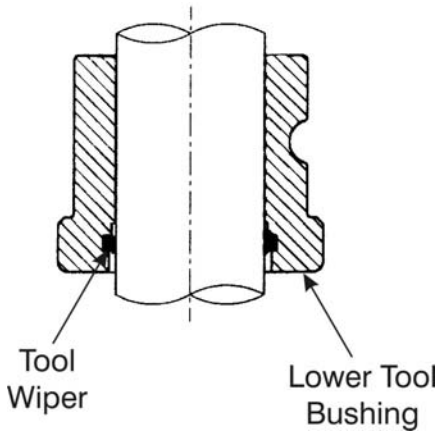


Figure 11-1: Tool Bushings

Check the inside diameter of the tool bushing every time the demolition tool is changed or every 80 operating hours. Determine the allowable diameter from the following table. If the diameter is greater than the specified dimension, the tool bushing must be replaced.

Tool Bushing Maximum Inside Diameter				
AR70, AR 70B	AR 70C	AR75, AR75B	AR85 AR85B	AR 95 AR 95B
2.83 in 72 mm	2.56 in 65 mm	3.03 in 77 mm	3.43 in 87 mm	3.82 in 97 mm

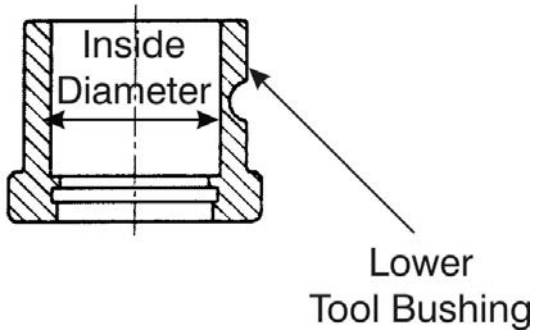


Figure 11-2: Check Wear To Inner Tool Bushing

NOTE

It is recommended that the hammer be taken to an Allied distributor service department if repair is required. A qualified service technician must replace the tool bushings and the impact ring.

11.2.4 Checking Impact Face of Piston for Wear

The impact face of the piston must be checked each time the demolition tool is changed or at least once a month. After the

demolition tool has been removed, proceed as follows:

1. Shine a light on the piston's impact surface and check for dents or chipping.

2. Do not operate if dents or chips are evident.

3. If the piston is damaged, contact your authorized Allied service center.

11.2.5 Checking Wear of the Demolition Tool
(Refer to Figure 11-3.)

Check the demolition tool diameter each time it is changed or every 80 operating hours. If the shank diameter of the demolition tool has worn to less than the dimension listed in the following table, the demolition tool must be replaced.

Burrs on the shank of the demolition tool and on the retainer pin must be removed carefully.

!! CAUTION !!
Do not allow the shank of the tool to overheat when using a grinder to remove burrs.

Tool Bushing Maximum Inside Diameter				
AR70, AR 70B	AR 70C	AR75, AR75B	AR85 AR85B	AR 95 AR 95B
2.68 in 68 mm	2.40 in 61 mm	2.87 in 73 mm	3.27 in 83 mm	3.66 in 93 mm

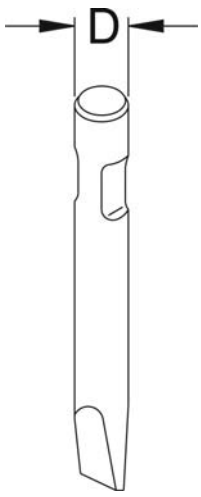


Figure 11-3: Check Wear to Demolition Tool

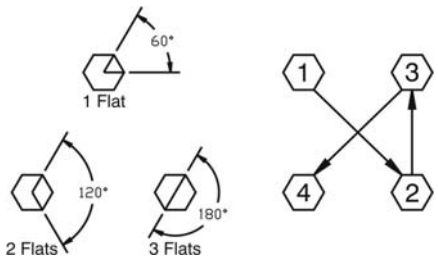
For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

11.2.6 Check Tightness Of Threaded Connections

The hydraulic hammer threaded connections are subjected to high stresses. All hydraulic hammer threaded connections must be checked daily for the first 50 operating hours and thereafter once a week. Loose connections shall be tightened to the specified torque. Connection locations for each hammer model are shown in Figures 11-4 through 11-8. Torque values are listed in the corresponding Torque Tables.

Torque Table for Allied Hammer Model AR 70 & AR 70B				
Connection	Item No.	Interval	Tool Required	Torque Req'd Ft-Lbs (N-m)
Threaded Plug Accumulator	1	As required	6 mm Allen wrench	15 (20)
Socket Head Cap Screw Accumulator (Top)	2	Weekly	14mm Allen wrench	221 (300)
Socket Head Cap Screw Accumulator (Bottom)	3	Weekly	14mm Allen wrench	184 (250)
Side Rods	4	As required	24mm socket	Step 1: 110(150) Step 2: 221(300) Step 3: 221(300) See Note 1
Socket Head Cap Screw Regulator Cover	5	As required	8mm Allen wrench	58 (80)
Side Plate Mounting Bolt (Lower)	6	As required	36mm socket	428 (580)
Side Plate Mounting Bolt (Upper)	7	As required	36mm socket	428 (580)
Hose connections		As required	Open-ended wrench 7/8 to 1-1/4 in.	As required

Note 1: Using the sequence shown, tighten all side rods to the specified torque for each torque step. Step 3 is to verify torque.



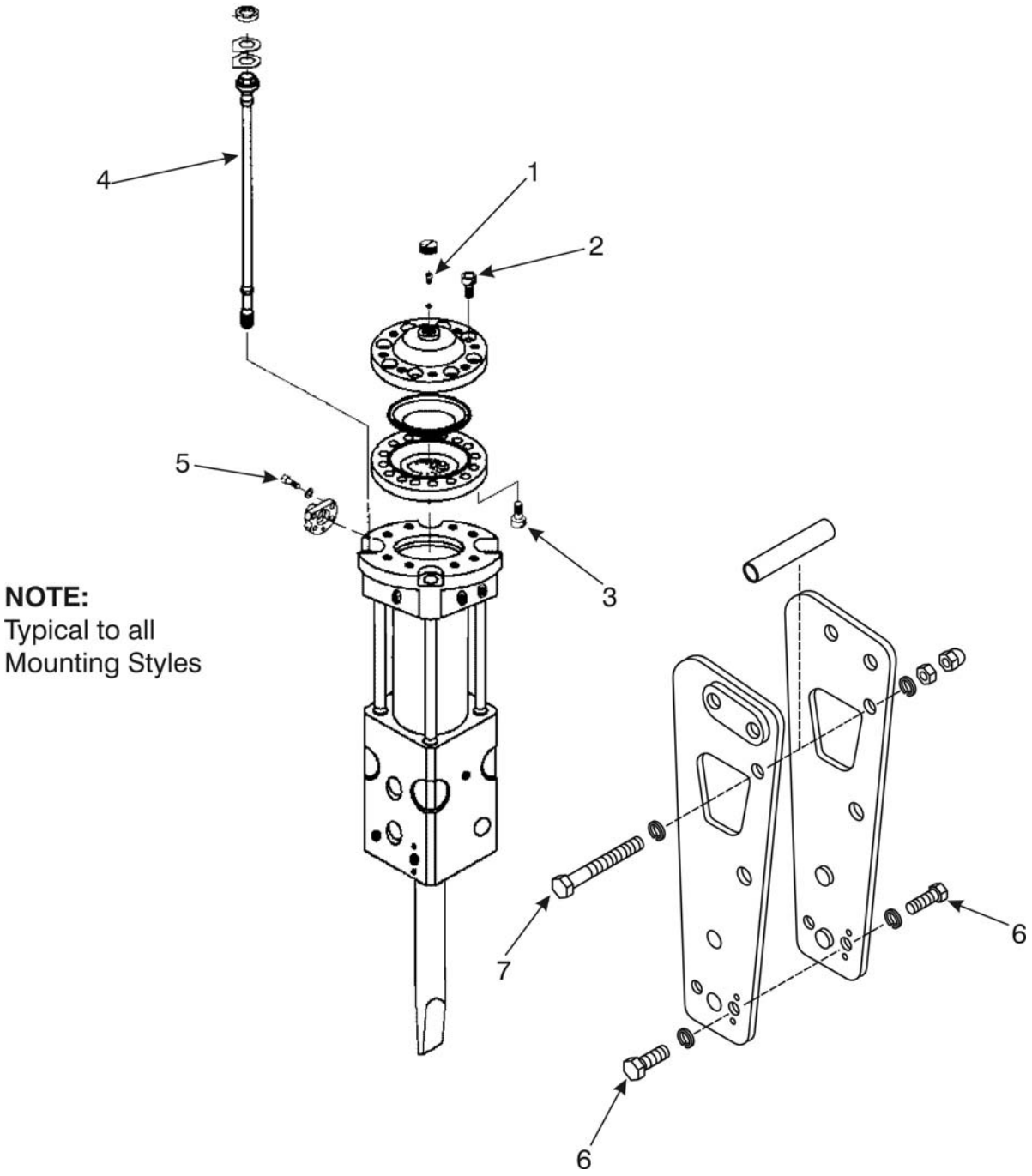
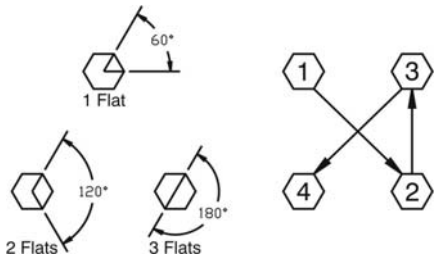


Figure 11-4: Model AR 70 & AR 70B Torque Locations

Torque Table for Allied Hammer Model AR 70C				
Connection	Item No.	Interval	Tool Required	Torque Req'd Ft-Lbs (N-m)
Threaded Plug Accumulator	1	As required	6 mm Allen wrench	15 (20)
Socket Head Cap Screw Accumulator (Top)	2	Weekly	14mm Allen wrench	221 (300)
Socket Head Cap Screw Accumulator (Bottom)	3	Weekly	14mm Allen wrench	184 (250)
Side Rods	4	As required	24mm socket	Step 1: 110(150) Step 2: 221(300) Step 3: 221(300) See Note 1
Socket Head Cap Screw Regulator Cover	5	As required	8mm Allen wrench	58 (80)
Side Plate Mounting Bolt (Lower)	6	As required	36mm socket	428 (580)
Side Plate Mounting Bolt (Long)	7	As required	27mm socket	340 (250)
Mounting Bracket Bolt	8	As required	24mm socket	221 (300)
Hose connections		As required	Open-ended wrench 7/8 to 1-1/4 in.	As required

Note 1: Using the sequence shown, tighten all side rods to the specified torque for each torque step. Step 4 is to verify torque.



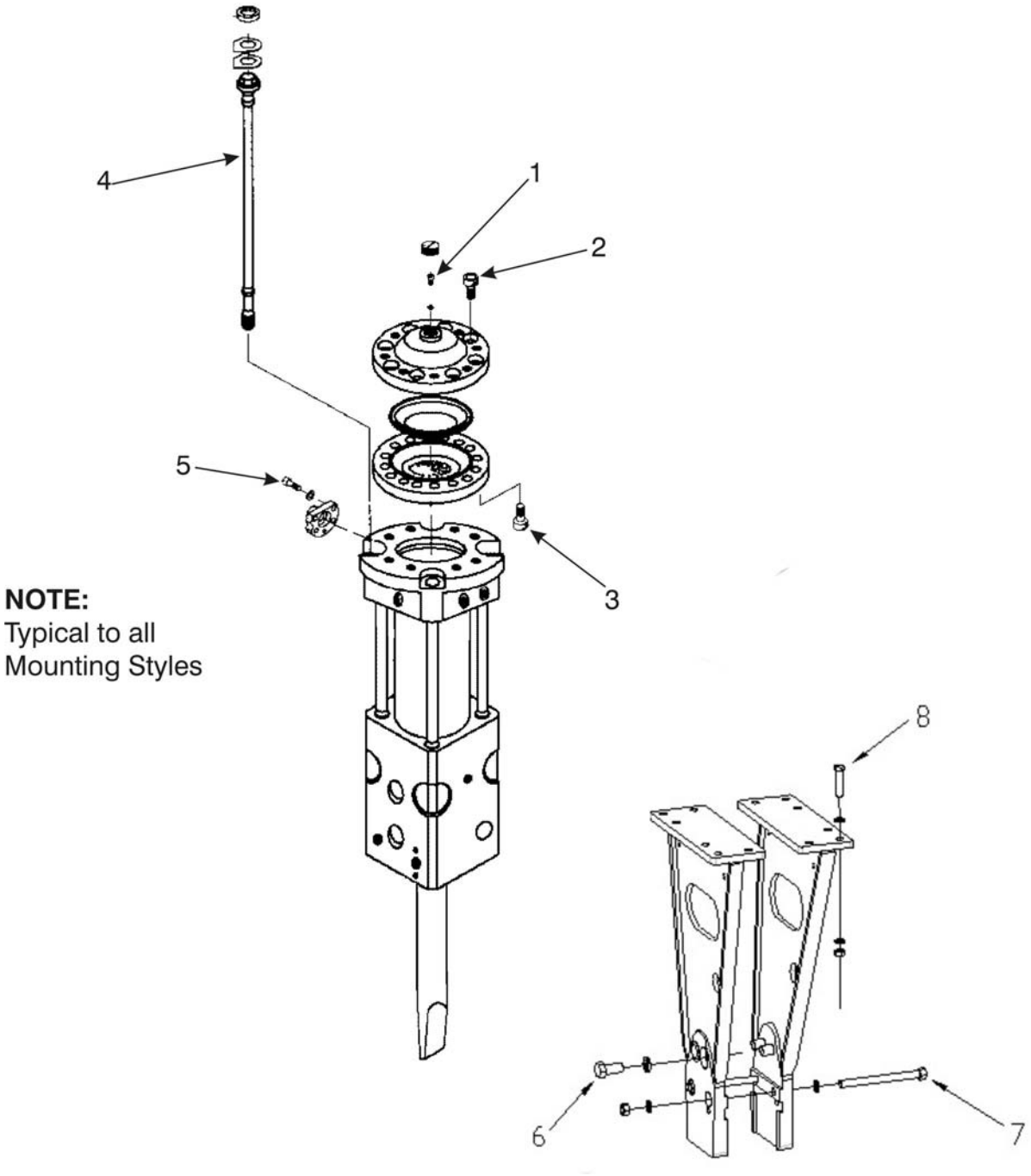
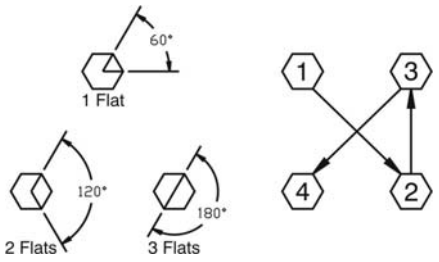


Figure 11-5: Model AR 70C Torque Locations

Torque Table for Allied Hammer Model AR 75				
Connection	Item No.	Interval	Tool Required	Torque Req'd Ft-Lbs (N-m)
Threaded Plug Accumulator	1	As required	6 mm Allen wrench	15 (20)
Socket Head Cap Screw Accumulator (Top)	2	Weekly	14mm Allen wrench	221 (300)
Socket Head Cap Screw Accumulator (Bottom)	3	Weekly	14mm Allen wrench	184 (250)
Side Rods	4	As required	27mm socket	Step 1: 110(150) Step 2: 221(300) Step 3: 442(600) Step 4: 442(600) See Note 1
Socket Head Cap Screw Regulator Cover	5	As required	8mm Allen wrench	58 (80)
Side Plate Mounting Bolt (Lower)	6	As required	36mm socket	428 (580)
Side Plate Mounting Bolt (Upper)	7	As required	36mm socket	428 (580)
Hose connections		As required	Open-ended wrench 7/8 to 1-1/4 in.	As required

Note 1: Using the sequence shown, tighten all side rods to the specified torque for each torque step. Step 4 is to verify torque.



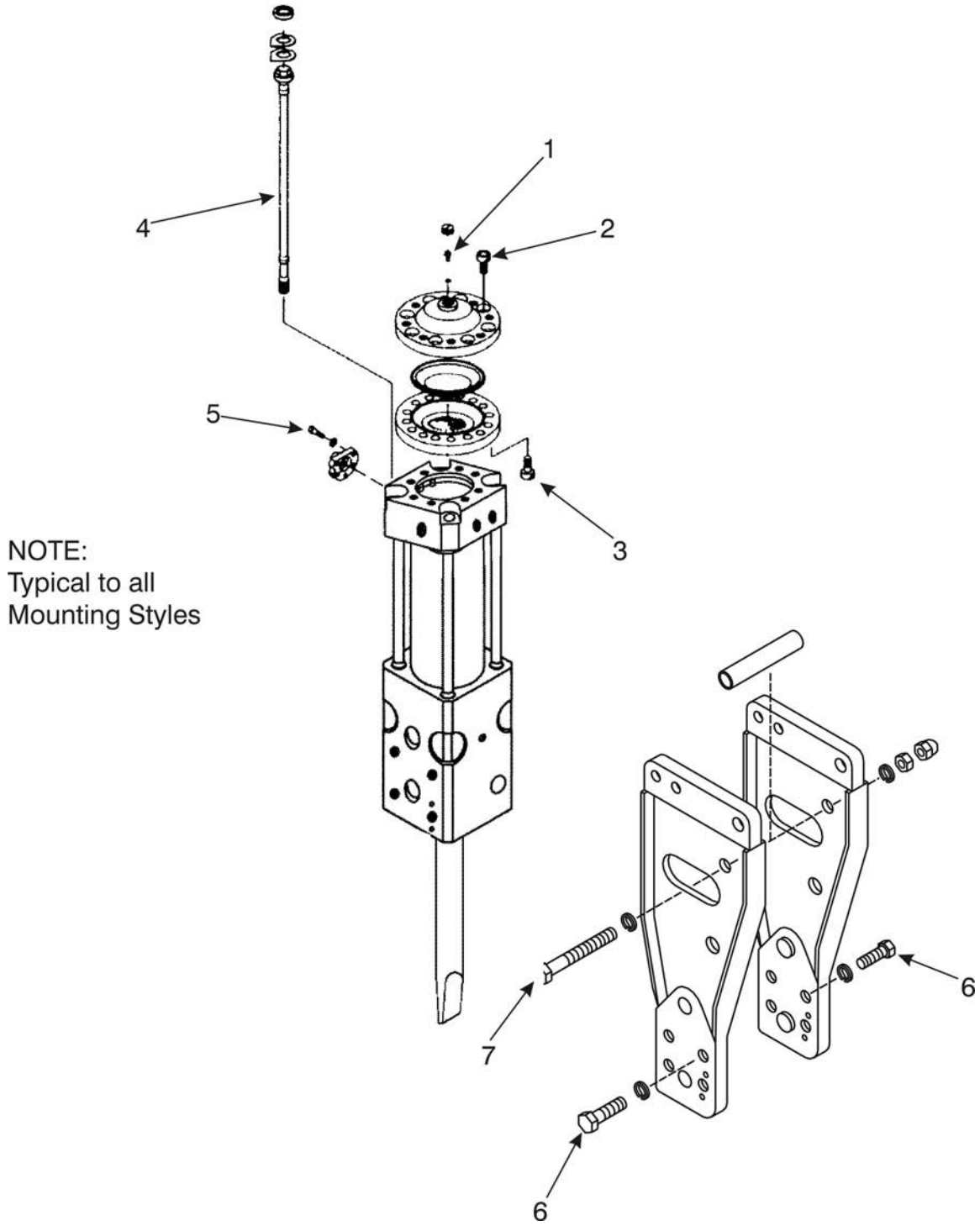
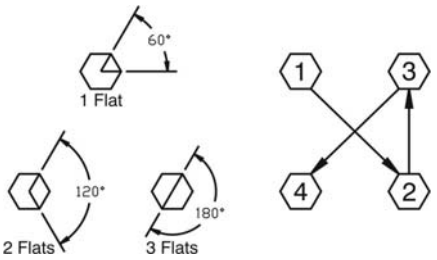


Figure 11-6: Model AR 75 Torque Locations

Torque Table for Allied Hammer Model AR 75B				
Connection	Item No.	Interval	Tool Required	Torque Req'd Ft-Lbs (N-m)
Threaded Plug Accumulator	1	As required	6 mm Allen wrench	15 (20)
Socket Head Cap Screw Accumulator (Top)	2	Weekly	14mm Allen wrench	221 (300)
Socket Head Cap Screw Accumulator (Bottom)	3	Weekly	14mm Allen wrench	184 (250)
Side Rods	4	As required	27mm socket	Step 1: 110(150) Step 2: 221(300) Step 3: 442(600) Step 4: 442(600) See Note 1
Socket Head Cap Screw Regulator Cover	5	As required	8mm Allen wrench	58 (80)
Side Plate Mounting Bolt (Lower)	6	As required	36mm socket	428 (580)
Side Plate Mounting Bolt (Upper)	7	As required	36mm socket	428 (580)
Spacer Bolt	8	As Required	36mm socket	482 (580)
Hose connections		As required	Open-ended wrench 7/8 to 1-1/4 in.	As required

Note 1: Using the sequence shown, tighten all side rods to the specified torque for each torque step. Step 4 is to verify torque.



For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

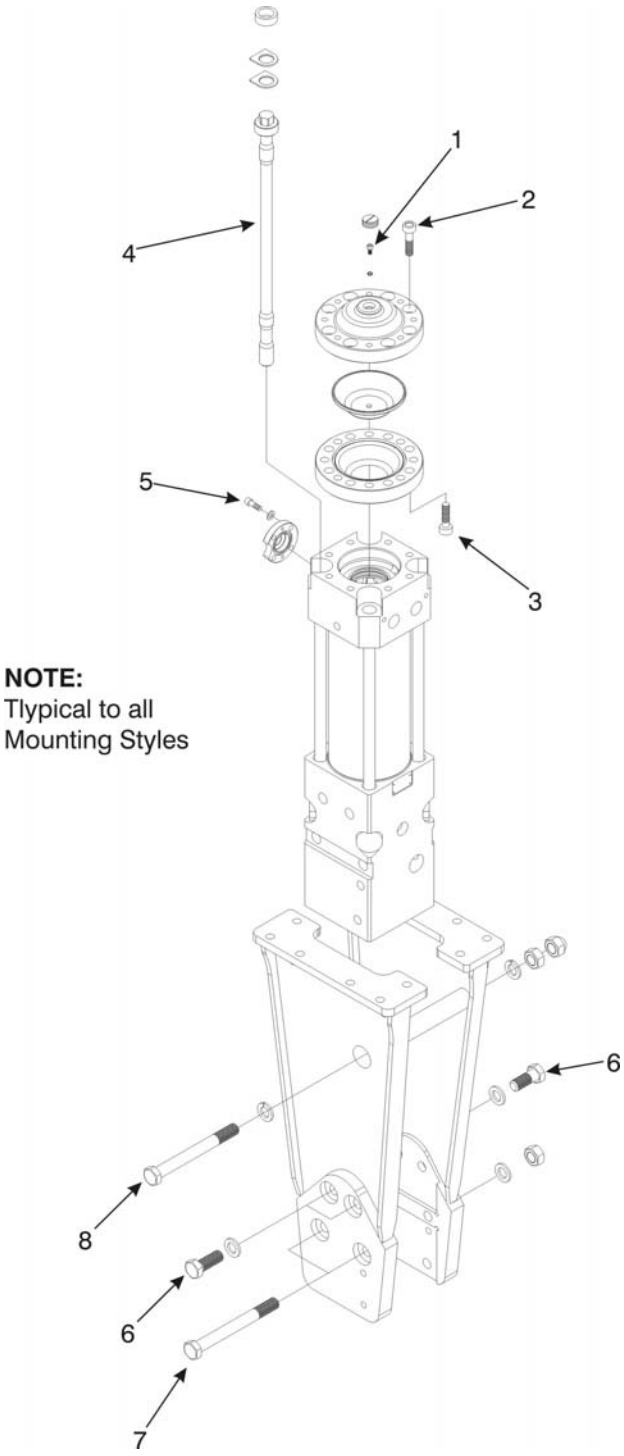


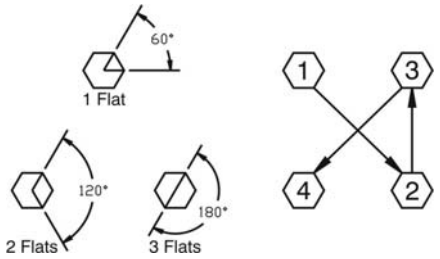
Figure 11-7: Model AR 75B Torque Locations

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

Torque Table for Allied Hammer Model AR 85 & AR85B				
Connection	Item No.	Interval	Tool Required	Req'd Torque Ft-Lbs (N-m)
Threaded Plug Accumulator	1	As required	6 mm Allen wrench	15 (20)
Socket Head Cap Screw Accumulator (Top)	2	Weekly	14 mm Allen wrench	221 (300)
Socket Head Cap Screw Accumulator (Bottom)	3	Weekly	14 mm Allen wrench	184 (250)
Side Rods	4	As required	27 mm socket	Step 1: 110(150) Step 2: 221(300) Step 3: 442(600) Step 4: 442(600) See Note 1
Socket Head Cap Screw Regulator Cover	5	As required	8 mm Allen wrench	58 (80)
Side Plate Mounting Bolt (Lower)	6	As required	41 mm socket	625 (850)
Top Mounting Bracket Bolt	7	As required	1-1/8 inch socket	250 (340)
Hose connections		As required	Open-ended wrench 7/8 to 1-1/4 in.	As required

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

Note 1: Using the sequence shown, tighten all side rods to the specified torque for each torque step. Step 4 is to verify torque.



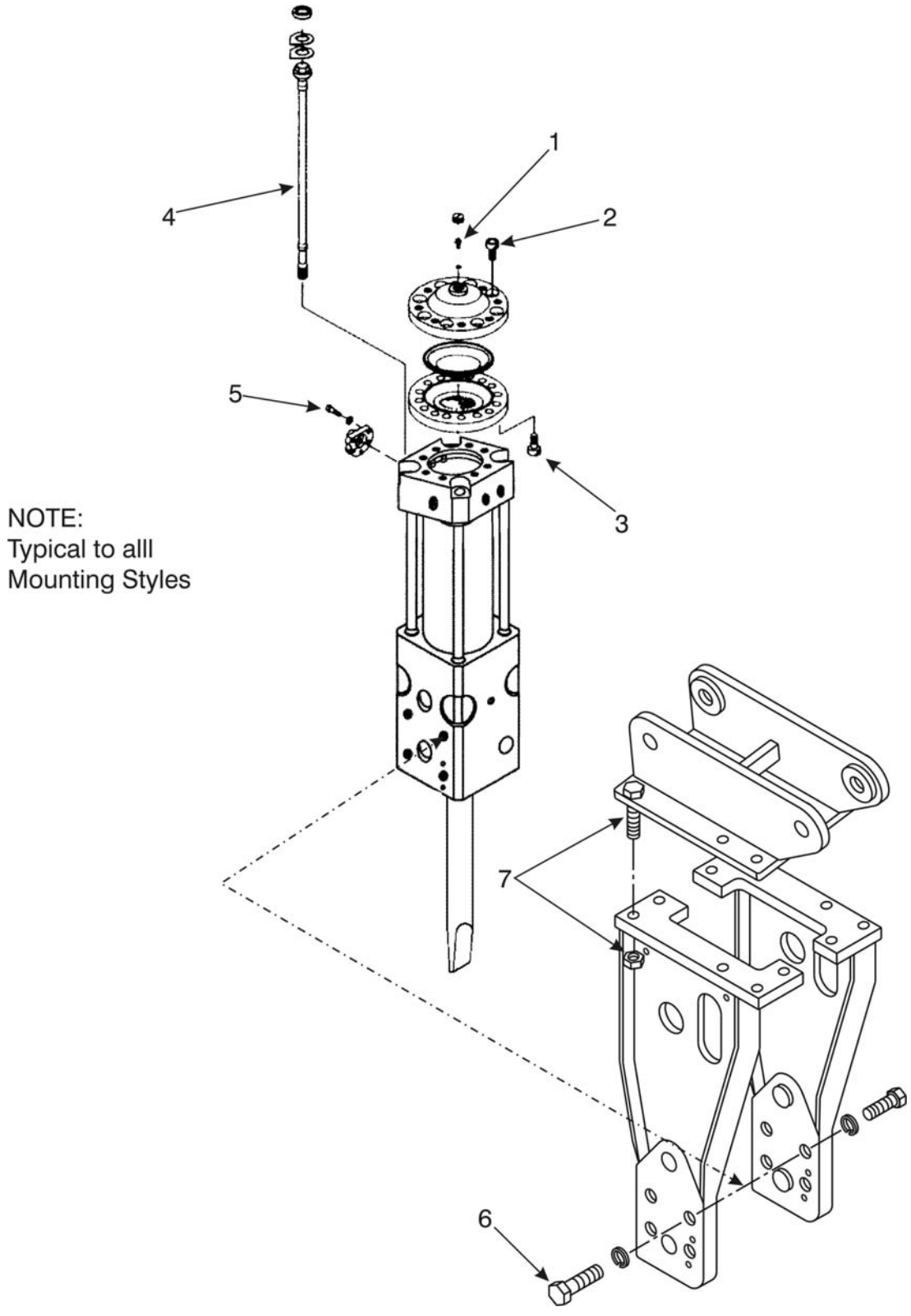
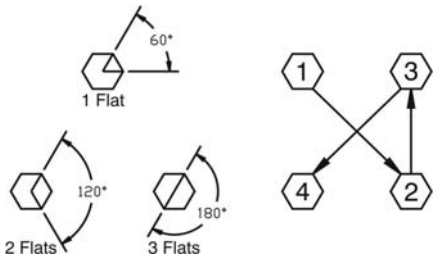


Figure 11-8: Model AR 85 Series Torque Locations

Torque Table for Allied Hammer Model AR 95 & AR 95B				
Connection	Item No.	Interval	Tool Required	Req'd Torque Ft-Lbs (N-m)
Threaded Plug Accumulator	1	As required	6 mm Allen wrench	15 (20)
Socket Head Cap Screw Accumulator (Top)	2	Weekly	14 mm Allen wrench	221 (300)
Socket Head Cap Screw Accumulator (Bottom)	3	Weekly	14 mm Allen wrench	184 (250)
Side Rods	4	As required	30 mm socket	Step 1: 220 (300) Step 2: 370 (500) Step3: 516 (700) Step 4: 516 (700) See Note 1
Socket Head Cap Screw Regulator Cover	5	As required	8 mm Allen wrench	58 (80)
Side Plate Mounting Bolt (Lower)	6	As required	46 mm socket	848 (1150)
Top Mounting Bracket Bolt	7	As required	1-1/8 inch socket	250 (340)
Hose connections		As required	Open-ended wrench 7/8 to 1-1/4 in.	As required

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

Note 1: Using the sequence shown, tighten all side rods to the specified torque for each torque step. Step 4 is to verify torque.



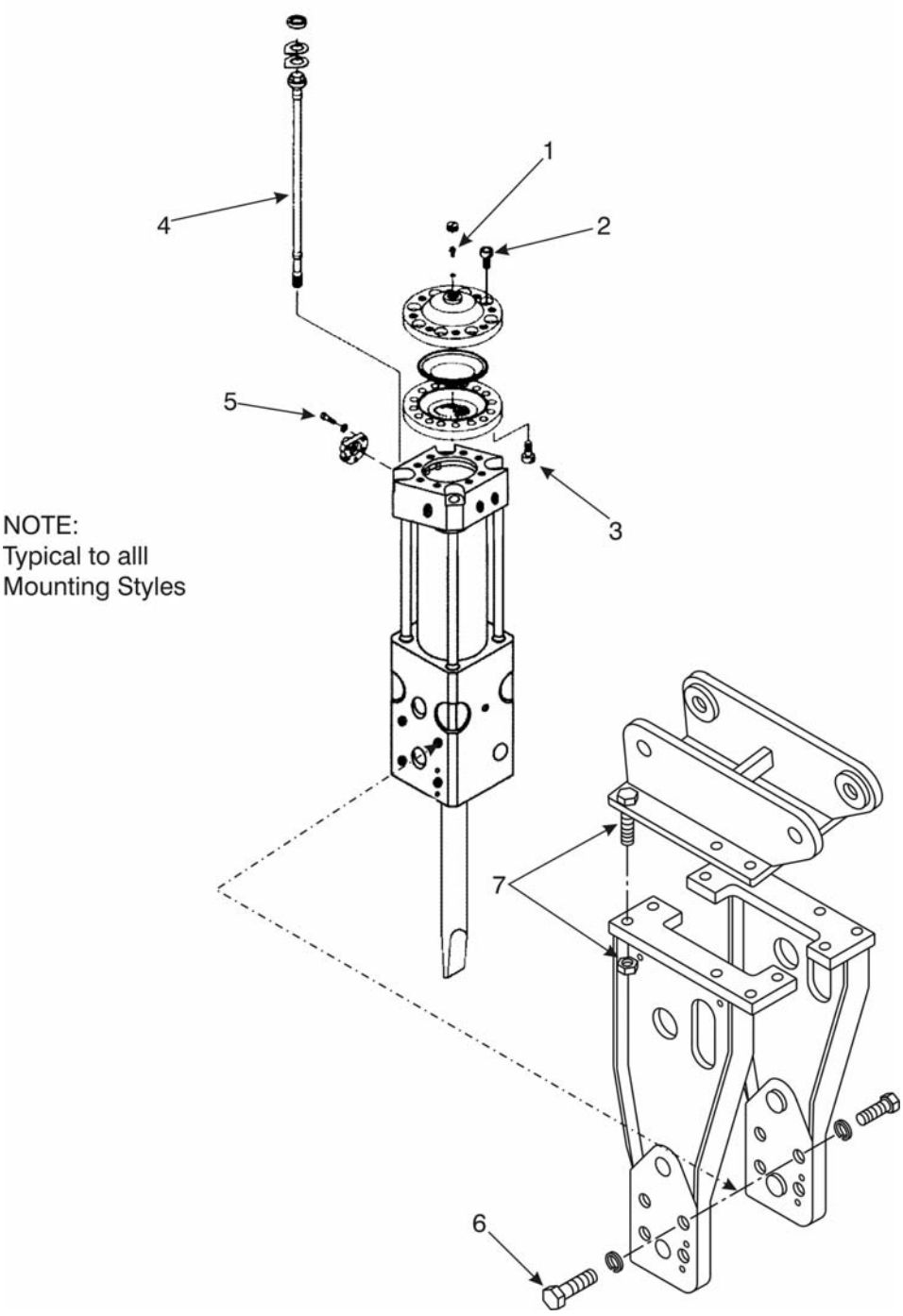


Figure 11-9: Model AR 95 Series Torque Locations

For models AR 70D, AR 75B, AR 80B and AR 95B use Safety, Operation and Maintenance Manual, part number 576778

11.2.7 Checking the Housing Assembly

The housing assembly shall be checked at least twice a month for cracks or heavy wear. Contact Allied for recommended repair or rebuild procedures.

11.2.8 Checking and Cleaning the Hydraulic Oil Filter

1. On new hydraulic hammer installations, clean the oil filter for the first time after eight (8) operating hours, and the second time after fifty (50) operating hours.
2. Thereafter, check the oil filter every 500 hours and clean if necessary.

11.2.9 Checking and Cleaning the Hydraulic Oil Filter on the Carrier

Refer to the carrier manual and change and clean the oil filter in the carrier as instructed.

SECTION 12.0
LIFTING AND TRANSPORT

If the hammer is to be transported independently of the carrier:

1. Remove all loose debris from hammer.

2. Follow removal instructions in Section 7.8.

3. Secure hoses to unit to avoid accidental damage.

4. Lift the hammer at approved lift points only with appropriate lifting equipment. See Figure 12-1.

!!WARNING!!
Do not lift the hammer by the mounting pins. The hammer may shift and cause damage or personnel injury.

5. Adequately stabilize and secure the hammer for transport.

If the hammer is transported while installed on the carrier:

1. Remove all loose debris from hammer.

2. Secure hoses to unit to avoid accidental damage.

3. Inspect the mounting pins and hardware for damage and integrity.

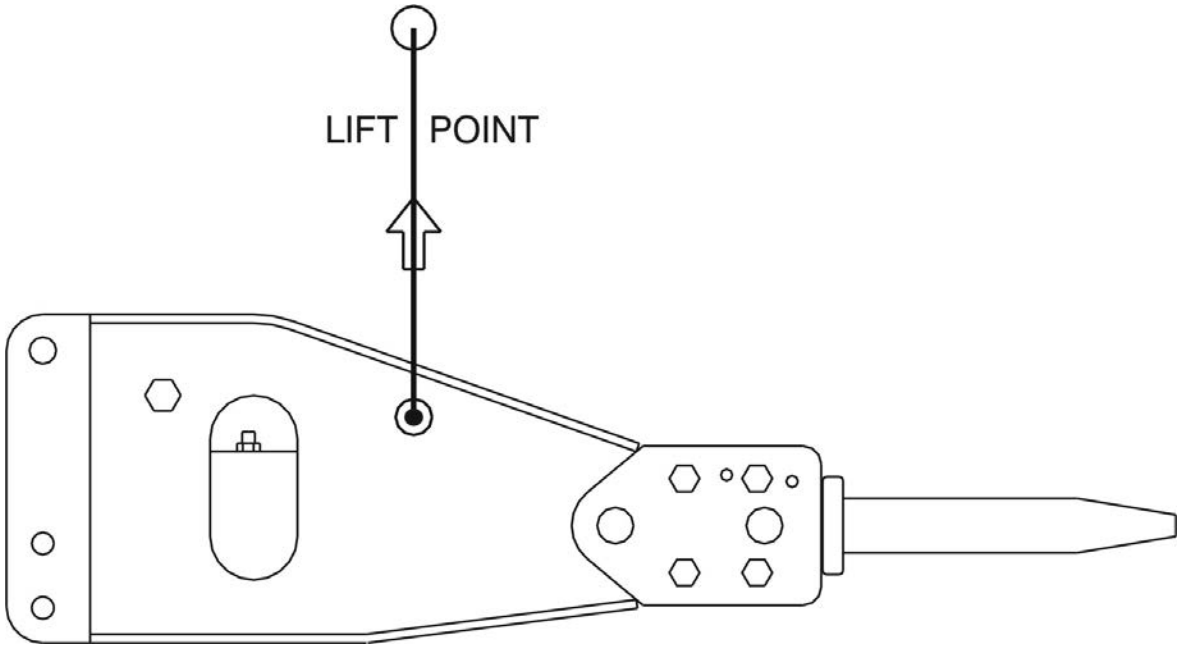


Figure 12-1: Hammer Lift Point

SECTION 13.0
STORAGE OF THE HAMMER

13.1 Storing Hammer on the Carrier

Store the hammer in the vertical position with the tool pushed all the way in. This lifts the piston into its uppermost position. In this position, sliding surfaces are covered by oil.

13.2 Short-Term Hammer Storage of the Carrier—14 Days or Less

1. The hammer may be stored in a vertical or horizontal position with no special storage requirements.

2. If storing the hammer in a horizontal position, the top of the hammer should be higher than the tool end to prevent water from entering the tool holder.

3. If outside, cover the hammer with a waterproof tarp.

13.3 Long-Term Hammer Storage off the Carrier—More than 14 Days

1. Refer to Section 8.3.3 and remove the demolition tool from the hammer.

2. Remove the hydraulic hoses.

!!CAUTION!!
Oil will drain when threaded hydraulic connections IN and OUT are opened. This oil must be collected and disposed of correctly.

3. Open threaded hydraulic connections **IN** and **OUT**.

4. Using a rod or tube, push the piston to its highest position.

5. Block the piston with a rod or tube so it cannot return to the down or out position.

6. Close threaded hydraulic connections **IN** and **OUT**.

7. Close the bore for the demolition tool using either the protective plug or a clean rag.

8. Fill the connections on the hammer with hydraulic oil.

9. Plug all hydraulic connections.

!!CAUTION!!
The weight of the piston can cause flattening and damage to the seals and O-rings when storing a hammer in the horizontal position. Vertical storage is recommended.

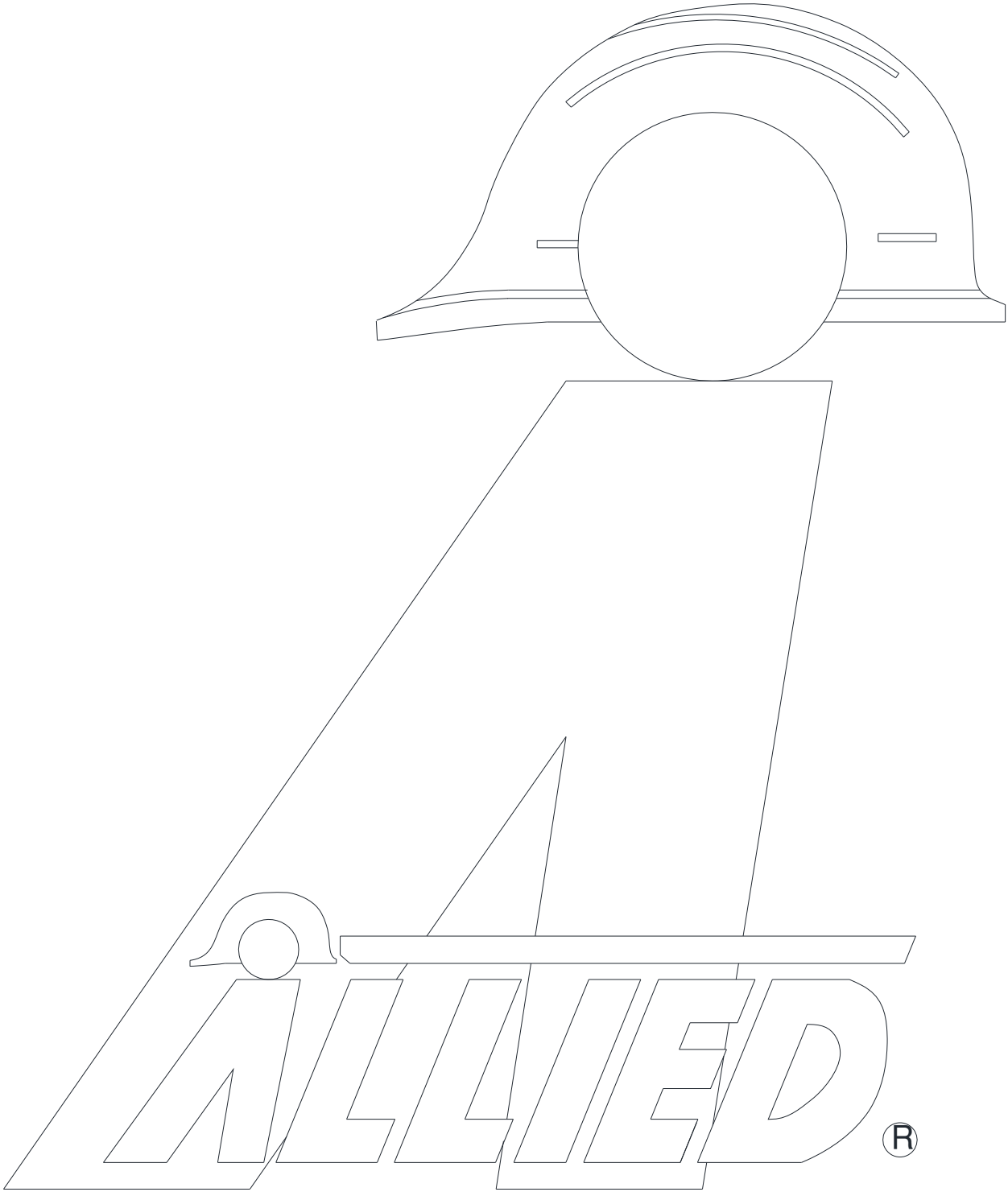
!!CAUTION!!
Surface condensation on the normally exposed lower area of the piston can cause destructive rust and pitting of the piston in the lower seal contact area. Coat surface with oil to help prevent damage.

10. Store the hammer blocked in an upright position or on a stand. The piston must be blocked in the upper position.

11. If possible, stand the hammer upside down. The piston will slide to the top of the hammer.

!!CAUTION!!
Secure the hammer so that it cannot fall .

12. If outside, cover the hammer with a waterproof tarp.



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