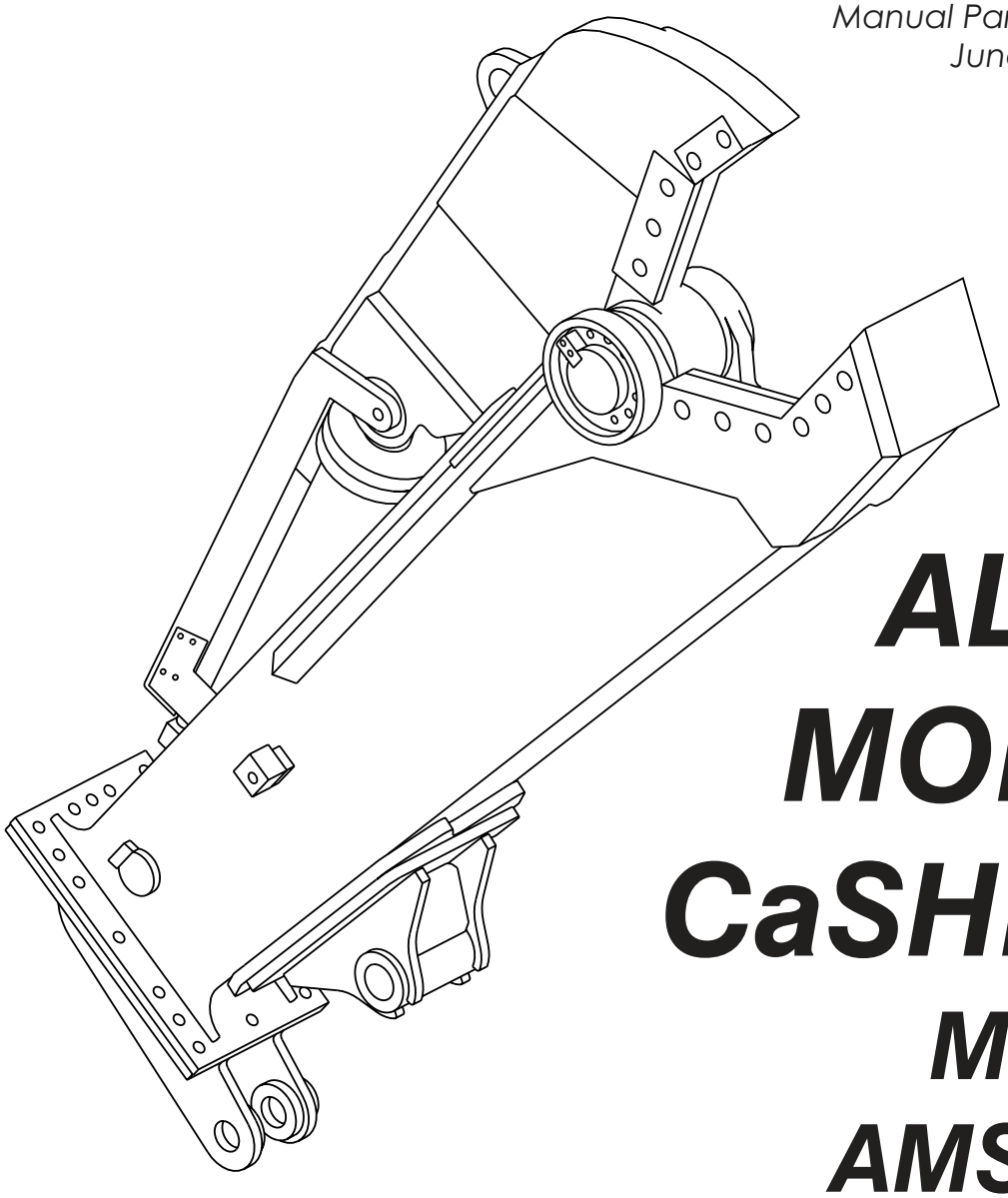
ALLIED®
Construction Products, Inc.

TECHNICAL MANUAL

Manual Part Number 002045
June 21, 2001



ALLIED MOBILE CaSHEAR™ Model AMS-55

Allied CaShear AMS-55
Document Change Notice

Date	Page	Change
04/16/99	15	Text
04/16/99	30,31	Text - added Field Dressing the Piercing Tip
04/16/99	14	Art
04/16/99	44	Art - added Rod Guard Hardware
04/16/99	45	Parts List

TABLE OF CONTENTS

Section **Page**

TABLE OF CONTENTS

Section **Page**

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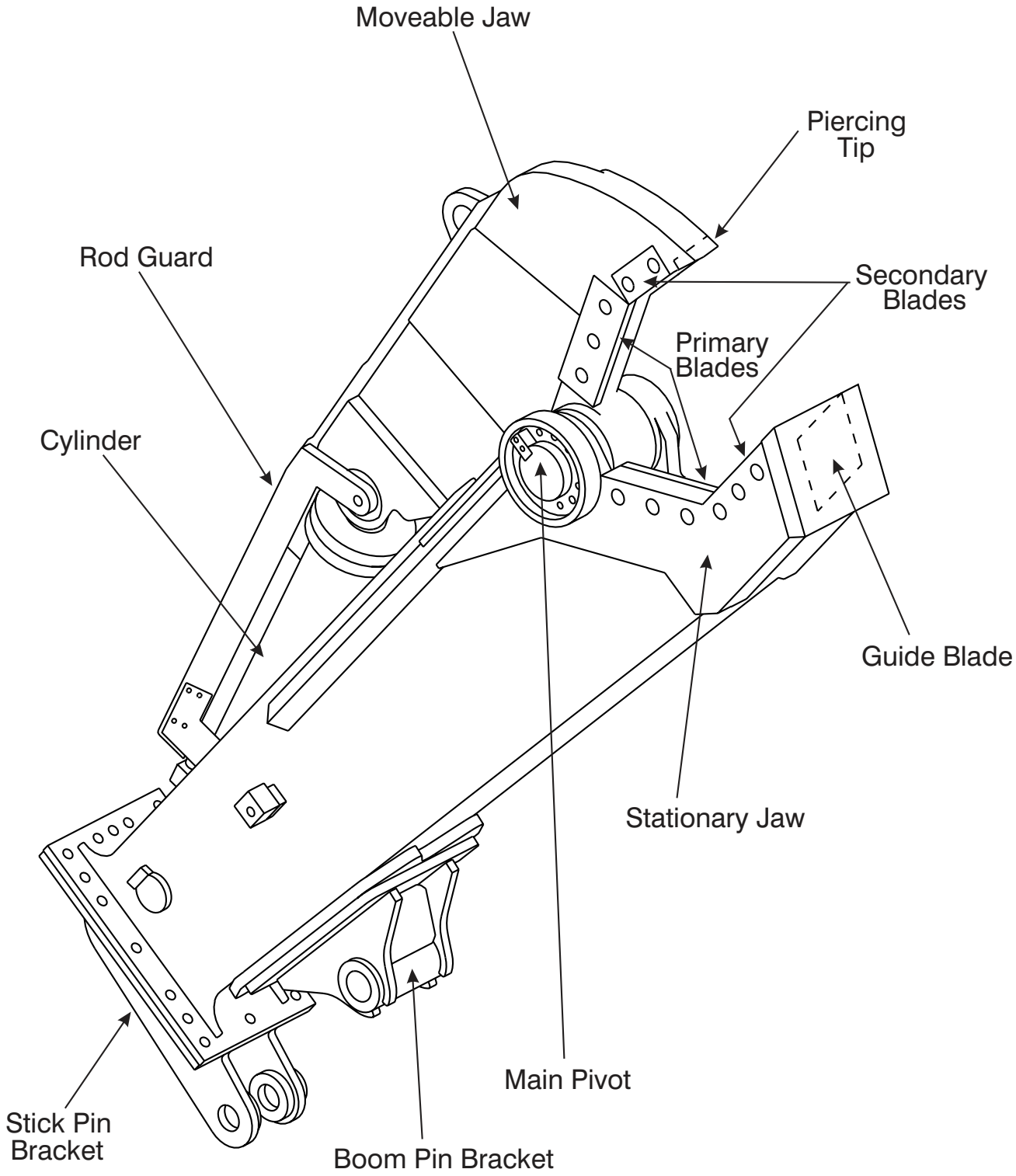

Figure 1-1. AMS-55 Main Components

SECTION 1.0
INTRODUCTION & SCOPE

This manual contains important information for the safe use and maintenance of the Allied Shear. Read this manual thoroughly before installing, operating or servicing the Shear. This manual must be easily accessible to operators, service and transport personnel. Store this manual in a convenient location.

⚠ Instructions identified with this symbol are important for personnel safety and full service life of the Shear. Follow them 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 Shear to conditions beyond its design capability. Improper operation, service or the use of non-Allied parts may result in Shear failure or personnel injury.

CaShear™ Technical Manual: Part Number 002045

This Technical Manual is applicable to Shears as identified below.

Model: AMS-55
Serial Number: 100 and Above
Years of Manufacture: 1997 and Beyond

This information is located on an I.D. Plate mounted on the Shear. The mounting location of the I.D. Plate is shown on Figure 3-2.

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SECTION 2.0
OVERVIEW

The Allied AMS-55 Shear is a boom-mounted, hydraulic powered shear typically mounted on a 50,000 to 75,000 pound excavator or other appropriate carrier. Refer to the specifications in Section 3.0.

The carrier stick is removed from the boom and the Shear is mounted to the boom with an Allied Shear mounting kit.

Allied mounting kits are specifically designed for each carrier. Each kit contains the proper mechanical components for optimum Shear performance.

The Allied Mobile Shear is used typically in scrap and demolition applications.

The Allied Shear consists of the following major subassemblies:

The UPPER JAW has 2 cutting blades and a piercing tip. Each of the 2 cutting blades is rotatable to provide 4 cutting edges.

The LOWER FRAME has 2 cutting blades and a rotatable guide blade. Each of the 2 cutting blades is rotatable to provide 4 cutting edges. The guide blade is rotatable to provide 2 cutting edges.

The CYLINDER uses hydraulic power to operate the shear jaw.

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SECTION 3.0
TECHNICAL INFORMATION

3.1 SPECIFICATIONS

Hydraulic Flow Required	50 - 100 gpm (189 - 378lpm)
Operating Pressure	5000 psi max (345 bar)
Weight	10,000 lbs. (4500kg)*
Height	66 inches (168cm)
Width	22 inches (56cm)
Length	155 inches (394cm)
Max Cutting Force (at 4000 psi)	715 tons (649 metric tons)
Max Cutting Force (at 4500 psi)	805 tons (730 metric tons)
Max Cutting Force (at 5000 psi)	894 tons (811 metric tons)
Jaw Opening	24 inches (61cm)
Throat	32 inches (81cm)
Number of Blades	5 (Including guide blade)
Number of Usable Edges	18
Carrier Weight Class	55,000-70,000 lbs. (25,000-31,800kg)

Hydraulic Port Size:

Pressure Line	#20 SAE Flange Code 62
Return Line	#20 SAE Flange Code 62

*With mounting brackets

Serial Number (owner record upon receipt)	S/N

3.2 DIMENSION DIAGRAM

DIMENSIONS IN INCHES [mm]

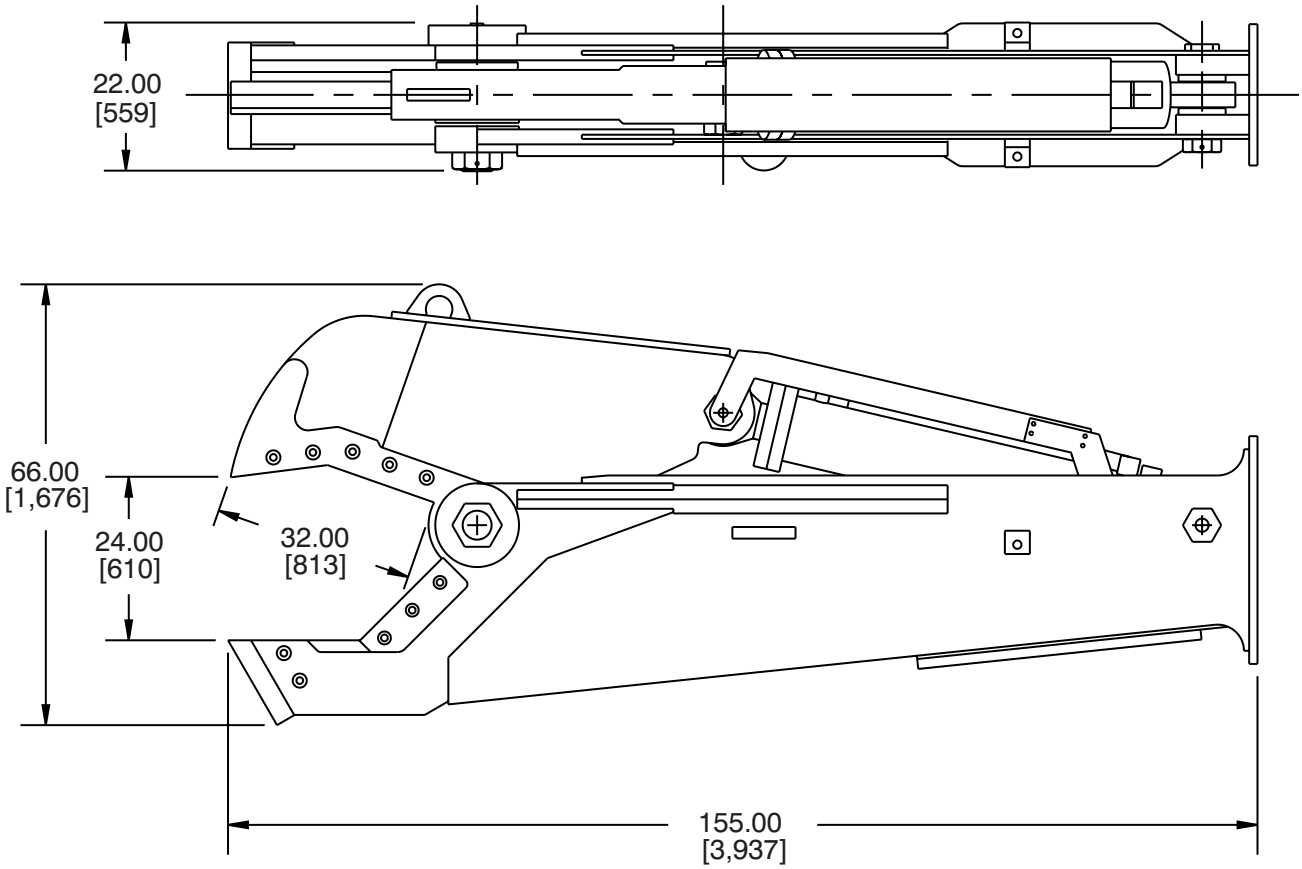
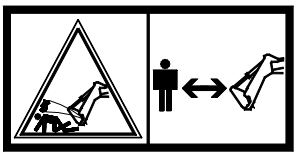


Figure 3-1. Dimension Diagram

3.3 DECAL IDENTIFICATION

The LIFT POINT decal identifies the location of the recommended lifting points of the AMS-55 Shear.

The LUBRICATION decal identifies the location and frequency of required lubrication. Refer to Section 7.0 for more information.



The STAY CLEAR decal indicates that personnel and bystanders are to maintain a safe distance from the Shear during operation.

The READ INSTRUCTION decal indicates that it is important for the operator to read the manual prior to transporting, installing, operating, or servicing the Shear.

3.4 DECAL AND LIFTING DIAGRAMS

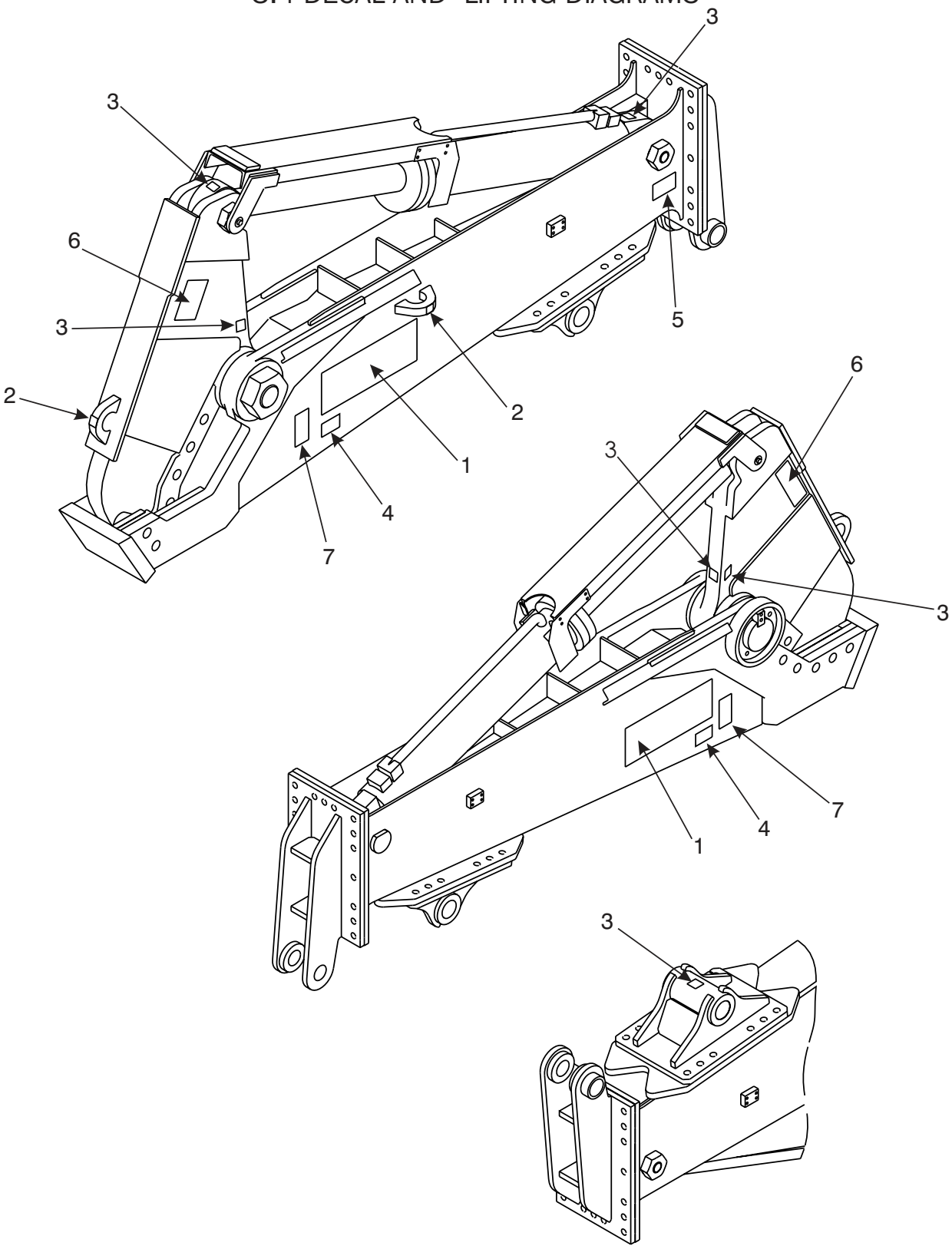


Figure 3-2. Decal Diagram

AMS-55 Shear Decal Parts List Part Number 845334			
ITEM ONLY	QTY.	PART NO.	DESCRIPTION
1	2	676656	ALLIED LOGO
2	2	676982	LIFT POINT
3	6	676985	GREASE 8 HR
4	2	815696	MADE IN USA
5	1	845001	I.D. PLATE
6	2	845338	CAUTION - STAY CLEAR
7	2	676984	READ INSTRUCTIONS

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SECTION 4.0
GENERAL CONSTRUCTION SAFETY

Always follow procedures that promote safe conditions for workers and bystanders. This includes, but is not limited to: establishing pedestrian barriers and wearing personal protective equipment.

⚠ CAUTION ⚠

Read and follow all equipment and machinery instructions.

⚠ CAUTION ⚠

Carrier manufacturers may require special modifications/reinforcements of the boom section when the carrier is used in a mobile shear application. Installation and use of the AMS-55 without these modifications/reinforcements could cause damage to the carrier. It is the owner/operator's responsibility to be aware of and apply these modifications/reinforcements.

Comply with all federal 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.

Do not use the Shear for anything other than its intended use.

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SECTION 5.0
INSTALLATION AND REMOVAL

5.1 TOOLS AND EQUIPMENT REQUIRED

General:

Safety glasses and gloves
Drain Pan (for draining oil)

Blades:

12mm hex socket
18-inch breaker bar
Torque wrench capable of 320 ft.lbs.
30mm impact socket
Air impact wrench

Pivot Group:

Grease gun
1-1/2-inch socket
9/16-inch hex socket/long
1/4-inch Allen wrench
20 lb. sledge hammer
Flat blade screwdriver

Hydraulic Ports:

3/4-inch socket
3/4-inch combination wrench

Cylinder:

5/32-inch Allen wrench

Cylinder Rod Guard:

9/16-inch deep socket
9/16-inch combination wrench
3/4-inch combination wrench

Mounting Brackets:

1-7/8-inch impact socket
2-inch impact socket
1-inch drive air impact wrench
1-inch drive extension 7 inches long
1-inch drive breaker bar

5.2 GENERAL GUIDELINES

⚠WARNING⚠

Always wear gloves and eye protection when connecting hydraulic connections, and installing mounting pins and hardware.

⚠CAUTION⚠

Mount only on carriers with adequate lift and hydraulic capacity. Under no circumstances shall the oil pressure supplied to the Shear exceed 5000 psi (340 bar).

1. Prior to installation, carefully inspect:
   a. Hoses and fittings for damage.
   b. Threaded fasteners, boom pins, and mounting hardware for damage.
2. Repair or replace any damaged components.
3. Follow mounting kit installation instructions.

⚠WARNING⚠

Keep hands and fingers clear of mounting pin holes, carrier linkage and other pinch points while equipment is being positioned.

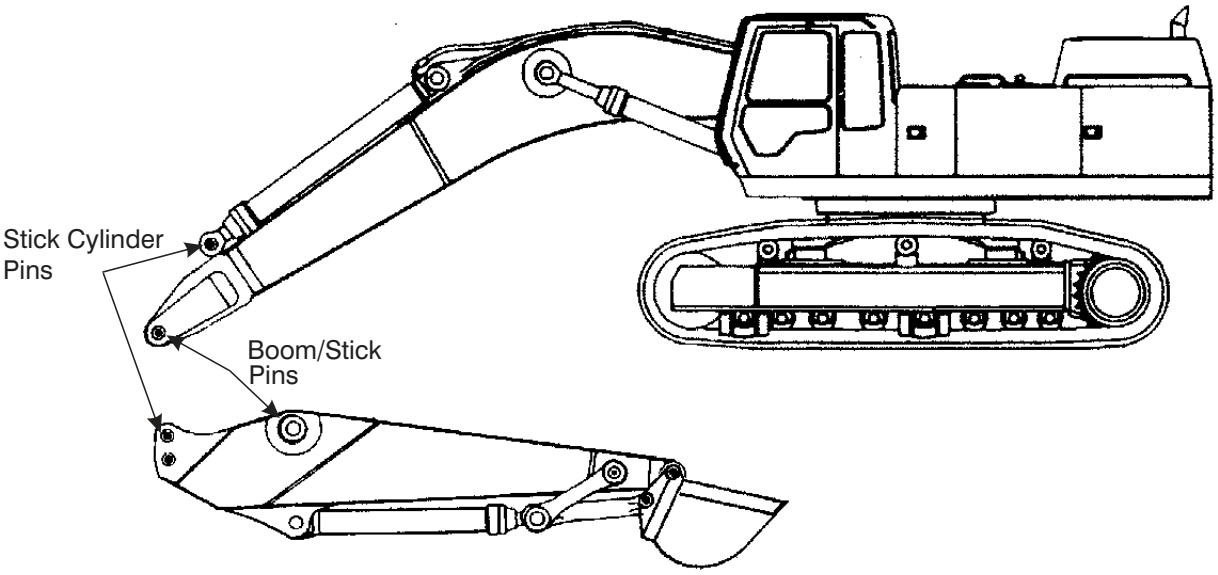

Figure 5-1. Bucket and Stick Removal

⚠CAUTION⚠

During installation, instruct carrier operator to operate carrier controls only as instructed by Shear installer.

5.3 BUCKET AND STICK REMOVAL

Refer to Figure 5-1.

The AMS-55 Shear is installed on the carrier boom after the bucket and stick (including bucket cylinder) have been removed. Please review the carrier manufacturer's guidelines to remove the bucket and stick. If no instructions are available, perform the following procedure to remove the bucket and stick. It is not necessary to remove the bucket from the stick.

1. Curl the bucket under the boom and lay the stick down flat on suitable blocking.
2. Remove the bucket cylinder hoses.
3. Cap the bucket cylinder tubes on the boom.
4. Block the stick cylinder and remove the stick cylinder pin.
5. Retract the stick cylinder rod.
6. Remove the stick/boom pin.
7. If the stick/bucket assembly is going to be off the carrier for an extended period of time, apply suitable protective material to the bucket cylinder rod.

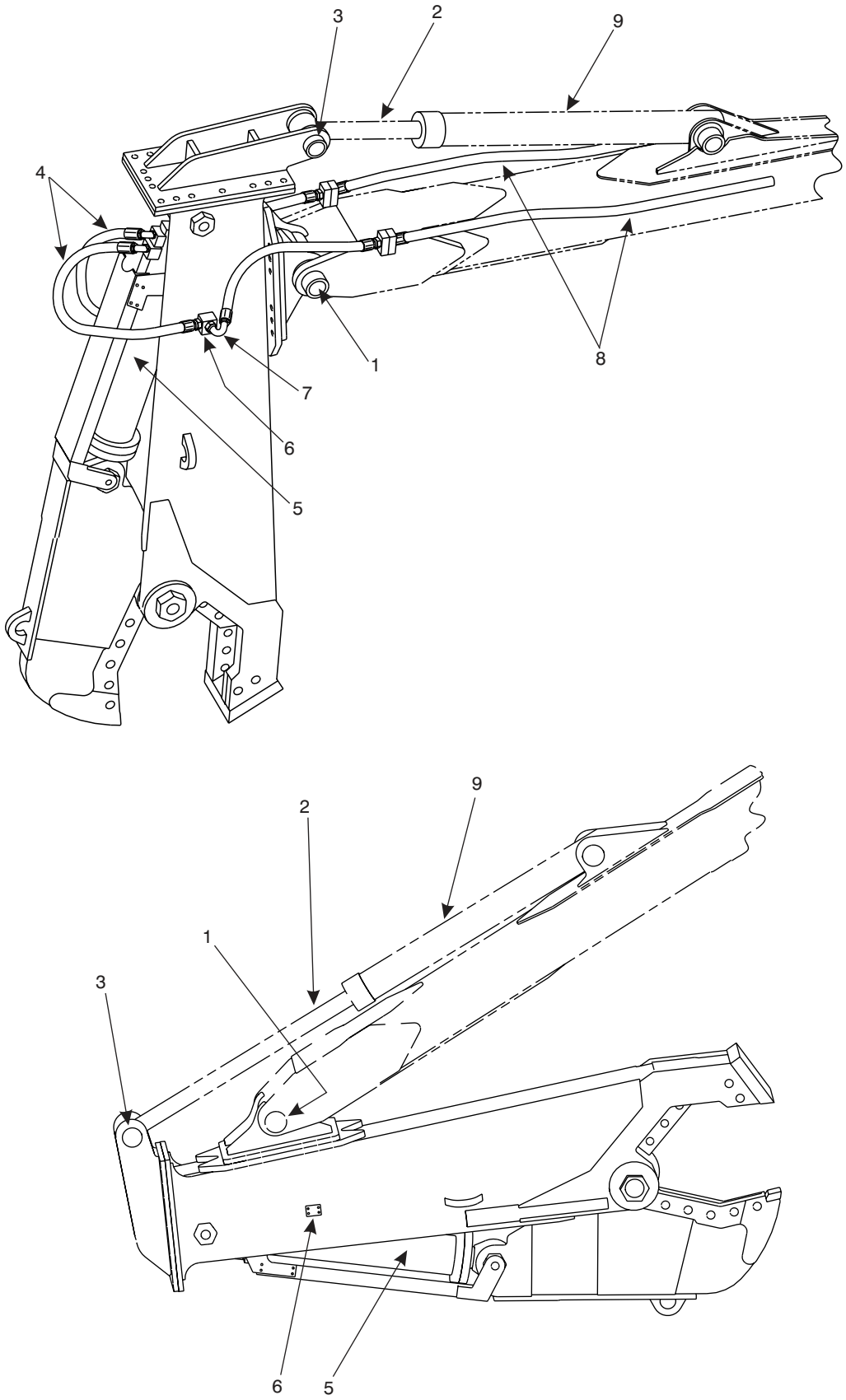

Figure 5-2. Shear Installation

5.4 SHEAR INSTALLATION
Refer to Figure 5-2.

1. Use the carrier, chains, and blocking material to position the shear upside down in the working position, with the jaws facing the operator.
2. Position the boom pin bore over the bracket on the shear, and install the boom/stick pin (item1). The centerline of the carrier boom pin bore and the centerline of the shear pin bore must be in line for easy installation of the pin.
3. Raise the boom and extend the stick cylinder rod (item 2).
4. Install the stick cylinder/shear bracket pin (item 3).
5. Remove the blocking from the stick cylinder.
6. Install the shear cylinder hoses (item 4) from the shear cylinder (item 5) to the manifold block (item 6) on the frame rails.
7. Install the jumper hoses (item 7) from the bucket cylinder tubes (item 8) to the manifold blocks (item 6) on the shear.
8. Start the carrier and check for leaks.
9. Open and close the jaws at idle to allow hydraulic oil to displace the air in the shear cylinder.
10. Add hydraulic oil to the carrier as necessary.
11. Refer to Figure 7-1 and grease 2 points on the shear: the stick cylinder rod bracket (3) and the boom pin bracket (4). Note that the boom pin bracket may have 1 or 2 grease fittings.
12. After installation and prior to use, briefly operate the Shear.
13. Stop the Shear and re-check:
    a Hydraulic hoses and fittings for leaks.
    b. Mounting hardware for loose or missing parts.
    c. Bolt torques. See 8.6 Torque Chart in Section 8.0 Field Maintenance.
14. The shear is now ready for operation.

⚠CAUTION⚠
Loose blade bolts can cause the bolts and/or the blades to break. Do not over-torque the bolts.

15. After initial installation or replacement of blades, torque blade bolts to 320 ft.lbs. after one hour of operation.

5.5 MAIN PIVOT ADJUSTMENT
Refer to Figure 5-3.

⚠CAUTION⚠
The three 1"-8 hex head cap screws (item 7) engaged in the flange bushing must remain loose until the last step of the following procedure.

1. Ensure that the three 1"-8 hex head cap screws (item 1) are engaged, but not tight, into the flange bushing (item 2) These three hex head cap screws must remain loose during steps 2, 3 and 4 following.

⚠WARNING⚠
Do not operate the shear in the preloaded condition.

2. Install six 1"-8 set screws (item 3) into the six drilled and tapped holes on the pin boss. Torque them to approximately 100 ft.lbs., using a cross pattern. This will drive the pressure plate, the moveable jaw, and the two thrust plates to the left side of the main frame. This is the initial preload condition. DO NOT OPERATE THE SHEAR IN THIS PRELOADED CONDITION.
3. Using a hand held breaker bar, rotate each of the six set screws (item 3) counterclockwise until they just break loose. This is the operating position. Make sure the three 1"-8 hex head cap screws (item 1) remain loose.
4. Install six more 1"-8 set screws (item 3) behind the six set screws installed in Step 2, into the same six drilled and tapped holes on the pin boss.
5. Torque set screws (item 3) to 100 ft.lbs. Make sure the three 1"-8 hex head cap screws (item 1) remain loose.
6. Tighten the three 1"-8 hex head cap screws (item 1) to approximately 200 ft.lbs.

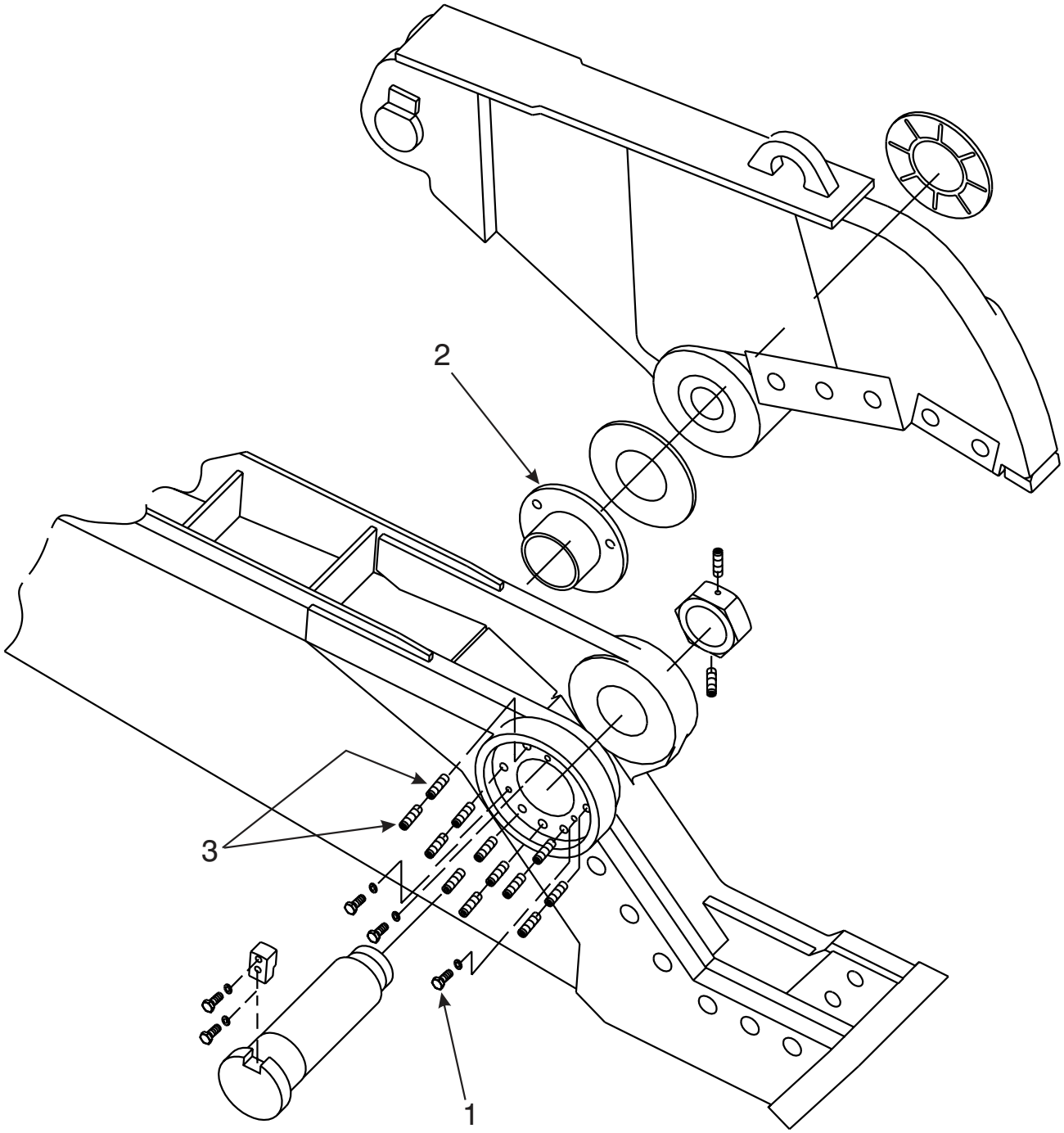

Figure 5-3. Main Pivot Adjustment

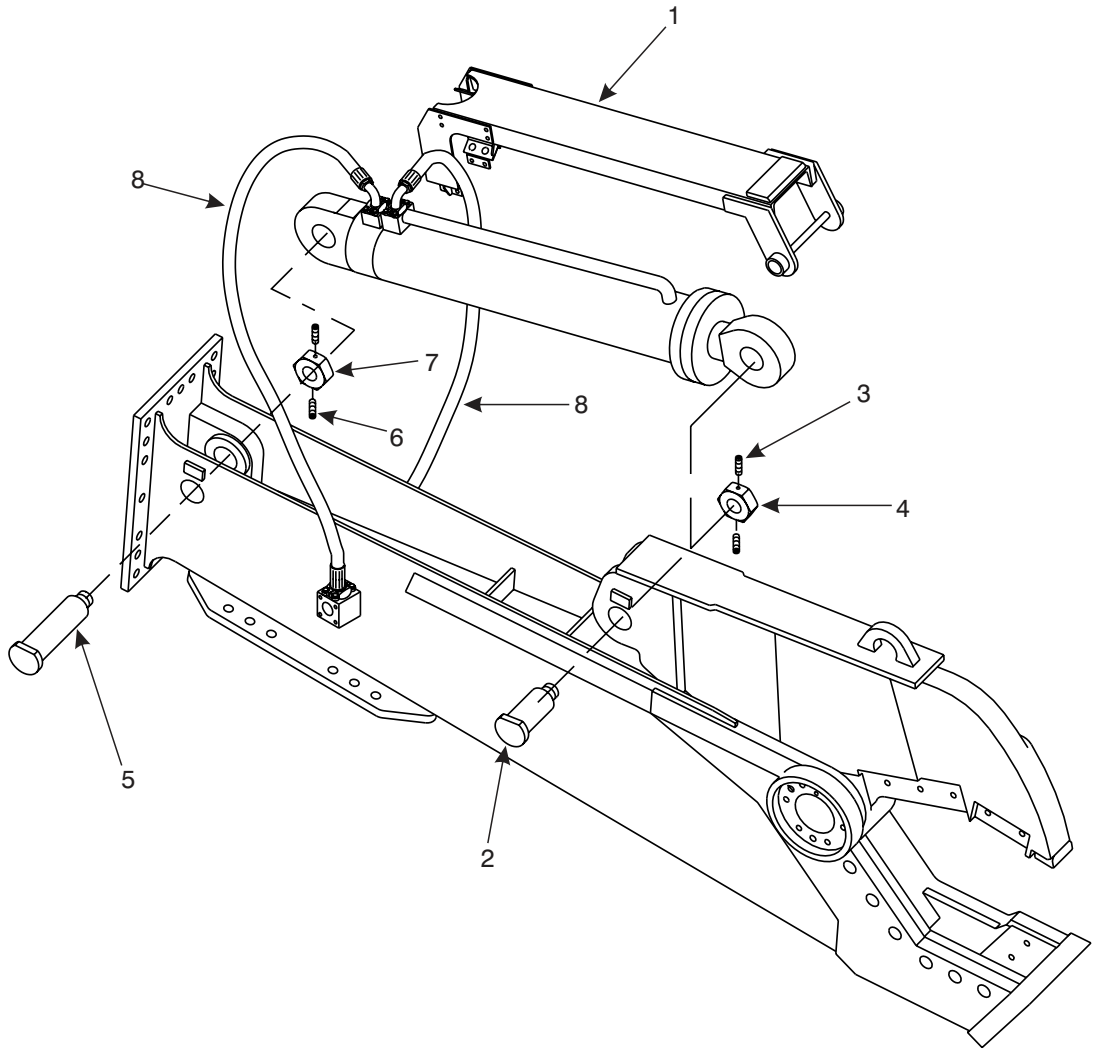

Figure 5-4. Cylinder Removal and Installation

5.6 CYLINDER REMOVAL

Refer to Figure 5-4.

⚠WARNING⚠

Securely block the Shear jaw open before removing or installing the cylinder. Sudden closing of the jaw could cause serious injury.

1. Set the shear upright, horizontally on a flat, level surface.
2. Using a lifting device, open the jaw to the maximum open position. Block the jaw open in this position.
3. Fully retract cylinder, remove hoses (item 8), and cap both ports on top of cylinder.
4. Remove rod guard (item 1).
5. Remove rod end pin (item 2) by removing two 5/16”-18 socket head set screws (item 3) and the rod end pin nut (item 4).
6. Lift cylinder upwards at the rod eye end and place a block of wood between the cylinder tube and the frame.
7. Remove barrel end pin (item 5) by removing two 5/8”-18 socket head set screws (item 6) and nut (item 7).

5.7 CYLINDER INSTALLATION

Refer to Figure 5-4.

⚠WARNING⚠

Securely block the Shear jaw open before removing or installing the cylinder. Sudden closing of the jaw could cause serious injury.

1. Set the shear upright, horizontally on a flat, level surface.
2. Using a lifting device, open the jaw to the maximum open position. Block the jaw open in this position
3. Rest the cylinder on a block of wood placed between the cylinder tube and the frame to hold the rod eye end of the cylinder up while installing the barrel end.
4. Install barrel end pin (item 5) through frame and cylinder.
5. Install two 5/16”-18 socket head set screws (item 6) and nut (item 7) on barrel end pin (item 5).
6. Remove block of wood.
7. Install rod end pin (item 2) through upper jaw and cylinder rod eye.
8. Install two 5/16”-18 socket head set screws (item 3) and the rod end pin nut (item 4) on rod end pin.
9. Install rod guard (item 1)

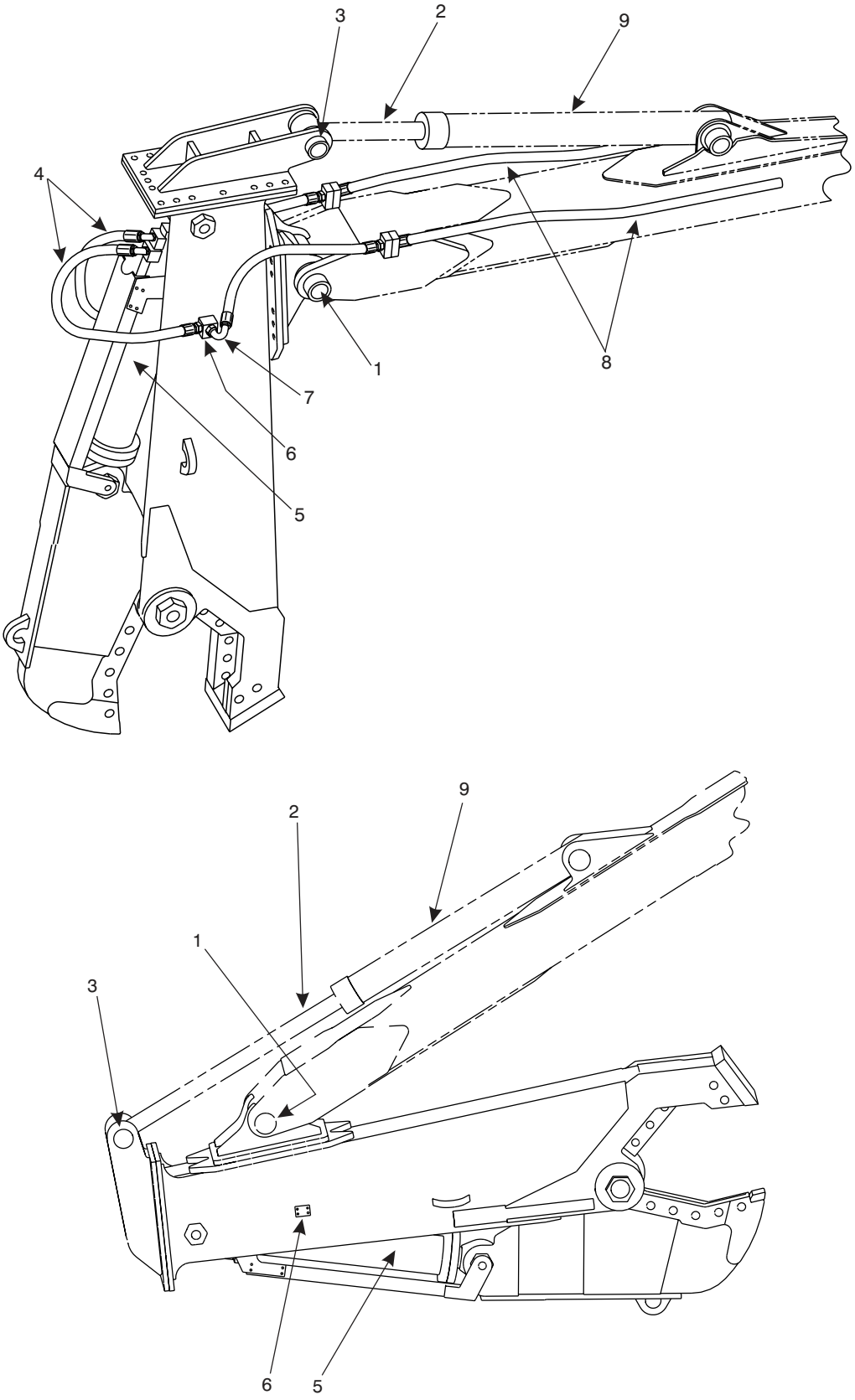

Figure 5-5. Shear Removal

5.8 SHEAR REMOVAL
Refer to Figure 5-5.

⚠WARNING⚠
Always wear gloves and eye protection when disconnecting hydraulic connections, and removing mounting pins and hardware.

⚠WARNING⚠
Keep hands and fingers clear of mounting pin holes, carrier linkage and other pinch points while equipment is positioned.

⚠CAUTION⚠
During removal, instruct carrier operator to operate carrier controls only as instructed by Shear remover.

1. Open the shear jaw completely.
2. Curl the shear under the boom.
3. Place an 8" x 8" wood block on the ground under the upper jaw on the cylinder side of the lifting eye.
4. Lower the shear onto the 8" x 8" wood block.
5. Turn off the carrier engine and open cap on hydraulic tank to relieve pressure. When pressure is fully relieved, tighten cap.

⚠CAUTION⚠
Do not disconnect hydraulics if hoses are pressurized.

⚠WARNING⚠
Hydraulic oil may be hot after operation.

6. There will still be residual pressure on the jaw cylinder; relieve the pressure by carefully removing the two test port plugs, one on each manifold block (item 6). Wear gloves and cover the plug with a rag while removing it.
7. Remove both shear cylinder hoses (item 4) which run from the cylinder ports to the manifold blocks. Drain oil into a suitable container. Install plugs in cylinder ports.
8. Remove carrier jumper hoses (item 7) and plug carrier tubes.
9. Block stick cylinder (item 2).
10. Start the carrier engine.
11. Remove stick cylinder pin (item 3) and withdraw stick cylinder rod (item 2) back into cylinder.
12. Block the mounting pad end of the shear and lower the boom.
13. Remove boom/stick pin (item 1), and move carrier boom out of the way.

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SECTION 6.0
OPERATION

⚠WARNING⚠

Only fully trained operators should operate the carrier and shear.

When working with a shear, operation of the carrier is governed by the carrier manufacturer's safety regulations.

⚠WARNING⚠

Do not operate the shear in close proximity to overhead power lines as serious injury could result.

⚠WARNING⚠

Wear ear protection as required by federal and local regulations.

⚠WARNING⚠

Close the protective shield on the operator's cab to prevent possible injury from flying debris during shear operation.

Immediately cease operating the shear if anyone moves into the danger area, which is greater for shear operation than for carrier operation due to the risk of flying debris.

⚠WARNING⚠

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

1. Daily before operating, carefully inspect:
   a. Hoses and fittings for leaks and other damage.
   b. Threaded fasteners, boom pin, pivot nut, and mounting hardware for looseness or damage.
   c. Sharpness of blades and wear on piercing tip. See Section 8.4.1 Replacing the Piercing Tip and Section 8.5 Rotating Cutting and Guide Blades.
2. Repair or replace any damaged components prior to operation. See Section 8.0 Field Maintenance and Section 9.0 Workshop Maintenance.
3. Position carrier in-line at a 90 degree angle to material to be cut.

⚠WARNING⚠

Never activate the Shear unless the operator is seated in the operator's seat and in full control of the machine. Refer to carrier's instructions.

⚠WARNING⚠

Keep personnel away from the Shear while in operation. Never operate the Shear with workers in close proximity to the Shear.

⚠WARNING⚠

Do not operate the Shear if operator's attention is directed elsewhere.

4. Activate the Shear with the controls located in the operator's cab.

SECTION 7.0
LUBRICATION

7.1 LUBRICATION SCHEDULE

Daily (Every 8 Hours of Operation)

Grease main pivot assembly through grease fitting (1).
Grease each cylinder bearing through grease fittings (2).
Grease the stick cylinder rod bracket (3).
Grease the boom pin bracket (4)—one or two fittings depending on bracket..

⚠WARNING⚠

Never lubricate the Shear while it is operating.

1. Position Shear for easy access to lubrication fittings.
2. Turn off carrier prior to lubrication.
3. Carefully clean lubrication fitting.
4. At the main pivot grease fitting, inject 16 to 20 “shots” with a standard manual grease gun. At the other lubrication points, inject 6 to 8 “shots”.

7.2 LUBRICATION INSTRUCTIONS

The Allied Shear is lubricated through standard lubrication fittings. See lubrication diagram, Figure 7-1.

During extreme operating conditions, such as high temperatures and dusty conditions, lubricate more frequently than every 8 hours. The injection of grease into the bearing cavities not only provides lubrication, but it also flushes impurities from the bearings to increase life.

Recommended grease:

Use a premium quality, multipurpose, extreme pressure, petroleum based grease with lithium and anti-rust additives. Minimum oil viscosity of 14.5 cSt at 100° C.

Approved brands:
Shell Oil - Alvania EP2
Mobil Oil Co. - Mobilux EP2
Texaco Inc. - RB2.

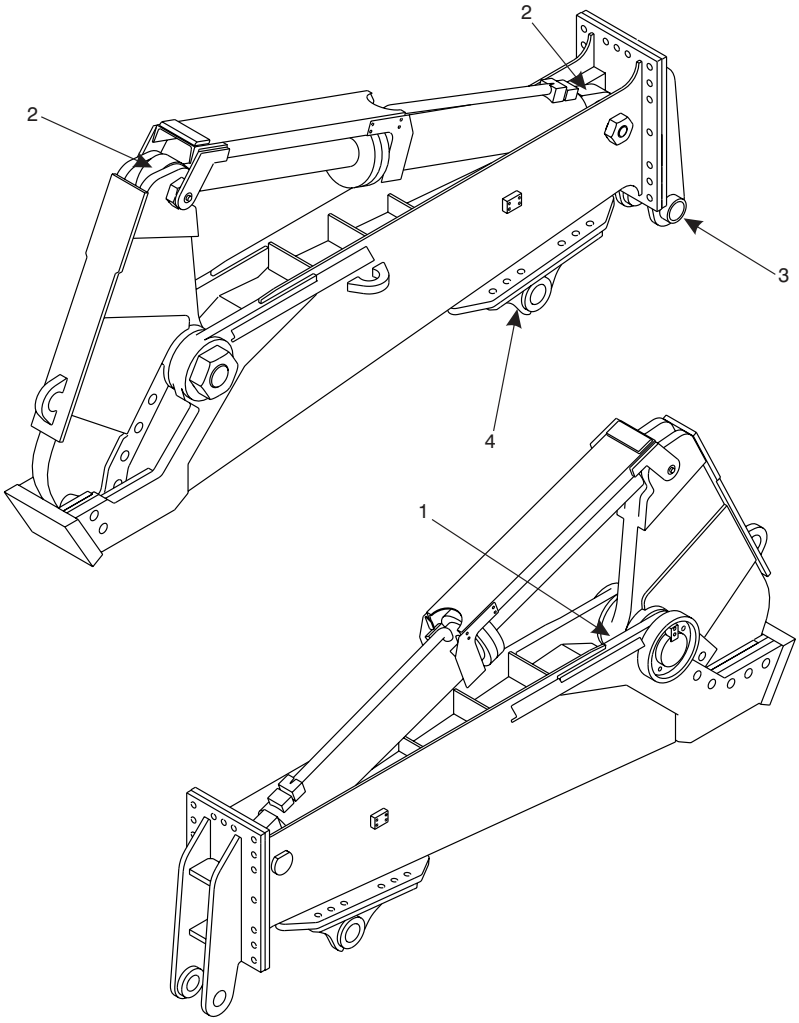

Figure 7-1. Lubrication Diagram

SECTION 8.0
FIELD MAINTENANCE

8.1 DAILY INSPECTIONS AND ROUTINE MAINTENANCE

Daily (Every 8 Hours of Operation)

Lubricate according to Lubrication Schedule, Section 7.1.
Inspect hydraulic cylinder and hoses for wear or leaks.
Inspect all cutting and guide blades for damage or excessive wear. Rotate or replace if required.
Check gap between cutting blades and shim lower blades if gap exceeds 0.020 inch.
Check gap between guide blade and rubbing plate and shim guide blade if gap exceeds 0.035 inch.
Inspect all blade bolts and tighten or retorque to 320 ft.lbs. as required.

8.2 WEEKLY MAINTENANCE

Weekly (Every 40 Hours of Operation)

Inspect top jaw weldment for wear and, if required, build up and hard face as required to maintain correct clearances.
Inspect main frame weldment for wear and, if required, build up and hard face as required to maintain correct clearances.
Rotate all blades and check blade gaps. Shim lower cutting blades and guide blade if necessary.

8.3 GENERAL FIELD MAINTENANCE GUIDELINES

Use standard mechanic's techniques and tools to disassemble and assemble the Shear. See Section 5.1 Tools and Equipment Required.

⚠WARNING⚠
Follow all safety practices and wear appropriate protective equipment.

Use only genuine Allied replacement parts. Failure to use approved replacement parts may subject the operator to injury and the Shear to premature failure. The use of unapproved replacement parts voids the warranty.

⚠WARNING⚠
Use proper lifting and support equipment. See Section 11.0 Transport and Storage.

⚠WARNING⚠
Service the Shear in safe work areas.

⚠CAUTION⚠
Ensure that oil is filled to proper level and that oil is clean.

Follow the carrier manufacturer's recommendations for hydraulic oil grade and hydraulic system maintenance. It is essential to maintain clean oil and proper oil level.

Clean up and properly dispose of any spilled oil as required by governing regulations.

8.4 WELDING INSTRUCTIONS

Allied does not recommend rewelding of shear blade edges. The metallurgy of the original blade is not totally compatible with the arc welding process; therefore, rewelded edges are of inferior design and quality. Allied will not warrant rewelded edges.

Allied recognizes that there are certain circumstances that occur in which the owner or user will decide that rewelding of blade edges is necessary. For that reason, we offer the following procedure that will lead to some measure of success:

⚠WARNING⚠

Welding is dangerous to personnel and equipment. A qualified welder should be familiar with ANSI 49.1 paying particular attention to the following:

⚠ Be sure all welding equipment is in good working condition.

⚠Wear hearing protection.

⚠To prevent burns, wear protective clothing made of fire-resistant material. Wear high-top shoes or leather leggings and fire-resistant gloves.

⚠Remove all combustible material from the work area. Provide adequate ventilation.

⚠Protect yourself from harmful radiation effects:

Wear welding filter plates with the proper shading over the eyes.
DO NOT expose eyes or skin to welding arcs.

1. Clean all edges to be welded.
2. Weld one pass along the top and one pass along the side of each edge.
3. USE HARD FACING ROD 5/32" DIAMETER STOODY #35. No preheat or post heat required.
4. Grind to original sharp edge and contour. All surfaces must be flat in order to fit properly in the blade seats.
5. Grind the ends flush, so the blade will fit properly in the blade seat.
6. Improper seating of the blade into the blade seat will cause premature failure of blades and/or blade fasteners.

8.4.1 FIELD DRESSING THE PIERCING TIP

NOTE

It is not necessary to preheat or post heat the piercing tip area. The heat generated by welding and grinding is sufficient to minimize thermal shock if the repair work is done in one session. Plan the work accordingly.

1. Adjust the main pivot to establish the starting position. Refer to Section 5.5.
2. Rotate, change, or shim blades as necessary to establish clearances. Refer to Section 8.5.
3. Close the moveable jaw completely.
4. Curl the shear under the excavator stick and lower the excavator boom to the ground.

   In this position, the end of the piercing tip protrudes through the stationary jaw and is accessible for welding and grinding.

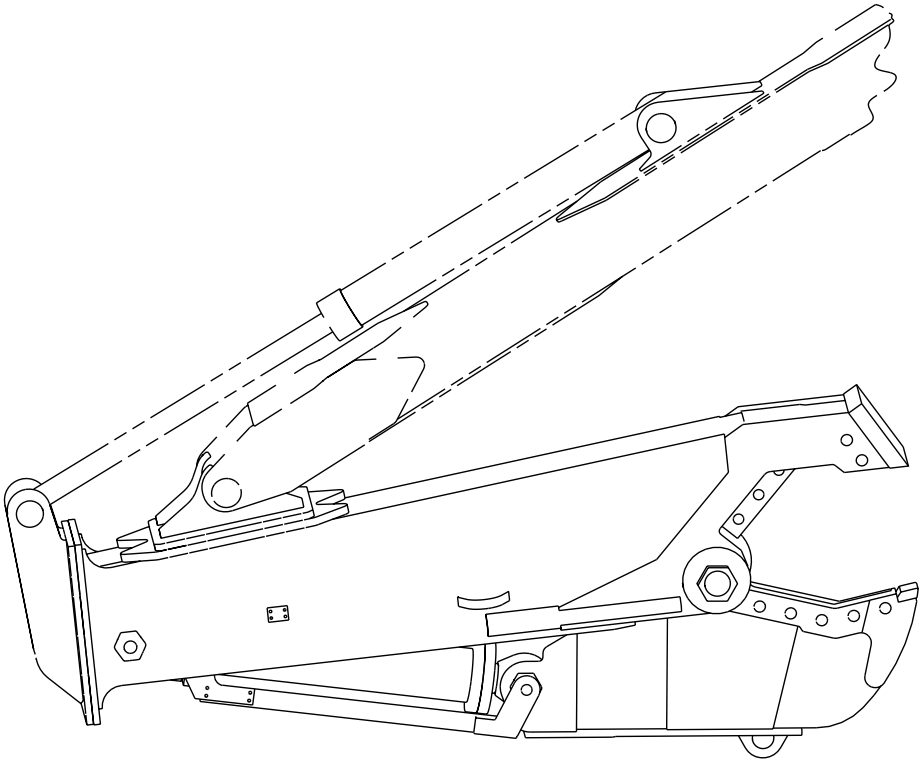

Figure 8-1. Shear Position for Field Welding Piercing Tip

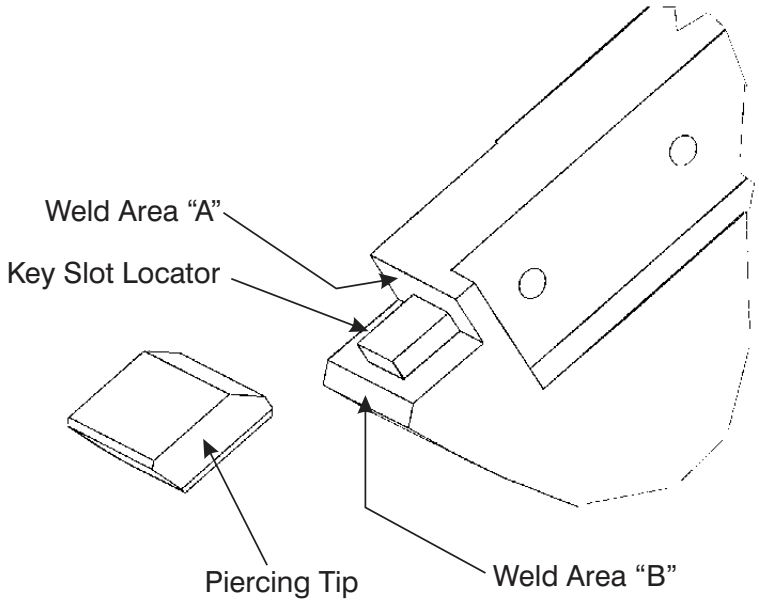

Figure 8-2. Field Welding Piercing Tip

5.a. Build up the piercing tip to its original shape using 1/8-inch diameter E7018 stick electrode.

b. Grind as necessary.

c. Check clearances often by cycling the piercing tip through the stationary jaw. Too much buildup will cause the piercing tip to bind in the stationary jaw.

6.a. Using a crosshatch pattern, apply an overlay of hardfacing in the extreme wear areas. Allied recommends using 1/8-inch or 5/32-inch diameter Stoody #35.

b. Check clearances often by cycling the piercing tip through the stationary jaw. Too much buildup will cause the piercing tip to bind in the stationary jaw.

c. Do not use multiple passes of hardface rod. Build up using E7018, then apply a one pass overlay.

8.4.2 REPLACING THE PIERCING TIP

Although the piercing tip can be built up and restored to its original shape by hard facing, sometimes replacement of the tip is necessary. The piercing tip has been designed for field welding; it is not necessary to remove the shear from the excavator.

1. For the best down-hand welding position, open the jaws and curl the shear up under the boom until it is in the position shown in Figure 8-1.
2. Remove all of the original tip by torching, carbon arc gouging and/or grinding.

NOTE

Do not destroy the key slot locator which is an integral part of the jaw.

3. Fit the new piercing tip over the key slot locator; refer to Figure 8-2. The tip must fit metal to metal on both sides of the key slot and up against the jaw.
4. Tack weld the piercing tip in place, then check alignment by passing the jaw through the lower frame.
5. The jaw should be at or above room temperature before finish welding. If not at or above room temperature, lightly preheat the jaw tip area with a torch until it is warm.
6. It is not necessary to preheat the piercing tip or the jaw to elevated temperatures; however, it is necessary to complete all of the welding in one session. The heat generated by complete welding is essential for a quality weld.
7. For best positioning, weld area A with the jaws open; weld area B with the jaws completely closed.
8. Finish welding with the following:

   Stick Electrode:
   E7018 recommended. Chip the weld slag heavily with an air chipper after each pass.

   Flux Cored Wire:
   E70T5/C-25 gas recommended. Chip the weld slag heavily with an air chipper after each pass.

8.5 ROTATING CUTTING AND GUIDE BLADES

Sharp and correctly gapped cutting blades greatly improve overall shear efficiency and reduce wear on the shear and carrier.

1. Rotate blades after every 40 hours of operation.
2. Always rotate one blade at a time to ensure correct reinstallation.
3.

After removing blade, check blade seat for wear and remove any debris.

⚠WARNING⚠

When grinding, wear protective clothing and eye cover to protect eyes and skin from flying particles.

4. Remove all rough edges from blade by grinding.
5. Reinstall blade, shim if necessary, and torque blade bolts to 320 ft.lbs.
6. When a cutting blade has been used on all four edges and the cutting edge has 1/4-inch radius, replace the blade.
7. To check blade gap, cycle the upper jaw into the lower frame and measure the blade gap with a Feeler Gauge. If the gap exceeds 0.020 inch, install shim behind blade as required to reduce gap.
8. Before using shear, retorque blade bolts to 320 ft.lbs. and slowly cycle shear to ensure that there is no interference in the throat area.
9. After installation of a blade, retorque blade bolts to 320 ft.lbs. after one hour of operation.

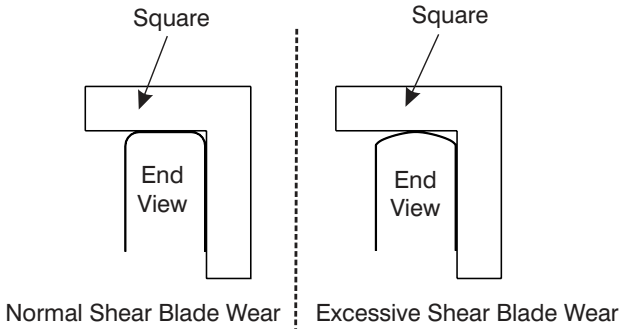

Figure 8-3. Shear Blade Wear

8.6 Torque Chart		
Torque Item	**Location**	**Torque**
Blade Bolts		320 ft.lbs.
Main Pivot Pin Boss Set Screws (12) 1”-8	Figure 5-3 Item 3	100 ft.lbs.
Main Pivot Hex Head Cap Screws (3) 1”-8	Figure 5-3 Item 1	200 ft.lbs.
Cylinder (12) 3/4”-10 Screws	Figure 9-2 Item 20	280 ft.lbs.
Cylinder (8) ½”-13 Bolts	Figure 9-2 Item 23	78 ft.lbs.

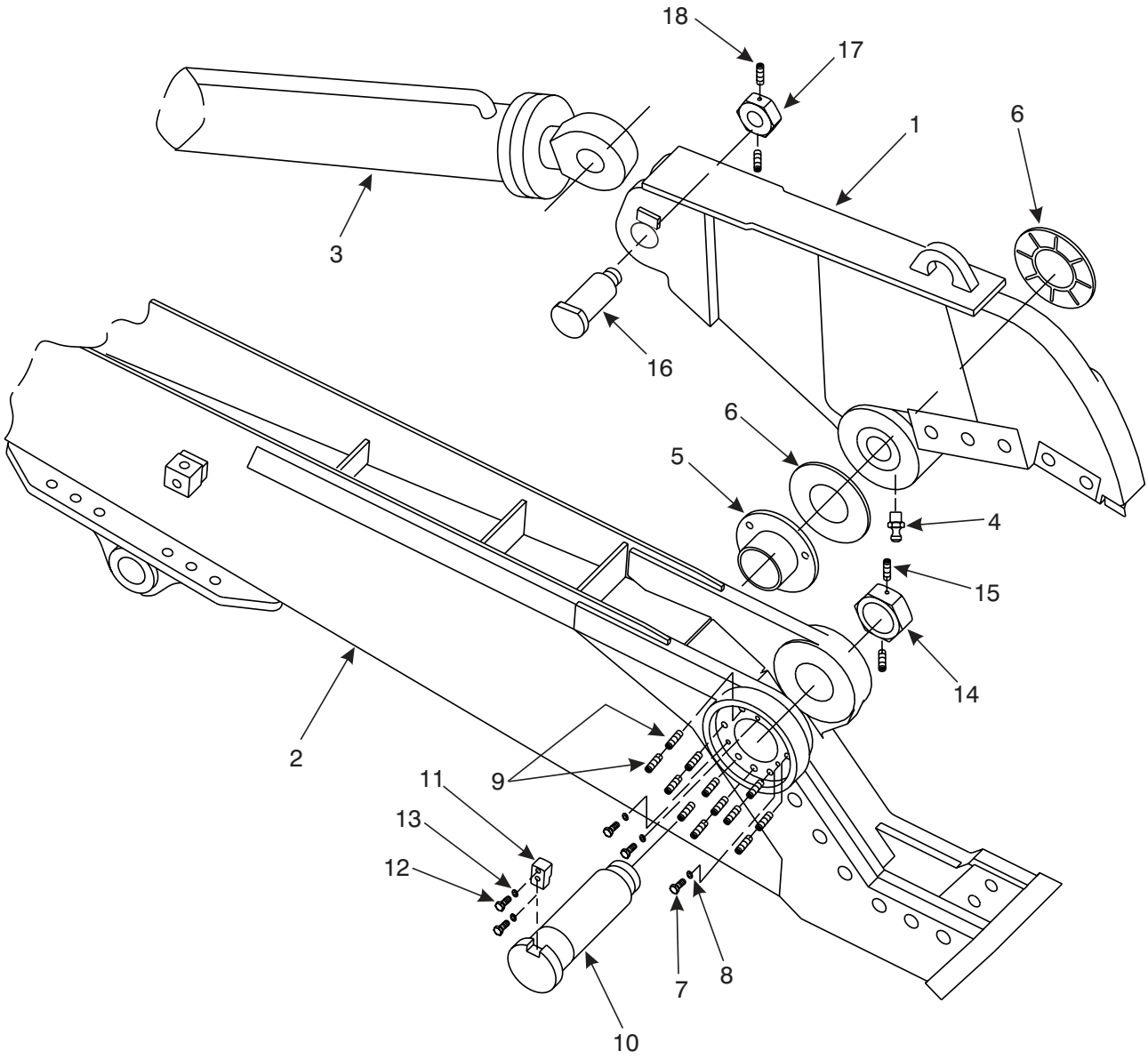

Figure 9-1. Installing the Moveable Jaw

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SECTION 9.0
WORKSHOP MAINTENANCE

9.1 INSTALLING THE MOVEABLE JAW

Refer to Figure 9-1.

1. Clean all parts.
2. Coat all fasteners with anti-seize thread lubricant.
3. Set the main frame (item 2) upright, horizontally on a flat, level surface with the jaw opening facing up. The main pivot pin bore should be parallel to the ground.
4. Install flange bushing (item 5) into inside of RHS frame rail pin boss. Secure with 3 bolts (item 7) and 3 washers (item 8).
5. Lower the moveable jaw (item 1) in between the frame rails until the pin bores line up.
6. Line up the location slot on the pivot pin (item 10) with the two ½"-13 threaded holes on the pin boss and insert the pivot pin through the pressure plate (item 5). As the end of the pin comes through the pressure plate, install thrust plate (item 6) over pivot pin.
7. Continue to drive the pivot pin into and through the moveable jaw. As the pivot pin exits the left hand side of the moveable jaw, install another thrust plate (item 6) over the pin.
8. Grease thrust plates (6) through grease fitting (4) on bottom of moveable jaw.
9. Drive the pin home and install key (item 11) using bolts (item 12) and lockwashers (item 13).
10. Install pivot nut (item 14) onto pivot pin. Tighten pivot nut until drilled and tapped holes in pivot nut line up with relieved threads on pivot pin. Then install set screws (item 15) into pivot nut.
11. Using mechanical means, line up the bores in the moveable jaw with the hydraulic cylinder rod eye bore.
12. Install rod pin (item 16). Make sure cut on pin head lines up with rotation stop lug on moveable jaw.
13. Install rod pin nut (item 17). Tighten rod pin nut until drilled and tapped holes in rod pin nut line up with relieved threads on rod pin.
14. Install set screws (item 18) into rod pin nut (17).
15. Refer to Section 5.5 Main Pivot Adjustment.

9.2 CYLINDER DISASSEMBLY
Refer to Figure 9-2.

If the rod eye is not being removed, skip steps 1 and 6 in the following procedure. To remove only the rod eye for replacement of wiper, see Section 9.3.

1. Loosen rod eye (item 5) as follows; do not remove the rod eye.
   a. The rod eye may be tack welded to the rod. If so, remove the welds by grinding.
   b. The rod eye is right-hand threaded into the rod. Loosen, but do not remove, the rod eye for ease of removal later.
2. Remove all but two of the twelve 3/4"-10 cylinder end cap bolts (item 20). The two remaining bolts should be 180 degrees apart. They may be loosened at this time for ease of removal later.
3. Use mechanical means to extend the cylinder rod (item 4). Oil will drain out of the rod end port while the rod is extending.
4. Remove the two remaining 3/4"-10 cylinder end cap bolts (item 20) from the cylinder head flange.
5. Support the cylinder tube in the vertical position with the rod eye end up; and, using a suitable lifting device, raise the rod assembly straight up and out of the cylinder tube.
6. Unscrew the rod eye (item 5) and remove it from the rod (item 4).
7. Remove the set screw (item 18) from the piston/rod threads.
8. The piston assembly consists of three cast iron plates, piston seals, and O-rings. Remove each part carefully and note the orientation of each part.

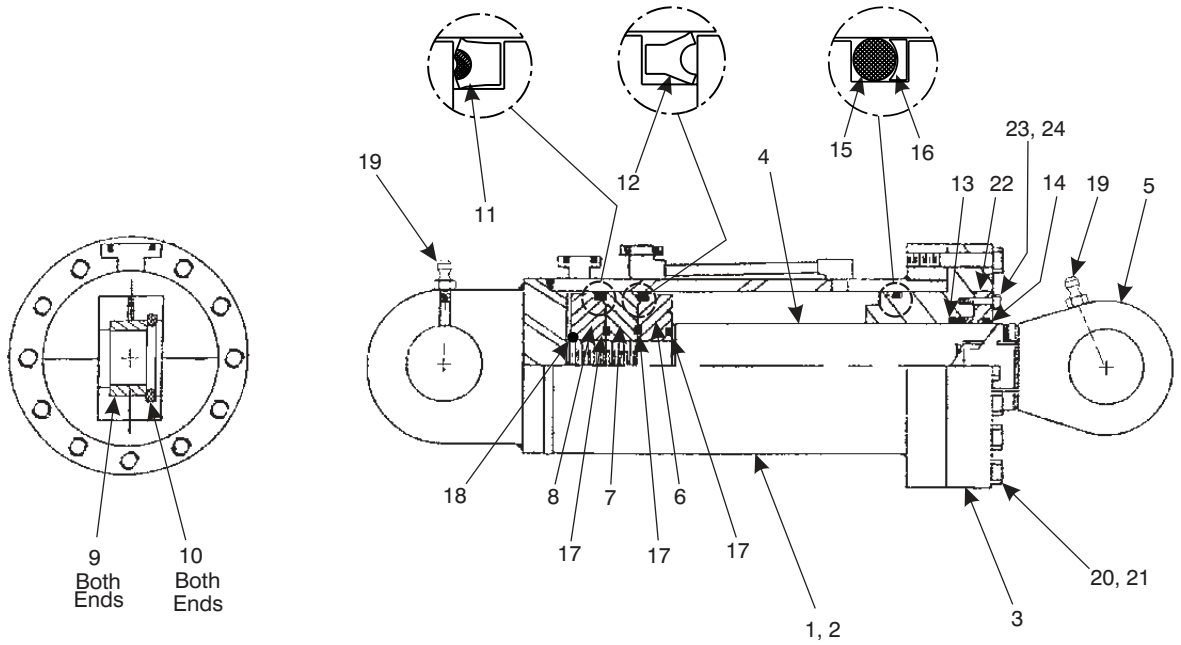

Figure 9-2. Cylinder Disassembly and Assembly

9.3 ROD WIPER REMOVAL
Refer to Figure 9-2.

1. Remove the rod eye; it is right-hand threaded. The rod eye may be tack-welded to the rod; if so, remove the tack welds by grinding.
2. Remove bolts (item 23) and washers (item 24) to remove wiper rentention flange (item 22).
3. Remove rod wiper (item 14) and replace.

9.4 CYLINDER ASSEMBLY

1. Clean all parts.
2. Apply a liberal coating of petroleum jelly to all seals.
3. Temporarily screw the rod eye (Figure 9-2, item 5) into the rod (item 4). DO NOT tighten at this time.
4. Install O-rings (item 17) in grooves on both sides of #1 piston segment (item 6).
5. With the large end of the piston seal (item 12) oriented towards the eye end of the rod, install first piston seal (item 12) over #1 piston segment (item 6).
6. Install #2 piston segment with the side without wrench holes (item 7) facing eye end of rod. #2 piston segment should turn easily by hand until it contacts #1 segment O-ring. Tighten with wrench.
7. With large end of piston seal facing away from rod eye, install O-ring (item 17) and piston seal (item 11) to #3 piston segment (item 8). Be sure expander ring is installed in piston seal (item 11).
8. Install #3 piston segment (item 8) onto rod (item 4) end . Tighten with wrench.
9. At the interface of the rod and piston segment #3, drill and tap for a 5/16"-8 x 1-inch set screw (item 18). Install the set screw and stake it in place.
10. Inspect cylinder bore for damage, and clean as necessary.
11. Lubricate static O-ring sealing surface with petroleum jelly.
12. Stabilize the cylinder in the vertical position. Using the rod eye (item 5) as the lift point, lower the piston rod assembly into the cylinder.
13. Remove the rod eye (item 5).
14. With back-up ring (item 16) facing rod eye end, install back-up ring and static O-ring (item 15) into groove in cylinder head (item 3).
15. With large end of cup seal facing towards base end of cylinder, install rod seal (item 13) in cylinder head (item 3).
16. Install cylinder end cap (item 3) over rod (item 4).
17. Install and torque twelve 3/4"-10 screws (item 20) with lockwashers (item 21) to 280 ft.lbs.
18. With small diameter of wiper facing towards rod eye (item 5), install wiper (item 14) into groove on packing plate.
19. Install wiper retention flange (item 22) over rod end. Torque eight ½"-13 bolts (item 23) with lockwashers (item 24) to 78 ft.lbs.
20. Install rod eye (item 5) into rod (item 4). Torque to approximately 1000 ft.lbs.

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SECTION 10.0
TROUBLESHOOTING

Problem	Cause	Remedy
Unit does not run.	Insufficient oil pressure or flow.	Check hydraulic supply system. Correct as required.
	Hoses or fittings too small for installation.	Always use proper hose and fitting sizes.
Unit runs erratically.	Erratic oil pressure or flow.	Check hydraulic supply system. Correct as required.
Unit runs, but stalls under load.	Pressure relief too low.	Check hydraulic supply system. Correct as required.
Shear does not cut material.	Wrong type of material for Shear size.	Check material size and type, then consult factory.
	Worn blades.	Rotate blades. Section 8.5.
	Excessive blade gap.	Check blade gap per section 8.5 and add shims.
	Hydraulic lines crimped.	Check the lines feeding oil to the Shear, replace any crimped lines.
	Hydraulic pressure at Shear is too low.	Compare with carrier's specific operating pressure.
		Check the Shear cylinder.
		Check carrier hydraulic system.
	Excessive back pressure on the return side (rod).	Check for crimped lines.
		Check the size of the lines
		Check for restrictor valve in the circuit.
		Check the return filter, replace if necessary.
		Check the control valve.
	Cylinder seal bypass.	Replace seal kit and inspect for any necessary repairs to the cylinder.

Problem	Cause	Remedy
Material jams in jaws.	Excessive blade gap.	Check blade gap per section 8.5 and add shims.
		Replace worn blades.
	Worn piercing tip.	Buildup and hard-surface existing tip to maintenance specifications.
		Install replacement tip.
	Dull blades.	Rotate blades.
		Replace, if all four edges are dull, with approved O.E.M. blades.
	Blades not within O.E.M. specifications.	Replace blades with O.E.M. approved blades.
Blade gap is uneven.	Non-O.E.M. blades being used.	Replace blades with O.E.M. approved blades.
	Debris in blade seat behind blades.	Remove blades and clear all debris.
	Inconsistent amount of blade shims between primary and secondary blades.	Reshim blades for consistency.
Cutting speed is extremely slow.	Carrier oil supply (flow) too low.	Check carrier hydraulic system and check hydraulic flow.
		Check for excessive back pressure.
Shear moveable jaw drifts after machine is shut down.	Cylinder seals worn or damaged.	Replace seal kit and inspect cylinder.
	Carrier hydraulic system not operating properly.	Adjust or repair carrier hydraulic system.

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

SECTION 11.0
TRANSPORT AND STORAGE

11.1 TRANSPORT

If the Shear is to be transported independent of the carrier:

1. Remove all loose debris from Shear.
2. Follow removal instructions in Section 5.8.
3. Lift Shear at approved lift points only with appropriate lifting equipment. See Figure 11-1.

> **⚠ WARNING ⚠**
> Do not lift Shear by the mounting pins. The Shear may shift and cause damage or personnel injury.

4. Adequately stabilize and secure Shear for transport.

If the Shear is transported while installed on the carrier:

1. Remove all loose debris from Shear.
2. Transport carrier in accordance with carrier manufacturer's recommendations.

11.2 STORAGE

Several simple precautions are necessary for storage of the Shear.

1. Protect hydraulic connections from damage and debris. Plug and cap hoses.
2. Avoid wet or damp conditions to minimize rust.
3. If stored outside, cover with a waterproof tarp.
4. Coat exposed chrome surfaces with rust preventative.

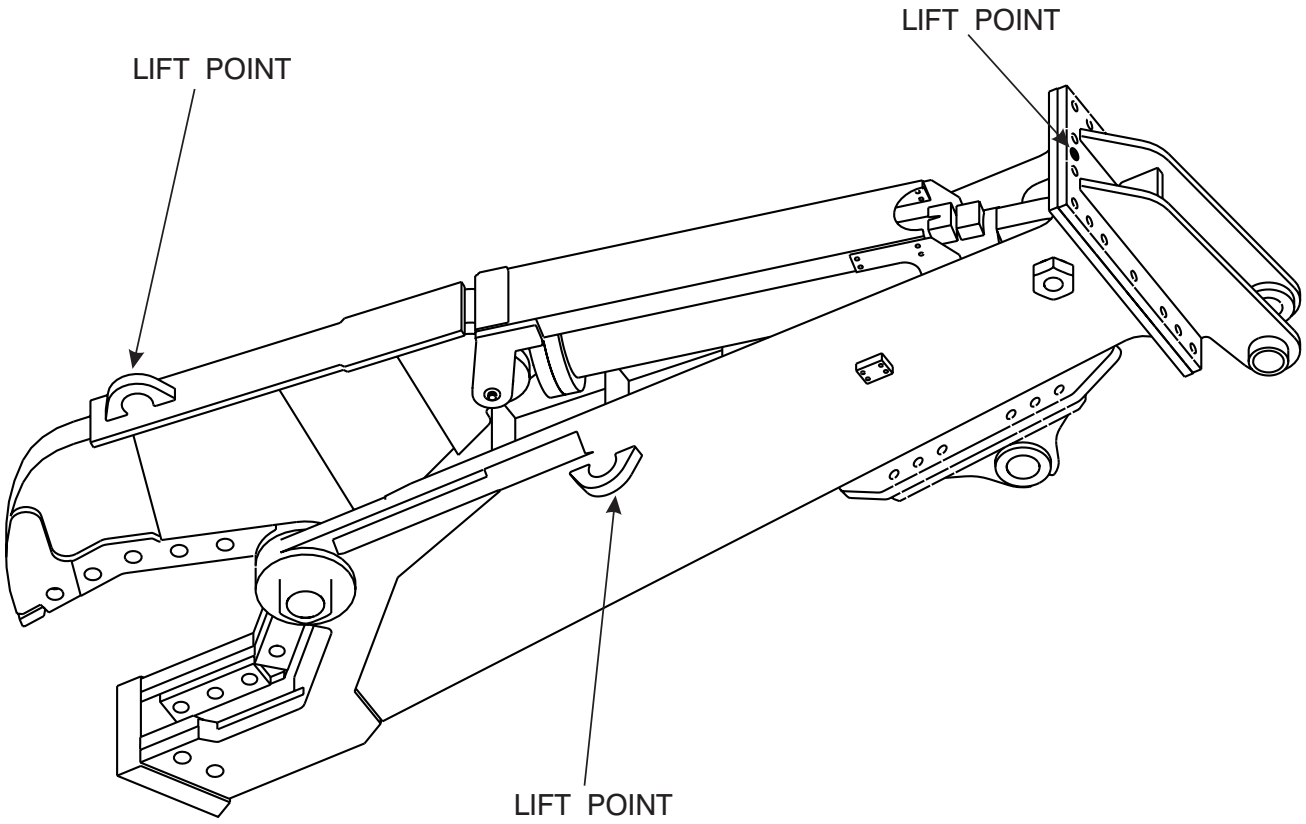
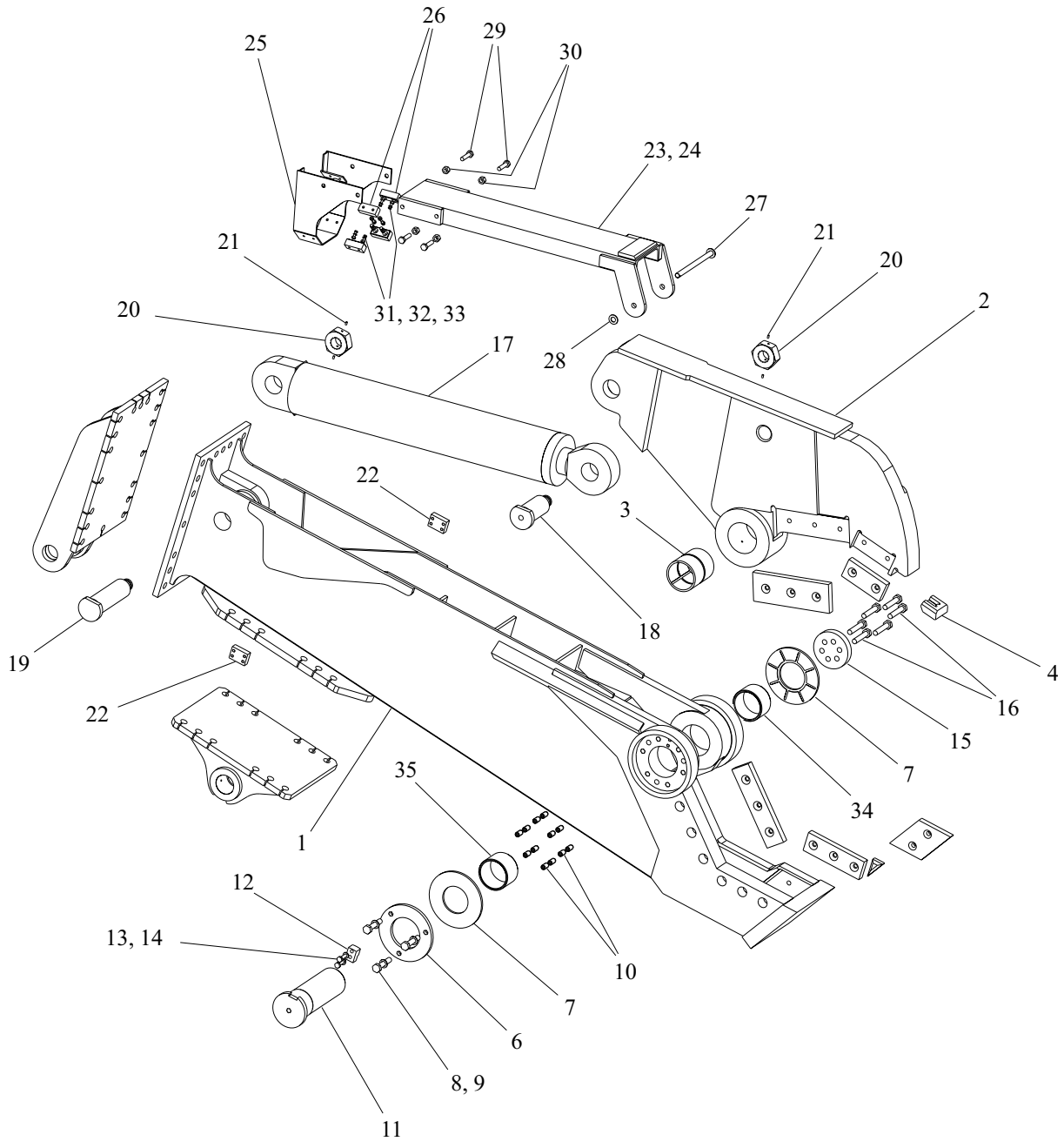


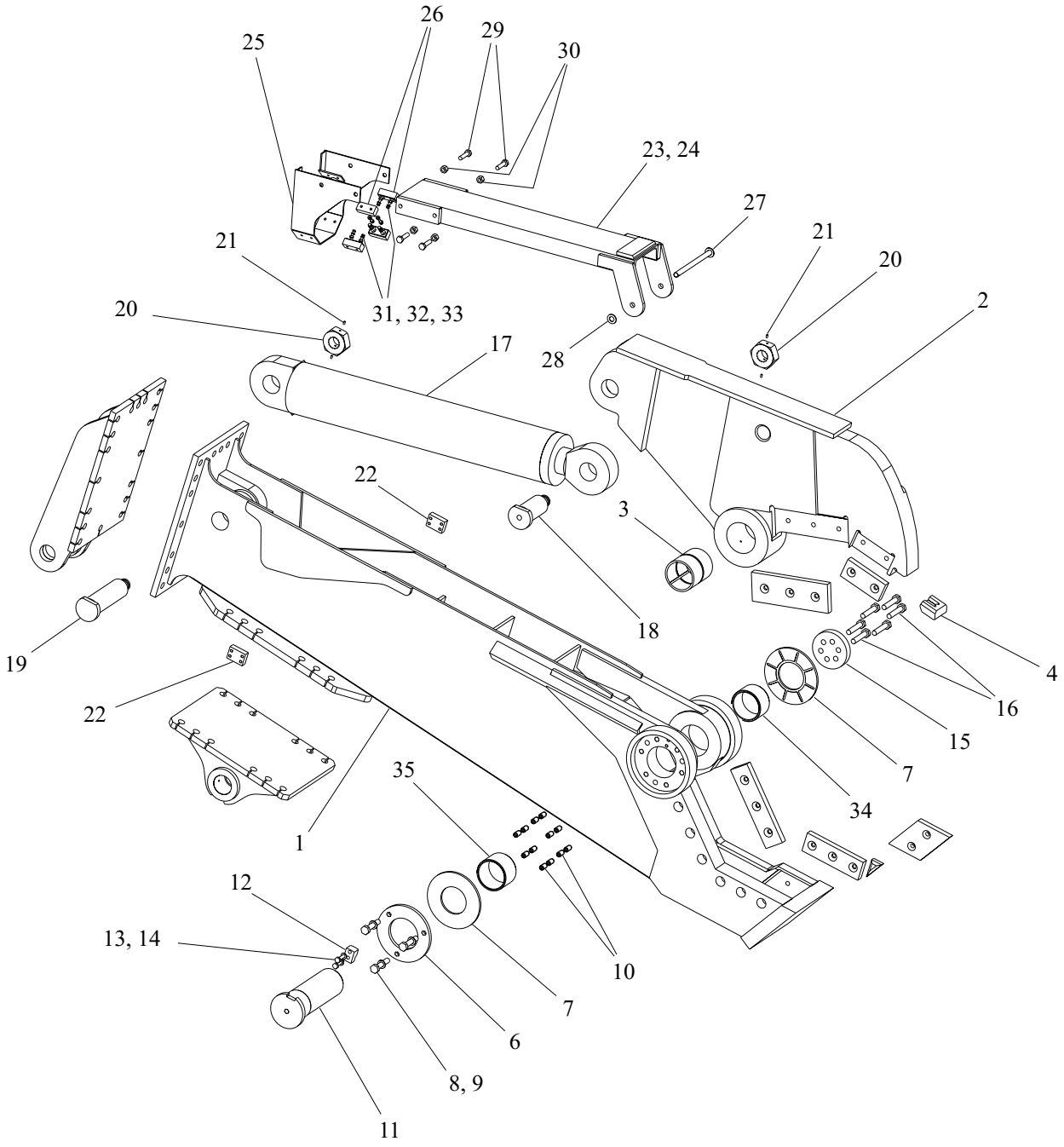
Figure 11-1. AMS-55 Shear Lift Points

SECTION 12.0
PARTS & WARRANTY INFORMATION



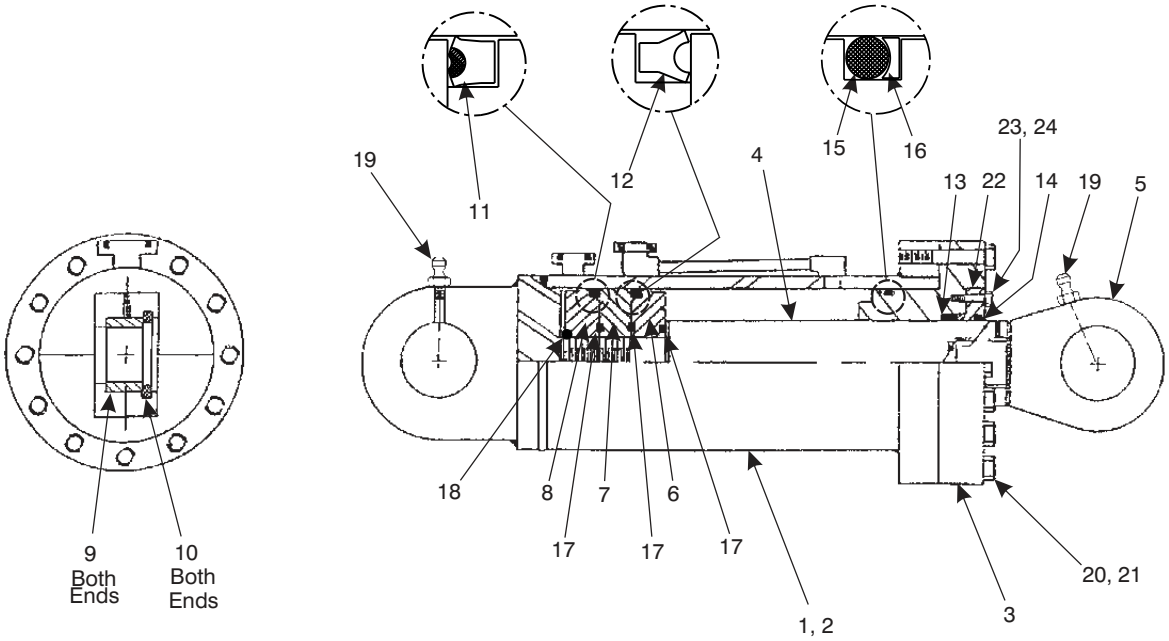
Shear Assembly

Shear Assembly			
ITEM ONLY	QTY.	PART NO.	DESCRIPTION
1	1	845152	Stationary Jaw
2	1	845154	Moveable Jaw with Bearing & Piercing Tip
3	1	845159	Bearing
4	1	845170	Piercing Tip
5	1	798197	Grease Fitting
6	1	845736	Pressure Plate - Main Pivot
7	2	845181	Thrust Bearing - Main Pivot
8	3	980261	Hex Head Cap Screw 1-inch - 8 x 5 inch GR 8
9	3	845337	Lock Washer 1-inch
10	12	845145	Special Socket Head Set Screw
11	1	845731	Pin, 150mm dia. x 520mm lg.
12	1	845189	Key
13	2	902515	Hex Head Cap Screw 5/8-inch - 11 x 2-3/4-inch GR8
14	2	617032	Lock Washer 5/8-inch
15	1	845732	Retaining Cap
16	2	659025	Hex Head Cap Screw 1-inch - 8 x 3 inch GR 8
17	1	845350	Cylinder
18	1	845165	Pin, 100mm dia. x 255mm lg.
19	1	845180	Pin, 100mm dia. x 390mm lg.
20	2	845182	Nut
21	4	817968	Socket Head Set Screw 5/16-inch - 18 x 5/8-inch
22	2	845127	Manifold Block
23	1	845326	Rod Guard Assembly (includes items 25, 26, 28, & 29)
24	1	845324	Rod Guard Weldment
25	1	845358	Bearing Carrier Weldment
26	4	845389	Wear Pad
27	1	845625	Pin Assembly, Shear Rod Guard



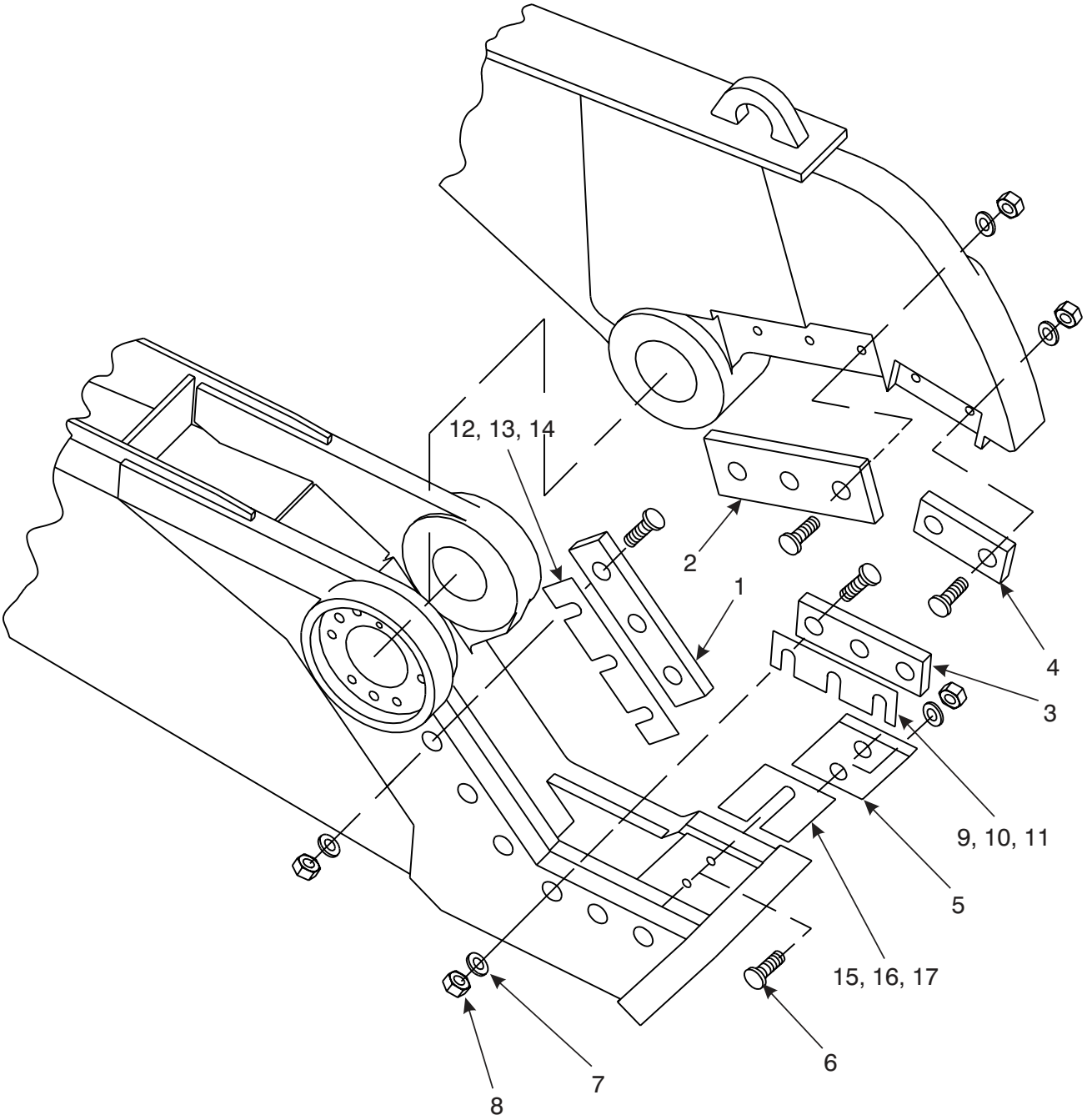
Shear Assembly

Shear Assembly			
ITEM ONLY	QTY.	PART NO.	DESCRIPTION
28	4	677346	Flat Washer, 1-inch
29	4	656772	Hex Head Cap Screw, 3/4 - 10 x 3.75 GR-8
30	4	620605	Elastic Stop Nut 3/4 - 10
31	8	902538	Hex Head Cap Screw, 3/8-inch
32	8	759808	Elastic Nut, 3/8-inch
33	8	653339	Flat Washer, 3/8-inch
34	1	845738	Bushing - LH
35	1	845735	Bushing - RH



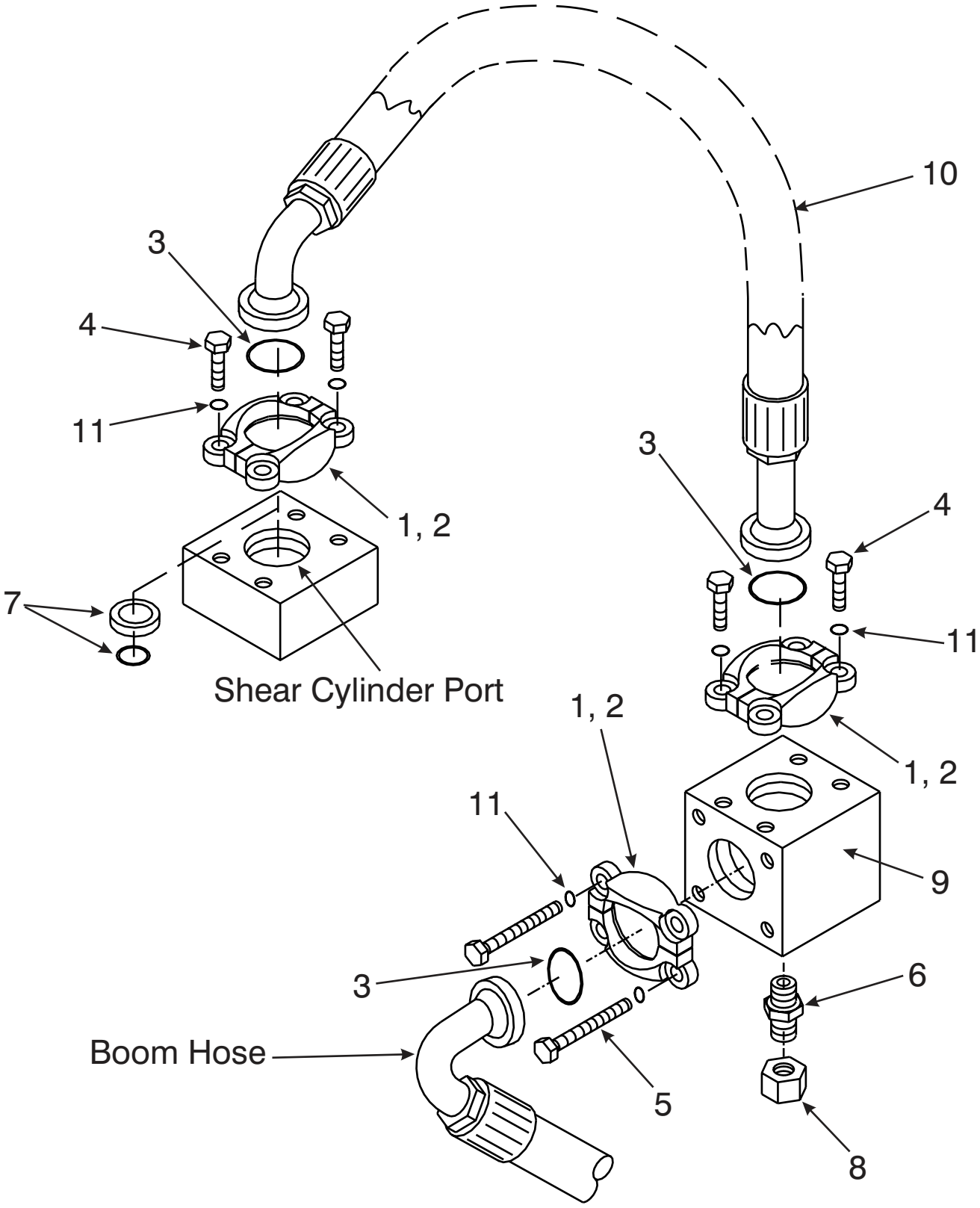
Cylinder Assembly

Shear Cylinder Assembly			
ITEM ONLY	QTY.	PART NO.	DESCRIPTION
1	1	845163	Cylinder (Includes Items 2 thru 24)
2	1	845160	Cylinder Body
3	1	845161	End Cap - Cylinder
4	1	845162	Rod - 5.5-inch
5	1	845341	Rod Eye
6	1	845342	1st Piston Segment
7	1	845343	2nd Piston Segment
8	1	845344	3rd Piston Segment
9	2	845339	Bearing, 100mm
10	2	845340	Internal Retaining Ring
	1	845191	Seal Kit (Includes Items 11 thru 17)
11	1	845192	Piston Seal with Expander
12	1	845193	Piston Seal without Expander
13	1	845194	Rod Seal without Expander
14	1	845195	Rod Wiper, 5.5-inch Rod
15	1	845196	O-Ring
16	1	845197	Back-Up Ring
17	3	845198	O-Ring
18	1		Set Screw, Piston
19	2	798197	Grease Fitting
20			Bolt
21			Washer
22	1		Wiper Retention Flange
23	8		Bolt
24	8		Lockwasher



Blades

Blades			
ITEM ONLY	QTY.	PART NO.	DESCRIPTION
1	1	845187	Lower Cutting Primary Blade
2	1	845186	Upper Cutting Primary Blade
3	1	845067	Lower Secondary Cutting Blade
4	1	845069	Upper Secondary Cutting Blade
5	1	845068	Guide Blade
6	13	817957	Flat Head Socket Cap Screw M20-2.5 x 100 10.9 plain
7	13	817966	Special Flat Washer HDN .84 x 1.44 x .25
8	13	817970	Hex Domed (Acorn) Nut M20 din 1587 CLG Zinc
9	1	845130	Shim .005 (Lower Secondary Blade)
10	1	845131	Shim .010 (Lower Secondary Blade)
11	1	845132	Shim .020 (Lower Secondary Blade)
12	1	902135	Shim .005 (Lower Primary Blade)
13	1	845136	Shim .010 (Lower Primary Blade)
14	1	845137	Shim .020 (Lower Primary Blade)
15	1	845140	Shim .005 (Guide Blade)
16	1	845141	Shim .010 (Guide Blade)
17	1	845142	Shim .020 (Guide Blade)



Shear Hydraulics

Hydraulics			
ITEM ONLY	QTY.	PART NO.	DESCRIPTION
1	3	719892	Split Flange Kit (Includes Items 2 thru 4)
2	12	658734	Split Flange Half
3	6	678594	O-Ring
4	24	719730	Hex Head Cap Screw ½-13 x 1-3/4
5	8	832023	Hex Head Cap Screw ½ -13 x 5”
6	2	815223	Adapter
7	2	817933	Plug W/ O-Ring (For Shipping Only)
8	2	903727	Cap Nut #4JIC
9	2	845127	Manifold Block
10	2	845125	Hose Assembly
11	24	719238	Lockwasher ½

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Allied

AMS-55 CaShear™ Warranty

WHAT IS COVERED

Allied warrants to owners of new *Allied* AMS-55 Shears, that for a period of twelve (12) months after delivery and placement into service by the first user, that *Allied* will repair or replace any part that fails because of defects in material or workmanship according to the following schedule:

WARRANTY LIMITATIONS		**ADJUSTMENT CHARGES TO BE PAID BY OWNERS**	
Months	Hours	Parts	Labor
0 - 12	2000	No Charge	No Charge

WHAT IS NOT COVERED

This warranty does not cover:

conditions which in the reasonable judgement of *Allied*, arise from misuse, negligence, alteration, accident, or lack of performance of necessary maintenance;

normal maintenance service or the replacement of service or wear items (such as cutting blades) made in connection with normal maintenance;

damage due to operation with hydraulic pressures in excess of levels recommended by *Allied*;

claims for loss of time, inconvenience, loss of use of the product or other consequential damages; travel mileage, travel labor, or related travel or transportation expense; or overtime or premium labor rates.

OWNER RESPONSIBILITY

The owner is responsible for:

being familiar with and performing regular maintenance service as specified in the applicable product manuals;

immediately removing the unit from service to prevent additional or subsequent damage if a problem develops.

The foregoing warranty is a limited warranty and this warranty is expressly in lieu of any other warranties, expressed or implied, including any implied warranty of merchantability or fitness for a particular purpose, and any non-contractual liabilities including product liabilities based upon negligence or strict liability. Allied does not authorize any other person to create for it any other liability in connection with this product.

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