



## Safety, Operation & Maintenance Manual

# MSD7R Mobile Shears

Part Number T129905

**STANLEY**

*LaBounty*<sup>®</sup>



CE

## **INTELLECTUAL PROPERTY – PATENT INFORMATION**

This product is covered by one or more of the following patents.

### U.S. PATENT NUMBERS:

5,474,242	7,240,869
5,531,007	7,487,930
5,992,023	7,578,461
7,322,273	7,832,130
8,146,256	8,104,384

### EPO Patent Numbers

435,702
737,107
1,682,299
1,789,225

## **PREFACE**

This manual contains information for the safe and proper operation and maintenance of MSD 7R Shears. Read the entire manual before the initial start-up of the attachment. It is important to know the correct operating procedures of the attachment and all safety precautions to prevent the possibility of property damage and personal injury.

The LaBounty attachment has been designed and manufactured with high quality materials and care in workmanship. The instructions in this manual have been prepared to ensure that, when followed properly, the attachment will provide efficient and reliable service. Continuing product development and improvement may have caused changes in the attachment that are not reflected in this manual. If a question arises regarding the operation or maintenance of the attachment, contact a LaBounty dealer for the most current information available.

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**SECTION 1 INTRODUCTION TO SAFETY**

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## **INTRODUCTION**

Your safety and the safety of others is a direct result of how you operate and maintain your equipment. Read and understand this manual and other safety information provided with the base machine and be sure that you understand all controls and operating instructions before attempting to operate this equipment. Failure to follow the safety precautions can result in personal injury, death or property damage.

Carefully read all safety messages in this manual and on your equipment safety signs. Keep safety signs in good condition; replace missing or damaged safety signs.

Because LaBounty cannot foresee all hazardous circumstances, the precautions listed in this manual and on the equipment are not all-inclusive. If a procedure, method, tool or part is not specifically recommended by LaBounty, determine whether it is safe for you and others, and that the equipment will not be damaged or made unsafe as a result of your decision to implement it.

The basic rules are summarized in this section of the manual. They also appear throughout the manual along with additional specific rules for safety and operation.

## **UNDERSTAND SIGNAL WORDS**

When you see the following symbols and signal words on your equipment or in this manual, be alert to the potential for personal injury or equipment or property damage. Follow recommended precautions and safe operating practices.



***Indicates immediate hazards that WILL result in severe personal injury or death.***



***Indicates hazards or unsafe practices that CAN result in severe personal injury or death.***



***Indicates hazards or unsafe practices that could result in personal injury.***



***Indicates notes of importance to a procedure or part.***

## SAFETY SUMMARY

### DANGER

***If the attachment is not functioning properly, you must shut the machine down and follow proper lockout, tag, and repair procedures.***

### DANGER

**NEVER** operate equipment without the original equipment safety guards in place, which include ROPS (Rollover Protective Structures and FOPS (Falling Object Protective Structures) cabs. A special applications kit (consisting of a 1/2" thick Lexan front door and 1/4" top and rear windows) must be installed on a loader mounted with a shear; doing so prevents objects from entering the cab opening during operation. Use only the approved parts in the kit. Follow the installation instructions exactly. ***Unapproved window changes or other modifications can cause loss of protection and result in injury or death.***

### DANGER

**DO NOT** process or handle material with the attachment over the operator's cab.

### DANGER

**DO NOT** attempt to shear brittle materials such as axles and railroad rail. Brittle material breaks or shatters instead of shearing. The material being processed could become a projectile and cause injury or death. **DO NOT** process any material in any position that may propel it toward operator, other workers, buildings or equipment.

### DANGER

**DO NOT** close the attachment on a structure and reverse the excavator in an attempt to pull down material.

### DANGER

Clear all persons and equipment from the area of operation and machine movement. **NEVER** move loads over people or equipment. When viewing the operation of the attachment, maintain a safe distance of at least 75 feet (22.9 meters).

### DANGER

**NEVER** approach power lines with any part of the machine. Keep clear at a minimum of 15 feet (5 meters).

### DANGER

Avoid tipping. The attachment will alter the lift capacities of the base machine. **DO NOT** overload the excavator or serious injury could result. Lift capacities will vary if the base machine is not on level ground. Carry loads in recommended positions for maximum stability. Use the recommended excavator counterweight. Use short slings and lift the load only as high as necessary.

### DANGER

**DO NOT** allow riders on the machine.

# MSD 7R SHEARS

## **SAFETY SUMMARY** continued

### **WARNING**

**NEVER** remove any pins unless the attachment is on the ground and blocked up or serious injury or death could result. Metal chips or debris may fly when a connecting pin is struck. Use a brass drift when striking pins and always wear protective clothing and proper eye protection. Pins may fly when struck with force to drive them in or out. Keep people clear when removing or installing pins.

### **WARNING**

**NEVER** operate equipment without the original equipment safety guards in place. If the cab glass is missing or damaged, check with your dealer or manufacturer for proper replacement.

### **WARNING**

Under no circumstances should any modifications be made to LaBounty equipment without factory authorization.

### **WARNING**

**ALWAYS** lower the boom to the ground before leaving the cab. If it is necessary to work on an attachment off the ground, securely support the machine and attachment. **DO NOT** support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. **DO NOT** rely on a cylinder to hold the attachment in the air. **DO NOT** work under a machine that is supported only by a jack.

### **WARNING**

**DO NOT** let hot hydraulic oil get in contact with the skin as it could cause severe burns. Wear adequate protective clothing and safety equipment. **DO NOT** tamper with any hydraulic line or component while it is pressurized. Escaping fluid under pressure can penetrate the skin, causing serious injury. Relieve pressure before unhooking hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Use a piece of cardboard to search for leaks. If **ANY** fluid is injected into the skin, seek immediate medical assistance.

### **CAUTION**

Before leaving the operator's seat, you **MUST** do the following:

1. Close the jaws of the shear.
  2. Rotate the shear to a horizontal position.
  3. Lower the lift arms fully.
  4. Engage the brake.
  5. Stop the engine.
  6. Raise the seat bar.
7. Move the pedals until both pedals are locked.

### **CAUTION**

**DO NOT** weld on any structural member unless specifically authorized by LaBounty. Any unauthorized welding or welding procedures will void the warranty, and may cause structural failure or result in personal injury.

### **CAUTION**

**ALWAYS** wear close-fitting clothing and safety equipment appropriate to the job. Safety equipment should be worn at all times when viewing, operating, or maintaining the attachment to prevent injury. Safety equipment includes eye protection, hard hat, steel toe shoes, gloves, and hearing protection.

### **CAUTION**

Keep clear of all potential pinch points, including the moving upper jaw, cylinder connections, bucket linkages or other moving parts.

### **CAUTION**

Before operating the attachment, read and observe all safety instructions in the Operation and Maintenance sections of this manual. If you are unfamiliar with any operation or maintenance procedure, seek instruction before proceeding.



**ATTACHMENT DECALS**

**STANLEY**



**STANLEY LABOUNTY BRAND DECALS  
(REPLACEMENT DECALS AVAILABLE UPON REQUEST)**

**SAFETY FIRST**

**Read the Safety, Operation and  
Maintenance Manual before  
operating or servicing the equipment.  
Keep the manual with the attachment  
so it is available for reference.**

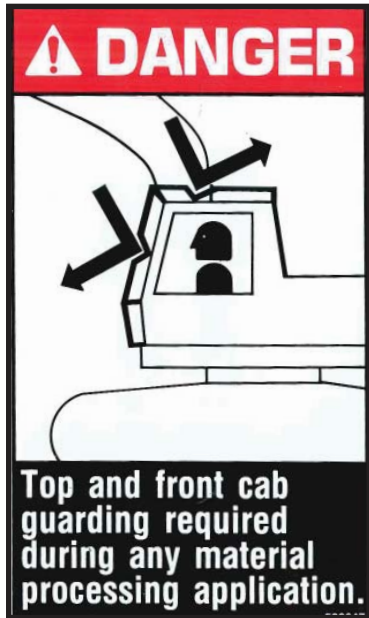
**SAFETY FIRST DECAL PART NUMBER 503590 (INCLUDED WITH  
MANUALS)**

# MSD 7R SHEARS

## ATTACHMENT DECALS continued



**GREASE DECAL  
PART NUMBER 116338**



**SAFETY DECAL  
PART NUMBER 503647**



**SAFE VIEWING DISTANCE DECAL  
PART NUMBER 116389**

	1538 Highway 2 Two Harbors, MN 55616 tel: 1-800-522-5059 fax: 218-834-3879 www.stanleyhydraulic.com
	<p align="center"><b>Made in the U.S.A. with Global Materials</b></p>
Attachment Model:	
Serial Number:	
Year of Manufacture:	
Weight:	

**MODEL/SERIAL NUMBER PLATE  
PART NUMBER 511045**

U.S. PATENT NUMBERS		EPO PATENT NUMBERS
5,474,242	7,240,869	435,702
5,531,007	7,487,930	737,107
5,992,023	7,578,461	1,682,299
7,322,273	7,832,130	1,789,225
8,146,256	8,104,384	

**STANLEY LABOUNTY**  
 1538 Highway 2  
 Two Harbors, MN 55616  
 FOREIGN PATENTS AND OTHER PATENTS PENDING

1-800-522-5059  
 www.stanleyhydraulic.com

116404

**PATENT PLATE  
PART NUMBER 116404**



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# MSD 7R SHEARS

## **MODEL DESCRIPTION**

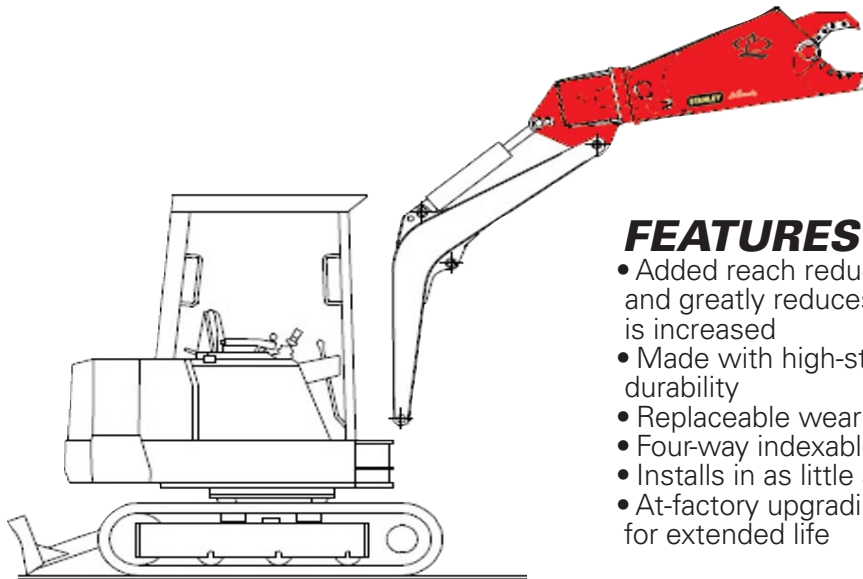
Since LaBounty mobile shear technology was introduced, many changes have taken place. A wide selection of models and sizes are now available. Product refinements like 360° continuous rotation, high-performance reversed cylinders, tougher steels, and bolt-on replaceable wear parts have altered the look and improved the performance of LaBounty Mobile Shears.

MSD Mobile Shears are available in three basic models—Standard Stick, Integral Shroud and Integral Shroud with 360° Option (R). These models are described in this section.

Models are available for base machines from 7,500 to 400,000 pounds with a range of cutting depths from 10" to 76" available. Optional 360° continuous rotation provides easy, accurate cutting at all angles.

High tensile, high alloy, abrasion-resistant steel construction assures long, uninterrupted service—even in the harshest conditions. The main pivot shaft of every model is induction-hardened, ground for long life and pivots on LaBounty's specially designed bearings.

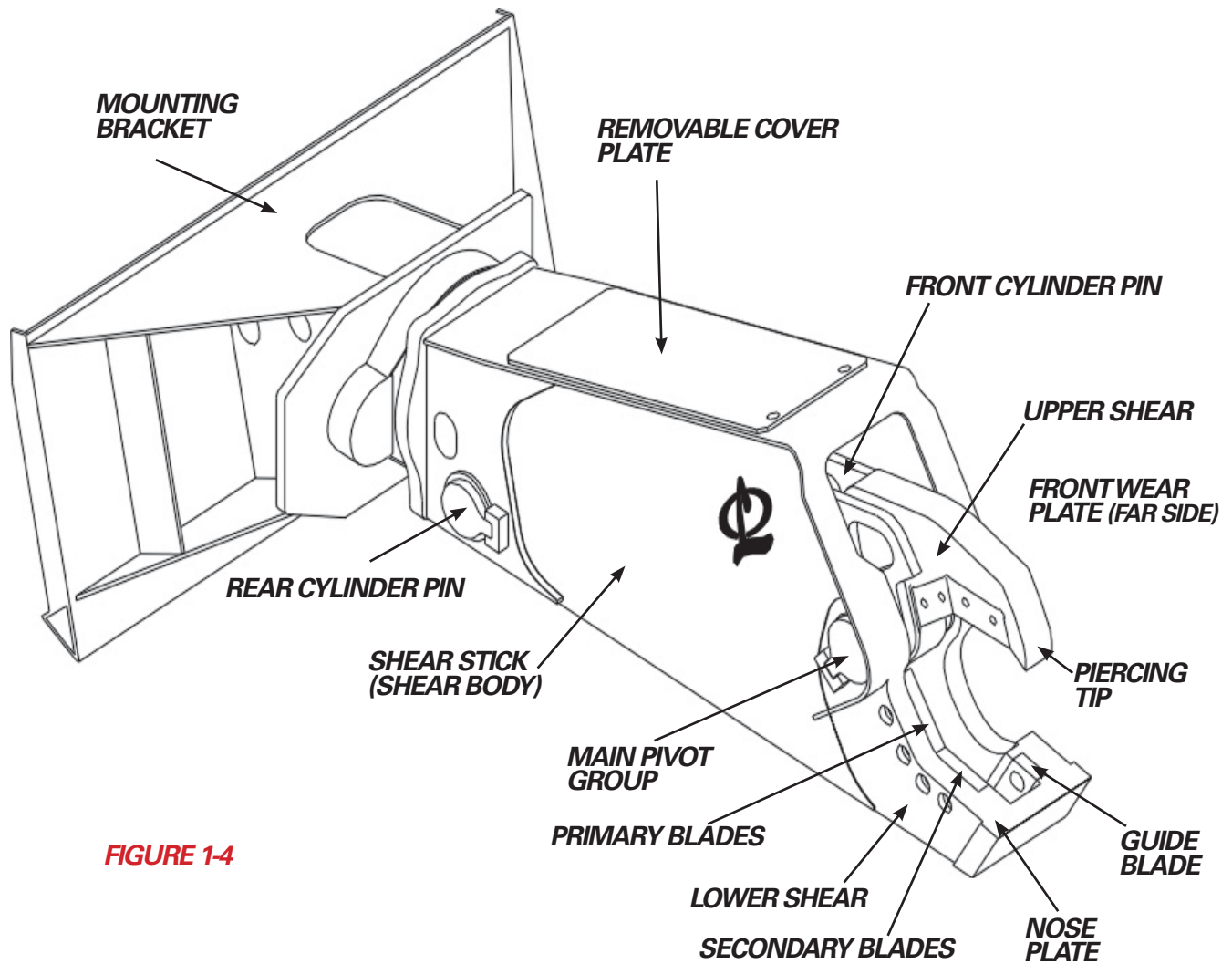
Mobile shears can cut a wide variety of materials including I and H beams, other building materials, steel plate, round stock, wire, rebar and concrete. They are ideal for scrap processing, demolition work, road and bridge reconstruction and in jobs where torching is not possible.



## **FEATURES**

- Added reach reduces machine movement and wear and greatly reduces the need for arm mounting—safety is increased
- Made with high-strength, abrasion-resistant steel for durability
- Replaceable wear parts for easy maintenance
- Four-way indexable blades
- Installs in as little as two hours
- At-factory upgrading and rebuilding services available for extended life

**ATTACHMENT TERMS**



**FIGURE 1-4**

## ATTACHMENT GLOSSARY

<b>Adjustment Plates</b>	Custom-made plates that precisely adjust the lower cutting blades to the upper blades. These plates make it possible to achieve a uniform blade gap on the shear.
<b>Apex</b>	The point where the primary and secondary cutting blades come together.
<b>Blade Gap</b>	The gap between the upper and lower cutting blades as the blades bypass. A very important item that must be maintained regularly to prevent material from jamming in the blades.
<b>Blade Shims</b>	Thin metal shims used to adjust the position of the lower cutting blades to maintain a proper blade gap. Blades should never be shimmed out farther than 0.13" (3.3 mm).
<b>Build Up</b>	Welding process where worn off parent material is replaced with new metal. A very important maintenance procedure that must be performed regularly throughout the life of the shear.
<b>Control Valve Manifold</b>	Used in the hydraulic rotation kit to direct flow to the accumulator and back to the hydraulic motor.
<b>Cross Pattern Technique</b>	A method of torquing a circular pattern of bolts down to achieve proper seating. The technique pattern, based on a clock face pattern, would follow the order of 12, 6, 11, 5, 10, 4, 9, 3, 8, 2, 7, 1.
<b>Crossover Relief Valve</b>	A hydraulic component used in a rotating shear that limits the amount of hydraulic pressure sent to the rotation assembly. The crossover is preset at the factory and must not be tampered with.
<b>Flow Control Valve</b>	A hydraulic component used in a rotating shear that meters out the hydraulic fluid from the rotation motor. The flow control should be set to limit the rotator from spinning faster than 1- 2 revolutions per minute.
<b>Front Cylinder Pin</b>	The pin that attaches the shear cylinder barrel end to the upper shear.
<b>Front Wear Plate</b>	The area of the upper that contacts the guide blade; it is located on the opposite side of the upper shear from the cutting blades.
<b>Grain of Material</b>	The direction that the parent material was initially rolled at the steel mill. It is very important when hardsurfacing any part of the shear to weld with the grain of the steel. Cross-grained hardsurfacing has the tendency to start cracks in the base material.
<b>Guide Blade</b>	A replaceable component located opposite the cutting blades in the lower shear. The main purpose of the guide blade is to support the upper shear during the cutting cycle.
<b>Guide Blade Shim Set</b>	Thin metal shims used to adjust the guide blade out to maintain the proper guide blade gap. Shims come in a designated set that determines when the guide blade will be indexed or replaced.
<b>Guide Blade Gap</b>	The gap between the front wear plate and the guide blade as the upper shear is cycled into the lower. This is an important maintenance item to ensure longevity of the shear's structure.
<b>Hardsurface</b>	Welding process for protecting the parent material of the shear jaws. The hardsurface acts as a wear surface.

## ATTACHMENT GLOSSARY

<b>Lower Shear</b>	The lower stationary jaw of the shear. The lower shear contains the lower cutting blades, the guide blade, and the cross blade.
<b>Main Bearing</b>	Hardened bushings that the main shaft of the shear rotates on during operation. There are two main bearings, bolted in on both sides of the main pivot group.
<b>Main Shaft</b>	The shaft on which the upper shear pivots causing the shearing action of the attachment.
<b>Manifold Block</b>	Hydraulic block that directs the excavator's hydraulic flow to the shear cylinder and rotation assembly.
<b>Motor</b>	Hydraulic rotation component that drives the turntable bearing or planetary gear box on rotating shears.
<b>Nose Plate</b>	Steel plate across the front of the lower shear jaw. The profile of the nose plate is a very important maintenance item that must be built up and hardsurfaced to prevent wear of the parent material.
<b>Primary Blades</b>	The cutting blades in the shear jaws closest to the shear throat. There is a primary blade in both upper and lower shear jaws.
<b>Rear Cylinder Pin</b>	Pin that anchors the butt end of the shear cylinder inside the rear of the shear. The rear cylinder pin must be greased according to the instructions in this manual.
<b>Rotation Assembly</b>	Hydraulic drive assembly allows full 360° continuous rotation of the shear. This option gives greater positioning capabilities when processing with the mobile shear.
<b>Secondary Blades</b>	The cutting blades in the shear jaws farthest from the shear throat. There is a secondary blade in both the upper and lower shear jaws.
<b>Shear Cylinder</b>	Hydraulic cylinder that powers the cutting action of the shear. The barrel end of the cylinder attaches to the shear's upper jaw and the rod end attaches to the rear cylinder lugs. The cylinder rod stays protected from damage inside the shear.
<b>Shear Stick</b>	The main body of the shear that includes the lower shear. This weldment must be regularly inspected for damage.
<b>Swivel Manifold</b>	Allows continuous hydraulic flow to the shear cylinder during rotation of shear without twisting hoses.
<b>Turntable Bearing</b>	Rotary gear bearing used in rotating shears. It is mounted to the shear stick and is driven by hydraulic components in the upper head or mounting bracket. It is sometimes called a slewing ring.
<b>Upper Shear</b>	Movable jaw of the shear that contains cutting blades, the Saber Tip, and the wear area for the slide pucks. The shear cylinder articulates the upper shear into the lower shear to perform the cutting action.

## **SECTION 3 INSTALLATION**

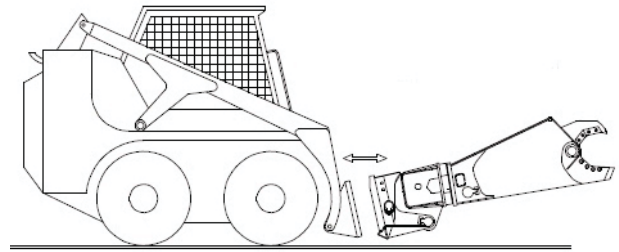
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# MSD 7R SHEARS

## **SHEAR MOUNTING FOR SKIDSTEER MOUNTS**

The shear is equipped with a mounting plate that will mount to the loader in the same way as the original equipment. See Figure 3-1. Refer to the loader manual for specific mounting instructions.



**FIGURE 3-1**

## **SHEAR MOUNTING FOR STICK (OR BOOM) MOUNTS**

**1.** Locate level, firm ground, such as a concrete floor, for installation. Place the shear on the ground with the mounting bracket facing the excavator (figure 3-2). It may be necessary to block up the rear end of the shear to allow the stick or boom tip to be aligned with the mounting bracket. For second member, or boom mounts, it may be necessary to place the shear on the ground upside down with the mounting bracket facing away from the cab (Figure 3-3).

**2.** Remove the bucket or other attachment following the manufacturer's recommended procedure. For second member, or boom mounts, the stick will also need to be removed before installing the shear.

**3.** Take care to plug the hydraulic hoses when disconnected to prevent contamination from entering the hydraulic system.

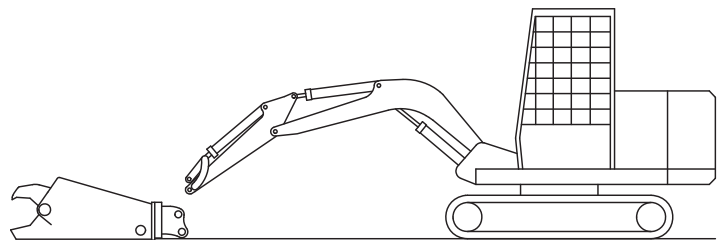
**4.** Walk the excavator into position, lining the stick into the stick pivot of the attachment (Figure 3-4).

**5.** Pin the excavator's stick and attachment stick pivot together.

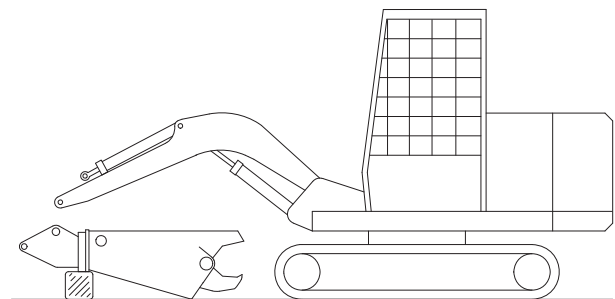
**6.** Use the bucket cylinder, if necessary, to align the excavator bucket linkage with the linkage connection of the shear bracket. Pin this connection together.

**7.** Double-check all pins, collars, and related fasteners to ensure they are properly installed and tightened.

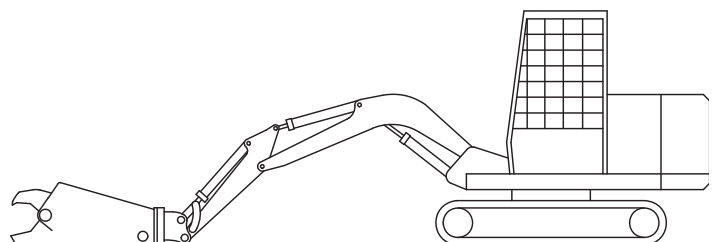
**8.** See the electrical and hydraulic installation in this section, pages 3-4, and 3-5.



**FIGURE 3-2**



**FIGURE 3-3**



**FIGURE 3-4**

## **SHEAR REMOVAL FOR STICK MOUNTS**

1. Locate flat, hard ground. With the bottom of the shear facing the operator, set the shear on the ground (figure 3-5).
2. Use blocking to support the bucket linkage and remove the link pin.

### **WARNING**

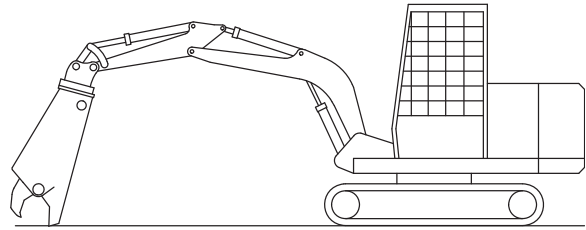
***Removal of any pin connecting the shear to the base machine can be hazardous. Never remove any pins unless the shear is properly supported on the ground (or blocked up if necessary) or serious injury could result.***

3. Fully retract the bucket cylinder after it is detached from the shear mounting bracket (figure 3-6).
4. CAREFULLY remove the hydraulic lines from the shear.

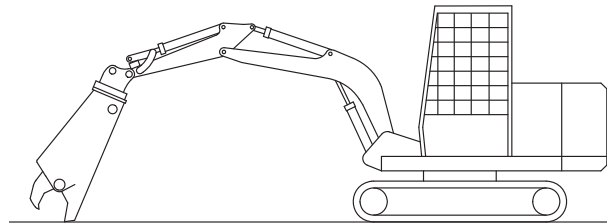
### **WARNING**

***Trapped hydraulic pressure may be present after base machine is turned off. Extreme caution must be taken when removing shear hydraulic hoses or injury or death could result.***

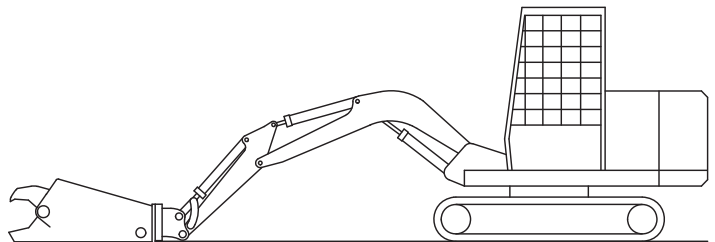
5. Cap the open fittings and hose ends to prevent contamination of the hydraulic system.
6. Stand clear and instruct the operator to set the shear flat on the ground (figure 3-7).
7. At this point, be extremely sure the shear is stable before releasing the weight of the shear.
8. Remove the stick pivot pin from the shear.



**FIGURE 3-5**



**FIGURE 3-6**



**FIGURE 3-7**

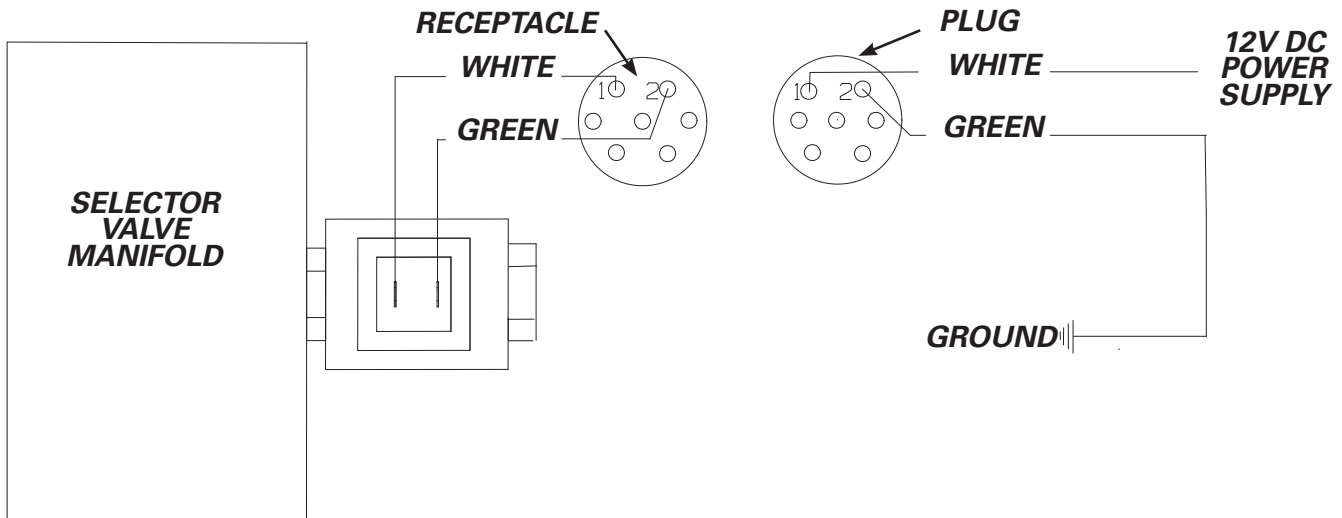
# MSD 7R SHEARS

## ELECTRICAL INSTALLATION

Refer to the appropriate diagram (figures 3-8 and 3-9) below for your type of mount.

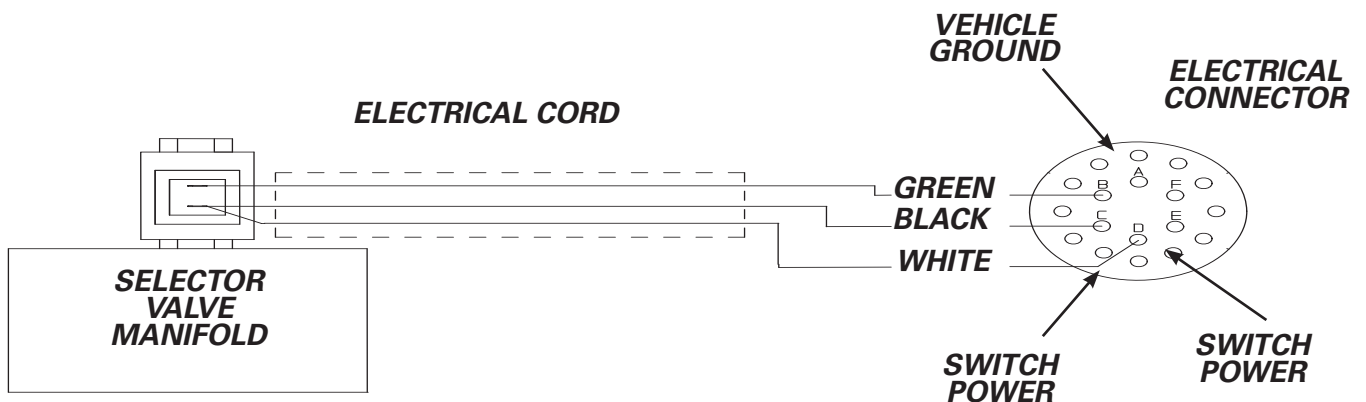
1. Install an electrical switch (single pole, single throw momentary type) inside operators cab. This could be either a push button, toggle or foot switch.
2. Install an electrical cord (2 conductor type) from the electrical switch to the shear selector valve solenoid.
3. Install a jump wire from the base machine fuse panel to the electrical switch. This should be live with the excavator key in the "on" position.

### DIAGRAM FOR STICK MOUNTED SHEARS



**FIGURE 3-8**

### DIAGRAM FOR SKIDSTEER MOUNTED SHEARS



**FIGURE 3-9**

## HYDRAULIC INSTALLATION FOR STICK AND SKIDSTEER MOUNTS

Use the following instructions and the skidsteer examples on the following pages to set up your shear hydraulics properly.

1. Connect auxiliary hydraulic lines from the base machine to the hydraulic connections at the rotating head of the shear. This circuit may have been installed from the factory or may require installation.
2. After connecting the auxiliary hydraulic circuit from the base machine to the shear, install an additional 1/4" diameter case drain line.
3. Lift the boom and slowly engage the rotate function and open and close functions. Watch for hydraulic oil leaks and interference.
4. Follow the hydraulic start-up procedure as described in this manual.

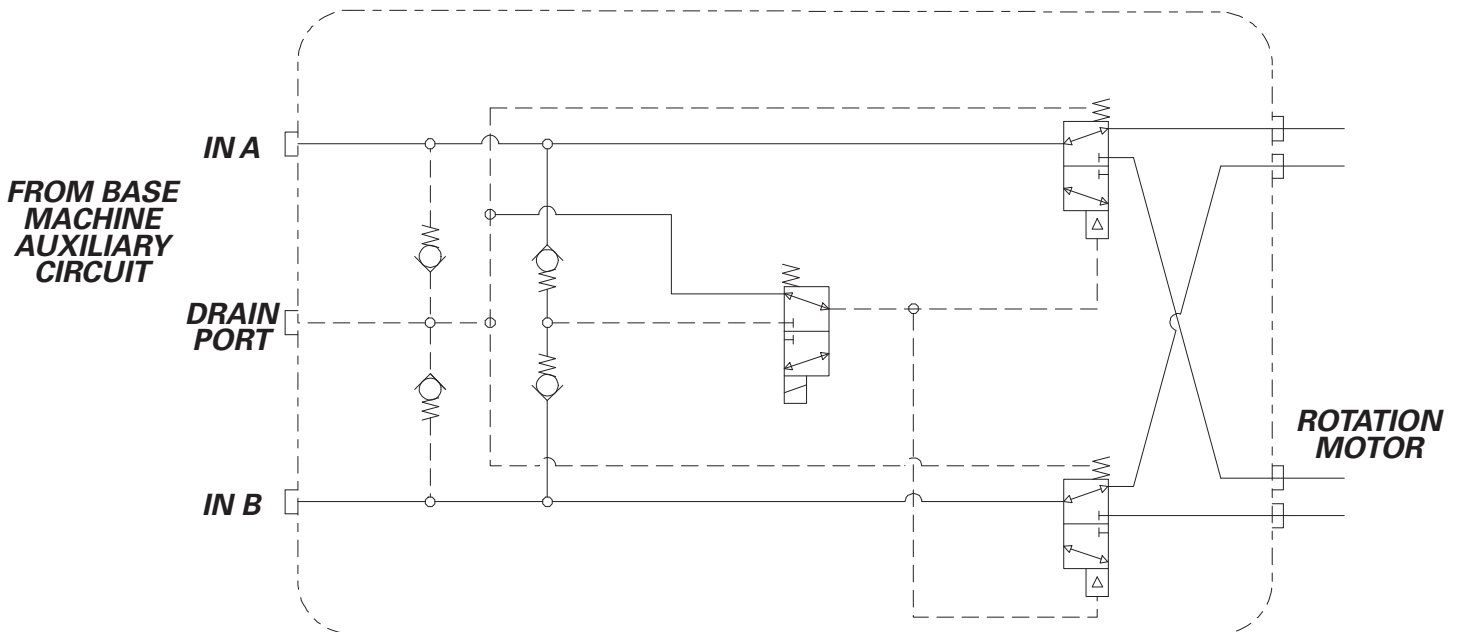
### NOTICE

When installation is complete, slowly move the shear through its full range of motion. Check for interference between the shear and the base machine. Contact dealer/factory immediately if any interference occurs

### NOTICE

The same auxiliary control device will be used for the open and close circuit and the rotate circuit. To operate the rotate function, the electrical switch will need to be activated.

## SELECTOR VALVE MANIFOLD HYDRAULIC SCHEMATIC

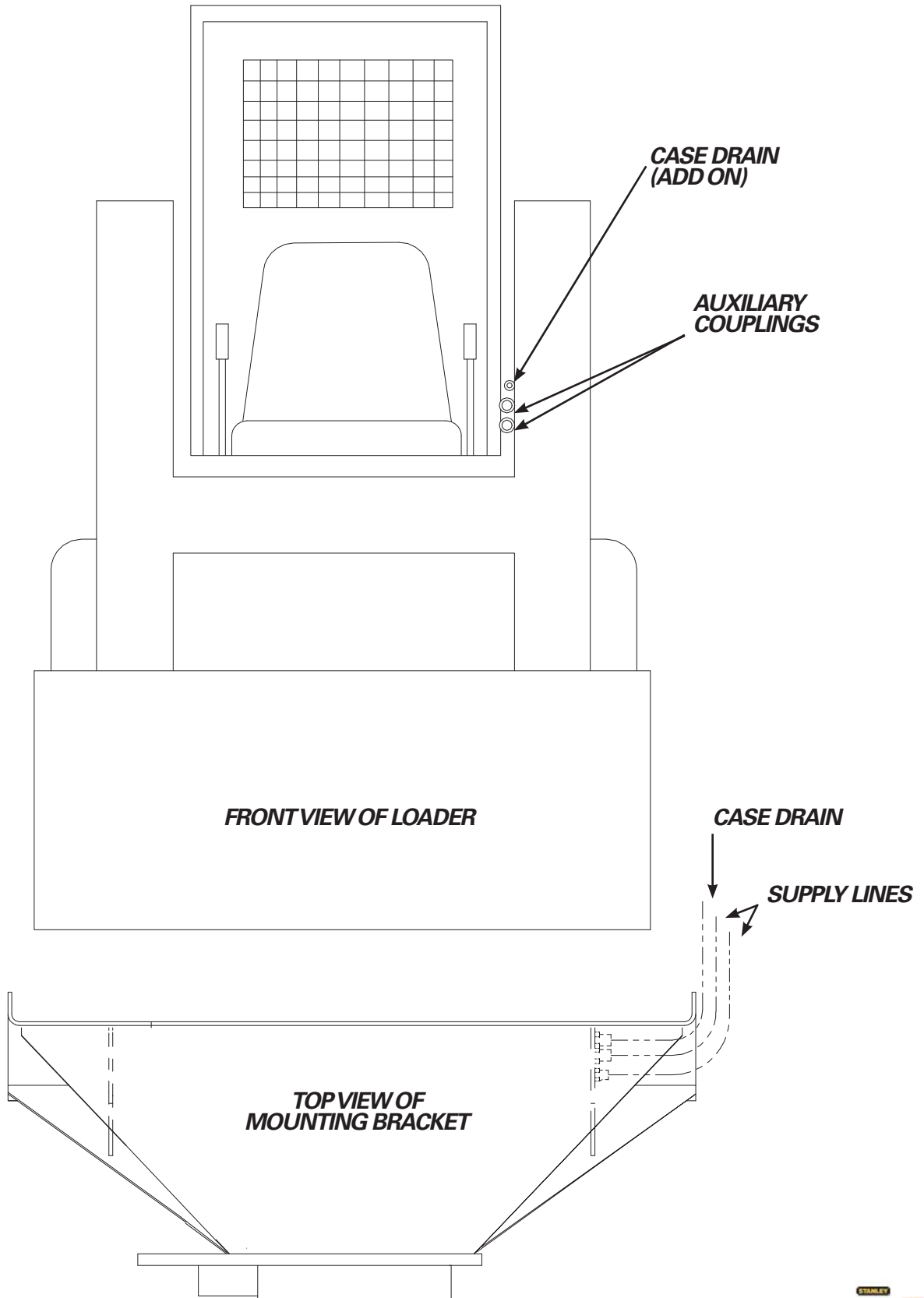


**FIGURE 3-10**

# MSD 7R SHEARS

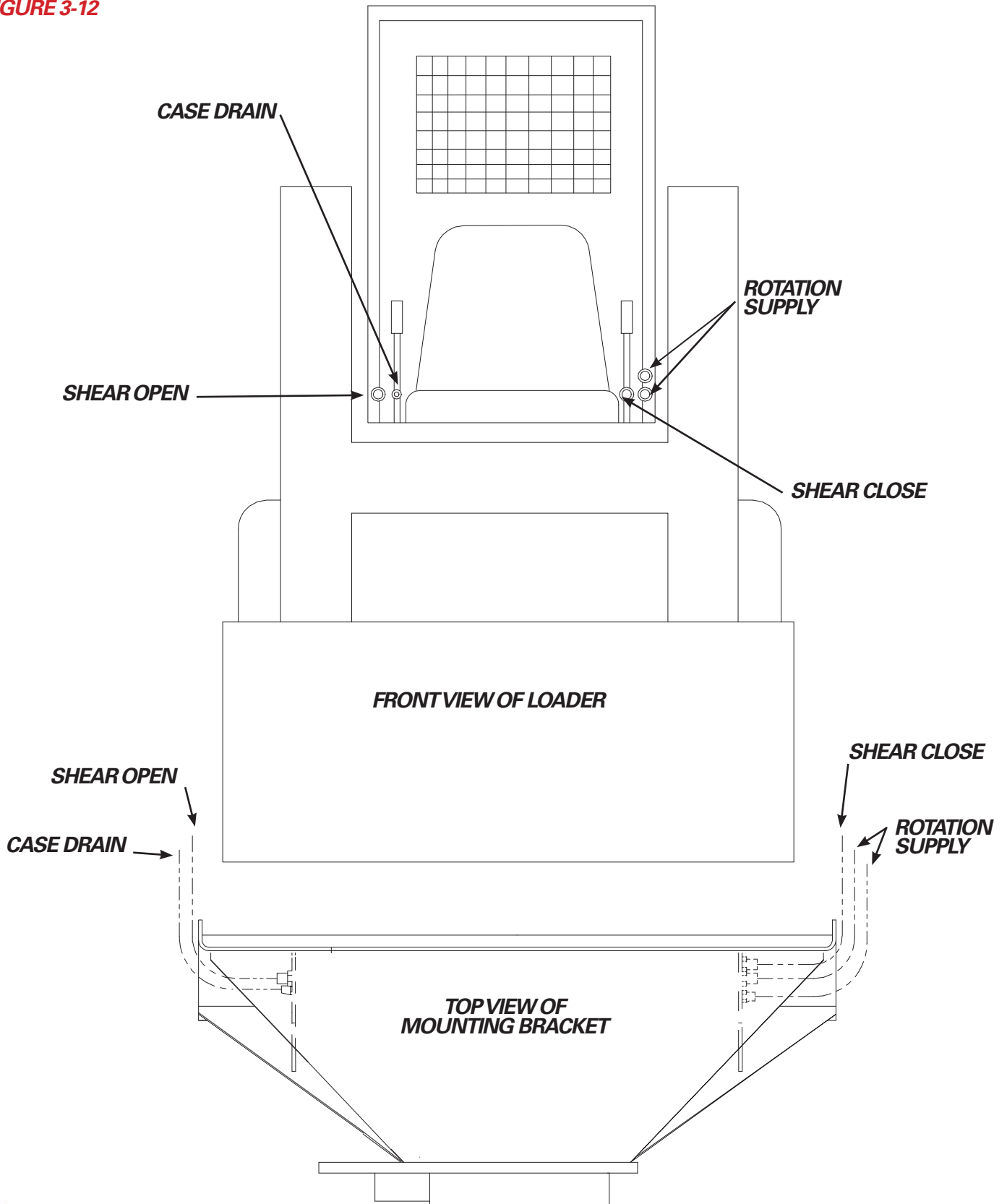
## HYDRAULIC CONNECTION EXAMPLE #1

FIGURE 3-11



**HYDRAULIC CONNECTION EXAMPLE #2**

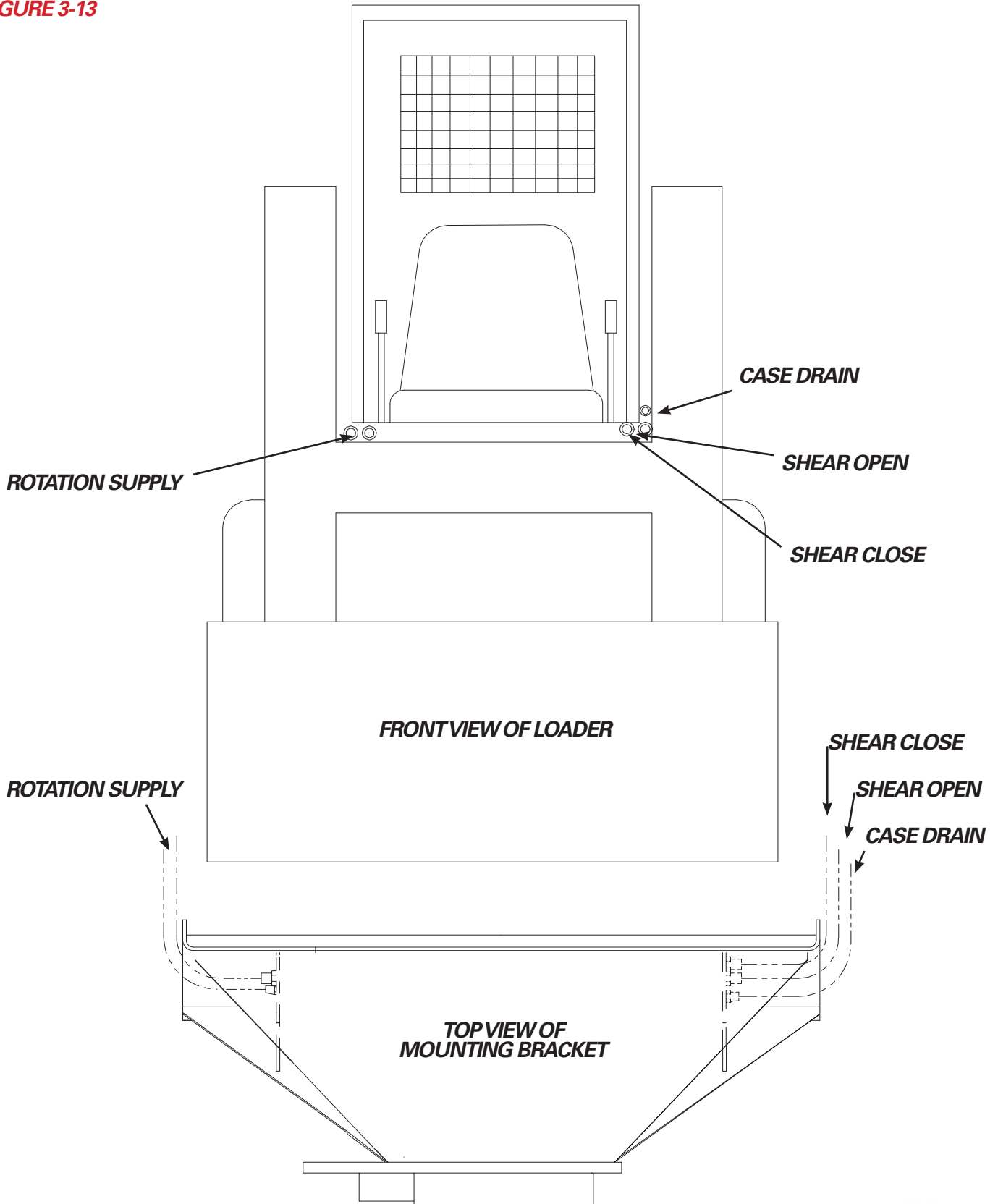
**FIGURE 3-12**



# MSD 7R SHEARS

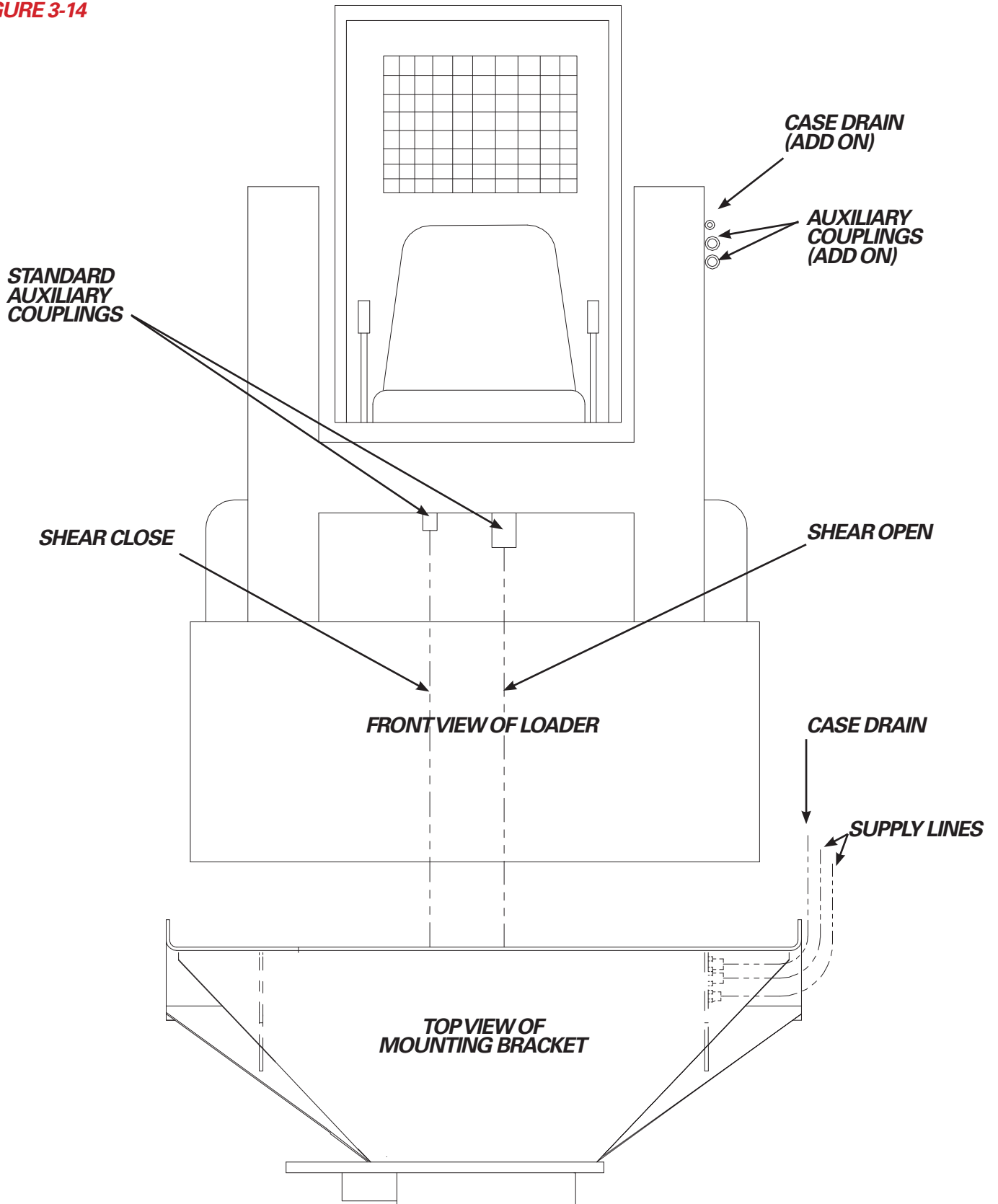
## HYDRAULIC CONNECTION EXAMPLE #3

FIGURE 3-13



**HYDRAULIC CONNECTION EXAMPLE #4**

**FIGURE 3-14**





# MSD 7R SHEARS

## **HYDRAULIC START-UP**

With the shear installed on the base machine, it is important that the air be bled from the cylinder by the following procedure. Failure to follow this start-up procedure could result in cylinder seal damage or base machine hydraulic system cavitation. Following the O.E.M. procedures, start and warm up the base machine hydraulic system. Do not operate the shear circuit during this warm-up period. After the base machine hydraulic system has reached normal operation temperature, lower the engine speed to idle. Place the shear in a horizontal position with the cylinder ports on top; this will bleed air from the cylinder.

Begin to stroke the shear cylinder back and forth by opening and closing the jaw slowly. Do not open or close the jaw fully at first. After stroking the cylinder a minimum of five times in this manner, fully stroke the cylinder at least five complete cycles. During these start-up procedures, when the cylinder reaches its limit of travel, reverse its direction immediately—do not hold pressure on the cylinder at the end of its stroke.

To prevent damage to the hydraulic systems, the base machine hydraulic fluid must be kept at proper levels. To check the fluid level, open the shear jaw completely, lower the shear to the ground, stop the base machine and follow the base machine instructions.

Restart the base machine and bring to normal operating speed and again stroke the cylinder through at least five complete cycles. Be sure not to hold pressure on the cylinder at the end of its stroke during these initial procedures. Shut the excavator off and check for hydraulic leaks. For personal safety, do not use your hands to check for hydraulic leaks.

## **NOTICE**

*If the shear has been stored or idled for a long period of time, or if any hydraulic lines have been disconnected, these start-up procedures must be performed before putting the shear into operation.*

## **SHEAR STORAGE**

1. Block the shear up off the ground using wood blocking.
2. Grease the pins and machined bores of the mounting bracket of the shear (refer to the lubrication instructions in the Maintenance section of this manual). Then apply a generous amount of grease to shear blades, cylinder rod and all other exposed and unpainted surfaces.
3. Install plugs and caps over the quick disconnect couplings.

**SECTION 4 OPERATION**

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# MSD 7R SHEARS

## **BEFORE YOU START**

### **KNOW YOUR SAFETY PROGRAM**

1. Read and understand the safety section of this manual and the base machine manual.
2. Know the employer's safety rules for your job. Consult your foreman for specific instructions and safety equipment required.
3. Learn the traffic rules at the work site.
4. Know the hand signals used on the job and who is responsible for signaling. Take signals from only ONE person.



### **KNOW YOUR EQUIPMENT**

- Learn the location and function of all controls. Test all controls to ensure proper operation. If any malfunctions are found, shut the machine down and report the malfunction for repair.
- Be familiar with the safety devices on the machine, indicators, warning devices and caution instructions. They will alert you to conditions that may make it hazardous to continue operating.
- Wear proper protective clothing including hard hat, safety shoes, ear protectors, reflective clothing, safety goggles and work gloves. Loose clothing can get caught in machinery and cause injury. Wrist watches, rings and other accessories can be dangerous, as well.
- Know the clearances in the work area.

## **FIRST THINGS FIRST**

1. Ensure all safe viewing distance decals are installed and legible; contact LaBounty for replacements as required.
2. Have a DAILY Safety Dialog with all those with whom you work. Inform them of any out-of-the-ordinary work that may be planned for the day. Remind them of the safe working distance.
3. Clear the area; inspect. **ALWAYS** look out for others. In any work area, people constitute a serious safety hazard. Before operating, walk completely around the machine to be sure there are no workers next to, under or on it. Warn nearby workers that you are starting up; **DO NOT** start up until they are out of danger.
4. Each day before starting, visually inspect the machine by walking around it entirely; check the location of cables, gas lines, and water mains before any operations. Make sure work site footing has sufficient strength to firmly support the machine. When working close to an excavation, position machine with the propel motors at the rear.
5. Once started, keep bystanders clear, especially before moving the boom, swinging the upper structure, or traveling. **ALWAYS** be alert for bystanders in or near the operating area.

## **SAFETY DEVICES YOU'LL NEED**

Seat belts  
Canopies  
Falling Objects Protective Structures (FOPS)  
Shields and guards  
Safety decals  
Visual or audible warning devices  
Flags and flares  
Barricades  
Signs and other markings  
Warning lights

## GENERAL RULES FOR SAFE OPERATION

1. Read the Operator's Manual for the base machine on which the attachment is mounted.
2. **KNOW** the capacity of the excavator and its attachments. **DO NOT** overload the machine or serious injury could result. The attachment may have altered the base machine's lift capabilities.
3. It is required that a Falling Objects Protection Structure be installed surrounding the excavator cab for all material handling applications.
4. The attachment is for processing materials. **DO NOT** use the attachment for unapproved purposes or warranty may be voided.
5. **DO NOT continuously** process oversized materials by forcing them into the shear throat with the downward force of the excavator. This practice is detrimental to the life of the shear and is strongly discouraged.
6. If the shear stalls during processing, scale back the amount of material being processed at one time. Continuously overloading the shear and cycling the excavator to full system pressure can cause overheating and have adverse effects on the shear and the excavator hydraulic system.
7. Whenever possible, cycle the shear cylinder completely during processing. Fully opening and closing the shear allows more hydraulic fluid to circulate through the system to help prevent overheating.
8. Inspect and lubricate the shear daily. Tighten any loose bolts or fittings to the proper torque as specified in this manual.
9. Maintain a safe distance and avoid contact between the excavator and the shear or any material held by the shear jaws.
10. **NEVER** leave the shear suspended or pass it over people, occupied vehicles, or buildings.
11. When working in confined spaces, keep a watchful eye on exposed parts, such as cylinder rods and hoses, to avoid damage.
12. Maintain at least 15 feet (5 meters) between the shear and any nearby power lines.
13. **ALWAYS** lower the shear to the ground and turn the base machine off when leaving the machine unattended.
14. **DO NOT** close the shear on a structure and reverse the excavator in an attempt to pull down material.
15. Avoid collision of the boom or shear, especially when working with limited visibility or inside buildings. Know the height and reach of the shear during operation, transport, and when swinging the excavator.
16. Use machine swing for positioning only. **DO NOT** use the shear as a jack hammer or wrecking ball.
17. Avoid contact between boom arm or shear stick and overhead obstacles when you operate, move, or haul the machine.
18. **DO NOT** alter factory preset hydraulics of the shear or vary from the excavator manufacturer specifications. This may void the warranty.
19. **DO NOT** shear high tensile steel such as railroad rail, spring steel, axles and some types of wire as blade, Saber Tip, and/or upper damage will result. This type of material breaks when processed and can become a projectile which could cause injury or death.
20. To prevent bending the upper shear, **DO NOT** attempt to shear material stuck through the lower jaw.
21. Before attempting to shear thin material, make sure that the shear blades are sharp and properly adjusted. Otherwise, such material may become jammed in the shear blades.
22. The lifting lugs are to be used for shipping and installation. They are not for use in cable-hung applications.
23. The shear rotation function is for positioning only. **DO NOT** use it for bending, breaking or prying.
24. **DO NOT** use the force of the excavator to force the shear into a pile.
25. **DO NOT** apply excavator force or weight at either end of the upper shear in an attempt to un-jam the shear or to cut materials that are too large for the shear.



# MSD 7R SHEARS

## GETTING THE FEEL OF THE SHEAR

Every operating part of any machine has a slightly different “operating feel”—an individual machine response to the movement of the controls. Before starting the first job with a new machine, it is suggested that the operator find an open spot on firm, level ground that’s free of obstructions such as trees, buildings and other equipment. This area must be free of people, too. Move the machine to this area – and spend some time just getting to know the “operating feel” of the machine and the shear, which will allow the operator to become familiar with the control levers and the shear before beginning work.

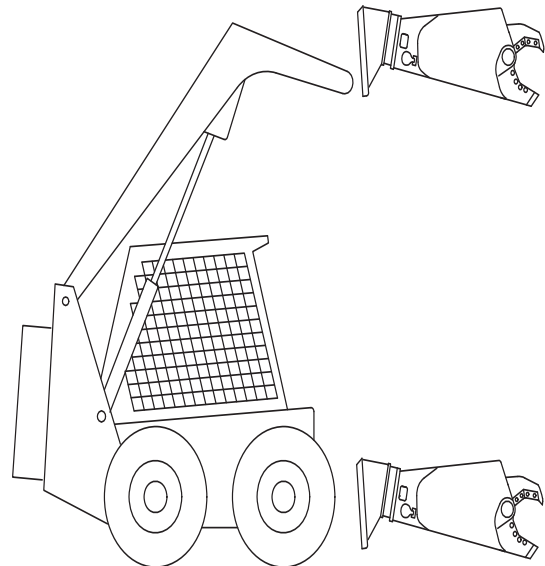
The machine is extremely powerful. Do not operate it carelessly; there is potential for personal injury and equipment damage. Be concerned about safety when preparing to operate the new machine. Ensure safe operation by inspecting the machine as stated in **Getting Started Safely**. This inspection amounts to a common sense visual check of the machine at the beginning of every operation. Follow a preventive maintenance program; such a procedure will reduce the possibility of costly downtime. Read the **Getting Started Safely** section of this manual and understand it.

The “fluid” nature of hydraulic power requires a special operating approach to the shear that can be described as a smooth, even technique. The control levers should be moved in a gradual, deliberate way rather than with jerky, abrupt movements. Jerky operation can cause damage and early wear to various parts on the machine, and can also overheat the hydraulic system.

For example, as each control lever is moved forward or backward from the center, or neutral position, the oil flows to the cylinder or motor controlling a function. The component (boom, attachment, etc.) starts to move. The component moves faster as the control lever is moved further forward or backward. Holding the lever in the forward or backward position will hold that movement at a given rate of speed. To slow the movement down, gradually move the lever toward the neutral position. Movement is stopped at the neutral position. The position is maintained until the control lever is moved again.

## FEATHERING THE CONTROLS

Feathering the controls is a technique that will increase output and make operating the shear easier. When starting any motion of the machine, move the control slightly from neutral until it starts to move, then smoothly move the control to increase motion to desired speed. Do the same when stopping a motion.



**FIGURE 4-1**

## **SECTION 5 MAINTENANCE**

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## MAINTENANCE SAFETY PROCEDURES

Before attempting any maintenance procedure, read the entire Safety Manual carefully. If any question arises regarding a safety or maintenance procedure, contact your LaBounty dealer. For the nearest LaBounty dealer, see the Contact Information at the front of this manual.

- Inspect the attachment daily. **DO NOT** operate a poorly maintained or damaged attachment or major structural damage could result.
- **ALWAYS** lower the lift arms to the ground before leaving the cab. If it is necessary to work on an attachment off the ground, securely support the machine and attachment. **DO NOT** support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. **DO NOT** rely on the cylinder to hold the attachment in the air. If a control is moved or hydraulic pressure is otherwise released, the attachment will drop. **DO NOT** work under a machine that is supported solely by a jack.
- **DO NOT** attempt to alter or change the physical, mechanical or hydraulic operation of the attachment during the warranty period without first consulting Stanley LaBounty as this could invalidate the Manufacturer's Warranty.
- **NEVER** operate the machine if an unsafe condition exists. Attach a "DO NOT OPERATE" tag to the machine.
- If more than one person is working on a machine, each must be familiar with the controls and aware of what the others are doing. Before working on a machine, **BE SURE TO TAG THE CONTROLS SO NO ONE ELSE WILL START IT.**
- **ALWAYS** use two people when making checks with the engine running—the operator at the controls must be able to see the person doing the checking.
- Keep hands away from moving parts. **NEVER** lubricate or work on a machine while it is moving.
- **ALWAYS** wear proper safety equipment when maintaining the attachment including safety glasses with side shields, hard hat, steel toe shoes, gloves, and hearing protection.
- **DO NOT ATTEMPT REPAIRS YOU DO NOT UNDERSTAND. ASK FOR HELP BEFORE STARTING IF YOU ARE UNSURE.**

## WARNING

***During maintenance of the attachment, it is imperative that the excavator is turned OFF to prevent injury.***

## CAUTION

***Refer to the proper maintenance procedure in this manual before servicing the machine to prevent injury or damage to the equipment.***

## GENERAL RULES FOR MAINTENANCE

1. Read the maintenance manual. Be sure all maintenance personnel read and understand all maintenance procedures before they attempt them.
2. Use factory approved parts. Use of parts that are not factory approved may cause damage or unnecessary downtime and void the shear warranty.
3. Lubricate daily; follow the lubrication schedule as outlined on page 5-5.
4. **DO** daily inspection on blades, blade bolts, guide blade, cylinders and wear surfaces.
5. Use the Inspection Checklists during shear inspections to ensure all maintenance is complete.
6. In extremely cold temperatures, work the shear on lighter materials first before working up to heavier materials. Doing so allows the shear to warm up and makes it less susceptible to damage.
7. To get maximum life from the shear blades, they can be rotated to utilize all four edges. Frequent rotating allows the blades to wear evenly and will increase their life.
8. **DO NOT** enter the pivot group of the shear without first consulting your dealer or the Stanley LaBounty Customer Service Department. Improper adjustment could cause shear damage and may void the shear warranty.
9. **DO NOT** weld the guide blade into its blade seat. The guide blade is needed for proper adjustment of the shear. **DO NOT** allow excessive gap between guide blade and front wear plate.
10. **DO NOT** preheat cutting tip in excess of 450° F (230° C) during build-up and hardsurfacing procedures.
11. **DO NOT** weld or hardsurface across the grain of the steel at any time. When hardsurfacing, **DO NOT** exceed two passes of hardsurface rod.
12. **DO NOT** allow shear blades to wear excessively. Rotate or replace the blades when edges have rounded to approximately 1/4" (6 mm) radius.
13. **DO NOT** exceed bolt torque specifications. (See Dry Bolt Torque Chart on page 5-5.)
14. **DO NOT** disconnect any hydraulic hoses or fittings without first relieving the excavator system hydraulic pressure.

## GENERAL RULES FOR MAINTENANCE CONTINUED

**15. DO NOT** exert the weight of the excavator on the shear in order to free the upper shear if it becomes jammed. Please consult the factory. **Jamming is the result of poor maintenance or improper operational techniques.**

**16. DO NOT** let hot hydraulic oil get in contact with the skin as it could cause severe burns.

**17. DO NOT** operate a rotating shear without a case drain line connected back to the tank or return line filter (rotating shears only), or the rotation component will be damaged.

## PERIODIC SERVICE SCHEDULE

### SERVICE THE SHEAR AT SPECIFIED INTERVALS

Inspect, lubricate, make service checks and adjustments according to the 8-hour and 80-hour Inspection Checklists reproduced from this manual. A program of regular service should be established, using the machine hour meter to determine when the shear should be serviced. Use the intervals on the Service Schedule when operating in normal conditions. Service the shear at shorter intervals when operating in extreme environmental or abrasive conditions.

### USE CORRECT LUBRICANTS AND BOLT TORQUES

Refer to the Lubrication and Bolt Torque instructions in this manual when performing maintenance on the MSD7R attachment.

## 8-HOUR SERVICE RECOMMENDED

**Inspect Safety Devices:** Make sure all decals are installed and legible. Inspect the condition of the cab protection and make sure visual and audible warning devices are working properly. Make all repairs before using the equipment.

**Grease Fittings:** Lubricate according to the shear Lubrication section (page 4-12 and 4-24). Replace broken fittings.

**Connecting Pins:** Inspect for tightness and/or damage or wear on the boom pivot pin and shear cylinder pins. Check pinheads and pinstops.

**Bolts:** Check for looseness or damage. Torque if necessary according to the proper torque chart in this manual. Bolts may be retorqued once then must be replaced.

**Guide Blade Gap:** Inspect. If the gap exceeds 0.030" (0.75 mm), refer to manual for maintenance procedures.

**Primary and Secondary Blade Gap:** Inspect. If gap exceeds 0.10" (9.25 mm), refer to manual for blade shimming procedure.

**Piercing Tip:** Inspect piercing tip for square fit in lower jaw. Refer to manual for maintenance procedure.

**Lower Piercing Tip Area:** Inspect for wear indicating build-up or hardsurfacing is required. Refer to manual for maintenance procedure.

**Hoses, Connections, Cylinders:** Inspect for leaks, wear and damage. Tighten, repair or replace.

**Rotator (If equipped):** Inspect all bolts connecting the turntable bearing to the head and shear for torque and/or damage. Bolts must be replaced if retorque is necessary. Refer to torque tables on page 6-3.

Visually inspect these bolts in all following 8-hour checks.

## 80-HOUR SERVICE RECOMMENDED

**Blades:** Measure blade gap, rotate/replace and shim blades according to procedures in this manual.

**Upper Shear:** Inspect piercing tip, wear plate and upper. Refer to manual for build-up, hardsurface or replacement.

**Lower Shear:** Inspect guide blade, nose blade, and lower shear. Refer to manual for build-up, hardsurface or replacement instructions.

**Rotator (If equipped):** Inspect all bolts connecting the turntable bearing to the head and shear for torque and/or damage. Bolts must be replaced if retorque is necessary. Refer to torque tables on page 6-3.





# MSD 7R SHEARS

## 8-HOUR INSPECTION CHECKLIST

Attachment Model \_\_\_\_\_ Excavator Hour Meter \_\_\_\_\_

Attachment Serial Number \_\_\_\_\_ Date \_\_\_\_\_

- \_\_\_\_\_ 1. Visually inspect shear for any damage
- \_\_\_\_\_ 2. Inspect safety devices
  - \_\_\_\_\_ a. All safety decals in place and legible- see decal and label maintenance section
  - \_\_\_\_\_ b. All cab protection in good condition
  - \_\_\_\_\_ c. All excavator warning systems working
- \_\_\_\_\_ 3. Lubricate all points. Refer to shear lubrication in this section
  - \_\_\_\_\_ a. Each side of main pivot group (2 each side)
  - \_\_\_\_\_ b. End of slide puck assemblies (each side)
  - \_\_\_\_\_ c. End of front cylinder pin
  - \_\_\_\_\_ d. End of rear cylinder pin
  - \_\_\_\_\_ e. Boom pivot connection of mounting bracket
  - \_\_\_\_\_ f. Cylinder connection of mounting bracket
- \_\_\_\_\_ 4. Inspect connecting pins and pin retaining hardware
  - \_\_\_\_\_ a. Boom pivot pin of mounting bracket
  - \_\_\_\_\_ b. Cylinder connection pin of mounting bracket
  - \_\_\_\_\_ c. Front shear cylinder pin
  - \_\_\_\_\_ d. Rear shear cylinder pin
  - \_\_\_\_\_ e. Pinheads and pinkeepers
- \_\_\_\_\_ 5. Inspect all bolts
  - \_\_\_\_\_ a. Visually inspect all bolts and replace any that are loose or damaged
- \_\_\_\_\_ 6. Check guide blade gap
  - \_\_\_\_\_ a. Refer to manual if gap exceeds 0.030" (0.76 mm)
- \_\_\_\_\_ 7. Check cutting blade gap
  - \_\_\_\_\_ a. Refer to manual if gap exceeds 0.010" (0.25 mm)
- \_\_\_\_\_ 8. Inspect piercing tip
  - \_\_\_\_\_ a. Piercing tip fits squarely in lower shear piercing area
- \_\_\_\_\_ 9. Inspect lower shear piercing area
  - \_\_\_\_\_ a. Piercing tip fits squarely in lower shear piercing area
- \_\_\_\_\_ 10. Inspect Hydraulic System
  - \_\_\_\_\_ a. Inspect hoses for wear and potential failure
  - \_\_\_\_\_ b. Inspect hose connections for leaks
  - \_\_\_\_\_ c. Inspect cylinder for leaks

Inspected by: \_\_\_\_\_

**80-HOUR INSPECTION CHECKLIST**

Attachment Model \_\_\_\_\_ Excavator Hour Meter \_\_\_\_\_

Attachment Serial Number \_\_\_\_\_ Date \_\_\_\_\_

- \_\_\_\_\_ **1. Inspect blades**  
       \_\_\_\_\_ a. Rotate or replace all blades  
       \_\_\_\_\_ b. Measure blade gap, refer to manual for shimming procedure and tolerance range
- \_\_\_\_\_ **2. Inspect upper shear**  
       \_\_\_\_\_ a. Build-up and hardsurface piercing tip  
       \_\_\_\_\_ b. Repair wear area  
       \_\_\_\_\_ c. Build-up and hardsurface upper
- \_\_\_\_\_ **3. Inspect lower shear**  
       \_\_\_\_\_ a. Build-up and hardsurface lower piercing area  
       \_\_\_\_\_ b. Build-up and hardsurface lower

**If Rotator equipped:**

- \_\_\_\_\_ **1. Inspect all bolts connecting the turntable bearing to the upper head and shear**  
       \_\_\_\_\_ a. Replace bolts if retorque is necessary

Inspected by: \_\_\_\_\_

# MSD 7R SHEARS

## **8-HOUR INSPECTION ROTATOR CHECKLIST**

Attachment Model \_\_\_\_\_ Excavator Hour Meter \_\_\_\_\_

Attachment Serial Number \_\_\_\_\_ Date \_\_\_\_\_

- \_\_\_\_\_ **1.** Visually check all turntable bearing bolts and replace any that are loose or damaged
- \_\_\_\_\_ **2.** Grease the turntable bearing- refer to the Rotator Maintenance section for instructions
- \_\_\_\_\_ **3.** Inspect the rotation hydraulics system
  - \_\_\_\_\_ a. Inspect rotation hoses for wear and potential failure
  - \_\_\_\_\_ b. Inspect rotation hose connections for leaks
- \_\_\_\_\_ **4.** Visually check all rotation assembly bolts

Inspected by: \_\_\_\_\_

## GENERAL TROUBLESHOOTING CHECKLIST

The General Trouble Shooting Check List is provided as a guide in checking the general condition of the attachment. This checklist should be incorporated in a periodical preventive maintenance program as part of the 80-hour inspection.

### UPPER SHEAR

- |                             |   |
|-----------------------------|---|
| <b>a.</b> Throat Area       | Inspect for cracks.   |
| <b>b.</b> Apex              | Inspect for cracks.   |
| <b>c.</b> Torque Tube       | Inspect for cracks on the parent material and in the weld.    |
| <b>d.</b> Spherical Bearing | Inspect for proper alignment, greasing and bearing operation. |
| <b>e.</b> Bolt Holes        | Inspect for cracks.   |
| <b>f.</b> Blade Seats       | Inspect for material cracks, weld cracks and excessive wear.  |

### LOWER SHEAR

- |                               |  |
|-------------------------------|--|
| <b>a.</b> Nose Plate          | Inspect for weld failure and excessive wear.                                 |
| <b>b.</b> Blade Seats         | Inspect for material cracks, weld failure and excessive wear.                |
| <b>c.</b> Guide Blade Seat    | Inspect for material cracks, weld failure, excessive wear, broken structure. |
| <b>d.</b> Front Build-up Area | Inspect for cracks and excessive wear.                                       |
| <b>e.</b> Bolt Holes          | Inspect for cracks.  |

### GENERAL WEAR AND MAINTENANCE ITEMS

- |                              |  |
|------------------------------|--|
| <b>a.</b> Blades             | Inspect for excessive wear, broken pieces, cracks.                         |
| <b>b.</b> Blade Gap          | Inspect the blade gap; should be 0.005 to 0.010" (0.13 to 0.25 mm).        |
| <b>c.</b> Guide Blade        | Inspect for excessive wear and cracks.                                     |
| <b>d.</b> Guide Blade Gap    | Inspect to make sure the gap is within 0.030" (76 mm).                     |
| <b>e.</b> Piercing Tip       | Inspect for weld failure, excessive wear and damaged or missing component. |
| <b>f.</b> Front Wear Surface | Inspect for excessive or uneven wear and damage.                           |

## **CUTTING PERFORMANCE TROUBLESHOOTING GUIDE**

The information contained in this guide provides for troubleshooting the LaBounty shear only. Any references to the base machine will be made only to give some guidance as to where a problem may exist. Any specific maintenance and/or troubleshooting information will need to be provided by the original equipment manufacturer of the base machine or the authorized dealer. If a question arises regarding the operation or maintenance of the attachment, contact a LaBounty dealer for proper procedure.

<b>SYMPTOM</b>	<b>PROBABLE CAUSE</b>	<b>REMEDY</b>
1. Upper shear will not move	<p>a. No hydraulic fluid to the shear cylinder</p> <p>b. Broken hydraulic swivel (if rotator)</p>	<p>i. Check for hydraulic flow at the hydraulic lines to the manifold.</p> <p>ii. Check base machine hydraulic circuit.</p> <p>i. Replace swivel and flush hydraulic circuit.</p>
2. Cutting speed is extremely slow	<p>a. Base machine oil supply (flow) is too low</p> <p>b. Hydraulic cylinder seal bypass</p> <p>c. Hydraulic lines are kinked</p> <p>d. Hydraulic swivel seal bypass</p>	<p>i. Check the flow to the attachment and compare with the recommended flow (see hydraulic letter for attachment).</p> <p>ii. Check for excessive back pressure.</p> <p>iii. Check base machine's hydraulic system.</p> <p>i. Check for cylinder seal bypass; replace seals if necessary.</p> <p>i. Check hydraulic lines; replace any damaged lines</p> <p>i. Check for seal bypass (consult your dealer service department for instructions). Install new seal kit if necessary.</p>
3. Upper shear moves too rapidly	a. Hydraulic flow to shear is excessively high	<p>i. Reduce flow to attachment</p> <p style="text-align: center;">NOTE</p> <p>The attachment may be damaged if flow exceeds the recommended GPM.</p>
4. Upper shear drifts open or closed	<p>a. Machine hydraulic valve is open center type</p> <p>b. Machine control valve is faulty</p> <p>c. Hydraulic cylinder seal bypass</p> <p>d. Hydraulic swivel bypass (if rotator)</p>	<p>i. Check hydraulic circuit to verify. Replace with closed center spool type.</p> <p>ii. Refer to machine maintenance manual</p> <ul style="list-style-type: none"> <li>- check for sticky spool</li> <li>- check for circuit relief valve bypass</li> <li>- check for spool seal bypass (if applicable)</li> </ul> <p>i. Check for seal bypass; replace seals if needed</p> <p>i. Check swivel for bypass; replace seals if needed</p>

**CUTTING PERFORMANCE TROUBLESHOOTING GUIDE**

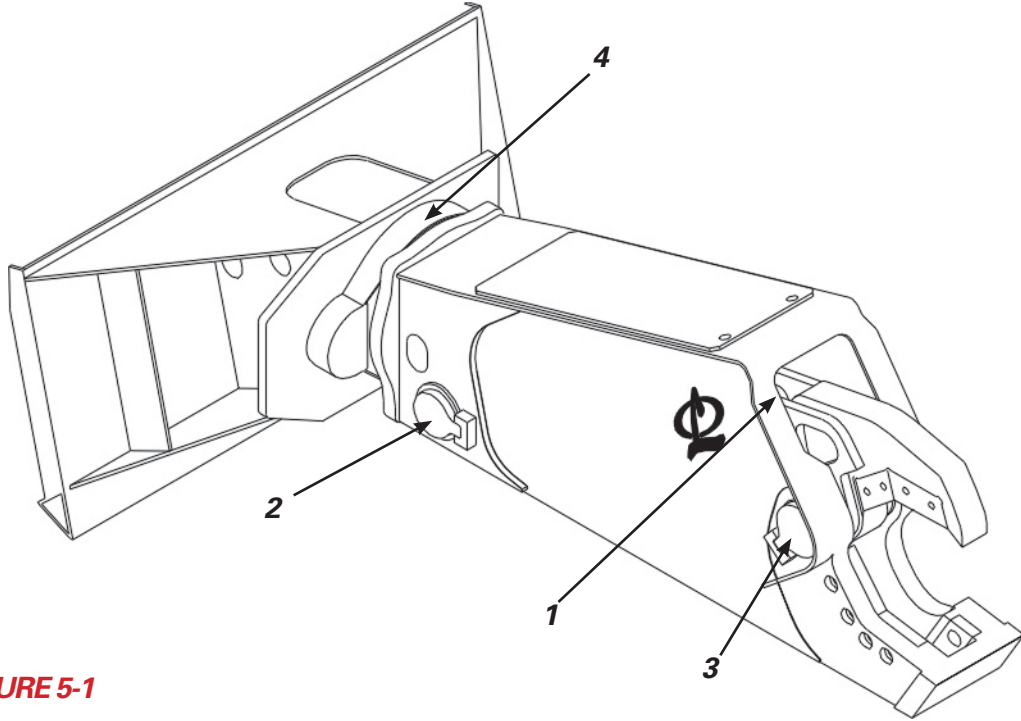
continued

<b>SYMPTOM</b>	<b>PROBABLE CAUSE</b>	<b>REMEDY</b>
5. Material jams	<p>a. Excessive blade gap in jaws</p> <p>b. Worn piercing tip</p> <p>c. Blade not within LaBounty specifications</p> <p>d. Excessive guide blade gap</p> <p>e. Worn lower, lack of build-up and hardsurfacing</p>	<p>i. Add blade shims (refer to blade shimming procedure)</p> <p>ii. Replace worn blades</p> <p>i. Build-up and hardsurface existing tip to maintenance specifications</p> <p>ii. Rotate blades</p> <p>iii. Replace, if all four edges are dull, with LaBounty approved blades</p> <p>i. Replace with LaBounty approved blades</p> <p>i. Add guide blade shims (refer to guide blade shimming procedure)</p> <p>ii. Rotate guide blade or replace when both sides are worn</p> <p>i. Perform build-up and hardsurfacing on lower shear (refer to maintenance procedures)</p>
6. Blade gap is uneven	<p>a. Non-LaBounty blades being used</p> <p>b. Debris in blade seat behind blades</p> <p>c. Inconsistent amount of blade shims between primary and secondary blades</p> <p>d. Upper shear is bend</p>	<p>i. Replace with LaBounty approved blades</p> <p>i. Remove blades from blade seats and clear all debris from behind</p> <p>i. Reshim blades for consistency (refer to blade shimming procedure)</p> <p>i. Consult the factory for repair</p>
7. Individual hydraulic function is slow	<p>a. Pilot control hoses pinched</p> <p>b. Jumpline or connections leaking</p> <p>c. Base machine hydraulic malfunction</p> <p>d. Circuit relief valve for the function is set low or malfunctioning</p>	<p>i. Inspect and correct</p> <p>i. Inspect and correct</p> <p>i. Check base machine hydraulic system</p> <p>i. See your basic machine dealer</p>

# MSD 7R SHEARS

## ***SHEAR LUBRICATION***

Grease all points every 8 hours of shear operation. See figure 5-1. Use premium grease No. 2EP or equivalent. Grease fitting locations are indicated by GREASE decals on the shear.



***FIGURE 5-1***

<b><i>LOCATION ON SHEAR</i></b>	<b><i>NUMBER OF SHOTS</i></b>
1 One in cylinder rod end	6
2 One in cylinder butt end	6
3 One in main pivot shaft	6
4 Turntable bearing (refer to rotator section)	

## **BOLT TORQUE SPECIFICATIONS**

1. All bolts checked for proper torque after eight (8) hours of initial use and then inspected visually every eight (8) hours thereafter.
2. All SAE Grade 8 bolts or metric class 10.9 may only be retorqued after the initial eight hours break-in period, then must be replaced if retorquing is required again.
3. Check the blade bolts every eight hours of shear operation and re-torque if necessary. Bolts may be re-torqued only once and then replaced.
4. Check all shear connecting pins and pin retaining bolts daily to ensure that they are in place and properly secured.  
Pins that must be checked are:
  - a. Main Pivot
  - b. Cylinder Rod End Pin
  - c. Cylinder Butt End
5. All bolts and their respective tapped holes must be free of grease and contaminants before installing to ensure a proper seat for a bolt torque.

### **⚠ WARNING**

***Disassembly of any pin connected attachment can be hazardous. Never remove any pins unless the attachment is on the ground (and blocked up if necessary) or serious injury or death could result.***

### **NOTICE**

*If replacement of any bolt or nut is necessary, it MUST be replaced with an SAE Grade 8 or a Metric Class 10.9 only.*



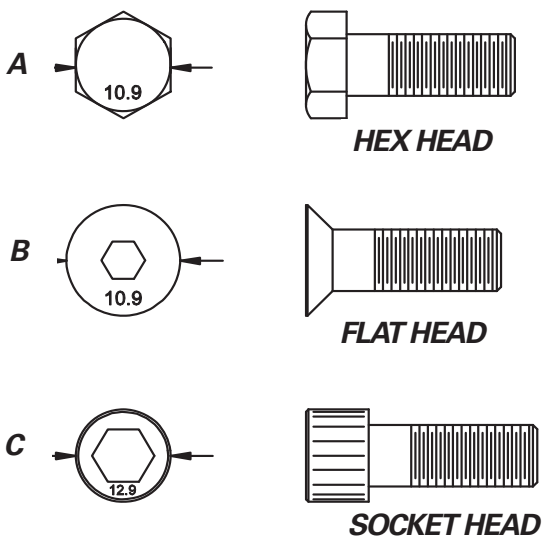
# MSD 7R SHEARS

## **BOLT TORQUE GUIDELINES**

Proper bolt installation is critical to ensure the safe and efficient operation of the shear. Carefully follow the steps below to properly install bolts.

1. Always replace bolts and nuts with the same size and class of fastener. Replacement fasteners can be ordered from the Stanley LaBounty Parts Department to ensure the correct part is used (refer to figure 5-2). Unless otherwise specified, use class 10.9 metric hex head capscrews, class 10.9 metric flat head capscrews, and class 12.9 metric socket head capscrews.
2. Make sure bolts, nuts and bolt holes are free of dirt, oil, grease and other contaminants.
3. If necessary, use the Capscrew Size Guide on this page to help determine the size of the bolt being installed.
4. Use the Dry Bolt Torque Chart on this page to find the proper torque. Do not use any thread adhesives when using dry torque values. When possible, torque the nut rather than the bolt head.

## **METRIC CAPSCREW SIZE GUIDE**



<b>CAP-SCREW SIZE</b>	<b>A HEX HEAD</b>	<b>B FLAT HEAD</b>	<b>C SOCKET HEAD</b>
M10 X 1.50	0.63" (16mm)	0.79" (20mm)	0.63" (16mm)
M12 X 1.75	0.71" (18mm)	0.94" (24mm)	0.71" (18mm)
M14 X 2.00	0.83" (21mm)	1.06" (27mm)	0.83" (21mm)
M16 X 2.00	0.94" (24mm)	1.18" (30mm)	0.94" (24mm)
M20 X 2.50	1.18" (30mm)	1.42" (36 mm)	1.18" (30mm)
M24 X 3.00	1.42" (36mm)	N/A	1.42" (36mm)
M30 X 3.50	1.81" (46mm)	N/A	1.77" (45mm)

**FIGURE 5-2**

**DRY BOLT TORQUE CHARTS****METRIC CLASS 10.9**

SIZE	FT-LBS	N-M
M10 x 1.5	53	72
M12 x 1.75	92	125
M14 x 2	146	198
M16 x 2	224	305
M20 x 2.5	435	590
M24 x 3	752	1020
M30 x 3.5	1511	2050

**⚠ WARNING**

*Always replace bolts and nuts with the same size and class of fastener. Inferior fasteners can fail and cause injury or death and damage to the equipment.*

**METRIC CLASS 12.9**

SIZE	FT-LBS	N-M
M10 x 1.5	64	87
M12 x 1.75	110	150
M14 x 2	177	240
M16 x 2	269	365
M20 x 2.5	523	710
M24 x 3	899	1220
M30 x 3.5	1806	2450

**NOTICE**

*It is preferred to apply torque to the nut rather than the bolt head wherever possible.*

# MSD 7R SHEARS

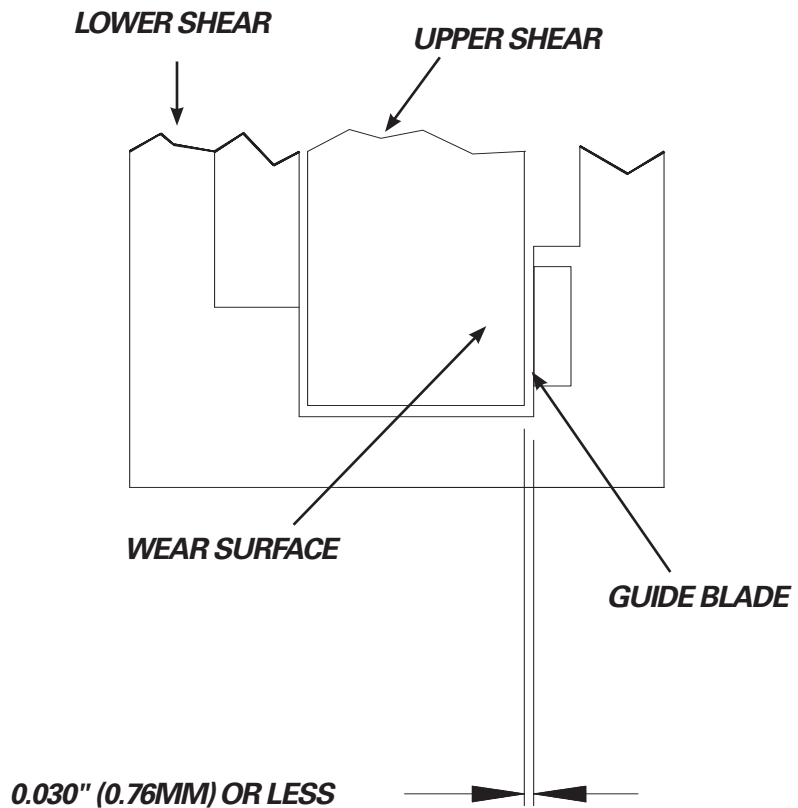
## **GUIDE BLADE SHIMMING AND ROTATION**

The guide blade helps keep the shear blades in line and must be checked daily. See figure 5-3.

1. With the shear partially closed so the upper wear area is in contact with the guide blade, check the gap between the wear area on the upper and the guide blade. Cycle the upper and check in several spots. Shim to the smallest gap. The gap must not exceed 0.030" (0.76 mm).
2. Shims have been provided for shimming out the guide blade. Four (4) are 0.023" (0.53 mm) thick; one (1) is 0.12" (3 mm) thick.
3. When five (5) shims have been placed between the guide blade and seat, the guide blade can then be turned end for end and re-shimmed for proper gap. Once all five shims have been used again the guide blade is worn out and must be replaced.
4. If a gap still exists between a new guide blade with a full amount of shims and the upper wear area, the wear area must be built up. Refer to Upper Shear Wear Surface Build-up on page 5-21.



***Wear gloves at all times during blade maintenance.***



**FIGURE 5-3**

## BLADE ROTATION

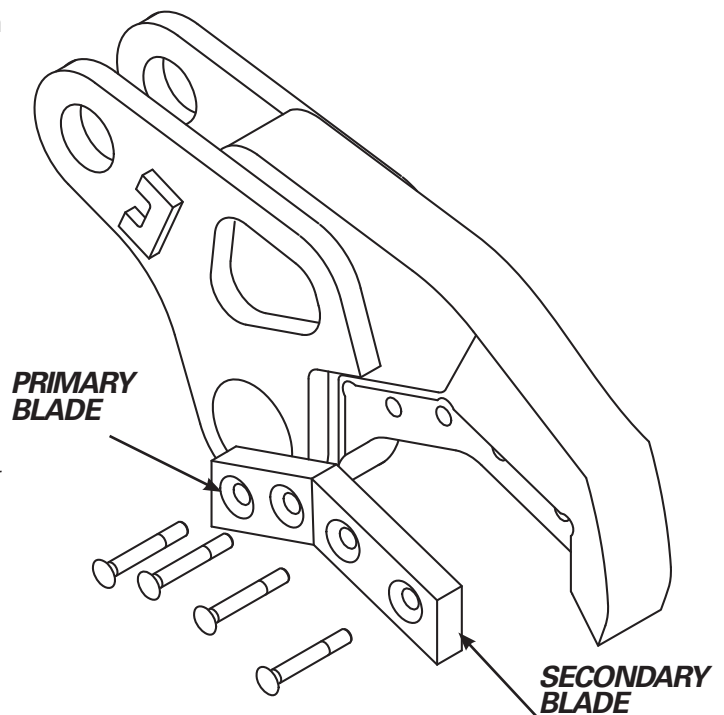
New blades in proper adjustment will increase the cutting performance of the shear. Proper rotation of blades will provide optimum use and the most performance from the shear. Recommended blade rotation is after approximately 80 hours of use; depending on the material being processed, this interval may be extended.

When processing thin materials, blade rotation and shimming is of greater importance than when processing larger materials. It may be necessary to shorten blade rotation intervals when processing thin or non-ferrous materials.

When processing large materials, frequent blade rotation will extend the life of the blades, however maintaining the close tolerance blade gap is not as important. Never operate a shear when the blades have rounded to a 1/4" (6.4 mm) radius or more. Maintaining the guide blade gap is still necessary in large material.

1. To rotate the blades, remove blade from shear. Do one blade at a time.
2. Grind all rough edges from blade.
3. Clean out blade seat.
4. Reinstall blade. The first time the blade is rotated it should be done end for end. The second time flipped over; third time end for end.
5. When the blades have been used on all four edges and edges are 1/4" (6.4 mm) radius or more, it will be necessary to rework or replace blades.

Remember, with damaged or badly worn blades, cutting ability decreases tremendously and it may eventually cause structural damage to the shear.



**FIGURE 5-4**

# MSD 7R SHEARS

## **BLADE SHIMMING**

Blade rotating is recommended every 80 hours of shear usage in order to assure uniform wear so shimming is possible.

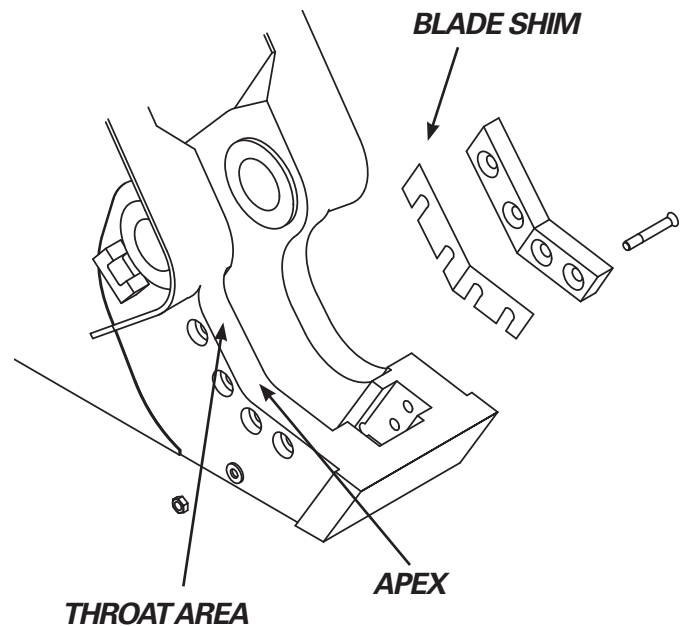
After rotating the blades the final time, there is a possibility there will be a slight gap between the upper and lower blades, and shimming of the lower blades may be necessary. A blade gap of 0.005" to 0.010" (0.13 to 0.25mm) should be maintained to prevent jamming, especially when cutting light material.

1. To check for blade gap, cycle the shear closed so the secondary blades in the upper and lower start to bypass. Using a feeler gauge between the upper and lower blades, check the blade gap and record it.
2. Cycle the shear closed so the secondary blades start to bypass at the apex (see figure 5-5). Check the gap at this point using a feeler gauge and record this measurement also. If the blades have been rotated properly, and at the right intervals, the gap in the secondary blades should be fairly even or the entire span of the blades.

### **WARNING**

**Keep hands away while moving the upper shear. Do not move upper while checking blade gap with feeler gauge.**

3. The amount of shims that are installed behind the blades should be approximately five thousandths (0.005") (0.13 mm) of an inch less than the measurements you recorded earlier. **DO NOT** exceed one hundred twenty-five thousandths (0.125") (3.2 mm), or you may cause structural damage to the shear, and warranty may be voided.
4. We recommend keeping the blades with the least amount of wear in the upper jaw; shim only the lower blades.
5. To install the shims, loosen blade bolts and slide the shim between the blade seat and the blade to be shimmed and re-tighten the blade bolts.
6. Use the same procedure for shimming the primary blade.
7. Cycle the shear slowly and check that the gap is not too tight in the throat area, and then recheck tolerances. Maintain this shimming procedure to maintain maximum shearing efficiency and blade life. However, if the blades are not rotated every 80 hours, shimming may not be possible because of uneven wear on the blades.



**FIGURE 5-5**

## GENERAL BUILD-UP AND HARDSURFACING

It is recommended that the upper piercing tip and lower piercing tip seat be maintained every 80 hours, while correct hardsurfacing of the upper and lower shear need only be done periodically. If the shear is in a severe piercing application, the interval for piercing tip maintenance may need to be shortened. Excessive hardsurfacing can damage the shear and affect the shears performance. Allow the hardsurfacing to wear down or away before hardsurfacing again. Never apply more than two layers of hardsurfacing. The quality and attention to detail in welding can significantly affect the life of the shear. LaBounty strongly recommends that only certified welders be used.

### NOTICE

*It is recommended that build-up and hardsurfacing be performed at the end of the work day to allow adequate time to cool.*

Strict adherence to the welding rod manufacture's handling and storage instructions is essential. Electrodes exposed to the atmosphere for more than four hours must not be used—the moisture absorbed by the electrode covering will change the mechanical properties of the weld, which can cause cracks and porosity in the weld or adjacent base metal.

LaBounty recommends that you use AWS E7018 rod or equivalent for build-up. After vigorously peening each pass, the hardsurfacing is placed directly on top of the E7018 beads. The E7018 becomes the bonding or underlayment for the hardsurfacing. This will help reduce the chances of having the hardsurfacing material crack.

LaBounty recommends using Amalloy 814 rod or equivalent for hardsurfacing. Do not use stainless hardsurface rod; for LaBounty applications it is too brittle and cracks, weakening the base metal.

All blade maintenance must be done before upper piercing tip build-up and hardsurfacing. Upper piercing tip must be done before lower piercing tip seat. Complete piercing tip maintenance before any upper and lower shear build-up and hardsurfacing.

## GENERAL PROCEDURE

1. Clean all dirt and grease from the area to be built-up.
2. Remove the worn hardsurfacing by grinding to the base metal. Do not build-up on top of any hardsurface material.
3. Pre-heat the surrounding area to at least 200°F (100°C) to remove moisture. Preheat the area to be built up to 300-400°F (150-200°C). Use a temp stick to verify that this temperature is obtained and maintained throughout the welding process. Temperatures in excess of 450°F (230°C) may harm parent metal.
4. Build up and restore any worn or damaged surfaces with E7018 (or equivalent). Each pass must be stress relieved by peening vigorously. Grind edges to 90°.
5. Hardsurface as instructed in this manual. It is not necessary to cover the entire surface with hardsurfacing to be effective. Vigorouslypeen the hardsurfacing to stress-relieve and work-harden the material.
6. Post heat to 300-400°F (150-200°C); cover with heat blanket and allow to cool.

# MSD 7R SHEARS

## GENERAL BUILD-UP AND HARDSURFACING continued

### IMPORTANT

1. **ALWAYS** hardsurface in the direction of the grain of the steel (see figure 5-6).
2. Use an air operated slag peener on each pass of all welds to stress relieve.
3. **DO NOT** start and/or stop bead in the apex between blades.
4. **DO NOT** start and/or stop bead within 1" (25mm) of a blade bolt hole.
5. Stagger the ends of the adjacent beads. **DO NOT** stop or start beads in a straight line with each other.
6. Grind end of hardsurfacing bead smooth, tapering for 1-1/4" to 1-1/2" (31-38mm) to parent material. **DO NOT** undercut with grinder. Grind marks going with the grain.
7. **DO NOT** hardsurface into the throat area of the lower or upper shear; doing so can cause surface cracks which may develop into major structural failures.
8. Check temperature frequently to maintain 300-400°F (150-200°C). **DO NOT** exceed 450°F (230°C).
9. **NEVER** operate a shear following repairs without first allowing it to cool slowly to ambient temperature.

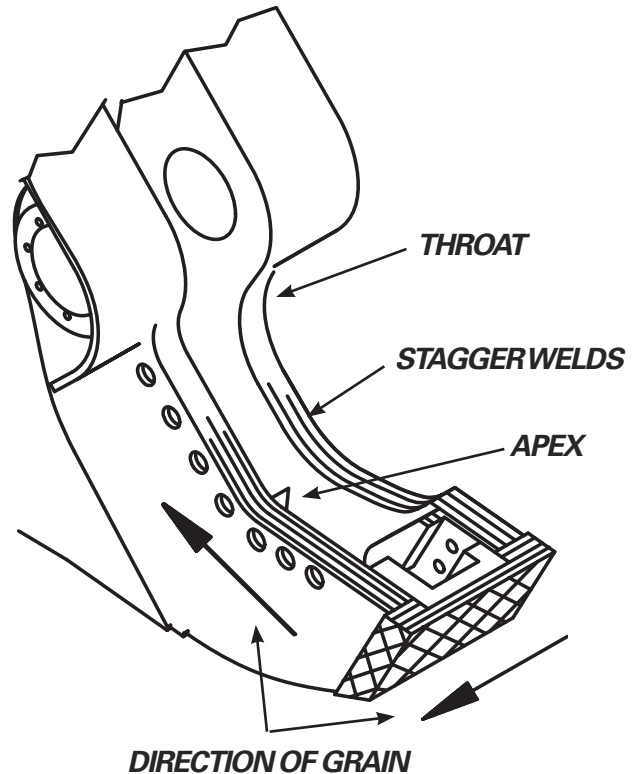


FIGURE 5-6

### CAUTION

*Paint removal and grinding can be hazardous and cause personal injury.*

- *Remove paint before welding or heating. Hazardous fumes can be generated when paint is heated.*
- *If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.*
- *If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent, paint stripper containers and other flammable material from area.*
- *Provide a fire extinguisher during all cutting and welding operations. Clean areas to be cut or welded of oil and flammable materials. Protect all flammable areas from sparks.*
- *Do all work in a well-ventilated area. Dispose of paint and solvent properly.*

## UPPER PIERCING TIP BUILD UP AND HARDSURFACING

Blade maintenance must be performed before any piercing tip build-up or hardsurfacing is done.

For maximum piercing efficiency, the piercing tip should be checked daily for wear. If the tip is badly worn, build-up and hardsurface is required.

It is recommended that piercing tip maintenance be done at the end of the working day to allow adequate cooling time before putting the shear back into production.

**1.** To check for wear, close the shear to a position that the piercing tip is just entering into the lower jaw of the shear (see figure 5-7). The piercing tip should fit squarely into the lower jaw. To determine how much build-up is required, place a straight edge along cutting blades and extend beyond tip, or use the upper template supplied by LaBounty. There will be a gap indicating how much build-up is required (see figures 5-8 and 5-9).

**2.** Clean all dirt and grease from area to be built-up.

**3.** Preheat the area to be built-up and the surrounding area to 300- 400° F (150- 200° C) (use melt stick). Test area frequently, as overheating can harm the shear (maximum 450°F / 230° C). Temperature/melt sticks are available from LaBounty.

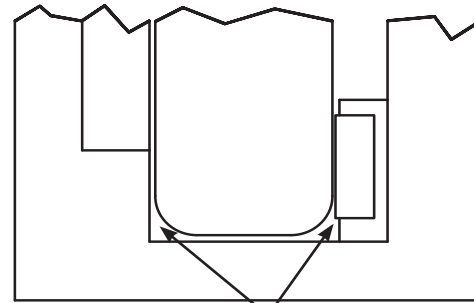
**4.** Apply AWS E7018 welding rod. Each pass must be stress relieved and slag removed by peening vigorously.

**5.** To hardsurface the build-up just completed, using Amalloy 814 or equivalent, apply single passes, 1/2" (13 mm) apart. No more than two layers of this rod should be used.

**6.** When build-up and hardsurfacing are complete, grind weld square. After welding and grinding have been completed, peen the welded area until it is shiny or until the peener cannot dent the weld anymore (five to ten minutes). This will work harden the welded area.

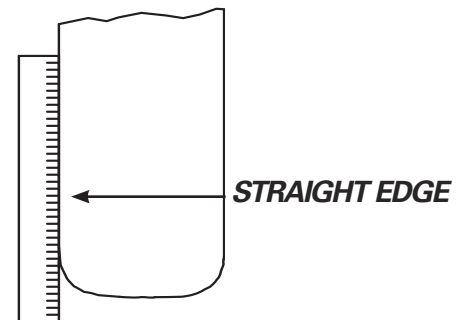
## NOTICE

Check temperature often during this procedure. (Maintain 300- 400°F/150- 200°C.)

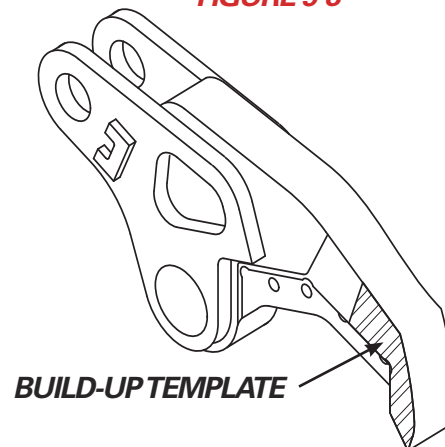


**NOTE WEAR**

**FIGURE 5-7**



**FIGURE 5-8**



**FIGURE 5-9**

## LOWER PIERCING AREA



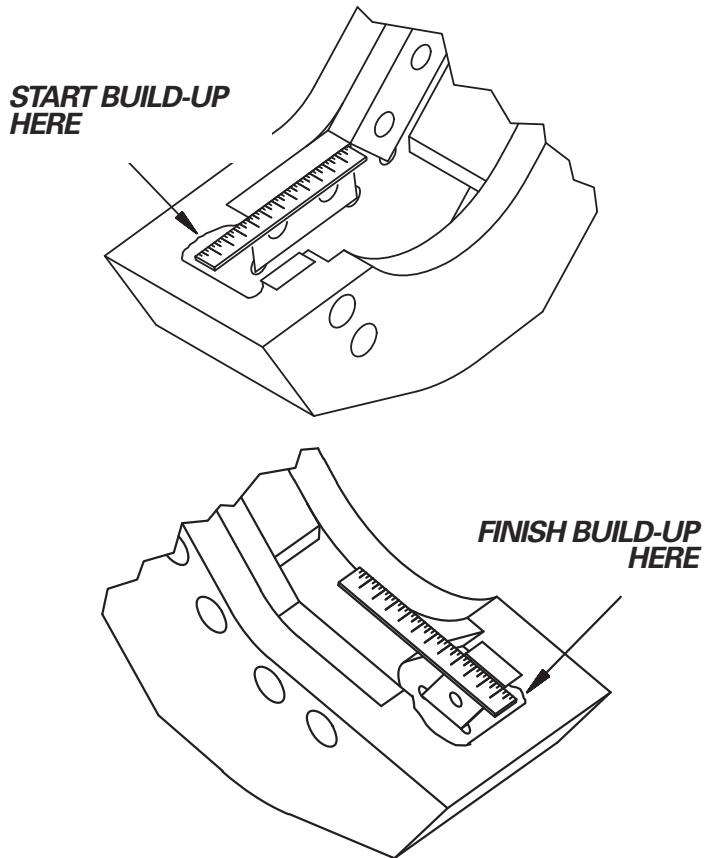
# MSD 7R SHEARS

## **BUILD-UP AND HARDSURFACING**

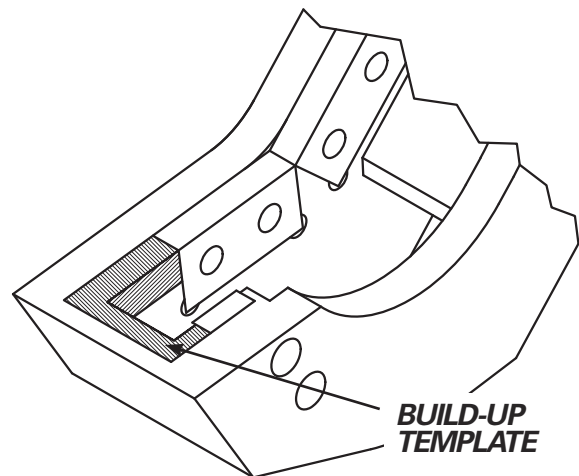
In order to perform maintenance on the lower piercing area, all blade maintenance and piercing tip maintenance must be completed. LaBounty shears have hardsurfacing on the lower portion and the nose plate, across the front and along the top, and back along the lower to the cutting blade and guide blade.

Normal intervals for hardsurfacing vary with application. Use of the shear in a scrap application generally requires a 160- 200 hour interval for hardsurfacing. Use of the shear in a demolition application of brick and concrete may be subject to a shorter interval of 80- 120 hours. The initial hardsurfacing should be performed after approximately 40 hours of normal use. It is absolutely necessary that the lower portion of the shear be maintained routinely by the following process.

1. Place the shear in a horizontal position and block it up about 18" high, or preferred working height. Use a straight edge on the inside of the shear blades and on the guide blade (see figure 5-10) or a the lower profile template supplied by LaBounty (see figure 5-11) to determine how much build-up and hard surfacing is required .
2. Clean all dirt and grease from area to be built-up.
3. Remove any existing hardsurface material down to base metal by grinding.
4. Preheat the area to be built-up and the surrounding area to 300- 400°F (150- 200°C) (use melt stick). Test area frequently, as overheating can harm the shear (maximum 450°F / 230°C). Temperature/melt sticks are available from LaBounty.
5. For AWS E7018 build-up, start inside the lower in front of the shear blade (see first figure 5-10), make single passes side by side until area is covered. Repeat the process on the guide blade side (see second figure 5-10) and inside the nose plate. Peen each pass.



**FIGURE 5-10**



**FIGURE 5-11**

## LOWER PIERCING AREA BUILD-UP AND HARDSURFACING

continued  
**IMPORTANT**

Check temperature during this procedure. (Maintain 300-400°F/ 150-200°C.)

6. To hardsurface the build-up just completed, we recommend using Amalloy 814 or equivalent. Apply single passes side by side with the grain. Start approximately 2- 3" (50- 75 mm) down the inside of the piercing tip seat, running the length of the shear and across the inside of the nose plate (see figure 4-12). Peen each pass. No more than two layers of this rod should be used.

### **IMPORTANT**

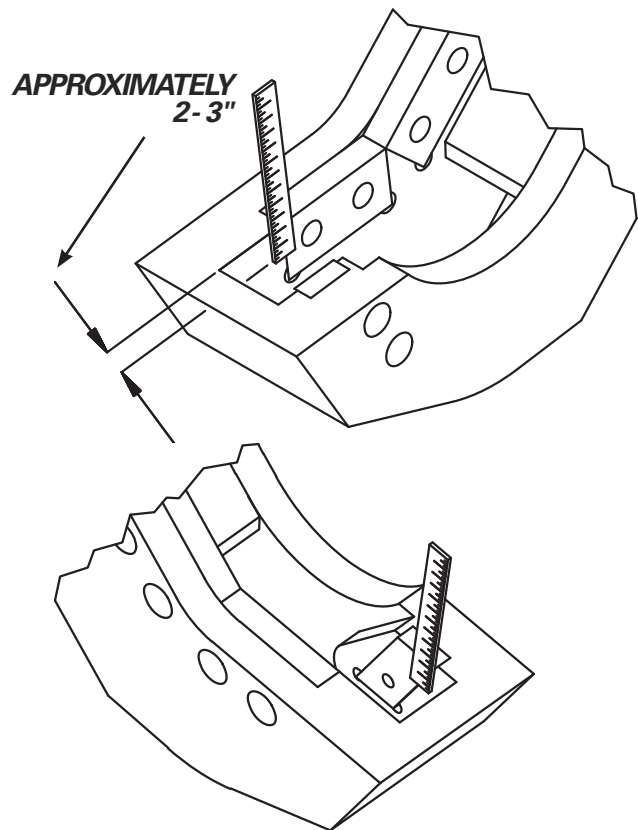
It is important to use an air operated slag peener on each pass of weld to relieve stress. Grind off in line with cutting edges.

7. Hardsurface the top side of lower 1½- 2" (38- 50 mm) wide (figure 5-12) using the same preheating, welding and peening procedure. Be sure to weld with the grain of the steel (see figure 5-13).

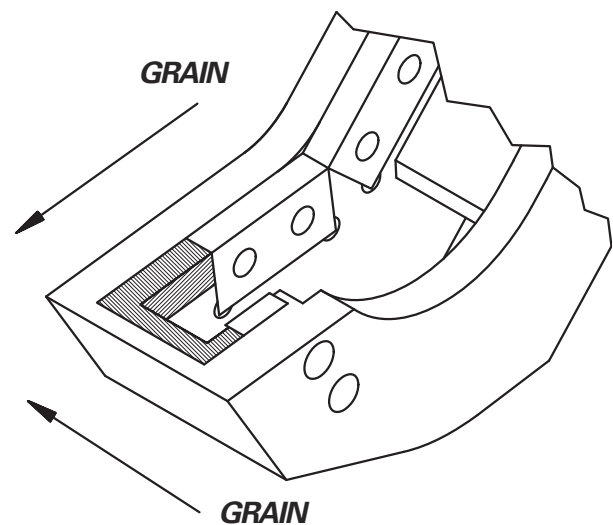
8. Grind lower to a sharp edge on each side. After welding and grinding has been completed, peen the welded area until it is shiny or until the peener cannot dent the weld anymore (5 to 10 minutes each side). This will work harden the welded area.

9. Be sure to cover the lower with a heat blanket when build-up is complete to allow it to cool slowly.

The hardsurfaced area acts like an extension of the blades. Following these procedures will make cutting easier and prolong the life of the blades and guide blade.



**FIGURE 5-12**



**FIGURE 5-13**

# MSD 7R SHEARS

## **HYDRAULIC SYSTEM MAINTENANCE**

Use the following instructions to safely perform hydraulic checks and maintenance on the attachment.

- 1. ALWAYS** relieve all hydraulic pressure of the excavator—by working controls in both directions with the engine off—before attempting to work on any hydraulic component.
- 2.** Shut off the base machine and check the hydraulic system pressure. It should be zero (0) PSI. There is a diagnostic port on the shear manifold to check the pressure; the 1/4" NPTF (-1/4-18) plug will need to be replaced with an adapter fitting for your test gauge.
- 3.** Hydraulic oil becomes hot during operation. **DO NOT** let hot hydraulic oil get in contact with the skin as it could cause severe burns.
- 4.** Check all hydraulic components (hoses, fittings, mounting hardware, etc.) every 80 hours.
- 5.** The hydraulic manifold is equipped with a diagnostic nipple to check the pressure coming from the base machine. Maintaining proper operating pressure will result in optimum cutting performance; also as a quick check to see if base machine is performing up to manufacturer's recommendations.
- 6.** Whenever hydraulic lines are disconnected, hoses must be capped and ports must be plugged to prevent contamination of the hydraulic system.

### **⚠ WARNING**

***Relieve pressure before disconnecting hydraulic lines. Tighten all connections before applying pressure. Keep hands and body away from pin holes and nozzles, which can eject fluids under high pressure. Use a piece of cardboard to search for leaks. Escaping fluid under pressure can penetrate the skin and cause serious injury. If ANY fluid is injected into the skin, seek immediate medical attention.***

### **⚠ WARNING**

***NEVER adjust pressure relief valves to get higher operating pressures. The manufacturer's recommended pressures give the safest performance with the longest life.***

## **RECOMMENDED SPARE PARTS LIST**

The following is a description of the parts Stanley LaBounty recommends to have on hand for these benefits.

1. Less downtime for lack of a part.
2. Original equipment manufacturer parts are inspected to Stanley LaBounty standards for proper fit and function.
3. Eliminate the possibility of a part being unavailable for immediate delivery.
4. Eliminate overnight air freight costs.
5. The accessibility of replacement parts assures the proper shear maintenance will be followed and therefore increase the efficiency of the shear.

### **BLADE ASSEMBLY**

Cutting blades

Guide blade

All bolts and washers used to fasten blades

Blade shims for lower shear blades (not supplied with new blades)

### **NOTICE**

*Your warranty could be compromised by using parts other than original LaBounty parts.*

### **HYDRAULIC ASSEMBLY**

All hydraulic hoses

O-ring face seal adapters (ORS)

### **NOTICE**

*Do not substitute parts unless you know they are the same in ALL characteristics.*

### **CYLINDER ASSEMBLY**

Cylinder seal kit (ordered by cylinder part number and serial number)

### **NOTICE**

*Refer to the shear parts catalog for specific part numbers. Be sure to reference the attachment serial number.*

### **ROTATION ASSEMBLY (IF EQUIPPED)**

Crossover relief or motion control valve

(one is applicable to each rotation assembly)

### **MANIFOLD ASSEMBLY (IF EQUIPPED)**

O-ring seals

Rotary seals

# MSD 7R SHEARS

<b>SERVICE AND MAINTENANCE PROCEDURES</b>	<b>8 HOURS</b>	<b>80 HOURS</b>	<b>2,000 HOURS</b>
Visually inspect shear for damage	•		
Inspect all safety decals	•		
Inspect cab protection on excavator	•		
Confirm all excavator warning systems are operational	•		
Lubricate main pivot group (right hand side)	•		
Lubricate end of front cylinder pin	•		
Lubricate end of rear cylinder pin	•		
Lubricate mounting bracket connections	•		
Inspect pinheads and pinkeepers	•		
Inspect all bolts for looseness or damage	•		
Check guide blade gap; refer to manual is gap exceeds .030" (.75mm)	•		
Check cutting blade gap; refer to manual is gap exceeds .030" (.75mm)	•		
Inspect hoses for wear and potential failure	•		
Inspect cylinder for leaks	•		
<b><i>If rotator equipped:</i></b>	•		
Grease turntable bearing	•		
Inspect rotation hoses (and hose connections) for wear, leaks, potential failure	•		
Check rotation assembly bolts	•		
Inspect all bolts connecting turntable bearing to upper head and shear; replace as needed		•	
Rotate or replace cutting blades and guide blades		•	
Inspect upper shear: build up and hardsurface piercing tip and wear areas		•	
Check split flanges and fitting for looseness; tighten if necessary		•	
Inspect and maintain the piercing tip area and wear areas		•	
Replace shear cylinder seals			•
Replace swivel manifold seals (if equipped)			•

**SECTION 6 SCHEDULED MAINTENANCE**

Upper Shear Build Up and Hardsurfacing .....6-2  
Lower Shear Build Up and Hardsurfacing .....6-4  
Main Pivot Adjustment .....6-6



# MSD 7R SHEARS

## UPPER SHEAR BUILD UP AND HARDSURFACING

All upper piercing tip and lower piercing area maintenance from Section 4 must be performed before any upper shear build-up and hardsurfacing is done. It is recommended that the upper shear maintenance be done at the end of the working day to allow adequate cooling time before putting the shear back into production.

1. For maximum shearing efficiency, the upper shear should be checked for wear. All edges should be kept square with the blades and piercing tip. To determine how much build-up is required on the front of the upper shear, place a straight edge along cutting blades and the newly maintained or replaced piercing tip. There will be a gap indicating how much build-up is required (see figure 6-1).
2. Clean all dirt and grease from area to be built-up.
3. Remove all existing hardsurfacing by grinding down to the base metal before beginning build-up and hardsurfacing procedures.
4. Preheat the area to be built-up and the surrounding area to 300-400°F (150-200°C). Test area frequently using a melt stick, as overheating can harm the shear (maximum 450°F / 230° C). Temperature/melt sticks are available from LaBounty.
5. For build-up, apply AWS E7018 welding rod. Peen each pass vigorously to relieve weld stress and remove slag. Grind all edges to 90°.
6. To hardsurface the front of the upper shear, begin on the piercing tip to approximately half way up the front, apply single passes of Amalloy 814 rod or equivalent in a diamond pattern of approximately one inch (38mm) (see figure 6-2). Peen each pass.

### NOTICE

Check temperature during this procedure. Maintain 300-400°F (150-200°C).

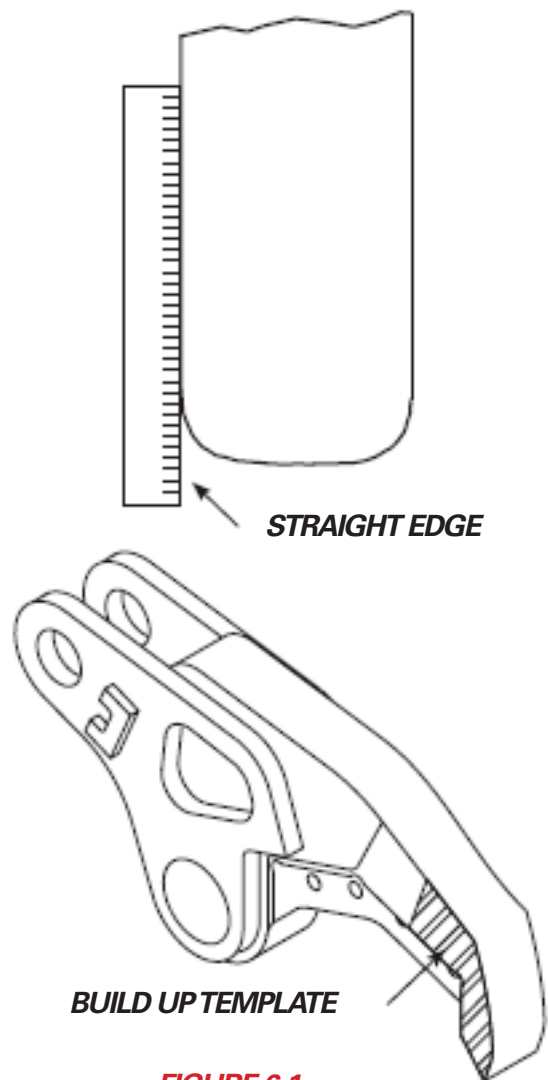


FIGURE 6-1

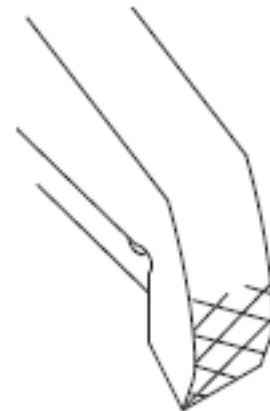


FIGURE 6-2

## UPPER SHEAR BUILD UP AND HARDSURFACING CONTINUED

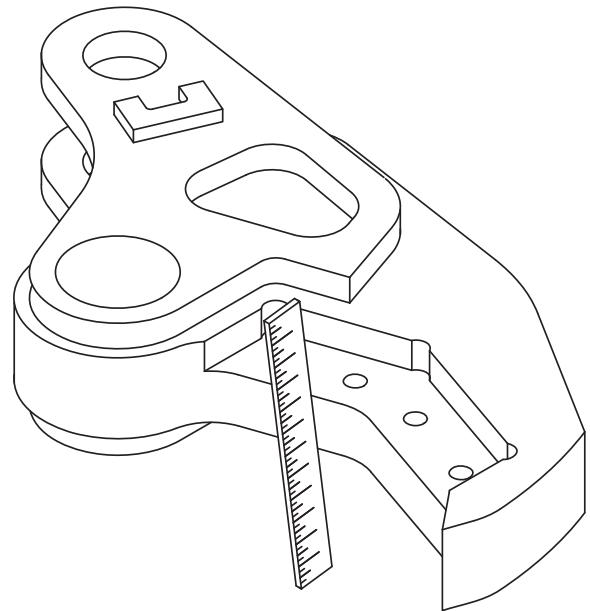
### NOTICE

*It is important to use an air operated slag peener on each pass of weld to relieve stress. Be sure to grind off in line with cutting edges.*

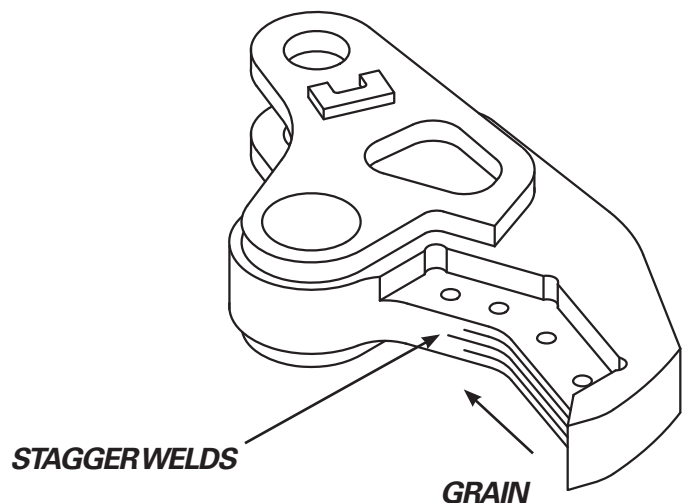
**7.** To determine how much build-up is required along the blade seats, place a square or straight edge in a cross section to the blades. Repeat steps 3 and 4 to buildup this area (see figure 6-3).

**8.** To hardsurface the area, from behind the piercing tip to approximately the midpoint of the primary blade, apply 3 or 4 beads of Amalloy 814 in single passes running the length of the shear (figure 6-4)

**9.** Hardsurface should end approximately at the midpoint of the primary blade. Stagger the ends of the welds. **DO NOT** end welds within 1" (25 mm) of bolt holes. **DO NOT** undercut ends of weld. Taper ends of welds into the base metal with grind marks going with the grain.



**FIGURE 6-3**



**FIGURE 6-4**



# MSD 7R SHEARS

## LOWER SHEAR BUILD UP AND HARDSURFACING

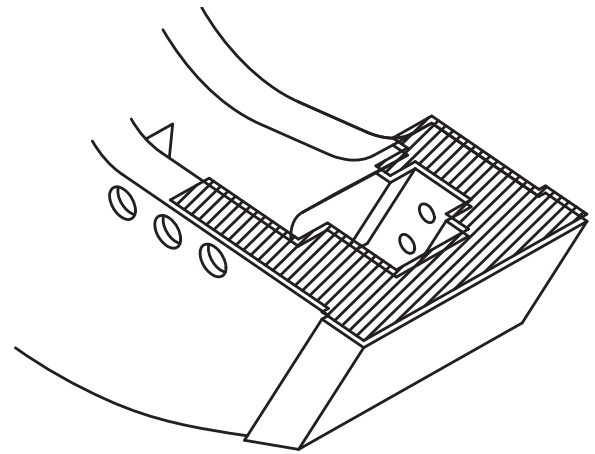
All piercing tip and lower piercing area maintenance from Section 4 must be performed before any lower shear build-up and hardsurfacing is done.

It is absolutely necessary that the lower portion of the shear be maintained routinely using the following process.

1. Place the shear in a horizontal position and block it up about 18" high, or preferred working height. Use straight edges or a the lower profile template supplied by LaBounty to determine how much build-up is required on the nose plate (figure 6-5). Use a square or straight edges, as on the upper shear, to determine build-up requirements on the top side of the lower shear.
2. Clean all dirt and grease from area to be built-up.
3. Remove any existing hardsurface material down to base metal by grinding.
4. Preheat the area to be built up and the surrounding area to 300- 400°F (150-200°C). Use melt stick to test area frequently, as overheating can harm the shear (maximum 450°F / 230°C). Temperature/melt sticks are available from LaBounty.
5. For required build-up, apply AWS 7018 welding rod in single passes running with the grain (see figure 6-6). Peen each pass. Grind all edges to 90°

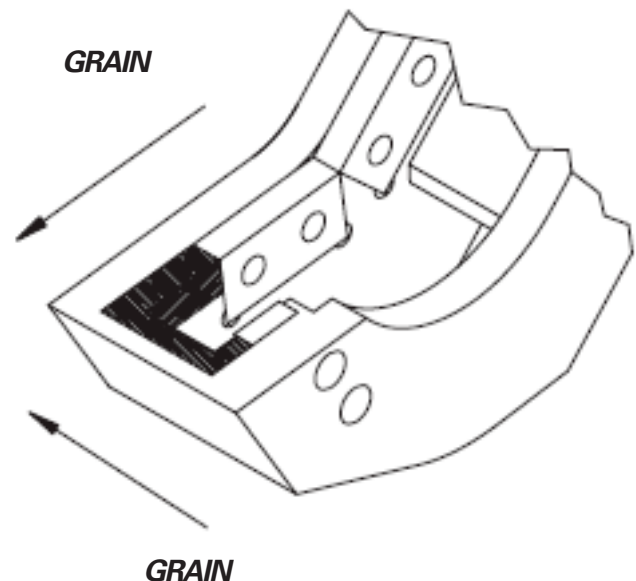
### NOTICE

Check temperature during this procedure. Maintain 300-400°F (150-200°C).



**BUILD UP TEMPLATE**

**FIGURE 6-5**



**FIGURE 6-6**

## LOWER SHEAR BUILD UP AND HARDSURFACING CONTINUED

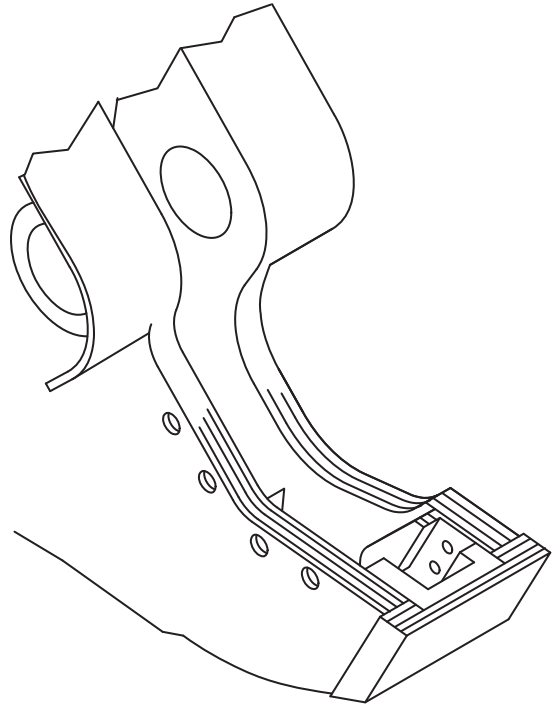
**6.** To hardsurface the build-up just completed, we recommend using Amalloy 814 or equivalent. Apply 3 or 4 single passes running the length of the shear and across on the nose plate (figure 6-7). No more than two layers of this rod should be used.

### NOTICE

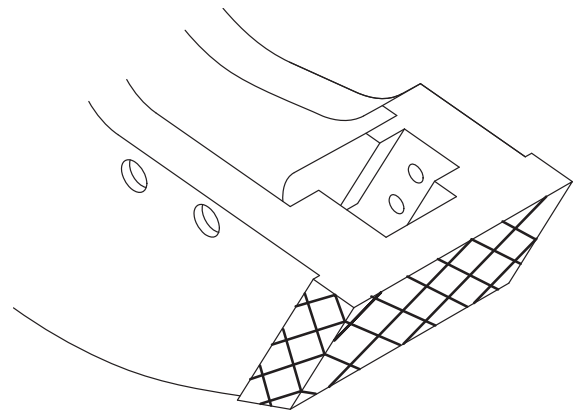
*It is important to use an air operated slag peener on each pass of weld to relieve stress. Grind off in line with cutting edges.*

**7.** Hardsurface should end approximately at the midpoint of the primary blade. Stagger the ends of the welds. **DO NOT** end welds within 1" (25 mm) of bolt holes. **DO NOT** undercut ends of weld. Taper ends of welds into parent material with grind marks going with the grain.

**8.** To hardsurface the front and sides of the nose plate, apply single passes of Amalloy 814 rod or equivalent in a diamond pattern of approximately 1-½" (38 mm) (see figure 5-8). Peen each pass.



**FIGURE 6-7**



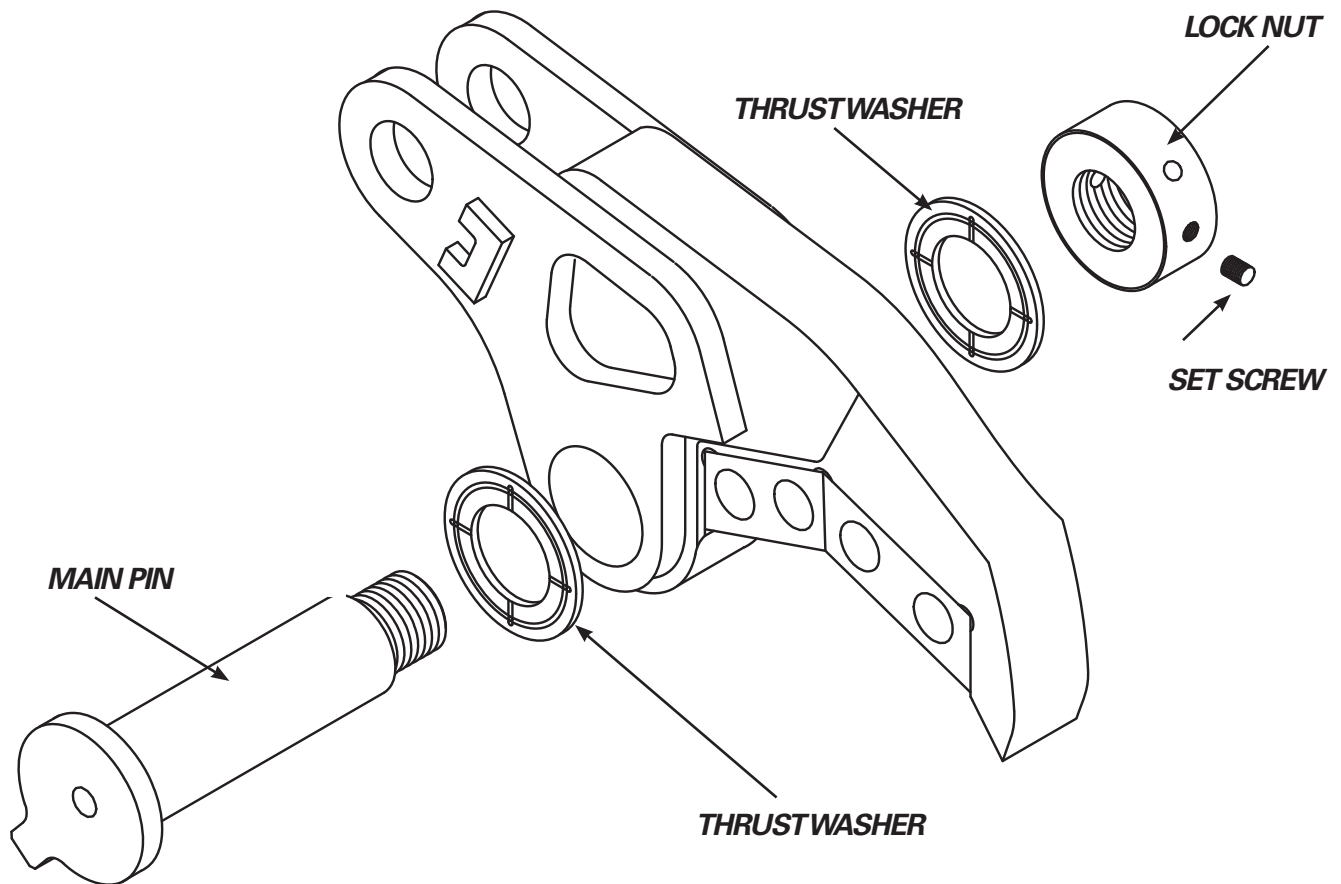
**FIGURE 6-8**

# MSD 7R SHEARS

## MAIN PIVOT GROUP

See figure 6-9. The main pivot group of your shear is a high-tolerance area requiring regular lubrication. The thrust washers in the main pivot are considered wear parts that will have to be replaced when worn.

1. Use a feeler gauge to check between the thrust washer and the upper shear. If .030" or more gap is present the thrust washers may need to be replaced.
2. To replace the thrust washers, it will be necessary to place the upper shear in a horizontal position.
3. Loosen the set screw in the main pin locknut and remove the locknut.
4. Place a chain around each end of the upper shear to an overhead hoist or forklift. Put some type of protection between the chain and the blades on the upper.
5. Raise the upper evenly with the hoist, just enough to take the pressure off the pin. Remove pin and thrust washers.
6. The thrust washers will have to be replaced as a set, both right and left sides. The thrust washers will come stamped, LH (left-hand) and RH (right-hand) for the correct side.
7. Reinstall the pin, placing the appropriate new thrust washers in place as the pin is put in place.
8. Cycle the shear slowly, making sure there is no interference in the blades. Check the blade gap to determine if any adjustments are required.



**FIGURE 6-9**

## **SECTION 7 ROTATOR MAINTENANCE**

The Rotator .....	7-2
Bolt Torquing .....	7-3
Turntable Bearing Lubrication .....	7-4
Turntable Bearing Lubricants .....	7-4
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# MSD 7R SHEARS

## THE ROTATOR

The rotator is capable of 360° continuous rotation for easy, accurate cutting at all angles. The rotator requires special attention for maintenance and proper operating procedure. **The rotator is to be used only as a positioning feature, not as a means of bending or breaking material.** Use of the rotation feature for any other purpose may damage the rotation components and may compromise the shear warranty.

The rotation circuit consists of a hydraulic motor driving a turntable bearing. Periodic maintenance requirements include maintaining proper bolt torques and lubrication; these maintenance items are detailed on the following pages.

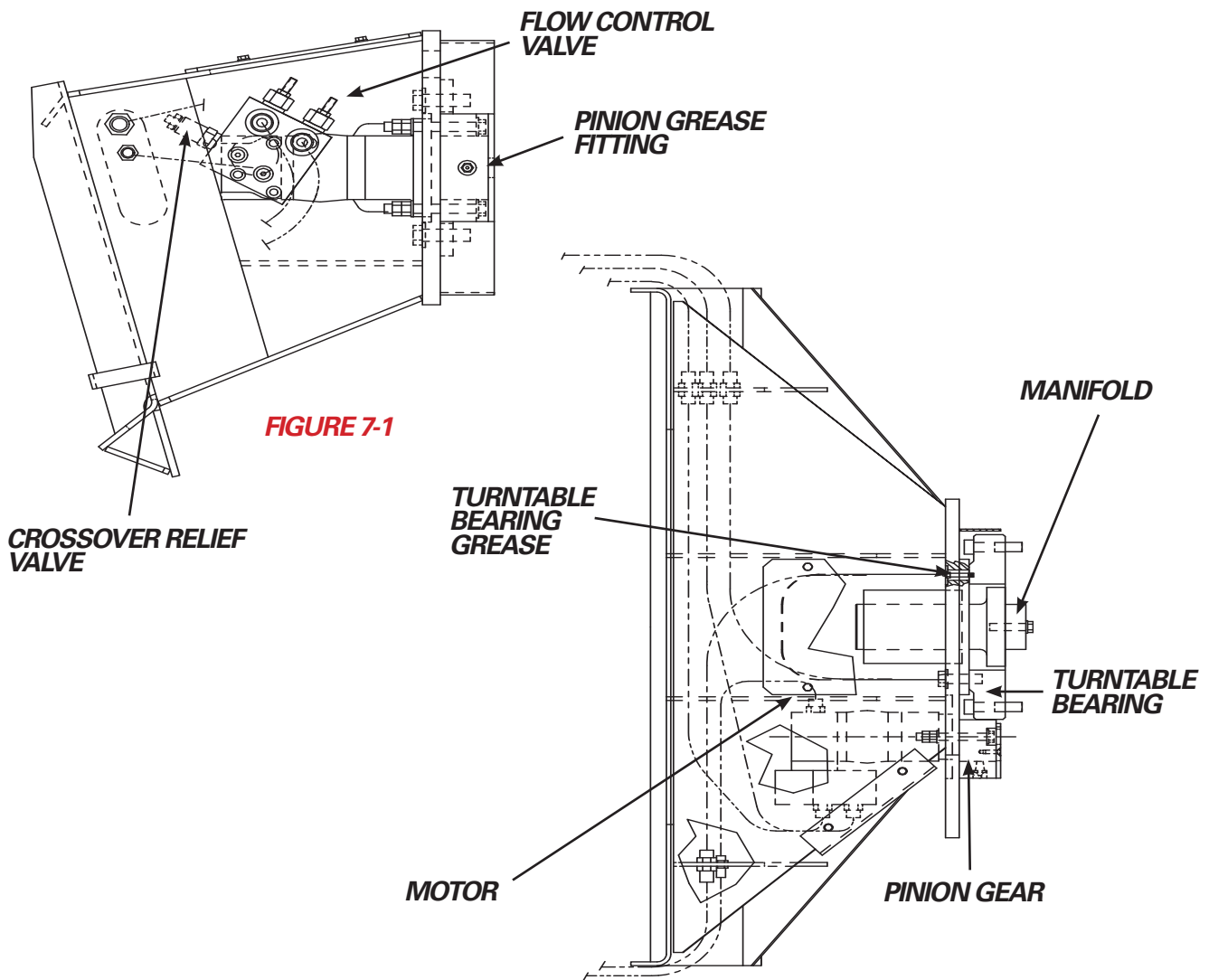


FIGURE 7-2

## **BOLT TORQUING**

The bolts connecting the turntable bearing are an important maintenance item. After the first eight hours of use, the bolts must be checked for looseness. Bolts can be retorqued only once and then must be replaced if they loosen due to fatigue caused by stretching the bolt during torquing. If the bolts continue to loosen, call the LaBounty Service Department for further instruction. These bolts should be inspected daily and replaced every 1500 hours or 12 months.

### **NOTICE**

*It may be necessary to rotate the attachment to access all the bolts connecting the attachment, bearing and rotating head.*

## **BOLT TORQUE GUIDELINES**

Proper bolt installation is critical to ensure the safe and efficient operation of the shear. Carefully follow the steps below to properly install bolts.

1. Always replace bolts and nuts with the same size and class of fastener. Replacement fasteners can be ordered from your dealer or from the LaBounty Parts Department to ensure the correct part is used. Unless otherwise specified, use class 10.9 metric hex head capscrews, class 10.9 metric flat head capscrews, and class 12.9 metric socket head capscrews.
2. Make sure bolts, nuts and bolt holes are free of dirt, oil, grease and other contaminants.
3. Use the Dry Bolt Torque Chart on this page to find the proper torque. When possible, torque the nut rather than the bolt head.

### **DRY BOLT TORQUE CHARTS** **METRIC CLASS 10.9**

<b>SIZE</b>	<b>FT-LBS</b>	<b>N-M</b>
M10 x 1.5	53	72
M12 x 1.75	92	125
M14 x 2	146	198
M16 x 2	224	305
M20 x 2.5	435	590
M24 x 3	752	1020
M30 x 3.5	1511	2050

### **METRIC CLASS 12.9**

<b>SIZE</b>	<b>FT-LBS</b>	<b>N-M</b>
M10 x 1.5	64	87
M12 x 1.75	110	150
M14 x 2	177	240
M16 x 2	269	365
M20 x 2.5	523	710
M24 x 3	899	1220
M30 x 3.5	1806	2450

### **⚠ WARNING**

***Always replace bolts and nuts with the same size and class of fasteners. Inferior fasteners can fail and cause injury or death and damage to the equipment.***

# MSD 7R SHEARS

## **TURNTABLE BEARING LUBRICATION**

### **LUBRICATION FREQUENCY**

Rotating shears in storage should be lubricated at least every six months. Equipment operating frequently in extreme environments should be lubricated at least every eight hours. If the old grease is noted to be in good condition and free of contamination, the interval may be extended. Conversely, if the old grease is contaminated or deteriorated, the interval should be shortened.

### **LUBRICATION PROCEDURES**

Bearings are equipped with one grease fitting located on the upper head for the turntable bearing and one fitting for the pinion gear. Look for the yellow grease stickers to locate the fittings. It is recommended to rotate bearing while greasing in order to uniformly distribute the grease and to most effectively flush out the old grease and contaminants. The bearing should be turned through two full revolutions while greasing through any one fitting. Apply 12 to 15 shots of grease.

## **TURNTABLE BEARING LUBRICANTS**

For normal operating conditions, periodic lubrication with lithium Grade 2 extreme pressure grease is recommended. For operation below 32°F, Grade 0 is recommended. The following table lists typical lubricants for turntable bearings.

<b>APPROVED SOURCE</b>	<b>TRADE NAME</b>	<b>FOR OPERATION BELOW 32°F/STORAGE</b>	<b>FOR OPERATION ABOVE 32° F</b>
AMOCO	RYCON	EPO	EP2
CHEVRON	DURA LITH	EPO	EP2
EXXON	LIDOK	EPO	EP2
MOBIL	MOBILUX	EPO	EP2
SHELL	ALVANIA	EPRO	EP2
SOHIO	BEARING GUARD	LTO	2
SUN	PRESTIGE	740EP	742EP
TEXACO	MULTIFAK	EPO	EP2
UNION	UNOBA	EPO	EP2

## HYDRAULIC REQUIREMENTS

The rotating shear requires an auxiliary hydraulic circuit in order to operate the rotator. This circuit will need to be a medium pressure (1350-2000 PSI / 93-138 BAR), low flow (4-10 GPM / 15-37 LPM) hydraulic circuit. There are minimum and maximum pressure and flow requirements that may vary depending on the model of the shear. These requirements are listed in the Hydraulic Installation Requirements sheet in the Parts Catalog for the shear. The rotation motor on the shear is equipped with manifold mounted crossover relief and flow controls.

## CROSSOVER RELIEF/FLOW CONTROL MANIFOLD

### NOTICE

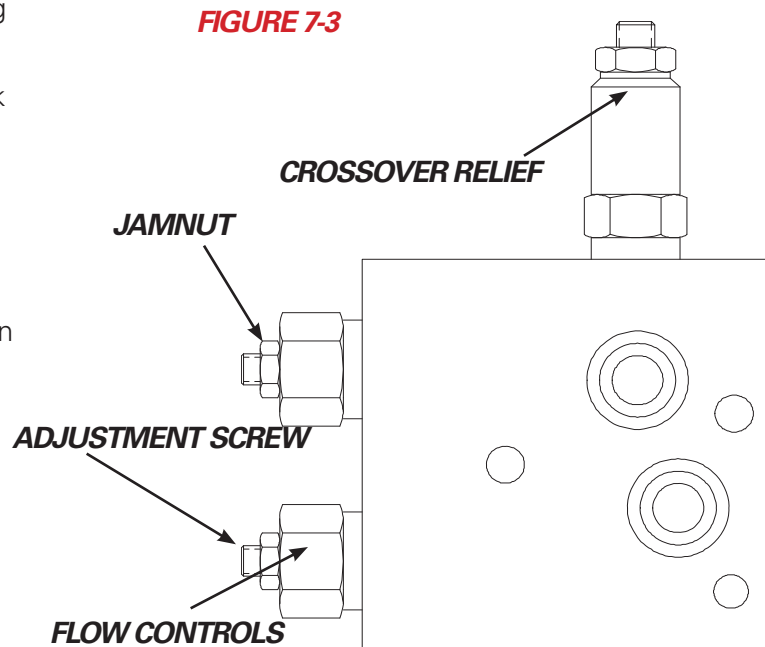
*The crossover relief/flow control manifold does not provide a directional control of hydraulic fluid. An auxiliary hydraulic circuit is required to operate the rotator.*

The Crossover Relief/ Flow Control Manifold is mounted directly to the hydraulic port of the rotation motor. The manifold controls rotation speed with two flow control valves and overload protection with one crossover relief valve to govern pressure at both motor ports. The valves have been adjusted at the factory to provide optimal performance of the rotation motor.

The **flow control valves** “meter-out” flow from the rotation motor—they are factory adjusted to a recommended rotation speed of 1 to 2 RPM. They may be adjusted to suit a speed preference; however keep in mind that the rotation feature is to be used only as a positioning device. Operating in excess of 4 RPM may damage the hydraulic and mechanical components of the attachment.

To adjust the flow controls:

1. See figure 7-3. Loosen the jamnut locking the adjustment screw.
2. To increase speed, turn the adjustment screw (Allen head) counterclockwise; check rotation speed at each 1/8 turn interval. If the attachment fails to increase in speed, it may be that all of the circuit flow is being used. Check the supply circuit flow with a flow meter to verify whether or not more flow is available.
3. To decrease speed, turn the adjustment screw (Allen head) clockwise; check rotation speed at each 1/8 turn interval. If the rotation speed does not decrease, replace the flow control valve.
4. Retighten the jamnut after the desired adjustment has been made.





## **CROSSOVER RELIEF/FLOW CONTROL MANIFOLD** continued

The **crossover relief valve** provides overload protection for the rotator. This is not intended to replace the circuit relief valve on the base machine. This valve has been preset at the factory and **requires no adjustment**; it should not be tampered with. If a malfunction is suspected due to a lack of rotator performance, a pressure check should be performed. Diagnostic fittings\* are installed in the manifold to provide a means of checking pressure. Contact the LaBounty Service Department for the procedure for performing this check.

\* *Diagnostic fittings require a Parker PD series coupler on gauge.*

## **CASE DRAIN**

A case drain is required because of the back pressure that develops in the hydraulic motor case as a result of metering flow out of the motor. Depending on the model of the attachment, this port is located on the motor or bulkhead out to the rotation group shroud or port block. A 1/4" hydraulic line should be connected to this port and routed back directly to the tank via a return line filter of its own. The maximum allowable back pressure in this line should not exceed 300 PSI.

## **NOTICE**

*The case drain line must be connected to prevent failure to the case or motor seals.*

## ROTATION CIRCUIT TROUBLESHOOTING GUIDE

The information contained in this guide provides for troubleshooting the LaBounty shear only. Any reference to the excavator will be made only to give some guidance as to where a problem may exist. Any specific maintenance and troubleshooting information will need to be provided by the original equipment manufacturer of the excavator or the authorized dealer.

<b>SYMPTOM</b>	<b>PROBABLE CAUSE</b>	<b>REMEDY</b>
1. Shear will not rotate	<ul style="list-style-type: none"> <li>a. Operating flow is too low</li> <li>b. Crossover relief valve is bypassing oil</li> <li>c. Operating pressure is too low</li> <li>d. System hydraulic fluid temperature excessively high</li> <li>e. Broken output shaft drive</li> <li>f. Internal leakage in manifold block on motor</li> <li>g. Excessive wear on motor rotating components</li> <li>h. Internal leakage in valve supplying oil</li> <li>i. Valve supplying hydraulic flow is faulty</li> </ul>	<ul style="list-style-type: none"> <li>i. Flow control valve needs adjustment</li> <li>ii. Check supply flow</li> <li>i. Replace crossover relief valve</li> <li>i. Check crossover relief valve</li> <li>ii. Check supply pressure</li> <li>i. Check base machine hydraulic system</li> <li>i. Replace or rebuild the hydraulic motor</li> <li>i. Replace manifold block on motor</li> <li>ii. Check cartridge valve seals for damage</li> <li>i. Replace or reseal the hydraulic motor</li> <li>ii. To check, remove the case drain line and measure the amount of flow out of the case</li> <li>i. Check base machine hydraulic system</li> <li>i. Check base machine hydraulic system</li> </ul>
2. Rotation is excessively slow	<ul style="list-style-type: none"> <li>a. Operating pressure is too low</li> <li>b. Crossover relief valve bypassing oil</li> <li>c. Operating flow is too low</li> </ul>	<ul style="list-style-type: none"> <li>i. Replace crossover relief valve to increase the pressure</li> <li>i. Replace crossover relief valve</li> <li>i. Adjust flow control to increase flow to rotation group</li> </ul>

## ROTATION CIRCUIT TROUBLESHOOTING GUIDE continued

<i>SYMPTOM</i>	<i>PROBABLE CAUSE</i>	<i>REMEDY</i>
2. Rotation is excessively slow, continued	<ul style="list-style-type: none"> <li>d. Internal leakage in manifold block on motor</li> <li>e. Motor is worn out</li> <li>f. Supply pressure too low</li> <li>g. Supply flow too low</li> <li>h. Internal leakage in valve</li> <li>i. Valve supplying hydraulic fluid is not working</li> </ul>	<ul style="list-style-type: none"> <li>i. Replace manifold block on motor</li> <li>ii. Check cartridge valve seals for damage</li> <li>i. Rebuild or replace the motor</li> <li>i. Check base machine hydraulic system</li> <li>i. Check base machine hydraulic system</li> <li>i. Check base machine hydraulic system</li> <li>i. Check base machine hydraulic system</li> </ul>
3. Rotation speed excessively high	<ul style="list-style-type: none"> <li>a. Operating flow too high</li> <li>b. Supply flow too high</li> </ul>	<ul style="list-style-type: none"> <li>i. Adjust flow control to decrease flow to rotation group</li> <li>i. Check base machine hydraulic system</li> </ul>
4. Rotation erratic	<ul style="list-style-type: none"> <li>a. Crossover relieve valve cartridge is faulty</li> <li>b. Flow control valve cartridge is faulty</li> <li>c. Valve spool sticking in valve supplying oil</li> <li>d. Faulty electrical signal at control valve (if electrically controlled)</li> <li>e. Faulty circuit relief valve</li> <li>f. Varying pilot pressure to control valve</li> </ul>	<ul style="list-style-type: none"> <li>i. Replace crossover relief valve</li> <li>i. Replace flow control valve</li> <li>i. Check base machine hydraulic system</li> <li>i. Replace electric solenoid</li> <li>i. Check base machine hydraulic system</li> <li>i. Check base machine hydraulic system</li> </ul>
5. Rotation drifts	<ul style="list-style-type: none"> <li>a. Control valve ports are open to tank with spool in neutral position</li> <li>b. Excessive leakage in control valve spool</li> <li>c. Crossover relief valve is leaking excessively</li> <li>d. Crossover relief valve set too low</li> </ul>	<ul style="list-style-type: none"> <li>i. Check excavator hydraulic system.</li> <li>i. Check excavator hydraulic system</li> <li>i. Replace crossover relief valve</li> <li>i. Replace crossover relief valve</li> </ul>

# **LIMITED WARRANTY**

New Attachment

Stanley LaBounty warrants its manufactured products against deficiency in material or workmanship for a period of 12 months from the date of first use, rental or sale, or 1500 hours of operation, whichever occurs first.

## **LIMITATIONS**

- Remanufactured or used product or service repair are not warranted under this Limited Warranty.
- Product that is damaged by alteration, improper maintenance, unauthorized service, abuse, misuse, or contamination by the base machine is not warranted.
- This Limited Warranty is the exclusive warranty. Stanley LaBounty makes no representations, expressed or implied, of merchantability or fitness for a particular purpose.
- Agents of Stanley LaBounty have no authority to make representations beyond those contained herein.

## **EXCLUSIVE REMEDY**

The exclusive remedy for a product Stanley LaBounty determines deficient in material or workmanship is repair or replacement at Stanley LaBounty's option. The following procedure governs a repair or replacement warranty claim:

1. All warranty claims require a claim number provided by Stanley LaBounty Service Department.
2. A factory-issued Return Material Authorization tag (RMA) must accompany returned product.
3. Returned product found deficient by Stanley LaBounty will be replaced or repaired without charge FOB Distributor/Customer or will be credited to account balance.
4. Authorized repair can occur at the Stanley LaBounty factory or authorized Stanley LaBounty Dealer. Labor for warranty repair will be paid under a formula determined by Stanley LaBounty.

Stanley LaBounty is not liable for incidental or consequential costs or losses incurred by the product, purchaser or user.

## **LIMITED WARRANTY**

To validate the Limited Warranty, a completed warranty certificate and delivery inspection report must be returned to Stanley LaBounty. Prohibited operation and/or unauthorized adjustment or assembly will void this Limited Warranty. See the Operation, Maintenance and Safety Manual.

## **CONTACT INFORMATION**

Contact your Stanley LaBounty Dealer or Stanley LaBounty regarding warranty questions. All requests for information, service or spare parts should include model and serial numbers. For the nearest Stanley LaBounty dealer contact:

Stanley LaBounty  
1538 Highway 2  
Two Harbors, MN 55616-8015 USA  
Phone: (218) 834-2123 or (800) 522-5059  
FAX: (218) 834-3879  
E-mail: [labounty@stanleyworks.com](mailto:labounty@stanleyworks.com)  
Website: [www.stanleyhydraulic.com](http://www.stanleyhydraulic.com)



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