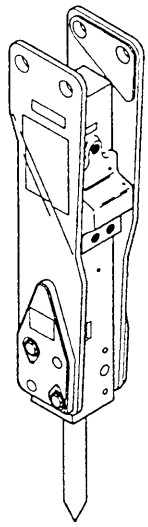
MB156

Hydraulic Mounted Breaker

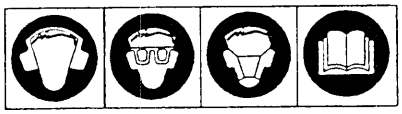


Safety, Operation and Maintenance
Service Manual

⚠ DANGER

SERIOUS INJURY OR DEATH COULD RESULT FROM THE IMPROPER REPAIR OR SERVICE OF THIS TOOL.

REPAIRS AND / OR SERVICE TO THIS TOOL MUST ONLY BE DONE BY AN AUTHORIZED AND CERTIFIED DEALER.



STANLEY®

CE

OPS/MAINT USA & CE VERSION
30891 04/99 Ver 2

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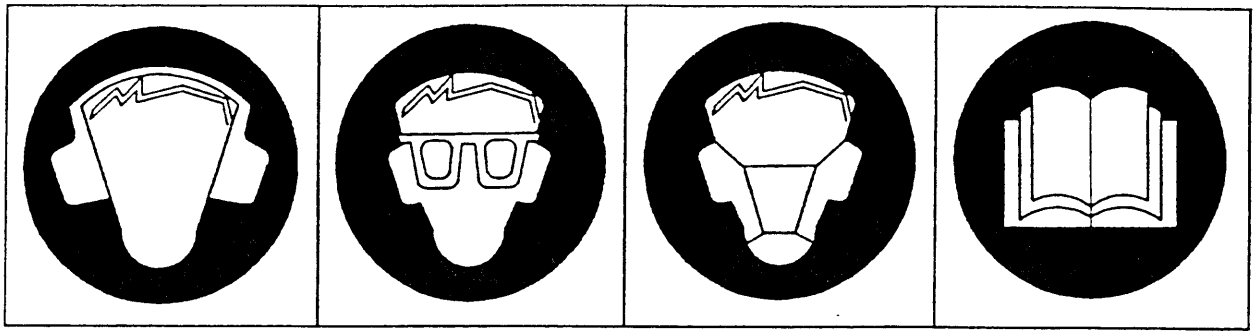

⚠ DANGER

Do not operate the breaker unless the following safety instructions have been thoroughly read and understood! Read this manual before installing, operating or maintaining this equipment!

- A flying projectile from the breaker, breaker tool, rock or other material may enter the operator's compartment and cause serious or fatal injury to the operator. Personal protection equipment must be used.

- A flying projectile from the breaker, breaker tool, rock or other material may cause serious or fatal injury to bystanders. Never operate the breaker when bystanders are in the work area.

- On some machines/carriers, the breaker can enter the operator's compartment if it breaks loose and swings toward the operator. Make sure that suitable impact shields are used when operating the breaker with this type of equipment.

- Do not operate the breaker unless all safety decals described in this manual are in place. The decals must be inspected periodically to ensure that all wording is legible. The decals must be replaced if illegible. Replacement decals can be obtained from your authorized Stanley Distributor.

- When operating the breaker you must use ear protection, eye protection, breathing protection and head protection.

INDEX

SERVICING THE MB156 BREAKER: This manual contains safety, operation, and service instructions. Stanley Hydraulic Tools recommends that servicing of hydraulic tools, other than routine maintenance, must be performed by an authorized and certified dealer. Please read the following warning.

⚠ DANGER

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REPAIRS AND / OR SERVICE TO THIS TOOL MUST ONLY BE DONE BY AN AUTHORIZED AND CERTIFIED DEALER.

A list of Stanley Hydraulic Tools Distribution Centers can be found on the page 22 of this manual.

SAFETY PRECAUTIONS

Tool operators and maintenance personnel must always comply with the safety precautions given in this manual and on the decals and tags attached to the tool and hose.

These safety precautions are given for your safety. Review them carefully before operating the tool and before performing general maintenance or repairs.

Supervising personnel or the owner operator should develop additional precautions relating to the specific work area and local safety regulations. Place the added precautions in the space provided on page 4.

GENERAL SAFETY PRECAUTIONS

The model MB156 Hydraulic Breaker will provide safe and dependable service if operated in accordance with the instructions given in this manual. Read and understand this manual and any decals and tags attached to the breaker before operation. Failure to do so could result in personal injury or equipment damage.

- Operate the breaker in accordance with all laws and regulations which affect you, your equipment, and the worksite.
- Do not operate the breaker until you have read this manual and thoroughly understand all safety, operation and maintenance instructions.
- The operator must be familiar with all prohibited work areas such as excessive slopes and dangerous terrain conditions.
- Do not operate the breaker until you have read the carrier equipment manual and thoroughly understand all safety, operation and maintenance instructions.
- Ensure that all maintenance procedures recommended in this manual are completed before using the equipment.
- The operator must not operate the breaker or carrier if any people are within an area of the breaker or carrier in which they may become injured by flying debris or movement of the equipment.
- Know the limits of your equipment.
- Establish a training program for all operators to ensure safe operation.
- Do not operate the tool unless thoroughly trained or under the supervision of an instructor.
- Become familiar with the carrier controls before operating the carrier and the breaker.
- When operating the breaker you must use ear protection, eye protection, breathing protection, and head protection.
- While learning to operate the breaker and carrier, do so at a slow pace. If necessary, set the carrier mode selector to the slow position.
- Make sure all controls (levers and pedals) are in the NEUTRAL position before starting the carrier.
- While operating the breaker and carrier, keep hands and feet on the controls at all times.
- Before leaving the carrier, always lower the boom and insure the carrier is stable. Never leave the machine with the engine running. ALWAYS ENGAGE THE PARKING BRAKE.
- Stop the engine before attempting to make any repairs, adjustments or servicing to either the carrier or the breaker.

- Do not operate the tool at oil temperatures above 200°F/93°C. Operation at higher temperatures can damage the internal components of the breaker and backhoe/excavator.
- Do not operate a damaged, leaking, improperly adjusted, or incompletely assembled breaker.
- Do not modify this tool in any manner.
- Use only tool bits manufactured by Stanley Hydraulic Tools. Use of tool bits produced by another manufacturer may damage the equipment and will void the warranty.
- To avoid personal injury or equipment damage, all tool repair, maintenance and service must only be performed by authorized and properly trained personnel.
- If you do not understand how to safely operate your breaker, contact an authorized Stanley Dealer for assistance.
- Keep this manual with the breaker.
- Do not operate this equipment if you are taking medication which may affect your mental judgement or physical performance.
- Do not operate this equipment if you are under the influence of drugs or alcohol.

SAFETY SYMBOLS

Safety symbols are used to emphasize all operator, maintenance and repair actions which, if not strictly followed, could result in a life-threatening situation, bodily injury or damage to equipment.

DANGER

This safety symbol may appear on the tool. It is used to alert the operator of an action that could place him/her or others in a life threatening situation.

⚠ WARNING

This safety symbol appears in these instructions to identify an action that could cause bodily injury to the operator or other personnel.

IMPORTANT

This safety symbol appears in these instructions to identify an action or condition that could result in damage to the tool or other equipment.

Always observe safety symbols. They are included for your safety and for the protection of the tool.

LOCAL SAFETY REGULATIONS

Enter any local safety regulations here. Keep these instructions in an area accessible to the operator and maintenance personnel.

TOOL STICKERS AND TAGS

Stickers and decals placed on the breaker at time of manufacture are shown to the right and on the next page. These stickers and decals have been placed on the breaker to aid the operator with safety and general maintenance.

The information listed on these stickers and decals must be legible at all times.

Always replace any sticker or decal that has become worn or damaged. Replacements are available from your Stanley distributor.

CE

STANLEY Hydraulic Tools

MANUFACTURED BY: Stanley Hydraulic Tools
Division of The Stanley Works
3810 S.E. Naef Road
Milwaukie, Oregon 97267

MODEL NO. MB156 XX

SERIAL NO. XXXXXX

OPERATING WEIGHT 79 Kg / 173 lb

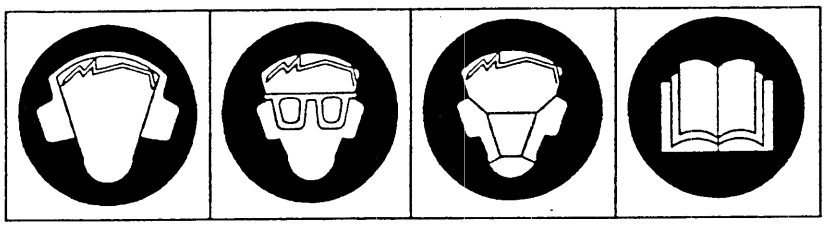
INPUT FLOW 15-38 lpm / 4-10 gpm

CIRCUIT RELIEF PRESSURE 172 bar / 2500 psi

P/N 29175

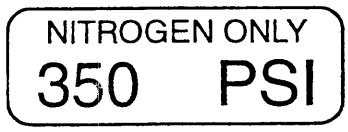
SPECIFICATION DECAL CHART - P/N 29175
(Shown actual size)

TOOL STICKERS AND TAGS continued

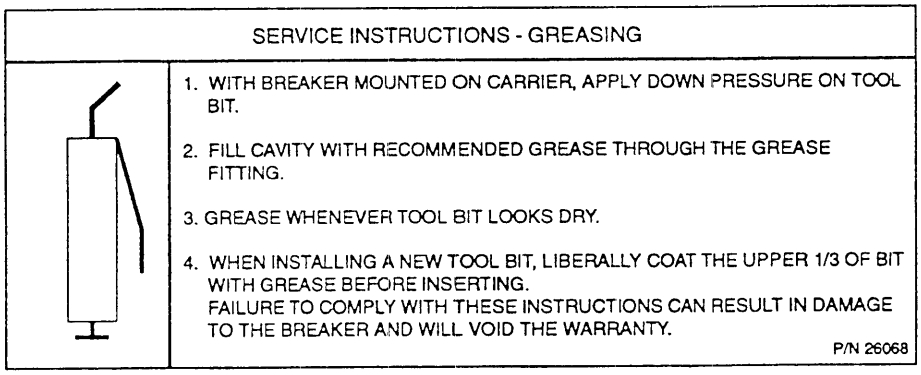


WARNING DECAL - P/N 28886
(Shown smaller than actual size)
Signifies:

Use Hearing Protection
Use Eye Protection
Use Breathing Protection
Read The Manual Before Use



ACCUMULATOR PRESSURE SPEC STICKER - P/N 27711
(Shown actual size)



GREASE DECAL - P/N 26068
(Shown smaller than actual size)

PREPARATION FOR USE

PRE-INSTALLATION INSTRUCTIONS

BACKHOE OR EXCAVATOR SIZE

Check the "specifications" section of this manual to determine correct backhoe and excavator sizes and hydraulic flow and pressure requirements.

⚠ WARNING

IF HYDRAULIC PRESSURE, HYDRAULIC BACK-PRESSURE, OR HYDRAULIC FLOW ARE EXCEEDED, THE TOOL WARRANTY IS VOID.

EXISTING EQUIPMENT HYDRAULICS VS APPLICATION ATTACHING KITS

Using existing equipment hydraulic systems for operating hydraulic tools could cause problems for the hydraulic tool and the hydraulic system if not set up properly. Simply plugging into the hydraulic system without confirming pressure and flow to the hydraulic tool is not a good practice. Spare spool valves, backhoe extendable dipper circuits, etc., are just a few examples of easily accessable hydraulic circuits which could prove to cause problems for hydraulic tool usage.

Stanley Hydraulic Tools has for many years developed ATTACHING KITS for adapting to existing hydraulic systems of many popular backhoes and excavators.

If your equipment does not contain an attaching kit, ask your Stanley dealer for information, installation, and pricing on a kit which matches your equipment needs.

TEST THE HYDRAULIC SYSTEM

1. Have your Stanley dealer test the backhoe/excavator hydraulic system to make sure the system is operating at the manufacturers specified capacity and pressure ratings.

2. Be sure the fluid in the hydraulic system is filtered to a least 10 micro-meters. (Particles found in fluid should not exceed 10 micro-meters in size.)

3. Check the hydraulic filter. Replace the filter if dirty or deteriorated.

4. Have your Stanley dealer test the circuit to which the breaker will be connected to make sure that it is supplying the specified flow and pressure rating for the breaker SEE THE "SPECIFICATIONS" SECTION OF THIS MANUAL.

PREPARATION FOR OPERATION

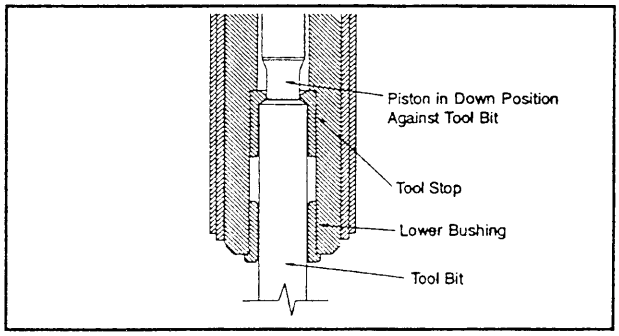
Nitrogen Charge

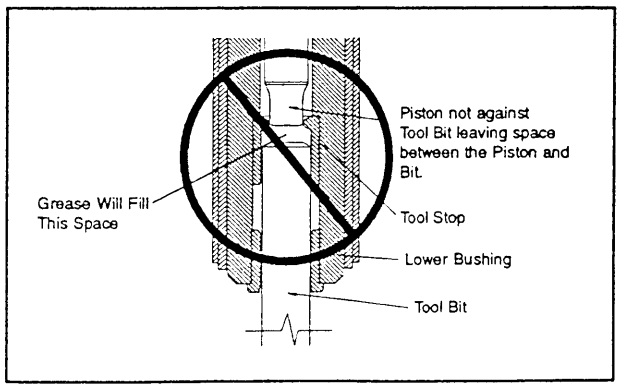
The breaker has been properly charged with nitrogen at the factory and is ready to use.

Tool Bit Lubrication

Grease the top 150 mm/6 inches of the breaker tool bit before installing. During operation, the tool can be greased through the grease fitting. Grease as required. **Make sure the tool bit is against the tool stop by placing the tool bit against the ground and then putting down pressure on the breaker. SEE THE ILLUSTRATIONS BELOW.**

Note: Use Stanley grease p/n 29463.





⚠ WARNING

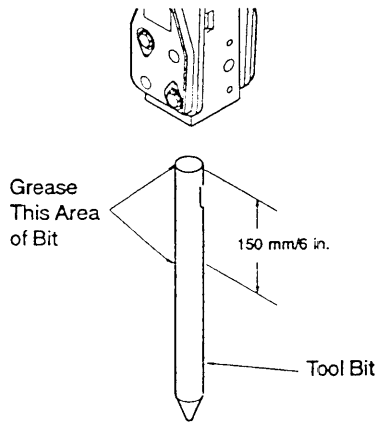
GREASING THE TOOL BIT WITHOUT DOWN PRESSURE ON THE TOOL RESULTS IN GREASE FILLING THE SPACE BETWEEN THE PISTON AND THE TOOL BIT. WHEN THE BREAKER IS NEXT ACTIVATED, THE PISTON WILL STRIKE THE GREASE AT A SPEED WHICH WILL PRESSURIZE THE GREASE RESULTING IN SEAL AND GREASE ZERK FAILURE.

Securing the tool

Align the notch of the tool bit with the lower body retaining hole. Install the tool retaining pin into the lower body. The breaker is shipped with the tool retaining pin installed in the lower body. The pin is installed and removed by driving it in and out with a punch and hammer.

⚠ WARNING

ALWAYS WHERE EYE PROTECTION WHEN INSTALLING OR REMOVING THE TOOL RETAINING PIN.



LOW-TEMPERATURE WARM-UP PROCEDURE

1. After starting the backhoe/excavator, warm-up the hydraulic system at engine idle until hydraulic lines are warm to the touch.

2. With the backhoe or excavator at idle and the breaker suspended in the air, turn on the breaker to gradually warm up its internal components.

3. When the hydraulic system and breaker are warm, proceed with operation. SEE THE "OPERATION" SECTION OF THIS MANUAL.

LONG TERM STORAGE

1. Remove the tool bit, clean the tool stop and the lower bushing. Thoroughly coat the surfaces of the tool stop and the lower bushing with grease.

2. If hoses are attached to the breaker, install plugs on the hose ends. If hoses are removed from the breaker, install plugs on the hose ends and install plugs in the breaker "IN" and "OUT" ports.

3. Store the breaker in a vertical position. Do not store the breaker on its side for extended periods.

OPERATION

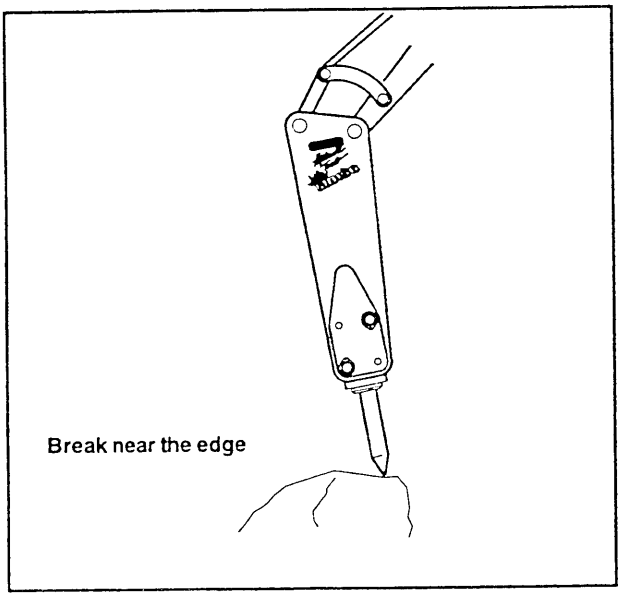
• GENERAL INSTRUCTIONS

The Stanley MB156 breaker is equipped with an internal hammer cushion which protects the breaker against a blank blow when there is nothing under the point to absorb the energy. Maintaining hard contact with the surface of the material to be broken in addition to maintaining adequate "down force" is very important. Always keep "down pressure" or "down force" on the point of the breaker by lifting the wheels, tracks, or stabilizers slightly above the ground. This method takes the "slack" out of the bracket and boom pivots, and reduces the impact on the pivots in the boom.

The operator should note the sound of the blow when the breaker is running. With experience, the operator will be able to tell the difference between a good solid blow and a hollow sounding blow. A hollow blow means that a partial blank blow is occuring and the breaker should be repositioned.

In any breaking job, the operator should make every effort to **"follow"** the breaker with "down-pressure" as the machine breaks farther into the material. The breaker should be deactivated as soon as "break-thru" occurs or if it is apparent that a partial blank blow is occuring.

• POSITIONING THE BREAKER TOOL ON THE WORK MATERIAL



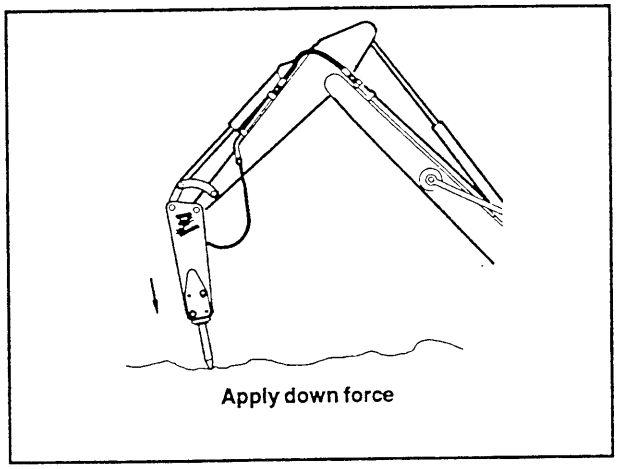
The tool should be placed near the edge of work material, not in the center or far from the edge. Position the tool 6-18 inches (depending on the material) from the edge. Breaking off smaller pieces of rock or concrete usually accomplishes more than trying to break larger pieces.

On flat material or rock, the breaker should be vertical or "curled" back slightly to direct the impact force downward and toward the backhoe. This directs the force back toward the edge of the work material. If the tool is positioned in the center of the work, or too far from the edge, the energy will be absorbed into the material without cracking it. Do not run the breaker longer than 15-20 seconds. If breakout does not occur within this time, move to another location.

• POSITIONING THE CARRIER

Backhoes

With the breaker tool in place on the material to be worked, position the backhoe so the boom is halfway up (45°) and the dipper holds the breaker almost vertical. Lower the loader bucket until the weight is off the front tires.

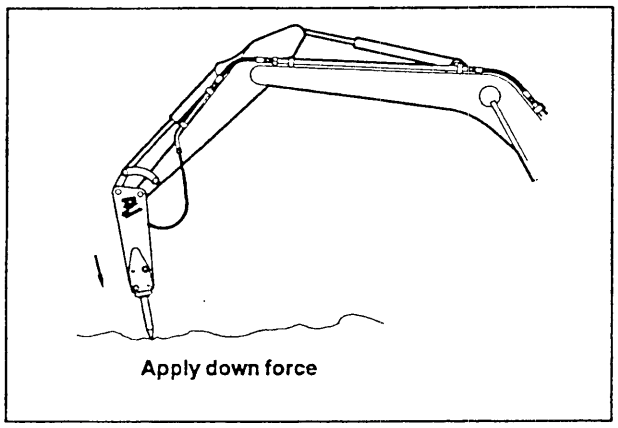


Apply down force to the boom/dipper until the rear of the backhoe is raised off the ground. Rear tires and stabilizers should be off the ground so the total rear weight of the backhoe is on the breaker tool. Keep raising the backhoe as the tool penetrates the work material so the backhoe weight stays on the tool. The breaker is more efficient when adequate down force is applied.

Excavators

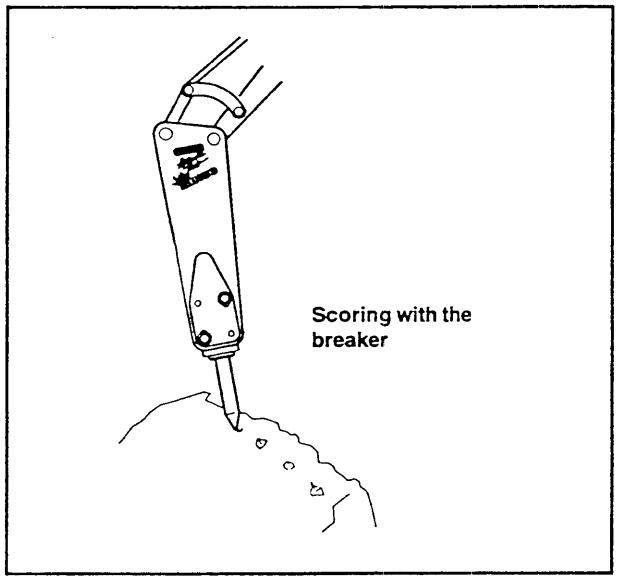
With the breaker tool in place on the material to be worked, position the excavator so the dipper is at approximately 45° and the breaker is almost vertical. The tracks of the excavator should be in

line with the booms and the breaker.



• RELOCATE THE BREAKER OFTEN

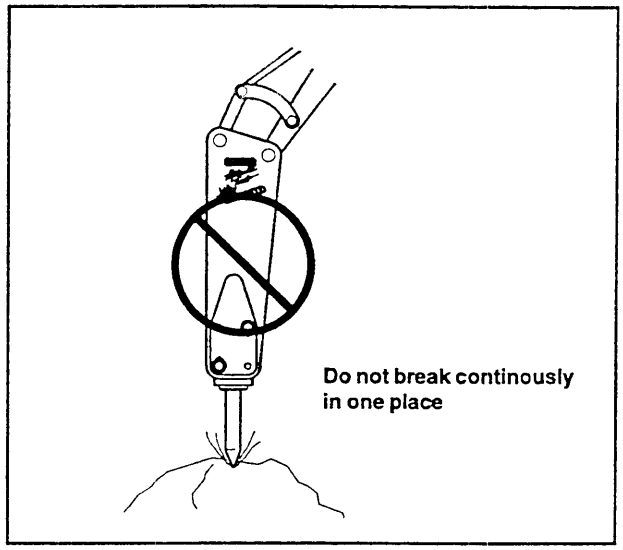
Many materials do not respond well to continued hammering in one place. The breaker tool should be moved to a new location of the work each time the tool penetrates but does not crack the material.



This calls for the "scoring" method of breaking. This technique involves striking the rock or concrete at several places along a line where you want the crack to occur. Most materials break sooner when struck several places along a line than when struck repeatedly in one location. At each place, the breaker tool should be continually repositioned. Practice determines the best length of time to stay in one spot (15-20 seconds) and how far to move the breaker tool.

• MISCELLANEOUS TIPS

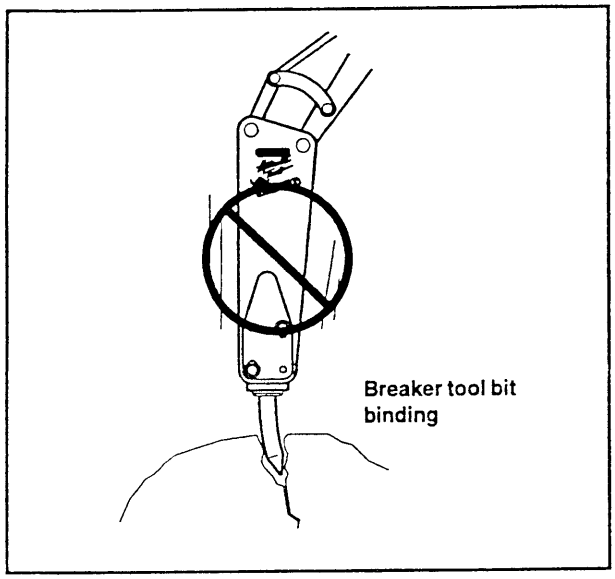
Continuous Tool Penetration usually does not do much good. If the material does not break with 3 to 6 inches of tool penetration, it usually won't break with full penetration. The time used for additional penetration could be better used to strike blows in another place.

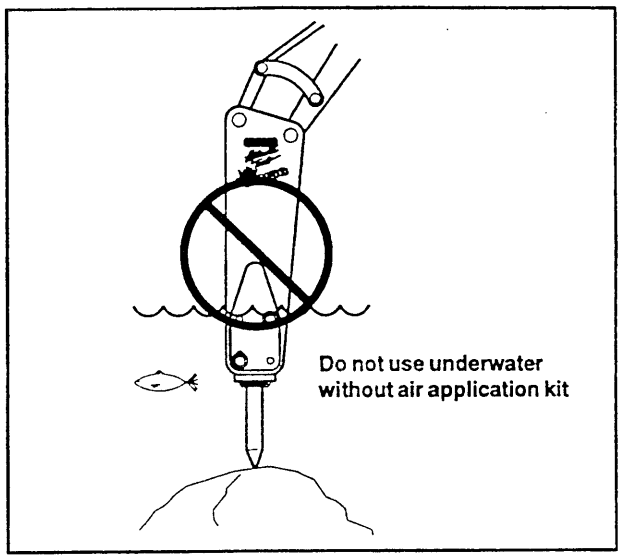


IMPORTANT

Continuous penetration in the same area for lengthy periods will create excessive temperatures at the tip of the tool bit resulting in loss of temper (hardness) of the bit, mushrooming of the tip of the bit, and may lead to failure of the bit.

Breaker Tool Binding can cause erratic breaker operation and premature wear on the tool shank. Breaker tool binding is caused by failure to direct the backhoe down force in the direction of the tool. Excessive side force cocks the tool in its bore, prevents proper movement and causes premature tool shank and bushing wear. Since the breaker tool must be pushed into the breaker to operate, a binding tool prevents the breaker from operating correctly. Always direct the backhoe force toward the point of tool contact with the work. See illustration on next page.





IMPORTANT

DO NOT PRY WITH THE BIT AND BREAKER!

IMPORTANT

UNDERWATER USE

No part of the Stanley MB156 Breaker may be submerged in water without first modifying the breaker for underwater use. Use of the breaker underwater requires an underwater application kit and an air compressor capable of producing 150 CFM @ 75 PSI. Underwater usage of the breaker without the underwater kit and air compressor will cause internal damage to the breaker. See the "ACCESSORIES" section of this manual to order the underwater kit.

Rebar Reinforced Concrete introduces the problem of concrete chunks being held together by the rebar after the concrete has been broken. The best approach to this problem is to use a chisel point tool which permits cutting the rebar with the breaker. Another method is to periodically cut the rebar with a torch.

Grease should be applied to the upper end of the breaker tool bit each time it is installed. Thereafter, the tool should be greased at the fitting to reduce wear in the lower body and bushings of the tool. SEE "GREASING THE TOOL BIT" IN THE SECTION TITLED "PREPARATION FOR USE".

Underwater usage of the MB156 will cause damage to the breaker. Even if the breaker is partially submerged, water is introduced to an area between the tool bit and piston. On the piston down cycle, the water becomes compressed and damages adjacent components.

DAILY MAINTENANCE CHECKS

- Check for loose or missing fasteners. Tighten or replace as needed.
- Inspect tool retaining pins and pockets for wear.
- Check for hydraulic leaks at all fittings and hoses. Replace any defective hoses.
- Apply grease through the grease fitting in the lower body each morning. Grease as needed throughout the work day.
- Inspect the lower bushing, tool retainer, roll pins. Reseat or replace if necessary.

PRINCIPLE OF OPERATION

GENERAL

The breaker piston contains two areas which are larger in diameter than other areas of the piston. In between these two larger diameter areas is an area which is smaller in diameter. The top and bottom of the piston, which are located on each side of the two larger diameter areas, are also smaller in diameter.

As the piston moves up and down in the piston sleeve, the larger diameter areas of the piston block the flow of incoming hydraulic fluid trying to pass through the piston sleeve and into the chambers shown in the illustrations on the next page. The smaller diameter areas allow the hydraulic fluid to pass through to the chambers.

The piston cannot operate totally by itself. It needs assistance in directing hydraulic fluid to some of its surfaces in order for it to move. This is accomplished by a valve and valve spool. The combined movement of the valve spool and piston result in the up and down cycles of the breaker as described below.

BLANKFIRE

UP CYCLE (see UP CYCLE illustration)

When the piston reaches the bottom of its stroke, CHAMBER "C" becomes open to the oil "RETURN" port. Note that CHAMBER "A" is also open to the "RETURN" port and CHAMBER "D" is open to the "PRESSURE" port. With CHAMBER "C" and "A" open and "D" closed to "RETURN", the ends of the valve spool are exposed to different pressures and the valve spool shuttles to the position shown in the "UP CYCLE" illustration.

Hydraulic fluild flowing into CHAMBER "D" builds pressure and the piston is forced upward.

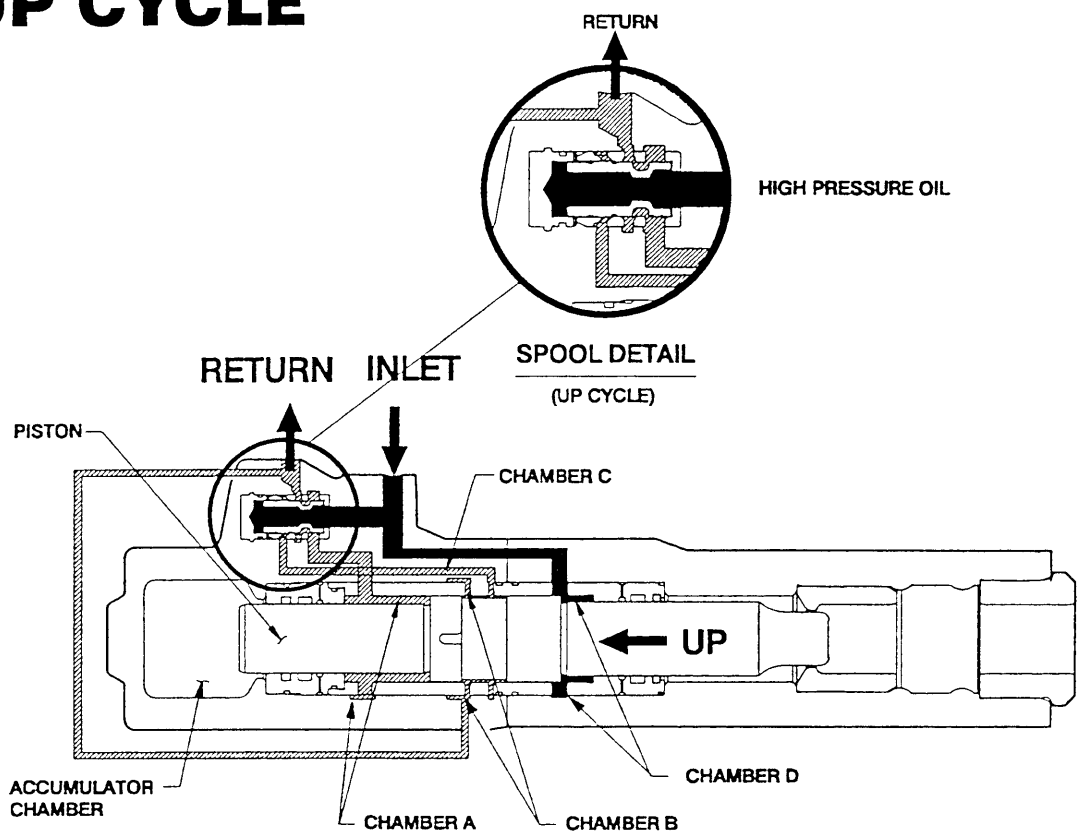
As the piston rises into the accumulator chamber, the nitrogen gas charge in the accumulator is compressed.

DOWN CYCLE (see DOWN CYCLE illustration)

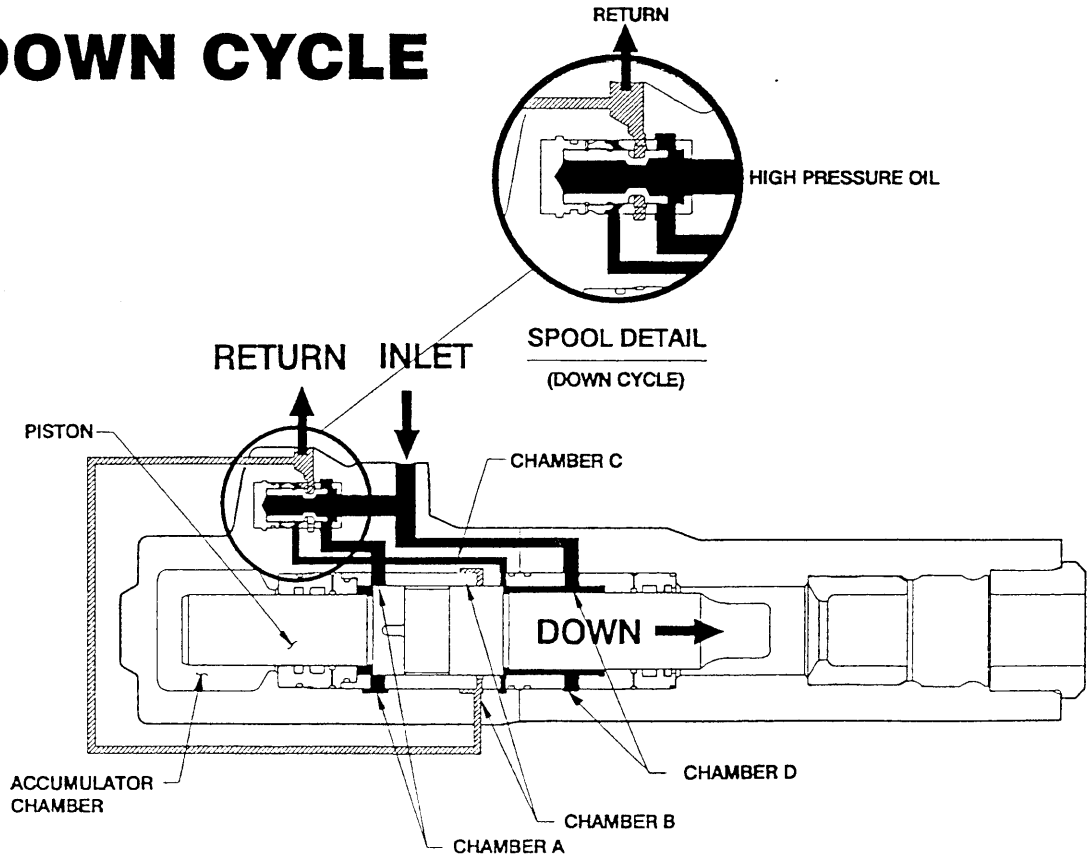
CHAMBER "C" is now exposed to high pressure and the valve spool is shuttled and held in the position shown in the "DOWN CYCLE" illustration. Hydraulic fluild flowing into CHAMBER "A" builds pressure and the piston is now forced downward. The compressed nitrogen in the accumulator gives the piston an added push.

The piston strikes the tool bit, CHAMBER "C" becomes open to the oil "RETURN" port, and the "UP CYCLE" begins.

UP CYCLE



DOWN CYCLE



I. DISASSEMBLY

It is recommended to place the breaker in a stand prior to any servicing or disassembly. A simple stand can be constructed using plate steel and thick walled pipe that closely matches the inside diameter of the tool bushing.

A. REMOVING THE MAIN BODY ASSEMBLY, SEAL CARRIER, PISTON, AND PISTON SLEEVE FROM THE LOWER BODY

1. Set the breaker on a stand to prevent it from accidently tipping over. NOTE: It will be necessary to remove the side plates (40 & 48) prior to these procedures.

IMPORTANT

DO NOT DISASSEMBLE THE BREAKER WHILE IT IS LAYING ON ITS SIDE.

2. Discharge the accumulator by removing the protective plug from the charge valve assembly (37) using a 3/16 inch hex wrench. Release the nitrogen charge by depressing the charge valve poppet with a #2 Phillips screwdriver or other appropriate blunt tool. Loosen and remove the charge valve if necessary.

3. Unscrew the 2 tie rods (19). **Do not use an impact wrench.** Remove them, the washers (21) and the nuts (10). When handling the tie rods, be careful to protect the threads from damage.

4. Install a 1/2-13 UNC lifting eye into the threaded hole located on top of the main body assembly (38). Lift the main body assembly up and off of the lower body (14). Care should be taken as the seal carrier (29) might be lifted out with the main body assembly. If this happens, the part may fall out of the main body once the main body is lifted free of the lower body. Precautions should be taken to protect the seal carrier and other breaker parts if the seal carrier is lifted out with the main body. See figure 1.

If the seal carrier stays in the main body after step 4, use the seal carrier removal tool (*included in the service kit p/n 29543*) to remove the seal carrier.

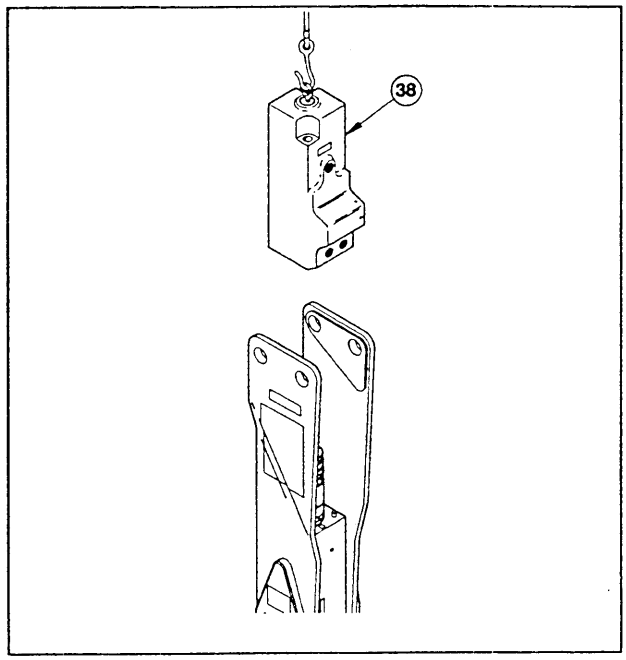


Figure 1.

5. If the seal carrier remains on the piston sleeve (23) after removal of the main body, lift it off of the piston. Remove and discard the o-rings and seals (26, 27, & 30).

6. Install a 1/2 - 13 UNC lifting eye into the top of the piston and pull the piston (20) out of the piston sleeve. See figure 2.

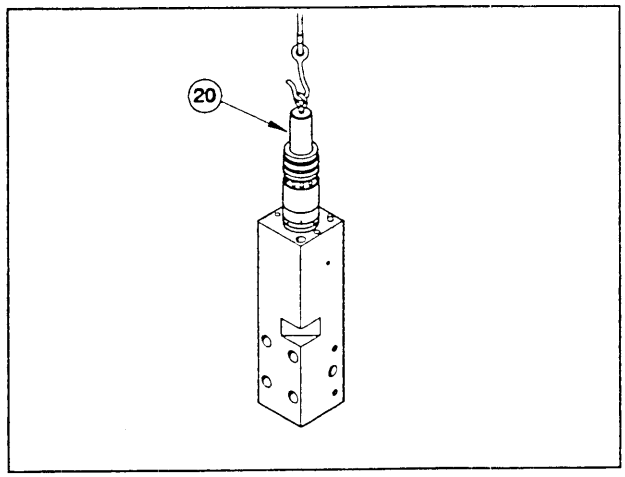


Figure 2.

6. Remove the piston sleeve from the lower body by inserting a screw driver or similar item through the top holes in the top of the sleeve and and

the top holes in the top of the sleeve and and pulling.firmly. DO NOT HAMMER on the top face of the lower body. Remove and discard the o-rings and seals (22, 24, & 25). See figure 3.

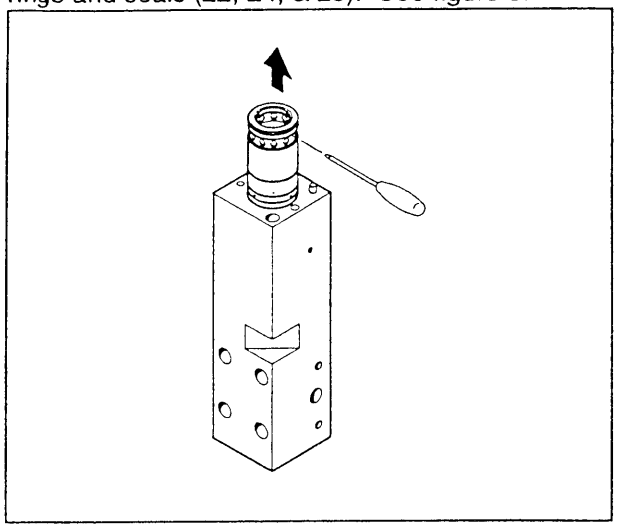


Figure 3.

7. Remove and discard the o-rings (16, 17, & 18) located between the main body assembly and the lower body.

B. MAIN BODY DISASSEMBLY & SIDE PLATES

NOTE: Components in the main body assembly may be serviced without removing the main body assembly from the lower body. The side plates must be removed.

1. Place the breaker onto a breaker stand.

2. Remove the retaining rings (44) from the head of each side plate bolt (46) and then remove the lockplates (45).

3. Strap each side plate to an overhead hoist, remove the side plate bolts, and then remove the side plates.

4. Remove the protective plug from the charge valve (37) using a 3/16 inch hex wrench. Release the nitrogen charge by depressing the charge valve poppet with a #2 Phillips screwdriver or other appropriate blunt tool. Loosen and remove the charge valve.

5. Unscrew and remove 6 capscrews (36). Remove the valve cap (35) and discard the o-ring (34). See figure 4.

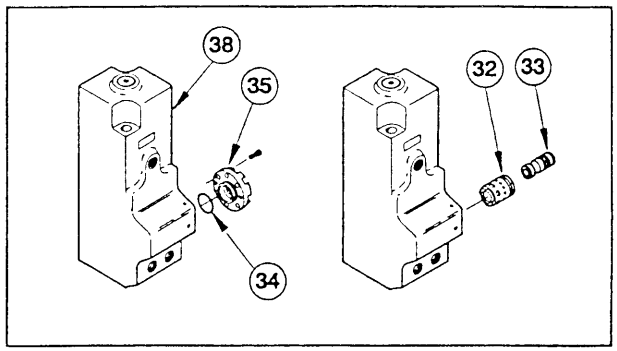


Figure 4.

6. Slide the spool (33) out of the valve sleeve (32). **NOTE: The valve sleeve is a "press fit" part. Replace the main body if it is damaged.**

C. LOWER BODY, LOWER BUSHING, UPPER BUSHING, AND RETAINER PINS

The components in the lower body can be serviced by laying the breaker on its side. It is not necessary to remove the side plates.

- **LOWER BUSHING**

1. Remove the lower bushing (6) by driving out the roll pins (3) and the dowel pin (8) using a punch and hammer.

2. Slide out the lower bushing. **NOTE: Prying during operation of the breaker will create a non-round lower bushing, making disassembly more difficult.**

- **UPPER BUSHING**

1. The upper bushing can be removed by first removing the lower bushing as described above.

2. Because the tool stop (7) is exposed to considerable abuse and contaminants it may be difficult to remove. Be sure to clean the bore of the lower body thoroughly before removing the upper bushing.

3. Drive out the roll pins (3) and the dowel pin (8) using a punch and hammer and then remove the upper bushing.

4. The retainer pins (8) are removed by first prying out the spirol pin (3).

D. INSPECTION OF PARTS

IMPORTANT

The parts in the breaker are finely manufactured with critical tolerances. The best method for determining the extent of wear or damage to any part is to compare it to the guides in the Stanley Refurbishing Kit - p/n 28431. The kit contains a surface finish comparator, instructions and directions for refurbishing parts.

REFURBISHING OF PARTS SHOULD ONLY BE ACCOMPLISHED BY AN ADEQUATELY EQUIPPED MACHINE SHOP.

PARTS SHOULD NEVER BE POLISHED OR BUFFED WITHOUT THE USE OF A TURNING LATHE.

SEAL CARRIER, PISTON AND PISTON SLEEVE

Inspect the surface of the bore of the seal carrier and piston sleeve and the surface of the piston for wear, galling, and cracks. A light scuffing or burnishing of surfaces is normal. Check especially for freedom of movement of the parts and that the piston does not stick or bind as it is moved in the seal carrier and piston sleeve. Coat the parts with hydraulic oil for this test.

If small burrs are found, remove them with 220 grit emery cloth.

If galling is present, refer to the Refurbishing Guide to see if the part may be reworked.

If cracks are present, the part must be replaced.

- **VALVE SLEEVE AND VALVE SPOOL**

Inspect the surface of the bore of the valve sleeve galling, and cracks. A light scuffing or burnishing of surfaces is normal. Check espescially for freedom of movement of the valve spool in the valve sleeve.

If small burrs are found, remove them with 220 grit emery cloth. Do not break or buff the sharp edges of the valve sleeve or valve spool as this will cause the valve to malfunction.
If galling is present, the part should be replaced.

If cracks are present, the part **must** be replaced.

- **LOWER BUSHING and UPPER BUSHING**

Inspect the upper bushing and lower bushing for excessive galling and metal pickup on the tool bit. Also check for cracks. If cracks are present, the parts must be replaced.

The extent of wear of the tool stop and lower bushing can be checked by installing a new tool bit and measuring the side to side movement of the bit. If there is more than 1/4 inch movement, the tool stop or lower bushing or both should be replaced. See figure 5.

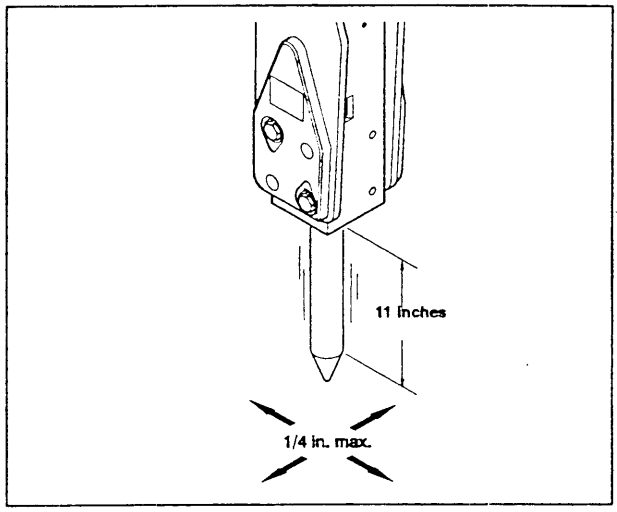


Figure 5.

- **TIE RODS & NUTS**

Inspect the tie rods and nuts (19 & 10) for wear and cracks.

When clean and coated with anti-sieze, the nuts should thread onto the tie rods without any effort. If some resistance is encountered, check the threads for dirt particles or damage.

NOTE: If a tie rod is found to be broken, both tie rods must be replaced.

- **SIDE PLATES**

Inspect the side plates for cracks on the outside and on the inside.

If cracks are present, have a certified welder perform repairs. After repairs, the side plates must be stress relieved.

II. ASSEMBLY

Before assembly, thoroughly clean all components with a degreasing solution and then blow dry with compressed air to thoroughly clean oil passage ways in the main body and lower body.

When assembling internal metal parts, always coat them throughly with hydraulic fluid. Seals and o-rings should be lubricated with grease.

Handle machined parts carefully to ensure they are not damaged during the assembly process. Do not force parts together. If difficulty is encountered in assembling parts, inspect each part for burrs, nicks, or galling before proceeding any further.

A. LOWER BODY, TOOL STOP, RETAINER PINS AND SEALS

• UPPER BUSHING

1. Install a roll pin (3) into one side of the upper retainer pin hole in the lower body. Tap the roll pin in until it is flush with the side of the lower body. See figure 6.

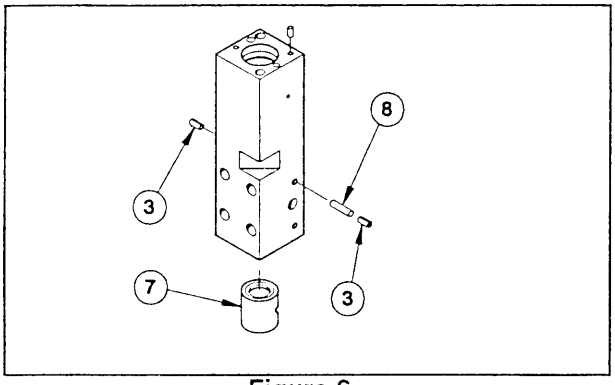


Figure 6.

2. Lay the lower body on its side so that the other side of the hole is exposed and install the tool stop (7) being careful to align the slot in the tool stop with the retainer pin hole.

3. Install the dowel pin (8) and then install the other roll pin, tapping it flush with the side of the lower body.

4. Install the lower bushing (6) using the same procedure as the tool stop installation.

• RETAINER PINS

1. Install 2 pin retainer springs (11) onto each end of each of the retainer pins (12).

2. Install each retainer pin assembly into the holes in the lower body as shown in the parts drawing.

B. PISTON SLEEVE, PISTON, SEAL CARRIER, AND SEALS

NOTE: Do not use grease (p/n 29463) for installation of components exposed to hydraulic system fluid.

• PISTON SLEEVE

1. Apply grease and install the rod seal (24) into the piston sleeve, lips facing up. See figure 7.

2. Apply grease and install the rod wiper (25) into the piston sleeve, beveled side down. See figure 7.

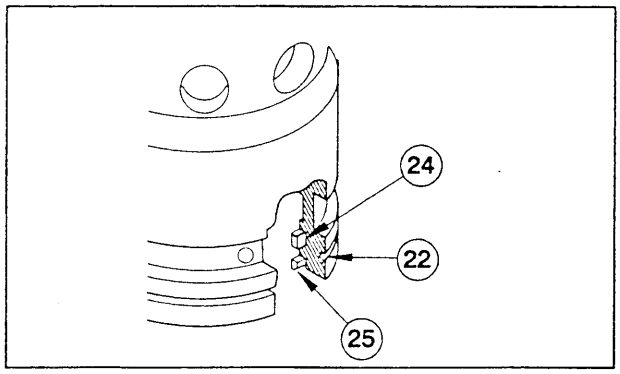


Figure 7.

3. Apply grease and install o-rings (22) into the appropriate grooves on the piston sleeve. See figure 8 and the parts drawing for correct orientation.

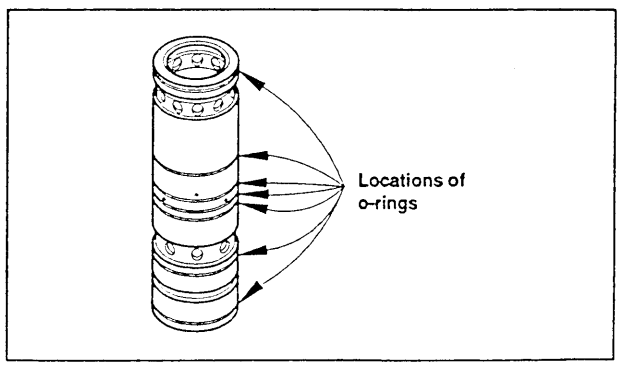


Figure 8.

4. Lubricate the bore of the lower body and the bore and outer surfaces of the piston sleeve with hydraulic fluid and install the piston sleeve into the bore of the lower body.

5. Lubricate the outer surfaces of the piston and install the piston into the bore of the piston sleeve so that the threaded hole in the end of the piston faces up.

6. Apply grease and install the rod seal (30) into the seal carrier (29). See figure 9.

7. Apply grease and install the modified quad ring (gas seal) (27) into the seal carrier. See figure 9.

8. Apply grease and install the o-rings (27 & 28) into the grooves on the seal carrier. See figure 9 for proper locations.

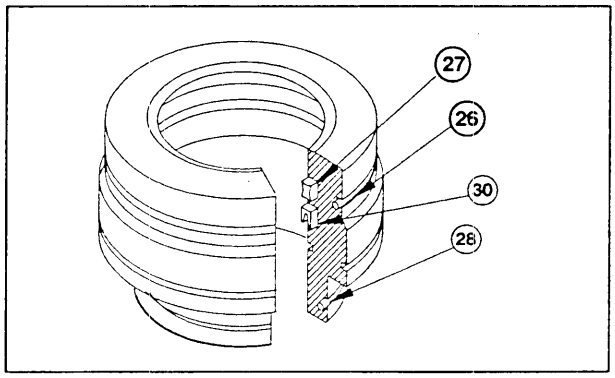


Figure 9.

9. Lubricate the bore and the outside of the seal carrier and install it onto the piston. Push it down until it contacts the piston sleeve.

C. MAIN BODY

• VALVE SLEEVE & SPOOL

1. The valve sleeve (32) is not field servicable.

2. Lubricate the spool (33) with hydraulic fluid and install it into the valve sleeve.

3. Apply grease to the o-ring (34) and install it onto the valve cap (35).

4. Install the valve cap onto the main body as shown in the parts illustration. Install the cap-screws (36) and tighten in a cross pattern to 115 Nm/85 ft. lbs. Do not use the screws to seat the valve cap onto the main body.

5. Apply grease to the o-ring (2) and install it onto the charge valve (37). Install the charge valve into the main body where shown on the parts illustration and tighten securely.

6. Apply grease and install o-rings (16, 17 & 18) into the top of the lower body as shown in the parts illustration.

7. Install the dowel pin (15) as shown in the parts illustration.

8. Lubricate the bore of the main body with hydraulic fluid and carefully install it over the seal carrier and onto the lower body.

D. TIE RODS, NUTS, TIE ROD NUTS, & LOCK PLATES.

1. Apply Kopr-Kote™ anti-sieze compound to all thread surfaces of the tie rods, tie rod nuts (10), and to the surfaces of the washers (21).

2. Place a nut (10) in the slot in the side of the lower body and install a tie rod. Screw the tie rod into the nut until finger tight. Repeat this process until both tie rods and nuts are in place and finger tight.

IMPORTANT

Thread each nut (10) onto the tie rod by hand to test the thread contact. The nuts should thread on with very little resistance. Significant resistance indicates a problem with the threads or dirt contamination. If significant resistance is encountered, thoroughly clean and inspect the threads. Do not force the tie rod onto the nut.

4. Tighten the tie rods in an alternating pattern to 203 Nm/150 ft. lbs. Then final tighten to 678 Nm/ 500 ft. lbs.

E. NITROGEN CHARGING

Charge the main body with 350 psi nitrogen. For circuits with less than 6 gpm of flow or relief pressures lower than 2000 psi, reduce the charge to 250 psi. See NITROGEN CHARGING THE BREAKER later in this manual.

F. SIDE PLATES

1. Using an overhead hoist, position each side plate as shown in the parts illustration.

2. Apply Kopr-Kote™ anti sieze compound to the threads of the side plate bolt (46) and to the threads in the side plates.

3. Install the side plate bolts and tighten to 427 Nm/315 ft.lbs.

4. Install the lockplates (45) followed by the retaining rings (44).

G. TESTING FOR OPERATION & PERFORMANCE

1. Connect the breaker to a backhoe or excavator. The backhoe or excavator should have a known good hydraulic circuit which is set to produce 33 lpm/10 gpm at 117 bar/2100 psi and have a 172.4 bar/2500 psi relief setting. Use Stanley's recommended test procedures for this verification test.

2. Continue testing until the hydraulic fluid temperature reaches its normal operating range (not to exceed 93° C/200° F). **NOTE: Hydraulic oil temperature must never exceed 93° C/200° F.** If the breaker does not perform correctly, refer to the trouble shooting section of this manual.

3. If the breaker is going to be stored, ensure it is stored in an upright position. Refer to the storage section of this manual.

NITROGEN CHARGING THE BREAKER

The tools required to charge the breaker are shown below. These tools (except the nitrogen tank) are available in the MB156 Service Kit. When using the tools, be sure they are clean as well as the breaker charge valve. Dirt can contaminate the charge valve and cause leakage.

CHECKING THE NITROGEN CHARGE IN THE BREAKER

1, Remove the protective plug from the charge valve using a 3/16 inch hex wrench.

2. Hold the chuck end of the tester and turn the gauge fully counter clockwise to ensure the plunger inside the chuck is completely retracted.

3. Screw the tester into the breaker charge valve using the chuck for turning. Do not use the gauge for turning as this will advance the plunger in the chuck. Tighten the chuck lightly against the breaker charge valve.

4. Turn the gauge clockwise to advance the plunger until a pressure is indicated on the gauge. Do not overtighten.

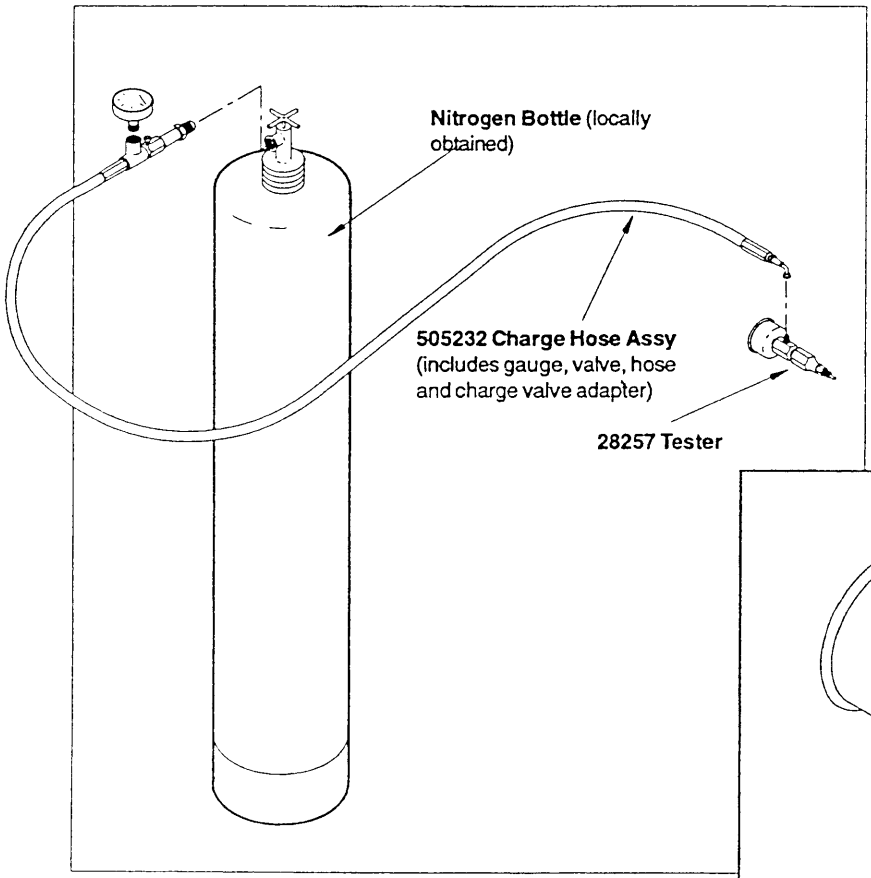
5. If the pressure is correct, unscrew the gauge to retract the plunger. Then, loosen and remove the tester from the charge valve. If the pressure is not correct, proceed to step 6.

CHARGING THE BREAKER WITH NITROGEN

6. Connect the charge hose assembly to the charging valve on the tester. Make sure the valve on the charge hose assembly is closed. Open the valve on the nitrogen bottle.

7. Very slowly open the valve on the charge hose assembly and slowly meter the nitrogen into the breaker charge valve until the tester reads the correct charge pressure. SEE CHARGE PRESSURE SPECIFICATION BELOW.

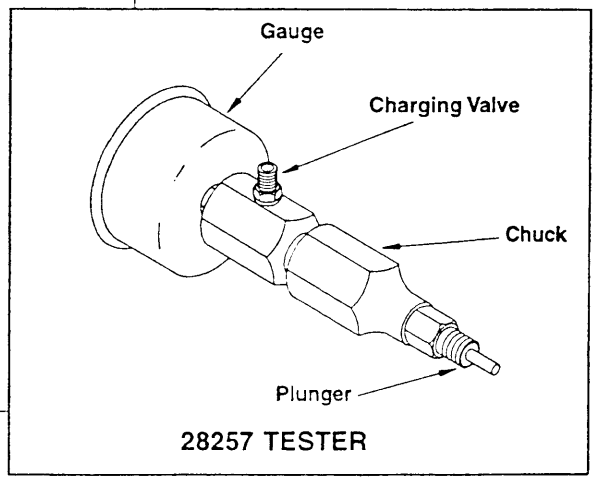
8. When the correct pressure is obtained, close the valve on the nitrogen bottle. Unscrew the gauge to retract the plunger. Loosen and remove the tester from the charge valve. Before, replacing the protective plug, inspect the plug o-ring. If damaged or deformed, replace the plug.



Nitrogen Charging Equipment

CHARGE PRESSURE SPECIFICATION FOR THE MB156.

24 bar/350 psi (17 bar/250 psi if less than 23 lpm/6 gpm or less than 138 bar/2000 psi) at 21° C/ 70° F with NO FORCE ON THE TOOL BIT.



28257 TESTER

TROUBLESHOOTING

If symptoms of poor performance develop, the following chart can be used as a guide to correct the problem.

When diagnosing faults in operation of the breaker, always check that the hydraulic power source is supplying the correct hydraulic flow and pressure to the breaker as listed in the table. Use a flowmeter known to be accurate. Check the flow with the hydraulic oil temperature at least 180°F/ 82°C. An approved test procedure is available from Stanley.

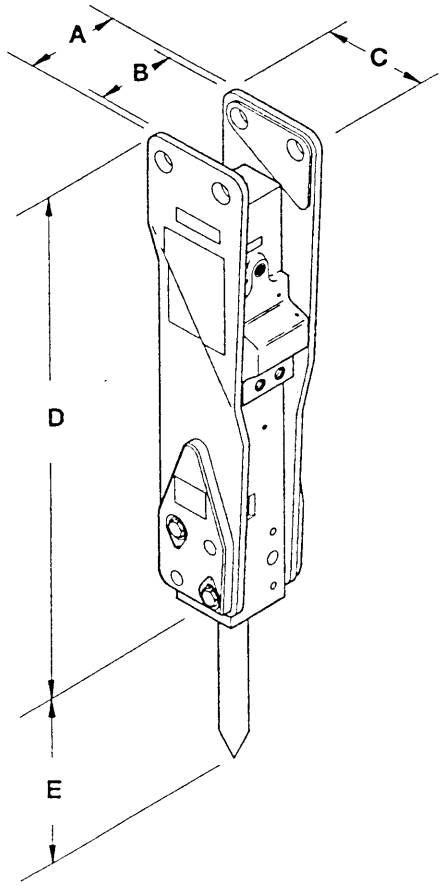
SYMPTOM	CAUSE	CORRECTION
Breaker will not fire.	Low hydraulic oil level.	Fill reservoir.
	No flow to breaker.	Have hydraulic circuit tested by authorized dealer/distributor per approved procedure.
	Main relief set low.	
	Internal damage.	Have unit serviced by authorized dealer/distributor.
	Damaged quick couplers.	Replace couplers.
Breaker runs slowly.	Low hydraulic flow.	Have hydraulic circuit tested by authorized dealer/distributor per approved procedure
	Excessive heat build up.	
	Excessive nitrogen pressure.	Have unit serviced by authorized dealer/distributor.
	Internal leakage.	
Breaker runs erratic.	Low or excessive back pressure.	Have carrier serviced by authorized dealer/distributor.
	Damaged switch or connection.	
	Relief set too low.	
	Internal damage.	Have unit serviced by authorized dealer/distributor.
	Tool binding.	Add grease to tool shank. Do not pry while operating.
	Low hydraulic oil level.	Fill reservoir.
Breaker runs but at reduced power.	Low accumulator charge.	Have unit serviced by authorized dealer/distributor.
	Excessive back pressure.	
	Relief set too low.	
Breaker leaks oil around tool bit and tool bushing.	Lower seals failed.	Have unit serviced by authorized dealer/distributor.
Hydraulic system overheats.	Main relief set low.	Have carrier serviced by authorized dealer/distributor.
	Insufficient cooling capability in hydraulic circuit.	
	Line/hose size too small.	
	Excessive back pressure.	

SPECIFICATIONS

MB156

Excavator Weight Class	
Skid Steer:	1500-3000 lbs. / 681-1362 kg
Mini Excavator:	2100-5000 lbs. / 953-2270 kg
Impact Energy Class	237 J / 175 ft. lb.
Blows Per Minute	1200 bpm
Operating Pressure - Nominal (dependant on flow & back pressure)	144 bar / 2100 psi
Circuit Relief Setting	172 bar / 2500 psi
Maximum Back Pressure	7 bar / 100 psi
Maximum Flow	38 lpm / 10 gpm
Minimum Flow	15 lpm / 4 gpm
Weight with tool bit	79 Kg / 173 lb.
Length (D)	782.3 mm / 30-13/16 in.
Tool Bit Working Length (E)	279 mm / 11 in.
Width Inside Side Plates (B)	139.7 mm / 5.50 in.
Width Outside of Side Plates (A)	177.8 mm / 7 in.
Depth (C)	222 mm / 8 3/4 in.
Boom Pin Centers	152.4 mm / 6 in.
Maximum Fluid Temperature	93° C / 200° F
Accumulator Charge Pressure	24.1 bar / 350 psi
Tool Bit Diameter (shank)	44.4 mm / 1.75 in.

NOTE: Weights, dimensions and operating specifications listed on this sheet are subject to change without notice. Where specifications are critical to your application, please consult the factory.



ACCESSORIES

Tool Bits

Conical Point	26259
Asphalt Cutter (Cross cut)	26257
Cross-cut Chisel	26260
Line-cut Chisel	26261
Tamping Pad Assy	26262

Tool Bit Grease	29463
Flow Meter	28317
Underwater Application Kit (must work in conjunction with an electric switch)	21283
Attaching Kits	Consult Dealer

MB156 PARTS LIST

Item No	Part No	Qty	Description
1	350237	1	SAE Plug, -8
2	01605	4	O-ring
3	23011	4	Spirol Pin
4	372003	1	Grease Fitting
5	26068	1	Grease Sticker
6	26031	1	Lower Bushing
7	26029	1	Upper Bushing
8	26030	2	Dowel Pin
9	14051	1	Tool Retainer Pin
10	30310	2	Tie Rod Nut
11	505123	4	Pin Retainer Spring
12	27244	2	Pin Retainer
13	00955	7	Pipe Plug
14	31276	1	Lower Body (Incld item 1, 3-4, 6-8, 11-13)
15	16549	1	Dowel Pin
16	00354	1	O-ring ●
17	26039	1	O-ring ●
18	22398	1	O-ring ●
19	25902	2	Tie Rod
20	26027	1	Piston
21	26033	2	Tie Rod Washer
22	26157	7	O-ring ●
23	26008	1	Piston Sleeve
24	36036	1	Symetrical Seal ●
25	26038	1	Rod Wiper ●
26	18634	1	O-ring ●
27	26026	1	Modified Quad Ring ●
28	23008	1	O-ring ●
29	26009	1	Seal Carrier
30	26036	1	Rod Seal ●
31	28787	2	Plastic Plug
32	26912	1	Valve Sleeve
33	26913	1	Valve Spool
34	26037	1	O-ring ●
35	25871	1	Valve Cap
36	26035	6	Capscrew
37	32165	1	Charge Valve Assy (Incld item 2)
38	25930	1	Main Body Assy (Incld item 13, 32, 37)
39	28119	1	Decal, Maintenance
40	27964	1	Side Plate, LH
41	28886	2	"CE" Composite Decal
42	28208	2	MB156 Decal
43	20501	2	US Flag Decal
44	27995	4	Retainer Ring
45	23573	4	Lockplate
46	27994	4	Side Plate Bolt
47	35415	4	Side Plate Nut
48	27965	1	Sideplate. RH
49	29175	1	"CE" Plate
50	27711	1	Pressure Spec Decal
51	31445	1	Decal "Do Not Use Underwater"
52	09166	2	Decal "Made In USA"

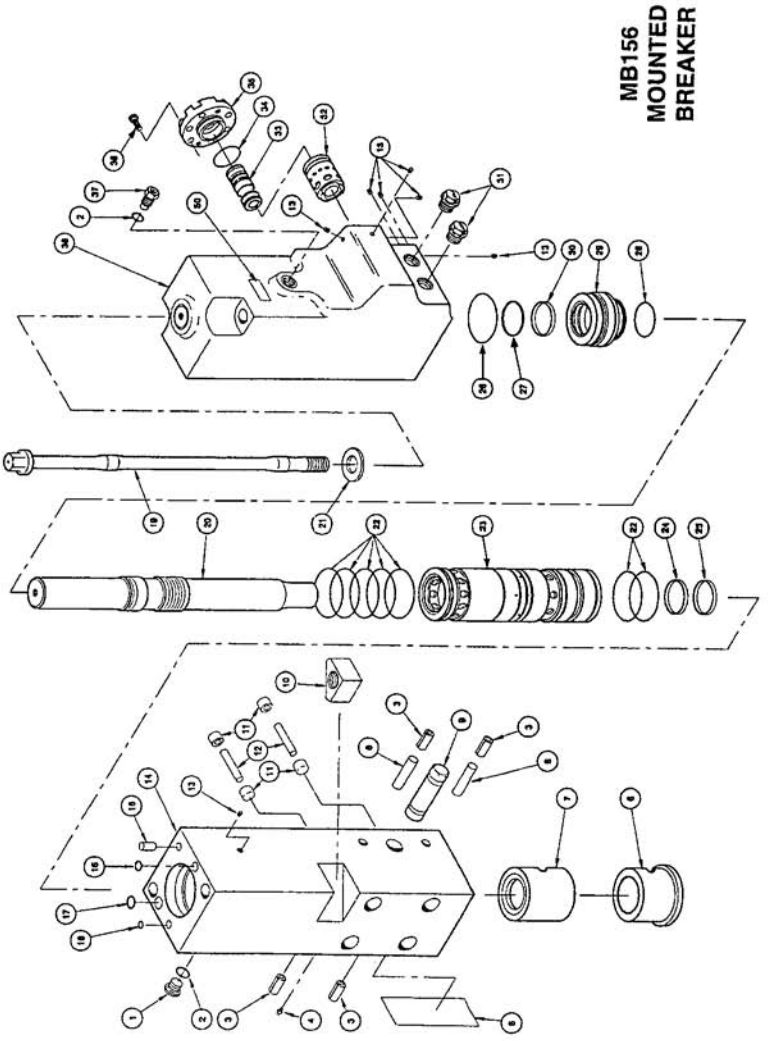
● Denotes part in seal kit

NOTE: Use Part Number and Part Name when ordering.

SEAL KIT DATA

Seal Kit Part No. 29605

Item No	Part No	Qty	Description
16	00354	1	O-ring
17	26039	1	O-ring
18	22398	1	O-ring
22	26157	7	O-ring
24	36036	1	Symetrical Seal
25	26038	1	Rod Wiper
26	18634	1	O-ring
27	26026	1	Modified Quad Ring
28	23008	1	O-ring
30	26036	1	Rod Seal
34	26037	1	O-ring


MB156
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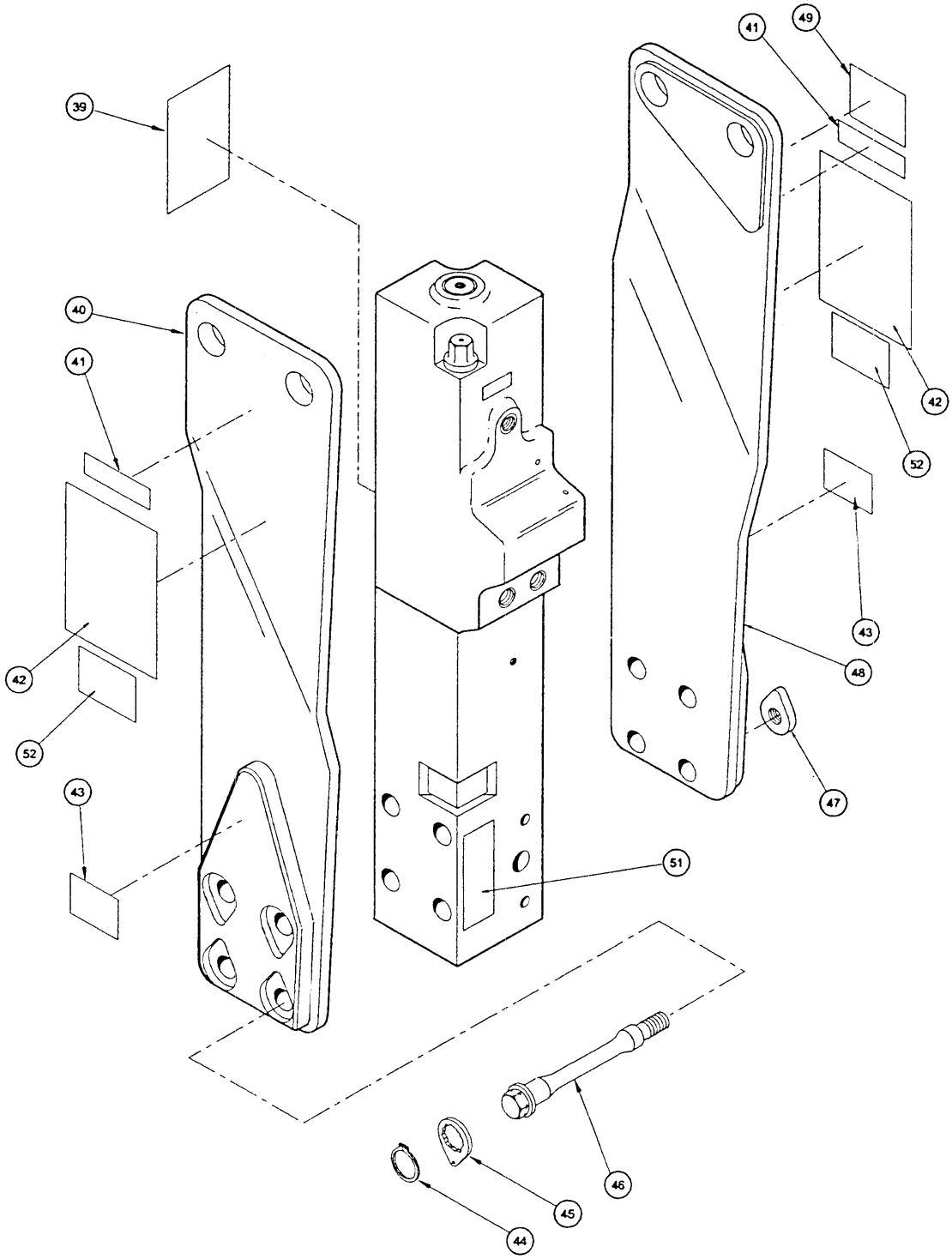
BREAKER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WARRANTY

Stanley Hydraulic Tools (hereinafter called "Stanley"), subject to the exceptions contained below, warrants new hydraulic tools for a period of one year from the date of sale to the first retail purchaser, or for a period of 2 years from the shipping date from Stanley, whichever period expires first, to be free of defects in material and/or workmanship at the time of delivery, and will, at its option, repair or replace any tool or part of a tool, or new part, which is found upon examination by a Stanley authorized service outlet or by Stanley's factory in Milwaukie, Oregon to be DEFECTIVE IN MATERIAL AND/OR WORKMANSHIP.

EXCEPTIONS FROM WARRANTY

NEW PARTS: New parts which are obtained individually are warranted, subject to the exceptions herein, to be free of defects in material and/or workmanship at the time of delivery and for a period of 6 months after the date of first usage. Seals and diaphragms are warranted to be free of defects in material and/or workmanship at the time of delivery and for a period of 6 months after the date of first usage or 2 years after the date of delivery, whichever period expires first. Warranty for new parts is limited to replacement of defective parts only. Labor is not covered.

FREIGHT COSTS: Freight costs to return parts to Stanley, if requested by Stanley for the purpose of evaluating a warranty claim for warranty credit, are covered under this policy if the claimed part or parts are approved for warranty credit. Freight costs for any part or parts which are not approved for warranty credit will be the responsibility of the individual.

SEALS & DIAPHRAGMS: Seals and diaphragms installed in new tools are warranted to be free of defects in material and/or workmanship for a period of 6 months after the date of first usage, or for a period of 2 years from the shipping date from Stanley, whichever period expires first.

CUTTING ACCESSORIES: Cutting accessories such as breaker tool bits are warranted to be free of defects in material and or workmanship at the time of delivery only.

ITEMS PRODUCED BY OTHER MANUFACTURERS: Components which are not manufactured by Stanley and are warranted by their respective manufacturers.

a. Costs incurred to remove a Stanley manufactured component in order to service an item manufactured by other manufacturers.

ALTERATIONS & MODIFICATIONS: Alterations or modifications to any tool or part. All obligations under this warranty shall be terminated if the new tool or part is altered or modified in any way.

NORMAL WEAR: any failure or performance deficiency attributable to normal wear and tear such as tool bushings, retaining pins, wear plates, bumpers, retaining rings and plugs, rubber bushings, recoil springs, etc.

INCIDENTAL/CONSEQUENTIAL DAMAGES: To the fullest extent permitted by applicable law, in no event will STANLEY be liable for any incidental, consequential or special damages and/or expenses.

FREIGHT DAMAGE: Damage caused by improper storage or freight handling.

LOSS TIME: Loss of operating time to the user while the tool(s) is out of service.

IMPROPER OPERATION: Any failure or performance deficiency attributable to a failure to follow the guidelines and/or procedures as outlined in the tool's operation and maintenance manual.

MAINTENANCE: Any failure or performance deficiency attributable to not maintaining the tool(s) in good operating condition as outlined in the Operation and Maintenance Manual.

HYDRAULIC PRESSURE & FLOW, HEAT, TYPE OF FLUID: Any failure or performance deficiency attributable to excess hydraulic pressure, excess hydraulic back-pressure, excess hydraulic flow, excessive heat, or incorrect hydraulic fluid.

REPAIRS OR ALTERATIONS: Any failure or performance deficiency attributable to repairs by anyone which in Stanley's sole judgement caused or contributed to the failure or deficiency.

MIS-APPLICATION: Any failure or performance deficiency attributable to mis-application. "Mis-application" is defined as usage of products for which they were not originally intended or usage of products in such a matter which exposes them to abuse or accident, without first obtaining the written consent of Stanley. PERMISSION TO APPLY ANY PRODUCT FOR WHICH IT WAS NOT ORIGINALLY INTENDED CAN ONLY BE OBTAINED FROM STANLEY ENGINEERING.

WARRANTY REGISTRATION: STANLEY ASSUMES NO LIABILITY FOR WARRANTY CLAIMS SUBMITTED FOR WHICH NO TOOL REGISTRATION IS ON RECORD. In the event a warranty claim is submitted and no tool registration is on record, no warranty credit will be issued without first receiving documentation which proves the sale of the tool or the tools' first date of usage. The term "DOCUMENTATION" as used in this paragraph is defined as a bill of sale, or letter of intent from the first retail customer. A WARRANTY REGISTRATION FORM THAT IS NOT ALSO ON RECORD WITH STANLEY WILL NOT BE ACCEPTED AS "DOCUMENTATION".

NO ADDITIONAL WARRANTIES OR REPRESENTATIONS

This limited warranty and the obligation of Stanley thereunder is in lieu of all other warranties, expressed or implied including merchantability or fitness for a particular purpose except for that provided herein. There is no other warranty. This warranty gives the purchaser specific legal rights and other rights may be available which might vary depending upon applicable law.