

# MANITOU SPECIALTY ATTACHMENTS

## OPERATOR'S & PARTS MANUAL



**PALADIN** LIGHT CONSTRUCTION



SERIAL NUMBER: \_\_\_\_\_

MODEL NUMBER: \_\_\_\_\_

Manual Number: 76192  
Part Number: 76192  
Rev. 3



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# PREFACE

## GENERAL COMMENTS

Congratulations on the purchase of your new attachment! This product was carefully designed and manufactured to give you many years of dependable service. Only minor maintenance, such as cleaning and lubricating, is required to keep it in top working condition. Be sure to observe all maintenance procedures and safety precautions in this manual and on any safety decals located on the product, and on any equipment on which the attachment is mounted. Also, check load charts before operating the attachment.

This manual has been designed to help you do a better, safer job. Read this manual carefully and become familiar with its contents.

**WARNING!** Never let anyone operate this unit without reading the “Safety Precautions” and “Operating Instructions” sections of this manual.



**Always choose hard, level ground to park the vehicle on, and set the brake so the unit cannot roll.**

Unless noted otherwise, right and left sides are determined from the operator’s control position when facing the attachment.

**NOTE:** The illustrations and data used in this manual were current, according to the information available to us at the time of printing. However, we reserve the right to redesign and change the attachment as may be necessary, without notification.

## BEFORE OPERATION

The primary responsibility for safety with this equipment falls to the operator. Make sure the equipment is operated only by trained individuals who have read and understand this manual. If there is any portion of this manual or function that you do not understand, contact your local authorized dealer or the manufacturer.

## SAFETY ALERT SYMBOL



This is the “Safety Alert Symbol” used by this industry. This symbol is used to warn of possible injury. Be sure to read all warnings carefully. They are included for your safety and for the safety of others working with you.

## SERVICE

When servicing your product, remember to use only manufacturer replacement parts. Substitute parts may not meet the standards required for safe, dependable operation.

To facilitate parts ordering, record the model and serial number of your unit in the space provided on the cover of this manual. This information may be obtained from the identification plate located on the product.

The parts department needs this information to ensure that you receive the correct parts for your specific model.

# SAFETY STATEMENTS



THIS SYMBOL BY ITSELF OR WITH A WARNING WORD THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY OR THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.



## DANGER

THIS SIGNAL WORD IS USED WHERE SERIOUS INJURY OR DEATH WILL RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.



## WARNING

THIS SIGNAL WORD IS USED WHERE SERIOUS INJURY OR DEATH COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.



## CAUTION

THIS SIGNAL WORD IS USED WHERE MINOR INJURY COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.

## NOTICE

NOTICE INDICATES A PROPERTY DAMAGE MESSAGE.

## GENERAL SAFETY PRECAUTIONS

### WARNING!

#### READ MANUAL PRIOR TO INSTALLATION



Improper installation, operation, or maintenance of this equipment could result in serious injury or death. Operators and maintenance personnel should read this manual, as well as all manuals related to this equipment and the prime mover thoroughly before beginning installation, operation, or maintenance. **FOLLOW ALL SAFETY INSTRUCTIONS IN THIS MANUAL AND THE PRIME MOVER'S MANUAL(S).**



#### READ AND UNDERSTAND ALL SAFETY STATEMENTS

Read all safety decals and safety statements in all manuals prior to operating or working on this equipment. Know and obey all OSHA regulations, local laws, and other professional guidelines for your operation. Know and follow good work practices when assembling, maintaining, repairing, mounting, removing, or operating this equipment.



#### KNOW YOUR EQUIPMENT

Know your equipment's capabilities, dimensions, and operations before operating. Visually inspect your equipment before you start, and never operate equipment that is not in proper working order with all safety devices intact. Check all hardware to ensure it is tight. Make certain that all locking pins, latches, and connection devices are properly installed and secured. Remove and replace any damaged, fatigued, or excessively worn parts. Make certain all safety decals are in place and are legible. Keep decals clean, and replace them if they become worn or hard to read.

## GENERAL SAFETY PRECAUTIONS

### WARNING!



### PROTECT AGAINST FLYING DEBRIS

Always wear proper safety glasses, goggles, or a face shield when driving pins in or out, or when any operation causes dust, flying debris, or any other hazardous material.

### WARNING!



### LOWER OR SUPPORT RAISED EQUIPMENT

Do not work under raised booms without supporting them. Do not use support material made of concrete blocks, logs, buckets, barrels, or any other material that could suddenly collapse or shift positions. Make sure support material is solid, not decayed, warped, twisted, or tapered. Lower booms to ground level or on blocks. Lower booms and attachments to the ground before leaving the cab or operator's station.

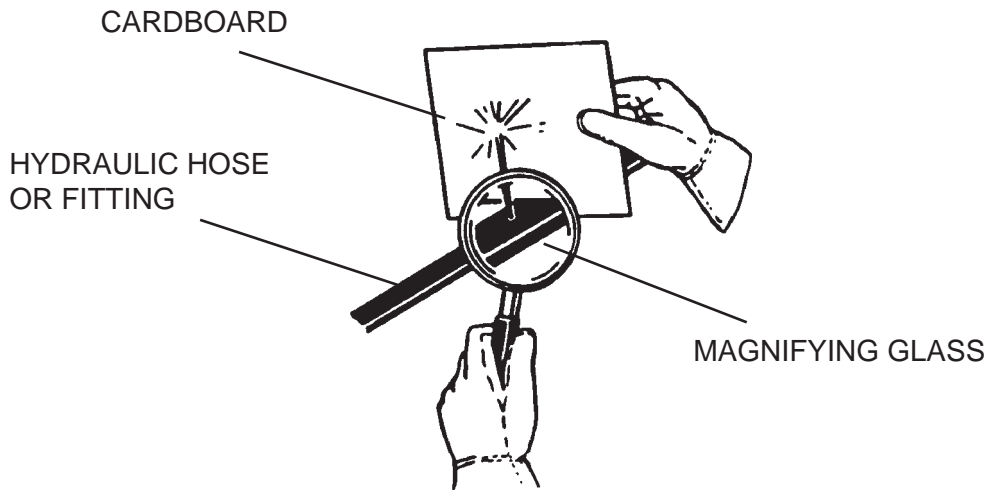
### WARNING!



### USE CARE WITH HYDRAULIC FLUID PRESSURE

Hydraulic fluid under pressure can penetrate the skin and cause serious injury or death. Hydraulic leaks under pressure may not be visible. Before connecting or disconnecting hydraulic hoses, read your prime mover's operator's manual for detailed instructions on connecting and disconnecting hydraulic hoses or fittings.

- Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.
- If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research it immediately to determine proper treatment.
- Wear safety glasses, protective clothing, and use a piece of cardboard or wood when searching for hydraulic leaks. **DO NOT USE YOUR HANDS! SEE ILLUSTRATION.**



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# GENERAL SAFETY PRECAUTIONS

## WARNING!



### DO NOT MODIFY MACHINE OR ATTACHMENTS

Modifications may weaken the integrity of the attachment and may impair the function, safety, life, and performance of the attachment. When making repairs, use only the manufacturer's genuine parts, following authorized instructions. Other parts may be substandard in fit and quality. Never modify any ROPS (Roll Over Protection Structure) or FOPS (Falling Object Protective Structure) equipment or device. Any modifications must be authorized in writing by the manufacturer.

## WARNING!



### SAFELY MAINTAIN AND REPAIR EQUIPMENT

- Do not wear loose clothing or any accessories that can catch in moving parts. If you have long hair, cover or secure it so that it does not become entangled in the equipment.
- Work on a level surface in a well-lit area.
- Use properly grounded electrical outlets and tools.
- Use the correct tools for the job at hand. Make sure they are in good condition for the task required.
- Wear the protective equipment specified by the tool manufacturer.



### SAFELY OPERATE EQUIPMENT

Do not operate equipment until you are completely trained by a qualified operator in how to use the controls, know its capabilities, dimensions, and all safety requirements. See your machine's manual for these instructions.

- Keep all step plates, grab bars, pedals, and controls free of dirt, grease, debris, and oil.
- Never allow anyone to be around the equipment when it is operating.
- Do not allow riders on the attachment or the prime mover.
- Do not operate the equipment from anywhere other than the correct operator's position.
- Never leave equipment unattended with the engine running, or with this attachment in a raised position.
- Do not alter or remove any safety feature from the prime mover or this attachment.
- Know your work site safety rules as well as traffic rules and flow. When in doubt on any safety issue, contact your supervisor or safety coordinator for an explanation.

# EQUIPMENT SAFETY PRECAUTIONS

## WARNING!



### KNOW WHERE UTILITIES ARE

Observe overhead electrical and other utility lines. Be sure equipment will clear them. When digging, call your local utilities for location of buried utility lines, gas, water, and sewer, as well as any other hazard you may encounter.



### OPERATING THE PRIME MOVER

Avoid steep hillside operation, which could cause the prime mover to overturn. Extreme caution should be used when working along the top of banks or slopes. Keep away from the edge.

When operating on a slope, keep the load low, and proceed with extreme caution.

Do not drive **ACROSS** a steep slope - drive straight up and down.

With a **LOADED** attachment - face the attachment and load uphill.

With an **EMPTY** attachment - face the attachment downhill.



### WORKING WITH THE ATTACHMENT

- Never use your attachment for a work platform or personnel carrier.
- Specified lift capacities must not be exceeded, otherwise machine stability is not sufficient. Always observe lift capacity limits listed in machine specifications.
- An operator must not use drugs or alcohol, which can change his or her alertness or coordination. An operator taking prescription or over-the-counter drugs should seek medical advice on whether or not he or she can safely operate equipment.
- Always check locking pins before operating any attachment.
- Never lift, move, or swing a loaded attachment over anyone.
- Never undercut a high bank. When working at the base of a bank, overhang, or stockpile, avoid dangers such as rock or earth slides, overhanging trees, or a cave-in, by proper job operation.
- Be careful when handling loose objects. Lifting too high, or rolling the attachment too far back, could result in these objects sliding backward down the arms onto the operator compartment.
- Don't obstruct your vision when traveling or working. Carry the attachment low for maximum stability and visibility.

# EQUIPMENT SAFETY PRECAUTIONS



## MAINTAINING THE ATTACHMENT

- Never perform any work on the equipment unless you are authorized and qualified to do so. Always read the operator service manual(s) before any repair is made. After completing maintenance or repair, check for correct functioning of the attachment. If not functioning properly, always tag “DO NOT OPERATE” until all problems are corrected.



## TOP GRAB BUCKET

- Never stack loads on uneven ground. Loads stacked on uneven ground can topple.



## TRUSS BOOM

- Do not use the attachment for towing or pulling horizontally. Use extreme caution when lifting large and/or loose loads. Lifting too high or rolling the boom back could result in these objects swinging. Swinging loads can cause vehicle tipover, which can result in serious injury or death.



## EARTH AUGER

- Travel only with the earth auger in a safe transport position, to prevent uncontrolled movement. Tether the earth auger with a chain, if necessary, to prevent uncontrolled swing of the auger when moving from hole to hole. Remove the earth auger from the vehicle when transporting to and from job sites.
- Before disconnecting hydraulic lines or fittings, be sure to relieve all pressure by cycling all hydraulic controls after shutdown. Remember, the hydraulic system is under pressure whenever the engine is running, and may hold pressure after shutdown. Before applying pressure to the system, make sure all connections are tight and ensure that there is no damage to lines, fittings, and hoses.
- All bystanders should be kept a minimum of 10 feet (3 meters) away from the working area of the earth auger.

# INSTALLATION AND OPERATION

## ATTACHING AND DETACHING EQUIPMENT

Please see your vehicle operator's manual for instructions on attaching and detaching your equipment.

## OPERATING EQUIPMENT

Read all Safety Precautions before operating your new attachment. If a load chart is available, place it inside the operating machine for safe lift capacity limits.

Refer to your machine operator's manual for attachment operation.

## SPECIAL OPERATING CONSIDERATIONS

### TOP GRAB BUCKET

Never stack loads on uneven ground. Loads stacked on uneven ground can topple.

### TRUSS BOOM

Do not use the truss boom for towing or pulling horizontally.

### **WARNING! LARGE OR LOOSE OBJECTS**



Use extreme caution when lifting large and/or loose objects. Lifting too high or rolling the boom back could result in these objects swinging. Swinging loads can cause vehicle tipover, which can result in serious injury or death.

### X1475 EARTH AUGER OPERATION

1. Before beginning to dig, experiment with the auger speed to determine a suitable auger RPM. Generally, in light and sandy soil a high RPM is desirable. In hard, rocky, or frozen soils a slower RPM is desirable. To increase auger RPM, increase vehicle engine RPM. To decrease auger RPM, decrease vehicle engine RPM.
2. Activate the auger so it is turning in a forward (clockwise) rotation. Use only enough down pressure to assure positive penetration of the auger into the ground. Ease up on the down pressure if auger rotation slows down drastically or stalls. Excessive down pressure will cause the auger to stall frequently.
3. When the auger has penetrated the ground about 24", raise the auger from the hole to clean the dirt out. Repeat this procedure until the desired hole depth is obtained.
4. Once the required hole depth is reached, allow the auger to turn a few seconds at this depth to clean the hole.
5. Stop the auger rotation and raise the auger out of the hole, move away from the hole, and then activate the auger to spin the loose soil off of the auger flighting.

**NOTE: Do not reverse the auger rotation to remove from the hole, as loose soil on the auger flighting will fall back into the hole.**

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# INSTALLATION AND OPERATION

## X1475 EARTH AUGER OPERATION

6. If necessary, repeat steps 4 & 5 to obtain a cleaner hole.
7. In some soil conditions or when excessive down pressure is applied, auger may “screw” itself into the ground and become stuck, causing the earth drill to stall. If this happens, reverse the auger rotation (counter-clockwise), and slowly raise the auger. Once un-stuck, return to forward rotation and continue digging.
8. If the auger becomes lodged under rocks, roots, or other large obstructions, do not attempt to raise the auger out of the ground. See Step #7 for the proper procedure to relieve the auger.
9. Avoid excessive side loading to the earth auger, which can cause damage to the drive unit or auger.
10. Keep auger teeth and points in good condition. Check frequently, and always keep spares on hand so they can be replaced as wear is detected, to avoid damage to tooth holders and auger flighting.

## X1475 EARTH AUGER TROUBLESHOOTING

Slow Speed	Low Flow .....	Check with flow meter.
	Line restrictions .....	Clear lines.
	Fittings or connections too small .....	Replace with proper size
	Oil filter dirty .....	Replace.
	Hydraulic pump worn or damaged .....	See Dealer for repair.
Insufficient Digging Power	Worn Teeth or point .....	Replace
	Low system pressure (PSI) .....	Check with pressure gauge
	Relief Valve damaged or setting wrong.....	Adjust or replace as required.
	Excessive load .....	Reduce load to within machine specifications.
Reverse Direction	Hoses reversed. ....	Re-install hoses correctly.
Excessive Oil Heating	Line restrictions .....	Clear lines.
	Fluid dirty.....	Replace hydraulic fluid and filter.
	Insufficient quantity of hydraulic fluid.....	Fill to proper level.
Oil Leaks	Hoses loose or damaged. ....	Tighten or replace.
	Fittings loose or damaged.....	Tighten or replace.
	Hydraulic motor seals worn or damaged.....	See Dealer for repair.

# MAINTENANCE & SERVICE

## GENERAL INFORMATION

Regular maintenance is the key to long equipment life and safe operation. Maintenance requirements have been kept to an absolute minimum. However, it is very important that these maintenance functions be performed as described in this section.

### DAILY

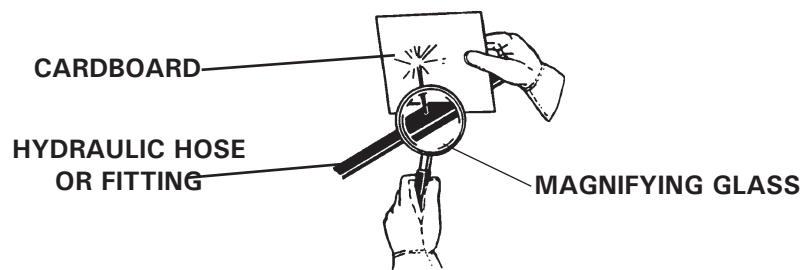
- Check all bolts and nuts for tightness, and replace any missing bolts or nuts with factory approved replacement parts. Please note that the manufacturer will not claim responsibility for use of unapproved parts or accessories, and/or other damages as a result of their use.
- Clean equipment of all dirt, oil, and grease. Visually inspect the machine for worn parts or cracked welds, and repair, as necessary.
- Keep all safety decals clean and legible. Replace, if damaged or worn.
- Check all connecting pins for bends, cracks, breaks, or wear. Replace, if necessary.
- Check the hydraulic system for hydraulic oil leaks and contamination. If contamination is present, determine the source. **IMPORTANT: Before checking the hydraulic system, see the procedure below.**

**WARNING!** Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands to search for suspected leaks.



Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.

If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him or her to research it immediately to determine proper treatment.



## MAINTENANCE & SERVICE

- Inspect all hydraulic hose assemblies for cracked and brittle covers. Replacement of hoses before failure will prevent loss of hydraulic oil, time-consuming “bleeding” of the system, hydraulic oil contamination, and component damage caused by cavitation. It will also reduce the chance of personal injury caused by hydraulic fluid.

**NOTE: CLEAN HYDRAULIC OIL IS ESSENTIAL! 80% of all hydraulic component failures are caused by contamination of the hydraulic oil. Always keep all dirt and other contaminants from entering the hydraulic system during disconnect and connect operations. Always use dust caps and plugs on all quick disconnects, when not in use. Tightly cap all hydraulic openings to hold oil in, and keep dirt and other contaminants from entering hydraulic systems.**

### DAILY - EARTH AUGER ONLY

Follow the additional procedures below on a daily basis, if your attachment is an earth auger:

- Check auger for loose, worn, or broken cutting teeth and points. Worn teeth or points can drastically affect auger penetration, and greatly reduce auger life expectancy. Always keep spare teeth and points on hand. Some digging conditions may require checking teeth and points at more frequent intervals.
- Check the drive unit and all accessories for loose, bent, cracked, or worn bolts and fasteners. Always use grade 5 or harder replacements bolts, unless specified otherwise.
- Check auger drive unit output shaft for bends, cracks, breaks, or wear.

### EVERY 40 HOURS

Lubrication is an important part of maintenance. It is recommended that all grease fittings be lubricated after the initial 8 hours of operation, and then after every 40 hours of use.

### AFTER 50 HOURS & THEN EVERY 1000 HOURS - EARTH AUGER ONLY

Change planetary gear reduction oil after 50 hours of operation, then every 1000 hours or in one year, whichever comes first. Use mild extreme pressure lubricant API-GL-5, No. 80 or 90 for filling the planetary gear reduction under normal temperature ranges between 0° -120° F (-18° - 49° C). Approximate oil capacity is two pints (.95 liters). **CHECK OIL LEVEL DAILY** to assure proper lubrication is maintained.

# MAINTENANCE AND SERVICE

## CYLINDER SEAL REPLACEMENT

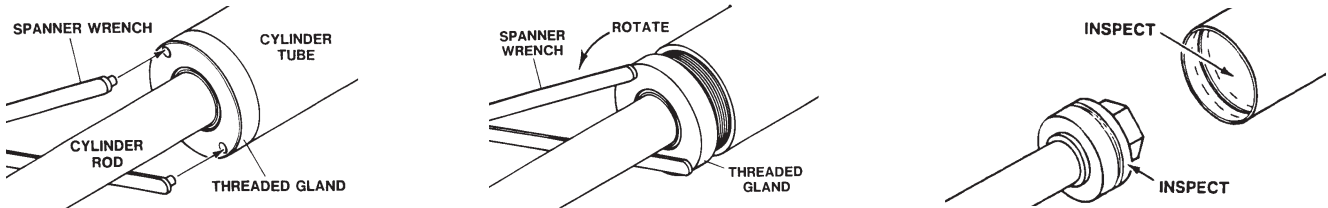
The following information is provided to assist you in the event you should need to repair or rebuild a hydraulic cylinder. When working on hydraulic cylinders, make sure that the work area and tools are clean and free of dirt to prevent contamination of the hydraulic system and damage to the hydraulic cylinders. Always protect the active part of the cylinder rod (the chrome section). Nicks or scratches on the surface of the rod could result in cylinder failure. Clean all parts thoroughly with a cleaning solvent before reassembly.

### DISASSEMBLY PROCEDURE

**IMPORTANT: Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.**

#### THREADED TYPE GLAND

1. Rotate the gland with a spanner wrench counterclockwise until the gland is free of the cylinder tube.
2. Pull the cylinder rod from the cylinder tube and inspect the piston and the bore of the cylinder tube for deep scratches or galling. If damaged, the piston AND the cylinder tube must be replaced.



3. Remove the hex nut, piston, flat washer or spacer tube (if so equipped), and gland from the cylinder rod. If the cylinder rod is rusty, scratched, or bent, it must be replaced.
4. Remove and discard all the old seals.

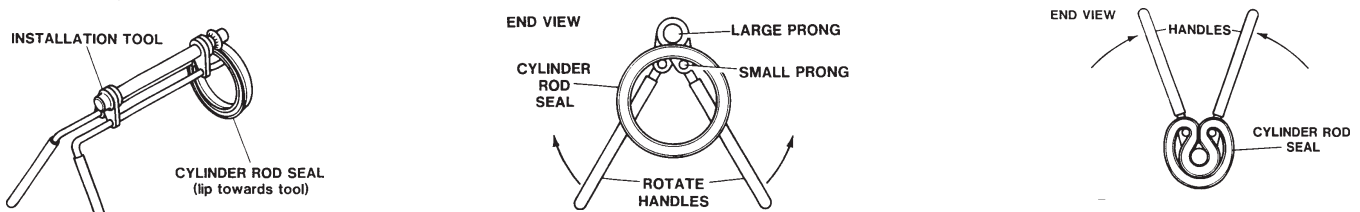


### ASSEMBLY PROCEDURE

**IMPORTANT: Replace all seals even if they do not appear to be damaged. Failure to replace all seals may result in premature cylinder failure. NOTE: Seal kits will service most cylinders of similar bore size and rod diameter.**

1. Install the cylinder rod seal in the gland first. Be careful not to damage the seal in the process, as it is somewhat difficult to install.

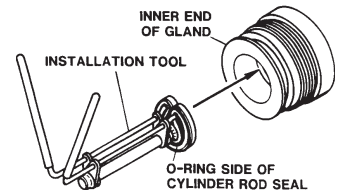
**NOTE:** A special installation tool (Part #65349) is available to help with installing the seal. Simply fit the end of the tool over the seal so that the large prong of the tool is on the outside of the seal, and the two smaller prongs on the inside. The lip of the seal should be facing towards the tool. Rotate the handles on the tool around to wrap the seal around the end of the tool.



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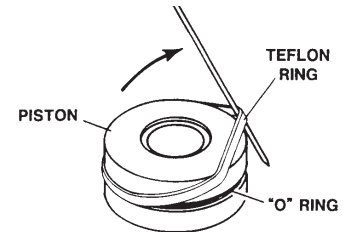
# MAINTENANCE AND SERVICE

Now insert the seal into the gland from the inner end. Position the seal in its groove, and release and remove the tool. Press the seal into its seat the rest of the way by hand.



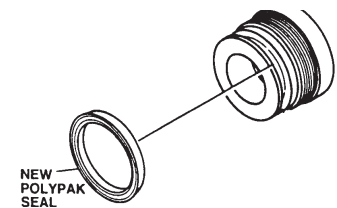
- Install the new piston ring, rod wiper, O-rings and backup washers, if applicable, on the piston.

Be careful not to damage the seals. Caution must be used when installing the piston ring. The ring must be stretched carefully over the piston with a smooth, round, pointed tool.



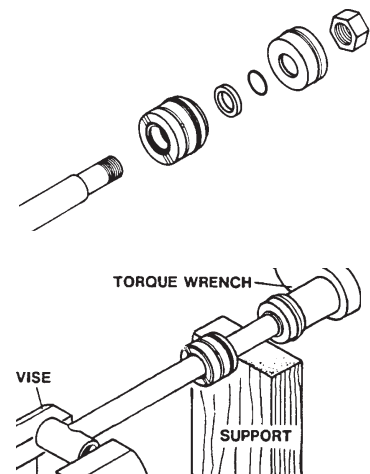
- After installing the rod seal inside the gland, as shown in step #1, install the external seal.

**NOTE:** Threaded glands may have been equipped with a separate O-ring and backup washer system or a polypak (all in one) type seal. Current seal kits contain a polypak (all in one) type seal to replace the discarded seal types on ALL THREADED GLANDS.



- Slide the gland onto the cylinder rod, being careful not to damage the rod wiper. Then install the spacer, or flat washer (if so equipped), small o-ring, piston, and hex nut onto the end of the cylinder rod.
- Secure the cylinder rod (mounting end) in a vise with a support at its center. Torque the nut to the amount shown for the thread diameter of the cylinder rod (see chart).

Thread Diameter	POUNDS - FEET
7/8"	150-200
*1"	230-325
1-1/8"	350-480
1-1/4"	490-670
1-3/8"	670-900
<b>* 1" Thread Diameter WITH 1.25" Rod Diameter</b> <b>Min. 230 ft. lbs. Max. 250 ft. lbs.</b>	



**IMPORTANT:** Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.

- Apply a lubricant (such as Lubriplate #105) to the piston and teflon ring. Insert the cylinder rod assembly into the cylinder tube.

**IMPORTANT:** Ensure that the piston ring fits squarely into the cylinder tube and piston groove, otherwise the ring may be damaged and a leak will occur.

- Use a spanner wrench to rotate the gland clockwise into the cylinder. Continue to rotate the gland with the spanner wrench until it is tight.

**WARNING!** Cylinders serviced in the field are to be tested for leakage prior to the attachment being placed in work. Failure to test rebuilt cylinders could result in damage to the cylinder and/or the attachment, cause severe personal injury or even death.



# STORAGE

## GENERAL INFORMATION

The following storage procedure will help you to keep your attachment in top condition. It will also help you get off to a good start the next time your equipment is needed. We therefore strongly recommend that you take the extra time to follow these procedures whenever your attachment will not be used for an extended period of time.

## PREPARATION FOR STORAGE

1. Clean the attachment thoroughly, removing all mud, dirt, and grease.
2. Inspect for visible signs of wear, breakage, or damage. Order any parts required, and make the necessary repairs, to avoid delays when starting next season.
3. Tighten all loose nuts, capscrews, and hydraulic connections.
4. Lubricate all grease fittings.
5. Coat the exposed portions of the cylinder rods with grease.
6. Connect the hydraulic couplers together to protect the hydraulic system from contaminants.
7. Touch up all unpainted and exposed areas with paint, to prevent rust.
8. Replace decals, if damaged or in unreadable condition.
9. Store the attachment in a dry and protected place, with a cover, if possible. Leaving the attachment outside will materially shorten its life.
10. If you are storing an earth auger drive unit for any length of time, follow the additional procedures below:
  - make sure the drive unit motor and hoses are full of clean oil.
  - be sure the planetary gear reduction is full, to the recommended capacity.
  - coat the drive unit output shaft, the inside of the auger collar, the variable auger extension shaft, the inside of the variable auger extension collar, and all connecting pins liberally with grease, to prevent rust and reduce wear.

## REMOVING FROM STORAGE

1. Remove all protective coverings.
2. Check hydraulic hoses for deterioration, and replace if necessary.



## LIMITED WARRANTY

All new Major products are warranted to be free from defects in materials or workmanship which may cause failure under normal usage and service, when used for the purpose intended.

In the event of failure within twelve (12) months from initial retail sale, lease or rental date (excluding cable, ground engaging parts such as sprockets, digging chain, bearings, teeth, tamping and demolition heads, blade cutting edges, pilot bits, auger teeth, auger heads & broom bristles), if after examination, The Major determines failure was due to defective material and/or workmanship, parts will be repaired or replaced. The Major may request defective part or parts be returned prepaid to them for inspection at their place of business at Delhi, Iowa, or to a location specified by The Major.

Any claims under this warranty must be made within fifteen (15) days after the Buyer learns of the facts upon which such claim is based. All claims not made in writing and received by The Major within the time period specified above shall be deemed waived.

**THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, AND THERE ARE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL THE MAJOR BE LIABLE FOR CONSEQUENTIAL OR SPECIAL DAMAGE.**

**THE MAJOR'S LIABILITY FOR ANY AND ALL LOSSES AND DAMAGES TO BUYER, RESULTING FROM ANY CAUSE WHATSOEVER, INCLUDING THE MAJOR'S NEGLIGENCE, IRRESPECTIVE OF WHETHER SUCH DEFECTS ARE DISCOVERABLE OR LATENT, SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE PARTICULAR PRODUCTS WITH RESPECT TO WHICH LOSSES OR DAMAGES ARE CLAIMED, OR, AT THE ELECTION OF THE MAJOR, THE REPAIR OR REPLACEMENT OF DEFECTIVE OR DAMAGED PRODUCTS.**



## PARTS

The following section contains detailed diagrams and parts lists which include your attachment. Please use these diagrams and parts lists to locate replacement parts, prior to contacting the parts department.

When servicing your attachment, remember to use only original manufacturer replacement parts. Substitute parts may not meet the standards required for safe, dependable operation.

To facilitate parts ordering, have the model and serial number of your product ready, to ensure that you receive the correct parts for your specific attachment.

The model and serial number for your attachment should be recorded in the space provided on the cover of this manual. This information may be obtained from the serial number identification plate located on your attachment. **See the parts diagram for your attachment for the location.**

**NOTE: Most daily and emergency orders received by 2:00 P.M. will be shipped the same day received, with “Emergency-Machine-Down” orders receiving first priority.**

### PARTS DEPARTMENT

(563) 922-2981

(800) 922-2981

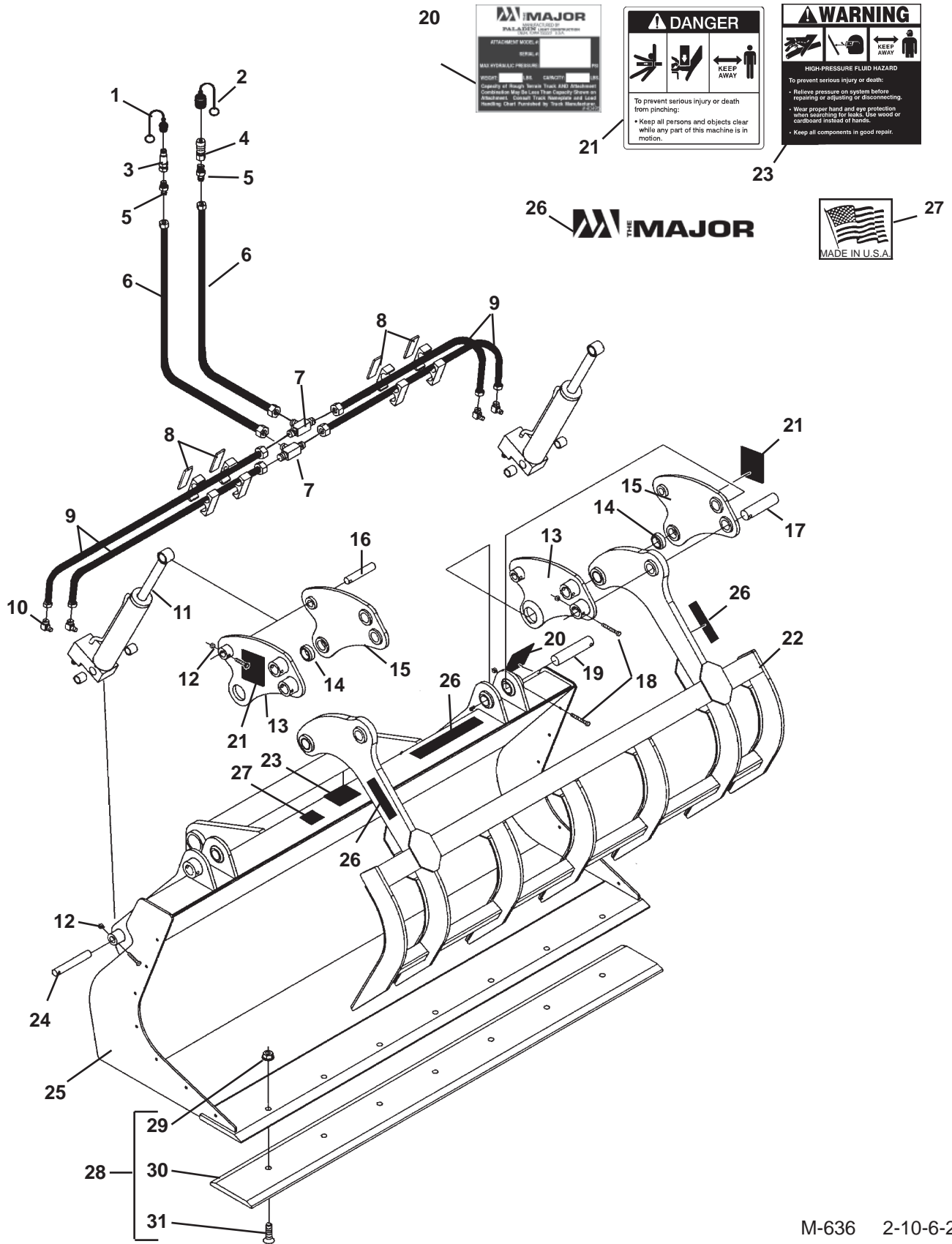
We Encourage Fax Orders

(563) 922-2593

M-1127 11-15-05

# TOP GRAB BUCKET

1.50 CUBIC YARD X 80" WITH GRAPPLE - ASSEMBLY #12467



20



21



23



26



27

# TOP GRAB BUCKET

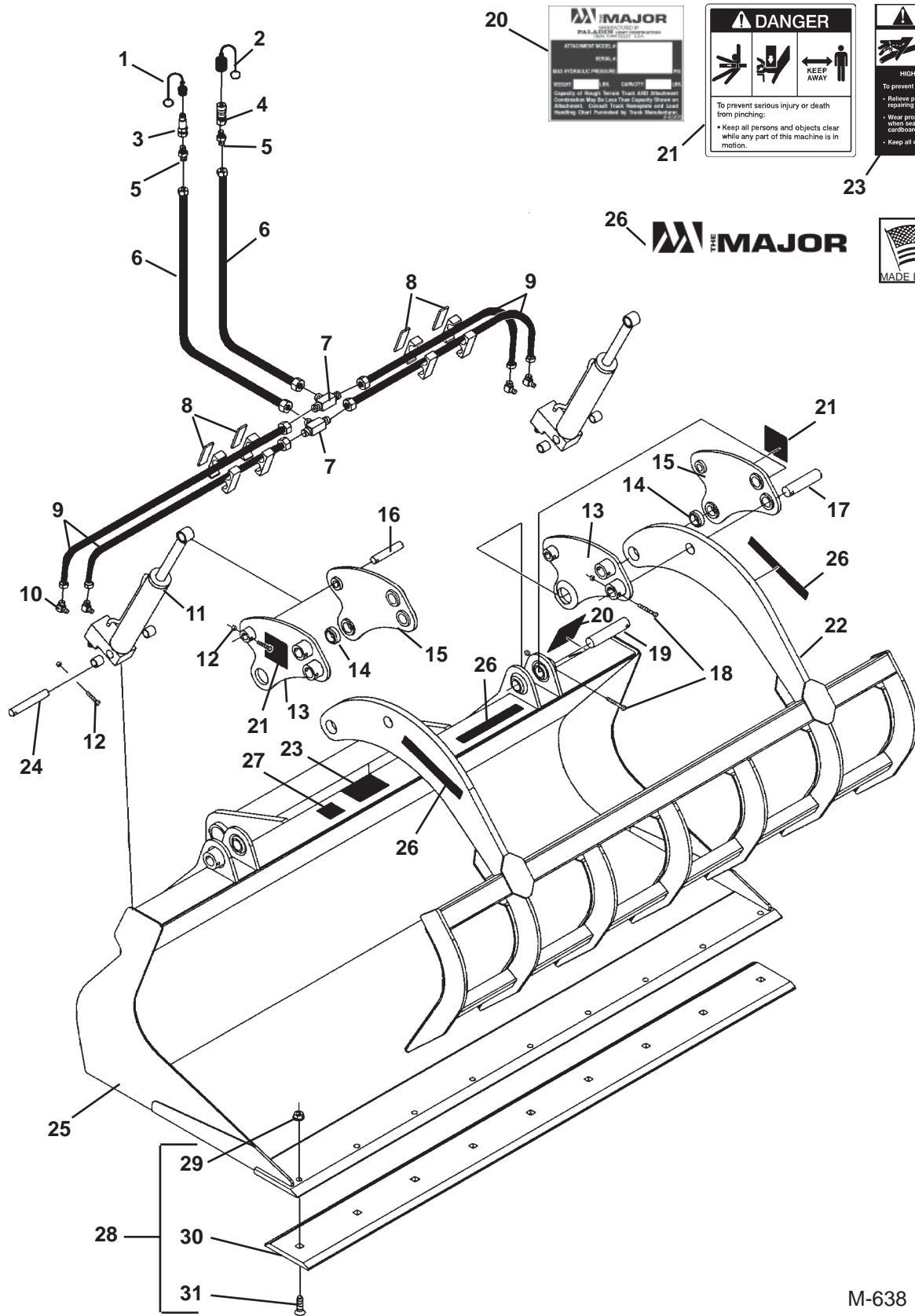
1.50 CUBIC YARD X 80" WITH GRAPPLE - ASSEMBLY #12467

<u>ITEM</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	32549	Quick Coupler Cover, Male
2	1	32548	Quick Coupler Cover, Female
3	1	84923	Male Quick Coupler
4	1	84928	Female Quick Coupler
5	2	3269	Straight Adapter 6MJ-8MBo
6	2	37960	Hose Assembly .38" X 64" 6FJX-6FJX
7	2	3314	Tee 6MJ-6MJ-6MJ
8	4	81358	Replacement Hose Clamp Assembly
9	4	37492	Hose Assembly .38" X 40" 6FJX-6FJX
10	4	3434	90° Elbow 6MBo-6MJ
11	2	89117	Cylinder Assembly
12	4	1048	.38" UNC X 2.25" Hex Capscrew
	4	1536	.38" UNC Nylock Nut
13	2	310067	Right Hinge Plate
14	2	14550	Replacement Bushing
15	2	310068	Left Hinge Plate
16	2	310022	Cylinder Pivot Pin 1.00" Dia. x 5.12" Long
17	2	310020	Grab Bar Pivot Pin 1.50" Dia. x 5.88" Long
18	4	1051	.38" UNC X 3.00" Hex Capscrew
	4	1536	.38" UNC Nylock Nut
19	2	304645	Grab Bar Pivot Pin 1.50" Dia. x 6.75" Long
	2	6616	Grease Fitting
20	1	----	Serial Number Identification Tag Location
21	2	40149	Danger Decal
22	1	310170	Grab Bar Assembly
23	1	40151	Warning Decal
24	2	14138	Cylinder Pivot Pin 1.00" Dia. x 6.75" Long
25	1	310162	Bucket (1.0 cu. yd. bucket capacity)
26	3	40502	Major Logo, Medium
27	1	4338	Made in USA Decal
28	1	309995	Cutting Edge Assembly
29	7	1936	.75" UNC Deformed Lock Nut
30	1	309994	Cutting Edge, .75" x 8.00" x 79.50"
31	7	10061	.75" UNC x 2.25" Plow Bolt

M-637 2-10-06-2

# TOP GRAB BUCKET

2.50 CUBIC YARD X 92" WITH GRAPPLE - ASSEMBLY #17285



20

21

23



M-638 2-10-06-2

# TOP GRAB BUCKET

2.50 CUBIC YARD X 92" WITH GRAPPLE - ASSEMBLY #17285

<u>ITEM</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	32549	Quick Coupler Cover, Male
2	1	32548	Quick Coupler Cover, Female
3	1	84923	Male Quick Coupler
4	1	84928	Female Quick Coupler
5	2	3269	Straight Adapter 6MJ-8MBo
6	2	37960	Hose Assembly .38" X 64" 6FJX-6FJX
7	2	3314	Tee 6MJ-6MJ-6MJ
8	4	81358	Replacement Hose Clamp Assembly
9	4	37492	Hose Assembly .38" X 40" 6FJX-6FJX
10	4	3434	90° Elbow 6MBo-6MJ
11	2	89117	Cylinder Assembly
12	4	1048	.38" UNC X 2.25" Hex Capscrew
	4	1536	.38" UNC Nylock Nut
13	2	310067	Right Hinge Plate
14	2	14550	Replacement Bushing
15	2	310068	Left Hinge Plate
16	2	310022	Cylinder Pivot Pin 1.00" Dia. x 5.12" Long
17	2	310020	Grab Bar Pivot Pin 1.50" Dia. x 5.88" Long
18	4	1051	.38" UNC X 3.00" Hex Capscrew
	4	1536	.38" UNC Nylock Nut
19	2	304645	Grab Bar Pivot Pin 1.50" Dia. x 6.75" Long
	2	6616	Grease Fitting
20	1	----	Serial Number Identification Tag Location
21	2	40149	Danger Decal
22	1	310065	Grab Bar Assembly
23	1	40151	Warning Decal
24	2	14138	Cylinder Pivot Pin 1.00" Dia. x 6.75" Long
25	1	310024	Bucket (1.50 cu. yd. bucket capacity)
26	3	40502	Major Logo, Medium
27	1	4338	Made in USA Decal
28	1	309996	Cutting Edge Assembly
29	9	1936	.75" UNC Deformed Lock Nut
30	1	309992	Cutting Edge, .75" x 8.00" x 91.50"
31	9	10061	.75" UNC x 2.25" Plow Bolt

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# 12' TRUSS BOOM

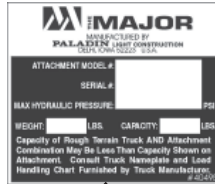
## ASSEMBLY #12445



1



2



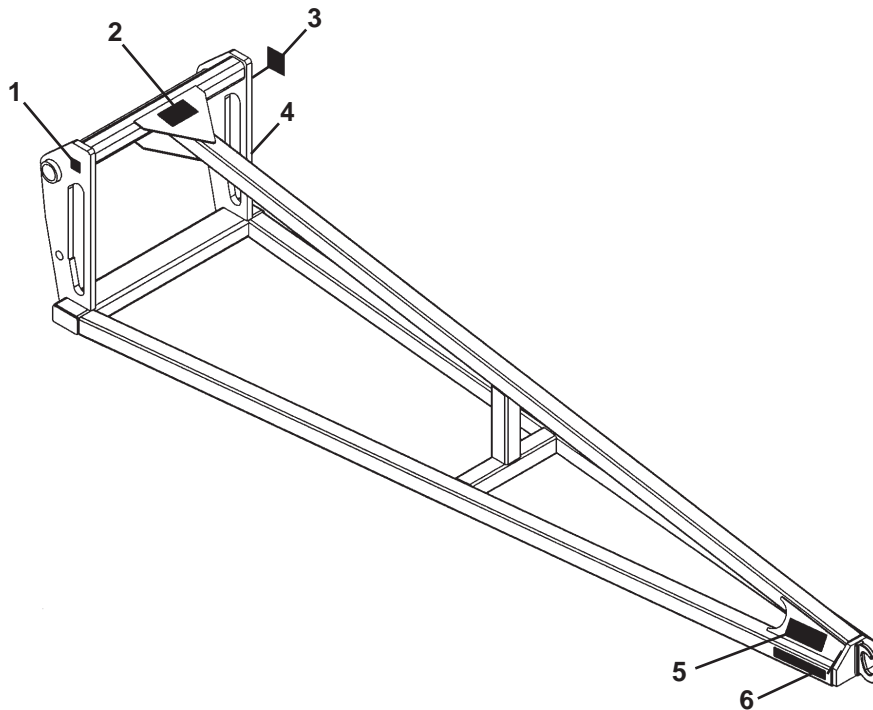
3



5

**1300 LBS CAP.**  
(590 kg CAP.)

6



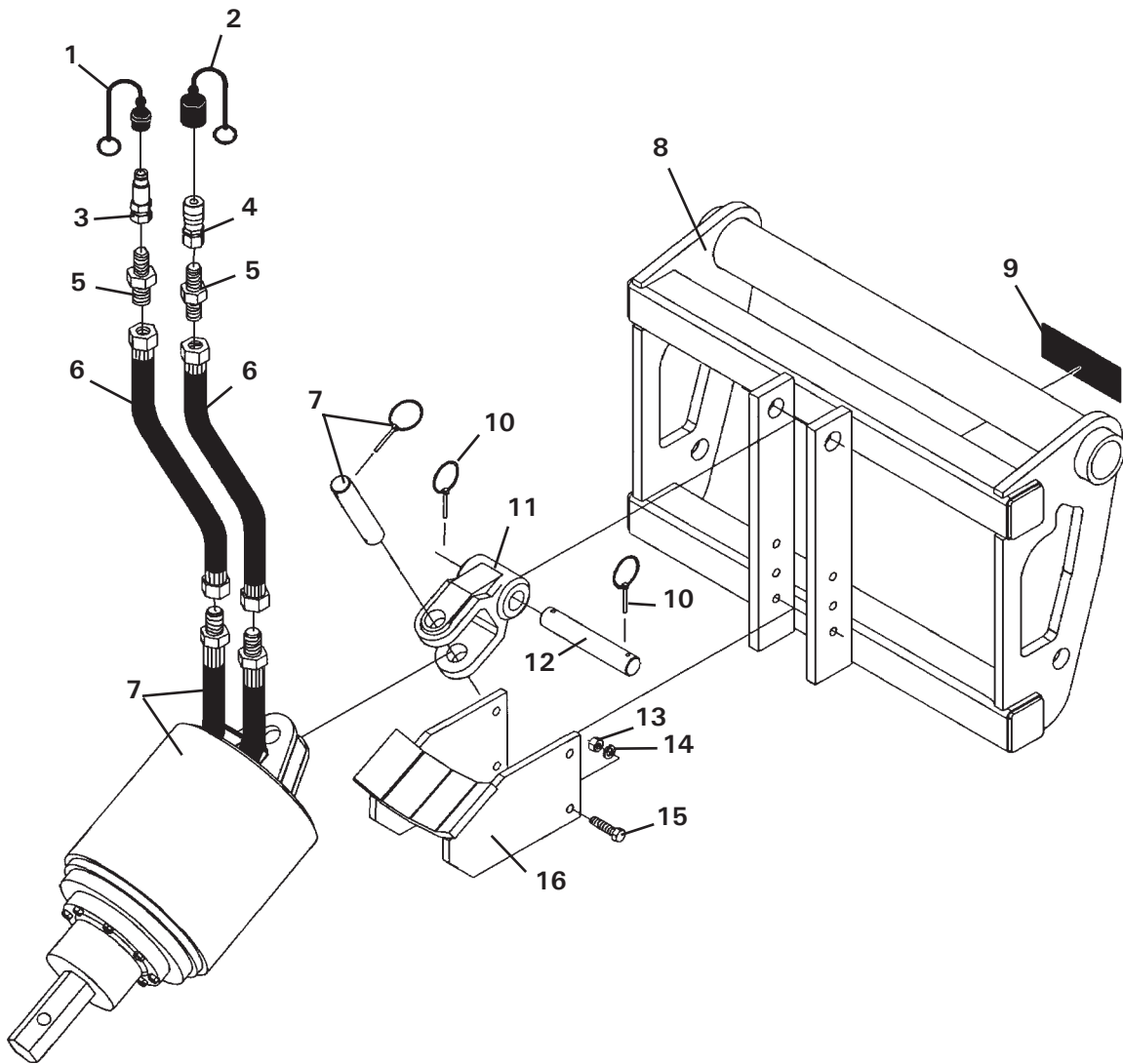
# 12' TRUSS BOOM

ASSEMBLY #12445

<u>ITEM</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	4338	Made in USA Decal
2	1	40561	Do Not Tow Decal
3	1	-----	Serial Number Identification Tag Location
4	1	17223	12' Truss Boom
5	2	40680	Danger Decal
6	2	40672	Capacity Decal

# AUGER MOUNTING

ASSEMBLY #24315



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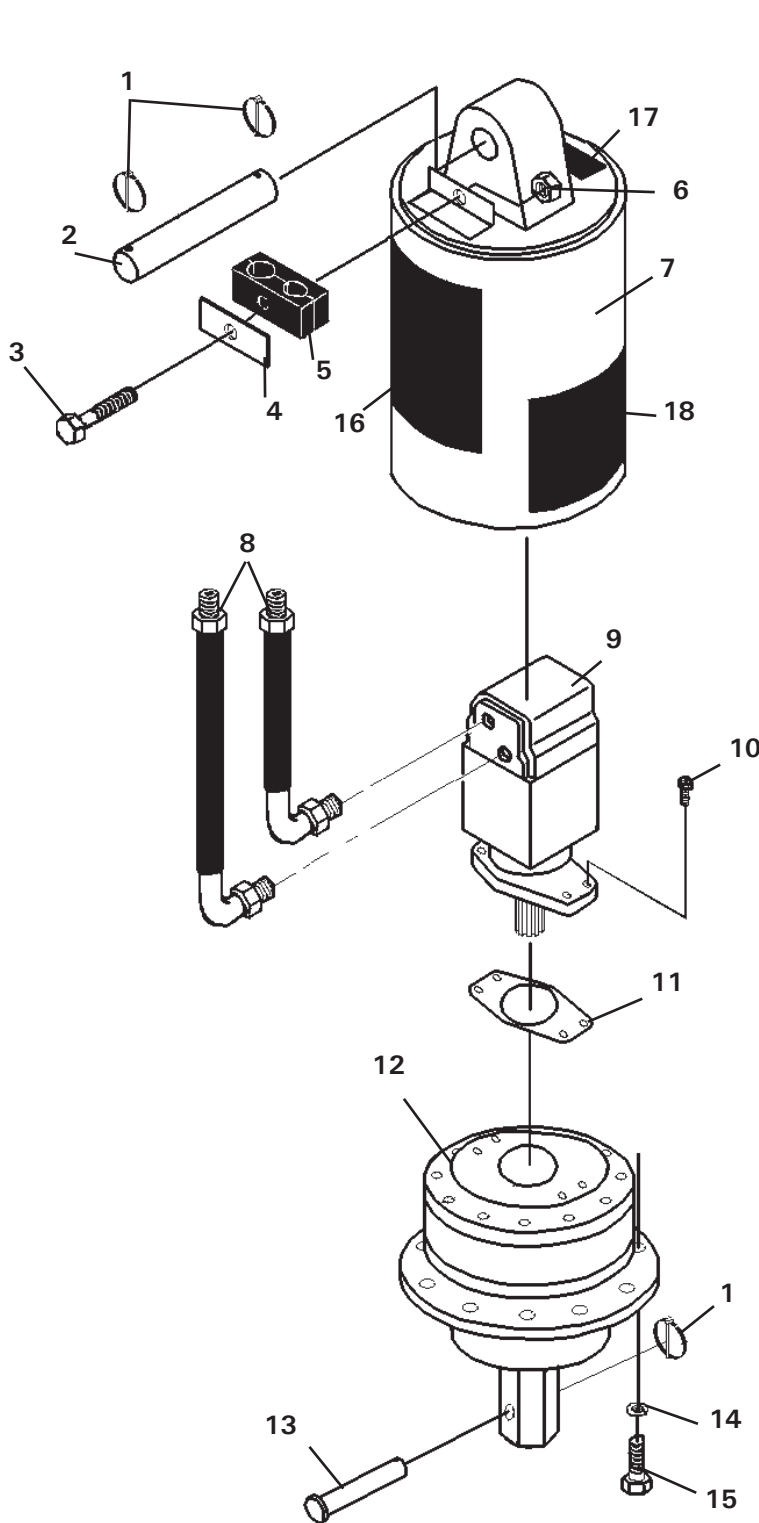
# AUGER MOUNTING

ASSEMBLY #24315

<u>ITEM</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	32549	Quick Coupler Cover, Male
2	1	32548	Quick Coupler Cover, Female
3	1	84923	Male Quick Coupler
4	1	84928	Female Quick Coupler
5	2	3103	Straight Connector 8MBo-8MJ
6	2	37655	Hose, .50" x 53" 8FJX - 10FJX
7	1	23537	X1475 Drive Unit Assembly
8	1	24316	Auger Mounting Frame
9	1	22654	Extreme Duty Decal
10	2	21169	Klik Pin
11	1	21694	Cast Swivel
12	1	22255	Pivot Pin 1.25" Dia. x 7.25" Long
13	4	1228	.50" UNC Hex Nut
14	4	1505	.50" Lock Washer
15	4	1092	.50" UNC X 2.00" Hex Capscrew
16	1	21670	"X" Series Cradle Bracket

# X1475 DRIVE UNIT

## ASSEMBLY #23537



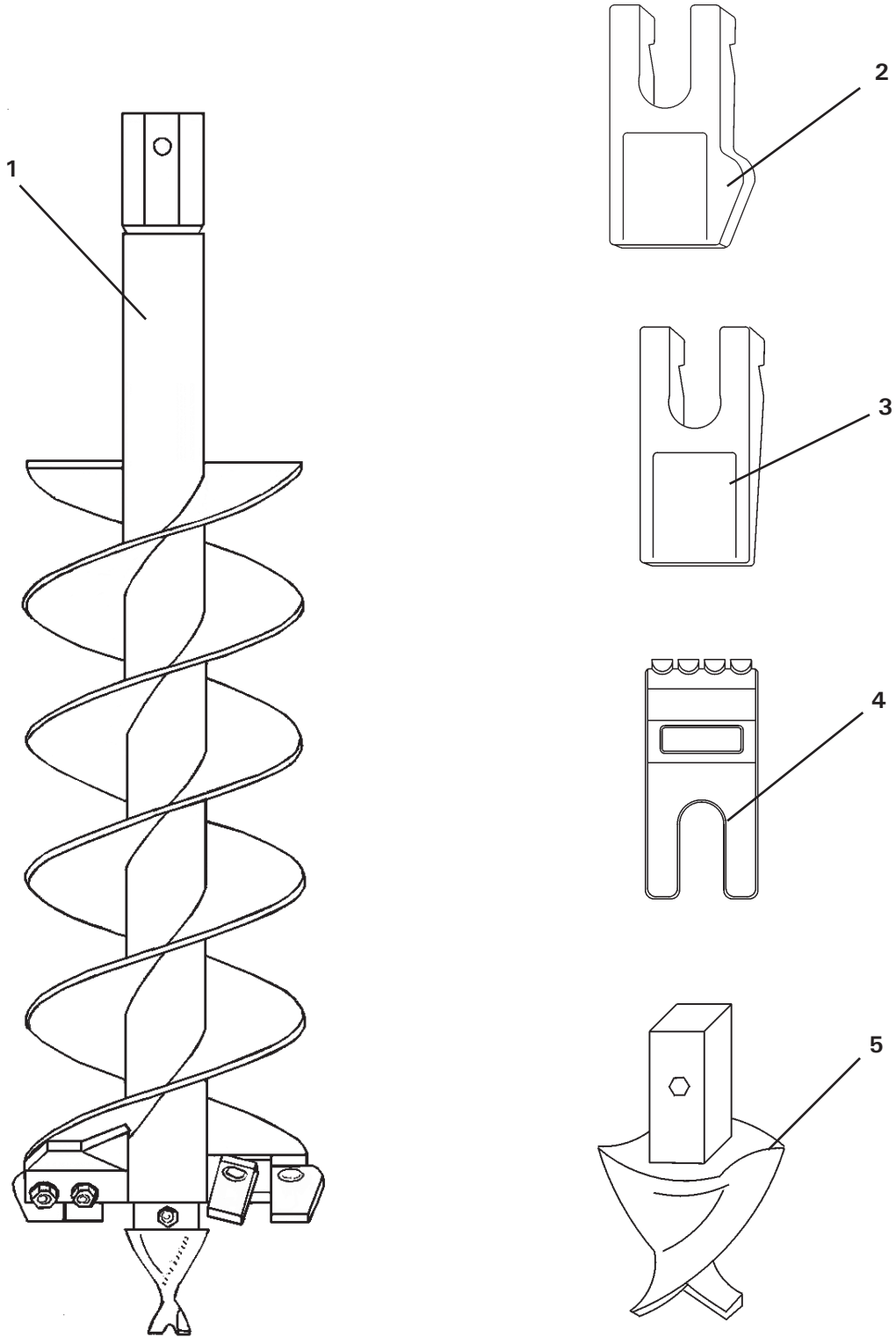
# X1475 DRIVE UNIT

ASSEMBLY #23537

<u>ITEM</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	3	21169	Klik Pin
2	1	22256	Pivot Pin, 1.25" Dia. x 6" Long
3	1	1096	.50" UNC X 3.00" Hex Capscrew
4	1	22315	Hose Cushion Plate
5	1	22316	Hose Cushion
6	1	1542	.50" UNC Nylock Nut
7	1	23533	Motor Housing
8	2	37968	Hose, .50" X 11" 10MJ - 10MBo 90°
9	1	89319	X1475 Hydraulic Motor
10	4	1907	.50" UNC X 1.25" Socket Head Capscrew
11	1	22532	Motor Gasket
12	1	23526	Planetary Gear Reduction - 2" Hex Output
13	1	22263	Clevis Pin, .75" Dia. X 4.50" Long
14	8	1503	.38" Lock Washer
15	8	1046	.38" UNC X 1.75" Hex Capscrew
16	1	40549	X1475 Model Number Decal
17	1	-----	Serial Number Identification Tag Location
18	2	22680	Danger Decal

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# AUGER OPTIONS

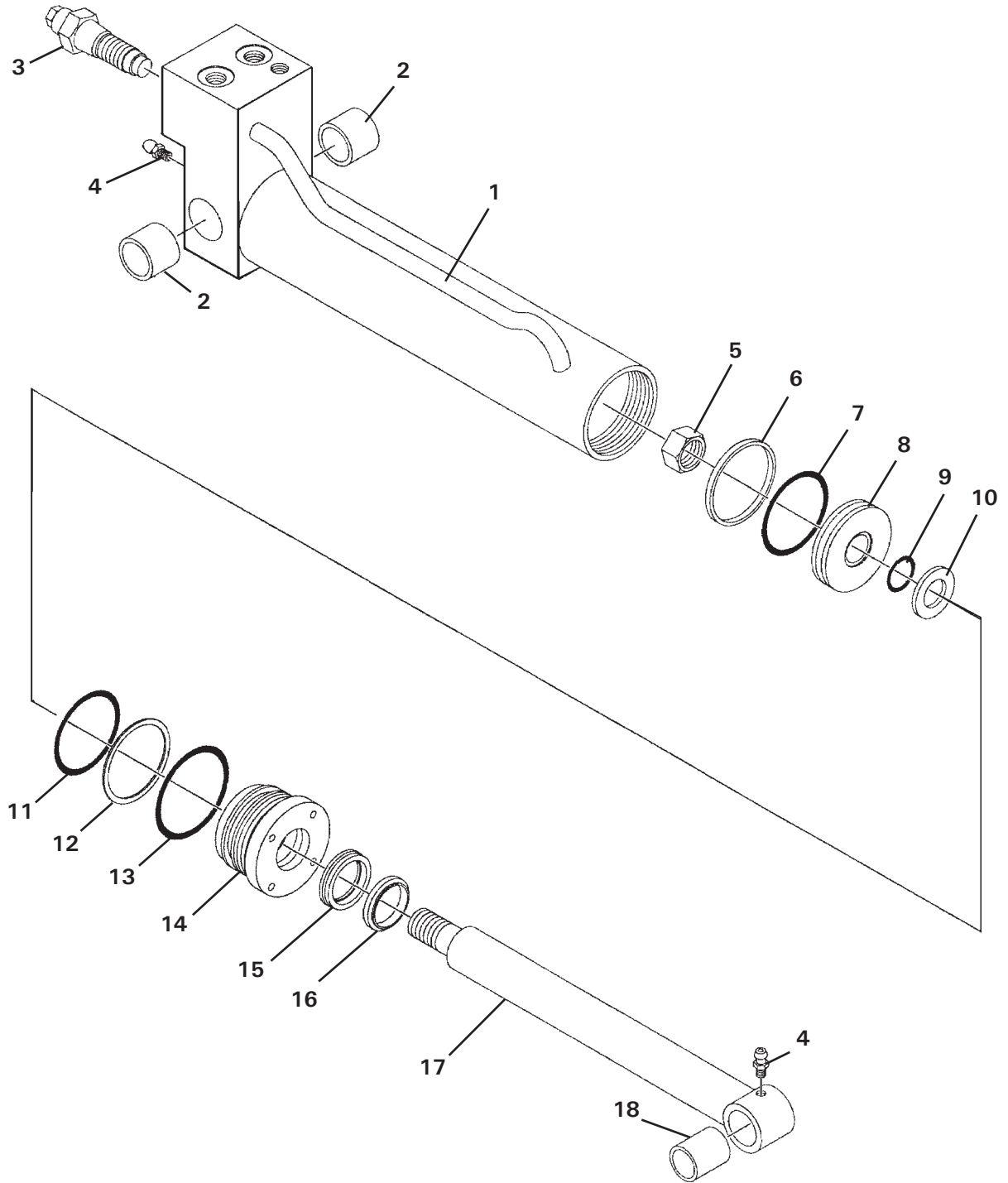


## AUGER OPTIONS

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	20056	8" Dia. x 4' Length HDF Auger with 2" Hex <b>Includes:</b> 22169 2      Gage Tooth 22190 1      Hardened Fishtail Point 22306 2      Carriage Bolt 1839 2      Nut
	20183	12" Dia. x 4' Length HDF Auger with 2" Hex <b>Includes:</b> 22169 2      Gage Tooth 22168 2      Wisdom Tooth 22190 1      Hardened Fishtail Point 22306 4      Carriage Bolt 1839 4      Nut
2	22169	Hardened Bolt-On Gage Tooth
3	22168	Hardened Bolt-On Wisdom Tooth
4	22186 22170	Carbide Wisdom Tooth Hardfaced Wisdom Tooth
5	22190 22192 22191 22193	3.50" Hardened Fishtail Point 3.50" Hardfaced Fishtail Point 3.50" Carbide Fishtail Point 3.50" Hardfaced/Carbide Fishtail Point

# CYLINDER ASSEMBLY

ASSEMBLY #89117



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# CYLINDER ASSEMBLY

ASSEMBLY #89117

<u>ITEM</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	89118	Cylinder Tube with Valve
2	2	88919	Bronze Bushing
3	2	89120	Valve Cartridge - Over Center
4	2	6616	Grease Fitting
5	1	1483	Hex Nut
6	1	4644*	Piston Ring
7	1	4645*	Seal Ring
8	1	50252	Piston
9	1	4641*	Seal Ring
10	1	5421	Washer
11	1	4509*	Seal Ring
12	1	4510*	Back-Up Washer
13	1	45250*	Seal Ring
14	1	77458	Cylinder Gland
15	1	45219*	Polypak Seal
16	1	45389*	Rod Wiper
17	1	88915	Piston Rod
18	1	88918	Bronze Bushing
	1	45617	Cylinder Seal Kit, Includes all parts marked with an asterisk (*). Parts are not sold separately.