THE MAJOR

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PALADIN LIGHT CONSTRUCTION

# ATTACHMENTS FOR CASE TX TELEHANDLERS

# OPERATOR'S & PARTS MANUAL


**SERIAL NUMBER:** _____

**MODEL NUMBER:** _____

**Manual Number: 76845**
**Part Number: 76845**
**Revision:**

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# FOREWORD

Although The Major has a variety of types of attachments available, we are continually designing new sizes and mountings. If your combination is not listed, please contact the factory. We have extensive mounting information available to generate the product you need.

Below is a listing of the attachments that are currently available for Case TX Telehandlers. See the “Parts” section of this manual for the assemblies “Shown”.

| ***DESCRIPTION & MOUNT*** | ***ASSEMBLY #*** | ***CASE #*** |
|---|---|---|
| 1.50 Cubic Yard x 96” Bucket (Shown) | 13083 | 87716405 |
| 1.75 Cubic Yard x 96” Bucket (Shown) | 13084 | 87716406 |
| 2.00 Cubic Yard x 96” Bucket (Shown) | 13085 | 87716407 |
| 96” Bolt-On Cutting Edge (Shown) | 11002 | 87649854 |
| 1.75 Cubic Yard x 96” Scrap Grapple (Shown) | 13087 | 87716408 |
| 84” Heavy Duty Brush Grapple (Shown) | 13088 | 87716409 |
| 12’ Truss Boom (Shown) | 13080 | 87710679 |
| 15’ Truss Boom (Shown) | 13081 | 87716398 |
| 3’ Truss Boom With Winch (Shown) | 13082 | 87716399 |
| 48” Floating Pin Fork Carriage (Shown) | 13070 | 87710673 |
| 60” Floating Pin Fork Carriage (Shown) | 13071 | 87710674 |
| 72” Floating Pin Fork Carriage (Shown) | 13072 | 87710675 |
| 48” Side Shift Fork Cariage (Shown) | 13077 | 87716390 |
| 60” Side Shift Fork Cariage (Shown) | 13078 | 87716391 |
| 48” Side Tilt Fork Cariage (Shown) | 13073 | 87710676 |
| 60” Side Tilt Fork Cariage (Shown) | 13074 | 87710677 |
| 72” Side Tilt Fork Cariage (Shown) | 13075 | 87716389 |
| 72” Swing Carriage, 50-50° (Shown) | 13076 | 87710678 |
| X1475 Auger Drive (Shown) | 13093 | 87716748 |

# 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

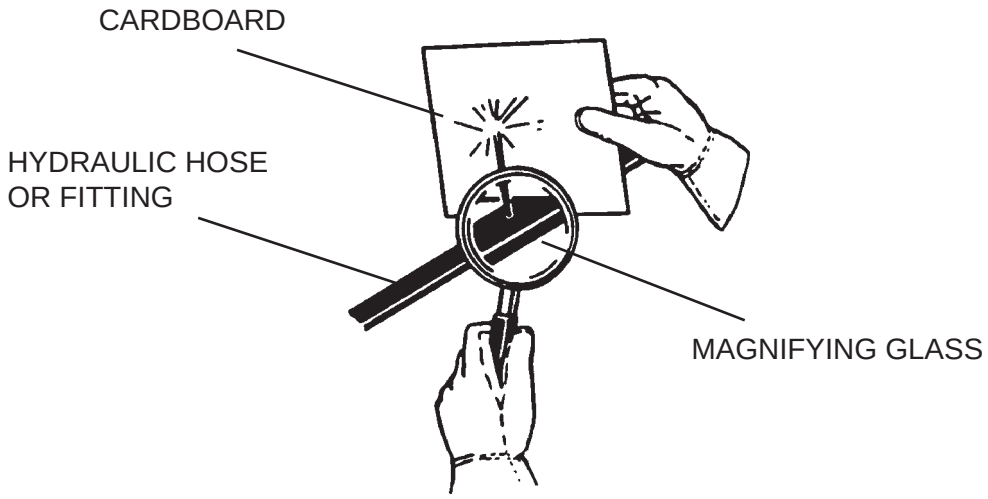
Do not work under raised booms without supporting them. Do not use support material made of concrete blocks, logs, buckets, barrels, or any other material that could suddenly collapse or shift positions. Make sure support material is solid, not decayed, warped, twisted, or tapered. Lower booms to ground 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 or her 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.**



# 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. Consult your machine operator's and safety manuals for maximum incline allowable.

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.

## OPERATING ALL ATTACHMENTS

- Operate only from the operator's station with seatbelt properly attached.
- Do not exceed the lifting capacity of your prime mover and attachment. Always observe lift capacity limits listed in machine specifications or on load charts furnished with the prime mover.
- Reduce speed when driving over rough terrain, on a slope, or turning, to avoid overturning the vehicle.
- Never use the attachment for a work platform or personnel carrier.
- 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.
- Before exiting the prime mover, lower the attachment to the ground, apply the brakes, turn off the prime mover's engine, and remove the key.

## TRANSPORTING ALL ATTACHMENTS

- Travel only with the attachment in a safe transport position to prevent uncontrolled movement. Drive slowly over rough ground, and on slopes.
- When driving on public roads, use safety lights, reflectors, Slow Moving Vehicle signs, etc. to prevent accidents. Check local government regulations that may affect you.
- Do not drive close to ditches, excavations, etc., as a cave-in could result.
- Do not smoke when refueling the prime mover. Allow room in the gas tank for expansion. Wipe up any spilled fuel, and secure cap tightly, when done.

## MAINTAINING ALL ATTACHMENTS

- Before performing maintenance, lower the attachment to the ground, apply the brakes, turn off the engine, and remove the key.
- Never perform any work on the equipment unless you are authorized and qualified to do so. Always read the operator's and 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 attach a "DO NOT OPERATE" tag to the machine until all problems are corrected.
- Worn, damaged, or illegible safety decals must be replaced. New safety decals can be ordered from the manufacturer.
- Never make hydraulic repairs while the system is under pressure. Serious personal injury or death could result.
- Never work under a raised attachment.

# EQUIPMENT SAFETY PRECAUTIONS

**EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA DUST ALONG WITH OTHER HAZARDOUS DUSTS MAY CAUSE SERIOUS OR FATAL RESPIRATORY DISEASE.** It is recommended to use dust suppression, dust collection, and if necessary, personal protective equipment during the operation of any attachment that may cause high levels of dust.

## ***ADDITIONAL EQUIPMENT SAFETY PRECAUTIONS***

### BUCKETS AND GRAPPLE BUCKETS

- Be careful when handling loose objects. Lifting too high or rolling the bucket too far back could result in objects sliding rearward, down the arms onto the operator compartment.
- 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 sure the load does not stick out too far in front of the bucket. A light load sticking out too far can have the same tipping effect as a heavy load carried in-close.
- When using the scrap or brush grapple, lift the load slightly and make sure that the load is secure. If the load appears to be unstable, lower the load, open the grapple and reposition the load to attain full stability.

### TRUSS BOOMS

- Be careful when handling large/loose objects. Lifting too high or rolling the boom too far back could result in these objects swinging. Swinging loads can cause vehicle tipover, which can result in serious injury or death.
- Do not use for towing or pulling horizontally.
- The cable anchor on the truss boom with winch is not intended to hold rated load. Always keep a minimum of five (5) wraps of cable on the drum.
- Always ensure the clutch on the truss boom with winch is fully engaged before lifting or pulling a load.
- Make sure the worm brake on the truss boom with winch is adjusted properly for the load being lifted.

### FORK CARRIAGES

- Always space the forks correctly for the load. Loads can fall off incorrectly spaced forks. Make sure the forks are completely under the load before lifting.
- Be careful when handling large/loose objects. Lifting too high or rolling forks too far back could result in these objects falling back on the operator. Unsecured loads can cause vehicle tipover, which can result in serious injury or death.
- Do not use the fork tines for prying or any purpose other than lifting.
- Never stack loads on uneven ground. Loads stacked on uneven ground can topple.
- Never lift a load with one fork. A load lifted with one fork can slip off and cause injury.
- Secure loads properly. Unsecured loads can fall unexpectedly. When transporting a load, keep the forks as close to the ground as possible.
- Keep the lifting surface of the forks level at all times.
- Do not handle round bales with fork lift tines.
- Don’t obstruct your vision when traveling or working. Carry the forks low for maximum stability and visibility.
- When using the side shift feature to pick up a load, be sure to return the forks and load to the center position as soon as possible. Do NOT travel with loaded forks shifted to the side.
- When using the side tilt feature, keep the load as level as possible, using extreme caution when driving off of a slope to reposition the forks, to prevent the load from sliding off of the forks or pallet.
- If the carriage tilts or drifts due to oil leakage within the cylinder assembly, discontinue use until the problem has been corrected.

### AUGERS

- All bystanders should be kept away from the working area of the earth auger.
- When transporting, tether the earth auger with a chain, if necessary, to prevent uncontrolled swinging of the auger when moving from hole to hole.
- Remove the earth auger from the prime mover before transporting to and from the job site.

# INSTALLATION AND OPERATION

## ATTACHING AND DETACHING ALL EQUIPMENT

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

**WARNING!**

To prevent serious personal injury or death, only attach equipment that is designed for your prime mover.

Specified lift capacities must not be exceeded, otherwise machine stability will not be sufficient. Always observe lift capacity limits listed in machine specifications.

## OPERATING ALL ATTACHMENTS

- **Read all Safety Precautions before operating your new attachment.**
- **For personal safety, lower the attachment to the ground, set the parking brake, shut off engine, and remove key before getting off of your prime mover.**

***SPECIAL OPERATING CONSIDERATIONS:***

***SIDE SHIFT AND SIDE TILT FORK CARRIAGE OPERATION***

When using the tilt feature, keep the load as level as possible, using extreme caution when driving off of a slope to reposition the forks, to prevent the load from sliding off of the forks or pallet.

When using the side shift and side tilt features to pick up a load, be sure to return the forks and loads to the center position as soon as possible. Do NOT travel with loaded forks shifted or tilted to the side.

***ALL ATTACHMENTS WITH CYLINDERS***

***IMPORTANT:*** If your hydraulically operated attachment tilts or starts to drift due to oil leakage within the cylinder assembly, discontinue use until the problem has been corrected.

# INSTALLATION AND OPERATION

***TRUSS BOOM OPERATION***

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.

This product is not designed or intended to lift personnel.

Keep all persons and objects clear while any part of this machine is in motion.

The cable anchor on the truss boom with winch, is not intended to hold rated load. Always keep a minimum of five (5) wraps of cable on the drum.

Always ensure the clutch is fully engaged before lifting or pulling a load.

**BREAKING IN THE TRUSS BOOM WITH WINCH**

Do not overspeed the winch during cable installation.

To ensure optimum winch performance and life, run at one-half (½) rated load and line speed for the first thirty minutes of operation**.**

Make sure the worm brake is adjusted properly for the load being lifted.

See the “Tulsa Winch Operating & Safety Manual” for brake information.

# INSTALLATION AND OPERATION

## *LIGHT MATERIAL BUCKET AND SCRAP GRAPPLE BUCKET OPERATION*

A cutting edge assembly is recommended when operating on hard abrasive surfaces.

## *SCRAP GRAPPLE AND BRUSH GRAPPLE OPERATION*

All scrap grapple and brush grapple buckets are designed to pick up bulky, unusually shaped, or long materials that would not stay in an ordinary bucket.

1. Approach the load in such a fashion that the weight will be centered on the floor of the bucket. The heaviest side should be closest to the back of the bucket and not near the bucket edge.
2. Before lifting, make certain the bucket is completely under the load, and the bucket floor is level.
3. Close the grapples to their fullest extent possible, and lift the bucket slightly to be certain that the load is secure.

***NOTE:*** If the load appears to be unstable, lower the bucket to the ground, open the grapples and reposition the load to attain full stability. Repeat until full stability is achieved.

When using the grapples as a rake to drag materials into position for pick up, THE GRAPPLES MUST BE COMPLETELY OPEN.

**NOTICE: Applying a raking-type force to partially open grapples will greatly magnify the fluid pressure in the hydraulic hoses, fittings, and cylinders and may cause component failure.**

**Never heap load-heavy material where the combined weight of the bucket and material could exceed the rated lifting capacity of the telehandler.**

**Be sure the load does not stick out too far in front of the bucket. A light load sticking out too far can have the same tipping effect as a heavy load carried in close.**

**When using the grapple, lift the load slightly and make sure that the load is secure. If the load appears to be unstable, lower the load, open the grapple and reposition the load to attain full stability.**

# INSTALLATION AND OPERATION

***FORK CARRIAGE OPERATION***

1. Approach the load in such a fashion that the weight will be centered between the fork tines. The heaviest side should be closest to the fork frame, and not near the tips of the fork tines.
2. Before lifting, make certain the fork tines are completely under the load, and level.
3. Lift the load slightly to make sure the load is stable. If the load appears unstable, lower and reposition the tines to achieve full stability.
4. Raise the telehandler to the MINIMUM height required for the terrain.
5. During material handling:
   - keep the fork tines level.
   - stop and start the telehandler gradually.
   - slow down before turning.
   - avoid obstacles, bumps, or holes.
6. Check the load frequently to ensure stability.

**WARNING! Never exceed the recommended lifting capacity of any approved fork tines or the prime mover.**

***NOTE:*** **Fork tine capacities are pounds per pair at a 24" load center. (The center of gravity of the allowable loads must be applied within the first 24" of the fork tines when measured from the front face of the vertical section of the fork tine out toward the tip of the horizontal section of the fork tine.)**

**WARNING! EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA DUST ALONG WITH OTHER HAZARDOUS DUSTS MAY CAUSE SERIOUS OR FATAL RESPIRATORY DISEASE.**

**It is recommended to use dust suppression, dust collection and if necessary personal protective equipment during the operation of any attachment that may cause high levels of dust!**

**IMPORTANT**

**Concrete and masonry products contain silica sand. Quartz, which is a form of silica and the most common mineral in the earths crust, is associated with many types of rock.**

**Some activities that silica dust may be present in the air include demolition, sweeping, loading, sawing, hammering, drilling or planing of rock, concrete or masonry.**

**It is recommended to use dust suppression (such as water), dust collection (such as a vacuum) along with personal protective equipment if necessary during the operation of any attachment that may cause high levels of silica dust.**

# INSTALLATION AND OPERATION

## ***X1475 AUGER OPERATION***

1. After all installation instructions have been completed, safety information read and understood, and the rest of this operator's manual has been reviewed, your Hydraulic Earth Drill is now ready for use.
2. With the auger raised off the ground and the vehicle engine set at a low RPM, activate the earth drill control valve to determine which position the control valve lever must be in to turn auger in a forward (clockwise) rotation. This is the "digging" position.
3. Before beginning to dig, experiment with 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.
4. Return earth drill control valve to neutral position to stop the auger. Lower the auger to the ground so that only the center point penetrates the ground about 2" (51mm).
5. Activate the earth drill control valve so auger is turning in a forward (clockwise) rotation. Use only enough down pressure to assure positive penetration of auger into the ground. Ease up on down pressure if auger rotation slows down drastically or stalls.

**NOTE: Excessive down pressure will cause the auger to stall frequently.**

6. When auger has penetrated the ground about 24" (610mm), raise the auger from the hole to clean the dirt out. Repeat this procedure until the desired hole depth is obtained.
7. Once the required hole depth is reached, allow the auger to turn a few seconds at this depth to clean the hole.
8. Return the earth drill control valve to the neutral position to stop the rotation of the auger. Raise the auger out of the hole, move away from the hole, then activate the earth drill control valve to spin the loose soil off of the augers.

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

9. If necessary, repeat steps 7 & 8 to obtain a cleaner hole.
10. In some soil conditions or when excessive down pressure is applied, auger may "screw" itself into the ground and become stuck, causing earth drill to stall. If this happens, reverse the auger rotation (counter-clockwise) by moving the control valve lever to the reverse position and slowly raise the auger. Once unstuck, return the control valve lever to the forward rotation position and continue digging.
11. 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 10 for proper procedure to relieve the auger.
12. Avoid excessive side loading to earth drill which can cause drive unit or auger damage.
13. 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.

**WARNING: To prevent possible injury or death, keep all bystanders 10 feet or more away from rotating auger. Take extra precautions when digging in locations where any type of landscape fabric may be present.**

# TULSA WINCH OPERATING & SAFETY MANUAL

The following are excerpts from the Tulsa Winch Operating and Safety Manual. We have incorporated these into this manual in an effort to keep all Safety, Operational, and Maintenance information in one document.

## INTRODUCTION

Thank you for purchasing a new Tulsa Winch. We are proud of our products and are certain that they will perform your winch tasks properly. However, we do ask that you take a few minutes to read and thoroughly understand this booklet. Also, if you have new operators assigned to the winch, make sure that they read and understand it. Because of the large number of models we manufacture, we are unable to show parts lists for every model in this booklet. If you want or need parts lists, please write or call us at the address at the end of this section.

**WARNING!**

**FAILURE TO HEED THE FOLLOWING WARNINGS MAY RESULT IN SERIOUS INJURY OR DEATH!**

- Tulsa winches are not to be used to lift, hoist, or move people. If your task involves lifting or moving people, you MUST use the proper equipment, not this winch
- Cable anchors on Tulsa winches are not designed to hold the rated load of the winch. You must keep at least five (5) wraps of cable on the drum to insure that the cable doesn't come loose.
- Stay clear of suspended loads and of cable under tension. A broken cable or dropped load can cause serious injury or death.
- Make sure that all equipment, including the winch and cable, is maintained properly. Pay especially close attention to the clutch, making sure that it fully engages when shifted. Do not attempt to disengage the clutch when a load is on the winch.
- Winches which are not equipped with automatic worm brakes should never be used to lift loads.
- Avoid shock loads. This type of load imposes a strain on the winch many times the actual weight of the load and can cause failure of the cable or of the winch.

## WINCH BREAK-IN

Winches, like any other kind of machinery, require a "break in" to perform well and to maximize their life. The following guidelines should be used for breaking-in Tulsa winches.

Use extreme care when first spooling cable onto the winch. Do NOT run the winch at high speeds when performing this operation. Make sure that the cable is unrolled in a line (to prevent kinks), and SLOWLY inhaul the winch to install the cable.

Do not exceed one-half rated load or one half rated linespeed for the first thirty minutes of operation. This will ensure that the worm and gear have an opportunity to wear-in properly. Periodically, check the gearbox for temperature rises, and allow the winch to cool down between pulls. Worm gear winches are designed and intended for intermittent duty applications only; using them in extremely long pulls may generate excessive heat and shorten the life of the winch.

## WINCH OPERATION

To familiarize yourself with the winch, run it for a few minutes to understand the controls and the "feel" of the winch. Pay particular attention to the controls and how they operate. If the winch has air controls on the brake or clutch, or both, operate them to see how they work and the direction of activation of the controls. If the winch is hydraulically powered, make sure you understand which way the winch will rotate when the control lever is moved.

## WINCH OPERATION (Continued)

Always make sure that all people are clear of the load and of the cable area before beginning a winching operation. A broken cable can fly in any direction.

If you are using a mechanically powered winch, learn to pay close attention to the truck engine to sense possible overload. If using a hydraulic winch, do not attempt to defeat the relief valve. If you have any doubts about the capability of the winch to lift or move a load, either put a “snatch block” in the line or get a bigger piece of equipment.

The typical winch operating cycle consists of the following steps:

(a) Disengaging the winch drum clutch and pulling off enough cable to allow hooking the load. If the winch is equipped with a manually operated drum brake, use it to keep the cable from “bird’s nesting” while being pulled off. DO NOT get into the habit of powering off cable; all this does is shorten the life of the winch, especially the winch brake.

**NOTE:** The drum brake is for free-spooling cable only. It is not intended to be a load-holding brake, and must not be used as such.

(b) After hooking to the load, engage the drum clutch and release the drum brake, if the winch is so equipped. Make sure the clutch is fully engaged.

(c) Begin winching the load slowly, watching carefully to insure that the load is moving normally and that no one is in the immediate area of the load or of the cable.

(d) When the load is positioned where you want it, stop the winch. If the load is suspended, the automatic worm brake will hold it until you are ready to lower it.

## CABLE CONSIDERATIONS

As the number of layers of cable on a winch increases, the rated capacity of the winch goes down. If you are operating at near the top of the drum flanges, the effective rating of the winch is about half of what it is on the first layer. You should, therefore, only keep as much cable on the winch as you need for your job.

Never use larger or smaller cable on your winch than is recommended for it. The use of larger cable will not allow you to pull larger loads and may, in fact, break easier than the proper size cable. The use of smaller cable may overheat the winch due to the increased running time with more cable.

The attached chart shows the recommended cable sizes for Tulsa winches.

Consult your local cable supplier for recommendations on the best type of cable and hardware to use in your specific application.

| Model | Cable Size (Inches) |
|---|---|
| 5 | 3/8 |
| 938 | 7/16 |
| 1138 | 7/16 |
| 1000 | 7/16 |
| 1200 | 1/2 |
| 10 | 1/2 |
| 12 | 1/2 |
| 18 | 5/8 |
| 18G | 5/8 |
| 19 | 5/8 |
| 23 | 5/8 |
| 24 | 3/4 |
| 34 | 3/4 |
| 64 | 7/8 |
| 70 | 1 |
| 75 | 1 |
| 80 | 1 |

## WINCH MAINTENANCE

A winch, like other types of machinery, needs to have regular maintenance if it is to perform properly, give lasting value, and provide safe winching. Good maintenance consists of two parts, a daily inspection and a periodic servicing.

Each day, or after every one hour of winch use, the following items should be inspected and adjusted, if necessary:

1. If the winch is mechanically driven, check all drive components for alignment and tight mounting. If it is hydraulically driven, check for leaks and for proper fluid level in the hydraulic reservoir.
2. Check the cable for excessive wear, for broken strands, and lubrication.
3. Check the automatic worm brake for proper adjustment and adjust it if necessary.
4. Check the drum clutch to make sure it is fully engaging when shifted in. Make adjustments if necessary.

## WINCH MAINTENANCE (Continued)

**Once a week, or every 20 hours of operation**, the following tasks should be performed for proper maintenance of your winch:

1. Lube all bushings which are equipped with grease zerks with a good quality lithium-based chassis lube.
2. Inspect the oil level in the winch gearbox, and add lubricant if necessary.
3. Lubricate the cable, based on your wire rope supplier's recommendations.
4. If the winch is equipped with a shoe-type brake, inspect the shoes and drum for wear and replace if necessary.

**Every six months**, the gearbox should be drained and filled with new clean gear lubricant. All Tulsa worm gear winches are filled at the factory with EP140 gear lube, which is ideal for most conditions. If the ambient temperatures where your winch will be working will not exceed 30 degrees F., you can use EP90; likewise, if the temperature will always be over 100 degrees F., you probably should use EP250.

Some Tulsa winches may have been modified to be mounted in other than the normal attitude, which is with the worm horizontal and below the level of the output shaft. If your winch is mounted in another attitude, there may be a special plug which determined the oil level required in your winch. If you have any questions, please contact the factory.

***The chart shows the oil capacities for Tulsa winches:***

| Model | Capacity (Pints) |
|---|---|
| 5 | 1 |
| 938 | 1-1/2 |
| 1138 | 1-1/2 |
| 1000 | 2 |
| 1200 | 2 |
| 10 | 3 |
| 12 | 3 |
| 18 | 6 |
| 18G | 6 |
| 19 | 6 |
| 23 | 6 |
| 24 | 6 |
| 34 | 6 |
| 64 | 10 |
| 70 | 10 |
| 75 | 10 |
| 80 | 15 |

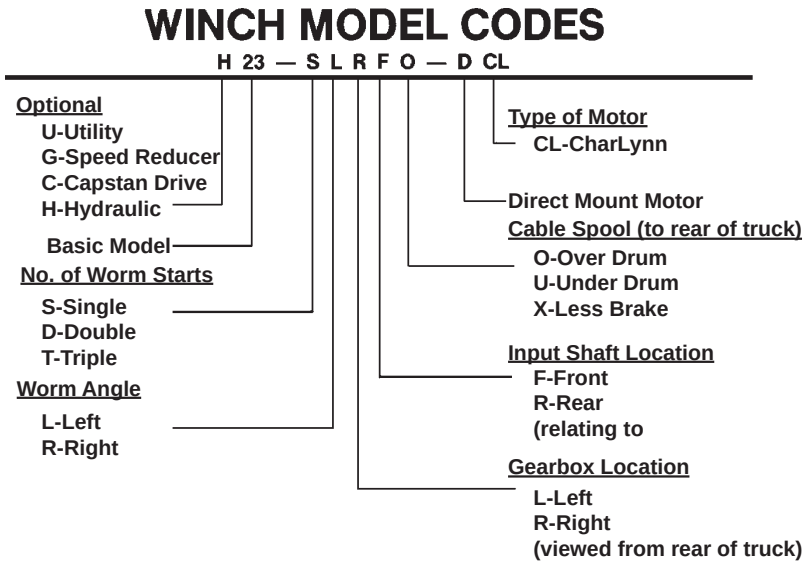
## WINCH MODEL CODES

All Tulsa winches have the model, serial number, and assembly number stamped both on the identification tag and on the housing. Please take a few minutes to record these numbers for future use. The assembly number will be required when ordering parts.

MODEL _____

SERIAL NO. _____

ASSEMBLY NO. _____




## AUTOMATIC WORM BRAKES

Most Tulsa winches are equipped with an automatic worm brake to hold suspended loads. If your winch is not equipped with one, it is intended for pulling loads only. If you wish to lift and suspend loads with your winch, it can be retrofitted with an automatic worm brake. Please consult the factory for details.

The worm brake is an important safety feature of your winch and must be maintained properly. There are three types of worm brakes used on Tulsa winches:

1. Wrap-around band brakes. These are mounted on the worm and are not to be confused with the drum-mounted band brakes on larger winches.
2. Automotive-style shoe brakes.
3. Multiple-disc wet brakes.

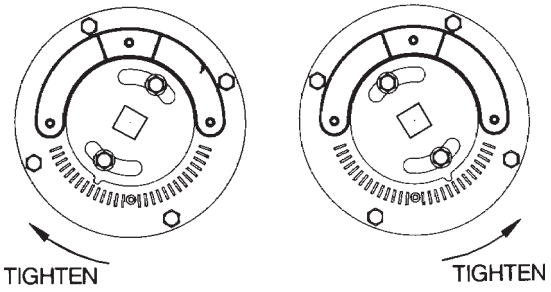
## AUTOMATIC WORM BRAKES (Continued)

Each of these worm brakes is designed to operate in the same manner. As a load is hauled in, the brake is released and the load is moved or raised. As the load is stopped, the brake engages and prevents it from falling. When the operator begins to pay out cable to lower the load, he must overcome the drag of the brake to lower the load.

In order for the brake to operate properly, it must be set to engage in the payout mode. To check this, run the winch for one minute under no load in both directions at low speeds. If there is evidence of heat build-up in the payout direction, the brake is installed properly. If the heat rise occurs in the inhaul direction, the brake is installed backward and must be changed.

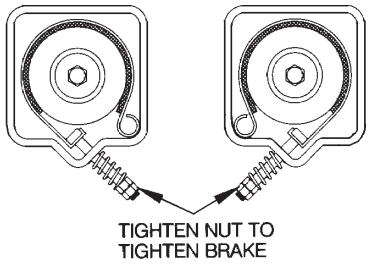
Most winches are set up to spool over the drum to the load. You can check your model code to determine this. If the winch is set up in this manner and you decide to spool the cable under the drum, you must reverse the direction of brake engagement.

The most common brake for Tulsa winches is the automotive-style shoe brake. This brake uses two shoes in a brake drum to hold winch loads. Models 10 through 34 with shoe brakes have a reversible cam; the 64, 70, and 80 require installation of a new cam to change the direction of braking. The illustration on the right shows the end cover of the typical shoe brake and how to adjust it.



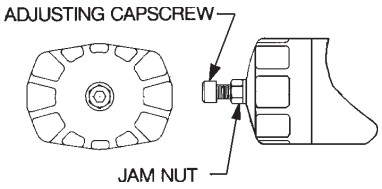

To tighten the brake, loosen the two capscrews in the slotted holes and rotate the brake in the direction shown. If the brake on a Model 10 through 34 needs to reversed, remove those same two capscrews, rotate the cam 60 degrees in the loosening direction, and reinstall the capscrews in the new set of holes which have just been revealed. After adjustment, be sure to re-tighten the cam capscrews securely.

Another type of brake, used on the Models 5, 6, 8 and some older winches is the band brake. Two assemblies of the band brake are shown to the right, with the cover removed to view the interior.




The direction in which this brake works can be reversed by removing the band from the brake, turning it over, and reinstalling it.

The Models **938**, 1138, 1060, and 1242 are equipped with an adjustable, multiple disc oil brake. This brake is adjusted by loosening the jam nut and turning the capscrew inward.




Some versions of the Models 10 through 80 are equipped with a multiple disc oil brake which is not adjustable. These winches can be identified by the warning on the cover.

**CAUTION DURING REMOVAL!**
**SPRING LOADED COVER!**

These brakes require no regular adjustment. To service them, remove two capscrews 180 degrees from each other and install new capscrews which are 1” longer. Slowly, evenly remove the other capscrews until there is no tension on the brake spring. The direction of braking for all multiple disc brakes can be changed by removing the cam clutch, turning it over, and re-installing it. For detailed service instructions, contact your Tulsa Winch distributor or the factory.

## BRAKE ADJUSTMENT

In general, worm brakes on Tulsa winches should only be adjusted enough to hold the load you are currently working with. Over adjustment will result in excessive heat generation and brake wear. The most positive way to insure proper brake adjustment is to lift a test load just barely off the ground. Jog the winch out, and see if the brake holds. It if doesn't, tighten the brake slightly and try it again. If the brake is tightened completely and the load still drifts, the brake must be serviced. DO NOT use the winch to lift loads with a worn brake.

If the input to the winch is accessible and a torque wrench can be put on it, the brake can be set with this torque wrench. The table on the right shows the torque values for all models based on rated linepull.

| Model | Brake Torque (Lb.Ft.) |
|---|---|
| 5 | 3 |
| 938 | 3 |
| 1138 | 3 |
| 1000 | 3 |
| 1200 | 4 |
| 10 | 32 |
| 12 | 32 |
| 18 | 50 |
| 18G | 50 |
| 19 | 50 |
| 23 | 50 |
| 24 | 70 |
| 34 | 70 |
| 64 | 120 |
| 70 | 140 |
| 75 | 140 |
| 80 | 185 |

## LIMITED WARRANTY

Tulsa Winch expressly warrants its products against defects in material and workmanship under normal and ordinary use and service for a period of One (1) year from the date of purchase from Tulsa Winch or any authorized distributor of Tulsa Winch products. This warranty is not applicable to product failure due to improper operation or usage, misapplication, or employment for other than normal ordinary purposes.

BUYER'S SOLE AND EXCLUSIVE REMEDY IN THE EVENT OF A DEFECT IS EXPRESSLY LIMITED TO THE REPAIR OR REPLACEMENT OF THE PRODUCT, OR THE REFUND OF THE PURCHASE PRICE, AT THE SOLE ELECTION OF TULSA WINCH. Written notice and explanation of the circumstance of any claim that a product has proven defective in material and workmanship should be given promptly by the Buyer to Tulsa Winch. Tulsa Winch requires proof of date of purchase and reserves the right to inspect any product claimed to be defective under this warranty.

EXCEPT AS SPECIFICALLY PROVIDED FOR IN THIS MANUFACTURER'S LIMITED WARRANTY, THERE ARE NO OTHER WARRANTIES EXPRESS OR IMPLIED INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE. IN NO EVENT SHALL TULSA WINCH BE LIABLE FOR LOSS OF PROFITS, INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL, OR OTHER SIMILAR DAMAGES ARISING OUT OF ANY BREACH OF THIS AGREEMENT, OBLIGATIONS UNDER THE AGREEMENT, NEGLIGENCE OF STRICT LIABILITY. TULSA WINCH MAKES NO WARRANTY, EXPRESS OR IMPLIED, FOR A MINIMUM LENGTH OF SERVICE OR USE OF ANY TULSA WINCH PRODUCT. TULSA WINCH SHALL HAVE NO OBLIGATION TO REPAIR OR REPLACE ITEMS WHICH BY THEIR NATURE ARE EXPENDABLE.

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# INSTALLATION AND OPERATION
## TROUBLESHOOTING

### *ATTACHMENTS WITH HYDRAULICS*

| *PROBLEM* | *POSSIBLE CAUSE* | *POSSIBLE REMEDY* |
|---|---|---|
| **Excessive oil temperature.** | 1. Hydraulic oil level too low. | • Refer to telehandler's owners manual. |
| | 2. Obstruction in hydraulic lines. | • Remove obstruction and replace, if necessary. |
| | 3. Couplers not engaged correctly. | • Engage couplers. |
| | 4. Hydraulic system overloaded, and system relief open. | • Reduce load. |
| **A Hydraulic cylinder not operating.** | 1. Insufficient hydraulic flow from the prime mover. | • Refer to prime mover's owners manual. |
| | 2. Cylinder rod bent. | • Visually inspect the cylinder for damage. |
| | 3. Cylinder seals damaged. | • Replace cylinder seals. |
| | 4. Obstruction in hydraulic lines. | • Remove obstruction and replace, if necessary. |

### *SIDE SHIFT & SIDE TILT FORK CARRIAGES*

| *PROBLEM* | *POSSIBLE CAUSE* | *POSSIBLE REMEDY* |
|---|---|---|
| **Hydraulic cylinder not operating - carriage does not tilt or shift.** | 1. Hydraulic hoses incorrectly connected. | • Switch hoses on one cylinder. |
| | 2. Insufficient hydraulic flow from the prime mover. | • Refer to prime mover's owners manual. |
| | 3. Cylinder rod bent. | • Visually inspect the cylinder for damage. |
| | 4. Cylinder seals damaged. | • Replace cylinder seals. |
| | 5. Obstruction in hydraulic lines. | • Remove obstruction and replace, if necessary. |

### *SWING CARRIAGE*

| *PROBLEM* | *POSSIBLE CAUSE* | *POSSIBLE REMEDY* |
|---|---|---|
| **Excessive movement between frames.** | 1. Worn bearings on swing post. | • Replace bearings. |
| **Hydraulic cylinder not operating - carriage does not swing.** | 1. Hydraulic hoses incorrectly connected. | • Switch hoses on one cylinder. |
| | 2. Insufficient hydraulic flow from the prime mover. | • Refer to prime mover's owners manual. |
| | 3. Cylinder rod bent. | • Visually inspect the cylinder for damage. |
| | 4. Cylinder seals damaged. | • Replace cylinder seals. |
| | 5. Obstruction in hydraulic lines. | • Remove obstruction and replace, if necessary. |

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# INSTALLATION AND OPERATION
## TROUBLESHOOTING

### *X1475 AUGER*

| *PROBLEM* | *POSSIBLE CAUSE* | *POSSIBLE REMEDY* |
|---|---|---|
| **Slow Speed** | 1. Low Flow. | • Check with flow meter. |
| | 2. Line restrictions. | • Clear lines. |
| | 3. Fittings or connections too small. | • Replace with proper size. |
| | 4. Oil filter dirty. | • Replace. |
| | 5. Hydraulic pump worn or damaged. | • See Dealer for repair. |
| **Insufficient Digging Power.** | 1. Worn teeth or point. | • Replace. |
| | 2. Low system pressure (PSI). | • Check with pressure gauge. |
| | 3. Relief valve damaged or setting wrong. | • Adjust or replace, as required. |
| | 4. Excessive load. | • Reduce load to within machine specifications. |
| **Reverse Direction.** | 1. Hoses reversed. | • Reinstall hoses correctly. |
| **Excessive Oil Heating.** | 1. Line restrictions. | • Clear lines. |
| | 2. Fluid dirty. | • Replace hydraulic fluid and filter. |
| | 3. Insufficient quantity of hydraulic fluid. | • Fill to proper level. |
| **Oil Leaks.** | 1. Hoses loose or damaged. | • Tighten or replace. |
| | 2. Fittings loose or damaged. | • Tighten or replace. |
| | 3. 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 INSPECTION - ALL ATTACHMENTS

- Check all bolts, nuts, and pivot pins for tightness, damage, breaks, or wear. Replace, if necessary with approved replacement parts.
- Check hydraulic hoses for damage, leaking, and/or signs of excessive heat. Replace, if necessary. See “Safety Precautions”.
- Visually inspect the machine for worn or missing parts or cracked welds, and repair, as necessary.
- Check hydraulic oil for cleanliness and contamination. Change, if necessary.

### MONTHLY OR EVERY 40 HOURS OF OPERATION - ALL ATTACHMENTS

- Check bearings for wear and tightness. Replace, as needed.
- Clean equipment of dirt, oil, grease, etc. This will assist you in making a visual inspection, and help avoid overlooking worn or damaged components.

### AUGER MAINTENANCE

### DAILY INSPECTION

- Check auger point and auger teeth for excessive wear or loose fit. Replace, if necessary.
- Check output shaft for excessive wear, damage or leakage. Replace, if necessary.

**CAUTION! EXCESSIVE VENTING OF LUBRICANT FROM PLANETARY MAY INDICATE THAT THE MOTOR SHAFT SEAL IS LEAKING. UNIT SHOULD BE REPAIRED IMMEDIATELY.**

**PLANETARY SHAFT SEAL REPLACEMENT IS THE ONLY PLANETARY REPAIR THAT CAN BE MADE WHILE THE UNIT IS UNDER WARRANTY. (SEE PARTS PAGES FOR PLANETARY SEAL NUMBER.)**

**MOTOR SHAFT SEAL REPLACEMENT IS THE ONLY HYDRAULIC MOTOR REPAIR THAT CAN BE MADE WHILE THE UNIT IS UNDER WARRANTY. (SEE PARTS PAGES FOR MOTOR SEAL NUMBER.)**

### PERIODIC TRUSS BOOM WITH WINCH MAINTENANCE

### DAILY INSPECTION (OR AFTER EVERY ONE HOUR OF WINCH USE)

- See “Winch Maintenance” in the “Tulsa Winch Operating & Safety Manual”.

### WEEKLY INSPECTION (OR AFTER EVERY 20 HOURS OF OPERATION)

- See “Winch Maintenance” in the “Tulsa Winch Operating & Safety Manual”.

### SIX MONTH INSPECTION

- See “Winch Maintenance” in the “Tulsa Winch Operating & Safety Manual”.

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# MAINTENANCE & SERVICE

## LUBRICATION

The only lubrication your attachment may need is the greasing of the cylinder ends and most pivot points. A grease fitting has been installed to facilitate this task. Following is a list of each of the attachments in this manual that require lubricating, and the number of grease fittings. We recommended that all grease fittings for the following attachments be lubricated after the intitial 8 hours of operation, and then after every 40 hours of use thereafter.

- Scrap Grapple - 6 (4 fittings on right and left grapple hooks, and one on each end of cylinders).
- Brush Grapple - 10 (8 fittings on pins on right and left grapple hooks, and one on each end of cylinders).
- Side Shift Fork Carriage - 4 (two fittings on rear frame, and one on each end of cylinders).
- Side Tilt Fork Carriage - 3 (one fitting on pivot block, and one on each end of cylinders).
- Swing Carriage - 6 (one fitting on top and bottom of swing frame pivot, and one on each end of cylinders).

### ***EVERY 12 MONTHS (OR 1200 HOURS) - AUGER***

Change planetary gear box oil with API-GL-5, 80W or 90W lubricant after the first 50 hours of operation, and then every 1200 hours or 12 months, whichever comes first.

### ***EVERY 6 MONTHS - TRUSS BOOM WITH WINCH***

Change oil every six (6) months. Use EP 140 or equivalent.

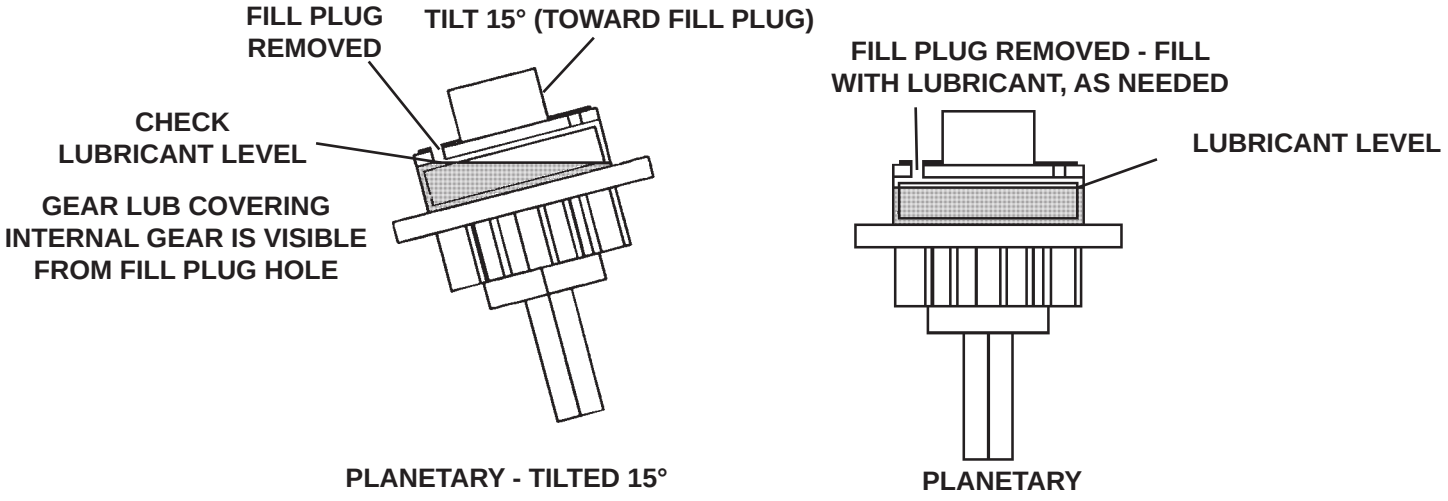
# MAINTENANCE & SERVICE

***AUGER LUBRICATION - CHECKING PLANETARY LUBRICANT***

1. Place the planetary in a vertical position. See diagrams below.
2. Remove fill plug.
3. Check the lubricant level. Gear lubrication level should be visible below the bottom of the housing at the fill plug hole.
4. To Fill: Tilt the planetary slightly (maximum 15°) towards the fill hole. See diagrams below.
5. With the planetary in this position, lubricant should cover the internal gear and be visible through the fill plug hole. See diagrams below.

***NOTE:*** Add lubricant if Planetary is tilted 15°, and lubricant is still not visible through the fill plug hole.

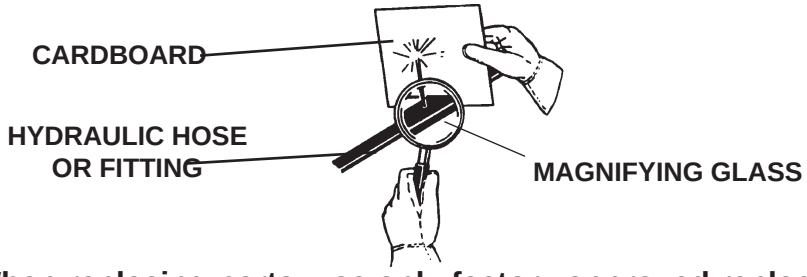
6. Replace fill plug when the appropriate level of lubricant is visible through the fill plug hole.




**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.**




**IMPORTANT: When replacing parts, use only factory approved replacement parts. Manufacturer will not claim responsibility for use of unapproved parts or accessories and/or other damages as a result of their use.**

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# MAINTENANCE & SERVICE

## DECAL IDENTIFICATION AND REPLACEMENT

Decal placement and identification for all of the attachments can be found on the parts diagrams and lists located at the back of this manual. The decals are identified by their part numbers with reductions of the actual decals located on the page. Use this information to order replacements for missing, illegible or damaged deals. When replacing parts with safety signs attached, the safety sign must also be replaced. All Safety Decals are free of charge. Contact your nearest dealer for replacements.

**REPLACING SAFETY SIGNS:**

1. Clean the area of application with nonflammable solvent.
2. Wash the same area with soap and water, and then allow the surface to fully dry.
3. Remove the backing from the safety sign, exposing the adhesive surface.
4. Apply the safety sign to the location shown in the parts diagram, and smooth out bubbles.

***Helpful Hints:***

1. Decals adhere to a warm surface better than a cold surface.
2. Applying heat (from a hair dryer) will greatly improve your ability to remove a damaged decal before preparing the surface for installation of a new one.

# MAINTENANCE AND SERVICE

## CYLINDER SEAL REPLACEMENT

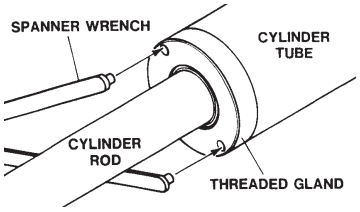
The following information is provided to assist you in the event you should need to repair or rebuild a hydraulic cylinder. When working on hydraulic cylinders, make sure that the work area and tools are clean and free of dirt to prevent contamination of the hydraulic system and damage to the hydraulic 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.

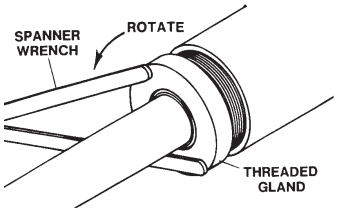
### DISASSEMBLY PROCEDURE

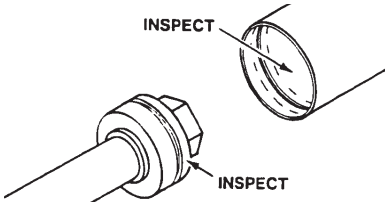
**IMPORTANT: Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.**

### THREADED TYPE GLAND

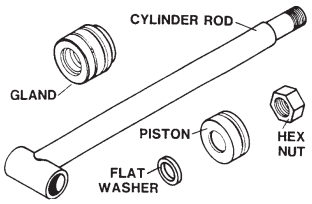
1. Rotate the gland with a spanner wrench counterclockwise until the gland is free of the cylinder tube.
2. Pull the cylinder rod from the cylinder tube and inspect the piston and the bore of the cylinder tube for deep scratches or galling. If damaged, the piston AND the cylinder tube must be replaced.

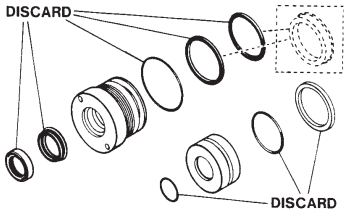



3. Remove the hex nut, piston, flat washer or spacer tube (if so equipped), and gland from the cylinder rod. If the cylinder rod is rusty, scratched, or bent, it must be replaced.
4. Remove and discard all the old seals.



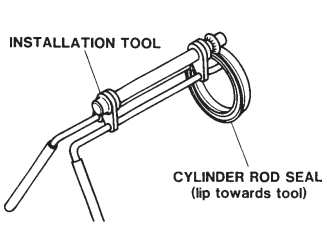



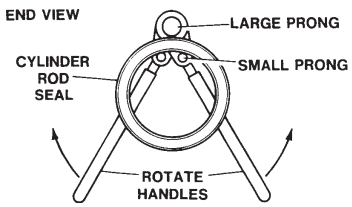

### ASSEMBLY PROCEDURE

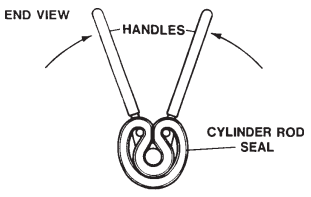
**IMPORTANT: Replace all seals even if they do not appear to be damaged. Failure to replace all seals may result in premature cylinder failure. NOTE: Seal kits will service most cylinders of similar bore size and rod diameter.**

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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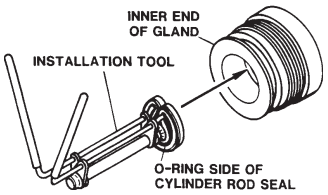
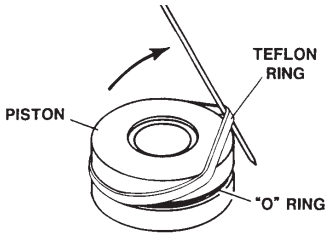
# MAINTENANCE AND SERVICE

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.



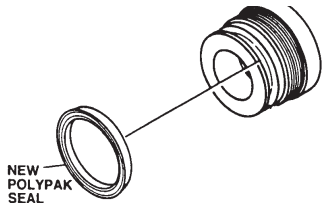

2. Install the new piston ring, rod wiper, O-rings and backup washers, if applicable, on the piston.

   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.



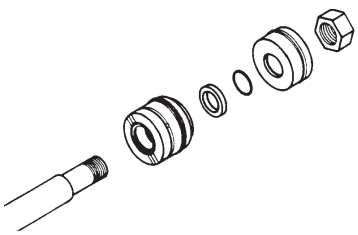

3. After installing the rod seal inside the gland, as shown in step #1, install the external seal.

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.



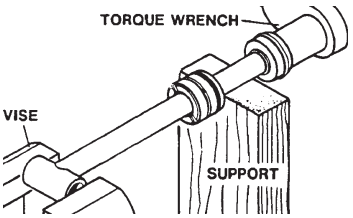

4. Slide the gland onto the cylinder rod, being careful not to damage the rod wiper. Then install the spacer, or flat washer (if so equipped), small o-ring, piston, and hex nut onto the end of the cylinder rod.

5. 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 |

*** 1" Thread Diameter WITH 1.25" Rod Diameter**
**Min. 230 ft. lbs. Max. 250 ft. lbs.**




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

6. 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.**

7. 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.**

10357 10-13-05

# SPECIFICATIONS

## BUCKET SPECIFICATIONS

| | 13083<br>CASE #87716405 | 13084<br>CASE #87716406 | 13085<br>CASE #87716407 |
|---|---|---|---|
| **Overall Height (inches)** | 33.58 | 36.74 | 35.94 |
| **Overall Width (inches)** | 96 | 96 | 96 |
| **Overall Length (inches)** | 37.03 | 38.66 | 46.66 |
| **Capacity (cubic yards)** | 1.50 | 1.75 | 2.00 |
| **Attachment Weight (lbs.)** | 998 | 1,070 | 1,155 |
| **Shipping Weight (lbs.)** | 1,148 | 1,220 | 1,305 |

| | 13087<br>CASE #87716408 | 13088<br>CASE #87716409 |
|---|---|---|
| **Overall Height (inches)** | 65.08 | 57.79 |
| **Overall Width (inches)** | 96 | 84 |
| **Overall Length (inches)** | 45.12 | 45.55 |
| **Capacity (cubic yards)** | 1.75 | NA |
| **Attachment Weight (lbs.)** | 1,720 | 1,660 |
| **Shipping Weight (lbs.)** | 1,870 | 1810 |

## FORK CARRIAGE SPECIFICATIONS

| | 13070<br>CASE #87710673 | 13071<br>CASE #87710674 | 13072<br>CASE #87710675 |
|---|---|---|---|
| **Overall Height (inches) Without Forks** | 49.12 | 49.12 | 49.12 |
| **Overall Width (inches)** | 51.48 | 63.48 | 75.48 |
| **Attachment Weight - Without Forks (lbs.)** | 465 | 520 | 615 |
| **Shipping Weight - Without Forks (lbs.)** | 520 | 605 | 670 |

| | 13077<br>CASE #87716390 | 13078<br>CASE #87716391 | 13073<br>CASE #87710676 |
|---|---|---|---|
| **Overall Height (inches) Without Forks** | 43.90 | 43.90 | 44.13 |
| **Overall Width (inches)** | 51.75 | 63.75 | 51.48 |
| **Attachment Weight - Without Forks (lbs.)** | 755 | 810 | 700 |
| **Shipping Weight - Without Forks (lbs.)** | 805 | 860 | 755 |

| | 13074<br>CASE #87710677 | 13075<br>CASE #87716389 | 13076<br>CASE #87710678 |
|---|---|---|---|
| **Overall Height (inches) Without Forks** | 44.13 | 44.13 | 46.62 |
| **Overall Width (inches)** | 63.48 | 75.48 | 75.48 |
| **Attachment Weight - Without Forks (lbs.)** | 760 | 870 | 1025 |
| **Shipping Weight - Without Forks (lbs.)** | 815 | 920 | 1100 |

# SPECIFICATIONS

## TRUSS BOOM SPECIFICATIONS

| | 13080 CASE #87710679 | 13081 CASE #87716406 |
|---|---|---|
| **Overall Height (inches)** | 24.80 | 24.56 |
| **Overall Width (inches)** | 24 | 24 |
| **Overall Length (inches)** | 148.29 | 176.24 |
| **Attachment Weight (lbs.)** | 550 | 605 |
| **Shipping Weight (lbs.)** | 700 | 771 |

| 13082 (With Winch) CASE #87716399 | |
|---|---|
| **Overall Height (inches)** | 33.06 |
| **Overall Width (inches)** | 43.99 |
| **Overall Length (inches)** | 40.25 |
| **Maximum Winch Pull Setting (lbs)** | 4,000 |
| **Attachment Weight (lbs.)** | 590 |
| **Shipping Weight (lbs.)** | 640 |

## X1475 AUGER SPECIFICATIONS

| | 13093 CASE #87716748 |
|---|---|
| **Maximum Auger Diameter:** | 30” |
| **Minimum Hydraulic Flow:** | 10 gpm |
| **Maximum Hydraulic Flow:** | 25 gpm |
| **Maximum Continuous Operating PSI:** | 3,000 psi |
| **Maximum Back Pressure:** | 1,500 psi |
| **Output Shaft Options:** | 2” Hexagon |

| OUTPUT SPEED | | | OUTPUT TORQUE | | |
|---|---|---|---|---|---|
| **FLOW** | | **SPEED** | **PRESSURE** | | **TORQUE** |
| **GPM** | **=** | **RPM** | **PSI** | **=** | **Lb•Ft** |
| 10 | = | 38 | 2000 | = | 1600 |
| 12 | = | 45 | 2500 | = | 2000 |
| 14 | = | 53 | 3000 | = | 2377 |
| 16 | = | 60 | | | |
| 18 | = | 68 | | | |
| 20 | = | 75 | | | |
| 25 | = | 94 | | | |

# BOLT TORQUE

## BOLT TORQUE SPECIFICATIONS

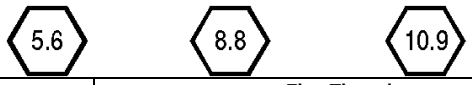
### GENERAL TORQUE SPECIFICATION TABLE

Use the following torques when special torques are not given. These values apply to fasteners as received from suppliers, dry, or when lubricated with normal engine oil. They do not apply if special graphited or moly disulphide greases or other extreme pressure lubricants are used. This applies to both UNF and UNC threads. Remember to always use grade five or better when replacing bolts.

**IMPORTANT: On all PLATED GRADE 8 bolts, reduce torque 15% from listed bolt torque specification.**

| SAE Grade No. | | 2 | | | | 5 | | | | 8* | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bolt head identification marks as per grade. NOTE: Manufacturing Marks Will Vary | |  | | | |  | | | |  | | | |
| | | TORQUE | | | | TORQUE | | | | TORQUE | | | |
| Bolt Size | | Pounds Feet | | Newton-Meters | | Pounds Feet | | Newton-Meters | | Pounds Feet | | Newton-Meters | |
| Inches | Millimeters | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. |
| 1/4 | 6.35 | 5 | 6 | 7 | 8 | 9 | 11 | 12 | 15 | 12 | 15 | 16 | 20 |
| 5/16 | 7.94 | 10 | 12 | 14 | 16 | 17 | 20.5 | 23 | 28 | 24 | 29 | 33 | 39 |
| 3/8 | 9.53 | 20 | 23 | 27 | 31 | 35 | 42 | 48 | 57 | 45 | 54 | 61 | 73 |
| 7/16 | 11.11 | 30 | 35 | 41 | 47 | 54 | 64 | 73 | 87 | 70 | 84 | 95 | 114 |
| 1/2 | 12.70 | 45 | 52 | 61 | 70 | 80 | 96 | 109 | 130 | 110 | 132 | 149 | 179 |
| 9/16 | 14.29 | 65 | 75 | 88 | 102 | 110 | 132 | 149 | 179 | 160 | 192 | 217 | 260 |
| 5/8 | 15.88 | 95 | 105 | 129 | 142 | 150 | 180 | 203 | 244 | 220 | 264 | 298 | 358 |
| 3/4 | 19.05 | 150 | 185 | 203 | 251 | 270 | 324 | 366 | 439 | 380 | 456 | 515 | 618 |
| 7/8 | 22.23 | 160 | 200 | 217 | 271 | 400 | 480 | 542 | 651 | 600 | 720 | 814 | 976 |
| 1 | 25.40 | 250 | 300 | 339 | 406 | 580 | 696 | 787 | 944 | 900 | 1080 | 1220 | 1464 |
| 1-1/8 | 25.58 | - | - | - | - | 800 | 880 | 1085 | 1193 | 1280 | 1440 | 1736 | 1953 |
| 1-1/4 | 31.75 | - | - | - | - | 1120 | 1240 | 1519 | 1681 | 1820 | 2000 | 2468 | 2712 |
| 1-3/8 | 34.93 | - | - | - | - | 1460 | 1680 | 1980 | 2278 | 2380 | 2720 | 3227 | 3688 |
| 1-1/2 | 38.10 | - | - | - | - | 1940 | 2200 | 2631 | 2983 | 3160 | 3560 | 4285 | 4827 |
| * Thick Nuts must be used with Grade 8 bolts | | | | | | | | | | | | | |

### METRIC BOLT TORQUE SPECIFICATIONS




| Size of Screw | Grade No. | Coarse Thread | | | Fine Thread | | |
|---|---|---|---|---|---|---|---|
| | | Ptich (mm) | Pounds Feet | Newton-Meters | Pitch (mm) | Pounds Feet | Newton-Meters |
| M6 | 5.6 | 1.0 | 3.6-5.8 | 4.9-7.9 | - | - | - |
| | 8.8 | | 5.8-.4 | 7.9-12.7 | | - | - |
| | 10.9 | | 7.2-10 | 9.8-13.6 | | - | - |
| M8 | 5.6 | 1.25 | 7.2-14 | 9.8-19 | 1.0 | 12-17 | 16.3-23 |
| | 8.8 | | 17-22 | 23-29.8 | | 19-27 | 25.7-36.6 |
| | 10.9 | | 20-26 | 27.1-35.2 | | 22-31 | 29.8-42 |
| M10 | 5.6 | 1.5 | 20-25 | 27.1-33.9 | 1.25 | 20-29 | 27.1-39.3 |
| | 8.8 | | 34-40 | 46.1-54.2 | | 35-47 | 47.4-63.7 |
| | 10.9 | | 38-46 | 51.5-62.3 | | 40-52 | 54.2-70.5 |
| M12 | 5.6 | 1.75 | 28-34 | 37.9-46.1 | 1.25 | 31-41 | 42-55.6 |
| | 8.8 | | 51-59 | 69.1-79.9 | | 56-68 | 75.9-92.1 |
| | 10.9 | | 57-66 | 77.2-89.4 | | 62-75 | 84-101.6 |
| M14 | 5.6 | 2.0 | 49-56 | 66.4-75.9 | 1.5 | 52-64 | 70.5-86.7 |
| | 8.8 | | 81-93 | 109.8-126 | | 90-106 | 122-143.6 |
| | 10.9 | | 96-109 | 130.1-147.7 | | 107-124 | 145-168 |
| M16 | 5.6 | 2.0 | 67-77 | 90.8-104.3 | 1.5 | 69-83 | 93.5-112.5 |
| | 8.8 | | 116-130 | 157.2-176.2 | | 120-138 | 162.6-187 |
| | 10.9 | | 129-145 | 174.8-196.5 | | 140-158 | 189.7-214.1 |
| M18 | 5.6 | 2.0 | 88-100 | 119.2-136 | 1.5 | 100-117 | 136-158.5 |
| | 8.8 | | 150-168 | 203.3-227.6 | | 177-199 | 239.8-269.6 |
| | 10.9 | | 175-194 | 237.1-262.9 | | 202-231 | 273.7-313 |
| M20 | 5.6 | 2.5 | 108-130 | 146.3-176.2 | 1.5 | 132-150 | 178.9-203.3 |
| | 8.8 | | 186-205 | 252-277.8 | | 206-242 | 279.1-327.9 |
| | 10.9 | | 213-249 | 288.6-337.4 | | 246-289 | 333.3-391.6 |

10360 6-8-95-2

# 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 - ALL ATTACHMENTS

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, or install covers, to protect the hydraulic system from contaminates.

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.

## PREPARATION FOR STORAGE - AUGER

1. Check to ensure that hydraulic motor and hoses are full of clean oil.

2. Be sure planetary is full of clean lubricant.

3. Coat the drive unit output shaft, inside of auger collar, variable auger extension shaft (if so equipped), and inside of auger extension collar (if so equipped), to prevent rust and reduce wear.

## REMOVING FROM STORAGE - ALL ATTACHMENTS

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.**

# LIMITED WARRANTY

**WARRANTY PERIODS**
**All McMillen Augers: 2 years**

**(NOTE: The Planetary Gearbox ONLY carries an additional 3 years warranty.)**

All new products are warranted to be free from defects in material and/or workmanship during their warranty period. Under no circumstances will it cover any merchandise or components thereof, which, in the opinion of the company, have been subject to misuse, including but not limited to the installation of foundation anchors, unauthorized modifications, alterations, accidents, or if repairs have been made with parts other than those obtainable through BRADCO®/McMILLEN®/THE MAJOR®.

In the event of a defect within the warranty period from initial purchase, first lease or rental or 6 months after invoiced ship date if no registration / service agreement has been submitted: 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, and broom brushes). If after examination, it is determined failure was due to defective material and/or workmanship, part(s) will be repaired or replaced. BRADCO®/McMILLEN®/THE MAJOR® may request defective part(s) be returned PRE-PAID to them for inspection at their place of business at Delhi, Iowa USA, or sent to a specified location.

Any claims under this warranty must be made within fifteen (15) days from date of repair, and all repairs must be made within 30 days from date of failure. All claims not made in writing and received within these time periods specified above shall be denied.

# Limitations on Responsibility

**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 BRADCO®/McMILLEN®/THE MAJOR® BE LIABLE FOR CONSEQUENTIAL OR SPECIAL DAMAGE.**

**BRADCO®/McMILLEN®/THE MAJOR® LIABILITY FOR ANY AND ALL LOSSES AND DAMAGES TO BUYER, RESULTING FROM ANY CAUSE WHATSOEVER, INCLUDING 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 BRADCO®/McMILLEN®/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.**

THE MAJOR
PALADIN LIGHT CONSTRUCTION

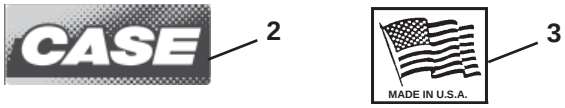
**PARTS DEPARTMENT**
(563) 922-2981
(800) 922-2981

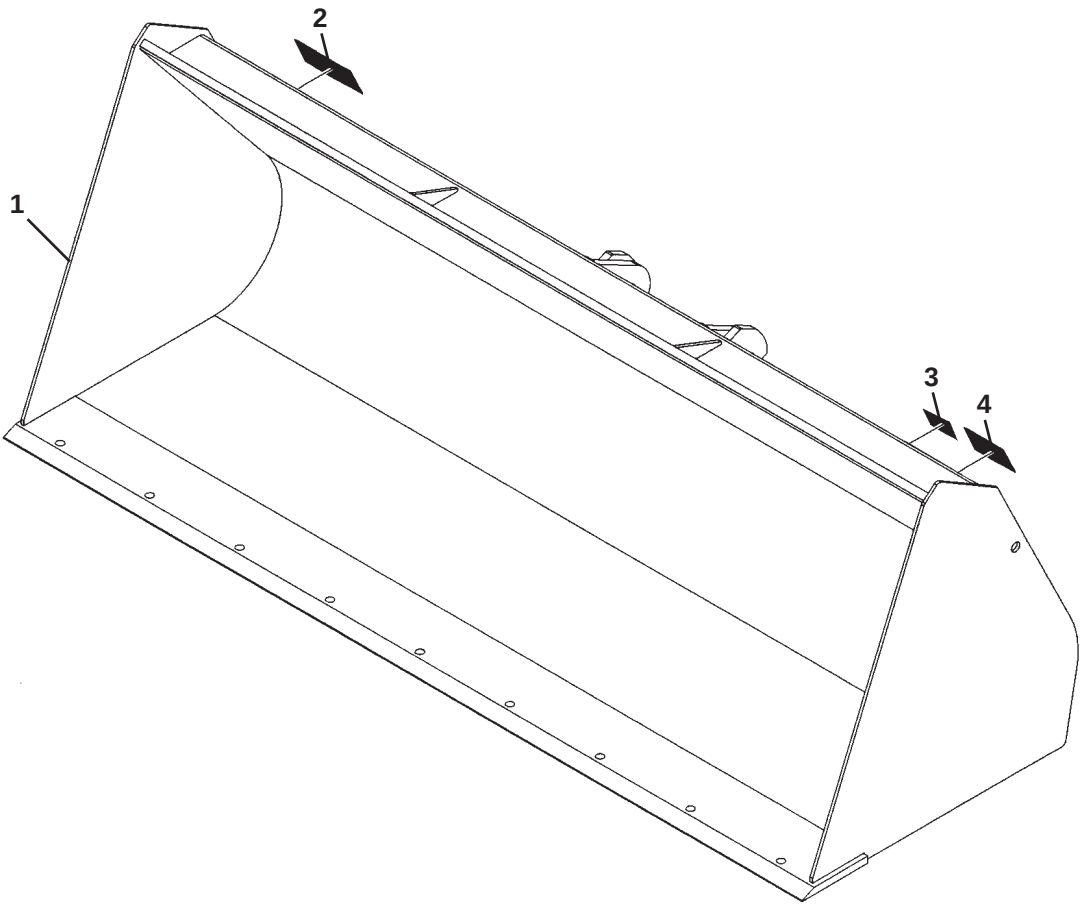
We Encourage Fax Orders
(563) 922-2593

# 1.50 CUBIC YARD X 96" LIGHT MATERIAL BUCKET

ASSEMBLY #13083 - CASE #87716405

TX TELEHANDLERS



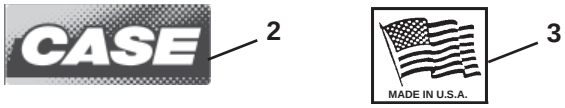

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 307106 | 1.50 Cubic Yard x 96" Bucket |
| 2 | 1 | 41064 | Case Logo |
| 3 | 1 | 4338 | Made in USA Decal |
| 4 | 1 | ----- | Serial Number Identification Tag Location |

***NOTE:*** Optional cutting edge #11002 (CASE #87649854) is available for this bucket.

# 1.75 CUBIC YARD X 96" LIGHT MATERIAL BUCKET

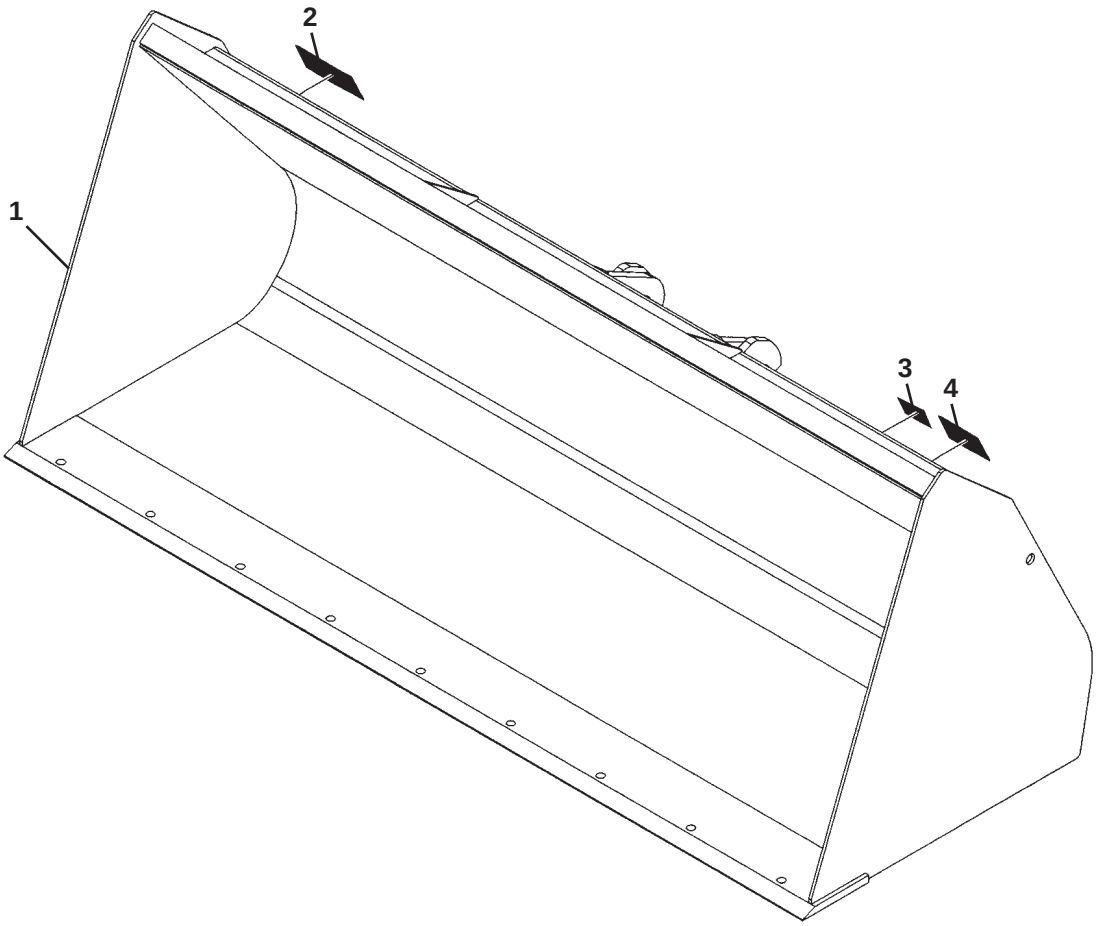
ASSEMBLY #13084 - CASE #87716406

TX TELEHANDLERS









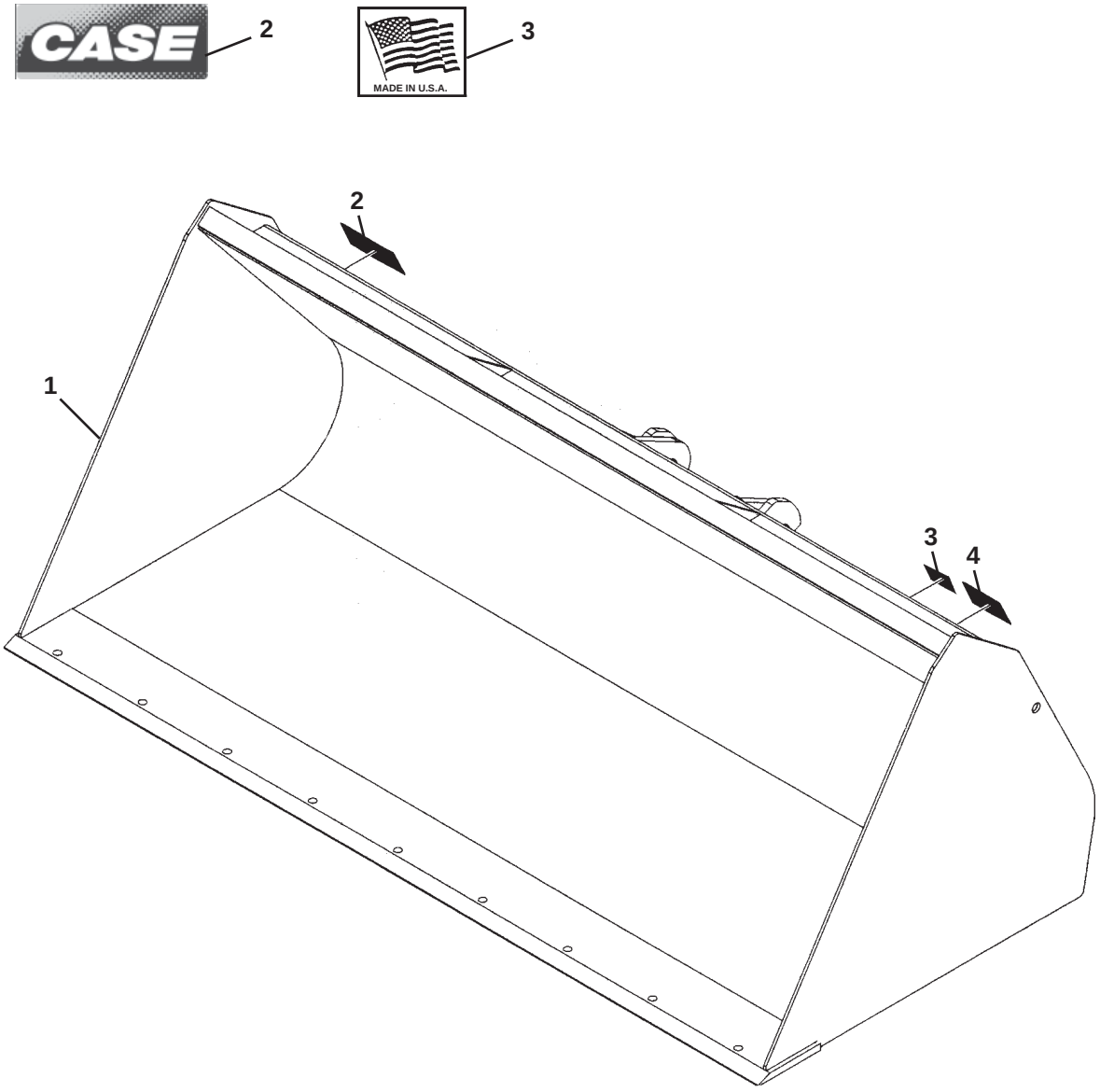

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 313120 | 1.75 Cubic Yard x 96" Bucket |
| 2 | 1 | 41064 | Case Logo |
| 3 | 1 | 4338 | Made in USA Decal |
| 4 | 1 | ----- | Serial Number Identification Tag Location |

***NOTE:*** Optional cutting edge #11002 (CASE #87649854) is available for this bucket.

# 2.00 CUBIC YARD X 96" LIGHT MATERIAL BUCKET

ASSEMBLY #13085 - CASE #87716407

TX TELEHANDLERS

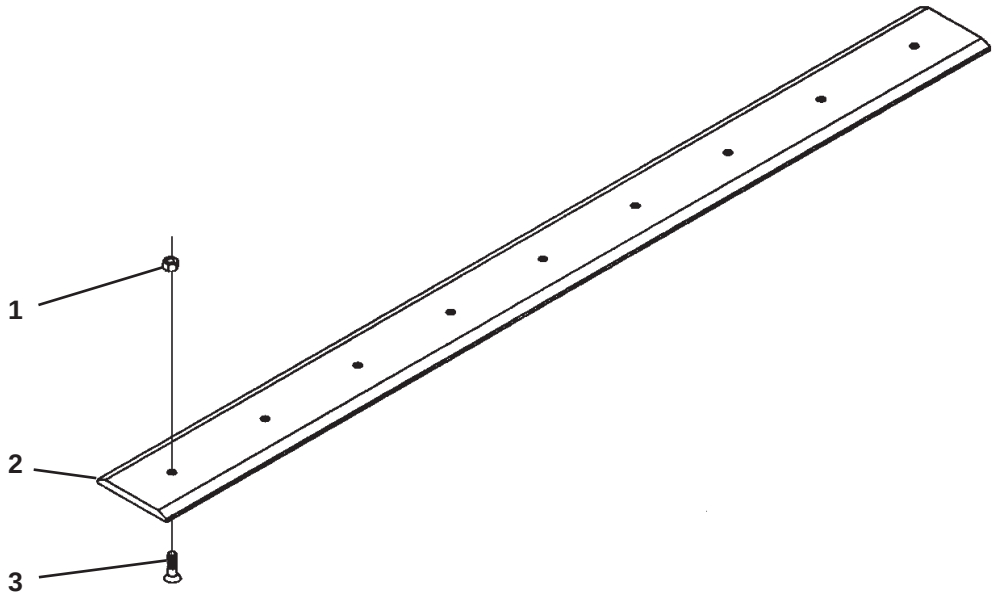



| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 110265 | 2.00 Cubic Yard x 96" Bucket |
| 2 | 1 | 41064 | Case Logo |
| 3 | 1 | 4338 | Made in USA Decal |
| 4 | 1 | ----- | Serial Number Identification Tag Location |

***NOTE:*** Optional cutting edge #11002 (CASE #87649854) is available for this bucket.

# 96" BOLT-ON CUTTING EDGE

ASSEMBLY #11002 - CASE # 87649854

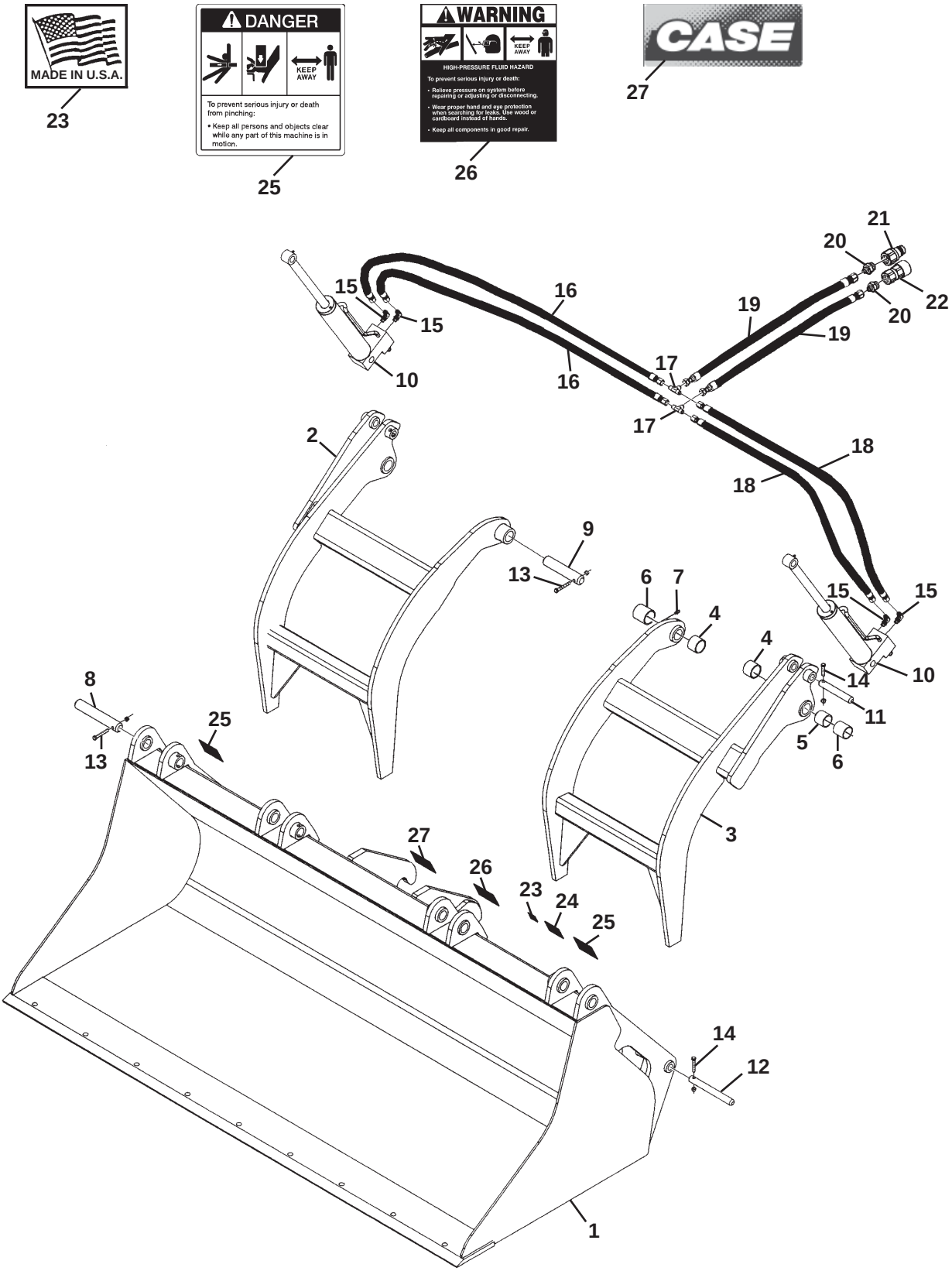



| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 9 | 1936 | .75” UNC Deformed Lock Nut |
| 2 | 1 | 12245 | Cutting Edge, .75” x 8.00” x 96.00” |
| 3 | 9 | 1937 | .75” UNC x 2.50” Plow Bolt |

# 1.75 CUBIC YARD SCRAP GRAPPLE BUCKET

ASSEMBLY #13087 - CASE #87716408

TX TELEHANDLERS



# 1.75 CUBIC YARD SCRAP GRAPPLE BUCKET

ASSEMBLY #13087 - CASE #87716408
TX TELEHANDLERS

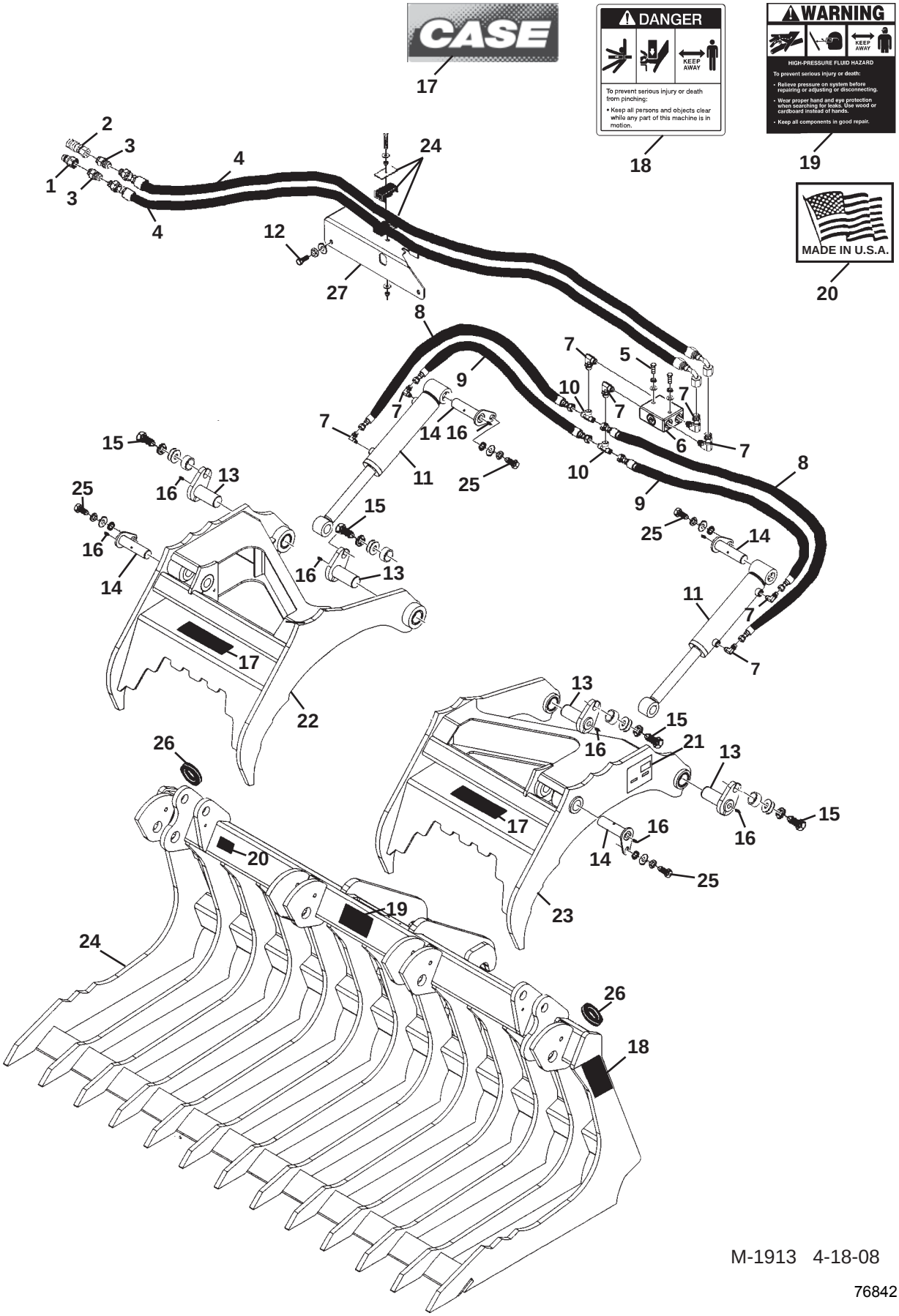
| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 111227 | Bucket |
| | 4 | 81358 | Replacement Hose Clamp |
| 2 | 1 | 18263 | Right Grapple Hook |
| 3 | 1 | 18264 | Left Grapple Hook |
| 4 | 4 | 14760 | Split Bushing, 1.75" x 1.50" x 1.25" |
| 5 | 2 | 14551 | Spacer |
| 6 | 4 | 14550 | Split Bushing, 1.75" x 1.50" x 1.75" |
| 7 | 4 | 9371 | Grease Fitting |
| 8 | 2 | 14139 | Outer Pivot Pin, 1.50” x 9.13” |
| 9 | 2 | 14289 | Inner Pivot Pin, 1.50” x 7.63” |
| 10 | 2 | 102273 | Cylinder Assembly |
| 11 | 2 | 14138 | Cylinder Pin, 1.00” x 6.75” |
| 12 | 2 | 14140 | Cylinder Pin, 1.00” x 9.06” |
| 13 | 4 | 1050 | .38” UNC x 2.75” Hex Capscrew |
| | 4 | 1837 | .38” Deformed Lock Nut |
| 14 | 4 | 1048 | .38” UNC x 2.25” Hex Capscrew |
| | 4 | 1837 | .38” Deformed Lock Nut |
| 15 | 4 | 3434 | 90° Elbow, 6MBo-6MJ |
| 16 | 2 | 37781 | Hose .38" X 73" 6FJX-6FJX |
| 17 | 2 | 3314 | Tee, 6MJ-6MJ-6MJ |
| 18 | 2 | 38362 | Hose .38" X 46" 6FJX-6FJX |
| 19 | 2 | 35818 | Hose .38" X 34" 6FJX-6FJX |
| 20 | 2 | 30201 | Straight Connector, 12MBo-6MJ |
| 21 | 1 | 22519 | Male Quick Coupler |
| 22 | 1 | 22518 | Female Quick Coupler |
| 23 | 1 | 4338 | Made in USA Decal |
| 24 | 1 | ----- | Serial Number Identification Tag Location |
| 25 | 2 | 40149 | Pinch Point Danger Decal |
| 26 | 1 | 40151 | High Pressure Warning Decal |
| 27 | 1 | 41064 | Case Logo |

***NOTE:*** #11002 optional bolt-on cutting edge available for this bucket.

# 84" HEAVY DUTY BRUSH GRAPPLE

ASSEMBLY #13088 - CASE #87716409

TX TELEHANDLERS




M-1913 4-18-08

# 84" HEAVY DUTY BRUSH GRAPPLE

ASSEMBLY #13088 - CASE #87716409

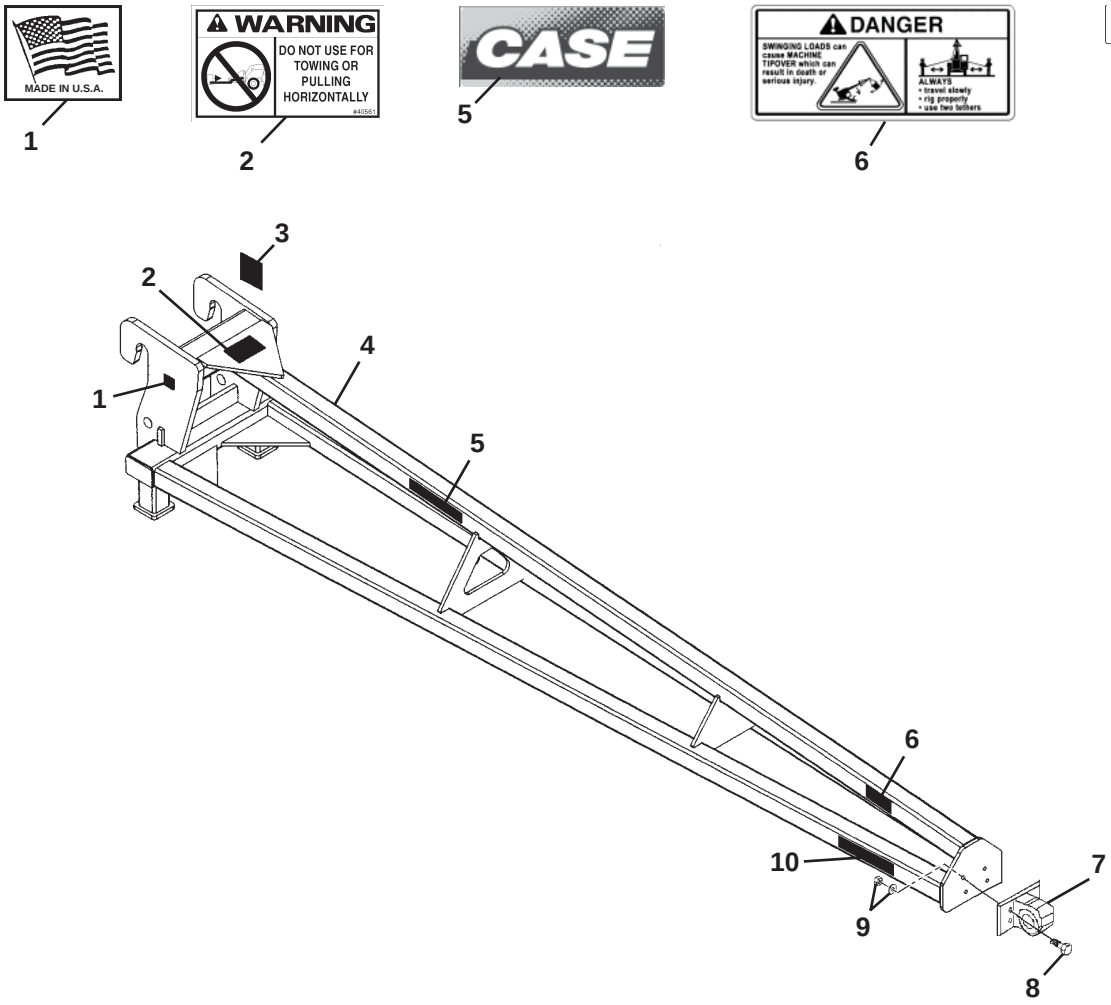
TX TELEHANDLERS

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 22519 | Male Quick Coupler |
| 2 | 1 | 22518 | Female Quick Coupler |
| 3 | 2 | 30201 | Straight Connector, 12MBo-6MJ |
| 4 | 2 | 37989 | Hose .38" X 47" 6FJX-6FJX90° |
| 5 | 2 | 1028 | .31” UNC x 2.50” Hex Capscrew |
| | 2 | 1502 | .31" Lock Washer |
| | 2 | 1513 | .31" Flat Washer |
| 6 | 1 | 88536 | Valve |
| 7 | 8 | 3434 | 90° Elbow, 6MBo-6MJ |
| 8 | 2 | 37024 | Hose .25" X 48" 6FJX-6FJX |
| 9 | 2 | 38142 | Hose .25" X 57" 6FJX-6FJX |
| 10 | 2 | 30031 | Tee, 6MJ-6FJX-6MJ |
| 11 | 2 | 101280 | Cylinder Assembly |
| 12 | 2 | 1021 | .31" UNC X .75" Hex Capscrew |
| | 2 | 1502 | .31" Lock Washer |
| | 2 | 1513 | .31" Flat Washer |
| 13 | 4 | 101019 | Pin, 1.75" x 4.25" |
| 14 | 4 | 101017 | Pin, 1.38" x 5.13" |
| 15 | 4 | 1114 | .62" UNC x 1.50" Hex Capscrew |
| | 4 | 1506 | .62" Lock Washer |
| | 4 | 1627 | .62" Hard Flat Washer |
| | 4 | 25075 | Spacer Tube |
| 16 | 8 | 6616 | Grease Fitting |
| 17 | 2 | 41064 | Case Logo |
| 18 | 2 | 40149 | Pinch Point Danger Decal |
| 19 | 1 | 40151 | High Pressure Warning Decal |
| 20 | 1 | 4338 | Made in USA Decal |
| 21 | 1 | ----- | Serial Number Identification Tag Location |
| 22 | 1 | 101039 | Right Grapple Hook |
| | 4 | 82402 | Bushings (Included in Right Grapple Fork) |
| 23 | 1 | 101038 | Left Grapple Hook |
| | 4 | 82402 | Bushings (Included in Left Grapple Fork) |
| 24 | 1 | 102393 | 84" Heavy Duty Brush Grapple Bucket |
| | 1 | 81358 | Replacement Hose Clamp and Parts (Included in Bucket) |
| | 2 | 1028 | .31" UNC X 2.50" Hex Capscrew |
| | 4 | 1513 | .31" Flat Washer |
| | 2 | 1753 | .31" UNC NyLock Nut |
| 25 | 4 | 1043 | .38" UNC x 1.00" Hex Capscrew |
| | 4 | 1503 | .38" Lock Washer |
| | 4 | 1514 | .38" Flat Washer |
| | 4 | 81807 | Spacer Tube |
| 26 | 2 | 89088 | Grommet |
| 27 | 1 | 102392 | Top Hose Cover |

# 12’ TRUSS BOOM

ASSEMBLY #13080 - CASE # 87710679

TX TELEHANDLERS




| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 4338 | Made in USA Decal |
| 2 | 1 | 40561 | Warning Decal, Do Not Tow |
| 3 | 1 | ----- | Serial Number Identification Tag Location |
| 4 | 1 | 106851 | 12’ Low Profile Truss Boom |
| 5 | 2 | 41064 | Case Logo |
| 6 | 2 | 40680 | Danger Decal, Swinging Loads |
| 7 | 1 | 12047 | Pintle Hook, 5 Ton |
| 8 | 4 | 1965 | .50" x UNC 2.50" Hex Capscrew, Grade 8 |
| 9 | 4 | 1527 | .50" Flat Washer |
|  | 4 | 1841 | .50" UNC Deformed Lock Nut |
| 10 | 2 | 40921 | Capacity Decal |

# 15’ TRUSS BOOM

ASSEMBLY #13081 - CASE # 87716398

TX TELEHANDLERS

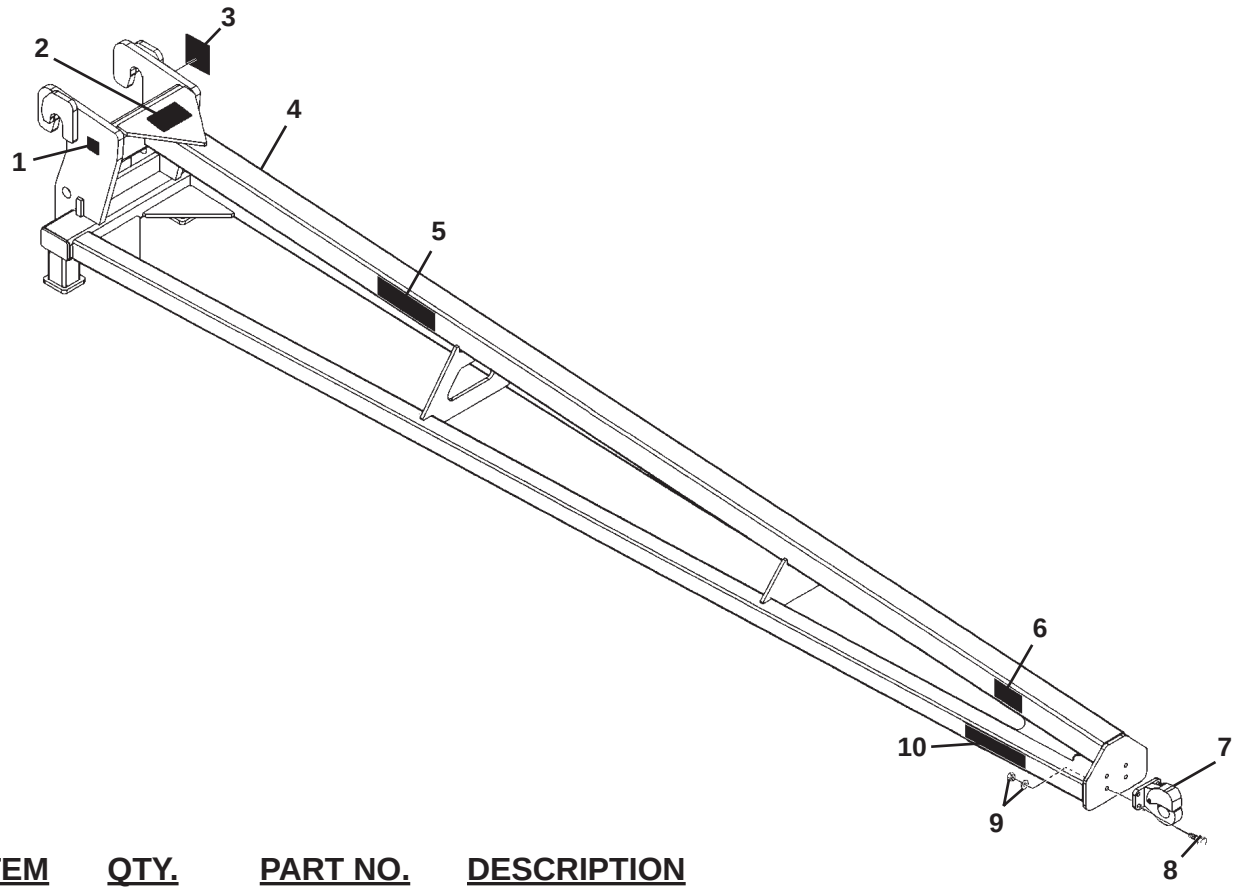

1


2


5


6


10

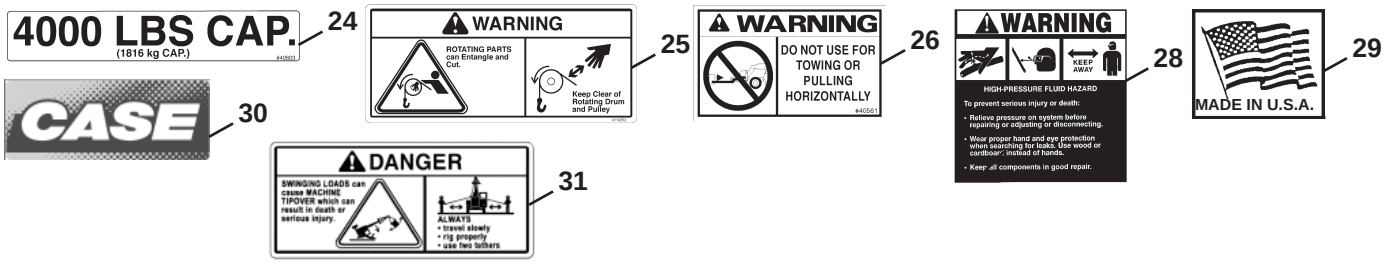


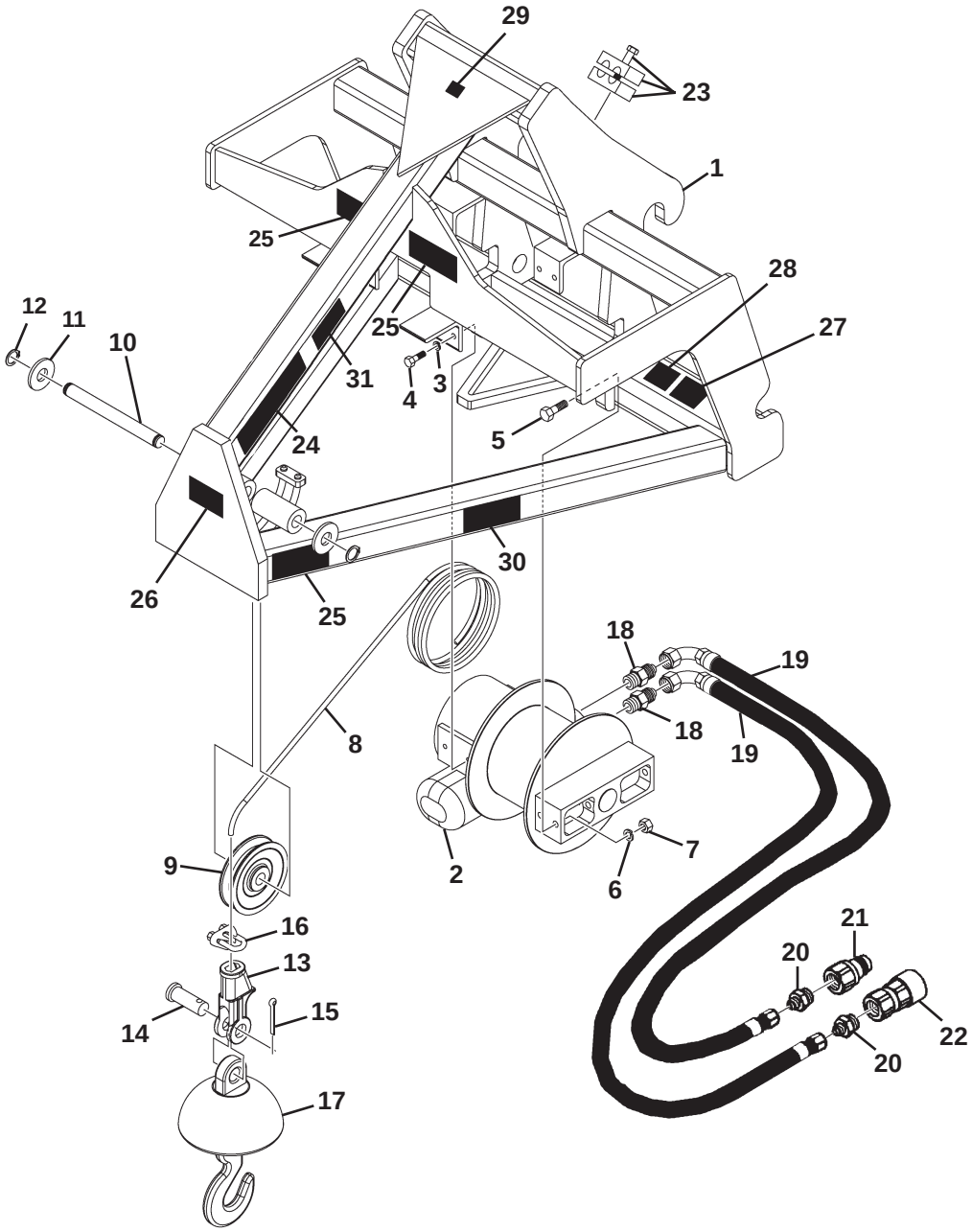

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 4338 | Made in USA Decal |
| 2 | 1 | 40561 | Warning Decal, Do Not Tow |
| 3 | 1 | ----- | Serial Number Identification Tag Location |
| 4 | 1 | 110254 | 15' Truss Boom |
| 5 | 2 | 41064 | Case Logo |
| 6 | 2 | 40680 | Danger Decal, Swinging Loads |
| 7 | 1 | 12047 | Pintle Hook, 5 Ton |
| 8 | 4 | 1965 | .50" UNC x 2.50" Hex Capscrew, Grade 8 |
| 9 | 4 | 1527 | .50" Flat Washer |
| | 4 | 1841 | .50" UNC Deformed Lock Nut |
| 10 | 2 | 40921 | Capacity Decal |

# 3’ TRUSS BOOM WITH WINCH

ASSEMBLY #13082 - CASE #87716399

TX TELEHANDLERS




M-1903 4-18-08

# 3’ TRUSS BOOM WITH WINCH

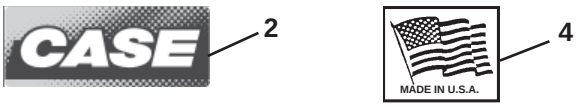
ASSEMBLY #13082 - CASE #87716399
TX TELEHANDLERS

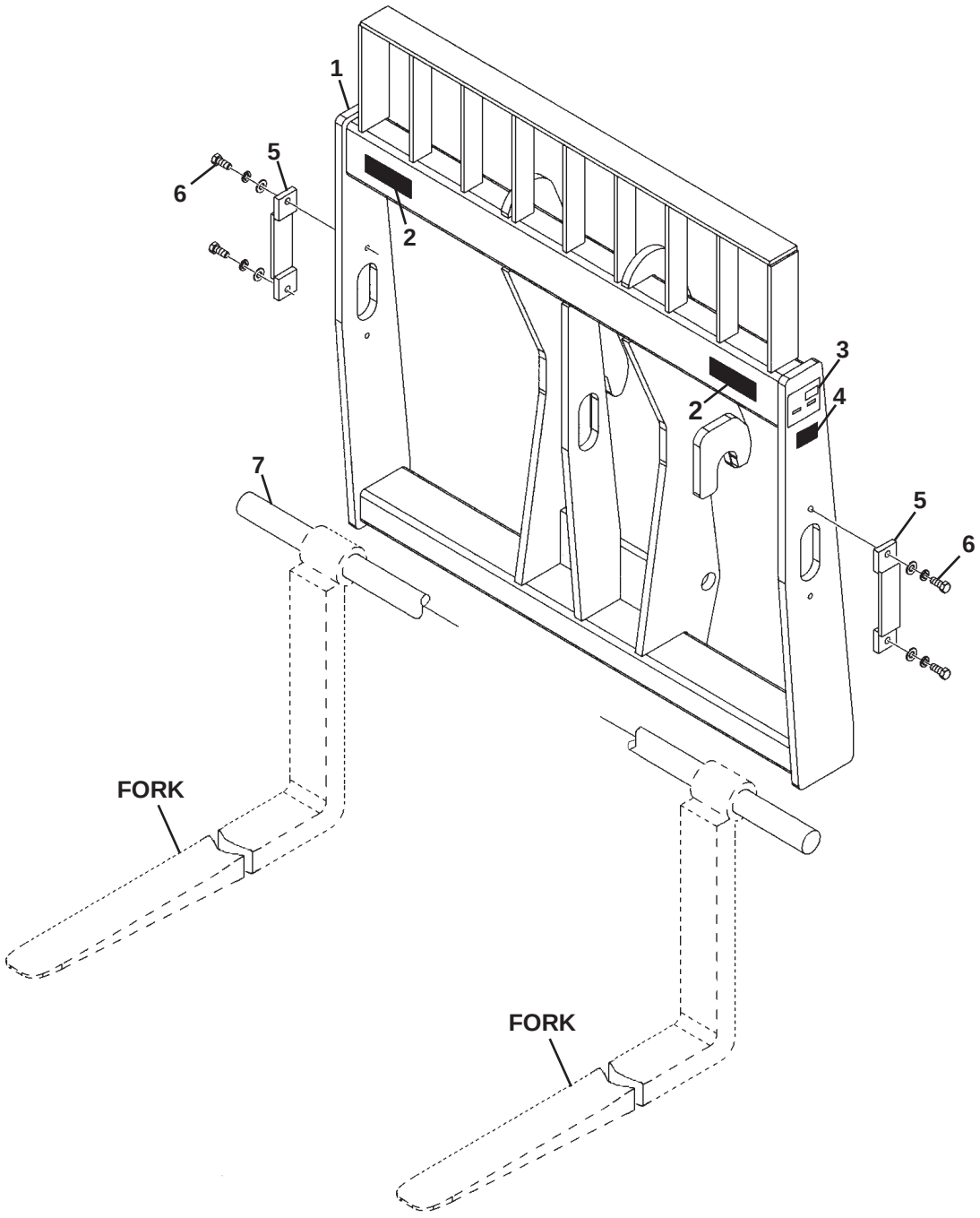
| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 32047 | 3’ Truss Boom Frame |
| 2 | 1 | 14434 | Truss Boom Winch |
| 3 | 4 | 1503 | .38” Lock Washer |
| 4 | 4 | 1043 | .38” UNC x 1.00” Hex Capscrew |
| 5 | 2 | 1091 | .50” UNC x 1.75” Hex Capscrew |
| 6 | 2 | 1505 | .50” Lock Washer |
| 7 | 2 | 1228 | .50” UNC Hex Nut |
| 8 | 1 | 14435 | Cable |
| 9 | 1 | 14436 | Pulley |
| 10 | 1 | 14437 | Pin, 1.00” x 9.32” |
| 11 | 2 | 1706 | 1.00” Hard Flat Washer |
| 12 | 2 | 1570 | Snap Ring |
| 13 | 1 | 14439 | Socket Assembly, 3 Ton Wedge. |
| | | | Includes Items 14 & 15 |
| 14 | 1 | NSS | Pin |
| 15 | 1 | NSS | Cotter Pin |
| 16 | 2 | 14440 | Cable Clamp |
| 17 | 1 | 14438 | Ball Swivel, With Safety Hook |
| 18 | 2 | 3457 | Straight Adapter 6MBo-6MJ |
| 19 | 2 | 37899 | Hose .38” x 32” 6FJX-6FJX90° |
| 20 | 2 | 30201 | Straight Adapter 12MBo-6MJ |
| 21 | 1 | 22519 | Male Quick Coupler |
| 22 | 1 | 22518 | Female Quick Coupler |
| 23 | 1 | 81358 | Double Clamp |
| 24 | 2 | 40603 | Capacity Decal |
| 25 | 4 | 40602 | Rotating Part Danger Decal |
| 26 | 1 | 40561 | Do Not Tow Warning Decal |
| 27 | 1 | ----- | Serial Number Identification Tag Location |
| 28 | 1 | 40151 | High Pressure Fluid Warning Decal |
| 29 | 1 | 4338 | Made in USA Decal |
| 30 | 2 | 41064 | Case Logo |
| 31 | 2 | 40680 | Danger Decal, Swinging Loads |

# 48" FLOATING PIN FORK CARRIAGE

ASSEMBLY #13070 - CASE # 87710673

TX TELEHANDLERS



# 48" FLOATING PIN FORK CARRIAGE

ASSEMBLY #13070 - CASE # 87710673
TX TELEHANDLERS

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 19060 | 48” Fork Frame Carriage |
| 2 | 2 | 41064 | Case Logo |
| 3 | 1 | ----- | Serial Number Identification Tag Location |
| 4 | 1 | 4338 | Made in USA Decal |
| 5 | 2 | 14002 | Fork Pin Retainer |
| 6 | 4 | 1339 | .50” UNF x 1.25” Hex Capscrew |
| | 4 | 1505 | .50” Lock Washer |
| | 4 | 1646 | .50” Hard Flat Washer |
| 7 | 1 | 14338 | Fork Pin, 2.00” x 50.25” |

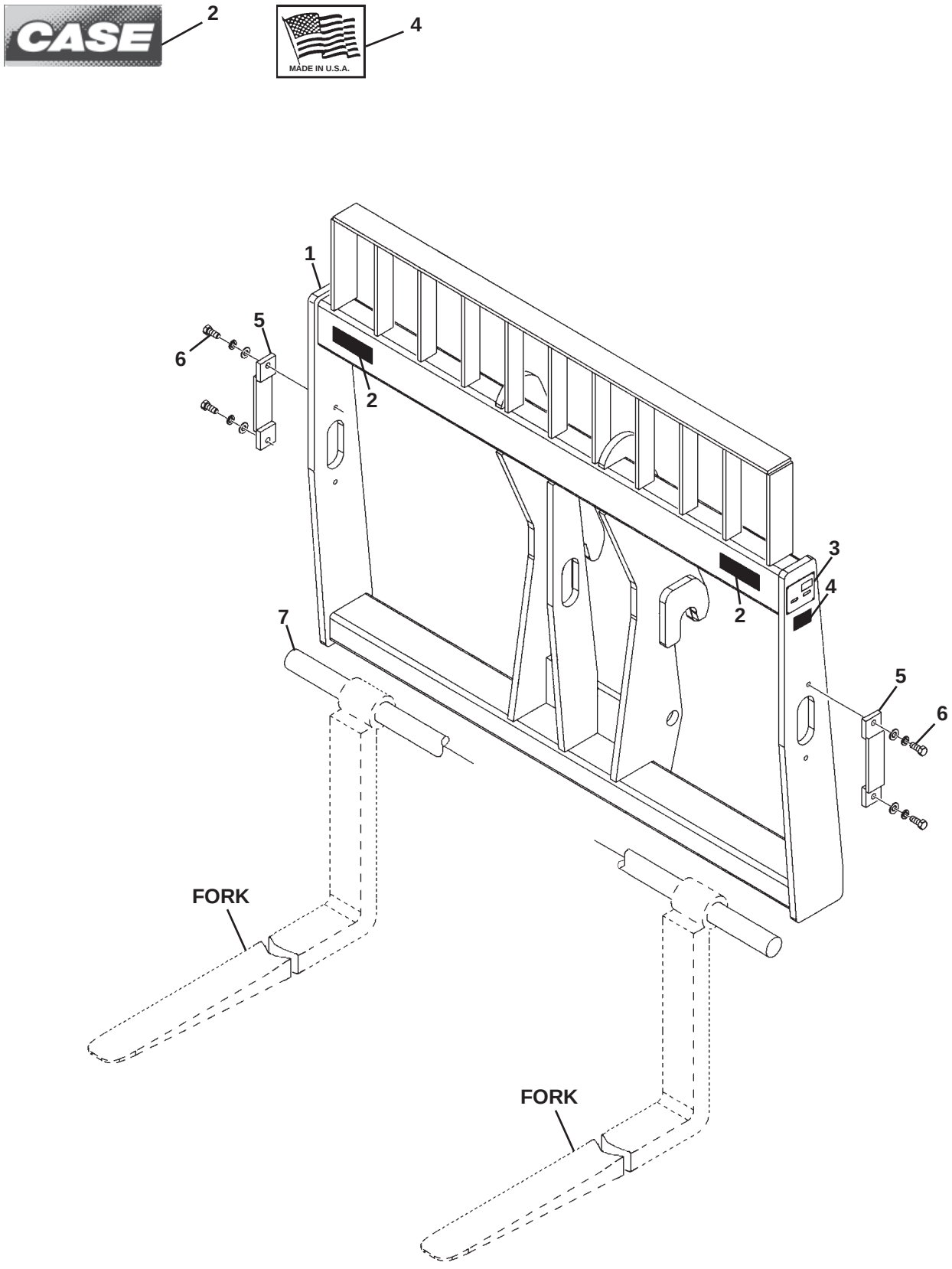
***FORK OPTIONS:***

| | |
|---|---|
| Assembly #12416 - Case #87620138 | Pallet Fork Set (2) 2”x4”x48” (TX742 & TX842 Telehandlers Only) |
| Assembly #12458 - Case #87716394 | Pallet Fork Set (2) 2”x4”x60” (TX742 & TX842 Telehandlers Only) |
| Assembly #12516 - Case #87709856 | Pallet Fork Set (2) 2”x5”x48” |
| Assembly #13089 - Case #87716395 | Pallet Fork Set (2) 2”x5”x60” |
| Assembly #13027 - Case #87620139 | Lumber Fork Set (2) 1.75”x7”x60” Tapered and Polished |
| Assembly #13032 - Case #87620140 | Block Fork Set (6) 2”x2”x48” |

# 60" FLOATING PIN FORK CARRIAGE

ASSEMBLY #13071 - CASE #87710674

TX TELEHANDLERS



# 60" FLOATING PIN FORK CARRIAGE

ASSEMBLY #13071 - CASE #87710674
TX TELEHANDLERS

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 19059 | 60” Fork Frame Carriage |
| 2 | 2 | 41064 | Case Logo |
| 3 | 1 | ----- | Serial Number Identification Tag Location |
| 4 | 1 | 4338 | Made in USA Decal |
| 5 | 2 | 14002 | Fork Pin Retainer |
| 6 | 4 | 1339 | .50” UNF x 1.25” Hex Capscrew |
| | 4 | 1505 | .50” Lock Washer |
| | 4 | 1646 | .50” Hard Flat Washer |
| 7 | 1 | 14339 | Fork Pin, 2.00” x 62.25” |

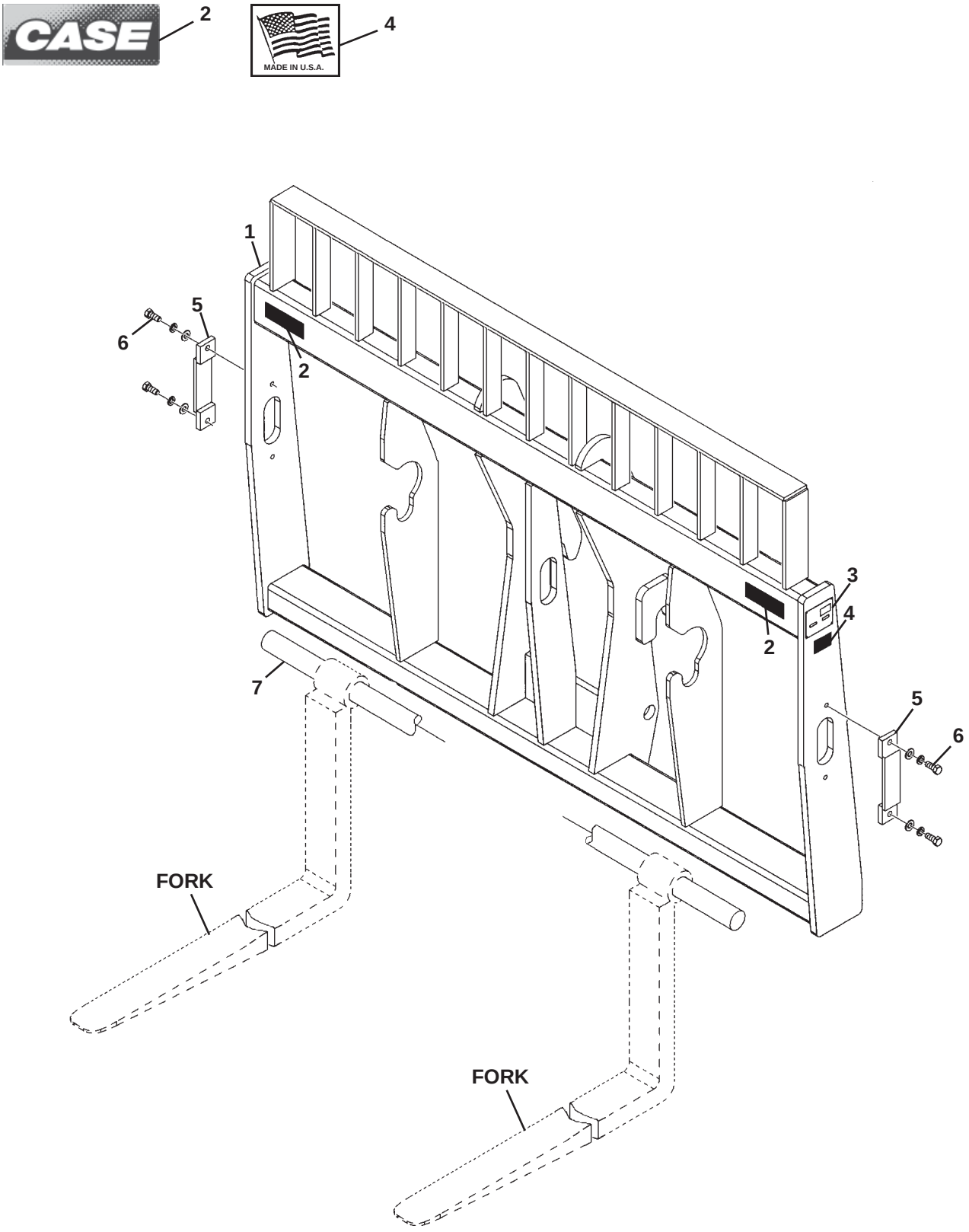
***FORK OPTIONS:***

| | |
|---|---|
| Assembly #12416 - Case #87620138 | Pallet Fork Set (2) 2”x4”x48” (TX742 & TX842 Telehandlers Only) |
| Assembly #12458 - Case #87716394 | Pallet Fork Set (2) 2”x4”x60” (TX742 & TX842 Telehandlers Only) |
| Assembly #12516 - Case #87709856 | Pallet Fork Set (2) 2”x5”x48” |
| Assembly #13089 - Case #87716395 | Pallet Fork Set (2) 2”x5”x60” |
| Assembly #13027 - Case #87620139 | Lumber Fork Set (2) 1.75”x7”x60” Tapered and Polished |
| Assembly #13032 - Case #87620140 | Block Fork Set (6) 2”x2”x48” |

# 72" FLOATING PIN FORK CARRIAGE

ASSEMBLY #13072 - CASE #87710675

TX TELEHANDLERS



# 72" FLOATING PIN FORK CARRIAGE

ASSEMBLY #13072 - CASE #87710675
TX TELEHANDLERS

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 19052 | 72” Fork Frame Carriage |
| 2 | 2 | 41064 | Case Logo |
| 3 | 1 | ----- | Serial Number Identification Tag Location |
| 4 | 1 | 4338 | Made in USA Decal |
| 5 | 2 | 14002 | Fork Pin Retainer |
| 6 | 4 | 1339 | .50” UNF x 1.25” Hex Capscrew |
| | 4 | 1505 | .50” Lock Washer |
| | 4 | 1646 | .50” Hard Flat Washer |
| 7 | 1 | 14780 | Fork Pin, 2.00” x 74.25” |

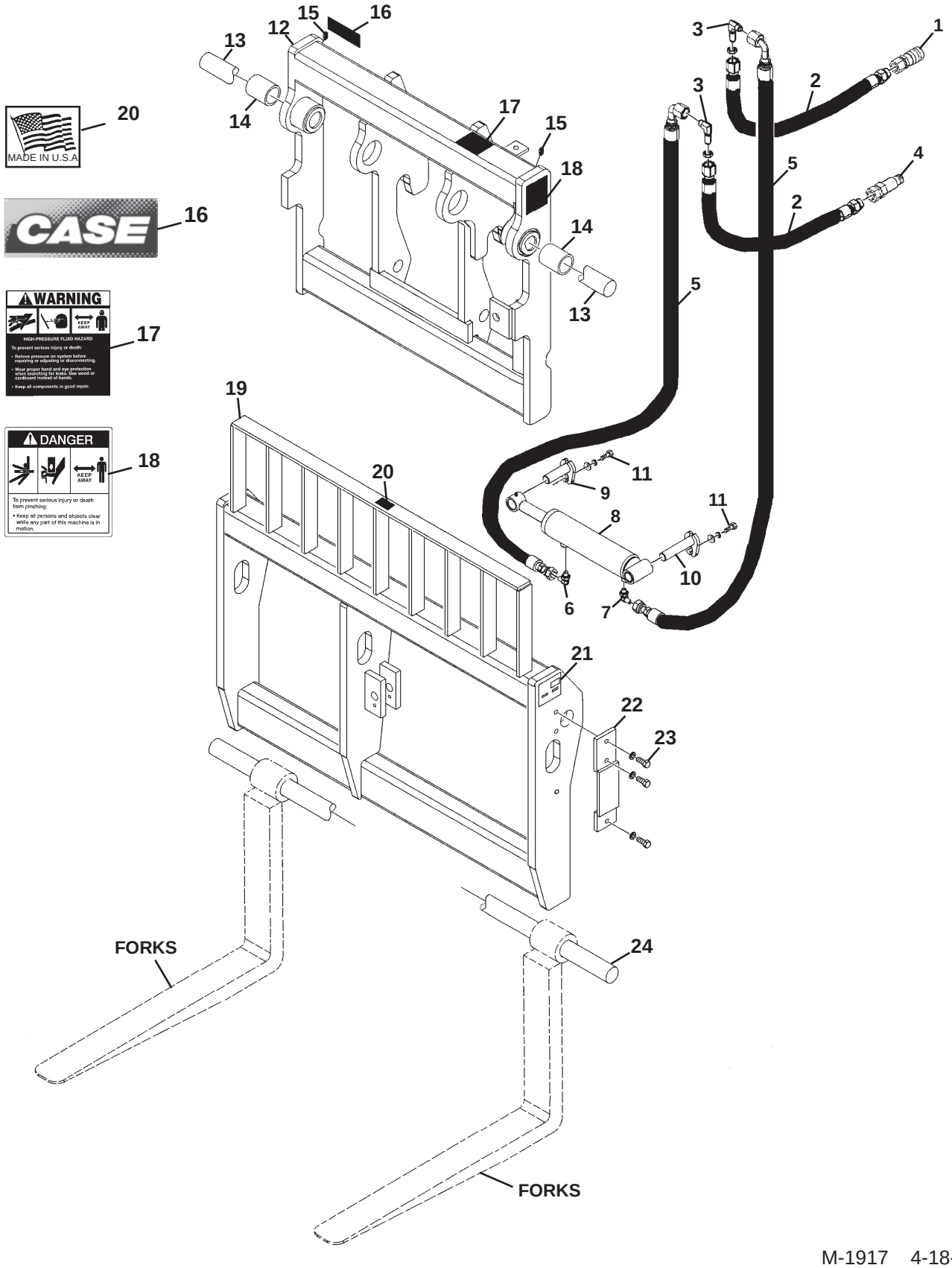
***FORK OPTIONS:***

| | |
|---|---|
| Assembly #12416 - Case #87620138 | Pallet Fork Set (2) 2”x4”x48” (TX742 & TX842 Telehandlers Only) |
| Assembly #12458 - Case #87716394 | Pallet Fork Set (2) 2”x4”x60” (TX742 &TX842 Telehandlers Only) |
| Assembly #12516 - Case #87709856 | Pallet Fork Set (2) 2”x5”x48” |
| Assembly #13089 - Case #87716395 | Pallet Fork Set (2) 2”x5”x60” |
| Assembly #13027 - Case #87620139 | Lumber Fork Set (2) 1.75”x7”x60” Tapered and Polished |
| Assembly #13032 - Case #87620140 | Block Fork Set (6) 2”x2”x48” |

# 48" SIDE SHIFT FORK CARRIAGE

ASSEMBLY #13077 - CASE #87716390

TX TELEHANDLERS




M-1917 4-18-08

# 48" SIDE SHIFT FORK CARRIAGE

ASSEMBLY #13077 - CASE #87716390
TX TELEHANDLERS

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 14175 | Female Quick Coupler |
| 2 | 2 | 38039 | Hose .38" X 40" 6FJX-8MBo |
| 3 | 2 | 3282 | Bulkhead Fitting, 6MJ-6MJ 90° |
| 4 | 1 | 14176 | Male Quick Coupler |
| 5 | 2 | 37784 | Hose .38" X 27" 6FJX-6FJX90° |
| 6 | 1 | 14067 | 90° Elbow, 6MBo-6MJ, With 0.27 Orifice |
| 7 | 1 | 3434 | 90° Elbow, 6MBo-6MJ |
| 8 | 1 | 88928 | Cylinder Assembly |
| 9 | 1 | 14071 | Pin, 1.00" x 3.31" |
| 10 | 1 | 31990 | Pin, 1.00" x 4.50" |
| 11 | 2 | 1293 | .38" UNF x 1.00" Hex Capscrew |
| | 2 | 1503 | .38" Lock Washer |
| | 2 | 1514 | .38" Flat Washer |
| 12 | 1 | 111315 | Rear Frame |
| 13 | 1 | 111312 | Side Shift Pin, 2.00" x 50.00" |
| 14 | 2 | 14066 | Bushing, 2.50" x 2.00" x 3.00" (Included in Rear Frame) |
| 15 | 2 | 9371 | Grease Zerk |
| 16 | 1 | 41064 | Case Logo |
| 17 | 1 | 40151 | High Pressure Warning Decal |
| 18 | 2 | 40149 | Pinch Point Danger Decal |
| 19 | 1 | 111309 | Front Frame |
| 20 | 1 | 4338 | Made in USA Decal |
| 21 | 1 | ----- | Serial Number Identification Tag Location |
| 22 | 1 | 33554 | Pin Retainer |
| 23 | 3 | 1339 | .50" UNF x 1.25" Hex Capscrew |
| | 3 | 1505 | .50" Lock Washer |
| 24 | 1 | 111311 | Fork Pin, 2.00" x 50.50" |

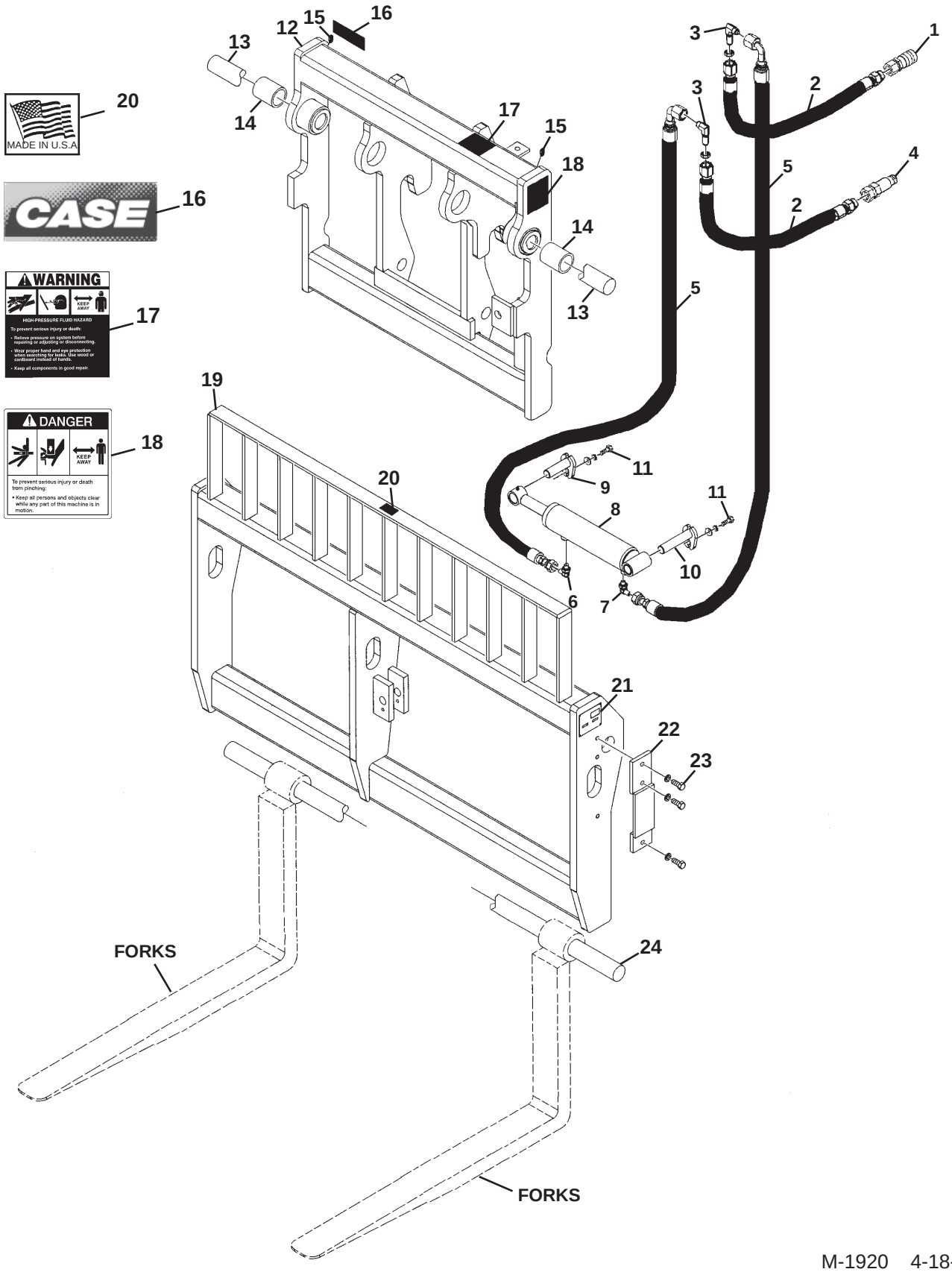
***FORK OPTIONS:***

| | |
|---|---|
| Assembly #12416 - Case #87620138 | Pallet Fork Set (2) 2"x4"x48" (TX742 & TX842 Telehandlers Only) |
| Assembly #12458 - Case #87716394 | Pallet Fork Set (2) 2"x4"x60" (TX742 & TX842 Telehandlers Only) |
| Assembly #12516 - Case #87709856 | Pallet Fork Set (2) 2"x5"x48" |
| Assembly #13089 - Case #87716395 | Pallet Fork Set (2) 2"x5"x60" |
| Assembly #13027 - Case #87620139 | Lumber Fork Set (2) 1.75"x7"x60" Tapered and Polished |
| Assembly #13032 - Case #87620140 | Block Fork Set (6) 2"x2"x48" |

# 60" SIDE SHIFT FORK CARRIAGE

ASSEMBLY #13078 - CASE #87716391

TX TELEHANDLERS




M-1920 4-18-08

# 60" SIDE SHIFT FORK CARRIAGE

ASSEMBLY #13078 - CASE #87716391

TX TELEHANDLERS

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 14175 | Female Quick Coupler |
| 2 | 2 | 38039 | Hose .38” X 40” 6FJX-8MBo |
| 3 | 2 | 3282 | Bulkhead Fitting, 6MJ-6MJ 90° |
| 4 | 1 | 14176 | Male Quick Coupler |
| 5 | 2 | 37784 | Hose .38” X 27” 6FJX-6FJX90° |
| 6 | 1 | 14067 | 90° Elbow, 6MBo-6MJ, With 0.27 Orifice |
| 7 | 1 | 3434 | 90° Elbow, 6MBo-6MJ |
| 8 | 1 | 88928 | Cylinder Assembly |
| 9 | 1 | 14071 | Pin, 1.00” x 3.31” |
| 10 | 1 | 31990 | Pin, 1.00” x 4.50” |
| 11 | 2 | 1293 | .38” UNF x 1.00” Hex Capscrew |
| | 2 | 1503 | .38” Lock Washer |
| | 2 | 1514 | .38” Flat Washer |
| 12 | 1 | 111315 | Rear Frame |
| 13 | 1 | 111357 | Side Shift Pin, 2.00” x 62.00” |
| 14 | 2 | 14066 | Bushing, 2.50” x 2.00” x 3.00” (Included in Rear Frame) |
| 15 | 2 | 9371 | Grease Zerk |
| 16 | 1 | 41064 | Case Logo |
| 17 | 1 | 40151 | High Pressure Warning Decal |
| 18 | 2 | 40149 | Pinch Point Danger Decal |
| 19 | 1 | 111356 | Front Frame |
| 20 | 1 | 4338 | Made in USA Decal |
| 21 | 1 | ----- | Serial Number Identification Tag Location |
| 22 | 1 | 33554 | Pin Retainer |
| 23 | 3 | 1339 | .50” UNF x 1.25” Hex Capscrew |
| | 3 | 1505 | .50” Lock Washer |
| 24 | 1 | 111358 | Fork Pin, 2.00” x 62.50” |

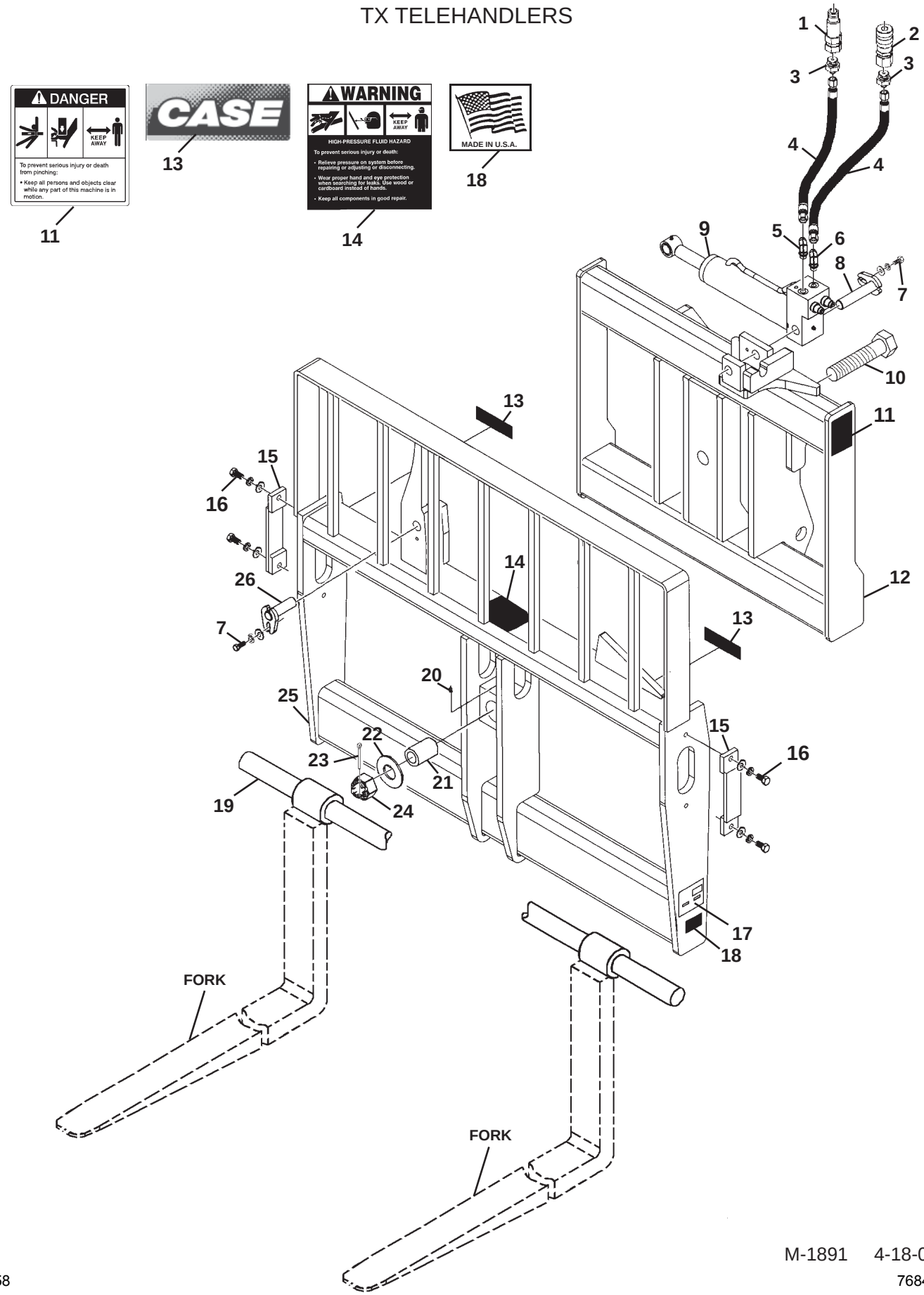
***FORK OPTIONS:***

| | |
|---|---|
| Assembly #12416 - Case #87620138 | Pallet Fork Set (2) 2”x4”x48” (TX742 & TX842 Telehandlers Only) |
| Assembly #12458 - Case #87716394 | Pallet Fork Set (2) 2”x4”x60” (TX742 & TX842 Telehandlers Only) |
| Assembly #12516 - Case #87709856 | Pallet Fork Set (2) 2”x5”x48” |
| Assembly #13089 - Case #87716395 | Pallet Fork Set (2) 2”x5”x60” |
| Assembly #13027 - Case #87620139 | Lumber Fork Set (2) 1.75”x7”x60” Tapered and Polished |
| Assembly #13032 - Case #87620140 | Block Fork Set (6) 2”x2”x48” |

# 48" SIDE TILT FORK CARRIAGE

ASSEMBLY #13073 - CASE #87710676

TX TELEHANDLERS



# 48" SIDE TILT FORK CARRIAGE

ASSEMBLY #13073 - CASE #87710676
TX TELEHANDLERS

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 22519 | Male Quick Coupler |
| 2 | 1 | 22518 | Female Quick Coupler |
| 3 | 2 | 30201 | Straight Connector, 12MBo-6MJ |
| 4 | 2 | 37782 | Hose .38" X 70" 6FJX-6FJX |
| 5 | 1 | 3434 | 90° Elbow, 6MBo-6MJ |
| 6 | 1 | 14067 | 90° Elbow, With .027 Orifice, 6MBo-6MJ |
| 7 | 2 | 1043 | .38" UNC x 1.00" Hex Capscrew |
| | 2 | 1503 | .38" Lock Washer |
| | 2 | 1514 | .38" Flat Washer |
| 8 | 1 | 14070 | Pin, 1.00" x 4.72" |
| 9 | 1 | 89113 | Cylinder Assembly |
| 10 | 1 | 10013 | 1.50" UNF x 7.00" Hex Capscrew, Grade 8 |
| 11 | 2 | 40149 | Pinch Point Danger Decal |
| 12 | 1 | 100064 | Rear Frame |
| 13 | 2 | 41064 | Case Logo |
| 14 | 1 | 40151 | High Pressure Warning Decal |
| 15 | 2 | 14002 | Fork Pin Retainer |
| 16 | 4 | 1339 | .50" UNF x 1.25" Hex Capscrew |
| | 4 | 1505 | .50" Lock Washer |
| | 4 | 1646 | .50" Hard Flat Washer |
| 17 | 1 | ----- | Serial Number Identification Tag Location |
| 18 | 1 | 4338 | Made in USA Decal |
| 19 | 1 | 14338 | Fork Pin, 2.00" x 50.25" |
| 20 | 1 | 6616 | Grease Zerk |
| 21 | 1 | 14099 | Tube, 2.25" x 1.53" x 3.31" |
| 22 | 1 | 1522 | 1.50" Flat Washer |
| 23 | 1 | 1729 | Cotter Pin, .25" x 2.50" |
| 24 | 1 | 10019 | 1.50" UNF Castle Nut |
| 25 | 1 | 100063 | Front Frame |
| 26 | 1 | 31991 | Pin, 1.00" x 3.00" |

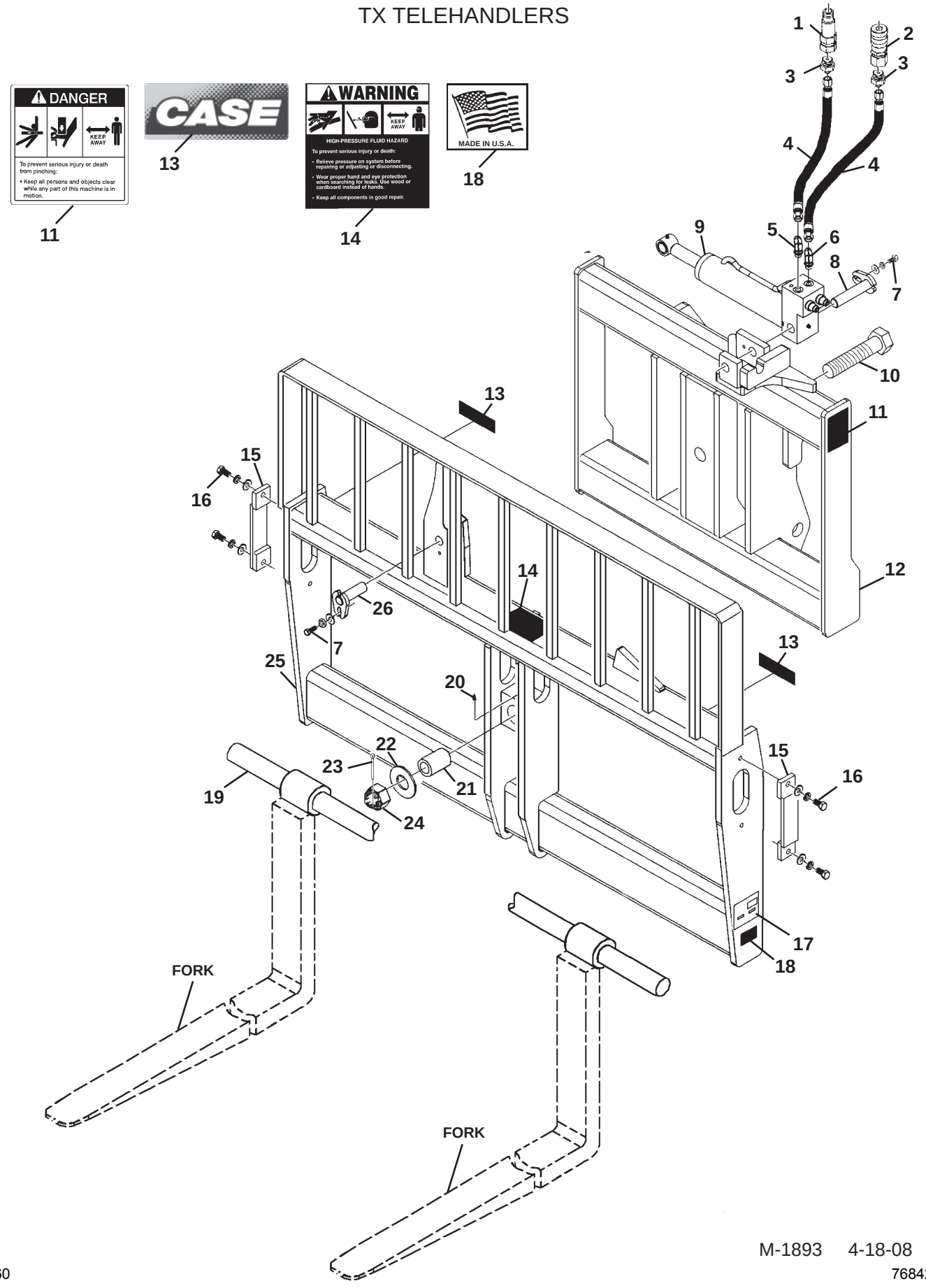
***FORK OPTIONS:***

| | |
|---|---|
| Assembly #12416 - Case #87620138 | Pallet Fork Set (2) 2”x4”x48” (TX742 & TX842 Telehandlers Only) |
| Assembly #12458 - Case #87716394 | Pallet Fork Set (2) 2”x4”x60” (TX742 & TX842 Telehandlers Only) |
| Assembly #12516 - Case #87709856 | Pallet Fork Set (2) 2”x5”x48” |
| Assembly #13089 - Case #87716395 | Pallet Fork Set (2) 2”x5”x60” |
| Assembly #13027 - Case #87620139 | Lumber Fork Set (2) 1.75”x7”x60” Tapered and Polished |
| Assembly #13032 - Case #87620140 | Block Fork Set (6) 2”x2”x48” |

# 60" SIDE TILT FORK CARRIAGE

ASSEMBLY #13074 - CASE #87710677

TX TELEHANDLERS




M-1893 4-18-08

# 60" SIDE TILT FORK CARRIAGE

ASSEMBLY #13074 - CASE #87710677
TX TELEHANDLERS

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 22519 | Male Quick Coupler |
| 2 | 1 | 22518 | Female Quick Coupler |
| 3 | 2 | 30201 | Straight Connector, 12MBo-6MJ |
| 4 | 2 | 37782 | Hose .38" X 70" 6FJX-6FJX |
| 5 | 1 | 3434 | 90° Elbow, 6MBo-6MJ |
| 6 | 1 | 14067 | 90° Elbow, With .027 Orifice, 6MBo-6MJ |
| 7 | 2 | 1043 | .38" UNC x 1.00" Hex Capscrew |
| | 2 | 1503 | .38" Lock Washer |
| | 2 | 1514 | .38" Flat Washer |
| 8 | 1 | 14070 | Pin, 1.00" x 4.72" |
| 9 | 1 | 89113 | Cylinder Assembly |
| 10 | 1 | 10013 | 1.50" UNF x 7.00" Hex Capscrew, Grade 8 |
| 11 | 2 | 40149 | Pinch Point Danger Decal |
| 12 | 1 | 100064 | Rear Frame |
| 13 | 2 | 41064 | Case Logo |
| 14 | 1 | 40151 | High Pressure Warning Decal |
| 15 | 2 | 14002 | Fork Pin Retainer |
| 16 | 4 | 1339 | .50" UNF x 1.25" Hex Capscrew |
| | 4 | 1505 | .50" Lock Washer |
| | 4 | 1646 | .50" Hard Flat Washer |
| 17 | 1 | ----- | Serial Number Identification Tag Location |
| 18 | 1 | 4338 | Made in USA Decal |
| 19 | 1 | 14339 | Fork Pin, 2.00" x 62.25" |
| 20 | 1 | 6616 | Grease Zerk |
| 21 | 1 | 14099 | Tube, 2.25" x 1.53" x 3.31" |
| 22 | 1 | 1522 | 1.50" Flat Washer |
| 23 | 1 | 1729 | Cotter Pin, .25" x 2.50" |
| 24 | 1 | 10019 | 1.50" UNF Castle Nut |
| 25 | 1 | 100070 | Front Frame |
| 26 | 1 | 31991 | Pin, 1.00" x 3.00" |

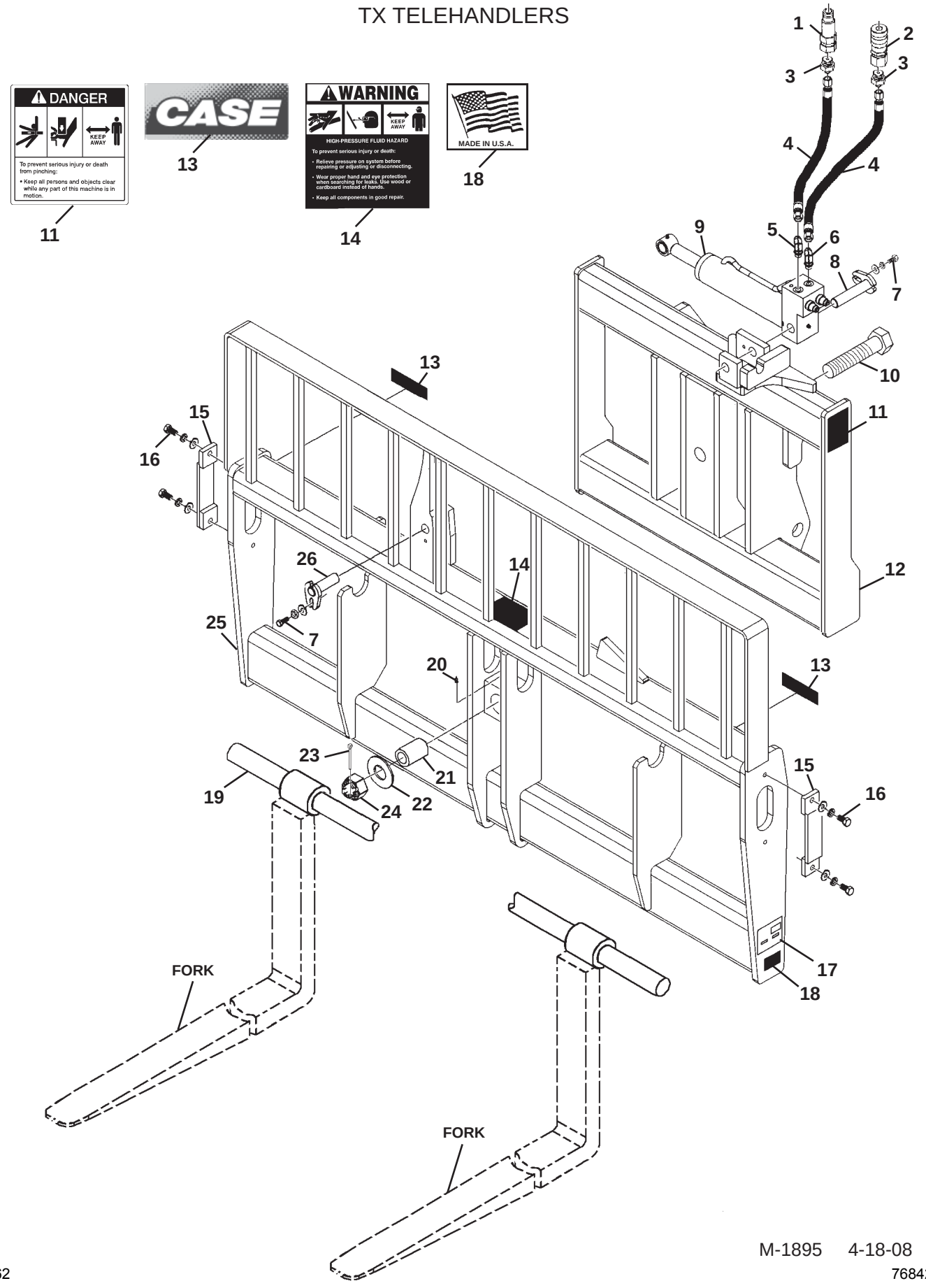
***FORK OPTIONS:***

| | |
|---|---|
| Assembly #12416 - Case #87620138 | Pallet Fork Set (2) 2”x4”x48” (TX742 & TX842 Telehandlers Only) |
| Assembly #12458 - Case #87716394 | Pallet Fork Set (2) 2”x4”x60” (TX742 & TX842 Telehandlers Only) |
| Assembly #12516 - Case #87709856 | Pallet Fork Set (2) 2”x5”x48” |
| Assembly #13089 - Case #87716395 | Pallet Fork Set (2) 2”x5”x60” |
| Assembly #13027 - Case #87620139 | Lumber Fork Set (2) 1.75”x7”x60” Tapered and Polished |
| Assembly #13032 - Case #87620140 | Block Fork Set (6) 2”x2”x48” |

# 72" SIDE TILT FORK CARRIAGE

ASSEMBLY #13075 - CASE #87716389

TX TELEHANDLERS



# 72" SIDE TILT FORK CARRIAGE

ASSEMBLY #13075 - CASE #87716389
TX TELEHANDLERS

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 22519 | Male Quick Coupler |
| 2 | 1 | 22518 | Female Quick Coupler |
| 3 | 2 | 30201 | Straight Connector, 12MBo-6MJ |
| 4 | 2 | 37782 | Hose .38" X 70" 6FJX-6FJX |
| 5 | 1 | 3434 | 90° Elbow, 6MBo-6MJ |
| 6 | 1 | 14067 | 90° Elbow, With .027 Orifice, 6MBo-6MJ |
| 7 | 2 | 1043 | .38" UNC x 1.00" Hex Capscrew |
| | 2 | 1503 | .38" Lock Washer |
| | 2 | 1514 | .38" Flat Washer |
| 8 | 1 | 14070 | Pin, 1.00" x 4.72" |
| 9 | 1 | 89113 | Cylinder Assembly |
| 10 | 1 | 10013 | 1.50" UNF x 7.00" Hex Capscrew, Grade 8 |
| 11 | 2 | 40149 | Pinch Point Danger Decal |
| 12 | 1 | 100064 | Rear Frame |
| 13 | 2 | 41064 | Case Logo |
| 14 | 1 | 40151 | High Pressure Warning Decal |
| 15 | 2 | 14002 | Fork Pin Retainer |
| 16 | 4 | 1339 | .50" UNF x 1.25" Hex Capscrew |
| | 4 | 1505 | .50" Lock Washer |
| | 4 | 1646 | .50" Hard Flat Washer |
| 17 | 1 | ----- | Serial Number Identification Tag Location |
| 18 | 1 | 4338 | Made in USA Decal |
| 19 | 1 | 14780 | Fork Pin, 2.00" x 74.25" |
| 20 | 1 | 6616 | Grease Zerk |
| 21 | 1 | 14099 | Tube, 2.25" x 1.53" x 3.31" |
| 22 | 1 | 1522 | 1.50" Flat Washer |
| 23 | 1 | 1729 | Cotter Pin, .25" x 2.50" |
| 24 | 1 | 10019 | 1.50" UNF Castle Nut |
| 25 | 1 | 100071 | Front Frame |
| 26 | 1 | 31991 | Pin, 1.00" x 3.00" |

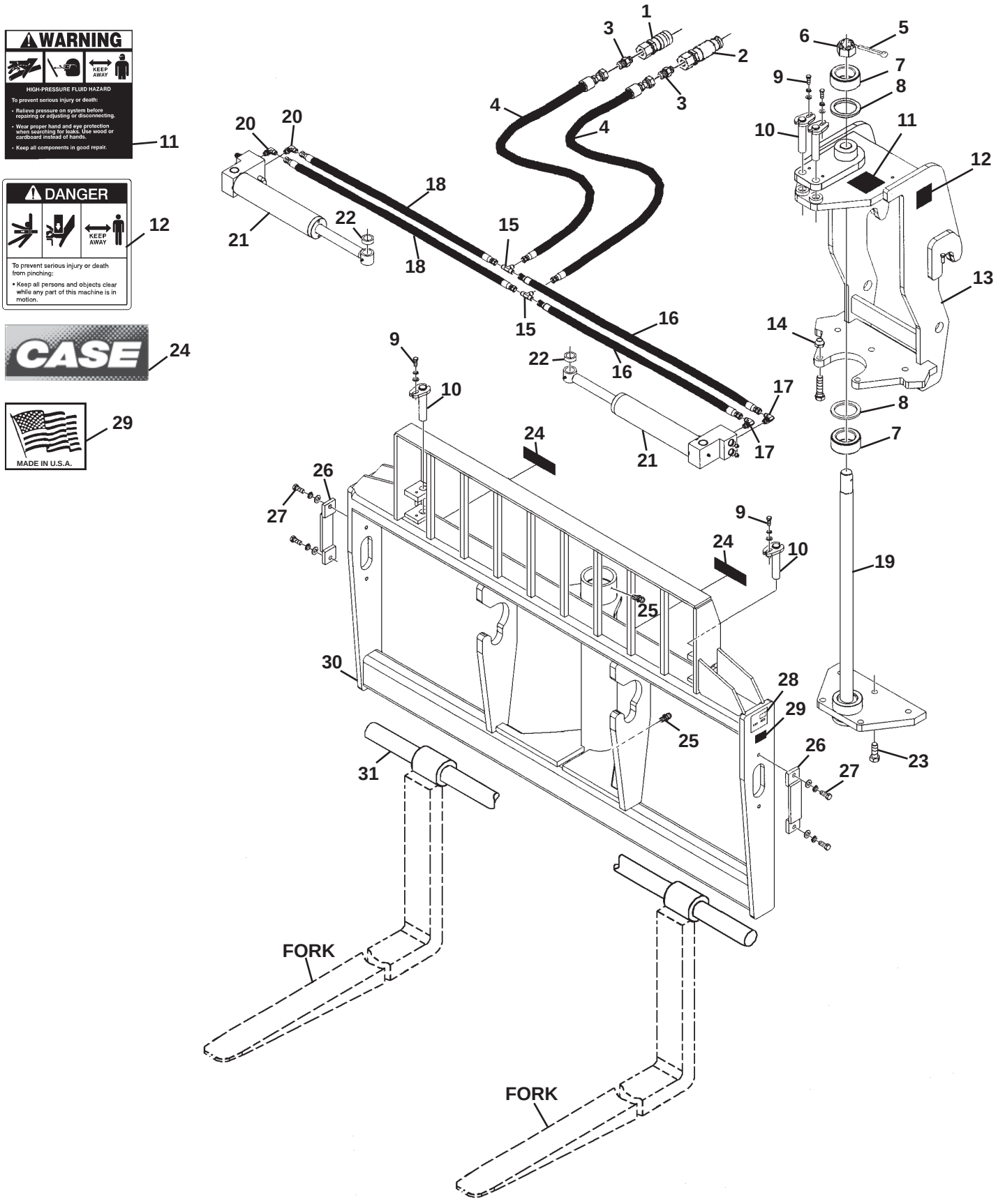
***FORK OPTIONS:***

| | |
|---|---|
| Assembly #12416 - Case #87620138 | Pallet Fork Set (2) 2”x4”x48” (TX742 & TX842 Telehandlers Only) |
| Assembly #12458 - Case #87716394 | Pallet Fork Set (2) 2”x4”x60” (TX742 & TX842 Telehandlers Only) |
| Assembly #12516 - Case #87709856 | Pallet Fork Set (2) 2”x5”x48” |
| Assembly #13089 - Case #87716395 | Pallet Fork Set (2) 2”x5”x60” |
| Assembly #13027 - Case #87620139 | Lumber Fork Set (2) 1.75”x7”x60” Tapered and Polished |
| Assembly #13032 - Case #87620140 | Block Fork Set (6) 2”x2”x48” |

# 72” SWING CARRIAGE

ASSEMBLY #13076 - CASE 87710678

TX TELEHANDLERS




M-1897 4-18-08

# 72” SWING CARRIAGE

ASSEMBLY #13076 - CASE 87710678

TX TELEHANDLERS

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 22518 | Female Quick Coupler |
| 2 | 1 | 22519 | Male Quick Coupler |
| 3 | 2 | 30201 | Straight Connector, 12MBo-6MJ |
| 4 | 2 | 35424 | Hose .38" X 76" 6FJX-6FJX |
| 5 | 1 | 1729 | Cotter Pin, .25" x 2.50" |
| 6 | 1 | 10019 | 1.50" UNF Castle Nut |
| 7 | 2 | 31291 | Bearing |
| 8 | 2 | 31290 | Thrust Washer, 3.93" x 3.00" x .25" |
| 9 | 4 | 1293 | .38" UNF x 1.00" Hex Capscrew |
| | 4 | 1503 | .38" Lock Washer |
| | 4 | 1800 | .38" Hard Flat Washer |
| 10 | 4 | 14173 | Pin, 1.00" x 4.63" |
| 11 | 1 | 40151 | High Pressure Warning Decal |
| 12 | 2 | 40149 | Pinch Point Danger Decal |
| 13 | 1 | 31163 | Swing Frame |
| 14 | 5 | 10001 | .75" UNF Top Lock Nut |
| 15 | 2 | 3314 | Tee, 6MJ-6MJ-6MJ |
| 16 | 2 | 37884 | Hose .38" X 21" 6FJX-6FJX |
| 17 | 2 | 14067 | 90° Elbow, With .027 Orifice, 6MBo-6MJ |
| 18 | 2 | 37889 | Hose .38" X 35" 6FJX-6FJX |
| 19 | 1 | 31168 | Swing Post |
| 20 | 2 | 3434 | 90° Elbow, 6MBo-6MJ |
| 21 | 2 | 108972 | Cylinder Assembly |
| 22 | 2 | 5421 | Spacer (Included in Cylinder Assembly 108972) |
| 23 | 5 | 1393 | .75" UNF x 3.00" Hex Capscrew |
| 24 | 2 | 41064 | Case Logo |
| 25 | 2 | 9371 | Grease Zerk |
| 26 | 2 | 14002 | Pin Retainer |
| 27 | 4 | 1339 | .50" UNF x 1.25" Hex Capscrew |
| | 4 | 1505 | .50" Lock Washer |
| | 4 | 1646 | .50” Hard Flat Washer |
| 28 | 1 | ----- | Serial Number Identification Tag Location |
| 29 | 1 | 4338 | Made in USA Decal |
| 30 | 1 | 16675 | Swing Carriage |
| 31 | 1 | 14780 | Fork Pin, 2.00" x 74.25" |

***FORK OPTIONS:***

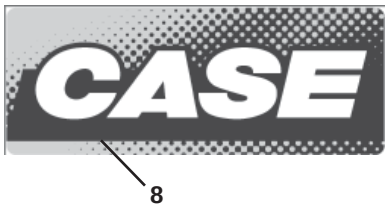
| | |
|---|---|
| Assembly #12416 - Case #87620138 | Pallet Fork Set (2) 2”x4”x48” (TX742 & TX842 Telehandlers Only) |
| Assembly #12458 - Case #87716394 | Pallet Fork Set (2) 2”x4”x60” (TX742 & TX842 Telehandlers Only) |
| Assembly #12516 - Case #87709856 | Pallet Fork Set (2) 2”x5”x48” |
| Assembly #13089 - Case #87716395 | Pallet Fork Set (2) 2”x5”x60” |
| Assembly #13027 - Case #87620139 | Lumber Fork Set (2) 1.75”x7”x60” Tapered and Polished |
| Assembly #13032 - Case #87620140 | Block Fork Set (6) 2”x2”x48” |

# X1475 AUGER ASSEMBLY

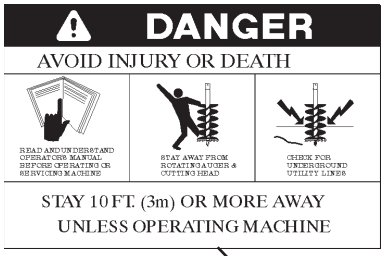
ASSEMBLY #13093 - CASE #87716748

TX TELEHANDLERS

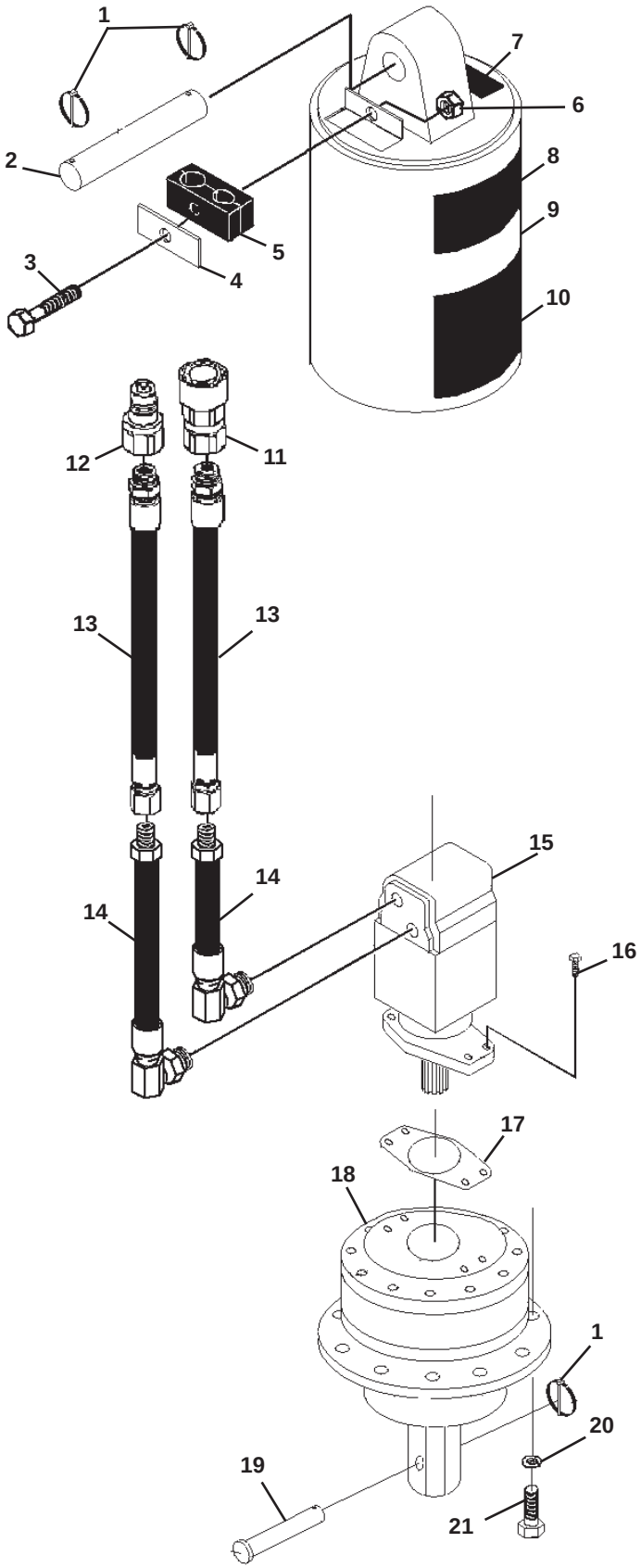
X1475 AUGER DRIVE




8




10



# X1475 AUGER ASSEMBLY

ASSEMBLY #13093 - CASE #87716748
TX TELEHANDLERS
X1475 AUGER DRIVE

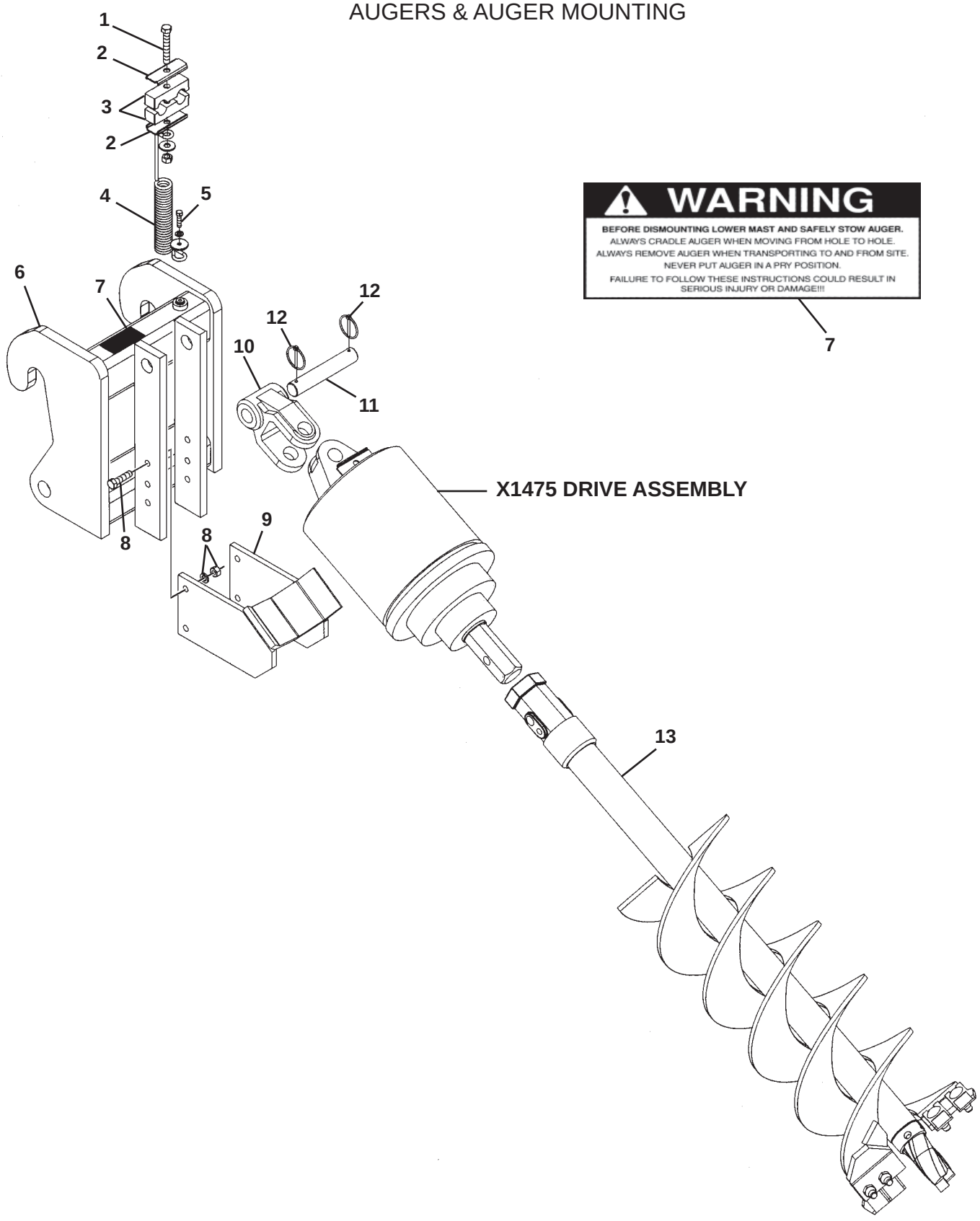
| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 3 | 21169 | Lynch Pin |
| 2 | 1 | 22256 | Pivot Pin, 1.25” |
| 3 | 1 | 1096 | .50” UNC x 3.00” Hex Capscrew |
| 4 | 1 | 22315 | Clamp Plate |
| 5 | 1 | 22316 | Hose Cushion |
| 6 | 1 | 1542 | .50” UNC Nylock Nut |
| 7 | 1 | ----- | Serial Number Identification Tag Location |
| 8 | 1 | 40761 | Case Logo |
| 9 | 1 | 23533 | Planetary Housing |
| 10 | 2 | 22680 | Danger Decal |
| 11 | 1 | 22518 | Female Quick Coupler |
| 12 | 1 | 22519 | Male Quick Coupler |
| 13 | 2 | 37502 | Hose, .62" X 72"  10FJX-12MBo |
| 14 | 2 | 37968 | Hose, .50" X 11"  10MJ-10MBo90° |
| 15 | 1 | 89319 | Hydraulic Motor |
| 16 | 4 | 1907 | .50” UNC x 1.25” Socket Head Capscrew |
| 17 | 1 | 22532 | Motor Gasket |
| 18 | 1 | 23526 | Planetary Gear Box |
| 19 | 1 | 22263 | Clevis Pin, .75” x 4.50” |
| 20 | 8 | 1503 | .38” Lock Washer |
| 21 | 8 | 1046 | .38” UNC x 1.75" Hex Capscrew |

# X1475 AUGER ASSEMBLY

ASSEMBLY #13093 - CASE #87716748

TX TELEHANDLERS

AUGERS & AUGER MOUNTING



# X1475 AUGER ASSEMBLY

ASSEMBLY #13093 - CASE #87716748
TX TELEHANDLERS
AUGERS & AUGER MOUNTING

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 1031* | .31” UNC X 3.25” Hex Capscrew |
| | 1 | 105840* | Fender Washer |
| | 1 | 1753* | .31” UNC Nylock Hex Nut |
| 2 | 2 | 22315* | Clamp Plate (Use with 22316 Hose Cushions) |
| 3 | 1 | 22316* | Hose Cushion (.62” Hose) |
| 4 | 1 | RHW8618* | Hose Spring |
| 5 | 1 | 1020 | .31” UNC X .50” Hex Capscrew |
| | 1 | 1502 | .31” Lock Washer |
| | 1 | 105840* | Fender Washer |
| 6 | 1 | 16154 | Mounting Bracket |
| 7 | 1 | 22673 | Warning Decal, Before Dismounting |
| 8 | 4 | 1092 | .50” UNC X 2.00” Hex Capscrew |
| | 4 | 1505 | .50” Lock Washer |
| | 4 | 1228 | .50” UNC Hex Nut |
| 9 | 1 | 21670 | Cradle |
| 10 | 1 | 21694 | Swivel |
| 11 | 1 | 22255 | Swivel Pivot Pin |
| 12 | 2 | 21169 | Klik Pin |

## AUGER OPTIONS

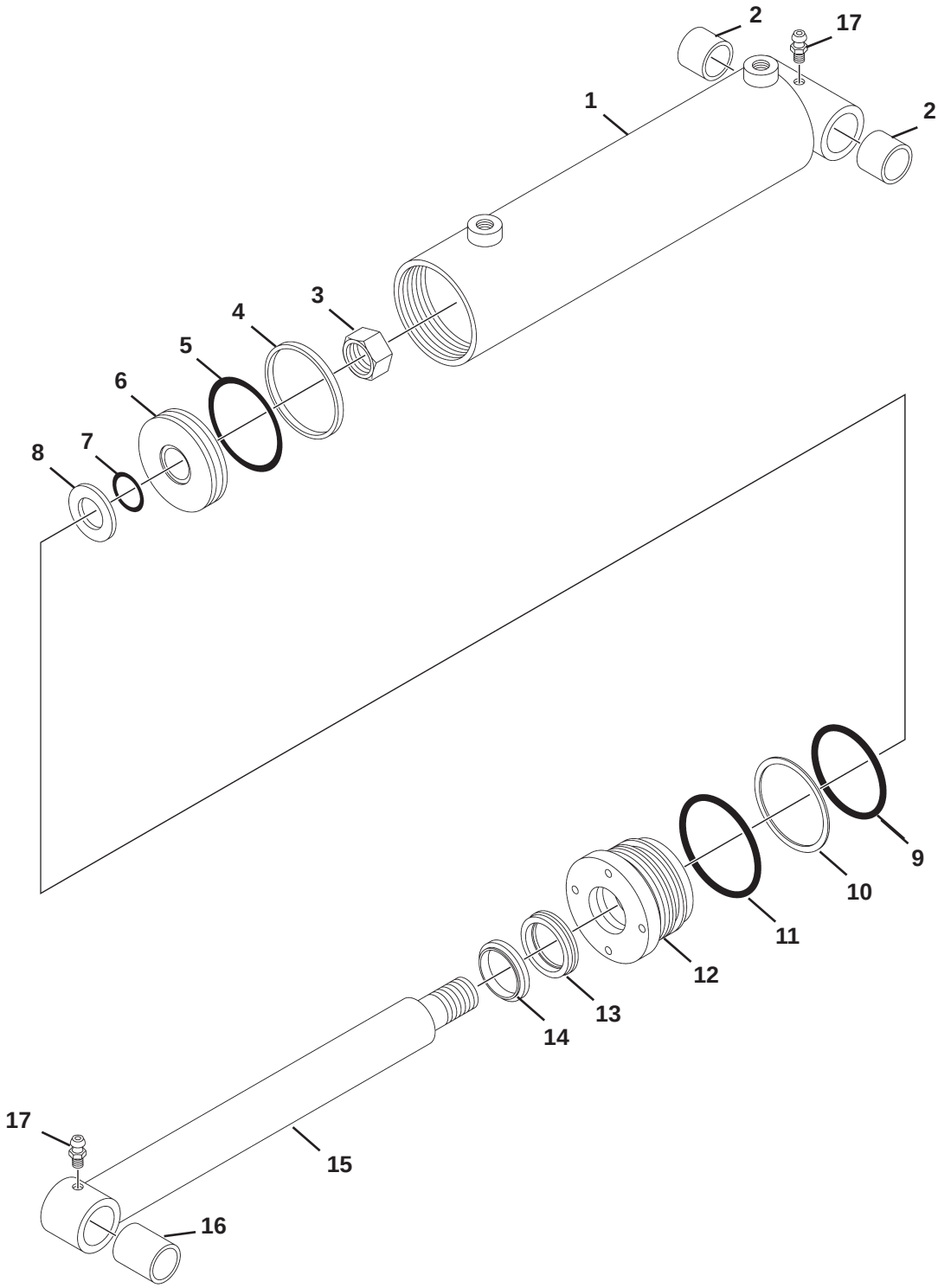
| ITEM | PART NO. | CASE # | DESCRIPTION |
|---|---|---|---|
| 13 | 20021 | 9863626 | 6" x 4' HDF Style Auger |
| | 20096 | 9863627 | 9" x 4' HDF Style Auger |
| | 20183 | 9863628 | 12" x 4' HDF Style Auger |
| | 20237 | 9863629 | 15" x 4' HDF Style Auger |
| | 20306 | 9863630 | 18" x 4' HDF Style Auger |
| | 20386 | 9863631 | 24" x 4' HDF Style Auger |
| | 20429 | 9863632 | 30" x 4' HDF Style Auger |

## AUGER ADAPTERS & EXTENSIONS (Not Shown)

| ITEM | PART NO. | CASE # | DESCRIPTION |
|---|---|---|---|
| NA | 21987 | 9863646 | 2" Hex Female to 2-9/16" Round Male |
| | 21969 | 87042596 | 2" Hex Female to 2" Round Male |
| | 22839 | 87042601 | 12" Extension - 2" Hex |
| | 22851 | 87042602 | 24" Extension - 2" Hex |

# CYLINDER ASSEMBLY

ASSEMBLY #88928




M-1029 9-13-05

# CYLINDER ASSEMBLY

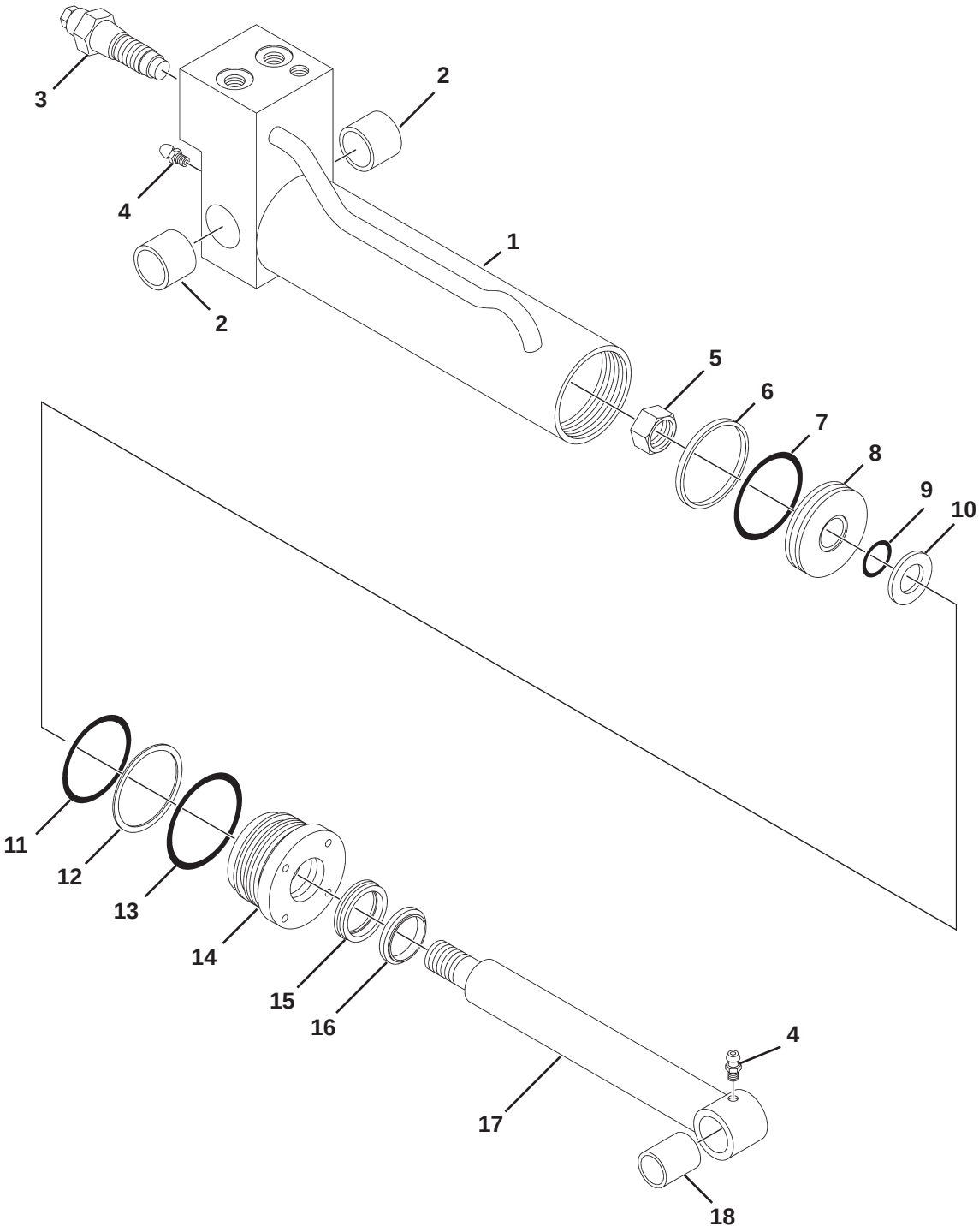
ASSEMBLY #88928

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 88926 | Cylinder Tube |
| 2 | 2 | 88919 | Bronze Bushing |
| 3 | 1 | 1483 | Hex Nut |
| 4 | 1 | 4644* | Piston Ring |
| 5 | 1 | 4645* | O-Ring |
| 6 | 1 | 50252 | Piston |
| 7 | 1 | 4641* | O-Ring |
| 8 | 1 | 5421 | Washer |
| 9 | 1 | 4509* | O-Ring |
| 10 | 1 | 4510* | Back-Up Washer |
| 11 | 1 | 45250* | O-Ring |
| 12 | 1 | 77458 | Cylinder Gland |
| 13 | 1 | 45219* | Poly-Pak Seal |
| 14 | 1 | 45389* | Rod Wiper |
| 15 | 1 | 88927 | Cylinder Rod |
| 16 | 1 | 88918 | Bronze Bushing |
| 17 | 2 | 6616 | Grease Zerk |

**NOTE:** Seal Kit #45617 includes all parts marked with an asterisk (*). Parts are not sold separately.

# CYLINDER ASSEMBLY

ASSEMBLY #89113




M-619 10-18-05-3

# CYLINDER ASSEMBLY

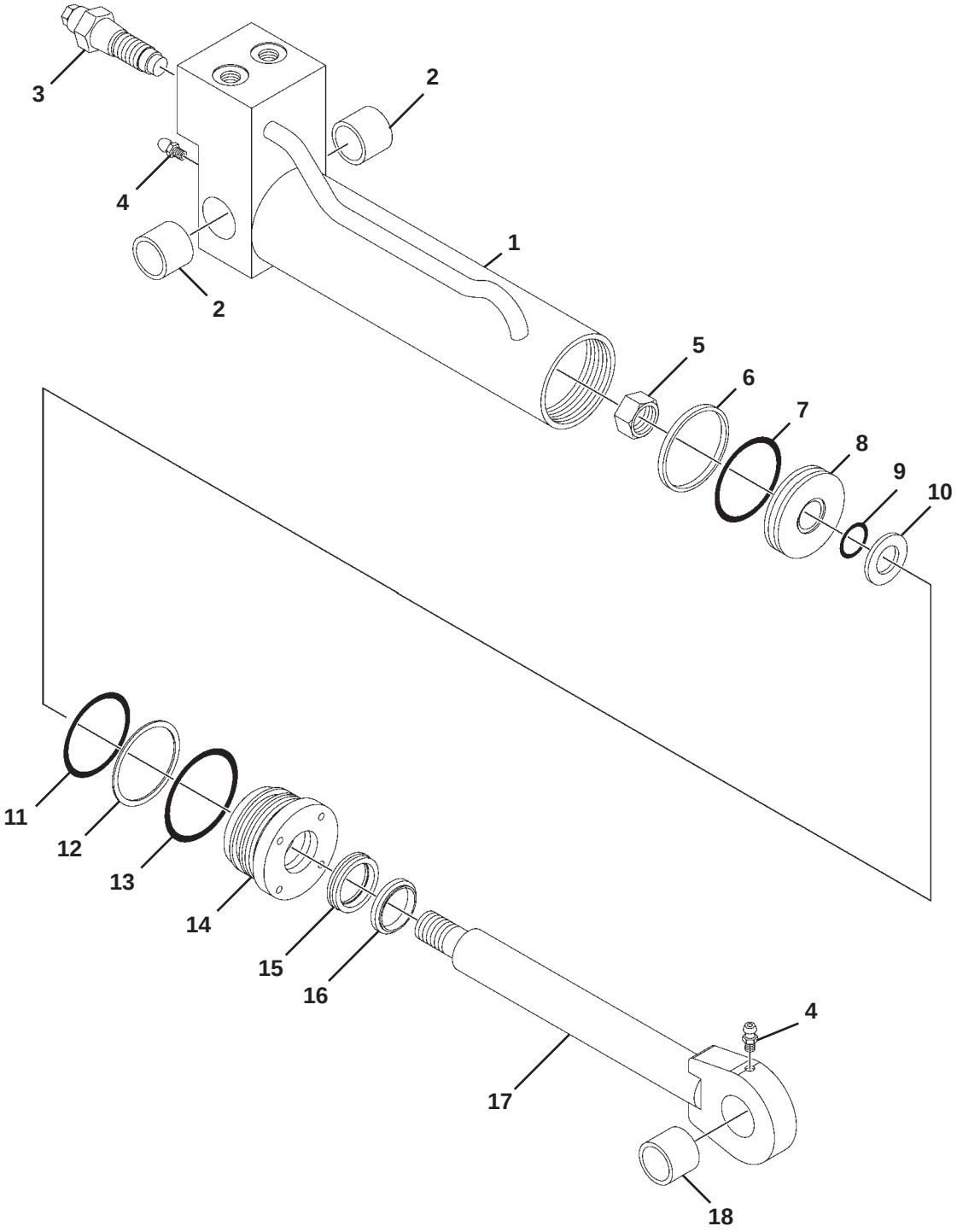
ASSEMBLY #89113

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 89114 | Cylinder Tube, With Valve |
| 2 | 2 | 88919 | Bronze Bushing |
| 3 | 2 | 89120 | Valve Cartridge - Over Center |
| 4 | 2 | 6616 | Grease Zerk |
| 5 | 1 | 1483 | Hex Nut |
| 6 | 1 | 4644* | Piston Ring |
| 7 | 1 | 4645* | O-Ring |
| 8 | 1 | 50252 | Piston |
| 9 | 1 | 4641* | O-Ring |
| 10 | 1 | 5421 | Washer |
| 11 | 1 | 4509* | O-Ring |
| 12 | 1 | 4510* | Back-Up Washer |
| 13 | 1 | 45250* | O-Ring |
| 14 | 1 | 77458 | Cylinder Gland |
| 15 | 1 | 45219* | Poly-Pak Seal |
| 16 | 1 | 45389* | Rod Wiper |
| 17 | 1 | 88927 | Piston Rod |
| 18 | 1 | 88918 | Bronze Bushing |

**NOTE:** Seal Kit #45617 includes all parts marked with an asterisk (*). Parts are not sold separately.

# CYLINDER ASSEMBLY

ASSEMBLY #102273




M-1613 10-10-07

# CYLINDER ASSEMBLY

ASSEMBLY #102273

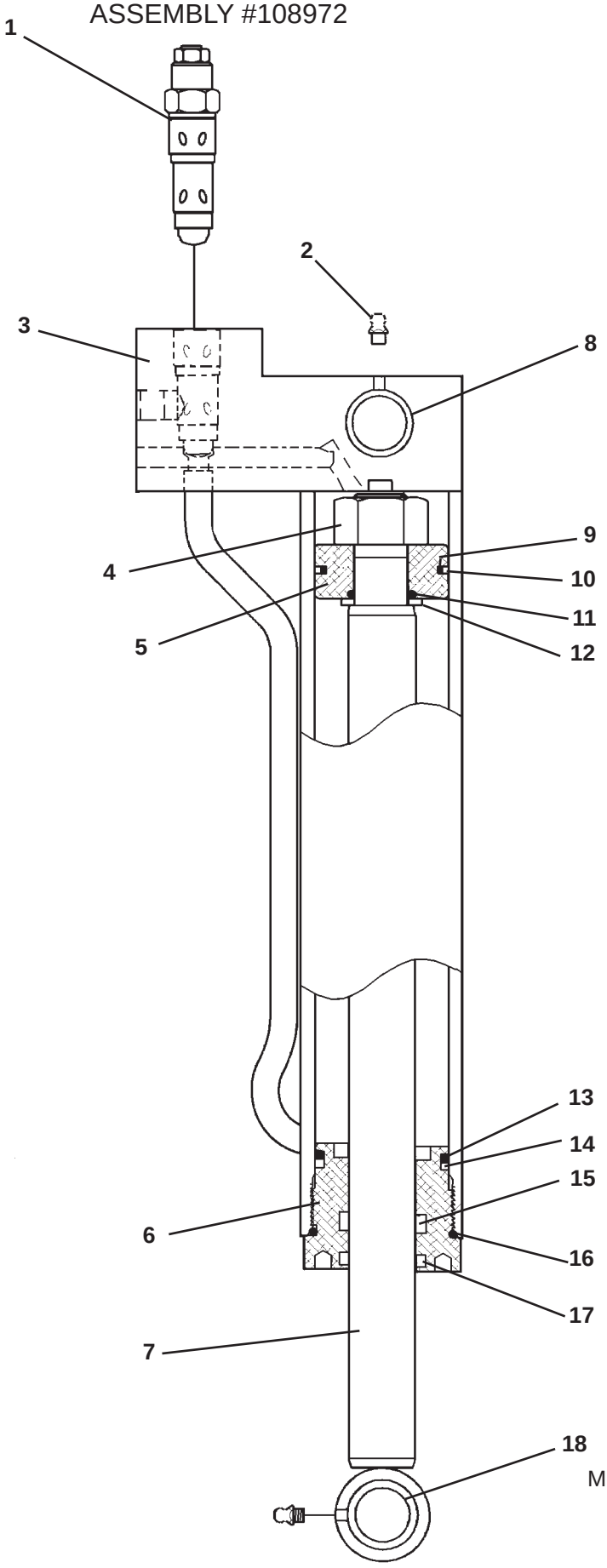
| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 89118 | Cylinder Tube, With Valve |
| 2 | 2 | 88919 | Bronze Bushing |
| 3 | 2 | 89120 | Valve Cartridge - Over Center |
| 4 | 2 | 6616 | Grease Zerk |
| 5 | 1 | 1483 | Hex Nut |
| 6 | 1 | 4644* | Piston Ring |
| 7 | 1 | 4645* | O-Ring |
| 8 | 1 | 50252 | Piston |
| 9 | 1 | 4641* | O-Ring |
| 10 | 1 | 5421 | Washer |
| 11 | 1 | 4509* | O-Ring |
| 12 | 1 | 4510* | Back-Up Washer |
| 13 | 1 | 45250* | O-Ring |
| 14 | 1 | 77458 | Cylinder Gland |
| 15 | 1 | 45219* | Poly-Pak Seal |
| 16 | 1 | 45389* | Rod Wiper |
| 17 | 1 | 102272 | Piston Rod |
| 18 | 1 | 88918 | Bronze Bushing |

**NOTE:** Seal Kit #45617 includes all parts marked with an asterisk (*). Parts are not sold separately.

M-1614 10-10-07

# CYLINDER ASSEMBLY

ASSEMBLY #108972




M-1406 11-17-06

# CYLINDER ASSEMBLY

ASSEMBLY #108972

| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 2 | 45975 | Valve Cartridge - Counter Balance |
| 2 | 2 | 6616 | Grease Zerk |
| 3 | 1 | 89118 | Cylinder Tube with Valve |
| 4 | 1 | 1483 | Hex Nut (Torque Nut to 230-250 ft. lbs.) |
| 5 | 1 | 50252 | Piston |
| 6 | 1 | 77458 | Cylinder Gland |
| 7 | 1 | 88915 | Cylinder Rod |
| 8 | 2 | 88919 | Bushing |
| 9 | 1 | 4645* | O'Ring |
| 10 | 1 | 4644* | Piston Ring |
| 11 | 1 | 4641* | O'Ring |
| 12 | 1 | 5421 | Washer |
| 13 | 1 | 4509* | O'Ring |
| 14 | 1 | 4510* | Back-Up Washer |
| 15 | 1 | 45219* | Poly-Pak Seal |
| 16 | 1 | 45250* | O'Ring |
| 17 | 1 | 45389* | Rod Wiper |
| 18 | 1 | 88918 | Bushing |

**NOTE:** Seal Kit #45617 includes all parts marked with an asterisk (*).
Parts are not sold separately.

M-1407 11-17-06