



OPERATOR'S AND PARTS MANUAL

LOGGING CARRIAGE

**FOR
RTFL**



SERIAL NUMBER: _____

MODEL NUMBER: _____

Manual Number: 76830

Part Number: 76830

Rev. 2 August 2018

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PREFACE

GENERAL COMMENTS

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

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 that have read and understand this manual. If there is any portion of this manual or function you do not understand, contact your local authorized dealer or the manufacturer to obtain further assistance. Keep this manual available for reference. Provide the manual to any new owners and/or operators.

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

Use only manufacturer replacement parts. Substitute parts may not meet the required standards.

Record the model and serial number of your unit on the cover of this manual. The parts department needs this information to insure that you receive the correct parts.

SOUND AND VIBRATION

Sound pressure levels and vibration data for this attachment are influenced by many different parameters: some items are listed below (not inclusive):

- prime mover type, age, condition, with or without cab enclosure and configuration
- operator training, behavior, stress level
- job site organization, working material condition, environment

Based on the uncertainty of the prime mover, operator, and job site, it is not possible to get precise machine and operator sound pressure levels or vibration levels for this attachment.

NOTE: A list of all Paladin Patents can be found at <http://www.paladinattachments.com/patents.asp>.

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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 INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.



WARNING

THIS SIGNAL WORD INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.



CAUTION

THIS SIGNAL WORD INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN MINOR OR MODERATE INJURY.

NOTICE

NOTICE IS USED TO ADDRESS PRACTICES NOT RELATED TO PHYSICAL INJURY.

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.

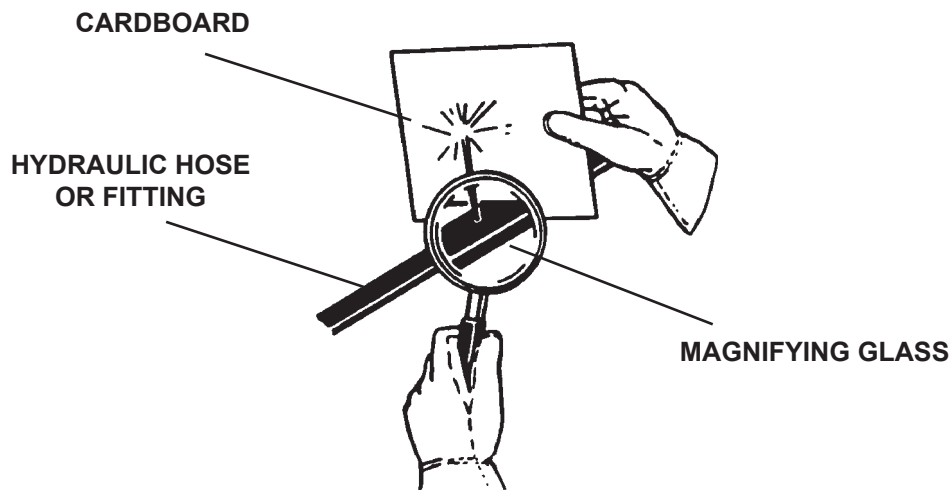
WARNING!



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.

WARNING!



CALIFORNIA PROPOSITION 65 WARNING

This product may contain a chemical known to the state of California to cause cancer, or birth defects or other reproductive harm. www.P65Warnings.ca.gov

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.

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.

WARNING! REMOVE PAINT BEFORE WELDING OR HEATING



Hazardous fumes/dust can be generated when paint is heated by welding, soldering or using a torch. Do all work outside or in a well ventilated area and dispose of paint and solvent properly. Remove paint before welding or heating.

When sanding or grinding paint, avoid breathing the dust. Wear an approved respirator. If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

WARNING! END OF LIFE DISPOSAL



At the completion of the useful life of the unit, drain all fluids and dismantle by separating the different materials (rubber, steel, plastic, etc.). Follow all federal, state and local regulations for recycling and disposal of the fluid and components.



OPERATING THE ATTACHMENT

- Do not exceed the lifting capacity of your prime mover. Always observe lift capacity limits listed in machine specifications or on load charts furnished with the prime mover.
- Operate only from the operator's station.
- When operating on slopes, drive up and down, not across. Avoid steep hillside operation, which could cause the prime mover to overturn.
- Reduce speed when driving over rough terrain, on a slope, or turning, to avoid overturning the vehicle.
- 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.
- Never heap load heavy material where the combined weight of the attachment and material could exceed the rated lifting capacity of the prime mover.
- Be sure the load does not stick out too far in front of the attachment. A light load sticking out too far can have the same tipping effect as a heavy load carried in close.
- Before exiting the prime mover, lower the attachment to the ground, turn off the prime mover's engine, remove the key and apply the brakes.

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EQUIPMENT SAFETY PRECAUTIONS



OPERATING THE ATTACHMENT (Continued)

- Never lift a load with one fork. A load lifted with one fork can slip and cause injury.
- Never lift, move or swing loads over anyone.
- 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.



TRANSPORTING THE ATTACHMENT

- 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., cave in could result.
- Do not smoke when refueling the prime mover. Allow room in the fuel tank for expansion. Wipe up any spilled fuel. Secure cap tightly when done.



MAINTAINING THE ATTACHMENT

- Before performing maintenance, lower the attachment to the ground, turn off the engine, remove the key and apply the brakes.
- Never perform any work on the attachment unless you are authorized and qualified to do so. Always read the operator service manual's before any repair is made. After completing maintenance or repair, check for correct functioning of the attachment. If not functioning properly, always tag "DO NOT OPERATE" until all problems are corrected.
- Worn, damaged, or illegible safety decals must be replaced. New safety decals can be ordered from BRADCO free of charge.
- Never make hydraulic repairs while the system is under pressure. Serious personal injury or death could result.
- Never work under a raised attachment.

DECALS

GENERAL INFORMATION

A diagram showing the location of the decals used on your attachment can be found in the parts section of this manual. The decals are identified by their part numbers, with reductions of the actual decals located below. Use this information to order replacements for lost or damaged decals. Be sure to read all decals before operating the attachment. They contain information you need to know for both safety and product longevity.



PART #40149
DANGER: PINCH POINT
(LOCATED ON BOTH SIDES OF FRAME)



PART #40151
WARNING: HIGH PRESSURE FLUID
(LOCATED ON TOP OF FRAME)



PART #4338
MADE IN U.S.A.
(LOCATED ON TOP OF FRAME)

NOTE: CONTACT YOUR LOCAL DEALER TO PURCHASE LOGO DECALS.

IMPORTANT: Keep all safety decals clean and legible. Replace all missing, illegible, or damaged safety decals. When replacing parts with safety decals attached, the safety decals must also be replaced. Safety decals are available, free of charge, from your local dealer or Paladin.

REPLACING SAFETY SIGNS: Clean the area of application with nonflammable solvent, then wash the same area with soap and water. Allow the surface to fully dry. Remove the backing from the safety decal, exposing the adhesive surface. Apply the safety decal to the position shown in the diagram above and smooth out any bubbles.

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INSTALLATION AND OPERATION

INSTALLATION

Your Logging Carriage was shipped complete with the appropriate mounting for your specific unit, and with the hydraulic hoses and couplers installed.

Install the attachment by following your power unit operator's manual for installing an attachment.

WARNING! To Avoid Serious Personal Injury, make sure the attachment is securely latched to the attachment mechanism of your unit. Failure to do so could result in separation of the attachment from the unit.



Connect the hydraulic quick couplers to the auxiliary hydraulics, and route the hoses in such a fashion as to prevent chafing and pinching.

Start engine and slowly cycle the cylinders several times to purge system of air and check for proper hydraulic connection, hose routing, and hose length.

Check the attachment for proper assembly, installation and hydraulic leaks.

DETACHING

On firm level ground, close the grapple and lower the attachment until it is level and approximately 2" off the ground.

Turn off the engine. Move the control levers back and forth to relieve pressure in line. Disconnect couplers.

NOTE: Connect couplers together or install caps to prevent contaminants from entering the hydraulic system.

Follow your power unit operator's manual for detaching (removing) an attachment.

NOTE: Frequent lubrication of grease fittings at the pivot pins locations with a multi-purpose grease will greatly increase life of the product.

OPERATION

INTENDED USE: The Hold Down Logging Carriages are designed with a floating pin for easy pick-up of material on uneven surfaces. Designed for the logging industry, sawmills, pallet mills and applications where material must be secured while traveling. Can be used to pick up pallets when the grapples are raised. For telehandler and wheel loader applications. Use in any other way is considered contrary to the intended use.

1. Approach the load in such a fashion that the weight will be centered in the grapples.
2. Close the grapples to their fullest extent possible and lift the attachment slightly to be certain that the load is secure.

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

INSTALLATION AND OPERATION

When using the carriage to lift pallets the GRAPPLES MUST BE COMPLETELY OPEN.



Never lift heavy material where the combined weight of the attachment and material could exceed the rated lifting capacity of the prime mover.

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

Do not exceed the lift capacity of your loader. See prime mover specifications.

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.

Avoid side slope travel whenever possible. Drive up the slope to pick up a load and then down in reverse. Carry loads as close to the ground as possible.

Before exiting the prime mover, lower the attachment to the ground, turn off the prime mover's engine, remove the key and apply the brakes.

STORAGE

- Clean the unit thoroughly, removing all mud, dirt, and grease.
- 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.
- Tighten loose nuts, capscrews, and hydraulic connections.
- Seal hydraulic system from contaminants and secure all hydraulic hoses of the ground to help prevent damage.
- Lubricate grease fittings.
- Coat the exposed portions of the cylinder rods with grease.
- Replace decals that are damaged or in unreadable condition.
- Store the unit in a dry and protected place. Leaving the unit outside will materially shorten its life.

Additional Precautions for Long Term Storage:

- Touch up all unpainted surfaces with paint, to prevent rust.

REMOVAL FROM STORAGE

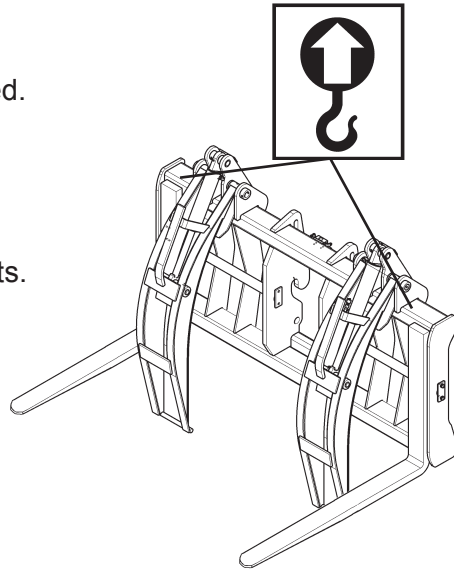
- Remove cover.
- Wash unit and replace any damaged and/or missing parts.
- Lubricate grease fittings.
- Check hydraulic hoses for damage and replace as necessary.

INSTALLATION AND OPERATION

LIFT POINTS

Lifting points are identified by lifting decals where required. Lifting at other points is unsafe and can damage attachment. Do not attach lifting accessories around cylinders or in any way that may damage hoses or hydraulic components. See Diagram

- Attach lifting accessories to unit at recommended lifting points.
- Bring lifting accessories together to a central lifting point.
- Lift gradually, maintaining the equilibrium of the unit.



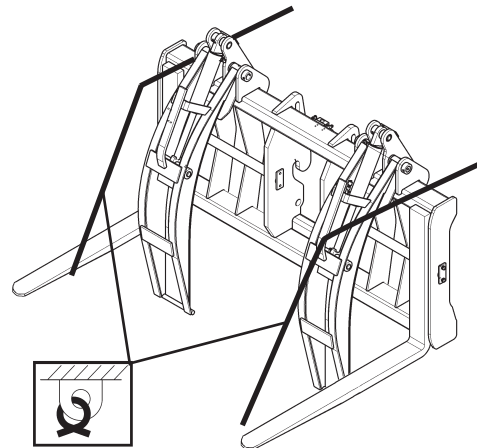
WARNING! Use lifting accessories (chains, slings, ropes, shackles and etc.) that are capable of supporting the size and weight of your attachment. Secure all lifting accessories in such a way to prevent unintended disengagement. Failure to do so could result in the attachment falling and causing serious personal injury or death.



TIE DOWN POINTS

Tie down points are identified by tie down decals where required. Securing to trailer at other points is unsafe and can damage attachment. Do not attach tie down accessories around cylinders or in any way that may damage hoses or hydraulic components. See Diagram

- Attach tie down accessories to unit as recommended.
- Check unit stability before transporting.



WARNING! Verify that all tie down accessories (chains, slings, ropes, shackles and etc.) are capable of maintaining attachment stability during transporting and are attached in such a way to prevent unintended disengagement or shifting of the unit. Failure to do so could result in serious personal injury or death.



TRANSPORTING

Follow all local government regulations that may apply along with recommended tie down points and any equipment safety precautions at the front of this handbook when transporting your attachment.

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.

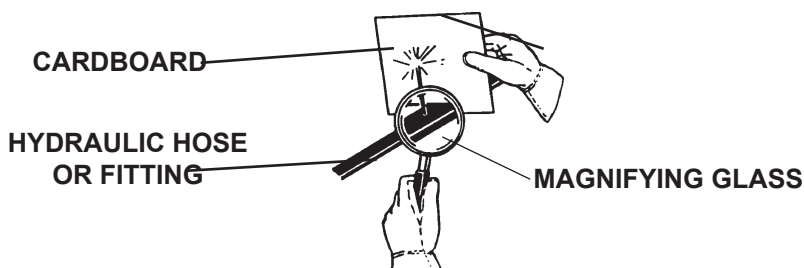
Procedure	Daily	Every 40 Hours
Check all bolts and nuts for tightness.	✓	
Replace any missing bolts or nuts with approved replacement parts.	✓	
Check hydraulic system for hydraulic oil leaks. See procedure below.	✓	
Visually inspect the machine for worn parts or cracked welds, and repair as necessary.	✓	
Check for missing or illegible Safety / Warning Decals.	✓	
Lubricate all grease fittings.		✓

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 accept responsibility for use of unapproved parts or accessories, and damages that result from their use.

MAINTENANCE AND SERVICE

CYLINDER SEAL REPLACEMENT

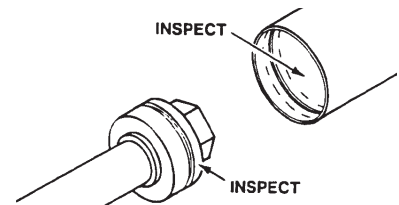
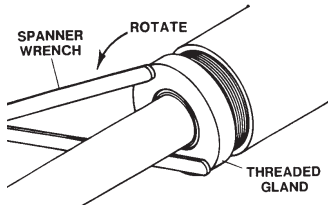
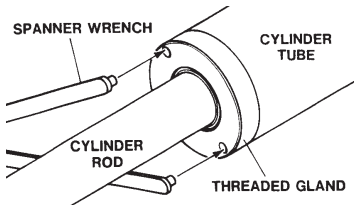
The following information is provided to assist you in the event you should need to repair or rebuild a hydraulic cylinder. When working on hydraulic cylinders, make sure that the work area and tools are clean and free of dirt to prevent contamination of the hydraulic system and damage to the hydraulic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

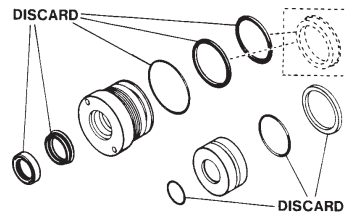
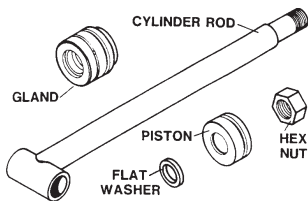
IMPORTANT: Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.

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.

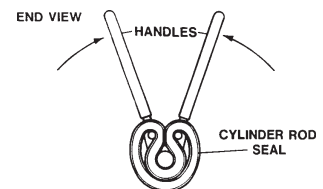
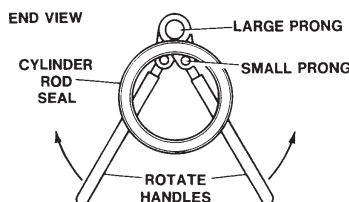
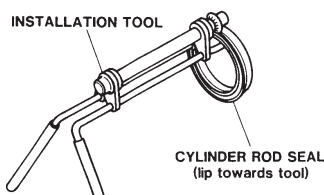


ASSEMBLY PROCEDURE

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.



Rotate the handles on the tool around to wrap the seal around the end of the tool.

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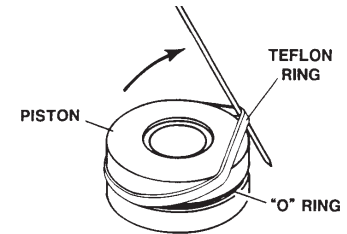
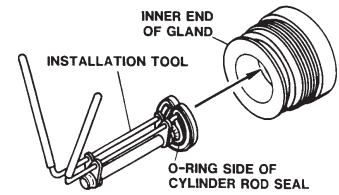
MAINTENANCE AND SERVICE

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.

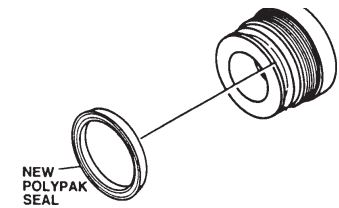
Be careful not to damage the seals. Caution must be used when installing the piston ring. The ring must be stretched carefully over the piston with a smooth, round, pointed tool.

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



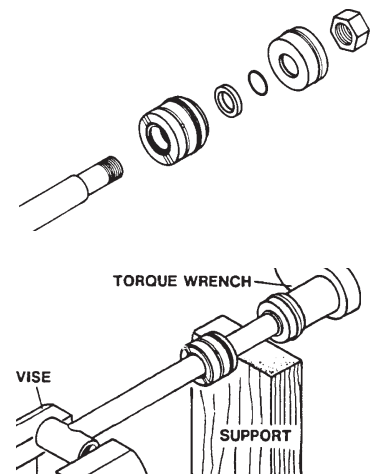
NOTE: Threaded glands may have been equipped with a separate O-ring and backup washer system or a polypak (all in one) type seal. Current seal kits contain a polypak (all in one) type seal to replace the discarded seal types on ALL THREADED GLANDS.

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!



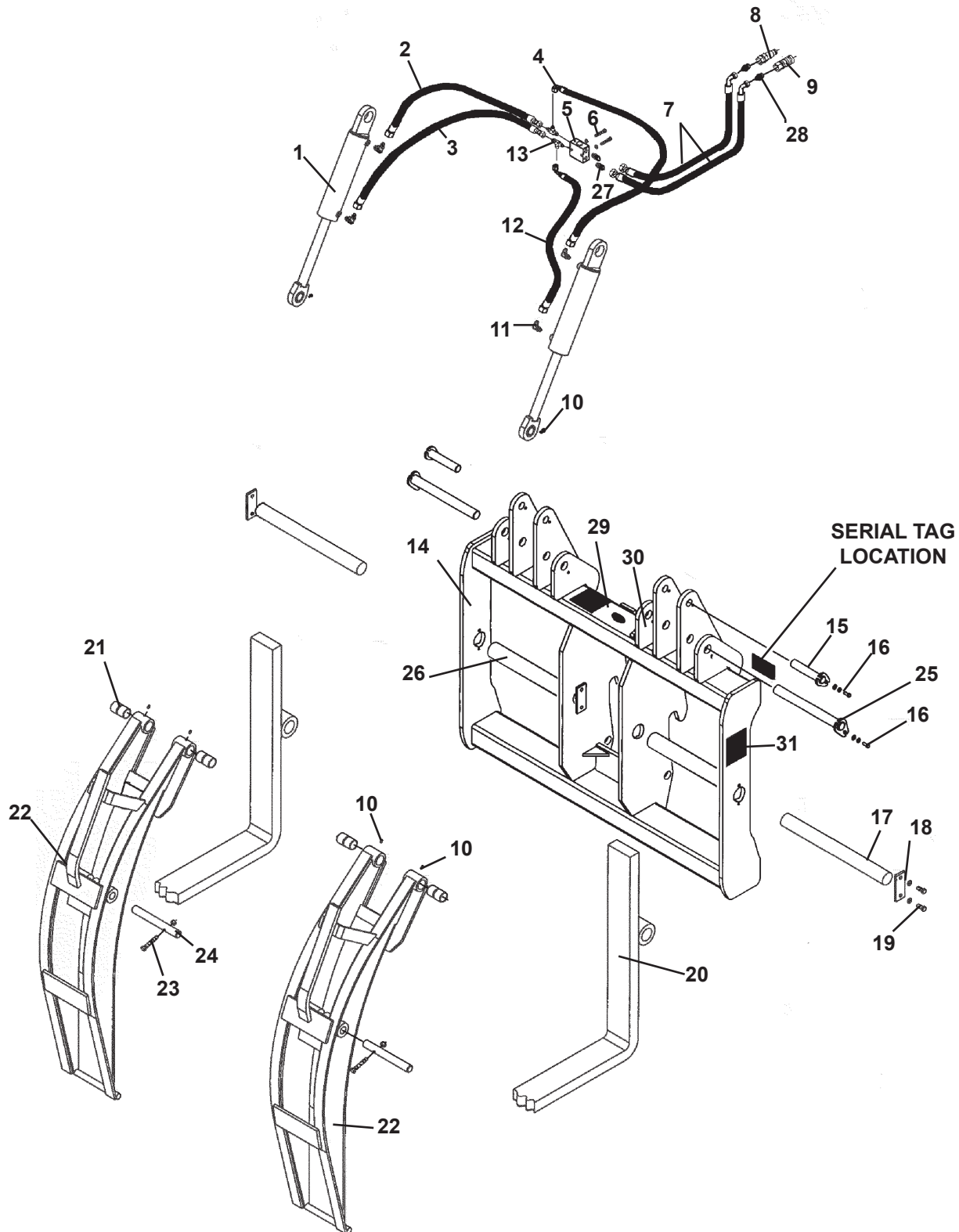
Cylinders serviced in the field are to be tested for leakage prior to the attachment being placed in work. Failure to test rebuilt cylinders could result in damage to the cylinder and/or the attachment, cause severe personal injury or even death.

LIMITED WARRANTY

In order to provide you with the most UP-TO-DATE Warranty information, Paladin Warranty Statement and Warranty Procedures along with Warranty Registration and Claim Forms have been moved to our website at www.paladinattachments.com.

HOLD DOWN LOGGING CARRIAGE

ASSEMBLY #12751



M-2224 3-20-13

HOLD DOWN LOGGING CARRIAGE

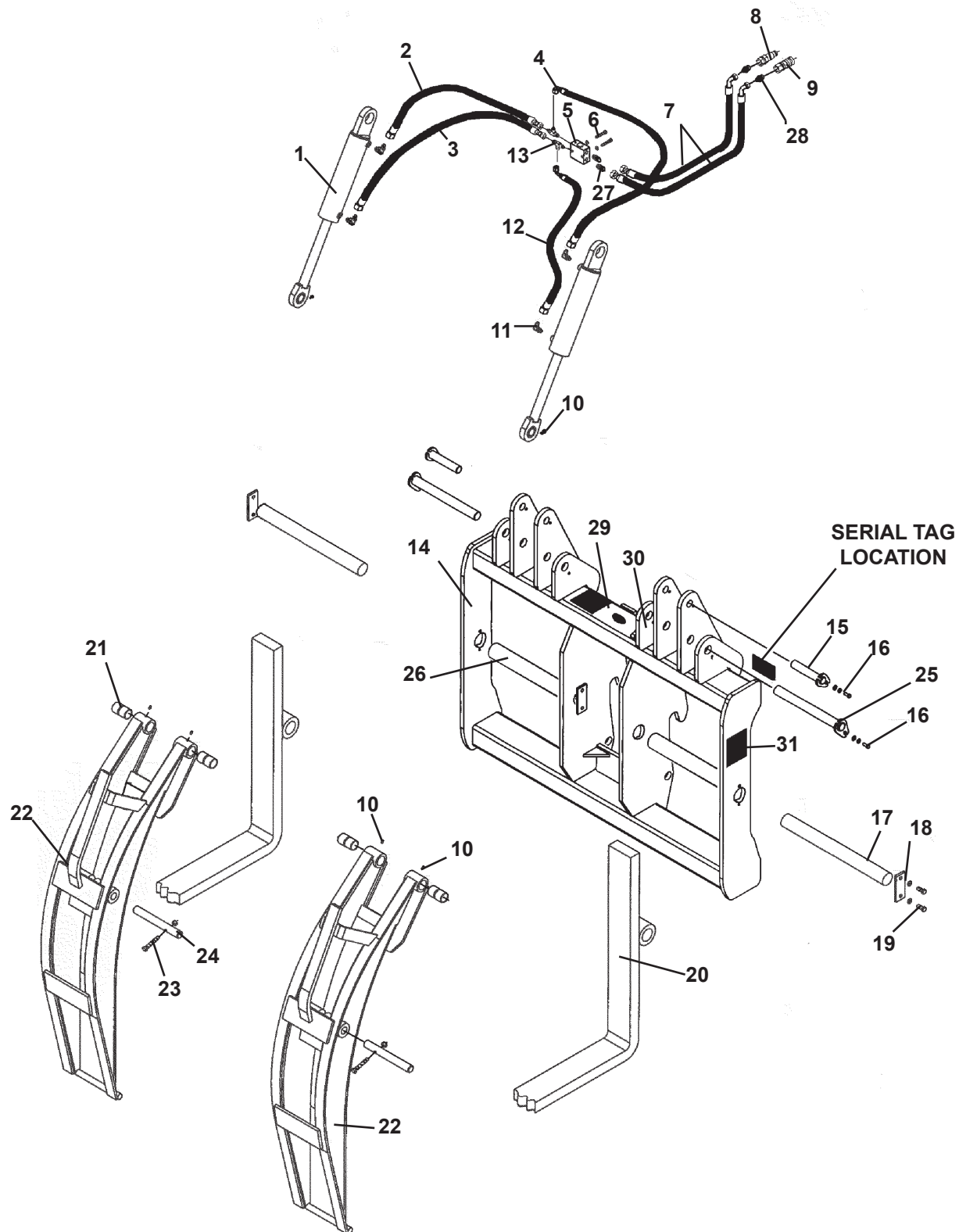
ASSEMBLY #12751

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	2	11776	Cylinder Assembly
2	1	37885	Hose, .38" X 38" 6FJX-6FJX
3	1	37839	Hose, .38" X 50" 6FJX-6FJX
4	1	38307	Hose, .38" X 43" 6FJX-6FJX 90°
5	1	88536	Valve
6	2	1026	.31" UNC X 2.00" Hex Capscrew
	2	1502	.31" Lock Washer
7	2	37893	Hose, .38" X 68" 6FJX-8MBo
8	1	84923	Male Quick Coupler
	1	32549	Dust Cap
9	1	84928	Female Quick Coupler
	1	32548	Dust Cap
10	6	6616	Grease Fitting
11	4	3434	90° Elbow 6MBo-6MJ
12	1	38306	Hose, .38" X 56" 6FJX-6FJX 90°
13	2	30243	Tee 6MBo-6MJ-6MJ
14	1	103011	Frame
16	4	1043	.38" UNC X 1.00" Hex Capscrew
	4	1503	.38" Lock Washer
	4	1800	.38" Hard Flat Washer
15	2	15691	Pin
17	2	103019	Fork Pin
18	2	15701	Retainer
19	4	1089	.50" UNC X 1.25" Hex Capscrew
	4	1505	.50" Lock Washer
20	2	103017	Pallet Fork 2x5x42 Hi-Back
21	4	31251	Bushing
22	2	15682	Grapple
23	2	1096	.50" UNC X 3.00" Hex Capscrew
	2	1841	.50" UNC Deformed Lock Nut
24	2	15702	Pin
25	4	15692	Pin
26	2	107609	Spacer Pipe
27	2	3457	Straight Adapter 6MJ-6MBo
28	2	3269	Straight Adapter 6MJ-8MBo
29	1	40151	Warning: High Pressure Fluid Decal
30	1	4338	Made in USA
31	2	40149	Danger: Pinch Points

M-2225 3-20-13

HOLD DOWN LOGGING CARRIAGE

ASSEMBLY #12946



M-2226 3-20-13

HOLD DOWN LOGGING CARRIAGE

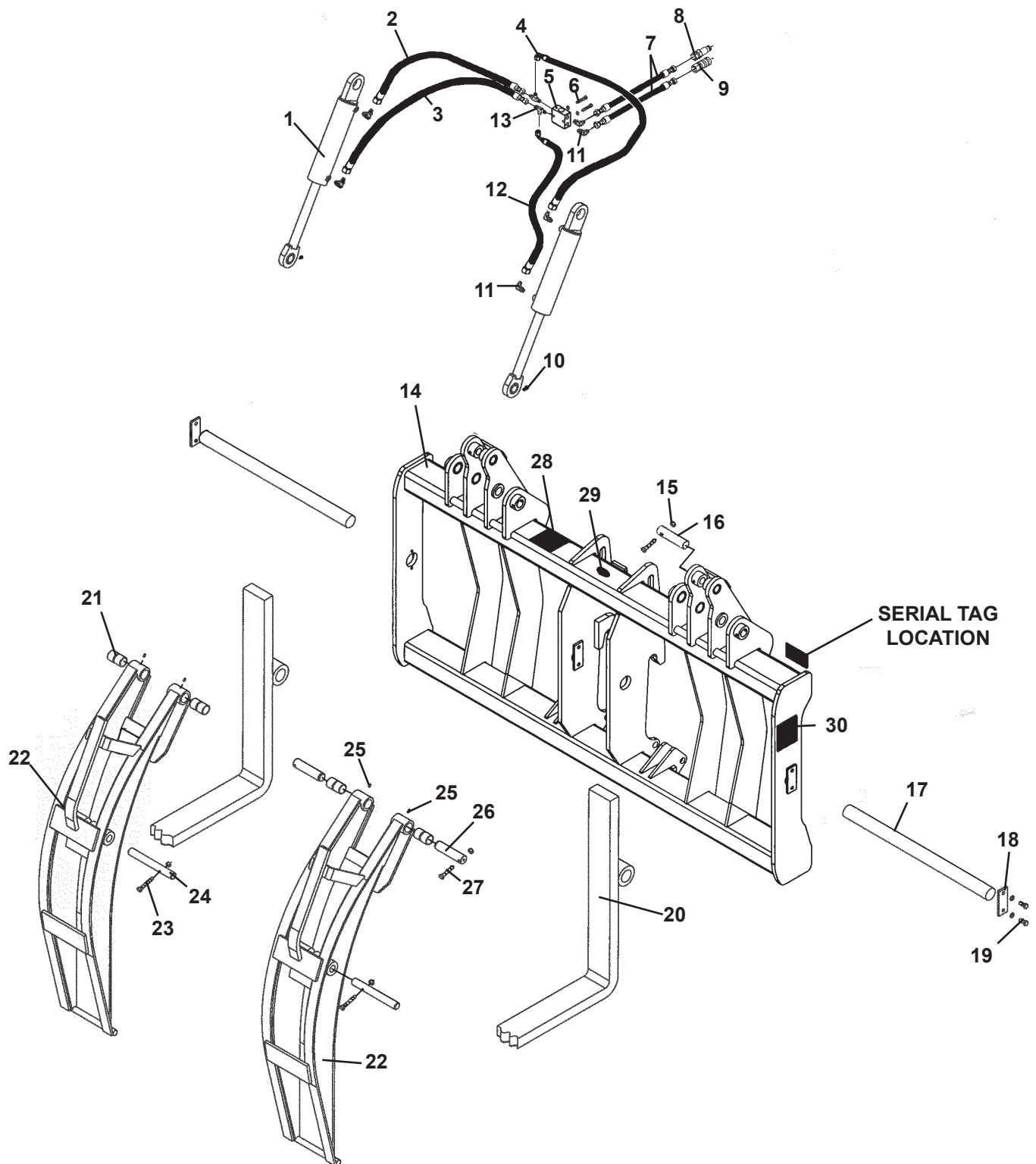
ASSEMBLY #12946

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	2	11776	Cylinder Assembly
2	1	37885	Hose, .38" X 38" 6FJX-6FJX
3	1	37839	Hose, .38" X 50" 6FJX-6FJX
4	1	38307	Hose, .38" X 43" 6FJX-6FJX 90°
5	1	88536	Valve
6	2	1026	.31" UNC X 2.00" Hex Capscrew
	2	1502	.31" Lock Washer
7	2	37893	Hose, .38" X 68" 6FJX-8MBo
8	1	84923	Male Quick Coupler
	1	32549	Dust Cap
9	1	84928	Female Quick Coupler
	1	32548	Dust Cap
10	6	6616	Grease Fitting
11	4	3434	90° Elbow 6MBo-6MJ
12	1	38306	Hose, .38" X 56" 6FJX-6FJX 90°
13	2	30243	Tee 6MBo-6MJ-6MJ
14	1	103011	Frame
16	4	1043	.38" UNC X 1.00" Hex Capscrew
	4	1503	.38" Lock Washer
	4	1800	.38" Hard Flat Washer
15	2	15691	Pin
17	2	103019	Fork Pin
18	2	15701	Retainer
19	4	1089	.50" UNC X 1.25" Hex Capscrew
	4	1505	.50" Lock Washer
20	2	11408	Pallet Fork 2x5x60 Hi-Back
21	4	31251	Bushing
22	2	15682	Grapple
23	2	1096	.50" UNC X 3.00" Hex Capscrew
	2	1841	.50" UNC Deformed Lock Nut
24	2	15702	Pin
25	4	15692	Pin
26	2	107609	Spacer Pipe
27	2	3457	Straight Adapter 6MJ-6MBo
28	2	3269	Straight Adapter 6MJ-8MBo
29	1	40151	Warning: High Pressure Fluid Decal
30	1	4338	Made in USA
31	2	40149	Danger: Pinch Points

M-2227 3-20-13

HOLD DOWN LOGGING CARRIAGE

ASSEMBLY #12948



M-2220 3-20-13

HOLD DOWN LOGGING CARRIAGE

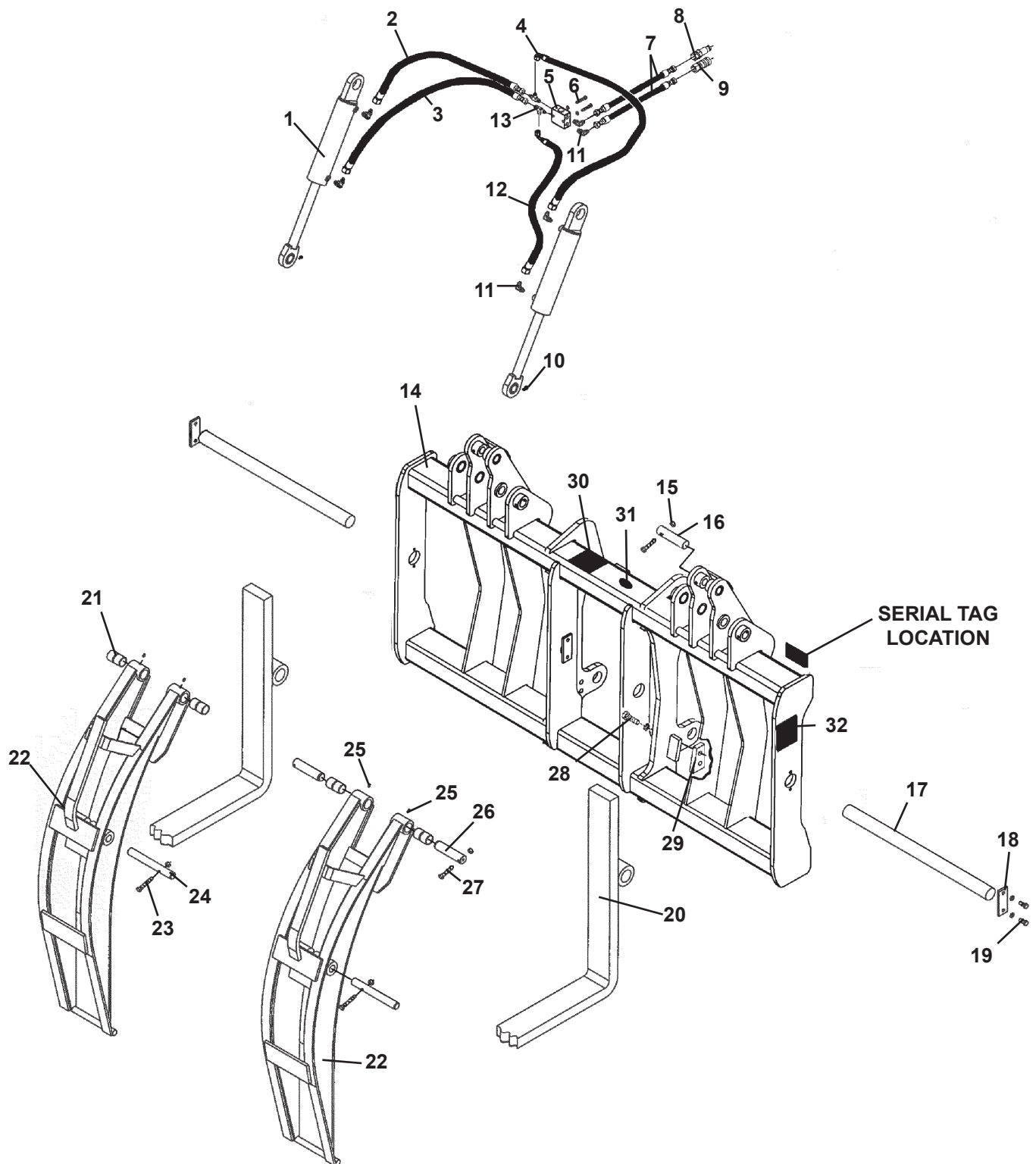
ASSEMBLY #12948

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	2	33256	Cylinder Assembly
2	1	37407	Hose, .38" X 44" 6FJX-6FJX
3	1	37855	Hose, .38" X 56" 6FJX-6FJX
4	1	38348	Hose, .38" X 48" 6FJX-6FJX 90°
5	1	88536	Valve
6	2	1026	.31" UNC X 2.00" Hex Capscrew
	2	1502	.31" Lock Washer
7	2	38039	Hose, .38" X 40" 6FJX-8MBo
8	1	14176	Male Quick Coupler
9	1	14175	Female Quick Coupler
10	2	53031	90° Grease Fitting
11	6	3434	90° Elbow 6MBo-6MJ
12	1	38352	Hose, .38" X 60" 6FJX-6FJX 90°
13	2	30243	Tee 6MBo-6MJ-6MJ
14	1	107657	Frame
15	2	1050	.38" UNC X 2.75" Hex Capscrew
	2	1837	.38" UNC Deformed Lock Nut
16	2	32940	Pin
17	2	107716	Fork Pin
18	2	15701	Retainer
19	4	1089	.50" UNC X 1.25" Hex Capscrew
	4	1505	.50" Lock Washer
20	2	14599	Pallet Fork 2x5x48 Hi-Back
21	4	31251	Bushing
22	2	15682	Grapple
23	2	1097	.50" UNC X 3.25" Hex Capscrew
	2	1841	.50" UNC Deformed Lock Nut
24	2	15702	Pin
25	4	9371	Grease Fitting
26	4	106569	Pin
27	4	1051	.38" UNC X 3.00" Hex Capscrew
	4	1837	.38" UNC Deformed Lock Nut
28	1	40151	Warning: High Pressure Fluid Decal
29	1	4338	Made in USA
30	2	40149	Danger: Pinch Points

M-2221 3-20-13

HOLD DOWN LOGGING CARRIAGE

ASSEMBLY #12803



M-2214 3-20-13

HOLD DOWN LOGGING CARRIAGE

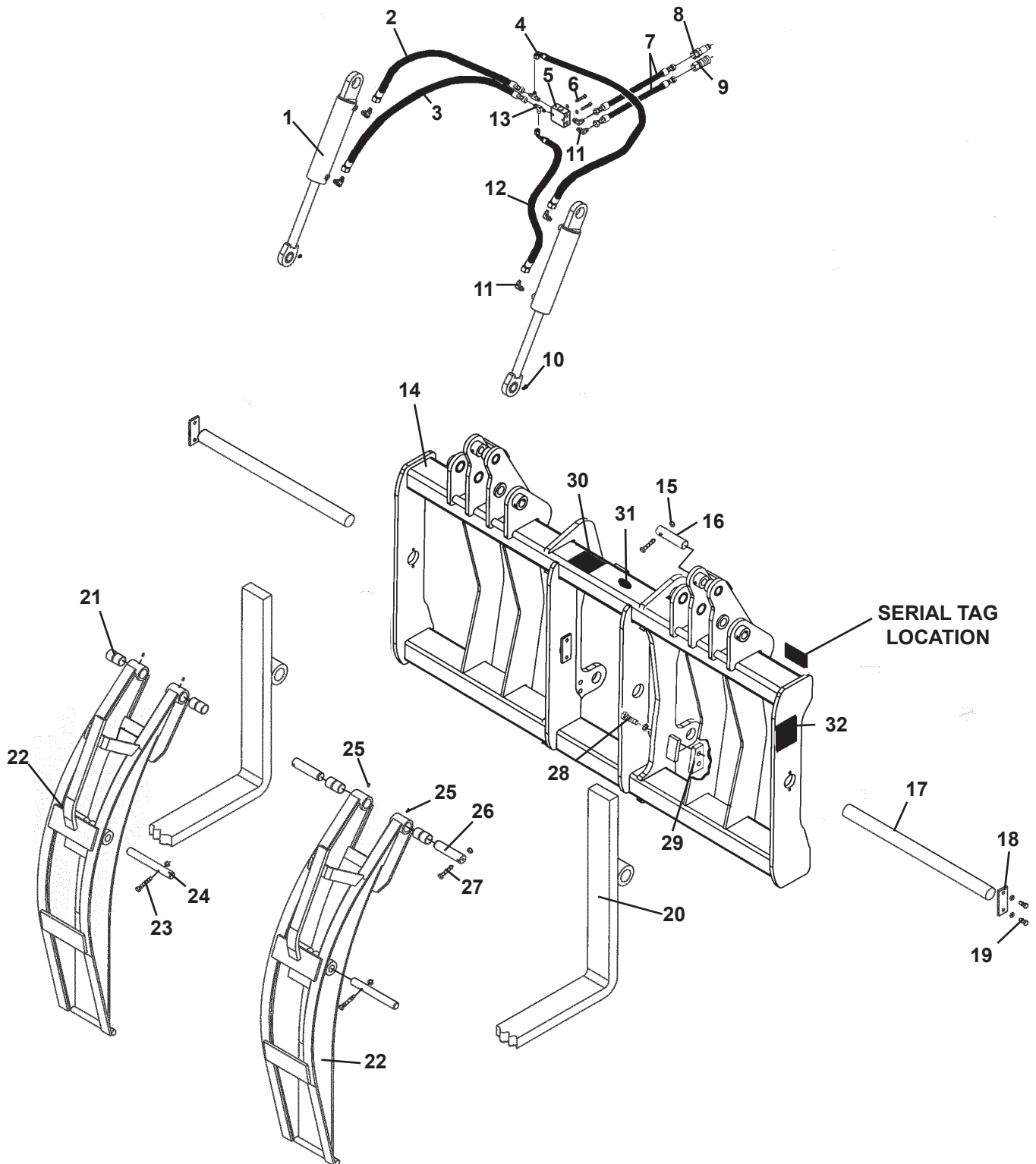
ASSEMBLY #12803

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	2	33256	Cylinder Assembly
2	1	37407	Hose, .38" X 44" 6FJX-6FJX
3	1	37855	Hose, .38" X 56" 6FJX-6FJX
4	1	38348	Hose, .38" X 48" 6FJX-6FJX 90°
5	1	88536	Valve
6	2	1026	.31" UNC X 2.00" Hex Capscrew
	2	1502	.31" Lock Washer
7	2	38039	Hose, .38" X 44" 6FJX-6FJX
8	1	14176	Male Quick Coupler
9	1	14175	Female Quick Coupler
10	2	53031	90° Grease Fitting
11	6	3434	90° Elbow 6MBo-6MJ
12	1	38352	Hose, .38" X 60" 6FJX-6FJX 90°
13	2	30243	Tee 6MBo-6MJ-6MJ
14	1	15674	Frame
15	2	1050	.38" UNC X 2.75" Hex Capscrew
	2	1837	.38" UNC Deformed Lock Nut
16	2	32940	Pin
17	2	15685	Fork Pin
18	2	15701	Retainer
19	4	1089	.50" UNC X 1.25" Hex Capscrew
	4	1505	.50" Lock Washer
20	2	11408	Pallet Fork 2x5x60 Hi-Back
21	4	31251	Bushing
22	2	15682	Grapple
23	2	1097	.50" UNC X 3.25" Hex Capscrew
	2	1841	.50" UNC Deformed Lock Nut
24	2	15702	Pin
25	4	9371	Grease Fitting
26	4	106569	Pin
27	4	1051	.38" UNC X 3.00" Hex Capscrew
	4	1837	.38" UNC Deformed Lock Nut
28	4	10012	.75" UNC X 2.55" Hex Capscrew - Grade 8
	4	1507	.75" Lock Washer
29	2	14228	Stop Block
30	1	40151	Warning: High Pressure Fluid Decal
31	1	4338	Made in USA
32	2	40149	Danger: Pinch Points

M-2215 3-20-13

HOLD DOWN LOGGING CARRIAGE

ASSEMBLY #11580



M-2216 3-20-13

HOLD DOWN LOGGING CARRIAGE

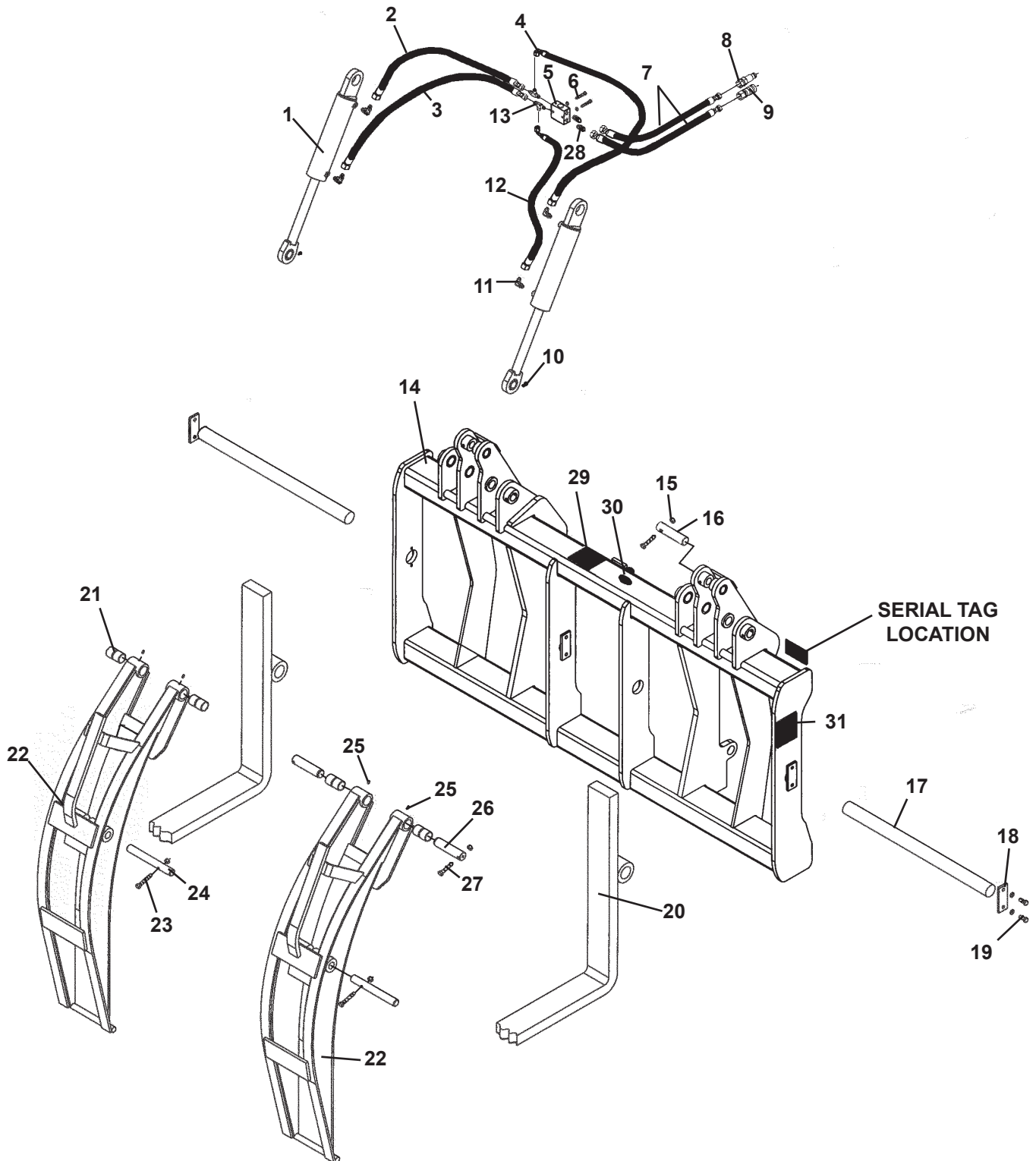
ASSEMBLY #11580

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	2	33256	Cylinder Assembly
2	1	37407	Hose, .38" X 44" 6FJX-6FJX
3	1	37855	Hose, .38" X 56" 6FJX-6FJX
4	1	38348	Hose, .38" X 48" 6FJX-6FJX 90°
5	1	88536	Valve
6	2	1026	.31" UNC X 2.00" Hex Capscrew
	2	1502	.31" Lock Washer
7	2	38039	Hose, .38" X 40" 6FJX-8MBo
8	1	14176	Male Quick Coupler
9	1	14175	Female Quick Coupler
10	2	53031	90° Grease Fitting
11	6	3434	90° Elbow 6MBo-6MJ
12	1	38352	Hose, .38" X 60" 6FJX-6FJX 90°
13	2	30243	Tee 6MBo-6MJ-6MJ
14	1	15674	Frame
15	2	1050	.38" UNC X 2.75" Hex Capscrew
	2	1837	.38" UNC Deformed Lock Nut
16	2	32940	Pin
17	2	15685	Fork Pin
18	2	15701	Retainer
19	4	1089	.50" UNC X 1.25" Hex Capscrew
	4	1505	.50" Lock Washer
20	2	14599	Pallet Fork 2x5x48 Hi-Back
21	4	31251	Bushing
22	2	15682	Grapple
23	2	1097	.50" UNC X 3.25" Hex Capscrew
	2	1841	.50" UNC Deformed Lock Nut
24	2	15702	Pin
25	4	9371	Grease Fitting
26	4	106569	Pin
27	4	1051	.38" UNC X 3.00" Hex Capscrew
	4	1837	.38" UNC Deformed Lock Nut
28	4	10012	.75" UNC X 2.55" Hex Capscrew - Grade 8
	4	1507	.75" Lock Washer
29	2	14228	Stop Block
30	1	40151	Warning: High Pressure Fluid Decal
31	1	4338	Made in USA
32	2	40149	Danger: Pinch Points

M-2217 3-20-13

HOLD DOWN LOGGING CARRIAGE

ASSEMBLY #13218



M-2218 3-20-13

HOLD DOWN LOGGING CARRIAGE

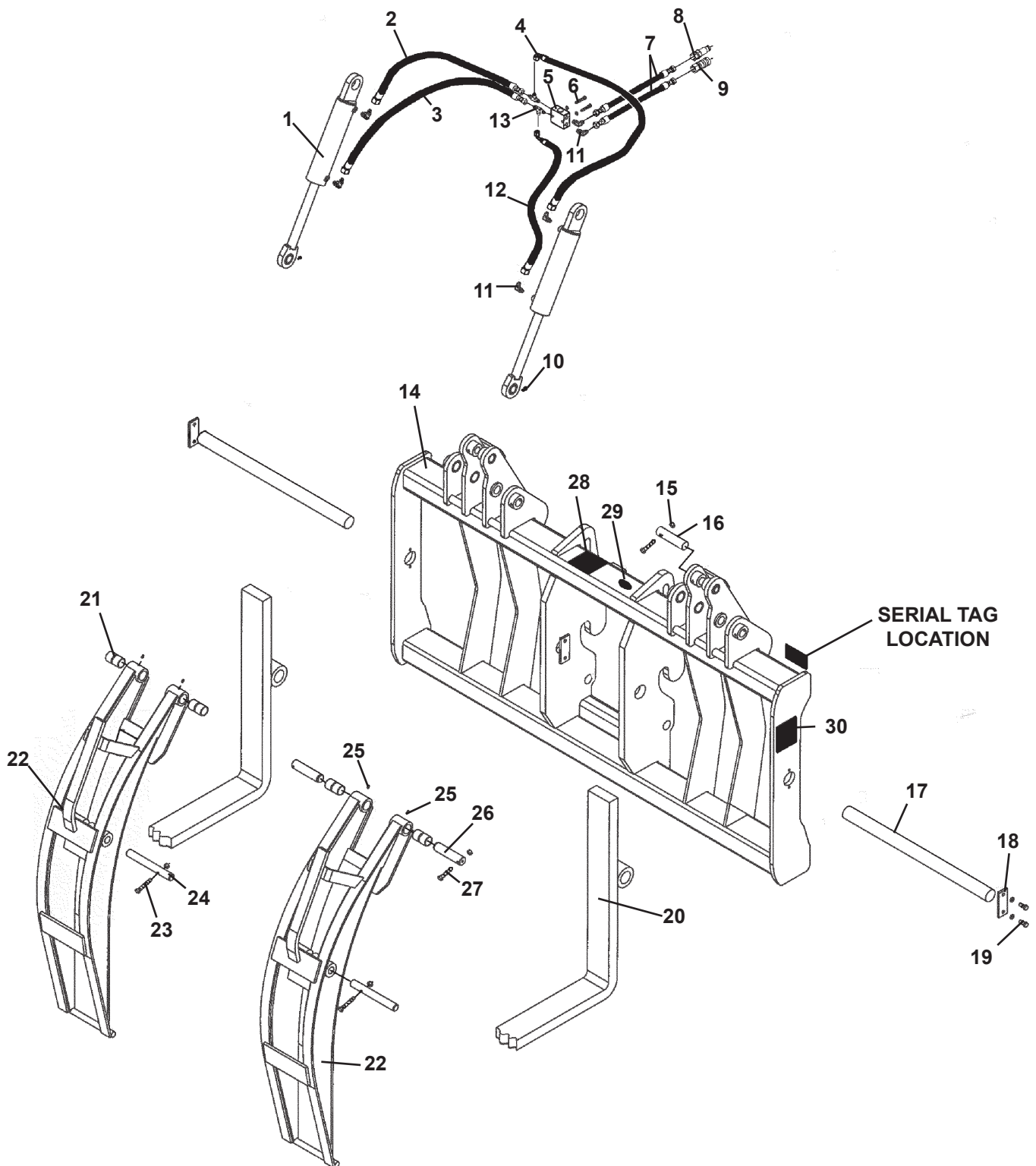
ASSEMBLY #13218

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	2	33256	Cylinder Assembly
2	1	37407	Hose, .38" X 44" 6FJX-6FJX
3	1	37855	Hose, .38" X 56" 6FJX-6FJX
4	1	38348	Hose, .38" X 48" 6FJX-6FJX 90°
5	1	88536	Valve
6	2	1026	.31" UNC X 2.00" Hex Capscrew
	2	1502	.31" Lock Washer
7	2	38315	Hose, .38" X 68" 6FJX-8MBo
8	1	84923	Male Quick Coupler
	1	32549	Dust Cap
9	1	84928	Female Quick Coupler
	1	32548	Dust Cap
10	2	53031	90° Grease Fitting
11	4	3434	90° Elbow 6MBo-6MJ
12	1	38352	Hose, .38" X 60" 6FJX-6FJX 90°
13	2	30243	Tee 6MBo-6MJ-6MJ
14	1	115132	Frame
15	2	1050	.38" UNC X 2.75" Hex Capscrew
	2	1837	.38" UNC Deformed Lock Nut
16	2	32940	Pin
17	2	15685	Fork Pin
18	2	15701	Retainer
19	4	1089	.50" UNC X 1.25" Hex Capscrew
	4	1505	.50" Lock Washer
20	2	14599	Pallet Fork 2x5x48 Hi-Back
21	4	31251	Bushing
22	2	15682	Grapple
23	2	1097	.50" UNC X 3.25" Hex Capscrew
	2	1841	.50" UNC Deformed Lock Nut
24	2	15702	Pin
25	4	9371	Grease Fitting
26	4	106569	Pin
27	4	1051	.38" UNC X 3.00" Hex Capscrew
	4	1837	.38" UNC Deformed Lock Nut
28	2	3458	Straight Adapter 6MJ-6MBo
29	1	40151	Warning: High Pressure Fluid Decal
30	1	4338	Made in USA
31	2	40149	Danger: Pinch Points

M-2219 3-20-13

HOLD DOWN LOGGING CARRIAGE

ASSEMBLY #12761



HOLD DOWN LOGGING CARRIAGE

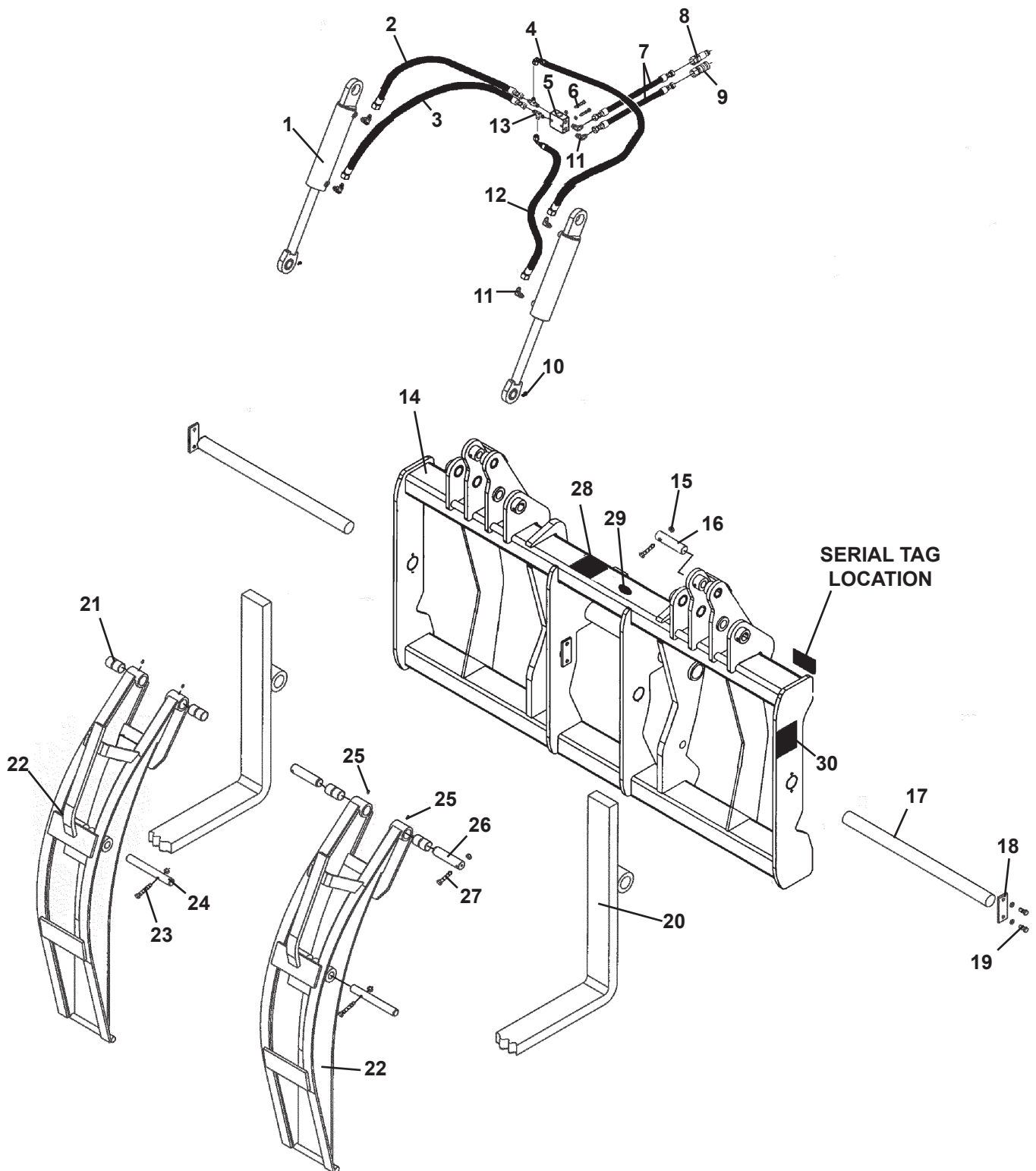
ASSEMBLY #12761

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	2	33256	Cylinder Assembly
2	1	37407	Hose, .38" X 44" 6FJX-6FJX
3	1	37855	Hose, .38" X 56" 6FJX-6FJX
4	1	38348	Hose, .38" X 48" 6FJX-6FJX 90°
5	1	88536	Valve
6	2	1026	.31" UNC X 2.00" Hex Capscrew
	2	1502	.31" Lock Washer
7	2	38039	Hose, .38" X 40" 6FJX-8MBo
8	1	14176	Male Quick Coupler
9	1	14175	Female Quick Coupler
10	2	53031	90° Grease Fitting
11	6	3434	90° Elbow 6MBo-6MJ
12	1	38352	Hose, .38" X 60" 6FJX-6FJX 90°
13	2	30243	Tee 6MBo-6MJ-6MJ
14	1	103071	Frame
15	2	1050	.38" UNC X 2.75" Hex Capscrew
	2	1837	.38" UNC Deformed Lock Nut
16	2	32940	Pin
17	2	103072	Fork Pin
18	2	15701	Retainer
19	2	1089	.50" UNC X 1.25" Hex Capscrew
	2	1505	.50" Lock Washer
20	2	14599	Pallet Fork 2x5x48 Hi-Back
21	4	31251	Bushing
22	2	15682	Grapple
23	2	1097	.50" UNC X 3.25" Hex Capscrew
	2	1841	.50" UNC Deformed Lock Nut
24	2	15702	Pin
25	4	9371	Grease Fitting
26	4	106569	Pin
27	4	1051	.38" UNC X 3.00" Hex Capscrew
	4	1837	.38" UNC Deformed Lock Nut
28	1	40151	Warning: High Pressure Fluid Decal
29	1	4338	Made in USA
30	2	40149	Danger: Pinch Points

M-2211 3-20-13

HOLD DOWN LOGGING CARRIAGE

ASSEMBLY #12432



M-2222 3-20-13

HOLD DOWN LOGGING CARRIAGE

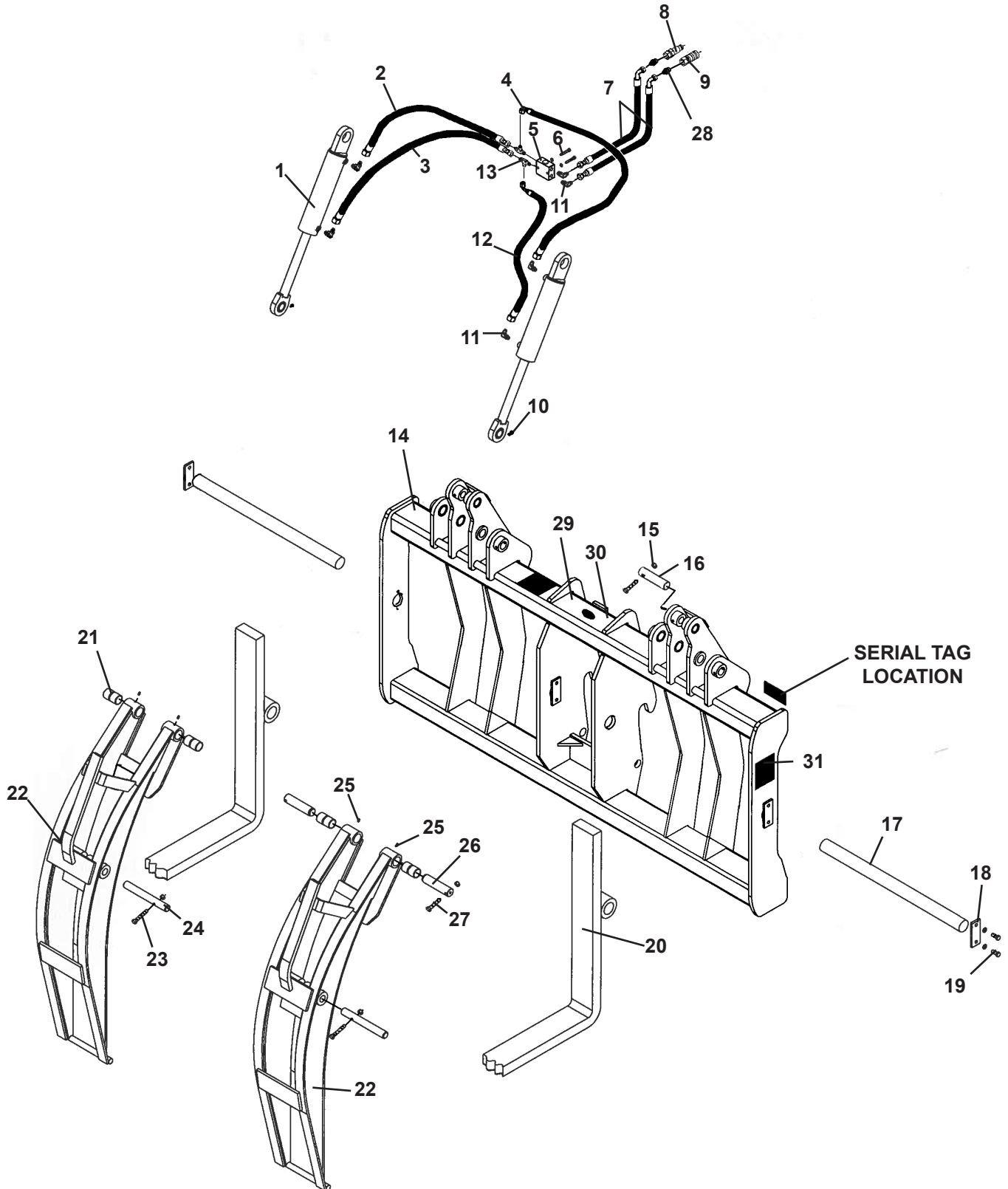
ASSEMBLY #12432

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	2	33256	Cylinder Assembly
2	1	37407	Hose, .38" X 44" 6FJX-6FJX
3	1	37855	Hose, .38" X 56" 6FJX-6FJX
4	1	38348	Hose, .38" X 48" 6FJX-6FJX 90°
5	1	88536	Valve
6	2	1026	.31" UNC X 2.00" Hex Capscrew
	2	1502	.31" Lock Washer
7	2	38039	Hose, .38" X 40" 6FJX-8MBo
8	1	14176	Male Quick Coupler
9	1	14175	Female Quick Coupler
10	2	53031	90° Grease Fitting
11	6	3434	90° Elbow 6MBo-6MJ
12	1	38352	Hose, .38" X 60" 6FJX-6FJX 90°
13	2	30243	Tee 6MBo-6MJ-6MJ
14	1	16960	Frame
15	2	1050	.38" UNC X 2.75" Hex Capscrew
	2	1837	.38" UNC Deformed Lock Nut
15	2	32940	Pin
17	2	15685	Fork Pin
18	2	15701	Retainer
19	4	1089	.50" UNC X 1.25" Hex Capscrew
	4	1505	.50" Lock Washer
20	2	11408	Pallet Fork 2x5x60 Hi-Back
21	4	31251	Bushing
22	2	15682	Grapple
23	2	1097	.50" UNC X 3.25" Hex Capscrew
	2	1841	.50" UNC Deformed Lock Nut
24	2	15702	Pin
25	4	9371	Grease Fitting
26	4	106569	Pin
27	4	1051	.38" UNC X 3.00" Hex Capscrew
	4	1837	.38" UNC Deformed Lock Nut
28	1	40151	Warning: High Pressure Fluid Decal
29	1	4338	Made in USA
30	2	40149	Danger: Pinch Points

M-2223 3-20-13

HOLD DOWN LOGGING CARRIAGE

ASSEMBLY #12447



HOLD DOWN LOGGING CARRIAGE

ASSEMBLY #12447

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	2	33256	Cylinder Assembly
2	1	37407	Hose, .38" X 44" 6FJX-6FJX
3	1	37855	Hose, .38" X 56" 6FJX-6FJX
4	1	38348	Hose, .38" X 48" 6FJX-6FJX 90°
5	1	88536	Valve
6	2	1026	.31" UNC X 2.00" Hex Capscrew
	2	1502	.31" Lock Washer
7	2	37893	Hose, .38" X 40" 6FJX-6FJX 90°
8	1	17139	Male Quick Coupler
	1	51753	Dust Cap
9	1	17140	Female Quick Coupler
	1	51754	Dust Plug
10	2	53031	90° Grease Fitting
11	6	3434	90° Elbow 6MBo-6MJ
12	1	38352	Hose, .38" X 60" 6FJX-6FJX 90°
13	2	30243	Tee 6MBo-6MJ-6MJ
14	1	16818	Frame
15	2	1050	.38" UNC X 2.75" Hex Capscrew
	2	1837	.38" UNC Deformed Lock Nut
16	2	32940	Pin
17	2	16821	Fork Pin
18	2	15701	Retainer
19	4	1089	.50" UNC X 1.25" Hex Capscrew
	4	1505	.50" Lock Washer
20	2	14599	Pallet Fork 2x5x48 Hi-Back
21	4	31251	Bushing
22	2	15682	Grapple
23	2	1097	.50" UNC X 3.25" Hex Capscrew
	2	1841	.50" UNC Deformed Lock Nut
24	2	15702	Pin
25	4	9371	Grease Fitting
26	4	106569	Pin
27	4	1051	.38" UNC X 3.00" Hex Capscrew
	4	1837	.38" UNC Deformed Lock Nut
28	2	3269	Straight Adapter 6MJ-8MBo
29	1	40151	Warning: High Pressure Fluid Decal
30	1	4338	Made in USA
31	2	40149	Danger: Pinch Points

M-2213 3-20-13

Diagram illustrating the hydraulic system components for the front loader, including the pump (1), hoses (2, 3, 4, 5, 6, 7, 12), and actuators (10, 11, 13, 26, 27). The system is connected to the main hydraulic line (8) and the rear loader (9).



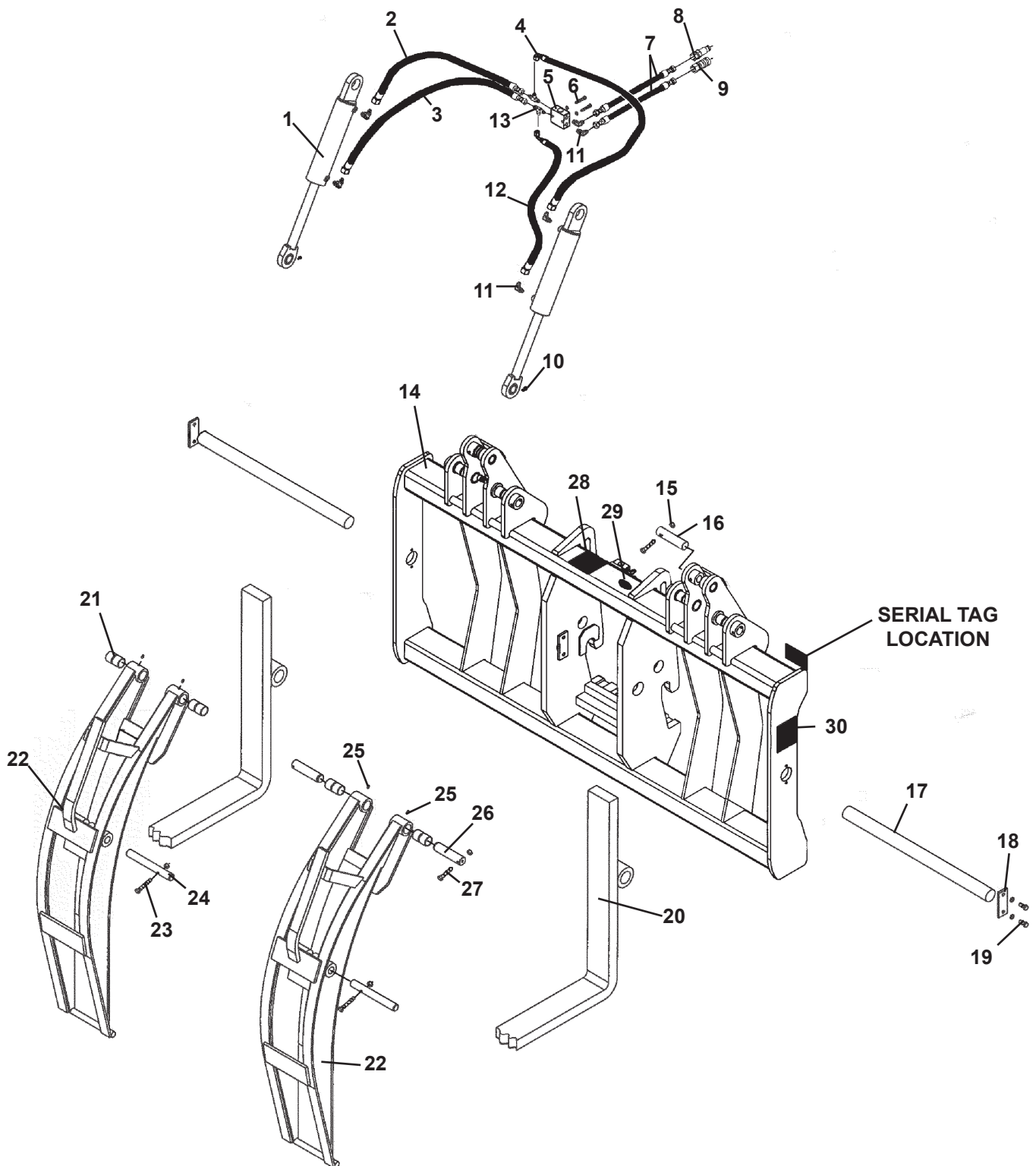
HOLD DOWN LOGGING CARRIAGE

ASSEMBLY #12513

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	2	11776	Cylinder Assembly
2	1	37989	Hose, .38" X 47" 6FJX-6FJX 90°
3	1	37988	Hose, .38" X 63" 6FJX-6FJX 90°
4	1	37991	Hose, .38" X 45" 6FJX-6FJX 45°
5	1	88536	Valve
6	2	1026	.31" UNC X 2.00" Hex Capscrew
	2	1502	.31" Lock Washer
7	2	37893	Hose, .38" X 68" 6FJX-8MBo
8	1	84928	Female Quick Coupler
9	1	84928	Female Quick Coupler
10	6	6616	Grease Fitting
11	4	30169	90° Elbow 6MBo-6MJ-Long
12	1	37990	Hose, .38" X 59" 6FJX-6FJX 45°
13	2	30243	Tee 6MBo-6MJ-6MJ
14	1	18078	Frame
16	4	1043	.38" UNC X 1.00" Hex Capscrew
	4	1503	.38" Lock Washer
	4	1800	.38" Hard Flat Washer
15	2	15691	Pin
17	2	16821	Fork Pin
18	2	15701	Retainer
19	4	1089	.50" UNC X 1.25" Hex Capscrew
	4	1505	.50" Lock Washer
20	2	14599	Pallet Fork 2x5x48 Hi-Back
21	4	31251	Bushing
22	2	15682	Grapple
23	2	1096	.50" UNC X 3.00" Hex Capscrew
	2	1841	.50" UNC Deformed Lock Nut
24	2	15702	Pin
25	4	15692	Pin
26	2	3457	Straight Adapter 6MJ-6MBo
27	2	3269	Straight Adapter 6MJ-8MBo
28	1	40151	Warning: High Pressure Fluid Decal
29	1	4338	Made in USA
30	2	40149	Danger: Pinch Points

HOLD DOWN LOGGING CARRIAGE

ASSEMBLY #13312



M-2228 3-22-13

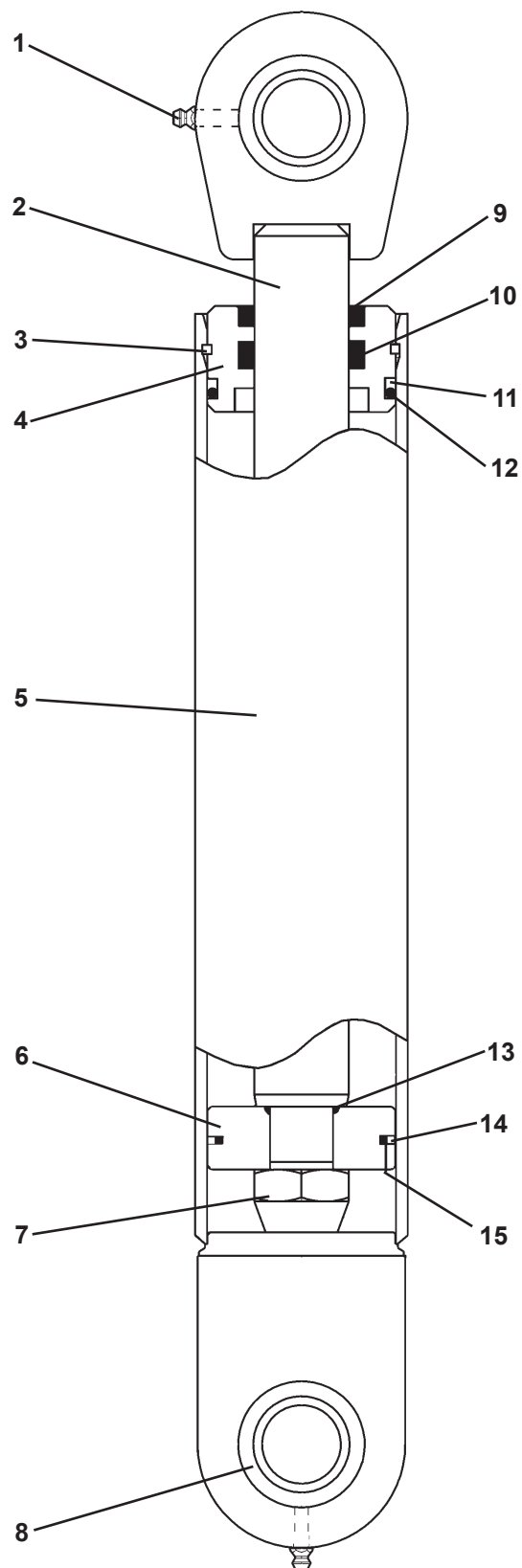
HOLD DOWN LOGGING CARRIAGE

ASSEMBLY #13312

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	2	33256	Cylinder Assembly
2	1	37407	Hose, .38" X 44" 6FJX-6FJX
3	1	37855	Hose, .38" X 56" 6FJX-6FJX
4	1	38348	Hose, .38" X 48" 6FJX-6FJX 90°
5	1	88536	Valve
6	2	1026	.31" UNC X 2.00" Hex Capscrew
	2	1502	.31" Lock Washer
7	2	38039	Hose, .38" X 40" 6FJX-8MBo
8	1	14176	Male Quick Coupler
9	1	14175	Female Quick Coupler
10	2	53031	90° Grease Fitting
11	6	3434	90° Elbow 6MBo-6MJ
12	1	38352	Hose, .38" X 60" 6FJX-6FJX 90°
13	2	30243	Tee 6MBo-6MJ-6MJ
14	1	118202	Frame
15	2	1050	.38" UNC X 2.75" Hex Capscrew
	2	1837	.38" UNC Deformed Lock Nut
16	2	32940	Pin
17	2	103072	Fork Pin
18	2	15701	Retainer
19	4	1089	.50" UNC X 1.25" Hex Capscrew
	4	1505	.50" Lock Washer
20	2	14599	Pallet Fork 2x5x48 Hi-Back
21	4	31251	Bushing
22	2	15682	Grapple
23	2	1097	.50" UNC X 3.25" Hex Capscrew
	2	1841	.50" UNC Deformed Lock Nut
24	2	15702	Pin
25	4	9371	Grease Fitting
26	4	106569	Pin
27	4	1051	.38" UNC X 3.00" Hex Capscrew
	4	1837	.38" UNC Deformed Lock Nut
28	1	40151	Warning: High Pressure Fluid Decal
29	1	4338	Made in USA
30	2	40149	Danger: Pinch Points

M-2229 3-22-13

ASSEMBLY #33256



M-2242 3-26-13

CYLINDER ASSEMBLY

ASSEMBLY #33256

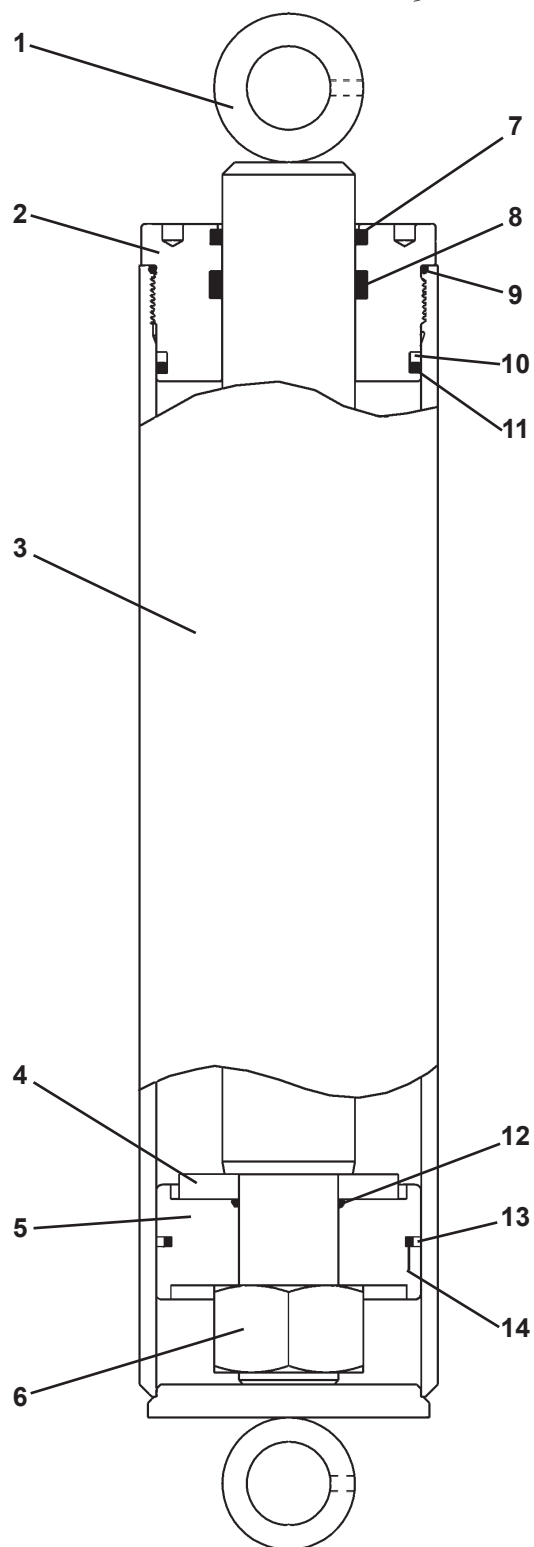
<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	2	6616	Grease Fitting
2	1	33260	Cylinder Rod
3	1	7166	Gland Retaining Rod/Ring
4	1	63108	Cylinder Gland
5	1	33257	Cylinder Tube
6	1	6731	Piston
7	1	1483	1.00" UNF Hex Nut (Torque to 230-235 ft. lbs.)
8	2	62523	Self-Aligning Bushing
9	1	4914*	Rod Wiper
10	1	45225*	PolyPak Seal
11	1	4631*	Back-Up Washer
12	1	45555*	O'Ring
13	1	4641*	O'Ring
14	1	4569*	Piston Ring
15	1	4570*	O'Ring

NOTE: Seal Kit #45539 includes all parts marked with an asterisk (*). Parts are not sold separately.

M-2243 3-26-13

CYLINDER ASSEMBLY

ASSEMBLY #11776



M-2240 3-26-13

CYLINDER ASSEMBLY

ASSEMBLY #11776

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	18066	Cylinder Rod
2	1	77455	Cylinder Gland
3	1	18063	Cylinder Tube
4	1	54958	Washer
5	1	73834	Piston
6	1	1487	1.50" UNF Hex Nut (Torque to 240-270 ft. lbs.)
7	1	45364*	Rod Wiper
8	1	45117*	PolyPak Seal
9	1	45519*	O'Ring
10	1	45515*	Back-Up Washer
11	1	45516*	O'Ring
12	1	45109*	O'Ring
13	1	4816*	Piston Ring
14	1	45509*	O'Ring

NOTE: Seal Kit #45813 includes all parts marked with an asterisk (*). Parts are not sold separately.

M-2241 3-26-13



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