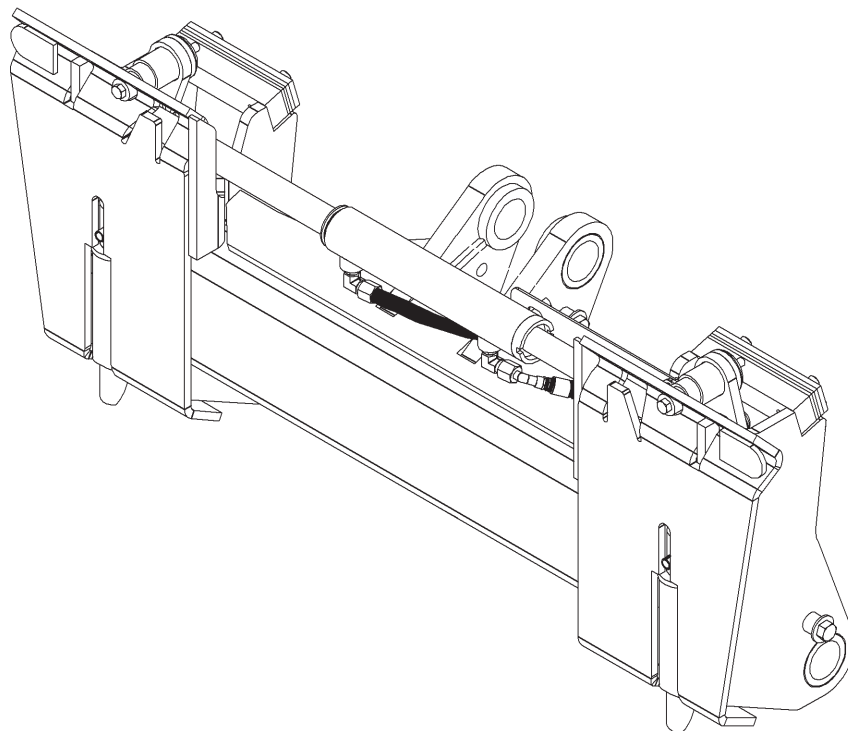




BRADCO
BY PALADIN

OPERATOR'S & PARTS MANUAL

HYDRAULIC UNIVERSAL ADAPTER KCM 45ZV-2 / HITACHI ZW80



SERIAL NUMBER: _____

MODEL NUMBER: _____

Manual Number: OM904

Part Number: 75804

Rev. 3

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PREFACE

GENERAL COMMENTS

Congratulations on the purchase of your new product! 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 forward.

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.

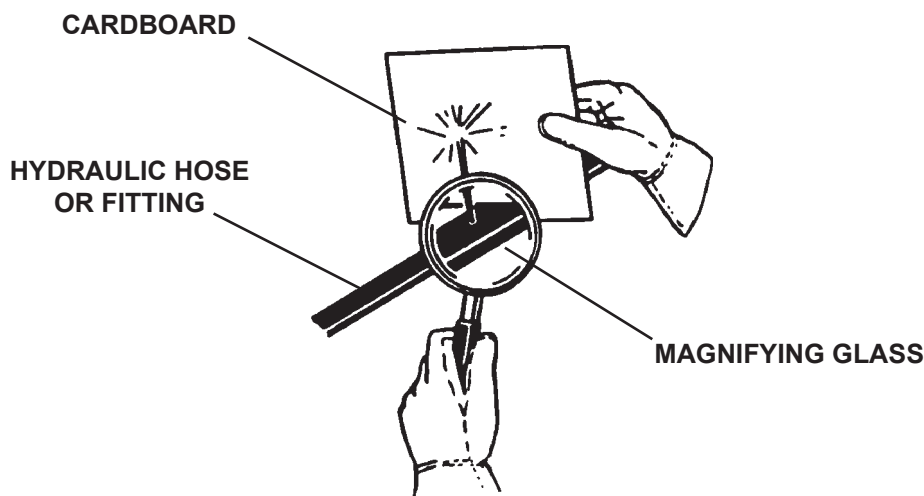
WARNING!



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 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 Protective 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.

WARNING!



CALIFORNIA PROPOSITION 65 WARNING.

This product may contain chemicals known to the state of California to cause cancer, birth defects and other reproductive harm.



OPERATING THE ATTACHMENT

- Do not exceed the lifting capacity of your prime mover.
- Operate only from the operator's station.
- Never lift or swing a load or attachment over anyone.
- 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.
- 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

EQUIPMENT SAFETY PRECAUTIONS

WARNING!



KEEP ATTACHMENT CLOSE TO THE GROUND DURING LOCK AND UNLOCK OPERATIONS.

Attachment can drop without warning if not properly secured. Visually check the coupler is securely locked on attachment. Follow procedures described in this manual for checking fit between coupler and attachment. Failure to do so could result in serious injury or death.

WARNING!



CLEAR COUPLER OF DEBRIS BEFORE OPERATING

Make sure coupler is free of debris prior to operation. Debris can interfere with the locking mechanism, not allowing it to function properly.

WARNING!



UNDERSTAND THE GEOMETRY OF PRIME MOVER

The addition of the coupler will change the geometry of the prime mover. This change should be taken into consideration during operation and travel. The coupler will increase the distance between the stick and the attachment. The effective “reach” of the attachment will be increased.



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 transporting on a trailer: Secure attachment at recommended tie down locations using tie down accessories that are capable of maintaining attachment stability.
- 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

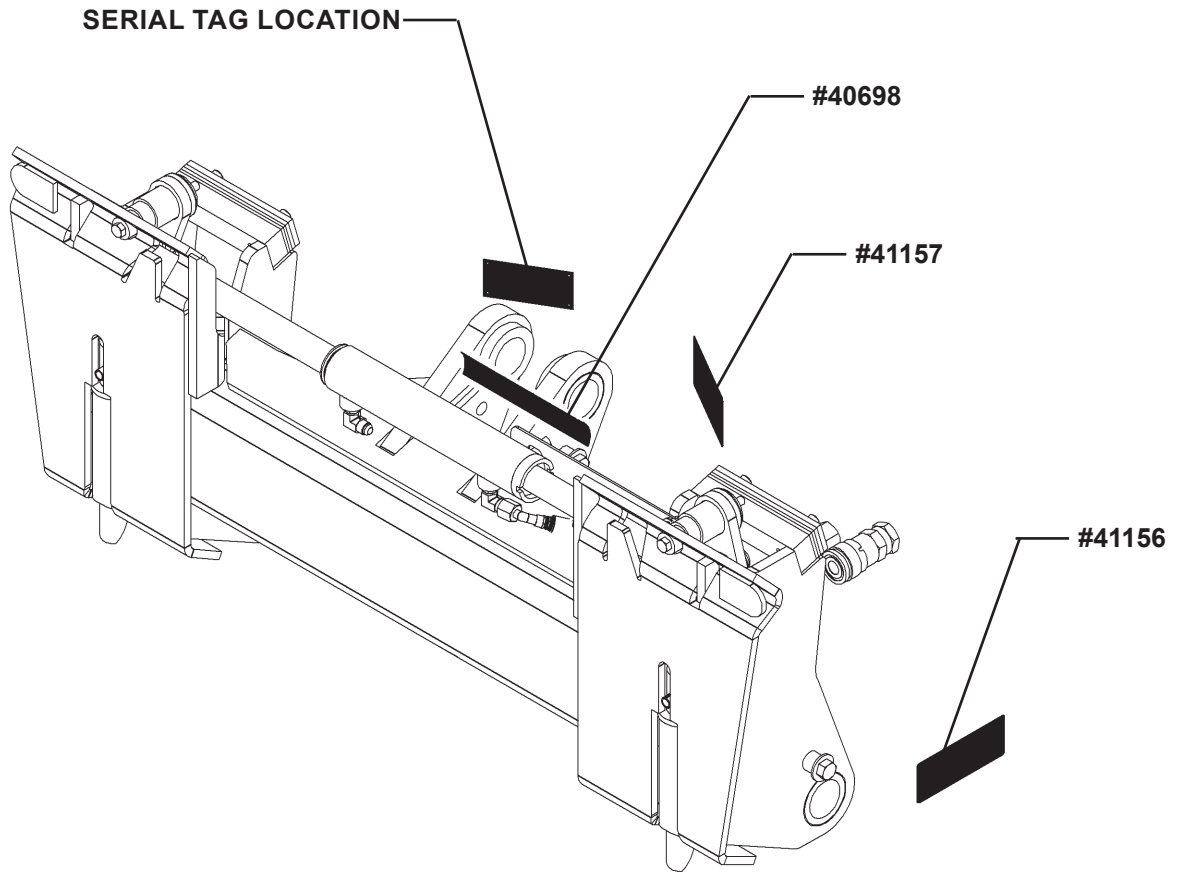
- Before performing maintenance (unless otherwise specified) lower the attachment to the ground, apply the brakes, turn off the engine and remove the key.
- Never perform any work on the attachment unless you are authorized and qualified to do so. Always read the operator service manuals before any repair 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 “insert brand name”.
- Never make hydraulic repairs while the system is under pressure. Serious personal injury or death could result.
- Never work under a raised attachment.

DECALS

DECAL PLACEMENT

GENERAL INFORMATION

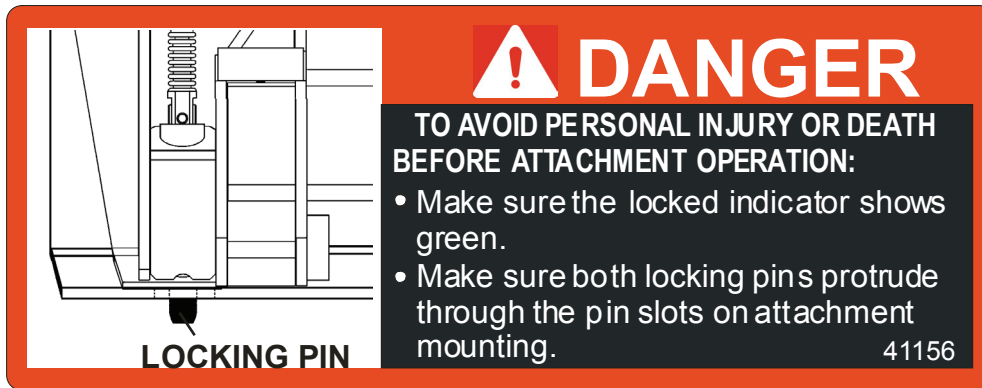
The diagram on this page shows the location of the decals used on the BRADCO Hydraulic Latch. The decals are identified by their part numbers, with reductions of the actual decals located on the following pages. Use this information to order replacements for lost or damaged decals. Be sure to read all decals before operating the latch. They contain information you need to know for both safety and longevity.



IMPORTANT: Keep all safety signs clean and legible. Replace all missing, illegible, or damaged safety signs. When replacing parts with safety signs attached, the safety signs must also be replaced.

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 sign, exposing the adhesive surface. Apply the safety sign to the position shown in the diagram above and smooth out any bubbles.

DECALS



PART #41156
DANGER! LOCKING PIN



PART #41157
WARNING! HIGH PRESSURE FLUID

INSTALLATION

INSTALLATION

1. Remove any attachment from the front of the loader.
2. Following all standard safety practices and the instructions for installing an attachment in your prime mover operator's manual, install the coupler onto your loader.

WARNING! To avoid serious personal injury, make sure the coupler is securely latched to the attachment mechanism of your unit. Failure to do so could result in separation of the coupler and attachment from the prime mover.



3. The spacer plates (stop plates) on the back side of the coupler are used as cylinder stops. Roll the prime mover bucket cylinder back completely and check the spacer plates. Roll the bucket cylinder out and remove or add plates as necessary until the loader arms hit the spacer plates at the same time as the bucket cylinder is completely closed.
4. Lower the unit to the ground and relieve pressure to the auxiliary hydraulic lines.
5. Following the safety shut down procedure for your prime mover, shut down and exit the prime mover.
6. After making sure that the hydraulic hoses are free from any foreign material or contaminants, connect the hoses to the auxiliary hydraulic system of your prime mover. Verify that the hydraulic quick couplers on the coupler end of the hydraulic hoses are completely engaged.
7. Following the standard start up procedure for your prime mover, start the loader and run the hydraulic cylinder on the coupler adapter to purge any air from the system. Roll the prime mover bucket cylinder out and check for proper hydraulic connection, hose routing and hose length.
8. Coupler installation is complete.

DETACHING

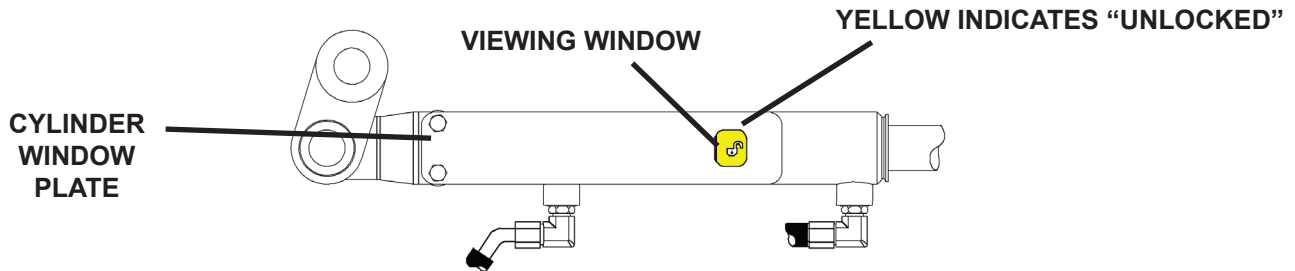
1. Before exiting the prime mover, lower the coupler to the ground, apply the brakes, turn off the prime mover's engine, and remove the key.
2. Follow prime mover operator's manual to relieve pressure in the hydraulic lines.
3. Disconnect power and return hoses from the auxiliary hydraulics.
4. Follow your prime mover operator's manual for detaching (removing) an attachment.
5. Connect hydraulic hoses and couplers together or install caps to prevent contaminants from entering the hydraulic system. If hoses are disconnected and left with the coupler, store hoses off of the ground to help prevent damage.

OPERATION

INTENDED USE: Wheel loader couplers are designed to provide an efficient way for the operator to attach, detach and interchange between different attachments with ease. Use in any other way is considered contrary to the intended use.

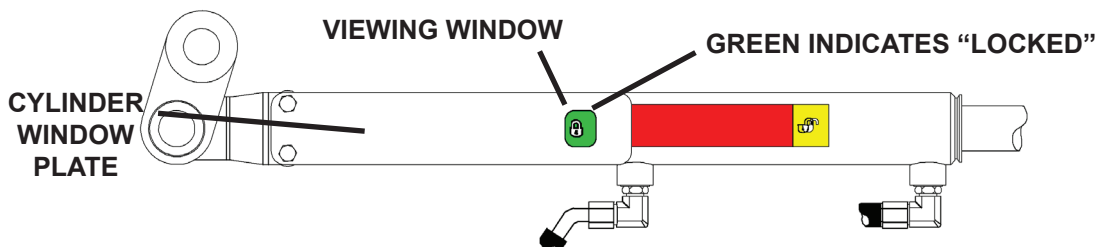
GENERAL INFORMATION

The hydraulic coupler assembly is equipped with a “viewing window” that indicates whether the latch is in the locked or unlocked position.



The Yellow Unlocked symbol showing in the “viewing window” indicates that the lock pins are completely retracted and ready for either connecting or disconnecting an attachment.

The Green “Locked” symbol showing in the “viewing window” indicates that the lock pins are completely extended, locking the attachment to the toolbar on the hydraulic coupler.



NOTICE: Red showing through the “viewing window” indicates that the lock pins are neither completely extended or completely retracted. Do NOT operate any attachment unless the lock pins are completely extended and the GREEN “LOCKED” symbol is visible in the viewing window.

NOTICE: Be sure latch area is clear of hoses, machinery and debris before operating.

CONNECTING TO ATTACHMENT

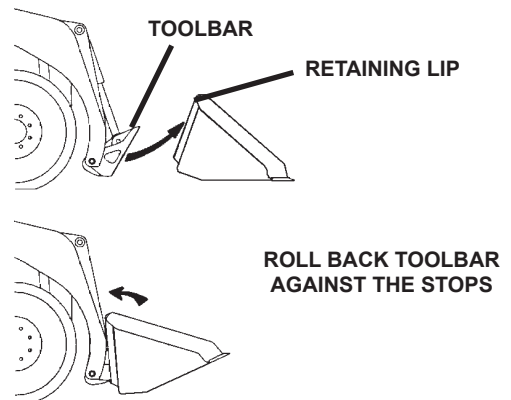
1. Following the instructions in your prime mover, roll back the toolbar/coupler against the stops.
2. Activate the auxiliary hydraulics until the Yellow “UNLOCKED” indicator is showing in the “viewing window” on the cylinder.
3. The latch is now “UNLOCKED” and ready to connect to the attachment.

WARNING! Keep the attachment and the toolbar as close to the ground as possible (within 2-3 inches) during all “LOCK” and “UNLOCK” operations.



OPERATION

4. Following all standard safety practices, incline the top of the toolbar forward and gradually approach the attachment while centering its retaining lip with the toolbar top edge. Slowly raise the arm and at the same time roll the top of the toolbar until it is completely engaged in the attachment.
5. Roll back the toolbar against the stops.
6. Activate the auxiliary hydraulics on your prime mover and ensure that the green locked indicator is showing through the viewing window on the cylinder.
7. The latch is now locked.
8. Following all standard safety practices and the instructions in your attachment or prime mover operator's manuals, complete any hydraulic connections (if required) on your attachment.



WARNING! To Avoid Serious Personal Injury, verify both locking pins are completely engaged and that the attachment is securely latched to the toolbar. Failure to do so could result in separation of the attachment from the loader.



WARNING! NEVER operate the hydraulic latch lock/unlock while using the auxiliary hydraulics on an attachment. Operating the switch to the “UNLOCKED” position during attachment operation will result in separation of the attachment from the loader.



GROUND TEST

In addition to visual checks, a ground test should be performed to verify that the coupler is properly locked to the attachment.

1. Position the attachment flat on the ground.
2. Carefully retract the bucket cylinder of the prime mover, keeping the front edge of the attachment against the ground. The coupler should remain in tight contact with the attachment. If the coupler separates from the attachment, it is not properly locked.
3. If not properly locked, carefully reposition the attachment flat on the ground and repeat steps #1 through 8 above.

OPERATION

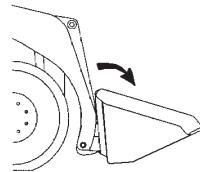
DISCONNECTING FROM ATTACHMENT

WARNING! Keep the attachment and the toolbar as close to the ground as possible (within 2-3 inches) during all “LOCK” and “UNLOCK” operations.

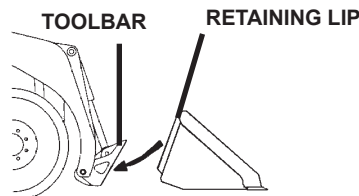


NOTICE: *Be sure latch area is clear of hoses, machinery and debris before operating.*

1. Following the instructions in your prime mover, roll back the toolbar/coupler against the stops.
2. Activate the auxiliary hydraulics until the Yellow “UNLOCKED” indicator is showing in the “viewing window” on the cylinder. The latch is now “UNLOCKED” and ready for disconnecting the attachment. Lower attachment to the ground.
3. Following all standard safety practices, gradually move in reverse while rotating the toolbar forward allowing the attachment retaining lip to slide off the top edge of the toolbar.



AFTER THE LATCH IS “UNLOCKED”, GRADUALLY MOVE IN REVERSE WHILE ROTATING THE TOOLBAR FORWARD.



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 upon removal from storage.
- Tighten loose nuts, capscrews and hydraulic connections.
- Coat exposed portions of the cylinder rods with grease.
- Lubricate grease fittings.
- Seal hydraulic system from contaminants and secure all hydraulic hoses off the ground to help prevent damage.
- Replace decals that are damaged or in unreadable condition.
- Store 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.

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 tiedown 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 manual when transporting your attachment.”

MAINTENANCE

GENERAL INFORMATION

Regular maintenance and service is the key to long equipment life and safe operation. Maintenance requirements have been kept to a minimum. However it is important that these maintenance procedures be performed as described in this section.

WARNING! Read the Safety Precautions section of this manual before performing any maintenance procedure.



Follow all mandatory safety shutdown procedures outlined in the loader operator's manual before adjusting, cleaning, lubricating or servicing this attachment.

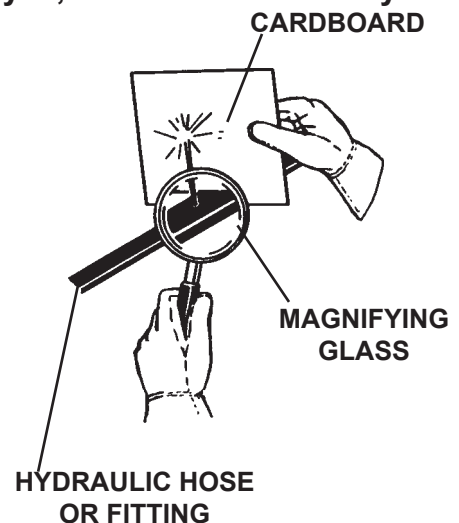
PROCEDURE	DAILY (EVERY 8 HOURS)
Lubricate all grease fittings.	✓
Inspect linkage and adjust as required.	✓
Check hydraulic hoses for leaks, pinching or deterioration. Replace as needed.	✓
Check all safety signs and lock indicator decals are clean and legible. Replace as needed.	✓
Check coupler for any worn parts or cracked welds. Repair as required.	✓

WARNING! Escaping hydraulic 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 your 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 to research it immediately to determine proper treatment.



TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Coupler cylinder does not function.	Hoses not connected properly.	Check for complete engagement of quick couplers and hoses.
Locking pin will not engage.	Air in hydraulic lines. Linkage out of adjustment.	Purge air from hydraulic lines. Inspect linkage and adjust as necessary.

BOLT TORQUE SPECIFICATIONS

GENERAL TORQUE SPECIFICATION TABLES

Use the following charts when determining bolt torque specifications when special torques are not given. Always use grade 5 or better when replacing bolts.




SAE BOLT TORQUE SPECIFICATIONS

NOTE: The following torque values are for use with extreme pressure lubricants, plating or hard washer applications. Increase torque 15% when using hardware that is unplated and either dry or lubricated with engine oil.

Bolt Size		SAE GRADE 5 TORQUE				SAE GRADE 8 TORQUE				Bolt head identification marks as per grade. NOTE: Manufacturing Marks Will Vary
		Pounds Feet		Newton-Meters		Pounds Feet		Newton-Meters		
Inches	Millimeters	UNC	UNF	UNC	UNF	UNC	UNF	UNC	UNF	
1/4	6.35	8	9	11	12	10	13	14	18	
5/16	7.94	14	17	19	23	20	25	27	34	
3/8	9.53	30	36	41	49	38	46	52	62	
7/16	11.11	46	54	62	73	60	71	81	96	
1/2	12.70	68	82	92	111	94	112	127	152	
9/16	14.29	94	112	127	152	136	163	184	221	
5/8	15.88	128	153	174	207	187	224	254	304	
3/4	19.05	230	275	312	373	323	395	438	536	
7/8	22.23	340	408	461	553	510	612	691	830	
1	25.40	493	592	668	803	765	918	1037	1245	
1-1/8	25.58	680	748	922	1014	1088	1224	1475	1660	
1-1/4	31.75	952	1054	1291	1429	1547	1700	2097	2305	
1-3/8	34.93	1241	1428	1683	1936	2023	2312	2743	3135	
1-1/2	38.10	1649	1870	2236	2535	2686	3026	3642	4103	

METRIC BOLT TORQUE SPECIFICATIONS

NOTE: The following torque values are for use with metric hardware that is unplated and either dry or lubricated with engine oil. Reduce torque 15% when using hardware that has extreme pressure lubricants, plating or hard washer applications.

Bolt head identification marks as per grade.		
		

Size of Bolt	Grade No.	Pitch (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

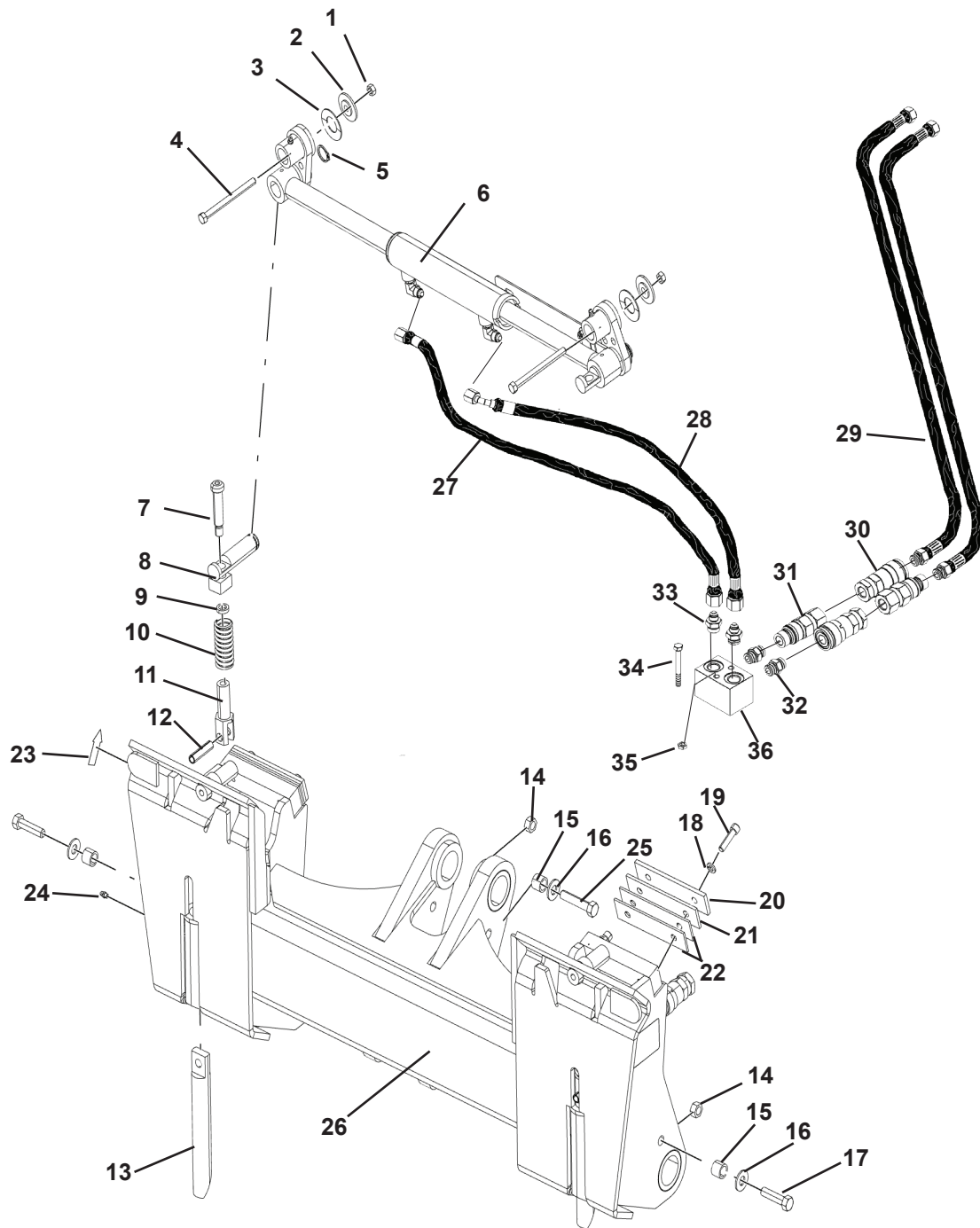
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LIMITED WARRANTY

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.

HYDRAULIC COUPLER ASSEMBLY

ASSEMBLY #117225



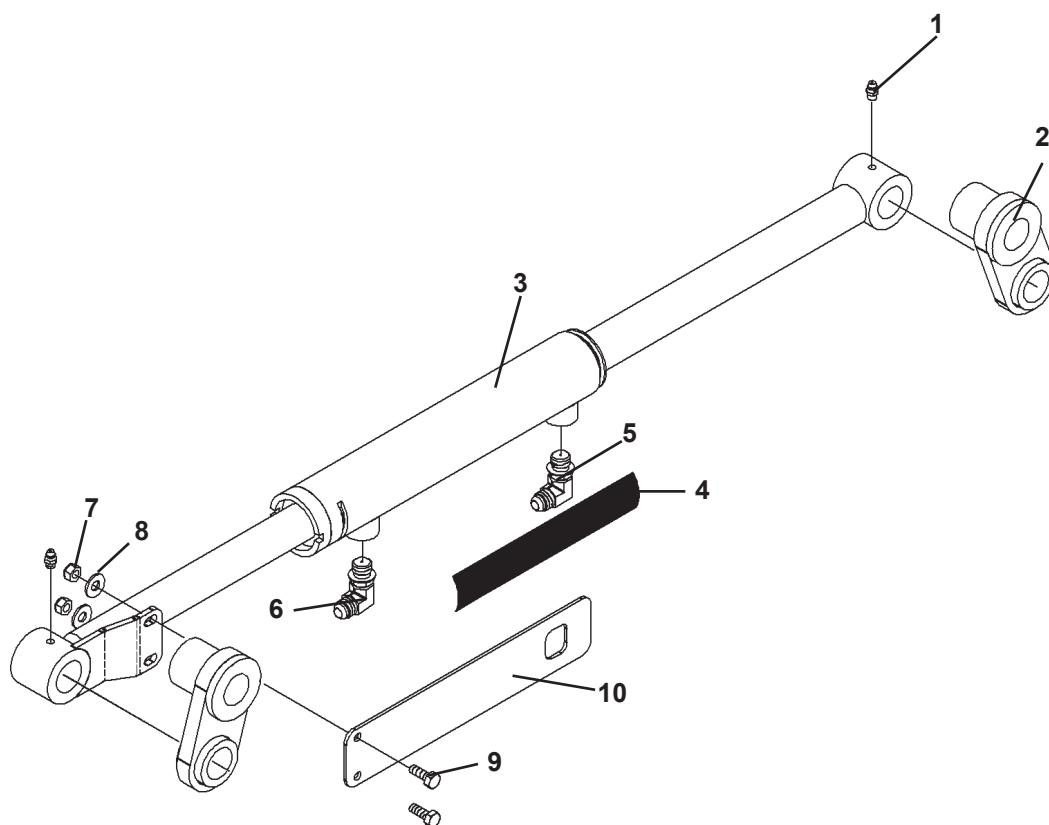
HYDRAULIC COUPLER ASSEMBLY

ASSEMBLY #117225

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	
1	2	1837	.38" UNC Deformed Lock Nut	
2	2	17094	Special Washer	
3	2	6562	Spring Washer	
4	2	1056	.38" UNC X 4.50" Hex Capscrew	
5	2	6612	Snap Ring	
6	1	112986	Hydraulic Actuator Kit	
7	2	87335	Shoulder Bolt	
8	2	16863	Bearing End	
9	2	33056	Tube Spacer	
10	2	87334	Spring	
11	2	87329	Clevis Pin	
12	2	87337	Roll Pin	
13	2	87328	Locking Pin	
14	3	1841	.50" UNC Deformed Lock Nut	
15	3	25075	Spacer	
16	3	1516	.50" Flat Washer	
17	3	1781	.50" UNC X 2.00" Hex Capscrew - GR8	
18	4	1503	.38" Lock Washer	
19	4	1799	.38" UNC X 1.50" Shoulder Capscrew	
20	2	117320	Spacer Plate - .25"	
21	2	117319	Spacer Plate - .19"	
22	4	117318	Spacer Plate - .10ga	
23	4	4085	Decal Grease 40 Hour	
24	6	6616	Zerk Grease .25-28NF	
25	1	1965	.50" UNC X 2.50" HHCS - GR8	
26	1	117226	Universal Coupler Adapter	
27	1	38141	Hose, .25" X 24" 6FJX-6FJX	
28	1	38846	Hose, .25" X 17" 6FJX-6FJX 45°	
29	2	38320	Hose, .38" X 52" 8MBo-6FJX	
30	2	14175	Female Quick Coupler - 8FBo	
31	2	17176	Male Quick Coupler - 8FBo	
32	2	30289	Straight Connector 8MBo-8MBo	
33	2	3269	Straight Adapter 8MBo-6MJ	
34	2	1029	.31" UNC X 2.75" Hex Capscrew	
35	2	1934	.31" UNC Deformed Lock Nut	
36	1	117442	Manifold Block	13352 6-15-18

HYDRAULIC ACTUATOR KIT

ASSEMBLY #112986



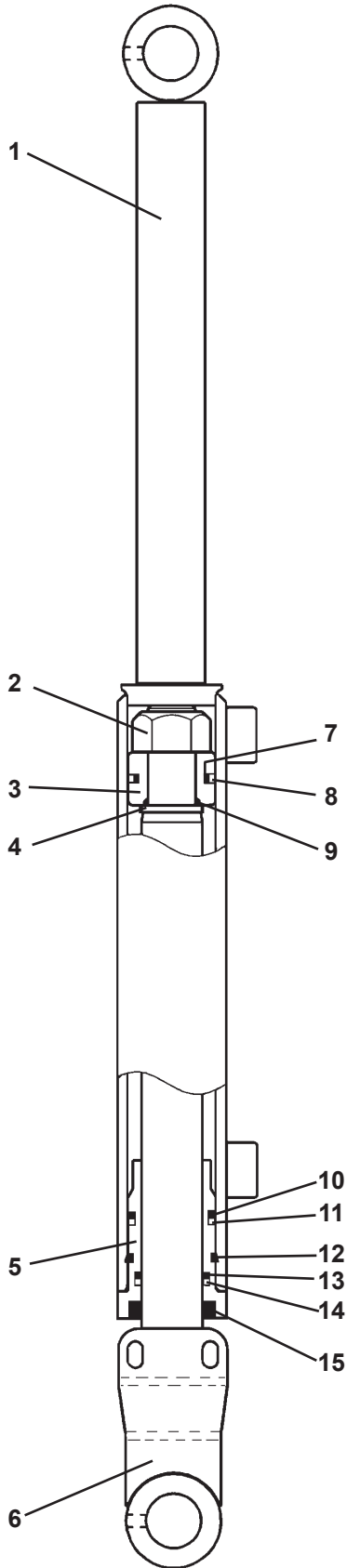
HYDRAULIC ACTUATOR KIT

ASSEMBLY #112986

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	2	6616	Grease Fitting
2	1	17118	Cylinder Link
3	1	17042	Cylinder Assembly
4	1	40698	Lock/Unlock Decal
5	1	3434	90° Elbow 6MBo-6MJ
6	1	30259	90° Elbow 6MBo-6MJ with .06" Orifice
7	2	1629	.25" UNC Nylock Hex Nut
8	2	1512	.25" Flat Washer
9	2	1958	.25" UNC X .75" Hex Capscrew
10	1	19002	Cylinder Lock/Unlock Window Plate

CYLINDER ASSEMBLY

ASSEMBLY #17042



13355 6-15-18

CYLINDER ASSEMBLY

ASSEMBLY #17042

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	17043	Cylinder Tube
2	1	1482	Hex Nut (Torque to 150-200 ft. lbs.)
3	1	50546	Piston
4	1	52644	Washer
5	1	50547	Cylinder Gland
6	1	17047	Cylinder Rod
7	1	*	O'Ring
8	1	*	Piston Ring
9	1	*	O'Ring
10	1	*	O'Ring
11	1	*	Back-Up Washer
12	1	*	Gland Retaining Ring
13	1	*	O'Ring
14	1	*	Back-Up Washer
15	1	*	Rod Wiper

NOTE: Seal Kit #4990 includes all parts marked with an asterisk (*). parts are not sold separately.